



Cardno (NSW/ACT) Pty Ltd

LISMORE HOSPITAL CAR PARK

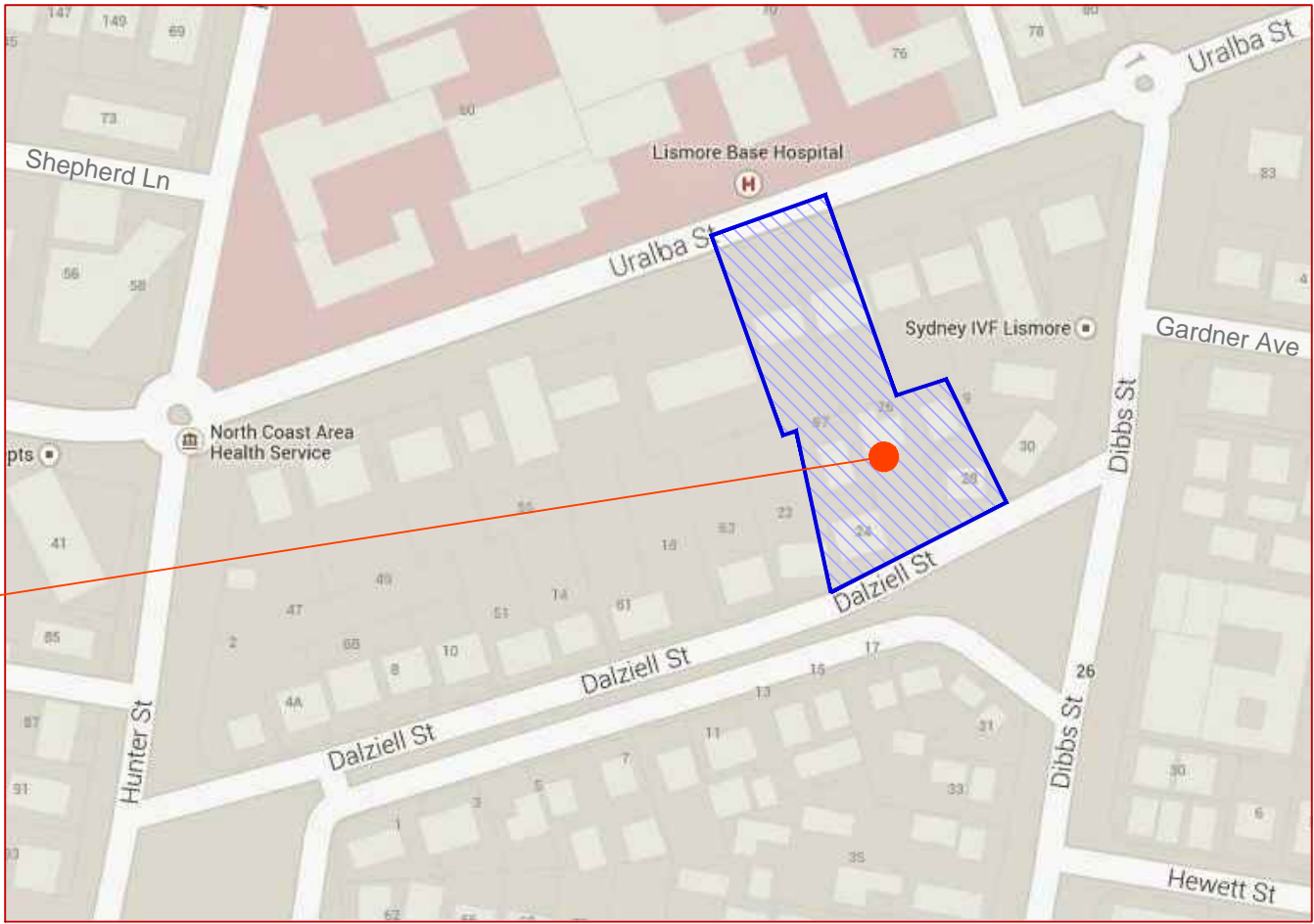
AT: URALBA AND DALZIELL STREETS, LISMORE

FOR: LISMORE HOSPITAL

CONCEPT CIVIL ENGINEERING DESIGN

FOR DEVELOPMENT APPLICATION

INDICATIVE AREA
OF WORKS



LOCALITY PLAN
NTS

GENERAL

- CG1 THE INFORMATION CONTAINED ON THESE DRAWINGS IS FOR CIVIL ENGINEERING PURPOSES ONLY. ALL DISCREPANCIES WITH OTHER CONSULTANTS DOCUMENTATION THAT COULD RESULT IN CHANGES TO THE CIVIL ENGINEERING DETAILS SHALL BE REFERRED TO THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
- CG2 ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE SPECIFICATIONS FOR THESE WORKS AND/OR AS DIRECTED BY THE SUPERINTENDENT.
- CG3 THE CONTRACTOR SHALL LOCATE AND LEVEL ALL EXISTING SERVICES AND UTILITIES PRIOR TO COMMENCING CONSTRUCTION AND PROTECT AND MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE AND/OR ADJUST IF NECESSARY. INFORMATION GIVEN ON THE DRAWINGS IN RESPECT TO SERVICES IS FOR GUIDANCE ONLY AND IS NOT GUARANTEED COMPLETE NOR CORRECT.
- CG4 CONTRACTOR IS NOT TO ENTER UPON NOR DO ANY WORK WITHIN ADJACENT LANDS WITHOUT THE PERMISSION OF THE OWNER AND SUPERINTENDENT.
- CG5 CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES AND DEBRIS, ETC.
- CG6 ALL SITE REGRADING AREAS SHALL BE FINALLY GRADED TO THE SATISFACTION OF THE SUPERINTENDENT.
- CG7 SURPLUS EXCAVATED MATERIAL SHALL BE PLACED WHERE DIRECTED OR REMOVED FROM SITE.
- CG8 ALL NEW WORKS SHALL MAKE A SMOOTH JUNCTION WITH EXISTING.
- CG9 GEOTECHNICAL INVESTIGATIONS ARE CURRENTLY BEING UNDERTAKEN.
- CG10 ANY QUANTITIES GIVEN ARE FOR GUIDANCE ONLY.
- CG11 ANCILLARY CONCRETE WORKS SHALL BE AS DETAILED ON THE DRAWINGS. FOR QUALITY OF CONCRETE AND CONCRETE WORK GENERALLY REFER TO LOCAL COUNCIL CONSTRUCTION SPECIFICATION AND THE RELEVANT AUSTRALIAN STANDARD.
- BE1 OVER FULL AREA OF EARTHWORKS, CLEAR VEGETATION, RUBBISH, SLABS ETC. AND STRIP TOPSOIL. REMOVE FROM SITE EXCEPT TOP SOIL FOR RE-USE.
- BE2 EXCAVATE THE EXPOSED SOIL AS REQUIRED.
- BE3 CUT AND FILL OVER THE SITE TO LEVELS REQUIRED.
- BE4 IN AREAS OF CUT OR IN EXISTING GROUND, PRIOR TO ANY FILLING, PROOF ROLL THE EXPOSED SURFACE IN ACCORDANCE WITH CLAUSE 5.4 OF AS3798 ENSURING THAT ADJACENT STRUCTURES ARE NOT DAMAGED DURING WORKS.
- BE5 EXCAVATE AND REMOVE ANY SOFT SPOTS ENCOUNTERED DURING PROOF ROLLING AND REPLACE WITH APPROVED FILL COMPACTED IN LAYERS. THE WHOLE OF THE EXPOSED SUBGRADE AND FILL SHALL BE COMPACTED TO 95% STANDARD MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT \pm 2%. THE COSTS OF TESTING AND RE-TESTING ARE TO BE ALLOWED FOR BY THE BUILDER.
- BE6 ON SITE FILLING AREAS, CONTRACTOR SHALL TAKE LEVELS OF EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING FILL OPERATIONS.
- BE7 ROCK WHERE HARD ROCK IS EXPOSED IN THE EXCAVATED SUB-GRADE, THIS WILL BE INSPECTED AND A DECISION MADE ON THE LEVEL TO WHICH EXCAVATION IS TAKEN.
- BE8 FILL IN 250mm MAXIMUM (LOOSE THICKNESS) LAYERS TO UNDERSIDE OF BASECOURSE USING THE EXCAVATED MATERIAL AND COMPACTED TO 95% STANDARD (AS 1289 5.1.1) MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT \pm 2%. SHOULD THERE BE INSUFFICIENT MATERIAL FROM SITE EXCAVATIONS IMPORT AS NECESSARY CLEAN GRANULAR FILL TO APPROVAL.
- BE9 BATTERS TO BE AS SHOWN, OR MAXIMUM 1V : 3H.
- BE10 ALL CONDUITS AND MAINS SHALL BE LAID PRIOR TO LAYING FINAL PAVEMENT.
- BE11 ALL BATTERS AND FOOTWAYS ADJACENT TO ROADS SHALL BE TOPSOILED WITH 150mm APPROVED LOAM AND SEEDED UNLESS OTHERWISE SPECIFIED.

EROSION AND SEDIMENTATION CONTROL

- SE1 INSTALL TEMPORARY CONSTRUCTION VEHICLE EXIT IN ACCORDANCE WITH DETAIL.
- SE2 INSTALL SILT FENCING, AND SAND BAGS IN ACCORDANCE WITH DETAILS AND LOCAL COUNCIL REQUIREMENTS.
- SE3 STRIP VEGETATION FROM ALL CUT AREAS AND DISPOSE OFF SITE
- SE4 STRIP TOPSOIL FROM ALL CUT AREAS AND STOCKPILE ON SITE
- SE5 EXCAVATE ALL CUT AREAS AND PLACE COMPACTED FILL WHERE REQUIRED.
- SE6 LANDSCAPE AREAS ARE TO BE STABILISED AND VEGETATED WITHIN 20 DAYS OF COMPLETION.
- SE7 EXCAVATE, LAY AND BACKFILL DRAINAGE LINES. OPEN TRENCH LENGTHS ARE NOT TO EXCEED 25 METRES. WHERE TRENCHES ARE OPEN OVER NIGHT, PLACE TEMPORARY TURF LINED SWALE ALONG HIGHER SIDE OF TRENCH AND DIVERT POTENTIAL SURFACE WATER TO A SAFE LOCATION.
- SE8 CONSTRUCT DRAINAGE PITS AND INSTALL PIT PROTECTION MEASURES IN ACCORDANCE WITH DETAILS, LOCAL COUNCIL AND ROADS AND TRAFFIC AUTHORITY STANDARDS.
- SE9 AT THE COMPLETION OF ALL WORK, REMOVE EROSION CONTROL MEASURES, RESTORE GROUND TO MINIMISE EROSION AND SEDIMENT PRODUCTION USING GRASS SEED AND MULCH ALL OVER AND TURF STRIPS 900 WIDE.

NOTE: WHEREVER SEDIMENT AND EROSION CONTROL DEVICES ARE REMOVED EARLIER IN THE CONSTRUCTION SEQUENCE THAN AS SPECIFIED ABOVE, ENSURE THAT THE DISTURBED GROUND IS RE-VEGETATED TO REDUCE THE LIKELIHOOD OF EROSION AND SEDIMENT TRANSPORT FROM THE SITE. ENSURE ALSO THAT SEDIMENT LADEN WATER CAN STILL REACH SEDIMENTATION BASINS FOR TREATMENT.

SURVEY

- SU1 CO-ORDINATES AND LEVELS OBTAINED FROM SURVEY BY NEWTON, DENNY, CHAPPELLE. DRAWING REFERENCE No. 14422 DATED 13/10/14.
- SU2 ALL LEVELS ARE TO A.H.D.
- SU3 ALL CHAINAGES AND LEVELS ARE IN METRES, AND DIMENSIONS IN MILLIMETRES.
- SU4 ORIGIN OF LEVELS : PM 8037 TO AHD MGA CO-ORDINATES
- SU5 CONTRACTORS SHALL ARRANGE FOR THE WORKS TO BE SET OUT BY A REGISTERED SURVEYOR.

STORMWATER DRAINAGE

- SD1 STORMWATER DRAINAGE SHALL BE GENERALLY IN ACCORDANCE WITH AS 3800.3
- SD2 PIPES UP TO AND INCLUDING 300mm DIA SHALL BE uPVC U.N.O. TO AS 1254
- SD3 PIPES OF 375mm DIA AND LARGER SHALL BE CONCRETE CLASS 2 TO AS4068, RUBBER RING JOINTED U.N.O. AND BE LAID AT A MINIMUM GRADE OF 0.5% U.N.O. BEDDING MATERIAL TO AS 2032 OR AS 3725 AS APPROPRIATE.
- SD4 MINIMUM COVER TO PIPES 300mm GENERALLY & 450mm IN CARPARK & ROADWAY AREAS. UNLESS NOTED.
- SD5 BACKFILL TRENCHES WITH APPROVED FILL, SUCH AS SANDY LOAM, COMPACTED IN 200mm LAYERS TO 98% OF STANDARD DENSITY TO AS 1289 5.1.1.
- SD6 ANY PIPES OVER 16% GRADE SHALL HAVE CONCRETE BULKHEADS AT ALL JOINTS.
- SD7 PITS SHALL BE OF REINFORCED CONCRETE CONSTRUCTION OR AS DETAILED. METAL GRATES AT LEVELS INDICATED. ALL PITS DEEPER THAN 1200mm TO HAVE STEP IRONS.
- SD8 BUILD INTO UPSTREAM FACE OF ALL PITS A 3m PERFORATED SUBSOIL LINE - COVERED WITH FILTER FABRIC SOCK, FALLING TO PITS TO MATCH PIT INVERT.
- SD9 SUBSOIL LINE PIPES AND FITTINGS SHALL BE PERFORATED PLASTIC TO AS 2439 PART 1. LAY PIPES ON FLOOR OF TRENCH GRADED 1% AND OVERLAY WITH FILTER MATERIAL EXTENDING TO WITHIN 200mm OF SURFACE. PROVIDE FILTER FABRIC OF PERMEABLE POLYPROPYLENE BETWEEN FILTER MATERIAL AND TOPSOIL.
- SD10 ALL GRATES IN PAVEMENT TO BE CYCLE SAFE AND WHERE IN ROADWAYS TRAFFICABLE HEAVY DUTY.

CIVIL DRAWINGS

NUMBER	TITLE
80815106-CI-100	COVER SHEET
80815106-CI-110	GENERAL ARRANGEMENT PLAN - STAGE 1
80815106-CI-111	GENERAL ARRANGEMENT PLAN - STAGE 2
80815106-CI-120	BULK EARTHWORKS PLAN
80815106-CI-125	ON SITE DETENTION AND WATER QUALITY PLAN
80815106-CI-130	TYPICAL SECTIONS - SHEET 1
80815106-CI-131	TYPICAL SECTIONS - SHEET 2
80815106-CI-150	EROSION AND SEDIMENT CONTROL PLAN
80815106-CI-151	EROSION AND SEDIMENT CONTROL DETAILS
80815106-CI-190	TURNING PATHS

SUMMARY OF INDICATIVE STAGING:

STAGE 1

- EROSION AND SEDIMENT CONTROLS
- BULK EARTHWORKS
- CONSTRUCTION OF MULTI STOREY CAR PARK ADJACENT TO DALZIELL STREET
- CONSTRUCTION OF TIERED, ON GRADE CAR PARK OFF URALBA STREET
- CONSTRUCTION OF WATER QUALITY AND ON SITE DETENTION
- CONSTRUCTION OF ENTRY/EXIT OFF URALBA STREET
- CONSTRUCTION OF EXIT TO DALZIELL STREET

STAGE 2

- EROSION AND SEDIMENT CONTROLS
- DEMOLITION OF TIERED, ON GRADE CAR PARK CONSTRUCTED DURING STAGE 1
- MINOR REGRADE OF FORMER ON GRADE CAR PARK
- CONSTRUCTION OF MULTISTOREY CAR PARK OFF URALBA STREET
- MINOR ADJUSTMENT TO WATER QUALITY AND ON SITE DETENTION

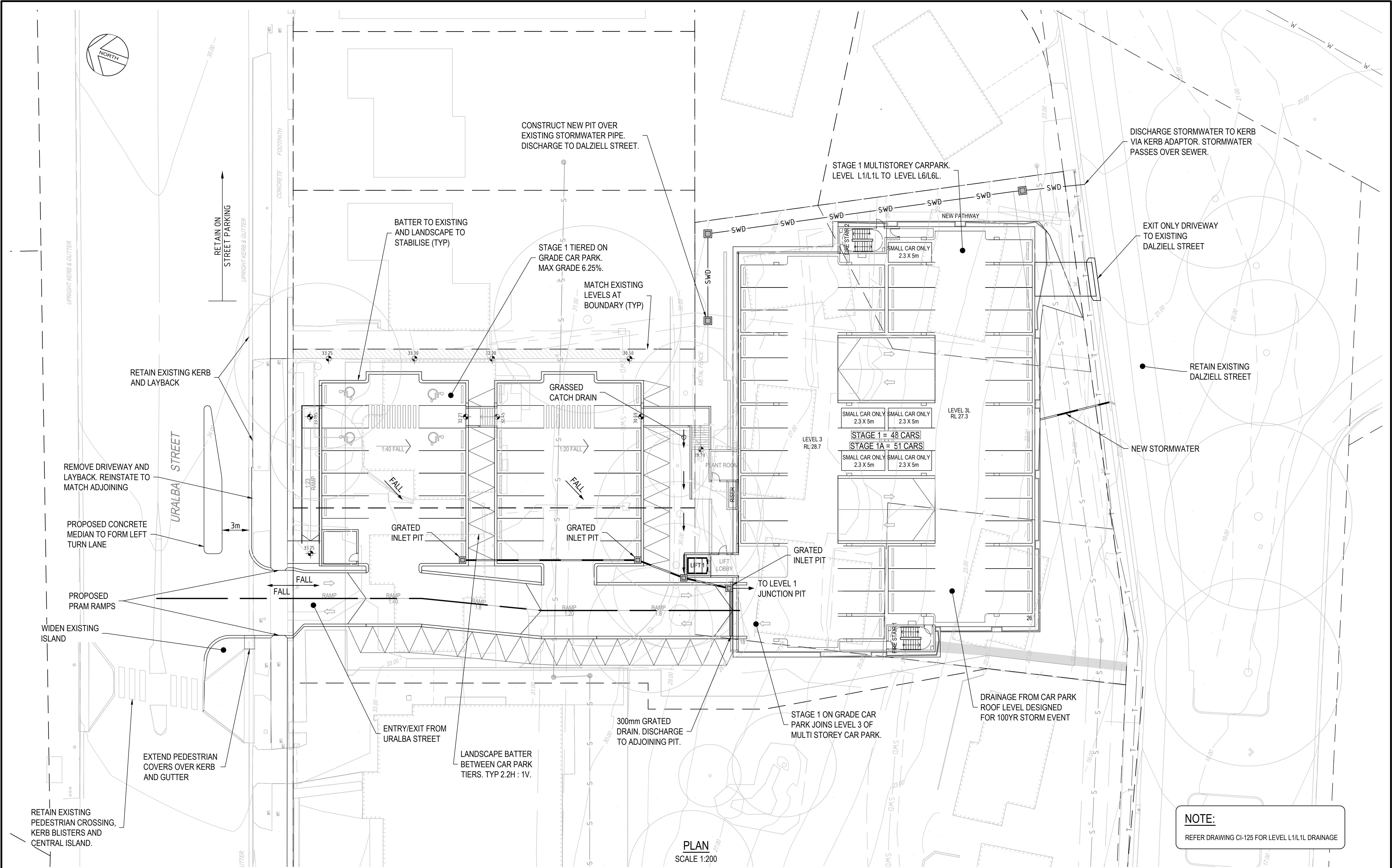
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3	05/12/14	AMENDED LAYOUT	SGB	SGB	-
2	13/11/14	AMENDED FOR DEVELOPMENT APPLICATION	SGB	SJB	-
1	06/11/14	DEVELOPMENT APPLICATION	SGB	SJB	-



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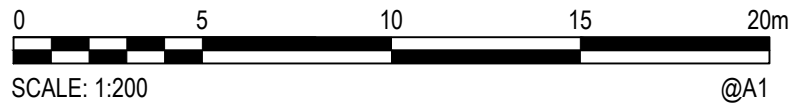


Drawn LDB	Date 04/11/14	Client LISMORE HOSPITAL			
Checked SGB	Date 05/11/14	Project LISMORE HOSPITAL CAR PARK URALBA AND DALZIELL STREETS LISMORE, NSW	Status PRELIMINARY		
Designed AJS	Date 04/11/14		NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Verified	Date				
Approved	Date	Title COVER SHEET	Drawing Number		Revision
			80815106-CI-100		4



NOTE:
REFER DRAWING CI-125 FOR LEVEL L1/L1L DRAINAGE

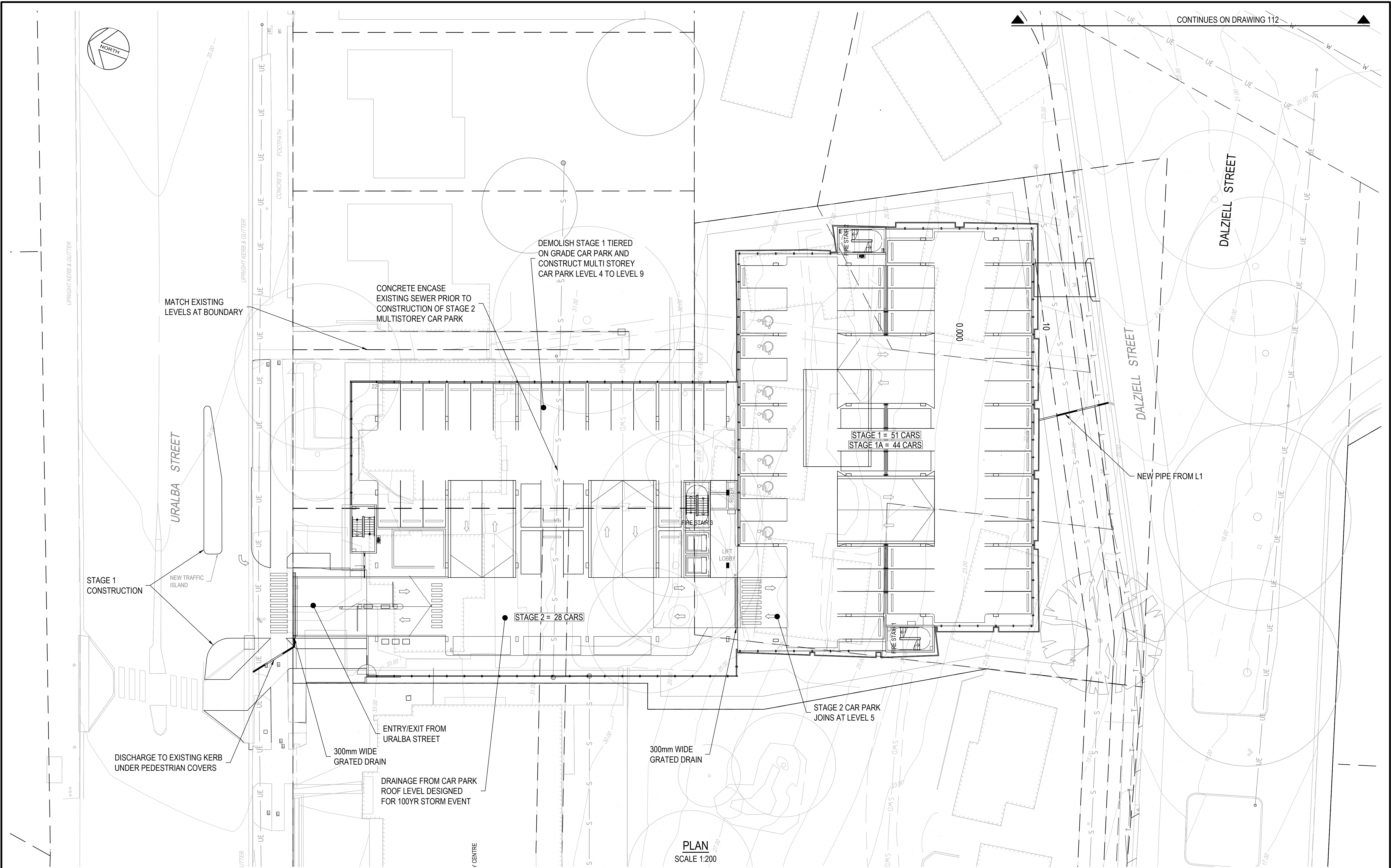
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3	05/12/14	AMENDED LAYOUT	SGB	SGB	-
2	13/11/14	AMENDED FOR DEVELOPMENT APPLICATION	SGB	SJB	-
1	06/11/14	DEVELOPMENT APPLICATION	SGB	SJB	-



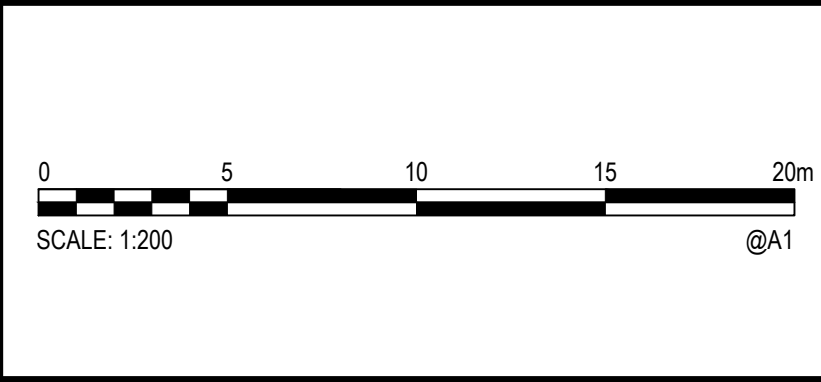
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Designed AJS	Date 04/11/14		NOT TO BE USED FOR CONSTRUCTION PURPOSES			
Verified	Date		Datum	Register	Scale	Size
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Approved	Date	GENERAL ARRANGEMENT PLAN STAGE 1	Drawing Number			Revision
			80815106-CI-110			4



Rev.	Date	Description	Des.	Verif.	Appd.
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2	13/11/14	AMENDED FOR DEVELOPMENT APPLICATION	SGB	SJB	-
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Verified		Date	
Approved		Date	

Client	LISMORE HOSPITAL
Project	LISMORE HOSPITAL CAR PARK URALBA AND DALZIELL STREETS LISMORE, NSW
Title	GENERAL ARRANGEMENT PLAN STAGE 2

Status	PRELIMINARY
Datum	-
Register	-
Scale	1:200
Size	A1
Drawing Number	80815106-CI-111
Revision	3



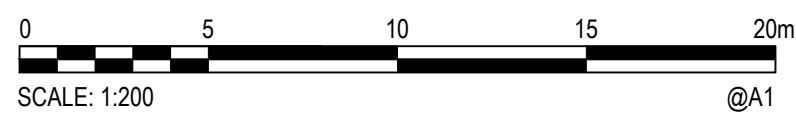
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2. STAGE 2 EARTHWORKS INCLUDES MINOR REGRADING OF STAGE 1 TIERED, ON GRADE CAR PARK TO ALLOW MULTI STOREY CAR PARK CONSTRUCTION OFF URALBA STREET.
3. BULK EARTHWORKS LEVELS ARE GENERALLY 300mm BELOW DESIGN SURFACE LEVELS.
4. 200mm DESIGN CONTOURS SHOWN.

BULK EARTHWORKS PADS
GENERALLY 0.5m BEYOND
CAR PARK EXTENTS

BULK EARTHWORKS PADS
- GENERALLY 1.0m BEYOND
CAR PARK EXTENT

PLAN
SCALE 1:200

3	05/12/14	AMENDED LAYOUT	SGB	SGB	-
2	13/11/14	AMENDED FOR DEVELOPMENT APPLICATION	SGB	SJB	-
1	06/11/14	DEVELOPMENT APPLICATION	SGB	SJB	-
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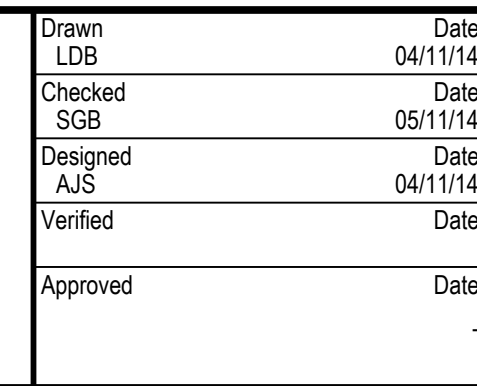
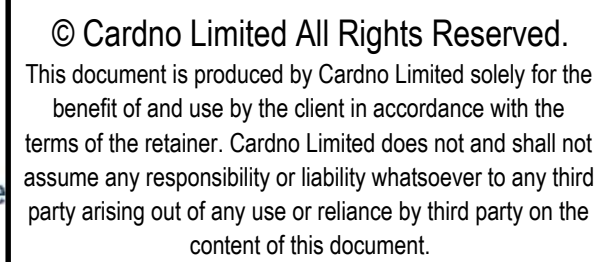
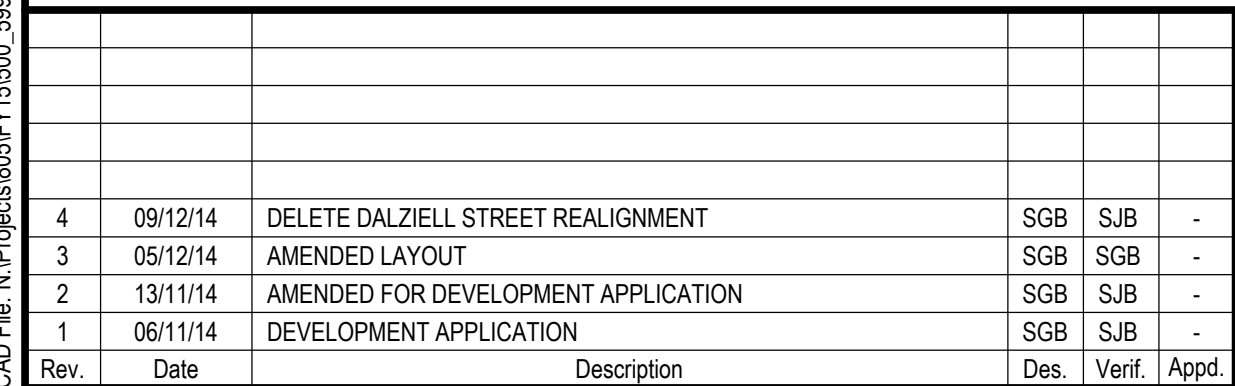


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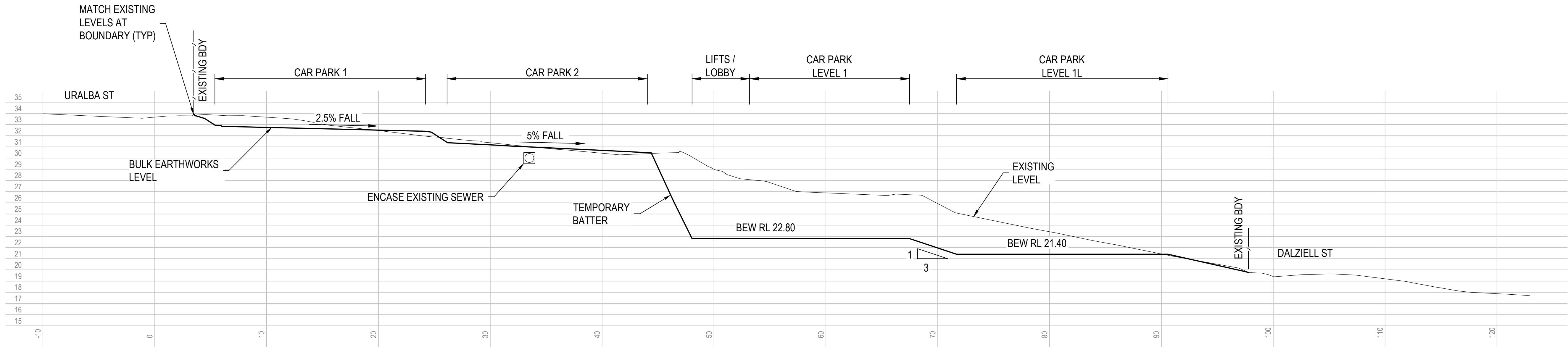
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Project	LISMORE HOSPITAL CAR PARK URALBA AND DALZIELL STREETS LISMORE, NSW
Title	BULK EARTHWORKS PLAN

Status		PRELIMINARY	
NOT TO BE USED FOR CONSTRUCTION PURPOSES			
Date	Register	Scale	Size
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Drawing Number			Revision
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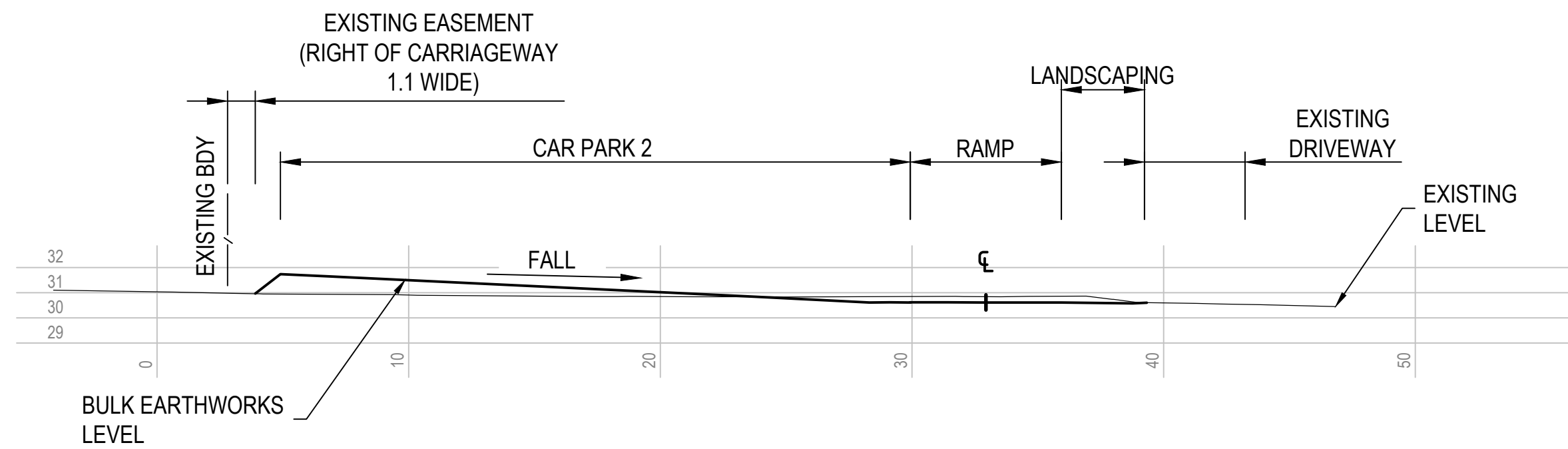


Client	LISMORE HOSPITAL
Project	LISMORE HOSPITAL CAR PARK URALBA AND DALZIELL STREETS LISMORE, NSW
Title	ON SITE DETENTION AND WATER QUALITY PLAN

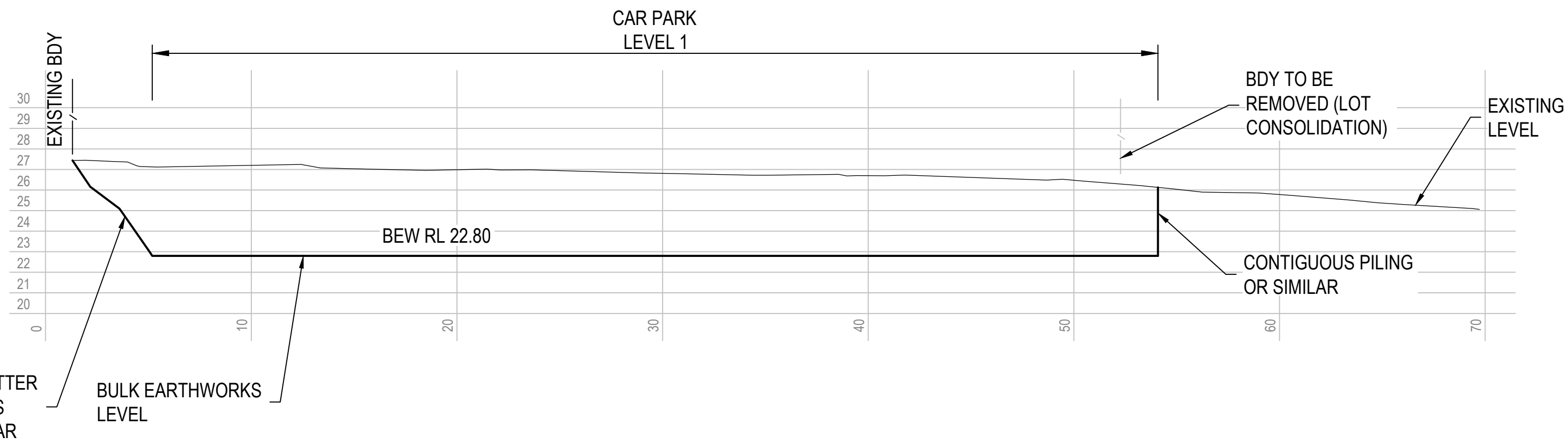
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80815106-CI-125				4	



SECTION A-A
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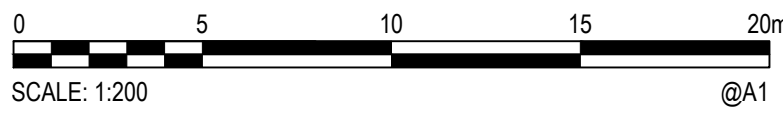


SECTION B-B
SCALE 1:200



SECTION C-C
SCALE 1:200

Rev.	Date	Description	Des.	Verif.	Appd.
4	09/12/14	DELETE DALZIELL STREET REALIGNMENT	SGB	SJB	-
3	05/12/14	AMENDED LAYOUT	SGB	SGB	-
2	13/11/14	AMENDED FOR DEVELOPMENT APPLICATION	SGB	SJB	-
1	06/11/14	DEVELOPMENT APPLICATION	SGB	SJB	-



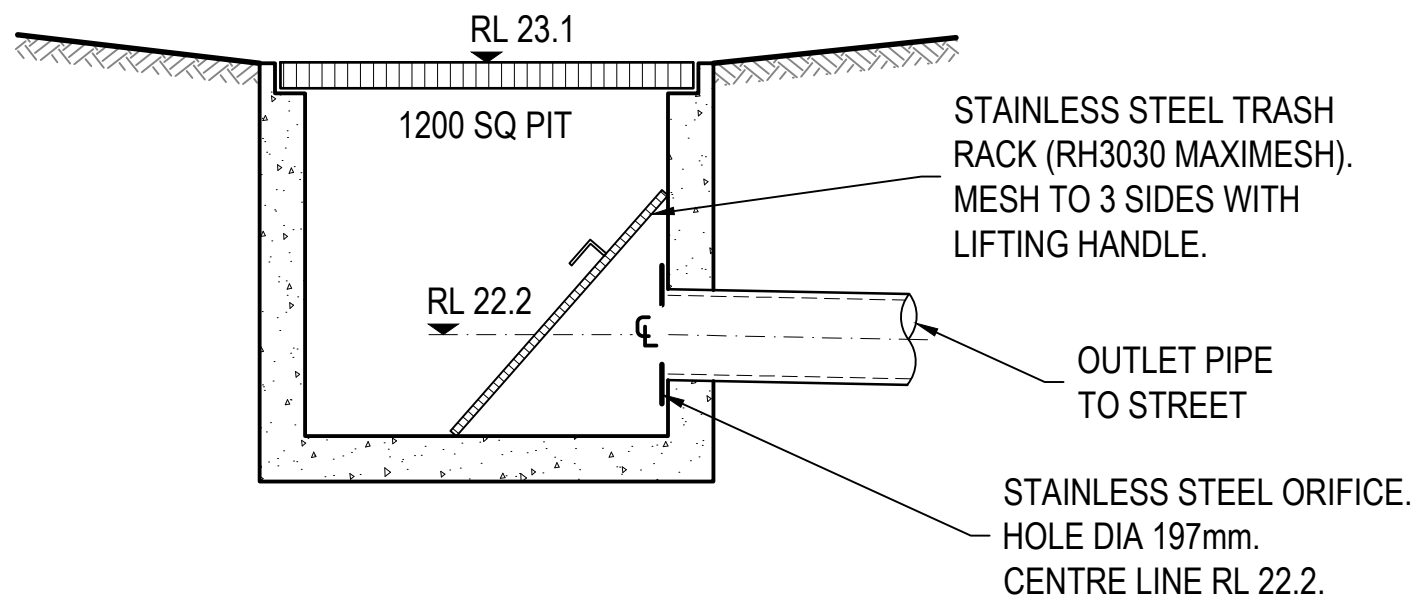
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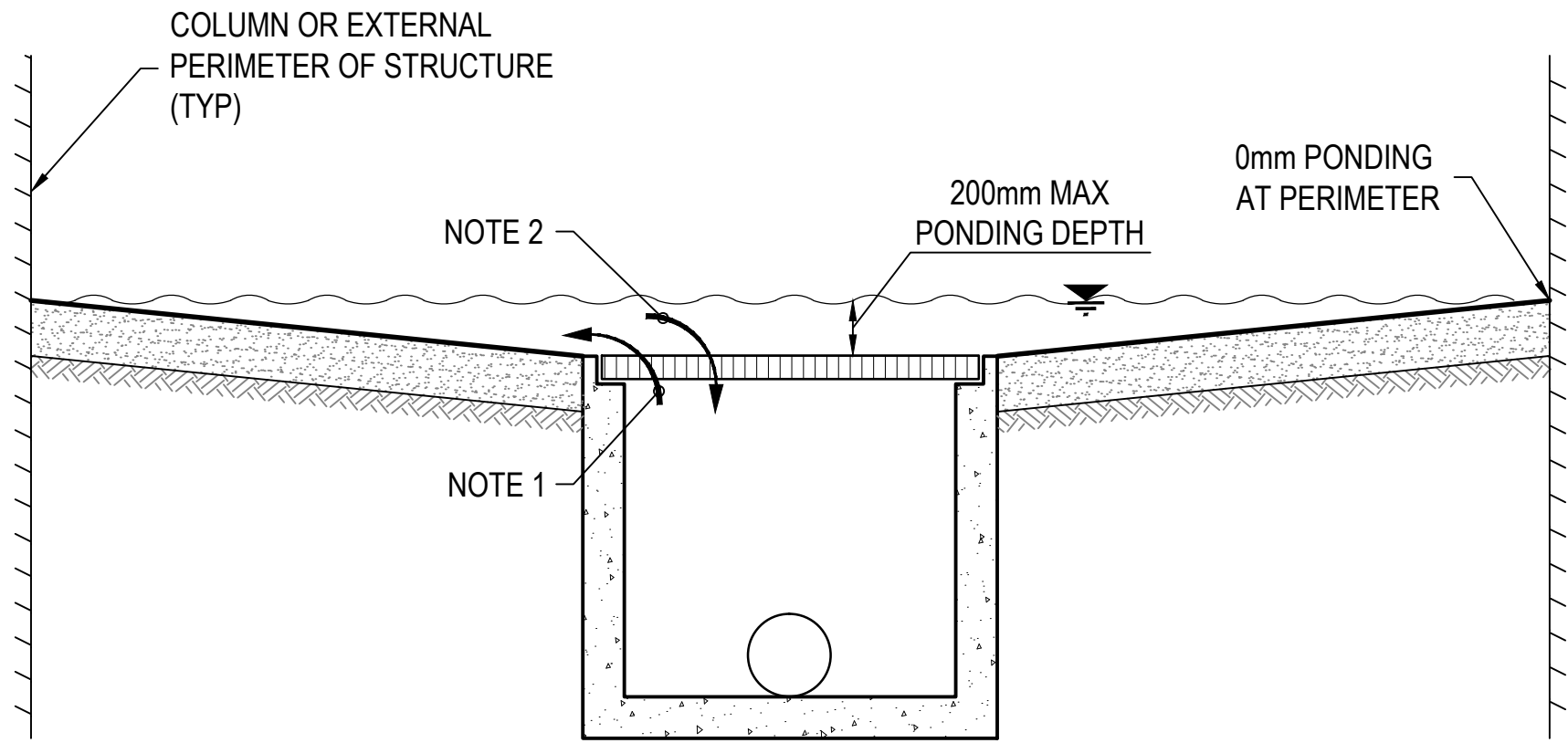
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Checked SGB	Date 05/11/14	Project LISMORE HOSPITAL CAR PARK
Designed AJS	Date 04/11/14	URALBA AND DALZIELL STREETS
Verified	Date	LISMORE, NSW
Approved	Date	Title TYPICAL SECTIONS SHEET 1
Status PRELIMINARY		NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum -	Register -	Scale 1:200
Drawing Number 80815106-CI-130	Size A1	Revision 4



ON SITE DETENTION - DISCHARGE CONTROL PIT
SCALE 1:25

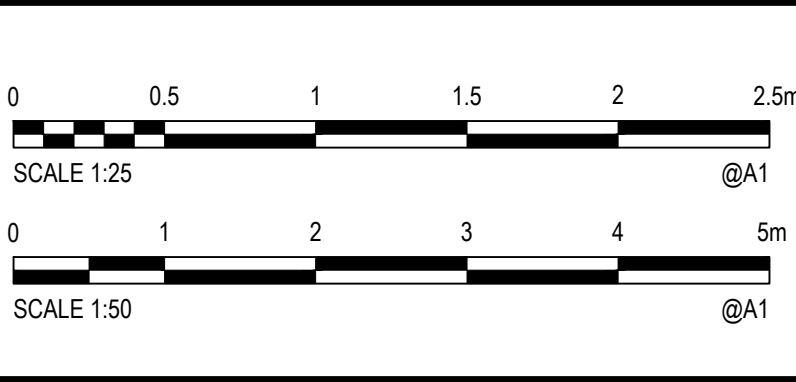


TYPICAL SECTION - ON SITE DETENTION PONDING DETAILS
SCALE 1:25

NOTES:

- DURING HEAVY STORM EVENTS WATER FILL PITS, SURCHARGES UP THROUGH THE GRATE AND PONDS TO A MAXIMUM 200MM ON CAR PARK LEVELS L1 AND L1L.
- FOLLOWING THE HEAVY STORM EVENT WATER RE-ENTERS THE PIT THROUGH THE GRATE AND DISCHARGES FROM THE SITE VIA THE DISCHARGE CONTROL PIT.

Rev.	Date	Description	Des.	Verif.	Appd.
4	09/12/14	DELETE DALZIELL STREET REALIGNMENT	SGB	SJB	-
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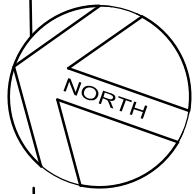
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Verified	Date
Approved	Date

Client LISMORE HOSPITAL
Project LISMORE HOSPITAL CAR PARK URALBA AND DALZIELL STREETS LISMORE, NSW
Title TYPICAL SECTIONS SHEET 2

Status			
PRELIMINARY			
NOT TO BE USED FOR CONSTRUCTION PURPOSES			
Datum	Register	Scale	Size
-	-	AS SHOWN	A1
Drawing Number			Revision
80815106-CI-131			4



UPRIGHT KERB & GUTTER

URALBA STREET

UPRIGHT KERB & GUTTER

CONCRETE FOOTPATH

NOTE:

INDICATIVE EROSION AND SEDIMENT CONTROLS SHOWN. FINAL CONTROLS TO BE DETERMINATED BY CONTRACTOR

NOTE:

REFER DETAILS ON DRAWING CI-151

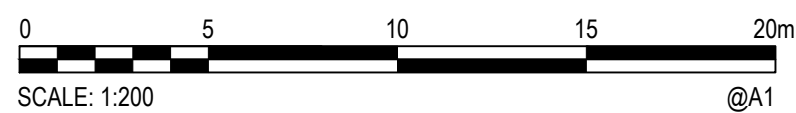
STAGE WORKS TO AVOID CONFLICT BETWEEN GRATED DRAIN AND TEMPORARY SITE ACCESS

PLAN
SCALE 1:200



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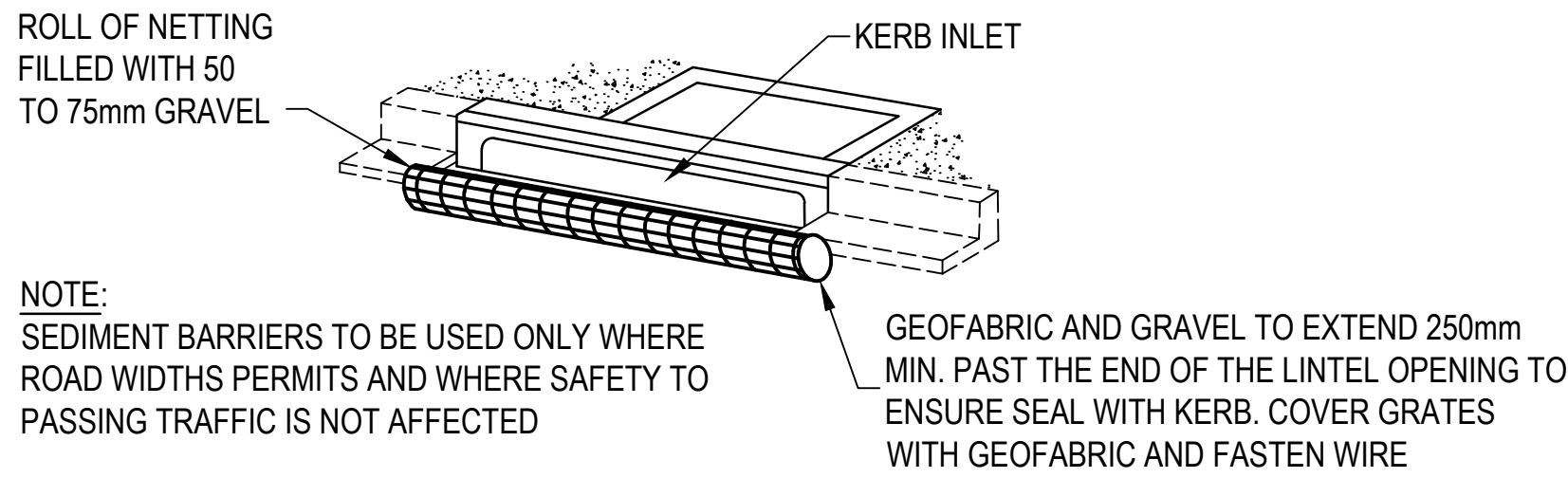
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2	13/11/14	AMENDED FOR DEVELOPMENT APPLICATION	SGB	SJB	-
1	06/11/14	DEVELOPMENT APPLICATION	SGB	SJB	-

Drawn LDB	Date 04/11/14
Checked SGB	Date 05/11/14
Designed AJG	Date 04/11/14
Verified	Date
Approved	Date

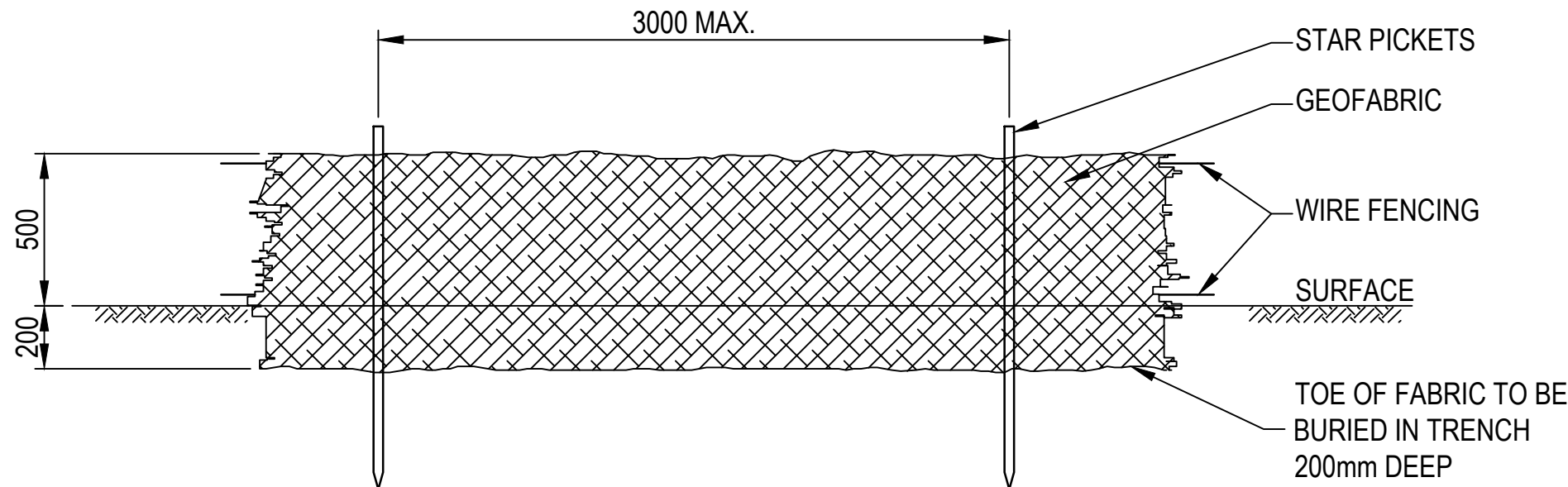
Client	LISMORE HOSPITAL
Project	LISMORE HOSPITAL CAR PARK URALBA AND DALZIELL STREETS LISMORE, NSW
Title	EROSION AND SEDIMENT CONTROL PLAN

Status				
<div>PRELIMINARY</div> <div>NOT TO BE USED FOR CONSTRUCTION PURPOSES</div>				
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Drawing Number				Revision
80815106-CI-150				3

NOTE:
SEDIMENT BARRIERS TO BE USED ONLY WHERE ROAD WIDTHS PERMITS
AND WHERE SAFETY TO PASSING TRAFFIC IS NOT AFFECTED



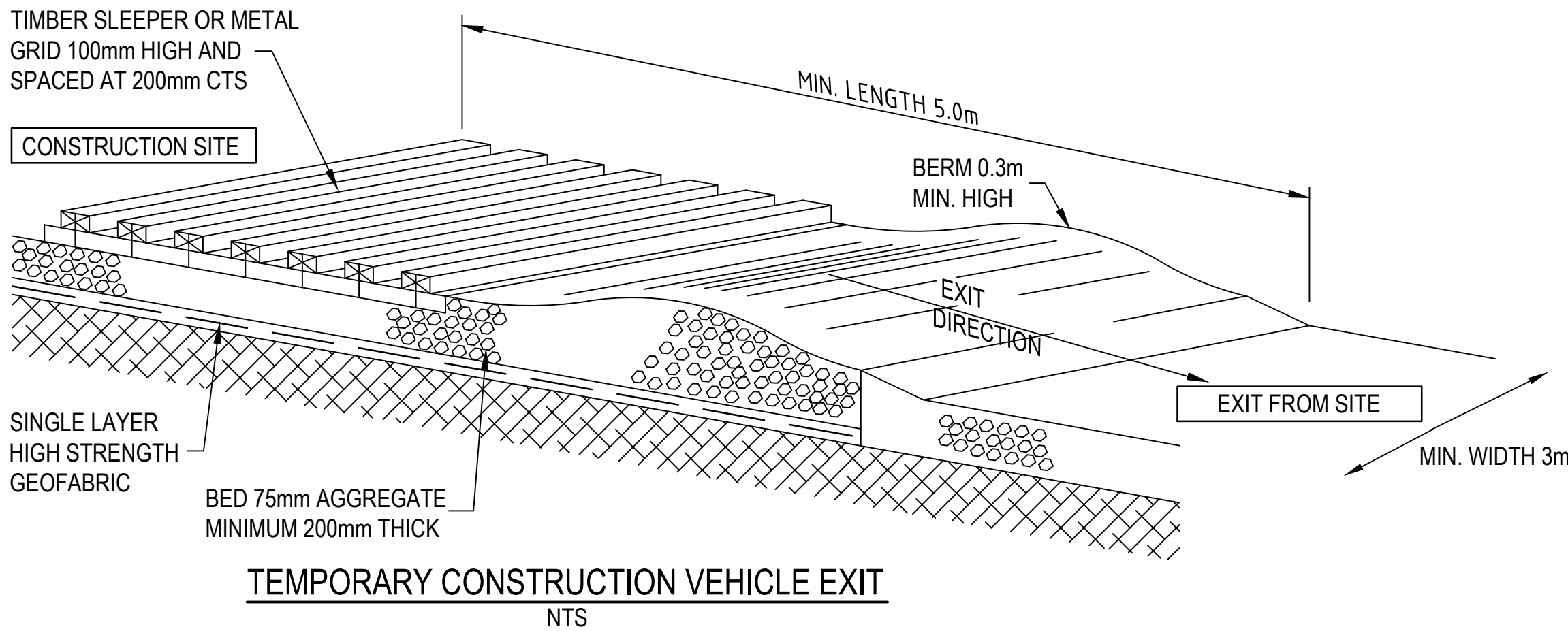
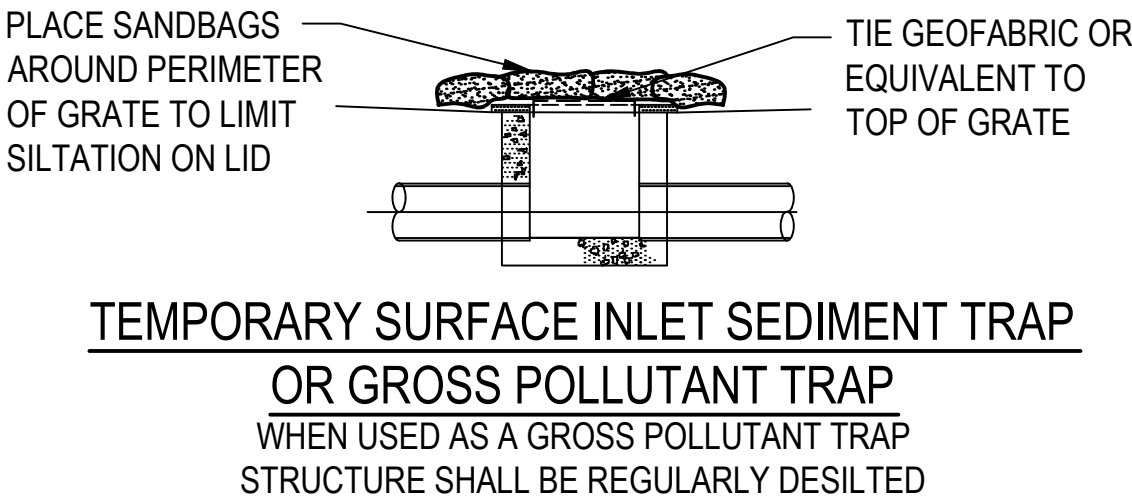
SEDIMENT BARRIER FOR KERB INLET PITS
NTS



TYPICAL SILT FENCE DETAIL
NTS

NOTE:
INDICATIVE EROSION AND SEDIMENT
CONTROLS SHOWN. FINAL CONTROLS
TO BE DETERMINED BY CONTRACTOR

LEGEND	
	TEMPORARY SURFACE INLET SEDIMENT TRAP OR GROSS POLLUTANT TRAP TO BE PROVIDED
	SEDIMENT BARRIER FOR KERB INLET PITS TO BE PROVIDED
	GRAVEL FILLED SAUSAGE
	SILT FENCE
	TEMPORARY CONSTRUCTION VEHICLE EXIT



Rev.	Date	Description	Des.	Verif.	Appd.
3	05/12/14	AMENDED LAYOUT	SGB	SGB	-
2	13/11/14	AMENDED FOR DEVELOPMENT APPLICATION	SGB	SJB	-
1	06/11/14	DEVELOPMENT APPLICATION	SGB	SJB	-

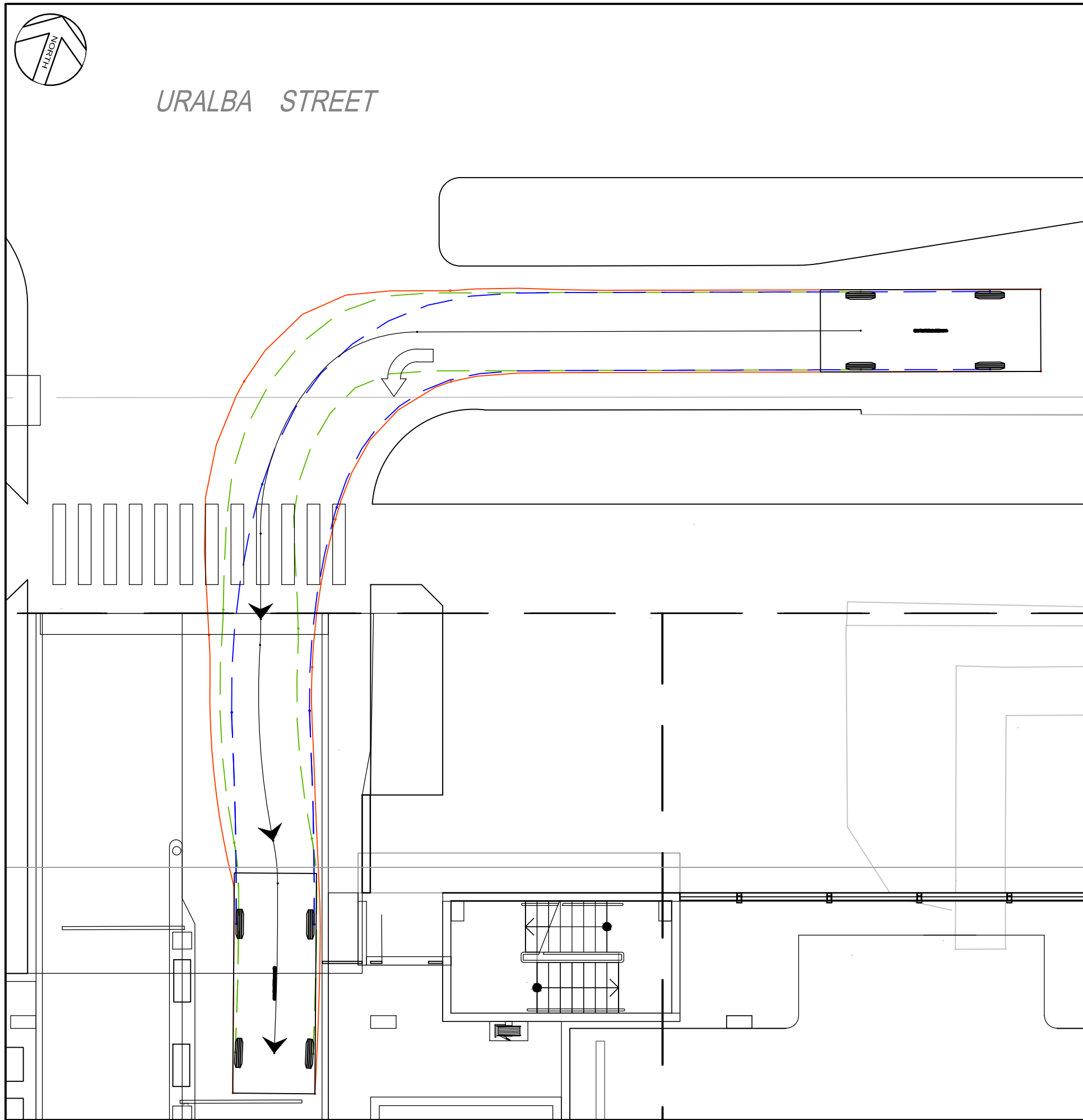


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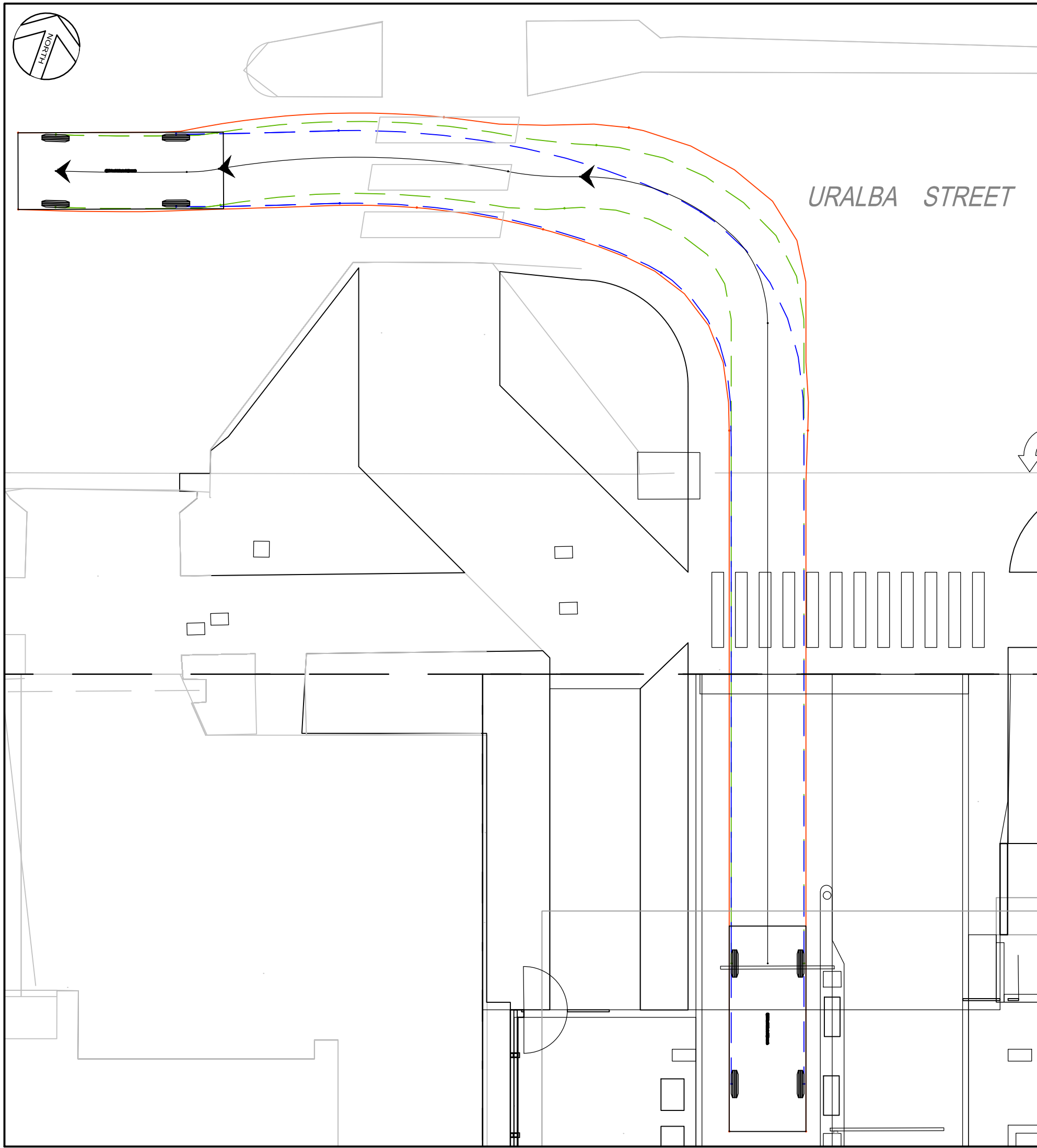
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Shaping the Future

Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035
34/205-207 Albany Street North
Gosford, NSW 2250
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Web: www.cardno.com.au

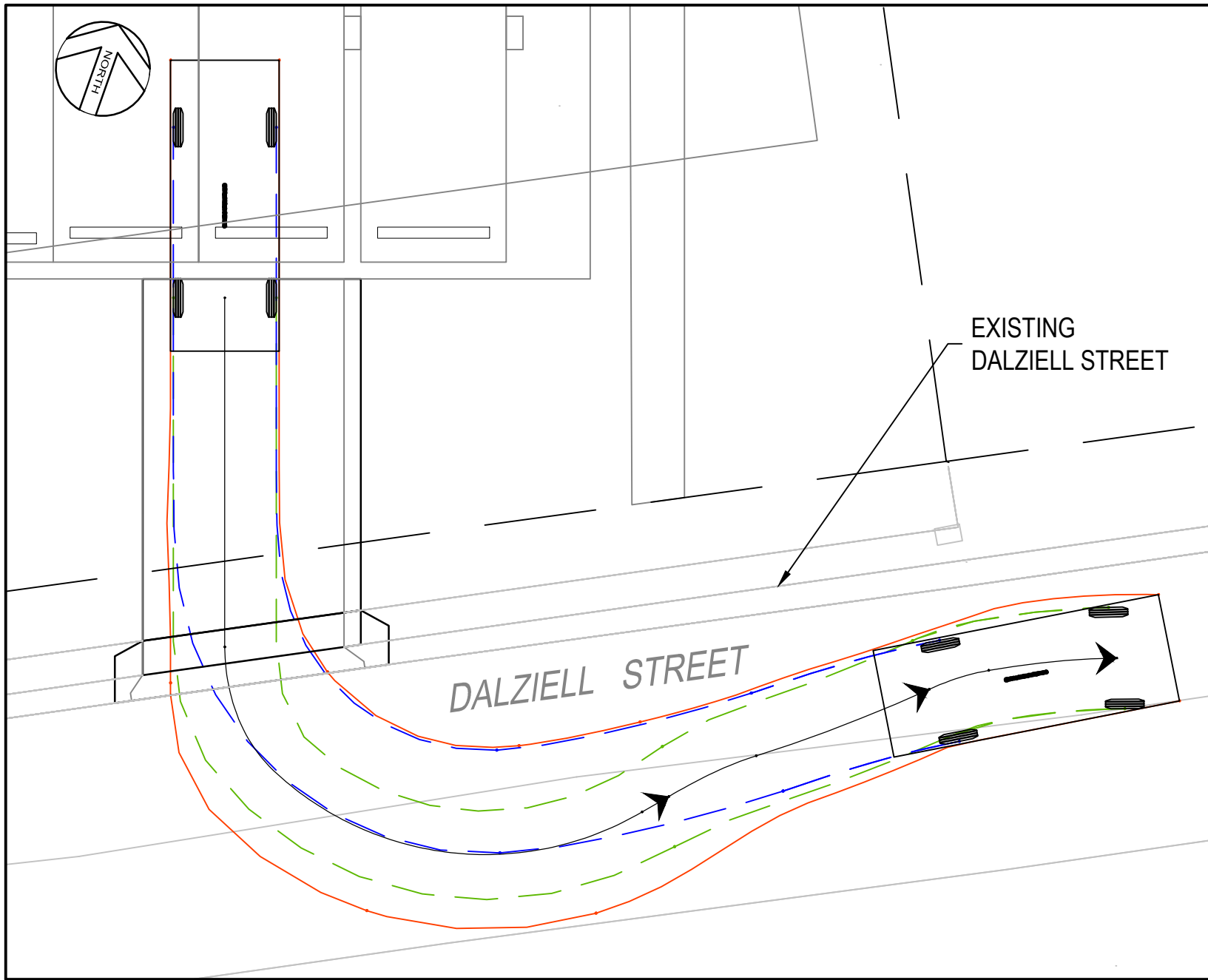
Drawn LDB	Date 04/11/14	Client LISMORE HOSPITAL
Checked SGB	Date 05/11/14	Project LISMORE HOSPITAL CAR PARK URALBA AND DALZIELL STREETS LISMORE, NSW
Designed AJS	Date 04/11/14	Title EROSION AND SEDIMENT CONTROL DETAILS
Verified	Date	
Approved	Date	
		Status PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES
		Datum -
		Register -
		Scale AS SHOWN
		Size A1
		Drawing Number 80815106-CI-151
		Revision 3



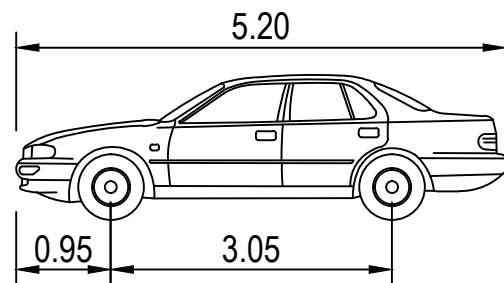
PLAN
VEHICLE B99 - ENTRY FROM URALBA STREET
SCALE 1:100



PLAN
VEHICLE B99 - EXIT TO URALBA STREET
SCALE 1:100



PLAN
VEHICLE B99 - EXIT TO DALZIELL STREET
SCALE 1:100



VEHICLE B99 PROFILE
NTS

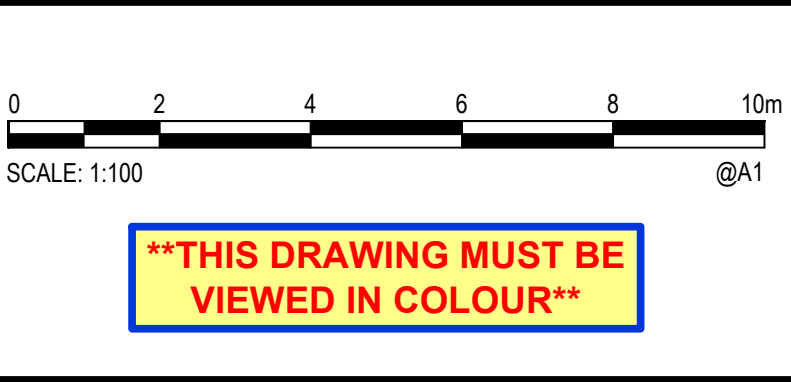
WIDTH : 1.94m
TRACK: 1.84m
LOCK TO LOCK TIME: 6.00m
STEERING ANGLE : 33.5m

TO AS2890.1

LEGEND

- DENOTES VEHICLE BODY
- DENOTES VEHICLE FRONT TYRE PATH
- DENOTES VEHICLE REAR TYRE PATH

Rev.	Date	Description	Des.	Verif.	Appd.
4	09/12/14	DELETE DALZIELL STREET REALIGNMENT	SGB	SJB	-
3	05/12/14	AMENDED LAYOUT	SGB	SGB	-
2	13/11/14	AMENDED FOR DEVELOPMENT APPLICATION	SGB	SJB	-
1	06/11/14	DEVELOPMENT APPLICATION	SGB	SJB	-



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Drawn LDB	Date 04/11/14
Checked SGB	Date 05/11/14
Designed AJS	Date 04/11/14
Verified	Date
Approved	Date

Client	LISMORE HOSPITAL
Project	LISMORE HOSPITAL CAR PARK URALBA AND DALZIELL STREETS LISMORE, NSW
Title	TURNING PATHS

Status				
PRELIMINARY				
NOT TO BE USED FOR CONSTRUCTION PURPOSES				
Datum	-	Register	-	Scale
				1:100
			Size	A1
Drawing Number				Revision
80815106-CI-190				4