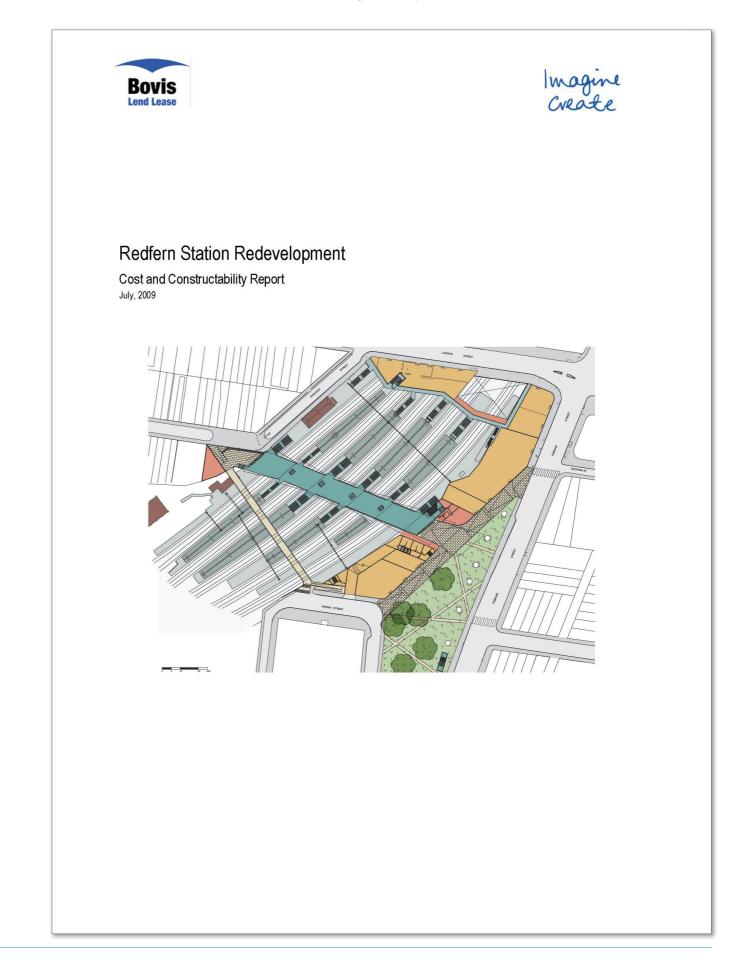
Section C Cost and Constructability



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Redfern Station Redevelopment

Cost and Constructability Report

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Executive Summary

This Cost and Constructability report has been prepared by Bovis Lend Lease Consulting (BLLC) for the *Redfern Station Redevelopment – revised concept design*. The report supports the business case for the revised concept design.

Background

The Redfern Waterloo Authority (RWA) released a Built Environment Plan for the precinct in August 2006 with the upgrade of Redfern Station as a key element. As part of the BEP, the upgrade should provide an opportunity to improve connectivity to the town centre, the University of Sydney and the Australian Technology Park.

RailCorp and RWA have been working co-operatively on a number of options for the redevelopment of Redfern Station and this has resulted in the concept design by Jackson Teece (2007) of a preferred option: "option C – full station redevelopment". This option C provides a new elevated concourse above the centre of the platforms and allows for easier passenger flow through the station and population of the concourse. It includes an unpaid pedestrian access across the rail line for non-rail users in line with the overall station concourse structure and a commercial development in the zone surrounded by Platform 10, Gibbons and Marian Streets.

On this option C, *Tenix Projects* prepared a cost and constructability report covering construction methods, construction programme and cost plan for the full station redevelopment. The outcome of that report showed that the concept design did not satisfy the business case in relation to value for money. (refer to appendix F, *Peer review of Tenix Projects,* for more details about this option C and the other options).

Revised Concept Design

In order to optimise the proposed Redfern Station redevelopment RailCorp initiated a review of the Jackson Teece concept design option C, which has now been redesigned to a proposed revised concept design with the aim to optimise the redevelopment including the concourse alignment and separate the station redevelopment works from the proposed commercial development.

BLLC coordinated this design process and has developed a construction methodology in order to facilitate a staged approach for the redevelopment works. This resulted in reduced costs for the new station and shortened the construction programme.

Besides a new elevated concourse above the centre of the platforms, the proposed revised concept design provides three options for the unpaid pedestrian and cycle access:

- An on-grade access perpendicular to the railway tracks close the southern end of the platforms;
- An elevated concourse suspended in the roof structure above the proposed station concourse; and
- An on-grade access parallel to the proposed station concourse. Note the cost of this structure will be similar to that of Option 1.

Construction methodology

As many of the station upgrade works can only be safely and effectively be undertaken during track possessions, the programme of works is heavily dependent on RailCorp's possession regime. In order to get the most efficient programme the sequence of works need to be carefully planned. An indicative start date of July 2011 for construction works has been adopted for the programme.

As an alternative to the standard weekend possessions, BLLC proposes a preferred possession regime designed to reduce the cost and programme of the station redevelopment by bringing forward the

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commissioning of the concourse. This preferred possession regime requires, among other, typical possession closedowns between Christmas and New Year. Note that an earlier construction start is required to achieve these outcomes.

Cost plan

For the station redevelopment and the three options for the unpaid pedestrian and cycle bridge, cost estimates have been prepared. It is estimated that the concourse suspended above the proposed station concourse (option 2) will cost approximately more than the on-grade versions of access-perpendicular to the railway tracks (option 1) or parallel to the concourse (option 3). Option 2 will also add approximately one month to the project duration. This is due to the additional structural steel and façade required for the concourse as well as the additional lifts and stairs required at each end of the unpaid access.

Savings using preferred possession regime are in the order of properties of direct costs and properties including indirect costs. The costs and duration of the proposed revised concept design (option 1) are summarised in the following table:

ı	Development Options	Cost (2009 Dollars)	Duration
I	Revised C		34 months
	Revised C (Alt Possn Regime)		29 months

^{*}Project Management and Facilities cost reduced proportionately to time and subcontractor direct costs reduced by 2% for improved efficiency – Note that possessions costs increase by

The Tenix Projects cost and duration of the previous option C is summarised in the following table:

Development Options	Cost (2009 Dollars)	Duration
Jackson Teece option C		47 months

^{*}The figures have been adjusted to include current rates and items Bovis Lend Lease Consulting feels were not included in the Tenix Projects cost plan such as additional worksite protection and fire rating to beams in the ESR.

Conclusion

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The proposed revised concept design, developed by BLLC, Cox Richardsen and Arup, and construction methodology developed by BLLC, has resulted in reduced costs and construction durations compared to the previous concept design from Jackson Teece.

In order for construction to start no later than early 2011 it is critical that RailCorp adopts the preferred possession regime and follows the indicative timeframes outlined in chapter 7 – *Way Forward* of this report.

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1. Introduction

1.1 Background

RailCorp is progressing the Concept Development planning for Redfern Station to Project Definition stage. This cost and constructability report forms part of that progression.

The Redfern Waterloo Authority (RWA) released a Built Environment Plan for the precinct in August 2006 with the upgrade of Redfern Station a key element. As part of the BEP, the upgrade provides the opportunity to improve connectivity to the town centre, the University of Sydney and the Australian Technology Park.

RailCorp and RWA have been working co-operatively on a number of options for the redevelopment of Redfern Station and this has resulted in the concept design by Jackson Teece of a preferred option: "option C – full station redevelopment". This option achieved the best outcomes in relation to the long term planning needs for the station upgrade, the user requirements, and improved safety and security compared to the other options developed in the previous concept design. Option C provides a new elevated concourse above the centre of the platforms and allows for easier passenger flow through the station and population of the concourse. It includes an unpaid pedestrian access across the rail line for non-rail users in line with the overall station concourse structure and a commercial development in the zone surrounded by Platform 10, Gibbons and Marian Streets.

This commercial development added significant scope and ultimately cost to the redevelopment of Redfern Station. The proposed revised concept design has been redesigned to allow for separate staging of the commercial development from the station upgrade works.

The proposed revised concept design reconfigures the alignment of the elevated concourse above the platforms to improve the connectivity and interface with Platforms 11 and 12 in the Eastern Suburbs Railway and to minimise the impact on existing overhead wiring structures. The proposed revised concept design also provides three options for the unpaid pedestrian and cycle access:

- An on-grade access perpendicular to the railway tracks close the southern end of the platforms;
- 2. A passageway suspended in the roof structure above the elevated concourse.
- An on-grade access parallel to the proposed station concourse. Note the cost of this structure will be similar to that of Option 1.

RailCorp also previously engaged Tenix Projects to analyse the previous concept design options for the Redfern Station Redevelopment and report on the cost, constructability and programme. This report includes a peer review of the Tenix Projects report (Refer to Appendix A).

For consistency and comparison purposes, BLLC have generally used the same headings of the Tenix Projects Cost, Constructability and Programming Review Report – Revision 3 dated 3 April 2007.

1.2 Purpose

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The purpose of this report is to undertake a cost and constructability analysis of the proposed revised concept design of the Redfern Station Redevelopment with the aim to identify cost and time savings.

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1.3 Key Assumptions and approach

1.3.1 Programme

- In the interest of safety, cost and time, a significant amount of station upgrade works will need to be undertaken during weekend track possessions.
- Only certain tracks are "closed" on weekend track possessions to permit infrastructure work to be undertaken and RailCorp Train Planning manage which tracks are in possession through a system of "configurations". Redfern is impacted by a number of configurations, each with a different number of tracks in possession.

Configuration No.	Tracks in possession
1	 Up and Down Illawarra
	 Up and Down Illawarra Relief
1A	 Up and Down Illawarra Local
	 Up and Down Illawarra
	 Up and Down Illawarra Relief
3	 Up and Down Main
	 Up and Down Suburban
4	 Up and Down Local
	 Up and Down Illawarra Local
8	 Up and Down Suburban
15	 Up and Down Suburban
	 Up and Down Local
	 Up and Down Illawarra Local

- RailCorp's possession regime has been used to develop a baseline construction programme based on a commencement date of July 2011. This programme has then been reviewed to identify potential time savings by proposing additional possessions and new extended possessions during low patronage periods such as Christmas/New Year and early January.
- The programme has been based on the following RailCorp Weekend and Closedown Possession Programmes:

•	2010/2011	Draft 3
•	2011/2012	Draft 5
•	2012/2013	Version 3
-	2013/2014	Version 1
	2014/2015	Version 1

- It is assumed that all of the possessions applicable to Redfern Station will be available to the project. Furthermore, certain possession configurations will require track vehicle (hi-rail) access to platforms via Central Station and Erskineville/MacDonaldtown access points. It is also assumed that these routes to the station will not be significantly inhibited by other works such as routine maintenance and other capital works projects.
- Where possession configurations result in one side of an island platform being in possession and the adjacent platform is operational, it is assumed that trains will not stop at the adjacent platform thus excluding passengers and station staff from the whole island platform.
- Where possession configurations permit access to more than one platform, it is assumed that
 there will be sufficient resources and equipment available to work in more than one area for
 identical tasks.

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- A reasonable amount of work has been proposed to be undertaken in each possession without creating excessive risk of a late hand back at the end of a possession.
- The revised design has been optimised to reduce the impact on rail systems such as overhead wiring and signals. However, modifications to the existing system are unavoidable and will require the services of specialised resources. It is assumed that these specialised resources will be available when required.
- While not detailed in this report, it is assumed that with adequate notification, Midnight to Dawn possessions with power out can be arranged if required.
- It is assumed that the migration of station operation facilities such as platform control rooms and ticket offices do not require a track possession and can be undertaken on weekends.
- It is assumed that no major service routes will be impacted by the redevelopment.
- It is assumed that modifications to the staging of the works will not be required for special
 events during construction.

1.3.2 Cost

- Costs are presented in 2009 dollars.
- The costing of the project is based upon RailCorp awarding a design and construct contract to a capable contractor. However, RailCorp may also consider other delivery methods such as Design only Build only, Alliance or Managing Contractor. In considering each method, RailCorp should be mindful of the impact on design timelines, internal resources required and the time associated with tender and award of the various procurement methods.
- For Design Only Build Only (Principal Detailed Design by RailCorp), the total cost for design
 will remain the same as for Design and Construct as will the durations for the activities. The
 only difference will be when the contracts start.
- The proposed revised concept design essentially excludes any development scope other than showing potential development footprints and ensuring the station upgrade works will not significantly inhibit any future development. Thus, the station upgrade can be undertaken independent of multiple future developments without additional cost to RailCorp.
- Due to the redesign, the cost plan makes no allowance for any commercial development or enabling works as it is understood that these will be the responsibility of the developer. Notwithstanding this, Bovis Lend Lease Consulting estimates a gross cost of \$112M for a 20,000m2 net lettable area building including allowances for working in proximity to the rail corridor would be required by the developer.
- The cost plan makes no allowance for any retail development but Bovis Lend Lease Consulting estimates a gross cost of \$5.2M for the retail area would be required by developers.
- For the purpose of calculating alternate transport, trackwork marketing and possession management costs, 42% of the construction costs are considered to be associated with works undertaken during possessions.
- The cost plan only allows for an internal strip out of the existing RailCorp heritage offices on lawson Street

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- The area above the void that is the disused Southern Suburbs line bounded by the ESR, Platform 10 and the existing steel grillage has been identified as a potential retail zone at street level. No allowance for any improvement in this area has been made in the cost plan.
- Bovis Lend Lease Consulting has identified costs associated with works that could be considered non-capital and therefore should be excluded from the station upgrade budget.
- An allowance has been made for alternate transport, trackwork marketing and possession management based on RailCorp's Alternate Transport & Trackwork Marketing – Recovery of Costs from Capital Projects and External Parties Process – Version 4.2 August 2008 and the indicative costs provided by RailCorp's Possession Budgets and Communications Coordinator.
- Although an allowance has been made for fire-rating the beams, until further investigations are undertaken, no allowance has been made for remedial works to the steel beams supporting the roof above the Illawarra Relief.

1.3.3 Constructability

It is assumed that areas of the platforms can be temporarily hoarded off to permit construction of concourse and unpaid footbridge piles, pile caps, columns and headstocks during normal working hours. Similar hoardings will be required for demolition and construction works on Platform 11/12 in the Eastern Suburbs Railway. Each stage should be subjected to pedestrian modelling analysis during the design phase. It is envisaged that timber hoardings on platforms similar to those used on other recent projects such as North Sydney Station Upgrade, Hornsby Platform 5, Epping and Parramatta Transport Interchange will suffice.

It is assumed that RailCorp will permit asphalt hi-rail access ramps to be installed across the Main Lines to the south of the platforms and another across the Illawarra, Illawarra Local and Local Lines to the North of the Station to permit hi-rail access from North Eveleigh and the Sydney Signal Box respectively during non-operating times. These ramps will enable hi-rail access to each island platform.

The station upgrading works will require materials handling areas, site accommodation for the project team and track access points. It is assumed that:

- the construction site offices and amenities can be located in the former signals depot located above the ESR:
- the carpark area above the ESR and Southern Suburbs lines can be used as a storage area for plant and materials;
- The park between Gibbons and Rosehill Streets is available for station and construction parking during construction;
- Access to the tracks can be gained from outside the Sydney Signal Box and from the area in North Eveleigh

It is assumed that access to the void between Platforms 10 and 11 can be gained via the Sydney Signal Box and the disused Down Southern Suburbs tunnel.

Based on the likelihood of the project proceeding, it is recommended that preliminary works such as the following are commissioned as soon as possible to facilitate planning approval and enable the designers to make informed decisions in relation to substrata and services quantities and locations.

- Existing services investigation (Detailed Services Search and Dial Before You Dig)
- Geotechnical investigation
- Hazardous Materials Survey (Note that a hazardous materials survey of Redfern Station may have already been carried out)
- Structural integrity investigation including confirmation of member sizes shown in 1970s drawings

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- Boundary survey
- Heritage Impact Study
- Acoustic and vibration analysis
- Development study
- Traffic Impact Study
- Environmental review
- Fill validation

1.4 References

The following documents were referenced in the development of this report:

Ref No.	Description
1	Tenix Projects Cost, Constructability and Programming Review Report – Revision 3 dated 3 April 2007
2	Tenix Projects Review and Clarification to Report 10618TR001 Revision 03 Dated 3 rd April 2007
3	RailCorp document SAM-AMP-005 "Alternate Transport & Trackwork Marketing Recovery of Costs from Capital Projects and External Party Process – Version 4.2 (August 2008)
4	RailCorp Weekend and Closedown Possession Programmes – 2010/2011 Draft 3
5	RailCorp Weekend and Closedown Possession Programmes – 2011/2012 Draft 5
6	RailCorp Weekend and Closedown Possession Programmes – 2012/2013 Version 3
7	RailCorp Weekend and Closedown Possession Programmes – 2013/2014 Version 1
8	RailCorp Weekend and Closedown Possession Programmes – 2014/2015 Version 1

2. Construction Methodology

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2.1 Introduction

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The construction methodology has been developed in consideration of the restricted access to platforms and tracks. A number of assumptions have been made as outlined above and are critical to the realisation of the construction methodology.

As a general rule it is more effective and safer to undertake construction works in the rail environment during track possessions when train services are suspended and power to the OHW is isolated. However, the limited number and relatively short duration of track possessions, can lead to prolonged project durations and intensive work schedules increasing the risk of delayed handback and train operation disruption. Therefore, works undertaken during normal working hours must be considered to mitigate against project prolongation and disruptions to train operations following a possession.

The key to undertaking works during normal working hours in a rail environment is separation of the works from passengers, station staff and railway systems (eg OHW) through protective hoardings. Once in place, hoardings provide an area where construction activities can be safely undertaken with minimal impact on station operations.

The existing concourse and station facilities at the city end of the station will remain operational during the construction works on and above the platforms. After the new concourse has been commissioned the existing concourse will be decommissioned. Therefore, there is essentially only one stage for the works to the surface platforms with the sequence of works described in the construction programme.

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For the Illawarra Relief, staging is critical to maintaining adequate access and egress to and from the platforms. The staging is outlined in Section 2.6 below.

2.2 Construction Access to Surface Platforms

It is envisaged that personnel access to the surface platforms will be via the existing stairs at the city end of the platform. Equipment and materials deliveries to central surface platforms would be via hi-rails during out of hours on weekend and night time possessions from hi-rail access points at Central Station, Erskineville and Eveleigh (see image below). The removal of excavated and excess materials would also be via hi-rail vehicles at these times.



Google Earth Image – Hi Rail Access Points

Concrete for platform structures could be delivered via concrete pump lines through PVC sleeves beneath the rails at the country end of the platforms or alternatively at night via concrete pumps lines from the corner of Lawson and Gibbons Streets down the existing stairs at the city end of the platforms.

Work areas on platforms would be surrounded by hoardings with secure doors and gates for personnel, materials and equipment access.

RailCorp should expect some reduced level of amenity during construction including reduced shelter on platforms when the heritage buildings and awnings are being demolished.

The majority of work on the western end of the new concourse will be behind Platform1, especially once the existing building in Little Eveleigh Street is demolished. Access to this area will be via Little Eveleigh Street and Eveleigh Workshops. It is envisaged that the new landing will also serve as a cranage platform for the installation of precast concrete deck elements.

On the eastern end of the concourse, the majority of the work will be behind the retaining wall on Platform 10 with access via the existing carpark area off Marian Street. It is envisaged that the area behind the retaining wall on Platform 10 will serve as the cranage platform for the installation of precast concrete deck elements.

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2.3 Early Works

Early works would include services relocation and protection and the demolition of the existing building on Little Eveleigh Street.

2.4 Surface Platforms Construction Sequence

The construction sequence for the new concourse and unpaid pedestrian and cycle bridge in Option 1 are very similar and are outlined in the indicative programme. The main difference is that the narrower platform width at the proposed location of the unpaid pedestrian and cycle bridge prevents some of the substructure works being undertaken during normal working hours. It has therefore been assumed that these works can only be undertaken during possessions; however, working in these areas at night could be explored further by the construction contractor.

The construction sequence on platforms would be as follows:

- Relocate services and station operation equipment such as SPIs, Emergency Help Points, Precise Clocks (possession);
- Extend Platform 3 only to facilitate construction of egress stairs;
- Demolish existing buildings and awnings (possession refer to Fig 2 below);
- Erect hoardings(dayworks);
- Construct piles, pile caps, stair landings, awning foundations control room foundations, columns and headstocks (dayworks except for unpaid footbridge where narrow platforms do not permit):
- Construct control rooms (these could be modular units built offsite and delivered to site during a possession);
- Due to the risk of platform subsidence, the excavation of lift pits have been scheduled during nossessions.
- Construct new egress stairs (possession and dayworks Platform 2/3 only)
- Erect platform awnings (possession);
- Demolish existing stairs to concourse (possession Platform 2/3 only)
- Re-profile platform surface for Level Access (possession).

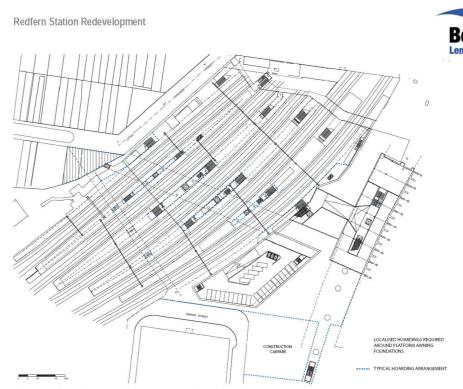


Figure 1 - Indicative hoarding arrangement to platforms

The hoardings at street level are expected to be erected for the majority of the project duration whilst the hoardings on the platforms are expected to be erected for the duration of the substructure works to the concourse (see Fig 1). Localised hoardings will be required around other substructure works such as footings for the awning structure.



Figure 2 - Structures to be demolished

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2.5 Illawarra Relief and Void between Platforms 10 and 11

Platforms 11 & 12 are serviced by the Up and Down Illawarra Relief lines which form part of the Eastern Suburbs Railway (ESR) and are located to the east of Platform 10. The reduced level of Platform 11 & 12 is approximately 6m below the surface platforms. There is an intermediate concourse level in between the ground level and platform level. In between Platforms 10 and 11 is the corridor for proposed Southern Suburbs Railway which was never progressed. Although tunnels were constructed at the Northern end of Redfern Station and some structural steel was erected for the station building, essentially a void has been left in this area (refer to Image 1 and Image 2 below).

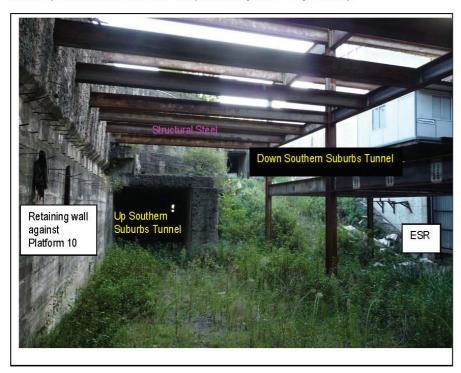


Image 1 - Void between Platform 10 and Eastern Suburbs Railway looking towards Sydney

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Image 2 – Google Earth view of void between Platform 10 and the Eastern Suburbs Railway

It is envisaged that the existing steel grillage erected for the Southern Suburbs Railway will be utilised for the link between the new concourse and Platforms 11 & 12 as well as extending the covered area on grade with the concourse. This will ensure that the station upgrade works will not significantly inhibit any future development with that the void bounded by the retaining wall along Platform 10, the Southern Suburbs tunnels, the ESR and the existing steel grillage remaining unimproved until such commercial or retail development is undertaken.

The existing steel shows signs of corrosion and requires closer inspection by a structural engineer as to its integrity. It is assumed that it can be remediated to a condition suitable for supporting the link between Platforms 10 &11 as well as extending the covered area on grade with the concourse.

In addition to the link between Platforms 10 & 11, there are substantial works to be undertaken in the ESR station building. In order to maintain station operations, the works the ESR need to be staged. The staging has been included in Figure 3 and is outlined as follows:

- Erect hoardings and construct new emergency egress route at southern end of platforms (dayworks with access from above ESR);
- 2. Construct smoke exhaust vents (dayworks with access from above ESR);
- 3. Hoard off existing stairs and demolish (dayworks and nightworks);
- 4. Build new escalators in void left from demolished stairs (possession);
- Close and remove existing escalators (possession) Note that substantial time savings may be gained if this activity is not dependent on the opening of the new concourse and passengers access/egress the new escalators via Platform 10;
- 6. Construct new city end stair and lift in void left by escalators (dayworks and nightworks),
- 7. Resurface platforms to provide Level Access (possession);
- 8. Fill stair and escalator voids in ground level slab (dayworks and nightworks);
- 9. Demolish exiting roof structure to ground level (dayworks);

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- 10. Waterproof ground level slab (dayworks);
- 11. Landscaping (dayworks).



Figure 3 – Construction Staging of the ESR

Additional station staff is recommended as long as RailCorp identifies a risk exists to direct passengers following major configuration changes and any areas of congestion generated by construction works. Note that on the North Sydney Station Upgrade project, the Station Manager arranged and controlled the additional staff. It is assumed that the cost of providing additional staff is included in the client costs.

Based on our experience on recent projects and in the interest of cost, time and safety, Bovis Lend Lease Consulting proposes that RailCorp consider closing Platforms 11 & 12 in the ESR but allowing trains to run to timetable for up to three months to permit the structural and services works required to reconfigure the stairs, escalators and lift. We consider the inconvenience of this proposal to be reasonable considering the relative proximity of Redfern Station to Central Station. Closing the ESR to passengers at Redfern Station would require passengers to transfer at other stations such as Central and Sydenham which would need to be subject to passenger modelling due to the expected increased patronage. Note that this proposal has not been considered in the programme or cost plan for this report

Hoarding would separate the work areas from the operating rail lines creating increased production as a result of not having to cater for passengers and station systems on a daily basis. It should be noted that whilst such an arrangement will not reduce the overall duration of the project, it will reduce the timeframe of works within the ESR and the need to use the new fire egress stairs as a station exit, thus saving costs, increasing safety and reducing project risk.

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Advantages and Disadvantages of closing Platforms 11 & 12 are summarised in the following table:

Advantages	Disadvantages
Cost savings	Inconvenience to passengers
Improved safety	Increased patronage at adjoining stations
Reduced project risk	Station and on-train communications required
Greater productivity leading to reduced duration of construction impact	No passenger egress available in case of an emergency
Reduced amount of hoarding as there are no passengers to protect	
Station systems such as smoke detectors can be isolated thus permitting work on a 24 hour basis	
Works areas only need to be cleaned for construction purposes and not for operational conditions	
No need to use new emergency egress stairs as a station access point	
Temporary lighting required for construction purposes and not for operational conditions	

The existing beams supporting the roof of the ESR are exposed and some are displaying signs of corrosion (refer to Image 3 below). Further investigation is required to determine the extent of the corrosion and to develop remediation requirements. Until further investigations are undertaken, no allowance has been made for remedial works. In addition to remedial works, the beams will require firerating to comply with fire and life safety requirements. As the beams extend across the tracks and OHW, the remedial and fire-rating work will need to be carried out during weekend possessions.



Image 3 - Deterioration of beams supporting ESR rod

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2.6 Sequence and Methodology Issues

Based on our experience on recent projects and in the interest of cost, time and safety, Bovis Lend Lease Consulting proposes that RailCorp consider closing each of the platforms but allowing trains to run to timetable during the construction of the piles (using a mini piling rig such as the one shown in Image 4 below) and the pile caps for approximately two weeks per island platform. We consider the inconvenience of this proposal to be reasonable considering the relative proximity of Redfern Station to Central Station. Closing each platform to passengers at Redfern Station would require passengers to transfer at other stations such as Central and Sydenham which would need to be subject to passenger modelling due to the expected increased patronage. Hoarding would separate the work areas from the operating rail lines creating increased production as a result of not having to cater for passengers and station systems on a daily basis. Note that this proposal has not been considered in the programme or cost plan for this report.



lmage 3 – Mini piling rig

Configuration 1A possessions enable the precast planks spanning between Platform 7 to 10 to be safely installed above the tracks with no trains and the OHW isolated. Similarly Configuration 3 possessions enable the precast planks spanning between Platform 1 to 4 to be safely installed above the tracks with no trains and the OHW isolated. There is however, no possession configuration that allows the precast concrete planks spanning between Platforms 5 & 6 to be installed using a crane reaching across tracks under possession with the OHW isolated and the train services suspended. Therefore, Bovis Lend Lease proposes that these precast planks be installed during a configuration 4 or 15 possession by skating them into position on the previously installed sections (Platform 1 to 4 or Platform 7 to 10) before lifting them into position using a crane that is restricting to only luffing above the previously installed sections as shown in Figure 4 below. In other words, the previously installed section of the concourse would act as a barrier between the live tracks and the crane.

Alternatively, and if midnight to dawn possessions with OHW power out can be arranged for the Up and Down Local tracks between Platforms 5 & 6, the planks could be installed during the nights of

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Configuration 1A and/or Configuration 3 possessions. Furthermore, if the precast planks for the unpaid pedestrian and cycle bridge are to be installed on the same possession, the location of the crane could be positioned such that it can safely reach both structures thus saving on cranage and cranage platform costs

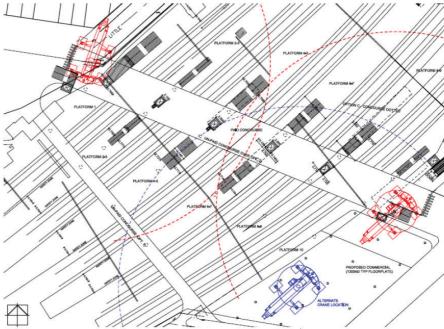


Figure 4 – Possible 450T crane positions showing main boom reach (Note that a local crane contractor was consulted and advised that a 4m heavy duty fly can be added to the main boom if required to increase reach capacity without significantly compromising lifting capacity)

Platform 3 only will need to be extended to facilitate the construction of the new egress stairs at the northern of Platform 2/3. It was considered too onerous to relocate Signal SY457M on the Down Main to facilitate extending Platform 2 and the stairs at the northern end of the platform can be configured such that they cantilever over Platform 2.

For Platforms 1 to 10, the emergency egress will be impacted by construction hoardings on platforms but the vertical transfer elements will be no worse than existing. The final configuration improves emergency egress by centralising the egress routes along the platforms and retaining the existing stairs to platform (except for Platform 2/3) for emergency use only.

Emergency egress to Platforms 11 & 12 will also be impacted by construction hoardings. The new emergency egress stairs will be narrower than the existing stairs to the platform and these will be used during the demolition of the existing stairs thus impacting emergency egress. Emergency egress for the final configuration will be improved with an additional vertical transfer element.

The station upgrade works are likely to have the following impacts on traffic:

- Road closures would be required in Little Eveleigh Street to facilitate scaffold erection/dismantling for the demolition of the existing building as well as for cranage of the concourse precast concrete elements and roof structure;
- Road closures would be required in Marian Street for the construction of the unpaid footbridge;
- The proposed exhaust locations for the ESR ventilation in the revised concept design have been positioned such that they do not require road closures of Gibbons Street. However, it is

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likely that the footpath on Gibbons Street will be affected during construction works as well as the road during the demolition of the ESR station box roof structure;

 In order to assist planning approval, it is recommended that RailCorp commission a Traffic Impact Study for the conversion of Little Eveleigh Street to pedestrian only access.

With many activities required to be undertaken outside of normal working hours, noise will be the major environmental factor. Any environmental conditions resulting from the REF should be commensurate with station operations and not normal construction industry conditions where work is usually performed during daylight hours.

The station upgrade works are likely to impact on the flora in Little Eveleigh Street, on Gibbons Street and in the carpark area between Platform 10 and Gibbons St.

An allowance for property condition surveys has been included in the cost plan. Some noise and vibration monitoring is also likely to be required and an allowance has also been made for this in the cost plan.

We note that the heritage buildings on Platforms 4 through 10 will need to be demolished to facilitate construction of the concourse and stairs.

3 Programme

3.1 Introduction

In the interest of safety, cost and time, a significant amount of redevelopment works will need to be undertaken during weekend track possessions. This has a significant impact on the programme.

The programme is divided into the following headings:

- Project Milestones for design, construction and commissioning;
- Procurement of tenders;
- Design including approvals;
- Possessions; and
- Construction

3.2 Possession requirements

Meetings were held in late 2008 with RailCorp's Track Possession Manager and BLLC where it was advised that 5 day closedowns for Configuration 1A and Configuration 3 possessions over the Christmas - New Year period would benefit construction and result in cost savings. The 5 day closedowns would also provide an ideal timeframe to modify platform copings to Level Access requirements. RailCorp gave their in principle agreement to these arrangements.

BLLC also advised during the meetings that long term possessions of Platforms 1 and 10 would enable the significant amount of works at the end of the concourse and unpaid pedestrian and cycle bridge to be carried out faster and more safely. RailCorp advised that possession of Platforms 1 and 10 is possible with trains not stopping at those platforms. RailCorp gave their in principle agreement to these arrangements.

3.3 Main Findings

The duration for construction is 34 months from award of contract. Bovis Lend Lease Consulting has developed a programme based on the possessions available and by undertaking dayworks behind hoardings.

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An alternative possession programme, reducing the overall duration to 29 months has been developed based on the following conditions:

- 1. Services identification and location are undertaken during the design phase;
- Construction on site starts in April 2011;
- 3. 5 day closedowns are provided for a Configuration 3 possession at Christmas 2011; and
- 4. 5 day closedowns are provided for a Configuration 1A possession at Christmas 2012;

We note that RailCorp gave their in principle agreement to 5 day closedowns at Christmas during the meeting in late November 2008 (Refer to Appendix B).

4 Station Upgrade Costs

4.1 Introduction

Bovis Lend Lease Consulting has developed a high level cost plan for the proposed revised concept design prepared by Cox/Arup.

Options costed include an unpaid pedestrian and cycle bridge at the southern end of platforms on grade vs elevated unpaid concourse above new concourse. A third option is an on grade, unpaid pedestrian and cycle bridge parallel to the paid concourse. The cost of this third option will be of the same order as the first option.

It is estimated that the concourse suspended above the proposed station concourse will cost approximatel more than the on-grade access perpendicular to the railway tracks close the southern end of the platforms and add approximately 1 month to the project duration. This is due to the additional structural steel and façade required for the concourse as well as the additional lifts and stairs required at each end.

Savings for preferred possession regime are the order of direct costs and including indirect costs. The Project Management and Facilities cost was reduced proportionately to the reduction in time from 34 to 29 months and subcontractor direct costs were reduced by 2% for improved efficiency – Note that possessions costs increase by \$326,000 due to extended possessions at Christmas.

4.2 Direct Costs

Direct costs for the works taking into account the degree of difficulty of working in a live rail environment have been priced with allowances added for undertaking the works out of hours and during possessions.

Possession support costs (eg hi-rails) have been included as a separate item as have penalty rates for working on possessions and out of normal hours.

4.3 Contractors Indirect Costs

Bovis Lend Lease Consulting has undertaken a review of the allowances made by Tenix Projects in their report and found them to be reasonable for use at concept phase. Therefore, these allowances will be applied to the direct costs in the cost plan with the exception of the D&C Contractors Project Management and Facilities allowance for which an allowance similar to that on recent projects shall be used.

- 11. Subcontractor Indirects This has been factored into the direct cost rates.
- D&C Contractors Contingency to manage Subcontractors 10% contingency of the total direct costs to cover the risks in managing the subcontractors.

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- 13. D&C Contractors Project Management and Facilities The cost is based on a construction team similar to that used on similar recent projects for the durations shown in the programme.
- 14. D&C Contractors Design The design costs is 5% of the total direct cost plus Contractors contingency to manage subcontractors.
- D&C Contractors Design Verification 2% of the total direct cost plus Contractors contingency to manage subcontractors.
- 16. D&C Contractors Overhead and Profit 12% on top of all of the above. The Direct Costs added to the Indirect Costs form the Construction Cost

4.4 Client Costs

Similar to the Indirect Cost allowances, Bovis Lend Lease Consulting has undertaken a review of the Client Costs allowances made by Tenix Projects in their report and found them to be reasonable for use at concept phase. Therefore, these allowances will be applied to the Target Budget costs in the cost plan.

- C1. Design Development 5% has been allowed for to manage any cost implications from client directions concerning design and construction methodology.
- C2. Construction Contingency 5%has been allowed for to manage any cost implications from client directions concerning construction methodology. These contingencies, added to the Construction Cost, form the Target Budget.
- C3. EIS/REF, Survey, Geotechnical Investigations and Concept Design 1.5% of the Target Budget
- C4. Client Project Management Team 5% of the Target Budget
- C5. Possession Costs These costs have been developed using RailCorp document SAM-AMP-005 "Alternate Transport & Trackwork Marketing Recovery of Costs from Capital Projects and External Party Process" – Version 4.2 (August 2008). The percentage of project works undertaken during possessions has been estimated at 44%. This percentage of the Construction Cost, divided amongst the total number of possessions available over the project duration gives an average amount per possession.
- C6. Client Project Contingency 10% is allowed for the impact of external influences on the project such as the proposed new rail corridor immediately to the west of the station as well as changes to legislation and the requirements of external stakeholders.

4.5 Non-Capital Costs

The following are considered to be Non-capital costs

- NC1 Land and Property Acquisition Costs Building on Little Eveleigh Street already required. No further land acquisition costs are anticipated given that the works are within RailCorp boundaries.
- NC2 Legal and Marketing Costs 0% (minor if any)
- NC3 Financing Cost 0% (RailCorp to apply)
- NC4 Initial Maintenance Costs

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NC5 Station Ticket Gates

NC6 Ticket Vending Machines

4.6 Area Specific Assumptions

The following assumptions have been made for the specific areas of work:

4.6.1 Platform 1 to 10

No.	Assumption
1	Access to the country end of Platform 1 for materials handling can be gained from Eveleigh Workshops
2	An asphalt hi-rail access ramp can be installed across the Main Lines to the south of the platforms thus permitting access from North Eveleigh and another across the Illawarra, Illawarra Local and Local Lines to the North of the Station to permit hi-rail access from the Sydney Signal Box during non-operating times
3	The only impact on signals is the SY455 which can be relocated to the underside of the new concourse at the time of installation of the concourse
4	OHW supports can be relocated to the new concourse or unpaid footbridge at the time of installation
5	Assume that all platform edges are raised, tiled and topped with AC to the centre of the platform
6	Platform canopies will extend on Platform 8/9 only until the minimum platform width is 5.4m wide
7	Foundations for the western abutments of the concourse and unpaid footbridge will not impact on the proposed rail corridor
8	Only the existing stairs on Platform 2/3 are demolished and replaced with a switchback stair to the existing concourse
9	RailCorp will permit a mobile crane to operate using sections of the new concourse to act as a barrier between the crane and live tracks.
10	Hoardings can be erected on platforms
11	Shelter will be diminished during construction

4.6.2 Platform 10 to 12

4.0.2	Fiduoriii 10 to 12
No.	Assumption
1	Site Amenities can be located in the former signals depot
2	The former signals depot can be fitted out for station BOH requirements including cleaners room, staff toilets, staff change rooms, staff locker rooms as the construction site amenities demobilise
3	The carpark area above the ESR and Southern Suburbs lines can be used as a storage area for plant and materials
4	The existing finishes to the ESR platforms and intermediate concourse are to be upgraded
5	The existing transformers do not need to be upgraded
6	The park between Gibbons and Rosehill Streets is available for station and construction parking during construction
7	Columns to station box do no require strengthening for impact loads
8	Construction hoardings in the ESR will be painted with intumescent paint

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5 Development Costs

The station upgrade works have been configured such that they do not significantly inhibit multiple future developments at any given time. Notwithstanding this, Bovis Lend Lease Consulting estimates a gross cost of the state of a 20,000m2 net lettable area building including allowances for working in proximity to the rail corridor would be required by the developer.

The cost plan makes no allowance for any retail development but Bovis Lend Lease Consulting estimates a gross cost of the retail area would be required by developers.

6 Cost Summary

A summary of the costs is provided in the table below:

Development Options	Cost (2009 Dollars)	Duration
Revised C		34 months
Revised C (Alt Possn Regime)		29 months

^{*}Project Management and Facilities cost reduced proportionately to time and subcontractor direct costs reduced by 2% for improved efficiency – Note that possessions costs increase by

As the figures are in 2009 dollars, RailCorp will need to consider making allowances to take into account the actual start dates and factor in escalation up to and during the design and construction phases.

7 Conclusion

The Jackson Teece concept design has been redesigned to a proposed revised concept design and allows for separate staging of the commercial development from the station upgrade works ultimately providing cost and time savings to RailCorp.

The proposed revised concept design and construction methodology have resulted in reduced costs and durations compared to previous concepts.

8 Way Forward

In order for construction to start no later than early 2011 it is critical that RailCorp adopts the preferred possession regime and obtains the following in the indicative timeframes:

Action	Obtain	Indicative Timeframe
Procurement methodology	Prior to tendering	2 nd Quarter 2009
Funding	Prior to tendering	3rd Quarter 2009
Define User Requirements	Prior to detail design	3rd Quarter 2009
Commence preliminary works*	Prior to detail design	3 rd Quarter 2009
Planning approval	Prior to executing construction contract	4th Quarter 2010
Construction Start ^A	All of the above	2 nd Quarter 2011
Construction Finish ^A	All of the above	3 rd Quarter 2013

^{*} Preliminary works include:

- Existing services investigation (Detailed Services Search and Dial Before You Dig) during design phase
- Geotechnical investigation
- Hazardous Materials Survey (Note that a hazardous materials survey of Redfern Station may have already been carried out)

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- Structural integrity investigation including confirmation of member sizes shown in 1970s drawings
- Boundary survey
- Heritage Impact Study
- Acoustic and vibration analysis
- Development study
- Traffic Impact Study
- Fill validation
- Environmental review

*Revised C (Alt Possn Regime)

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Appendix A

Redfern Station Redevelopment - Meeting Minutes - 12 November 2008

Redfern Station Redevelopment



Redfern Station Redevelopment - Cost and Constructability Report 20 July 2009

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Redfern Station Redevelopment - Cost and Constructability Report 20 July 2009

Meeting Minutes

RPMM Document ID: RPMM-100-MM-0001; Release Date: 22 May 2008

Redfern Station Redevelopment

Meeting 2

Coordinator/Chair	Rex Gunton
Date and Time	12 November 2008
Location	18 Lee Street, Level 4
Next Meeting	Tbc

Meeting Objective	Agree possessions schedule for Redfern Station Redevelopment	
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asley (RB)	Melissa Iverach (MI)	Andrew Quarmby (AQ)
(lawer (KK)	Serge Chetner (SC)	
	Jawei (IVV)	Jawel (NY) Jeige Chellel (JC)

Apologies		

Meeting Outcomes

Review Actions from Previous Meetings 1.1

Meeting with Melissa Iverach established.

Availability of the 5 day track possession during Christmas from 2013. Bear in mind that other projects might want to lock in the same possessions...

Matters Arising

- MI asks RB what is needed to get approval for the proposed possessions regime. RB points out the current situation is that we need CEO approval for these things.
- The impacts of the possessions to the clients and the station are the main item where approvals or declines are based on. MI will investigate the impacts on our proposal.
- Two options will be discussed: one based on standard weekend possessions and one based on the proposed possessions regime. For these two options we need costs & benefits/grieve.
- The number one questions to answer are:
 - Why so long (5 days over Christmas or 26 weeks for tracks 1 & 10)?
 - · Why this period (Christmas)?
 - What is the scope?
 - · What are the long term benefits?

Minutes_Redfern_20081112_Possessions.doc Last saved: 12-Nov-08 Page 1 of 2







Redfern Station Revised Concept Design Report Section C Cost and Constructability

- · Why knock down all the buildings on the platforms prior to construction?
- MI agrees to work together on this proposal to get a clear understanding of the impacts and costs, both positive and negative and therefore agrees to our approach.

Discussion

- Assumed during the meeting, as a starting point, is that demolition works will commence circa June 2011 followed by actual construction commencing circa February 2012.
- Below possessions proposal will be detailed out further by AQ for MI and RB to be able to understand the impacts involved:
- o Config 3 (platforms 1-4) > 5 day possession (track & platform)
- Config 1A > 5 day possession (track & platform)
- Platform 10 > closed for a long period of time (platform only)
- Platform 1 > closed for a long period of time (platform only)
- Config 4 > to get spoil train in while demolishing buildings on platforms.

NB1: None of these possessions need to happen simultaneously

NB2: weekend possessions will be optimised in addition

· Ray points out to take into account that all bussing costs will have to be picked up.

Key Decisions

- Ongoing contact and communication with the possessions team will move this project forward gaining an understanding of impacts and costs involved.
- Additional meetings will be required once the engineering- & architectural consultants are on board, possibly with the attendance of people like Dave Spiteri.

Minutes_Redfern_20081112_Possessions.doc Last saved: 12-Nov-08

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Appendix B

Proposed revised concept design – Programme based on $\underline{\text{current}}$ RailCorp possession regime

Redfern Station Redevelopment

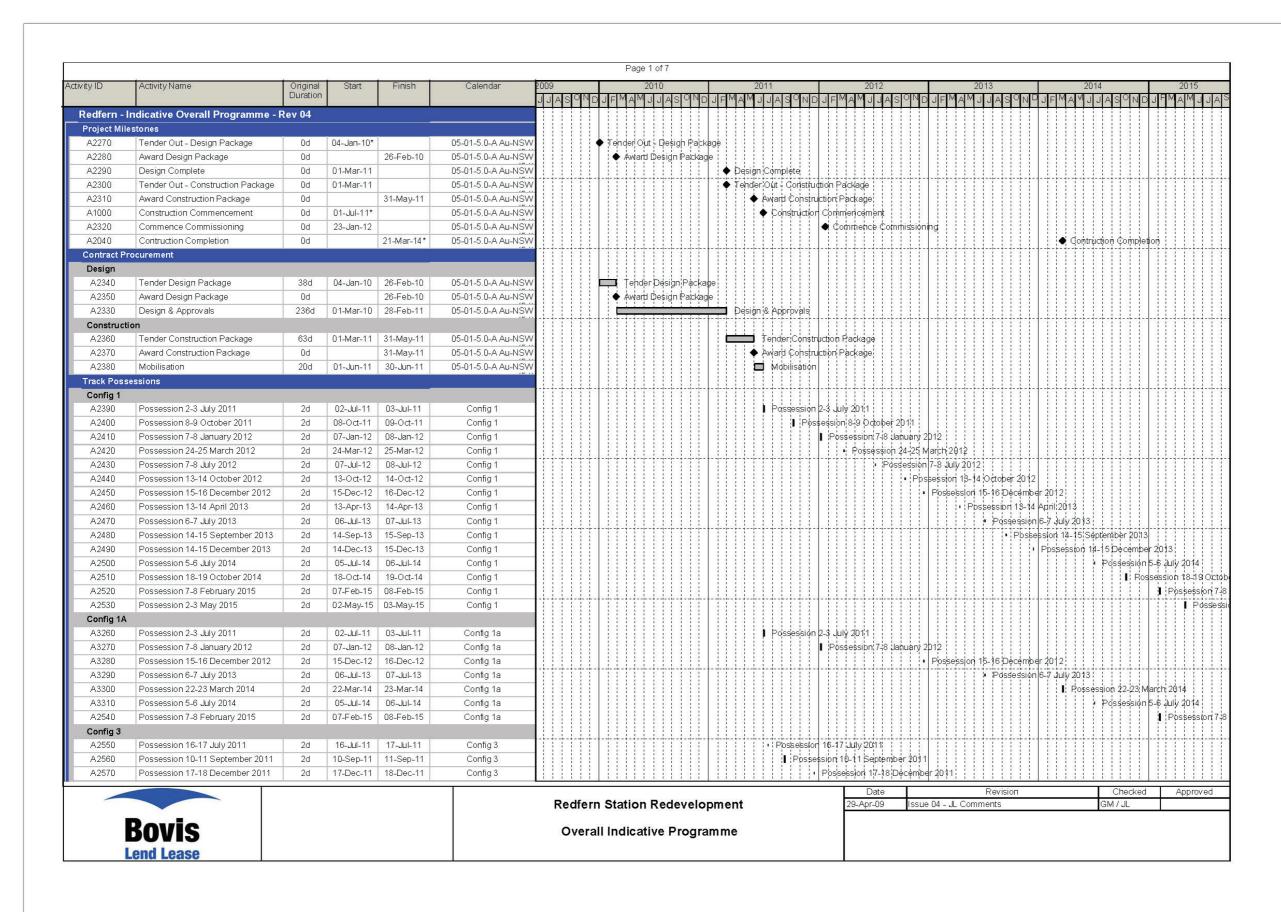


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Redfern Station Redevelopment - Cost and Constructability Report 20 July 2009

Cost and Constructability Report Progamme based on Standard Railcorp possession regime



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ctivity ID	Activity Name	Original Duration	Start	Finish	Calendar	2009		2010 2011 2012 2013 2014 2015
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A2580	Possession 28-19 April 2012	2d	28-Apr-12	29-Apr-12	Config 3	-11		■ Possession 28:19 April 2012
A2590	Possession 21-22 July 2012	2d	21-Jul-12	22-Jul-12	Config 3			Possession 21-22 July 2012
A2600	Possession 8-9 September 2012	2d		09-Sep-12	Config 3	111		I Possession 8-9 September 2012
A2610	Possession 22-23 December 2012	2d	22-Dec-12	23-Dec-12	Config 3			Pośsession 22-23 December 2012
A2620	Possession 4-5 May 2013	2d	04-May-13	05-May-13	Config 3			Possessión 4-5 May 2013
A2630	Possession 13-14 July 2013	2d	13-Jul-13	14-Jul-13	Config 3			Possession 13-14 July 2013
A2640	Possession 21-22 September 2013	2d	21-Sep-13	22-Sep-13	Config 3	111		I Possession 21-22 September 2013
A2650	Possession 5-6 April 2014	2d	05-Apr-14	06-Apr-14	Config 3			Possession:5-6 Aprili 2014
A2660	Possession 19-20 July 2014	2d	19-Jul-14	20-Jul-14	Config 3	111		I Possession 19-20 July 201
A2670	Possession 15-16 November 2014	2d	15-Nov-14	16-Nov-14	Config 3	111		Possession 15-16
A2680	Possession 16-17 May 2015	2d	16-May-15	17-May-15	Config 3	111		. Pos
Config 4			20					
A2690	Possession 23-24 July 2011	2d	23-Jul-11	24-Jul-11	Config 4	1111		I Possession 23-24 July/2011
A2700	Possession 29-30 October 2011	2d	29-Oct-11	30-Oct-11	Config 4	111		Possession 29-30 October 2011 Possession 29-30 October 2011
A2710	Possession 5-6 May 2012	2d	2000 Artistanti	06-May-12	Config 4	111		Possessión 5-6 May 2012
A2720	Possession 28-29 July 2012	2d	28-Jul-12	29-Jul-12	Config 4	111		Possession 28:29 July 2012
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A2740	Possession 11-12 May 2013	2d 2d		12-May-13	Config 4	1-1-1		Possession 11-12 May 2013
A2740 A2750	Possession 11-12 May 2013 Possession 27-28 July 2013	2d 2d	27-Jul-13	28-Jul-13	Config 4	- 11		Possession 27-28 July 2013 Possession 27-28 July 2013
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A2760	Possession 19-20 October 2013	2d	19-Oct-13	20-Oct-13	Config 4	- 11		Possession 19-20 October 2013
A2770	Possession 3-4 May 2014	2d		04-May-14	Config 4	-111		■ Possession 3-4 May 2014
A2780	Possession 26-27 July 2014	2d	26-Jul-14	27-Jul-14	Config 4			Possession 26-27 July 201
A2790	Possession 22-23 November 2014	2d		23-Nov-14	Config 4	-111		I: Possession 22-2
A2800	Possession 23-24 May 2015	2d	23-May-15	24-May-15	Config 4			I Pc
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A2840	Possession 26-27 May 2012	2d	26-May-12	27-May-12	Config 8			Possession 26-27 May 2012
A2850	Possession 25-26 August 2012	2d	25-Aug-12	26-Aug-12	Config 8	111		Possession 25-26 August 2012
A2860	Possession 24-25 November 2012	2d	24-Nov-12	25-Nov-12	Config 8	111		Possession 24-25 November 2012
A2870	Possession 26-27 January 2013	3d	26-Jan-13	28-Jan-13	Config 8	111		Possession 26-27 January 2013
A2880	Possession 15-16 June 2013	2d	15-Jun-13	16-Jun-13	Config 8	111		Possession 15-16 June 2013
A2890	Possession 24-25 August 2013	2d		25-Aug-13	Config 8	111		Possession 24-25 August 2013
A2900	Possession 16-17 November 2013	2d		17-Nov-13	Config 8	111		Possessiori 16-17 November 2013
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A2940	Possession 1-2 November 2014	2d		02-Nov-14	Config 8	111		Possession 1-2 No
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A3000	Possession 17-18 November 2012	2d		18-Nov-12	Config 15	- 11		I Possession 17-18 November 2012
A3010	Possession 16-17 February 2013	2d	16-Feb-13	17-Feb-13	Config 15	411		Possession 16-17/February 2013
A3020	Possession 7-8 December 2013	2d		08-Dec-13	Config 15	411		II Possession 7-8 December 2013
A3030	Possession 8-9 March 2014	2d	08-Mar-14		Config 15			Possession 8-9 March 2014
A3040	Possession 11-12 October 2014	2d	11-Oct-14		Config 15			Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possession 11-12 Possessi
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A3070	Christmas 2	5d	26-Dec-12	30-Dec-12	Christmas Possessions	111		■ Christmas 2
A3080	Christmas 3	5d	20 D 40	30-Dec-13	Christmas Possessions	7-1-1		■ Christmas 3

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A1020	Erect Site Hoardings / Fences	10d	01-Jul-11	14-Jul-11	05-01-5.0-A Au-NSW									☐ Erect Site Hoardings / Fences
A1010	Clear Vegetation	5d	15-Jul-11	21-Jul-11	05-01-5.0-A Au-NSW		+-+-							Clear Vegetation
A1030	Construction Site Accomodation /	10d	22-Jul-11	04-Aug-11	05-01-5.0-A Au-NSW									☐ Construction Site Accomodation / Facilities
A1040	Temporary Services	10d	29-Jul-11	11-Aug-11	05-01-5.0-A Au-NSW									☐ Temporary Services
A1050	Site Establishment Complete	0d		11-Aug-11	05-01-5.0-A Au-NSW									Site Establishment Complete
	abling Works	19.50												
A3320	Electrical Applications / Approvals	30d	18-May-11	30-Jun-11	05-01-5.0-A Au-NSW									Electrical Applications / Approváls
A1060	Relocate surburban Power Line - L	5d	01-Jul-11	07-Jul-11	05-01-5.0-A Au-NSW			Ш					1117	Relocate surburban Power Line - Little; Eveleigh Street
A1000			15-Jul-11		05-01-5.0-A Au-NSW									On Site Services Searches & Identification
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A2110	Services Diversions / Relocation P1	2d		11-Sep-11	Config 3									I Services Diversions / Relocation P1
A2120	Services Diversions / Relocation P	2d		11-Sep-11	Config 3									I Services Diversions / Relocation P2/3
A2150	Services Diversions / Relocation P	2d	08-Oct-11	09-Oct-11	Config 1									Sérvices Diversions / Relocation P8/9
A2160	Services Diversions / Relocation P10	2d	08-Oct-11	09-Oct-11	Config 1									Services Diversions / Relocation P10
A2130	Services Diversions / Relocation P	2d	29-Oct-11	30-Oct-11	Config 4				-1.1.					Services Diversions / Relocation P4/5
A2140	Services Diversions / Relocation P	2d	29-Oct-11	30-Oct-11	Config 4									Service's Diversions / Relocation P6/7
Demolition	n Works													
Little Eve	eleigh Street	28	·											
A1100	Erect Local Hoardings / Scaffold &	5d	12-Aug-11	18-Aug-11	05-01-5.0-A Au-NSW									☐ Erect Local Hoardings / Scaffold & Screens
A1110	Demolish Existing Structure - Little	10d	19-Aug-11	01-Sep-11	05-01-5.0-A Au-NSW									☐ Demolish Existing Structure - Little Eveleigh Street
Platforms	s													
A2030	Erect Hoarding to P10	5d	12-Aug-11	18-Aug-11	05-01-5.0-A Au-NSW									■ Erect Hoarding to P10
A2210	Control Room Migration Works - S	60d	12-Aug-11	07-Nov-11	05-01-5.0-A Au-NSW									Control Room Migration Works - Staged
A1150	Demolish Existing P10 Structure &	10d	19-Aug-11	01-Sep-11	05-01-5.0-A Au-NSW									Demolish Existing P10 Structure & Wall
A1440	Demolish P2/3 Awning	2d	10-Sep-11	11-Sep-11	Config 3									I Demolsh P2/3 Awning
A1130	Demolish Existing P6/7 Structures	2d	29-Oct-11	30-Oct-11	Config 4									Demolish Existing P6/7 Structures
A1120	Demolish Existing P4/5 Structures	2d	10-Dec-11	11-Dec-11	Config 15									■ Demolish Existing P4/5 Structures
A1140	Demolish Existing P8/9 Structures	2d	07-Jan-12	08-Jan-12	Config 1a									■ Demolish Existing P8/9 Structures
A1160	Demolish P2/3 Northern Stairs	2d	28-Apr-12	29-Apr-12	Config 3									Demolish P2/3 Northern Stairs
ESR														
A3590	Remediation to ESR Structural Be	20d	02-Jul-11	15-Sep-13	Config 1		1111				11111		1111	Remediation to ESR'Structural Beams
A3330	Erect Hoarding to Park above ESR	5d		18-Aug-11	05-01-5.0-A Au-NSW									■ Erect Hoarding to Park above ESR (Gibbons Street)
A1200	Erect Local Hoardings / Catch Decks	5d	_	25-Aug-11	05-01-5.0-A Au-NSW									■ Erect Local Hoardings / Catch Decks
A1170	Construct new Southern EES - Fo	2d		09-Oct-11	Config 1									Construct new Southern EES - Foundation Works
A1990	Construct new Southern EES	5d		14-Oct-11	05-01-5.0-A Au-NSW									Construct new Southern EES
A2000	Steelwork to EES	2d		08-Jan-12	Config 1							+++	++-	Steelwork to EES
A1210	Demolish Existing Stair	10d		20-Jan-12	05-01-5.0-A Au-NSW									☐ Demolish Existing Stair
A2220	Excavate & Construct new Escalat	5d		31-Jan-12	05-01-5.0-A Au-NSW									Excavate & Constructinew Escalator Pit
A2170	Install New Escalators to Stair Loc	2d		25-Mar-12	Config 1									Install New Escalators to Stair Location
A2170 A2230	Fit-Out / Commission Escalator	30d		10-May-12	05-01-5.0-A Au-NSW									Fit-Out / Commission Escalator
21 200 5000	Demolish Existing ESR Escalators	200 00	07-Jul-12				+-+-							i Demolish Existing ESR Escalators
A1190	-	2d			Config 1 05-01-5.0-A Au-NSW									Construct new City End Stairs
A1180	Construct New City End Stairs	30d		17-Aug-12										
A2180	Construct Slabs to Voids	10d		31-Aug-12	05-01-5.0-A Au-NSW									Construct Stabs to Voids
A2190	Demolish Existing Roof to Escalat	10d		14-Sep-12	05-01-5.0-A Au-NSW									☐ Demo(ish Existing;Roof to Escalator Machine Room;Level
A3860	Fire Rating of Existing Beams	8d	15-Dec-12	15-Sep-13	Config 1									H————————————————————————————————————
	structure Works													
	Concourse		4.00											
A1220	Construct Western Abutment	20d		29-Sep-11	05-01-5.0-A Au-NSW									Construct Western Abutment
A1230	Construct Eastern Abutment	20d	02-Sen-11	29-Sep-11	05-01-5.0-A Au-NSW	1 6 6 6	E E 1	0.0	1 1	1 1 1	0 0 0 0	1 5 5	1 1 1	Construct Eastern Abutment

ctivity ID	Activity Name	Original	Start	Finish	Calendar	2009	2010	2011	2012	2013		2014	7 7	2015
Strate 15	7 Stivity Hame	Duration	Otart	1 1111311	Culcifidal		JFMAMJJASOND			YDJFMAMJJA	SONDJEMA			
A1350	Form P1 Pile Foundations	20d	12-Sep-11	11-Oct-11	05-01-5.0-A Au-NSW				rm P1 Pile Foundations					
A1240	Construct Western Apron	20d	30-Sep-11	31-Oct-11	05-01-5.0-A Au-NSW				Construct Western Apron					
A1260	Form P2/3 Pile Foundations	10d	12-Oct-11	25-Oct-11	05-01-5.0-A Au-NSW			0 F	orm P2/3 Pile Foundations					
A1270	Form P4/5 Pile Foundations	10d	12-Dec-11	23-Dec-11	05-01-5.0-A Au-NSW				■ Form P4/5 Pile Foundat	ons				
A1280	Form P6/7 Pile Foundations	10d	27000 000 000	20-Jan-12	05-01-5.0-A Au-NSW				■ Form P6/7 Pile Found					
A1290	Form P8/9 Pile Foundations	10d		07-Feb-12	05-01-5.0-A Au-NSW				Form P8/9 Pile Four					
A1420	Form P10 Pile Foundations	20d	-1700 BALTONIA 11-10	06-Mar-12	05-01-5.0-A Au-NSW				Form P10 Pile For					
		20 u	00-FED-12	06-Wai-12	05-01-5.0-A Au-10500				- Form Floring For	iliuations				
	aid Pedestrian & Cycle bridge		00.11	07.11	2.5.4									
A1310	Form P2/3 Pile Foundations	2d		27-Nov-11	Config 8				Form P2/3 Pile Foundation					
A1320	Form P4/5 Pile Foundations	2d	0.000 -0.0000 1000	11-Dec-11	Config 15				Form P4/5 Pile Foundation					
A1330	Form P6/7 Pile Foundations	2d	10-Dec-11	11-Dec-11	Config 15			3 1 1 3 1 1 1 1 1 1 1 1	Form P6/7 Pile Foundation	ns				
A1250	Form P1 Pile Foundations	2d	17-Dec-11	18-Dec-11	Config 3				Form P1 Pile Foundation	is i				
A1430	Form P10 Pile Foundations	2d	07-Jan-12	08-Jan-12	Config 1				Form P10 Pile Founda	tions				
Headstoc	ks													
A3350	P2/3 Headstocks	20d	26-Oct-11	22-Nov-11	05-01-5.0-A Au-NSW				P2/3 Headstocks					
A3360	P4/5 Headstocks	20d	09-Jan-12	07-Feb-12	05-01-5.0-A Au-NSW				P4/5 Headstocks					
A3370	P6/7 Headstocks	20d	23-Jan-12	21-Feb-12	05-01-5.0-A Au-NSW				P6/7 Headstocks					
A3380	P8/9 Headstocks	20d	08-Feb-12	06-Mar-12	05-01-5.0-A Au-NSW				■ P8/9 Headstocks					
Platform I	35 1450 1450 1450 1450 1450 1450 1450 145	2000	5,75, 100,075, 91,10		er n									
A1370	FRP P2/3 Lift Pit	2d	17-Dec-11	18-Dec-11	Config 3				FRP P2/3 Lift Pit					
A1360	FRP P1 Lift Pit	5d	2007 100 100	23-Dec-11	05-01-5.0-A Au-NSW				■ FRP P1 Lift Pit					
					/= n									
A1380	FRP P4/5 Lift Pit	2d	2000	18-Mar-12	Config 15				FRP P4/5 Lift Pit					
A1400	FRP P8/9 Lift Pit	2d		25-Mar-12	Config 1				FRP P8/9 Lift Pit	5 52 2 3 3 3 3 3				
A1410	FRP P10 Lift Pit	5d		30-Mar-12	05-01-5.0-A Au-NSW				FRP P10 Lift Pit					
A1390	FRP P6/7 Lift Pit	2d	05-May-12	06-May-12	Config 4				FRP:P6/7.Lift	Pit				
Awnings														
A3410	Awning Piles P2/3	5d	07-Mar-12	13-Mar-12	05-01-5.0-A Au-NSW				Awning Piles P2/	3				
A3420	Awning Piles P4/5	5d	14-Mar-12	20-Mar-12	05-01-5.0-A Au-NSW				Awning Piles P4/	5				
A3430	Awning Piles P6/7	5d	21-Mar-12	27-Mar-12	05-01-5.0-A Au-NSW				Awning Piles P6	7				
A3440	Awning Piles P8/9	5d	28-Mar-12	03-Apr-12	05-01-5.0-A Au-NSW				Awning Piles Pa	1/9				
Platform I	Resurfacing													
A1970	Resurface P10	8d	08-Oct-11	08-Jul-12	Config 1				Résurfa	e P10				1111
A1920	Resurface P1	8d	17-Dec-11		Config 3					surface P1				
A1930	Resurface P2/3	8d	28-Apr-12		Config 3					Resurface P2/3				
A1960	Resurface P8/9	8d	07-Jul-12	14-Apr-13	Config 1					Resurfac	a D8/0			
A1300	Resurfacing of P11/12	8d		07-Jul-13	Config 1					;Ke	surfacing of P11/12			
A1940	Resurface P4/5	6d		08-Dec-13	Config 15						Resurface			
A1950	Resurface P6/7	6d	1/-Nov-12	08-Dec-13	Config 15						Resurface	P6//		
0.010	cture Works													
New Cond	course													
Columns				_								1.1.1.1.1.1.1.1		
A1500	FRP P10 Concourse Columns / Ab	10d	12-Aug-11	25-Aug-11	05-01-5.0-A Au-NSW			☐ FRP P	P10 Concourse Columns / A	butment				
A1450	FRP P1 Concourse Columns / Abu	10d	12-Oct-11	25-Oct-11	05-01-5.0-A Au-NSW				RP P1 Concourse Columns	/ Abutment				
A1460	FRP P2/3 Concourse Columns	5d	26-Oct-11	01-Nov-11	05-01-5.0-A Au-NSW				RP P2/3 Concourse Colum	ns				
A1470	FRP P4/5 Concourse Columns	5d	09-Jan-12	13-Jan-12	05-01-5.0-A Au-NSW				FRP P4/5 Concourse	Columns				
A1480	FRP P6/7 Concourse Columns	5d	23-Jan-12	31-Jan-12	05-01-5.0-A Au-NSW				FRP P6/7 Concourse	Columns				
A1490	FRP P8/9 Concourse Columns	5d		14-Feb-12	05-01-5.0-A Au-NSW				FRP P8/9 Concours		7777777	7-1-1-1-1-1-1		11111
	se Structure				/= n									
A1550	Install Precast Structure P9 to P10	2d	07lan-12	08-Jan-12	Config 1a				I Install Precast Structur	e P9 to P10				
A1530	Install Precast Structure P1 to P2				Config 3					Structure P1 to P2				
	- Particular depression and the Control of the Cont	2d		29-Apr-12										
A1520	Install Precast Structure P3 to P4	2d	101	29-Apr-12	Config 3	- - - - - - -	- - - - - - - - - - - - - - - - - - - -			Structure P3 to P4				
A3690	Structural Topping to PC Decks	10d		11-May-12	05-01-5.0-A Au-NSW					pping to PC Decks				
A1530	Install Precast Structure P5 to P6	2d	05-May-12	06-May-12	Config 4	1 2 2 2 2 2 2	1 4 4 5 5 5 5 5 5 5 5 5 5 1		I I Install Precas	t: Structure: P5 to P6:		111111	1 1 8 8 1	

								F	Page 5 c	of 7					
ivity ID	Activity Name	Original	Start	Finish	Calendar	2009			201	0	1	2011			2012 2013 2014 2015
.v., 12	/ saiving Hamie	Duration	Otart	7 1111011	Guidirdai		IOND	J F M			DJF			<u> </u>	JEMAMJJASONDJEMAMJJASONDJEMAMJJASONDJEMAMJJ
A3700	Structural Topping to PC Decks	10d	07-May-12	18-May-12	05-01-5.0-A Au-NSW										□ Structural Topping to PC Decks
A3480	Roofing to Precast Structure P1 to	2d	21-Jul-12	22-Jul-12	Config 3										Roofing to Precast Structure P1 to P2
A3490	Roofing to Precast Structure P3 to	2d	21-Jul-12	22-Jul-12	Config 3										Roofing to Precast Structure P3 to P4
A3500	Roofing to Precast Structure P5 to	2d	28-Jul-12	29-Jul-12	Config 4		111	-1-1-1		11111		1-1-1-1			Roofing to Precast Structure P5 to P6
A1540	Install Precast Structure P7 to P8	2d	15-Dec-12		Config 1a			\mathbf{H}							Install Precast Structure R7 to P8
A3460	Structural Topping to PC Decks	5d	17-Dec-12		05-01-5.0-A Au-NSW										Structural Topping to PC Decks
A3470	Roofing to Precast Structure P9 to	2d	06-Jul-13	07-Jul-13	Config 1a										Roofing to Precast Structure P9 to P10
A3510	Roofing to Precast Structure P7 to	2d	06-Jul-13	07-Jul-13	Config 1a										Roofing to Precast Structure P7 to P8
Platform S			30,00.10	0. 04. 10	501g 12		1-1-1-			1-1-1-1	++++				
A1980	Construct New P2/3 EES	4d	10-Sep-11	18-Dec-11	Config 3								<u> </u>	ے ا	Construct New P2/3 EES
	FRP P10 Stairs	10d	09-Jan-12	0.000	05-01-5.0-A Au-NSW									5	1 FRP P10 Stairs
A1560	Place P1 Stairs	4d	30-Apr-12		05-01-5.0-A Au-NSW			111	111					"	Plácé P1 Stáirs
	Place P2/3 Stairs	2d	21-Jul-12	22-Jul-12	Config 3										I Place P2/3 Stairs
A1580	Place P4/5 Stairs	2d	21-Jul-12	22-Jul-12	Config 3										
A3720	P2/3 Stair Construction	10d	23-Jul-12	03-Aug-12	05-01-5.0-A Au-NSW										
A3730	P4/5 Stair Construction	10d	23-Jul-12	03-Aug-12	05-01-5.0-A Au-NSW										P4/5 Stair Construction
A1600	Place P8/9 Stairs	2d	13-Apr-13	14-Apr-13	Config 1										Place P8/9 Stair's
A1830	P8/9 Stair Construction	10d	15-Apr-13		05-01-5.0-A Au-NSW		1-1-1-1	444	-4-4-4-	ļ. ļ. ļ. ļ. ļ	444	. -			■ P8/9 Stair Construction
A1590	Place P6/7 Stairs	2d	11-May-13		Config 4										I Place P6/7 Stairs
A3710	P6/7 Stair Construction	10d	13-May-13	24-May-13	05-01-5.0-A Au-NSW										□ P6/7 Stair Construction
Lift Shafts															
A1680	Erect P1 Lift Shaft Steelwork	5d	30-Apr-12		05-01-5.0-A Au-NSW										■ Erect P1 Lift Shaft Steelwork
A1690	Erect P2/3 Lift Shaft Steelwork	5d	30-Apr-12	-	05-01-5.0-A Au-NSW					1.1.1.1.1					■ Erect R2/3 Lift Shaft Steelwork
A1620	FRP P1 Lift Shaft	10d	07-May-12	18-May-12	05-01-5.0-A Au-NSW										□ FRP P1 Lift Shaft
A1630	FRP P2/3 Lift Shaft	10d	07-May-12	18-May-12	05-01-5.0-A Au-NSW										ID FRP P2/3 Lift Shaft
A1700	Erect P4/5 Lift Shaft Steelwork	5d	07-May-12	11-May-12	05-01-5.0-A Au-NSW										I Erect P4/5 Lift Shaft Steelwork
A1640	FRP P4/5 Lift Shaft	10d	21-May-12	01-Jun-12	05-01-5.0-A Au-NSW										☐ FRP P4/5 Lift Shaft
A1710	Erect P6/7 Lift Shaft Steelwork	5d	17-Dec-12	21-Dec-12	05-01-5.0-A Au-NSW										I Erect P6/7; Lift Shaft Steelwork
A1650	FRP P6/7 Lift Shaft	10d	07-Jan-13	18-Jan-13	05-01-5.0-A Au-NSW										☐ FRP P6/7 Lift Shaft
A1720	Erect P8/9 Lift Shaft Steelwork	5d	07-Jan-13	11-Jan-13	05-01-5.0-A Au-NSW										I Erect P8/9 Lift Shaft Steelwork
A1730	Erect P10 Lift Shaft Steelwork	5d	14-Jan-13	18-Jan-13	05-01-5.0-A Au-NSW										
A1660	FRP P8//9 Lift Shaft	10d	21-Jan-13	05-Feb-13	05-01-5.0-A Au-NSW										☐ FRP P8//9 Lift Shaft
A1670	FRP P10 Lift Shaft	10d	06-Feb-13	19-Feb-13	05-01-5.0-A Au-NSW										☐ FRP P10 Lift Shaft
Control R	ooms				(Z. h				-1		TH	11111			
A3150	P10 Control Room	20d	23-Jan-12	21-Feb-12	05-01-5.0-A Au-NSW									1	P10 Control Room
A3100	P1 Control Room	20d	04-May-12	31-May-12	05-01-5.0-A Au-NSW										E P1 Control Room
A3110	P2/3 Control Room	20d	06-Aug-12	31-Aug-12	05-01-5.0-A Au-NSW										□ P2/3 Control Room
A3120	P4/5 Control Room	20d	06-Aug-12	31-Aug-12	05-01-5.0-A Au-NSW										P4/5 Control Room
	P8/9 Control Room	20d	01-May-13		05-01-5.0-A Au-NSW		1111	111	1-1-1-	1-1-1-1	111	1-1-1-1-			P8/9 Control Room
	P6/7 Control Room	20d	27-May-13		05-01-5.0-A Au-NSW										P6/7 Control Room
	on Managers Office / Station Facilitie														
	Construct New Station Managers	40d	08-Jul-13	30-Aug-13	05-01-5.0-A Au-NSW										Construct New Station Managers Office / Station Fa
	Fit-Out New Station Managers Offi	50d	02-Sep-13		05-01-5.0-A Au-NSW										Fit-Out New Station Managers Office / Station
New Ticke					(F.)		++++	+++		+	+++	 - - - -			
A3160	Construct Eastern Ticket Office	30d	08-Jul-13	16-Aug-13	05-01-5.0-A Au-NSW										Construct Eastern Ticket Office
A3180	Construct Western Ticket Office	30d		16-Aug-13	05-01-5.0-A Au-NSW										Construct Western Ticket Office
	Fit-Out Eastern Ticket Office	30d		27-Sep-13	05-01-5.0-A Au-NSW										Fit-Out Eastern Ticket Office
	Fit-Out Western Ticket Office			27-Sep-13 27-Sep-13	05-01-5.0-A Au-NSW										Fit-Out Western Ticket Office
	THE RESIDENCE OF THE PROPERTY	30d	15-Aug-13	21-3ep-13	03-01-3.0-A Au-NSW					++++					FIGUR Western Ticker Office
New GAC		40-1	20.00- 40	20 Na:: 42	05.04.50.4.4										
	Eastern GAC Booth	40d	30-Sep-13		05-01-5.0-A Au-NSW										Eastern GAC Booth
	Western GAC Booth	40d	30-Sep-13	26-Nov-13	05-01-5.0-A Au-NSW										Western GAC Booth
	Facilities / Store / Garbage Rooms			_											
A3240	Construct BOH Rooms	40d	30-Sep-13	26-Nov-13	05-01-5.0-A Au-NSW	1 1 1	8 8 8	1 1 1	1 1 1	11111	133	1 1 1 1	1.1.1	8	Construct BOH Rooms

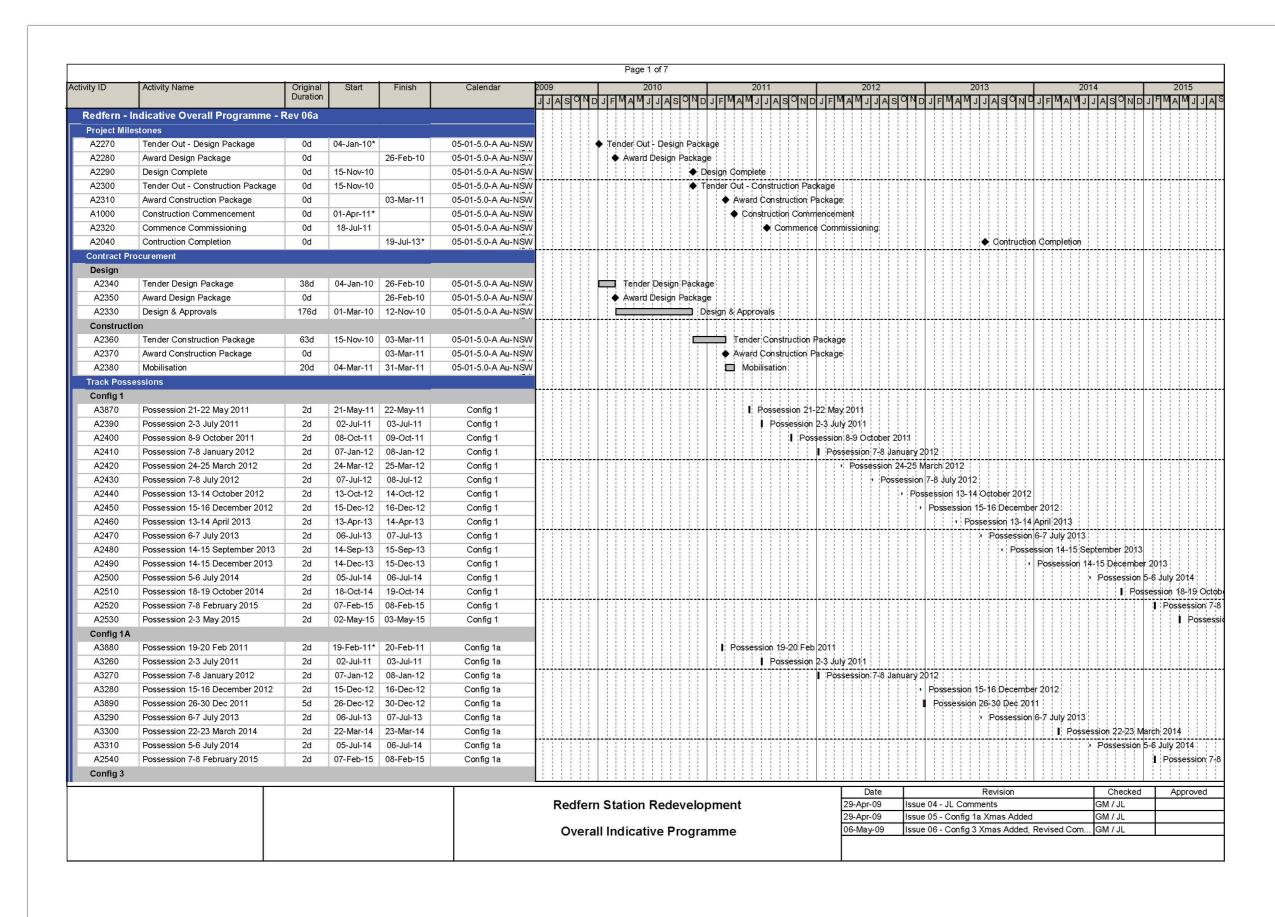
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ity ID	Activity Name	Original	Start	Finish	Calendar	2009 2010 2011 2012 2013 2014 2015
		Duration				JJASONDJEMAMJJASONDJEMAMJJASONDJEMAMJJASONDJEMAMJJASONDJEMAMJJASONDJEMAMJ
A3250	Finshes to BOH Rooms	20d	27-Nov-13	09-Jan-14	05-01-5.0-A Au-NSW	Finshes to BOH Rooms
The second secon	aid Pedestrian & Cycle Bridge			10 10 10 10 10 10 10 10 10 10 10 10 10 1		
Columns				_		
A1800	FRP P2/3 Unpaid Pedestrian/ Cyc	2d	17-Dec-11	18-Dec-11	Config 3	FRP P2/3 Unpaid Pedestrian/Cycle Bridge Columns
A1810	FRP P4/5 Unpaid Pedestrian/ Cyc	2d		18-Mar-12	Config 15	FRP P4/5 Unpaid Pedestrian/ Cycle Bridge Columns
A1790	FRP P1 Unpaid Pedestrian/ Cycle	2d		29-Apr-12	Config 3	I FRP.P1 Unpaid Pedestrian/ Cycle:Bridge:Columns
A1820	FRP P6/7 Unpaid Pedestrian/ Cyc	2d	05-May-12	06-May-12	Config 4	FRP:P6/7 Unpaid Pedestrian/ Cycle Bridge Columns
A1840	FRP P10 Unpaid Pedestrian/ Cycl	2d	15-Dec-12	16-Dec-12	Config 1a	FRP P10 Unpaid Pedestriah/ Cycle Bridge Columns / Abutment
	Pedestrian & Cycle bridge Structure					
A1740	Install Precast Structure P1 to P2	2d	21-Jul-12	22-Jul-12	Config 3	II Install Precast Structure P1/to P2
A1750	Install Precast Structure P3 to P4	2d		09-Sep-12	Config 3	I Install Precast Structure ₽3 to P4
A1760	Install Precast Structure P5 to P6	2d	A 100 CONSO CONS	23-Dec-12	Config 3	Install Precast Structure P5 to P6
A1780	Install Precast Structure P7 to P8	2d		12-May-13	Config 4	■ Install Precast Structure P7 to P8
A1770	Install Precast Structure P9 to P10	2d	06-Jul-13	07-Jul-13	Config 1a	inștali Precast Structure P9 to P10
	nstallations					
Lifts						
A3740	Install/Commission Lift P1	40d	21-May-12		05-01-5.0-A Au-NSW	Install/Commission Lift P1
A3750	Install/Commission Lift P2/3	40d	100000000000000000000000000000000000000	11-Sep-12	05-01-5.0-A Au-NSW	Install/Commission Lift P2/3
A3760	Install/Commission Lift P4/5	40d	12-Sep-12	08-Nov-12	05-01-5.0-A Au-NSW	Install/Commission Lift P4/5
A3770	Install/Commission Lift P6/7	40d	21-Jan-13	19-Mar-13	05-01-5.0-A Au-NSW	☐ Iḥstall/Commission Lift:P6/7
A3780	Install/Commission Lift P8/9	40d	20-Mar-13	21-May-13	05-01-5.0-A Au-NSW	∬ Install(Commission Lift;P8/9
A3790	Install/Commission Lift P10	40d	22-May-13	18-Jul-13	05-01-5.0-A Au-NSW	Install/Commission Lift.P10
ESR				_		# : : : : : :
A2020	Install Smoke Extraction System	10d	24-Mar-12	14-Apr-13	Config 1	Install Smoke Extraction System
A3600	Waterproofing to ESR Roof	30d	03-Sep-12	16-Oct-12	05-01-5.0-A Au-NSW	☐ Waterproofing to ESR Roof
Unpaid Pe	edestrian & Cycle Bridge	2		-		
A1860	Services to Footbridge	50d	13-May-13	23-Jul-13	05-01-5.0-A Au-NSW	Şeriviçeş to Footbridge
Concours	60					<i>A</i>
A1870	Services to Concourse	100d	08-Jul-13	26-Nov-13	05-01-5.0-A Au-NSW	Şejvijçeş to Çoncourse
Platform 8	Services to Awnings Etc.					A
A3580	P11/12 SPI's, CCTV, PA, Help Poi	50d	11-May-12	23-Jul-12	05-01-5.0-A Au-NSW	P11/1/2 SRI's, CCTV, PA, Help Points, Precise Clocks
A3520	P1 SPI's, CCTV, PA, Help Points,	50d	23-Jul-12	28-Sep-12	05-01-5.0-A Au-NSW	Pi,SPI's, CCTV, PA, Help Points, Priedise Clocks
A3530	P2/3 SPI's, CCTV, PA, Help Points	50d	10-Sep-12	20-Nov-12	05-01-5.0-A Au-NSW	☐ F2/3 SPI's, CCTV, PA, Help Foints, Precise Clooks
A3540	P4/5 SPI's, CCTV, PA, Help Points	50d	07-Jan-13	19-Mar-13	05-01-5.0-A Au-NSW	P4/5 \$PI's, CCTV; PA, Help Points, Precise Clocks
A3550	P6/7 SPI's, CCTV, PA, Help Points	50d	13-May-13	23-Jul-13	05-01-5.0-A Au-NSW	P6/7 \$PI's CCTV, PA, Help Points, Precise Clocks
A3560	P8/9 SPI's, CCTV, PA, Help Points	50d	08-Jul-13	13-Sep-13	05-01-5.0-A Au-NSW	/ P8/9 SPlts, CCTV, PA, Help; Points, Precise Clocks
A3570	P10 SPI's, CCTV, PA, Help Points,	50d	08-Jul-13	13-Sep-13	05-01-5.0-A Au-NSW	Pitol SPI's, CCTV, PA, Help Points, Predise Clocks
Finishes					(F. 1)	
Unpaid Pe	edestrian & Cycle Bridge					
A1850	Finishes to Unpaid Footbridge	100d	12-Jun-13	31-Oct-13	05-01-5.0-A Au-NSW	Finishes to Unpaid Footbridge
Concours	se					
A1880	Finishes to Concourse	100d	05-Aug-13	09-Jan-14	05-01-5.0-A Au-NSW	Finishes to Condourse
Platform /	Awnings				25.1	
A3810	Awnings to P2/3	6d	28-Apr-12	09-Sep-12	Config 3	I——I—I Avnings to P2/3
A3820	Awnings to P4/5	6d	05-May-12	21-Oct-12	Config 4	l ⊢ ⊢ t + ⊢ 1 Awnings to P4/5
A3830	Awnings to P6/7	6d	05-May-12	21-Oct-12	Config 4	1 → 1 → 1 Αwηlings to P6/7
A3840	Awnings to P8/9	6d	07-Jul-12	16-Dec-12	Config 1	Awrings to P8/9
Platform (General Finishes					
A2100	Finshes to P10	2d	13-Oct-12	14-Oct-12	Config 1	Finshes to P10
A2050	Finishes to P1	2d		23-Dec-12	Config 3	□ Finishes to P1
A2060	Finishes to P2/3	2d		05-May-13	Config 3	• Finishes to P2/3
	Finishes to P8/9	2d	(5)	07-Jul-13	Config 1	Finishes to P8/9
A2090						

Cost and Constructability Report Progamme based on Standard Railcorp possession regime

tivity ID	Activity Name	Original	Start	Finish	Calendar	2009			010		2011			2012			2013			2014			2015
		Duration				JJA	SOND	J F M A M .	JASON	DJFMAM	JJAS	ONDJF	MAM	JJAS	SOND	JFMA	MJJA	ASONI				JFMA	MJ
A2070 A2080	Finishes to P4/5	2d		09-Mar-14 09-Mar-14	Config 15 Config 15	- 111													E 6 6	nishes to I nshes to F	1 1 1		
	Finshes to P6/7 een Concourse & ESR	2d	00-War-14	09-Mar-14	Config 15															rishes to F	70//		
A3610	Remediate Existing Steelwork	20d	12-Aug-11	08 San 11	05-01-5.0-A Au-NSW							Remediate	Evicting	Stanky	ork								
A3620	New Steelwork to Walkway	15d	09-Sep-11		05-01-5.0-A Au-NSW							New Stee											
A3630	Bondek Slab to Concourse Level	15d	30-Sep-11		05-01-5.0-A Au-NSW							■ Bondek											
A3640	Deck & Clad Walkway	10d	25-Oct-11		05-01-5.0-A Au-NSW	S. I. I.						Deck 8											
A3680	Escalators	30d	25-Oct-11	07-Dec-11	05-01-5.0-A Au-NSW				 			Esc		-1-1-1				++-+-					
A3650	Services to Walkway	30d	08-Nov-11		05-01-5.0-A Au-NSW	0. 1 1						☐ Se		Walkwa	av								
A3660	Finishes Walkway	30d	22-Dec-11		05-01-5.0-A Au-NSW							0 0 0	Finish	0 0 0	-0.0								
A3670	Construct Skylights	16d		15-Sep-13	Config 1							F		111	1114			Cons	truct Skylig	hts			
	& Completion																						
A1890	Defect Rectification Period	10d	10-Mar-14	21-Mar-14	05-01-5.0-A Au-NSW	/ -ii			1-1-1-1-1-											Defect Red	tification F	Period	
A1900	Construction Completion	0d		21-Mar-14	05-01-5.0-A Au-NSW		5 5 5 3 1							1 1 1	111				1 1 1		1 1 1	1 1 1 1	2 2 3
						S. I I													F F F	onstruction	n Comple	uget, , ,	
						S. I I													F F F		n Comple		

Cost and Constructability Report Progamme based on preferred Railcorp possession regime

Redfern Station Redevelopment Redfern Station Redevelopment **Bovis** Appendix C Proposed revised concept design – Programme based on <u>preferred</u> RailCorp possession regime Redfern Station Redevelopment - Cost and Constructability Report 20 July 2009 29 Redfern Station Redevelopment - Cost and Constructability Report 20 July 2009



tivity ID	Activity Name	Original	Start	Finish	Calendar	2009		20	10	2011 2012 2013 2014 2015
		Duration				JJASON	DJF	1AMJ	JASON	YDJFMAMJJASQNDJFMAMJJASQNDJFMAMJJASQNDJFMAMJJASQNDJFMAMJ
A3900	Possession 12-13 Feb 2011	2d	12-Feb-11*	13-Feb-11	Config 3					Possession 12-13 Feb 2011
A3910	Possession 4-5 June 2011	2d	04-Jun-11	05-Jun-11	Config 3					Passession 4-5 June 2011
A2550	Possession 16-17 July 2011	2d	16-Jul-11	17-Jul-11	Config 3					
A2560	Possession 10-11 September 2011	2d	10-Sep-11	11-Sep-11	Config 3					I Possession 10-11 September 2011
A2570	Possession 17-18 December 2011	2d	17-Dec-11	18-Dec-11	Config 3					Possession 17-18 December 2011
A2580	Possession 28-19 April 2012	2d	28-Apr-12	29-Apr-12	Config 3					I Possession 28-19 April 2012
A2590	Possession 21-22 July 2012	2d	21-Jul-12	22-Jul-12	Config 3					II Possession 21-22 July 2012
A2600	Possession 8-9 September 2012	2d	08-Sep-12	09-Sep-12	Config 3					I Possession 8₁9 September 2012
A2610	Possession 22-23 December 2012	2d	22-Dec-12	23-Dec-12	Config 3					Possession 22-23 December 2012
A3920	Possession 26-30 Dec 2012	5d	26-Dec-12	30-Dec-12	Config 3					I Possession 26 30 Dec 2012
A2620	Possession 4-5 May 2013	2d	04-May-13	05-May-13	Config 3					Possession 4-5 May 2013
A2630	Possession 13-14 July 2013	2d	13-Jul-13	14-Jul-13	Config 3					Possession 13-14 July 2013
A2640	Possession 21-22 September 2013	2d	21-Sep-13	22-Sep-13	Config 3			11111	TTTTT	Possession 21-22 September (2013
A2650	Possession 5-6 April 2014	2d	05-Apr-14	06-Apr-14	Config 3					Possession 5-6 April 2014
A2660	Possession 19-20 July 2014	2d	19-Jul-14	20-Jul-14	Config 3					Possession 19-20 July 20
A2670	Possession 15-16 November 2014	2d	15-Nov-14	16-Nov-14	Config 3	$\exists 1111111$				Possession 15-10
A2680	Possession 16-17 May 2015	2d		17-May-15	Config 3	-				Po
Config 4			,					+-+-+-+		
A3930	Possession 29-30 Jan 2011	2d	29-Jan-11*	30-Jan-11	Config 4					Possession 29-30 Jan 2011
A3940	Possession 25-26 June 2011	2d	25-Jun-11	26-Jun-11	Config 4					Pośsessioh 25-26 Júne 2011
A2690	Possession 23-24 July 2011	2d	23-Jul-11	24-Jul-11	Config 4					Possession 23-24 July 2011
A2700	Possession 29-30 October 2011	2d	29-Oct-11	30-Oct-11	Config 4					Possession 29-30 October 2011
A2700 A2710		2d 2d	05-May-12		Config 4					Possession 29-59 October 29 1
	Possession 5-6 May 2012	2d 2d		-			111	1111		2 2 3 3 3 3 3 3 3 3
A2720	Possession 28-29 July 2012		28-Jul-12	29-Jul-12	Config 4					Possession 28-29 July 2012
A2730	Possession 20-21 October 2012	2d	20-Oct-12	21-Oct-12	Config 4					Possession 20-21 October 2012
A2740	Possession 11-12 May 2013	2d	11-May-13	12-May-13	Config 4					■ Possession 11-12 May 2013
A2750	Possession 27-28 July 2013	2d	27-Jul-13	28-Jul-13	Config 4		444			Possession 27-28 July 2013
A2760	Possession 19-20 October 2013	2d	19-Oct-13	20-Oct-13	Config 4					II Possession 19-20 October 2013
A2770	Possession 3-4 May 2014	2d	03-May-14	04-May-14	Config 4					■ Possession 3-4 May 2014
A2780	Possession 26-27 July 2014	2d	26-Jul-14	27-Jul-14	Config 4					Possession 26-27 July 20
A2790	Possession 22-23 November 2014	2d	22-Nov-14	23-Nov-14	Config 4					I Possession 22:2
A2800	Possession 23-24 May 2015	2d	23-May-15	24-May-15	Config 4					I.P.
Config 8										
A3950	Possession 5-6 Feb 2011	2d	05-Feb-11*	06-Feb-11	Config 8					Possession 5-6 Feb 2011
A3960	Possession 12-13 Mar 2011	2d	12-Mar-11	13-Mar-11	Config 8					I Possession 12-13 Mar 2011
A3970	Possession 9-10 Apr 2011	2d	09-Apr-11	10-Apr-11	Config 8		111	1111		I Possession 9-10 Abr 2011
A2810	Possession 20-21 August 2011	2d	20-Aug-11	21-Aug-11	Config 8					I Possession 20-21 August 2011
A2820	Possession 26-27 November 2011	2d	26-Nov-11	27-Nov-11	Config 8		1111	1111	777777	Possessian 26;27, November 2011
A2830	Possession 28-29 January 2012	2d	28-Jan-12	29-Jan-12	Config 8					I Possession 28-29 January 2012
A2840	Possession 26-27 May 2012	2d	26-May-12	27-May-12	Config 8					Possession 26-27 May 2012
A2850	Possession 25-26 August 2012	2d	25-Aug-12	26-Aug-12	Config 8					Possession 25-26 August 2012
A2860	Possession 24-25 November 2012	2d	24-Nov-12		Config 8					Possession 24-25 November 2012
A2870	Possession 26-27 January 2013	3d		28-Jan-13	Config 8					l Possession 26-27 January 2013
A2880	Possession 15-16 June 2013	2d	15-Jun-13	16-Jun-13	Config 8					Possession 15-16 June 2013
A2890	Possession 24-25 August 2013	2d	24-Aug-13		Config 8					Possession 24-25 August 2013
A2900	Possession 16-17 November 2013	2d		17-Nov-13	Config 8					Possession 16-17 November 2013
A2910	Possession 15-16 February 2014	2d	15-Feb-14	16-Feb-14	Config 8	-				Possession 15-16 February 2014
	-							╁╁┼┼		
A2920	Possession 31 May to 1 June 2014	2d	31-May-14		Config 8					Possession 31 May to 1 June
A2930	Possession 30-31 August 2014	2d	30-Aug-14		Config 8					I Possession 30-31 Augi
A2940	Possession 1-2 November 2014	2d	01-Nov-14		Config 8					I Possession 1-2 N
A2950	Possession 21-22 February 2015	2d	21-Feb-15	22-Feb-15	Config 8					I Possessi
Config 15										
A2980	Possession 10-11 December 2011	2d	10-Dec-11	11-Dec-11	Config 15	6 6 6 6 6 6	1 1	1 1 1 1	1 1 1 1 1	I Possession 10-11 December 2011

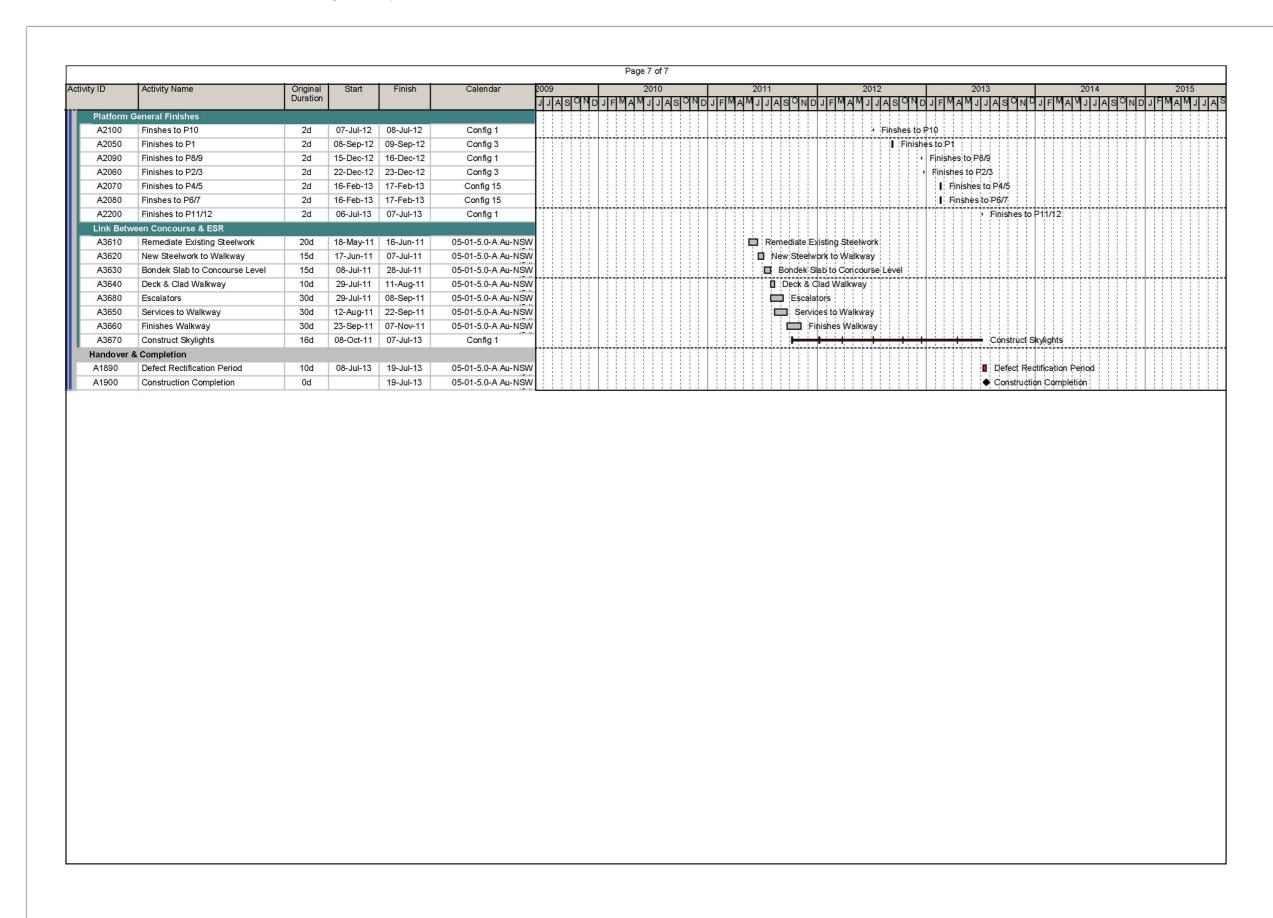
									Page 3	OT /																		
tivity ID	Activity Name	Original	Start	Finish	Calendar	2009			201	0		2	011			Š	2012			20	13			2014			2	2015
		Duration					SON	DJFM	AMJ	JASONI	DJF	МАМ.	JJA	SONI	JFN	МАМ	JJAS	OND	J F M	AM J	JASO	NPJ	FMAV	JJA	ASO	идл	FMA	MJ
A2990	Possession 17-18 March 2012	2d	17-Mar-12	18-Mar-12	Config 15										110	Pos	session 1	7-18 M	rch 201	2 : :					111			
A3000	Possession 17-18 November 2012	2d	17-Nov-12	18-Nov-12	Config 15	1111												I P	ossessi	on 17-1	18 Novem	ber 20	12					
A3010	Possession 16-17 February 2013	2d	16-Feb-13	17-Feb-13	Config 15	1111													I Po	ssessi	on 16-17	Februa	ry 2013					
A3020	Possession 7-8 December 2013	2d	07-Dec-13	08-Dec-13	Config 15	1111																I Po	ossession	17-8 D€	ecembe	er 201	3	
A3030	Possession 8-9 March 2014	2d	08-Mar-14	09-Mar-14	Config 15							TIT											Pos	session	n 8-9 Ma	arch 2	014	
A3040	Possession 11-12 October 2014	2d	11-Oct-14	12-Oct-14	Config 15	1111																			1 F	Posses	sion 1	1-12
A3050	Possession 18-19 April 2015	2d	18-Apr-15	19-Apr-15	Config 15	1111																						Pos
Construction	n																											
Site Establi	shment																											
A1020	Erect Site Hoardings / Fences	10d	01-Apr-11	14-Apr-11	05-01-5.0-A Au-NSW							☐ Ere	ect Site	Hoardi	igs / Fe	ences												
A1010	Clear Vegetation	5d	15-Apr-11	21-Apr-11	05-01-5.0-A Au-NSW	/						D CI	ear Ve	getation														
A1030	Construction Site Accomodation /	10d	27-Apr-11	10-May-11	05-01-5.0-A Au-NSW	1							Constr	uction Si	e Acco	modat	ion / Fac	lities										
A1040	Temporary Services	10d	04-May-11	17-May-11	05-01-5.0-A Au-NSV	/							Tempo	rary Ser	vices													
A1050	Site Establishment Complete	0d		17-May-11	05-01-5.0-A Au-NSW	1						•	Site E	stablishn	nent Co	mplete												
Early / Enal	oling Works									THIT																		
A3320	Electrical Applications / Approvals	30d	18-Feb-11	31-Mar-11	05-01-5.0-A Au-NSW	4						Elec	ctrical	Applicati	ons / Ap	pprova	ls											
A1060	Relocate surburban Power Line - L	5d	01-Apr-11	07-Apr-11	05-01-5.0-A Au-NSW	/						I Rel	ocate	surburba	n Powe	er Line	- Little E	veleigh	Street									
A1070	On Site Services Searches & Ident	10d	15-Apr-11	03-May-11	05-01-5.0-A Au-NSW	4						1 1 1	1 1 1	1 1 1	1 1	1 1 1	Identifica	tion									Ш	
A1090	Early / Enabling Works Complete	0d		17-May-11	05-01-5.0-A Au-NSW	4						•	Early /	Enabling	Works	s Com	plete											
Services Di	versions				- A-T-A							TIT																
A2150	Services Diversions / Relocation P	2d	21-May-11	22-May-11	Config 1	1111						1	Servic	es Diver	sions /	Reloc	ation P8/9											
A2160	Services Diversions / Relocation P10	2d	21-May-11	22-May-11	Config 1	1111							Servic	es Diver	sions /	Reloc	ation P10											
A2110	Services Diversions / Relocation P1	2d	04-Jun-11	05-Jun-11	Config 3	1111							Servi	ces Dive	rsions /	/Relo	cation P1											
A2120	Services Diversions / Relocation P	2d	04-Jun-11	05-Jun-11	Config 3	1111						114	Servi	ces Dive	rsions /	/ Relo	ation P2	3										
A2130	Services Diversions / Relocation P	2d	25-Jun-11	26-Jun-11	Config 4								Ser	vices Di	versions	s:/Rel	odation P	4/5										
A2140	Services Diversions / Relocation P	2d	25-Jun-11	26-Jun-11	Config 4	1111							Ser	vices Di	versions	s / Rel	ocation P	6/7										
Demolition	Works	-				4111																						
Little Evel	eigh Street																											
A1100	Erect Local Hoardings / Scaffold &	5d	18-May-11	24-May-11	05-01-5.0-A Au-NSW	1						0	Erect	Local Ho	ardings	s / Sca	ffold & S	creens										
A1110	Demolish Existing Structure - Little	10d	25-May-11	07-Jun-11	05-01-5.0-A Au-NSW	4							Dem	olish Exi	sting St	tructur	e - Little E	veleigh	Street									
Platforms																												
A1120	Part Demolish Existing P4/5 Struct	10d	18-May-11	31-May-11	05-01-5.0-A Au-NSW	1						0	Part [Demolish	Existin	ng P4/	Structur	es										
A2030	Erect Hoarding to P10	5d	18-May-11	24-May-11	05-01-5.0-A Au-NSW	7						0	Erect	Hoarding	to P10	0												
A2210	Control Room Migration Works - S	60d	18-May-11	11-Aug-11	05-01-5.0-A Au-NSW	7						 		Control	Room N	Vigrati	on Works	- Stage	d									
A1150	Demolish Existing P10 Structure &	10d	25-May-11	07-Jun-11	05-01-5.0-A Au-NSW	1						0	Dem	olish Exi	sting P1	10 Stri	icture & \	Vall		777								
A1440	Demolish P2/3 Awning	2d	04-Jun-11	05-Jun-11	Config 3	1111			\square			1 1	Dem	olish P2/	3 Awnin	ng												Ш
A1130	Demolish Existing P6/7 Structures	2d	25-Jun-11	26-Jun-11	Config 4	1111							Der	nolish E	xisting F	P6/7 S	tructures											
A1140	Demolish Existing P8/9 Structures	2d	02-Jul-11	03-Jul-11	Config 1a	1111							De	molish E	xisting	P8/9 \$	Structures											
A1160	Demolish P2/3 Northern Stairs	2d		11-Sep-11	Config 3	1111								Demo	lish P2	/3 Nor	thern Sta	rs										
ESR										77777		TIT								TTI								
A3330	Erect Hoarding to Park above ESR	5d	18-May-11	24-May-11	05-01-5.0-A Au-NSW	1						0	Erect	Hoardin	to Par	k abo	e ESR (Sibbons	Street)									
A3590	Remediation to ESR Structural Be	20d	21-May-11	07-Jul-13	Config 1	1111						-	+++	1			111			4	Remed	iation to	o ESR Str	ructural	l Beam	is		
A1200	Erect Local Hoardings / Catch Decks	5d	25-May-11	31-May-11	05-01-5.0-A Au-NSW	1						1	Erect	Local H	oarding	s / Cal	ch Decks											
A1170	Construct new Southern EES - Fo	2d	02-Jul-11	0.000	Config 1								I Co	nstruct	ew Sou	uthern	EES - Fo	undatio	n Works	3								
A1990	Construct new Southern EES	5d	04-Jul-11	08-Jul-11	05-01-5.0-A Au-NSW	4							1 C	nstruct	rew Sou	uthern	EE\$											
A2000	Steelwork to EES	2d	08-Oct-11	09-Oct-11	Config 1	1111								9 9 9	elwork t	10 10 10	0.00											
A1210	Demolish Existing Stair	10d	10-Oct-11	21-Oct-11	05-01-5.0-A Au-NSW	1								□ De	molish	Existin	ng Stair											
A2220	Excavate & Construct new Escalat	5d	24-Oct-11	28-Oct-11	05-01-5.0-A Au-NSW	7								B E	cavate	& Co	nstruct ne	w Esca	lator Pit									
A2170	Install New Escalators to Stair Loc	2d		08-Jan-12	Config 1	1111									1 1	1 1 1	w Escala	1 1	1 1 1	1 1 1								
A2230	Fit-Out / Commission Escalator	30d		21-Feb-12	05-01-5.0-A Au-NSW	/				+++++	++++						t / Comm											
A1190	Demolish Existing ESR Escalators	2d		25-Mar-12	Config 1											Der	nolish Ex	sting E	SR Esca	alators								
A1180	Construct new City End Stairs	30d		10-May-12	05-01-5.0-A Au-NSW	4										1 1 1	Construc	1 7	0.1.1	1 1 1								
A2180	Construct Slabs to Voids	10d		24-May-12	05-01-5.0-A Au-NSW		2 2 3	1 0 0	0 0 0 0	0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	1 8 8	0.00	0.00	0.00	1 2 3	1 1	Constru		1 1 1	1 1 1	1 1 1 1	1 1 1 1	6 2 2 27	4 6 6 7	111			

								Page 4 of 7		
ivity ID	Activity Name	Original	Start	Finish	Calendar	2009		2010	2011 2012 2013 2014	2015
	•	Duration				JJ	ASONI	JFMAMJJASOND	JEMAMJJASONO JEMAMJJASONO JEMAMJJASONO JEMAMJJASONOJ	FMAMJJ
A2190	Demolish Existing Roof to Escalat	10d	25-May-12	07-Jun-12	05-01-5.0-A Au-NSW				Demolish Existing Roof to Escalator, Machine Room Level	
A3860	Fire Rating of Existing Beams	8d	13-Oct-12	07-Jul-13	Config 1	111			Fire Rating of Existing Beams	
Civil / Sub	structure Works									
New Paic	l Concourse									
A1350	Form P1 Pile Foundations	20d	06-Jun-11	05-Jul-11	05-01-5.0-A Au-NSW				Form P1 Pile Foundations	
A1220	Construct Western Abutment	20d	08-Jun-11	07-Jul-11	05-01-5.0-A Au-NSW				Construct Western Abutment	
A1230	Construct Eastern Abutment	20d	08-Jun-11	07-Jul-11	05-01-5.0-A Au-NSW	1-1-1		+++++++++++++	Construct Easfern Abutment	
A1260	Form P2/3 Pile Foundations	10d	06-Jul-11	19-Jul-11	05-01-5.0-A Au-NSW	Ш			III Form P2/3 Pile Foundations	
A1240	Construct Western Apron	20d	08-Jul-11	04-Aug-11	05-01-5.0-A Au-NSW				Construct Western Apron	
A1270	Form P4/5 Pile Foundations	10d	20-Jul-11	02-Aug-11	05-01-5.0-A Au-NSW				☐ Form P4/5 Pile Foundation's	
A1280	Form P6/7 Pile Foundations	10d	03-Aug-11		05-01-5.0-A Au-NSW				☐ Form P6/7 Pile Foundations	
A1290	Form P8/9 Pile Foundations	10d		30-Aug-11	05-01-5.0-A Au-NSW				Form P8/9 Pile Foundations	/
A1420	Form P10 Pile Foundations	20d	31-Aug-11	-	05-01-5.0-A Au-NSW				Form P10 Pile Foundations	
	aid Pedestrian & Cycle bridge				67 K					
A1250	Form P1 Pile Foundations	2d	16-Jul-11	17-Jul-11	Config 3				. Form P1 Pile Foundátions	
A1310	Form P2/3 Pile Foundations	2d		21-Aug-11	Config 8	Ш			Form P2/3 Pile Foundations	
A1430	Form P10 Pile Foundations	2d 2d	08-Oct-11		Config 1				Form P10 Pile Foundations	
A1320	Form P4/5 Pile Foundations	2d		11-Dec-11	Config 15				I Form P4/5 Pile Foundations	
A1330	Form P6/7 Pile Foundations	2d	0.000 0.0000 0.00	11-Dec-11	Config 15				Form P6/7 Pile Foundations	
		Zu	10-Dec-11	TI-Dec-TI	Cornig 15				I Forth Poly Pile Foundations	
Headstoo	***5	00.1	00 1 144	40.4	05.04.5.0.4.4. NOW					
A3350	P2/3 Headstocks	20d		16-Aug-11	05-01-5.0-A Au-NSW				□ P2/3 Headstocks	
A3360	P4/5 Headstocks	20d	2007 10 200	30-Aug-11	05-01-5.0-A Au-NSW				P4/5 Headstocks	
A3370	P6/7 Headstocks	20d		13-Sep-11	05-01-5.0-A Au-NSW				P6/7 Headstocks	
A3380	P8/9 Headstocks	20d	31-Aug-11	27-Sep-11	05-01-5.0-A Au-NSW				P8/9 Headstocks	
Platform	Lift Pits									
A1360	FRP P1 Lift Pit	5d	18-Jul-11	22-Jul-11	05-01-5.0-A Au-NSW				III FRP P1 Litt Pitt III III III III III III III III III	
A1370	FRP P2/3 Lift Pit	2d	10-Sep-11	11-Sep-11	Config 3				IFRP P2/3 Lift Pit	
A1400	FRP P8/9 Lift Pit	2d	08-Oct-11	09-Oct-11	Config 1				I FRP P8/9 Lift Pit	
A1410	FRP P10 Lift Pit	5d	10-Oct-11	14-Oct-11	05-01-5.0-A Au-NSW				■ FRP P10 Lift Pit	
A1380	FRP P4/5 Lift Pit	2d	10-Dec-11	11-Dec-11	Config 15				II FRP P4/5 Lift Pit	
A1390	FRP P6/7 Lift Pit	2d	05-May-12	06-May-12	Config 4				r FRP:P6/7; Lift Pit	
Awnings										
A3410	Awning Piles P2/3	5d	28-Sep-11	06-Oct-11	05-01-5.0-A Au-NSW				Awning Piles P2/3	
A3420	Awning Piles P4/5	5d	07-Oct-11	13-Oct-11	05-01-5.0-A Au-NSW				I Awning Piles P4/5	
A3430	Awning Piles P6/7	5d	14-Oct-11	20-Oct-11	05-01-5.0-A Au-NSW				■ Awhing Piles P6/7:	
A3440	Awning Piles P8/9	5d	21-Oct-11	27-Oct-11	05-01-5.0-A Au-NSW				L Awning Piles P8/9	
Platform	Resurfacing						HIII			
A1970	Resurface P10	8d	02-Jul-11	25-Mar-12	Config 1	Ш			Resurface P10	
A1920	Resurface P1	8d	10-Sep-11	22-Jul-12	Config 3	Ш			I——I Reşurfaçe P1	
A1940	Resurface P4/5	6d	10-Dec-11	18-Nov-12	Config 15				I IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	
A1950	Resurface P6/7	6d	10-Dec-11	18-Nov-12	Config 15				Resurface P6/7	
A1930	Resurface P2/3	8d		09-Sep-12	Config 3	1	7777	 	Resurface P2/3	. 1 1 1 1 1 1 1
A1960	Resurface P8/9	8d		14-Oct-12	Config 1				Resurface P8/9	
A1300	Resurfacing of P11/12	8d		14-Apr-13	Config 1				Resurfacing of P11/12	
97 1000000000000	cture Works			5.50 PH 15						
New Con										
Column	30.25.00.00.00.00			:=				++++++++++++		
A1500	FRP P10 Concourse Columns / Ab	10d	18_Mav_11	31-May-11	05-01-5.0-A Au-NSW				■ FRP P10 Cancourse Columns / Abutment	
A1450	FRP P10 Concourse Columns / Ab FRP P1 Concourse Columns / Abu	10d			05-01-5.0-A Au-NSW	Ш			☐ FRP P1 Concourse Columns / Abutment	
	FRP P1 Concourse Columns / Abu FRP P2/3 Concourse Columns		06-Jul-11	19-Jul-11	7 E 15					
A1460	, take a man become and become	5d		26-Jul-11	05-01-5.0-A Au-NSW				II FRP P2/3 Concourse Columnis	
A1470	FRP P4/5 Concourse Columns	5d	03-Aug-11		05-01-5.0-A Au-NSW				I FRP P4/5 Concourse Columns	
A1480	FRP P6/7 Concourse Columns	5d		23-Aug-11	05-01-5.0-A Au-NSW				II FRP 96/7 Concourse Columns	
A1490	FRP P8/9 Concourse Columns	5d	31-Aug-11	06-Sep-11	05-01-5.0-A Au-NSW	1 1 1	1111		FRP:P8/9 Concourse Columns:	

								Fay	je 5 of	1																			
y ID	Activity Name	Original	Start	Finish	Calendar	2009			2010			201	1			2012				2013				201	4			20	1:
		Duration				JJASO	NDI	FMA	N J J	ASONE	JFMA	MJJ	JASO	NDI	FMA	MJJA	SON	DJF	MAN	N 1	ASO	NP.	JFMA	Mal.	JAS	ONE	JFI	MAN	1
Concour	se Structure																												1
A1550	Install Precast Structure P9 to P10	2d	02-Jul-11	03-Jul-11	Config 1a							1	Install F	Precast	Structu	e P9 to F	10												į
A1510	Install Precast Structure P1 to P2	2d	10-Sep-11	11-Sep-11	Config 3								I In	stall Pre	ecast St	ructure F	1 to P2	2											-
A1520	Install Precast Structure P3 to P4	2d	10-Sep-11	11-Sep-11	Config 3								I In	stall Pre	ecast St	ructure F	3 to P4								777				1
A3690	Structural Topping to PC Decks	10d	12-Sep-11	23-Sep-11	05-01-5.0-A Au-NSW								0.8	Structura	al Toppi	ng to PC	Decks												-
A1530	Install Precast Structure P5 to P6	2d	29-Oct-11	30-Oct-11	Config 4								1111	Instal	ll Precas	st Structu	re P5 to	0 P6											-
A3700	Structural Topping to PC Decks	10d	31-Oct-11	11-Nov-11	05-01-5.0-A Au-NSW									Struc	ctural T	opping to	PC De	cks											-
A3480	Roofing to Precast Structure P1 to	2d	17-Dec-11	18-Dec-11	Config 3			1 1 1	111				111	· R	Roofing t	Precasi	Struct	ure P1	to P2	1 1 1	111				1 1 1	1 1	11	1	-
A3490	Roofing to Precast Structure P3 to	2d	17-Dec-11	18-Dec-11	Config 3			††††		-1-1-1-1-	<u> </u>	 	TT::::	· R	oofing	o Precas	Struct	ure P3	o P4	1-1-1							1111		-
A1540	Install Precast Structure P7 to P8	2d	07-Jan-12	08-Jan-12	Config 1a									1	Install F	Precast S	tructure	P7 to	P8						111				-
A3460	Structural Topping to PC Decks	5d	09-Jan-12	13-Jan-12	05-01-5.0-A Au-NSW									1	Structu	ral Toppi	ng to P	C Deck	S										-
A3500	Roofing to Precast Structure P5 to	2d	05-May-12	06-May-12	Config 4											Roofing	to Pre	cast St	ructure	P5 to	P6								-
A3470	Roofing to Precast Structure P9 to	2d	15-Dec-12	16-Dec-12	Config 1a													Roc	fing to	Preca	st Stru	cture	P9 to P	10					
A3510	Roofing to Precast Structure P7 to	2d		16-Dec-12	Config 1a		1111				 	 									-+-+		P7 to P8						-+
Platform		(A) (C)			0000000 3 0000																								-
A1980	Construct New P2/3 EES	4d	04-Jun-11	17-Jul-11	Config 3							-	Const	ruct Nev	w P2/3 f	EES													-
A1610	FRP P10 Stairs	10d	04-Jul-11		05-01-5.0-A Au-NSW							1 1 1	FRPF	0.00	1 1 1 1	Till													-
A1560	Place P1 Stairs	4d		15-Sep-11	05-01-5.0-A Au-NSW								1 1 1	lace P1															1
A1570	Place P2/3 Stairs	2d		18-Dec-11	Config 3						╁╌┼╌┼╌				lace P2	/3 Stairs													4
A1580	Place P4/5 Stairs	2d		18-Dec-11	Config 3									8 8 1 3	1 5 5 1	/5 Stairs													-
A3720	P2/3 Stair Construction	10d	19-Dec-11	222 32 2000	05-01-5.0-A Au-NSW											air Const	truction												-
A3730	P4/5 Stair Construction	10d	19-Dec-11		05-01-5.0-A Au-NSW									117	1111	air Const	1 1 1	6 6											-
A1600	Place P8/9 Stairs	2d	1000 000 000	25-Mar-12	Config 1									T		lace P8/9	1 1	2 2											
	P8/9 Stair Construction			11-Apr-12	05-01-5.0-A Au-NSW				4-4-4				+											+-+-+-					
A1830		10d													1 7	P8/9 Stai	1 1	1	Ш										
A1590	Place P6/7 Stairs	2d		06-May-12	Config 4											1 1 1	1 1 1												-
A3710	P6/7 Stair Construction	10d	07-May-12	18-May-12	05-01-5.0-A Au-NSW											P6/7 S	stair Co	nstruct	on										-
Lift Shaft			10.0 11	40.0	05.04.5.0.4.4										1.0.01	0.01													-
A1680	Erect P1 Lift Shaft Steelwork	5d		16-Sep-11	05-01-5.0-A Au-NSW				4-4-4			ļļļ-		·		ft Steelw													
A1690	Erect P2/3 Lift Shaft Steelwork	5d		16-Sep-11	05-01-5.0-A Au-NSW								9 9 9	3 3 1 3	0 6 6 6	haft Stee	Work												-
A1620	FRP P1 Lift Shaft	10d		30-Sep-11	05-01-5.0-A Au-NSW								1 1 7	1 1 1 3	Lift Sha	1 1 1													-
A1630	FRP P2/3 Lift Shaft	10d		30-Sep-11	05-01-5.0-A Au-NSW								1 17		2/3 Lift \$	1 1 1													
A1700	Erect P4/5 Lift Shaft Steelwork	5d	. 00000 2000000000000		05-01-5.0-A Au-NSW								5 5 5			ift Shaft S	Steelwo	rk									11		-
A1640	FRP P4/5 Lift Shaft	10d		18-Nov-11	05-01-5.0-A Au-NSW		بالبب	444	بالبا			ļļ.ļ.			P P4/5 L		<u> </u>	بإبا		ļ.ļ.ļ.ļ			4-4-4-		ļ.ļ.ļ.		4-4-4	ļļ.	
A1710	Erect P6/7 Lift Shaft Steelwork	5d	09-Jan-12		05-01-5.0-A Au-NSW									1 1 1	1 1 1 1	6/7 Lift S	1 1 1	eelwork											-
A1650	FRP P6/7 Lift Shaft	10d		31-Jan-12	05-01-5.0-A Au-NSW									8 8 15		P6/7 Lift 8													1
A1720	Erect P8/9 Lift Shaft Steelwork	5d		20-Jan-12	05-01-5.0-A Au-NSW										1 1 1 1	98/9 Lift 8	1 1 1	1	1 1										
A1730	Erect P10 Lift Shaft Steelwork	5d		31-Jan-12	05-01-5.0-A Au-NSW									8 8 1 3		P10 Lift :		5 1 5 1	k										
A1660	FRP P8//9 Lift Shaft	10d	01-Feb-12	14-Feb-12	05-01-5.0-A Au-NSW		Щ		أحلحا				111	J		P8//9 Lif				أحليا						- <u> </u>		ļ.i.	1
A1670	FRP P10 Lift Shaft	10d	15-Feb-12	28-Feb-12	05-01-5.0-A Au-NSW										□ FR	P10 Lif	Shaft												1
Control I	Rooms																												1
A3150	P10 Control Room	20d	18-Jul-11	12-Aug-11	05-01-5.0-A Au-NSW								P10	Control	Room														-
A3100	P1 Control Room	20d	16-Sep-11	17-Oct-11	05-01-5.0-A Au-NSW									P1 Co	ntrol Ro	om													1
A3110	P2/3 Control Room	20d	16-Jan-12	14-Feb-12	05-01-5.0-A Au-NSW										P2/3	Control	Room												-
A3120	P4/5 Control Room	20d	16-Jan-12	14-Feb-12	05-01-5.0-A Au-NSW							$\Pi\Pi$	TIII		□ P4/5	Control	Room				111			IIII	Ш				-
A3140	P8/9 Control Room	20d	12-Apr-12	10-May-12	05-01-5.0-A Au-NSW											P8/9 C	ontrol I	Room											1
A3130	P6/7 Control Room	20d	21-May-12	19-Jun-12	05-01-5.0-A Au-NSW											□ P6/	7 Contr	ol Roor	n :							1 1			1
New Stat	tion Managers Office / Station Facilitie	s / Toilets			<i>7</i> - 1.																								-
A3200	Construct New Station Managers	40d	17-Dec-12	26-Feb-13	05-01-5.0-A Au-NSW														Con	struct l	lew St	ation	Manage	rs Offic	e / Sta	ation F	acilitie	s	-
A3210	Fit-Out New Station Managers Offi	50d	27-Feb-13	14-May-13	05-01-5.0-A Au-NSW			1111				†	1-1-1-							Fit-C	ut Nev	y Stati	on Man	agers (Office /	Static	n Faci	lties	+
	ket Offices				(E.D.															$\ \ \ $									-
A3160	Construct Eastern Ticket Office	30d	17-Dec-12	12-Feb-13	05-01-5.0-A Au-NSW														Cons	truct E	astern	Ticket	Office						-
A3180	Construct Western Ticket Office	30d		12-Feb-13	05-01-5.0-A Au-NSW													1 1	1 1	1 1 1	1 1 1	1 1	t Office						-
A3170	Fit-Out Eastern Ticket Office	30d		26-Mar-13	05-01-5.0-A Au-NSW			111										1 1	1 1	1 1 1	1 1 1		t Office				1 1		1
																											1 1 0	51 51	- 1

								Page 6	of /																			
vity ID	Activity Name	Original	Start	Finish	Calendar	2009		20	010			201	1			2012			20	13			2014	4			201	15
		Duration				JJASO	NDJ	FMAM J	JAS	OND.	J F M	ΔMJ.	ASO	ND.	FMA	MJJ	ASON	DJF	MAMJ	JASO	NDJF	MA	MJJ	ASC	DN	JFN	/AIN	J
A3190	Fit-Out Western Ticket Office	30d	13-Feb-13	26-Mar-13	05-01-5.0-A Au-NSW														Fit-Ou					Ш	\Box		\Box	П
New GAC	Booths																									Ш		
A3220	Eastern GAC Booth	40d	27-Mar-13	28-May-13	05-01-5.0-A Au-NSW															astern G	AC Booth	1						
A3230	Western GAC Booth	40d	27-Mar-13	28-May-13	05-01-5.0-A Au-NSW														₩ V	Vestern C	AC Boot	.h				Ш		
New BOH	Facilities / Store / Garbage Rooms				/F N																					Ш		
A3240	Construct BOH Rooms	40d	27-Mar-13	28-May-13	05-01-5.0-A Au-NSW			77777	†		TTT	1-1-1-	1-1-1-	*						onstruct	BOH Roc	oms ;		111	1111			11
A3250	Finshes to BOH Rooms	20d	29-May-13	27-Jun-13	05-01-5.0-A Au-NSW															Finshes	to BOH F	Rooms	s					
New Unpai	id Pedestrian & Cycle Bridge				75 N																			Ш		Ш		П
Columns				_																								
A1790	FRP P1 Unpaid Pedestrian/ Cycle	2d	10-Sep-11	11-Sep-11	Config 3								I E	RP P1	Unbaid	Pedest	riah/Cvcl	e Bridae	Columns					Ш		Ш		
A1800	FRP P2/3 Unpaid Pedestrian/ Cyc	2d	0000 0000 00	11-Sep-11	Config 3		+-+-+	++++	+										ge Colum	ns :		+			+-+-	r-t-t-		+-+
A1840	FRP P10 Unpaid Pedestrian/ Cycl	2d		08-Jan-12	Config 1a									E E	1 1 1 1	1 1 1	1 1 1	0 0 0	ycle Bride	1 1 1 1	ns / Abuti	ment		Ш		Ш		
A1810	FRP P4/5 Unpaid Pedestrian/ Cyc	2d	55000 Englished English	18-Mar-12	Config 15						111	1 1 1			2 5 5	1 1		2 3	ian/ Cycle	1 1 1 1	1	0.00						1 1
A1820	FRP P6/7 Unpaid Pedestrian/ Cyc	2d		06-May-12	Config 4											1 1 1	1 1 1	0 0 0	destrian/	1 1 1 1	1 (E E E		Ш		Ш		
200000000000000000000000000000000000000	edestrian & Cycle bridge Structure	Zu	03 Way 12	00-Ividy-12	Config 4												10,7, 0,11	paid (C	icothain t	yolo Dila	go Goldin	1113						
A1740	Install Precast Structure P1 to P2	2d	17-Dec-11	18-Dec-11	Config 3	┝╒┞╼╡╼┾╼┼╼	·÷·⊹						╬╌┼╌┼╌	+	netall D	recest 9	tructure I	1 to D2				+		 				
A1740 A1750	Install Precast Structure P1 to P2	2d	000	29-Apr-12	Config 3										0 1 1 1	1 1 1	1 1 1	1 1	e P3 to P	4								1
	Install Precast Structure P5 to P4	2d														1 1 1	1 1 1	1 1 2 3	1 1 1 1	1 1 1 1				Ш				
A1760			Service State of Service	22-Jul-12	Config 3											1 1 1	1 1 1	1 1 1	tructure F	1 1 1 1								
A1780	Install Precast Structure P7 to P8	2d		29-Jul-12	Config 4												i instali i	1 1 5	Structure	1 1 1 1				Ш		Ш		
A1770	Install Precast Structure P9 to P10	2d	15-Dec-12	16-Dec-12	Config 1a						4-4-4-	4-4-4-	ļļ.ļ					Insta	II Precast	Structure	P9 to P	10						
Services Ins	stallations																											
Lifts	70														Ш											Ш		Н
A3740	Install/Commission Lift P1	40d	05-Oct-11	29-Nov-11	05-01-5.0-A Au-NSW									9 9	5 2 2 3	1 1 1	n Lift P1											
A3750	Install/Commission Lift P2/3	40d	30-Nov-11	13-Feb-12	05-01-5.0-A Au-NSW										Inst	all/Com	mission L	ift P2/3								Ш		
A3760	Install/Commission Lift P4/5	40d	14-Feb-12	12-Apr-12	05-01-5.0-A Au-NSW											Install	Commiss	on Lift F	4/5							Ш		
A3770	Install/Commission Lift P6/7	40d	13-Apr-12	08-Jun-12	05-01-5.0-A Au-NSW								Ш			In In	stall/Com	mission	Lift P6/7					Ш		Ш		
A3780	Install/Commission Lift P8/9	40d	13-Jun-12	07-Aug-12	05-01-5.0-A Au-NSW											=	Install/	Commis	sion Lift F	8/9						111		
A3790	Install/Commission Lift P10	40d	08-Aug-12	04-Oct-12	05-01-5.0-A Au-NSW												in in	tall/Cor	nmission	_ift ₽10						Ш		
ESR																												
A2020	Install Smoke Extraction System	10d	07-Jan-12	16-Dec-12	Config 1									F		-	- 11	- Insta	II Smoke	Extraction	System	1				Ш		
A3600	Waterproofing to ESR Roof	30d	25-May-12	09-Jul-12	05-01-5.0-A Au-NSW	1 1 1 1							1 1 1				Waterpro	ofing to	ESR Roc	f							1-1-	111
Unpaid Pe	destrian & Cycle Bridge				·5 h																							
A1860	Services to Footbridge	50d	30-Jul-12	09-Oct-12	05-01-5.0-A Au-NSW												s	ervices	o Footbrin	lge :						Ш		
Concourse	9				(F. h.															1111				Ш		Ш		
A1870	Services to Concourse	100d	17-Dec-12	28-May-13	05-01-5.0-A Au-NSW															ervices to	o Concou	ırse						
Platform S	Services to Awnings Etc.			,	<i>(F.</i> 5)		+++	++++	+			+	 - -	1-1-1-	+										+-+-			+-+
	P1 SPI's, CCTV, PA, Help Points,	50d	19-Dec-11	13-Mar-12	05-01-5.0-A Au-NSW									i i	P	1 SPI's	CCTV	A Heln	Points, P	recise Cl	ocks							
A3580	P11/12 SPI's, CCTV, PA, Help Poi	50d		07-May-12	05-01-5.0-A Au-NSW									ΗT				9 9 9 9	PA, Help		1 1 1	dcks	$\parallel \parallel$					
A3530	P2/3 SPI's, CCTV, PA, Help Points	50d		28-Sep-12	05-01-5.0-A Au-NSW											1 1 1	1 1 1	1 1	, CCTV, F	1 1 1 1	1 1	5 5 5	Clocks					
A3540	P4/5 SPI's, CCTV, PA, Help Points	50d		09-Oct-12	05-01-5.0-A Au-NSW												1 1 1	1 1 1	CCTV.	1 1 1 1	1 1	E E E	1 1	1 1 1				
A3550	P6/7 SPI's, CCTV, PA, Help Points	50d		09-Oct-12	05-01-5.0-A Au-NSW						++-+								CCTV,		+	+					4	
A3560	P8/9 SPI's, CCTV, PA, Help Points	50d		12-Mar-13	05-01-5.0-A Au-NSW													0 0	P8/9 S	1 1 1 1	1 1	C C C	1 1	1 1 1	Clock			
77 15355000000000				12-Mar-13	/F N															1 1 1 1	i i	1 1 1	1 1	1 1 1	1 1	1 1 1		
A3570	P10 SPI's, CCTV, PA, Help Points,	50d	17-Dec-12	12-Wat-13	05-01-5.0-A Au-NSW													133	P10:SF	15, 001	, FA, He	ih Fall	ns, Pr	cuse (JIUCKS			
Finishes																												
	destrian & Cycle Bridge	100:	07.4	0.5	05.04.5.5.4						444	4-4-4-	ļļ.ļ			ļļļ	<u> </u>		<u>.</u>			+						
A1850	Finishes to Unpaid Footbridge	100d	27-Aug-12	04-Feb-13	05-01-5.0-A Au-NSW													7	inishes t	Unpaid	-ootbridg	je						
Concourse	age.			_								111																
A1880	Finishes to Concourse	100d	30-Jan-13	27-Jun-13	05-01-5.0-A Au-NSW															Finishes	to Conce	ourse						
Platform A	wnings																											
A3820	Awnings to P4/5	6d	29-Oct-11	29-Jul-12	Config 4						Ш			 			Awning	s to P4/	5									
A3830	Awnings to P6/7	6d	29-Oct-11	29-Jul-12	Config 4									-			Awning	s to P6/	7									
A3810	Awnings to P2/3	6d	17-Dec-11	22-Jul-12	Config 3									+	++++	\vdash	Awnings	to P2/3										
A3840	Awnings to P8/9	6d	07 1 40	08-Jul-12	Config 1			1 1 1 1	1 1 1 1	9 6 6		8 8 8	1 1 1	1 1 .		1 1 1	Awnings				1 1	c c i	48 8 7	4 8 8	1.1	(11	1 1	1 1

Cost and Constructability Report Progamme based on preferred Railcorp possession regime



Cost and Constructability Report 'Cost plan option 1 - unpaid bridge on grade

Redfern Station Redevelopment



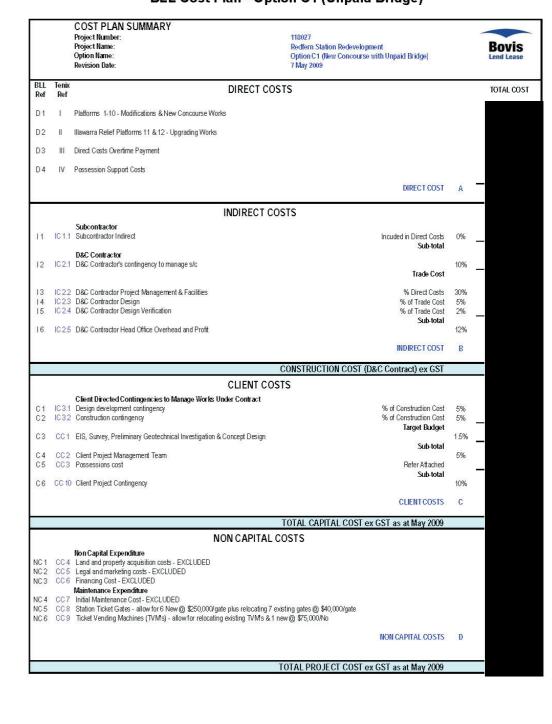
Appendix D

Proposed revised concept design - Cost Plan Option 1 - Unpaid bridge on grade

Redfern Station Redevelopment - Cost and Constructability Report 20 July 2009

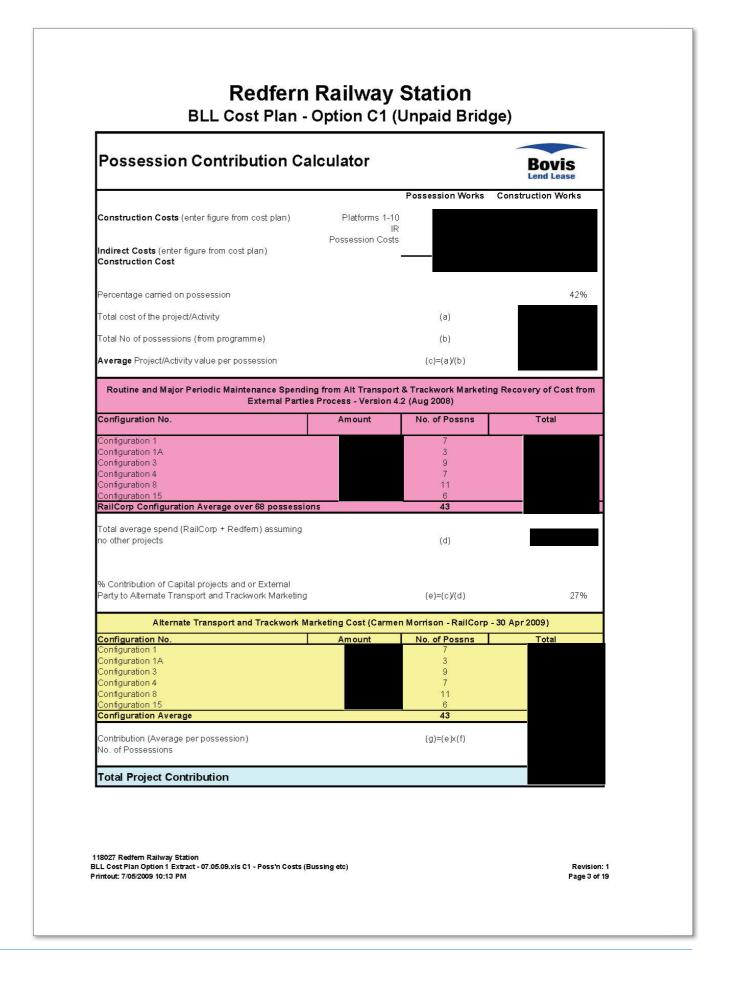
31

Redfern Railway Station BLL Cost Plan - Option C1 (Unpaid Bridge)



118027 Redfern Railway Station BLL Cost Plan Option 1 Extract - 07.05.09.xls C1 - Refurb Works Summary Printout: 7/05/2009 10:13 PM

Redfern Railway Station BLL Cost Plan - Option C1 (Unpaid Bridge) DIRECT WORKS ELEMENTAL BREAK DOWN (Summary) - OPTION C1 **Bovis** TOTAL PRICE ITEM DESCRIPTION SECTION 1: MODIFICATION TO PLATFORMS 1-10 AND NEW CONCOURSE DC1 Enabling and Temporary Works DC2 Demolition Works DC3 Platform 1-10 Modification Works DC4 Modification Works to Existing Concourse DC5 New Elevated Concourse & Staircases DC6 OHW Works (including relocation works) DC7 HV Electrical Works & Traction Power DC8 Signalling and Communications (including relocation works) DC9 Station Comms Works (PL 1-10 & Concourse) DC10 External Works and Landscaping works DC11 E Protection Works SECTION 2: EXISTING ILLAWARRA RELIEF PLATFORMS (11&12) UPGRADING WORKS DC1 Enabling and Temporary Works DC2 Demolition Works DC3 IR Platform Modification Works DC4 OHW Works (including relocation works) DC5 HV Electrical Works & Traction Power DC6 Station Comms Modification Works (PL 11 & 12) DC7 Signalling and Communications (including relocation works) DC8 External Works and Landscaping works - priced separately DC9 St Protection Works Sub-total Direct Cost Subtotal ex GST 118027 Redfern Railway Station BLL Cost Plan Option 1 Extract - 07.05.09.xls C1 - Refurb Works Summary Printout: 7/05/2009 10:13 PM



Redfern Railway Station BLL Cost Plan - Option C1 (Unpaid Bridge)

Veek-end Tr	rack Possessions								
	No of Tracks per Possession	Track Configuration	No of Possessions over 34 Mth Program	No of Platforms per Possession	No of Platform Possessions	Total	Config IR Platforms		
	Single	8	-11	2	22	22			
	Double	1 3 4	7 9 7	4 4 4	28 36 28	92	11&12		
	Triple	1A 15	3 6	6	18 36	54	11&12		
		.0	_	0	30	54			
	Total osts oour Costs for Possession V	1	43	10000	168	168	EO Bate	Cont	Total Co
	osts	1		Av No of Workers per Poss ess ion per Platform	1000000	168 No of Hrs	EO Rate per Hour	Cost \$	Total Co \$
	osts	1	43 No of Platform	Av No of Workers per Poss ession	168 No of Shifts	168 No of Hrs	per Hour		
	osts oour Costs for Possession V	1	No of Platform Poss essions	Av No of Workers per Poss ess ion per Platform	No of Shifts per Possession	No of Hrs per Shift	per Hour		
feek-end Cr EO Lab	osts nour Costs for Possession V Single Possession	1	No of Platform Possessions	Av No of Workers per Possession per Platform 7	No of Shifts per Possession	No of Hrs per Shift	per Hour		
	oosts nour Costs for Possession V Single Possession Double Possession	1	No of Platform Possessions	Av No of Workers per Poss ess ion per Platform 7	No of Shifts per Possession 3.5	No of Hrs per Shift	per Hour		
	single Possession Double Possession Triple Possession Total	1	No of Platform Poss essions 22 92 54	Av No of Workers per Poss ess ion per Platform 7	No of Shifts per Possession 3.5	No of Hrs per Shift 12 12 12	per Hour		

118027 Redfern Railway Station BLL Cost Plan Option 1 Extract - 07.05.09.xls C 1- Direct Cost OT Penalty Printout: 7/05/2009 10:13 PM

Revision: 1 Page 4 of 19

Redfern Railway Station BLL Cost Plan - Option C1 (Unpaid Bridge)

033033101	Support Co	7313							Bovis Lend Lease
Week-end Track Pos	sessions								
	No of Tracks per Possession	Track Configuration	No of Possessions over 34 Mth Program		No of Platform Possessions	IR Platforms			
Single	•	8	11	2	22				
Doub	le	1 3 4	7 9 7	2 2 4	14 18 28	11&12			
Triple	ı	1A 15	3 6	2	6 24	11&12			
Total			43		112				
Week-end Costs (Ou	t of Hours)								
Hi-Rail Costs	Hi-rail Equipment		No of Possessions over 34 Mth Program	No of Vehicles	No of Platform Possessions	No of Shifts	Rate/ 10 Hr Shift	Cost \$	Total Cos \$
Hi-ra	I with Flat-top		43	3		4			
Hi-rai	I with Tipper		43	3		3			
Hi-rai	I with Cherry picker		43	3		3			
Day-r	nakers, radios,water co	oolers etc	43						
Possession Off Hi-rai	icers I Loading Point	1 per Possession	43			5			
Junct	ion Officer	1 per platform			112	5			
Prote	ction Officer	1 per platform			112	5			
Prote	ction Co-ordinator	1 per Possession	43			5			
		No of Weeks	No of Nights per week	No	No of Platform Possessions	No of Shifts	Rate/ 8 Hr Shift	Cost \$	
Week Day Costs (Ou	t of Hours)								
Hi-rai	l with Flat-top / Tipper	52	5	1		1			
Possession Off	icers								
Prote	ction Officer	52	5	2		1			
W-1-D		No of Weeks	No of Days per week	No	No of Platform Possessions	No of Shifts	Rate/ 10 Hr Shift	Cost \$	
Week Day Costs (No									
Possession Off						9			
Prote	ction Officer	148	5	2		1			

118027 Redfern Railvæy Station BLL Cost Plan Option 1 Extract - 07.05.09xls C1 - Possession Support Costs Printout: 7.05/2009 10:13 PM

Redfern Railway Station BLL Cost Plan - Option C1 (Unpaid Bridge) Bovis Description Q'ty Unit Rate **Total Cost** Option C1 - New Concourse with Unpaid Bridge 1 Enabling and Temporary Works 1.1 Civil Works 1.1.1 Demolition works - see section 2 1.1.2 Temporary Access and Worksite Temporary worksite to Little Eveleigh St site Prepare worksite for new concourse abutment 1 Item Temporary access to PL 10 crane access- incl above Temporary worksite in Park between Rosehill, Marian & Gibbons Streets Clear the work site area Asphalt paving for office, storage and vehicular access areas Wash down facilities Item Traffic management Allow for RailCorp & Police staff temporary parking facilities for 25 Cars including 625 m2 Allow for Contractor temporary parking facilities for 25 Cars including lighting and 625 m2 Reinstatement of existing park Remove carpark and re-instate landscaping Allow for making good stormwater drainage works & kerbs 1250 m2 ltem Temporary access to Crane near PL 10 208 m2 Traffic management Item Temporary track access for Hi-rails Access to Platforms 1, 2/3 Access to Platforms 4/5, 6/7 ,8/9 & 10 1.1.3 Temporary Fencing and Hoarding Temporary site hoarding, 1800mm high Temporary chain link fence fixed to Jersey barrier along live track Temporary Fencing - allow 1.1.4 Temporary drainage 1 Item Allow for temp drainage & connections 1.1.7 Temporary crane platforms Crane working platform for Platform 1 side Assume new structure at 125 Little Everlegh Street is available as the Crane Platform 1 Item Crane working platform for Platform 10 side (Concourse & Unpaid Bridge) Piling/pier; assume 500 dia 1.1.8 Modifications to control rooms on platforms Allow for modifications to staff rooms & train control 5 No 1.2 OHW Relocations - included in OHW works 1.3 Signalling Relocations - included in signalling works 118027 Redfern Railway Station BLL Cost Plan Option 1 Extract - 07.05.09.xls C1 - Refurb Works Printout: 7/05/2009 10:13 PM

Redfern Railway Station BLL Cost Plan - Option C1 (Unpaid Bridge)

Item	BO Lend	Vis Description	Q'ty	Unit	Rate	Total Co
Abovance for any other services deversion DC1 Total - Enabling and Temporary Works 2 Demolition Works 2.1 Demolition of existing platforms canopies Demolition indusing disposal off set Demolition indusing disposal off set 2.100 m2 2.2 Demolition indusing disposal off set Above for removal of affected lights 10 No Above for removal of affected lights 10 No Above for removal of affected lights 10 No Above for removal of affected lights 2.4 Removal of existing building at 125 Little Everleigh Street Class B Hoarding to perimeter Demolition of timber & Mascony warehouse building 1279 m2 2.5 Removal of existing Platform Buildings Demolition of timber & Mascony platform buildings 2.6 Platform 11/12 Link @ Mezz to Platform 10 Demolition industrial platform disposal papers 1000 thick between Platform 10 and Void 123 m3 2.7 Removal of Hazardous Waste Removal of	1.4	Utilities Diversions				
2 Demolition Works 2.1 Demolition dexisting platforms canopies Demolition of existing staircases Demolition in during disposal off set 2.2 Demolition for existing staircases Demolition induding disposal off set 39 m2 2.3 Removal of existing pascellaneous items (per Platform) Allow for removal of furniture Allow for removal of durinture Allow for removal of sets thing building at 125 Little Everleigh Street Class Blandring to perimenter Demolition of Timber & Masconry warehouse building Demolition of Timber & Masconry warehouse building Demolition of Timber & Masconry warehouse buildings Demolition of Timber & Masconry warehouse buildings Demolition of Timber & Masconry buildings Demolition of Timber & Masc						
Demolition of existing platforms canopies Demolition of existing staticases Demolition including disposal off stell September Se	DC1	Total - Enabling and Temporary Works				
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Demolition including disposal off site 39 m/2 2.3 Removal of existing miscella ineous items (per Platform) Allow for removal of duriniture 10 No Allow for removal of affected ghits 10 No 2.4 Removal of existing building at 125 Little Everleigh Street Class B Hoarding to perimeter 80 m Demolition of Timber & Mascenty warehouse building 1279 m/2 2.5 Removal of existing Platform Buildings Demolition of Timber & Mascenty platform to Demolish existing retaining wall approx 1000 thick between Platform 10 and Void 123 m/3 2.7 Removal of Hazardous Waste Removal of Hazardous Waste EXCLUDED DC2 Total - Demolition Works 3.1 Platform 1-10 Modification Works 3.1 Platform 1-10 Modification Works 3.2 Platform 11-12 Link @ Mezz to Platform 10 Prepare opening in retaining wall for Glazed screen 34 m 3.3 Platform 11-12 Link @ Mezz to Platform 10 Prepare opening in retaining wall for Glazed screen 34 m 3.1 Platform wide coping to platform edge 1,663 m 100 mm wide coping to platform edge 1,663 m 100 mm wide coping to platform edge 1,663 m 100 mm wide coping to platform edge 1,663 m 100 mm wide coping to platform edge 1,663 m 100 mm wide coping to platform edge 1,663 m 100 mm wide coping to platform edge 1,663 m 100 mm wide coping to platform edge 1,663 m 100 mm wide coping to platform edge 1,663 m 100 mm wide coping to platform edge 1,663 m 100 mm wide coping to platform edge 1,663 m 100 mm wide coping to platform edge 1,663 m 100 mm wide coping to platform edge 1,663 m 100 m of suspanse every from 140 No 100 No allow for discharging water into track drainage system (4 No per platform) 40 No 100 No workage 100 m will be platform edge 1,663 m 100 day to similar existing that the fatheres 100 m No	2.1		2,100	m2		
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Allow for air-conditioning for staff office on platforms 5 no Allow for pressurised discharge system for sewage and waster water from platforms to						
Allow for pressurised discharge system for sewage and waster water from platforms to	3.5		5	no		
	50000					
			5	no		

Bo	VIS Description	Q'ty	Unit	Rate	Total Cost
3.6	Platform electrical works				
	Upgrade of cabling to Fire Life Safety requirements (per platform)	10	No		
	Platform canopy lighting	2,052	m2		
	Platform stair lighting	772	m2		
	Platform lighting under new Concourse	600	m2		
	Platform lighting under new Unpaid Bridge	160	m2		
	Lighting poles to open platforms	10	No		
003	Total - Platform 1-10 Modification Works				
4	Modification Works to Existing Concourse				
	~				
4.1	New Fire Egress to Existing Concourse Fire Egress - Demolition and structural alterations to existing Concourse for new fire				
	· ·		100000		
	egress stair	1	ltem		
	Fire Egress - Allow for structural repairs	1	ltem		
	Fire Egress - Fire egress stair included in staircases	504	Note		
	Fire Egress - Masonry wall to fire egress	564 253	m2		
	Fire Egress - Signage and sundry		m2		
	Fire Egress - Gated enclosure to base of fire egress stairs	6 2	No		
	Fire Egress - Gated enclosure to fire egress exit to street Fire Egress - Emergency lighting	253	No No		
DC4	Total - Modification Works to Existing Concourse				
5	New Elevated Concourse & Staircases				
5.1	Foundations				
J. I		10	No		
	Concourse - Column footing with 3 piles and pile cap	22	m2		
	Concourse - Contiguous pile wall in Little Eveleigh Street	10			
	Concourse - Strip footing to Little Eveliegh Street		m		
	Concourse - 300 thick retaining wall on top of footing	60	m2		
	Concourse - Allow for monitoring and protection of engine dive & other structures	1	ltem		
	Unpaid Bridge - Column Footing with 3 piles and pile cap	4	No		
	Unpaid Bridge - Pad footing	1	No		
	Unpaid Bridge - 300 thick retaining wall on top of footing	9	m2		
	125 Little Everleigh Street - Foundations for new suspended structure at GF incl demo				
	125 Little Everleigh Street - Foundations for new suspended structure at GF incl demo Basement GS and mg.	12	No		
		12 10	No No		
	Basement GS and mg.				

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Redfern Railway Station BLL Cost Plan - Option C1 (Unpaid Bridge)

	DVIS d Lease	Description	Q'ty	Unit	Rate	Total Cost
52	Structure					
32	Concourse - Hoar	dinato workface	520	m		
		mn 1000 diarneter	10	No		
		dstock - 600 x 600 headstock beam	29	m		
		dstock - 800 x 1000 headstock beam	165	m		
		dstock - 1200 x 1000 headstock beam	40	m		
		x 600 precast concrete plank deck	1200	m2		
		topping slab over precast concrete plank deck	1200	m2		
		ground slab on grade	101	m2		
		tructure (Platform to top lift shaft)	680	m2		
		v for craneage (450 t)	3	No		
	Unpaid Bridge - H	loarding to workface	120	m		
		column 750 diarneter	4	No		
		leadstock - 900 x 900 headstock beam	9	m		
		leadstock - 1000 x 900 headstock beam	5	m		
		lea dstock - 1000 x 1200 hea dstock beam	5	m		
		00 x 600 precast concrete plank deck	182	m2		
		100 mm wide x 1200 deep Super T' precast concrete beam deck	46	m		
		50 topping slab over precast concrete plank deck	273	m2		
	Unpaid Bridge - 2	50mm thick insitu cantilevered launching slab	69	m2		
	Unpaid Bridge - A	llow for craneage (450 t)	2	No		
	125 Little Everleig	gh Street - New suspended structure at GF	334	m2		
	Platform 11/12 Lin	nk - Hoarding to workface	100	m		
		nk @ Mezz - Treat existing structural steelwork	540	m2		
		nk @ Mezz - Sundry Steelwork to make up levels	540	m2		
		nk @ Mezz - Bondek & 150 thick Suspended slab	370	m2		
		nk @ Mezz - Bondek & 275 thick Suspended slab	172	m2		
	Platform 11/12 Lin	nk @ Concourse - Treat existing structural steelwork	440	m2		
	Platform 11/12 Lir	nk @ Concourse - Sundry Steelwork to make up levels	440	m2		
		nk @ Concourse - Bondek & 150 thick Suspended slab	440	m2		
	Platform 11/12 Lir	nk - Escalator Landing 150mm thick	5	m2		
	Platform 11/12 Lin	nk - Lift structure Gnd to Mezz - 9mR	50	m2		
	Platform 11/12 Lin	nk - Lift structure (Mezz to top lift shaft)	63	m2		
	Platform 11/12 Lin	nk - Escalator housing pit complete (2 No)	2	No		
	Platform 11/12 Lin	nk - Allow for craneage	10	Days		
	Stairs - Steel stair	stringer & framing	10	No		
	Stairs - Precast tr		1119	m		
	Stairs - Landing 1	50mm thick	128	m2		
5.3	Roof Structure 8	Ceiling Linings				
		ed & tiered metal roof & structure	1694	m2		
		metal roof & structure	440	m2		
		lon Multi-panel soffit & wall lining incl sub-frame	2134	m2		
	Concourse - Rake	ed & tiered glazed roof & structure	287	m2		
	Unpaid Bridge - S	ecurity screen and structure 75m long x 10m girth	750	m2		
	125 Little Everleid	gh Street - Metal roof & structure	140	m2		
		th Street - Glazed roof & structure	274	m2		
	Platform 11/12 Lin	nk - Metal roof & structure	430	m2		
		nk - Luxalon Multi-panel soffit lining incl sub-frame	54	m2		
		nk (Mezzanine) - Luxalon Multi-panel soffit lining incl sub-frame	207	m2		
	Otaina Cant	read atmediate 9 means been a finish as	770	0		
		roof structure & membrane finishes fulti-panel soffit lining incl sub-frame	772 772	m2 m2		
			2			

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Bo	VIS Description	on Q'	'ty	Unit	Rate	Total Cost
5.4	Façade					
	Concourse - Glazed balustrades 2100mm high		174	m		
	Concourse - Glazed curtain walling		110	m2		
	Concourse - Metal wall cladding & structure Concourse - Luxalon Multi-panel soffit & wall lining	a in all outh from a	712 712	m2 m2		
	Concourse - Façade Masonry wall	gillor sub-traine	173	m2		
	Concourse - Shopfront		119	m2		
	Concourse - Lift cladding (Platform to top lift shaft	i	680	m2		
	Concourse - SS column cladding cop to 2200mm	high	69	m2		
	Unpaid Bridge - SS balustra de 1100mm high		235	m		
	Unpaid Bridge - SS balustrade cop 1100mm high		11	m		
	Unpaid Bridge - SS column cladding cop to 2200r	nm high	16	m2		
	125 Little Everleigh Street - Faça de Masonry wall		52	m2		
	125 Little Everleigh Street - Shopfront		65	m2		
	Platform 11/12 Link (Mezzanine) - Façade Mason		362	m2		
	Platform 11/12 Link (Mezzanine) - Glazed curtain		28	m2		
	Platform 11/12 Link - Lift cladding Gnd to Mezz - S		50	m2		
	Platform 11/12 Link - Lift cladding (Mezz to top lift Platform 11/12 Link - Escalator lining to sides & so		63 56	m2 m2		
	Figure 11772 Entry - Escalator liming to sides & St	VIIIE 110V U.JUIII	30	1114		
	Stairs - Glazed raking balustrades 1100mm high		283	m		
	Stairs - Masonry wall under egress stairs incl tiling		417	m2		
5.5	Building Fitout Works		1341			
	Concourse - Urbanstone paving Concourse - Sundry works		1320	m2 m2		
	Concourse - Sundry works		1320	1112		
	Unpaid Bridge - Urbanstone paving		380	m2		
	Unpaid Bridge - EO Urbanstone paving for steps		74	m		
	Unpaid Bridge - Urbanstone paving on and incl ra	mp on grade	73	m2		
	Unpaid Bridge - Urbanstone paving on and incl st	eps on grade	37	m2		
	Unpaid Bridge - EO Urbanstone paving for steps		74	m		
	Unpaid Bridge - Sundry works		380	m2		
	125 Little Everleigh Street - Urbanstone paving or	& incl waterproof membrane	243	m2		
	125 Little Everleigh Street - EO Urbanstone pavin	g for steps	90	m		
	125 Little Everleigh Street - Sundry works	NO. 2 NO. 2 TO	243	m2		
	125 Little Everleigh Street - Fitout to ticketing office services	es and office facilities including	130	m2		

	Platform 11/12 Link (Mezzanine) - Urbanstone pa Platform 11/12 Link - Urbanstone paving on & incl		204	m2		
	waterproof membrane to suspended slab		67	m2		
	Platform 11/12 Link (Mezzanine) -Fitout to Station	back of house	228	m2		
	Platform 11/12 Link - Fitout to ticketing offices and Platform 11/12 Link - Fitout to staff showers, locke		156	m2		
	services	and and other molecung	21	m2		
	Platform 11/12 Link - Internal masonry walls		275	m2		
	Platform 11/12 Link (Mezzanine) - Wall tiling		370	m2		
	Wayfinding Signage					
	Concourse - Wayfinder Signage		1	ltem		
	Platforms - Wayfinder Signage		10	No		
5.6	Hydraulic Services					
	Allow for hydraulics & plumbing		1	ltem		
	Allow for hydraulics, waste water, sewage & plurr	bing connections to existing	1	Item		
	tailway Station tion 1 Extract - 07.05.09.xls C1 - Refurb Works					Revision: 1

Redfern Railway Station BLL Cost Plan - Option C1 (Unpaid Bridge)

Len	Description Lease	Q'ty	Unit	Rate	Total Cos
5.7	Electrical works				
0.,	Allow for temporary electrical	1	Item		
	Concourse - Lighting including distribution boards, light fittings and luminaires	3,230	m2		
	Unpaid Bridge - Lighting including distribution boards, light fittings and luminaires	380	m2		
	External Works - Lighting including distribution boards, light fittings and luminaires	1,037	m2		
	Provisions for 6 No lifts &2 No escalators	1	ltem		
5.8	Mechanical Services				
	Allow for air-conditioning (staff)	535	m2		
5.9	Fire Services				
	Allow for fire protection	3,230	m2		
5.10	Vertical Transportation	0	NI.		
	Concourse - Disabled Lift Platform 11/12 Link - Disabled Lift	6 1	No No		
	Escalator rising 5.35 m (RL26.25 to RL31.60)	2	No		
	Allowance for crane (for lifts & escalators)	9	Item		
DC5	Total - New Elevated Concourse & Staircases				
6	OHW Works (including relocation works)				
	OHW Structures - Wiring adjustments (per Possession)	6	No		
	Allow for modifying OHW structures	8	No		
	New OHW cable supports underneath new slab	20	No		
	Removal of redundant OHW structures	9	No		
	Making good of platforms	12	ltem		
	Testing & commissioning (Number of times)	6	No		
DC6	Total - OHW Works (including relocation works)				
7	HV Electrical Works & Traction Power				
7.1	Traction power - not required		Note		
7.2	Power for PL 1-10 & concourse				
1.2	Existing station capacity is sufficient if escalators are not required for each platform		Note		
3.2					
7.3	PL 11 & 12 switch room relocations (if required) included in IR works		Note		
	PL 11 & 12 switch room relocations (if required) included in IR works Power for new development - included in the commercial development section		Note		

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Bo	VIS Description	Q'ty	Unit	Rate	Total Cost
8	Signalling and Communications (including relocation works) Temporary signal gantry structure to house signal for Down Main Line New signal Allow for new cabling Allow for modifications to existing track circuit Removal of existing gantry Removal of temporary gantry Relocation of signalling & comms cables mounted on PL 1 retaining wall including troughing & 2 kV power cables Ditto, mounted on PL10 Allow for disconnections and reconnections	1 1 1 1 1 1 250 250	No No Item Item Item Item		
DC8	Testing & commissioning Total - Signalling and Communications (including relocation works)	i	Item		
9 DC9	Station Comms Works (PL 1-10 & Concourse) (NSSU Prorata \$3.5m to \$4.5m - Use \$4.0m) Station Passenger Information (SPf) Train describer system Control room & racks CCTV's and help points Telephones, PA system and other communications Total - Station Comms Works (PL 1-10 & Concourse)	1	ltern		
10	External Works and Landscaping works - priced separately				
10.1	External Works External Works - Urbanstone paving on and incl slab on grade External Works - Sundry works, bollards etc External Works - Re-grade park to new levels External Works - Soft Landscaping to Park External Works - Feature trees External Works - Allow for hard landscape to Park External Works - Footpath to Gibbons Street (No Service pit adjustments or relocations)	1037 1037 2834 1664 5 1664	m2 m2 m2 m2 No m2		
DC10	Total - External Works and Landscaping works - priced separately				
11	Protection Works Included in Possession Works		Note		
DC11	Total - Protection Works				

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Redfern Railway Station BLL Cost Plan - Option C1 (Unpaid Bridge)

Bo	Vis Lease Description	Q'ty	Unit	Rate	Total Cost
Option C1 -	Illawarra Relief Platforms Upgrading Works				
1	Enabling and Temporary Works				
1.1	Civil Works Demolition works - see section 2				
11.1	Temporary Access and Worksite - included in Main Works (PL 1-10 $\&$ Concourse Works)				
1.1.2	Temporary Fencing and Hoarding				
	Temporary site hoarding; 2400mm high	200	m		
	Temporary Fencing - allow	50	m		
1.2	Utilities Diversions				
	Allowance for in ground services diversion	1	ltem		
DC1	Enabling and Temporary Works				
2	Demolition Works				
2.1	Demolition of part of existing concourse				
	Demolition of concourse entrance awning	1	Item		
2.2	Demolition of existing roof level				
	Allow for temporary hoarding	80	m		
	Demolition - Allow for catch deck	70	m2		
	Demolition - Concrete roof structure	363	m2		
	Demolition - Concrete concourse structure	363	m2		
	Excavation and disposal of soil off site	200	m3		
2.2	Demolition of existing platform for new escalator pit and lift pit				
	Demolition	1	Item		
	Allow for waste to tip	1	Item		
2.3	Demolition of internal structures				
3.3	Platform level raising				
	Remove existing tiled paving and re-grade to new profile	1,389	m2		
	Allow for removal by spoil train	2	No		
	Remove existing tiled paving (Mezzanine)	125	m2		
	Stormwater drain	341	m		
	Allow for sumps every 10m Allow for discharging water into track drainage system (4 No per platform)	28 8	No No		
	Allow for demolition of existing blade wall/column for new fire egress stair South	2	No		
	Allow for demolition of staircase rising 6720mm	1 2	No		
	Allow for removal of pair escalators rising 12870mm		No		
	Allow for demolition of internal walls	1	Item		
	Allow for hacking existing wall finishes to receive new finishes Allow for protection work during demolition	1	ltem ltem		
DC2	Demolition Works				

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Redfern Railway Station BLL Cost Plan - Option C1 (Unpaid Bridge) Q'ty **Bovis** Description Unit Rate **Total Cost** IR Platform Modification Works 3.1 Supports and strengthening existing columns No allowance for strengthening and/or concrete encasing existing columns for impact Note loa dina 3.1 Fire rate structural steel roof framing to Platforms 11 & 12 Allow for 2 Hr vermiculite fire spray to exposed steel beams Note: Excludes rectification of existing steelwork damaged by water ingress 2890 Note Note: Excludes removal and replacement of roof membrane and spoil and finishes of Platform roof Note 3.2 Modification to existing slab at 26.40-28.5 for new roof Allow for sealing staircase & escalator voids 3.3 New internal structures Allow for structural atterations for lifts, escalators and stairs Lift structure (Platform to top lift shaft) Lift cladding (Platform to top lift shaft) Allow for escalator pits Escalator lining to sides & soffit rise 5.35 m Allow for new passenger staircase Allow for new fire escape staircase to park Re-work vent shafts & service risers 3.4 New Smoke Exhaust / Skylights Skylight Structure to Park Allow for roof glazing Note: Smoke exhaust system (naturally ventilated through skylight) 3.5 Internal finishes & fitouts Platform re-surfacing with wearing slab and Urbanstone paving 955 300mm wide coping to platform edge 100mm wide safety line to platform edge 300mm wide tactile to platform edge Refurb existing toilets and locker facilities Allow for new wall finish 1,700 Allow for new finishes and fixtures tolift lobby and pedestrian link at Mezzanine level Item Allow for new finishes and fixtures to lift lobby at Platform leve Allow for new control room including wash down, toilet and comms No facilities Wayfinding Signage Concourse - Wayfinder Signage Platforms - Wayfinder Signage 3.6 Hydraulic Services Allow for hydraulics & plumbing Allow for hydraulics, waste water, sewage & plumbing connections to existing Item Allow removal of PVC pipiing Item 3.7 Electrical works Allow for temporary electrical Item Upgrade of cabling to Fire Life Safety requirements ltem Modify lighting to platforms Allow for new lighting to Mezzanine Provisions for lifts & 2 No escalators 3.8 Mechanical Services Allow for air-conditioning for staff office and back of house 118027 Redfern Railway Station BLL Cost Plan Option 1 Extract - 07.05.09.xls C1 - Refurb Works Printout: 7/05/2009 10:13 PM

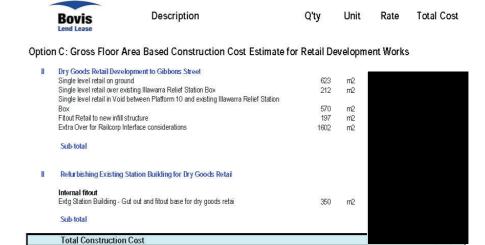
Redfern Railway Station BLL Cost Plan - Option C1 (Unpaid Bridge) Q'ty Unit Rate **Total Cost Bovis** Description 3.9 Fire Services Modifications to fire protection including smoke detectors, EWIS and sprinklers to 3.10 Vertical Transportation Disabled Lift No Allowance for crane (for lifts & escalators) DC3 IR Platform Modification Works OHW Works (including relocation works) OHW works not required DC4 OHW Works (including relocation works) **HV Electrical Works & Traction Power** Traction power - not required 5.2 PL 11 & 12 switch room relocations works DC5 HV Electrical Works & Traction Power Signalling and Communications (including relocation works) DC6 Signalling and Communications (including relocation works) 7 Station Comms Modification Works (PL 11 & 12) Station Passenger Information (SPI) CCTV's and help points 1 Item Telephones, PA system and other communications DC7 Station Comms Modification Works (PL 11 & 12) 8 External Works and Landscaping works - priced separately DC8 External Works and Landscaping works - priced separately **Protection Works** Included in Possession works DC9 Protection Works Total 118027 Redfern Railway Station BLL Cost Plan Option 1 Extract - 07.05.09.xls C1 - Refurb Works Printout: 7/05/2009 10:13 PM

		COST PLAN SUMMARY Project Number: Project Name: Option Name: Revision Date:	118027 Redfern Station Redevelopment Option C - Retail Development Wo 7 May 2009	orks	
BLL Ref	Tenix Ref	DIRECT CO	STS		101
C1	1	Dry Goods Retail Development to Gibbons Street			
C2	II	Refurbishment of Existing Station Building for Dry Goods Retai			
				DIRECT COST	A
		INDIRECT C	OSTS		
11	IC 1.1	Subcontractor Subcontractor Indirect	Included		0.0%
		D&C Contractor		Sub-total	
12	IC 2.1	D&C Contractor's contingency to manage s/c	Included	Sub-total	0.0%
13		D&C Contractor Project Management & Facilities	Included		0.0%
14		D&C Contractor Design	Included		0.0%
15	IC 2.4	D&C Contractor Design Verification	Included	Sub-total	0.0%
16	IC 2.5	D&C Contractor Head Office Overhead and Profit - Included	Included	Suriolai	0.0%
				INDIRECT COST	В
			CONSTRUCTION COST (D&C C	Contract) ex GST	
		CLIENT CO	STS		
		Client Directed Contingencies to Manage Works Under Contract			
C1		Design development contingency	% of Construction Cost		2.5%
C2	10 3.2	Construction contingency	% of Construction Cost	Target Budget	2.5%
C3	CC1	EIS, Survey, Preliminary Geotechnical Investigation & Concept Design	1.0% of Target budget		1.0%
C 4	002	Client Project Management Team	2.5% of Target budget plus CC1	Sub-total	2.5%
C6	CC 10	Client Project Contingency	5% of Target budget + CC1 to 9	Sub-total	5.0%
				CLIENT COSTS	C
		IOI	AL DEVELOPMENT COST ex GST	Fac at May 2000	
				as at may 2009	
		NON CAPITAL	CO212		
MC 1	004	Non Capital Expenditure Land and property acquisition costs - EXCLUDED			
		Legal and marketing costs - EXCLUDED			
		Financing Cost - EXCLUDED			
			***	H OADITAL OOSTS	D
			NU	N CAPITAL COSTS	D
			TOTAL DDO JECT COST ov CST	Lac at May 2000	

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Redfern Railway Station BLL Cost Plan - Option C1 (Unpaid Bridge)

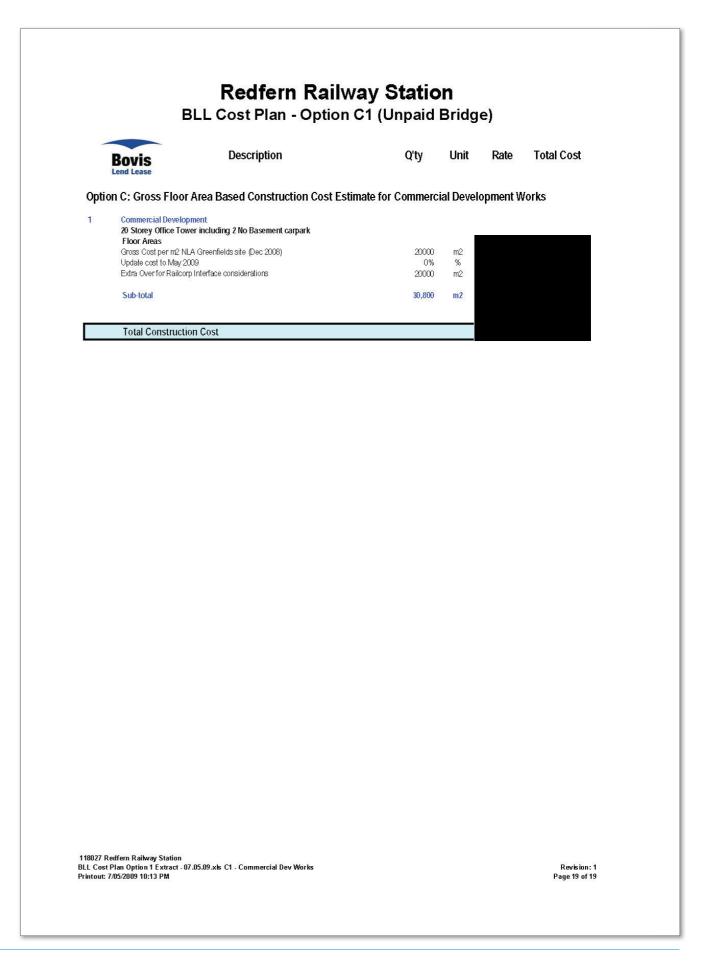


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Cost and Constructability Report 'Cost plan option 1 - unpaid bridge on grade

Redfern Railway Station BLL Cost Plan - Option C1 (Unpaid Bridge) COST PLAN SUMMARY Project Name: Option Name: Redfern Station Redevelonment Option C - Commercial Development Works 7 May 2009 **Bovis** Revision Date: DIRECT COSTS TOTAL COST C1 | Commercial Development DIRECT COST INDIRECT COSTS Subcontractor 1.1 IC 1.1 Subcontractor Indirect Included Sub-total D&C Contractor 12 IC 2.1 D&C Contractor's contingency to manage s/c Included Sub-total 13 IC 2.2 D&C Contractor Project Management & Facilities Included 14 IC 2.3 D&C Contractor Design 15 IC 2.4 D&C Contractor Design Verification Included 16 IC 2.5 D&C Contractor Head Office Overhead and Profit - Includes Included INDIRECT COST CONSTRUCTION COST (D&C Contract) ex GST **CLIENT COSTS** Client Directed Contingencies to Manage Works Under Contract C 1 IC 3.1 Design development contingency % of Construction Cost % of Construction Cost Target Budget C3 CC1 EIS, Survey, Preliminary Geotechnical Investigation & Concept Design 1.0% of Target budget Sub-total C 4 CC 2 Client Project Management Team 2.5% of Target budget plus CC1 Sub-total 5% of Target budget + CC1 to 9 **CLIENT COSTS** TOTAL DEVELOPMENT COST ex GST as at May 2009 NON CAPITAL COSTS Non Capital Expenditure NC 1 CC 4 Land and property acquisition costs - EXCLUDED NC 2 CC 5 Legal and marketing costs - EXCLUDED NC3 CC6 Financing Cost - EXCLUDED NON CAPITAL COSTS D TOTAL PROJECT COST ex GST as at May 2009 118027 Redfern Railway Station BLL Cost Plan Option 1 Extract - 07.05.09.xls C1 - Comm Dev Wks Summary) Printout: 7/05/2009 10:13 PM

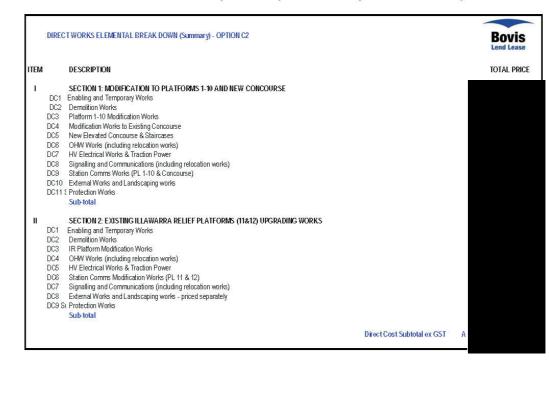


Redfern Station Redevelopment **Bovis** Appendix E Proposed revised concept design - Cost Plan Option 2 - Elevated unpaid concourse above new concourse Redfern Station Redevelopment - Cost and Constructability Report 20 July 2009 33

Redfern Station Redevelopment **Bovis** Redfern Station Redevelopment - Cost and Constructability Report 20 July 2009

Redfern Railway Station BLL Cost Plan - Option C2 (Elevated Unpaid Concourse) COST PLAN SUMMARY Project Number Project Name: Redfern Station Redevelopment **Bovis** Option C2 (New Concourse with Elevated Unpaid Concourse) Revision Date 4 May 2009 **DIRECT COSTS** TOTAL COST Platforms 1-10 - Modifications & New Concourse Works D2 II Illawarra Relief Platforms 11 & 12 - Upgrading Works D3 III Direct Costs Overtime Payment D4 IV Possession Support Costs DIRECT COST A INDIRECT COSTS Subcontractor I 1 IC 1.1 Subcontractor Indirect Incuded in Direct Costs 0% Sub-total 12 IC 2.1 D&C Contractor's contingency to manage s/c Trade Cost I3 IC22 D&C Contrador Project Management & Facilities I4 IC23 D&C Contrador Design I5 IC24 D&C Contrador Design Verification % Direct Costs 30% % of Trade Cost 5% % of Trade Cost 2% Sub-total 16 IC 2.5 D&C Contractor Head Office Overhead and Profit INDIRECT COST CONSTRUCTION COST (D&C Contract) ex GST **CLIENT COSTS** Client Directed Contingencies to Manage Works Under Contract C1 IC3.1 Design development contingency C2 IC3.2 Construction contingency % of Construction Cost 5% % of Construction Cost 5% Target Budget C3 CC1 EIS, Survey, Preliminary Geotechnical Investigation & Concept Design Sub-total C 4 CC2 Client Project Management Team C 5 CC3 Possessions cost Sub-total C 6 CC 10 Client Project Contingency CLIENT COSTS TOTAL CAPITAL COST ex GST as at May 2009 NON CAPITAL COSTS NOT Capital Expenditure NC 1 CC 4 Land and property acquisition costs - EXCLUDED NC 2 CC 5 Legal and marketing costs - EXCLUDED NC 3 CC 6 Financing Cost - EXCLUDED Maintenance Expenditure NC 4 CC 7 Initial Maintenance Cost - EXCLUDED NC 5 CC 8 Station Ticket Gates - allow for 6 New @ \$250,000/gate plus relocating 7 existing gates @ \$40,000/gate NC 6 CC 9 Ticket Vending Machines (TVMs) - allow for relocating existing TVMs & 1 new @ \$75,000/No NON CAPITAL COSTS D TOTAL PROJECT COST ex GST as at May 2009 118027 Redfern Railway Station BLL Cost Plan Option 2 Extract - 07.05.09.xls C2 - Refurb Works Summary Printout: 7/05/2009 10:18 PM

Redfern Railway Station BLL Cost Plan - Option C2 (Elevated Unpaid Concourse)



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BLL Cost Plan - Option C2 (Elevated Unpaid Concourse)

Possession Contribution Ca	lculator		Bovis Lend Lease
			Construction Works
Construction Costs (enter figure from cost plan) Indirect Costs (enter figure from cost plan) Construction Cost			
Percentage carried on possession			42%
Total cost of the project/Activity		(a)	
Total No of possessions (from programme)		(b)	43
Average Project/Activity value per possession		(c)=(a)/(b)	
Routine and Major Periodic Maintenance Spendir Cost from External Parties	10.00 / Co		
Configuration No.	Amount	No. of Possns	Total
Configuration 1	\$3,260,000.00	7	
Configuration 1A	\$3,260,000.00	3	
Configuration 3	\$2,210,000.00	9	
Configuration 4	\$3,330,000.00	7	
Configuration 8	\$1,510,000.00	11	
Configuration 15	\$2,100,000.00	6	
RailCorp Configuration Average over 46 possessio	ns	43	
Total average spend (RailCorp + Redfern) assuming no other projects		(d)	
% Contribution of Capital projects and or External Party to Alternate Transport and Trackwork Marketing		(e)=(c)/(d)	27%
Alternate Transport and Trackwork Marketin			
Configuration No.	Amount	No. of Possns	Total
Configuration 1	\$999,982.00	7	
Configuration 1A	\$1,160,782.00	3	
Configuration 3	\$361,782.00	9	
Configuration 4	\$640,980.00	7	
Configuration 8	\$427,382.00	11	
Configuration 15	\$498,492.00	6	
Configuration Average		43	
Contribution (Average per possession) No. of Possessions		(g)=(e)x(f)	43
Total Project Contribution			
Total Project Contribution			

118027 Redfern Railway Station BLL Cost Plan Option 2 Extract - 07.05.09.xls C2 - Poss'n Costs (Bussing etc) Printout: 7/05/2009 10:18 PM

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Redfern Railway Station
BLL Cost Plan - Option C2 (Elevated Unpaid Concourse)

vertime Penalty								
eek-end Track Possessions								
No of Tracks per Possession	Track Configuration	No of Possessions over 34 Mth Program	No of Platforms per Possession	No of Platform Possessions	Total	Config IR Platforms		
Single	8	11	2	22	22			
Double	1 3 4	7 9 7	4 4 4	28 36 28	92	11&12		
Triple	1A 15	3 6	6 6	18 36	54	11&12		
Total								
100004444	Works	43 No of Platform	Av No of	168 No of Shifts	168 No of Hrs		Cost	
eek-end Costs	Norks		Av No of Workers per Possession per Platform		No of Hrs	EO Rate per Hour \$	Cost \$	Total Co \$
eek-end Costs	Works	No of Platform	Workers per Possession	No of Shifts per	No of Hrs	per Hour		
eek-end Costs EO Labour Costs for Possession \	Works	No of Platform Possessions	Workers per Possession per Platform	No of Shifts per Possession	No of Hrs per Shift	per Hour		
eek-end Costs EO Labour Costs for Possession \(\) Single Possession	Works	No of Platform Possessions	Workers per Possession per Platform 7	No of Shifts per Possession	No of Hrs per Shift	per Hour		
eek-end Costs E0 Labour Costs for Possession \ Single Possession Double Possession	Works	No of Platform Possessions 22 92	Workers per Possession per Platform 7	No of Shifts per Possession 3.5	No of Hrs per Shift 12	per Hour		
eek-end Costs E0 Labour Costs for Possession V Single Possession Double Possession Triple Possession Total	Norks No of Weeks	No of Platform Possessions 22 92 54	Workers per Possession per Platform 7	No of Shifts per Possession 3.5	No of Hrs per Shift 12 12 12	per Hour		
eek-end Costs EO Labour Costs for Possession V Single Possession Double Possession Triple Possession		No of Platform Possessions 22 92 54 168 No of Nights	Workers per Possession per Platform 7 7	No of Shifts per Possession 3.5 3.5 3.5	No of Hrs per Shift 12 12 12	per Hour \$ EO Rate per Hour	\$ Cost	Total Co \$

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BLL Cost Plan - Option C2 (Elevated Unpaid Concourse)

leek-end Track Possessions								
No of Tracks per Possession	Track Configuration	No of Possessions over 34 Mth Program	No of PO's per Possession	No of Platform Possessions	IR Platforms			
Single	8	11	2	22				
Double	1	7	2	14	11&12			
	3 4	9 7	2	18 28				
Triple	1A	3	2	6	11&12			
Tilpio	15	6	4	24	11012			
Total		43		112				
feek-end Costs (Out of Hours)								
Hi-Rail Costs Hi-rail Equipment		No of Possessions over 34 Mth Program	No of Vehicles	No of Platform Possessions	No of Shifts	Rate/ 10 Hr Shift	Cost \$	Total Co
Hi-rail with Flat-top		43	3		4			
Hi-rail with Tipper		43	3		3			
Hi-rail with Cherry picker		43	3		3			
Day-makers, radios,water c	anlore etc	43	3					
B 31 10	ooiei s e ic	45						
Possession Officers Hi-rail Loading Point	1 per Possession	43			5			
Junction Officer	1 per platform			112	5			
Protection Officer	1 per platform			112	5			
Protection Co-ordinator	1 per Possession	43			5			
	No of Weeks	No of Nights	No	No of Platform	No of	Rate/	Cost	
leek Day Costs (Out of Hours)		per week		Possessions	Shifts	8 Hr Shift	\$	
Hi-rail with Flat-top / Tipper	52	5	1		1			
Possession Officers								
Protection Officer	52	5	2		1			
1 Totection Officel	No of Weeks		No.	No of Platform	No of	Rate/	Cont	
	NO OT WEEKS	No of Days per week	NO	Possessions	Shifts	10 Hr Shift	Cost \$	
feek Day Costs (Nornal Hours)								
Possession Officers								
Protection Officer	148	5	2		1			

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Redfern Railway Station BLL Cost Plan - Option C2 (Elevated Unpaid Concourse)

	ovis Lease	Description	Q'ty	Unit	Rate	Total Cost
Option C2 -	New Concourse v	vith Elevated Unpaid Concourse				
1	Enabling and Tem	porary Works				
1.1	Civil Works					
1.1.1	Demolition works - see	e section 2				
1.1.2	Temporary Access an	d Worksite				
	Temporary worksite to Prepare worksite for ner		ř	ltem		
	Temporary access to I	PL 10 crane access- incl above				
	Temporary works ite in Clear the work site area	Park between Rosehill, Marian & Gibbons Stre	ets 1,680	m2		
	Asphalt paving for office	e, storage and vehicular access areas	1,160	m2		
	Wash down facilities Traffic management		2	No Item		
		lice staff temporary parking facilities for 25 Cars inc		m2		
	Allow for Contractor terr	nporary parking facilities for 25 Cars including lighti	ngand			
	signs		625	m2		
	Reinstatement of exist Remove carpark and re		1250	m2		
		tormwater drainage works & kerbs	1	Item		
	Temporary access to	Crane near PL 10	2000			
	Hardstanding Traffic management		208	m2 Item		
	Temporary track acces	ss for Hi-rails				
	Access to Platforms 1, 2 Access to Platforms 4/5,		1 1	ltem ltem		
1.1.3	Temporary Fencing ar	nd Hoarding				
	Temporary site hoarding	g, 1800mm high	300	m		
	Temporary Fencing - all	nce fixed to Jersey barrier along live track low	50 100	m m		
1.1.4	Temporary drainage Allow for temp drainage	& connections	1	ltem		
1.1.7	Temporary crane platf Crane working platfor	forms				
	Assume new structure a Allow for temporary pro	at 125 Little Everlegh Street is available as the Crar	ne Platform	ltem		
		m for Platform 10 side (Concourse & Unpaid Bri	idae)			
	Allow for piling mob & d Piling/pier; assume 500	emob	1 160	ltem m		
1.1.8		ol rooms on platforms o staff rooms & train control	5	No		
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Bo	Description Lease	Q'ty	Unit	Rate	Total Cost
1.2	OHW Relocations - included in OHW works				
1.3	Signalling Relocations - included in signalling works				
1.4	Utilities Diversions Relocate existing HV power cables on Lt. Eveleigh St for crane access Allowance for any other services diversion	1	ltern ltern		
DC1	Total - Enabling and Temporary Works				
2	Demolition Works				
2.1	Demolition of existing platforms canopies Demolition	2,100	m2		
2.2	Demolition of existing staircases Demolition including disposal off site	39	m2		
2.3	Removal of existing miscellaneous items (per Platform)				
	Allow for removal of furniture Allow for removal of affected lights	10 10	No No		
2.4	Removal of existing building at 125 Little Everleigh Street				
	Class B Hoarding to perimneter Demolition of Timber & Masonry warehouse building	80 1279	m m2		
2.5	Removal of existing Platform Buildings Demolition of Timber & Masonry platform buildings	276	m2		
2.6	Platform 11 / 12 Link @ Mezz to Platform 10 Demolish existing retaining wall approx 1000 thick between Platform 10 and Void	123	m3		
2.7	Removal of Hazardous Waste Removal of Hazardous Waste EXCLUDED				
DC2	Total - Demolition Works				
3	Platform 1-10 Modification Works				
3.1	Platform Extension Structural works for PL3 extension by approx. 8m	23	m2		
32	Platform 11 / 12 Link @ Mezz to Platform 10	20	IIIZ		
0 2	Prepare opening in retaining wall for Glazed screen	34	m		
3.3	Platform level raising Remove existing bitumen paving and re-grade to new profile	5,111	m2		
	Platform re-surfacing with bitumen	5,111	m2		
	300mm wide coping to platform edge	1,663	m		
	100mm wide safety line to platform edge	1,663	m		
	300mm wide tactile to platform edge	1,663	m		
	Stormwater drain	1,663	m		
	Allow for sumps every 10m Allow for discharging water into track drainage system (4 No per platform)	140 40	No No		
3.4	Platform canopy fitout				
	Hoarding to workface	630	m		
	300 dia pile 3m deep @ 5000 centres tocan opy foundation	41	No		
	New canopies incl furniture & fixtures Allow for station control rooms including wash down, toilet and commisfacilities	2,052 5	m2 No		

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Redfern Railway Station BLL Cost Plan - Option C2 (Elevated Unpaid Concourse)

Bo	Description Lease	Q'ty	Unit	Rate	Total Cost
3.5	Platform mechanical works				
	Allow for air-conditioning for staff office on platforms	5	no		
	Allow for pressurised discharge system for sewage and waster water from platforms to nearest discharge point	5	no		
3.6	Platform electrical works				
	Upgrade of cabling to Fire Life Safety requirements (per platform)	10	No		
	Platform canopy lighting	2,052	m2		
	Platform stair lighting	772	m2		
	Platform lighting under new Concourse	600	m2		
	Platform lighting under new Unpaid Bridge	160	m2		
	Lighting poles to open platforms	10	No		
DC3	Total - Platform 1-10 Modification Works				
4	Modification Works to Existing Concourse				
4.1	New Fire Egress to Existing Concourse				
	Fire Egress - Demolition and structural alterations to existing Concourse for new fire				
	egress stair	1	ltem		
	Fire Egress - Allow for structural repairs	1	Item		
	Fire Egress - Fire egress stair included in staircases		Note		
	Fire Egress - Masonry wall to fire egress	564	m2		
	Fire Egress - Signage and sundry	253	m2		
	Fire Egress - Gated enclosure to base of fire egress stairs	6	No		
	Fire Egress - Gated enclosure to fire egress exit to street	2	No		
	Fire Egress - Emergency lighting	253	No		
DC4	Total - Modification Works to Existing Concourse				
5	New Elevated Concourse & Staircases				
5.1	Foundations				
5.1	Concourse - Column footing with 3 piles and pile cap	10	No		
	Concourse - Contiguous pile wall in Little Eveleigh Street	22	m2		
	Concourse - Strip footing to Little Evellegh Street	10	m		
	Concourse - 300 thick retaining wall on top of footing	60	m2		
	Concourse - Allow for monitoring and protection of engine dive & other structures	1	Item		
	Unpaid Bridge - Column Footing with 3 piles and pile cap	0	No		
	Unpaid Bridge - Pad footing	0	No		
	Unpaid Bridge - 300 thick retaining wall on top of footing	0	m2		
	Unpaid Concourse - Lift pit complete	2	No		
	125 Little Everleigh Street - Foundations for new suspended structure at GF incl demo				
	Basement GS and mg.	12	No		
	Stair footing with 2 piles and pile cap	10	No		
	Concourse - Lift pit complete	6	No		
	Platform 11/12 Link - Lift pit complete	1	No		
	i wasoni 1772 Emis - Emi pit ooniproto	1	INO		

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Ond	VIS Description	Q'ty	Unit	Rate	Total Cost
	Structure				
	Concourse - Hoarding to workface	520	m		
	Concourse - Column 1000 diameter	10	No		
	Concourse - Headstock - 600 x 600 headstock beam	29	m		
	Concourse - Headstock - 800 x 1000 headstock beam	165	m		
	Concourse - Headstock - 1200 x 1000 headstock beam	40	m		
	Concourse - 600 x 600 precast concrete plank deck	1200	m2		
	Concourse - 150 topping slab over precast concrete plank deck	1200	m2		
	Concourse - 150 ground slab on grade	101	m2		
	Concourse - Lift structure (Platform to top lift shaft)	680	m2		
	Concourse - Allow for craneage (450 t)	3	No		
	Unpaid Bridge - Hoarding to workface	0	m		
	Unpaid Bridge - Column 750 diameter	0	No		
	Unpaid Bridge - Headstock - 900 x 900 headstock beam	0	m		
	Unpaid Bridge - Headstock - 1000 x 900 headstock beam	0	m		
	Unpaid Bridge - Headstock - 1000 x 1200 headstock beam	0	m		
	Unpaid Concourse - 200 x 200 precast concrete plank deck	457	m2		
	Unpaid Bridge - 2100 mm wide x 1200 deep Super T' precast concrete beam deck	0	m		
	Unpaid Concourse - 60 topping slab over precast concrete plank deck	457	m2		
	Unpaid Bridge - 250mm thick insitu cantilevered launching slab	0	m2		
	Unpaid Concourse - Allow for craneage	3	Days		
	Unpaid Concourse - Lift structure (Concourse to top lift shaft)	119	m2		
	125 Little Everleigh Street - New suspended structure at GF	334	m2		
	Platform 11/t2 Link - Hoarding to workface	100	m		
	Platform 11/12 Link @ Mezz - Treat existing structural steelwork	540	m2		
	Platform 11/12 Link @ Mezz - Sundry Steetwork to make up levels	540	m2		
	Platform 11/12 Link @ Mezz - Bondek & 150 thick Suspended slab	370	m2		
	Platform 11/12 Link @ Mezz - Bondek & 275 thick Suspended slab	172	m2		
	Platform 11/12 Link @ Concourse - Treat existing structural steelwork	440	m2		
	Platform 11/12 Link @ Concourse - Sundry Steelwork to make up levels	440	m2		
	Platform 11/12 Link @ Concourse - Bondek & 150 thick Suspended slab	440	m2		
	Platform 11/12 Link - Escalator Landing 150mm thick	5	m2		
	Platform 11/12 Link - Lift structure Gnd to Mezz - 9mR	50	m2		
	Platform 11/12 Link - Lift structure (Mezz to top lift shaft)	63	m2		
	Platform 11/12 Link - Escalator housing pit complete (2 No)	2	No		
	Platform 11/12 Link - Allow for craneage	10	Days		
	Stairs - Steel stair stringer & framing	10	No		
	Stairs - Precast treads & risers	1119	m		
	Stairs - Landing 150mm thick	128	m2		
	Unpaid Concourse Stairs - Steel stair stringer & framing	2	No		
	Unpaid Concourse Stairs - Precast treads & risers	93	m		
	Unpaid Concourse Stairs - Landing 150mm thick	8	m2		

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Redfern Railway Station BLL Cost Plan - Option C2 (Elevated Unpaid Concourse)

	VIS Description	Q'ty	Unit	Rate	Total Cost
3	Roof Structure & Ceiling Linings				
	Concourse - Raked & tiered metal roof & structure	1694	m2		
	Concourse - Flat metal roof & structure	440	m2		
	Concourse - Luxalon Multi-panel soffit & wall lining incl sub-frame	2134	m2		
	Concourse - Raked & tiered glazed roof & structure	287	m2		
	Unpaid Bridge - Security screen and structure 75m long x 10m girth Unpaid Concourse - EO Concourse Structure for Hung Unpaid Concourse	0 2 SS	m2		
	frame	457	m2		
	Unpaid Concourse - Luxalon Multi-panel soffit & wall lining incl sub-frame	457	m2		
	125 Little Everleigh Street - Metal roof & structure	140	m2		
	125 Little Everleigh Street - Glazed roof & structure	274	m2		
	Platform 11/12 Link - Metal roof & structure	430	m2		
	Platform 11/12 Link - Luxalon Multi-panel soffit lining incl sub-frame	54	m2		
	Platform 11/12 Link (Mezzanine) - Luxalon Multi-panel soffit lining incl sub-fram-	e 207	m2		
	Stairs - Concrete roof structure & membran e finishes	772	m2		
	Stairs - Luxalon Multi-panel soffit lining incl sub-frame	772	m2		
.4	Façade				
	Concourse - Glazed balustrades 2100mm high	174	m		
	Concourse - Glazed curtain walling	110	m2		
	Concourse - Metal wall cladding & structure	712	m2		
	Concourse - Luxalon Multi-panel soffit & wall lining incl sub-frame	712	m2		
	Concourse - Façade Masonry wall	173	m2		
	Concourse - Shopfront	119	m2		
	Concourse - Lift cladding (Platform to top lift shaft)	680	m2		
	Concourse - SS column cladding cop to 2200mm high	69	m2		
	Unpaid Bridge - SS balustra de 1100mm high	0	m		
	Unpaid Bridge - SS balustra de cop 1100mm high	0	m		
	Unpaid Bridge - SS column cladding cop to 2200mm high	0	m2		
	Unpaid Concourse - SS balustrade 1800mm high	372	m		
	Unpaid Concourse - Lift cladding (Concourse to top lift shaft)	119	m2		
	125 Little Everleigh Street - Façade Masonry wall	52	m2		
	125 Little Everleigh Street - Shopfront	65	m2		
	Platform 11/12 Link (Mezzanine) - Façade Masonry wall	362	m2		
	Platform 11/12 Link (Mezzanine) - Glazed curtain walling	28	m2		
	Platform 11/12 Link - Lift dadding Gnd to Mezz - 9mR	50	m2		
	Platform 11/12 Link - Lift cladding (Mezz to top lift shaft)	63	m2		
	Platform 11/12 Link - Escalator lining to sides & soffit rise 5.35m	56	m2		
	Stairs - Glazed raking balustrades 1100mm high	283	m		
	Stairs - Masonry wall under egress stairs incl tiling	417	m2		
	Unpaid Concourse Stairs - Glazed raking balustrades 1100mm high	50	m		
	Unpaid Concourse Stairs - Masonry wall under egress stairs incl tiling	72	m2		

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Bo	Description	Q'ty	Unit	Rate	Total Cost
5.5	Building Fitout Works				
	Concourse - Urbanstone paving	1341	m2		
	Concourse - Sundry works	1320	m2		
	Unpaid Concourse - Urbanstone paving	457	m2		
	Unpaid Concourse - EO Urbanstone paying for steps	93	m		
	Unpaid Bridge - Urbanstone paving on and incl ramp on grade	0	m2		
	Unpaid Bridge - Urbanstone paving on and inclusteps on grade	0	m2		
	Unpaid Concourse - Sundry works	457	m2		
	ADELINI- Francisch Obert Hebenster en Geren Geren Geren bereit	0.40	- 0		
	125 Little Everleigh Street - Urbanstone paving on & incl waterproof membrane	243	m2		
	125 Little Everleigh Street - EO Urbanstone paving for steps	90	m		
	125 Little Everleigh Street - Sundry works	243	m2		
	125 Little Everleigh Street - Fitout to ticketing offices and office facilities including	90000	-		
	services	130	m2		
	Platform 11/12 Link (Mezzanine) - Urbanstone paving	204	m2		
	Platform 11/12 Link - Urbanstone paving on & incl ground slab on substrate over				
	waterproof membrane to suspended slab	67	m2		
	Platform 11/12 Link (Mezzanine) -Fitout to Station back of house	228	m2		
	Platform 11/12 Link - Fitout to ticketing offices and office facilities including services	156	m2		
	Platform 11/12 Link - Fitout to staff showers, lockers and lunchrooms including	0.4	0		
	Services	21	m2		
	Platform 11/12 Link - Internal masonry walls Platform 11/12 Link (Mezzanine) - Wall tiling	275 370	m2 m2		
		010	1112		
	Wayfinding Signage Concourse - Wayfinder Signage	1	ltern		
	Platforms - Wayfinder Signage	10	No		
5.6	Hydraulic Services				
5.0	Allow for hydraulies & plumbing	1	ltem		
	Allow for hydraulics, waste water, sewage & plumbing connections to existing	1	ltem		
	Allow for hydraulics, waste water, sewage & plumbing connections to existing	I.	IfeIII		
5.7	Electrical works				
	Allow for temporary electrical	1	ltem		
	Concourse - Lighting including distribution boards, light fittings and luminaires Unpaid Concourse - Lighting including distribution boards, light fittings and	3,230	m2		
	luminaires	457	m2		
	External Works - Lighting including distribution boards, light fittings and luminaires	1,037	m2		
	Provisions for 6 No lifts & 2 No escalators	1	Item		
	Unpaid Concourse - Provision for 2 No Additional lifts	2	No		
5.8	Mechanical Services				
2000	Allow for air-conditioning (staff)	535	m2		
5.9	Fire Services				
	Allow for fire protection	3,230	m2		
5.10	Vertical Transportation				
0	Concourse - Disabled Lift	6	No		
	Unpaid Concourse - Disabled Lift	2	No		
	Platform 11/12 Link - Disabled Lift	1	No		
		2			
	Escalator rising 5.35m (RL26.25 to RL31.60)	9	No		
	Allowance for crane (for lifts & escalators) Unpaid Concourse - Allowance for crane (for lifts)	2	Item Item		
	and a superior and other control of the control of	=	C\$12.000		
DC5	Total - New Elevated Concourse & Staircases				

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Redfern Railway Station BLL Cost Plan - Option C2 (Elevated Unpaid Concourse)

Bo	VIS Description	Q'ty	Unit	Rate	Total Cost
6	OHW Works (including relocation works) OHW Structures - Wiring adjustments (per Possession) Alow for modifying OHW structures New OHW cable supports underneath new slab Removal of redundant OHW structures Making good of platforms Testing & commissioning (Number of times)	6 8 20 9 12 6	No No No No Item		
DC6	Total - OHW Works (including relocation works)				
7	HV Electrical Works & Traction Power				
7.1	Traction power - not required		Note		
7.2	Power for PL 1-10 & concourse Existing station capacity is sufficient if escalators are not required for each platform		Note		
7.3	PL 11 & 12 switch room relocations (if required) included in IR works		Note		
7.4	Power for new development - included in the commercial development section		Note		
DC7	Total - HV Electrical Works & Traction Power				
8	Signalling and Communications (including relocation works) Temporary signal gantry structure to house signal for Down Main Line New signal Allow for new cabling Allow for modifications to existing track circuit Removal of existing gantry Removal of temporary gantry Relocation of signalling & comms cables mounted on PL 1 retaining wall including troughing & 2 kV power cables Ditto, mounted on PL10 Allow for disconnections and reconnections Testing & commissioning	1 1 1 1 1 1 1 250 250 250	No No Item Item Item Item m m Item Item		
DC8	Total - Signalling and Communications (including relocation works)				
9	Station Comms Works (PL 1-10 & Concourse) (NSSU Prorata \$3.5m to \$4.5m - Use \$4.0m) Station Passenger Information (SPI) Train describer system Control room & racks CCTV's and help points Telephones, PA system and other communications	ſ	ltem		
DC9	Total - Station Comms Works (PL 1-10 & Concourse)				

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Redfern Railway Station BLL Cost Plan - Option C2 (Elevated Unpaid Concourse) Q'ty Unit Rate Total Cost **Bovis** Description 10 External Works and Landscaping works - priced separately 10.1 External Works 1037 m2 1037 m2 2834 m2 1664 m2 5 No External Works - Urbanstone paving on and incl slab on grade External Works - Sundry works, bollards etc External Works - Re-grade park to new levels External Works - Soft Landscaping to Park External Works - Feature trees External Works - Allow for hard landscape to Park 1664 m2 External Works - Footpath to Gibbons Street (No Service pit adjustments or 228 m2 relocations) DC10 Total - External Works and Landscaping works - priced separately 11 Protection Works Included in Possession Works Note DC11 Total - Protection Works 118027 Redfern Railway Station BLL Cost Plan Option 2 Extract - 07.05.09.xls C2 - Refurb Works Printout: 7/05/2009 10:18 PM

Redfern Railway Station BLL Cost Plan - Option C2 (Elevated Unpaid Concourse) Bovis Lend Lease Description Q'ty Unit Rate Total Cost

Option C: Redfern Station IR Platforms Upgrading Works

1 1.1	Enabling and Temporary Works Civil Works		
	Demolition works - see section 2		
	Temporary Access and Worksite - included in Main Works (PL 1-10 & Concourse		
1.1.1	Works)		
1.1.2	Temporary Fencing and Hoarding		
	Temporary site hoarding; 2400mm high	200	m
	Temporary Fencing - allow	50	m
1.2	Utilities Diversions		
	Allowance for in ground services diversion	1	Item
DC1	Enabling and Temporary Works		
2	Demolition Works		
2.1	Demolition of part of existing concourse		
	Demolition of concourse entrance awning	1	Item
2.2	Demolition of existing roof level		
	Allow for temporary hoarding	80	m
	Demolition - Allow for catch deck	70	m2
	Demolition - Concrete roof structure	363	m2
	Demolition - Concrete concourse structure	363	m2
	Excavation and disposal of soil off site	200	m3
2.2	Demolition of existing platform for new escalator pit and lift pit		
	Demolition	1	Item
	Allow for waste to tip	1	ltem
2.3	Demolition of internal structures		
3.3	Platform level raising		
	Remove existing tiled paving and re-grade to new profile	1,389	m2
	Allow for removal by spoil train	2	No
	Remove existing tiled paving (Mezzanine)	125	m2
	Stormwater drain	341	m
	Allow for sumps every 10m	28	No
	Allow for discharging water into track drainage system (4 No per platform)	8	No
	Allow for demolition of existing blade wall/column for new fire egress stair South	2	No
	Allow for demolition of staircase rising 6720mm	1	No
	Allow for removal of pair escalators rising 12870mm	2	No
	Allow for demolition of internal walls	1	Item
	Allow for hacking existing wall finishes to receive new finishes	1	Item
	Allow for protection work during demolition	1	ltem
DC2	Demolition Works		

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Bo Lend	DVIS Description	Q'ty	Unit	Rate	Total Cost
3	IR Platform Modification Works				
3.1	Supports and strengthening existing columns				
	No allowance for strengthening and/or concrete encasing existing columns for impact				
	loading		Note		
3.1	Fire rate structural steel roof framing to Platforms 11 & 12				
	Allow for 2 Hr vermiculite fire spray to exposed steel beams	2890	m2		
	Note: Excludes rectification of existing steelwork damaged by water ingress		Note		
	Note: Excludes removal and replacement of roof membrane and spoil and				
	finishes of Platform roof		Note		
3.2	Modification to existing slab at 26.40-28.5 for new roof				
	Allow for sealing staircase & escalator voids	70	m2		
3.3	New internal structures				
	Allow for structural atterations for lifts, escalators and stairs	1	No		
	Allow for lift pits	1	No		
	Lift structure (Platform to top lift shaft)	118	m2		
	Lift cladding (Platform to top lift shaft)	118	m2		
	Allow for escalator pits	2	No		
	Escalator lining to sides & soffit rise 5.35 m	56	m2		
	Allow for new passenger staircase	1	No		
	Allow for new fire escape staircase to park	1	No		
	Re-work vent shafts & service risers	2	No		
3.4	New Smoke Exhaust / Skylights				
	Skylight Structure to Park	7	No		
	Allow for roof glazing	210	m2		
	Note: Smoke exhaust system (naturally ventilated through skylight)		Note		
3.5	Internal finishes & fitouts				
	Platform re-surfacing with wearing slab and Urbanstone paving	955	m2		
	300mm wide coping to platform edge	341	m		
	100mm wide safety line to platform edge	341	m		
	300mm wide tactile to platform edge	341	m		
	Refurb existing toilets and locker facilities	1	Item		
	Allow for new wall finish	1,700	m2		
	Allow for new finishes and fixtures to lift lobby and pedestrian link at Mezzanine level	1	Item		
	Allow for new finishes and fixtures to lift lobby at Platform leve	1	Item		
	Allow for new control room including wash down, toilet and comms facilities	1	No		
	Wayfinding Signage				
	Concourse - Wayfinder Signage	1	Item		
	Platforms - Wayfinder Signage	2	No		
3.6	Hydraulic Services				
	Allow for hydraulies & plumbing	1	Item		
	Allow for hydraulics, waste water, sewage & plumbing connections to existing	1	Item		
	Allow removal of PVC pipiing	1	Item		
3.7	Electrical works				
	Allow for temporary electrical	1	Item		
	Upgrade of cabling to Fire Life Safety requirements	1	Item		
	Modify lighting to platforms	1389	m2		
	Allow for new lighting to Mezzanine	150	m2		
	Provisions for lifts & 2 No escalators	1	Item		

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Redfern Railway Station BLL Cost Plan - Option C2 (Elevated Unpaid Concourse)

_	VIS Description Lease	Q'ty	Unit	Rate	Total Cos
3.8	Mechanical Services Allow for air-conditioning for staff office and back of house	1	Item		
			Itom		
3.9	Fire Services Modifications to fire protection including smoke detectors, EWIS and sprinklers to escalators	1,389	m2		
3.10	Vertical Transportation				
	Disabled Lift	1	No		
	Escalator rising 6.72m Allowance for crane (for lifts & escalators)	2	No Item		
DC3	IR Platform Modification Works				
4	OHW Works (including relocation works)				
	OHW works not required		Note		
DC4	OHW Works (including relocation works)				
5 5.1	HV Electrical Works & Traction Power Traction power - not required				
5.2	PL 11 & 12 switch room relocations works				
	Not required		Note		
DC5	HV Electrical Works & Traction Power				
6	Signalling and Communications (including relocation works) No new works required				
DC6	Signalling and Communications (including relocation works)				
7	Station Comms Modification Works (PL 11 & 12)				
	Station Passenger Information (SPI)				
	CCTV's and help points Telephones, PA system and other communications	1	Item		
DC7	Station Comms Modification Works (PL 11 &12)				
8	External Works and Landscaping works - priced separately				
DC8	External Works and Landscaping works - priced separately				
9	Protection Works				
	Included in Possession works		Note		
DC9	Protection Works				

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Redfern Station Redevelopment **Bovis** Appendix F Peer Review of Tenix Projects Cost, Constructability and Programming Review dated 3 April 2007 and Review and Clarification dated 28 Feb 2008 Redfern Station Redevelopment - Cost and Constructability Report 20 July 2009

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Redfern Station Redevelopment

Peer Review of Tenix Projects Cost, Constructability and Programming Review dated 3 April 2007 and Review and Clarification dated 28 February 2008

Document Control

Peer Review of Tenix Projects Cost, Constructability and Programming Review dated 3 April 2007 and Review and Clarification dated 28 February 2008

Document No. - 118027PR001

Revision 1

8 May 2009

Prepared by	John Langford Project Manager	Date: 22 July 200
Endorsed by	Andrew Quarmby Project Manager	Date: 23/7/09-
Approved by	Karlijn Klawer Project Manager	Date: 2.3 /7/09

Redfern Station Redevelopment



Executive Summary

This Peer Review report has been prepared by Bovis Lend Lease Consulting (BLLC) for the *Redfern Station Redevelopment*. This report reviews the costs, programme and construction methodology developed by Tenix Projects based on the three redevelopment options proposed by Jackson Teece.

Jackson Teece was the architect previously engaged by RailCorp for the Redfern Station Redevelopment and they developed a number of options for consideration. Three of these options C, D and E representing varying degrees of satisfying the design brief were further considered by RailCorp with "Option C - full station redevelopment" being the preferred option.

As many of the redevelopment works can only be safely and effectively undertaken during track possessions, the programme of works is heavily dependent on RailCorp's possession regime. Bovis Lend Lease Consulting is of the opinion that the construction sequence and durations used by Tenix projects in developing the programme are generally consistent with working in a live rail environment. Similarly, the cost plans developed by Tenix Projects are generally consistent with the restrictions experienced in undertaking works in an operating railway station, however Bovis lend Lease Consulting is of the opinion that insufficient allowance was made for worksite protection.

Notwithstanding the above, Bovis Lend Lease Consulting consider varying some of the construction methodologies adopted by Tenix Projects would result in time, cost, reliability and safety benefits. Significant variances include:

- Removing the need to install catch decks above the Up and Down Main (Platforms 1 & 2) and Illawarra Lines (Platforms 9 & 10) by using the previously erected structure as a barrier between the lifting operation and the live tracks;
- Using hi-rail vehicles to delivery and remove plant and materials from platforms thus removing the need to construct a temporary construction access bridge; and
- Instead of an extended closedown of the Illawarra Relief, only close the platforms, permitting trains to travel through but not stop at Redfern Station during the reconfiguration of the vertical transfer elements (If the full development above the station is to occur then it is likely that an extended closedown will be required to facilitate installation of the transfer structure).

The results of the review are summarised in the following table:

Development	Cost (2009	Cost (2009	Duration – Tenix	Duration - BLLC
Options	Dollars) - Tenix	Dollars) - BLLC		
С			47 months	47 months
D			24 months	24 months
E			36 months	36 months

*The figures have been adjusted to include current rates and items Bovis Lend Lease Consulting feels were not included in the Tenix Projects cost plan such as additional worksite protection and fire rating to beams in the ESR. Furthermore, we consider an escalation rate of 0% to be appropriate for the period between June 2008 and May 2009 and this has been applied to the values presented by Tenix Projects in their Review and Clarification report dated 28 February 2008 bringing the figures up to 2009 (Today's) dollars.

As the figures are in 2009 dollars, RailCorp will need to consider making allowances to take into account the actual start dates and factor in escalation up to and during the design and construction phases.

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Redfern Station Redevelopment



1. Introduction

RailCorp is progressing the Concept Development planning for Redfern Station to Project Definition stage. RailCorp previously engaged Tenix Projects to analyse the concept design options for the Redfern Station Redevelopment and report on the cost, constructability and programme. This report is a peer review of the Tenix Projects report programmes and cost plans that aims to identify any safety issues and potential cost and time savings.

For consistency and comparison purposes, BLLC have generally used the same headings of the Tenix Projects Cost, Constructability and Programming Review Report – Revision 3 dated 3 April 2007.

1.1. Background

The background surrounding the redevelopment has not changed.

1.2. Purpose

The purpose of the report is to provide an independent review of the Tenix Projects cost, constructability and programming review.

1.3. Key Assumptions and approach

1.3.1. Programme

The programme has been based on RailCorp's Weekend and Closedown Possession programmes at the time of the Tenix report. For an indicative construction start date of July 2011 the following RailCorp Weekend and Closedown Possession Programmes are now applicable:

-	2011/2012	Draft 5
	2012/2013	Version
•	2013/2014	Version
	2014/2015	Version

- The amount of work proposed in each possession appears reasonable.
- Bovis Lend Lease Consulting acknowledges that extended closedowns of the Illawarra Relief are desirable and would construction productivity; however they do not consider extended closedowns to be necessary.
- Tenix Projects have identified lack of RailCorp resources for OHW, signals and sub station
 works as a risk to the project. With adequate planning we do not consider this to be a
 significant risk.
- The configuration change process will depend on whether the project is managed internally or by another party such as TIDC. Whatever the process, configuration change approval will be based on RailCorp's acceptance of approved for construction drawings.

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1.3.2. Cost

- It is reasonable that costs are presented at 2007 prices.
- The costing of the project was based upon a contract structure and approach similar to that used by TIDC on Clearways projects. However, RailCorp may also consider other delivery methods such as Design only Build only, Alliance or Managing Contractor. In considering each method, RailCorp should be mindful of the impact on design timelines, internal resources required and the time associated with tender and award of the various procurement methods.
- Bovis Lend Lease Consulting agrees that works interfacing with the operating rail environment
 would be undertaken by a contractor engaged by RailCorp and any development works
 between Platform 10 and Gibbons Street would be the responsibility of a developer.
- Tenix Projects note that cost and time advantages may be obtained if the project was delivered on an Alliance basis. Following review of the programme, we question whether any time advantages could be obtained in an Alliance contract. However, cost advantages could be realised if an appropriate incentive and pain/gain structure is implemented. We note that establishing an Alliance can be time consuming.

1.3.3. Constructability

- Tenix Projects base their construction methodology on the ability to lift across live tracks and platforms subject to temporary catch decks being in place and a risk assessment undertaken with RailCorp. Bovis Lend Lease Consulting agrees in principle with this methodology but without the temporary catch decks, using previously installed deck sections as a barrier between the crane and the operating tracks.
- Bovis Lend Lease Consulting agrees that the North Eveleigh site could be used as a worksite.

1.4. References

No comment

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2. Construction Methodology

2.1. Introduction

Bovis Lend Lease Consulting has reviewed the construction methodologies proposed by Tenix Projects and whilst they are generally consistent with working in a live rail environment we would consider varying some of the construction methodologies to save on time and cost as well as improving safety and reliability. Significant variances include:

- Removing the need to install catch decks above the Up and Down Main (Platforms 1 & 2) and Illawarra Lines (Platforms 9 & 10) by using the previously erected structure as a barrier between the lifting operation and the live tracks;
- Using hi-rail vehicles to delivery and remove plant and materials from platforms thus removing the need to construct a temporary construction access bridge;
- Reducing the time taken and inconvenience of removing spoil from the demolition of the
 platform buildings during the week by undertaking the activity during possession;
- Constructing lift pits on the platforms during possessions only to avoid any subsidence issues with the platform surface during station operations; and
- Carrying out the vertical transfer works to the Illawarra Relief only during the possessions
 available and during the day instead of requiring an extended closedown. Notwithstanding this,
 only closing the platforms, permitting trains to travel through but not stop at Redfern Station
 during the reconfiguration of the vertical transfer elements only would greatly benefit
 construction.

In terms of the peer review of the report, Bovis Lend Lease Consulting agrees with the commentary included in the introduction in relation to independent worksites, Option C requiring a more defined sequence and the impact of start dates relative to the RailCorp Weekend Possession Programme applicable during the construction phase.

2.2. Construction Access to Surface Platforms

Option C

Bovis Lend Lease Consulting does not see the construction access bridge to be a viable option considering:

- Possessions are required for the construction of the bridge when permanent works can be carried out at the same time:
- Access to platforms will be restricted during peak periods;
- Materials and equipment can be delivered to platforms out of operating hours;
- Hoists have a limited capacity for materials and equipment;
- It is likely to impact signal sightings;
- Concrete for platform structures could be delivered via concrete pump lines through PVC sleeves beneath the rails at the country end of the platforms or alternatively at night via concrete pumps lines from the corner of Lawson and Gibbons Streets down the existing stairs at the city end of the platforms (or via booms during possessions).

Bovis Lend Lease Consulting considers using hi-rail trucks during non-operating times as a viable alternative to the construction access bridge.

Option D & E

Bovis Lend Lease Consulting agrees that the scale of works for these options is relatively small and that a construction access bridge is not necessary. We agree that cranes would be required to hoist material and machinery to platforms. However, we also consider hi-rail trucks to be a viable alternative to cranes especially for larger machinery and materials. Without further investigation, we question whether the

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excavation of the lift pits at the end of the platforms can be safely and effectively undertaken outside of possessions.

2.3. Early Works

Early works would be required if the construction access bridge was required but Bovis Lend Lease Consulting does not see it as a viable option.

2.4. Surface Platforms Construction Sequence

Bovis Lend Lease Consulting generally agrees with the construction sequence proposed by Tenix Projects. However, we suggest that the demolition of the building on the platforms be undertaken during possessions due to the piece meal approach required if it is demolished during the day. Furthermore, we consider that the pier headstock structures could be constructed during the day with the falsework erected and dismantled during possessions.

2.5. Illawarra Relief and Void between Platforms 10 and 11

Bovis Lend Lease Consulting agrees that this will be the most active work zone at the beginning of the project.

We agree that the park adjacent to Gibbons Street would be taken over as a worksite and staging area.

Bovis Lend Lease Consulting understand that Tenix Projects based the crane capacity on a 400T mobile crane and suggest that using a larger crane such as a 450T mobile crane is likely to provide alternative cranage platform locations that do not require as significant structural support.

2.6. Sequence and Methodology Issues

Option C

Bovis Lend Lease Consulting agree that any major re-work of the Illawarra Relief Box would include extensive work in the road reserve and that the RTA would not allow less than 3 trafficable lanes at any one time.

We agree that the demolition works on Platform 1 and 10, including the part demolition of the retaining wall on Platform 10 could be undertaken behind hoardings at any time except for the awning of the Platform 10 which would need to be carried out during possession due to its proximity to the OHW.

Perimeter contiguous piling is an option for the interface with Platform 10 and the Marian Street boundary in conjunction with demolition of the old superstructure.

We agree that a section of the Intermediate Concourse roof would need to be demolished in addition to local areas for the northern and southern fire stairs and a strip where the skylight is located.

Bovis Lend Lease Consulting does not consider the temporary construction access bridge to be a viable option as described above.

Bovis Lend Lease Consulting agrees in principle with the use of catch decks over the tracks between Platforms 1 and 2 and the tracks between Platforms 9 and 10 but is of the opinion that previously installed deck sections over these tracks can act as a barrier between the crane and the operating tracks. Alternatively, and if midnight to dawn possessions with OHW power out can be arranged for the Up and Down Local tracks between Platforms 5 & 6, the planks could be installed during the nights of Configuration 1A and/or Configuration 3 possessions.

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Bovis Lend Lease Consulting agrees that the construction of the permanent structures will require strict control of cranage operations with respect to adjacent live rail operations and that the basic approach is feasible.

The chosen locations of the new vertical transport and access concourse, fire stairs and skylights appear to be feasible for construction sequence and structural reasons. We agree with basic philosophy to maintain adequate vertical transfer elements during construction and the intended routes proposed via the new concourse link and Platform 10

Options D & E

Bovis Lend Lease Consulting agree that the major activities in these options are possession dependent and consider the phasing of the major activities shown in Figures 27 to 35 to be reasonable.

We note that the proposed extension of platform 2/3 may impact on the sighting of Signal SY457M.

Tenix Projects appear to rely heavily on the use of cranes and whilst we consider them to be appropriate in some instances, consideration should be given to the use of hi-rail vehicles for delivery and removal of machinery and materials to platforms.

3. Programme

3.1. Introduction

Bovis Lend Lease Consulting have reviewed the programmes and found the construction sequence and durations used by Tenix Projects in developing them to be generally consistent with working in a live rail environment. We note that the programme of works is heavily dependent on RailCorp's possession regime and that any change to the commencement of works on site is likely to affect the overall duration of the project.

In reviewing the report, Bovis Lend Lease Consulting agree that works is highly dependent on RailCorp's Possession Programme and consider it reasonable that construction would commence as soon as approvals are in place on the basis of a Design and Construct or Management Contract delivery model, assuming that the main contract is based on a signed off Concept Design by the stakeholders.

If a Design Only Build Only delivery model is used, the design would need to reach Approved for Construction status prior to commencing construction.

Bovis Lend Lease Consulting consider the 7 months from contract award to any substantial construction works occurring for each option to be reasonable during which time design and other approvals will be sought.

3.2. Possession requirements

Bovis Lend Lease Consulting do not consider that in addition to the normal scheduled possessions, extended shut downs will be required for major structural works to be undertaken to the Illawarra Relief for installation of new fire stairs and other vertical access. Whilst extended shut downs would be beneficial in terms of time, cost and safety, we are of the opinion that the works could, if necessary, be carried out within the available possessions and work during normal hours with hoarding separating work zones from operational zones.

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If the full development above the station is to occur then it is likely that an extended closedown will be required to facilitate installation of the transfer structure. We agree that extended shutdowns of around 4 weeks would most likely have to occur over the Christmas New Year period.

Having the adjacent live platforms during Configuration 1, 3, 4, 8 and 15 possessions non-stop at Redfern increasing the work area and avoiding mixing passengers and construction work would be extremely beneficial.

3.3. Main Findings

3.3.1. Option D

The duration for Option D is 24 months from award of contract. Bovis Lend Lease Consulting has reviewed the programme developed by Tenix Projects and found it to be reasonable. With the majority of the work being possession dependent there is little room for improvement in relation to the overall duration. We note that the duration will be determined by the possession regime applicable at the time construction commences and therefore may fluctuate depending on possession availability.

3.3.2. Option E

The duration for Option E is 36 months from contract award. Bovis Lend Lease Consulting has reviewed the programme developed by Tenix Projects and found it to be reasonable. With the majority of the work being possession dependent there is little room for improvement in relation to the overall duration. We note that the duration will be determined by the possession regime applicable at the time construction commences and therefore may fluctuate depending on possession availability.

3.3.3. Option C

The duration for construction is 47 months from contract award. Bovis Lend Lease Consulting has reviewed the programme developed by Tenix Projects and found it to be reasonable. We note that the duration will be determined by the possession regime applicable at the time construction commences and therefore may fluctuate depending on possession availability.

4. Station Upgrade Costs

4.1. Introduction

Bovis Lend Lease Consulting has reviewed the cost plans for Option C, D & E and made adjustments to determine the value of the works in 2009 terms. Rates have been adjusted based on current market value and actual costs for similar activities experienced on recent projects and allowances have been made for items that we feel did not adequately cover the scope such as worksite protection and firerating t o the beams in the ESR.

4.2. Direct Costs

It is reasonable that Tenix Projects have priced the works on activities given the level of architectural detail available and the preliminary nature of the options. Tenix Projects claim that the rates applied are higher than would be expected for a standard building type project as they take into account the degree of difficulty of working in a rail environment. Whilst Bovis Lend Lease Consulting agrees with the application of higher rates, in many cases it was difficult to assess how Tenix Projects valued some work activities due to the lack of detailed construction methodology and pricing calculations.

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4.3. Contractors Indirect and Client Costs

4.3.1. Contractor's Indirect Costs

Bovis Lend Lease Consulting has undertaken a review of the allowances made by Tenix Projects in their report and generally found them to be reasonable for use at concept phase with the exception of the Subcontractor Indirects allowance of 18% given that these costs are usually included in subcontractor rates. We note that Tenix Projects do not provide a description what they consider to be included in subcontractor indirect costs but we assume they include at least:

- Overheads
- Profit
- Site establishment
- Supervision
- Contingency

IC1.1 Subcontractor Indirects – Tenix Projects allowed 18% based on similar cost estimates provided for TIDC and RailCorp. Bovis Lend Lease Consulting considers this allowance to be reasonable.

IC2.1 D&C Contractors Contingency to manage Subcontractors – 10% contingency of the total direct costs plus the subcontractor indirects to cover the risks in managing the subcontractors. Bovis Lend Lease Consulting considers this allowance to be reasonable.

IC2.2 D&C Contractors Project Management and Facilities – The construction teams proposed by Tenix Projects for each option are reasonable.

IC2.3 D&C Contractors Design – The design costs is 5% of the total direct cost plus Subcontractor indirects and Contractors contingency to manage subcontractors. Bovis Lend Lease Consulting considers this allowance to be reasonable.

IC2.4 D&C Contractors Design Verification - 2% of the total direct cost plus Subcontractor indirects and Contractors contingency to manage subcontractors. Bovis Lend Lease Consulting considers this allowance to be reasonable.

IC2.5 D&C Contractors Overhead and Profit – 12% on top of all of the above. Bovis Lend Lease Consulting considers this allowance to be reasonable.

IC3.1 & IC3.2 Design Development and Construction Contingency – 10% has been allowed for to manage any cost implications from client directions concerning design and construction methodology. Bovis Lend Lease Consulting considers this allowance to be reasonable.

These contingencies added to the Construction Cost form the Target Budget.

4.3.2. Client Costs

Similar to the Indirect Cost allowances, Bovis Lend Lease Consulting has undertaken a review of the Client Costs allowances made by Tenix Projects in their report and found them to be reasonable for use at concept phase. Therefore, these allowances will be applied to the Target Budget costs in the cost plan.

CC1 EIS/REF, Survey, Geotechnical Investigations and Concept Design- Between 1.5 & 3% of the Target Budget. Bovis Lend Lease Consulting considers these allowances to be reasonable.

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Redfern Station Revised Concept Design Report Section C Cost and Constructability

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CC2 Client Project Management Team – 5% of the Target Budget. Bovis Lend Lease Consulting considers this allowance to be reasonable.

CC3 Possession Costs – Tenix Projects allowances for alternate transport, trackwork marketing and possession management appear reasonable.

CC4 Land and Property Acquisition Costs – Tenix Projects made no allowance on the basis that the majority of the works and worksites fall within RailCorp property. Bovis Lend Lease Consulting notes that RailCorp have since acquired No 125-127 Little Eveleigh Street.

CC5 Legal and Marketing Costs – 0% (minor if any). Bovis Lend Lease Consulting considers this allowance to be reasonable.

CC6 Financing Cost – 0% (RailCorp to apply). Bovis Lend Lease Consulting agrees that it is for RailCorp to apply.

CC7 & CC8 RailCorp Supplied Items – Allowances have been made for items such as Station Ticket Gates, and Ticket Vending Machines. Bovis Lend Lease Consulting considers these allowances to be reasonable.

CC9 Initial Maintenance Costs – Tenix Projects did not make an allowance as specific advice as to the requirement and magnitude of this allowance was not available at the time. Bovis Lend Lease Consulting considers it appropriate for RailCorp to determine the value of this allowance.

CC10 Client Project Contingency – 10% is allowed for the impact of external influences on the project such as changes to legislation and the requirements of external stakeholders. Bovis Lend Lease Consulting considers this allowance to be reasonable especially with the proposed new rail corridor immediately to the west of the station.

4.4. Area Specific Assumptions

Tenix Projects made a number of assumptions related to temporary works, construction methodology, power capacity, rail systems and finishes which Bovis Lend Lease Consulting consider to be reasonable

4.5. Cost Estimate Summaries

4.5.1. Station upgrade for Option D

Based on the limited information available, especially in terms of the detail of Tenix Project's intended construction methodology, Bovis Lend Lease Consulting has reviewed the cost plan and excluding insufficient allowance for worksite protection officers, found it to be reasonable for 2007 prices. Whilst it is not clear in the supplementary report, it appears that an additional 15% has been added for escalation to bring the prices up to 2008 dollars.

We note that the Tenix Projects cost plan appears to have allowed for twin escalators to the new concourse over Platform 2/3 when the design shows one. Furthermore, it appears the cost for the escalators was not included in the summation of the costs. Bovis Lend Lease Consulting has made the necessary adjustments.

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Tenix Projects reported \$33.9M for Option D in June 2008. Making adjustments to the rates where appropriate and including allowances for worksite protection and fire-rating, brings the Total Project Cost to \$39.0M in 2008 dollars. Applying 0% escalation results in the cost remaining at \$39.0M in 2009 dollars (Refer to Appendix A).

4.5.2. Station upgrade for Option E

Based on the limited information available, especially in terms of the detail of Tenix Project's intended construction methodology, Bovis Lend Lease Consulting has reviewed the station upgrading section of the cost plan and excluding insufficient allowance for worksite protection officers, found it to be reasonable for 2007 prices. The WT Partnership costing for the unpaid pedestrian bridge has been added and whilst it is not clear in the supplementary report, it appears that an additional 6.5% has been added for escalation to bring the prices up to 2008 dollars.

We note that the Tenix Projects cost plan appears not to have included \$58,200 of piling in the summation of the costs. Bovis Lend Lease Consulting has made the necessary adjustments.

Tenix Project reported \$98.8M in June 2008. Assuming that the development enabling works are reasonable, making adjustments to the rates where appropriate and including allowances for worksite protection and fire-rating, brings the Total Project Cost to \$104.5M in 2008 dollars. Applying 0% escalation results in the cost remaining at \$104.5M in 2009 dollars (Refer to Appendix B).

4.5.3. Station upgrade for Option C

Based on the limited information available, especially in terms of the detail of Tenix Project's intended construction methodology, Bovis Lend Lease Consulting has reviewed the station upgrading section of the cost plan and excluding insufficient allowance for a hoist operator, fire-rating and protection officers, found it to be reasonable for 2007 prices. Whilst it is not clear in the supplementary report, it appears that an additional 15% has been added for escalation to bring the prices up to 2008 dollars.

Tenix Project reported \$220.0M in June 2008. Assuming that the development enabling works are reasonable, making adjustments to the rates where appropriate and including allowances for a hoist operator, worksite protection and fire-rating, brings the Total Project Cost to \$234.7M in 2008 dollars. Applying 0% escalation results in the cost remaining at \$234.7M in 2009 dollars (Refer to Appendix C).

4.5.4. Consideration of raising the central concourse for Option C

Bovis Lend Lease Consulting agrees with the Tenix Projects assessment of the impact of raising the central concourse for Option C. Namely that the change would be approximately cost neutral and that raising the concourse would result in significant problems in relation to access at either side of the station

5. Development Costs

Bovis Lend Lease Consulting agrees that in the event a developer progresses with the commercial development, the development enabling works must be undertaken by a RailCorp Contractor as they have a direct interface with the operational railway. We also agree that the works up to and above RL31.70 would be undertaken by a commercial development contractor.

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5.1. Development enabling works

Tenix Projects note that the enabling works will be undertaken at the same time as the station upgrade works thereby the associated on costs such as the project management team and facilities only allow for the elements specifically related to those works.

Tenix Projects also make a number of specific assumptions for Option C only in relation to retaining the basement excavation and the demolition of the Platform 10 retaining wall to facilitate construction of the bored pile wall for the carpark.

Bovis Lend Lease Consulting found the assumptions to be reasonable.

5.1.1. Enabling works for Option E development scheme

Bovis Lend Lease Consulting has reviewed the cost plan based on the limited information available and found it to be reasonable for 2007 prices. We would make an allowance for management and real-time monitoring of the Illawarra Relief tracks during the piling works.

We note that a significant amount of potentially contaminated spoil from track reconditionings has been dumped in the southern suburbs rail tunnels (possibly after Tenix Projects undertook their site inspection) and its removal will now need to be factored into any works in this area.

5.1.2. Enabling works for Option C development scheme

Bovis Lend Lease Consulting has reviewed the cost plan based on the limited information available and found it to be reasonable for 2007 prices. We would make an allowance for management and real-time monitoring of the Illawarra Relief tracks during the piling works.

We note that a significant amount of potentially contaminated spoil from track reconditionings has been dumped in the southern suburbs rail tunnels (possibly after Tenix Projects undertook their site inspection) and its removal will now need to be factored into any works in this area.

5.2. Development works up to 31.7m level

Bovis Lend Lease Consulting has reviewed the cost plan based on the limited information available and found it to be reasonable for 2007 prices.

Tenix Projects also make a number of specific assumptions for Options C & E in relation to retaining the basement excavation along Marian Street, the upper floor limit for the estimate and that only structural works are considered for the building at the corner of Lawson and Gibbons Street.

Bovis Lend Lease Consulting found the assumptions to be reasonable.

5.2.1. Development works up to 31.7m level for Option E scheme

Bovis Lend Lease Consulting has reviewed the cost plan based on the limited information available and found it to be reasonable for 2007 prices. We would make an allowance for management and real-time monitoring of the Illawarra Relief tracks during the piling works.

5.2.2. Development works up to 31.7m level for Option C scheme

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Bovis Lend Lease Consulting has reviewed the cost plan based on the limited information available and found it to be reasonable for 2007 prices. We would make an allowance for management and real-time monitoring of the Illawarra Relief tracks during the piling works.

5.3. Commercial Development above 31.7m level

Tenix Projects have used typical industry rates per square metre for commercial high rise development. They also see the location and use of cranes over the live rail corridor as significant constraints. Bovis Lend Lease Consulting agrees that these constraints will be significant.

5.3.1. Commercial development above 31.7m for Option E scheme

Bovis Lend Lease Consulting has reviewed the cost plan based on the limited information available and found it to be reasonable for 2007 prices.

5.3.2. Commercial development above 31.7m for Option E scheme

Bovis Lend Lease Consulting has reviewed the cost plan based on the limited information available and found it to be reasonable for 2007 prices.

6. Cost Summary

A summary of the total project costs for the three options (including BLLC adjustments to station upgrade works) is provided below:

Development Phases	Options					
	D (\$M)	D (\$M)	E (\$M)	E (\$M)	C (\$M)	C (\$M)
	Tenix	BLLC	Tenix	BLLC	Tenix	BLLC
Station Upgrade						
Development Enabling						
Works						
Development Works						
up to RL31.7m						
Development Costs	Excluded	Excluded	Excluded	Excluded	Excluded	Excluded
Total Cost						

7. Analysis of Options

Constructability assessments of the three options defined by Jackson Teece have been undertaken.

7.1. Review against assessment criteria

The Tenix Projects brief included a review of assessment criteria and issues of interest for the cost constructability and programming study which have been reviewed by Bovis Lend Lease Consulting and are presented below.

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7.1.1. Staging Plans

Bovis Lend Lease Consulting generally agrees with the staging plans provided by Tenix Projects for each of the options reflecting the construction sequence.

7.1.2. Platform Closures Required

Bovis Lend Lease Consulting disagrees that closing platforms would not have any overall great affect on cost or programme. Closing platforms enables work to be carried out more effectively and safely as there is no interface with passengers. Being able to effectively carry out works during operational times significantly reduces time risks, especially when the works are critical to possession dependent works thus providing more surety of the programme activities. Whilst the end date of the programme may not move as a result of critical path works being possession dependent, being able to undertake activities with platforms closed will be quicker, thus reducing the project management team requirements which will ultimately lead to cost savings.

Long term possessions of Platforms 1 and 10 would enable the significant amount of works at end of the concourse and unpaid pedestrian and cycle bridge to be carried out more effectively and safely. Similarly, closing each of the island platforms during substructure works as well as Platforms 11 and 12 in the ESR for vertical transfer element reconfigurations would enable works to be carried out more effectively and safely.

Bovis Lend Lease Consulting agrees that closing the adjacent platform side to customers to allow for increased work areas in possessions would be beneficial.

Bovis Lend Lease Consulting is of the opinion that the platforms and lines of the Illawarra Relief need to be closed for an extended duration for the transfer structure required for the development only.

7.1.3. Traffic Impacts

Bovis Lend Lease Consulting agrees that Option C has the potential for major traffic impact upon Gibbons Street during development enabling works. We also suggest that the disused Down Southern Suburbs tunnel via the Sydney Signal Box be explored as a possible access/egress point if and when the enabling works take place.

We agree that Lawson Street will need to be blocked during some possessions for Options D & E. However, the use of hi-rail trucks to deliver plant and equipment and remove material may reduce this requirement and should be explored.

Road closures would be required in Little Eveleigh Street to facilitate delivery and cranage of the concourse precast concrete elements.

We agree that traffic routes and coordination of deliveries will be important to minimise the impacts along local roads.

7.1.4. Proposed Storage Areas and Worksites

Tenix Projects have identified an area in North Eveleigh for station operations and local police station parking during construction of the main commercial building. Whilst this is feasible, Bovis Lend Lease Consulting suggest exploring alternative parking arrangements such as with the adjacent Redfern RSL Club or dedicating a section of the proposed worksite area between Rosehill and Gibbons Street.

We agree that the North Eveleigh area should be retained for use by the project and that the area will need to be coordinated for track access with the City District (formerly City Region)

We agree that the location and arrangement of access and egress points from worksites will need to be carefully considered to maximise flexibility and minimise impact upon road users/pedestrians.

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7.1.5. Impact on Fruin Level of Service for Each Stage of the Staging Plans

Bovis Lend Lease Consulting agree that the staging works will not impact on available staircase widths or accessibility to escalators, but the available circulation space will be constricted on Platform 2/3 and the existing concourse during the option D & E works. We also expect some constrictions on circulation space and staging during the works in the Illawarra Relief.

We agree that all platforms will be impacted during Option C works and each option should be subjected to pedestrian modelling analysis during the design phase.

7.1.6. Impact on Emergency Egress

Bovis Lend Lease Consulting agrees that for Option C, the permanent arrangements for emergency egress will be improved for the surface platforms as the travel distances are reduced when compared to the current end loaded platforms and that during construction the existing arrangements will be maintained until the new concourse is commissioned. We note that the emergency egress will be further improved if the existing stairs are maintained in addition to the new concourse.

We agree that in the Illawarra Relief, the new emergency egress stairs from the southern end of the platforms would need to be provided prior to the removal of any existing facilities to mitigate any temporary shortfall.

We agree that for Option D & E, the existing emergency egress routes are maintained for the surface platforms and that the addition of the egress stairs from the southern end of the platforms in the Illawarra Relief will improve emergency egress.

7.1.7. Impact on Other Stations

Bovis Lend Lease Consulting agrees that there will be minimal impact on other stations other than for possible customers that choose to alight at earlier stations.

We agree that the will be impacts on other stations during possessions but as these usually occur during low patronage periods the effects are likely to be insignificant. If some platforms are closed for an extended period to facilitate works, we recommend pedestrian modelling be undertaken at other stations to assess the safety implications of any additional patronage.

7.1.8. Number of Train Journeys Affected – Trains and Passengers

Bovis lend Lease Consulting notes that the Tenix Projects proposal of an extended shutdown of the Illawarra Relief would have significant impact on train journeys and passengers and further analysis would required if this proposal is adopted.

7.1.9. Cost of Additional Public Transport

Bovis Lend Lease Consulting agrees that the cost of additional public transport will relate to possession replacement services and that the proportion of cost allocated to the project is dependent upon other works occurring during the same possessions.

7.1.10. Number of Additional Staff Required

Bovis Lend Lease Consulting agrees that additional staff would not be required other than immediately following any major changes in the station configuration (e.g. new access to the Illawarra Relief off Platform 10 or commissioning the new concourse). Additional staff is likely to be required during these periods to assist and direct customers

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7.1.11. Outline of any Additional Staff Training Required

Bovis Lend Lease Consulting aggress that staff training and briefing will be required during the staged works and prior to commissioning of the new or amended facilities on all options, especially Option C.

7.1.12. Public Transport Impact

Bovis Lend Lease Consulting agrees public transport services will be impacted by road closures to Gibbons and Lawson Streets.

7.1.13. Environmental Factors and REF

Bovis Lend Lease Consulting agrees that the principal factors for environmental assessment are likely to relate to disruption, noise and traffic during the construction phase. Essentially the new facility is provided within an established rail and transport corridor and no change of use is occurring. The period over which the works will be undertaken given the possession constraints will create the need for additional mitigation measures and consultation with residents particularly for night or weekend works.

Tenix Projects note that it is likely that a Community Liaison Group would need to be established similar to that operating for the MacDonaldtown Stabling project. Bovis Lend Lease Consulting understands a Community Liaison Group was specifically established for the MacDonaldtown Stabling project due to the history between the active community in Burren Street and RailCorp. We therefore recommend consulting with RailCorp to determine if managing the Redfern community will require a Community Liaison Group or can simply be managed with community notifications.

7.1.14. Heritage or Archaeological Impacts

Bovis Lend Lease Consulting agrees that for the Option D the heritage impacts are minimal and are generally related to working in proximity of significant structures. We also agree that for Option C & E there are significant impacts upon level 2 structures on the surface platforms as heritage buildings on Platforms 4/5 to 8/9 are required to be removed and the acceptability of this needs to be reviewed by RailCorp through a Heritage impact statement or similar.

7.1.15. Land Acquisition Required

Bovis Lend Lease Consulting agrees that it is believed that RailCorp own all land required for the permanent works and Occupation licences or similar may be required for the worksites in the park area. We recommend undertaking a boundary survey to confirm property boundaries. We note that the building at 125-127 Little Eveleigh Street has already been acquired.

7.1.16. Impact on Adjoining Leaseholders

Bovis Lend Lease Consulting agrees that the principal impacts would be disruption during the construction phase. We recommend property condition surveys of the properties in proximity to Redfern Station are undertaken prior to construction. Some noise and vibration monitoring is also likely to be required during the construction phase.

7.1.17. Details of Proposed Construction Methods and Staging

Bovis Lend Lease Consulting agrees that temporary configuration changes would need to be addressed through the CCR process within RailCorp to ensure that all relevant parties have been consulted and informed of the changes. As the CCR process is primarily related to changes to infrastructure we

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believe a separate forum such as Network Asset Integration (NAI) will be required to manage changes to station operations.

7.1.18. Outline of Major Risks Associated With Each Options Programme

Tenix Projects lists the following as principal program risks:

- 1. Planning approval periods prior to project commencement
- 2. RailCorp design approval periods
- 3. Availability of rail industry specialist resources (eg OHW and Signals) given the level of rail capital works planned over the next 5 years
- Availability of possessions being restricted by other major capital works such that all required possessions are not available to this project
- 5. Availability of special closedowns over the Christmas Period for the Illawarra Relief
- 6. Lead period for specialist equipment e.g. lifts and escalators

Bovis Lend Lease Consulting acknowledges the risks identified by Tenix Projects and believe that:

- Item 1 can be mitigated by well defined and prompt submission;
- Item 2 can be mitigated by compliant designs and robust design management;
- Items 3, 5 and 6 can be mitigated by adequate planning; and
- Item 4 can be mitigated by published awareness of other works and possession coordination;

7.1.19. Impact Upon Railway Systems

Bovis Lend Lease Consulting considers the impacts outlined in the table below to be reasonable.

Railway System	Option D	Option E	Option C
Signalling	Some impact related to signals at city end of platforms and interaction with new lifts.	Some impact related to signals at city end of platforms and interaction with new lifts. Southern escape stair may affect signalling infrastructure at Country end of platforms	Major impact to signal SY455 due to clash with new concourse. Sighting to other signals may be affected by new concourse structure
Communications	Likely to be minimal other than disturbance during construction	Likely to be minimal other than disturbance during construction	Major relocation to new concourse
Overhead Wiring	Minor impact – requires new OHW portal at City end of platform 1 and 2 due to impact of platform 2/3 elevated access walkway. Centenary should not be affected as could be re-supported at same location as existing.	Moderate impact – in addition to new portal as Option D will also need reprofiling of OHW under extended concourse.	Major impact – It is likely that the entire OHW system through the platforms will need to be re-supported and reprofiled to allow for the new concourse location.
Passenger systems	Minor impact other than	Minor impact other than	New installation within

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			LUITU
(CCTV, PA, SPI, help	for new elevated	for new elevated	central concourse and
points etc.)	walkway on platform	walkway on platform	significant disruption to
	2/3	2/3	Illawarra Relief systems

8. Conclusion

Bovis Lend Lease Consulting has reviewed the construction methodologies, cost plans and programmes developed by Tenix Projects with particular focus on the station upgrade works for the preferred Option C and found them to be generally consistent with working in a rail environment. Although the Tenix Projects approach is feasible, we consider varying some of the construction methodologies adopted by them would result in time, cost, reliability and safety benefits.

Significant variances include:

- Removing the need to install catch decks above the Up and Down Main (Platforms 1 & 2) and Illawarra Lines (Platforms 9 & 10) by using the previously erected structure as a barrier between the lifting operation and the live tracks;
- Using hi-rail vehicles to delivery and remove plant and materials from platforms thus removing the need to construct a temporary construction access bridge; and
- Instead of an extended closedown of the Illawarra Relief, only close the platforms, permitting trains to travel through but not stop at Redfern Station during the reconfiguration of the vertical transfer elements (If the full development above the station is to occur then it is likely that an extended closedown will be required to facilitate installation of the transfer structure).

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Appendix A

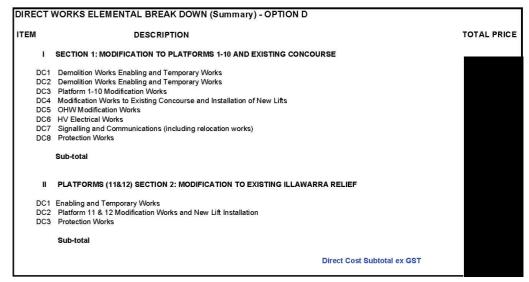
Tenix Projects Cost Plan - Option D (Station Upgrading Works)

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Redfern Railway Station Tenix Cost Plan Peer Review COST PLAN SUMMARY (Option D - Easy Access and F & LS) **Project Number:** Redfern Station Redevelopment (Option D) Project Name: Revision 1 29 - March - 2007 **Revision Date:** DIRECT COSTS TOTAL COST SECTION 1: MODIFICATION TO PLATFORMS 1-10 AND EXISTING CONCOURSE SECTION 2: MODIFICATION TO EXISTING ILLAWARRA RELIEF PLATFORMS (11&12) **DIRECT COST SUBTOTAL ex GST** INDIRECT COSTS Subcontractor IC 1.1 Subcontractor Indirect 18% of Total Direct 18.0% D&C Contractor 10 % of Total Direct plus IC 1.1 10.0% IC 2.1 D&C Contractor's contingency to manage s/c Sub-total 28.0% 5% of DC + IC 1.1 + IC 2.1 5.0% IC 2.2 D&C Contractor Project Management & Facilities IC 2.3 D&C Contractor Design IC 2.4 D&C Contractor Design Verification 2% of DC + IC 1.1 + IC 2.1 2.0% Sub-total 12% of All Above 12.0% IC 2.5 D&C Contractor Head Office Overhead and Profit - Included INDIRECT COST SUBTOTAL ex GST CONSTRUCTION COST (D&C Contract) ex GST Client Directed Contingencies to Manage Works Under Contract 5% of Total Construction Cost 5.0% IC 3.1 Design development contingency IC 3.2 Construction contingency 5% of Total Construction Cost 5.0% TARGET BUDGET (D&C Contract) ex GST Client Costs 3.0% of Target budget 3.0% CC 1 EIS, Survey, Preliminary Geotechnical Investigation & Concept Design Sub-total CC2 Client Project Management Team 5% of Target budget plus CC1 5.0% CC 3 Possessions cost Adjusted as per Option C CC 4 Land and property acquisition costs - EXCLUDED CC 5 Legal and marketing costs - EXCLUDED CC 7 Supply and installation of station Ticket Gates - Not applicable CC 8 Supply and installation of Ticket Vending Machines (TVM's) - not applicable CC 9 Initial Maintenance Cost - EXCLUDED 10% of Target budget + CC1 to 9 10.0% CC 10 Client Project Contingency TOTAL CLIENT COSTS TOTAL PROJECT COST ex GST Update Estimate from April 2007 to June 2008 Tenix Report 28.02.08 15.0% Update Estimate from June 2008 to May 2009 0.0% TOTAL PROJECT COST ex GST as at May 2009 118027 Redfern Railway Station Tenix Cost Plan Review Extract - 07.05.09.xls D - Easy Access & FL&S Summary Printout: 7/05/2009 10:23 PM

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Option D: Redfern Station Concourse & Platform 1-10 Works

DIRECT COSTS

WBS	Description	Q'ty	Unit	Rate	Total Cost
1	Enabling and Temporary Works				
1.1	Civil Works				
1.1.1	Demolition works - see section 2				
1.1.2	Temporary Access and Worksite North EveleighTemporary worksite Clear the work site area Asphalt paving for office, storage and vehicular access areas - use existing	1,160	m2		
	hardstanding				
	Allow for RailCorp staff temporary parking facilities including lighting and signs	15	No		
	Wash down facilities	1	No		
	Traffic management	1	ltem		
1.1.3	Temporary Fencing and Hoarding				
1.1.3	Temporary Fencing and Hoarding Temporary site hoarding; 1800mm high	400	m		
	Temporary chain link fence fixed to Jersey barrier along live track	50	m		
	Temporary Fencing - allow	100	m		
1.1.4	Temporary drainage				
	Allow for temp drainage & connections	1	ltem		
1.1.5	Temporary crash deck - not required				
1.1.6	Temporary construction access bridge - not required				
1.1.7	Temporary crane platforms - not required				
1.1.8	Temporary control rooms on platforms 2/3				
	Allow for temporary staff rooms & train control	1	No		
1.2	OHW Relocations - included in OHW works				
1.3	Signalling Relocations - included in signalling works				
1.4	Utilities Diversions				
	Relocate existing HV power cables on Lt. Eveleigh St for crane access	1	ltem		
	Allow for diversion of services mounted on Platform 1 & 10 retaining walls due to				
	new lift installation and for platform extensions	1	ltem		
DC1	Enabling and Temporary Works				
2	Demolition Works				
2.1	Demolition of existing platform 2/3 canopy				
	Demolition	520	m2		
	Allow for disposal off site	390	t		
	Allow for cranes	4	Day		
2.2	Demolition of existing staircases Demolition of staircases on PL 2/3, 4/5 & 6/7 including disposal off site (assuming realignment of existing staircases on PL 4/5 & 6/7 would require new staircases)	3	No		
2.3	Removal of existing miscellaneous items				
	Allow for removal of affected furniture & fencing	1	ltem		
	Allow for removal of affected lights	1	ltem		
DC2	Demolition Works				

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Redfern Railway Station Tenix Cost Plan Peer Review Description Qty Unit Rate Total Cost

WBS	Description	Q'ty	Unit	Rate	Total Cost
3	Platform 1-10 Modification Works				
3.1	Platform extension				
3.1	Structural works for PL 2/3, 4/5 & 6/7 extensions	107	m2		
	Allow for modification of existing vent shafts affected by PL 2/3 extension;	1			
	including part demolition and provision of side opening underneath newplatform	1	Item		
	Allowance for crane (250t)		Item		
	Allow for traffic management	1	ltem		
	Finishes for the extended platforms:	407	12		
	Bituminous paving; 40mm AC10	107	m2		
	Tactile paving	10	m2		
	Coping tiles to edge of platform	17	m2		
	Yellow line marking to platform	1	ltem		
3.2	New elevated structure above Platform 2/3				
	Allow for local demolition works for foundation	1	ltem		
	Allow for temporary hoarding	1	Item		
	Piling works:				
	Mob & Demob	1	Item		
	Piling (assume 600mm)	128	m		
	Columns & pile cap/footing	10	m3		
	Head stocks	18	m3		
	Precast concrete floor panels	275	m2		
	Insitu concrete topping including floating finish	275	m2		
	Precast concrete wall panels	330	m2		
	Allow for steel columns and roofing steel structures	11,646	kg		
	Allow for connection plates & bolts	1	Item		
	Allow for metal roofing including rain water disposal	385	m2		
	Allow for staircase roofing and steel work	33	m2		
	Allow for new escalator pit including piling	1	ltem		
	Allow for platform & existing concourse making good works	1	Item		
	New precast staircase to landing	1	No		
	New precast staircase to platform	1	No		
	Allow for crane	1	Item		
	Allow for traffic management	1	Item		
3.3	Realignment of existing staircases on PL 4/5 & 6/7				
3.3	Allow for new staircase (assuming realignment of existing staircases on				
	PL 4/5 & 6/7 would require new staircases)	2	No		
	Canopy and metal works to stairs including structural steel works and roof	2	INO		
	plumbing	160	m2		
	Allow for making good of PL 4/5 & 6/7 affected by new staircase installation	100	1112		
	including connection to existing canopy	1	ltem		
3.4	Platform level works				
	Platform level raising & resurfacing with hardener including signs - not				
	required for the Option D				
	New easy access ramp for Lift 1	14	m3		
	Platform 2/3 finishes, fitout and fittings and making good works on other				
3.5	platforms				
	Allow for new benches on PL 2/3	6	No		
	Allow for new station control room on PL 2/3 including wash down and	1	No		
	comms facilities				
	Stainless steel handrails for new staircase and new ramp (to retaining wall side)	151	m		
	Heavy duty balustrade for new staircases	86	m		
	Stainless steel guard rails for escalator opening and ramp	50	m		
	New Palisade fencing to modified platform ends	45	m		
	Allow for new signs	1	ltem		

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	Tenix Cost Plan Peer				
WBS	Description	Q'ty	Unit	Rate	Total Cost
3.6	Platform electrical works				
	Platform 2/3 canopy & elevated structure lighting including distribution boards, light fittings and luminaires	1	ltem		
	Lighting poles with outreach arms to new lift areas and extended platforms	7	No		
	Allow for lighting to new staircases	1	ltem		
	Allow for CCTV's to elevated structures	1	ltem		
3.7	Platform 2/3 mechanical works				
	Allow for fire alarm to elevated structures	1	ltem		
	Allow for new escalator (Single Only)	1	No		
DC3	Platform 1-10 Modification Works				
	Modification Works to Existing Concourse and Installation of New				
4	Lifts				
4.1	Demolition of existing staircase - included in Item 2				
4.2	Demolitions and forming openings				
	Allow for trimming retaining wall in between PL 1 and Lt Eveleigh St to	Ā	h		
	accommodate lift Allow for local platform demolition for Lift No 2 & 5	1 1	ltem ltem		
	Allow for forming openings on existing concourse slab for Lift No 2,3 & 4 Allow for forming openings on existing metal cladding and balustrade for Lift No	1	ltem		
	1 and 5	1	Item		
	Allow for local demolition of Platform 10 retaining wall and tunnel roof for Lift No				
	6 including temp support during demolition Forming opening on existing concourse roof for new lifts 2,3 & 4	1 1	ltem ltem		
			W		
	Removal of steel column supporting existing concourse for Lift No 3 installation	1	ltem		
4.3	Structural works and strengthening works				
4.3	Allow for new steel column to replace affected column including foundation				
	works near Lift No 3 including connections	1	No		
	Allow for strengthening of existing steel beams and slab affected by new openings for Lift No 2,3 & 4	3	No		
	Allow for strengthening of existing tunnel roof and walls supporting building next	·	110		
	to Lift No 6	1	ltem		
	Extending footbridge above Platform 8/9 for Lift No 5 New lift pits and lift structure	1 6	ltem No		
	Allowance for crane	1	Item		
	Allowance for traffic management	1	ltem		
4.4	Making good and fitout works				
	Allow for minor modification to internal partitions and relocations	1	Item		
	Allow for forming new station office partitions and finishes Allow for reconfiguring existing toilet to form new easy access toilet and	1	ltem		
	refurbishing normal toilets	1	ltem		
	Allow for temporary toilets during reconfiguration works Allow for making good works for affected roofing, floors and cladding	1	ltem ltem		
	Heavy duty balustrade for extended foot bridge	13	m		
	Cladding to lifts	6	No		
	Allow for new signs Allowance for crane	1	ltem ltem		
	Allowance for traffic management	1	ltem		
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WBS	Description	Q'ty	Unit	Rate	Total Cost
4.5	Mechanical works				
	Allow for improvements to existing concourse fire protection	1	ltem		
	Lift cars	6	No		
	Allow EO cost for dual access doors Allowance for crane (for lifts)	2 1	No Item		
	Allowance for traffic management	1	Item		
	, working to the management		itom		
4.6	Electrical works				
	Allow for modifications/making good to lighting including distribution boards, light				
	fittings and luminaires Provisions for new lifts	1 1	ltem ltem		
	Allow for additional PA system	1	Item		
4.7	Communication works				
	Allow for relocating existing station passenger information (SPI) display	1	ltem		
	units Allow for additional CCTV's to lift & staircase locations	1	Item		
	Allow for help points to lifts	1	Item		
	Modification Works to Existing Concourse and Installation of New				
DC4	Lifts				
5	OHW Modification Works				
3	OHW Mounication Works				
	New OHW portal beams including 4 No mast droppers; app 30m long	2	No		
	Extension to existing OHW portal affected by PL 2/3 extension including removal				
	of redundant column	1	No		
	Removal of redundant OHW structures Allow for disconnection, reconnection & testing	3 1	No Item		
	Allow to disconnection, reconnection a testing		item		
DC5	OHW Modification Works				
6	HV Electrical Works				
6.1	Traction power - not required				
	P				
6.2	Power for PL 1-10 & concourse Allow for 2 No 750 KVA substations installed in IR building including				
	transformers, switchboards and raised floor for cabling (assuming				
	feeder is 33kV)	1	Item		
	Allow for removal of existing transformers & facilities	1	Item		
6.3	PL 11&12 switch room relocations (if required) included in IR works				
DC6	HV Electrical Works				

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WBS	Description	Q'ty	Unit	Rate	Total Cost
7	Signalling and Communications (including relocation works)				
	Relocate existing signals and train stops for Platforms 5 & 7 including extended				
	cabling	2	No		
	Relocate existing signals and train stops for Platforms 2/3 including extended				
	cabling and tuning circuits	1	No		
	Allow for local diversion of signalling & comms cables mounted on PL 1 & 10		2		
	retaining wall including troughing	1	ltem		
	Allow for disconnections and reconnections	1	ltem		
	Allow for testing	1	ltem		
DC7	Signalling and Communications (including relocation works)				
	-3,				
8	Protection Works				
	Allow for safe working				
	Possession works	1,200	hrs		
	Non-possession works	4,000	hrs		
	Adjust for Possession Works & Day Shift				
DC8	Protection Works				
	Total				

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Tenix Cost Plan Peer Review

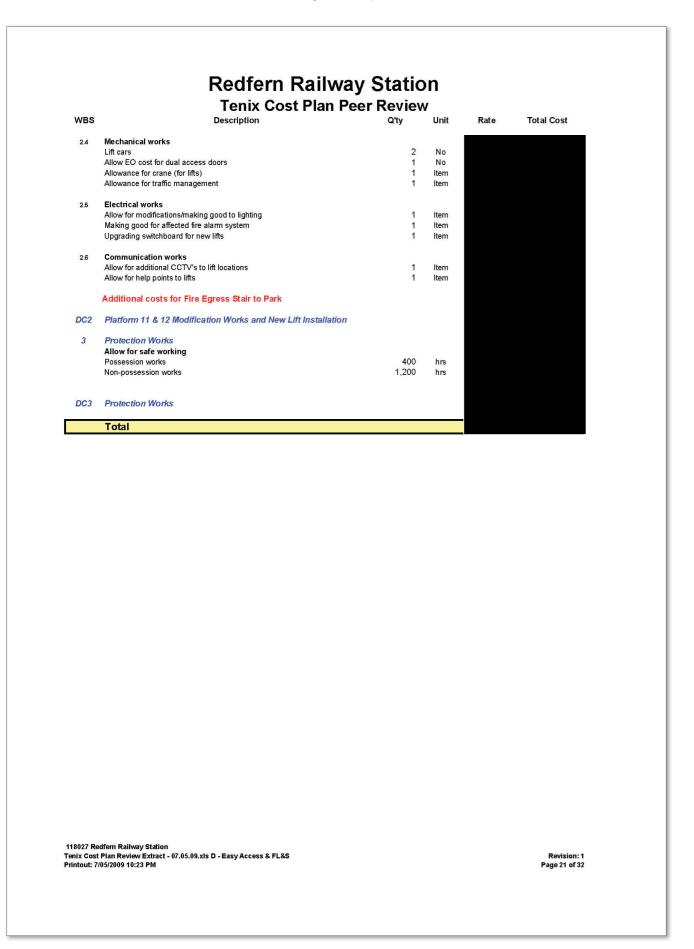
WBS Description Q'ty Unit Rate Total Cost

Option D: Redfern Station Illawarra Relief Platforms (11&12) Modification Works

WBS	Description	Q'ty	Unit	Rate	Total Cost
1.1.1	Enabling and Temporary Works Temporary Access and Worksite - included in Main Works (PL 1-10 & Concourse Works)				
1.1.2	Temporary Fencing and Hoarding				
	Temporary site hoarding; 1800mm high	220	m		
	Temporary Fencing - allow	50	m		
DC1	Enabling and Temporary Works				
2	Platform 11 & 12 Modification Works and New Lift Installation				
2.1	Demolitions and forming openings Local demolition of existing roof for new fire stair:				
	Allow for temporary hoarding	76	m		
	Excavation and disposal of soil off site	250	m3		
	Demolition	1	Item		
	Allow for temporary support during demolition & construction	1	Item		
	Allow for waste to tip	1	Item		
	Allow for traffic management	1	Item		
	Demolition of existing platform for new lift pit:				
	Demolition	1	Item		
	Allow for waste to tip	1	Item		
	Allow for forming openings on existing concourse & intermediate concourse slabs for new lifts	1	Item		
	Forming opening on existing concourse roof for new lift	1	Item		
2.2	Structural works and strengthening works				
	Allow for strengthening of existing concourse and intermediate concourse				
	slabs affected by new lift installation	1	Item		
	Allow for strengthening of roof slab opening for new fire stair	1	Item		
	New lift pits and lift structure	2	No		
	Allow for new fire escape staircase	1	No		
	Allowance for crane	1 1	Item		
	Allowance for traffic management	1	Item		
	Fire rate structural steel roof framing to Platforms 11 & 12				
	Allow for 2 Hr vermiculite fire spray to exposed steel beams	2890	m2		
	Hi-rail with with Flat Top	24	No		
	Hi-rail with cherry picker	16	No Note		
	Note: Excludes rectification of existing steelwork damaged by water ingress Note: Excludes removal and replacement of roof membrane and spoil and		Note		
	finishes of Platform roof		Note		
2.3	Making good and fitout works				
2.0	Allow for making good of affected platform and concourse slabs	ī	Item		
	Allow for making good works for affected roofing	1	Item		
	Cladding to lifts	2	No		
	Allow for additional control/announcement system for lifts	1	Item		
	Allow for glass enclosure to lift lobby	48	m2		
	Allowance for crane	1	Item		
	Allowance for traffic management	1	Item		

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Redfern Station Redevelopment



Appendix B

Tenix Projects Cost Plan - Option E (Station Upgrading Works)

Cost, Constructability and Programme – Peer Review Version 1 – 8 May 2009

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Tenix Cost Plan Peer Review

		COST PLAN SUMMARY (Option E: Upgrade/Interface Works in Addition to Option D - Station Works Only				
		Project Number: Project Name: Revision No: Revision Date: Review Date:	10618 Redfern Station Redevelopment (Option E) Revision 29 - March - 2007 7 - May - 2009			
DC		DIRECT COST	rs .	т	TOTAL COST	
	ī	SECTION 1: MODIFICATION TO PLATFORMS 1-10 AND EX	STING CONCOURSE			
	П	SECTION 2: NEW FIRE ESCAPE BRIDGE AND WALKWAY				
	111	SECTION 3: MODIFICATION TO EXISTING ILLAWARRA RE	LIEF PLATFORMS (11&12)			
			DIRECT COST SUBTOTAL ex GST			
		INDIRECT COST	rs			
IC 1		Subcontractor				
	IC 1.1	Subcontractor Indirect	18% of Total Direct Sub-total	18.0%		
IC 2		D&C Contractor				
	IC 2.1	D&C Contractor's contingency to manage s/c	10 % of Total Direct plus IC 1.1 Sub-total	10.0%		
l	10.00	DOCCONTRACTOR DESIGNATION OF THE PROPERTY OF T		23.9%		
l		D&C Contractor Project Management & Facilities D&C Contractor Design	5% of DC + IC 1.1 + IC 2.1	20.070		
l		D&C Contractor Design Verification	2% of DC + IC 1.1 + IC 2.1			
		D&C Contractor Head Office Overhead and Profit - Included	Sub-total 12% of All Above			
			INDIRECT COST SUBTOTAL ex GST			
			CONSTRUCTION COST (D&C Contract) ex GST			
		CLIENT COST				
IC 3		Client Directed Contingencies to Manage Works Under Contract	EN/ -	E 00/		
l		Design development contingency Construction contingency	5% of Total Construction Cost 5% of Total Construction Cost			
	10 3.2	Constitution contingency	370 of Total Construction Cost	3.070		
			TARGET BUDGET (D&C Contract) ex GST			
		Client Costs				
l	CC 1	ElS, Survey, Preliminary Geotechnical Investigation & Concept Design	2.0% of Target budget	2.0%		
l	00 1	20, carroy, romandy occounted investigation a concept besign	Sub-total	2.070		
l	CC2	Client Project Management Team	5% of Target budget plus CC1	5.0%		
l	CC 3	Possessions cost - included in Station Works	Adjusted as per Option C			
		Land and property acquisition costs - EXCLUDED				
l		Legal and marketing costs - EXCLUDED				
l		Financing Cost - EXCLUDED Station Ticket Gates - allow for additional 6 New to IR Entrance @ \$250,	000 /rate			
l		Ticket Vending Machines (TVM's) - allow for 1 No new ticket vending ma				
l		Initial Maintenance Cost - EXCLUDED	orano to at Enadroo			
		Client Project Contingency	Sub-total 10% of Target budget + CC1 to 9	10.0%		
			TOTAL CLIENT COSTS			
			TOTAL PROJECT COST ex GST			
		Escalation Update Estimate from April 2007 to June 2008	Tenix Report 28.02.08	6.5%		
		Update Estimate from June 2008 to May 2009		0.0%		
\vdash			TOTAL PROJECT COST			
		1	TOTAL PROJECT COST ex GST as at May 2009			

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Tenix Cost Plan Peer Review

DIRECT WORKS ELEMENTAL BREAK DOWN (Summary) - OPTION E ITEM DESCRIPTION TOTAL PRICE I SECTION 1: MODIFICATION TO PLATFORMS 1-10 AND EXISTING CONCOURSE DC1 Enabling and Temporary Works
DC2 Demolition Works
DC3 Platform 1-10 Modification Works DC4 Modification Works to Existing Concourse and Installation of New Lifts DC5 OHW Modification Works DC6 HV Electrical Works
DC7 Signalling and Communications (including relocation works)
DC8 Protection Works Sub-total II SECTION 2: NEW FIRE ESCAPE BRIDGE AND WALKWAY DC1 Enabling and Temporary Works
DC2 New Walkway along Platform 10
DC3 New unpaid footbridge DC4 Protection Works III SECTION 3: MODIFICATION TO EXISTING ILLAWARRA RELIEF PLATFORMS (11&12) DC1 Enabling and Temporary Works
DC2 Platform 11 & 12 Modification Works and New Lift Installation
DC3 Protection Works Sub-total Direct Cost Subtotal ex GST

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Redfern Railway Station Tenix Cost Plan Peer Review Option E: Redfern Station Concourse & Platform 1-10 Works DIRECT COSTS Q'ty Unit Description **Total Cost** Enabling and Temporary Works 1.1 Civil Works 1.1.1 Demolition works - see section 2 1.1.2 Temporary Access and Worksite Temporary worksite to Little Eveleigh St site Clear the work site area 1,160 m2 Asphalt paving for office, storage and vehicular access areas - use existing Allow for RailCorp staff temporary parking facilities including lighting and signs Wash down facilities Traffic management 1.1.3 Temporary Fencing and Hoarding 625 m Temporary site hoarding; 1800mm high Temporary chain link fence fixed to Jersey barrier along live track 100 m Temporary Fencing - allow 1.1.4 Temporary drainage Allow for temp drainage & connections 1 Item 1.1.5 Temporary crash deck - not required 1.1.6 Temporary construction access bridge - not required Temporary crane platforms - not required Temporary control rooms on platforms 2/3, 4/5, 6/7 & 8/9 Allow for temporary staff rooms & train control 4 No 1.2 OHW Relocations - included in OHW works Signalling Relocations - included in signalling works Relocate existing HV power cables on Lt. Eveleigh St for crane access Allow for diversion of services mounted on Platform 1 & 10 retaining walls due to new lift installation and for platform extensions DC1 Enabling and Temporary Works Demolition Works 2.1 Demolition of existing platforms 2/3, 4/5, 6/7 & 8/9 canopy 1,535 m2 Demolition Allow for disposal off site 1,400 t 10 Day 2.2 Demolition of existing staircases Demolition of staircases on PL 1, 2/3, 4/5 & 6/7 including disposal off site (assuming shifting existing staircases on PL 1, 4/5 & 6/7 would require new 118027 Redfern Railway Station Tenix Cost Plan Review Extract - 07.05.09.xls E - Upgrade Addit to Option D Printout: 7/05/2009 10:23 PM

Redfern Station Revised Concept Design Report Section C Cost and Constructability

Redfern Railway Station

Tenix Cost Plan Peer Review

	Description	Q'ty	Unit	Rate	Total Cos
2.3	Removal of existing miscellaneous items				
	Removal of existing concourse metal/glass cladding for extension	1	Item		
	Removal of existing roofing	1	Item		
	Allow for removal of affected furniture & fencing	1	Item		
		-			
	Allow for removal of affected lights	1	Item		
DC2	Demolition Works				
3	Platform 1-10 Modification Works				
3.1	Platform extension				
	Structural works for PL 2/3, 4/5 & 6/7 extensions	110	m2		
	Allow for modification of existing vent shafts affected by PL 2/3 extension;	1	Item		
	including part demolition and provision of side opening underneath new				
	platform				
	Allowance for crane (250t)	1	Item		
	Allow for traffic management	1	Item		
	Finishes for the extended platforms:				
	Bituminous paving; 40mm AC10	110	m2		
	Tactile paving	10	m2		
	Coping tiles to edge of platform	17	m2		
	Yellow line marking to platform	1	Item		
3.2	New elevated structure above Platform 2/3				
	Allow for local demolition works for foundation	1	ltem		
	Allow for temporary hoarding	1	Item		
	Piling works:				
	Mob & Demob	1	Item		
	Piling (assume 600mm)	128	m		
	Columns & pile cap/footing	10	m3		
	Head stocks	18	m3		
	Precast concrete floor panels	250	m2		
	Insitu concrete topping including floating finish	250	m2		
	Precast concrete wall panels	300	m2		
	Allow for steel columns and roofing steel structures	10,938	kg		
	Allow for connection plates & bolts	10,333	Item		
		350			
	Allow for metal roofing including rain water disposal	33	m2 m2		
	Allow for staircase roofing and steel work				
	Allow for new escalator pit	1	ltem		
	Allow for platform & existing concourse making good works	1	Item		
	New precast staircase to landing	1	No		
	New precast staircase to platform	1	No		
	Allow for crane	1	ltem		
	Allow for traffic management	1	ltem		
3.3	Shifting existing staircases on PL 1, 4/5 & 6/7				
	Allow for new staircases (assuming shifting existing staircases on PL 1, 4/5 &				
	6/7 would require new staircases)	3	No		
	Canopy and metal works to stairs including structural steel works and roof plumbing	240	m2		
	Allow for making good of PL 1, 4/5 $\&$ 6/7 affected by new staircase installation				
	including connection to the canopies	1	Item		
3.4	Platform level works				
	Platform level raising & resurfacing with hardener incl signs - not requiredfor this option				

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Tenix Cost Plan Peer Review

WBS	Description	Q'ty	Unit	Rate	Total Cost
	Platform 2/3, 4/5, 6/7 & 8/9 finishes, fitout and fittings and making good				
3.5	works on other platforms				
	Making good of platforms affected by canopy replacement:				
	Bituminous paving; 40mm AC10	240	m2		
	Allow for miscellaneous marking	1	Item		
	New full length platform canopies on Platform 2/3, 4/5, 6/7 & 8/9 including	2225	_		
	furniture and fittings	2985	m2		
	Allow for new station control rooms on PL 2/3, 4/5, 6/7 & 8/9 including fitout				
	and comms facilities	4	No		
	Allow for new station staff meals room including facilities; assume 10x10m	100	m2		
	Size	100	mz		
	Stainless steel handrails for new staircases and new ramp (to retaining wall side)	183	m		
	Heavy duty balustrade for new staircases	118	m		
	Stainless steel guard rails for escalator opening and ramp	50	m		
	New Palisade fencing to modified platform ends	45	m		
	Allow for new signs	1	Item		
	Allow for new signs		item		
3.6	Platform electrical works				
	New canopies on PL 2/3, 4/5, 6/7 & 8/9 and elevated structure lighting				
	including distribution boards, light fittings and luminaires	1	Item		
	Lighting poles with outreach arms to new lift areas and extended platforms	7	No		
	Allow for lightings to new staircases	1	Item		
	Allow for CCTV's to elevated structure and new canopy areas	1	ltem		
-	District and Organization in the Control of the Con				
3.7	Platform 2/3 mechanical works Allow for fire alarm to elevated structure	1	Item		
	Allow for new escalator	1	No		
	Allow for new escalator	Ī	NO		
DC3	Platform 1-10 Modification Works				
4	Modification Works to Existing Concourse and Installation of				
4	New Lifts Percelition of existing staircase, included in Item 3				
4.1	Demolition of existing staircase - included in Item 2				
4.2	Demolitions and forming openings				
	Allow for trimming retaining wall in between PL 1 and Lt Eveleigh St to				
	accommodate lift	1	Item		
	Allow for local platform demolition for Lift No 2 & 5	1	Item		
	Allow for forming openings on existing concourse slab for Lift No 2,3 & 4	1	Item		
	Allow for forming openings on existing metal cladding and balustrade for Lift				
	No 1 and 5	1	Item		
	Allow for local demolition of Platform 10 retaining wall and tunnel roof for Lift				
	No 6 including temp support during demolition	1	Item		
	Forming opening on existing concourse roof for new lifts 2,3 & 4	1	Item		
	Removal of steel column supporting existing concourse for Lift No 3				
	installation	1	Item		

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Redfern Railway Station

Tenix Cost Plan Peer Review Description Q'ty Unit

WBS	Description	Q'ty	Unit	Rate	Total Cos
4.3	Structural works and strengthening works				
4.0	New steel column and footing near Lift No 3 including connections	1	No		
	Allow for strengthening of existing steel beams and slab affected by new		110		
	openings for Lift No 2,3 & 4	3	No		
	Allow for strengthening of existing tunnel roof and walls supporting building	•	110		
	next to Lift No 6	1	Item		
	Extending existing concourse slab	1	Item		
	-	1	Item		
	Extending footbridge above Platform 8/9 for Lift No 5	'	item		
	Allow for roof framing over extended concourse and modifying roof frame over	1	lan on		
	existing concourse	6	Item		
	New lift pits and lift structure		No		
	Allowance for crane	1	Item		
	Allowance for traffic management	1	Item		
	Fire rate structural steel roof framing to Platforms 11 & 12				
	Allow for 2 Hr vermiculite fire spray to exposed steel beams	2890	m2		
	Hi-rail with with Flat Top	24	No		
	Hi-rail with cherry picker	16	No		
	Note: Excludes rectification of existing steelwork damaged by water ingress		Note		
	Note: Excludes removal and replacement of roof membrane and spoil and				
	finishes of Platform roof		Note		
	mistics of Figure 1991		THOTO		
4.4	Finishes, fitout and making good works				
	Allow for minor modification to internal partitions and relocations	1	Item		
	Allow for new station office partitions and finishes	1	Item		
	Allow for reconfiguring existing toilet to form new easy access toilet and				
	refurbishing normal toilets	1	Item		
	Allow for temporary toilets during toilet reconfiguration works	1	Item		
	Allow for making good works for affected cladding	1	Item		
	Allow for new glass cladding with metal grill to extended concourse	44	m		
	Allow for new roofing over existing and extended concourse including roof				
	plumbing and rain water disposal	1.200	m2		
	Heavy duty balustrade for extended foot bridge	13	m		
	Cladding to lifts	6	No		
	Allowance for crane	1	Item		
	Allowance for traffic management	1	Item		
4.5	Mechanical works				
	Allow for improvements to existing concourse fire protection and fire	1	14		
	protection to extended areas	6	Item		
	Lift cars		No		
	Allow EO cost for dual access doors	2	No		
	Allowance for crane (for lifts)	1	ltem		
	Allowance for traffic management	1	ltem		
4.6	Electrical works				
	Allow for modifications and new lighting including distribution boards, light				
	fittings and luminaires	1	Item		
	Provisions for new lifts	1	Item		
	Allow for additional PA system and modification to existing	1	Item		
	Allow to additional Projecting and modification to externing		110111		
4.7	Communication works				
	Allow for relocating existing station passenger information (SPI) display units	1	Item		
	Allow for additional CCTV's to lift & staircase locations	1	Item		
	Allow for help points to lifts	1	Item		
	Modification Works to Existing Concourse and Installation of				
DC4	New Lifts				

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S OHW Modification Works New OHVP portal beams including 4 No mast droppers; app 30m long Extension to existing OHVP portal affected by Pt. 2/3 extension including removal of redundant OHVP structures Allow for re-profiling OHVP (assume no temporary removal is required) Allow for re-profiling OHVP (assume no temporary removal is required) Allow for re-profiling OHVP (assume no temporary removal is required) Allow for disconnection, reconnection & testing DCS OHV Modification Works 6.1 Traction power - not required 6.2 Power for Pt. 1-10 & concurse Allow for 2 No 750 KNA substations installed in IR building including transformers, switchboards and raised floor for cabling (assuming feeder is 33Kr) Allow for emoval of existing transformers & facilities 6.3 Pt. 11812 switch room relocations (if required) included in IR works DC6 HV Electrical Works 7 Signalling and Communications (including relocation works) Relocate existing signals and train stops for Platforms 2.3 including extended cabling and uning gircuit: Allow for local diversion or signalling & comms cables mounted on Pt. 1.8 10 rehaining value including troiging Allow for disconnections and reconnections Allow for testing Profection Works Allow for testing Allow for testing Profection Works Allow for testing Profection Works Allow for testing Profection Works Total	WBS	Tenix Cost Plan Peer	Revi Q'ty	eW Unit	Rate	Total Cost
Extension to existing OHW portal affected by Pt. 2/3 extension including removal of redundant column Removal of redundant OHW structures Allow for re-profiling OHW (assume no temporary removal is required) Allow for disconnection, reconnection & testing DCS OHW Modification Works 6 HV Electrical Works 6.1 Traction power - not required 6.2 Power for Pt. 1-10 & concourse Allow for 2 No 750 KVA substations installed in IR building including transformers, switchboards and raised floor for cabling (assuming feeder is 33kV) Allow for removal of existing transformers & facilities 1 Item 6.3 Pt. 11&12 switch room relocations (if required) included in IR works PL 11&12 switch room relocations (if required) included in IR works T Signalling and Communications (including relocation works) Relocate existing signals and train stops for Platforms 5 & 7 including extended cabling and tuning circuits Allow for local diversion of signalling & comms cables mounted on Pt. 1 & 10 retaining wall including troughing Allow for disconnections and reconnections 1 Item Allow for disconnections and reconnections 1 Item DC7 Signalling and Communications (including relocation works) 8 Protection Works Allow for safe working Possession works Adjust for Possession Works & Day Shift DC8 Protection Works	5	OHW Modification Works	_			
removal of redundant column Allow for re-profiling CHW (assume no temporary removal is required) 1 litem DCS OHW Modification Works 6.1 Traction power - not required 7. Power for Pt. 1-10 & concourse 7. Allow for 2 No 750 KVA substations installed in IR building including transformers, swritchboards and raised floor for cabling (assuming feeder is 33kV) 8. Allow for removal of existing transformers & facilities 1 litem 1 lit		New OHW portal beams including 4 No mast droppers; app 30m long	2	No		
Allow for re-profiling OHW (assume no temporary removal is required) Allow for disconnection, reconnection & testing 1 Item		removal of redundant column				
Allow for disconnection, reconnection & testing 1 Item DC5 OHW Modification Works 6 HV Electrical Works 6.1 Traction power - not required 7 Faction power - not required Fallow for 2 No 750 KVA substations installed in IR building including transformers, switchboards and raised floor for cabling (assuming feeder is 33kV) Allow for removal of existing transformers & facilities 1 Item 1 Item 1 Item 1 Item 1 Item 1 Signalling and Communications (including relocation works) Relocate existing signals and train stops for Platforms 5 & 7 including extended cabling and tuning circuits Allow for local diversion of signalling & comms cables mounted on PL 1 & 10 retaining wall including troughing Allow for disconnections and reconnections 1 Item Allow for disconnections and reconnections 1 Item						
6.1 Traction power - not required 6.2 Power for PL 1-10 & concourse Allow for 2 No 750 KVA substations installed in IR building including transformers, switchboards and raised floor for cabling (assuming feeder is 33kV) Allow for removal of existing transformers & facilities 1 ltem 6.3 PL 11&12 switch room relocations (if required) included in IR works PCE HV Electrical Works 7 Signalling and Communications (including relocation works) Relocate existing signals and train stops for Platforms 5 & 7 including extended cabling and turning circuits Allow for local diversion of signalling & comms cables mounted on PL 1 & 10 retaining wall including troughing Allow for disconnections and reconnections Allow for disconnections and reconnections Allow for testing Protection Works Allow for safe working Possession works Non-possession works Adjust for Possession Works & Day Shift DC8 Protection Works						
6.2 Power for PL 1-10 & concourse Allow for 2 No 750 KVA substations installed in IR building including transformers, switchboards and raised floor for cabling (assuming feeder is 33kV) Allow for removal of existing transformers & facilities 6.3 PL 11&12 switch room relocations (if required) included in IR works PL 11&12 switch room relocations (if required) included in IR works 7 Signalling and Communications (including relocation works) Relocate existing signals and train stops for Platforms 5 & 7 including extended cabling Relocate existing signals and train stops for Platforms 2/3 including extended cabling and funing circuits Allow for local diversion of signalling & comms cables mounted on PL 1 & 10 retaining wall including troughing Allow for disconnections and reconnections 1 Item Allow for testing Protection Works Allow for safe working Possession works Non-possession works Adjust for Possession Works & Day Shift DC8 Protection Works	DC5	OHW Modification Works				
Allow for 2 No 750 KVA substations installed in IR building including transformers, switchboards and raised floor for cabling (assuming feeder is 33kV) Allow for removal of existing transformers & facilities 1 tem 6.3 PL 11&12 switch room relocations (if required) included in IR works 7 Signalling and Communications (including relocation works) Relocate existing signals and train stops for Platforms 5 & 7 including extended cabling Relocate existing signals and train stops for Platforms 2/3 including extended cabling and tuning circuits Allow for local diversion of signalling & comms cables mounted on PL 1 & 10 retaining wall including troughing Allow for feed increased and reconnections Allow for disconnections and reconnections 1 tem DC7 Signalling and Communications (including relocation works) 8 Protection Works Allow for safe working Possession works Allow for safe working Possession works Non-possession works Adjust for Possession Works & Day Shift						
Allow for 2 No 750 KVA substations installed in IR building including transformers, switchboards and raised floor for cabling (assuming feeder is 33kV) Allow for removal of existing transformers & facilities 1 Item 6.3 PL 11&12 switch room relocations (if required) included in IR works PL 11&12 switch room relocations (if required) included in IR works 7 Signalling and Communications (including relocation works) Relocate existing signals and train stops for Platforms 5 & 7 including extended cabling Relocate existing signals and train stops for Platforms 2/3 including extended cabling and tuning circuits Allow for local diversion of signalling & comms cables mounted on PL 1 & 10 retaining wall including troughing Allow for disconnections and reconnections 1 Item Allow for testing 1 Item Allow for testing 1 Item Allow for safe working Possession works Allow for safe working Possession works Adjust for Possession Works & Day Shift DC8 Protection Works DC8 Protection Works	6.1	Traction power - not required				
transformers, switchboards and raised floor for cabling (assuming feeder is 33kV) Allow for removal of existing transformers & facilities 1 Item 6.3 PL 11&12 switch room relocations (if required) included in IR works 7 Signalling and Communications (including relocation works) Relocate existing signals and train stops for Platforms 5 & 7 including extended cabling extended cabling and tuning circuits Allow for local diversion of signalling & comms cables mounted on PL 1 & 10 retaining wall including troughing Allow for disconnections and reconnections 1 Item Allow for testing 1 Item DC7 Signalling and Communications (including relocation works) 8 Protection Works Allow for safe working Possession works Allow for safe working Possession works Non-possession works Adjust for Possession Works & Day Shift DC8 Protection Works	6.2					
Allow for removal of existing transformers & facilities 1 Item 6.3 PL 11&12 switch room relocations (if required) included in IR works 7 Signalling and Communications (including relocation works) Relocate existing signals and train stops for Platforms 5 & 7 including extended cabling Relocate existing signals and train stops for Platforms 2/3 including extended cabling and tuning circuits Allow for local diversion of signalling & comms cables mounted on PL 1 & 10 retaining wall including troughing Allow for disconnections and reconnections 1 Item Allow for testing 1 Item DC7 Signalling and Communications (including relocation works) 8 Protection Works Allow for safe working Possession works Non-possession works Non-possession works Adjust for Possession Works & Day Shift DC8 Protection Works		transformers, switchboards and raised floor for cabling (assuming				
7 Signalling and Communications (including relocation works) Relocate existing signals and train stops for Platforms 5 & 7 including extended cabling Relocate existing signals and train stops for Platforms 2/3 including extended cabling and tuning circuits Allow for local diversion of signalling & comms cables mounted on PL 1 & 10 retaining wall including troughing Allow for disconnections and reconnections 1 Item Allow for testing 1 Item DC7 Signalling and Communications (including relocation works) 8 Protection Works Allow for safe working Possession works Non-possession works Adjust for Possession Works & Day Shift DC8 Protection Works						
7 Signalling and Communications (including relocation works) Relocate existing signals and train stops for Platforms 5 & 7 including extended cabling Relocate existing signals and train stops for Platforms 2/3 including extended cabling and tuning circuits Allow for local diversion of signalling & comms cables mounted on PL 1 & 10 retaining wall including troughing Allow for disconnections and reconnections 1 ltem Allow for testing 1 ttem DC7 Signalling and Communications (including relocation works) 8 Protection Works Allow for safe working Possession works 1,400 hrs Non-possession works Non-possession works Adjust for Possession Works & Day Shift	6.3	PL 11&12 switch room relocations (if required) included in IR works				
Relocate existing signals and train stops for Platforms 5 & 7 including extended cabling Relocate existing signals and train stops for Platforms 2/3 including extended cabling and tuning circuits Allow for local diversion of signalling & comms cables mounted on PL 1 & 10 retaining wall including troughing Allow for disconnections and reconnections Allow for testing DC7 Signalling and Communications (including relocation works) 8 Protection Works Allow for safe working Possession works Allow for sessession works Adjust for Possession Works & Day Shift DC8 Protection Works Protection Works Adjust for Possession Works Protection Works Adjust for Possession Works	DC6	HV Electrical Works				
extended cabling Relocate existing signals and train stops for Platforms 2/3 including extended cabling and tuning circuits Allow for local diversion of signalling & comms cables mounted on PL 1 & 10 retaining wall including troughing Allow for disconnections and reconnections Allow for testing DC7 Signalling and Communications (including relocation works) 8 Protection Works Allow for safe working Possession works Allow for safe working Possession works Non-possession works Adjust for Possession Works & Day Shift DC8 Protection Works	7	Signalling and Communications (including relocation works)				
Relocate existing signals and train stops for Platforms 2/3 including extended cabling and tuning circuits Allow for local diversion of signalling & comms cables mounted on PL 1 & 10 retaining wall including troughing Allow for disconnections and reconnections Allow for testing 1 Item Allow for testing 1 Item 1 Item Allow for testing 1 Item 1 Item DC7 Signalling and Communications (including relocation works) 8 Protection Works Allow for safe working Possession works Allow for safe working Possession works Non-possession works Adjust for Possession Works & Day Shift DC8 Protection Works			2	No		
Allow for local diversion of signalling & comms cables mounted on PL 1 & 10 retaining wall including troughing Allow for disconnections and reconnections 1 Item Allow for testing 1 Item Allow for testing 1 Item DC7 Signalling and Communications (including relocation works) 8 Protection Works Allow for safe working Possession works Non-possession works Adjust for Possession Works & Day Shift DC8 Protection Works		Relocate existing signals and train stops for Platforms 2/3 including extended				
Allow for disconnections and reconnections Allow for testing DC7 Signalling and Communications (including relocation works) 8 Protection Works Allow for safe working Possession works Non-possession works Adjust for Possession Works & Day Shift DC8 Protection Works			1	No		
Allow for testing 1 Item DC7 Signalling and Communications (including relocation works) 8 Protection Works Allow for safe working Possession works Non-possession works Adjust for Possession Works & Day Shift DC8 Protection Works						
8 Protection Works Allow for safe working Possession works Non-possession works Adjust for Possession Works & Day Shift DC8 Protection Works						
Allow for safe working Possession works Non-possession works Adjust for Possession Works & Day Shift DC8 Protection Works	DC7	Signalling and Communications (including relocation works)				
Possession works Non-possession works Adjust for Possession Works & Day Shift DC8 Protection Works	8	Protection Works				
Non-possession works Adjust for Possession Works & Day Shift DC8 Protection Works			1 400	hrs		
		Non-possession works				
Total	DC8	Protection Works				
		Total				
118027 Redfern Railway Station	118027 Re	edfern Railway Station				

WBS	Tenix Cost Plan Peer Description	Q'ty	Unit	Rate	Total Cost
Optic	on E: Unpaid Footbridge and Walkway Along Pla	tform	10		DIRECT COSTS
1	Enabling and Temporary Works				
1.1.1	Temporary Access and Worksite - included in Main Works (PL 1-10 & Concourse Works)				
1.1.2	Temporary Fencing and Hoarding				
	Temporary site hoarding; 1800mm high	270	m		
	Temporary Fencing - allow	100	m		
DC1	Enabling and Temporary Works				
2	New Walkway along Platform 10				
2.1	Demolitions and forming openings	1	Item		
	Part demolition of existing steel work Allow for traffic management	1	Item		
2.2	Structural works				
	Allow for piling works:				
	Mob & demob Piling 600mm dia	1 128	Item m		
	Allow for traffic management	1	Item		
	Allow for capping beams, beams and suspended slab	139	m3		
	Allow for slab/ramp at grade including excavation & hardcore Allow for making good/strengthening of existing retaining wall along	350	m2		
	platform 10	1	Item		
2.3	New finishes and fittings				
	Allow for non-slip ceramic tiling	820	m2		
	Allow for stainless steel guard rails	280	m		
2.4	Electrical works Lighting (assume lighting poles with small outreach arms)	14	No		
2.5	Communication works		M Comment		
	Allow for CCTV's fixed to light poles	1	Item		
2.6	Adjust for Tenix 2nd Report	4	Item		
	Adjustment	- 1	Item		
DC2	New Walkway along Platform 10				
3	New unpaid footbridge				
3.1	Demolitions and forming openings Part demolition of existing roads	1	Item		
	Allow for traffic management	1	Item		
3.2	Structural works				
	Allow for new ramp at both ends	240	m2		
	Allow for stair New bridge over railway including foundation works	50 475	m2 m2		
		4/0	1114		
3.3	New finishes and fittings	765	m2		
	Allow for monolithic finishes to new bridge and ramps Allow for gal metal balustrades to footbridge	765 170	m∠ m		
	Allow for guard rails to ramp	20	m		
	- ,				
enix Cos	edfern Railway Station t Plan Review Extract - 07.05.09.xls E - Upgrade Addit to Option D /05/2009 10:23 PM				Revision: 1 Page 29 of 32

WBS	Description	Q'ty	ew Unit	Rate	Total Cost
3.4	Electrical works Lighting (assume lighting poles with small outreach arms)	12	No		
3.5	WTP Estimate Adjust for WTP Cost Plan adopted in 2nd report	1	Item		
DC3	New unpaid footbridge				
4	Protection Works				
	Allow for safe working				
	Possession works	360	hrs		
	Non-possession works	720	hrs		
DC4	Protection Works				
	Total				

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Redfern Railway Station

Tenix Cost Plan Peer Review Description Q'ty Unit

Total Cost

Option E: Redfern Station Illawarra Relief Platforms (11&12) Upgrading Works

1 Enabling and Temporary Works

WBS

1.1.2	Temporary Fencing and Hoarding Temporary site hoarding; 1800mm high Temporary Fencing - allow	220 50	m m	
	Temporary Ferromy - allow	30		
DC1	Enabling and Temporary Works			
2	Platform 11 & 12 Modification Works and New Lift Installation			
2.1	Demolitions and forming openings			
	Local demolition of existing roof for new fire stair:			
	Allow for temporary hoarding	76	m	
	Excavation and disposal of soil off site	250	m3	
	Demolition	1	Item	
	Allow for temporary support during demolition & construction	1	Item	
	Allow for waste to tip	1	Item	
	Allow for traffic management	1	Item	
	Local demolition of existing wall at IR station entrance:			
	Allow for temporary hoarding	25	m	
	Demolition	1	Item	
	Allow for waste to tip	1	Item	
	Allow for traffic management	1	Item	
	Demolition of existing platform for new lift pit:			
	Demolition	1	Item	
	Allow for waste to tip	1	Item	
	slabs for new lifts	1	Item	
	Forming opening on existing concourse roof for new lift	1	Item	
2.2	Structural works and strengthening works			
	Allow for strengthening of existing concourse and intermediate concourse			
	slabs affected by new lift installation	1	Item	
	Allow for strengthening of roof slab opening for new fire stair	1	Item	
	New lift pits and lift structure	2	No	
	Allow for new fire escape staircase	1	No	
	Allow for new floor slab, foundation & roof structure works to extended IR	221		
	station entrance (entrance to new walkway)	204	m2	
	Allow for modification to existing structures at IR station entrance to	1	Marine	
	facilitate entrance reconfigurations Allowance for crane	1	Item Item	
	Allowance for traffic management	1	Item	
	Allowance for traffic management	1	iteiii	
	Fire rate structural steel roof framing to Platforms 11 & 12			
	Allow for 2 Hr vermiculite fire spray to exposed steel beams	2890	m2	
	Hi-rail with with Flat Top	24	No	
	Hi-rail with cherry picker	16	No	
	Note: Excludes rectification of existing steelwork damaged by water ingress Note: Excludes removal and replacement of roof membrane and spoil and		Note	
	finishes of Platform roof		Note	
	accession and approximate the property of the			

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v finishes, making good and fitout works w for making good of affected platform and concourse slabs w for making good works for affected roofing dding to lifts w for glass enclosure to lift lobby w for roofing and roof plumbing works to extended IR station entrance rance to new walkway) w for modification/new to existing roofing IR station entrance to facilitate ance reconfigurations including connection to existing w for the reconfiguration of fitout works w for builder's work to receive new ticket gates wance for crane wance for traffic management chanical works cars w EO cost for dual access doors wance for crane (for lifts)	1 1 2 48 234 270 1 1 1	Item Item No m2 m2 m2 Item Item Item		
w for making good of affected platform and concourse slabs w for making good works for affected roofing dding to lifts w for glass enclosure to lift lobby w for roofing and roof plumbing works to extended IR station entrance rance to new walkway) w for modification/new to existing roofing IR station entrance to facilitate ance reconfigurations including connection to existing w for the reconfiguration of fitout works w for builder's work to receive new ticket gates wance for crane wance for traffic management chanical works cars w EO cost for dual access doors	1 2 48 234 270 1 1 1	Item No m2 m2 m2 Item Item Item		
dding to lifts w for glass enclosure to lift lobby w for roofing and roof plumbing works to extended IR station entrance rance to new walkway) w for modification/new to existing roofing IR station entrance to facilitate ance reconfigurations including connection to existing w for the reconfiguration of fitout works w for builder's work to receive new ticket gates wance for crane wance for traffic management chanical works cars w EO cost for dual access doors	2 48 234 270 1 1 1	No m2 m2 ltem ltem ltem		
w for glass enclosure to lift lobby w for roofing and roof plumbing works to extended IR station entrance ance to new walkway) w for modification/new to existing roofing IR station entrance to facilitate ance reconfigurations including connection to existing w for the reconfiguration of fitout works w for builder's work to receive new ticket gates wance for crane wance for traffic management chanical works cars w EO cost for dual access doors	48 234 270 1 1 1	m2 m2 ltem ltem		
wance to new walkway) w for modification/new to existing roofing IR station entrance to facilitate ance reconfigurations including connection to existing w for the reconfiguration of fitout works w for builder's work to receive new ticket gates wance for crane wance for traffic management chanical works cars w EO cost for dual access doors	270 1 1 1 1	m2 Item Item Item		
ance reconfigurations including connection to existing we for the reconfiguration of fitout works we for builder's work to receive new ticket gates wance for crane wance for traffic management chanical works cars we EO cost for dual access doors	1 1 1	Item Item Item		
w for the reconfiguration of fitout works w for builder's work to receive new ticket gates wance for crane wance for traffic management chanical works cars w EO cost for dual access doors	1 1 1	Item Item Item		
w for builder's work to receive new ticket gates wance for crane wance for traffic management chanical works cars w EO cost for dual access doors	1	Item Item		
wance for crane wance for traffic management chanical works cars w EO cost for dual access doors	1	Item		
wance for traffic management chanical works cars w EO cost for dual access doors	1			
chanical works cars w EO cost for dual access doors		Item		
cars w EO cost for dual access doors				
w EO cost for dual access doors				
	2	No		
	1 1	No Item		
wance for traffic management	1	Item		
w for air-conditioning works to reconfigured station entry	1	Item		
ctrical works				
w for modifications/making good to lighting	1	Item		
w for lighting to reconfigured station entrance	1	Item		
w for relocation of existing TVM's and station comms items	1	Item		
mmunication works				
w for additional CCTV's to lift locations and reconfigured station	-1	ltom		
w for help points to lifts	1	Item		
litional costs for Fire Egress Stair to Park				
tform 11 & 12 Modification Works and New Lift Installation				
otection Works w for safe working				
session works	560	hrs		
n-possession works	1,400	hrs		
etection Works				
nection works				
	w for modifications/making good to lighting king good for affected fire alarm system (rading switchboard for new lifts) w for lighting to reconfigured station entrance w for relocation of existing TVM's and station comms items (mmunication works) w for additional CCTV's to lift locations and reconfigured station ance w for help points to lifts Littional costs for Fire Egress Stair to Park Littional 1 & 12 Modification Works and New Lift Installation (Morks) w for safe working (Session works)	w for modifications/making good to lighting ling good for affected fire alarm system 1 rading switchboard for new lifts 1 w for lighting to reconfigured station entrance 1 w for relocation of existing TVM's and station comms items 1 mnunication works w for additional CCTV's to lift locations and reconfigured station ance 1 w for help points to lifts 1 litional costs for Fire Egress Stair to Park tform 11 & 12 Modification Works and New Lift Installation stection Works w for safe working session works 560	w for modifications/making good to lighting ing good for affected fire alarm system 1 Item prading switchboard for new lifts w for lighting to reconfigured station entrance to relocation of existing TVM's and station comms items 1 Item munication works w for additional CCTV's to lift locations and reconfigured station ance 1 Item w for help points to lifts 1 Item littional costs for Fire Egress Stair to Park tform 11 & 12 Modification Works and New Lift Installation stection Works w for safe working session works 560 hrs	w for modifications/making good to lighting ting good for affected fire alarm system 1 ltem practing switchboard for new lifts 1 ltem w for lighting to reconfigured station entrance 1 ltem w for relocation of existing TVM's and station comms items 1 ltem nmunication works w for additional CCTV's to lift locations and reconfigured station ance 1 ltem w for help points to lifts 1 ltem littional costs for Fire Egress Stair to Park tform 11 & 12 Modification Works and New Lift Installation stection Works w for safe working session works 560 hrs

Redfern Station Redevelopment Appendix C Tenix Projects Cost Plan - Option C (Station Upgrading Works) Cost, Constructability and Programme – Peer Review Version 1 – 8 May 2009

Tenix Cost Plan Peer Review

		COST PLAN SUMMARY (OPTION C: Full Station	Redevelopment - Station Works Only	y)	
		Project Number: Project Name: Revision No: Revision Date: Review Date:	10618 Redfern Station Redevelopment (Option C) Revision 2 29 - March - 2007 7 - May - 2009		
		DIRECT COST	S		TOTAL CO
С	1	SECTION 1: PLATFORMS 1-10 MODIFICATION & NEW CONCOURSE	WORKS		
	ĭ	SECTION 2: ILLAWARRA RELIEF PLATFORMS (11 &12) UPGRADING	WORKS		
			DIRECT COST SUBTOTAL ex GST		
		INDIRECT COST:	s		
1		Subcontractor			
	1.1	Subcontractor Indirect	18% of Total Direct Sub-total	18%	
C 2		D&C Contractor	40 % - 5T-1-1 Discrete loss 10 4 4	4.00/	
IC	2.1	D&C Contractor's contingency to manage s/c	10 % of Total Direct plus IC 1.1 Sub-total	10%	
IC	22	D&C Contractor Project Management & Facilities		30%	
		D&C Contractor Design	5% of DC + IC 1.1 + IC 2.1		
IC	2.4	D&C Contractor Design Verification	2% of DC + IC 1.1 + IC 2.1	2%	
IC	2.5	D&C Contractor Head Office Overhead and Profit	Sub-total 12% of All Above	12%	
			INDIRECT COST SUBTOTAL ex GST		
		C	ONSTRUCTION COST (D&C Contract) ex GST		
		CLIENT COSTS			
C3		Client Directed Contingencies to Manage Works Under Contract			
	3.1	Design development contingency	5% of Total Construction Cost	5%	
IC	3.2	Construction contingency	5% of Total Construction Cost	5%	
			TARGET BUDGET (D&C Contract) ex GST		
		Client Costs			
C	C 1	EIS, Survey, Preliminary Geotechnical Investigation & Concept Design	1.5% of Target budget	1.5%	
			Sub-total	PROFESS	
		Client Project Management Team	5% of Target budget plus CC1	5%	
		Possessions cost	Refer attached		
		Land and property acquisition costs - EXCLUDED Legal and marketing costs - EXCLUDED			
		Financing Cost - EXCLUDED			
		Initial Maintenance Cost - EXCLUDED			
		Station Ticket Gates - allow for 6 New @ \$250,000/gate plus relocating 7 Ticket Vending Machines (TVM's) - allow for relocating existing TVM's & 1			
C	C 10	Client Project Contingency	Sub-total 10% of Target budget + CC1 to 9	10%	
			TOTAL CLIENT COSTS		
		TO	OTAL PROJECT COST ex GST as at April 2007		
		Escalation Update Estimate from April 2007 to June 2008	Tenix Report 28.02.08	15.0%	
		Update Estimate from June 2008 to May 2009		0.0%	
		·		2.578	
		T	OTAL PROJECT COST ex GST as at May 2009		

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Redfern Railway Station

Tenix Cost Plan Peer Review

DIRECT WORKS ELEMENTAL BREAK DOWN (Summary) - OPTION C ITEM DESCRIPTION SECTION 1: MODIFICATION TO PLATFORMS 1-10 AND NEW CONCOURSE DC1 Enabling and Temporary Works DC2 Demolition Works DC3 Platform 1-10 Modification Works DC4 Modification Works to Existing Concourse DC5 New Elevated Concourse & Staircases DC6 OHM Works (including relocation works) DC7 HV Electrical Works & Traction Power DC8 Signalling and Communications (including relocation works) DC9 Station Comms Works (PL 1-10 & Concourse) DC10 External Works and Landscaping works - priced separately DC11 Protection Works Sub-total II SECTION 2: EXISTING ILLAWARRA RELIEF PLATFORMS (11&12) UPGRADING WORKS DC3 IR Platform Modification Works DC3 IR Platform Modification Works DC4 OHW Works (including relocation works) DC5 HV Electrical Works & Traction Power DC6 Signalling and Communications (including relocation works) DC7 Signalling and Communications (including relocation works) DC8 External Works and Landscaping works - priced separately DC9 S Protection Works Sub-total Direct Cost Subtotal ex GST

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Tenix Cost Plan Peer Review

Construction Costs (enter figure from cost plan) Indirect Costs (enter figure from cost plan) Construction Cost		
Percentage carried on possession		
Total cost of the project/Activity		(a)
Total No of possessions (from programme)		(b)
Average Project/Activity value per possession		(c)=(a)/(b)
Routine and Major Periodic Maintenance Spendi		-
Recovery of Cost from External Partie Configuration No.	Amount	No. of
John Salution Ho.	Amount	Possns
Configuration 1	\$3,260,000	14
Configuration 1A	\$3,260,000	2
Configuration 3	\$2,210,000	16
Configuration 4	\$3,330,000	13
Configuration 8	\$1,510,000	16
Configuration 15	\$2,100,000	7
RailCorp Configuration Average over 68 possessions	5	68
Total average spend (RailCorp + Redfern) assuming no other projects		(d)
% Contribution of Capital projects and or External Party to Alternate Transport and Trackwork Marketing		(e)=(c)/(d)
Alternate Transport and Trackwork Marketing Co	et (Carmon Morr	
Alternate Transport and Trackwork Marketing Co	ost (Carmen Morr Amount	No. of
Configuration No.	Amount	No. of Possns
Configuration No. Configuration 1	Amount \$999,982	No. of Possns
Configuration No. Configuration 1 Configuration 1A	Amount \$999,982 \$1,160,782	No. of Possns 14 2
Configuration No. Configuration 1 Configuration 1A Configuration 3	\$999,982 \$1,160,782 \$361,782	No. of Possns 14 2 16
Configuration No. Configuration 1 Configuration 1A Configuration 3 Configuration 4	\$999,982 \$1,160,782 \$361,782 \$640,980	No. of Possns 14 2 16 13
Configuration No. Configuration 1 Configuration 1A Configuration 3 Configuration 4 Configuration 8	\$999,982 \$1,160,782 \$361,782 \$640,980 \$427,382	No. of Possns 14 2 16 13 16
Configuration No. Configuration 1 Configuration 1A Configuration 3 Configuration 4 Configuration 8 Configuration 15	\$999,982 \$1,160,782 \$361,782 \$640,980	No. of Possns 14 2 16 13 16 7
Configuration No. Configuration 1 Configuration 1A Configuration 3 Configuration 4 Configuration 8	\$999,982 \$1,160,782 \$361,782 \$640,980 \$427,382	No. of Possns 14 2 16 13 16
Configuration No. Configuration 1 Configuration 1A Configuration 3 Configuration 4 Configuration 8 Configuration 15	\$999,982 \$1,160,782 \$361,782 \$640,980 \$427,382	No. of Possns 14 2 16 13 16 7

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Redfern Railway Station

Tenix Cost Plan Peer Review

eek-end Possessions (Out of Hours)							
Possession Officers	Average No of Officers	No of Possessions		No of Shifts	Rate/ 10 Hr Shift	Cost \$	Total \$
Protection Officer	2	68		4			
Protection Co-ordinator	1	68		4			
eek Day Costs (Normal Hours - Infrequ Possession Officers	ent weeknight requ Average No of Officers	irements included	No of Days per week	No of Shifts	Rate/ 10 Hr Shift	Cost \$	

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Redfern Railway Station Tenix Cost Plan Peer Review

Option C: Redferr	Station New Concor	urse & Platform 1-10 Works	DIRECT COST

Option C: Redfern Station New Concourse & Platform 1-10 Works								
WBS	Description	Q'ty	Unit	Rate	Total Cost			
1	Enabling and Temporary Works							
1.1	Civil Works							
1.1.1	Demolition works - see section 2							
1.1.2	Temporary Access and Worksite							
	Temporary worksite to Little Eveleigh St site							
	Clear the work site area	1,160	m2					
	Asphalt paving for office, storage and vehicular access areas	1,160	m2					
	Allow for RailCorp staff temporary parking facilities including lighting	15	No					
	and signs							
	Wash down facilities	1	No					
	Traffic management	1	Item					
	Temporary access to PL 10 crane access- incl above							
	Temporary worksite to Rosehill & Gibbons St							
	Clear the work site area	1,680	m2					
	Asphalt paving for office, storage and vehicular access areas	1,160	m2					
	Wash down facilities	2	No					
	Traffic management	1	Item					
	Reinstatement of existing park							
	Allow for landscaping	1	Item					
	Allow for making good stormwater drainage works & kerbs	1	Item					
	Temporary access to Crane near PL 10							
	Hardstanding	208	m2					
	Traffic management	1	Item					
1.1.3	Temporary Fencing and Hoarding	100						
	Temporary site hoarding; 1800mm high	400	m					
	Temporary chain link fence fixed to Jersey barrier along live track	50	m					
	Temporary Fencing - allow	100	m					
1.1.4	Temporary drainage							
	Allow for temp drainage & connections	1	Item					
1.1.5	Temporary crash deck							
	Platform 9/10 side							
	Allow for temp footings/base supports	38	No					
	Allow for vertical member supports, bracing and deck	1,350	m2					
	Allow for removal	1,351	m2					
	Hoarding for works	120	m					
	Platform 1/2 side							
	Allow for temp footings/base supports	30	No					
	Allow for vertical member supports, bracing and deck	1,470	m2					
	Allow for removal	1,471	m2					
	Hoarding for works	112	m					
	Allowance for crane (Erect & Dismantle)	6	Day					

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Redfern Railway Station Tenix Cost Plan Peer Review Description Q'ty Unit Rate Total Cost

WBS	Description	Q'ty	Unit	Rate	Total Cost
1.1.6	Temporary construction access bridge				
	Temp hoists:				
	Install & dismantle	5	No		
	Hire charges (5 hoists x 118 weeks Av)	592	Weeks		
	Maintenance (5 hoists x 118 weeks Av)	140	Monthly		
	Hoist Driver (1 hoist driver x 118 weeks Av)	118	Weeks		
	Temp Bridge:				
	Allow for footings, vertical member supports, bracing and deck	225	m2		
	Allow for removal	225	m2		
	Hoarding for works	220	m		
	Allowance for crane (Erect & Dismantle)	12	Day		
1.1.7	Temporary crane platforms Crane working platform for Platform 1 side (75m2)				
	Allow for piling mob & demob	1	Item		
	Piling / pier; assume 500 dia	144	m		
	Allow for HD platform	75	m2		
	Allow for removal	1	Item		
	Allow for monitoring and protection of engine dive & other structures	-1	Item		
	Crane working platform for Platform 10 side				
	Assume Carpark floor is available as the Crane Platform		W		
	Allow for temporary propping of car park slab for Crane loading	1	Item		
	Allow for temporary ramp	1	Item		
	Allowance for crane (Erect & Dismantle)	10	Day		
1.1.8	Temporary control rooms on platforms		5000		
	Allow for temporary staff rooms & train control	10	No		
1.2	OHW Relocations - included in OHW works				
1.3	Signalling Relocations - included in signalling works				
1.4	Utilities Diversions				
	Relocate existing HV power cables on Lt. Eveleigh St for crane access Allowance for any other services diversion	1 1	Item Item		
DC1	Enabling and Temporary Works				
2	Demolition Works				
2.1	Demolition of existing platforms canopies				
	Demolition	2,100	m2		
	Allow for disposal off site	1,575	t		
	Allow for cranes	10	Day		
		10	Duj		
2.2	Demolition of existing staircases				
	Demolition including disposal off site	8	No		
2.3	Removal of existing miscellaneous items				
	Allow for removal of furniture	1	Item		
	Allow for removal of affected lights	1	Item		
DC2	Demolition Works				

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Redfern Railway Station Tenix Cost Plan Peer Review WBS Description Q'ty Unit **Total Cost** Rate Platform 1-10 Modification Works Platform Extension Structural works for PL8 /9 extension (app. By 13m) Platform level raising Platform level raising & resurfacing with hardener incl signs 7,480 m2 Scupper drain (assume 200mm wide & 100mm deep with galvanised 1,020 Allow for discharging water into track drainage system 4,480 New canopies incl furniture & fixtures - 4 island platforms (use SWRL) 1,600 Allow for station control rooms including wash down, toilet and comms No 10 Allowance for crane (250t) 1 Item Allowance for traffic management Platform mechanical works Allow for air-conditioning for staff office on platforms 1 Item Allow for fire protection to canopies (use SWRL) Allow for pressurised discharge system for sewage and waste water from platforms to nearest discharge point 1 Item Platform canopy lighting including distribution boards, light fittings and luminaires Platform 1-10 Modification Works Modification Works to Existing Concourse Demolition of existing staircases - included in Item 2 Removal of internal fitouts and roof Making good affected parts Allow for structural repairs Modification Works to Existing Concourse 118027 Redfern Railway Station Tenix Cost Plan Review Extract - 07.05.09.xls C - Refurb Works Printout: 7/05/2009 10:23 PM

Redfern Railway Station

Tenix Cost Plan Peer Review

WBS	Description	Q'ty	Unit	Rate	Total Cost
5	New Elevated Concourse & Staircases				
5.1	Structures				
	New concourse paid & unpaid buildings (use Lidcombe pre-tender)	2.988	m2		
	New staircases; 2m wide	5	No		
	Ditto; 2.5m wide	9	No		
	Ditto; 3m wide	2	No		
	Lift pit & structure	6	No		
	Allowance for crane (for concourse & staircases)	1	Item		
	Allowance for traffic management	1	Item		
5.2	Building Fitout Works				
	New concourse paid & unpaid buildings roofing, fitout & finishes including				
	toilets (use SWRL)	2,988	m2		
	Allow for staff internal fitouts	1	Item		
	New staircase roofing & fixtures - included in canopy works				
	Stainless steel balustrades to staircases	384	m		
	Stainless steel handrail fixed to wall	48	m		
	Stainless steel divider balustrade fixed to centre of staircase	240	m		
	Lift cladding	6	No		
	Allowance for crane	1	Item		
	Allowance for traffic management	-1	Item		
5.3	Mechanical works				
	Allow for air-conditioning (staff)	1	Item		
	Allow for fire protection	1	Item		
	Allow for hydraulics & plumbing	1	Item		
	Allow for hydraulics, waste water, sewage & plumbing connections to existing	1	Item		
	Lift cars	6	No		
	Allowance for crane (for lifts)	1	Item		
5.4	Electrical works				
	Lighting including distribution boards, light fittings and luminaires	1	Item		
	Provisions for lifts, TVM's, gates etc	1	Item		
DC5	New Elevated Concourse & Staircases				
6	OHW Works (including relocation works)				
	Temporary/permanent OHW Structures; avg 12m wide	8	No		
	Allow for relocating temporary structures	1	Item		
	New OHW cable supports underneath new slab	24	No		
	Temporary /permanent OHW cabling	1,750	m		
	Removal of redundant OHW structures	11	No		
	Making good of platforms	1	Item		
	Testing & commissioning	1	Item		
DC6	OHW Works (including relocation works)				

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Redfern Railway Station Tenix Cost Plan Peer Review

		Tellix Cost Flall Feel	KEAL				
WBS		Description	Q't	v	Unit	Rate	Total Cost
		■ (Administration Coloradore)		•			
	7	HV Electrical Works & Traction Power					
	7.1	Traction power - not required					
	0.000	The second control and					
	7.2	Power for PL 1-10 & concourse					
	7.2						
		Allow for 2 No 750 KVA substations installed in IR building including					
		transformers, switchboards and raised floor for cabling (assuming feeder is					
		33kV)		1	Item		
		·		1	Item		
		Allow for removal of existing transformers & facilities			iteiii		
	7.3	PL 11&12 switch room relocations (if required) included in IR works					
	7.3	FE 11&12 SWITCHTOOH Telocations (if required) included in its works					
		Power for new development - included in the commercial development					
	7.4	section					
	7.4	SCUOI					
	007	HV Electrical Works & Traction Power					
	DC7	HV Electrical Works & Traction Power					
	0	Simulting and Communications (Co. L. Communic					
	8	Signalling and Communications (including relocation works)					
		T		,			
		Temporary signal gantry structure to house signal for Down Main Line		1	No		
		New signal		1	No		
		Allow for new cabling		1	Item		
		Allow for modifications to existing track circuit		1	Item		
		Removal of existing gantry		1	Item		
		Removal of temporary gantry		1	Item		
		Relocation of signalling & comms cables mounted on PL 1 retaining wall					
		including troughing & 2 kV power cables		250	m		
		Ditto; mounted on PL10		250	m		
		Allow for disconnections and reconnections		1	Item		
		Testing & commissioning		1	Item		
	DC8	Signalling and Communications (including relocation works)					
	9	Station Comms Works (PL 1-10 & Concourse)					
		Use SWRL:					
		Station Passenger Information (SPI)					
		Train describer system					
		Control room & racks		1	Item		
		CCTV's and help points					
		Telephones, PA system and other communications					
	DC9	Station Comms Works (PL 1-10 & Concourse)					
	10	External Works and Landscaping works - priced separately					
	DC10	External Works and Landscaping works - priced separately					
	11	Protection Works					
	100	Allow for safe working					
		Poss works	1	,200	hrs		
		Non-poss works		,000	hrs		
		Adjust for Protection Officers (Total \$2,101,200)	3	,000	Item		
		, again in a section will only () order was no space of					
	DC11	Protection Works					
	2011						
	Total						
	Total						

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Redfern Railway Station Tenix Cost Plan Peer Review Description Q'ty Unit Rate Total Cost

BS	Description	Q'ty	Unit	Rate	Total Cos
ption (: Redfern Station IR Platforms Upgrading Works				
BS	Description	Q'ty	Unit	Rate	Total Cos
1	Enabling and Temporary Works				
1.1	Civil Works				
	Demolition works - see section 2				
	Temporary Access and Worksite - included in Main Works (PL 1-10 &				
1.1.1	Concourse Works)				
1.1.2	Temporary Fencing and Hoarding				
	Temporary site hoarding; 1800mm high	220	m		
	Temporary Fencing - allow	50	m		
1.2	Utilities Diversions				
	Allowance for in ground services diversion	1	Item		
DC1	Enabling and Temporary Works				
2	Daniel Marke				
2	Demolition Works				
2.1	Demolition of part of existing concourse Demolition of concourse entrance buildings	1	Item		
	Allow for waste to tip	1	Item		
	Allow for traffic management	1	Item		
2.2	Demolition of existing roof level				
	Demolition	1	Item		
	Allow for temporary hoarding	118	m		
	Excavation and disposal of soil off site	200	m3		
	Allow for temporary support during demolition & construction	1	Item		
	Demolition	1	Item		
	Allow for waste to tip	1	Item		
	Allow for traffic management	1	Item		
2.2	Demolition of existing platform for new escalator pit and lift pit				
	Demolition	1	Item		
	Allow for waste to tip	1	Item		
2.3	Demolition of internal structures	-	14		
	Allow for demolition of existing blade wall / column	1	Item Item		
	Allow for demolition of staircase Allow for removal of escalators	1	Item		
	Allow for removal of escalators Allow for demolition of internal walls	1	Item		
	Allow for demolition of internal walls Allow for hacking existing floor & wall finishes to receive new finishes	1	Item		
	Allow for waste to tip	1	Item		
	Allow for protection work during demolition	1	Item		
2.4	Platform level raising				
	Remove existing tiled paving and re-grade to new profile	1,389	m2		
	Allow for removal by spoil train	2	No		
	Remove existing tiled paving (Mezzanine)	125	m2		
	Stormwater drain	341	m		
	Allow for sumps every 10m	28	No		
	Allow for discharging water into track drainage system (4 No per platform)	8	No		
DC2	Demolition Works				
DCZ	Demonuon works				

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Redfern Railway Station Tenix Cost Plan Peer Review WBS Description Unit **Total Cost** Rate IR Platform Modification Works 3.1 Supports and strengthening existing columns Provision for supporting existing roof and strengthening columns Note: details for supporting and strengthening roof and columns are yet to be confirmed Fire rate structural steel roof framing to Platforms 11 & 12 Allow for 2 Hr vermiculite fire spray to exposed steel beams 2890 m2 No Hi-rail with with Flat Top Hi-rail with cherry picker Note: Excludes rectification of existing steelwork damaged by water ingress Note Note: Excludes removal and replacement of roof membrane and spoil and Modification to roof slab at 26.40~28.5 Allow for sealing staircase & escalator voids Allow for new pedestrian link & lift lobby (above PL 11&12) 224 m2 m3 Allow for new walls & columns New internal structures Allow for lift structure & finishes No Allow for escalator pits No Allow for new passenger staircase No Allow for new fire escape staircase Allow for new fire escape staircase to Park incl structural works Allow for vent shafts & service risers Platform level raising 1,615 m2 New Skylight Allow for skylight structure over platform Allow for glazing (based on Eastern Underground station study) m2 Item Allow for smoke control Internal finishes & fitouts 2,200 m2 Allow for new floor finish 1,700 Allow for new finishes and fixtures to lift lobby and pedestrian link Item No Allow for new control room including wash down, toilet and comms Platform mechanical works Lift car Allow for modification to station ventilation system Item Allow for air-conditioning for staff office on platforms Item Making good for affected fire alarm system Allow for pressurised discharge system for sewage and waster water from platform to nearest discharge point Item Platform electrical works Allow for new lighting to platforms and lift lobby 1 Item IR Platform Modification Works DC3 OHW Works (including relocation works) New OHW portals bolted to walls; avg 6m wide No m Item OHW cabling 40 Testina & commissionina DC4 OHW Works (including relocation works) 118027 Redfern Railway Station Tenix Cost Plan Review Extract - 07.05.09.xls C - Refurb Works Printout: 7/05/2009 10:23 PM

Redfern Railway Station Tenix Cost Plan Peer Review WBS Unit Rate **Total Cost** HV Electrical Works & Traction Power 5.1 Traction power - not required PL 11&12 switch room relocations works (Note: upgrading substation for development works included in development HV Electrical Works & Traction Power Signalling and Communications (including relocation works) No new works required Signalling and Communications (including relocation works) Station Comms Modification Works (PL 11 & 12) Use SWRL: 50% of Glenfield Station works Station Passenger Information (SPI) CCTV's and help points 1 Item Telephones, PA system and other communications Signalling and Communications (including relocation works) External Works and Landscaping works - priced separately External Works and Landscaping works - priced separately **Protection Works** Poss works 560 2.000 Non-poss works Protection Works Total 118027 Redfern Railway Station Tenix Cost Plan Review Extract - 07.05.09.xls C - Refurb Works Printout: 7/05/2009 10:23 PM