

SCHEDULE OF DRAWINGS

DRAWING NO.	DESCRIPTION
161163-050-CD-C-301-5300	COVER SHEET
GENERAL	
161163-050-CD-C-301-5301	SITE LAYOUT, SCHEDULE OF DRAWINGS AND GENERAL NOTES
STORMWATER	
161163-050-CD-C-301-5302	DETAILS AND KEY PLAN - STORMWATER DRAINAGE
161163-050-CD-C-301-5305	LAYOUT PLAN
161163-050-CD-C-301-5306	DETAIL LAYOUT PLAN
161163-050-CD-C-301-5307	DETAIL SECTIONS SHEET 1 OF 2
161163-050-CD-C-301-5308	DETAIL SECTIONS SHEET 2 OF 2
161163-050-CD-C-301-5320	LONGITUDINAL SECTION
161163-050-CD-C-301-5330	INDICATIVE STORMWATER DRAINAGE SEQUENCE OVERVIEW
161163-050-CD-C-301-5331	INDICATIVE STORMWATER DRAINAGE SEQUENCE - 2A SHEET 1
161163-050-CD-C-301-5332	INDICATIVE STORMWATER DRAINAGE SEQUENCE - 2B SHEET 1
161163-050-CD-C-301-5333	INDICATIVE STORMWATER DRAINAGE SEQUENCE - 2B SHEET 2
161163-050-CD-C-301-5334	INDICATIVE STORMWATER DRAINAGE SEQUENCE - 2C SHEET 1
161163-050-CD-C-301-5335	INDICATIVE STORMWATER DRAINAGE SEQUENCE - 2C SHEET 2
EROSION AND SEDIMENT CONTROL	
161163-050-CD-C-301-5400	EROSION AND SEDIMENT CONTROL PLAN
161163-050-CD-C-301-5410	EROSION AND SEDIMENT CONTROL DETAILS SHEET 1
161163-050-CD-C-301-5411	EROSION AND SEDIMENT CONTROL DETAILS SHEET 2
STRUCTURAL	
161163-050-CD-C-301-5900	MANHOLES - CONSTRUCTION NOTES
161163-050-CD-C-301-5901	MANHOLE M3/10 - CONCRETE PROFILES
161163-050-CD-C-301-5902	MANHOLE M3/10 - REINFORCEMENT DETAILS SHEET 1
161163-050-CD-C-301-5903	MANHOLE M3/10 - REINFORCEMENT DETAILS SHEET 2
161163-050-CD-C-301-5910	MANHOLE M4/10 - CONCRETE PROFILES
161163-050-CD-C-301-5911	MANHOLE M4/10 - REINFORCEMENT DETAILS SHEET 1
161163-050-CD-C-301-5912	MANHOLE M4/10 - REINFORCEMENT DETAILS SHEET 2
161163-050-CD-C-301-5913	MANHOLE M4/10 - REINFORCEMENT DETAILS SHEET 3
161163-050-CD-C-301-5920	MANHOLE M5/10 - CONCRETE PROFILES
161163-050-CD-C-301-5921	MANHOLE M5/10 - REINFORCEMENT DETAILS SHEET 1
161163-050-CD-C-301-5922	MANHOLE M5/10 - REINFORCEMENT DETAILS SHEET 2

WARNING!
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES HAVE BEEN INTERPOLATED FROM GIS DATA OR KNOWN POSITIONS OF VALVES, MANHOLES ETC. OR INFORMATION SUPPLIED BY SERVICE AUTHORITIES. NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THE INTERPOLATED INFORMATION SUPPLIED. ENSURE ALL SERVICES ARE ACCURATELY LOCATED PRIOR TO COMMENCEMENT OF WORK.

EXISTING SERVICES IN VICINITY OF PROPOSED WORKS MAY REQUIRE RELOCATION TO COMPLETE THE PROPOSED WORKS. THE CONTRACTOR IS TO COORDINATE AND UNDERTAKE ALL SERVICE RELOCATIONS IN ACCORDANCE WITH SERVICE AUTHORITY REQUIREMENTS TO COMPLETE THE PROPOSED WORKS.

!!! WARNING !!!
VERY HIGH VOLTAGE ELECTRICAL RETICULATION IS PRESENT IN THE VICINITY OF THE PROPOSED WORKS

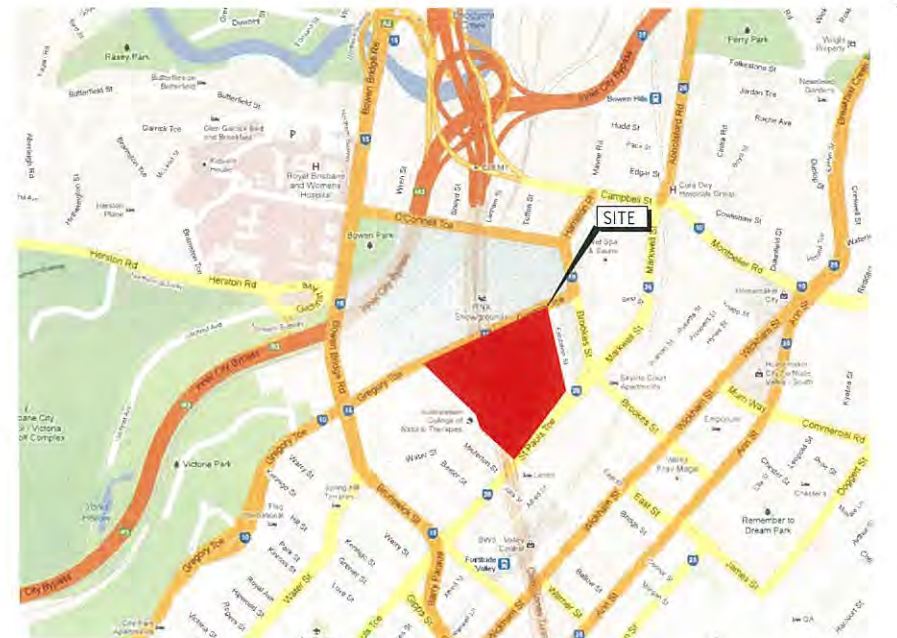
!!! CAUTION !!!
TREAT ALL SERVICES ENCOUNTERED AS LIVE UNLESS VERIFIED AS ABANDONED. SERVICES SHOWN FROM SURVEY DATA PROVIDED AND OTHER SERVICES MAY EXIST.

ALL WORKS ON SITE SHALL BE IN ACCORDANCE WITH CURRENT ENVIRONMENTAL MANAGEMENT PLAN AND ACID SULPHATE MANAGEMENT PLAN.

PLANS AND DOCUMENTS
referred to in the PDA APPROVAL

-9 FEB 2015

MEDQ



LOCALITY PLAN
NOT TO SCALE

SAFETY IN DESIGN AND CONSTRUCTION

- ALL CONSTRUCTION WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY WORKPLACE HEALTH AND SAFETY LEGISLATION.
- CONSTRUCTION ACTIVITY CAN BE HAZARDOUS AND POTENTIAL SAFETY HAZARDS CONSIDERED BY THE DESIGNERS TO HAVE A HIGHER RISK THAN NORMAL CONSTRUCTION ACTIVITY ARE IDENTIFIED WITH APPROPRIATE NOTES IN THE DOCUMENTATION.
- DESIGNERS GENERALLY HAVE A LOWER LEVEL OF APPRECIATION OF THE SAFETY RISKS AND HAZARDS INVOLVED IN CONSTRUCTION COMPARED TO THAT OF A COMPETENT BUILDER / CONTRACTOR AND THEREFORE ALL THE SAFETY RISKS AND HAZARDS APPLICABLE TO THIS PROJECT MAY NOT BE IDENTIFIED.
- IT IS ESSENTIAL THAT PRIOR TO COMMENCEMENT OF CONSTRUCTION AN ADEQUATE SAFETY PLAN IS PREPARED BY THE BUILDER / CONTRACTOR FOR THE WORKS IN COMPLIANCE WITH STATUTORY REQUIREMENTS. THE SAFETY PLAN SHALL INCLUDE APPROPRIATE WORK METHOD STATEMENTS FOR ALL RISK ACTIVITIES. THE STRUCTURAL ENGINEER IS AVAILABLE TO BE CONSULTED IN REGARDS TO THE SAFETY PLANS.
- PRIOR TO ANY ERECTION OF STRUCTURAL ELEMENTS THE CONTRACTOR SHALL HAVE COMPLETED A RISK ASSESSMENT OF ALL CONSTRUCTION PROCEDURES AND ENSURED THAT WHERE POSSIBLE, ALL RISKS HAVE BEEN ELIMINATED AND WHERE NOT POSSIBLE THEIR SAFETY PLAN HAS ADDRESSED THOSE ISSUES AND IT HAS BEEN FORMULATED AND DOCUMENTED FOR STRICT ADHERENCE DURING THE CONSTRUCTION WORKS.
- PRIOR TO FABRICATION OF STEELWORK THE CONTRACTOR SHALL AGREE WITH THE ENGINEER ON AREAS OF RISK WHICH HAVE BEEN ADDRESSED BY THE DESIGN WHERE POSSIBLE AND AGREE ON SUITABLE CONSTRUCTION PROCEDURES WHERE AREAS OF RISK STILL EXIST.
- PRIOR TO THE USE OF THE PROJECT AS DESIGNED, THE OWNER SHALL HAVE COMPLETED A RISK ASSESSMENT OF ALL WORK PRACTICES AND ENSURED THAT WHERE POSSIBLE ALL RISKS HAVE BEEN ELIMINATED AND WHERE NOT POSSIBLE THERE SAFETY PLAN HAS ADDRESSED THOSE ISSUES AND IT HAS BEEN FORMULATED AND DOCUMENTED FOR STRICT ADHERENCE AFTER COMMISSIONING.

GENERAL NOTES:

- SHOULD SITE WORKS EXPOSE ANY ARCHAEOLOGICAL OR CULTURAL MATERIAL ALL WORKS SHALL CEASE AND OFFICIALS OF THE NATIONAL PARKS AND WILDLIFE, ABORIGINAL LAND COUNCIL AND ECONOMIC DEVELOPMENT QUEENSLAND ARE TO BE NOTIFIED.
- THE CONTRACTOR SHALL ADHERE TO ALL REQUIREMENTS OF THE DEPARTMENT OF ENVIRONMENT AND HERITAGE PROTECTION (D.E.H.P.).
- WHERE IN THIS SET OF DRAWINGS REFERENCE IS MADE TO THE ENGINEER, CONSULTING ENGINEER AND OR COUNCIL ENGINEER IT SHALL MEAN THE SUPERINTENDENT UNDER THE CONTRACT FOR THE WORKS.
- WHERE A DISCREPANCY AND / OR CONFLICT EXISTS BETWEEN THE DRAWING PREPARED BY CARDNO AND ANY STANDARD DRAWING OF THE LOCAL GOVERNMENT AUTHORITY AND / OR GOVERNMENT ORGANISATION THE DETAILS AND / OR INFORMATION OR THE CARDNO DRAWINGS SHALL TAKE PRECEDENCE. ADVISE THE SUPERINTENDENT IMMEDIATELY OF THE DETAILS OF ANY AND ALL CONFLICTS FOUND.
- PRIOR TO COMMENCEMENT OF WORK, FENCE OFF AND CLEARLY DELINEATE ALL AREAS WHERE WORK CANNOT BE CARRIED OUT.
- THE CONTRACTOR IS TO VERIFY LOCATION AND LEVELS OF ALL SERVICES AND TO LIAISE WITH THE LOCAL AND SERVICE AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.
- ELECTRICAL AND TELECOMMUNICATION SERVICES CONTRACTOR TO CONFIRM LOCATIONS OF ALL EXISTING SERVICES ON SITE, INCLUDING LIAISON WITH RELEVANT AUTHORITIES.
- THE CONTRACTOR IS TO INFORM BRISBANE CITY COUNCIL, QUU AND THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.
- LEVELS SHOWN AT ALL INTERFACES ARE TO BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE APPROVED CONDITIONS OF CONSENT.
- THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ELECTRICAL RETICULATION, COMMUNICATION RETICULATION AND LANDSCAPE ARCHITECTS DRAWINGS. ELECTRICAL, COMMUNICATION AND LANDSCAPE WORKS ARE NOT DETAILED AS PART OF THIS PACKAGE AND ARE ONLY SHOWN INDICATIVELY.
- ALL DWG'S LISTED ON DWG. 161163-050-CD-C-301-5301 ARE TO BE READ AS A WHOLE AND NOT IN ISOLATION.
- ALL DRAWINGS TO BE READ IN CONJUNCTION WITH ABBREVIATION TABLE SHOWN.
- ALL DRAWINGS TO BE READ IN CONJUNCTION WITH PROJECT SPECIFICATION.
- THE CONTRACTOR IS TO ENSURE THAT ALL SURFACE GRADES TO BE A MINIMUM OF 0.5%.
- IT IS THE CONTRACTORS RESPONSIBILITY TO REPAIR OR REPLACE EXISTING SERVICES DAMAGED DURING THE WORKS.
- A FORMAL PRE-START MEETING WITH THE PROJECT COORDINATOR IS TO BE HELD PRIOR TO THE COMMENCEMENT OF WORKS.
- THE CONTRACTOR IS TO COORDINATE THEIR WORKS AND STAGING WITH OTHER ADJOINING CONTRACTS.
- WORKS IN VICINITY OF EXISTING SERVICES ARE TO BE UNDERTAKEN WITH SUPERVISION OF SERVICES AUTHORITIES WHERE REQUIRED AT CONTRACTOR COST. CONTRACTOR TO LIAISE AND COORDINATE WORKS WITH AUTHORITIES.

Verified		Date	
Approved		Date	
C	3/12/2014	AFT ISSUE	ZA DS MH
A	31/08/2014	AFT ISSUE	ZA DS MH
Rev	Date	Description	Des. Verif. Appd. RPEQ No.



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Drawn JM	Date Aug-14	Client LEND LEASE
Checked ZA	Date Aug-14	RNA SHOWGROUND REDEVELOPMENT
Designed ZA	Date Aug-14	ENABLING WORKS - STAGE 2
Cardno Ref. No. A10697-048		TRUNK STORMWATER
Status FOR TENDER ONLY NOT TO BE USED FOR CONSTRUCTION PURPOSES		A.H.D. Grid Scale Size DATUM AS SHOWN A1
Drawing Number 161163-050-DD-C-301-5301		Revision C

LEGEND

PROPOSED RP BOUNDARY
PROPOSED KERB INVERT
PROPOSED STORMWATER
EXISTING STORMWATER
STORMWATER LINE LABEL
EXISTING RP BOUNDARY
EXTENT OF WORKS



PLANS AND DOCUMENTS
referred to in the PDA APPROVAL

9 FEB 2015

MEDQ

SHEET 1

161163-050-CD-C-301-5305 (SWD)

SITE 3.01

**EXISTING
JOHN REID PAVILION**

SITE 1.05

SITE 1.02

**EXISTING
EXHIBITION BUILDING**

SITE 2.01

**SITE 2.03
THE GREEN**

**SITE 2.04
K1**

SITE 2.05

**KEY PLAN
LAYOUT PLAN**
Scale 1:1000

STORMWATER DRAINAGE NOTES

- ALL WORKS ON EXISTING INTERNAL STORMWATER DRAINAGE SHALL COMPLY WITH AS3500 1998 NATIONAL PLUMBING AND DRAINAGE CODE.
- ALL OTHER STORMWATER DRAINAGE SHALL COMPLY WITH QUDM AND BRISBANE CITY COUNCIL STANDARDS AND SPECIFICATIONS.
- MAINTAIN AND PROTECT EXISTING SERVICES TO BE RETAINED.
- STORMWATER STRUCTURES AND CONNECTIONS ARE TO BE LOCATED AS INDICATED ON THE PLAN. ADJUSTMENTS TO THE DESIGN LAYOUT WHERE REQUIRED TO SUIT ACTUAL AS-CONSTRUCTED GEOMETRY SHALL REQUIRE THE ENGINEERS APPROVAL.
- TRENCH EXCAVATIONS FOR DRAINAGE SHALL COMPLY WITH WORKPLACE HEALTH AND SAFETY REQUIREMENTS.
- PIPES SHALL BE BEDDED IN ACCORDANCE WITH AS3725-H1.
- ALL PIPES SHALL BE RUBBER RING JOINTED.
- PIPES EQUAL TO OR SMALLER THAN 225 ϕ SHALL BE uPVC, RCP OR FRC. PIPES GREATER THAN 225 ϕ SHALL BE RCP OR FRC.
- uPVC PIPES SHALL BE CLASS SN8 UNLESS NOTED OTHERWISE. RCP AND FRC PIPES SHALL BE CLASS 3 UNLESS NOTED OTHERWISE.
- PRECAST REINFORCED CONCRETE BOX CULVERT, SPANNING AND BASE SLABS SHALL BE IN ACCORDANCE WITH BRISBANE CITY COUNCIL STANDARDS AND SPECIFICATIONS. FOR ADDITIONAL PERFORMANCE REQUIREMENTS REFER NOTES ON DRG 161163-050-DD-C-301-5308.
- SPOIL MATERIAL GENERATED FROM TRENCH EXCAVATIONS IS TO BE DISPOSED OFF SITE IN ACCORDANCE WITH CURRENT ENVIRONMENTAL MANAGEMENT PLAN AND ACID SULPHATE SOIL MANAGEMENT PLAN.
- ALL EARTHWORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH BRISBANE CITY COUNCIL STANDARDS AND SPECIFICATIONS, AS3789 AND RECOMMENDATIONS MADE IN THE GOLDER ASSOCIATES GEOTECHNICAL REPORT. LEVEL 1 GEOTECHNICAL SUPERVISION OF THE EARTHWORKS IS TO BE CARRIED OUT IN ACCORDANCE WITH THE EARTHWORKS SPECIFICATIONS BY A N.A.T.A. REGISTERED GEOTECHNICAL TESTING AUTHORITY AT THE CONTRACTOR COST. THE CONTRACTOR SHALL PROVIDE DETAILS OF ALL TESTING TO THE ENGINEER PROGRESSIVELY THROUGH THE WORKS AND NOTIFY THE ENGINEER OF ANY NON-CONFORMANCES. ALL NON CONFORMING WORK IS TO BE RECTIFIED AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- THE GEOTECHNICAL ENGINEER SHALL BE RESPONSIBLE TO THE CONTRACTOR FOR DESIGN, INSPECTION AND TESTING OF THE FOLLOWING:
 - TREATMENT OF ENCOUNTERED IN GROUND CONDITIONS TO MEET SPECIFICATION REQUIREMENTS, PERMIT SAFE WORKING PRACTICES AND TO PROVIDE COMPETENT BASES FOR THE PLANNED WORK ACTIVITIES, INCLUDING BUT NOT LIMITED TO, PREPARATION OF SUBGRADE, MATERIAL QUALITY AND PLACEMENT OF BEDDING TO PROPOSED BOX CULVERTS.
 - DETERMINATION OF SAFE BATTER ANGLES DURING EXCAVATION.
 - SUITABILITY OF PROPOSED BACKFILL MATERIAL.
 - EXTENT OF UNSUITABLE MATERIAL CUT AREAS REQUIRING TREATMENT.
 - THE COMPACTION OF BACKFILL LAYERS IN TRENCHES.
- ALL STORMWATER TRENCHES SHALL BE BACKFILLED IN LAYERS OF LOOSE THICKNESS APPROPRIATE TO THE TYPE OF COMPACTION EQUIPMENT BEING USED AND NOT GREATER THAN 250mm. BACKFILLING IS TO BE COMPACTED TO THE MINIMUM DRY DENSITIES SPECIFIED. THE MOISTURE CONTENT OF BACKFILL MATERIAL SHOULD BE MAINTAINED WITHIN THE RANGE OF -1% TO +2% OF THE OPTIMUM MOISTURE CONTENT.
- IT IS THE CONTRACTORS RESPONSIBILITY TO PROTECT THE SITE AND SURROUNDING AREAS FROM DAMAGE RESULTING FROM STORMWATER RUNOFF. TEMPORARY DIVERSION DRAINS AND OR OTHER DRAINAGE CONTROL DEVICES ARE TO BE IMPLEMENTED BY THE CONTRACTOR DURING CONSTRUCTION TO MINIMISE THE EFFECTS OF WEATHER. NO EXTENSIONS OF TIME WILL BE GRANTED

SHOULD DAMAGE TO THE WORKS AND SURROUNDING AREAS RESULT FROM THE CONTRACTOR'S NEGLIGENCE IN NOT PROVIDING ADEQUATE PROTECTION.

- IMPORTED BACKFILL MATERIAL IF ORDERED, SHALL BE LOW PLASTICITY COHESIVE GRAVEL FILL HAVING THE FOLLOWING CHARACTERISTICS:

CBR	15% MIN
PLASTICITY INDEX	15% MAX
% PASSING 75mm SIEVE	100% MIN
% PASSING 19mm SIEVE	80% MIN
LIQUID LIMIT	45% MAX
SHRINK/SWELL INDEX	1% MAX
- IMPORTED BACKFILL MATERIAL PLACED ON THE SITE IS TO COMPRISE OF ONLY NATURAL EARTH AND ROCK AND IS TO BE FREE OF CONTAMINANTS (AS DEFINED BY SECTION 11 OF THE ENVIRONMENTAL PROTECTION ACT 1994), NOXIOUS, HAZARDOUS, DELETERIOUS AND ORGANIC MATERIALS.
- ALL DRAINAGE STRUCTURES ARE TO HAVE HALF HEIGHT BENCHING.
- ALL PIPE STUBS ARE TO BE FITTED WITH HARDBOARD PLANKS TO SEAL OFF END OF PIPE AND BACKFILLED.

STORMWATER DRAINAGE STRUCTURE NOTES:

- ALL DIMENSIONS PROVIDED ON STRUCTURE DETAILS ARE IN MILLIMETRES.
- SETOUT POINTS GIVEN FOR ALL STORMWATER STRUCTURES ARE TO THE CENTER OF THE CHAMBER. FINISHED SURFACE LEVELS NOMINATED FOR:
 - 2.1. ROADWAY GULLIES ARE AT THE ADJACENT LIP OF KERB;
 - 2.2. FIELD INLETS ARE AT THE TOP OF THE GRATE;
 - 2.3. ACCESS CHAMBERS ARE AT THE TOP OF THE ACCESS COVER.
- THE USE OF PRECAST COMPONENTS SHALL BE IN ACCORDANCE WITH THE RELEVANT AUTHORITY'S APPROVED PRODUCT LIST AND SUBJECT TO THE ENGINEERS APPROVAL.
- CONCRETE CLASS TO BE AS FOLLOWS:
 - UNREINFORCED STRUCTURES N25
 - REINFORCED STRUCTURES AS PER STRUCTURE DETAILS.
- PROVIDE WEEPHOLES IN ACCORDANCE WITH DETAIL SHOWN, IN THE UPSTREAM FACE OF ALL DRAINAGE STRUCTURES TO DRAIN UPSTREAM BEDDING IN TRENCHES.
- ALL PIPE ENDS ARE TO BE RENDERED FLUSH WITH THE INSIDE FACE OF DRAINAGE STRUCTURES WITH A MINIMUM 50mm COVER TO STEEL REINFORCEMENT.
- JOINTS BETWEEN PRECAST UNITS ARE TO BE COMPLETELY SEALED USING A METHOD APPROVED BY THE ENGINEER.
- BASES OF ALL DRAINAGE STRUCTURES ARE TO BE BENCH SMOOTHLY UP TO HALF HEIGHT OF PIPES (SPRING LINE).
- STEP IRONS/ACCESS LADDERS ARE TO BE PROVIDED TO ALL ACCESS CHAMBERS DEEPER THAN 850mm IN ACCORDANCE WITH BRISBANE CITY COUNCIL STANDARDS. STEP IRONS SHALL BE INSTALLED IN ACCORDANCE WITH AS1657.
- COVERS AND GRATES TO BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

0 20 40 60 80 100m
SCALE 1:1000

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C	3/12/2014	AFT ISSUE	ZA	DS	MH	
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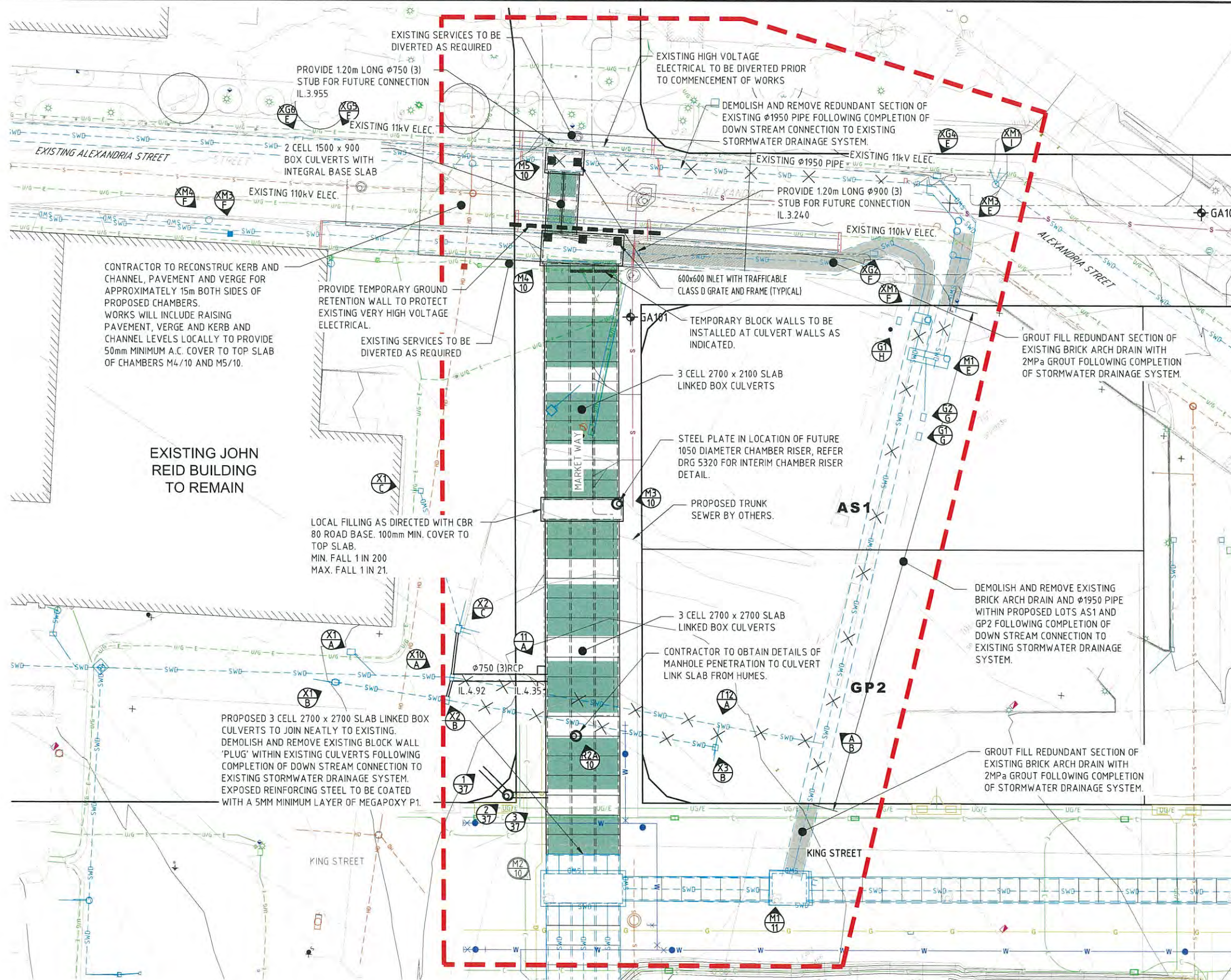
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Drawn JM	Date Aug-14	Client LEND LEASE
Checked ZA	Date Aug-14	RNA SHOWGROUND REDEVELOPMENT ENABLING WORKS - STAGE 2 TRUNK STORMWATER
Designed ZA	Date Aug-14	
Cardno Ref. No. A10697-048		DETAILS AND KEY PLAN - STORMWATER DRAINAGE
Status FOR TENDER ONLY NOT TO BE USED FOR CONSTRUCTION PURPOSES		
A.H.D. DATUM	Grid	Scale AS SHOWN
Drawing Number 161163-050-DD-C-301-5302	Revision C	



STORMWATER TRENCH RESTORATION IN ROAD, VERGE AND FOOTPATH TO BE IN ACCORDANCE WITH BCC STD DRGS BSD 2042 AND 2043.

LEGEND

PROPOSED STORMWATER CULVERT	
PROPOSED STORMWATER	
PROPOSED SEWERAGE FOR FUTURE USE (NO LIVE CONNECTION)	
EXISTING KERB AND CHANNEL	
EXISTING UNDERGROUND ELECTRICITY	
EXISTING SEWERAGE	
EXISTING TELSTRA	
EXISTING GAS	
EXISTING WATER	
EXISTING STORMWATER	
EXTENT OF WORKS	
BOREHOLE, REFER GEOTECHNICAL REPORT	

PLANS AND DOCUMENTS referred to in the PDA APPROVAL

- 9 FEB 2015

MEDQ

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0 5 10 15 20 25m
SCALE 1:250

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Drawn: JM
Checked: ZA
Designed: ZA
Cardno Ref. No.: A10697-048

Date: Aug-14
Date: Aug-14
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Client: LEND LEASE
RNA SHOWGROUND REDEVELOPMENT
ENABLING WORKS - STAGE 2
TRUNK STORMWATER
LAYOUT PLAN

Status: FOR TENDER ONLY
NOT TO BE USED FOR CONSTRUCTION PURPOSES
A.H.D. DATUM
Grid
Scale: AS SHOWN
Size: A1
Drawing Number: 161163-050-DD-C-301-5305
Revision: C

PROVIDE 120m LONG Ø750 (3) STUB TO BE CAPPED FOR FUTURE CONNECTION IL.3.955

1 5307

2 5307

IL. 3.492

600x600 INLET WITH TRAFFICABLE CLASS D GRATE AND FRAME

IL. 3.496

600x600 INLET WITH TRAFFICABLE CLASS D GRATE AND FRAME

EXISTING KEBB BACK

EXISTING KEBB LIP

EXISTING Ø950 SWD PIPE

2000

1500x900 RCBC

1500x900 RCBC

Ø225 SEWER

PROVIDE TEMPORARY GROUND RETENTION WALL TO PROTECT VERY HIGH VOLTAGE ELECTRICAL CABLE

3 5307

EXISTING KEBB LIP

4 5308

IL. 3.300

600x600 INLET WITH TRAFFICABLE CLASS D GRATE AND FRAME

3.095

600x600 INLET WITH TRAFFICABLE CLASS D GRATE AND FRAME

3.095

TEMPORARY BLOCK WALLS TO BE INSTALLED AT CULVERT WALLS AS INDICATED. REFER DETAIL

RELOCATE EXISTING STREET SIGN

600x600 INLET WITH TRAFFICABLE CLASS D GRATE AND FRAME

3.075

3.075

2700x2700 RCBC

2700 SPANNING SLAB

2700x2700 RCBC

EXISTING BOUNDARY

EXISTING STONE CHANNEL BRICK ARCH STORMWATER DRAIN

DEMOLISH AND REMOVE EXISTING LIGHT POLE.

PROVIDE 120m LONG Ø900 (3) STUB TO BE CAPPED FOR FUTURE CONNECTION IL.3.240

MA 10

PROPOSED TRUNK SEWER BY OTHERS

!!! WARNING !!!
EXISTING 11kV ELECTRICAL RETICULATION

!!! WARNING !!!
EXISTING 110kV ELECTRICAL RETICULATION

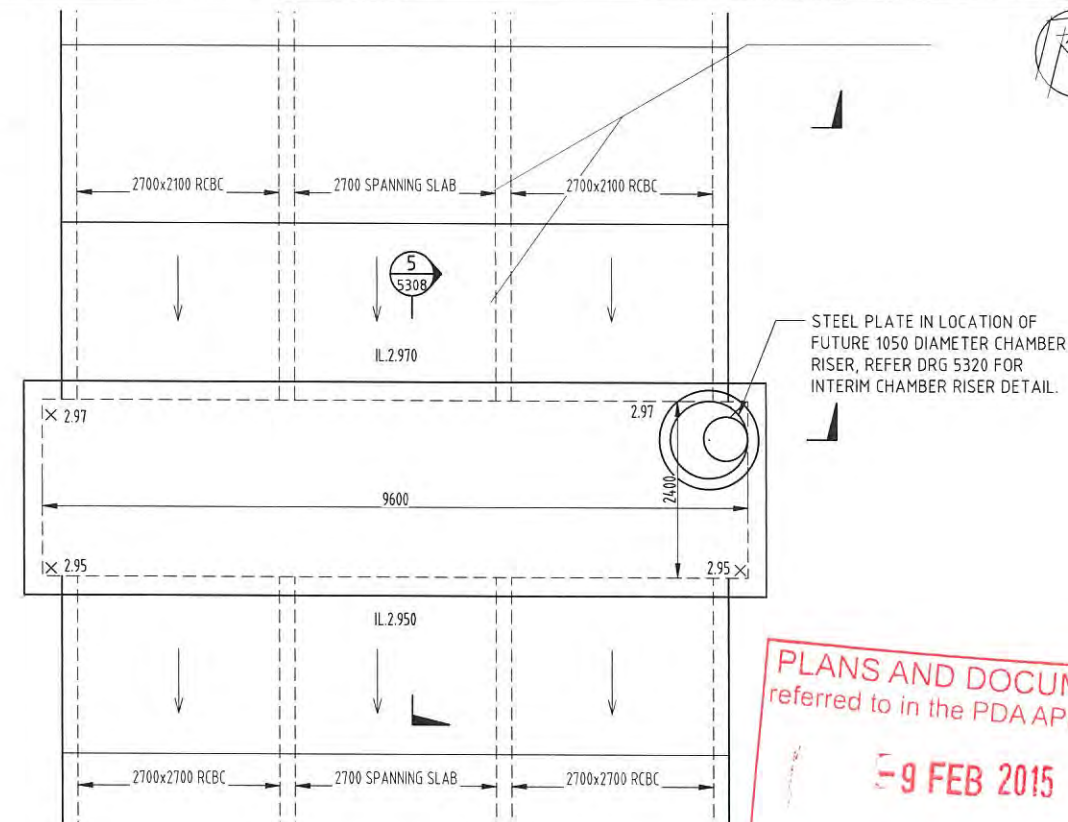
DEMOLISH OR DIVERT SERVICES AS REQUIRED

BEWARE OF UNDERGROUND SERVICES

Scale 1:50

!!! WARNING !!!
HIGH VOLTAGE ELECTRICAL
RETICULATION IN VICINITY OF
PROPOSED WORKS.

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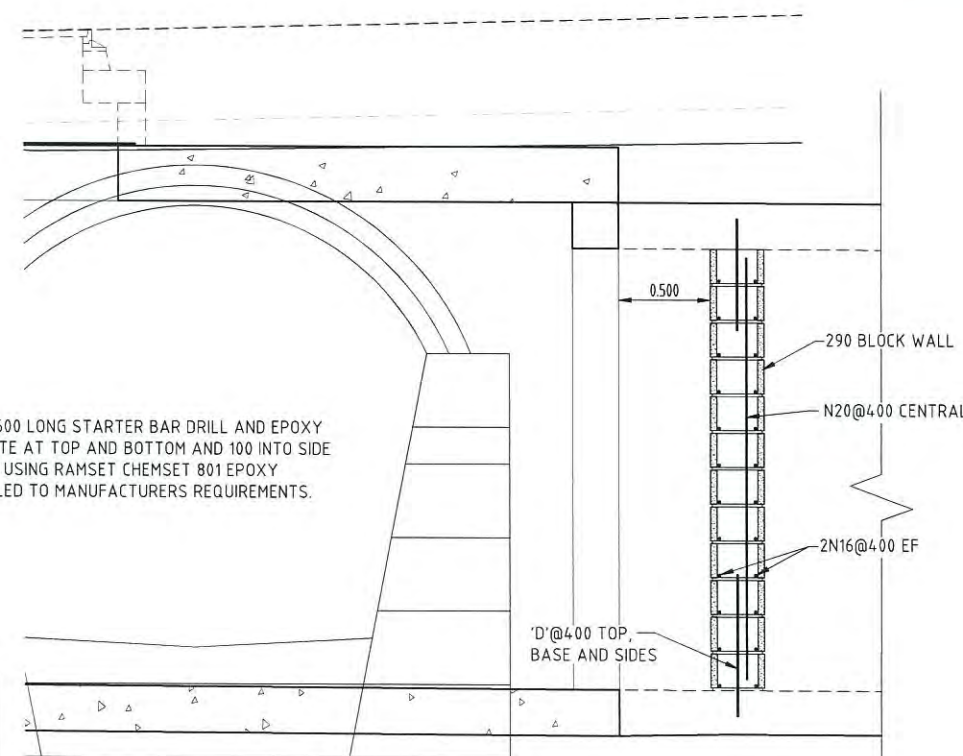


Scale 1:50

PLANS AND DOCUMENTS
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5 FEB 2015

MEDC



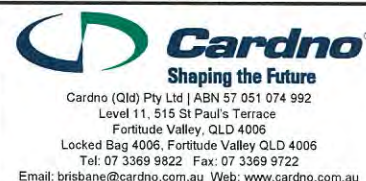
Scale 1:20

NOTE:
'D' DENOTE N16x600 LONG STARTER BAR DRILL AND EPOXY
150 INTO CONCRETE AT TOP AND BOTTOM AND 100 INTO SIDE
WALLS. INSTALL USING RAMSET CHEMSET 801 EPOXY
SYSTEM INSTALLED TO MANUFACTURERS REQUIREMENTS.

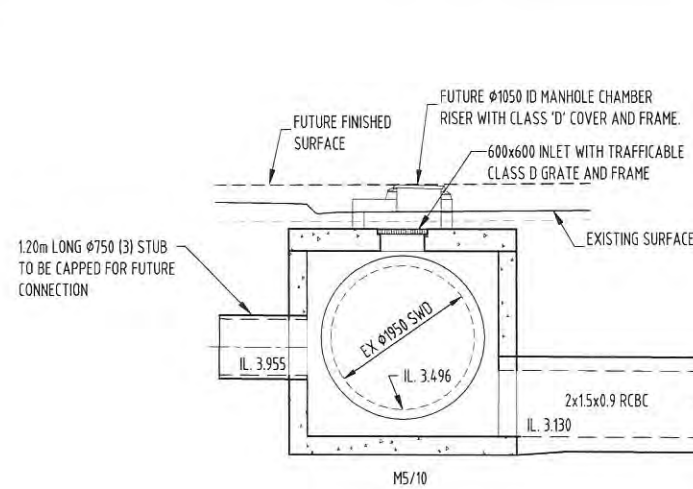
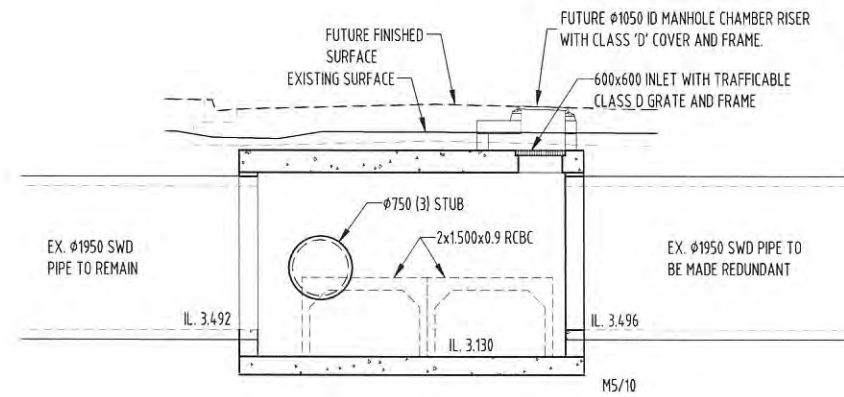
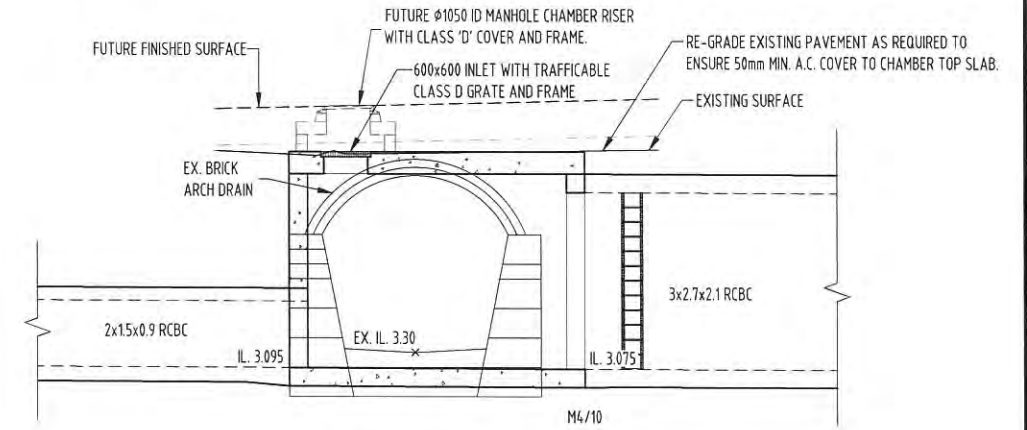
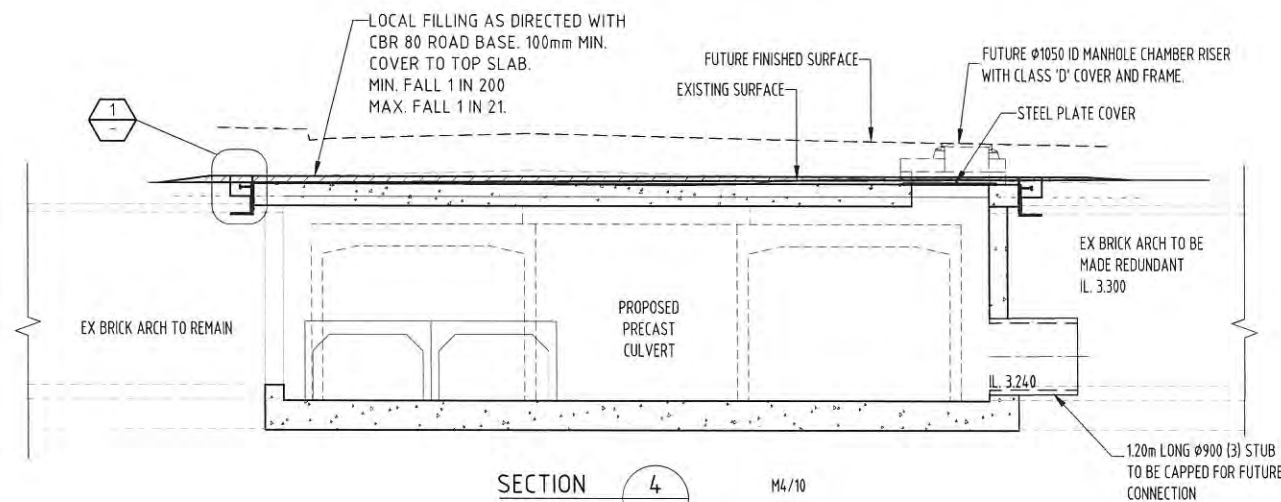
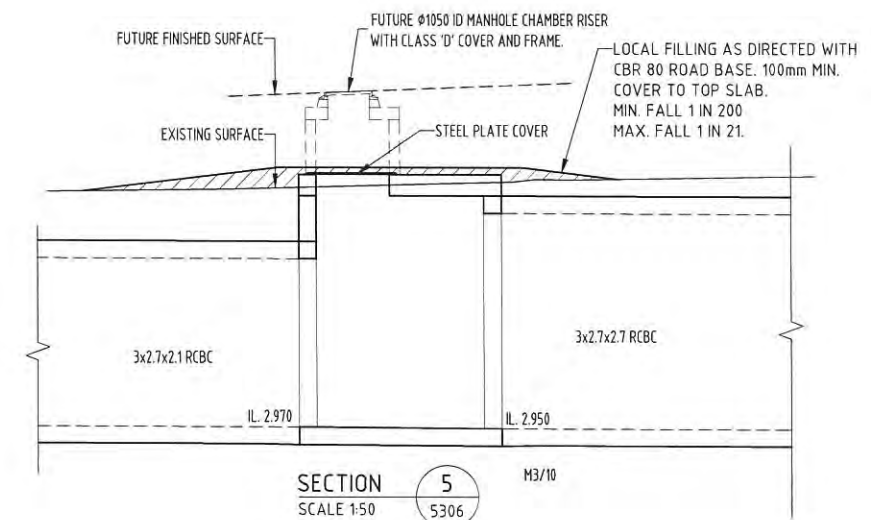
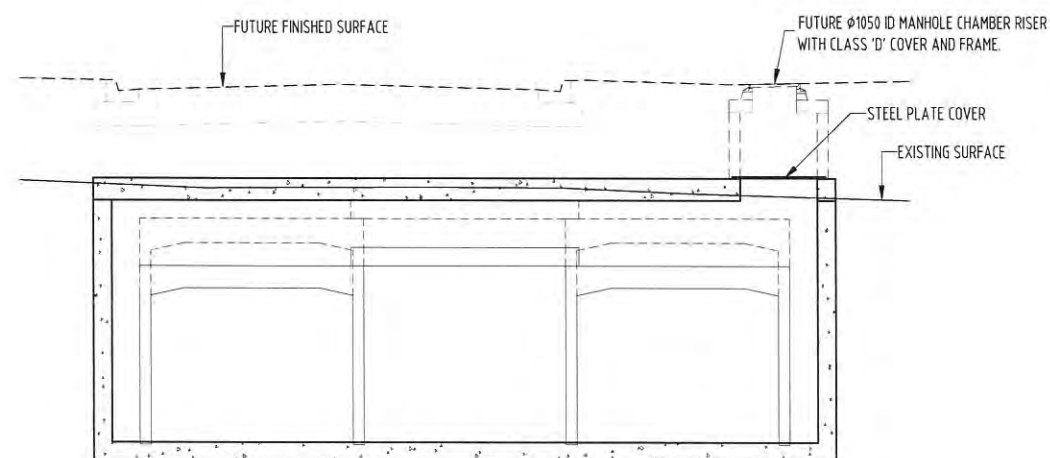
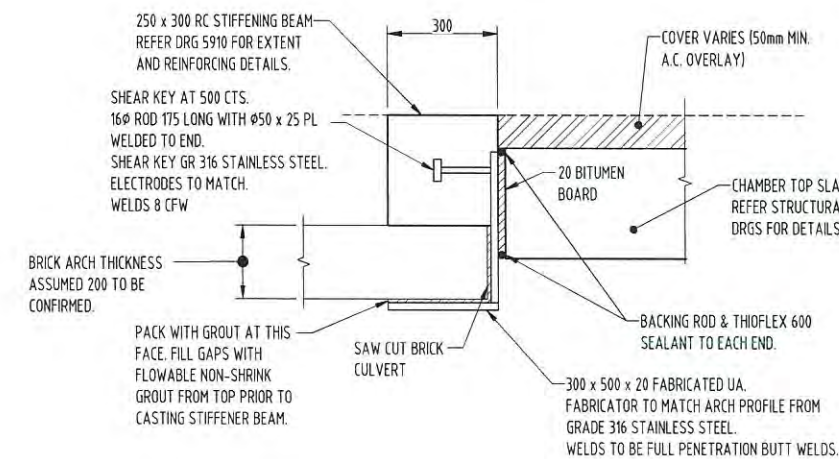
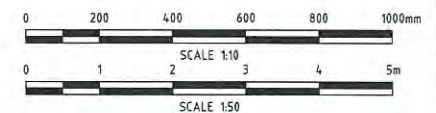
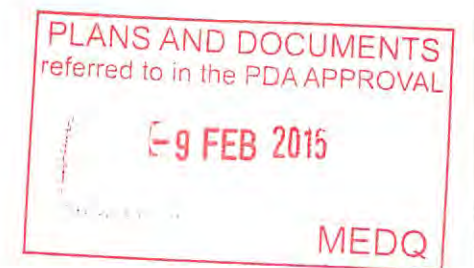
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C	3/12/2014	AFT ISSUE								Approved
B	31/08/2014	AFT ISSUE	ZA	DS	MH					
A	15/08/2014	AFT ISSUE	ZA	DS	MH					Date
Rev.	Date	Description	Des.	Verif.	Appd.	RPEQ No.				



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Drawn JM	Date Aug-14	Client LEND LEASE	SCALE 1:50			
Checked ZA	Date Aug-14	RNA SHOWGROUND REDEVELOPMENT	Status FOR TENDER ONLY			
Designed ZA	Date Aug-14	ENABLING WORKS - STAGE 2	NOT TO BE USED FOR CONSTRUCTION PURPOSES			
Cardno Ref. No.		TRUNK STORMWATER	A.H.D. DATUM	Grid	Scale AS SHOWN	Size A1
A10697-048		DETAIL LAYOUT PLAN	Drawing Number 161163-050-DD-G-301-5306			
			Revision C			

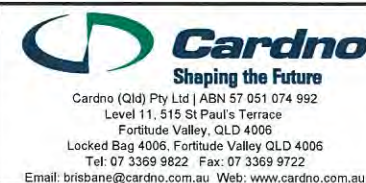
SECTION 1
SCALE 1:50
5306SECTION 2
SCALE 1:50
5306SECTION 3
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SCALE 1:50
5306SECTION 6
SCALE 1:50
5306DETAIL 1
SCALE 1:10
5306

Rev.	Date	Description	Des.	Verif.	Appd.	RPEQ No.
C	3/12/2014	AFT ISSUE	ZA	DS	MH	
B	31/08/2014	AFT ISSUE	ZA	DS	MH	
A	15/08/2014	AFT ISSUE	ZA	DS	MH	

Verified	Date
Approved	20/08/2014
Date	



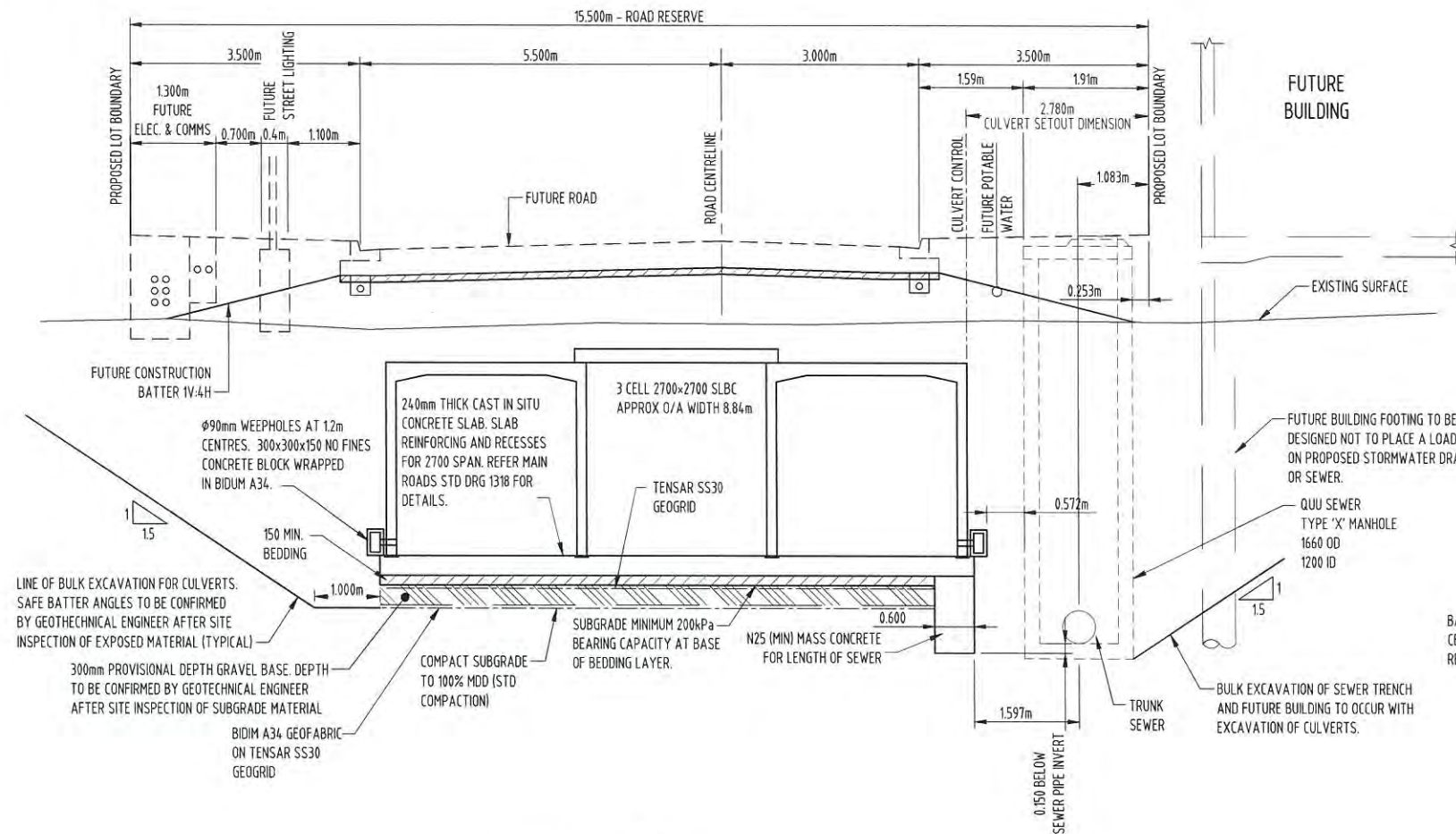
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Designed	ZA
Cardno Ref. No.	A10697-048

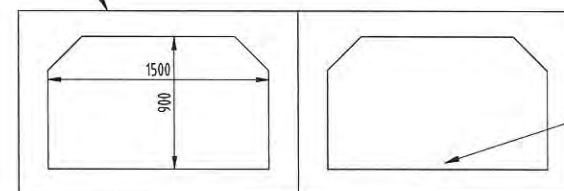
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Client	LEND LEASE
RNA SHOWGROUND REDEVELOPMENT	
ENABLING WORKS - STAGE 2	
TRUNK STORMWATER	
DETAIL SECTIONS	
SHEET 1 OF 2	

Status	FOR TENDER ONLY
NOT TO BE USED FOR CONSTRUCTION PURPOSES	
A.H.D.	DATUM
Grid	Scale
AS SHOWN	Size
A1	Revision
Drawing Number	161163-050-DD-C-301-5307
C	



SECTION 7
SCALE 1:50

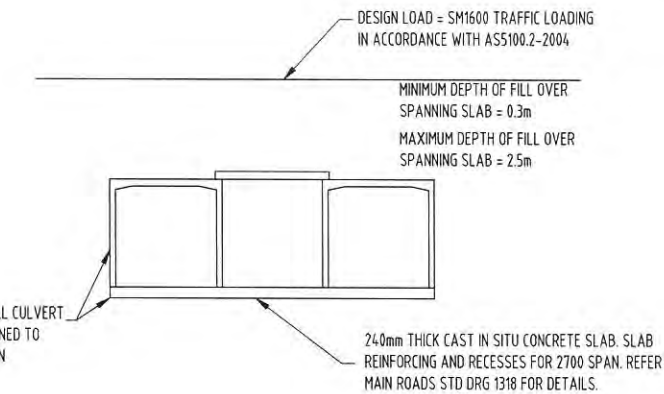
2/RCBC's MAY BE REQUIRED TO BE CAST AS ONE UNIT TO FACILITATE CONSTRUCTION WITH TRENCHLESS METHODS. REFER MANUFACTURER FOR CULVERT DESIGN



RCBC DETAILS - 2/1500W x 900H - M4/10 TO M5/10

RCBC'S TO BE CAST WITH INTEGRAL BASE SLAB TO SUIT INSTALLATION WITH TRENCHLESS METHODS

CULVERT SUBGRADE PREPARATION, BEDDING, WEEPHOLES AND SEWER PROTECTION SUBJECT TO CONFIRMATION BY GEOTECHNICAL ENGINEER



PERFORMANCE REQUIREMENTS FOR PRECAST CULVERTS, BASE SLABS AND CHAMBER COMPONENTS

CULVERT NOTES

- DESIGN AND INSTALLATION OF CULVERTS TO COMPLY WITH BRISBANE CITY COUNCIL SPECIFICATIONS, QLD TRANSPORT AND MAIN ROADS TECHNICAL SPECIFICATIONS.
- REFER QLD TRANSPORT AND MAIN ROADS STANDARD CULVERT DRAWINGS 1316, 1318, 1320 AND 1359.
- CULVERTS TO BE DESIGNED WITH CONSIDERATION OF DURABILITY, EXPOSURE AND PASS EFFECTS (DURABILITY CLASS B2).
- SEAL BUTT JOINTS BETWEEN CULVERTS EXTERNALLY BY APPLYING A 300mm WIDE STRIP OF BITUTHENE 5300. SEAL THE TOP AND LEGS AGAINST THE EARTH.
- PRECAST CULVERT CELLS TO BE SET IN 10mm BED OF 1:3 CEMENT MORTAR.
- FOR EXISTING GROUND CONDITIONS REFER GEOTECHNICAL INVESTIGATION AND POTENTIAL ACID SULPHATE SOIL (PASS) MANAGEMENT PLAN.
- REFER SECTION 7 FOR SUBGRADE PREPARATION, BEDDING, WEEPHOLE AND SEWER PROTECTION DETAILS.
- REINFORCED CONCRETE BOX CULVERTS BETWEEN M4/10 AND M5/10 TO BE DESIGNED BY MANUFACTURER TO SUIT INSTALLATION BY TRENCHLESS METHOD. CULVERTS TO BE CAST WITH INTEGRAL BASE SLABS. RCBC END UNITS FOR EXTENSION INTO CHAMBER M4/10 TO HAVE BASE SLAB NOTCHED 300mm TO ENABLE LEGS OF RCBC'S TO EXTEND INTO INNER WALL OF CHAMBER.

PLANS AND DOCUMENTS referred to in the PDA APPROVAL

-9 FEB 2015

MEDQ

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SCALE 1:50

Rev	Date	Description	Des.	Verif.	Appd.	RPEQ No.
C	3/12/2014	AFT ISSUE	ZA	DS	MH	
B	31/08/2014	AFT ISSUE	ZA	DS	MH	
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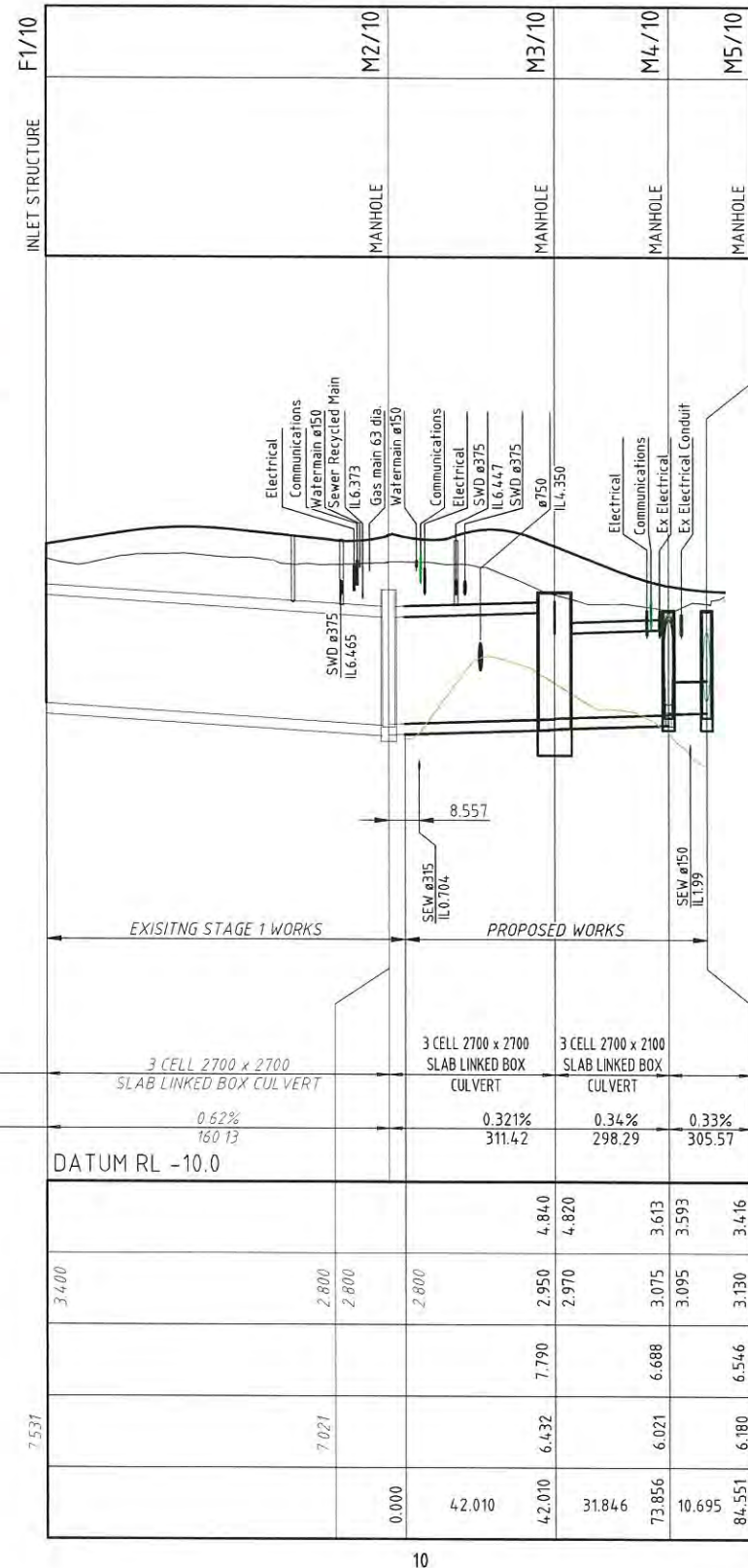
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Drawn	JM	Date	Aug-14
Checked	ZA	Date	Aug-14
Designed	ZA	Date	Aug-14
Cardno Ref. No.	A10697-048		

Client	LEND LEASE
RNA SHOWGROUND REDEVELOPMENT	
ENABLING WORKS - STAGE 2	
TRUNK STORMWATER	
DETAIL SECTIONS	
SHEET 2 OF 2	

Status	FOR TENDER ONLY			
NOT TO BE USED FOR CONSTRUCTION PURPOSES				
A.H.D.	Grid	Scale	Size	Revision
DATUM		AS SHOWN	A1	
Drawing Number				
161163-050-DD-C-301-5308				C

!!! WARNING !!!
HIGH VOLTAGE ELECTRICAL
RETICULATION IN VICINITY
OF PROPOSED WORKS.



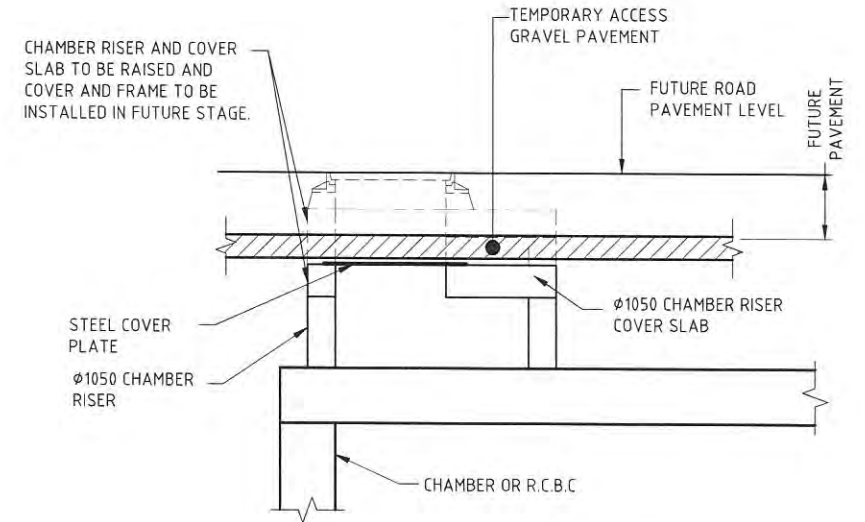
SIZEmm
GRADE %
SLOPE 1 in X
DEPTH TO INVERT
INVERT LEVEL OF DRAIN
FINISHED SURFACE LEVEL
EXISTING SURFACE LEVEL
RUNNING CHAINAGE

STORMWATER TRENCH RESTORATION IN ROAD, VERGE AND FOOTPATH TO BE IN ACCORDANCE WITH BCC STD DRGS BSD 2042 AND 2043.

STRUCTURE NAME	STRUCTURE DESCRIPTION

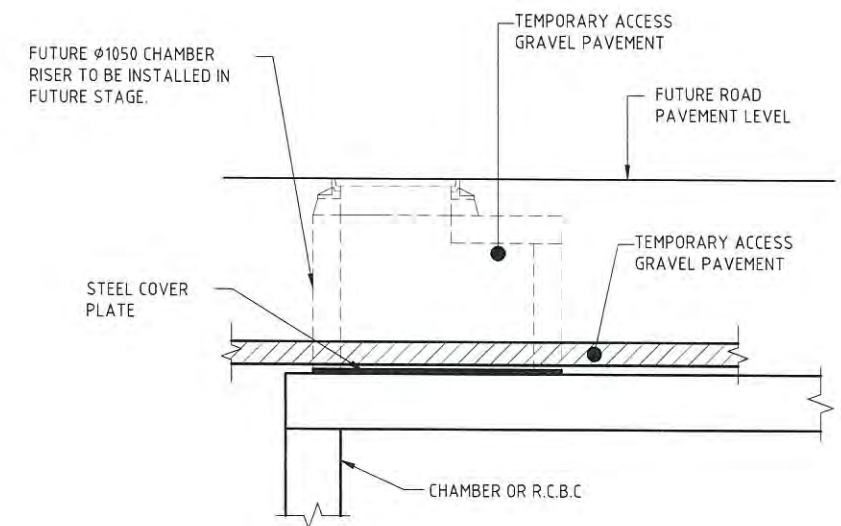
PIPE SIZE(mm (Class))		600(3)	600(3)
PIPE GRADE %		0.20%	0.20%
PIPE SLOPE 1 in X		500.00	500.00
FULL PIPE FLOW VELOCITY (m/s)		0.97	0.97
PART FULL FLOW VELOCITY (m/s)			
WATER LEVEL IN STRUCTURE	3.441		3.427
HYDRAULIC GRADE LEVEL	3.441	3.441	3.427
PIPE FLOW (Cumecs)		0.000	0.000
PIPE CAPACITY AT GRADE (Cumecs)		0.274	0.274
DEPTH TO INVERT		4.558	5.334
INVERT LEVEL OF DRAIN		2.850	2.841
DESIGN SURFACE LEVEL	7.408	8.175	7.974
EASTING	503302.416	6963502.835	503302.705
NORTHING		6963498.719	503306.214
RUNNING CHAINAGE	0.000	4.565	4.668

LINE

[illegible]

INTERIM CHAMBER RISER DETAIL
AT STAGE 2 ENABLING WORKS (TYPICAL)
FOR MANHOLE R2A/1

COVER SLAB AND CHAMBER RISER TO
BE RAISED TO SUIT FUTURE FINISHED
SURFACE IN FUTURE STAGE. REFER
TYPICAL DETAIL ON THIS DRAWING.



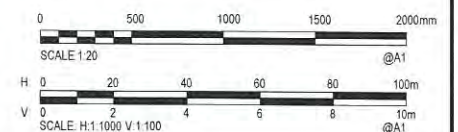
INTERIM CHAMBER RISER DETAIL
AT STAGE 2 ENABLING WORKS (TYPICAL)
FOR M3/1, M4/1 AND M5/1

SCALE 1:20
AT A1

PLANS AND DOCUMENTS
referred to in the PDA APPROVAL

-9 FEB 2015

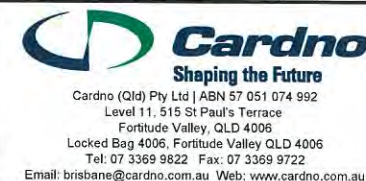
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									Verified
									Date
									Approved
C	31/08/2014	AFT ISSUE							
B	18/08/2014	AFT ISSUE	ZA	DS	MH				
A	15/08/2014	AFT ISSUE	ZA	DS	MH				
Rev.	Date	Description	Des.	Verif.	Appd.	RPEQ No.			Date



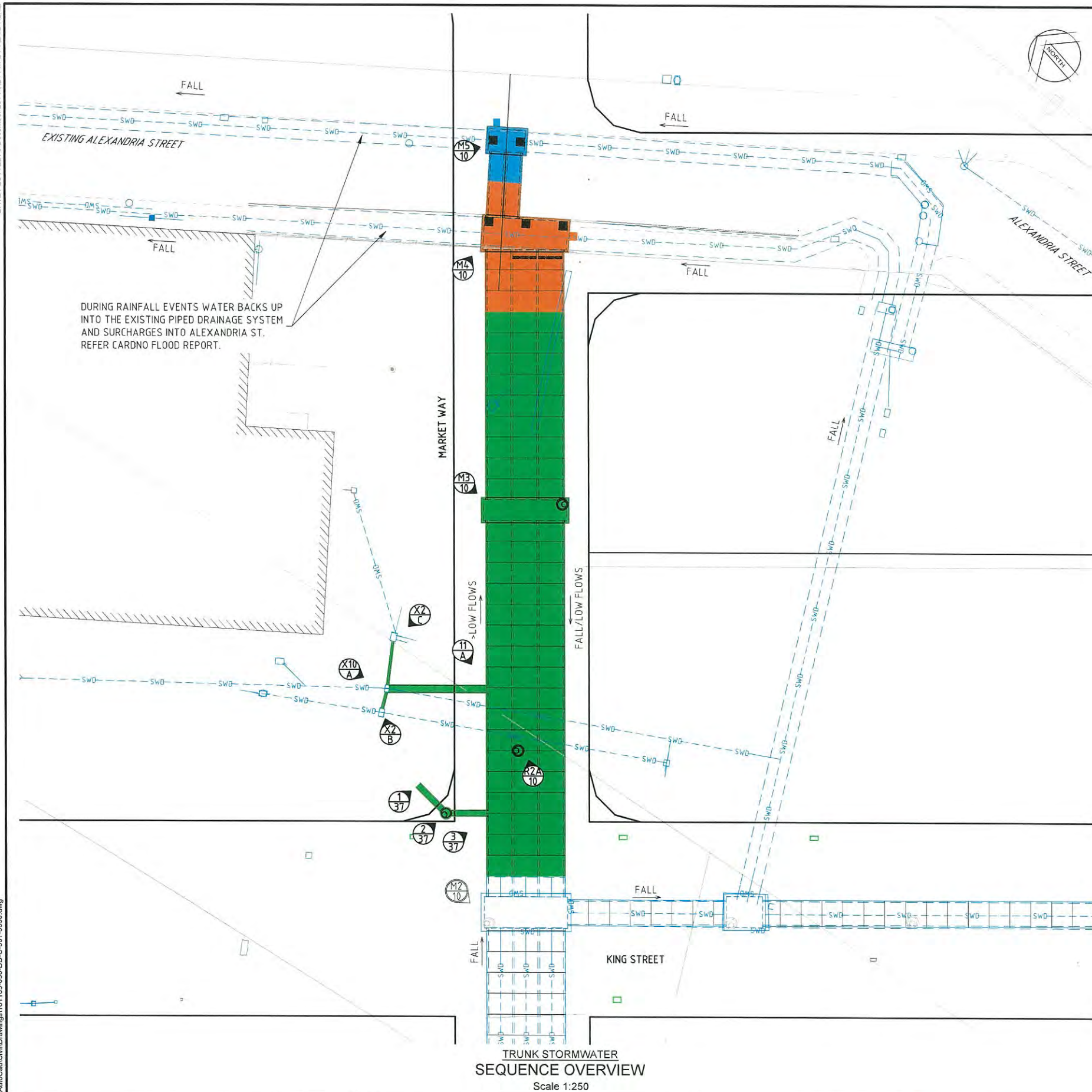
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Drawn JM	Date Aug-14	Client LEND LEASE		Status FOR TENDER ONLY	
Checked ZA	Date Aug-14	RNA SHOWGROUND REDEVELOPMENT		NOT TO BE USED FOR CONSTRUCTION PURPOSES	
Designed ZA	Date Aug-14	ENABLING WORKS - STAGE 2		A.H.D. DATUM	Grid
Cardno Ref. No.		TRUNK STORMWATER		Scale AS SHOWN	Size A1
A10697-048		LONGITUDINAL SECTION		Drawing Number 161163-050-DD-C-301-5320	Revision C

DATE PLOTTED: 3 December 2014 6:24 PM BY : ZAID ALALI

XREF's: X-A10697-048, QLD-SHT-A1: X-A10697-036 SURVEY; X-A10697-036, CONT; X-A10697-036, SERVICES; X-A10697-050, DESIGN
CAD FILE: K:\A10697\Phase 048\AutoCad\Drawings\161163-050-DD-C-301-5330.dwg



NOTES:

1. INDICATIVE CONSTRUCTION SEQUENCE PROVIDED AS ONE POSSIBLE SEQUENCE FOR CONSTRUCTING THE STAGE 2 TRUNK STORMWATER ENABLING WORKS.
2. THE CONTRACTOR SHALL PREPARE AND SUBMIT A CONSTRUCTION MANAGEMENT PLAN WITH THEIR TENDER DOCUMENTATION TO DEMONSTRATE PROPOSED SEQUENCE AND METHOD OF CONSTRUCTION.
3. THE CONTRACTORS CMP IS TO DEMONSTRATE PROCEDURES FOR EVACUATION OF PERSONNEL FROM WITHIN THE STORMWATER TRENCH AND STORMWATER SYSTEM DURING RAINFALL EVENTS. CONTRACTOR IS TO COORDINATE THEIR WORKS AND STAGING WITH OTHER ADJOINING CONTRACTS.
4. EXISTING AND PROPOSED HIGH LEVEL SERVICES (GAS, ELEC, COMMS, WATER, ETC.) OMITTED FROM DRG FOR CLARITY.

STAGING LEGEND

- STAGE 2A - REFER DRG 5331 FOR NOTES AND DETAILS
- STAGE 2B - REFER DRG 5332 FOR NOTES AND DETAILS
- STAGE 2C - REFER DRG 5333 FOR NOTES AND DETAILS

LEGEND

- PROPOSED STORMWATER
- PROPOSED SEWERAGE FOR FUTURE USE (NO LIVE CONNECTION)
- EXISTING KERB AND CHANNEL
- EXISTING UNDERGROUND ELECTRICITY
- EXISTING SEWERAGE
- EXISTING SANITARY DRAINAGE
- EXISTING TELSTRA
- EXISTING GAS
- EXISTING WATER
- EXISTING STORMWATER
- EXTENT OF WORKS
- BOREHOLE, REFER GEOTECHNICAL REPORT

PLANS AND DOCUMENTS
referred to in the PDA APPROVAL

-9 FEB 2015

MEDQ

WARNING!
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES HAVE BEEN INTERPOLATED FROM GIS DATA OR KNOWN POSITIONS OF VALVES, MANHOLES ETC. OR INFORMATION SUPPLIED BY SERVICE AUTHORITIES. NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THE INTERPOLATED INFORMATION SUPPLIED. ENSURE ALL SERVICES ARE ACCURATELY LOCATED PRIOR TO COMMENCEMENT OF WORK.



Verified		Date	
Approved		Date	
B	3/12/2014	AFT ISSUE	ZA DS MH
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Rev	Date	Description	Des. Verif. Appd. RPEQ No.



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Drawn ZA
Checked DS
Designed ZA
Cardno Ref. No. A10697-048

Date Aug-14
Date Aug-14
Date Aug-14
Client LEND LEASE
RNA SHOWGROUND REDEVELOPMENT
ENABLING WORKS - STAGE 2
TRUNK STORMWATER
INDICATIVE STORMWATER DRAINAGE SEQUENCE
OVERVIEW

Status FOR TENDER ONLY NOT TO BE USED FOR CONSTRUCTION PURPOSES			
A.H.D.	Grid	Scale AS SHOWN	Size A1
Drawing Number 161163-050-DD-C-301-5330		Revision B	



1. DEMOLISH AND REMOVE ALL REDUNDANT STRUCTURES AND SERVICES WITHIN THE STAGE 2 CULVERT CONSTRUCTION AREA. WORKS TO BE DESIGNED AND EXCAVATED BY LICENSED PERSONS AT THE CONTRACTORS COST.
2. REDIRECT AND RECONNECT SERVICES TO EXISTING STRUCTURES TO BE RETAINED. WORKS TO BE DESIGNED AND CONSTRUCTED BY LICENSED PERSONS AT CONTRACTORS COST.
3. PROVIDE TEMPORARY PLUG IN Ø750 OUTLET PIPE IN X10/A
4. PROVIDE TEMPORARY CROSS TRENCH DRAINAGE THROUGHOUT CONSTRUCTION FROM GULLY PIT X10/A TO EXPOSED PIPE END T12/A
5. CONSTRUCT NEW Ø750 CLASS 3 RCP FROM EXISTING CHAMBER X10/A TO NEW RCBC CONNECTION 11/A.
6. PROVIDE 1m MIN THICK N20 MASS CONCRETE SUPPORT TO FULL HEIGHT OF CULVERT LEG 1m MIN EACH SIDE OF PIPE PENETRATION AT CONNECTIONS TO RCBC 11/A AND 3/37.
7. CONSTRUCT NEW Ø225 uPVC CLASS SN8 SWD PIPE FROM X2/C TO X10/A. U/S IL 5.95, D/S IL 5.85. PLUG EXISTING OUTLETS AT X2/E.
8. CONSTRUCTING NEW Ø225 uPVC CLASS SN8 SWD PIPE FROM X2/B TO X10/A. U/S IL 6.10, D/S IL 5.90. PLUG EXISTING OUTLET AT X2/B.
9. UNDERTAKE LOCAL REGRADING WORKS ABOVE CHAMBER M3/10 TO ENSURE FINISHED SURFACE IS A MINIMUM OF 100mm ABOVE SURFACE LEVEL OF TOP SLAB. MAXIMUM GRADE OF FINISHED SURFACE IN ANY DIRECTION NOT TO EXCEED 1 IN 20.
10. REINSTATE ALL DISTURBED SURFACES TO MATCH PRE-CONSTRUCTION PROFILES.

STAGE 2A - REFER DRG 5331 FOR NOTES
AND DETAILS
STAGE 2B - REFER DRG 5332 FOR NOTES
AND DETAILS
STAGE 2C - REFER DRG 5333 FOR NOTES
AND DETAILS

PROPOSED STORMWATER

PROPOSED SEWERAGE FOR FUTURE USE
(NO LIVE CONNECTION)

EXISTING KERB AND CHANNEL

EXISTING UNDERGROUND ELECTRICITY

EXISTING SERVICE TO BE REMOVED

EXISTING SEWERAGE

EXISTING SANITARY DRAINAGE

EXISTING TELSTRA

EXISTING GAS

EXISTING WATER

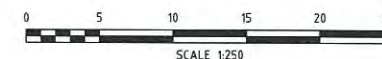
EXISTING STORMWATER

-9 FEB 2015

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INTERPOLATED FROM GIS DATA OR KNOWN POSITIONS
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LOCATED PRIOR TO COMMENCEMENT OF WORK.

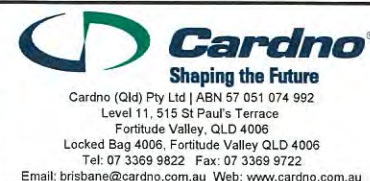
PROPOSED HIGH LEVEL SERVICES
(GAS, ELEC, COMMS, WATER, ETC.)
OMITTED FROM DRG FOR CLARITY.



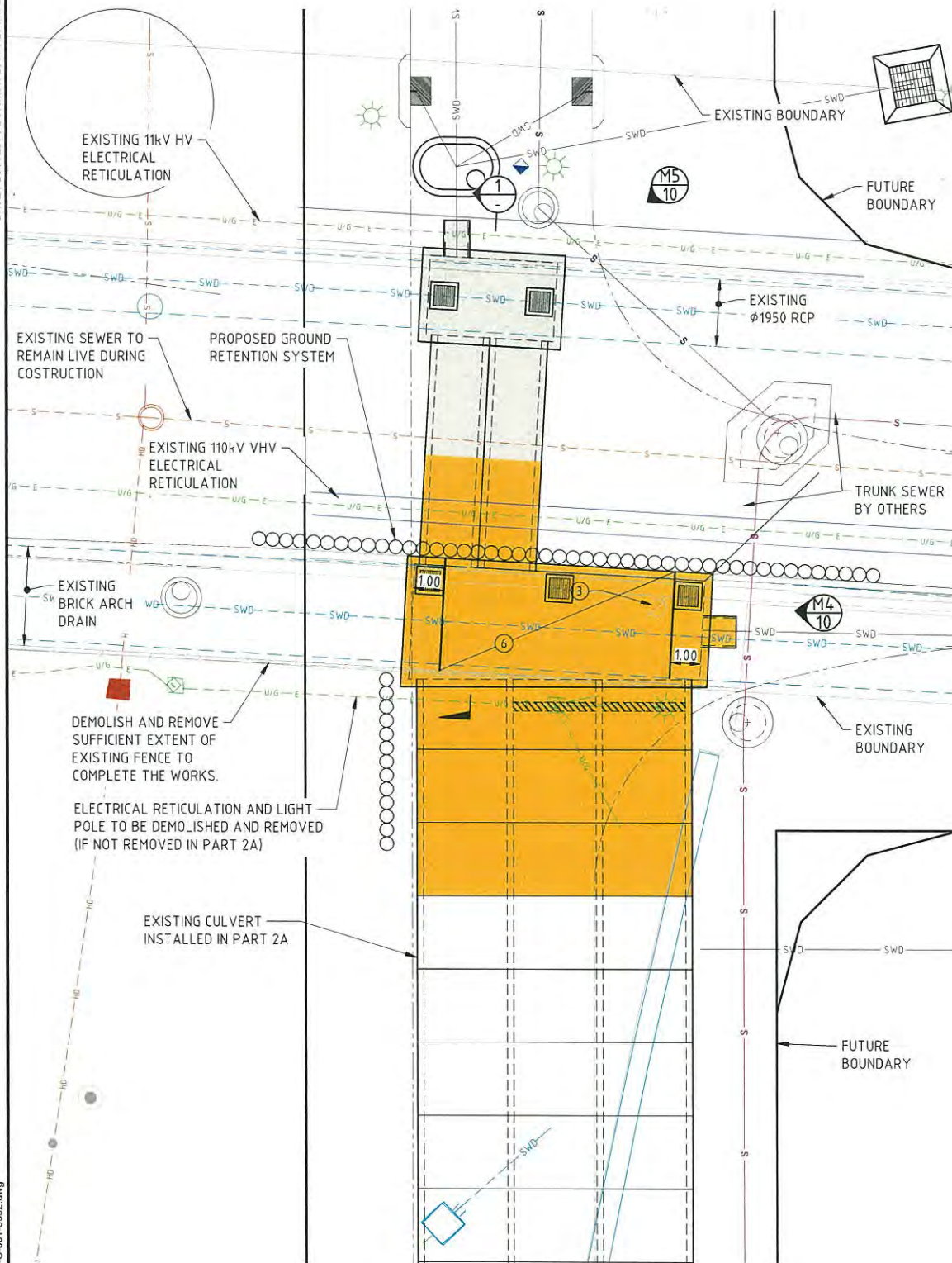
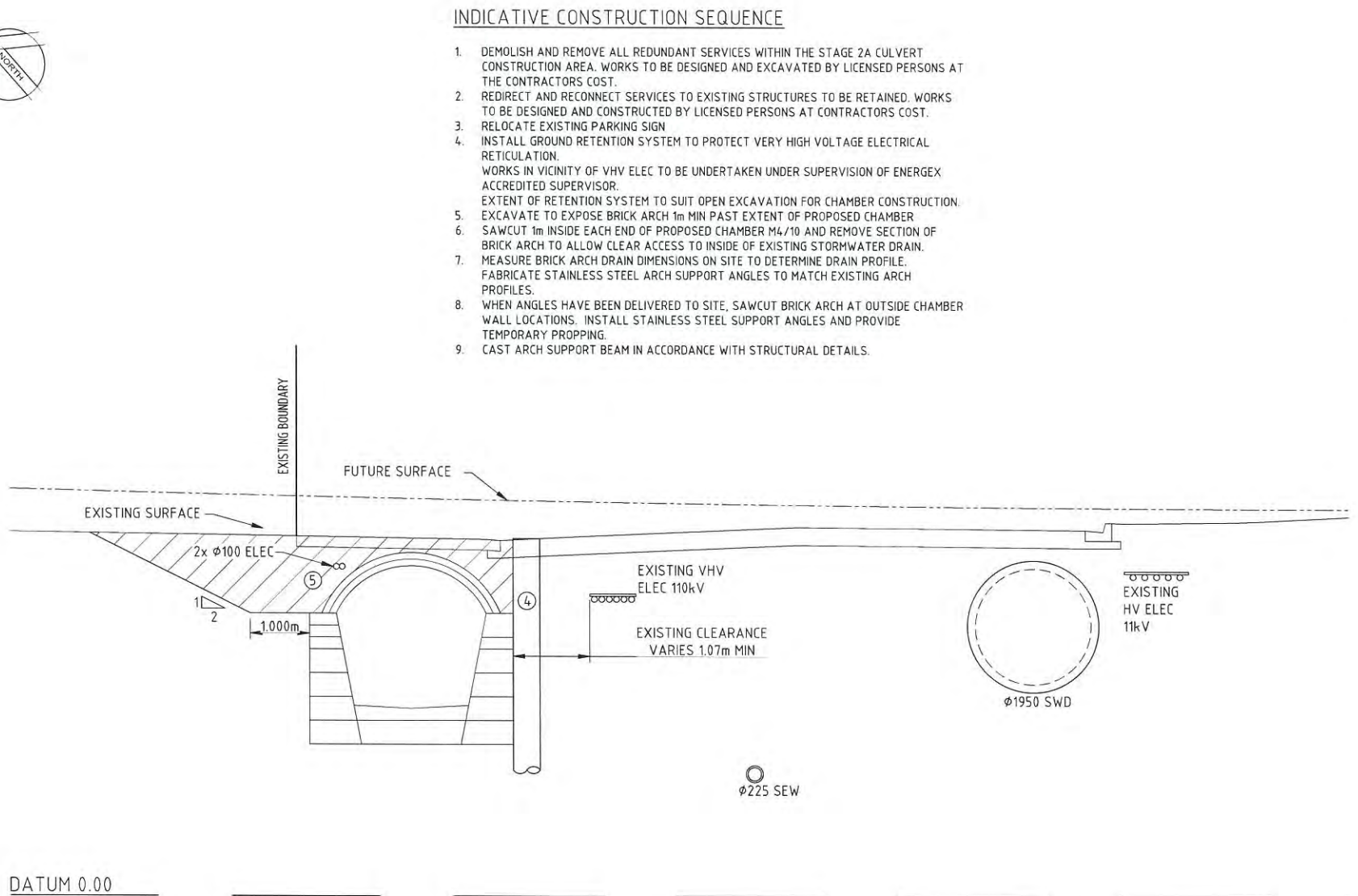
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Checked DS	Date Aug-14	RNA SHOWGROUND REDEVELOPMENT	Status FOR TENDER ONLY NOT TO BE USED FOR CONSTRUCTION PURPOSES				
Designed ZA	Date Aug-14	ENABLING WORKS - STAGE 2 TRUNK STORMWATER					
Cardno Ref. No. A10697-048	INDICATIVE STORMWATER DRAINAGE SEQUENCE - 2A SHEET 1		A.H.D. DATUM	Grid Scale AS SHOWN	Size A1	Drawing Number 161163-050-DD-C-301-5331	Revision

DETAIL LAYOUT PLAN - SEQUENCING PLAN - 2B
Scale 1:100

INDICATIVE CONSTRUCTION SEQUENCE

1. DEMOLISH AND REMOVE ALL REDUNDANT SERVICES WITHIN THE STAGE 2A CULVERT CONSTRUCTION AREA. WORKS TO BE DESIGNED AND EXCAVATED BY LICENSED PERSONS AT THE CONTRACTORS COST.
2. REDIRECT AND RECONNECT SERVICES TO EXISTING STRUCTURES TO BE RETAINED. WORKS TO BE DESIGNED AND CONSTRUCTED BY LICENSED PERSONS AT CONTRACTORS COST.
3. RELOCATE EXISTING PARKING SIGN
4. INSTALL GROUND RETENTION SYSTEM TO PROTECT VERY HIGH VOLTAGE ELECTRICAL RETICULATION.
WORKS IN VICINITY OF VHV ELEC TO BE UNDERTAKEN UNDER SUPERVISION OF ENEREX ACCREDITED SUPERVISOR.
5. EXCAVATE TO EXPOSE BRICK ARCH 1m MIN PAST EXTENT OF PROPOSED CHAMBER
6. SAWCUT 1m INSIDE EACH END OF PROPOSED CHAMBER M4/10 AND REMOVE SECTION OF BRICK ARCH TO ALLOW CLEAR ACCESS TO INSIDE OF EXISTING STORMWATER DRAIN.
7. MEASURE BRICK ARCH DRAIN DIMENSIONS ON SITE TO DETERMINE DRAIN PROFILE. FABRICATE STAINLESS STEEL ARCH SUPPORT ANGLES TO MATCH EXISTING ARCH PROFILES.
8. WHEN ANGLES HAVE BEEN DELIVERED TO SITE, SAWCUT BRICK ARCH AT OUTSIDE CHAMBER WALL LOCATIONS. INSTALL STAINLESS STEEL SUPPORT ANGLES AND PROVIDE TEMPORARY PROPPING.
9. CAST ARCH SUPPORT BEAM IN ACCORDANCE WITH STRUCTURAL DETAILS.

SECTION 1
SCALE 1:50PLANS AND DOCUMENTS
referred to in the PDA APPROVAL

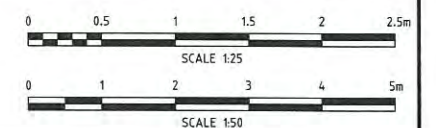
-9 FEB 2015

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STAGING LEGEND

STAGE 2B - REFER DRG 5332 FOR NOTES AND DETAILS
STAGE 2C - REFER DRG 5333 FOR NOTES AND DETAILS

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A	31/08/2014	AFT ISSUE	ZA	DS	MH	

Verified	Date
Approved	Date



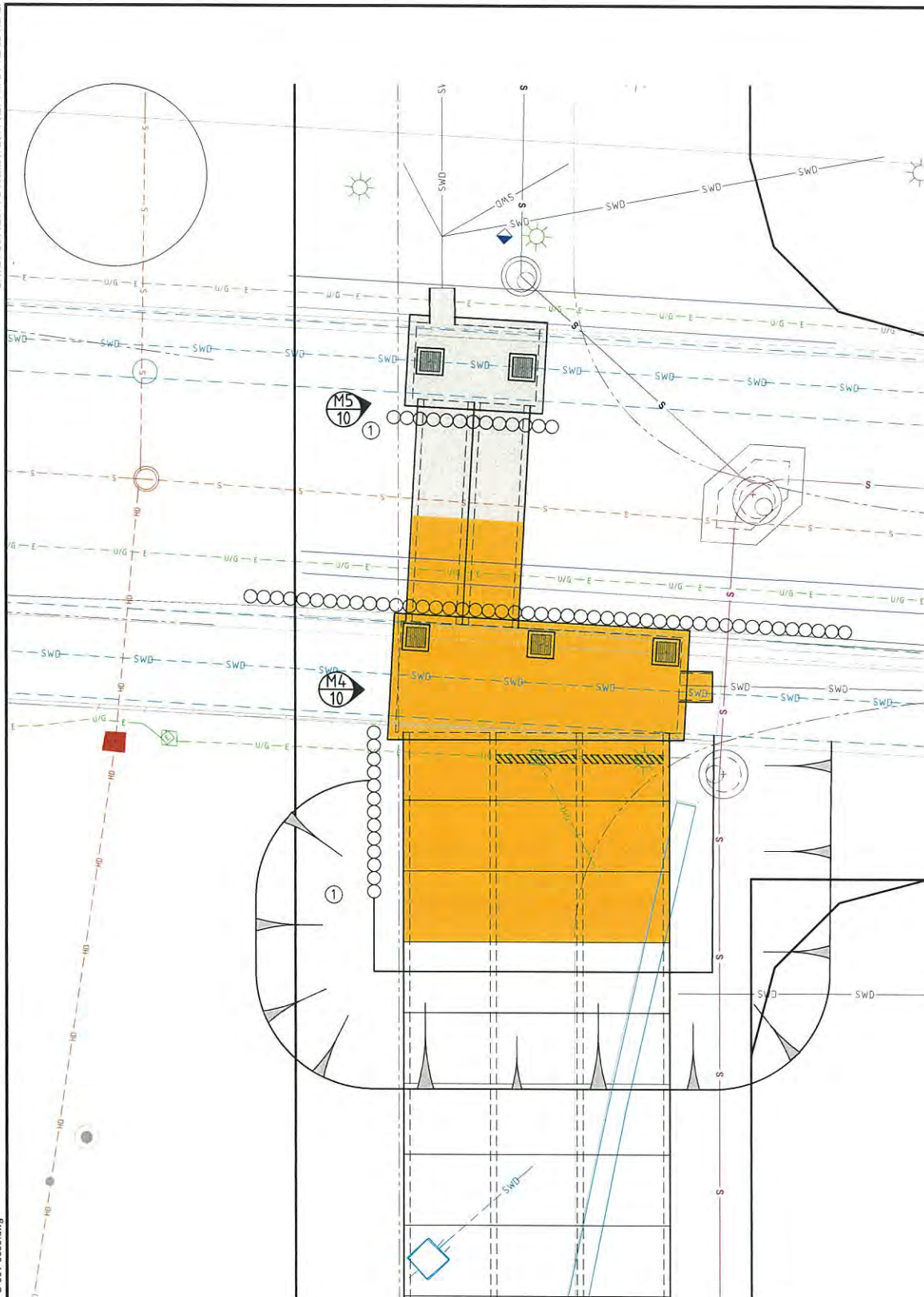
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Drawn	ZA	Date	Aug-14	Client	LEND LEASE
Checked	DS	Date	Aug-14	RNA SHOWGROUND REDEVELOPMENT	
Designed	ZA	Date	Aug-14	ENABLING WORKS - STAGE 2	
Cardno Ref. No.	A10697-048			TRUNK STORMWATER	
Status	FOR TENDER ONLY			NOT TO BE USED FOR CONSTRUCTION PURPOSES	
A.H.D.	DATUM	Grid	Scale	AS SHOWN	Size A1
Drawing Number	161163-050-DD-C-301-5332				Revision B

DATE PLOTTED: 3 December 2014 6:27 PM BY: ZAID ALALI

XREF's: X-A10697-048 QLD-SHT-A1: X-A10697-036 SURVEY: X-A10697-036 CONT: X-A10697-036 SERVICES: X-A10697-050 DESIGN
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DETAIL LAYOUT PLAN - SEQUENCING PLAN - 2B
Scale 1:100

DATUM 0.00

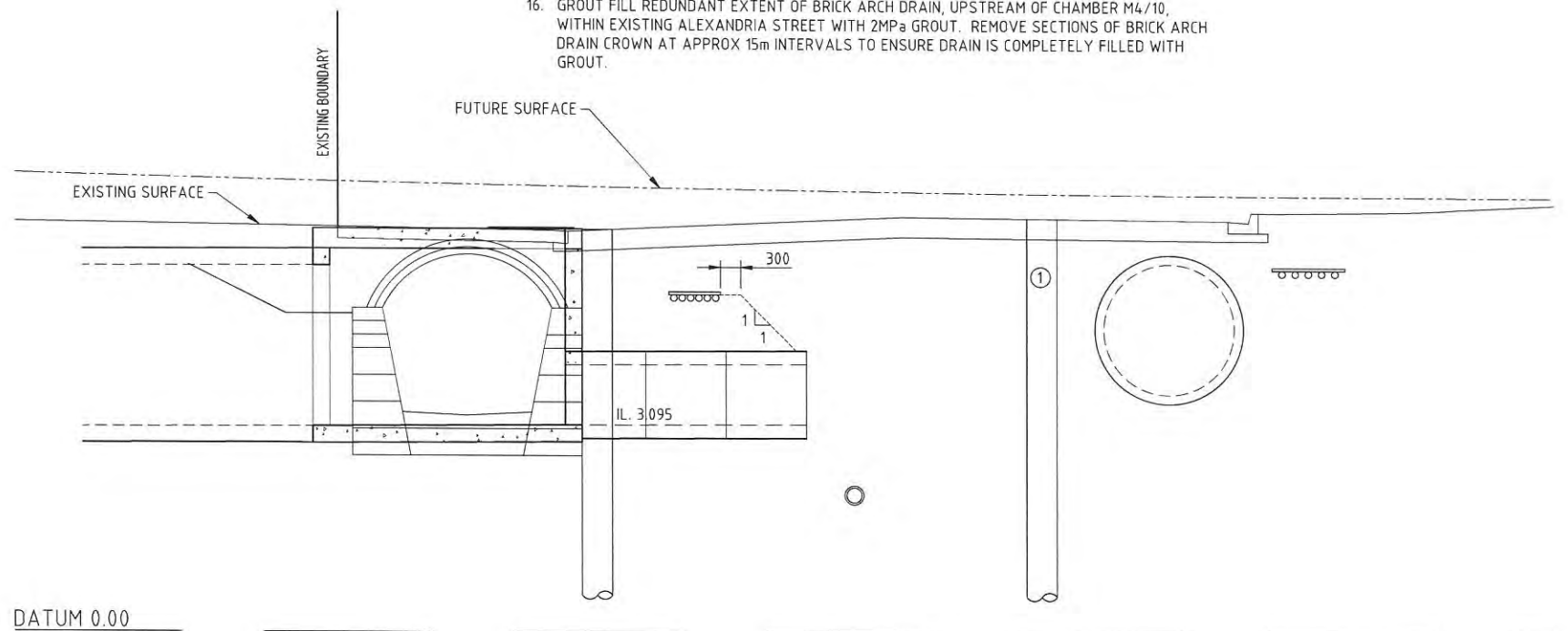
PLANS AND DOCUMENTS
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9 FEB 2015

MEDQ

INDICATIVE CONSTRUCTION SEQUENCE

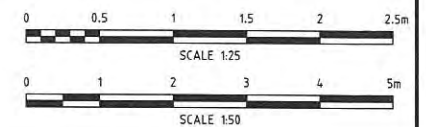
1. INSTALL GROUND RETENTION SYSTEM / LAUNCH PIT WALL BETWEEN M4/10 AND M5/10 TO ALLOW TRENCHLESS INSTALLATION OF CULVERTS UNDER VERY HIGH VOLTAGE ELECTRICAL RETICULATION BETWEEN M4/10 AND M5/10.
2. EXCAVATE TO SUIT CONSTRUCTION OF 2B SLAB LINKED RCBC'S AND CHAMBER M4/10. LEAVE EXISTING STONE CHANNEL AND BRICK ARCH IN PLACE.
3. SAWCUT EXISTING STONE CHANNEL AT OUTSIDE EDGE OF PROPOSED CHAMBER M4/10. DEMOLISH AND REMOVE STONE CHANNEL AND EXCAVATE TO UNDERSIDE OF M4/10 BASE SLAB. FORM AND POUR M4/10 BASE SLAB.
4. FORM AND POUR M4/10 BASE SLAB.
5. INSTALL BALANCE OF TRIPLE CELL SLAB LINKED RCBC'S FROM END OF 2A WORKS ONTO BASE SLAB OF M4/10.
6. JACK APPROX 3.6m RCBC'S BETWEEN M4/10 AND M5/10 UNDER VHV ELECTRICAL RETICULATION. JACK CULVERTS UP TO FACE OF GROUND RETENTION SYSTEM.
7. PROVIDE CAPPING BEAM (CONCRETE RETENTION) OR WELDED BEAM (STEEL RETENTION).
8. CUT GROUND RETENTION SYSTEM ABOVE CROWN OF RCBC UNITS AND JACK CULVERTS INTO FINAL LOCATION.
9. FORM AND POUR WALLS OF M4/10. SHORT END WALLS TO BE POURED AROUND EXISTING DRAIN PROFILE.
10. PROVIDE TEMPORARY PLUG IN UPSTREAM BRICK ARCH DRAIN LINE FOR DURATION OF M4/10 EASTERN END WALL CONSTRUCTION. FORM AND POUR EASTERN WALL OF CHAMBER M4/10. REMOVE TEMPORARY UPSTREAM PLUG 24 HOURS AFTER EASTERN WALL IS POURED.
11. DEMOLISH AND REMOVE BLOCKWORK WALL INSIDE CULVERTS IMMEDIATELY DOWNSTREAM OF CHAMBER M3/10.
12. FORM AND POUR TOP SLAB OF CHAMBER M4/10.
13. REMOVE (STEEL) OR BREAK DOWN TO 2m BELOW EXISTING SURFACE (CONCRETE) GROUND RETENTION SYSTEM.
14. BACKFILL
15. DEMOLISH AND REMOVE REDUNDANT EXTENT OF BRICK ARCH STORMWATER DRAIN WITHIN FUTURE ALLOTMENTS.
16. GROUT FILL REDUNDANT EXTENT OF BRICK ARCH DRAIN, UPSTREAM OF CHAMBER M4/10, WITHIN EXISTING ALEXANDRIA STREET WITH 2MPa GROUT. REMOVE SECTIONS OF BRICK ARCH DRAIN CROWN AT APPROX 15m INTERVALS TO ENSURE DRAIN IS COMPLETELY FILLED WITH GROUT.



STAGING LEGEND

- STAGE 2B - REFER DRG 5332 FOR NOTES AND DETAILS
- STAGE 2C - REFER DRG 5333 FOR NOTES AND DETAILS

WARNING!
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THE LOCATIONS OF UNDERGROUND SERVICES HAVE BEEN INTERPOLATED FROM GIS DATA OR KNOWN POSITIONS OF VALVES, MANHOLES ETC. OR INFORMATION SUPPLIED BY SERVICE AUTHORITIES. NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THE INTERPOLATED INFORMATION SUPPLIED. ENSURE ALL SERVICES ARE ACCURATELY LOCATED PRIOR TO COMMENCEMENT OF WORK.



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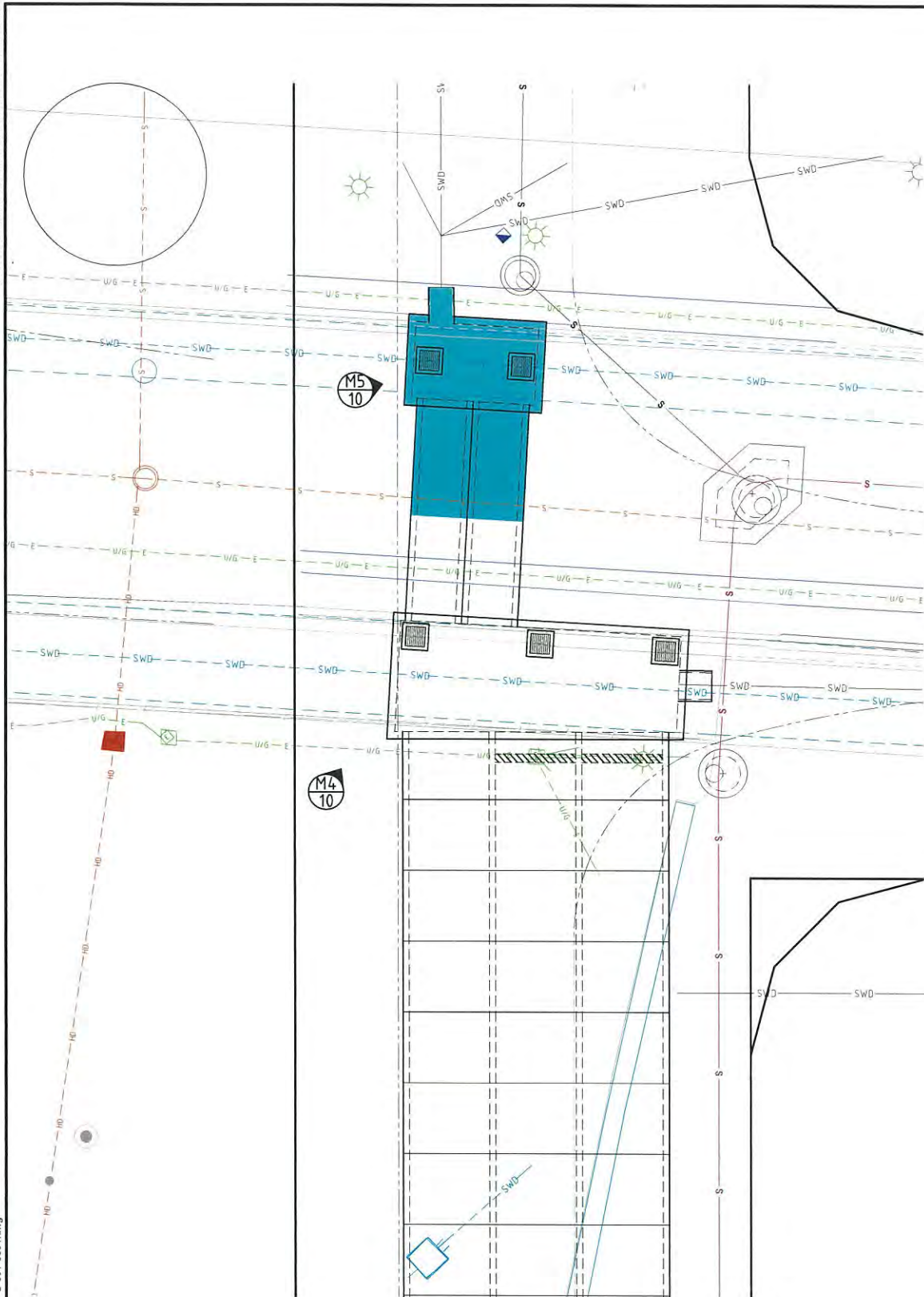
Drawn: ZA
Checked: DS
Designed: ZA
Cardno Ref. No.: A10697-048

Date: Aug-14
Date: Aug-14
Date: Aug-14
Client: LEND LEASE
RNA SHOWGROUND REDEVELOPMENT
ENABLING WORKS - STAGE 2
TRUNK STORMWATER
INDICATIVE STORMWATER DRAINAGE SEQUENCE - 2B
SHEET 2

Status	Grid	Scale	Size
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DATUM			
Drawing Number			Revision
161163-050-DD-C-301-5333			B

DATE PLOTTED: 3 December 2014 6:28 PM BY: ZAID ALALI

XREFs: X-A10697-048 QLD-SHT-A1; X-A10697-036 SURVEY; X-A10697-036 CONT; X-A10697-038 SERVICES; X-A10697-050 DESIGN
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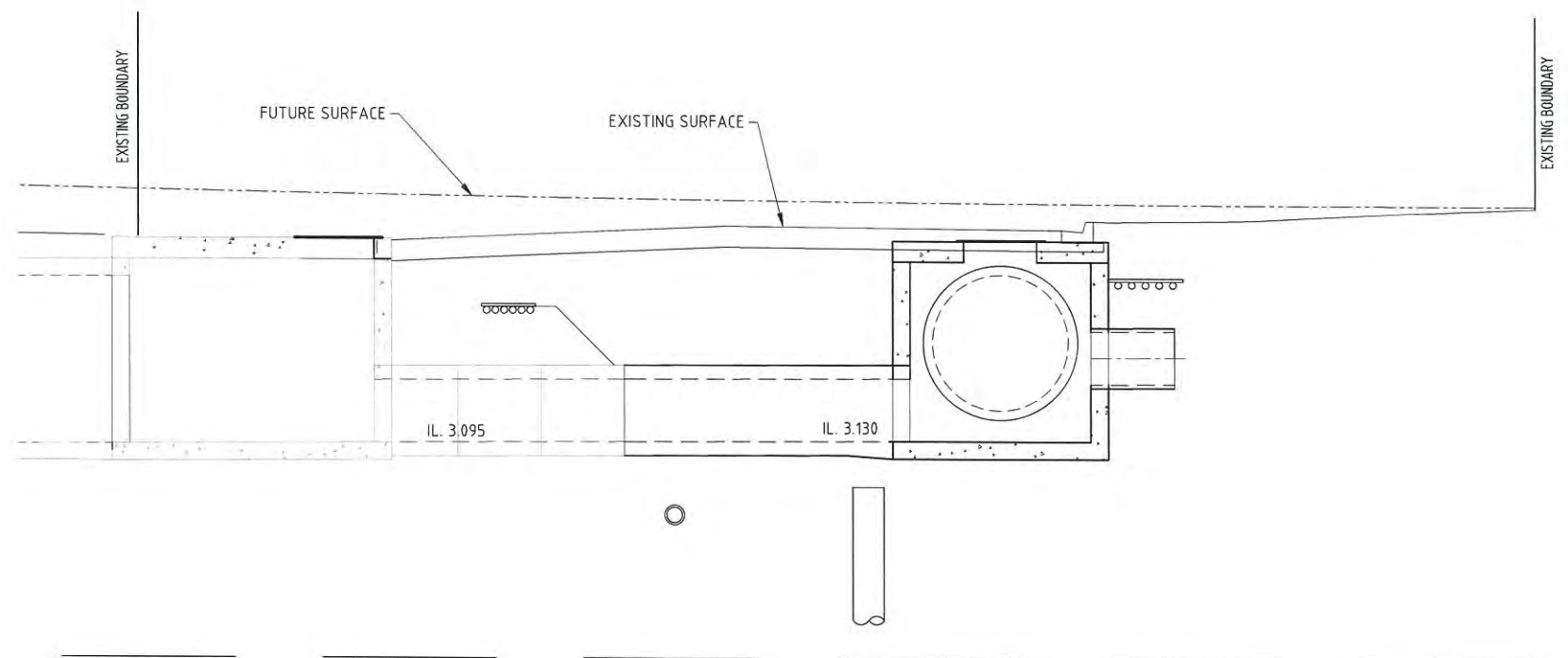


DETAIL LAYOUT PLAN - SEQUENCING PLAN - 2B
Scale 1:100



INDICATIVE CONSTRUCTION SEQUENCE

1. DEMOLISH AND REMOVE ALL REDUNDANT SERVICES WITHIN THE STAGE 2A CULVERT CONSTRUCTION AREA. WORKS TO BE DESIGNED AND EXCAVATED BY LICENSED PERSONS AT THE CONTRACTORS COST.
2. REDIRECT AND RECONNECT SERVICES TO EXISTING STRUCTURES TO BE RETAINED. WORKS TO BE DESIGNED AND CONSTRUCTED BY LICENSED PERSONS AT CONTRACTORS COST.
3. DEMOLISH AND REMOVE PART 2B RCBC JACKING WALL.
4. EXCAVATE AROUND AND SUPPORT EXISTING Ø1950 RCP.
5. SAWCUT Ø1950 RCP AT LINE OF INSIDE FACE OF CHAMBER M5/10 END WALLS.
6. FORM AND POUR BASE SLAB OF CHAMBER.
7. FORM AND POUR END WALLS AROUND Ø1950 RCP.
8. INSTALL BALANCE OF RCBC'S BETWEEN M4/10 AND M5/10.
9. FORM AND POUR LONG WALLS OF CHAMBER M5/10.
10. PROVIDE TEMPORARY PLUG IN UPSTREAM CHAMBER OF Ø1950 RCP LINE FOR DURATION OF CONSTRUCTION OF EASTERN WALL OF CHAMBER M5/10. REMOVE TEMPORARY PLUG 24 HOURS AFTER EASTERN WALL IS POURED.
11. FORM AND POUR TOP SLAB OF CHAMBER M5/10.
12. BACKFILL
13. DEMOLISH AND REMOVE REDUNDANT EXTENT OF Ø1950 RCP WITHIN FUTURE ALLOTMENTS.
14. GROUT FILL REDUNDANT EXTENT OF Ø1950 RCP, UPSTREAM OF CHAMBER M5/10, WITHIN EXISTING ALEXANDRIA STREET WITH 2MPa GROUT. REMOVE SECTIONS OF PIPE CROWN AT APPROX 15m INTERVALS TO ENSURE DRAIN IS COMPLETELY FILLED WITH GROUT.



STAGING LEGEND

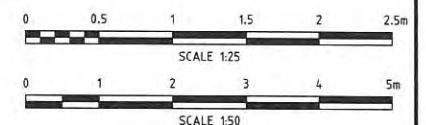
STAGE 2C - REFER DRG 5333 FOR NOTES AND DETAILS

PLANS AND DOCUMENTS
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- 9 FEB 2015

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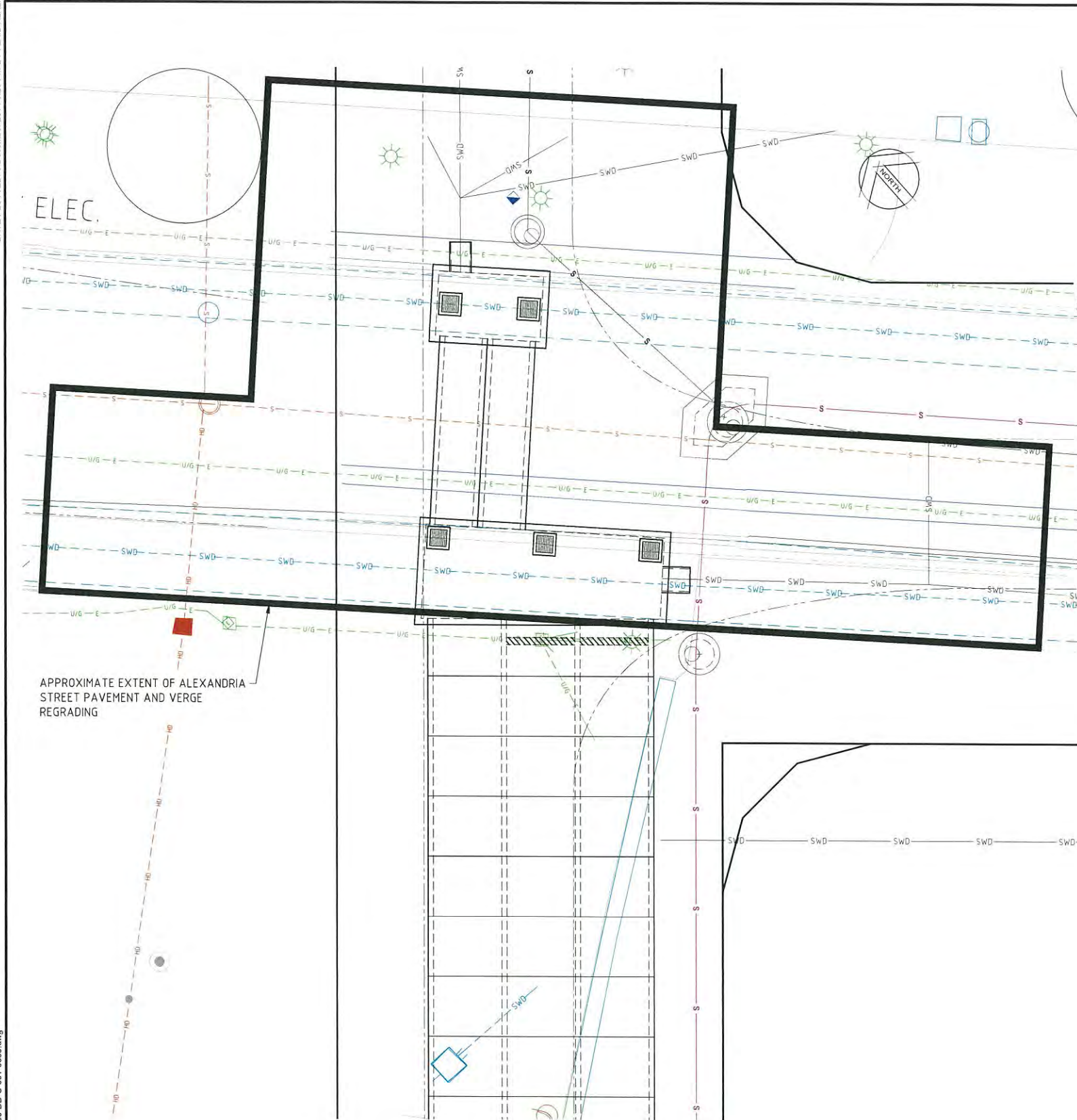
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ENABLING WORKS - STAGE 2
TRUNK STORMWATER

INDICATIVE STORMWATER DRAINAGE SEQUENCE - 2C
SHEET 1

Status: FOR TENDER ONLY
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A.H.D. DATUM
Grid
Scale: AS SHOWN
Size: A1
Drawing Number: 161163-050-DD-C-301-5334
Revision: B

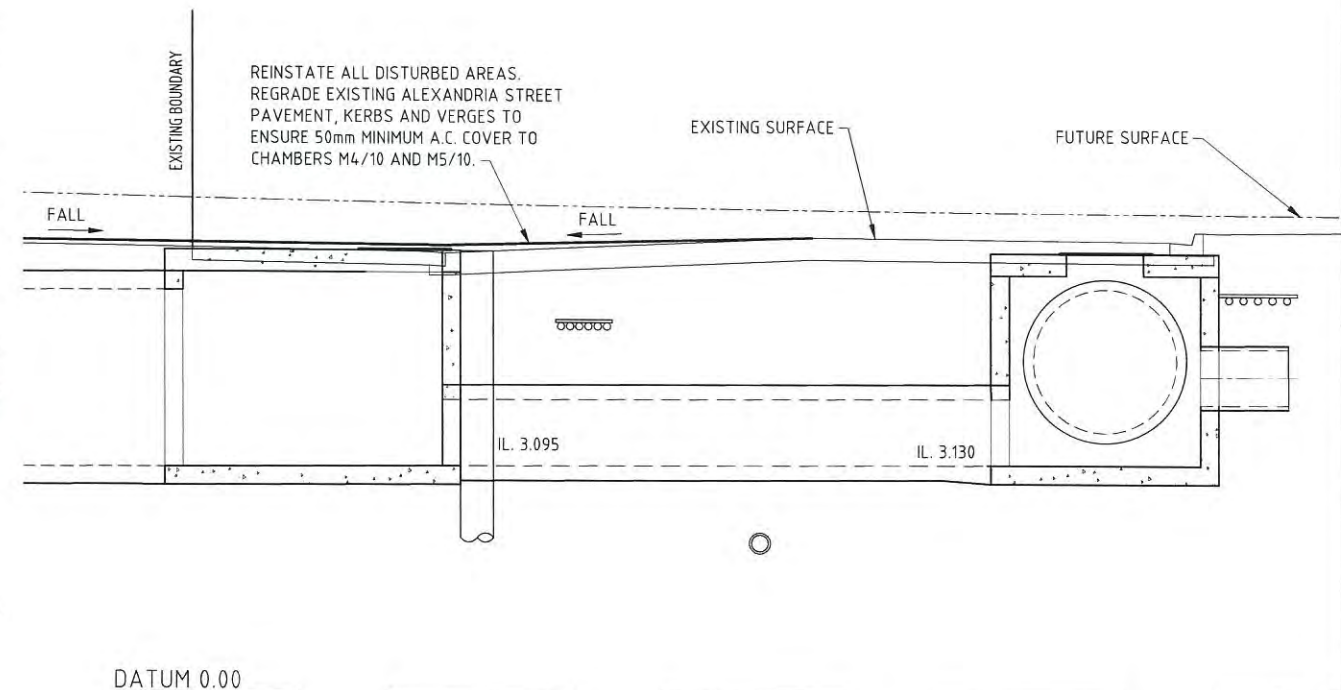


APPROXIMATE EXTENT OF ALEXANDRIA STREET PAVEMENT AND VERGE REGRADING

DETAIL LAYOUT PLAN - SEQUENCING PLAN - 2B
Scale 1:100

INDICATIVE CONSTRUCTION SEQUENCE

1. REINSTATE ALL DISTURBED AREAS. REGRADE EXISTING ALEXANDRIA STREET PAVEMENT, KERBS AND VERGES TOGETHER WITH ALLOTMENT AREAS TO ENSURE 50mm MINIMUM A.C. COVER TO CHAMBERS M4/10 AND M5/10. MINIMUM GRADE 1V:100H, MAXIMUM GRADE 1V:21H.

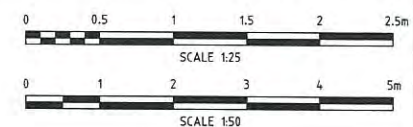


PLANS AND DOCUMENTS
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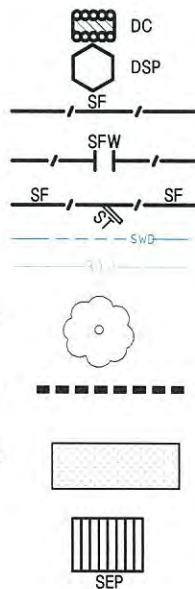
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Checked	DS	Date	Aug-14
Designed	ZA	Date	Aug-14
Cardno Ref. No.	A10697-048		

Client
LEND LEASE
RNA SHOWGROUND REDEVELOPMENT
ENABLING WORKS - STAGE 2
TRUNK STORMWATER
INDICATIVE STORMWATER DRAINAGE SEQUENCE - 2C
SHEET 2

Status FOR TENDER ONLY NOT TO BE USED FOR CONSTRUCTION PURPOSES			
A.H.D.	Grid	Scale	Size
DATUM		AS SHOWN	A1
Drawing Number	161163-050-DD-C-301-5335		Revision
			B

EROSION AND SEDIMENT CONTROL LEGEND

PROPOSED DISCHARGE CHUTE
PROPOSED DRAINAGE STRUCTURE PROTECTION
PROPOSED SEDIMENT FENCE
PROPOSED SEDIMENT FENCE WEIR
PROPOSED SEDIMENT FENCE TRAP (ST)
EXISTING STORMWATER
EXISTING CONTOURS
EXISTING TREE TO BE RETAINED AND PROTECTED. REFER ARBORISTS REPORT FOR DETAILS
DIVERSION BUND FORMED FROM GRAVEL FILLED HESSIAN BAGS (2 BAGS HIGH)
EROSION CONTROL SURFACE. GEOFABRIC STAKED TO GROUND
STABILISED ENTRY/EXIT POINT

**NOTE:**

- BUNDS AND SILT FENCES RO BE MOVED AS PER REQUIRED TO ENABLE EARTHWORKS.
- SITE TO BE EXCAVATED SO THAT WORKS ARE ALWAYS BUNDED TO LIMIT OVERLAND FLOW

PLANS AND DOCUMENTS
referred to in the PDA APPROVAL

9 FEB 2015

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GENERAL SERVICES
LAYOUT PLAN
Scale 1:250

EROSION AND SEDIMENT CONTROL NOTES

- CONSTRUCTION IS TO BE PROGRAMMED TO PROVIDE INSTALLATION OF PERIMETER LANDSCAPING/SURFACE TREATMENTS AS EARLY AS PRACTICAL.
- THE CONTRACTOR IS RESPONSIBLE FOR PROGRAMING WORKS SO THAT SATISFACTORY EROSION AND SEDIMENT CONTROL DEVICES ARE IN PLACE AND MAINTAINED AT ALL TIMES.
- A PHOTOGRAPHIC RECORD OF SEDIMENT AND EROSION CONTROL DEVICES AND THE IMMEDIATE DOWNSTREAM STORMWATER SYSTEM, IS TO BE CARRIED OUT ON A FORTNIGHTLY CYCLE AND AFTER EACH MAJOR STORM EVENT. CARRY OUT CORRECTIVE AND PREVENTATIVE ACTION AS REQUIRED.
- PUBLIC & WORKPLACE SAFETY ISSUES MUST BE CONSIDERED AND MONITORED FOR EACH DEVICE TO THE SATISFACTION OF THE SUPERINTENDENT.
- WOVEN FABRICS ARE TO BE USED FOR SEDIMENT FENCE FILTER FABRIC.
- SEDIMENTATION MANAGEMENT DEVICES SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES AND MAINTAINED AT A SUITABLE LEVEL/ CONDITION THROUGHOUT CONSTRUCTION. SEDIMENT FENCES ARE TO BE CLEANED OUT WHEN CAPACITY IS REDUCED BY 30%. DRAINAGE STRUCTURE PROTECTION IS TO BE CLEANED FOLLOWING EACH SIGNIFICANT RUNOFF PRODUCING STORM.
- APPROVAL IS TO BE OBTAINED FOR THE LOCATION OF THE SITE ACCESS POINT AND WASH DOWN AREA WHICH IS TO BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. ACCESS TO AND FROM THE SITE IS TO BE VIA THE SHAKEDOWN FACILITY ONLY. ALL VEHICLES ARE TO BE WASHED DOWN PRIOR TO LEAVING THE SITE.
- THE CONTRACTOR SHALL PROVIDE TEMPORARY DRAINAGE CONTROL TO DIVERT FLOW FROM UNDISTURBED AREAS AROUND DISTURBED AREAS AND DIRECT FLOW FROM DISTURBED AREAS TOWARD CONTROL DEVICES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSPECTION AND MAINTENANCE OF SEDIMENT AND EROSION CONTROL DEVICES. ALL DEVICES ARE TO BE INSPECTED AT LEAST WEEKLY AND AFTER SIGNIFICANT RUNOFF PRODUCING STORMS.
- IF EROSION AND SEDIMENT CONTROL DEVICES HAVE BEEN FOUND TO BE DEFICIENT OR FAILED IN SERVICE DUE TO UNFORESEEN CIRCUMSTANCES, CORRECTIVE ACTION IS TO BE UNDERTAKEN BY THE CONTRACTOR IMMEDIATELY WHICH MAY INCLUDE AMENDMENTS/ADDITIONS TO THE ORIGINAL EROSION CONTROL PLANS. SUCH ADDITIONS OR AMENDMENTS ARE TO BE APPROVED BY THE SUPERINTENDENT.
- STRAW BALES USED IN SEDIMENT DEVICES ARE TO BE REPLACED AFTER A MAXIMUM SERVICE PERIOD OF 6 WEEKS.
- SEDIMENTATION MANAGEMENT DEVICES ARE TO BE MAINTAINED BY THE CONTRACTOR, AS NOTED AND DETAILED, UNTIL APPROVAL HAS BEEN GRANTED BY THE ENGINEER FOR THEIR REMOVAL. THE CONTRACTOR IS TO REMOVE AND DISPOSE OF THESE DEVICES OFF SITE.
- TREE PROTECTION IS INDICATIVE ONLY. TREE PROTECTION TO BE DIRECTED BY SUPERINTENDENT ON SITE.
- THE CONTRACTOR IS RESPONSIBLE FOR RELOCATING SEDIMENT AND EROSION DEVICES/ FENCES TO ACCOMMODATE EARTHWORKS AS AND WHEN REQUIRED. THE LOCATION OF THE SEDIMENT AND EROSION CONTROL DEVICES ARE INDICATIVE ONLY. IT IS THE CONTRACTORS RESPONSIBILITY TO SPECIFICALLY LOCATE, THEN ENSURE SEDIMENT IS NOT WASHED DOWNSTREAM.
- EROSION CONTROL MATTING IS TO BE INSTALLED, REMOVED AND REINSTATED AS REQUIRED TO ENSURE THAT BATTERS ARE PROTECTED AT ALL TIMES WHEN THEY ARE NOT BEING WORKED ON
- ALL OPEN DRAINS ARE TO BE TURFED AS SOON AS PRACTICAL, AFTER THE OPEN DRAIN IS COMPLETED.
- ALL EXPOSED SURFACES APART FROM SWALE AND OPEN DRAINS ARE TO BE TREATED BY TOPSOIL AND TURFING AS SOON AS PRACTICAL AS A SEDIMENT AND EROSION CONTROL MEASURE.



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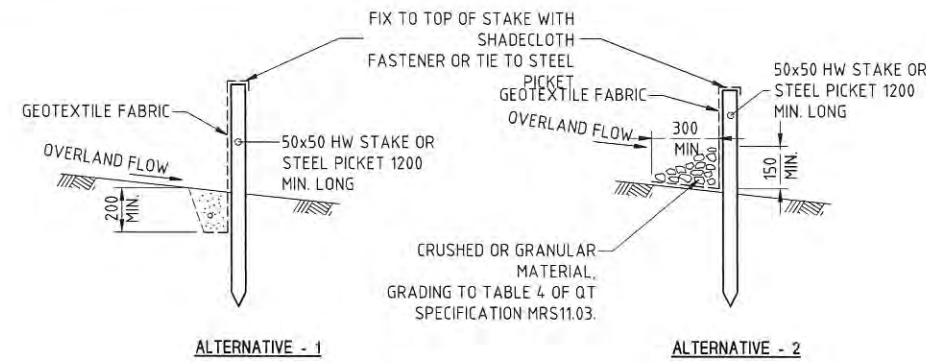
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ENABLING WORKS - STAGE 2	
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EROSION AND SEDIMENT CONTROL	
LAYOUT PLAN	

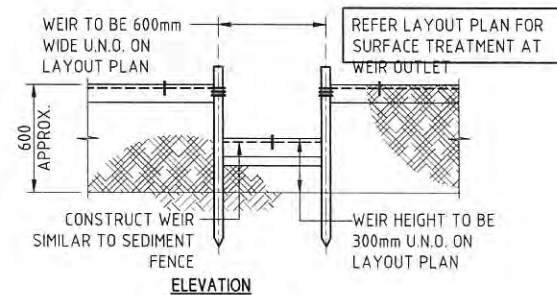
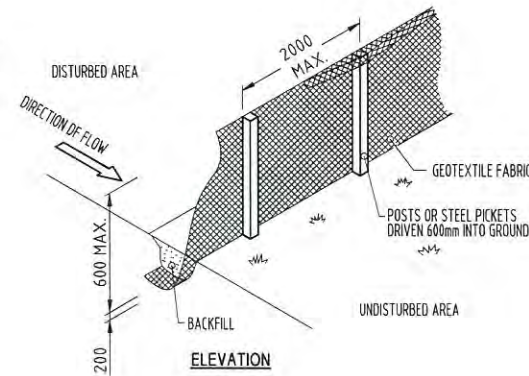
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A.H.D.	Grid	Scale	Size	
DATUM		AS SHOWN	A1	
Drawing Number				Revision
161163-050-DD-C-301-5400				B



SECTION

SEDIMENT FENCE DETAILS

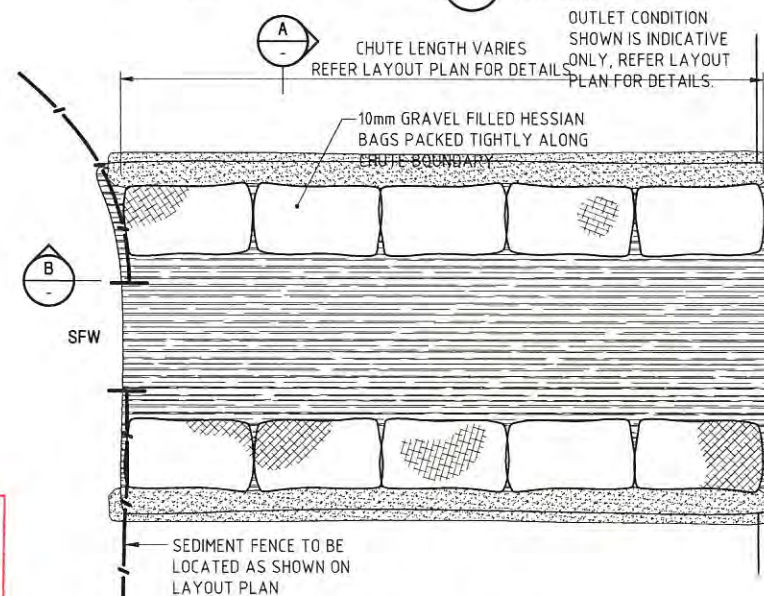
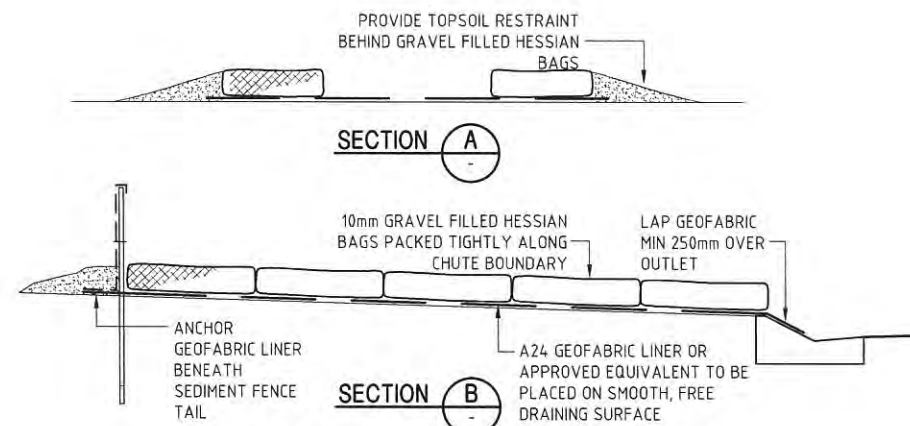
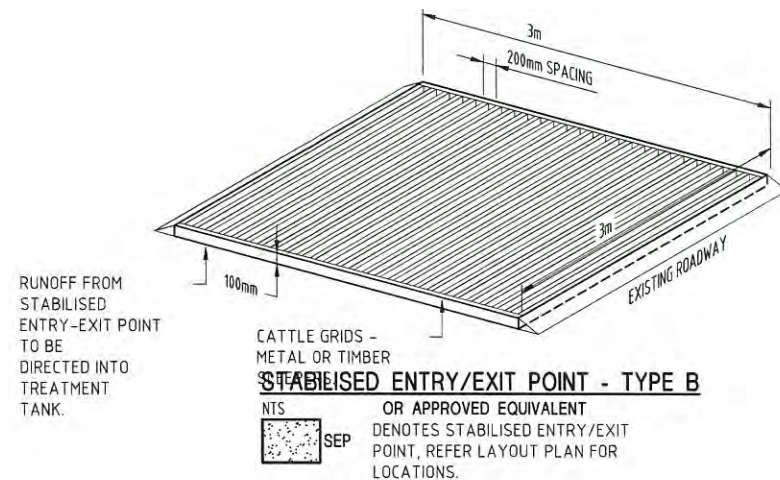
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SEDIMENT FENCE WEIR

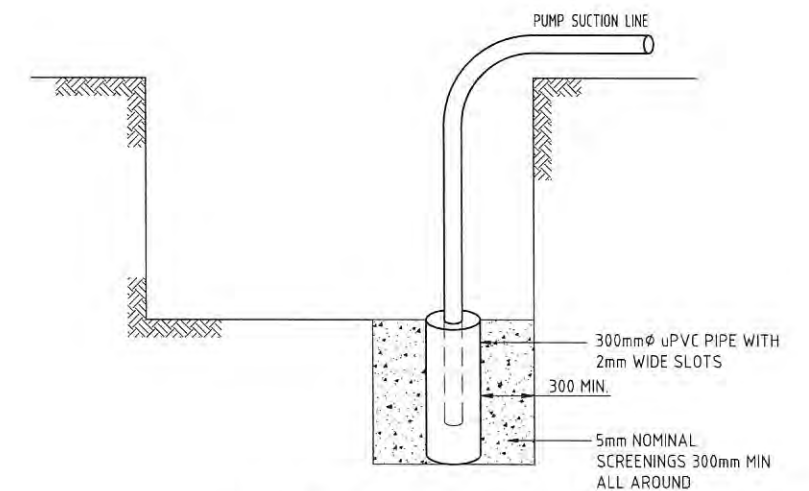
— SFW — DENOTES SEDIMENT FENCE WEIR, REFER LAYOUT PLAN FOR LOCATION AND EXTENTS.

FOR EROSION & SEDIMENT CONTROL NOTES & LEGEND, REFER TO DRG 161163-050-DD-301-1013



DISCHARGE CHUTE

DC DENOTES DISCHARGE CHUTE, REFER LAYOUT PLAN FOR LOCATION & EXTENTS.



N.T.S.

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RNA

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DETAILS
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Status: FOR TENDER ONLY
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A.H.D. DATUM Grid Scale AS SHOWN Size A1

Drawing Number: 161163-050-DD-C-301-5410 Revision: B

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PLAN

SAG GULLY PIT

100 CORRUGATED & SLOTTED
 POLYETHYLENE DRAINAGE PIPE
 TO AS 2439.1 WITH GEOFABRIC
 SOCK, HALF FILLED WITH 20mm
 GRAVEL AND ENDS SEALED.
 'CATCH-IT' PROPRIETARY SILT
 PROTECTION SYSTEM MAY BE
 USED ON GULLY PITS WITH
 LINTEL INLETS.
 WRAP GRATE WITH A24
 GEOFABRIC OR
 APPROVED EQUIVALENT

GULLY I

STAGE 2
STRUCTURE COMPLETE

ROADWAY GULLY PIT

 DENOTES DRAINAGE
STRUCTURE PROTECTION,
REFER LAYOUT PLAN FOR
LOCATION & EXTENTS.

SEDIMENT TRAP

NTS
DENOTES SEDIMENT TRAP. REFER
LAYOUT PLAN FOR LOCATION AND
EXTENTS.

ON GRADE GULLY PIT

STAGE 1

EXCAVATION, PIPE INSTALLATION AND INTERIM BACKFILLING

PROVIDE APPROVED GRATED
COVER WITH MAXIMUM
OPENINGS OF 100 x 100mm
(OFFCUT REINFORCING MESH
OR APPROVED EQUIVALENT)

ENSURE MESH ENDS ARE
CONCEALED BENEATH
BAGS

PLAN

10mm GRAVEL FILLED
HESSIAN BAGS PACKED
TIGHTLY AROUND
ACCESS/INLET OPENING

PLAN

LEVEL FILLED
RAGS PACKED

Diagram illustrating a rectangular field with a dashed line indicating a boundary or inlet. The label "FIELD INLET" points to the dashed line.

INLET STRUCTURE

STAGE 3
STRUCTURE COMPLETE

DIRECTION
OF FALL.

N

DIVERT RUNOFF AROUND
EXCAVATION WHERE
PRACTICAL

PLAN

SEAL PIPE END
WITH 10mm
GRAVEL FILLED
HESSIAN BAGS
PACKED TO HALF
HEIGHT OF PIPE.
REMOVE PRIOR TO
STRUCTURE
CONSTRUCTION

STAGE 1

EXCAVATION AND PIPE INSTALLATION

ACCESS CHAMBER / INLET STRUCTURE

STAGE 2

STRUCTURE COMPLETE UP TO TOP SLAB

DENOTES DRAINAGE
STRUCTURE PROTECTION,
REFER LAYOUT PLAN FOR
LOCATION & EXTENTS.

 RNA | 48 Rue de Valenciennes
40100 DALLA-ANDÉ
Tél : 03 20 44 40 00
Fax : 03 20 44 40 01

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Checked DS	Date Aug-14
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Cardno Ref. No. A10697-048	

Client	LEND LEASE
14	RNA SHOWGROUND REDEVELOPMENT
14	ENABLING WORKS - STAGE 2
14	TRUNK STORMWATER
	EROSION AND SEDIMENT CONTROL
	DETAILS
	SHEET 2

Status				FOR TENDER ONLY			
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A.H.D. DATUM		Grid		Scale AS SHOWN		Size A1	
Drawing Number						Revision	
161163-050-DD-C-301-5411						B	

GENERAL

- G1. These structural drawings shall be read in conjunction with all other Consultants' drawings and specifications and with such other written instructions as may be issued during the course of the contract. Any discrepancy shall be referred to the Structural Engineer before proceeding with the work.
- G2. Construction using these structural drawings shall not commence until a Construction Certificate is issued by the Principal Certifying Authority.
- G3. All materials and workmanship shall be in accordance with the relevant current Standards Australia Codes and with the Building Code of Australia.
- G4. All dimensions shown on these structural drawings shall be verified by the Builder on site. These structural drawings shall not be scaled for dimensions.
- G5. Unless noted otherwise all levels are in metres and all dimensions are in millimetres.
- G6. The structural components detailed on these structural drawings have been designed in accordance with the relevant Standards Australia Code and the Building Code of Australia for the following loadings.

Live Load
Bridge Design Loads to AS 5100.2

- G7. The method of construction and the maintenance of safety during construction is the responsibility of the Contractor. If any structural element presents difficulty in respect of constructability or safety, the matter shall be referred to the Structural Engineer for resolution before proceeding with the work.
- G8. During construction the structure shall be maintained in a stable condition and no part shall be overloaded. Temporary bracing shall be provided by the Contractor in order to keep the building works and excavations stable at all times.
- G9. Covers and frames shall comply with the requirements of AS 3996 Class D design load. Approved covers and frames are to be used.
- G10. All outlet pipes invert to be flush with floor slab.
- G11. All inlet pipes invert to be 50mm min. above floor slab U.N.O.
- G12. Standard MS ladders
Refer to BCC Brisbane water standard drawings 486/5/25-SF009 (Rev A) U.N.O.
- G13. Backfilling to walls to occur only after chamber roof is in place and dowels fully grouted.
- G14. Drainage bedding and backfill shall be installed in accordance with BCC specifications S140 earthworks / S160 drainage and standard drawing UMS 311.
- G15. Unsuitable material encountered in trench excavations is to be treated in accordance with BCC std spec S140 and as directed by the project geotechnical engineer.
- G16. Construction tolerances are to be in accordance with BCC standard specification S160.

FOOTINGS

- F1. Footings have been designed for an allowable bearing capacity of 200kPa on very stiff clay or extremely low strength rock.
The foundation material shall be approved by the Geotechnical Engineer for this allowable bearing capacity before placing membrane, reinforcement or concrete.
- F2. Refer to Geotechnical Investigation Report.
- F3. Footings shall be located centrally under walls and columns unless noted otherwise on the structural drawings.
- F4. Footings shall be constructed and backfilled as soon as possible following excavation to avoid either softening of the founding material or drying out by exposure.
- F5. Excavate for footings to the nominated size and depth. Footing founding levels are provisional subject to actual site conditions and approval by the Geotechnical Engineer.
- F6. Controlled fill to be carried out in layers of 200mm of approved fill material compacted to 100% standard dry density.

FORMWORK

- FW1. The design, certification, construction, inspection and performance of the formwork and false work shall be the responsibility of the Contractor, except to the extent that formwork design is shown on the structural drawings.
- FW2. Formwork shall be designed to accommodate movements and load re-distribution due to any post tensioning.
- FW3. The formwork shall not be designed to rely on restraint or support from the permanent structure without prior approval from the Structural Engineer.
- FW4. Design information for the foundations under the formwork shall be determined from the conditions existing on site at the time of construction. Refer to the Geotechnical Report for the site.

- FW5. Formwork construction tolerances and stripping times shall comply with AS3610 and AS3600 unless otherwise approved by the Structural Engineer.
- FW6. During construction, support propping will be required where loads from stacked materials, formwork and other supported slabs induce loads in a slab or beam which exceed the design capacity for strength or service ability limit states at that age. Once the nominated 28 day strength has been attained, these loads shall not exceed the design superimposed loads set out in these general notes at Item G6.
- FW7. It is to be anticipated in multi-storey construction that propping may be required to extend a number of levels below the floor being cast. Prop removal is to be programmed to avoid distress to previously cast floors. Re-shoring or backpropping proposals shall be subject to the approval of the Structural Engineer.
- FW8. Formed concrete surfaces shall have finishes in accordance with AS3610.
- FW9. Do not place permanent loads on the concrete structure until after formwork and propping is removed.
- FW10. Before placing reinforcement in the formwork, apply a release agent to the face of the formwork compatible with the required surface finish.
- FW11. Dimensional tolerances shall comply with AS3610 for the appropriate finish class.
- FW12. Chamfer re-entrant angles and fillet at corners by 25mm UNO.
- FW13. Before placing concrete, remove all water, dust, and debris from the formwork.
- FW14. Fill all holes left by form tie bolts with mortar matching the surface colour of the finished surface.

CONCRETE

- C1. All workmanship and materials shall be in accordance with the current edition of AS3600 including amendments, except where varied by the contract documents.
- C2. Readymix concrete supply shall comply with AS1379.
- C3. Concrete Quality

Element	Strength Grade (MPa)	Slump	Max. Agg. Size (mm)	Cement Type	Max. W/C Ratio	Min. Cement Content	Max. Shrinkage Strain
PRECAST CHAMBER ROOF SLABS	N50	100	20	GP	0.4	390	-
INSITU CONCRETE CHAMBER ROOF	N40	80	20	GP	0.46	-	-
CHAMBER WALLS AND BASE	N40	80	20	GP	0.46	-	-
MASS CONCRETE FOOTINGS	N25	80	20	GP	-	-	-

- C4. Project control testing shall be carried out in accordance with AS1379, Clause B7.
- C5. No admixtures shall be used in concrete unless approved in writing by the Structural Engineer.
- C6. Clear concrete cover to all reinforcement for durability shall be as follows unless shown otherwise.

Element In Structure	Exposure Classification to AS3600	Concrete Grade (MPa)	Fire Rating	Cover (mm)
PRECAST CHAMBER ROOF SLABS	B2	N50	-	45
INSITU CONCRETE CHAMBER ROOF	B2	N40	-	55
CHAMBER WALLS AND BASE	B2	N40	-	55

- C7. All reinforcement shall be firmly supported on mild steel plastic tipped chairs, plastic chairs or concrete chairs at not greater than 1 metre centres both ways. In exposure condition B2 or C use only plastic or concrete chairs. Bars shall be tied at alternate intersections.
- C8. Concrete sizes shown do not include thicknesses of applied finishes.
- C9. Depths of beams are given first and include slab thickness.
- C10. Maintain cover to reinforcement at chamfers, drip grooves, reglets, etc.
- C11. No holes, chases or embedment of pipes other than those shown on the structural drawings shall be made in concrete members without the prior written approval of the Structural Engineer.
- C12. Where not shown on the structural drawings construction joints shall be located to the approval of the Structural Engineer.
- C13. Conduits, pipes etc. shall only be located in the middle one third of slab depth and spaced at not less than 3 diameters. Pipes or conduits shall not be placed within the cover to the reinforcement.
- C14. Slabs and beams shall be constructed to bear only on the beams, walls, columns, etc. shown on the structural drawings. All other building elements shall be kept 15mm minimum clear from the soffits of the structure.

- C15. **Reinforcement**
All reinforcing bars shall be Grade D500N to AS4671 unless noted otherwise.
- All mesh shall be Grade 500L to AS4671 and shall be supplied in flat sheets.

Reinforcement notation shall be as follows in the following order
number of bars in group bar grade nominal bar size in mm spacing in mm bar location
e.g. 17-N20-250 EF
EF - each face, EW - each way, FF - far face, NF - near face, T - top, B - bottom
The figures following the fabric symbols RL, SL, L ... TM is the reference number for fabric in accordance with AS4671.

Reinforcement is represented diagrammatically and not necessarily in true projection.

Slab reinforcement shall extend at least 65mm onto masonry support walls and 50 percent of bottom reinforcement shall be coggled to achieved anchorage at simply supported ends.

Splices in reinforcement shall be made only in positions shown on the structural drawings or in positions otherwise approved in writing by the Structural Engineer. Laps shall be in accordance with AS3600 and not less than the development length for each bar.

Reinforcement Laps
Bar laps shall be as follows U.N.O. :-

Bar Size	Bar laps (mm) for slabs		Bar laps (mm) for beams	
	Top Bar	Botm. Bar	Top Bar	Botm. Bar
N12	500	500	650	500
N16	700	700	950	700
N20	950	950	1250	950
N24	1250	1250	1600	1250
N28	1500	1500	1950	1500
N32	1800	1800	2300	1800
N36	2100	2100	2700	2100

Site bending of reinforcing bars shall be done without heating using mechanical bending tools.

Welding of reinforcement shall not be permitted unless shown on the structural drawings or approved by the Structural Engineer.

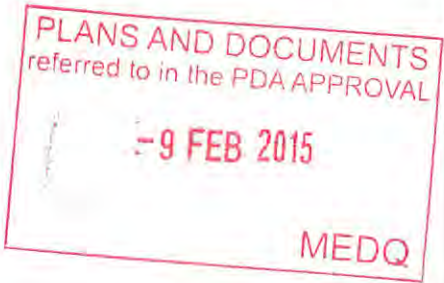
Joggles to bars shall be 1 bar diameter over a length of 12 bar diameters.

Fabric shall be lapped 2 transverse wires plus 50mm. Bundled bars shall be tied together at 30 bar diameter centres with 3 wraps of tie wire.

- C16. The Structural Engineer shall be given 24 hours notice for reinforcement inspection and concrete shall not be delivered until final approval has been obtained from the Structural Engineer.
- C17. The finished concrete shall be a dense homogeneous mass, completely filling the formwork thoroughly embedding the reinforcement and free of stone pockets. All concrete shall be compacted with mechanical vibrators.
- C18. Curing of all concrete is to be achieved by keeping surfaces continuously wet for a period of 3 days, or by prevention of loss of moisture for a total of 7 days followed by a gradual drying out. Approved spray on curing compounds that comply with AS3799 may be used where floor finishes will not be affected (refer Manufacturers Specification). Polythene sheeting or wet hessian may be used to retain concrete moisture where protected from wind and traffic.
- C19. Construction support propping is to be left in place where needed to avoid overstressing the structure due to construction loading. All backpropping shall be approved by the Structural Engineer. No brickwork or partition walls are to be constructed on suspended levels until all propping is removed and the slab has absorbed its dead load deflection.
- C20. Formwork to walls shall be retained in place for no less than 72 hours (exposure classification B2).
- C21. Precast elements shall not be removed from formwork until concrete has attained a strength equal to 60% of the specified 28 day characteristic strength unless otherwise approved by the structural engineer.
- C22. Precast concrete elements shall not be transported from the place of manufacture until the greater of 7 days has elapsed since casting or the time when concrete has attained 70% of the specified 28 day characteristic strength.

STEEL GRATES AND LIDS

- SG1. Frame and grate shall be hot dipped galvanised with 610 grams of zinc coating per square metre in accordance with AS 1214.
- SG2. Face of frame on which grating sits must be true and provide firm support so grate will not rock.
- SG3. All welds to comply with Australian standard AS 1554. Fillet welds to be not less than 5mm U.N.O.



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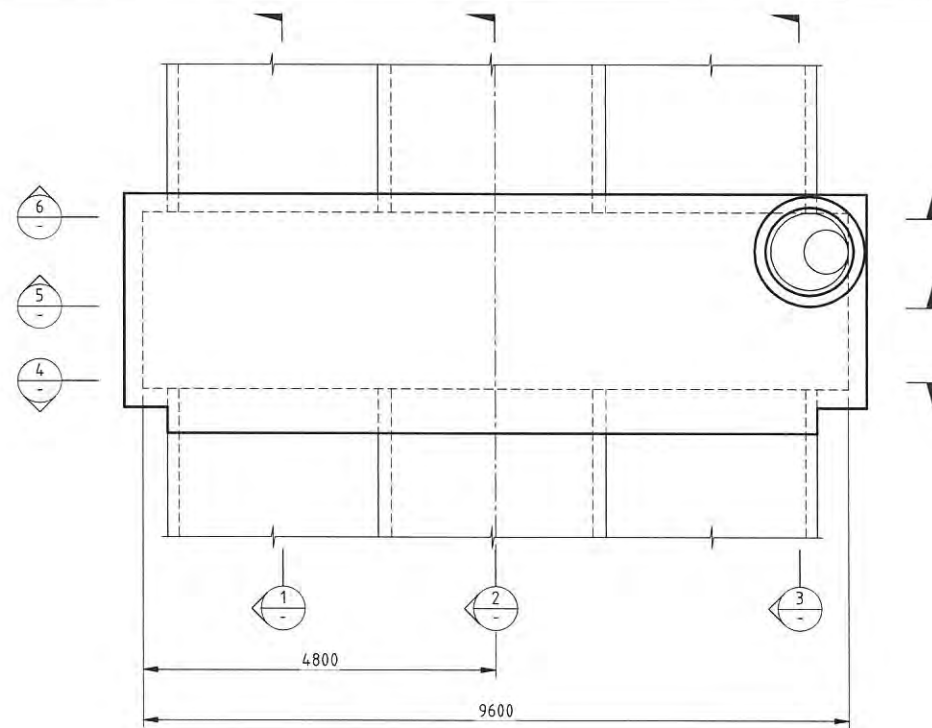
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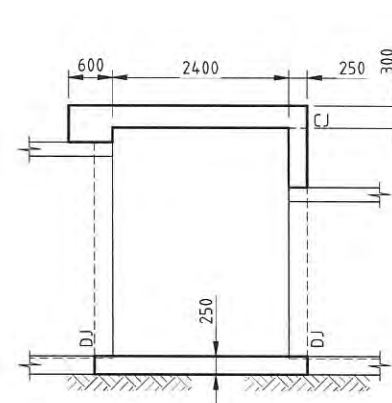
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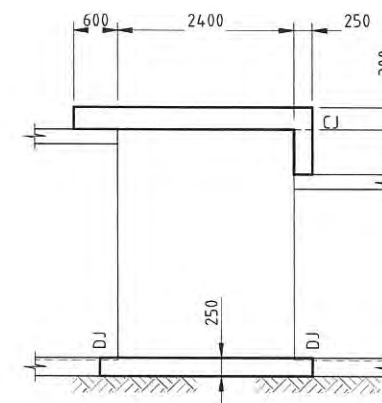
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Cardno Ref. No. A10697-048		STRUCTURAL DETAILS - MANHOLES CONSTRUCTION NOTES	
		Status FOR TENDER ONLY NOT TO BE USED FOR CONSTRUCTION PURPOSES	
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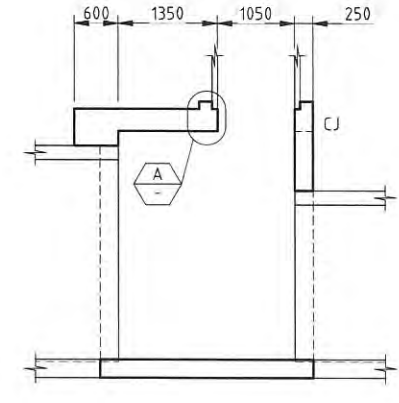
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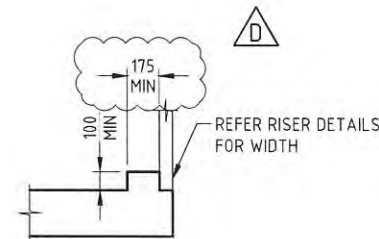
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SECTION 2
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SECTION 3
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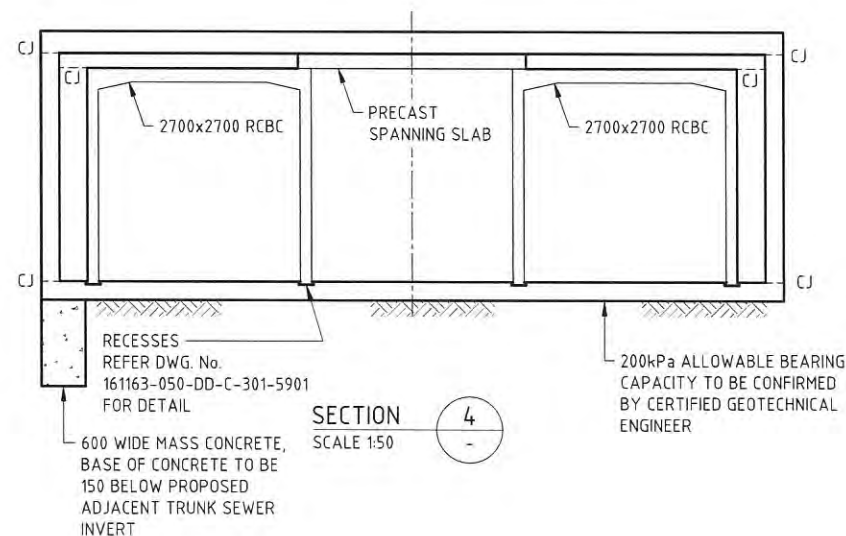
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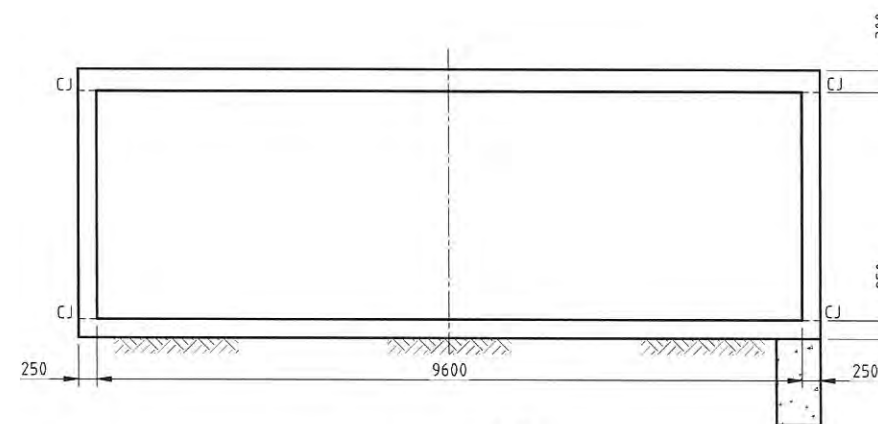
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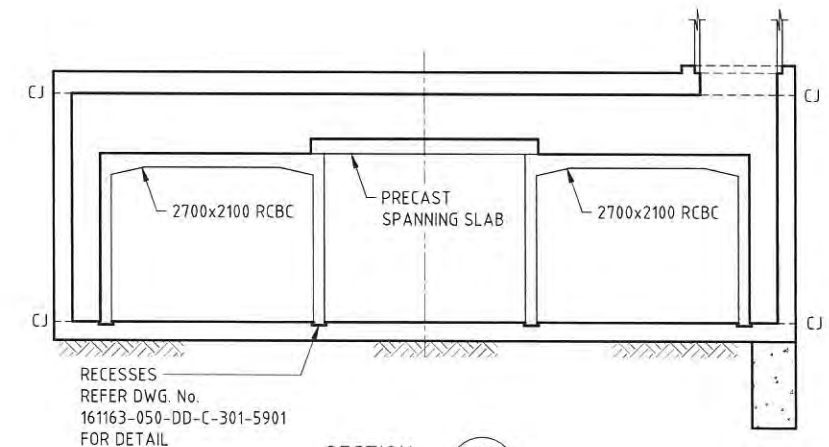
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SECTION 5
SCALE 1:50



SECTION 6
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D	23/09/2014	AFT ISSUE	AB	PM	MH	Approved
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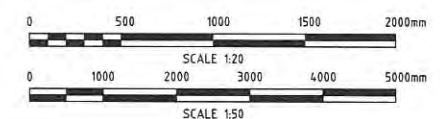
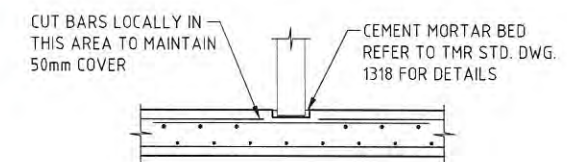
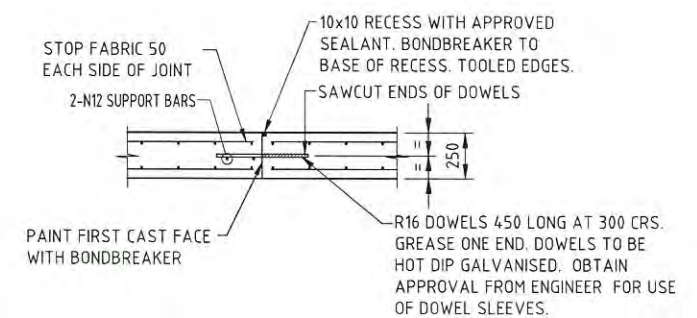
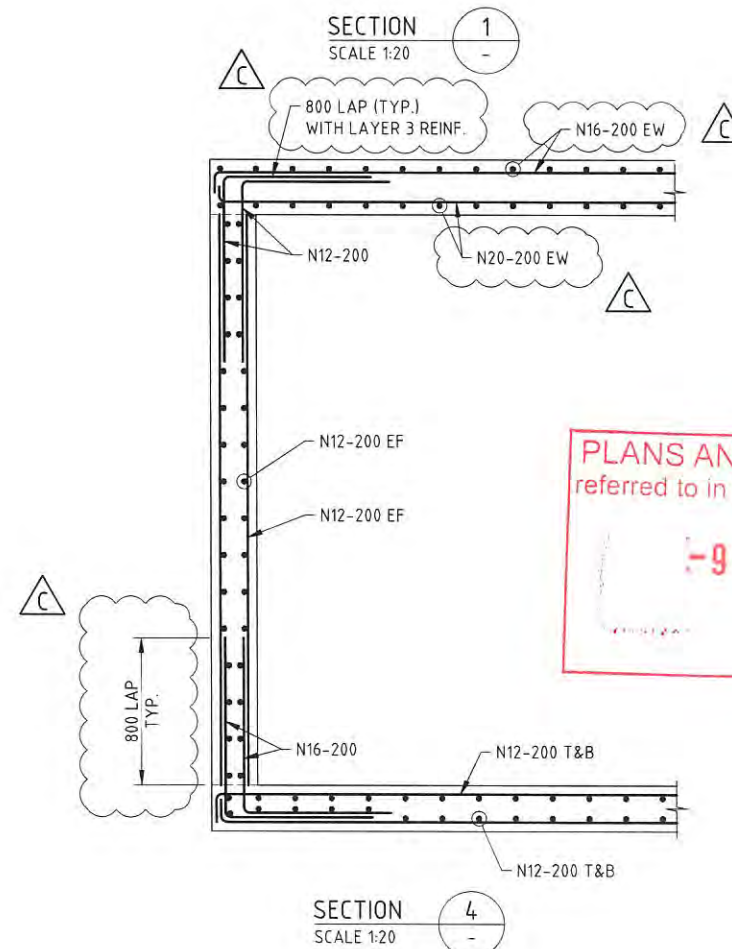
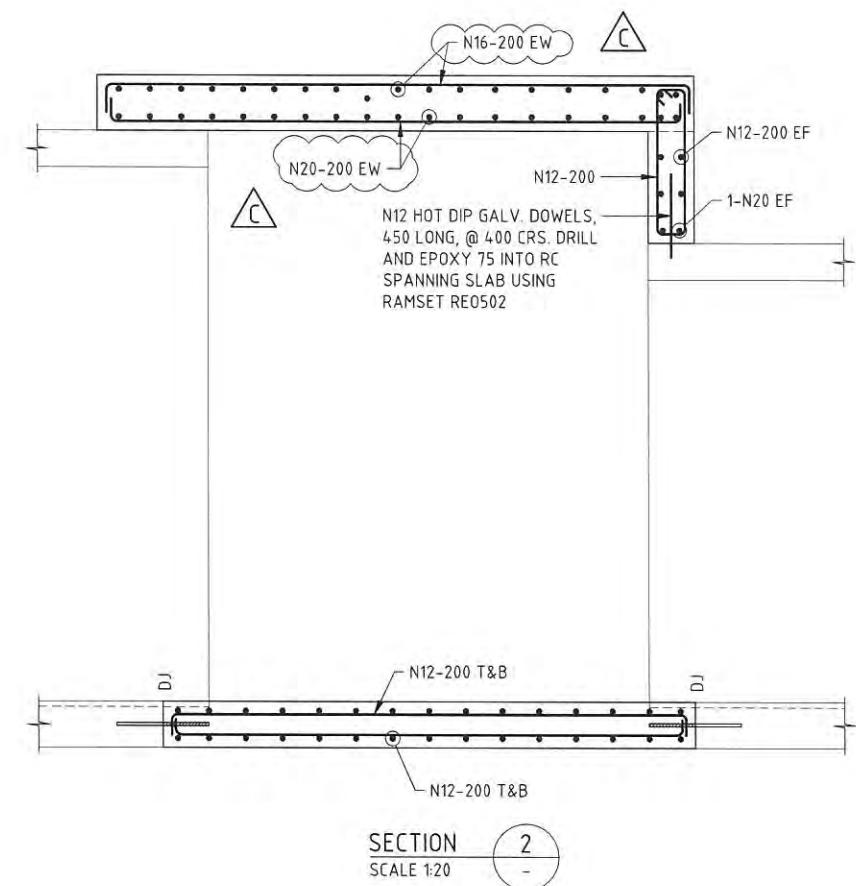
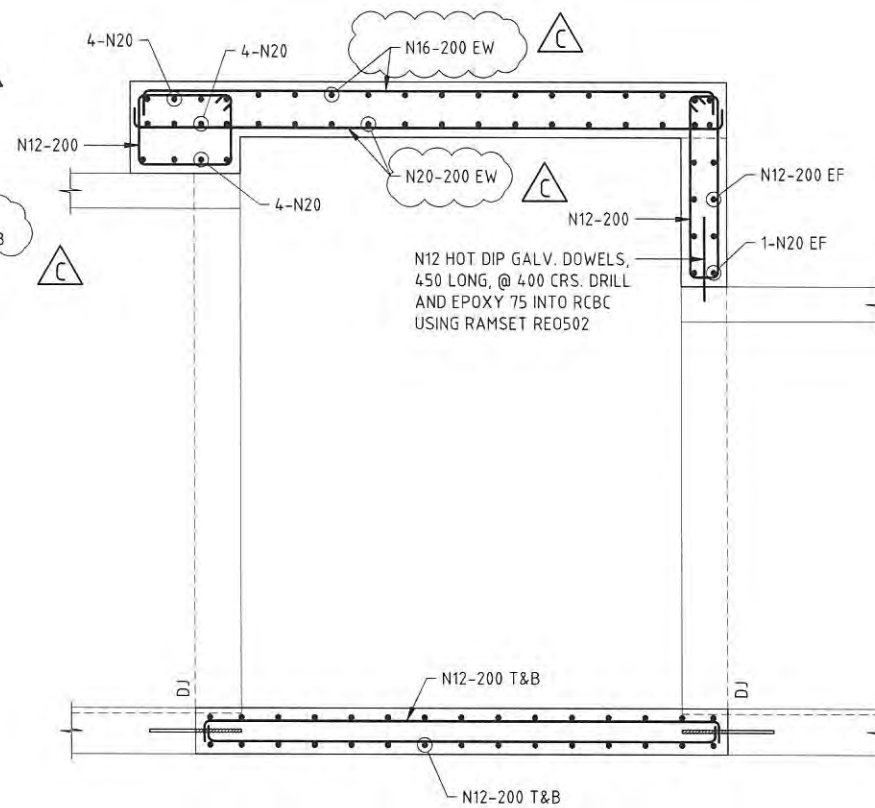
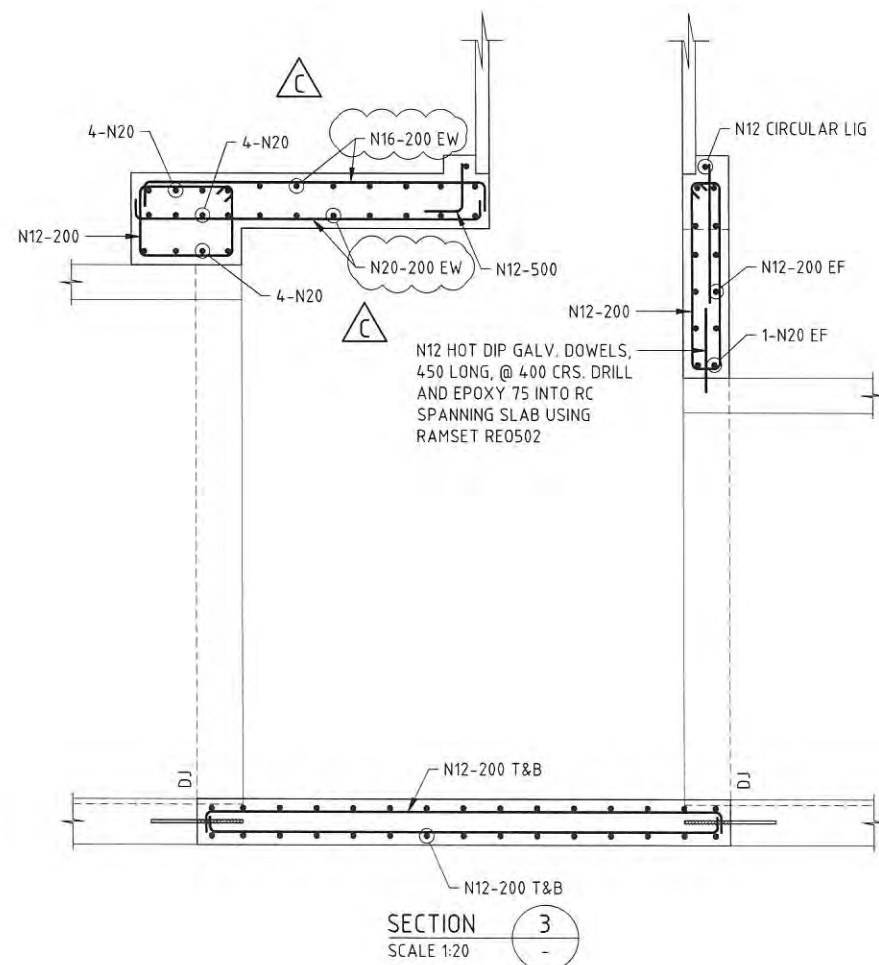
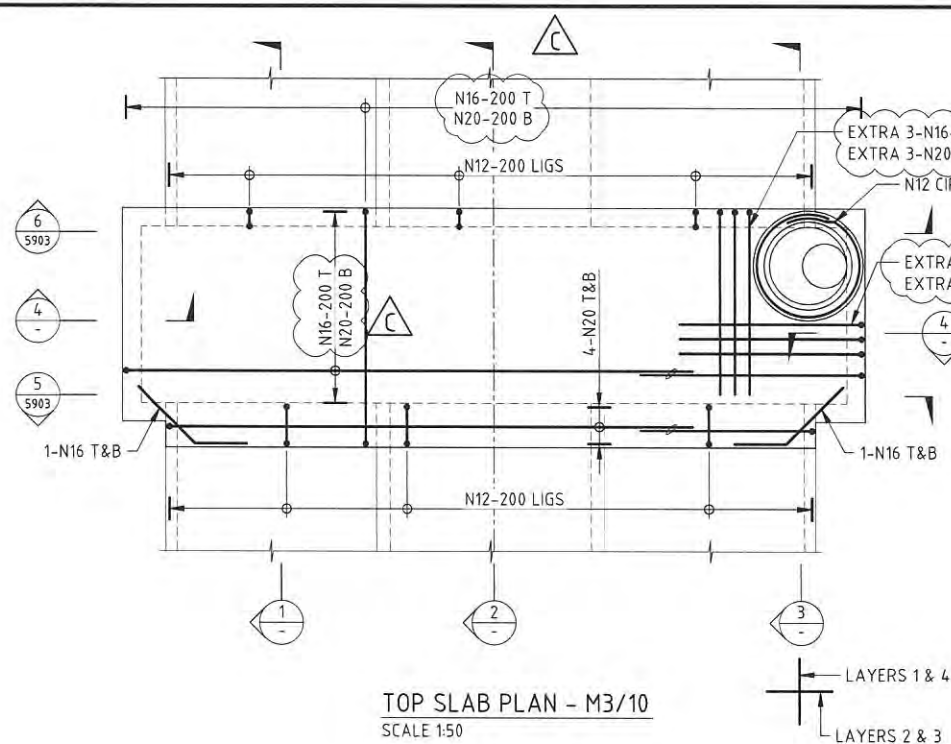


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Designed: AB
Cardno Ref. No.: A10697-048
Client: LEND LEASE
RNA SHOWGROUND REDEVELOPMENT
ENABLING WORKS - STAGE 2
TRUNK STORMWATER
STRUCTURAL DETAILS - MANHOLE M3/10
CONCRETE PROFILES

Status: FOR TENDER ONLY
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Revision: D



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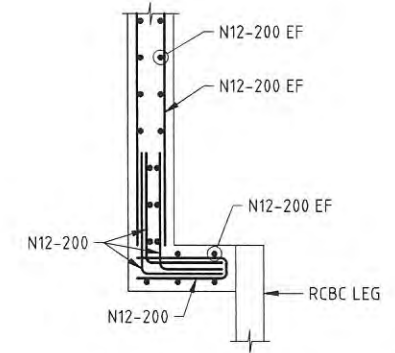
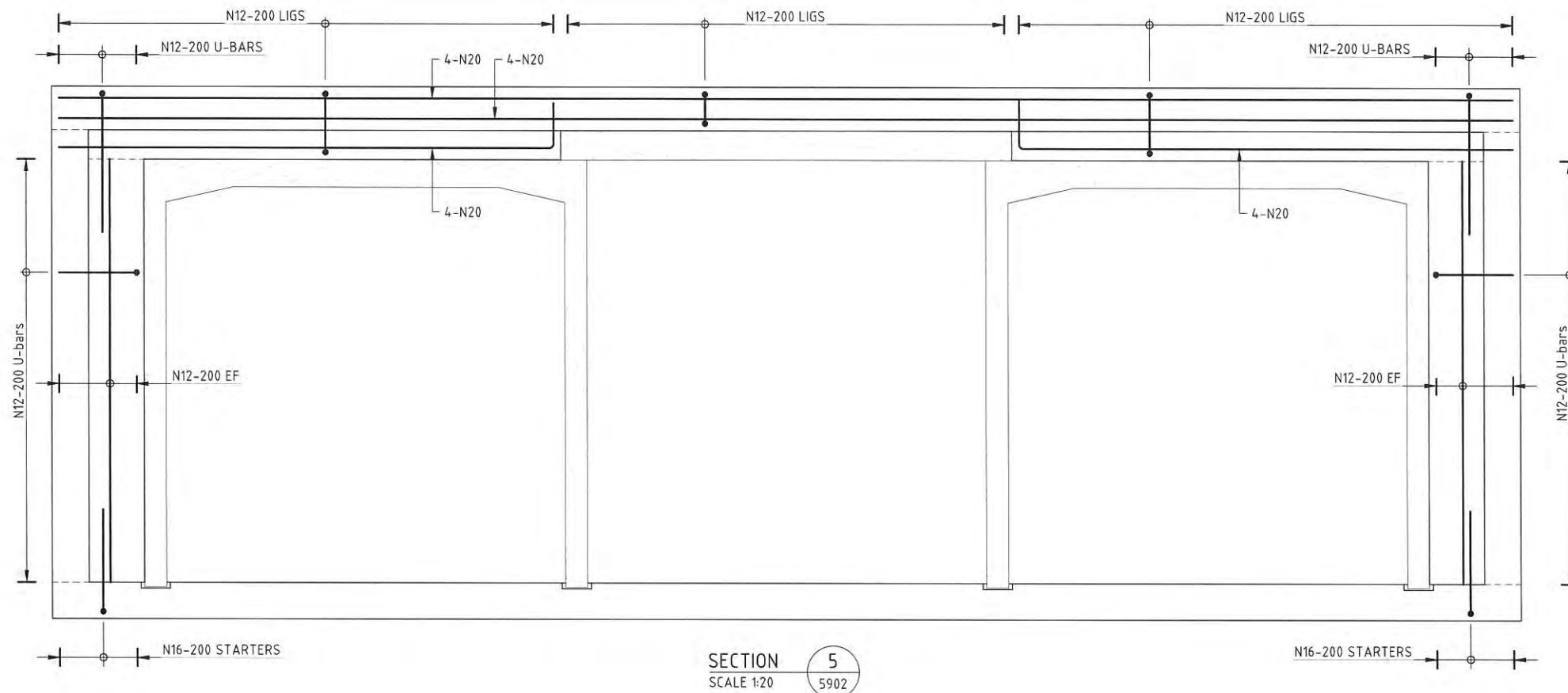
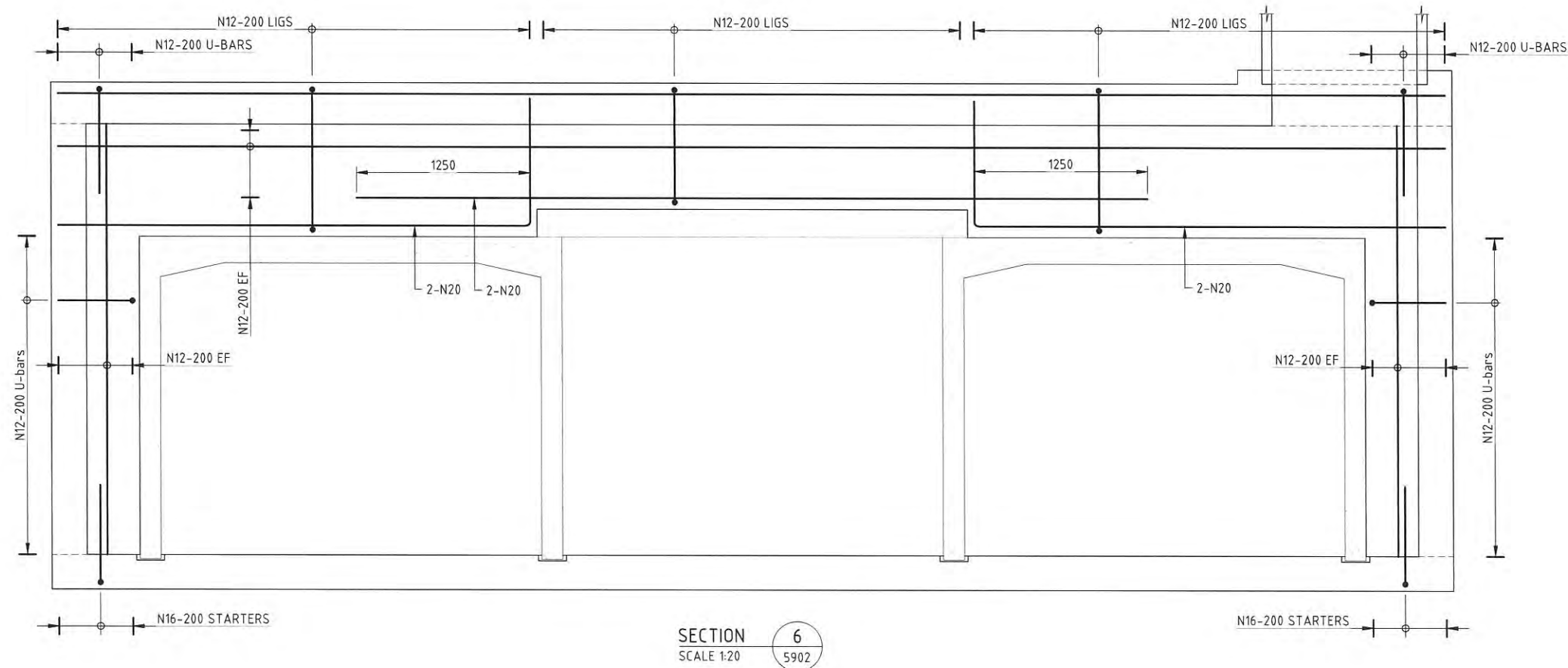
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Date: Aug-14
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Client: LEND LEASE
RMA SHOWGROUND REDEVELOPMENT
ENABLING WORKS - STAGE 2
TRUNK STORMWATER

STRUCTURAL DETAILS - MANHOLE M3/10
REINFORCEMENT DETAILS - SHEET 1

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Drawing Number: 161163-050-DD-D-301-5902
Revision: C

PLAN - TYPICAL WALL CORNER
SCALE 1:

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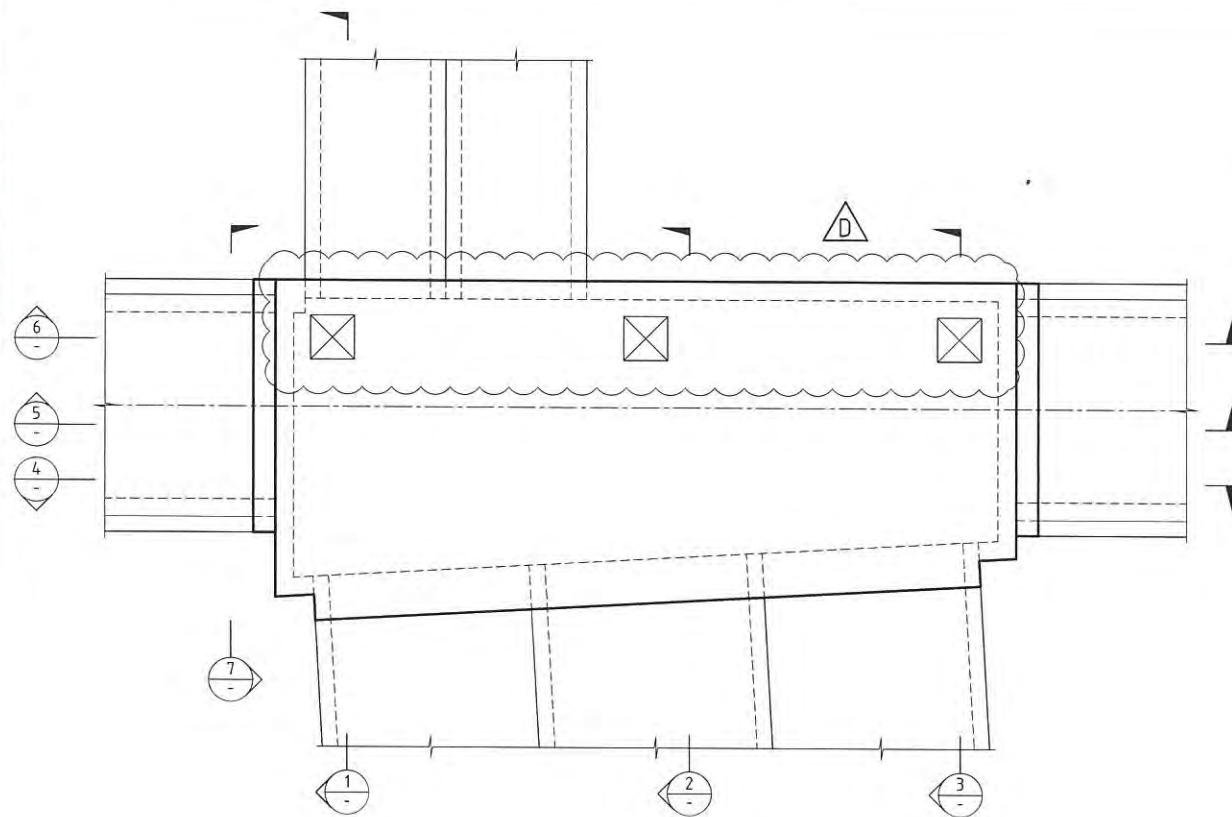
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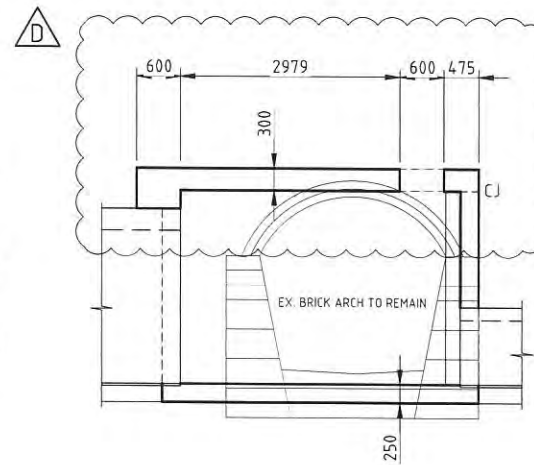
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RNA SHOWGROUND REDEVELOPMENT	
ENABLING WORKS - STAGE 2	
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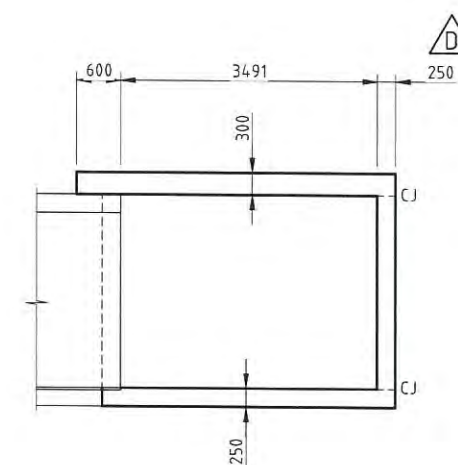
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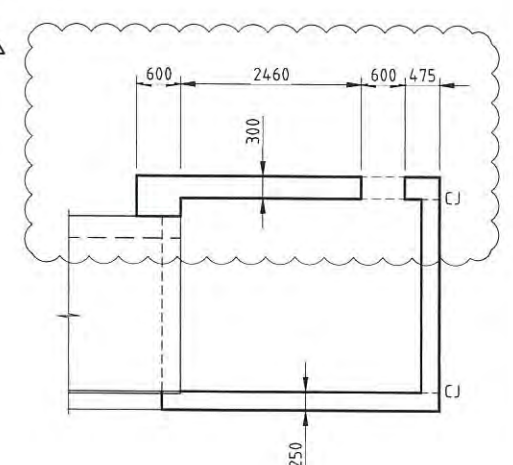
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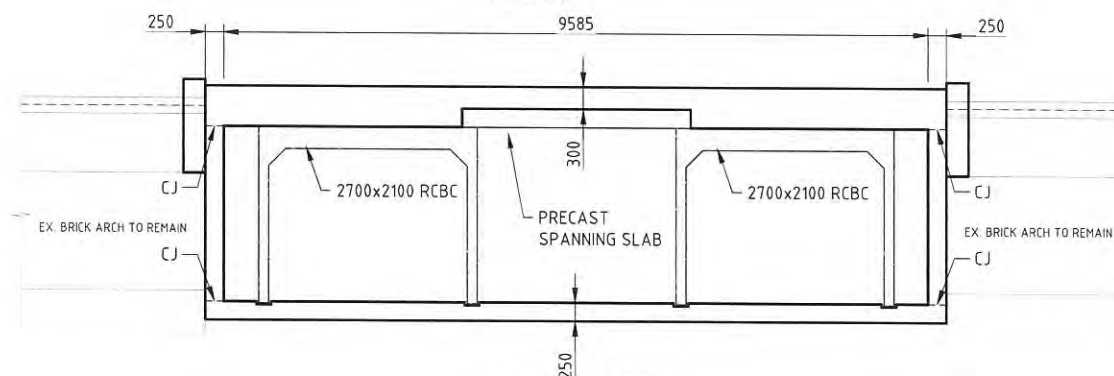
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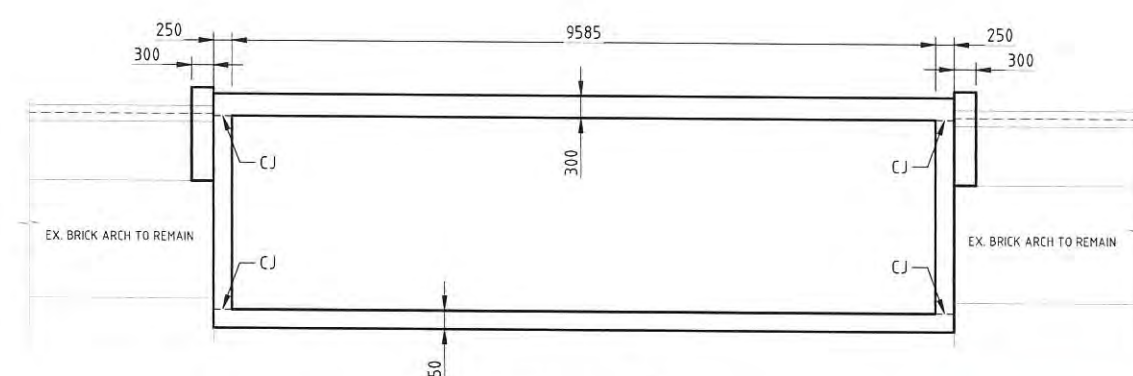
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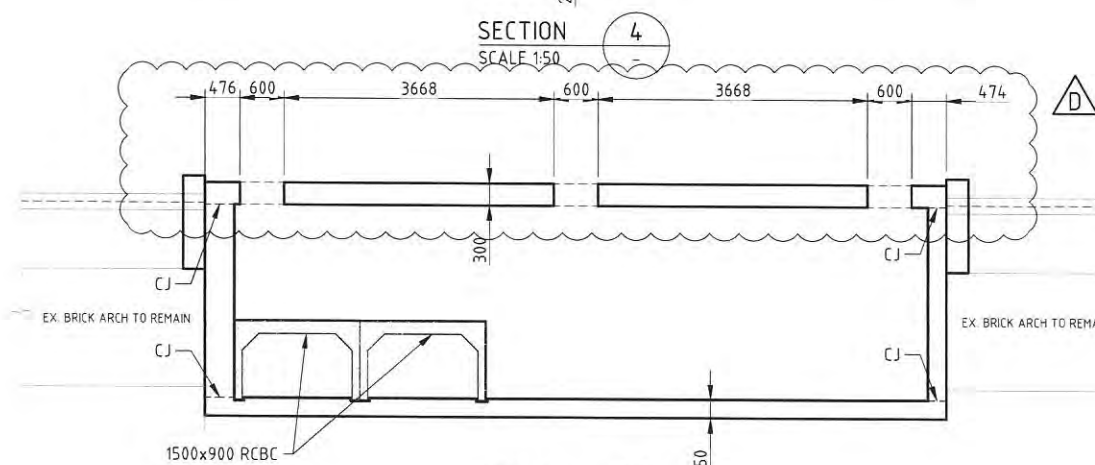
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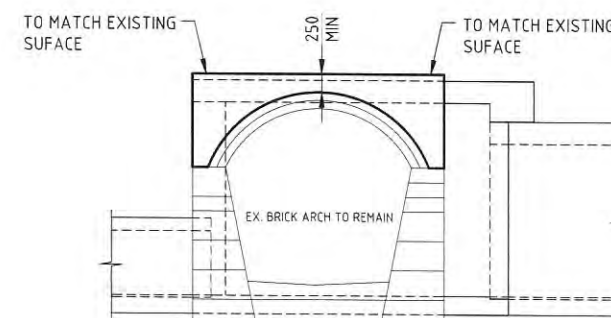
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SECTION 6
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SECTION 7
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PLANS AND DOCUMENTS
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NOTES:

1. FOR CONSTRUCTION NOTES REFER DWG. No. 161163-050-DD-C-301-5900.

LEGEND

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CJ DENOTES CONSTRUCTION JOINT

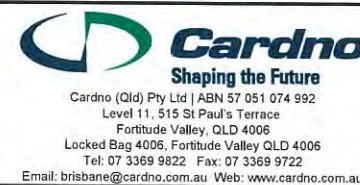


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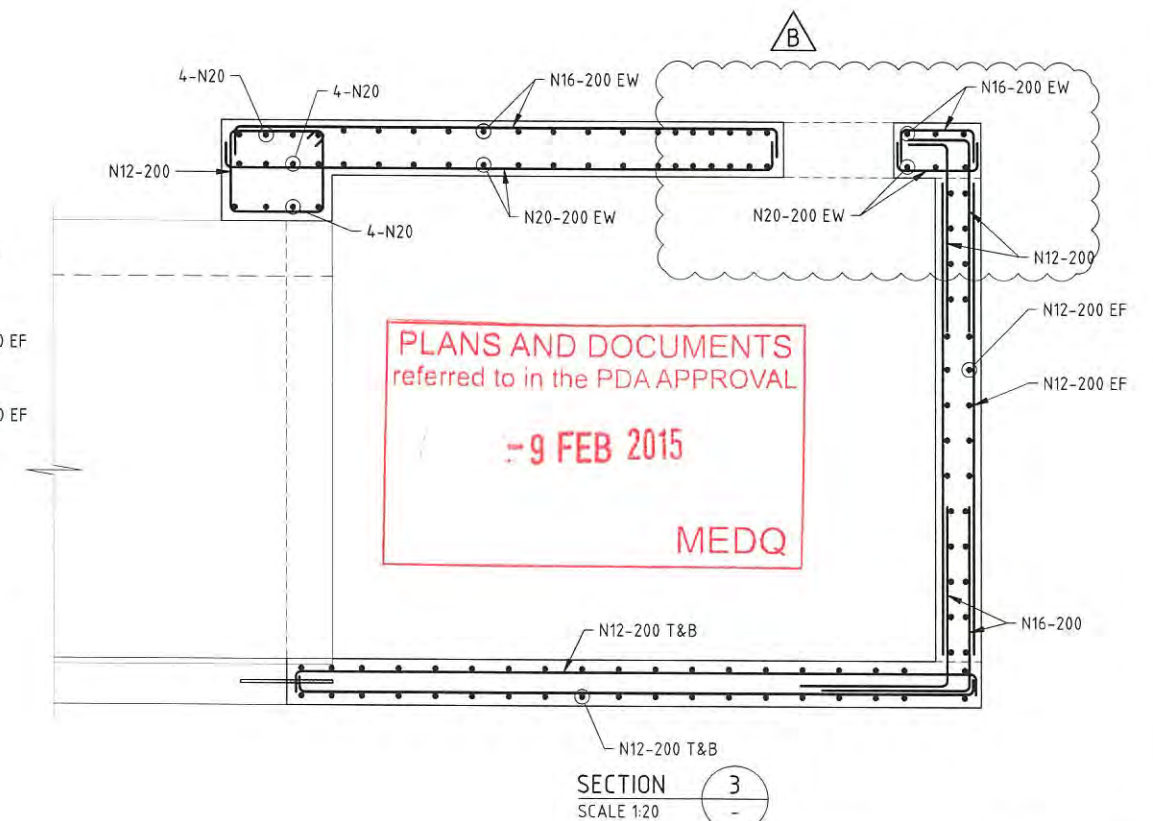
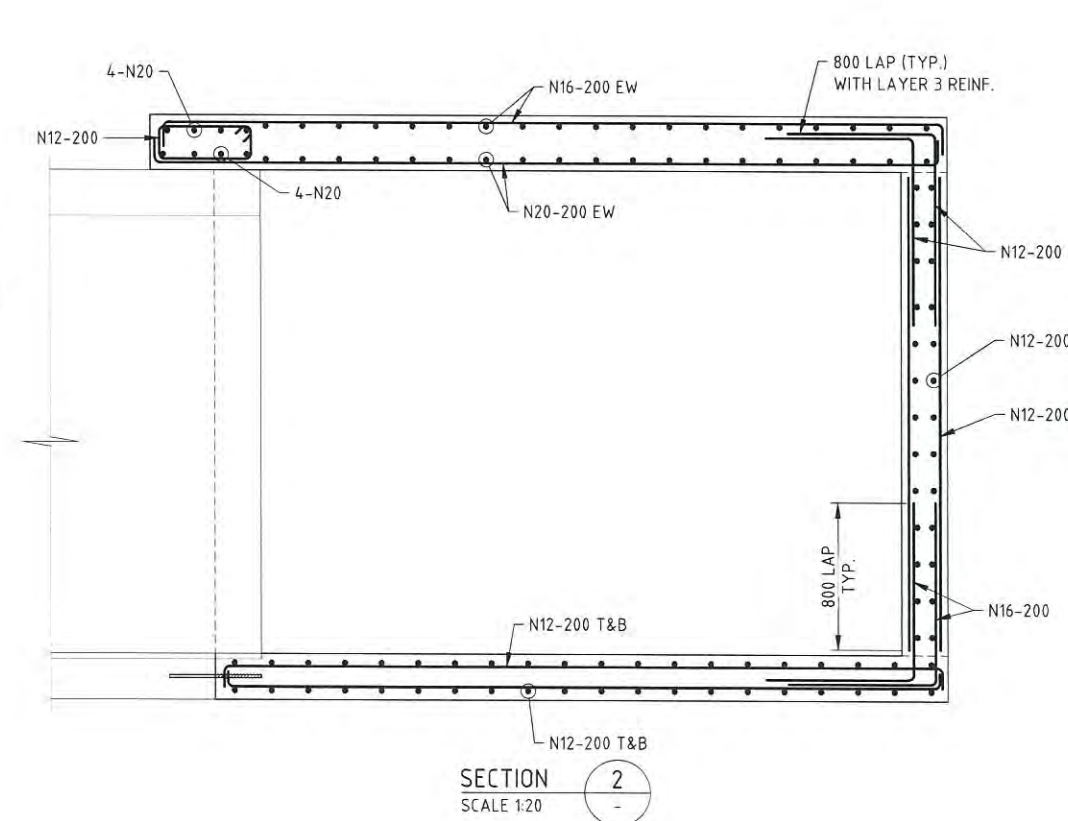
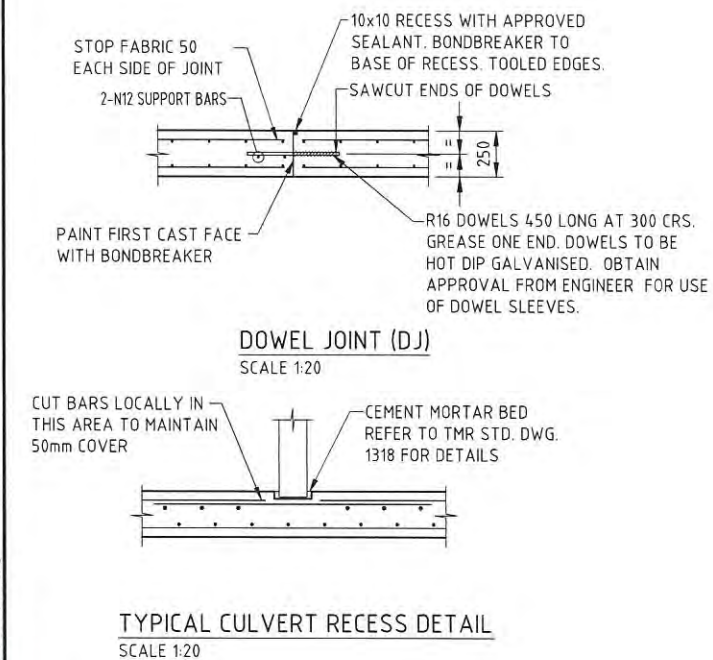
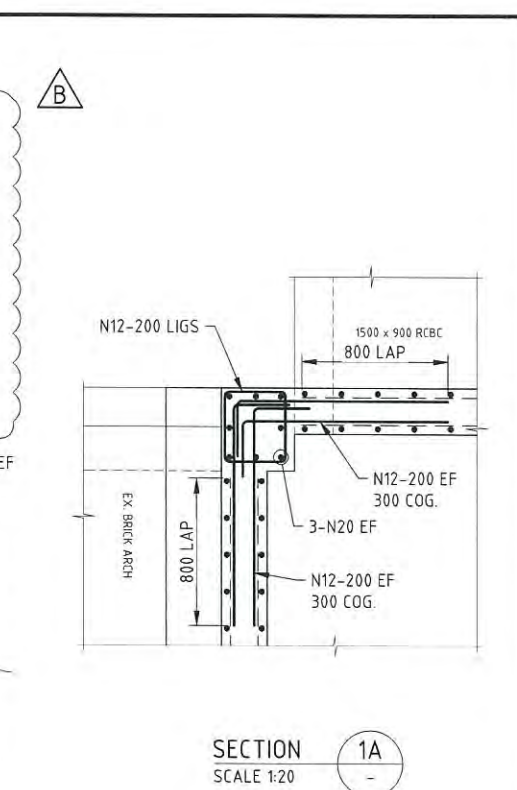
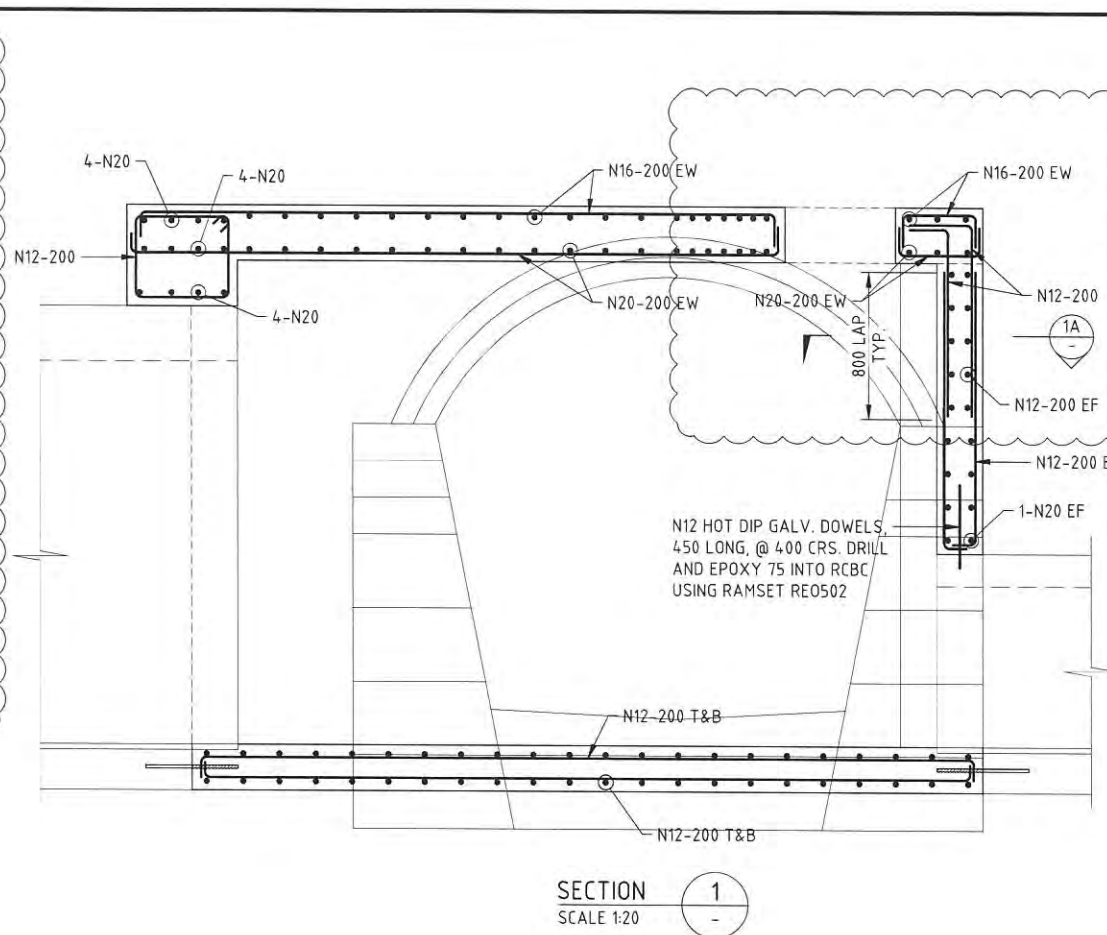
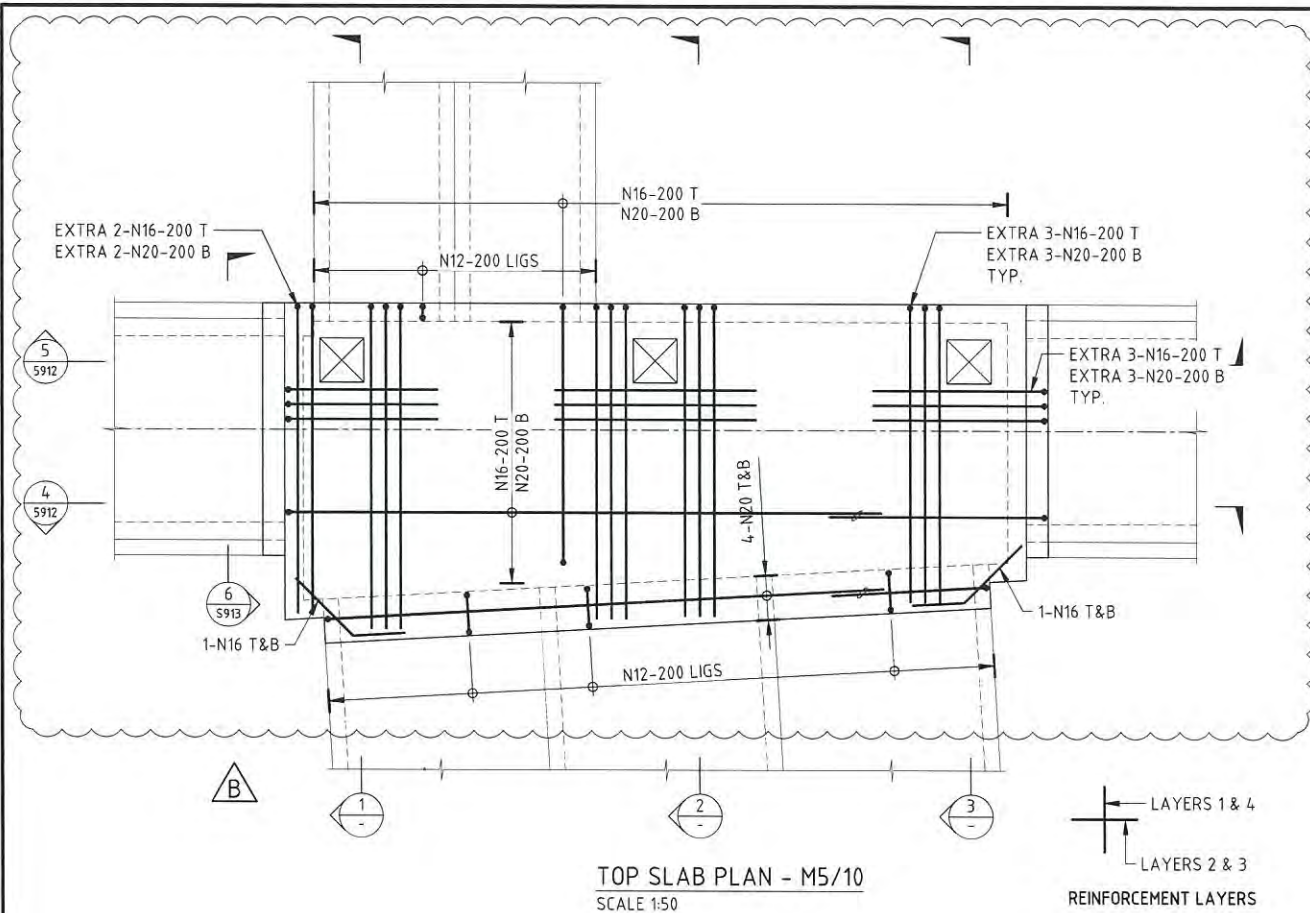
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Drawn GFB	Date Aug-14	Client LEND LEASE
Checked	Date	RNA SHOWGROUND REDEVELOPMENT
Designed AB	Date Aug-14	ENABLING WORKS - STAGE 2
Cardno Ref. No. A10697-048		TRUNK STORMWATER
		STRUCTURAL DETAILS - MANHOLE M4/10
		CONCRETE PROFILES

Status FOR TENDER ONLY NOT TO BE USED FOR CONSTRUCTION PURPOSES	Revision D
A.H.D. DATUM	Grid
Scale AS SHOWN	Size A1
Drawing Number 161163-050-DD-D-301-5910	



PLANS AND DOCUMENTS
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- 9 FEB 2015

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Rev.	Date	Description	Des.	Verif.	Appd.	RPEQ No.
B	03/12/2014	AFT ISSUE	AB	PM	MH	
A	31/08/2014	AFT ISSUE	AB	PM	MH	



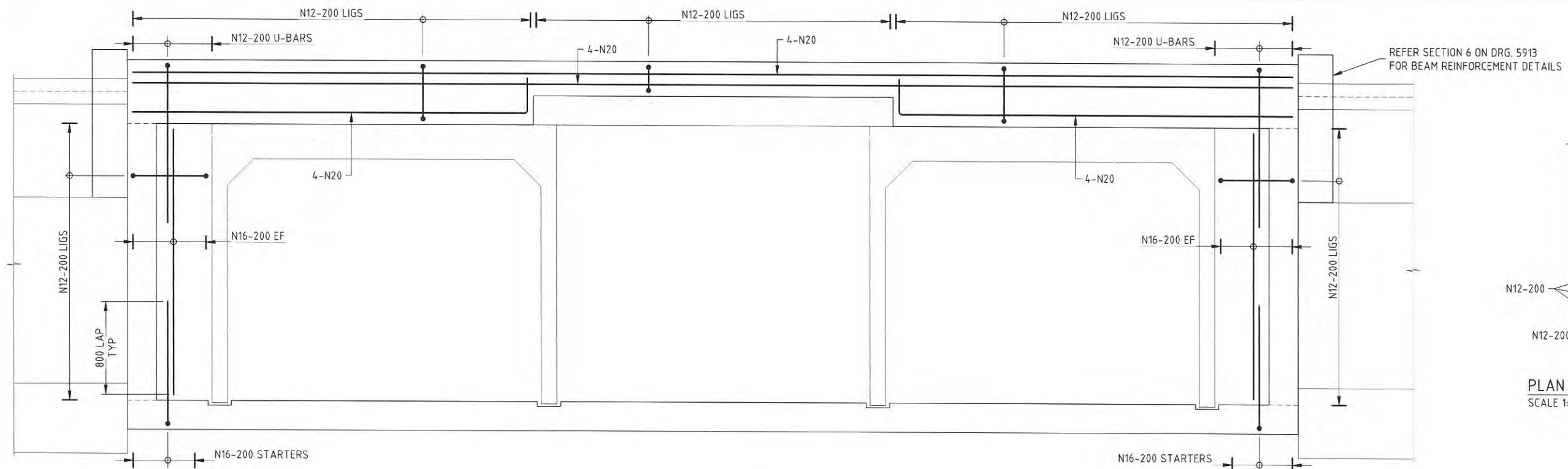
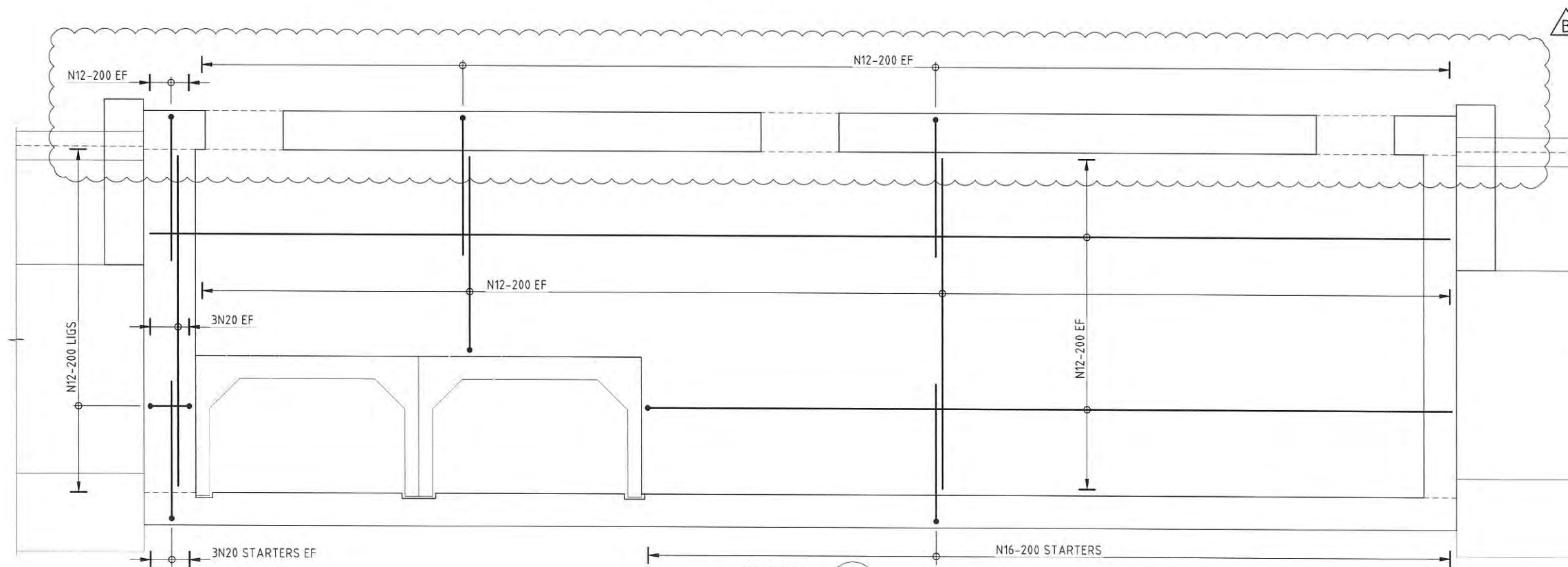
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Tel: 07 3369 9822 Fax: 07 3369 9722
Email: brisbane@cardno.com.au Web: www.cardno.com.au

Drawn: GFB
Checked: [blank]
Designed: AB
Cardno Ref. No.: A10697-048

Date: Aug-14
Date: Aug-14
Date: Aug-14
Client: LEND LEASE
RNA SHOWGROUND REDEVELOPMENT
ENABLING WORKS - STAGE 2
TRUNK STORMWATER
STRUCTURAL DETAILS - MANHOLE M4/10
REINFORCEMENT DETAILS - SHEET 1

Status: FOR TENDER ONLY
NOT TO BE USED FOR CONSTRUCTION PURPOSES
A.H.D. DATUM Grid Scale AS SHOWN Size A1
Drawing Number 161163-050-DD-D-301-5911 Revision B

SECTION 4
SCALE 1:204
5911SECTION 5
SCALE 1:205
5911

PLANS AND DOCUMENTS
referred to in the PDA APPROVAL

- 9 FEB 2015

MEDQ

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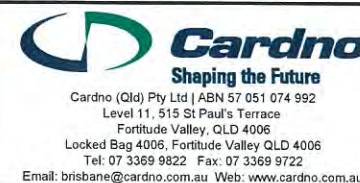
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Rev.	Date	Description	Des.	Verif.	Appd.	RPEQ No.
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A	31/08/2014	AFT ISSUE	AB	PM	MH	

Verified	Date
Approved	Date



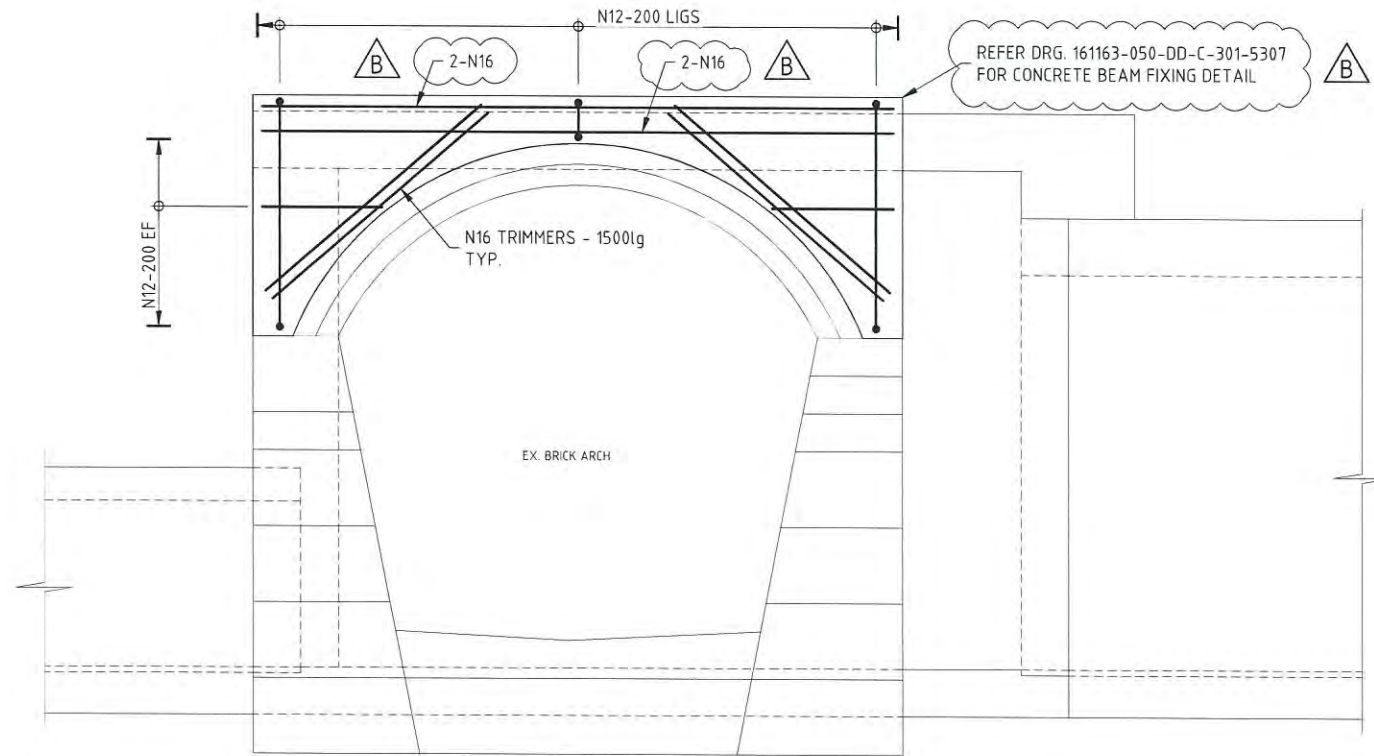
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Drawn GFB	Date Aug-14	Client LEND LEASE
Checked	Date	RNA SHOWGROUND REDEVELOPMENT
Designed AB	Date Aug-14	ENABLING WORKS - STAGE 2
Cardno Ref. No. A10697-048		TRUNK STORMWATER
		STRUCTURAL DETAILS - MANHOLE M4/10
		REINFORCEMENT DETAILS - SHEET 2

Status FOR TENDER ONLY NOT TO BE USED FOR CONSTRUCTION PURPOSES			
A.H.D. DATUM	Grid	Scale AS SHOWN	Size A1
Drawing Number 161163-050-DD-D-301-5912			Revision B

DATE PLOTTED: 14 October 2014 12:56 PM BY: MICHAEL LANE



SECTION 6
SCALE 1:20 5911

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- 9 FEB 2015

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Rev				Description				Des.				Verit.				Appd.				RPEQ No.			
B				1/09/2014				AFT ISSUE				AB				PM				MH			
A				31/08/2014				AFT ISSUE				AB				PM				MH			

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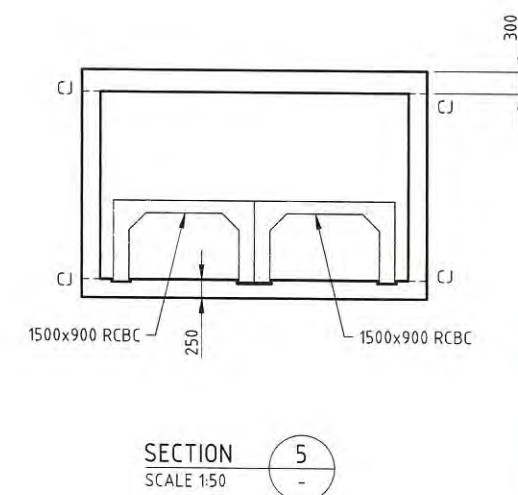
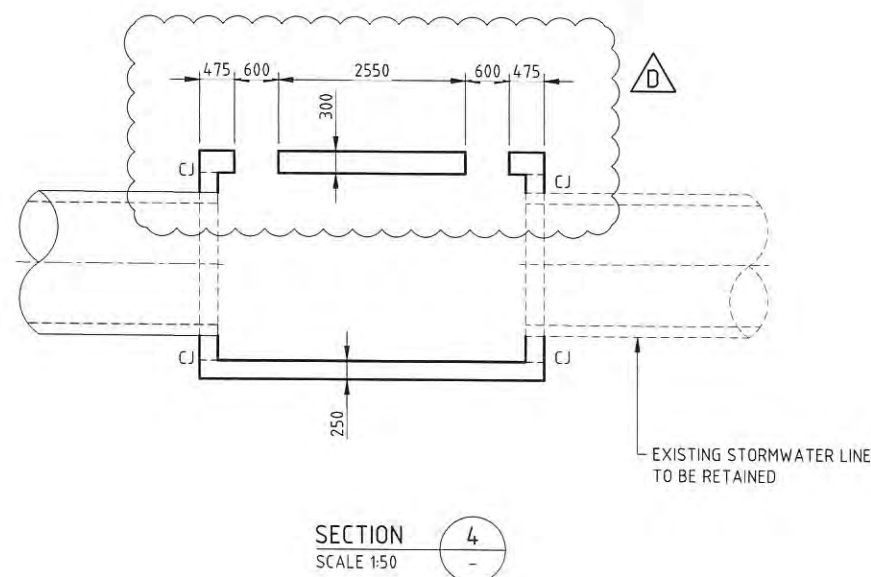
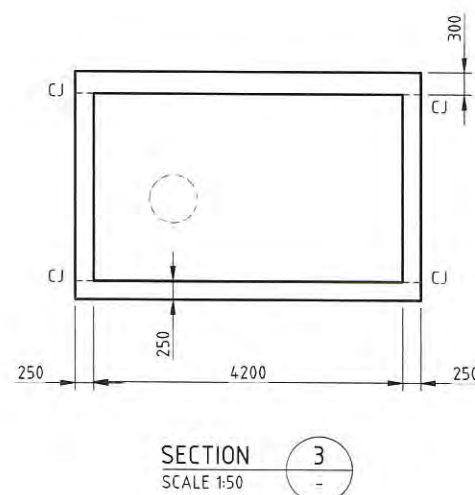
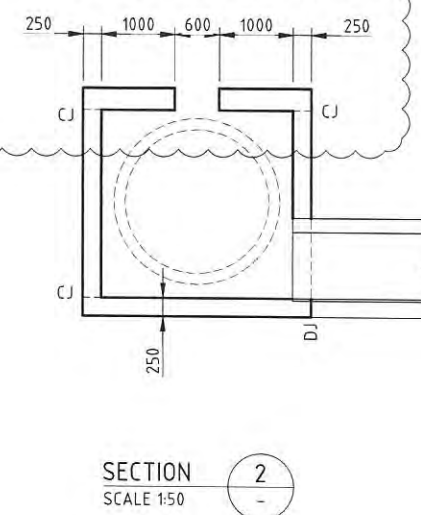
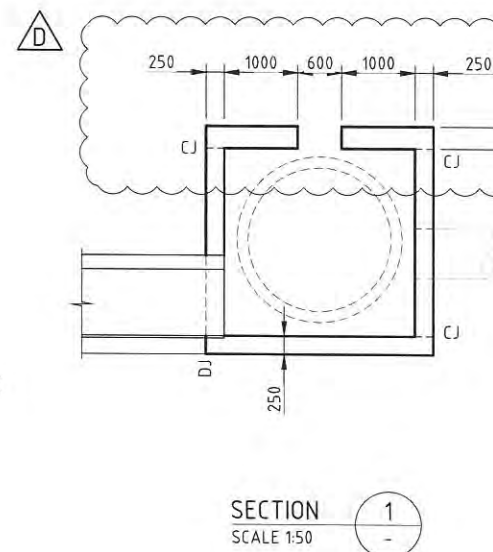
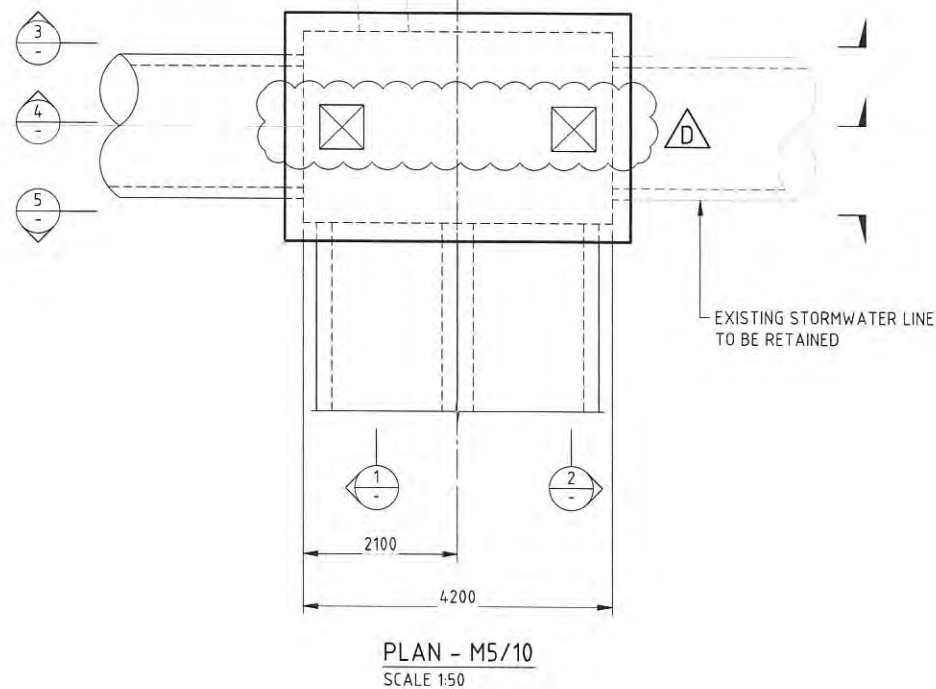
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Locked Bag 4006, Fortitude Valley QLD 4006
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Drawn	Date
GFB	Aug-14
Checked	Date
Designed	Date
AB	Aug-14
Cardno Ref. No.	
A10697-048	

Client	LEND LEASE
RNA SHOWGROUND REDEVELOPMENT	
ENABLING WORKS - STAGE 2	
TRUNK STORMWATER	
STRUCTURAL DETAILS - MANHOLE M4/10	
REINFORCEMENT DETAILS - SHEET 3	

Status				FOR TENDER ONLY			
NOT TO BE USED FOR CONSTRUCTION PURPOSES							
A.H.D.		Grid		Scale		Size	
DATUM				AS SHOWN		A1	
Drawing Number						Revision	
161163-050-DD-D-301-5913						B	

FUTURE Ø750 STORMWATER PIPE.
REFER DRG. 161163-050-DD-C-301-5306
FOR DETAILS



NOTES:

1. FOR CONSTRUCTION NOTES REFER DWG. No. 161163-050-DD-C-301-5900.

LEGEND

DJ DENOTES DOWEL JOINT, REFER DWG. NO. 161163-050-DD-C-301-5901
CJ DENOTES CONSTRUCTION JOINT

PLANS AND DOCUMENTS
referred to in the PDA APPROVAL
- 9 FEB 2015
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SCALE 1:50

Rev.	Date	Description	Des.	Verif.	Appd.	RPEQ No.
D	03/12/2014	AFT ISSUE	AB	PM	MH	Approved
C	23/09/2014	AFT ISSUE	AB	PM	MH	
B	31/08/2014	AFT ISSUE	AB	PM	MH	
A	15/08/2014	AFT ISSUE	AB	PM	MH	



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Drawn: GFB
Checked: AB
Designed: AB
Cardno Ref. No.: A10697-048

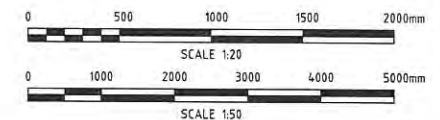
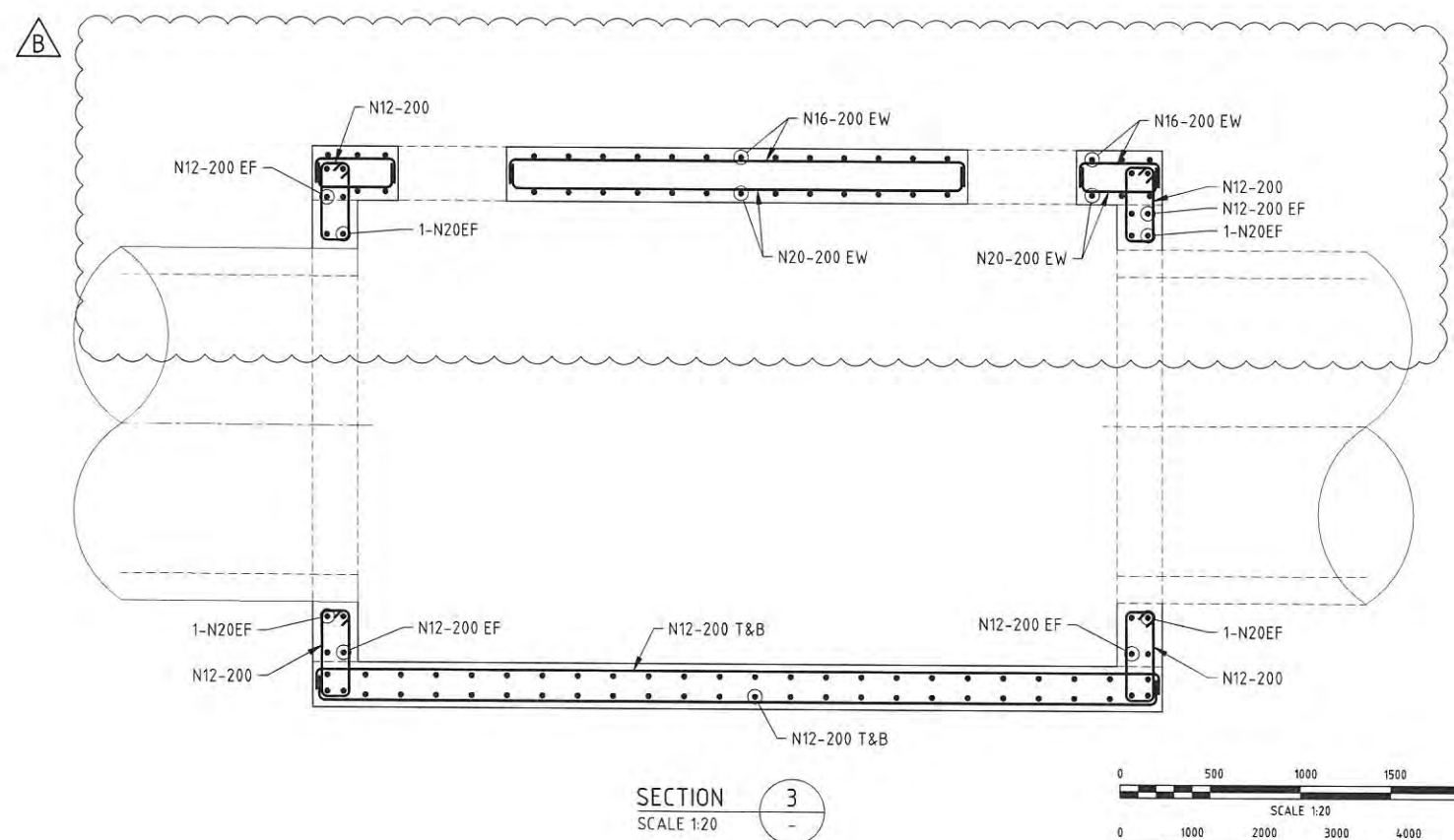
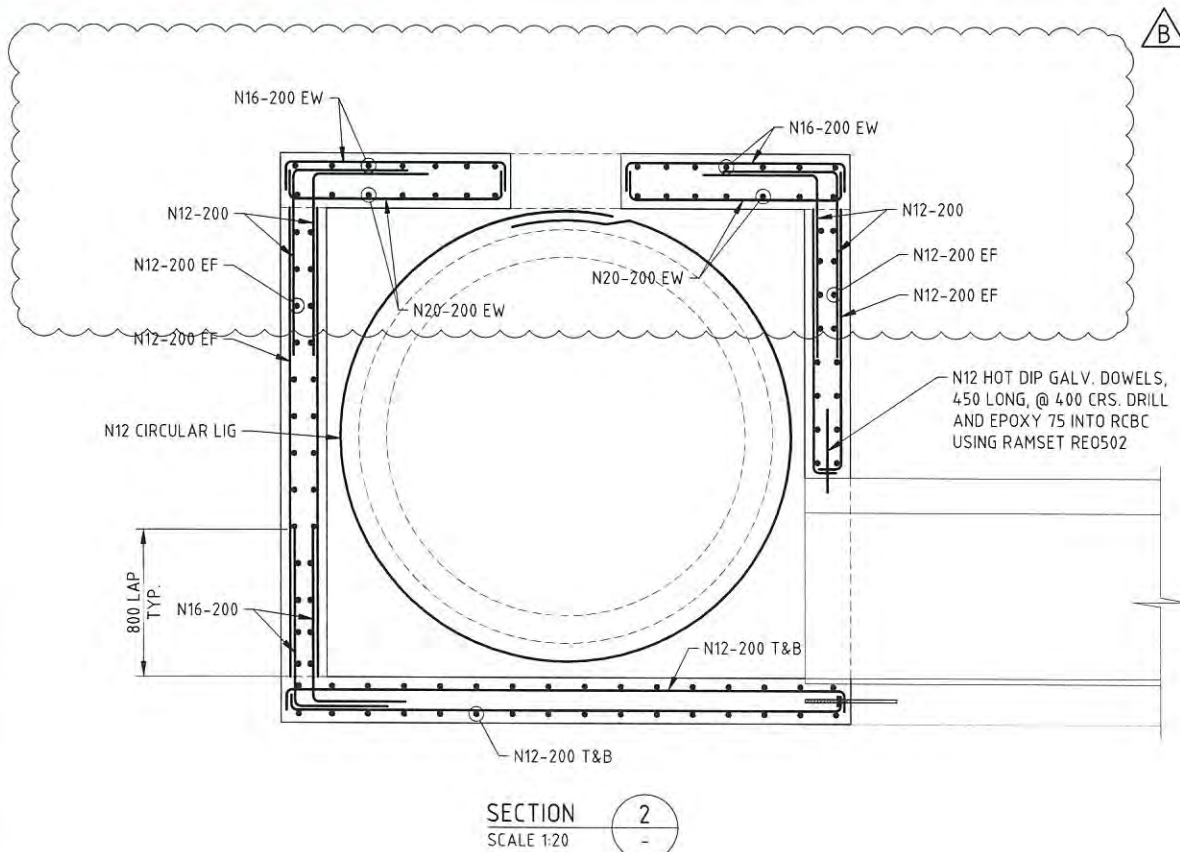
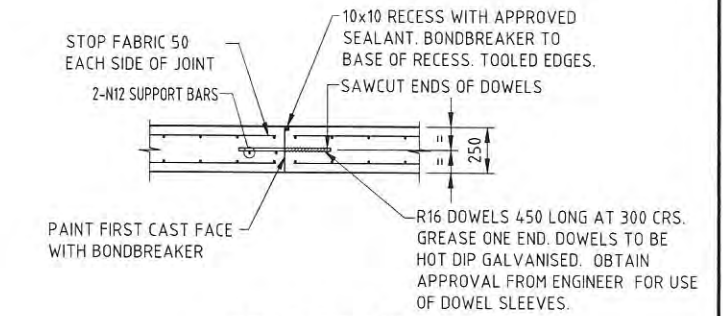
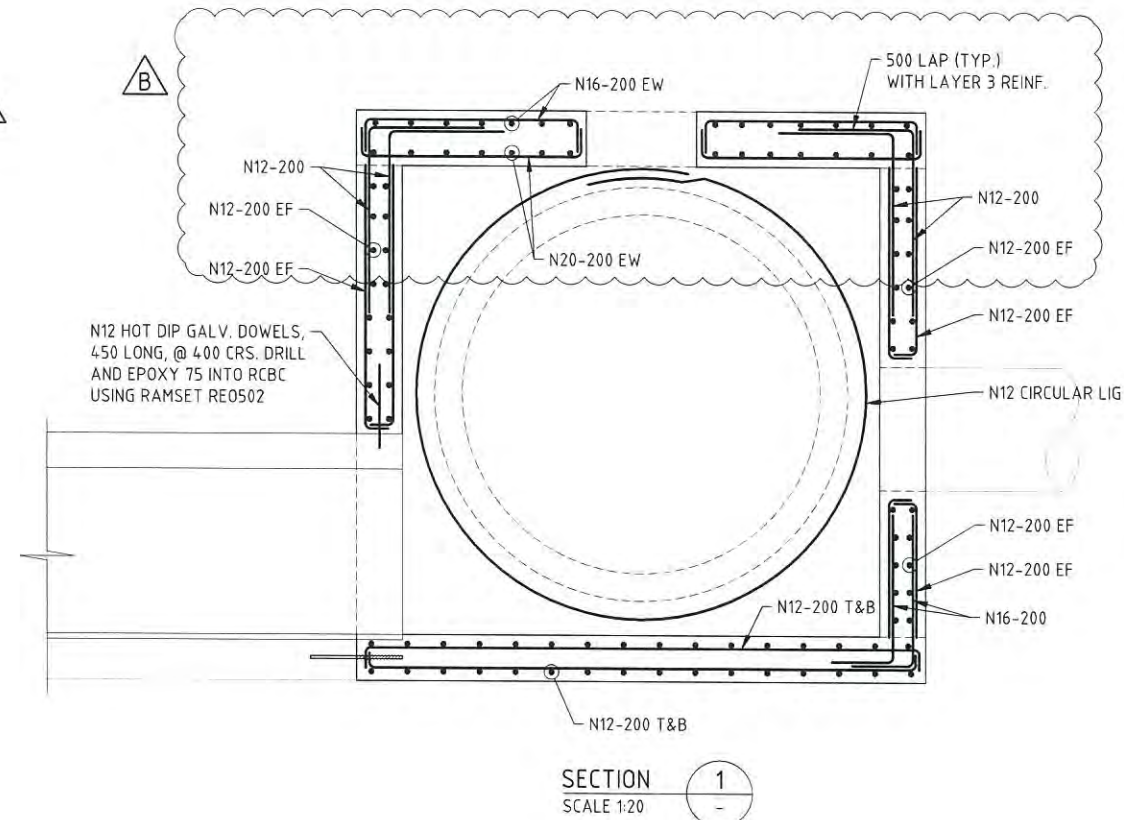
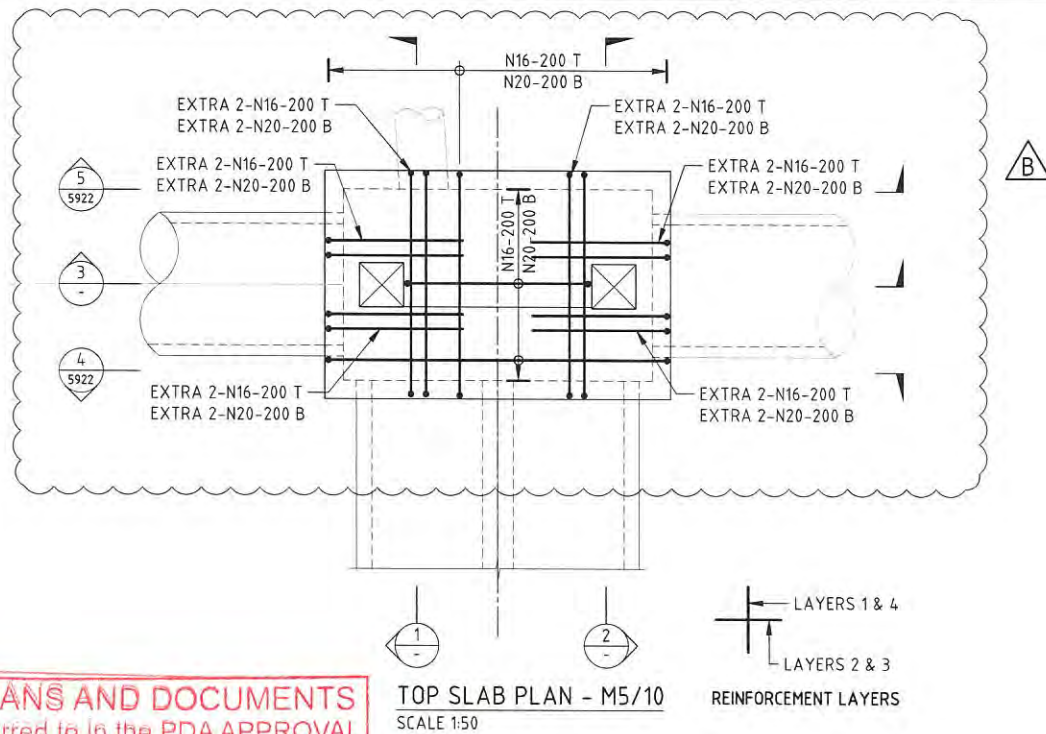
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Client: LEND LEASE
RNA SHOWGROUND REDEVELOPMENT
ENABLING WORKS - STAGE 2
TRUNK STORMWATER
STRUCTURAL DETAILS - MANHOLE M5/10
CONCRETE PROFILES

Status: FOR TENDER ONLY
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A.H.D. DATUM
Grid
Scale: AS SHOWN
Size: A1
Drawing Number: 161163-050-DD-D-301-5920
Revision: D

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Drawn: GFB
Checked: AB
Designed: AB
Cardno Ref. No: A10697-048

Date: Aug-14
Date: Aug-14

Client: LEND LEASE
RNA SHOWGROUND REDEVELOPMENT
ENABLING WORKS - STAGE 2
TRUNK STORMWATER

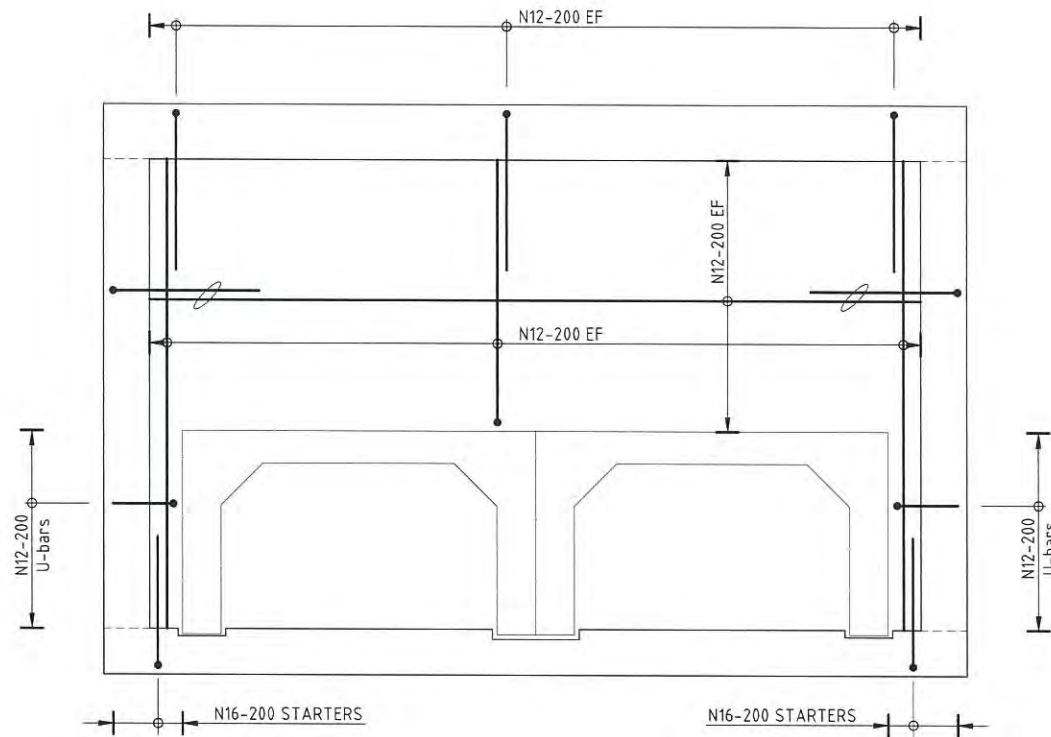
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REINFORCEMENT DETAILS - SHEET 1

Status: FOR TENDER ONLY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

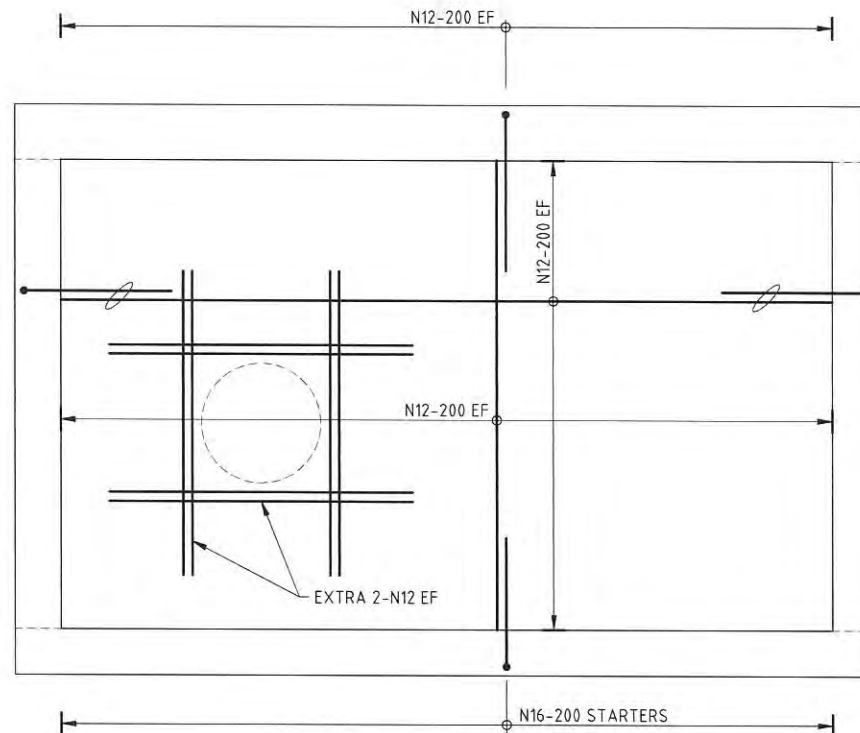
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Drawing Number 161163-050-DD-D-301-5921 Revision B

Rev	Date	Description	Des.	Verif.	Appd.	RPEQ No.
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A	31/08/2014	AFT ISSUE	AB	PM	MH	

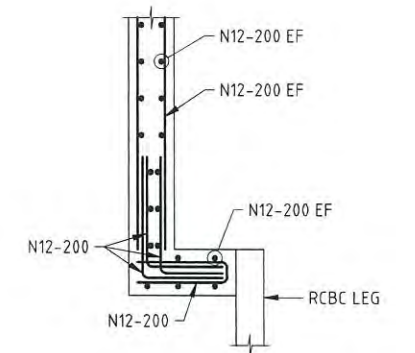
DATE PLOTTED: 14 October 2014 12:57 PM BY: MICHAEL LANE



SECTION 4
SCALE 1:20



SECTION 5
SCALE 1:20



PLAN - TYPICAL WALL CORNER
SCALE 1:20

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- 9 FEB 2015

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XREF's: X-a10697-048_QLD-SHT-A1: X-PIT M510
CAD FILE: K:\A10697\Phase 048\AutoCAD\Civil\Drawings\161163-050-DD-C-301-5922.dwg

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				Date
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A	31/08/2014	AFT ISSUE	AB PM MH	
Rev.	Date	Description	Des. Verif. Appd.	RPEQ No.



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Drawn	Date	Client
GFB	Aug-14	LEND LEASE
Checked	Date	
Designed	Date	
AB	Aug-14	
Cardno Ref. No.		
A10697-048		

RNA SHOWGROUND REDEVELOPMENT
ENABLING WORKS - STAGE 2
TRUNK STORMWATER
STRUCTURAL DETAILS - MANHOLE M5/10
REINFORCEMENT DETAILS - SHEET 2

Status				FOR TENDER ONLY	
NOT TO BE USED FOR CONSTRUCTION PURPOSES					
A.H.D.		Grid		Scale	
DATUM				AS SHOWN	
				Size	
				A1	
Drawing Number				Revision	
161163-050-DD-D-301-5922				A	