Civil Infrastructure Report
Hinchinbrook Creek Bridge, Link Road and Signalised Intersection
Former Hoxton Park Airport – Cowpasture Road Hoxton Park

Prepared on behalf of the Mirvac Projects Pty Limited
For Submission to the Minister for Planning

September 2010

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Document Control Sheet

Issue	Amendment	Date	Prepared by	Checked by
A	Issued for inclusion in EAR	15/09/2010	HW	PJ

Executive Summary

ADW Johnson have been engaged to prepare a Civil Infrastructure Report to accompany a Section 75W modification to Concept Plan Approval 10_0007 and stage 1 infrastructure approval 10_0008 for the Hoxton Park Warehouse project. This modification is required to allow for the construction of a link road, bridge and culvert bank and signalised intersection onto Cowpasture Road providing a second access point onto Cowpasture road from current development under construction and the future residential precinct to the north. This connection is required under a Voluntary Planning Agreement made between Mirvac and Liverpool City Council.

The proposed link consists or;

- Localised filling to construct abutments;
- A 72m span reinforced concrete bridge;
- A 10 cell 4.2m span culvert bank;
- Associated services; and
- A signalised intersection onto Cowpasture Road.

The following report documents concept design arrangements of the infrastructure in order to allow for assessment of the proposal by the Department of Planning.

Concept design drawings have been prepared by ADW Johnson and are attached demonstrating the overall proposal.

A concept design report was prepared by Cardno and is attached indicating the general features of the bridge.

Consultation has occurred with the RTA and the RTA has agreed in principle to the arrangement of the intersection with Cowpasture Road. Concurrence of the RTA is required for the intersection as Cowpasture Road is a Classified Road and the proposed intersection is signalised. The RTA has also agreed to the alignment of the link road. The traffic impacts of this arrangement have been dealt with by Colsten Budd Hunt and Kafes and are found to be satisfactory.

A flooding Impact Assessment was prepared by Golder Associates for the construction of the proposal on the floodplain hydraulic of Hinchinbrook Creek. Whilst some afflux occurred, it was localised to the bridge area which is to be expected. There was no modelled increase in flooding levels in the vicinity of any existing residential areas and the flood free status of Cowpasture Road was not compromised. Any afflux was wholly contained within the public lands forming Hinchinbrook Creek.

Table of Contents

APPENDICES

1.0 Background

1.1 Introduction

ADW Johnson have been commissioned by Mirvac Projects Pty Limited to prepare concept infrastructure design and report to accompany a Part 3A Project Application for the provision of the Hinchinbrook Creek bridge crossing, link road and signalised intersection onto Cowpasture Road.

The location of the proposed infrastructure is adjacent to the development of the former Hoxton Park Airport site and proposed future residential precincts to the north of the industrial development currently under construction.

Cowpasture Road is currently being upgraded by the RTA as part of the Cowpasture Road Design Alliance with practical completion of the contract expected before the end of 2010. The intersection proposed requires the reconfiguration of some works currently being undertaken and the provision of traffic control signals and associated works.

Previous studies have been prepared as part of the development of the former Hoxton Park Airport site have been extended to include the works proposed unde this application.

1.2 Proposed Infrastructure

The infrastructure proposed under this application consists of;

- New concrete bridge spanning 72m across Hinchinbrook Creek;
- New culvert bank consisting of 10 cells of 4.2m span;
- Earthworks associated with the provision of the bridge abutments and filling over the culverts and creation of the link road;
- Construction of the link road;
- Construction of a new signal controlled intersection of the link road onto Cowpasture Road.

2.0 Proposed Infrastructure Design

2.1 Overall Proposed Infrastructure

As outlined in Section 1.2, the proposal seeks approval for the creation of the link road, bridge, culverts and intersection with Cowpasture Road. Preliminary civil design drawings are shown in Appendix A. An indicative erosion and sediment control plan is provided in the concept civil design drawings shown in Appendix A which will be refined as part of the detailed design development.

2.2 Proposed Hinchinbrook Creek Bridge

Cardno was engaged to prepare a concept design for the Application for submission with the Application to Department of Planning. This concept design report is shown in Appendix B. Whilst the detailed design is yet to be completed, at this stage a proprietary "M-Lock" system appears to be the most efficient type of construction. The structure comprises precast reinforced concrete headstocks supported on piles which support the precast bridge planks and pavement. The key bridge design parameters are;

- Six equal spans of 12 metres in length;
- 9.6m clear width between traffic barriers (2x3.5m lanes, 2x1.3m shoulders and 2.5m wide cycleway on the northern side;
- Pavement crossfalls are proposed two way at 3%;
- Traffic barriers F Type Regular Performance to RTA Specifications;
- Deck drainage is proposed to be by scuppers into the floodplain below;
- Bridge deck is proposed to be supported on 585mm diameter spun precast concrete piles with depth and set to be determined at the detailed design stage.

Hydraulic impacts of the proposed bridge structure on the Hinchinbrook Creek floodplain are discussed in Section 2.6.

2.3 Proposed Culvert Bank

In addition to the main channel conveyance bridge crossing, there is also a proposed bank of box culverts consisting of 10 cells of 4.2m span. These culverts assist in passing higher flood flows through the link road crossing and assist in minimising afflux both upstream and in the proximity of the adjoining "Bus Depot" site. The structural and final civil design of this culvert group will be determined at the detailed design stage along with scour protection requirements upstream and downstream of the culverts. Preliminary design drawings are presented in Appendix A.

Hydraulic impacts of the proposed bridge structure on the Hinchinbrook Creek floodplain are discussed in Section 2.6.

2.4 Proposed Link Road

The link road forms a central plank of the access arrangements for both the industrial development of the former Hoxton Park Airport site and proposed future residential precinct to the north. It connects the roundabout currently under construction at the former airport development and a signalised intersection with Cowpasture Road via both the aforementioned bridge and culverts.

The configuration of the link road consists of two 4.5m travel lanes, kerb and gutter and a 2.5m concrete shared pathway linking the industrial and residential developments with Cowpasture Road to the east. The traffic engineering requirements for this link road have been assessed by Colsten Budd Hunt and Kafes in their report *Traffic Assessment For Northern Access To Hoxton Park Development – August 2010.*

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2.5 Proposed Signalised Intersection onto Cowpasture Road

The link road is proposed to connect to the existing road network at a signalised intersection with Cowpasture Road. As noted above, Cowpasture Road is currently being upgraded by the RTA and works will be required to accommodate the proposed intersection. As Cowpasture Road is a Classified Road under the Roads Act and as the works involve traffic signals, RTA concurrence to the design and works is required.

A general arrangements design of the intersection was prepared by ADW Johnson and consultation occurred with the RTA. RTA have provided in principle agreement to the proposal. The submitted drawing and email confirmation of acceptance from the RTA is shown in Appendix C along with the minutes of the pre design meeting held with council and the RTA.

The drawings shown in Appendix A generally reflect what was submitted to the RTA in terms of the general configuration, lane lengths and traffic facilities with the geometry improved more in keeping with the detailed design requirements of the RTA Road Design Guide. The design will be compliant with relevant RTA and Council standards and specifications including the RTA Road Design Guide, AUSTROADS Pavement Design Guide, and the latest version of Australian Standard AS5100.

The general configuration of the intersection includes;

- Left turn storage lane from Cowpasture Road into the link road minimum 30m long (excluding taper);
- Right turn storage from Cowpasture Road into the link road minimum 150m long (excluding taper);
- Two right turn lanes out of the link road onto Cowpasture Road minimum 50m long (excluding taper);
- Signalised slip lane for left out movements from the link road onto Cowpasture Road minimum 50m long (excluding taper).

In consultation with the RTA, marked footways have been provided on the south bound approach and across the link road to cater for pedestrians and cyclists. Marked footways have not been provided on the northbound approach however provision for future upgrade to mark footways on

this approach will be made in the design.

The proposed geometry of the intersection was modelled and confirmed appropriate in SIDRA by Colsten Budd Hunt and Kafes.

2.6 Impacts of Proposed on Flooding in Hinchinbrook Creek

Golder Associates were engaged to update the 2 dimensional TUFLOW model used for the floodplain assessment for the industrial Project Applications on the former airport site to include the proposed bridge, abutments, filling and culvert bank. This report is titled *Hinchinbrook Creek Link Road – Flood Impact Assessment Revision 2*.

The salient points from the analyses and reporting are;

- The proposed bridge is flood free in the 1:100 year ARI event
- After the introduction of the bridge, culverts and fill there is afflux both upstream and downstream of the bridge by virtue of the reduction in conveyance. This afflux is localised to the bridge area and there are no modelled flood increases in the vicinity of the residential area to the north of the site or to the south;
- The introduction of the bridge, culverts and fill does not impact on the flood free status of Cowpasture Road;
- There are some modelled velocity increases localised to the bridge and culverts structures that will be addressed as part of the detailed design.

2.7 Services required with Bridge and Link Road Crossing

As part of the development services may be required to be installed across the link road and bridge. Initial planning is currently being undertaken to determine the type and size of any required services. If required, these will be installed to authority requirements within the public road reserve.

2.8 Geotechnical Engineering

In relation to all of the proposed road work and bridgework elements, preliminary advice has been obtained from geotechnical engineers in relation to design parameters and construction methodologies to be adopted. As part of the detailed design development, any geotechnical advice and recommendations will be taken into account.

3.0 Conclusion

As part of the VPA negotiated between Mirvac and Liverpool City Council, a bridge and link road is required along with a signalised intersection to link the industrial development currently under construction with Cowpasture Road. Preliminary designs have been prepared for each of the elements to support the modification of the original consents to demonstrate the arrangement of the proposed infrastructure. Construction of the aforementioned infrastructure allows for a second controlled access onto Cowpasture Road as required by the RTA and the original consent and allows for the orderly development of the industrial and residential precincts in and around the former Hoxton Park Airport site.

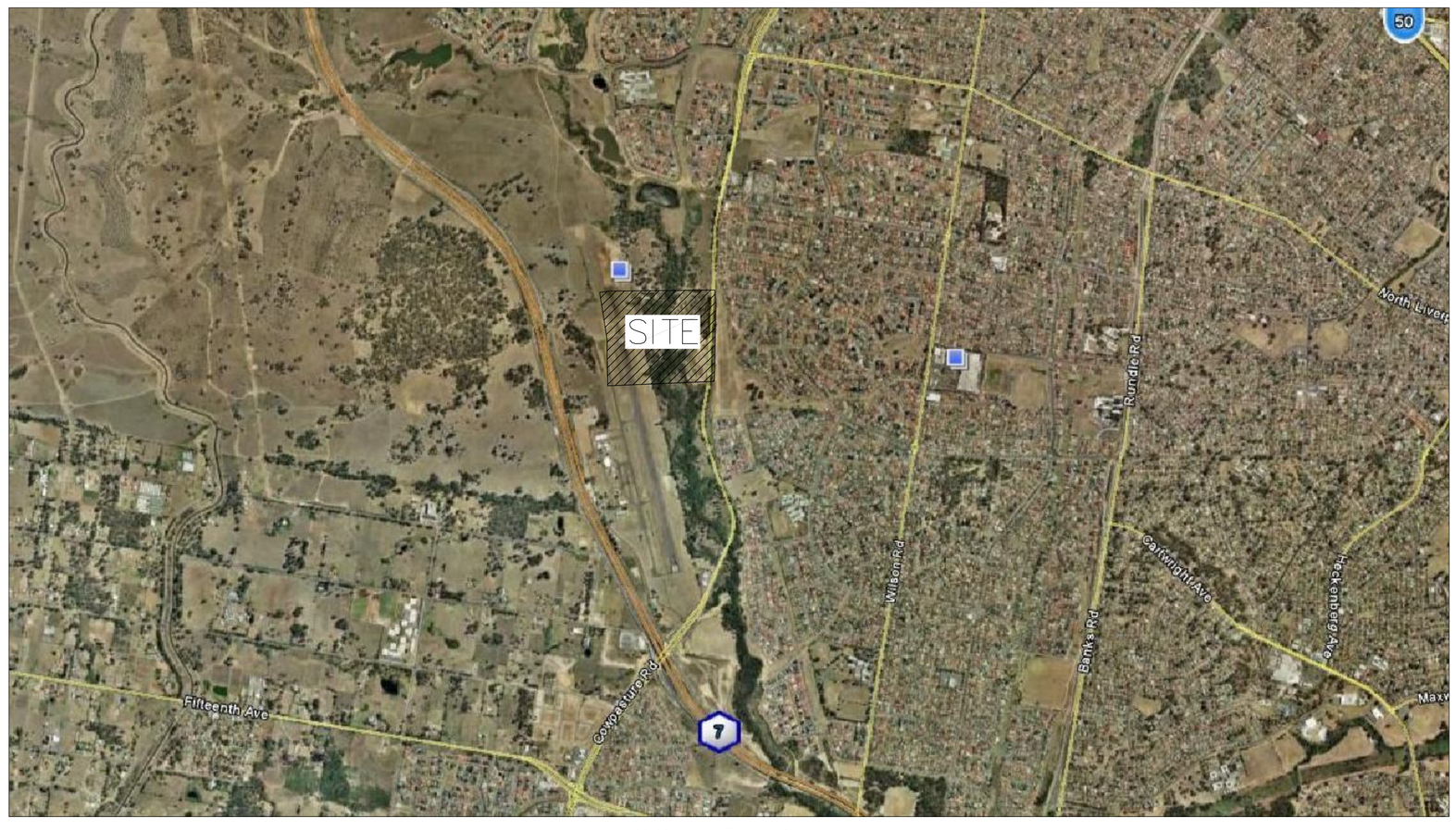
As civil engineers we are in support of the application.

Appendix A

Preliminary Civil Design drawings

150133_DA_001[A]

PROPOSED HINCHINBROOK CREEK LINK ROAD "FORMER HOXTON PARK AIRPORT" LOT 101 D.P. 1130459, LOT 404 D.P. 1147551 AND LOT 4051, D.P.1152675 COWPASTURE ROAD, HOXTON PARK



LOCALITY PLAN
N.T.S.

M.G.A.

INDEX OF DRAWINGS

DRAWING	NAME
150133-DA-001	TITLE SHEET, LOCALITY PLAN AND INDEX OF DRAWINGS
150133-DA-002	OVERALL SITE PLAN.
150133-DA-100	DETAIL PLAN - SHEET 1
150133-DA-101	DETAIL PLAN - SHEET 2
150133-DA-102	DETAIL PLAN - SHEET 3
150133-DA-103	BRIDGE ROAD - PLAN AND LONGITUDINAL SECTION
150133-DA-104	BRIDGE AND ROAD - TYPICAL SECTIONS
150133-DA-105	INTERSECTION - VEHICLE SWEPT PATHS
150133-DA-200	EROSION AND SEDIMENT CONTROL PLAN

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A	06/09/2010	Issued for 75W Application	W.M.	H.W.	M.A.	P.J.

SCALES

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CLIENT
mirvac

PROPERTY DESCRIPTION
LOT 101 D.P. 1130459, LOT 404 D.P. 1147551
AND LOT 4051 D.P. 1152675
COW PASTURE ROAD
HOXTON PARK

SURVEYED N\A

DATUM A.H.D.

PROJECT HINCHINBROOK CREEK LINK ROAD

PLAN TITLE
TITLE SHEET, LOCALITY PLAN
AND INDEX OF DRAWINGS

PROJECT No.	DISCIPLINE	NUMBER	REV.
150133	DA	001	A

100mm AT FULL SIZE

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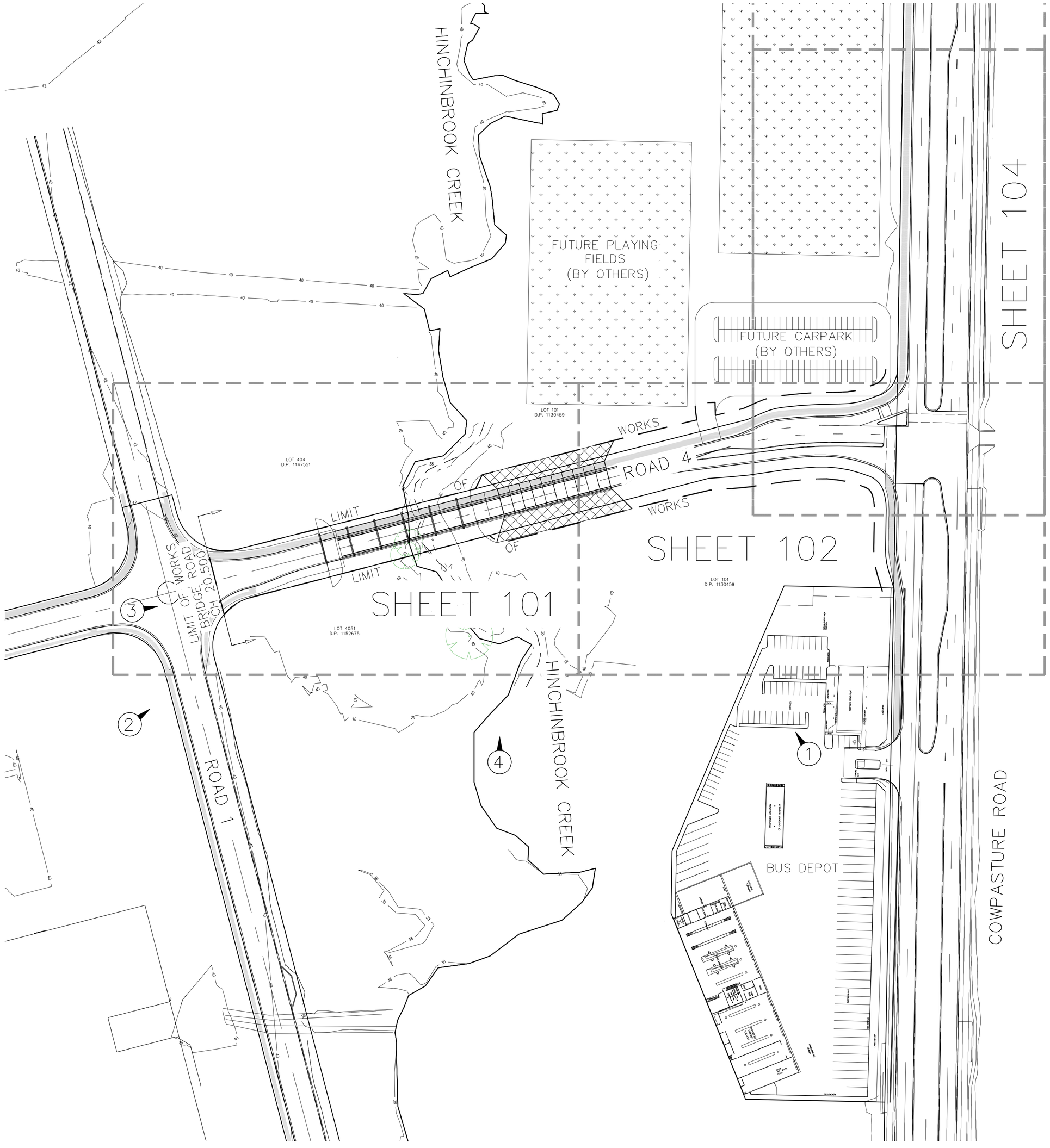
150133_DA_002[A]



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3 IMAGE DIRECTION

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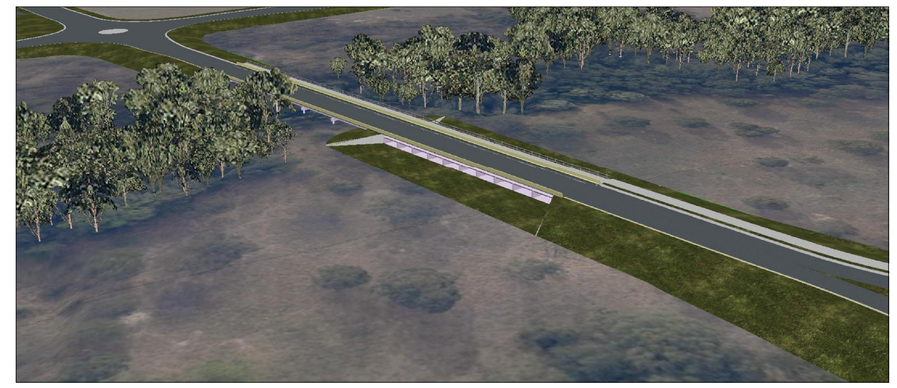

IMAGE No. 1

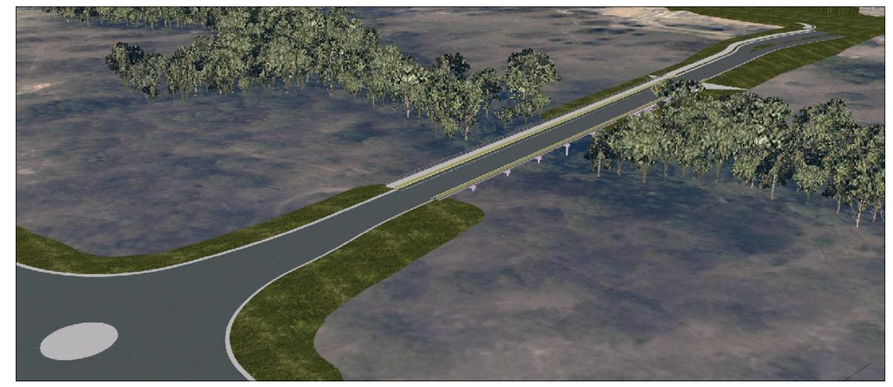

IMAGE No. 2

IMAGE No. 3

IMAGE No. 4

NOTES: –

1. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE CONTRACT DOCUMENTATION, LIVERPOOL CITY COUNCILS ENGINEERING REQUIREMENTS FOR DEVELOPMENT.
2. EROSION AND SEDIMENT CONTROL DEVICES ARE TO BE INSTALLED PRIOR TO CONSTRUCTION COMMENCING, AND MAINTAINED DURING THE CONTRACT PERIOD AND UNTIL VEGETATIVE COVER ACHIEVED.
3. ALL EXISTING UNDERGROUND SERVICES (INCLUDING OPTIC FIBRE CABLE) MUST BE LOCATED AND EXPOSED PRIOR TO COMMENCING EARTHWORKS AND IT IS THE RESPONSIBILITY OF ANY PERSONS USING THIS PLAN TO CONFIRM BOTH POSITION AND LEVEL OF THESE UTILITIES IN CONJUCTION WITH THE APPROPRIATE AUTHORITY.
4. SUBSOIL DRAINS ARE TO BE PROVIDED IN ACCORDANCE WITH COUNCIL DRAWING D15 OR TO THE SATISFACTION OF THE SUPERINTENDENT.
5. VEHICULAR ACCESS AND ALL SERVICES ARE TO BE MAINTAINED AT ALL TIMES TO EXISTING TENANTS AFFECTED BY CONSTRUCTION WORKS.
6. ALL LEVELS MUST BE OBTAINED FROM ESTABLISHED BENCH MARKS AND/OR SURVEY CONTROL.
7. KERB RAMPS TO BE PLACED IN ACCORDANCE WITH COUNCIL STANDARD DRAWING R17 AND TO THE SATISFACTION OF THE SUPERINTENDENT.
8. ALL PIPELINES TO BE RUBBER RING JOINT CLASS 2 UNLESS OTHERWISE STATED. PIPES AND BACKFILL ARE TO BE DETERMINED ON THE BASIS OF THE C.P.A.A. PIPE SELECTION MANUAL IN ACCORDANCE WITH S.W.C. GUIDELINES.

MGA

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SCALES
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A1 / A3
1:1000 / 1:2000

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PROPERTY DESCRIPTION
LOT 101 D.P. 1130459, LOT 404 D.P. 1147551
AND LOT 4051 D.P. 1152675
COW PASTURE ROAD
HOXTON PARK

PROJECT HINCHINBROOK CREEK LINK ROAD

PLAN TITLE
OVERALL SITE PLAN

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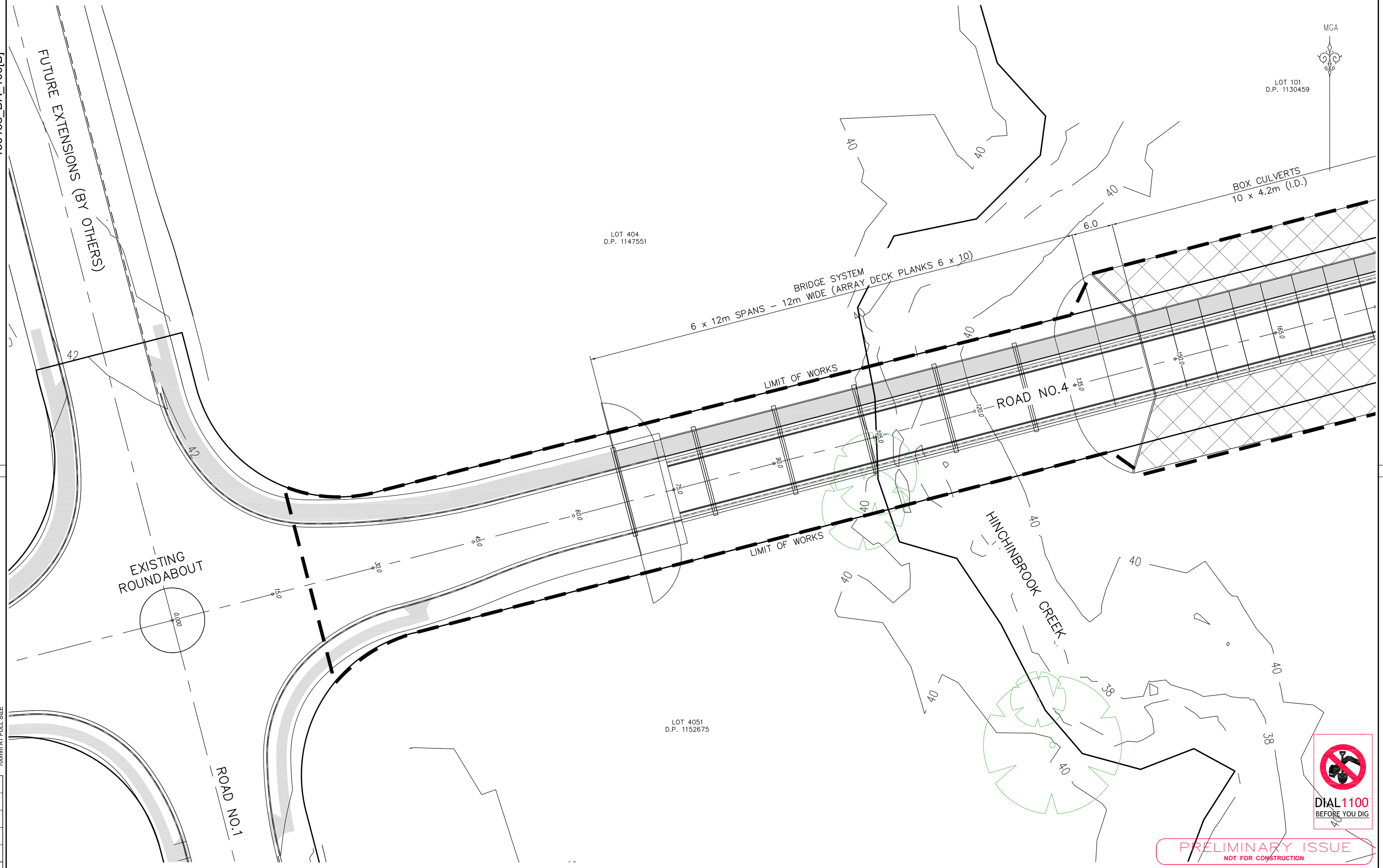

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B	15/09/2010	Minor Drafting Revision	H.W.	H.W.	H.W.	P.J.

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PROJECT
HINCHINBROOK CREEK LINK ROAD

PLAN TITLE
DETAIL PLAN
SHEET 1

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100mm AT FULL SIZE

150133_DA_101[A]

RAMP TO FUTURE CARPARK AND PLAYING FIELDS. (BULK EARTHWORKS ONLY)

R2-14B ONLY

R2-6B NO RIGHT TURN

LOT 101 D.P. 1130459

BOX CULVERT 10 x 4.2m (I.D.)

LIMIT OF WORKS

CYCLEWAY 2.5m WIDE

LEFT TURN SLIP LANE 50m LONG PLUS TAPER

RIGHT TURN STORAGE 50m LONG PLUS TAPER

3.5m 3.5m 3.5m 1.8m 3.5m

R 175.000 270.0 261.446 255.0 TC245.117 240.0 225.0 285.0 CT292.699 300.0 307.137 312.880 315.0

ROAD No.4 195.0 180.0 165.0

LIMIT OF WORKS

DEMOLISH EXISTING KERB AND CONSTRUCT INTERSECTION

DEMOLISH EXISTING MEDIAN ISLAND AND CONSTRUCT TURNING LANES

NOTE:

INTERSECTION TO BE SIGNALISED TO RTA REQUIREMENTS

DEMOLISH EXISTING KERB AND CONSTRUCT LEFT TURN BAY 30m LONG PLUS TAPER

DEMOLISH EXISTING CYCLEWAY AND REALIGN

5.2m 3.5m

EXISTING KERB LINE

EXISTING KERB LINE

COWPASTURE ROAD

EXISTING THROUGH LANES

CYCLEWAY 2.5m WIDE

EXISTING KERB LINE

EXISTING BUS DEPOT

LOT 101 D.P. 1130459

PROPERTY BOUNDARY

PROPERTY BOUNDARY

40 40 38 40 40 38

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SURVEYED N\A DATUM A.H.D.

PROJECT HINCHINBROOK CREEK LINK ROAD

PLAN TITLE DETAIL PLAN SHEET 2

PROJECT No.	DISCIPLINE	NUMBER	REV.
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150133_DA_102[A]

LIMIT OF WORKS

ROAD NO.4

R 175.000

955.0
261.446
270.0
285.0
C1292.691
300.0
307.937
312.880
315.0

3.5 1.8m 3.5 3.5 3.5

PROPOSED CYCLEWAY 2.5m WIDE

LIMIT OF WORKS

FUTURE CARPARKING (SUBJECT TO SEPARATE APPROVAL)

PROPOSED COUNCIL PLAYING FIELD (SUBJECT TO SEPARATE APPROVAL)

M.G.A.

MAKE GOOD CONNECTION TO EXISTING CYCLEWAY

EXISTING 2.5m WIDE CYCLEWAY

EXISTING KERB LINE

EXISTING KERB LINE

COWPASTURE ROAD

RIGHT TURN BAY 3.5m WIDE 150m LONG PLUS TAPER

7.8
3.5
6.8

DEMOLISH EXISTING MEDIAN AND CONSTRUCT 150m LONG RIGHT TURN BAY IN. CONSTRUCT SOUTHERN ISLAND NOSE TO ACCOMMODATE RIGHT TURN OUT.

NOTE:

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PLAN TITLE
DETAIL PLAN
SHEET 3

PROJECT No.	DISCIPLINE	NUMBER	REV.
150133	DA	102	A

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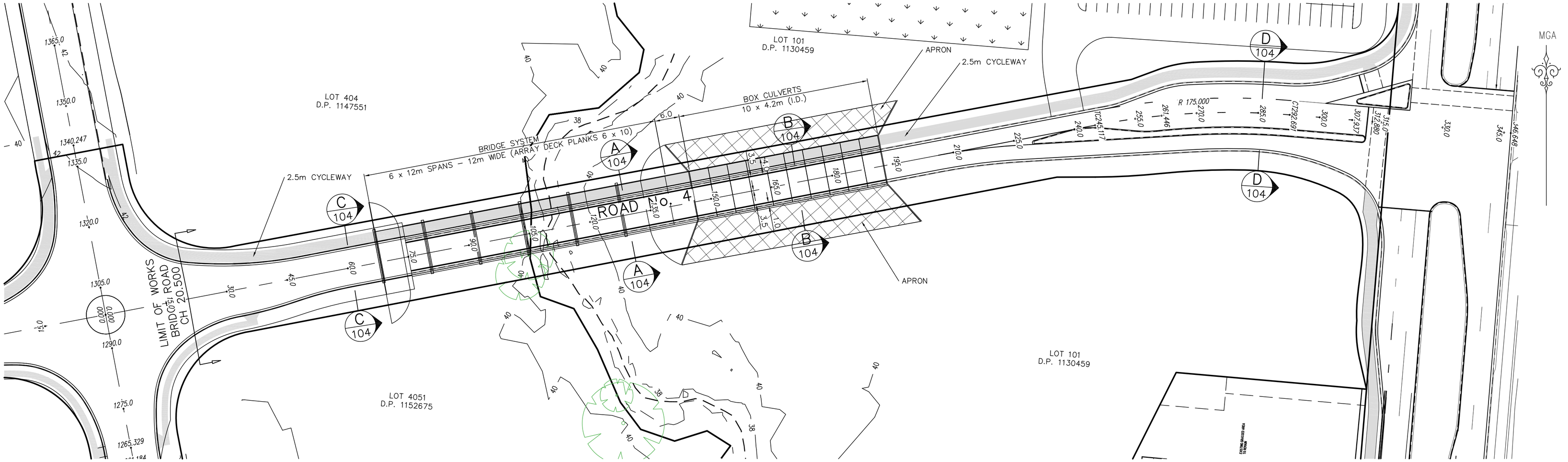

PLAN
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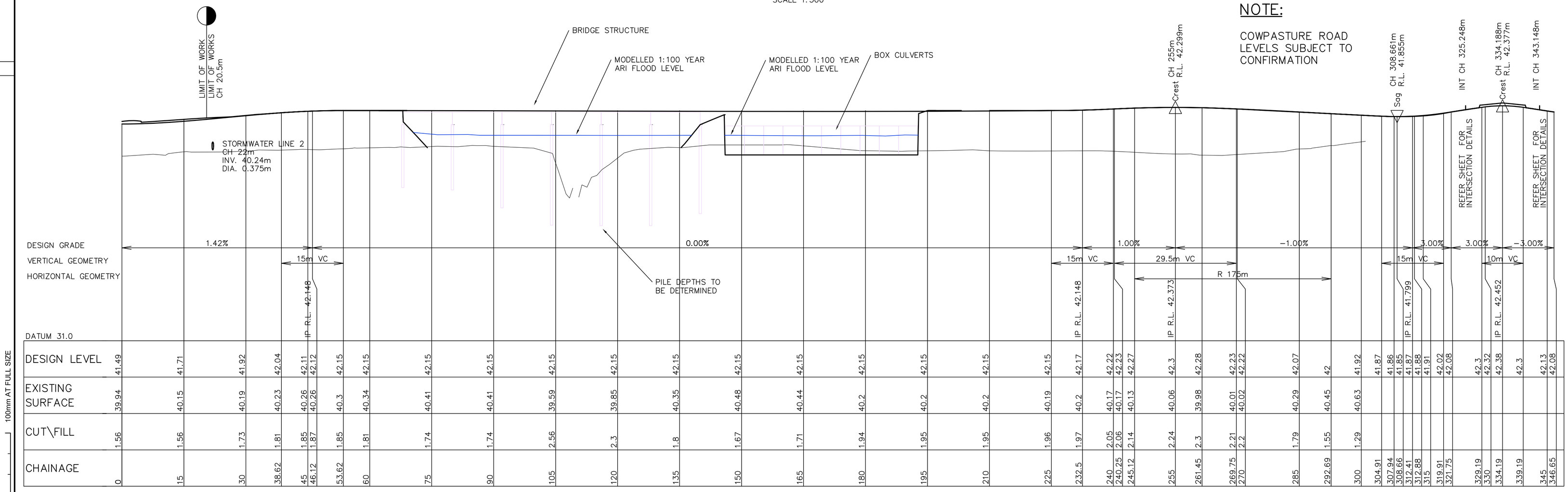

LONGITUDINAL SECTION BRIDGE ROAD
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

NOTE:

COWPASTURE ROAD LEVELS SUBJECT TO CONFIRMATION

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A	06/09/2010	Issued for 75W Application	W.M.	H.W.	M.A.	P.J.
B	08/09/2010	1:100 YEAR ARI MODELLED FLOOD LEVEL ADDED	H.W	H.W.	M.A.	P.J.

SCALES
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PROJECT HINCHINBROOK CREEK LINK ROAD

PLAN TITLE
BRIDGE ROAD
PLAN AND
LONGITUDINAL SECTION

PROJECT No.	DISCIPLINE	NUMBER	REV.
150133	DA	103	B

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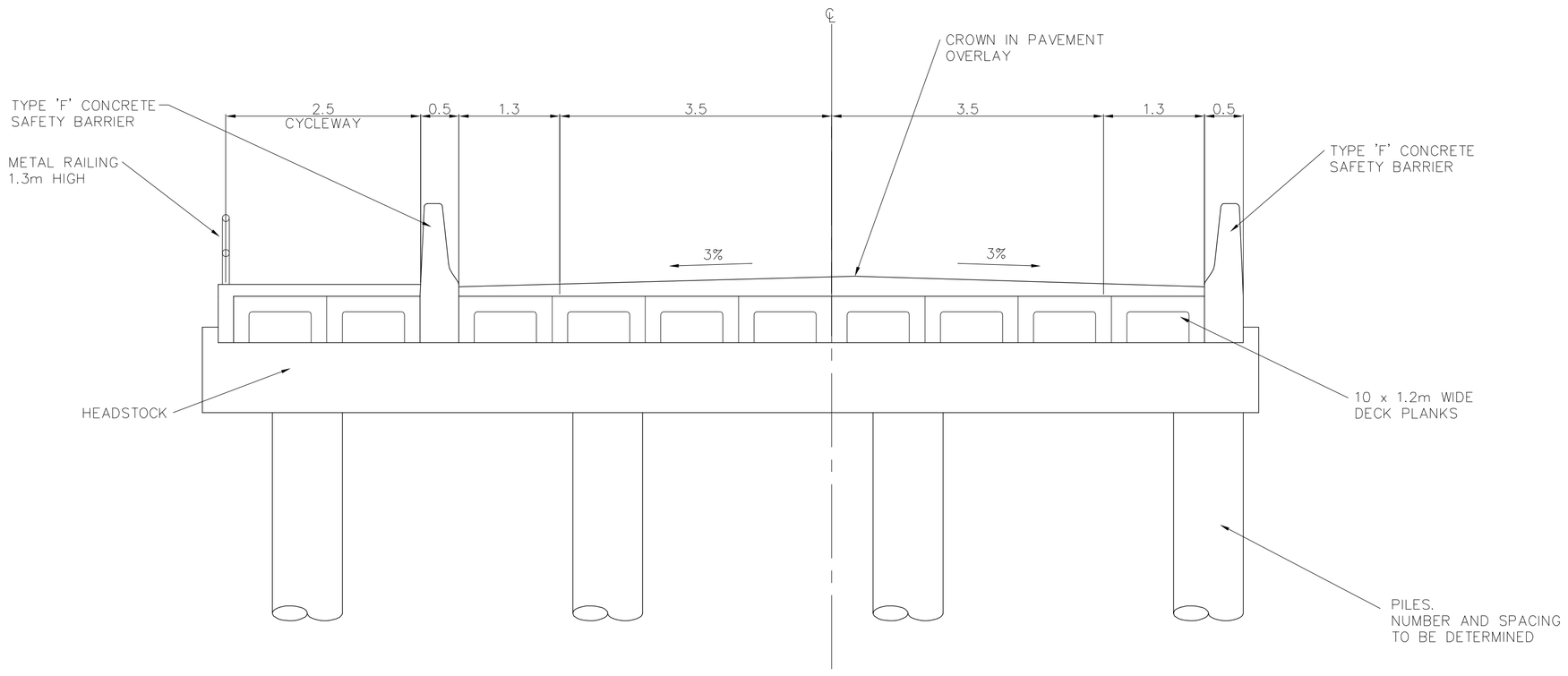
100mm AT FULL SIZE



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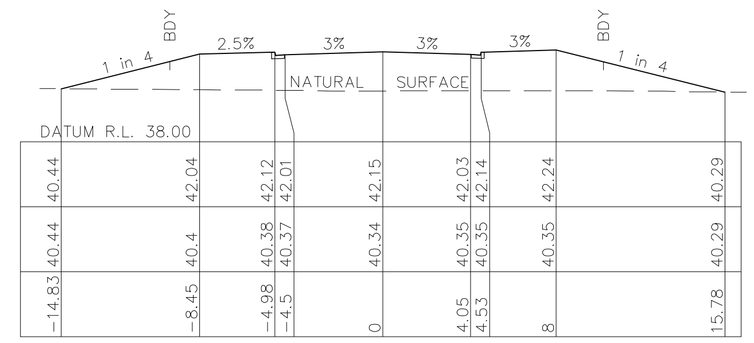
SCALE 1:50



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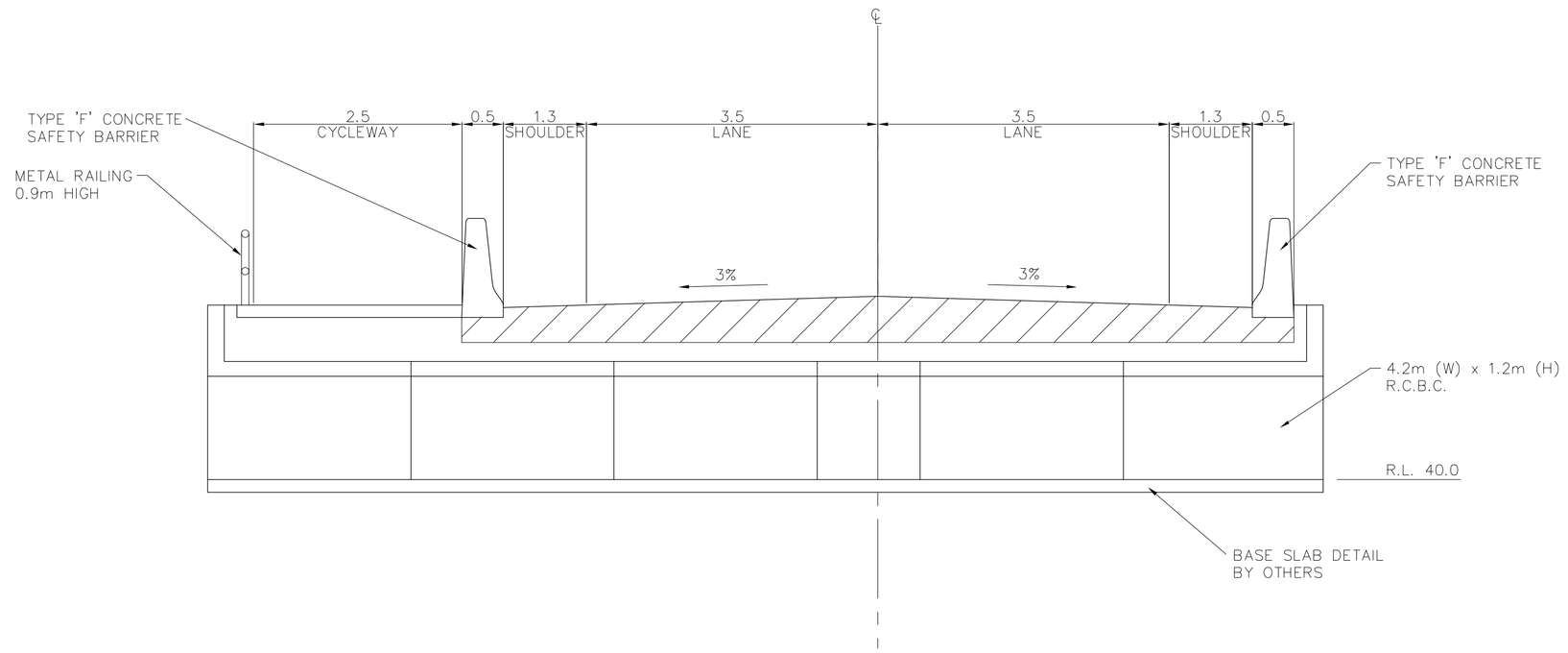
SCALE 1:200



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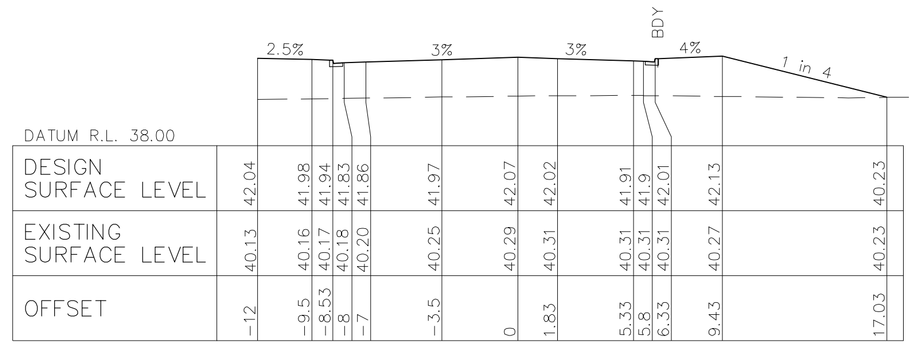


CH 285

SECTION D (103)
SCALE 1:200

LEGEND

PAVEMENT TYPE TO BE DETERMINED

DIAL 1100 BEFORE YOU DIG

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REV.	DATE	AMENDMENT	DRAWN	CHECK	DESIGN	VERIFY
A	06/09/2010	Issued for 75W Application	W.M.	H.W.	M.A.	P.J.

SCALES: 0 1 2 — A1 / A3 1:50 / 1:100

DESIGN FILE S:\150126 - Hoxton Park\Design\12D\OVERALL DESIGN

ALL DIMENSIONS ARE IN METRES. DO NOT SCALE

adw johnson
Central Coast
2 Bounty Close,
P.O. Box 3717,
Tuggerah N.S.W. 2259
Phone: (02) 4305 4300
Fax: (02) 4305 4399
email: coast@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398

CLIENT: mirvac

PROPERTY DESCRIPTION
LOT 101 D.P. 1130459, LOT 404 D.P. 1147551
AND LOT 4051 D.P. 1152675
COW PASTURE ROAD
HOXTON PARK

SURVEYED: N\A
DATUM: A.H.D.

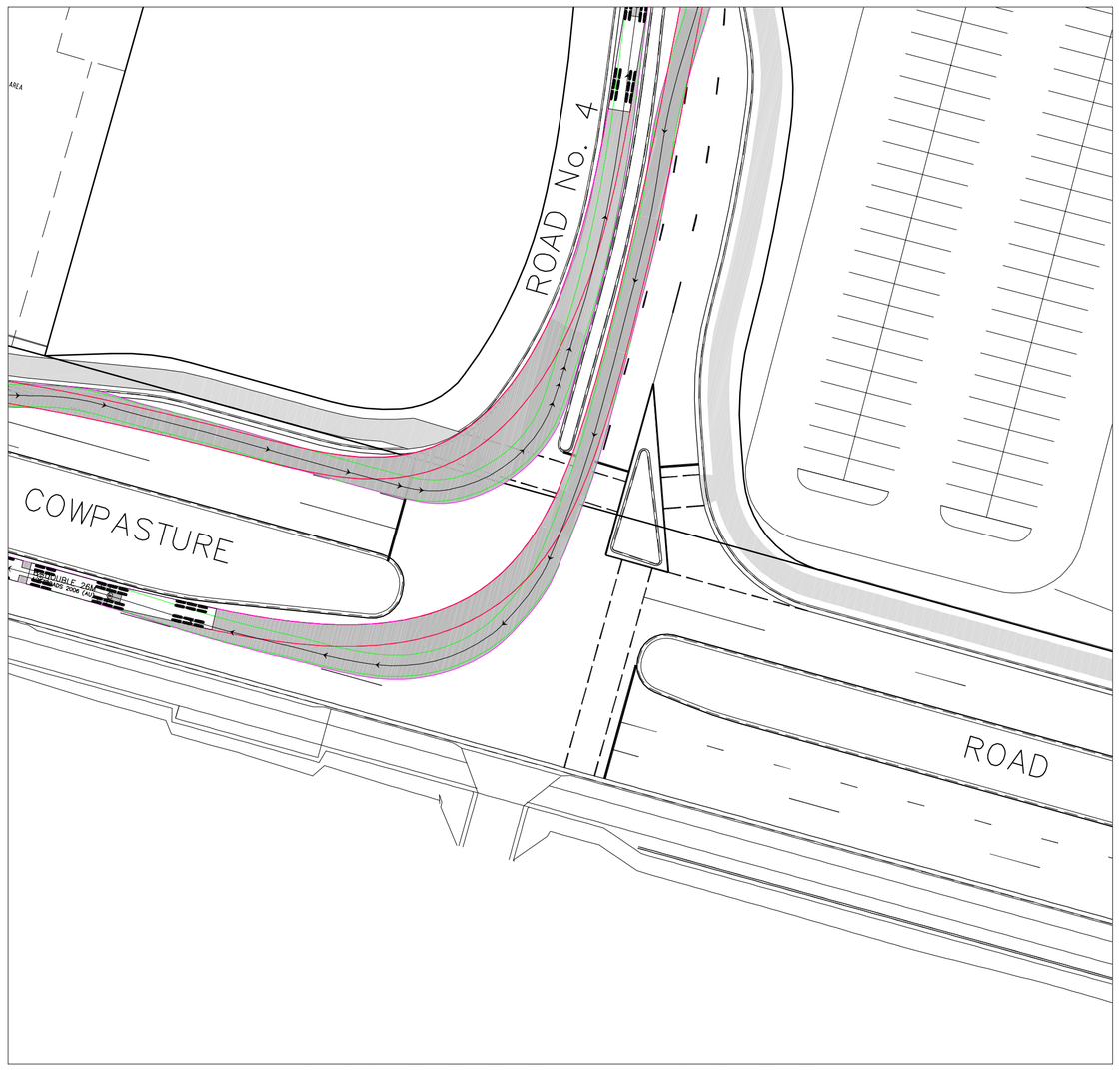
PROJECT: HINCHINBROOK CREEK LINK ROAD

PLAN TITLE: BRIDGE AND ROAD TYPICAL SECTIONS

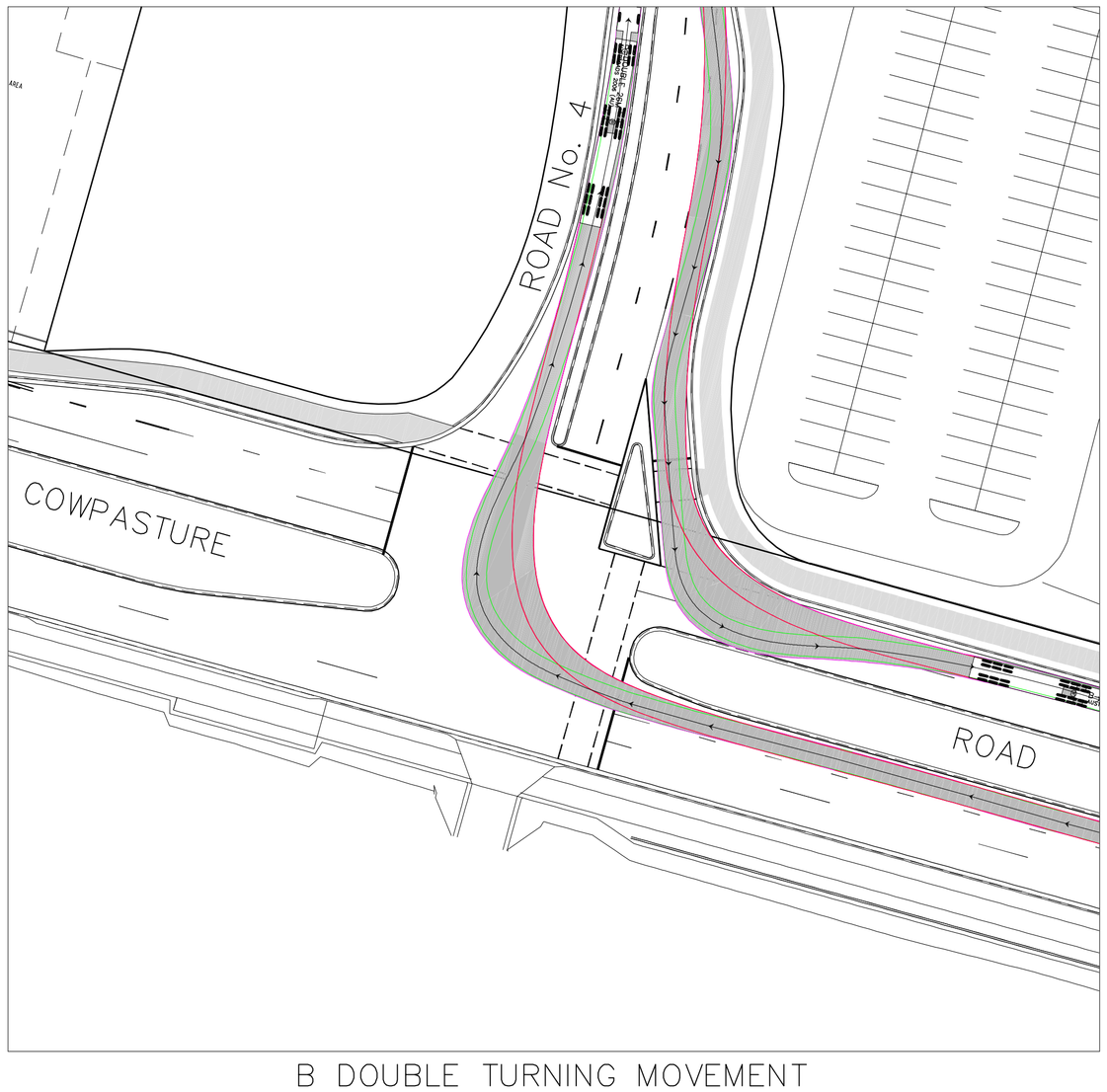
PROJECT No.	DISCIPLINE	NUMBER	REV.
150133	DA	104	A

Plotted By: waynem Plot Date: 07/09/10 - 14:30 Cad File: S:\150133 - Hoxton Park Bridge Road\Drawings\ENG\150133_DA_104[A].dwg

150133_DA_105[A]



B DOUBLE TURNING MOVEMENT



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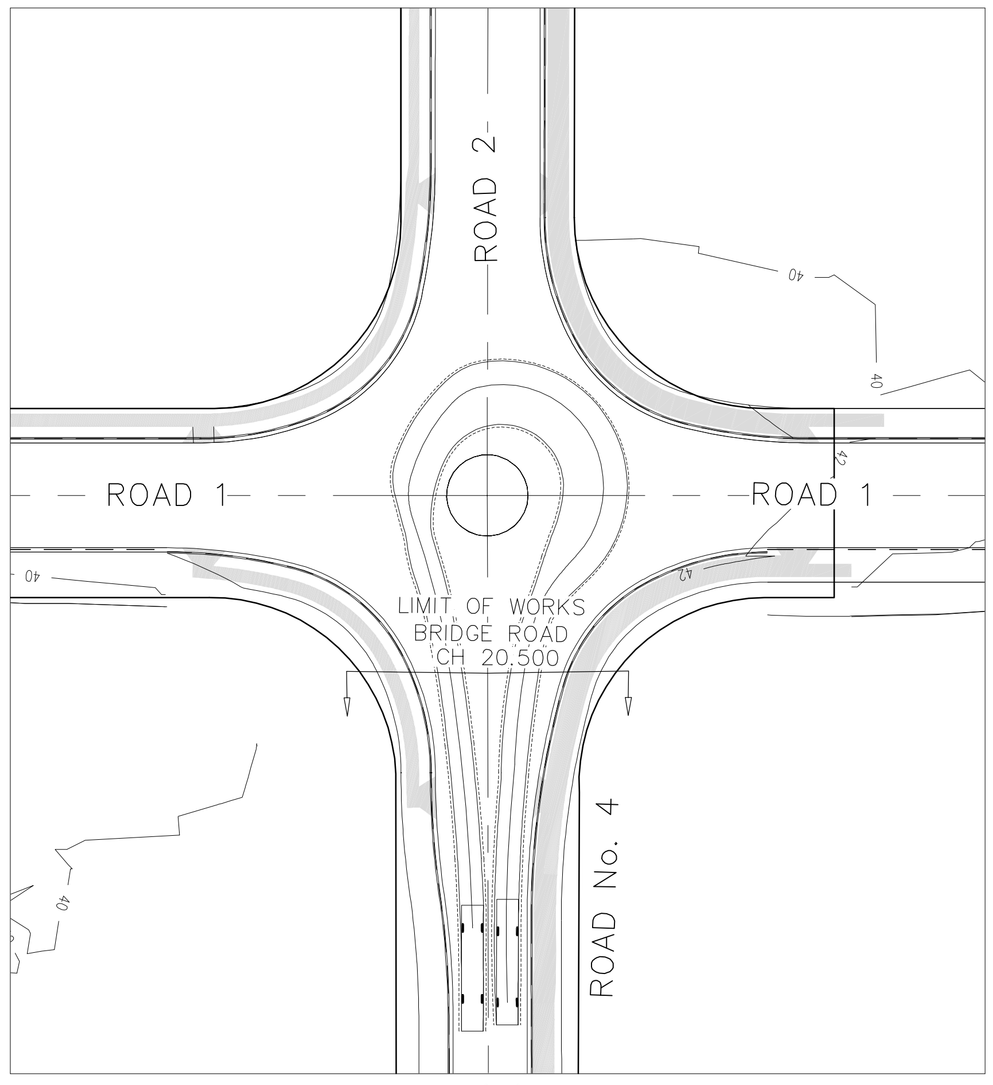
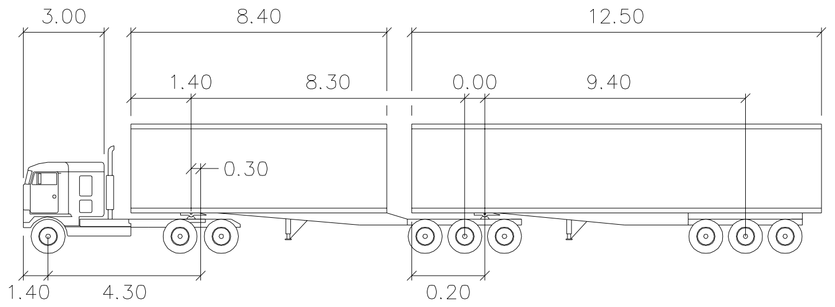


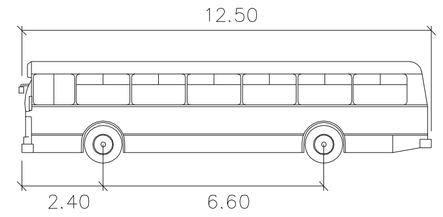
BUS 'U' TURN

M.G.A.



B–DOUBLE 26M meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.00
Trailer Width	: 2.50	Steering Angle	: 22.20
Tractor Track	: 2.50	Articulating Angle	: 70.00
Trailer Track	: 2.50		



BUS1
meters

Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 35.2

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PRELIMINARY ISSUE
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A	06/09/2010	Issued for 75W Application	W.M.	H.W.	M.A.	P.J.

SCALES: 0 10 20 — A1 / A3 1:500 / 1:1000

DESIGN FILE S:\150126 – Hoxton Park\Design\12D\OVERALL DESIGN

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adw johnson
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2 Bounty Close,
P.O. Box 3717,
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email: coast@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398

CLIENT: mirvac

PROPERTY DESCRIPTION
LOT 101 D.P. 1130459, LOT 404 D.P. 1147551
AND LOT 4051 D.P. 1152675
COW PASTURE ROAD
HOXTON PARK

SURVEYED: N\A
DATUM: A.H.D.

PROJECT: HINCHINBROOK CREEK LINK ROAD

PLAN TITLE
INTERSECTION
VEHICLE SWEPT PATHS

PROJECT No.	DISCIPLINE	NUMBER	REV.
150133	DA	105	A

Plotted By: waynem Plot Date: 07/09/10 – 14:30 Cad File: S:\150133 – Hoxton Park Bridge Road\Drawings\ENG\150133_DA_105[A].dwg

100mm AT FULL SIZE

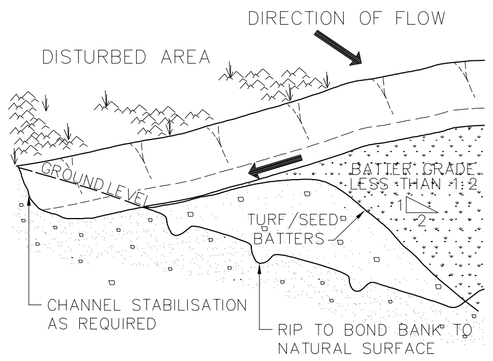
150133_DA_200[A]

EROSION & SEDIMENT CONTROL NOTES:

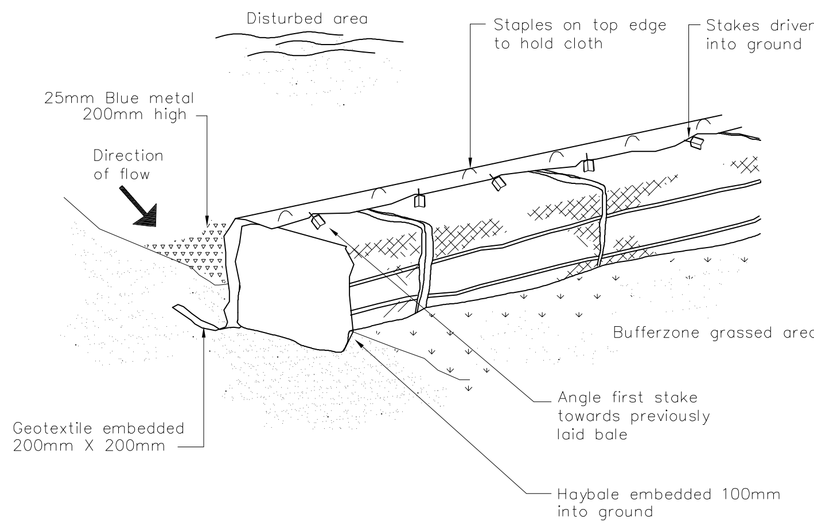
1. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE CONSISTENT WITH THE APPROVED MASTERPLAN DOCUMENTS AND THE "MANAGING URBAN STORMWATER" – 3RD EDITION (1998) PREPARED BY THE NSW DEPARTMENT OF HOUSING.
2. DISTURBED AREAS TO BE KEPT TO A MINIMUM. NO MORE THAN 2.5HA OF THE SITE SHALL BE EXPOSED TO EROSION AT ANY ONE TIME.
3. CONTROL CLEAN WATER FROM ABOVE THE SITE, THROUGH THE SITE.
4. KEEP CLEAN WATER SEPARATE FROM DIRTY WATER.
5. CONSERVE ALL TOPSOIL, STOCKPILE AND PROTECT FOR REUSE ON SITE.
6. PROTECT ALL DISTURBED AREAS FROM EROSION.
7. MINIMISE SEDIMENTATION.
8. MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL COMPLETE REHABILITATION IS ACHIEVED.
9. CONSTRUCT STABILISED EARTH BERMS TO DIRECT CLEAN RUNOFF FROM ENTERING THE DISTURBED SITE.
10. CONSTRUCT STABILISED DIVERSION BANKS TO COLLECT RUNOFF FROM DISTURBED AREAS AND DIRECT IT TO A SEDIMENT CONTROL PIT.
11. PLACE SEDIMENT INLET TRAPS AROUND ALL PITS WITHIN AND DOWNSTREAM OF THE DEVELOPMENT.
12. PLACE GRAVEL BAG GROYNES IN GUTTERS AT 20 – 25m INTERVALS.
13. PLACE HAYBALES IN SWALES AT 40 – 50m INTERVALS.
14. PLACE HAYBALES ACROSS OVERLAND FLOW PATH PRIOR TO THE RUNOFF ENTERING DRAINAGE SYSTEM.
15. STOCKPILES OF MATERIAL TO BE PLACED AWAY FROM DRAINAGE FLOW PATHS AND HEAVILY TRAFFICABLE AREAS AND TO BE SURROUNDED BY SILT FENCING AT ALL TIMES.
16. CONSTRUCT AN ALL WEATHER CONSTRUCTION ACCESS TO THE SITE.
17. ALL DISTURBED AREAS ARE TO BE REVEGETATED OR OTHERWISE PROTECTED AS SOON AS PRACTICAL.
19. ERECT AND MAINTAIN SILT FENCES AT THE DOWNSLOPE SIDE OF DISTURBED AREA DURING CONSTRUCTION.
20. THE CONTRACTOR SHALL SUPPLY AND ERECT COUNCIL'S STANDARD EROSION AND SEDIMENTATION CONTROL SIGN AS DETAILED IN STANDARD DRAWING No. 3403/1. THE SIGN SHALL BE ERECTED IN A PROMINENT LOCATION NEAR THE ENTRANCE TO THE DEVELOPMENT AREA PRIOR TO COMMENCEMENT OF CONSTRUCTION.
21. AREAS OUTSIDE THE BOUNDARIES OF THE PROPOSED DEVELOPMENT WILL BE FENCED WITH NO GO FENCING TO KEEP THE AREAS FREE FROM DISTURBANCE OF MACHINERY, PARKED VEHICLES AND WASTE MATERIAL.
22. TREES TO BE RETAINED WITHIN THE CONSTRUCTION AREAS ARE TO BE PROTECTED BY TREE PROTECTION FENCING IN ACCORDANCE WITH THE APPROVED CMP.
23. ESTABLISH A RESTRICTION BOUNDARY AROUND HABITAT TREE WITH PARAWEB FENCING. TEMPORARILY RELOCATE FENCE TO ALLOW CONSTRUCTION OF REQUIRED WORKS AND RE-ESTABLISH PROTECTION ZONE AFTER WORKS COMPLETES.

LEGEND

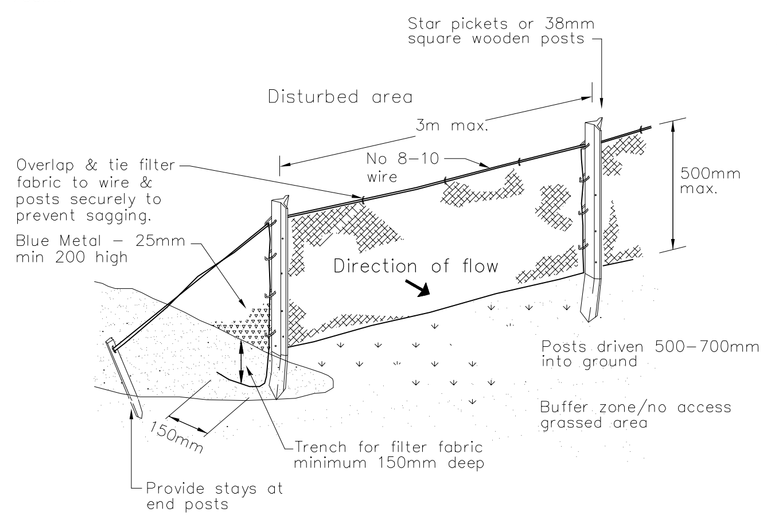
- EXISTING LOT BOUNDARY
- PROPOSED LOT BOUNDARY
- EXISTING ROAD
- PROPOSED ROAD
- DESIGN CONTOUR
- PROPOSED STORMWATER
- PROPOSED SW PIT
- SILT FENCE
- DIVERSION DRAIN
- NO GO FENCING
- PIT INLET CONTROLS
- HAYBALES
- SANDBAG KERB INLET TRAP



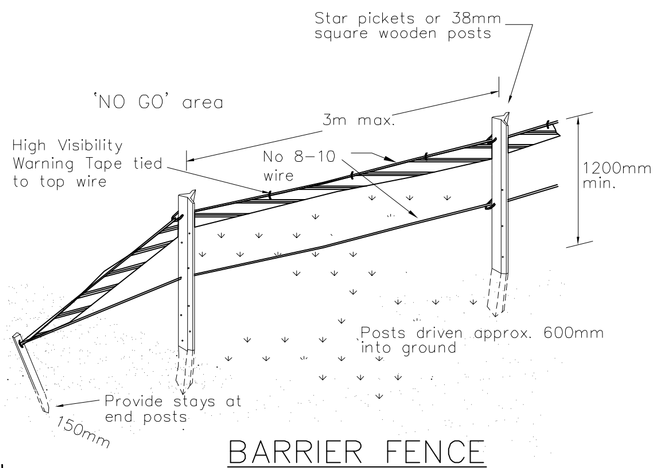
DIVERSION DRAIN



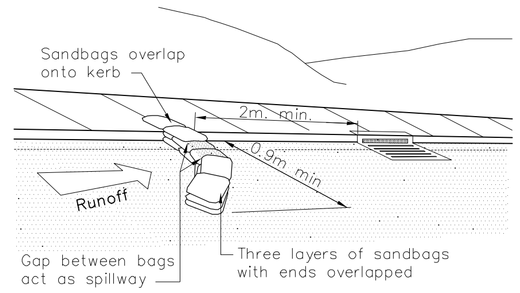
HAYBALE & GEOTEXTILE FENCE



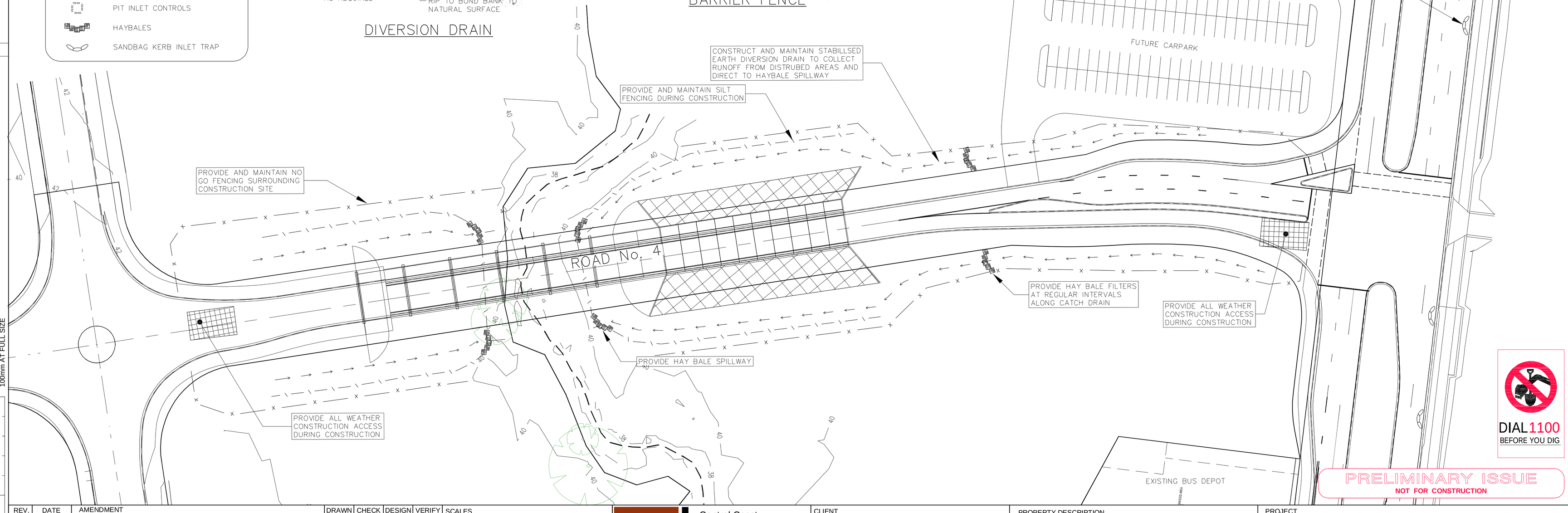
SILT FENCE 1



BARRIER FENCE



SANDBAG KERB INLET SEDIMENT TRAP



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PRELIMINARY ISSUE
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REV.	DATE	AMENDMENT	DRAWN	CHECK	DESIGN	VERIFY
A	06/09/2010	Issued for 75W Application	W.M.	H.W.	M.A.	P.J.

SCALES: 0 10 20 — A1 / A3 1:500 / 1:1000

DESIGN FILE S:\150126 – Hoxton Park\Design\12D\OVERALL DESIGN

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adw johnson
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Fax: (02) 4305 4399
email: coast@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398

CLIENT: mirvac

PROPERTY DESCRIPTION: LOT 101 D.P. 1130459, LOT 404 D.P. 1147551 AND LOT 4051 D.P. 1152675 COW PASTURE ROAD HOXTON PARK

SURVEYED: N\A

DATUM: A.H.D.

PROJECT: HINCHINBROOK CREEK LINK ROAD

PLAN TITLE: EROSION AND SEDIMENT CONTROL PLAN

PROJECT No.	DISCIPLINE	NUMBER	REV.
150133	DA	200	A

Plotted By: waynem Plot Date: 07/09/10 – 14:30 Cad File: S:\150133 – Hoxton Park Bridge Road\Drawings\ENG\150133_DA_200[A].dwg

100mm AT FULL SIZE

Appendix B

Cardno bridge concept design report

Cardno
Shaping the Future

Hoxton Park

Concept Design Report

Prepared for ADW Johnson

Project No. 607207

14 September 2010

Cardno (NSW/ACT) Pty Ltd
ABN 95 001 145 035
Level 3, 910 Pacific Highway
Gordon NSW 2072
Telephone: 02-9496 7700
Facsimile: 02 9499 3902
International: +61 2 9496 7700
sydney@syd.cardno.com.au
www.cardno.com.au

Document Control

Version	Date	Author		Reviewer	
Rev 2	14 September 2010	Chin Cheah		Colin Edmonds	

Executive Summary

This report describes the concept design for the Bridge crossing Hinchinbrook Creek at Hoxton Park for ADW Johnson. The proposed bridge is to allow for two lanes traffic plus cycleway and allowance for utilities.

The report also provides suitable information for the lodgement as part of ADW Johnson's engineering report to the Department of Planning for the Part 3A application.

Table of Contents

Annexes

1 Introduction

Cardno has been engaged by ADW Johnson to undertake the design and documentation of M-Lock Bridge at Hoxton Park. The bridge is to provide a link from an industrial estate to Cowpasture Road at Hoxton Park.

Cardno's concept design drawing for the bridge is presented in Annexure 1.

1.1 Scope of Reports

This Concept Design Report for the Bridge over Hinchinbrook Creek incorporates the following:

- An outline of the design features;
- Schedule of Building Materials;
- Schedule of Finished Treatment;
- Construction Methodology;
- Photograph of Similar Structures.

1.2 Design Documentation

This report consists of the following design documentation:

- This report;
- Annexure 1 - Concept Design Drawing;
- Annexure 2 – RTA Document TB-DF062;
- Annexure 3 - Indicative Material Schedule;
- Annexure 4 - Indicative Finished Treatment Schedule;
- Annexure 5 - Construction Methodology;
- Annexure 6 - Photographs of Similar Structures.

2 Design Features

The bridge comprises of 6 equal spans of 12 metres length. The width of the bridge shall provide 9.6 m clear width between traffic barriers, comprising 2/3.5 m traffic lanes 2/1.3 m shoulders and a 2.5 m cycleway on the northern side. The carriageway crossfall is 3% two-way. The bridge is located in a straight horizontal and vertical alignment with zero skew.

The bridge deck units are to be designed based on the Rocla M-Lock Bringing System for a Highway Bridges. The superstructure comprises 1200mm wide inverted U-shape reinforced concrete planks which are bolted down to the headstocks. The 2.5m cycleway has an in-situ reinforced concrete downstand integral with the precast planks.

The barriers on the traffic side are precast standard Type F Regular Performance Barrier. The barrier is connected to the bridge system via the transverse stressing that connects the deck units. A barrier with 1.3m height is provided at the edge of bridge deck adjacent to the cycleway and a post and rail are attached to the top of the regular performance barrier which is adjacent to the cycleway. Provision is made for ducts in the traffic barriers. Bridge drainage is via free draining scuppers located in the precast barriers.

The substructure comprises precast reinforced concrete headstocks, with void included for the protruding precast pile reinforcement. The piles are 585mm diameter spun precast reinforced concrete piles, which are driven into the required depth and set.

Further details on the bridge inventory is summarised in Annexure 2 in the format of RTA Document TB-DF062.

3 Indicative Schedule of Materials

A list of indicative building materials covering all structural components has been attached in Annexure 3.

4 Indicative Schedule of Finished Treatment

A list of indicative finished treatment for all structural components has been attached in Annexure 4.

5 Construction Methodology

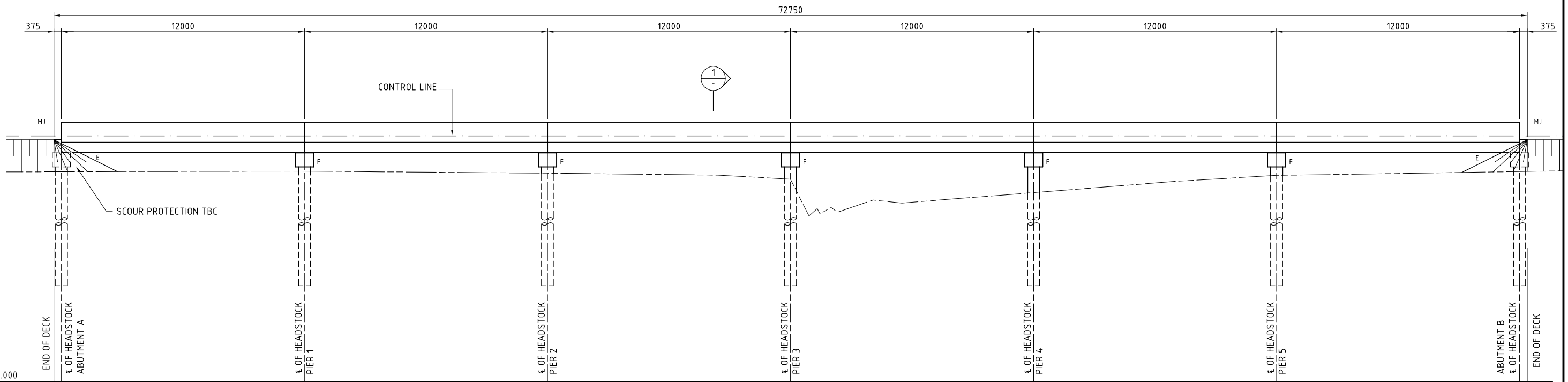
The construction sequence for the bridge has been nominated in 6 Stages as detailed in Annexure 5.

6 Photograph of Similar Structures

Several photographs of completed M-Lock Bridges that have similar features have been attached in Annexure 6.

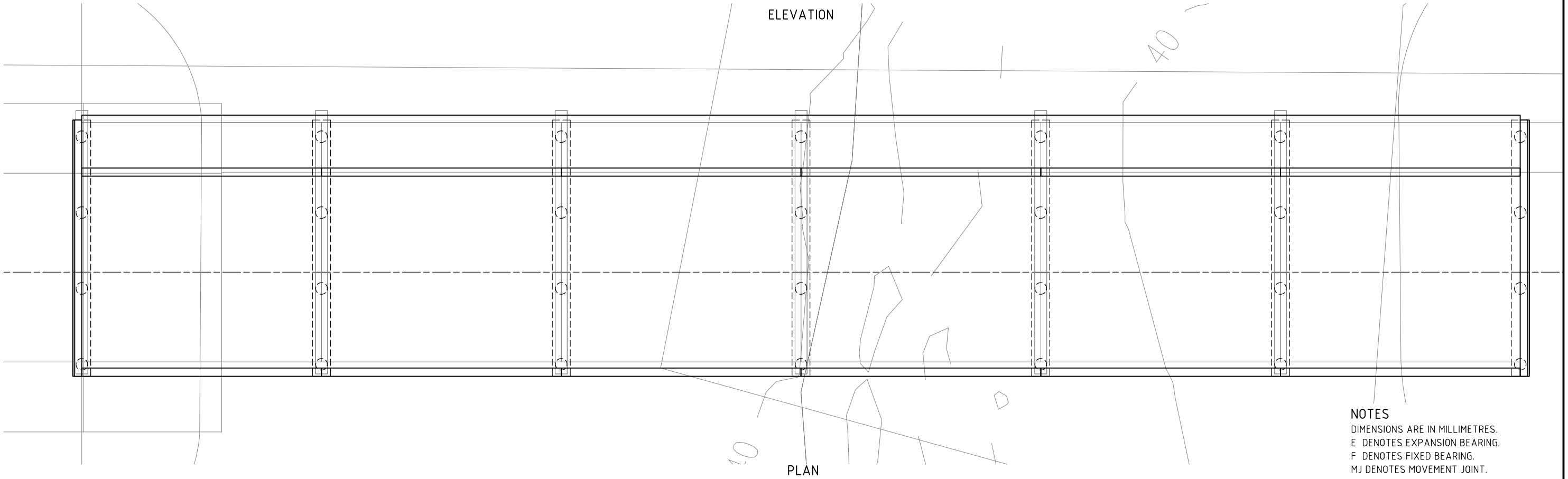
Annex 1

Concept Design Drawing



DATUM RL 30.000	END OF DECK	℄ OF HEADSTOCK ABUTMENT A	℄ OF HEADSTOCK PIER 1	℄ OF HEADSTOCK PIER 2	℄ OF HEADSTOCK PIER 3	℄ OF HEADSTOCK PIER 4	℄ OF HEADSTOCK PIER 5	ABUTMENT B ℄ OF HEADSTOCK	END OF DECK
DESIGN SURFACE LEVEL ON ℄ OF BRIDGE	42.150	42.150	42.150	42.150	42.150	42.150	42.150	42.150	42.150
APPROX EXISTING SURFACE LEVEL ON ℄ OF BRIDGE		40.38	40.41	40.31	40.01	39.35	40.20	40.39	
CHAINAGE	67.625	68.000	80.000	92.000	104.000	116.000	128.000	140.000	140.375

ELEVATION



PLAN

NOTES
DIMENSIONS ARE IN MILLIMETRES.
E DENOTES EXPANSION BEARING.
F DENOTES FIXED BEARING.
MJ DENOTES MOVEMENT JOINT.

Rev	Date	Description	Drawn	Appr.
1	07/09/2010	CONCEPT DESIGN	HW	CE

Cardno
ABN: 95 001 145 035
910 Pacific Highway, Gordon, NSW Australia 2072
Phone (+61 2) 9496 7700 Fax (+61 2) 9499 3902
Email: Sydney@cardno.com.au Web: www.cardno.com.au

Quality Endorsed Company
AS 9001 Lic. 5960 Standards Australia

		Date
Drawn	HW	
Checked	CC	
Designed	CC	
Verified		
Approved		

Client: ADW JOHNSON

BRIDGE OVER HINCHINBROOK CREEK
AT HOXTON PARK
HINCHINBROOK CREEK LINK ROAD
LIVERPOOL CITY COUNCIL

CONCEPT PROPOSAL-SHEET 1

Status: NOT FOR CONSTRUCTION

Date	Datum	Scale	Size
	AHD	AS SHOWN	A1

Drawing Number: 607207-0001
Revision: 1

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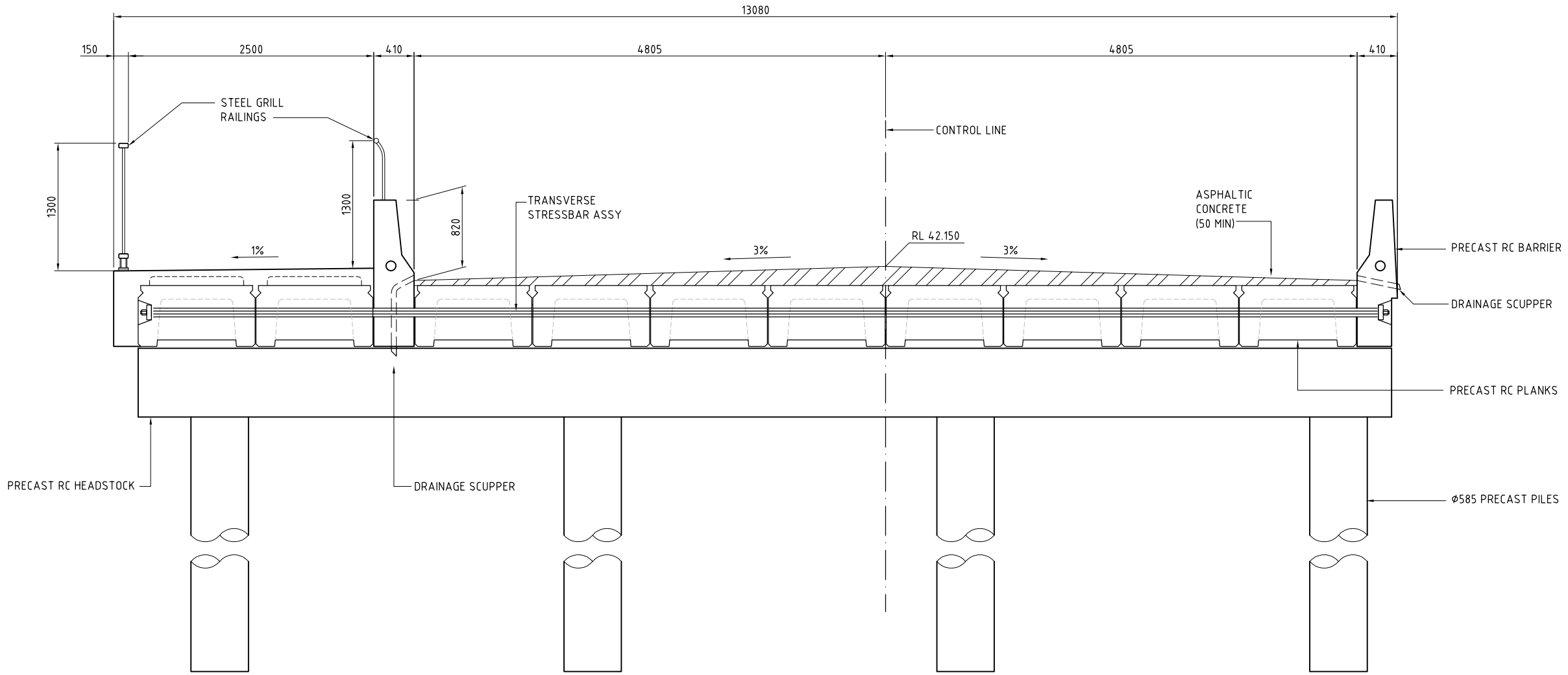

SECTION 1
SCALE 1:25 -

NOTES
FOR NOTES REFER TO DRG 0001

Rev	Date	Description	Drawn	Appr.
1	07/09/2010	CONCEPT DESIGN	HW	CE

Cardno
ABN: 95 001 145 035
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Phone (+61 2) 9496 7700 Fax (+61 2) 9499 3902
Email: Sydney@cardno.com.au Web: www.cardno.com.au

Quality Endorsed Company
AS 9001 Lic. 5960 Standards Australia

Drawn	HW	Date
Checked	CC	Date
Designed	CC	Date
Verified		Date
Approved		Date

Client ADW JOHNSON

BRIDGE OVER HINCHINBROOK CREEK
AT HOXTON PARK
HINCHINBROOK CREEK LINK ROAD
LIVERPOOL CITY COUNCIL

CONCEPT PROPOSAL-SHEET 2

Status NOT FOR CONSTRUCTION

Date	Datum	Scale	Size
	AHD	AS SHOWN	A1

Drawing Number 607207-0002
Revision 1

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm ON A1 ORIGINAL

Annex 2

RTA Document TB-DF062

BRIDGE DESIGN PROPOSAL - SUMMARY AND APPROVALS

Project No: **Sketch No:** **607207-001** **File No:**

Region:	Liverpool	Bridge No:	
Road No:		Local Government Area:	Liverpool City Council
Project:	Hoxton Park M-Lock Bridge		
REASON FOR NEW BRIDGE:	Provide New Bridge Across Hinchinbrook Creek		
PROPOSED BRIDGE:	Bridge Over Hinchinbrook Creek		

Number and length of spans:		6/12m			Overall length:	72.75	m
Bridge width: Between traffic barriers		9.61	m		Overall:	13.08	m
Number of footways:	1	Width:	2.5	m	Side:	North	
Type of wearing surface:	Asphalt Concrete Wearing Surface						
Superstructure:	M-Lock Planks						
Substructure:	Concrete Headstock on Precast Driven Piles for intermediate piers; Spill-through Abutments on Precast Driven Piles (TBC).						
Clearances:	Dictated by Required Waterway Area.						
Special features and requirements:	N/A						

ALIGNMENT

Horizontal alignment:	Straight		Bearing	° ‘ “	Radius	N/A	m
Skew *	No Skew		Crossfall	3% Two Direction			
Vertical Alignment	Grade:	0%	Summit / Sag Curve: *	N/A			
RL Datum:	AHD		Coordinate Grid (MGA, ISG, Local):		ISG		
Chainages at end of deck:	Abutment A		67.5 (Assumed)		Abutment B	139.5 (Assumed)	
Levels at end of deck:	Abutment A		42.15 on Control Line		Abutment B	42.15 on Control Line	
Source of horizontal and vertical alignment information: (eg: Bridge Site Survey Drwg No, MX File etc)	Site Survey Drawing by ADW Jonhson						

ESTIMATED COST AND SIGN OFFS

Estimated construction cost** = Deck area*** m2 @ estimated deck unit rate $/m2

		@ $	= $

** Cost does not include any allowances for design, supervision or cost variations

*** Deck Area measured between bottom faces of parapets + clear footway width

Recommended	**Concurrence**	**Submitted**	**Approved**
Supervising Bridge Engineer (New Design)	Principal Bridge Engineer / Senior Bridge Engineer (New Design)	RTA Project Manager	Principal Bridge Engineer / Senior Bridge Engineer (New Design)
****Consultant’s Rep	**** Consultant’s Director		**** RTA Regional Mgr
Date:	Date:	Date:	Date:

**** Other than RTA Bridge Engineering in-house or managed designs

BRIDGE DESIGN PROPOSAL

Project No: **Sketch No: 607207-001** **File No:**

EXISTING BRIDGE N/A					
Drawing No:		General File No:			
Bridge No:		Year Constructed:			
Type of substructure:		Type of superstructure:			
Width between parapets or kerbs:		m	Footways:		
Length:		m	Number of spans:		
Deck level RL:		Above H.F.L.:	Yes / No	Navigation Clearance:	
Condition (incl. any load rating):					
Proposed future use of existing bridge:					
Public Utility Services (No off, size and type):					

CLEARANCES				
Horizontal:	Actual		m from	
	Required		m	
Vertical:	Actual		m above	
	Required		m	

APPROACHES		
Road Plans No (or File No):		
Design Speed:	50	km/hr
No of Lanes:	2	
Median Width:	3.5	m
Shoulder Widths:	1.3	m
Verge Width:	0	m
Formation Width:	13.08	m
AADT/ Day:	7500	
% of Commercial Vehicles:	20	%
Pavement type on approaches:	Asphalt wearing surface	

BRIDGE DESIGN PROPOSAL

Project No: **Sketch No: 607207-001** **File No:**

WATERWAY							
WATERWAY REPORT No:	TBC		Date:	TBC			
General Comments:	TBC						
Catchment Area:	TBC	km^2	Normal water level RL	TBC			
Is waterway navigable?	Yes / No *	Is waterway tidal?	Yes / No *	MHWS RL		MLWS RL	
Observed H.F.L.	RL		Date				

Flood Event	Flood Level RL	Discharge	Stream velocity	Afflux
	RL	m^3/s	m/sec	m
20 year ARI				
100 year ARI				
2000 year ARI				

Proposed Clearance:		m	above			

Estimated Depth of Scour:		m	Scour protection required?	To be determined
Estimated depth of debris for debris loading:		m		

SUBSTRUCTURE								TBD indicates To Be Determined
GEOTECHNICAL REPORT No:	TBC				Date	TBC		
Geotechnical investigation completed	TBC		Further geotechnical investigation required		TBC			
FOUNDATIONS								
Founding material:	TBC							
Type of foundations: (Spread footings or pile type)	Abutments:	585mm Driven Spun Piles						
	Piers:	585mm Driven Spun Piles						
Allowable Bearing Pressure:	SLS / ULS *	TBC		kPa				
Maximum Pile Loads:	SLS / ULS *	Abutment Piles	850/1350	kN	Pier Piles	1350/2050	kN	
Pile Contract Levels:	Abut A RL	TBD	Abut B RL	TBD				
	Piers RL	TBD						

Basis for determination of Contract Levels and type of foundations:	To be advised from geotechnical report for minimum founding level; To be determined from modelling undertaken by the designer in addition to hand calculations
Environmental Factors considered in selecting type of foundation: (Report attached Yes / No / N/A *)	No disposal of spoil is required and minimises risk of spillages into creek
OHS Factors considered in selecting type of foundation: (Report attached Yes / No / N/A *)	Minimises in-situ work and excavations

BRIDGE DESIGN PROPOSAL

Project No: **Sketch No: 607207-001** **File No:**

SUPERSTRUCTURE:

Type of Superstructure:	12m Highway Type M-Lock Planks with in-situ reinforced concrete slab		
No of Spans:	6	Span Lengths:	12
Reason for Selection:	Minimises in-situ work over creek		
OHS Factors considered in selection of Superstructure type: (Report attached Yes / No / N/A *)	Minimises risk of accidents from falls at height		
Environmental factors considered in selection: (Report attached Yes / No / N/A *)	Minimises risk of spillages into the creek		

DESIGN LOADINGS (Assume AS5100 unless stated otherwise)

Traffic loading	SM1600						
No of 3.2m wide design lanes:	3	SM1600 loading:	Yes				
Non Standard Truck loading:	N/A	Construction loading:	N/A				
Cycleway loading:	5kPa	Other loading:	N/A				
Fatigue Load Effects:	No of heavy vehicles per lane per day:	TBC	Route Factor :	0.3			
Superimposed Dead Load:	AC wearing surface, Concrete barriers, Railings						
Temperature	Range:	Shade Air Temp 45 to -5℃	Gradien t:	Regional Category 18℃			
Design Wind Speed:	ULS	48	m/s	SLS	37	m/s	
Differential Settlement:	TBC						
Mining Subsidence Parameters:	N/A						
Stream Flow Effects:	TBC						
Impact Loads:	Ship / Vehicle / Train *	Part of the structure:					
Earthquake Design Parameters:	Acceleration coefficient	0.08	Importance factor	1.00	Site Factor	TBD	BEDC TBD
Other Loadings: N/A							

ARTICULATION

Method of Resisting Longitudinal Forces:	Fixed Restraint at Piers					
Method of Resisting Transverse Forces:	Transverse Restraint at Piers					
Longitudinal Movements (mm):	Thermal Expansion	TBD	Thermal contraction	TBD	Creep and shrinkage	TBD
Ultimate deck joint movements: (+ve opening, -ve closing):	Opening (mm)	TBD	Closing (mm)	TBD		
Mining Subsidence:	N/A	Abutments integral with superstructure?	No			

Deck Joints:		Bearings:		
Location	Type	Location	Number	Type
Abutment(s)	AC Expansion Joint	Abutment(s)	10	Laminated Elastomeric
		Pier(s)	2	Laminated Strips

Bearing Replacement:	Provision made for jacking off substructure?	TBC

BRIDGE DESIGN PROPOSAL

Project No: **Sketch No: 607207-001** **File No:**

PROVISIONS FOR PUBLIC UTILITY SERVICES ON THE PROPOSED BRIDGE:

	Water	Sewer	Gas	Electricity	Telstra	Other
Number						
Size						
Side						

DRAINAGE:	Scuppers	
If no scuppers, is width of flow contained in shoulder?		
Piped storm water under deck necessary		

LIGHTING:	N/A

BARRIER TYPES:				
Traffic:	Class	Regular		
	Type	FHCF		
Pedestrian:	1.3m high railing at edge of bridge deck		Median:	N/A
Between carriageway and footway:	FHCF			
Safety Screens:	N/A		Noise Walls:	N/A
FHCF = Full Height Concrete Type F; TCF+1 = Truncated Type F + single RHS rail; TCF+2 = Truncated Type F + 2 RHS rail; TB = Thrie Beam				

DURABILITY	
Exposure Classification:	B1 for superstructure, TBD for piles
Soil/Water Aggressivity:	TBC
Special durability measures (eg cathodic protection)	TBC

SPECIAL REQUIREMENTS	Required ?	Report Details
Environmental (eg EIS, REF):	No	
Fisheries:	No	
Heritage:	No	
Navigation (MSB, DPW):	No	
Planning (DUAP):	Yes	
Other:	No	
Has Pier and Abutment position been pegged:	No	
Is more pegging required:	No	

BRIDGE DESIGN PROPOSAL

Project No: **Sketch No: 607207-001** **File No:**

CONCURRENCES			
Safety audit required?	Yes / No **	Safety audit completed?	Yes / No **
Audit Details			
Concurrence in Road Design Aspects:			
Bridge geometry conforms to road design horizontal and vertical alignment, carriageway layout and cross falls			Yes / No **
I have taken this proposal and the associated sketches to site, located the abutments and piers, and I confirm that the design represents the conditions on site and meets the project objectives.			
RTA Project Manager/ Design Manager ****		Date:	
Concurrence with asset management aspects:			
Has risk assessment been done?	Yes / No **	If no risk assessment, is one required?	Yes / No **
Any additional requirements			
I have examined the Design Proposal and consider it satisfactory to proceed with the Detail Design.			
RTA Regional Asset Manager		Date:	
Concurrences noted:			
Supervising Bridge Engineer (New Design) / Design Manager ****		Date:	
** Strike through to delete **** Other than RTA Bridge Engineering in-house or managed designs			

Annex 3

Indicative Material Schedule

Hoxton Park M-Lock Bridge
Material Schedule

Component	Material
Superstructure	
Precast Plank	Reinforced Concrete, Lifting Anchor
Cast In-situ Deck/Cycleway	Reinforced Concrete
Shear Key	Sikagrout 100
Bearing	Laminated Elastomeric Bearing, Elastomeric Bearing Strip
Wearing Surface	Asphalt pavement
Expansion Joint	AC Expansion Joint
Joint Sealant	Sealent, Backing Rod, Bond Breaking Tape
Substructure	
End Protection Beam	Reinforced Concrete, Lifting Anchor
Precast Headstock	Reinforced Concrete, Lifting Anchor
Precast Spun Piles	Reinforced Concrete
Bridge Furniture	
Railing	Anchor Bolt, Washer, Nut, Base Plates, Steel Post
Precast Barrier	Reinforced Concrete, Lifting Anchor
Assembly / Connection	
Connection between planks	High tensile alloy steel bar, PVC Duct, O ring seal, Grout, Mortar, Threaded bar, Cast-in ferrule, Packing Plate, Rubber Strip, Polystyrene
Connection between Spun Piles and Headstock	Support Bracket, Bolt, Steel Plate, Washer Plate

Annex 4

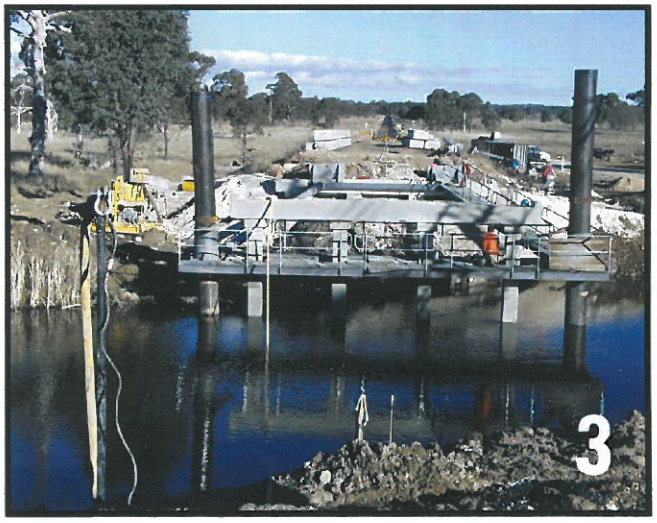
Indicative Finished Treatment Schedule

Hoxton Park M-Lock Bridge
Finished Treatment Schedule

Component	Treatment
M-Lock Planks	Class 2 Finish to AS3610
Cast-Insitu Deck / Cycleway	Class 2X Finish to AS3610
Precast Headstock	Class 2X Finish to AS3610
Precast Barriers	Class 2X Finish to AS3610
Precast Spun Piles	Class 2X Finish to AS3610
Metallic Components and Fixings	Painted or Hot-Dip Galvanised

Annex 5

Construction Methodology



Typical construction sequence using the M-LOCK® bridge system.

Hoxton Park M-Lock Bridge Construction Methodology

Stage 1

Prepare the abutments where the piles and headstocks are located at each end of the bridge. This involves earthworks and compaction;

Construct Spill-through type embankment;

Stage 2

Survey all pile locations;

Pre -bored at the top of surface level;

Drive the pile to design depth and set;

Cut back the top of pile to the correct height;

Stage 3

Place precast headstock on top of piles;

Grout voids in precast headstock;

Stage 4

Drive piles for the next and subsequent pile groups;

Install remaining precast headstocks;

Stage 5

Place bearings on headstocks;

Position hold down bolts for planks;

Lift and position precast planks;

Lift and position concrete barrier units;

Stage 6

Bolt the legs of the planks together;

Transverse stressing of bars;

Grout the shear key;

Place expansion joint;

Place cycleway reinforcement, services, anchor bolts and railings;

Grout the transversely stressed bars;

Place asphalt pavement.

Annex 6

Photographs of Similar Structures

Twin (3 x 10m span) M-Lock® bridges form the entry point to the Bella Vista Subdivision in Sydney

Three span (3 x 12m) M-LOCK® bridge over the Bokhara River - Goodooga, NSW.

Topside of Bridge over the Bokhara River, Goodooga.

Completed 5 span (5 x 12m) M-LOCK® Bridge over the Culgoa River - Goodooga, NSW.

Appendix C

RTA meeting minutes, general arrangements and in principle acceptance of proposed intersection treatments

Level 26, 60 Margaret Street
Sydney NSW 2000
Australia

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www.mirvac.com

MINUTES

Meeting	**Hoxton Park – Part 3A Modification – Hinchinbrook Creek Link Road**
Time	**11:00am**
Date	**12 July 10**
Location	RTA Offices – Parramatta
Pages	1
Present	Adrian Checchin, Stuart Penklis – Mirvac Peter Johnson, Hugh Williams – ADW Johnson Stan Kafes – CBHK Ken Moon, James Hall, David Lance, Steve Acreman – RTA Owen Hodgson, Wignes Wigneswaran – Liverpool City Council (LCC)
Distribution	Those present, Jeff Organ – LCC, Adam Coburn – LCC

Item	Description	Action
1.0	**Cowpasture Road Travelling Northbound (Intersection of proposed new Link Road)**	
1.1	RTA confirmed a dedicated left turn lane onto the proposed new Link Road is required left from Cowpasture Road (no slip lane). This allows two through lanes on Cowapsture Road.	ADW Johnson
1.2	Following 1.1, RTA confirmed that the left turn lane onto new the Link Road would not require a separating island between the left turn lane and through traffic lanes on Cowpasture Road. A left turn lane only without a separating island was deemed to be sufficient. This was requested by ADW Johnson as a result of surface drainage concerns. Discussions between all parties confirmed that pedestrian and cycle routes would not be affected by this item. RTA confirmed however that provision for a possible future Ped X would need to be made i.e. conduits only.	Note
1.3	Mirvac advised that if the link Road was to be aligned adjoining the bus depot lot, land would need to be acquired from the bus depot owner in order for a slip lane to work. Mirvac and the RTA and Council acknowledged this was not a reality and that the intersection would need to be pushed further North. In this regard, the concept Link Road alignment would be reviewed. The left turn lane taper to commence from the bus depot boundary.	ADW Johnson
1.4	Council acknowledged and accepted that 1.3 above would result in the Link Road not aligning the boundary of the bus depot land. Mirvac needs to check any environmental and archaeological issues relating to re alignment.	Mirvac
1.5	Council advised it had only recently proposed to introduce possible playing fields north of the proposed intersection. In this regard, as a result of 1.4 above, impact of Link Road re-alignment to be overlaid on Council's proposed plan.	ADW Johnson
1.6	Wignes Wigneswaran to forward CAD drawing of Council's proposed playing fields plans.	Wignes Wigneswaran

2.0	**Bus Depot Site – Land Owner – Ross Oliveri**	
2.1	RTA and Council confirmed the existing access i.e. right into the bus depot travelling south on Cowpasture Road and left in and left out travelling north on Cowpasture Road is the access for the Bus depot.	Note
2.2	Accordingly, Mirvac does not need to design in or, allow for any future access connection from the bus depot to the proposed new Link Road.	
2.3	Council confirmed that any possible future access from the bus depot to the proposed new Link Road would be the owner of the bus depot site's responsibility.	
3.0	**Concept Proposal Tabled**	
3.1	ADW Johnson to remove addition lane shown on Northern section of proposed new Link Road as not required (provide two right turn lanes and one left turn slip lane out of proposed new Link Road onto Cowpasture Road at the intersection). Single lane only in both directions is required for proposed new Link Road away from the intersection.	ADW Johnson
4.0	**Location of New Intersection (Cowpasture Road / Proposed new Link Road)**	
4.1	Location of intersection and its distance from the bus depot right in travelling south on Cowpasture Road to be checked to ensure appropriate.	Stan Kafes
5.0	**Updated Concept Drawings & Traffic Modelling**	
5.1	When complete, updated concept drawings & Traffic Modelling to be issued by Mirvac to RTA and Council.	ADW Johnson, Stan Kafes, Mirvac
6.0	**Survey Information on Cowpasture Road**	
6.1	RTA to provide any survey information on Cowpasture Road to ADW Johnson.	RTA
7.0	**Cowpasture Road Travelling South bound (Intersection of proposed new Link Road)**	
7.1	The concept design allows for one right turn from Cowpasture Road onto the proposed new Link Road. RTA requested this be checked to ensure satisfactory.	Stan Kafes

Prepared by: Adrian Checchin

Hugh Williams

From: MOON Ken E [Ken_MOON@rta.nsw.gov.au]
Sent: Friday, 30 July 2010 2:53 PM
To: Hugh Williams
Cc: Peter Johnson; ACREMAN Steve G; HALL James C; SELLATHURAI Pahee
Subject: RE: Hinchinbrook Creek Bridge and Cowpasture Road intersection

Hugh/Peter

I have checked the preliminary plans (150133 SK 010 B) showing a concept layout of a proposed new intersection with Cowpasture Rd from the Hoxton Park Airport redevelopment & agreement in principle is given to the plans. Once detailed plans have been developed including the signalisation of the intersection with Cowpasture Rd they will need to be forwarded to the RTA marked to the attention of James Hall who will arrange for their approval subject to you entering into a Works Authorisation Deed with the RTA & meeting all costs associated with their installation.

Regards
Ken Moon
Land Use Planning & Assessment Manager

From: Hugh Williams [mailto:hughw@adwjohnson.com.au]
Sent: Thursday, 29 July 2010 2:36 PM
To: MOON Ken E
Cc: Peter Johnson
Subject: Hinchinbrook Creek Bridge and Cowpasture Road intersection

Ken
Attached are the preliminary general arrangement of the bridge crossing and TCS intersection with Cowpasture Road.

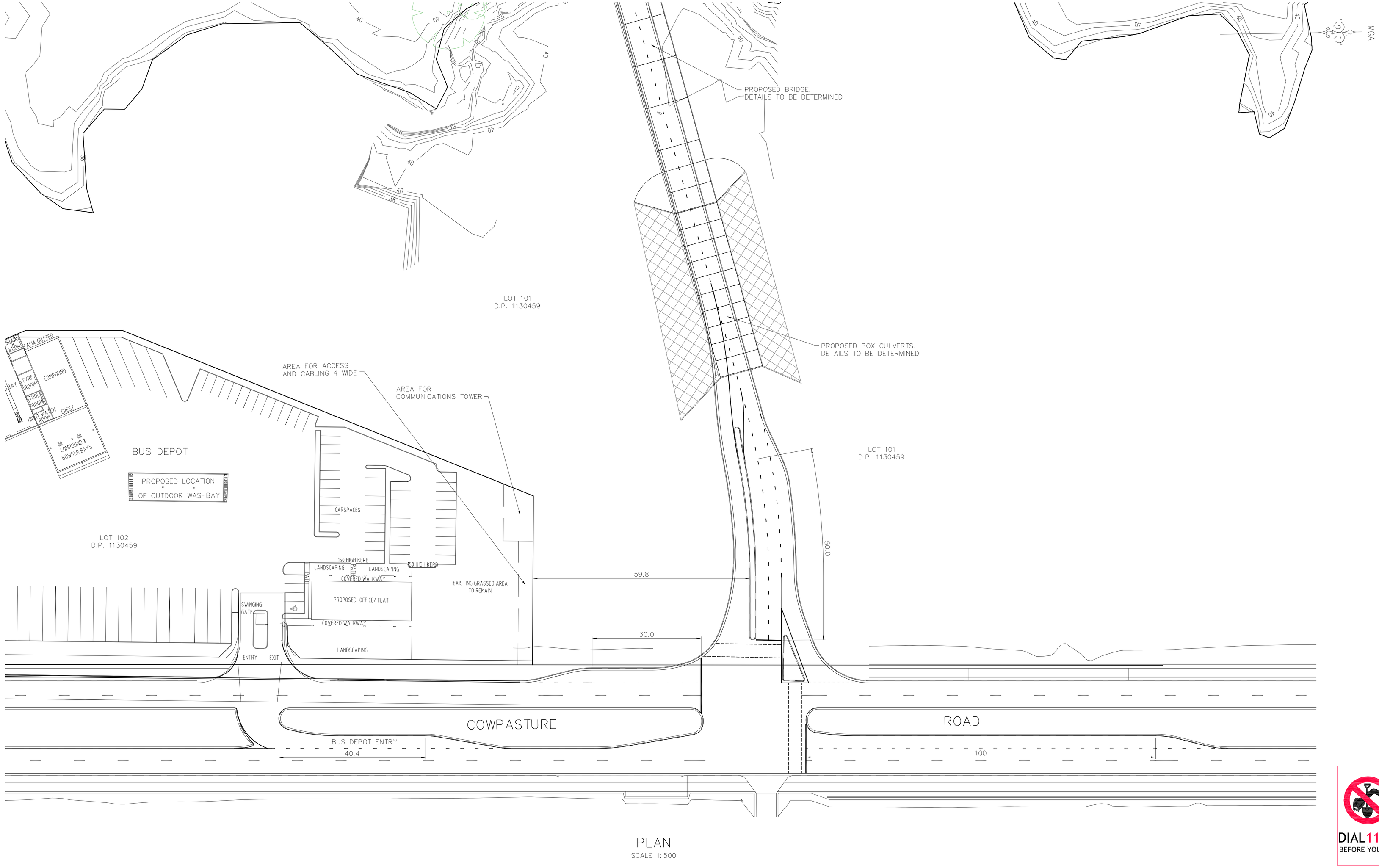
Any queries, please call.

Regards,

Hugh Williams
Senior Civil Engineer
ADW Johnson - Central Coast Office

2 Bounty Close, Tuggerah
PO Box 3717 Tuggerah N.S.W. 2259
Ph: (02) 4305 4300
Fax: (02) 4305 4399
Mob: 0413 804 603
Email : hughw@adwjohnson.com.au
Website: www.adwjohnson.com.au

150133-SK-010



PLAN
SCALE 1:500

DIAL1100
BEFORE YOU DIG

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REV.	DATE	AMENDMENT	DRAWN	CHECK	DESIGN	VERIFY
A	13/07/2010	Issued for Information	W.M.	H.W.	M.A.	P.J.
B	26/07/2010	Intersection Layout Amended	W.M.	H.W.	M.A.	P.J.

SCALES
0 10 20 A1 / A3
1:500 / 1:1000

DESIGN FILE S:\150126 – Hoxton Park\Design\12D\OVERALL DESIGN

ALL DIMENSIONS ARE IN METRES. DO NOT SCALE

adw johnson
Central Coast
2 Bounty Close,
P.O. Box 3717,
Tuggerah N.S.W. 2259
Phone: (02) 4305 4300
Fax: (02) 4305 4399
email: coast@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398

CLIENT
mirvac

PROPERTY DESCRIPTION
LOT 101 D.P. 1130459, LOT 404 D.P. 1147551
AND LOT 4051 D.P. 1152675
COW PASTURE ROAD
HOXTON PARK

SURVEYED N\A
DATUM A.H.D.

PROJECT HINCHINBROOK CREEK LINK ROAD

PLAN TITLE
COWPASTURE ROAD INTERSECTION
AND BUS DEPOT ACCESS
ALTERNATIVE 3 - DETAIL

PROJECT No.	DISCIPLINE	NUMBER	REV.
150133	SK	010	B

Plotted By: hughw Plot Date: 26/07/10 – 16:30 Cad File: S:\150133 – Hoxton Park Bridge Road\Drawings\ENG\150133-SK-010.dwg

100mm AT FULL SIZE