BRISBANE WATER

Dedicated to a better Brisbane

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

02 January 2007

Rev 4.0

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

Table of Contents

Section

1 REMOVAL OF EXISTING PIPE NO.2 MAINTENANCE HOLE EX.2/4 (CORONATION DRIVE) 3

2 DRILL/CORE CONCRETE WALL. MAINTENANCE HOLE EX.2/4 (CORONATION DRIVE) 3

3 CLOSE THE FOLLOWING VALVES (SYPHON OUTLET MH2/4 CORONATION DRIVE) AND FIX CAUTION OUT OF SERVICE TAG'S 4

4 CLOSE THE FOLLOWING VALVES (SYPHON INLET MH1/4 & GT1/4 HOCKINGS STREET) AND FIX CAUTION OUT OF SERVICE TAG'S 4

5 MAINTENANCE HOLE MH.1/4 PIPE CONNECTION INTO GRIT TRAP-GT 1/4 HOCKINGS STREET 5

6 INSTALLATION OF STAINLESS STEEL BELLOWS. MAINTENANCE HOLE EX. 2/4 CORONATION DRIVE 5

7 ENCASE STAINLESS STEEL BELLOWS IN CONCRETE MAINTENANCE HOLE EX. 2/4 CORONATION DRIVE 6

8 REMOVAL OF EXISTING PIPE NO.1 MAINTENANCE HOLE EX.2/4 (CORONATION DRIVE) 6

9 INSTALL BLACK BRUTE CHANNEL AND CONCRETE BENCHING TO SUIT SITE CONDITION MAINTENANCE HOLE EX. 2/4 CORONATION DRIVE 6

10 ACTIVITY TIME TABLE AND RESPONSIBLE PERSON/CONTRACTOR 7

11 ATTACHMENTS 8

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

1 Removal of Existing Pipe No.2 Maintenance Hole EX.2/4 (Coronation Drive)

1.1 Cut and removal of existing Pipe No.2 MH EX.2/4 (Coronation Drive) reference BW drg 3003/170-139 Amend A.

Large valve pieces will be placed between Pipes 1 and 2 against the river wall, awaiting entombment. Any stacked pieces will be anchored and chained to the wall.

Leave enough pipe protruding from wall to allow for uniflange (assembled in two halves) to be fitted. Uniflange will secure 250mm flexible suction hose to manage flow during the removal of Pipe 1 (section 9).

Arrange inspection by black brute contractor to design and quote on channel fabrication and installation.

Note: Pipe No. 1 & 2 are not to be sealed until we have commissioned/7day trial on new Syphone. Should the new Syphone fail we can revert back to the old Syphone within minutes.

1.2 Before we can cut and remove Pipe No.2 (MH EX.2/4 Coronation Drive) we must complete the following.

a) Plug pipe if required & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag on Valve.
Plug to be removed & Valve to be opened at the completion of daily works.

b) Valve at XXXX brewery to be isolated and reinstated each night.
It is important we install a Caution Out Of Service Tag on Valve.

2 Drill/Core concrete wall. Maintenance Hole EX.2/4 (Coronation Drive)

2.1 Core concrete wall. Maintenance Hole EX.2/4 (Coronation Drive) reference BW drg 3003/170-139 Amend A.

2.2 Once the concrete wall has been cored seal Steel Casing 1.2m ID to concrete wall.

2.3 Note: Before the above work can start we must complete the following.

a) Plug pipe if required & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag on Valve.
Plug to be removed & Valve to be opened at the completion of daily works.

b) Valve at XXXX brewery to be isolated and reinstated each night.
It is important we install a Caution Out Of Service Tag on Valve.

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

3 Close the following valves (Syphon Outlet MH2/4 Coronation Drive) and fix Caution Out Of Service Tag's

3.1 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section C 2off DN150 Gate Valves top of slab.

3.2 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section F 2off DN150 Gate Valves with deadplate.

3.3 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section F 1off DN350 Knifegate Valve. Section F 1off DN450 Knifegate Valve.

3.4 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section E 2off DN150 Gate Valves with deadplate bottom of shaft.

3.5 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section F 1off DN32 Lockable Ball Valve.

3.6 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-152 Amend 0. Section A 6 off DN50 Ball Valves.

4 Close the following valves (Syphon Inlet MH1/4 & GT1/4 Hockings Street) and fix Caution Out Of Service Tag's

4.1 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-156 Amend B. Section C 2off DN150 Gate Valves top of slab.

4.2 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-156 Amend B. Section C 2off DN150 Gate Valves with deadplate.

4.3 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-158 Amend 0. Section F 1off DN300 Knifegate Valve. Section F 1off DN450 Knifegate Valve.

4.4 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-158 Amend 0. Section E 2off DN150 Gate Valves with deadplate bottom of shaft.

4.5 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-158 Amend 0. Section F 1off DN32 Lockable Ball Valve.

4.6 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-162 Amend 0. Section A 6 off DN50 Ball Valves.

4.7 Grit Trap-GT 1/4 (Hockings Street) drg 3003/170-053 Amend 3. Section A 1off NB600 Knife Valve.

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

5 Maintenance Hole MH.1/4 pipe connection into Grit Trap-GT 1/4 Hockings Street

5.1 Brake through existing concrete wall into DN900 steel host pipe drg 3003/170-138 Amend 0. Detail 2.

5.2 Seal DN900 steel host pipe to concrete wall drg 3003/170-138 Amend 0. Detail 2.

5.3 Complete all benching; apart from approx 100mm final cut drg 3003/170-138 Amend 0. Detail 2.

5.4 **Note: Grit Trap-GT 1/4 (Hockings Street) drg 3003/170-053 Amend 3. Section A 1off NB600 Knife Valve to be in the closed position and fix Caution Out Of Service Tag before above work is carried out.**

6 Installation of Stainless Steel Bellows. Maintenance Hole EX. 2/4 Coronation Drive.

6.1 Remove Steel Bulkhead refer to McConnell Dowell drg No. DWG/7799/0028/01 Rev 01.

6.2 Remove Temporary Thrust Restraint McConnell Dowell drg No. DWG/7799/0028/01 Rev 01.

6.3 Check and record inside diameter of 450 & 300 Hobas pipe couplings.

6.4 Check and record outside diameter of 450 & 300 Stainless Steel Bellows on end that fits into Hobas pipe couplings. Refer to McConnell Dowell Sketch No's 47 & 46. End of Bellows that fits into Hobas pipe couplings to be rounded off and have no sharp edges that could cause damage to rubber insert.

6.5 Install DN450 Stainless Steel Bellows and place support under Bellows drg 3003/170-139 Amend A. Detail 2. Once the Bellows has been installed place temporary plug in end of pipe.

6.6 Install DN350 Stainless Steel Bellows and place support under Bellows drg 3003/170-139 Amend A. Detail 2. Once the Bellows has been installed place temporary plug in end of pipe.

6.7 Note: Before the above work can start we must complete the following.

a) Pressure testing of new Syphon piping.

b) Plug pipe if required & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag on Valve.
Plug to be removed & Valve to be opened at the completion of daily works.

b) Valve at XXXX brewery to be isolated and reinstated each night.
It is important we install a Caution Out Of Service Tag on Valve.

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

7 Encase Stainless Steel Bellows in concrete Maintenance Hole EX. 2/4 Coronation Drive.

7.1 Fit timber shutter around Stainless Steel Bellows where they protrude into EX. 2/4 MH.

7.2 Encase Stainless Steel Bellows in concrete.

7.3 Remove timber shutter.

7.4 Note: Before the above work can start we must complete the following.

a) **Plug pipe if required & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.**
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag on Valve.
Plug to be removed & Valve to be opened at the completion of daily works.

b) **Valve at XXXX brewery to be isolated and reinstated each night.**
It is important we install a Caution Out Of Service Tag on Valve.

8 Removal of Existing Pipe No.1 Maintenance Hole EX.2/4 (Coronation Drive)

8.1 Cut and removal of existing Pipe No.1 MH EX.2/4 (Coronation Drive) reference BW drg 3003/170-139 Amend A.

Large valve pieces to be placed against City wall awaiting final movement to river wall after channel is completed.

Leave enough pipe protruding from wall to allow for uniflange (assembled in two halves) to be fitted. Uniflange will secure 250mm flexible suction hose to manage flow during the installation of black brute channel.

Note: Pipe No. 1 & 2 are not to be sealed until we have commissioned/7day trial on new Syphone. Should the new Syphone fail we can revert back to the old Syphone within minutes.

9 Install black brute channel and Concrete Benching to suit site condition Maintenance Hole EX. 2/4 Coronation Drive.

Channel installation by contractor. Benching by Networks.

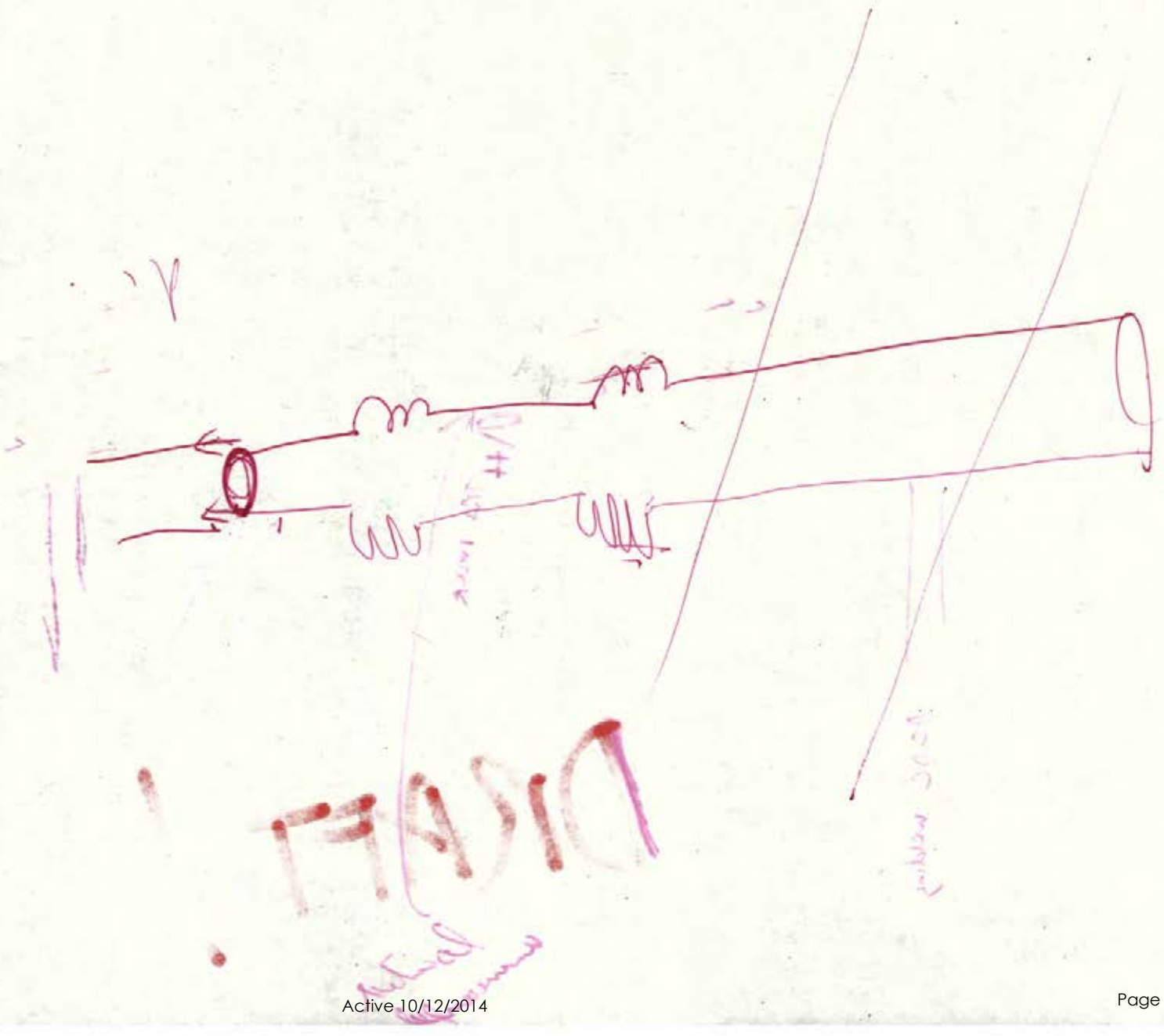
a) On completion of above work remove temporary plugs from DN350/450 stainless steel bellows.

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

10 Activity Time Table and Responsible Person/Contractor

Section	Activity	Start Date	Responsible Person/Contractor	Finish Date	Total Manhours
1	Removal of Existing Pipe No.2 Maintenance Hole EX.2/4 (Coronation Drive)	27/28 Jan 2/3 & 9 Feb 2007 Night Shift	Trevor/Sid/Tony/ Matthew (BW) ~~Concrete Cutting & Sealing~~		
2	Drill/Core concrete wall. Maintenance Hole EX.2/4 (Coronation Drive)	10/11, 16/17 February 2007 Night Shift	Trevor/Pat Lovett/Tony (BW) Concrete Cutting & Sealing		
3	Close the following valves (Syphon Outlet MH2/4 Coronation Drive) and fix Caution Out Of Service Tag's	TBA Day Shift	Trevor/Sid/Tony (BW)		
4	Close the following valves (Syphon Inlet MH1/4 & GT1/4 Hockings Street) and fix Caution Out Of Service Tag's	TBA Day Shift	Trevor/Sid/Tony (BW)		
5	Maintenance Hole EX.1/4 pipe connection into Grit Trap-GT 1/4 Hockings Street	2 & 5/6/7/8/9 ~~March~~ 2007 Day Shift FEB	Trevor/Sid/Tony (BW) Concrete Cutting & Sealing		
6	Installation of Stainless Steel Bellows. Maintenance Hole EX. 2/4 Coronation Drive	18 & 23 February 2007 Night Shift	Trevor/Sid/Tony (BW)		
7	Encase Stainless Steel Bellows in concrete Maintenance Hole EX. 2/4 Coronation Drive	24/25 Feb 2 March 2007 Night Shift	Trevor/Sid/Tony (BW)		
8	Removal of Existing Pipe No.1 Maintenance Hole EX.2/4 (Coronation Drive)	3/4 & 12 Mar 2007 Night Shift	Trevor/Sid/Tony/ Matthew (BW) ~~Concrete Cutting & Sealing~~	AC DC welding	
9	Install Bench & Channel to suit site condition Maintenance Hole EX. 2/4 Coronation Drive	10/11 & 16 March 2007 Night Shift Day Shift tba	Trevor/Sid/Tony (BW)		
10	Final sealing of old Syphon pipes	TBA	Trevor/Sid/Tony (BW)		

DRAFT !

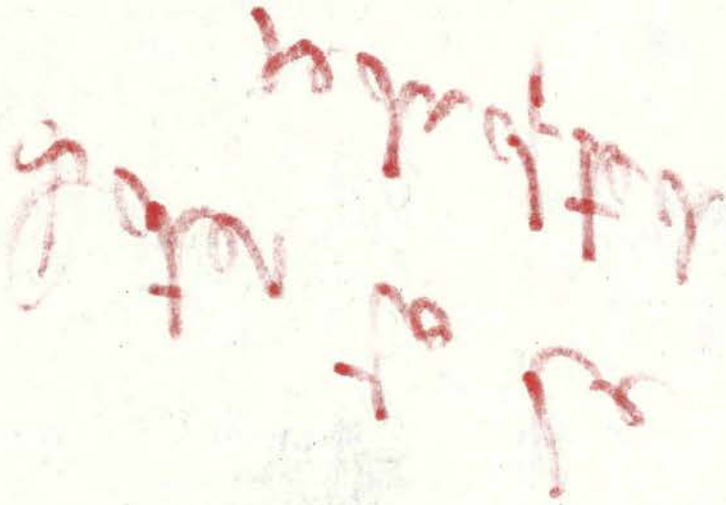


HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

10 Activity Time Table and Responsible Person/Contractor

Section	Activity	Start Date	Responsible Person/Contractor	Finish Date	Total Manhours
1	Removal of Existing Pipe No.2 Maintenance Hole EX.2/4 (Coronation Drive)	12/13/14 January 2007 Night Shift	Trevor/Sid/Tony/ Mark (BW)		
2	Drill/Core concrete wall. Maintenance Hole EX.2/4 (Coronation Drive)	19/20/21/26 January 2007 Night Shift	Trevor/Pat Lovett/Tony (BW) Concrete Cutting & Sealing		
3	Close the following valves (Syphon Outlet MH2/4 Coronation Drive) and fix Caution Out Of Service Tag's	23 January 2007 Day Shift	Trevor/Sid/Tony (BW)		
4	Close the following valves (Syphon Inlet MH1/4 & GT1/4 Hockings Street) and fix Caution Out Of Service Tag's	15 January 2007 Day Shift	Trevor/Sid/Tony (BW)		
5	Maintenance Hole EX.1/4 pipe connection into Grit Trap-GT 1/4 Hockings Street	15/16/17/18/19 January 2007 Day Shift	Trevor/Sid/Tony (BW) Concrete Cutting & Sealing		
6	Installation of Stainless Steel Bellows. Maintenance Hole EX. 2/4 Coronation Drive	27/28 January 2007 02 February 2007 Night Shift	Trevor/Sid/Tony (BW)		
7	Encase Stainless Steel Bellows in concrete Maintenance Hole EX. 2/4 Coronation Drive	2/3/4 February 2007 Night Shift	Trevor/Sid/Tony (BW)		
8	Removal of Existing Pipe No.1 Maintenance Hole EX.2/4 (Coronation Drive)	9/10/11 February 2007 Night Shift	Trevor/Sid/Tony/ Mark (BW)		
9	Install Concrete Benching to suit sit condition Maintenance Hole EX. 2/4 Coronation Drive	16/17/18 February 2007 Night Shift	Trevor/Sid/Tony (BW)		
10	Final sealing of old Syphon pipes	TBA	Trevor/Sid/Tony (BW)		

Date to be updated



HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

11 Attachments

Item No	Description	Drawing No	Amend No
1	Hockings Street Syphon Live Sewer Connections to Maintenance Holes EX.1/4 & EX. 2/4	3003/170-136	0
2	MH EX.2/4 Coronation Drive	3003/170-139	A
3	MH 2/4 Coronation Drive	3003/170-146	B
4	MH 2/4 Coronation Drive	3003/170-152	0
5	MH 1/4 Hockings Street	3003/170-156	B
6	MH 1/4 Hockings Street	3003/170-158	0
7	MH 1/4 Hockings Street	3003/170-162	0
8	Grit Trap-GT 1/4 Hockings Street	3003/170-053	3
9	MH EX.1/4 Hockings Street	3003/170-138	0
10	McConnell Dowell Line C Liner Pipe Installation	DWG/7799/0028/ 01	01
11	McConnell Dowell Drawing	Sketch 46	
12	McConnell Dowell Drawing	Sketch 46	
13	Various Photos 7off		
14			
15			

Minutes of Meeting			
Subject:	**Heroes Avenue Project – Networks Branch Input**		
Day:	Tuesday 30 Jan 07	**Time:**	9:30 am to 10:30am
Location:	Incident Room, Networks Centre, Cullen Avenue, Eagle Farm		
Attendees:	**George Theo** – Manager Networks Branch, ext 78300 **Trevor Graham** – Networks Branch, Business Support Operations, ext. 78351 **Pat Lovett** – SDTL, New Connections, ext 78346 **Mark Cruden** - Projects Branch, ext. 33534		
Other Addressees:	**Sid Wain** – Networks Branch, SDTL, ext. 78336 **Mark Cowper** – Networks Technical, mob. 0416 223 718 **Anthony Deadman** – Networks Technical, mob. 0409 723 281 **Alan Steward** – Maintenance Planner, mob. 0438 684 231 **Leanne Freedland** – Networks Branch, Managers Office, ext 78441 **Andrew Bannink** – Project Manager, Projects Branch, ext. 33507 **Reg McGirr** – Commissioning Engineer, Projects Branch, ext.33349 **Bill Edwards** – Inspector, Projects Branch, mob. 0405 419 248		

ITEM	MINUTES	ACTION	
		by whom	by when
1	**Vortex Structure**		
(a)	Independent 'Letter of Comfort'		
	• George does not want the independent review to duplicate the design process. Rather, wants a 'desktop review' of the available information, and an assessment of whether: "Based on the inputs considered, and standard engineering practice, there are or are not grounds to think that it would work."	Raghbir	ASAP

(b)	Permanent Lid At North Quay • Since the 30 Jan 07, it has become clear that the re-installation of the permanent concrete lid at North Quay must be completed before the new rising main can be commissioned. The commissioning of the rising main is currently programmed for 19/20 Feb 07. • Advice in previous minutes that the 'vacta' pipe can be done "at the end of February" was therefore incorrect, IF the vacta pipe must be re-installed before the rising main is commissioned. (The permanent lid, at least, must be re-installed before rising main commissioning.) • Known work involving the lid includes: – Lid to be lifted onto chocks; – Repair of damage to the lid itself (BCW proposed); – Coring of a hole for the 'vacta' pipe – proposed to be 350mm dia (Tond D. proposed); – (re)installation of the 'vacta' pipe in the wet well; – Re-installation of the permanent lid on the wet well. • **NECESSARY ACTION:** It is necessary that the following details are quickly determined: – The detailed scope of work involving the lid; – Options to carry this work out; – The timing that this work can be carried out; – How the timing of this work will affect the timing of commissioning the rising main.	Mark C, Reg McG, Bill E, Sid W, Tony D, (Trevor G.?)	ASAP

2	**Cross-River Syphon**		
(a)	Removal Of Old Pipework (Coronation Drive side):		
	• One weekend lost due to traffic work preventing access by Networks crew;		
	• One weekend effectively lost due to water lance not being successful in cutting pipe;		
	• The company 'Concrete Cutting & Sealing' now doing the pipework cutting. As of 30 Jan 07, had cut through approx. half of the pipework. Powerpack being used overheated during pipe cutting.		
	• As per updated schedule (from Trevor G. on 01 Feb 07), removal of existing pipe planned to be completed on night of 09 Feb 07. Cutting through concrete wall planned for the night shifts of 10/11 and 16/17 Feb 07.	Trevor G, Pat L, Tony D	2/3/4 Feb
	• Networks M&E input will be necessary to enable removal of heavy pieces from the 'cuddy' (installation of roof anchors to enable pieces to be moved).	Trveor G, Mark C	ASAP
(b)	'Bellows':		
	• The bellows arrived on the last working day before Christmas, and are available when required.	Note	
	• As per updated schedule of 01 Feb 07, this work is now scheduled for the night shifts of 18 and 23 Feb 07.		
(c)	Benching on Coronation St Side		
	As per updated schedule of 01 Feb 07, this is scheduled for 10/11 and 16 Mar 07.		

(d)	Hocking St		
	• There are competing demands on Network Branch staff who are involved with 'Heroes Ave' work, and it is understood that it is necessary for their input to be scheduled to achieve the best overall outcome for Brisbane Water.	Note	
	• As per George Theo's advice, and from a Projects Branch perspective, completion of the 'Heroes Avenue' project is the highest priority for Networks Branch input. Mark Cruden will liaise internally within Projects Branch regarding any competing demands.	Mark C	As Reqd
	• As per this Pat Lovett to liaise with Tony Deadman to determine current work tasking, and proposed timings.	Pat L, Tony D	ASAP
	• Trevor and Pat to update the schedule on page 7 of the 'Live Sewer Cut-In' plan, after Trevor meets with Tony on Wednesday or Thursday. THIS HAS BEEN COMPLETED, AND WAS PROVIDED BY TREVOR ON 01 FEB 07.	Trevor G, Tony D	01 Feb 07
	• As per the updated schedule, work at Hocking St is scheduled for dayshifts of 2, 5,6,7,8,9 Feb 07.	Tony D.	As per schedule

3	**Commissioning of Rising Main**		
	• At the meeting of 30 Jan 07, it was highlighted that there needed to be a meeting to discuss the specific details of the new rising main commissioning process.	Note	
	• As of 01 Feb 07, Networks (Tony D) has located the air valve connection pipe at Toowong. Scheduled for final connection during week 5-9 Feb 07.		
	• On Mon 05 Feb 07, a meeting to discuss the new rising main commissioning process. Attendees from Networks were Jeff Browne, Pat Lovett, Alan Stewart, and Gerard Andreson. The commissioning plan for the rising main was reviewed in detail.	As listed	05 Feb 07
	• It is now proposed that the rising main be filled during the day, and then any trapped air will be released during the nights of 19 and 20 Feb 07.	Note	
	• A meeting with Networks field staff involved in the commissioning process is scheduled for 1pm Wed 07 Feb 07, in the 'Incident Room' at Networks. During this meeting (if not beforehand), the inter-action between work on the permanent lid at North Quay, and the rising main commissioning, will be discussed.	Pat, Sid, Trevor, other Networks staff involved	07 Feb 07
	• Another meeting, closer to the date of rising main commissioning, will also be arranged.	Mark C	TBD
	• Details of community liaison will be finalised with Joanne Fettke of Retail once the commissioning dates are confirmed.	Mark C, Joanne F	ASAP
4	**Commissioning of 'Cribb St' Pump Station**		
	• This will be scheduled once the new rising main is on-line. Details yet to be determined.	Reg McG	TBD
5	**Commissioning of 'Syphon'**		
	• This will be scheduled once all construction work associated with the cross-river syphon has been successfully completed.	Reg McG	TBD
6	**Next Meetings**		

	• Wednesday 07 Feb 07; • During week 12-16 Feb 07.	All involved in rising main commissio ning	07 Feb 07 During week 12-16 Feb 07

These minutes originally prepared 06 Feb 07.

Mark Cruden
PM7BW
Ext 33534

Dedicated to a better Brisbane

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

02 January 2007

Rev 4.0

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

Table of Contents

Section

1 REMOVAL OF EXISTING PIPE NO.2 MAINTENANCE HOLE EX.2/4 (CORONATION DRIVE) 3

2 DRILL/CORE CONCRETE WALL. MAINTENANCE HOLE EX.2/4 (CORONATION DRIVE) 3

3 CLOSE THE FOLLOWING VALVES (SYPHON OUTLET MH2/4 CORONATION DRIVE) AND FIX CAUTION OUT OF SERVICE TAG'S 4

4 CLOSE THE FOLLOWING VALVES (SYPHON INLET MH1/4 & GT1/4 HOCKINGS STREET) AND FIX CAUTION OUT OF SERVICE TAG'S 4

5 MAINTENANCE HOLE MH.1/4 PIPE CONNECTION INTO GRIT TRAP-GT 1/4 HOCKINGS STREET 5

6 INSTALLATION OF STAINLESS STEEL BELLOWS. MAINTENANCE HOLE EX. 2/4 CORONATION DRIVE..... 5

7 ENCASE STAINLESS STEEL BELLOWS IN CONCRETE MAINTENANCE HOLE EX. 2/4 CORONATION DRIVE..... 6

8 REMOVAL OF EXISTING PIPE NO.1 MAINTENANCE HOLE EX.2/4 (CORONATION DRIVE) 6

9 INSTALL BLACK BRUTE CHANNEL AND CONCRETE BENCHING TO SUIT SITE CONDITION MAINTENANCE HOLE EX. 2/4 CORONATION DRIVE..... 6

10 ACTIVITY TIME TABLE AND RESPONSIBLE PERSON/CONTRACTOR..... 7

11 ATTACHMENTS 8

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

1 Removal of Existing Pipe No.2 Maintenance Hole EX.2/4 (Coronation Drive)

1.1 Cut and removal of existing Pipe No.2 MH EX.2/4 (Coronation Drive) reference BW drg 3003/170-139 Amend A.

Large valve pieces will be placed between Pipes 1 and 2 against the river wall, awaiting entombment. Any stacked pieces will be anchored and chained to the wall.

Leave enough pipe protruding from wall to allow for uniflange (assembled in two halves) to be fitted. Uniflange will secure 250mm flexible suction hose to manage flow during the removal of Pipe 1 (section 9).

Arrange inspection by black brute contractor to design and quote on channel fabrication and installation.

Note: Pipe No. 1 & 2 are not to be sealed until we have commissioned/7day trial on new Syphone. Should the new Syphone fail we can revert back to the old Syphone within minutes.

1.2 Before we can cut and remove Pipe No.2 (MH EX.2/4 Coronation Drive) we must complete the following.

a) **Plug pipe if required & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.**
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag on Valve.
Plug to be removed & Valve to be opened at the completion of daily works.

b) **Valve at XXXX brewery to be isolated and reinstated each night.**
It is important we install a Caution Out Of Service Tag on Valve.

2 Drill/Core concrete wall. Maintenance Hole EX.2/4 (Coronation Drive)

2.1 Core concrete wall. Maintenance Hole EX.2/4 (Coronation Drive) reference BW drg 3003/170-139 Amend A.

2.2 Once the concrete wall has been cored seal Steel Casing 1.2m ID to concrete wall.

2.3 Note: Before the above work can start we must complete the following.

a) **Plug pipe if required & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.**
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag on Valve.
Plug to be removed & Valve to be opened at the completion of daily works.

b) **Valve at XXXX brewery to be isolated and reinstated each night.**
It is important we install a Caution Out Of Service Tag on Valve.

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

3 Close the following valves (Syphon Outlet MH2/4 Coronation Drive) and fix Caution Out Of Service Tag's

3.1 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section C 2off DN150 Gate Valves top of slab.

3.2 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section F 2off DN150 Gate Valves with deadplate.

3.3 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section F 1off DN350 Knifegate Valve. Section F 1off DN450 Knifegate Valve.

3.4 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section E 2off DN150 Gate Valves with deadplate bottom of shaft.

3.5 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section F 1off DN32 Lockable Ball Valve.

3.6 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-152 Amend 0. Section A 6 off DN50 Ball Valves.

4 Close the following valves (Syphon Inlet MH1/4 & GT1/4 Hockings Street) and fix Caution Out Of Service Tag's

4.1 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-156 Amend B. Section C 2off DN150 Gate Valves top of slab.

4.2 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-156 Amend B. Section C 2off DN150 Gate Valves with deadplate.

4.3 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-158 Amend 0. Section F 1off DN300 Knifegate Valve. Section F 1off DN450 Knifegate Valve.

4.4 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-158 Amend 0. Section E 2off DN150 Gate Valves with deadplate bottom of shaft.

4.5 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-158 Amend 0. Section F 1off DN32 Lockable Ball Valve.

4.6 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-162 Amend 0. Section A 6 off DN50 Ball Valves.

4.7 Grit Trap-GT 1/4 (Hockings Street) drg 3003/170-053 Amend 3. Section A 1off NB600 Knife Valve.

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

5 Maintenance Hole MH.1/4 pipe connection into Grit Trap-GT 1/4 Hockings Street

5.1 Brake through existing concrete wall into DN900 steel host pipe drg 3003/170-138 Amend 0. Detail 2.

5.2 Seal DN900 steel host pipe to concrete wall drg 3003/170-138 Amend 0. Detail 2.

5.3 Complete all benching; apart from approx 100mm final cut drg 3003/170-138 Amend 0. Detail 2.

5.4 **Note: Grit Trap-GT 1/4 (Hockings Street) drg 3003/170-053 Amend 3. Section A 1off NB600 Knife Valve to be in the closed position and fix Caution Out Of Service Tag before above work is carried out.**

6 Installation of Stainless Steel Bellows. Maintenance Hole EX. 2/4 Coronation Drive.

6.1 Remove Steel Bulkhead refer to McConnell Dowell drg No. DWG/7799/0028/01 Rev 01.

6.2 Remove Temporary Thrust Restraint McConnell Dowell drg No. DWG/7799/0028/01 Rev 01.

6.3 Check and record inside diameter of 450 & 300 Hobas pipe couplings.

6.4 Check and record outside diameter of 450 & 300 Stainless Steel Bellows on end that fits into Hobas pipe couplings. Refer to McConnell Dowell Sketch No's 47 & 46. End of Bellows that fits into Hobas pipe couplings to be rounded off and have no sharp edges that could cause damage to rubber insert.

6.5 Install DN450 Stainless Steel Bellows and place support under Bellows drg 3003/170-139 Amend A. Detail 2. Once the Bellows has been installed place temporary plug in end of pipe.

6.6 Install DN350 Stainless Steel Bellows and place support under Bellows drg 3003/170-139 Amend A: Detail 2. Once the Bellows has been installed place temporary plug in end of pipe.

6.7 Note: Before the above work can start we must complete the following.

a) Pressure testing of new Syphon piping.

b) Plug pipe if required & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag on Valve.
Plug to be removed & Valve to be opened at the completion of daily works.

b) Valve at XXXX brewery to be isolated and reinstated each night.
It is important we install a Caution Out Of Service Tag on Valve.

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

7 Encase Stainless Steel Bellows in concrete Maintenance Hole EX. 2/4 Coronation Drive.

7.1 Fit timber shutter around Stainless Steel Bellows where they protrude into EX. 2/4 MH.

7.2 Encase Stainless Steel Bellows in concrete.

7.3 Remove timber shutter.

7.4 **Note: Before the above work can start we must complete the following.**

a) **Plug pipe if required & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.**
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag on Valve.
Plug to be removed & Valve to be opened at the completion of daily works.

b) **Valve at XXXX brewery to be isolated and reinstated each night.**
It is important we install a Caution Out Of Service Tag on Valve.

8 Removal of Existing Pipe No.1 Maintenance Hole EX.2/4 (Coronation Drive)

8.1 Cut and removal of existing Pipe No.1 MH EX.2/4 (Coronation Drive) reference BW drg 3003/170-139 Amend A.

Large valve pieces to be placed against City wall awaiting final movement to river wall after channel is completed.

Leave enough pipe protruding from wall to allow for uniflange (assembled in two halves) to be fitted. Uniflange will secure 250mm flexible suction hose to manage flow during the installation of black brute channel.

Note: Pipe No. 1 & 2 are not to be sealed until we have commissioned/7day trial on new Syphone. Should the new Syphone fail we can revert back to the old Syphone within minutes.

9 Install black brute channel and Concrete Benching to suit site condition Maintenance Hole EX. 2/4 Coronation Drive.

Channel installation by contractor. Benching by Networks.

a) On completion of above work remove temporary plugs from DN350/450 stainless steel bellows.

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

10 Activity Time Table and Responsible Person/Contractor

Section	Activity	Start Date	Responsible Person/Contractor	Finish Date	Total Manhours
1	Removal of Existing Pipe No.2 Maintenance Hole EX.2/4 (Coronation Drive)	**27/28 Jan 2/3 & 9 Feb 2007 Night Shift**	**Trevor/Sid/Tony/ Matthew (BW) Concrete Cutting & Sealing**		
2	Drill/Core concrete wall. Maintenance Hole EX.2/4 (Coronation Drive)	**10/11, 16/17 February 2007 Night Shift**	**Trevor/Pat Lovett/Tony (BW) Concrete Cutting & Sealing**		
3	Close the following valves (Syphon Outlet MH2/4 Coronation Drive) and fix Caution Out Of Service Tag's	**TBA Day Shift**	**Trevor/Sid/Tony (BW)**		
4	Close the following valves (Syphon Inlet MH1/4 & GT1/4 Hockings Street) and fix Caution Out Of Service Tag's	**TBA Day Shift**	**Trevor/Sid/Tony (BW)**		
5	Maintenance Hole EX.1/4 pipe connection into Grit Trap-GT 1/4 Hockings Street	**2 & 5/6/7/8/9 February 2007 Day Shift**	**Trevor/Sid/Tony (BW) Concrete Cutting & Sealing**		
6	Installation of Stainless Steel Bellows. Maintenance Hole EX. 2/4 Coronation Drive	**18 & 23 February 2007 Night Shift**	**Trevor/Sid/Tony (BW)**		
7	Encase Stainless Steel Bellows in concrete Maintenance Hole EX. 2/4 Coronation Drive	**24/25 Feb 2 March 2007 Night Shift**	**Trevor/Sid/Tony (BW)**		
8	Removal of Existing Pipe No.1 Maintenance Hole EX.2/4 (Coronation Drive)	**3/4 & 9 Mar 2007 Night Shift**	**Trevor/Sid/Tony/ Matthew (BW) Concrete Cutting & Sealing**		
9	Install Bench & Channel to suit site condition Maintenance Hole EX. 2/4 Coronation Drive	**10/11 & 16 March 2007 Night Shift Day Shift tba**	**Trevor/Sid/Tony (BW)**		
10	Final sealing of old Syphon pipes	**TBA**	**Trevor/Sid/Tony (BW)**		

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

11 Attachments

Item No	Description	Drawing No	Amend No
1	Hockings Street Syphon Live Sewer Connections to Maintenance Holes EX.1/4 & EX. 2/4	3003/170-136	0
2	MH EX.2/4 Coronation Drive	3003/170-139	A
3	MH 2/4 Coronation Drive	3003/170-146	B
4	MH 2/4 Coronation Drive	3003/170-152	0
5	MH 1/4 Hockings Street	3003/170-156	B
6	MH 1/4 Hockings Street	3003/170-158	0
7	MH 1/4 Hockings Street	3003/170-162	0
8	Grit Trap-GT 1/4 Hockings Street	3003/170-053	3
9	MH EX.1/4 Hockings Street	3003/170-138	0
10	McConnell Dowell Line C Liner Pipe Installation	DWG/7799/0028/ 01	01
11	McConnell Dowell Drawing	Sketch 46	
12	McConnell Dowell Drawing	Sketch 46	
13	Various Photos 7off		
14			
15			

Project Meeting Minutes

Minutes of Meeting			
Subject:	**Heroes Avenue Project – Networks Branch Input**		
Day:	Wednesday 17 Jan 07	**Time:**	8:35 am to 9:05am
Location:	Incident Room, Networks Centre, Cullen Avenue, Eagle Farm		
Attendees:	**George Theo** – Manager Networks Branch, ext 78300 **Mark Cruden** - Projects Branch, ext. 33534		
Other Addressees	**Trevor Graham** – Networks Branch, Business Support Operations, ext. 78351 **Sid Wain** – Networks Branch, SDTL, ext. 78336 **Mark Cowper** – Networks Technical **Anthony Deadman** – Networks Technical, mob. 0409 723 281 **Pat Lovett** – SDTL, New Connections, ext 78346 **Leanne Freedland** – Networks Branch, Managers Office, ext 78441 **Andrew Bannink** – Project Manager, Projects Branch, ext. 33507 **Reg McGirr** – Commissioning Engineer, Projects Branch, ext.33349 **Bill Edwards** – Inspector, Projects Branch, mob. 0405 419 248		

ITEM	MINUTES	ACTION by whom	ACTION by when
1	**Vortex Structure Installation** • Work on the vortex is finished. Practical Completion was awarded on 22 Dec 06. • Re. 'Letter of Comfort', George confirmed that he would like an independent review to go ahead. Raghbir is awaiting design information from Connell Wagner to enable this to occur.	Note Raghbir	 ASAP
2	**Work On Cross-River Syphon** • 300mm line has now passed its pressure test. • Networks Branch input to work is proceeding. Details to be discussed at next meeting.	Note All	 30 Jan 07

G:\185 SEW_DRAIN\255 Des_Const\8890 Transport\S1 Luggage PT\SQSJ Redirect Heroes Ave (s1)\6 Implementation\MWC Input - Heroes Avenue\Heroes Ave_NtWks Input_Mtg Notes_17Jan07.doc

3	**Commissioning Process**		
(a)	Updated Networks Branch input to the commissioning plan & schedule to be discussed at the next meeting.	Note	
(b)	Mark Cruden is to arrange a meeting with Joanne Fettke to discuss community liaison regarding the commissioning process (eg. letter drops), and also project completion.	Mark	During Jan07
4	**Next Meeting**		
	• Tuesday 30 Jan 07, in 'Incident Room' Networks Centre, Cullen Avenue, Eagle Farm.	All	30 Jan 07

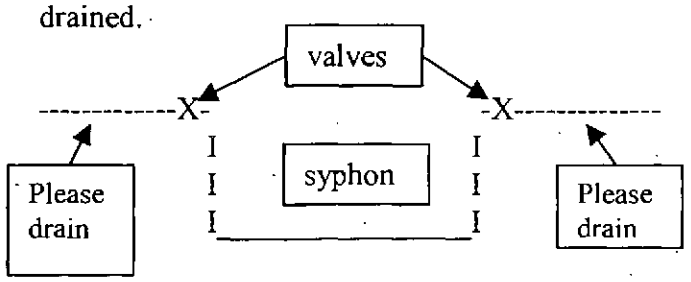
Mark Cruden
PM7BW
Ext 33534

G:\185 SEW_DRAIN\255 Des_Const\8890 Transport\S1 Luggage PT\SQSJ Redirect Heroes Ave (s1)\6 Implementation\MWC Input - Heroes Avenue\Heroes Ave_NtWks Input_Mtg Notes_17Jan07.doc

Project Meeting Minutes

Minutes of Meeting			
Subject:	**Heroes Avenue Project – Networks Branch Input**		
Day:	Wednesday 20 Dec 06	**Time:**	10:35am to 12:05pm
Location:	Incident Room, Networks Centre, Cullen Avenue, Eagle Farm		
Attendees:	**George Theo** – Manager Networks Branch, ext 78300 **Sid Wain** – Networks Branch, SDTL, ext. 78336 **Trevor Graham** – Networks Branch, Business Support Operations, ext. 78351 **Anthony Deadman** – Networks Technical, mob. 0409 723 281 **Mark Cowper** – Networks Technical **Reg McGirr** – Commissioning Engineer, Projects Branch, ext.33349 **Bill Edwards** – Inspector, Projects Branch, mob. 0405 419 248 **Mark Cruden** - Projects Branch, ext. 33534		
Other Addressees	**Andrew Bannink** – Project Manager, Projects Branch, ext. 33507 **Pat Lovett** – SDTL, New Connections, ext 78346 **Leanne Freedland** – Networks Branch, Managers Office, ext 78441		

ITEM	MINUTES	ACTION by whom	ACTION by when
1	**Vortex Structure Installation**		
(a)	• Work on the vortex is going well. It is hoped that the contractors work to install the vortex will be finished by 22 Dec 06.	Note	
	• The permanent lid will be re-installed before the Christmas break, and then removed in the New Year to enable final work (eg. vacta pipe) to be carried out.	Note	
	• Re-installing the vacta pipe will require a crew for a night. This can be done at the end of February.	Networks	Approx Feb 07
	• Lane closure will remain in place.	Note	
	• 'Letter of Comfort' received from Connell Wagner. Original provided to George Theo, who reviewed during meeting, and advised that it was acceptable.	Note	
2	**Work On Cross-River Syphon**		
(a)	Photos taken within the Coronation Drive work area were reviewed – Thanks to Mark Cowper	Note	-

(b)	Work Status		
	• 450mm line passed pressure test. now passed	Note	
	• 300mm line failed. Failure attributed to leakage through spindle of a knife gate valve. BCW doing repair. Line should pass when re-tested – this should occur early in New Year.	BCW; Bill	Early Jan 07
	• Reg requested that all valves be left in the CLOSED position at the end of the 'hydrotest'. Also requested that the lines between the valves and the ends of the syphon (especially the Coronation Drive end of the syphon) be drained. 	Bill	When test complete
	• Bikeway on Coronation drive was to be re-opened on Wednesday night (20 Dec 06).	Note	
	• Hocking St – BCW still doing reinstatement work.	Note	
	• Networks can make 'breakthrough' on the Hocking St side (from existing syphon, to new grit chamber) any time from now. Can be 'daywork'. Sid advised that this will occur in the New Year.	Sid; Tony	Early Jan 07

(c)	Live Sewer Cut-In Work Procedure		
	• Version Control – If there are significant changes to the syphon cut-in work procedure (additional text, changes in number or sequence of work steps, or chages in work areas responsible for carrying out work), then the up-dated procedure is to have a revised version number.	Reg	As updated
	• The latest version of the work procedure was reviewed in detail.	Note	
	• Tony and Trevor to decide in detail how the bellows will be moved into position.	Trevor, Tony	Asap
	• Dates for work, as shown on page 7 of 8, were left essentially unchanged. There is some flexibility for items 3 and 4 of when the work is physically done.	Note	
	• For items 2 to 7 inclusive, "Sid" is to be replaced with "Pat Lovett"	Reg, Sid, Pat	Note
	• An additional item (item '10') to be added, for the step 'Final sealing of old syphon pipes'.	Reg	When updating

3	**Commissioning Process**		
(a)	Mark Cruden noted that the process of commissioning the overall system was a third, and significant category of work for the 'Heroes Avenue' project, and that it would become the main focus as work on the vortex and the syphon was completed. It is currently proposed to sub-divide the commissioning process into four stages.	Note	
(b)	Reg distributed and discussed the latest part-draft version of 'Stage 1' of the Commissioning plan.	Note	
(c)	Reg advised that up to 15 Networks representatives may be required, for two nights, during the peak level of effort of the commissioning process.	Note	
(d)	Early in New Year, Reg will advise the number of people required at different stages during commissioning, so that Networks Branch has time to identify and schedule individuals	Reg	Early Jan 07
(e)	George Theo noted that community liaison (eg. letter drops) should be planned as part of preparing for commissioning work, and then carried out prior to work starting.	Trevor, Sid, Mark	Mid Jan 07
(f)	Air valve in park needs to be installed and operational prior to 16 Feb 07.	Trevor	By 16 Feb 06
4	**Next Meeting**		
	• 10:30am to midday, Wednesday 17 Jan 07, in 'Incident Room' Networks Centre, Cullen Avenue, Eagle Farm.	All to note	17 Jan 07
	• Mark Cruden to send out meeting invites.	Mark	asap
	• Leanne Freedland is requested to book Incident Room.	Leanne	asap

Mark Cruden
PM7BW
Ext 33534

These minutes originally written 22 December 2006

From: Bill Edwards
To: McGirr, Reg
Date: 18/12/2006 6:18:36 pm
Subject: Re: Stage 1 Commissioning of New Sewage Main from SP103 to North Quay existing S1 Sewer Connection

Reg,

1) below (EX 4/1 to RP 2/3) was completed some time ago by McConnell Dowell. It would be prudent to get Networks crew to check inside EX 4/1 and MH 1/3 prior to installing the gate valve.

2) below includes BCW work from RP 2/3 to S1 NQ Shaft and the current Vortex installation at S1 NQ.

BCW section was completed 12 months ago and a defects inspection is due. The Air inducts on the Rising Main Discharge Structure are yet to be replaced following vandalism.

Installation of the Vortex is proceeding and scheduled to be in place prior to Christmas.

Regards,
Bill Edwards.

>>> Reg McGirr 7/12/2006 1:39 pm >>>
Bill,

We are planing to reinstall Gate Valve at SP103 Heroes Avenue Pump Station on 16 January 2007.

Once this Gate Valve is installed the new sewage main from SP103 to North Quay existing S1 sewer connection to be treated as a live sewage main.

The following to be confirmed.

1) All work has been completed on new sewage main section from EX4/1 to RP 2/3 Drg No 486/5/8-SM12/101.

2) All work will be completed before 16 January 2007 on new sewage main section from RP 2/3 to Existing S1 Sewer Shaft Drg No 486/5/8-SM12/113.

Regards,
Reg McGirr
Commissioning Manager
Tel: 07 34033349
Mobile: 0414576374
E-mail: Reg.McGirr@brisbane.qld.gov.au

CC: Bannink, Andrew; Barton, Michael; Browne, Jeff; Cruden, Mark; Graham, Trevor; Wain, Sidney

Bellows

installation instructions metal expansion joints

RADCOFLEX flexible solutions

expansion joint installations
The expansion joint bellows element is constructed of a relatively thin gauge material in order to provide the flexibility to absorb thermal and mechanical movements expected in service.
The service life of the bellows will be shortened by improper handling and/or installation. This can arise through direct physical damage to the bellows, stresses imposed during installation and other factors. Some basic instructions must be followed for the safe and proper installation of the expansion joint.

pipework system design
Radcoflex strongly recommends that you seek the advice of a qualified pipework engineer on your pipework system and expansion joint selection. Expansion joints require careful guiding and anchoring in the piping system to perform to their engineered capability.

pipe anchors
The purpose of a pipe anchor is to divide a pipeline into individual expanding sections. Because thermal growth cannot be restrained, it becomes the function of pipe anchors to limit and control the amount of movement which expansion joints located between these anchors, will absorb. Turbines, pumps, compressors, heat exchangers etc may possibly function as anchors.

pipe guides
Correct alignment of the adjoining pipe is very important in the proper functioning of an expansion joint. Pipe guides are necessary to ensure proper application of movement of the expansion joint and to prevent buckling of the line.

receiving inspection
Upon arrival, identify and inspect the expansion joint for any obvious damage during transit. We recommend the joint is stored in its original packaging until ready for installation. Contact Radcoflex immediately if repairs are required.

installation guidelines
1. Anchors, guides and pipe supports must be installed in strict accordance with the piping system drawing.
Any field variances from the planned installation may affect the proper functioning of the joint.

2. No movement (compression, extension, offset rotation and most importantly, torque) or stresses must be imposed upon the joint during installation. This may occur through piping or flange bolt hole misalignment, or mishandling.
The pressure capacity, cycle life and stability of the bellows may be diminished, and forces imposed on adjacent pipework or equipment by such actions.

3. Expansion joints fitted with an internal flow liner must be installed correctly in accordance with the direction of flow.

4. Extreme care must be taken during unloading, handling and installation to prevent damage to the thin bellows section.
Damage may include dents, scores, arc strikes and weld spatter which may be detrimental to the safe and satisfactory operation of the joint.
Protect the bellows with a wet thermal insulation blanket during welding installation.

5. Shipping bars (painted yellow) must be removed from the joint once the joint is correctly installed, and prior to hydro testing the system, to enable the joint to move as designed.

warranty
Warranty is void if these instructions are not followed.

data sheet - MJ 030

for further information on Radcoflex
e-mail : sales@radcoflex.com
web : www.radcoflex.com

BRISBANE WATER

Dedicated to a better Brisbane

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

07 December 2006

Rev 3.0

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

Table of Contents

Section

1 REMOVAL OF EXISTING PIPE NO.2 MAINTENANCE HOLE EX.2/4 (CORONATION DRIVE)....2

2 DRILL/CORE CONCRETE WALL. MAINTENANCE HOLE EX.2/4 (CORONATION DRIVE)....2

3 CLOSE THE FOLLOWING VALVES (SYPHON OUTLET MH2/4 CORONATION DRIVE) AND FIX CAUTION OUT OF SERVICE TAG'S....3

4 CLOSE THE FOLLOWING VALVES (SYPHON INLET MH1/4 & GT1/4 HOCKINGS STREET) AND FIX CAUTION OUT OF SERVICE TAG'S....3

5 MAINTENANCE HOLE MH.1/4 PIPE CONNECTION INTO GRIT TRAP-GT 1/4 HOCKINGS STREET....4

6 INSTALLATION OF STAINLESS STEEL BELLOWS. MAINTENANCE HOLE EX. 2/4 CORONATION DRIVE....4

7 ENCASE STAINLESS STEEL BELLOWS IN CONCRETE MAINTENANCE HOLE EX. 2/4 CORONATION DRIVE....5

8 INSTALL CONCRETE BENCHING TO SUIT SITE CONDITION MAINTENANCE HOLE EX. 2/4 CORONATION DRIVE....5

9 REMOVAL OF EXISTING PIPE NO.1 MAINTENANCE HOLE EX.2/4 (CORONATION DRIVE)....5

10 ACTIVITY TIME TABLE AND RESPONSIBLE PERSON/CONTRACTOR....6

11 ATTACHMENTS....7

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

1 Removal of Existing Pipe No.2 Maintenance Hole EX.2/4 (Coronation Drive)

1.1 Cut and removal of existing Pipe No.2 MH EX.2/4 (Coronation Drive) reference BW drg 3003/170-139 Amend A.
Note: Pipe No. 1 & 2 are not to be sealed until we have commissioned/7day trial on new Syphone. Should the new Syphone fail we can revert back to the old Syphone within minutes.

1.2 Before we can cut and remove Pipe No.2 (MH EX.2/4 Coronation Drive) we must complete the following.

a) **Plug pipe if required & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.**
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag on Valve.
Plug to be removed & Valve to be opened at the completion of daily works.

b) **Valve at XXXX brewery to be isolated and reinstated each night.**
It is important we install a Caution Out Of Service Tag on Valve.

2 Drill/Core concrete wall. Maintenance Hole EX.2/4 (Coronation Drive)

2.1 Core concrete wall. Maintenance Hole EX.2/4 (Coronation Drive) reference BW drg 3003/170-139 Amend A.

2.2 Once the concrete wall has been cored seal Steel Casing 1.2m ID to concrete wall.

2.3 Note: Before the above work can start we must complete the following.

a) **Plug pipe if required & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.**
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag on Valve.
Plug to be removed & Valve to be opened at the completion of daily works.

b) **Valve at XXXX brewery to be isolated and reinstated each night.**
It is important we install a Caution Out Of Service Tag on Valve.

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

3 Close the following valves (Syphon Outlet MH2/4 Coronation Drive) and fix Caution Out Of Service Tag's

3.1 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section C 2off DN150 Gate Valves top of slab.

3.2 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section F 2off DN150 Gate Valves with deadplate.

3.3 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section F 1off DN350 Knifegate Valve. Section F 1off DN450 Knifegate Valve.

3.4 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section E 2off DN150 Gate Valves with deadplate bottom of shaft.

3.5 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section F 1off DN32 Lockable Ball Valve.

3.6 Maintenance Hole MH.2/4 (Coronation Drive) drg 3003/170-152 Amend 0. Section A 6 off DN50 Ball Valves.

4 Close the following valves (Syphon Inlet MH1/4 & GT1/4 Hockings Street) and fix Caution Out Of Service Tag's

4.1 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-156 Amend B. Section C 2off DN150 Gate Valves top of slab.

4.2 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-156 Amend B. Section C 2off DN150 Gate Valves with deadplate.

4.3 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-158 Amend 0. Section F 1off DN300 Knifegate Valve. Section F 1off DN450 Knifegate Valve.

4.4 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-158 Amend 0. Section E 2off DN150 Gate Valves with deadplate bottom of shaft.

4.5 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-158 Amend 0. Section F 1off DN32 Lockable Ball Valve.

4.6 Maintenance Hole MH.1/4 (Hockings Street) drg 3003/170-162 Amend 0. Section A 6 off DN50 Ball Valves.

4.7 Grit Trap-GT 1/4 (Hockings Street) drg 3003/170-053 Amend 3. Section A 1off NB600 Knife Valve.

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

5 Maintenance Hole MH.1/4 pipe connection into Grit Trap-GT 1/4 Hockings Street

5.1 Brake through existing concrete wall into DN900 steel host pipe drg 3003/170-138 Amend 0. Detail 2.

5.2 Seal DN900 steel host pipe to concrete wall drg 3003/170-138 Amend 0. Detail 2.

5.3 Complete all benching; apart from approx 100mm final cut drg 3003/170-138 Amend 0. Detail 2.

5.4 **Note: Grit Trap-GT 1/4 (Hockings Street) drg 3003/170-053 Amend 3. Section A 1off NB600 Knife Valve to be in the closed position and fix Caution Out Of Service Tag before above work is carried out.**

6 Installation of Stainless Steel Bellows. Maintenance Hole EX. 2/4 Coronation Drive.

6.1 Remove Steel Bulkhead refer to McConnell Dowell drg No. DWG/7799/0028/01 Rev 01.

6.2 Remove Temporary Thrust Restraint McConnell Dowell drg No. DWG/7799/0028/01 Rev 01.

6.3 Check and record inside diameter of 450 & 300 Hobas pipe couplings.

6.4 Check and record outside diameter of 450 & 300 Stainless Steel Bellows on end that fits into Hobas pipe couplings. Refer to McConnell Dowell Sketch No's 47 & 46. End of Bellows that fits into Hobas pipe couplings to be rounded off and have no sharp edges that could cause damage to rubber insert.

6.5 Install DN450 Stainless Steel Bellows and place support under Bellows drg 3003/170-139 Amend A. Detail 2. Once the Bellows has been installed place temporary plug in end of pipe.

6.6 Install DN350 Stainless Steel Bellows and place support under Bellows drg 3003/170-139 Amend A. Detail 2. Once the Bellows has been installed place temporary plug in end of pipe.

6.7 Note: Before the above work can start we must complete the following.

a) Pressure testing of new Syphon piping.

b) Plug pipe if required & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag on Valve.
Plug to be removed & Valve to be opened at the completion of daily works.

b) Valve at XXXX brewery to be isolated and reinstated each night.
It is important we install a Caution Out Of Service Tag on Valve.

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

7 Encase Stainless Steel Bellows in concrete Maintenance Hole EX. 2/4 Coronation Drive.

7.1 Fit timber shutter around Stainless Steel Bellows where they protrude into EX. 2/4 MH.

7.2 Encase Stainless Steel Bellows in concrete.

7.3 Remove timber shutter.

7.4 Note: Before the above work can start we must complete the following.

a) **Plug pipe if required & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.**
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag on Valve.
Plug to be removed & Valve to be opened at the completion of daily works.

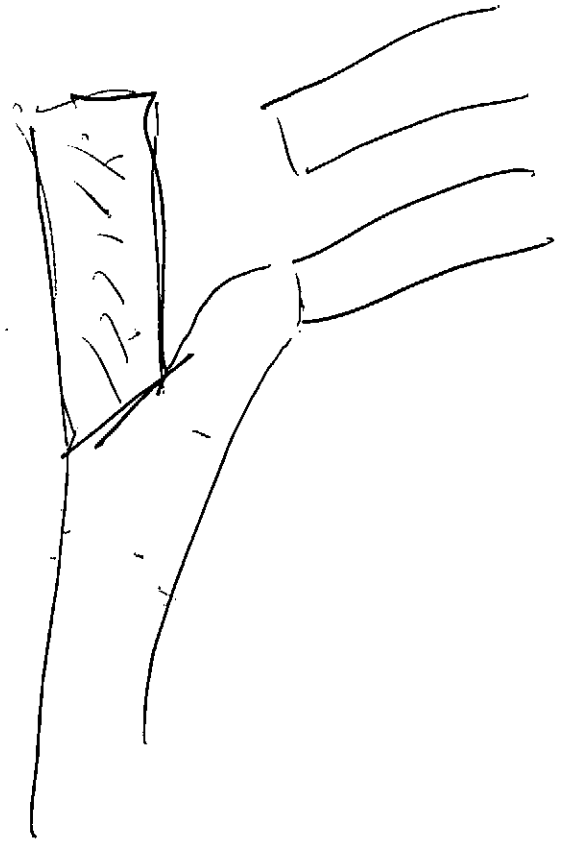
b) **Valve at XXXX brewery to be isolated and reinstated each night.**
It is important we install a Caution Out Of Service Tag on Valve.

8 Install Concrete Benching to suit site condition Maintenance Hole EX. 2/4 Coronation Drive.

a) On completion of above work remove temporary plugs from DN350/450 stainless steel bellows.

9 Removal of Existing Pipe No.1 Maintenance Hole EX.2/4 (Coronation Drive)

9.1 Cut and removal of existing Pipe No.1 MH EX.2/4 (Coronation Drive) reference BW drg 3003/170-139 Amend A.
Note: Pipe No. 1 & 2 are not to be sealed until we have commissioned/7day trial on new Syphone. Should the new Syphone fail we can revert back to the old Syphone within minutes.



HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

10 Activity Time Table and Responsible Person/Contractor

Section	Activity	Start Date	Responsible Person/Contractor	Finish Date	Total Manhours
1	Removal of Existing Pipe No.2 Maintenance Hole EX.2/4 (Coronation Drive)	12/13/14 January 2007 Night Shift	Trevor/Sid/Tony/ Mark (BW)		
2	Drill/Core concrete wall. Maintenance Hole EX.2/4 (Coronation Drive)	19/20/21/26 January 2007 Night Shift	Trevor/Sid/Tony (BW) Concrete Cutting & Sealing		
3	Close the following valves (Syphon Outlet MH2/4 Coronation Drive) and fix Caution Out Of Service Tag's	23 January 2007 Day Shift	Trevor/Sid/Tony (BW)		
4	Close the following valves (Syphon Inlet MH1/4 & GT1/4 Hockings Street) and fix Caution Out Of Service Tag's	15 January 2007 Day Shift	Trevor/Sid/Tony (BW)		
5	Maintenance Hole EX.1/4 pipe connection into Grit Trap-GT 1/4 Hockings Street	15/16/17/18/19 January 2007 Day Shift	Trevor/Sid/Tony (BW) Concrete Cutting & Sealing		
6	Installation of Stainless Steel Bellows. Maintenance Hole EX. 2/4 Coronation Drive	27/28 January 2007 02 February 2007 Night Shift	Trevor/Sid/Tony (BW)		
7	Encase Stainless Steel Bellows in concrete Maintenance Hole EX. 2/4 Coronation Drive	3/4 February 2007 Night Shift	Trevor/Sid/Tony (BW)		
8	Install Concrete Benching to suit sit condition Maintenance Hole EX. 2/4 Coronation Drive	9/10/11 February 2007 Night Shift	Trevor/Sid/Tony (BW)		
9	Removal of Existing Pipe No.1 Maintenance Hole EX.2/4 (Coronation Drive)	23/24/25 February 2007 Night Shift	Trevor/Sid/Tony/ Mark (BW)		
10					

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

11 Attachments

Item No	Description	Drawing No	Amend No
1	Hockings Street Syphon Live Sewer Connections to Maintenance Holes EX.1/4 & EX. 2/4	3003/170-136	0
2	MH EX.2/4 Coronation Drive	3003/170-139	A
3	MH 2/4 Coronation Drive	3003/170-146	B
4	MH 2/4 Coronation Drive	3003/170-152	0
5	MH 1/4 Hockings Street	3003/170-156	B
6	MH 1/4 Hockings Street	3003/170-158	0
7	MH 1/4 Hockings Street	3003/170-162	0
8	Grit Trap-GT 1/4 Hockings Street	3003/170-053	3
9	MH EX.1/4 Hockings Street	3003/170-138	0
10	McConnell Dowell Line C Liner Pipe Installation	DWG/7799/0028/ 01	01
11	McConnell Dowell Drawing	Sketch 46	
12	McConnell Dowell Drawing	Sketch 46	
13	Various Photos 7off		
14			
15			

Minutes of Meeting			
Subject:	**Heroes Avenue Project – Networks Branch Input**		
Day:	Wednesday 06 Dec 06	**Time:**	10:30 – 11:30am
Location:	Incident Room, Networks Centre, Cullen Avenue, Eagle Farm		
Attendees:	**George Theo** – Manager Networks Branch, ext 78300 **Sid Wain** – Networks Branch, SDTL, ext. 78336 **Trevor Graham** – Networks Branch, Business Support Operations, ext. 78351 **Anthony Deadman** – Networks Technical, mob. 0409 723 281 **Mark Cowper** – Networks Technical **Paul Young** – Networks branch, Fitter, mob. 0414 375 965 **Matt McPheat** – Networks Branch, Fitter, mob. 0416 198 685 **Reg McGirr** – Commissioning Engineer, Projects Branch, ext.33349 **Raghbir Kalsi** – Design Manager, Projects Branch, ext 33328 **Bill Edwards** – Inspector, Projects Branch, mob. 0405 419 248 **Mark Cruden** - Projects Branch, ext. 33534		
cc copy:	**Andrew Bannink** – Project Manager, Projects Branch, ext. 33507		

ITEM	MINUTES	ACTION	
		by whom	by when

1	**Vortex Structure Installation**		
(a)	Friday 08 Dec 06 Networks will:		
	• Take lid off the wet well, and store the lid away from the immediate site;	Tony	08 Dec 06
	• Put the 'flume' in, do any necessary cleaning, and lock the S1 sewer. (If there is light rain, the flume can remain in place. If there is heavy rain, the flume will have to be removed. The authority for deciding this is with Networks Branch.)	Tony	08 Dec 06
	• Receive a light-weight temporary lid from the vortex contractor, and install this on the structure at the close of the night's work.	Tony	08 Dec 06
	• [Regarding cross-river syphon: On Friday 08 Dec 06, it is also intended for Networks staff to inspect the Coronation Drive end of the cross-river syphon, clean the pipework, and confirm pipework materials and details.]	Tony, Mark	08 Dec 06
	• **LATE NOTE: From verbal advice within Project's branch office [Thurs 07 Dec 06], it is understood that all of the the above work may now occur on the night of Sunday 10 Dec 06 ?**	Note	
(b)	Week Of 11-15 Dec 06 (and possibly into week of 18-22 Dec 06)		
	• It is planned that the vortex contractor will be working during the week 11-15 Dec 06, to install the vortex. (It is possible that this work may take longer. To be determined as work progresses.) Networks will have a representative on site during this work, to initiate a Network's response to any questions or issues that may arise. Proposed Networks representative is Marty Van Yperen – mobile 0417 192 138.	Marty Van Yperen	11-125 Dec 06. Possibly also part of week 11-22 Dec 06
	• It was noted that the flume **will** be coming out on 22 Dec 06, regardless of the status of vortex installation work.	Note	
(c)	Contractor's Work Method Statement:		
	• A copy of the contractor's work method statement was distributed and reviewed at the meeting.	Note.	
	• All parties to refer to this as the contractor's understanding (as of 28 Nov 06) of the work to be carried out.	Note	

2	**Work On Cross-River Syphon**		
(a)	Work Procedure		
	• Revision #2 of the this work procedure was distributed and reviewed during the meeting. **The work involved by all parties in preparing this document is appreciated.**	Note	
	• George happy with the level of detail, but wants responsible individuals to be identified in the document.	Reg, Tony	Include in revisions
	• Section 8 of this procedure (Install concrete benching in maintenance hole 2/4 at Coronation Drive) is still being prepared.	Reg, Tony, Trevor	asap
	• It is requested that all meeting attendees review this work procedure, and advise Reg McGirr of any feedback as soon as possible. Reg will incorporate any necessary revisions, based on this feedback, into the document.	All	asap
(b)	Work Procedure For Removal Of Pipework		
	• A separate work procedure for the safe removal and/or disposal of pipework will be prepared by Networks Branch as a separate document.	Trevor, Mark	
	•		
3	**Next Meeting**		
	• 10:30am to midday, Wednesday 20 Dec 06, in 'Incident Room' Networks Centre, Cullen Avenue, Eagle Farm.	All to note	20 Dec 06
	• Mark Cruden to send out meeting invites. [This has been done]	Mark	06 Dec 06
	• Leanne Freedland to book Incident Room. [This has been done].	Leanne	06 Dec 06

Mark Cruden
PM7BW
Ext 33534

These minutes originally written 07 December 2006

BRISBANE WATER

Dedicated to a better Brisbane

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

30th November 2006

Rev 1.0

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

Table of Contents

Section

1 REMOVAL OF EXISTING PIPE NO.2 MAINTENANCE HOLE EX.2/4 (CORONATION DRIVE)..... 2

2 DRILL/CORE CONCRETE WALL. MAINTENANCE HOLE EX.2/4 (CORONATION DRIVE)..... 2

3 CLOSE THE FOLLOWING VALVES (SYPHON OUTLET MH2/4 CORONATION DRIVE) AND FIX CAUTION OUT OF SERVICE TAG'S..... 2

4 CLOSE THE FOLLOWING VALVES (SYPHON INLET MH1/4 & GT1/4 HOCKINGS STREET) AND FIX CAUTION OUT OF SERVICE TAG'S..... 3

5 MAINTENANCE HOLE EX.1/4 PIPE CONNECTION INTO GRIT TRAP-GT 1/4 HOCKINGS STREET..... 3

6 INSTALLATION OF STAINLESS STEEL BELLOWS. MAINTENANCE HOLE EX. 2/4 CORONATION DRIVE..... 4

7 ENCASE STAINLESS STEEL BELLOWS IN CONCRETE MAINTENANCE HOLE EX. 2/4 CORONATION DRIVE..... 4

8 INSTALL CONCRETE BENCHING TO SUIT SIT CONDITION MAINTENANCE HOLE EX. 2/4 CORONATION DRIVE..... 5

9 ACTIVITY TIME TABLE..... 6

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

1 Removal of Existing Pipe No.2 Maintenance Hole EX.2/4 (Coronation Drive)

1.1) Cut and removal of existing Pipe No.2 MH EX.2/4 (Coronation Drive) reference BW drg 3003/170-139 Amend A.

1.2) Before we can cut and remove Pipe No.2 (MH EX.2/4 Coronation Drive) we must complete the following.

a) Plug Pipe & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag.
Plug to be removed & Valve to be opened at the completion of daily works.

2 Drill/Core concrete wall. Maintenance Hole EX.2/4 (Coronation Drive)

2.1 Core concrete wall. Maintenance Hole EX.2/4 (Coronation Drive) reference BW drg 3003/170-139 Amend 0.

2.2 Once the concrete wall has been cored seal Steel Casing 1.2m ID to concrete wall.

2.3 Note: Before the above work can start we must complete the following.

a) Plug Pipe & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag.
Plug to be removed & Valve to be opened at the completion of daily works.

3 Close the following valves (Syphon Outlet MH2/4 Coronation Drive) and fix Caution Out Of Service Tag's

3.1 Maintenance Hole EX.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section C 2off DN150 Gate Valves top of slab.

3.2 Maintenance Hole EX.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section F 2off DN150 Gate Valves with deadplate.

3.3 Maintenance Hole EX.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section F 1off DN350 Knifegate Valve. Section F 1off DN450 Knifegate Valve.

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

3.4 Maintenance Hole EX.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section E 2off DN150 Gate Valves with deadplate bottom of shaft.

3.5 Maintenance Hole EX.2/4 (Coronation Drive) drg 3003/170-146 Amend B. Section F 1off DN32 Lockable Ball Valve.

3.6 Maintenance Hole EX.2/4 (Coronation Drive) drg 3003/170-152 Amend 0. Section A 6 off DN50 Ball Valves.

4 Close the following valves (Syphon Inlet MH1/4 & GT1/4 Hockings Street) and fix Caution Out Of Service Tag's

4.1 Maintenance Hole EX.1/4 (Hockings Street) drg 3003/170-156 Amend B. Section C 2off DN150 Gate Valves top of slab.

4.2 Maintenance Hole EX.1/4 (Hockings Street) drg 3003/170-156 Amend B. Section C 2off DN150 Gate Valves with deadplate.

4.3 Maintenance Hole EX.1/4 (Hockings Street) drg 3003/170-158 Amend 0. Section F 1off DN300 Knifegate Valve. Section F 1off DN450 Knifegate Valve.

4.4 Maintenance Hole EX.1/4 (Hockings Street) drg 3003/170-158 Amend 0. Section E 2off DN150 Gate Valves with deadplate bottom of shaft.

4.5 Maintenance Hole EX.1/4 (Hockings Street) drg 3003/170-158 Amend 0. Section F 1off DN32 Lockable Ball Valve.

4.6 Maintenance Hole EX.1/4 (Hockings Street) drg 3003/170-162 Amend 0. Section A 6 off DN50 Ball Valves.

4.7 Grit Trap-GT 1/4 (Hockings Street) drg 3003/170-053 Amend 3. Section A 1off NB600 Knife Valve.

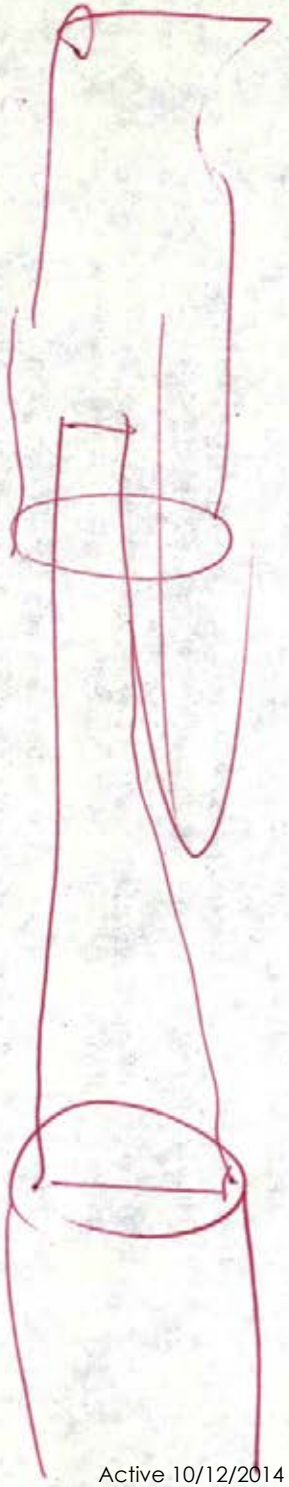
5 Maintenance Hole EX.1/4 pipe connection into Grit Trap-GT 1/4 Hockings Street

5.1 Brake through existing concrete wall into DN900 steel host pipe drg 3003/170-138 Amend 0. Detail 1 & 2.

5.2 Seal DN900 steel host pipe to concrete wall drg 3003/170-138 Amend 0. Detail 1 & 2.

5.3 Complete all benching; apart from approx 100mm final cut drg 3003/170-138 Amend 0. Detail 1 & 2.

5.4 **Note: Grit Trap-GT 1/4 (Hockings Street) drg 3003/170-053 Amend 3. Section A 1off NB600 Knife Valve to be in the closed position and fix Caution Out Of Service Tag before above work is carried out.**



HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

6 Installation of Stainless Steel Bellows. Maintenance Hole EX. 2/4 Coronation Drive.

6.1 Remove Steel Bulkhead refer to McConnell Dowell drg No. DWG/7799/0028/01 Rev 01.

6.2 Remove Temporary Thrust Restraint McConnell Dowell drg No. DWG/7799/0028/01 Rev 01.

6.3 Check and record inside diameter of 450 & 300 Hobas pipe couplings.

6.4 Check and record outside diameter of 450 & 300 Stainless Steel Bellows on end that fits into Hobas pipe couplings. Refer to McConnell Dowell Sketch No's 47 & 46. End of Bellows that fits into Hobas pipe couplings to be rounded off and have no sharp edges that could cause damage to rubber insert.

6.5 Install DN450 Stainless Steel Bellows and place support under Bellows drg 3003/170-139 Amend A. Detail 2. Once the Bellows has been installed place temporary plug in end of pipe.

6.6 Install DN350 Stainless Steel Bellows and place support under Bellows drg 3003/170-139 Amend A. Detail 2. Once the Bellows has been installed place temporary plug in end of pipe.

6.7 Note: Before the above work can start we must complete the following.

a) Plug Pipe & Close Valve No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag.
Plug to be removed & Valve to be opened at the completion of daily works.

7 Encase Stainless Steel Bellows in concrete Maintenance Hole EX. 2/4 Coronation Drive.

7.1 Fit timber shutter around Stainless Steel Bellows where they protrude into EX. 2/4 MH.

7.2 Encase Stainless Steel Bellows in concrete.

7.3 Remove timber shutter.

7.4 Note: Before the above work can start we must complete the following.

a) Plug Pipe & Valve to be opened No.2 (MH EX.1/4 Hockings Street) reference BW drg 3003/170-138 Amend 0 Detail 1.
Once the plug is installed all sewage will be diverted to Pipe No.1.
It is important we install a Caution Out Of Service Tag.
Plug to be removed & Valve to be opened at the completion of daily works.

00

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

8 Install Concrete Benching to suit sit condition Maintenance Hole EX. 2/4 Coronation Drive.

HOCKINGS STREET SYPHON LIVE SEWER CONNECTION TO MAINTENANCE HOLES EX.1/4 & EX.2/4 WORK PROCEDURE

Water might need Tony on 10/12 ?

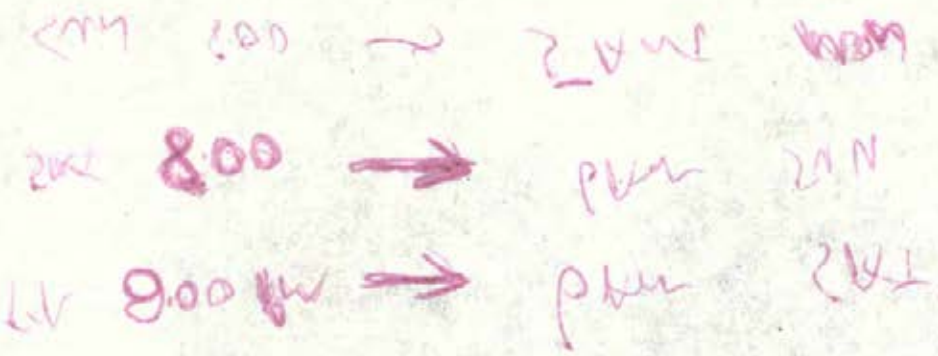
9 Activity Time Table

Section	Activity	Start Date	Finish Date	Total Manhours
1	Removal of Existing Pipe No.2 Maintenance Hole EX.2/4 (Coronation Drive)	**08/12/2006 Friday** + 10/12	**8/12/06 Friday**	
2	Drill/Core concrete wall. Maintenance Hole EX.2/4 (Coronation Drive)	**10/12/13/14/15 December 2006**		
3	Close the following valves (Syphon Outlet MH2/4 Coronation Drive) and fix Caution Out Of Service Tag's			
4	**Close the following valves (Syphon Inlet MH1/4 & GT1/4 Hockings Street) and fix Caution Out Of Service Tag's**	**18/12/06 Monday**	**18/12/06 Monday**	
5	Maintenance Hole EX.1/4 pipe connection into Grit Trap-GT 1/4 Hockings Street	**18/19/20/21 December 06**		
6	Installation of Stainless Steel Bellows. Maintenance Hole EX. 2/4 Coronation Drive			
7	Encase Stainless Steel Bellows in concrete Maintenance Hole EX. 2/4 Coronation Drive			
8	Install Concrete Benching to suit sit condition Maintenance Hole EX. 2/4 Coronation Drive			
9				
10				
11				

FRI 8:00 PM → 6AM SAT

SAT 8:00 → 6AM SUN

SUN 8:00 → START MON



29-11-06

Heroes Ave Project

Hockings St Syphon - Live Sewer Connections

Note:

- From now till Christmas, Fourex are brewing Mon to Thurs, and Saturday. Only nights available for Coronation Dve are Friday and Sunday.
- While Vortex is installed and for a week? after, high flow will also prevent work on Coronation Dve.

Date	Activity	Issues
Saturday – 2 December	nil	Soccer at Suncorp
Sunday – night 3 December	Isolate brewery (isolate and reinstate each night) Close valve on Pipe 2, EX 1/4. Valve to be closed and opened each night. Close valves in MHs 1/4, GT1/4 and 2/4. Valves to remain closed. Remove section of Pipe 2 in MH EX 2/4. Replace with blue brute using wang couplings.	Retain pipework and valves in MH • Otherwise too messy (timely) • Need to retain valves for now
Friday – night 8 December	Isolate brewery. Close valve on Pipe 2, EX 1/4. Valve to be closed and opened each night. MH EX 2/4 – Coronation Dve • Remove blue brute and replace at end of night. • Work with concrete cutter – coring to remove wall.	Overstitch cores to avoid jackhammering. Remove sharp edges with hammer.
Sunday – night 10 December	Isolate brewery. Close valve on Pipe 2, EX 1/4. Valve to be closed and opened each night. MH EX 2/4 – Coronation Dve • Remove blue brute and replace at end of night. • Work with concrete cutter – coring to remove wall.	

Tuesday – day Wednesday – day Thursday – day 12,13, 14 Dec.	MH EX 1/4 - Hockings St • Locate steel host pipe • Work with concrete cutter to cut and core benching. Retain channel if possible. • Work with concrete cutter – coring to remove wall.	Trevor to assist on site. Normal flow conditions.
Friday – night 15 December	Isolate brewery. Close valve on Pipe 2, EX 1/4. Valve to be closed and opened each night. MH EX 2/4 – Coronation Dve • Remove blue brute and replace at end of night. • Work with concrete cutter – coring to remove wall.	
Sunday – night 17 December	Isolate brewery. Close valve on Pipe 2, EX 1/4. Valve to be closed and opened each night. MH EX 2/4 – Coronation Dve • Remove blue brute and replace at end of night. • Remove steel bulkhead, thrust restraint and hydrostatic test ends • Check GRP collars. • Measure ideal length for bellows	
2007	Adjust length of bellows prior to date of installation. Jacking rods can be cut off. Avoid springback by overstretching… M&E to weld thrust/weep flanges on bellows.	
2007 1st night	Isolate brewery. Close valve on Pipe 2, EX 1/4. Valve to be closed and opened each night. MH EX 2/4 – Coronation Dve • Remove blue brute and replace at end of night. • Install both bellow pipes.	Two separate channels are proposed for MH EX 2/4.

2007 nightwork	Isolate brewery. Close valve on Pipe 2, EX 1/4. Valve to be closed and opened each night. MH EX 2/4 – Coronation Dve • Remove blue brute and replace at end of night. • Form up wall in preparation for concrete encasing bellows. • Concrete encase and finish wall.	Duration and scheduling ?
	Arrange for black brute channels to be manufactured ready for assembly by welding.	
2007 dayshift	MH EX ¼ - Hockings St • Fit GRP end piece • Channel and bench	
2007 nightwork	Isolate brewery. Close valve on Pipe 2, EX 1/4. MH EX 2/4 – Coronation Dve • Remove blue brute. • Remove Pipe 2 pipework and valves.	Siphon to operate using Pipe 1 only until the new 350mm is placed on line. Pipe 2 will only be reopened for wet weather.
2007 nightwork	Isolate brewery. Close valve on Pipe 2, EX 1/4. MH EX 2/4 – Coronation Dve • Assist contractor to install, weld and brace channel from 350mm pipe. • Place new 350mm siphon on line. Valve on Pipe 2, EX 1/4 to remain closed.	Duration and scheduling ?
2007 nightwork	Isolate brewery. Close valve on Pipe 1, EX 1/4. MH EX 2/4 – Coronation Dve • Remove Pipe 1 pipework and valves. • Assist contractor to install, weld and brace channel from 450mm pipe. • Place new 450mm siphon on line. Valve on Pipe 1, EX 1/4 to remain closed.	Duration and scheduling ?
	Pump concrete around existing channels to form benching in EX 2/4. Abandon Pipes 1 and 2 and seal ends.	

Trevor Graham - Latest Advice Regards Timing of 'Vortex' For Heroes Avenue [Re: Fwd: Vortex timing]

From: Mark Cruden
To: Bannink, Andrew; Graham, Trevor; Wain, Sidney
Date: 4/12/2006 8:41 am
Subject: Latest Advice Regards Timing of 'Vortex' For Heroes Avenue [Re: Fwd: Vortex timing]
CC: Edwards, Bill; Low, Stuart; McGirr, Reg

Andrew, Trevor & Sid,

For Andrew: Thanks for the advice forwarded below.

For Trevor and Sid: Please see Andrew's e-mail below for latest estimated timing regarding vortex installation. Note that there are still items that could delay it, so the dates are still tentative.

For Reg, Bill and Stuart: Copy for your information, and awareness of on-forwarding to Networks.

Regards,

Mark Cruden
PM7BW
ext 33534

>>> Andrew Bannink 01/12/2006 17:14 >>>
FYI

Andrew Bannink
Project Manager - HASP
Brisbane Water
07 3403 3507
0412 178 551

>>> Ralph Berry 5:13 PM 01-Dec-06-06 >>>
Andrew.

I meet with Apex Fabrication today and discussed progress.
We are still waiting on delivery of the cone (overflow shute component), as always another day away?

The remaining vortex structure has been fully welded.
Exceptions are the flange and cone as above.
The structure will be passivated Monday of next week. Guy (Rookwood) is still scheduling the installation to go ahead as of Monday 11 December.

In discussions with Networks, can you please keep this on the agenda.
Possible trip ups are:
The delay of the cone.
Delay in polishing the surface finish of the cone and any sheet surface.

I understand Rookwood have the resource in place for the installation to go ahead on the Monday pending the trial assembly in Apex's workshop.

Regards
Ralph

Minutes of Meeting			
Subject:	**Heroes Avenue Project – Networks Branch Input**		
Day:	Tuesday 28 Nov 06	**Time:**	10:30 – 11:30am
Location:	Incident Room, Networks Centre, Cullen Avenue, Eagle Farm		
Attendees:	**George Theo** – Manager Networks Branch, ext 78300 **Sid Wain** – Networks Branch, Hydrotechnic Operations, ext. 78336 **Trevor Graham** – Networks Branch, Business Support Operations, ext. 78351 **Reg McGirr** – Commissioning Engineer, Projects Branch, ext.33349 **Raghbir Kalsi** – Design Manager, Projects Branch, ext 33328 **Mark Cruden** - Projects Branch, ext. 33534		
Copies Of Minutes Also To:	**Matt McPheat** – Networks Branch, Fitter Eng. Serv.North Team, ext. 31849 **Tony Deadman** – Networks Branch, mob. 0409 723 281 **Andrew Bannink** – Project Manager, Projects Branch, ext. 33507 **Bill Edwards** – Construction Manager, Projects Branch, ext 33508		

ITEM	MINUTES	ACTION by whom	ACTION by when
1	**Maintenance Hole Shaft 2/4 (Coronation Drive side)**		
(a)	Existing Piping and Valving:		
	• Networks to consider removal of this pipework prior to beginning break-in through concrete wall.	Tony, Trevor	By 06 Dec 06
(b)	Changed Pipework Concept:		
	• Drawings 3003/170-136 to 140 inclusive were re-issued electronically prior to the meeting. Three sets of A3 hard-copies were provided to Tony at the end of the meeting.	Note	

(c)	Stainless Steel 'Bellows':		
	• Trevor was planning to meet with the 'bellows' supplier on the afternoon of 28 Nov 06.	Trevor	28 Nov 06
	• There was discussion during the meeting regarding pipework tolerances – "+/- millimetres" versus "+/- tenths of millimetres". Clarification is needed (through discussion with the supplier) of exactly how the bellows will be connected to the existing pipework, and how much physical effort/ 'force' will be required.	Trevor	28 Nov 06
	• It was hoped to be able to place an order for the bellows on the afternoon of 28 Nov 06. Bellows to be made from stainless steel, not incalloy. Trevor will advise Mark Cruden when order raised.	Trevor	28 Nov 06, or asap thereafter
(d)	Cutting Through Concrete Wall:		
	• It was agreed that it would be desirable to proceed with cutting through the concrete wall as soon as the syphon pressure test is done. Trevor will discuss with Tony.	Trevor, Tony	During work planning
	• Reg advised that there is a "50/50" chnace that the pressure test will be done during the week 27 Nov – 01 Dec 06. He will advise all parties as soon as it has been completed.	Reg	As soon as test done
(e)	Time Constraints On Work – XXXX brewery, and traffic		
	• Networks will contact the XXXX brewery and determine what their production plans are over the Christmas/New Year break. If shutting down, it may offer an opportunity for work during Mon – Thurs evenings.	Trevor or Sid	
2	**Maintenance Hole Shaft 1/4 (Hocking St side)**		
(a)	Cutting In To Grit Collector		
	• It was noted that cutting-in to the grit collector can be done any time from now. Exact timing to be decided by Networks, based on staff availability, flow control, weather, etc.	Trevor, Sid, Tony	To be decided

(b)	Diverting flow up-stream of shaft 1/4: • System Planning report has been forwarded. It identifies that if the Gray St pump station can be operated in dry weather, this could divert up to 90 L/sec away from the Hocking St syphon. May be a flow-control option worth considering. • Michael Barton's input to be sought regards possible odour problems.	Trevor, Sid, Tony Trevor, Michael	During work planning --"”--
3	**Detailed Work Planning & Scheduling, Including Safety Procedures**		
(a)	• An inspection of the Coronation Drive and Hocking St worksites was held on Fri 17 Nov 06. Included an inspection inside the Hocking St shaft.	Note	
	• Tony has written out a first version of a work procedure. Sid will obtain these notes from Tony (currently working on night-shift), and provide to Trevor, who will review and give input to them as required.	Tony, Sid and Trevor	29 Nov 06
	• Trevor will then forward to Reg, who will also review and give input to them as required.	Trevor, Reg	31 Nov 06
	• The draft plan will then be collectively reviewed and discussed at the next meeting, scheduled for 10:30am Wed 06 Dec 06, at Networks Centre, Cullen Avenue.	All	06 Dec 06
4	**Vortex Structure**		
(a)	• Reg advised that manufacture of the vortex is supposed to be completed within approximately two weeks (By approx. Fri 08 Dec 06?).	Note	
	• Regarding installation, it is indicatively estimated to take one week. If it occurs in the second week of Dec, it should be workable for Networks to provide support. If later in December, it may be difficult for Network to provide support. One Networks representative is required on site during the vortex installation.	Note	
	• Bill Matthews is the contact person for details regarding the vortex. He will be an invitee to the next meeting, to give input to the planning process.	Bill	06 Dec 06

(b)	• Regarding a 'letter of comfort', Raghbir has spoken to a representative of Connell Wagner, and they are preparing a letter and supporting calculations. • Once received, these will be reviewed by an independent consultant (yet to be arranged)	Raghbir Raghbir	Before commissioning --"”--
5	**Air valve 1/1 (A/V 1/1) BW Drg No 486/5/8-SM12/059**		
(a)	Reg was to give Sid details following the meeting.	Reg, Sid	28 Nov 06
6	**Networks Reporting**		
(a)	• It is requested that Networks keep Projects Branch (attention Mark Cruden) regularly updated on work intended to be taken, and the outcome of work that has been taken. This advice on a weekly basis would be appreciated. A suggested 'point form summary format is: – Date / Site / Activity / Number of staff / Status or outcome	Trevor	Ongoing
	• Projects Branch will use this information in regular reporting regarding the project	Andrew/ Mark	On-going
7	**Next Meeting**		
(a)	• Wednesday 06 Dec 06, in 'Incident Room' Networks Centre, Cullen Avenue, Eagle Farm.	Note	28Nov06
	• Mark Cruden to send out meeting invites.	Mark	29 Nov 06
	• Leanne Freedland to book Incident Room [has been done].	Leanne	Done

Mark Cruden
PM7BW
Ext 33534

These minutes originally written 29 Nov 06

MEMORANDUM

Brisbane City			Brisbane Water A unit of the Brisbane City Council
To:	**Raghbir Kalsy**	Date: **13/11/06**	**System Planning** TC Beirne Centre Level 2, 315 Brunswick St Fortitude Valley Qld 4006
Attn:			
CC:			
From:	**Sarath Gunasekara, System Planning**		
Re:	**Decommissioning of old Hocking St Siphon**		Phone: 07 3403 0208
File :	**Miscellaneous works 2006 - Sewer**		Facsimile: 07 3403 3404 Internet: www.brisbane.qld.gov.au

1.0 Background:

Construction of Hocking St siphon is now completed and live connection is to take place soon. The methodology of commissioning of the new siphon in broad steps is as follows:

a. Close one of the old 375mm pipelines at the inlet and connect the 350mm new siphon barrel to that pipeline at the tail. During this process total flow is to pass through the other 375mm pipeline.

b. Close the other 375mm pipeline at the inlet and do the live connection of 450mm new pipeline to the tail of the closed 375mm pipeline. During this process the flow is to pass through 350mm already connected pipeline.

c. Once that connection is complete open both 350mm and 450mm siphon barrels for daily operation.

Before starting the decommissioning process, Projects Branch has requested System Planning to re-model the Hocking St Siphon according to the proposed construction sequence. The following is our understanding of your questions:

1.0 Would the 375mm single barrel be adequate to discharge the normal dry weather day flow until the live connection is done?

2.0 In second stage, when the other 375mm barrel is also closed, would the available capacity in the new 350mm siphon barrel be adequate to pass the normal dry weather day flow?

3.0 As this process takes about 5 weeks to complete, in case of the wet weather, are there any ways of diverting flows without passing through the siphon? What would be the likely impact on the adjacent area?

2.0 Scope of Work /Modelling Scenarios

2.1 Dry weather flow analysis

2.1.1 Hydraulic model analysis with 2006 loadings when only one old 375mm siphon barrel is in operation.

2.1.2 Hydraulic model analysis with 2006 loadings with only 350mm new siphon barrel is in operation.

2.2 Wet Weather flow analysis

2.2.1 Hydraulic analysis of the 2006 wet weather model for PWWF (1200L/EP/Day).

3.0 Model Analysis

3.1 Assumptions

A hydraulic model was constructed with old and new siphon barrels and the model behaviour was studied when only one 375mm siphon barrel is in operation. The internal diameter of old 375mm mild steel siphon barrels were assumed as 375mm. Internal diameter of the new 350mm pipe is taken as 327mm.

3.2 Loading Summary

Loading (2006) summary is as follows

MH ID	LOADING	Pattern	Remarks
MH174119	85.38 L/s	Observed DWF pattern at M44 gauge	2001EP loading converted to 2006. EP increase 24%
MH174197	26.22 L/s	Observed DWF pattern at M45 gauge	2001EP loading converted to 2006. EP increase 24%
MH168572	89.35 L/s	Observed DWF pattern at M27 gauge	2001EP loading converted to 2006. EP increase .12%

4.0 Model Results

4.1 Flow through 375mm single barrel when one in operation – Normal dry day

Discharge Max	Discharge Min	Water level at EX_1/4 manhole	Remarks
167 L/s	67L/s	Max 0.4m deep (WL above invert) Min 0.2m deep	The water level is within pipe. No problem in discharging DWF in a normal dry day.

4.2 Flow through pipe when 350mm (327mm ID) barrel only in operation – Normal dry day

Discharge Max	Discharge Min	Water level at EX_1/4 manhole	Remarks
132 L/s	67L/s	Max 2.3m deep Min 0.4m deep	The water level is surcharging. However, any of the OF structures, OF748 or OF206, located in near upstream, does not overflow sewage. Water level is about 2m below the crest level in both cases.

4.3 Peak Wet Weather Flow through pipe when 350mm (327mm ID) barrel only in operation. That is theoretical wet weather flow equivalent to 1200L/EP/Day.

Discharge Max	Discharge Min	Water level at EX_1/4 manhole	Remarks
120 L/s	-	Max 5.0m deep	Both upstream and downstream side of the Siphon is surcharging. OF748 is discharging 18.5L/s and OF206 is discharging 60L/s.

In the case of wet weather the only bypass available is Grey St pump station located in the upstream of the siphon, which has 92L/s capacity, pumping across the river to S1 main. The OF206 overflow structure located at MH174212 in West End Sub main (control level 1.258), will start overflowing first. OF748 Located at MH174118 (EX_1/4) (control level 1.028) will overflow only in high rain events.

5.0 Summary

- In relation to the question outlined in 1.0 the 375mm diameter single barrel has adequate capacity to discharge normal dry day flows without surcharging when the other 375mm barrel is closed.

- When the new 350mm barrel (ID=327mm) only is in operation, at the second stage of the live connection, the water level surcharges in the upstream side of the siphon and the maximum water level can rise up to 2.3m above invert of the manhole at EX_1/4. That is, in a normal dry day the water level in EX 1/4 manhole can be 2.3m deep at the peak time, which is around noon. The minimum water level is 0.4m deep at the same location in low flow times, approximately from3.30 am to 8.30am.

  Therefore, regarding question 2.0, it could be inferred that albeit minor surcharging is occurring in the upstream side of the siphon the new 350mm barrel is adequate to pass the dry weather flows.

- In the case of theoretical wet weather (5XADWF) the water level in both sides of the siphon is surcharging heavily. The overflow structures OF748, OF206, OF162, OF166, and OF216 in the West End area will overflow sewage at a flow rate between 4L/s and 60L/s. The only way to slightly alleviate the impact of surcharging and overflowing is to run Grey St pump station at maximum speed. Depending on the magnitude of the wet weather event this may or may not be sufficient.

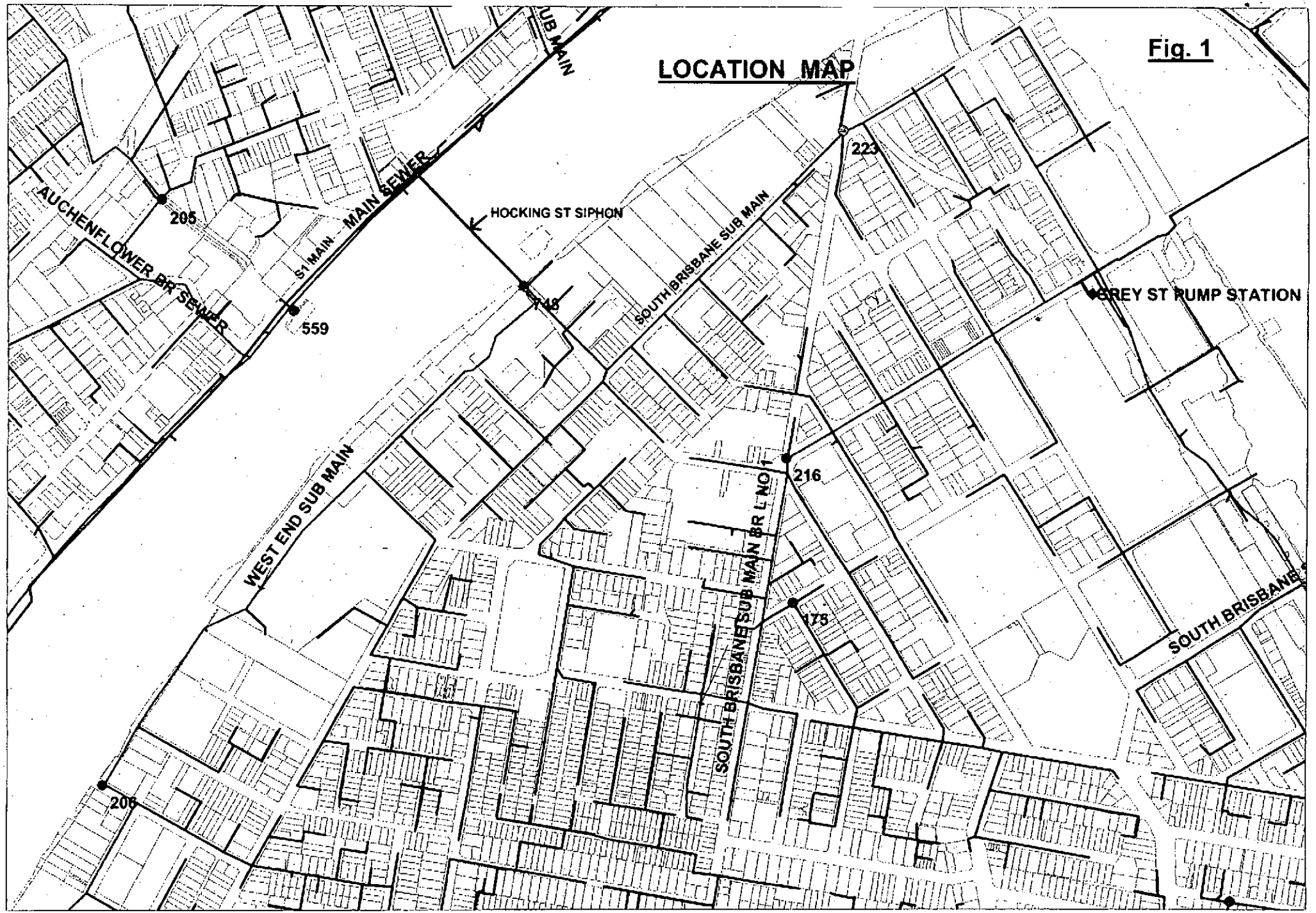
Should you have any questions on the above matter please do not hesitate to call the undersigned.

Regards,

Sarath Gunasekara
Planning Engineer
System Planning

Reviewed By

Sebastian Horvath
Water & Sewerage Planning Engineer
System Planning


LOCATION MAP
Fig. 1
AUCHENFLOWER BR SEWER
205
S1 MAIN
MAIN SEWER
HOCKING ST SIPHON
559
748
SOUTH BRISBANE SUB MAIN
223
GREY ST PUMP STATION
WEST END SUB MAIN
216
SOUTH BRISBANE SUB MAIN BR L NO 1
175
SOUTH BRISBANE
206

Purchase Requisition (Request Form)

General Details:

Req. No. 065234 Purchase Order No: H65077

Your Name: TREVOR GRAHAM 78351 Date: 29-11-06

Authorising Name: ROB EDWARDS Authorising Payroll No: 68810

Authorising Signature: [signature]

Supplier Details:

Name: RADCOFLEX ABN 70004376989 (1249)

Address: Unit 1, 1 SPINE ST SUMNER PARK 4074

Phone: 33765111 Fax: 33765177

Requirements:

Description Of Goods/Services, Qty, Price (Please Distinguish If Price Includes/Excludes GST)

568

1 X Stainless Steel (316) Tied Universal Expansion Joint, Length 1950mm O.D. 507mm

1 X Stainless Steel (316) Tied Universal Expansion Joint, Length 2100mm O.D. 345mm

Price: $5742
$5122
Delivery $300
$10864 (not including GST)

Costing Details:

Work Order Number: PA006613 General Ledger Number: 16583090

Delivery Details: (Address, Contact Person)

Deliver to BRISBANE WATER NETWORKS STORE, 268 CULLEN AVE EAGLE FARM
Attention: Trevor Graham or Sid Wain

Other Comments:

Detailed sketch agreed by Trevor Graham (BRISBANE WATER) and Rod Butler (Radcoflex)

$10864
300 FREIGHT
$11164.00 GST EXCL $12280.40

4mm

MEMORANDUM

BRISBANE CITY

Brisbane City Council

Keep!

TO

DATE 29-11-06

FROM

PHONE

SUBJECT

TONY

- Tony To check if Brewery closes – option for walk. at Brewery (Only as required)
- X is tanking still needed – if not remove from JSA 3/11
- X [illegible] Date/Time allowance for JACKHAMMER ML [illegible]
- Traffic management work (later than 5AM or earlier than 9AM) ? 30168222 SAT or SUN ?

① TREVOR TONY

② Trevor ADVISE Cola due date to Consultant

Our Business – A Better Brisbane

CC132L (8/98)
Poinsettia Press © Document Design & Forms Analysis

Stock Code No. 6684

M_MORANDUM

BRISBANE CITY

Brisbane City Council

TO QUIZ TONY DATE

FROM PHONE

SUBJECT

X • Replace No 2 pipework each night? and of w/E ?

• ~~Import for~~ JACKHAMMER ?

X • " MONDAY 4/12 " is isolation. still in place

• When? removing wall at Hocking St.

• Is there an issue at Hocking St.

Our Business – A Better Brisbane

Des's mnts

LIVE SEWER CONNECTION

CONTRACTOR

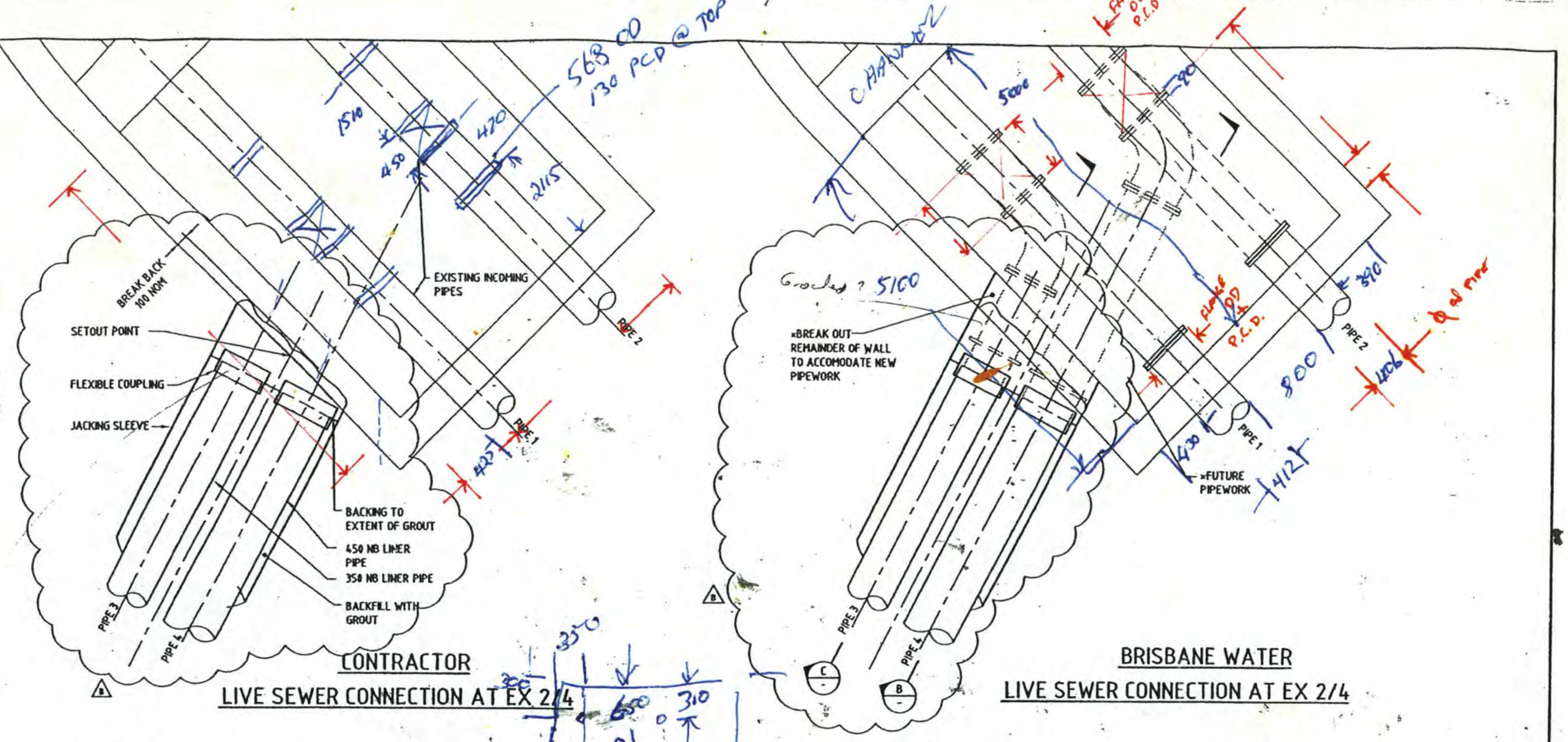
1. CONTRACTOR TO LIASE WITH BRISBANE WATER TO CONFIRM EXISTING INLET PIPE LEVELS IN ORDER TO CONFIRM INCOMING LEVEL FOR NEW PIPE CONNECTION TO EX 2/4.
2. CONTRACTOR TO BREAK BACK 100mm OF EXISTING WALL
4. CONTRACTOR TO DRILL PILOT HOLE THROUGH EXISTING WALL AT OBVERT OF ⌀1200 HOST PIPE. BRISBANE WATER TO BE PRESENT AT TIME OF DRILLING PILOT TO CLEARLY MARK POSITION INSIDE EX 2/4 AND GROUT PILOT HOLE.
5. CONTRACTOR TO INSTALL 350 AND 450 NB LINE PIPES WITHIN HOST PIPE AND BACKFILL GROUT TO FLEXIBLE JOINT LEAVING A STABLE, SAFE VOID BETWEEN THE FLEXIBLE JOINT AND BROKEN OUT WALL.

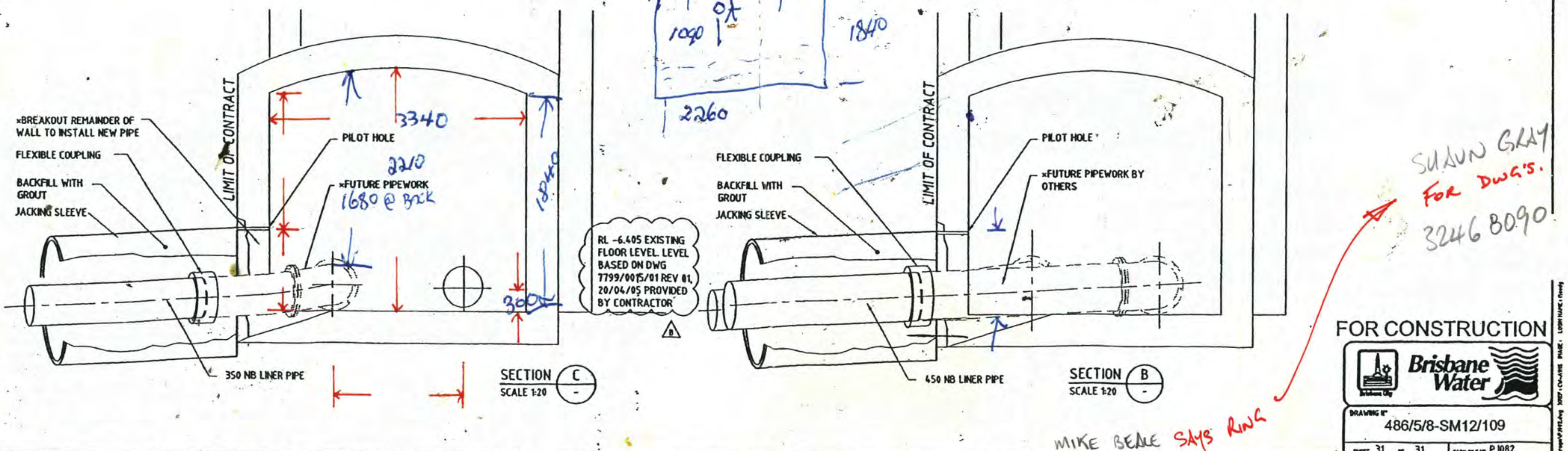
BRISBANE WATER

1. BRISBANE WATER TO MARK LOCATION OF AND GROUT PILOT HOLE - SEE NOTE 4 CONTRACTOR WORK
2. REFER DRG ME033 FOR COMMISSIONING DETAILS

-- DENOTES FUTURE WORK BY OTHERS

SCALE 1:20





FOR CONSTRUCTION

Brisbane Water

DRAWING No 486/5/8-SM12/109

SHEET 31 OF 31 CADD FILE PJ082

LA	SG	CAR
MMB	SG	CAR
TB	DIF	HRA
MMB		
By	Ver.	App.

Connell Wagner

Client: Brisbane Water

Project: REDIRECTION OF HEROES AVENUE SEWAGE PUMP STATION CONSTRUCTION OF MICROTUNNEL, SYPHON, RISING MAIN AND ASSOCIATED STRUCTURES CONTRACT No. BW.40070-03/04

Role		Signed	Date
Drawn	MMB	M BEALE	21/10/03
Designed	GEF	G FLOOD	21/10/03
Verified	DIF	D FURNER	21/10/03
Approved	HRA	H ASCHE	21/10/03

Drawing Title: LIVE SEWER CONNECTION DETAILS SHEET 2 OF 2

CW Project No. 020313CG

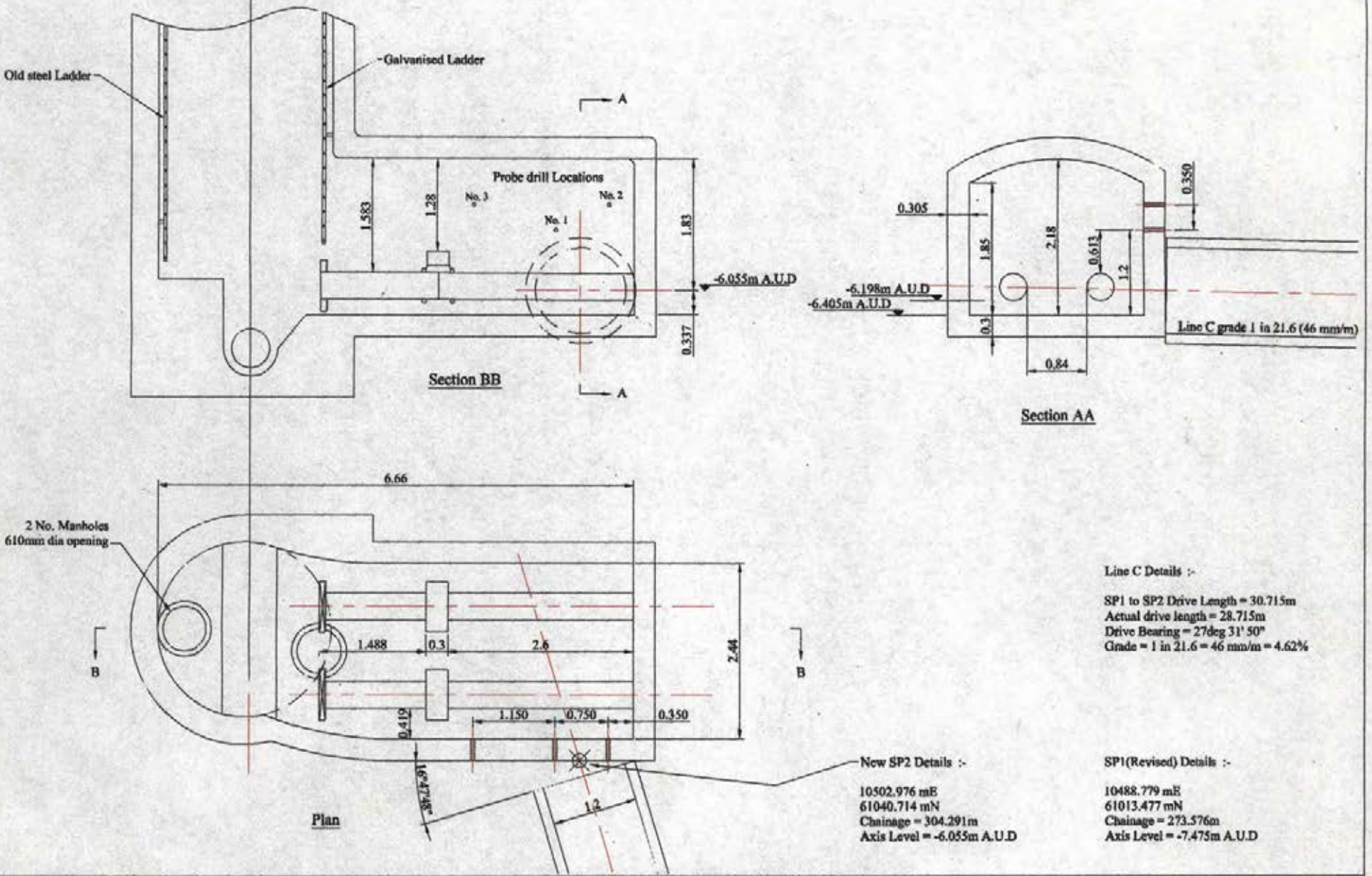
Scale AS SHOWN AT A1

Drawing No. PJ082 Rev. B

FILE P:\CW\020313\203 DRAWINGS TRANSMITTALS...

DES
ASHCROFT

"MMTS ON SITE"



Rev	Date	Drawn by
01	20/04/05	AC
00	07/04/05	AC

McConnell Dowell Constructors (Aust) Pty Ltd

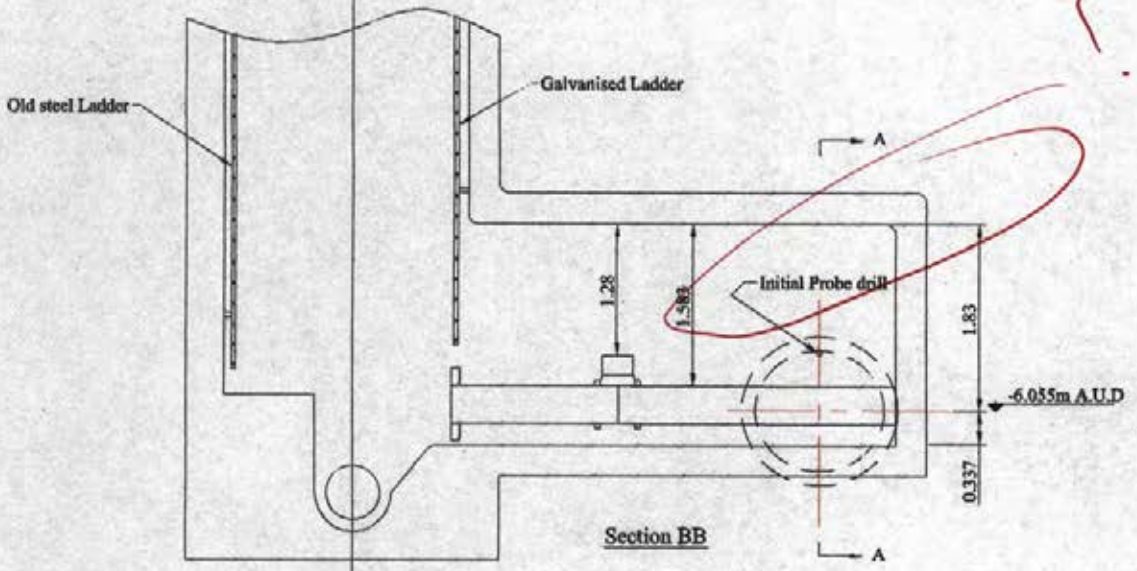
McCONNELL DOWELL

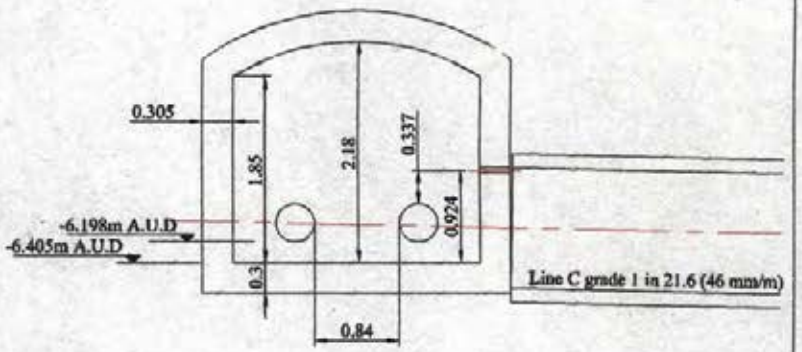
Redirection of Heroes Avenue Sewage Pumping Station

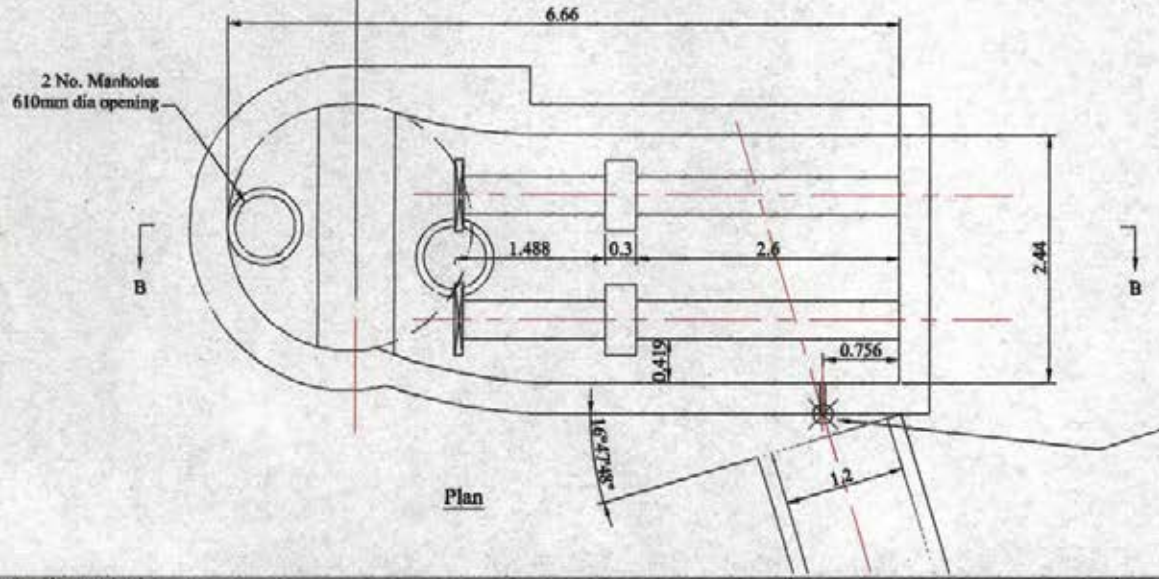
Drawing No. DWG/7799/0015/01

Scale 1 : 50

Drawing Title : EX 2/4 Asbuilt Survey details on 03/04/05 With installed pilot holes







Line C Details :-

SP1 to SP2 Drive Length = 30.715m
Actual drive length = 28.715m
Drive Bearing = 27deg 31' 50"
Grade = 1 in 21.6 = 46 mm/m = 4.62%

New SP2 Details :-

10502.976 mE
61040.714 mN
Chainage = 304.291m
Axis Level = -6.055m A.U.D

SP1(Revised) Details :-

10488.779 mE
61013.477 mN
Chainage = 273.576m
Axis Level = -7.475m A.U.D

Rev	Date	Drawn by
00	07/04/05	AC

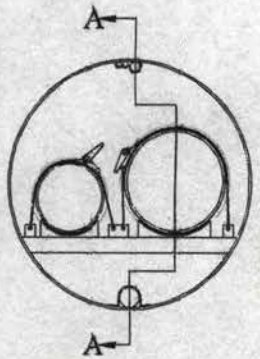
McConnell Dowell Constructors (Aust) Pty Ltd

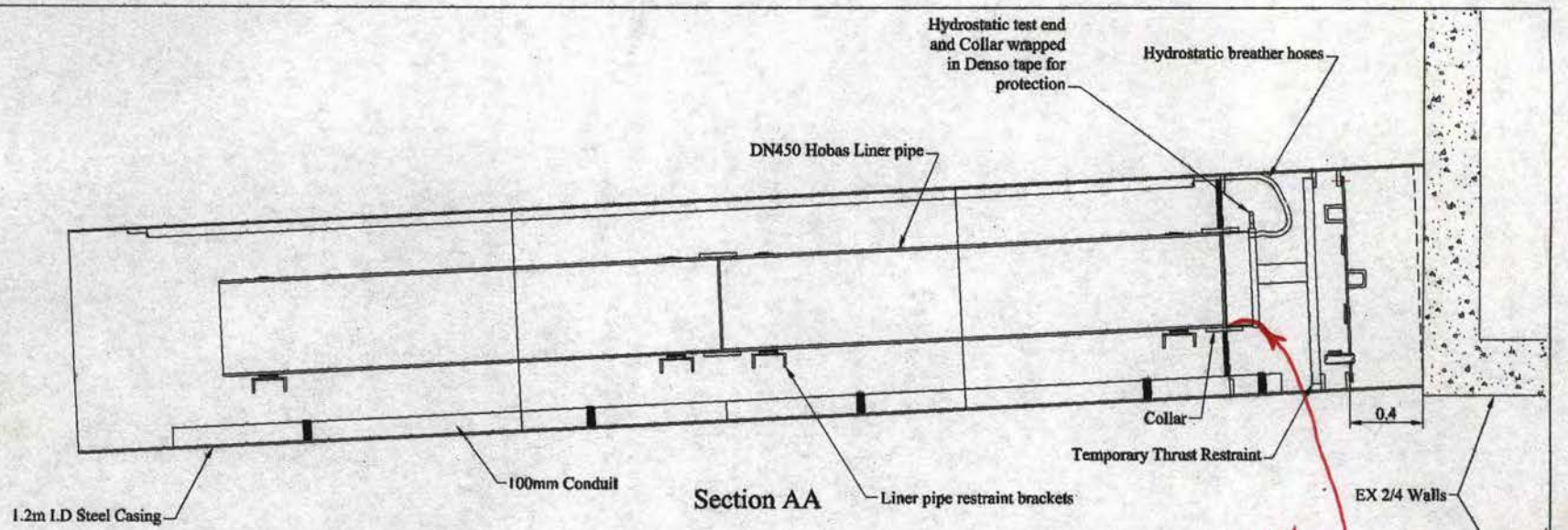
Drawing No. DWG/7799/0015/00 Scale 1 : 50

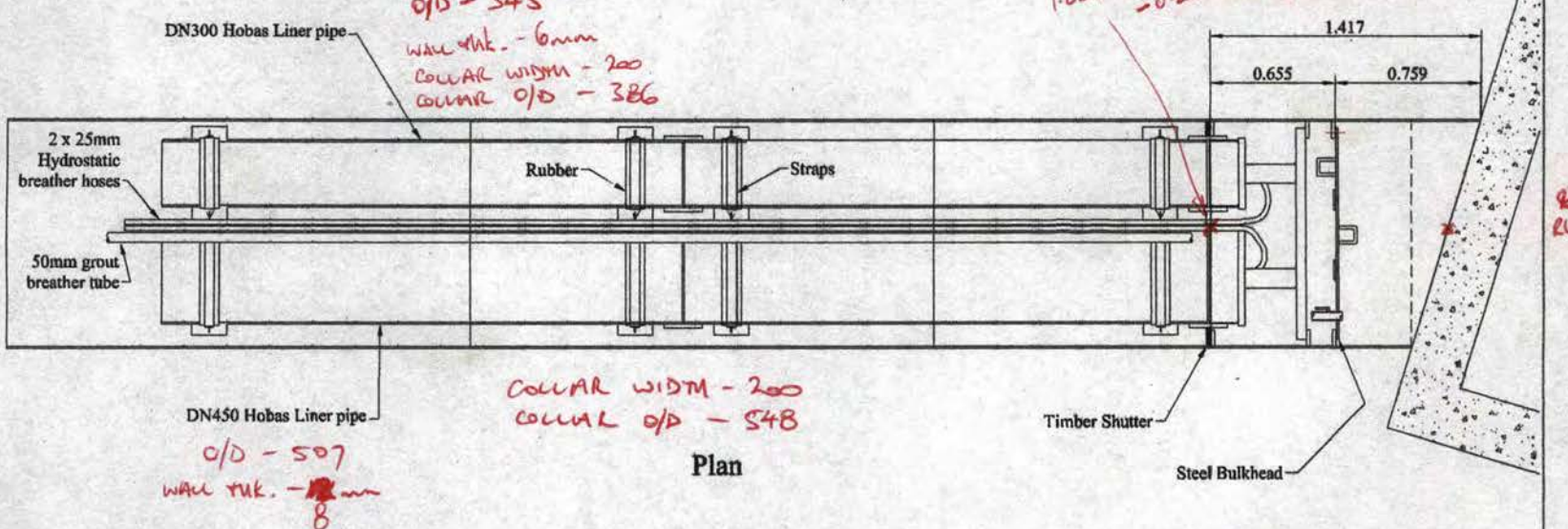
McCONNELL DOWELL

Redirection of Heroes Avenue Sewage Pumping Station

Drawing Title : EX 2/4 Asbuilt Survey details on 03/04/05







Rev	Date	Drawn by
01	04/07/05	AC
00	23/06/05	AC

McConnell Dowell Constructors (Aust) Pty Ltd

Drawing No. DWG/7799/0028/01 Scale 1 : 25

McCONNELL DOWELL

Redirection of Heroes Avenue Sewage Pumping Station

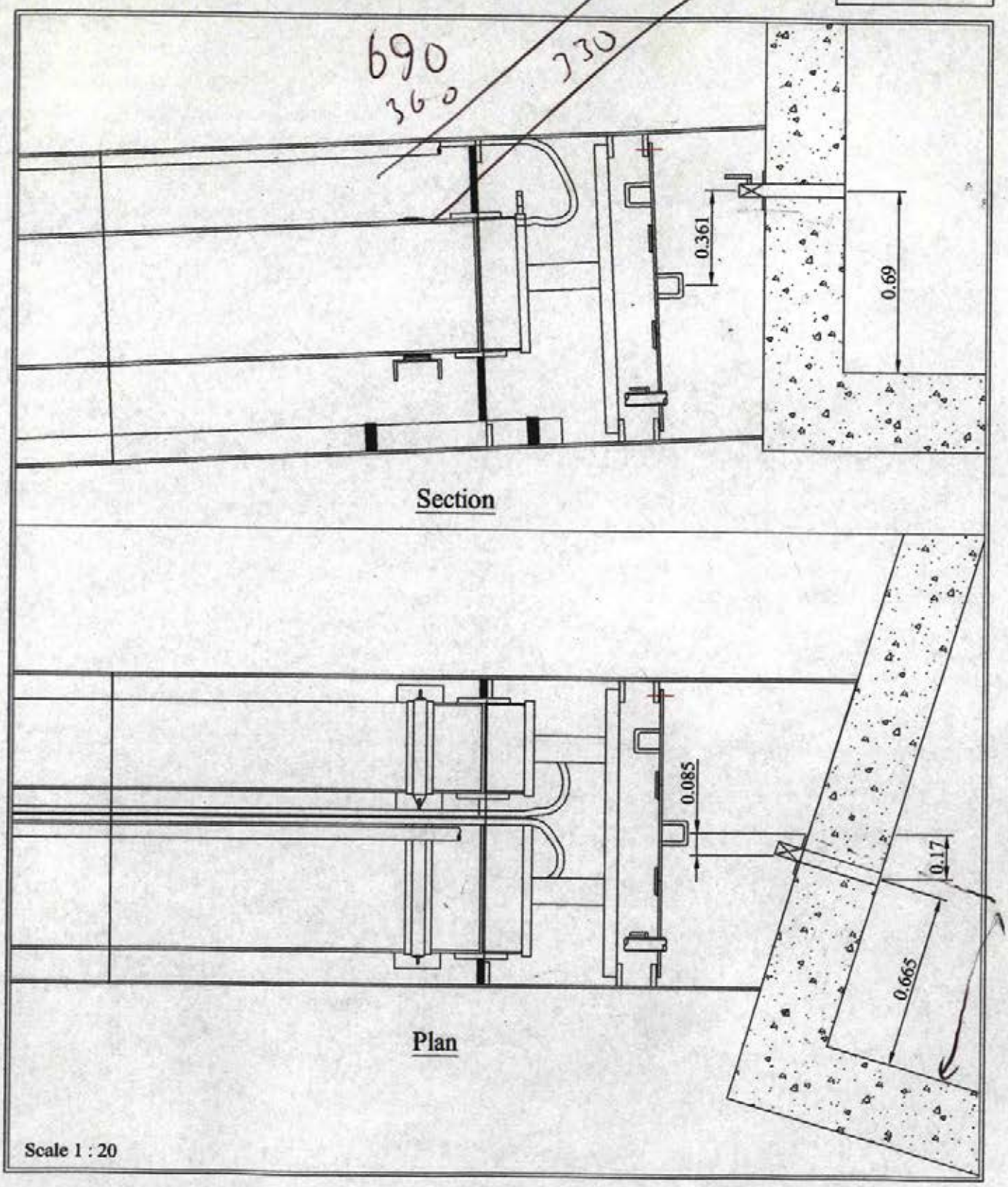
Drawing Title : Line C Liner Pipe Installation

McCONNELL DOWELL

McConnell Dowell Constructors (Aust) Pty Ltd

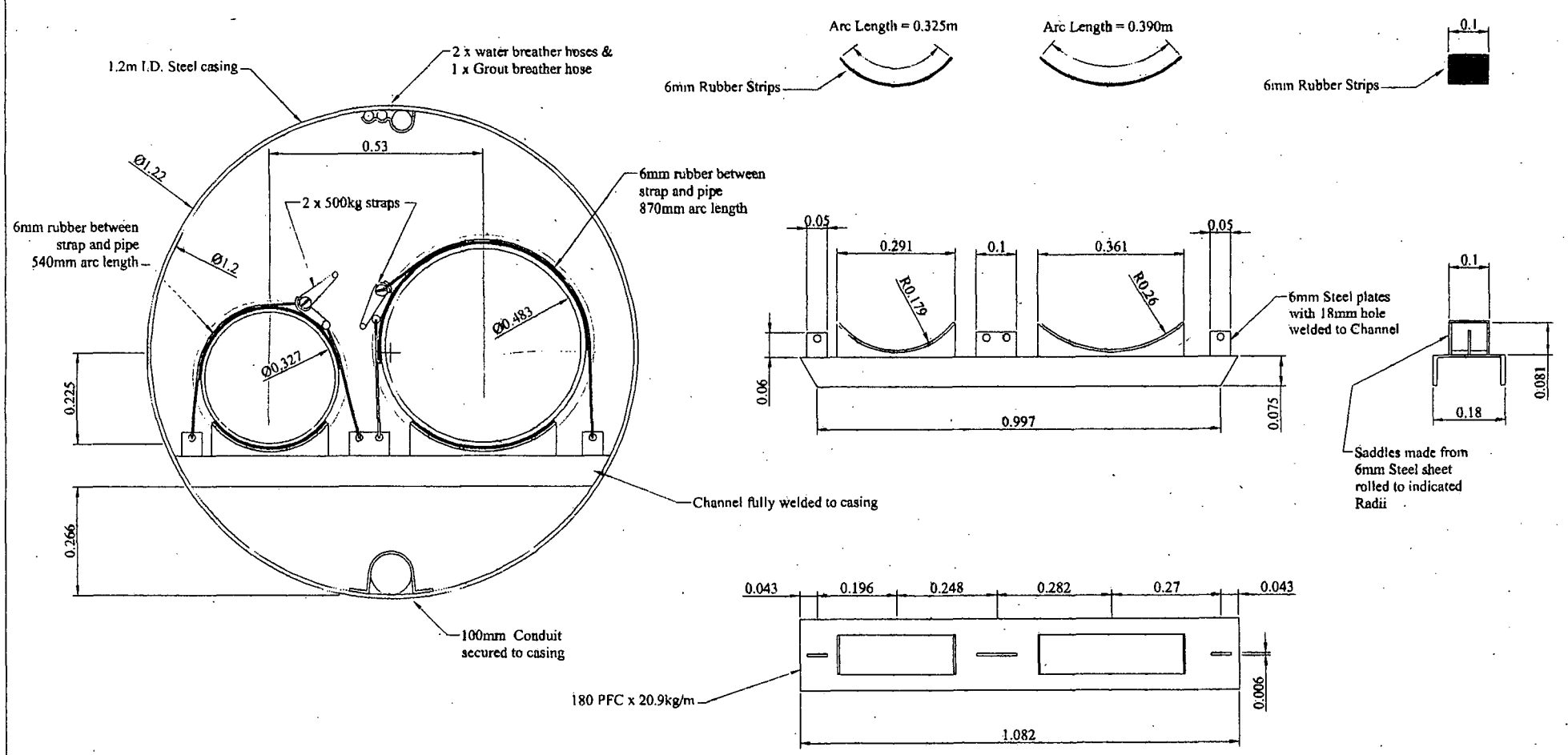
Sketch No. 50

Probe Hole Location in Line C at Interface with EX 2/4



Signed _____

Date _____



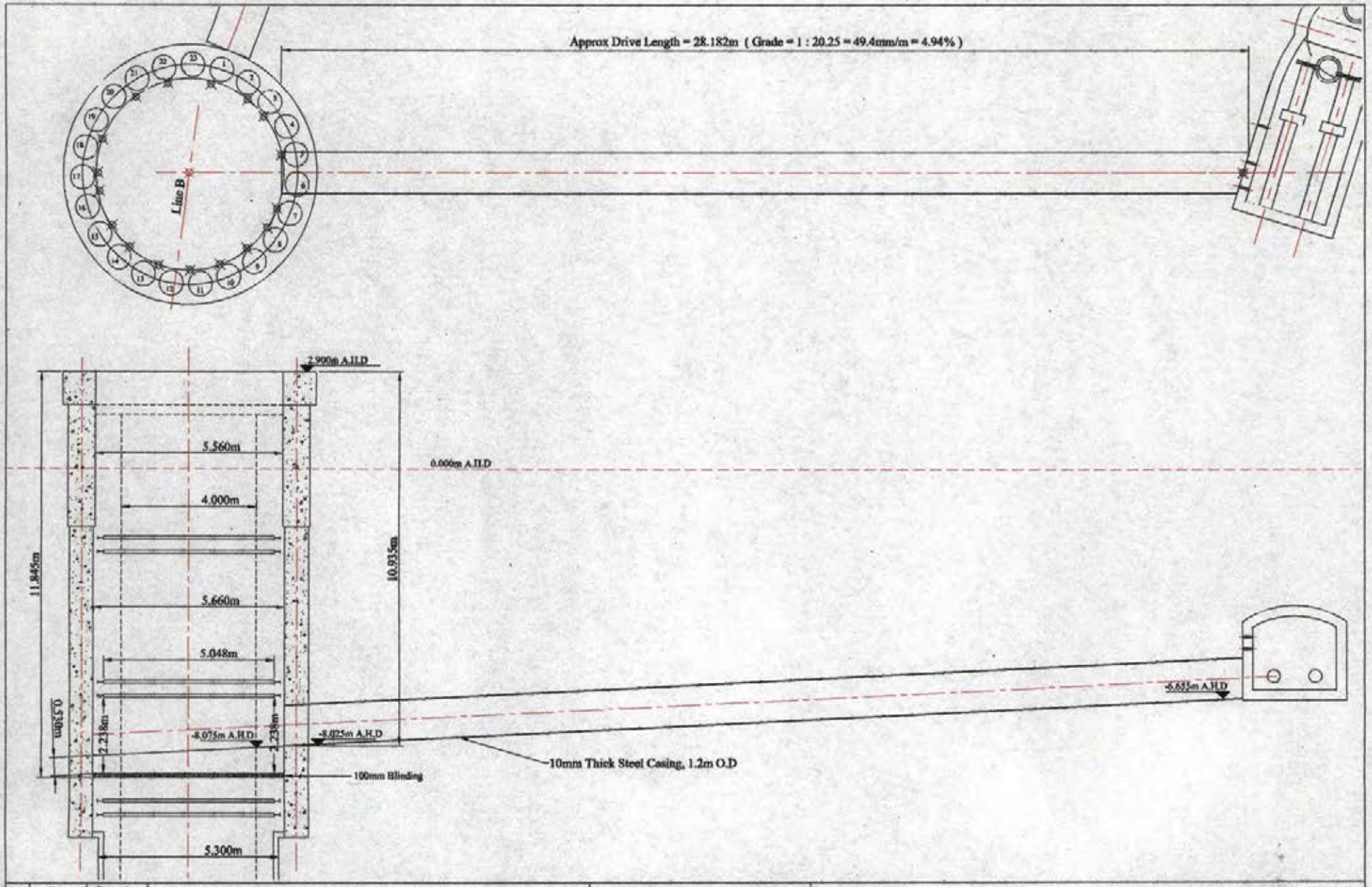
Rev	Date	Drawn by
00	22/06/05	AC

McConnell Dowell Constructors (Aust) Pty Ltd

Drawing No. DWG/7799/0027/00 **Scale** 1 : 25

Redirection of Heroes Avenue Sewage Pumping Station

Drawing Title : Line C Line Pipe Restraint Details



Rev	Date	Drawn by
01	24/05/05	AC
00	04/05/05	AC

McConnell Dowell Constructors (Aust) Pty Ltd

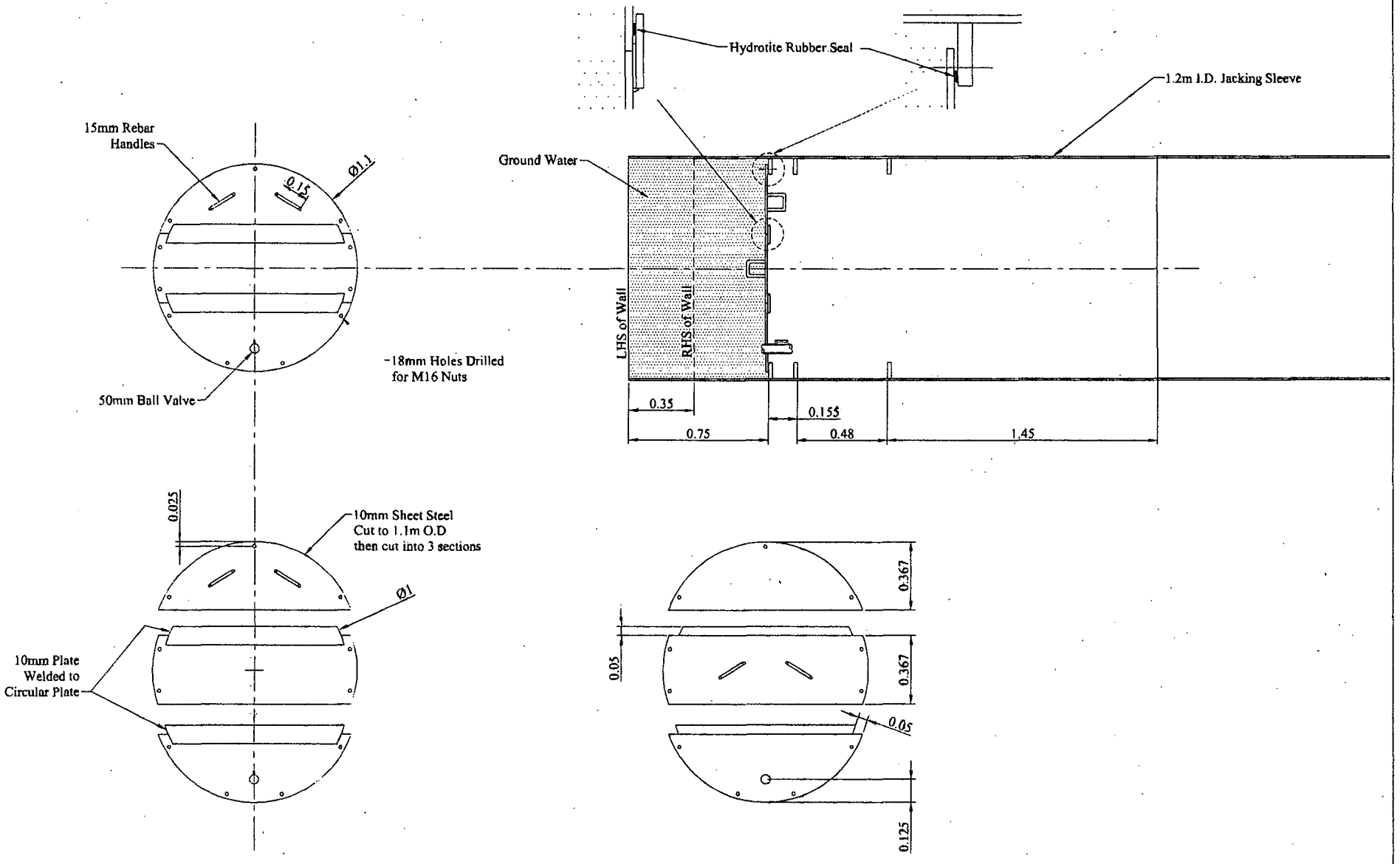
Drawing No. DWG/7799/0021/01

Scale 1 : 100

McCONNELL DOWELL

Redirection of Heroes Avenue Sewage Pumping Station

Drawing Title : Level details for Perry Line C Construction



Rev	Date	Drawn by
01	02/07/05	AC
00	01/07/05	AC

McConnell Dowell Constructors (Aust) Pty Ltd

Drawing No. DWG/7799/0033/01 **Scale** 1 : 20

Redirection of Heroes Avenue Sewage Pumping Station

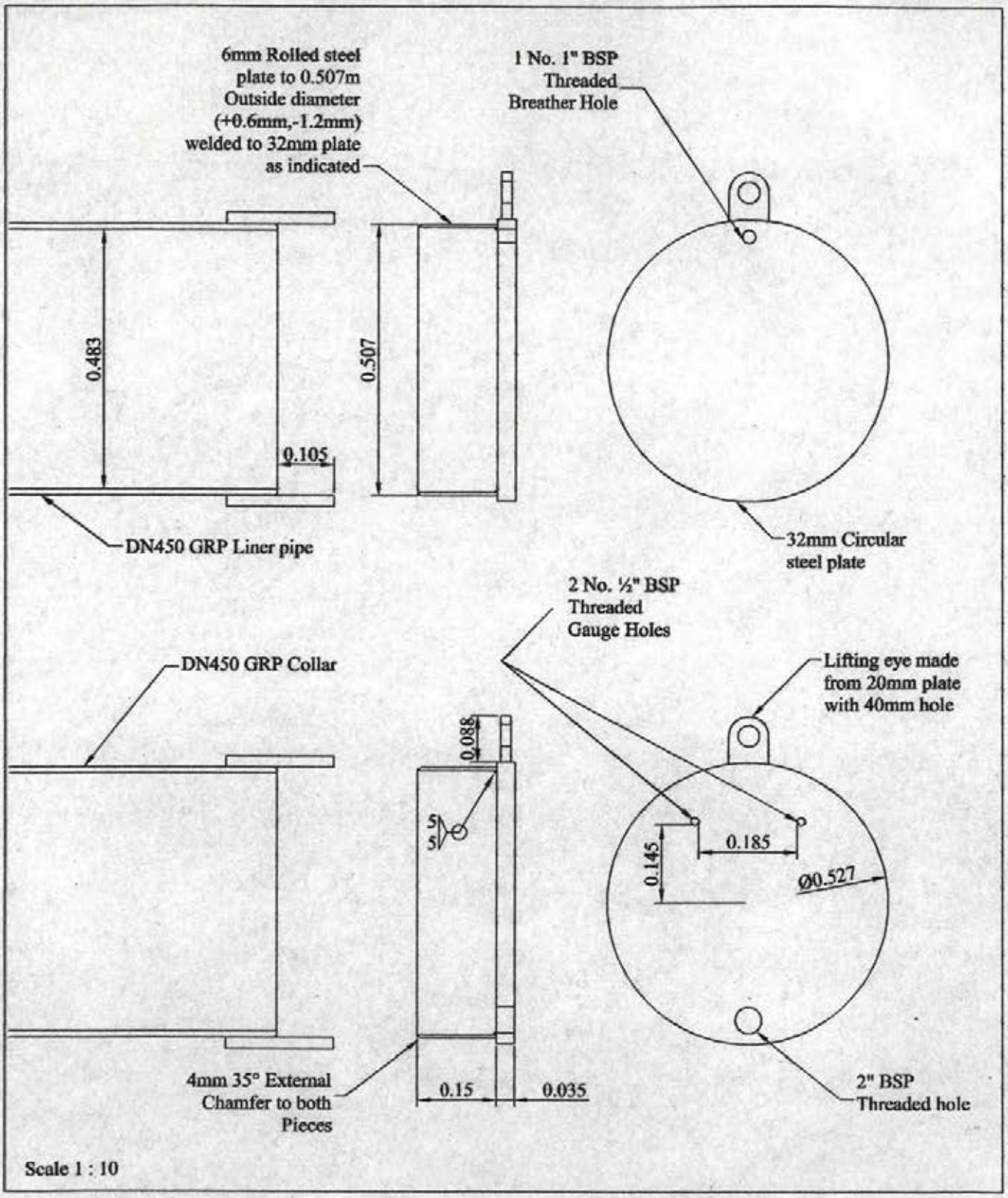
Drawing Title : Line C Steel End Plate Details .

McCONNELL DOWELL

McConnell Dowell Constructors (Aust) Pty Ltd

Sketch No. 47

DN450 Liner pipe hydrostatic test ends



Signed _____

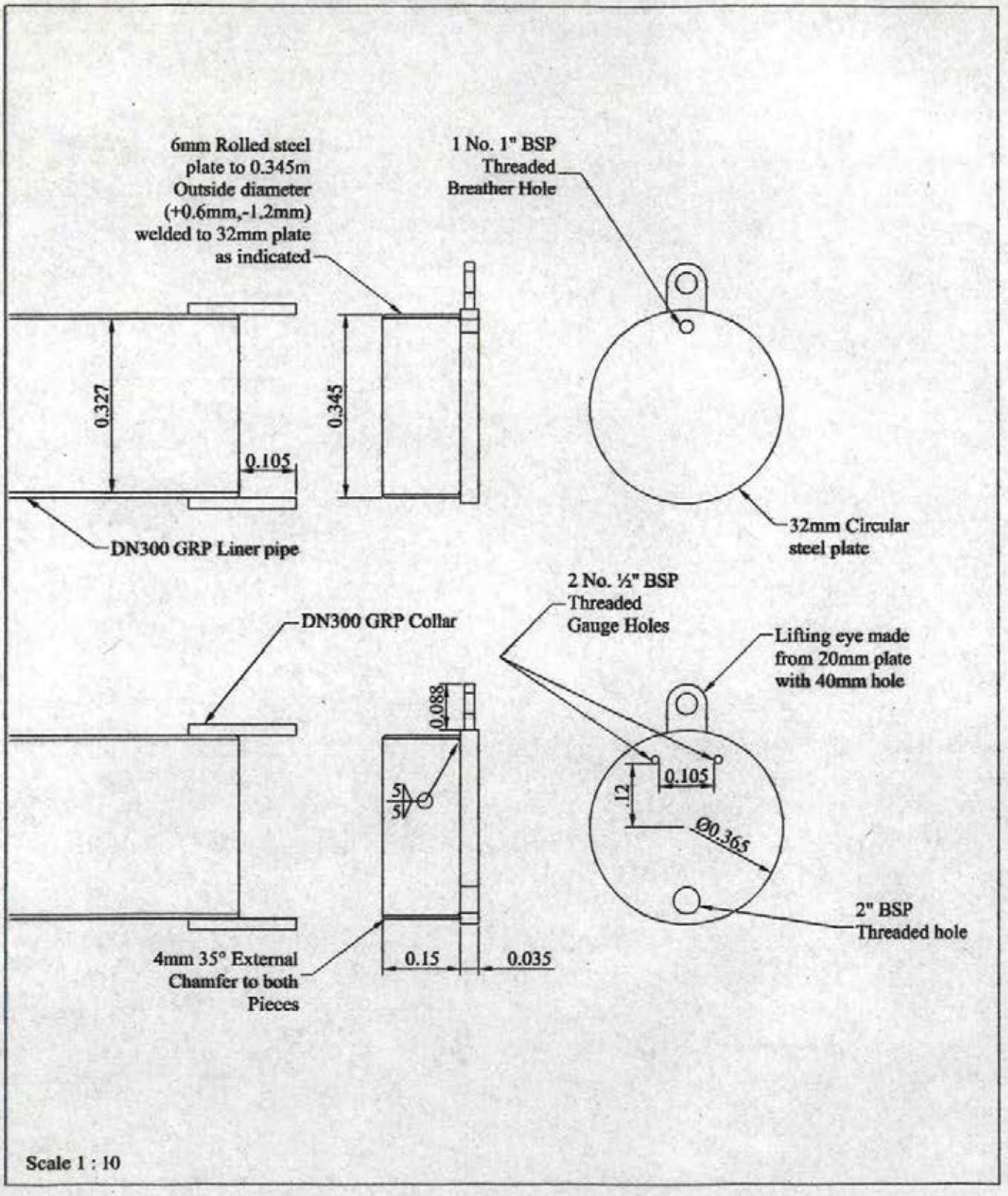
Date _____

McCONNELL DOWELL

McConnell Dowell Constructors (Aust) Pty Ltd

Sketch No. 46

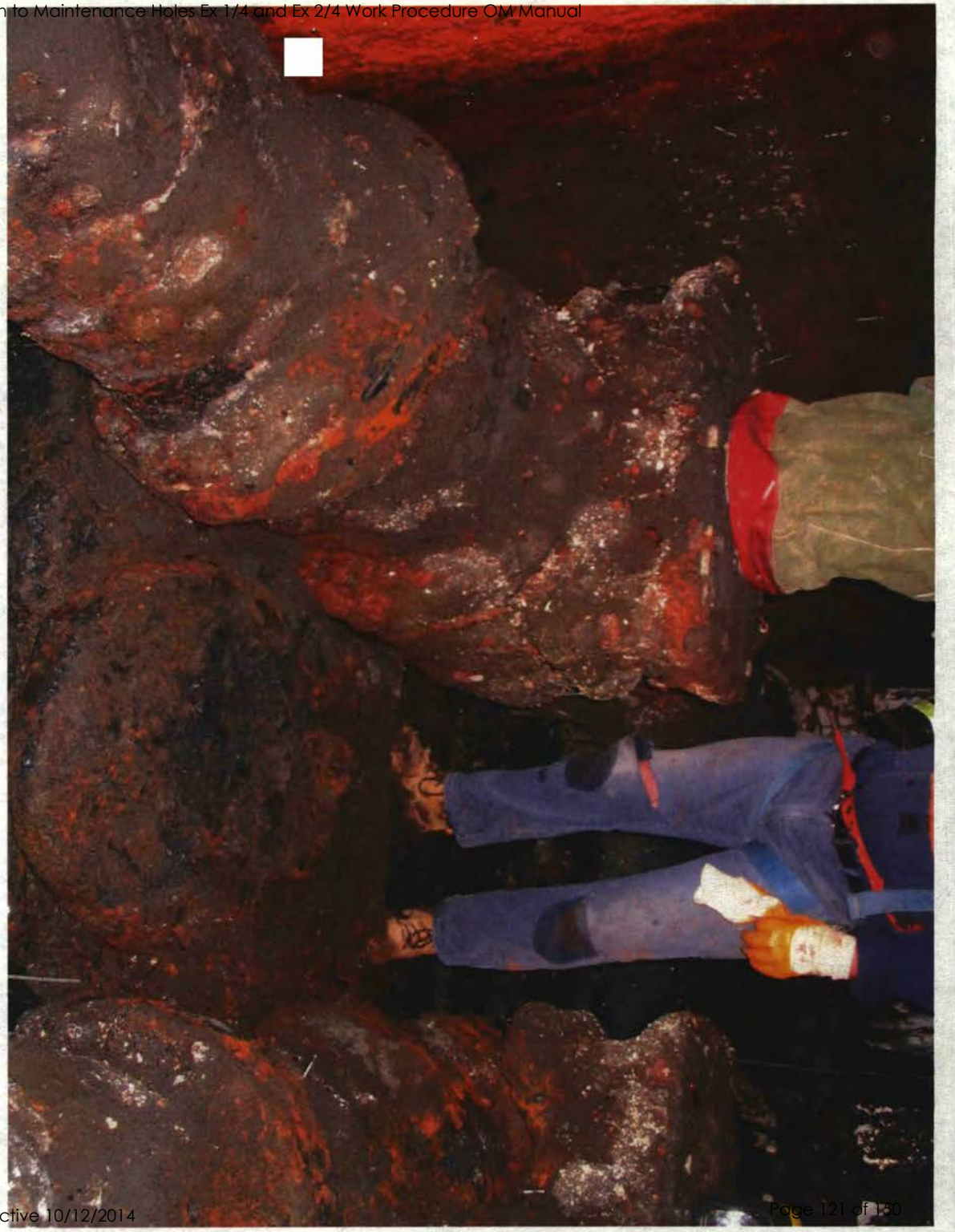
DN300 Liner pipe hydrostatic test ends

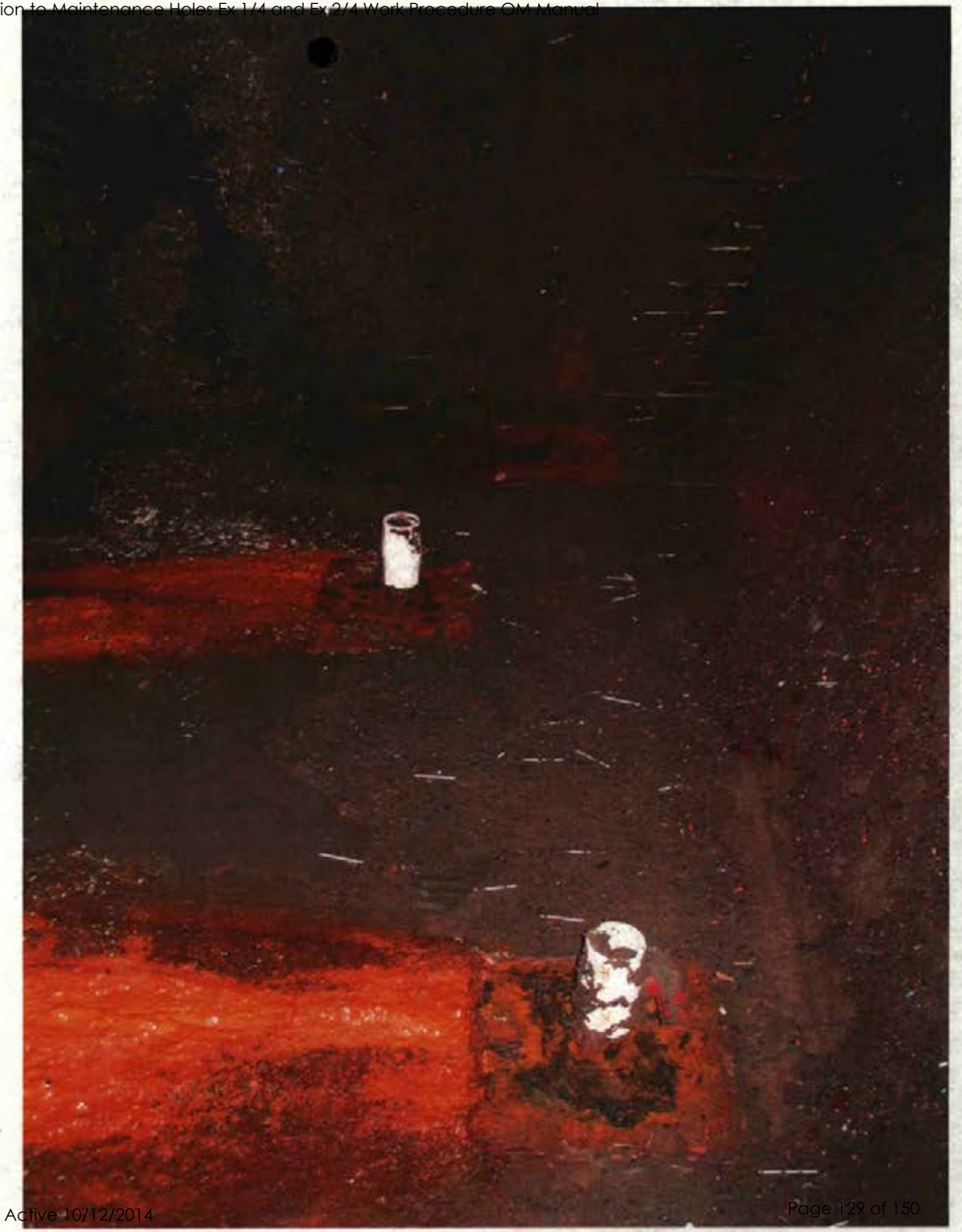


Signed _____

Date _____

- Cut GRP ?
  does this reduce strength ?
- access thru 1m high neck
  bend

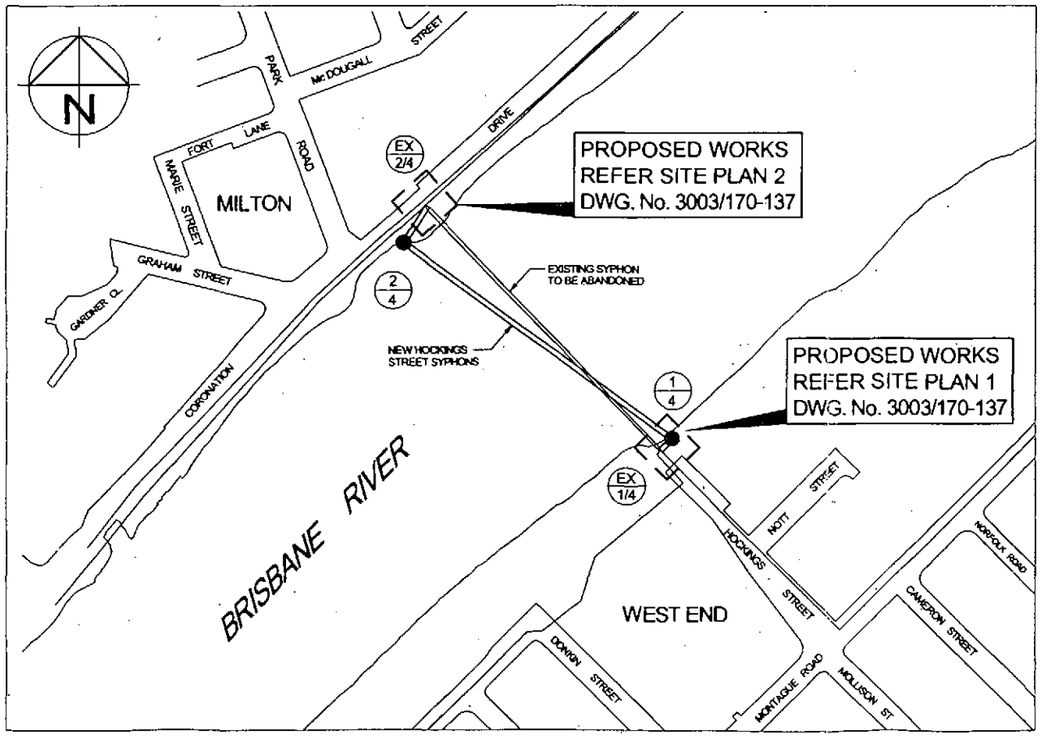




Brisbane Water

REDIRECTION OF HEROES AVENUE SEWAGE PUMP STATION

HOCKINGS STREET SYPHON LIVE SEWER CONNECTIONS TO MAINTENANCE HOLES EX. 1/4 & EX. 2/4



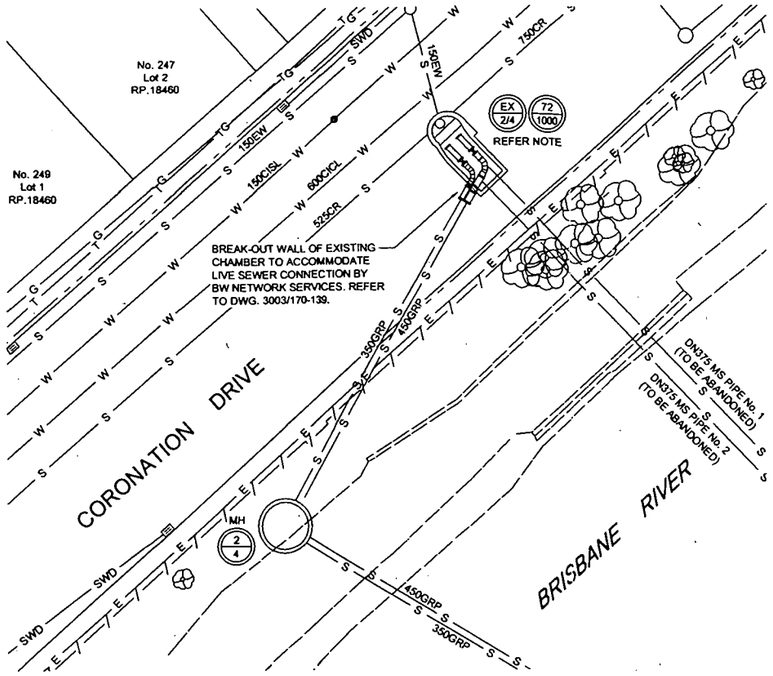
LOCALITY PLAN
SCALE 1:2500 (A1)

DRAWING LIST	
DRAWING No.	TITLE/DESCRIPTION
3003/170-136	COVER SHEET
3003/170-137	SITE PLANS 1 & 2
3003/170-138	MAINTENANCE HOLE EX. 1/4
3003/170-139	MAINTENANCE HOLE EX. 2/4 (72/1000)
~~3003/170-140~~	~~PIPE DETAILS - EX. 2/4 (72/1000)~~

20 0 20 40 60 80 100
SCALE OF METRES
1:2500 FULL SIZE A1 SHEET

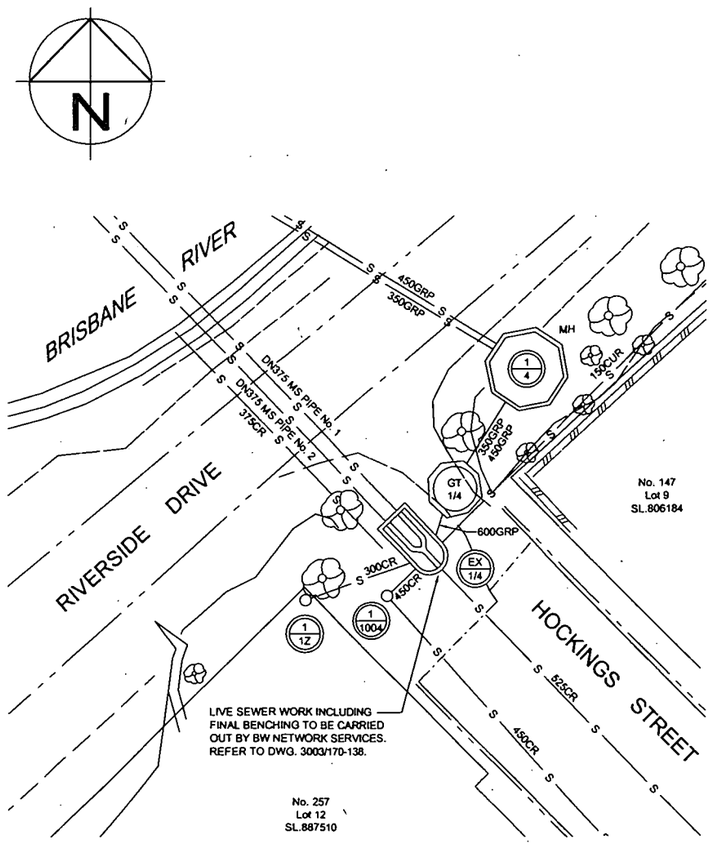
SHEET 1 OF 5 SHEETS	CADD FILE 3003170136.dwg
DESIGN MANAGER	WORKS ORDER PA001583
BRISBANE WATER DRAWING N° 3003/170-136	AMEND. A

FOR LOCALITY PLAN REFER TO DWG. No. 3003/170-136

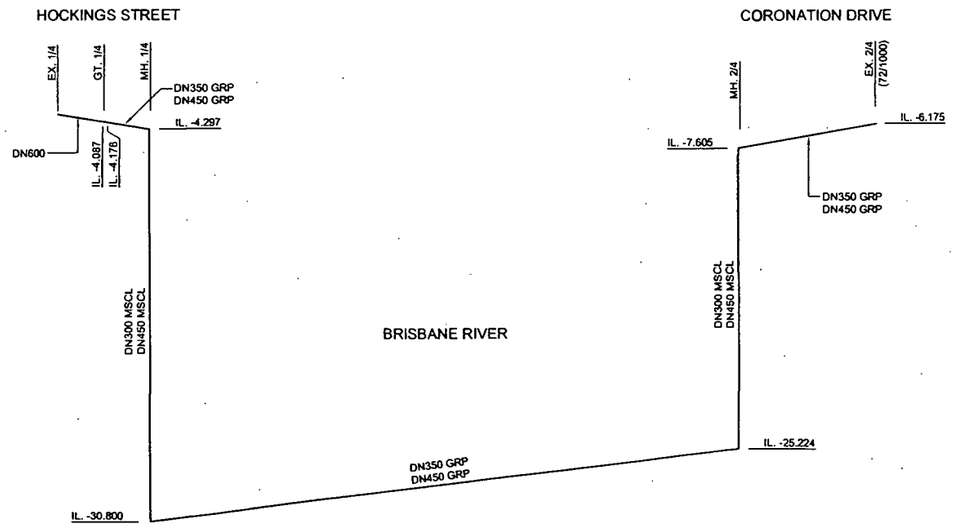


SITE PLAN 2
SCALE 1:250 (A1)

NOTE: MH 72/1000 DESIGNATED AS EX. 2/4 BY CONSULTING ENGINEERS FOR DESIGN OF NEW SYPHON ONLY.



SITE PLAN 1
SCALE 1:250 (A1)



HYDRAULIC FLOW
N.T.S.

SCALE OF METRES
1 : 250 FULL SIZE A1 SHEET

AS CONSTRUCTED
PLOTTED ..... DATE .....
CHECKED ..... DATE .....

No.	DATE	AMENDMENT	DRAFTED	APPROVED

FUNDING		DRAFTED	A. Dooley 19/6/06	ORIGINAL SIGNED BY: R. KALSI 2148 5/10/06	ORIGINAL SIGNED BY: R. JANFADA 5/10/06
DESIGN W.O. No.	PA001583	DRAFTING CHECK	R. Adamson 13/9/06	DESIGN R.P.E.Q. No. DATE	PRINCIPAL DESIGN MANAGER DATE
CONSTRUCTION W.O. No.		CAD FILE	3003170137.dwg	ORIGINAL SIGNED BY: I. BRUMBY 5/10/06	ORIGINAL SIGNED BY: M. BARTON 5/10/06
FUNDED BY B.C.C. (✓)	EXTERNAL ( )	B.C.C. FILE No.	N/A	DESIGN CHECK R.P.E.Q. No. DATE	PRODUCTION / NETWORK DELEGATE DATE

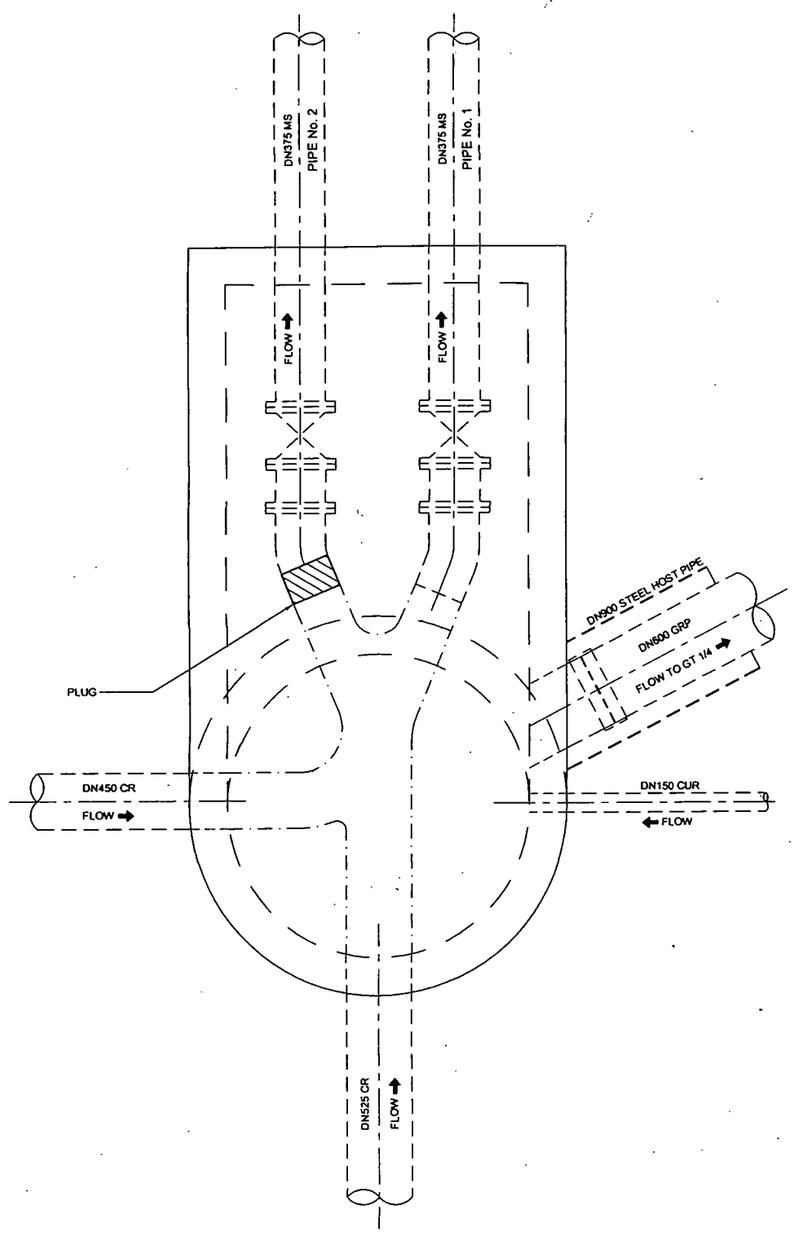
PROJECT
REDIRECTION OF HEROES AVENUE SEWAGE PUMP STATION

TITLE HOCKINGS STREET SYPHON LIVE SEWER CONNECTION DETAILS SITE PLANS 1 & 2

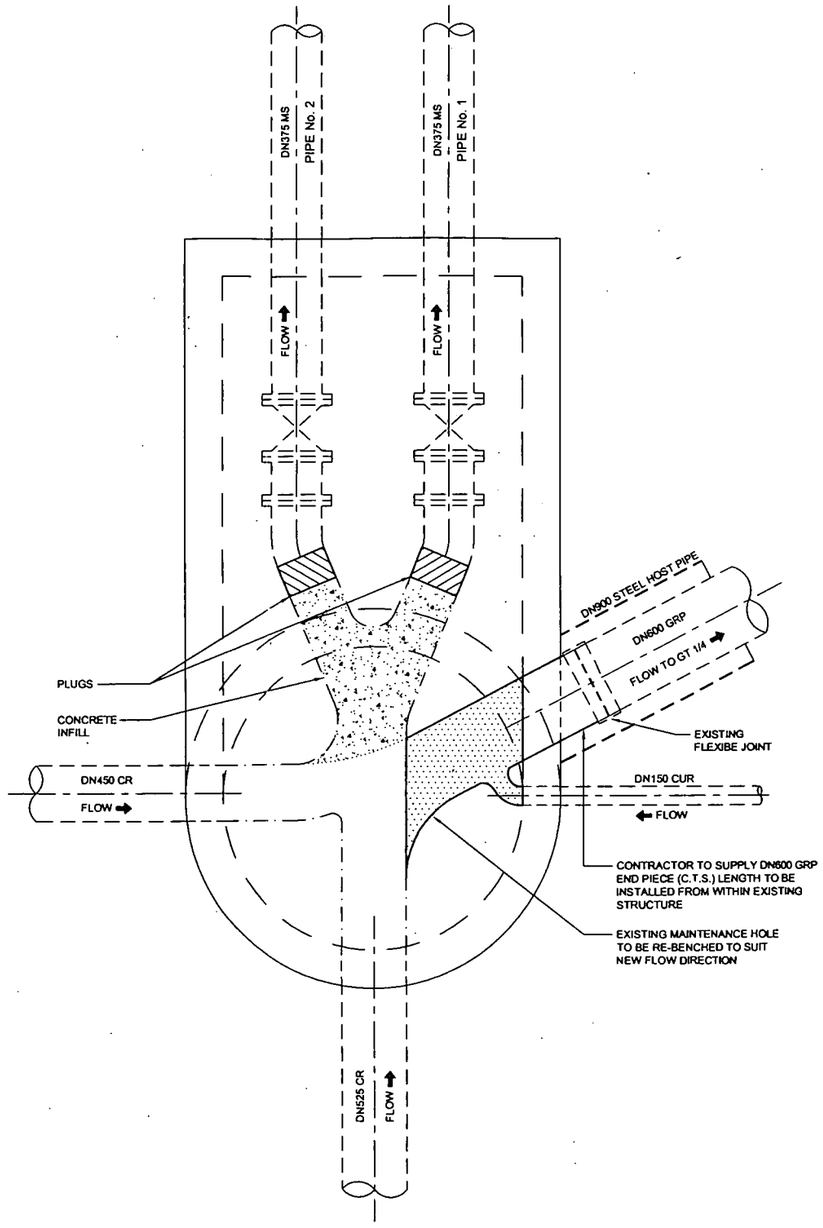
SHEET No. 2 OF 5

BRISBANE WATER DRAWING No. 3003/170-137

AMEND. O



DETAIL 1
MAINTENANCE HOLE EX. 1/4
SCALE 1:25 (A1)



DETAIL 2
MAINTENANCE HOLE EX. 1/4
SCALE 1:25 (A1)

PRE-CONSTRUCTION CHECK:

1. TONY DEBNAM OF NETWORK SERVICES REPORTED TO DES ASHCROFT OF BRISBANE WATER THAT THE EASTERN PIPE OF THE EXISTING SYPHON MIGHT BE PARTIALLY BLOCKED. TONY'S OBSERVATION WAS BASED ON OBSERVED FLOWS AT EX 2/4 WITH BOTH VALVES OPENED. THIS NEEDS TO BE CHECKED AS SOON AS POSSIBLE TO ENSURE VIABILITY OF STEP 4 BELOW.
2. ENSURE DN375 PIPES AT EX 1/4 ARE SUITABLE FOR PLUGS.

CONSTRUCTION SEQUENCE:

1. CLOSE DN350 & DN450 KNIFE GATE VALVES IN MH 2/4 (TO PREVENT BACKFLOW DURING SURCHARGE AT EX 2/4).
2. BREAK WALL IN MH EX 2/4 & REMOVE STEEL BULKHEAD, THRUST RESTRAINTS & HYDROSTATIC TEST ENDS. REFER DWG. NO. 3003/170-139 DETAIL 1. EXPECT GROUND WATER INFLOWS AFTER BREAKING THROUGH WALL. GAP BETWEEN WALL & STEEL HOST PIPE NEEDS TO BE SEALED OFF.
3. CHECK ALL RELEVANT DIMENSIONS TO ENSURE NEW PIPEWORK WILL FIT. REFER TO DWG. NO. 3003/170-139 DETAIL 2 & DWG. NO. 3003/170-140.
4. INSTALL PLUG & BLOCK FLOW INTO EXISTING DN375 PIPE NO. 2 AT MH EX 1/4 AS SHOWN ON DWG. NO. 3003/170-138 DETAIL 1. FLOW NOW THROUGH EXISTING SYPHON PIPE NO. 1.
5. CUT EXISTING PIPE NO. 2 & REMOVE PIPE UP TO VALVE. WELD DEADPLATE TO DN375 PIPE NO. 2 AS SHOWN ON DWG. NO. 3003/170-139 DETAIL 2.
6. CONNECT NEW PIPEWORK BETWEEN DN350 GRP PIPE & EXISTING DN375 PIPE NO. 2 AS SHOWN ON DWG. NO. 3003/170-139 DETAIL 2.
7. CLOSE KNIFE GATE VALVE ON DN450 PIPE AT MH 1/4 SHAFT. REFER DWG. NO. 3003/170-158 SECTION F. CLOSE DN600 KNIFE GATE VALVE AT GT 1/4.
8. BLOCK FLOW INTO EX 1/4. BREAK THROUGH WALL GROUND WATER INFLOWS LIKELY. SEAL OFF BETWEEN WALL & STEEL HOST PIPE. INSTALL DN600 GRP END PIECE SUPPLIED BY CONTRACTOR. REINSTATE CONCRETE AT BREAKTHROUGH. OPEN DN350 KNIFE GATE VALVE AT MH 2/4 & DN600 KNIFE GATE VALVE AT GT 1/4. INSTALL BENCHING IN MH EX 1/4 AS SHOWN ON DWG. NO. 3003/170-138 DETAIL 2 TO DIVERT FLOW INTO DN600 PIPE INTO NEW GT 1/4 & THEN INTO DN350 GRP PIPE THAT GOES TO MH 1/4. REFER TO DWG. NO. 3003/170-053 PLAN AT R.L. -2.840.
9. INSTALL PLUG & BLOCK FLOW INTO EXISTING DN375 PIPE NO. 1 AT MH 1/4 AS SHOWN ON DWG. NO. 3003/170-138 DETAIL 2. FLOW NOW THROUGH NEW DN300 SYPHON.
10. COMMISSION NEW DN300 SYPHON.
11. CUT EXISTING PIPE NO. 1 & REMOVE PIPE UP TO VALVE. WELD DEADPLATE TO DN375 PIPE NO. 1 AS SHOWN ON DWG. NO. 3003/170-139 DETAIL 2.
12. CONNECT NEW PIPEWORK BETWEEN DN450 GRP PIPE & EXISTING DN375 PIPE NO. 1 AS SHOWN ON DWG NO. 3003/170-139 DETAIL 2.
13. OPEN KNIFE GATE VALVE ON DN450 PIPE AT MH 1/4 SHAFT & DN450 KNIFE GATE VALVE AT MH 2/4. REFER DWG. NO. 3003/170-158 SECTION F. FLOW NOW THROUGH NEW DN300 & DN450 SYPHONS.
14. COMMISSION NEW DN450 SYPHON.
15. CONCRETE FILL DN375 PIPE NOS. 1 AND 2 AT EX 1/4 AS SHOWN ON DWG. NO. 3003/170-138 DETAIL 2.
16. COMPLETE REMAINING WORK INCLUDING REPAIR TO EXISTING WALL AT MH EX 2/4 & BACKFILL GROUT HOST PIPE.
17. INSTALL PERMANENT PLUGS AT EX 1/4 TO DN375 PIPES.

200 0 200 400 600 800 1000
SCALE OF MILLIMETRES
1 : 25 FULL SIZE A1 SHEET

AS CONSTRUCTED
PLOTTED ..... DATE .....
CHECKED ..... DATE .....

No.	DATE	AMENDMENT	DRAFTED	APPROVED

FUNDING
DESIGN W.O. No. PA001583
CONSTRUCTION W.O. No.
FUNDED BY B.C.C. (✓) EXTERNAL ( )

DRAFTED	A. Dooley 19/8/06	
DRAFTING CHECK	R. Adamson 13/9/06	
CAD FILE	3003170138.dwg	
B.C.C. FILE No.	N/A	

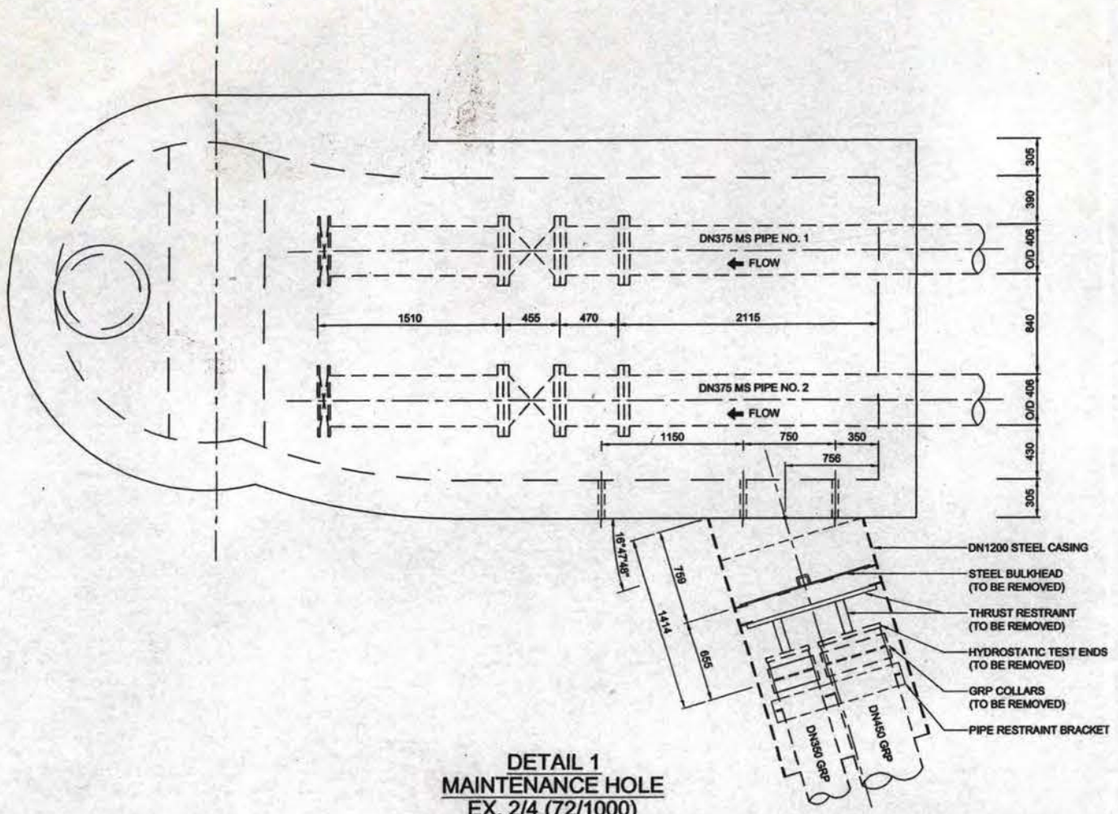
ORIGINAL SIGNED BY: R. KALSI	2148	5/10/06	
DESIGN	R.P.E.Q. No.	DATE	
ORIGINAL SIGNED BY: I. BRUMBY		5/10/06	
DESIGN CHECK	R.P.E.Q. No.	DATE	

ORIGINAL SIGNED BY: R. JANFADA	5/10/06
PRINCIPAL DESIGN MANAGER	DATE
ORIGINAL SIGNED BY: M. BARTON	5/10/06
PRODUCTION / NETWORK DELEGATE	DATE

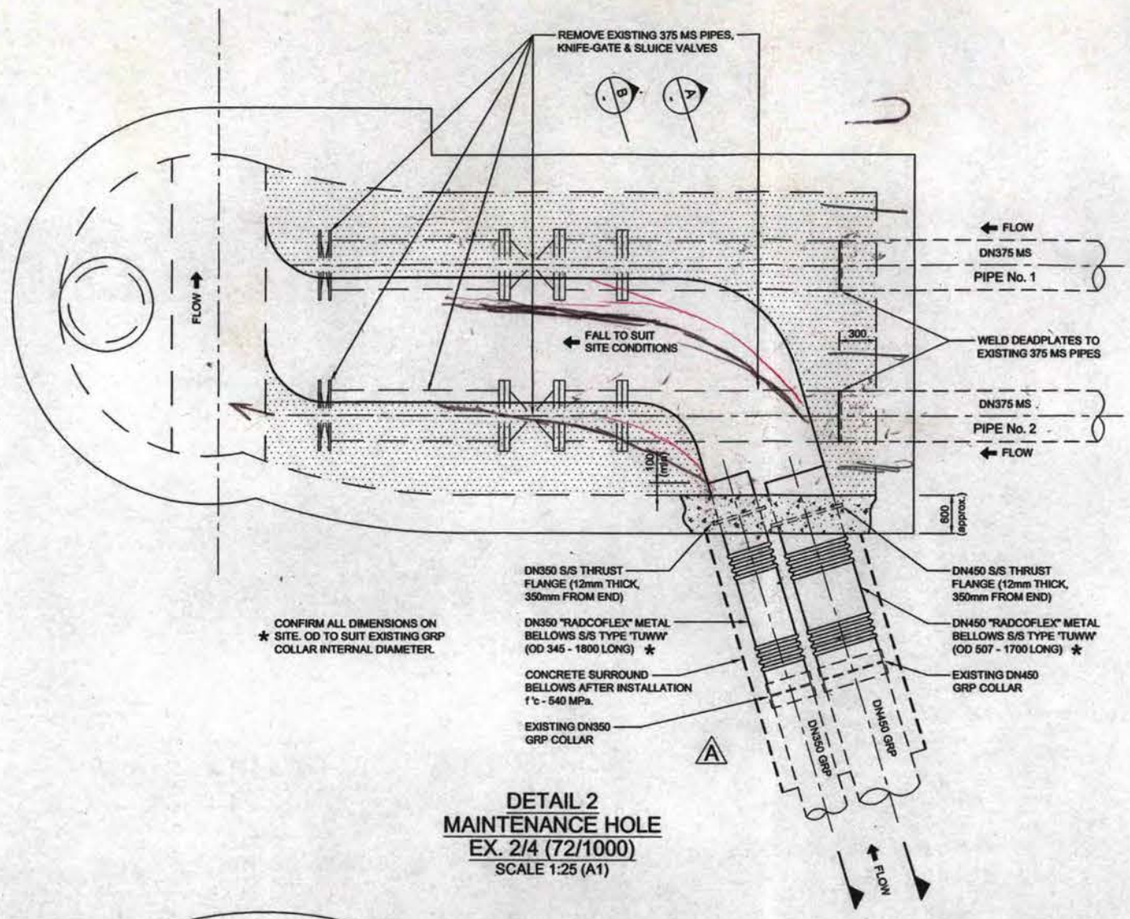
PROJECT
REDIRECTION OF HEROES AVENUE SEWAGE PUMP STATION

TITLE HOCKINGS STREET SYPHON LIVE SEWER CONNECTION DETAILS MAINTENANCE HOLE EX. 1/4

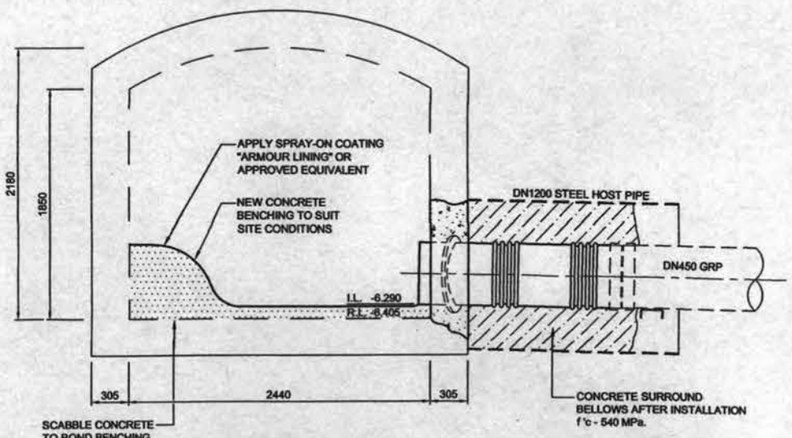
SHEET No. 3 OF 5
BRISBANE WATER DRAWING No. 3003/170-138
AMEND. O



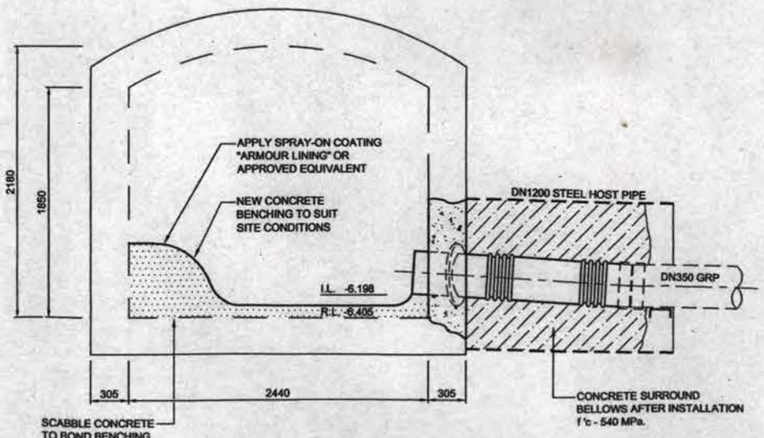
DETAIL 1
MAINTENANCE HOLE
EX. 2/4 (72/1000)
SCALE 1:25 (A1)



DETAIL 2
MAINTENANCE HOLE
EX. 2/4 (72/1000)
SCALE 1:25 (A1)



SECTION A
SCALE 1:25 (A1)



SECTION B
SCALE 1:25 (A1)

200 0 200 400 600 800 1000
SCALE OF MILLIMETRES
1 : 25 FULL SIZE A1 SHEET

AS CONSTRUCTED
PLOTTED ..... DATE .....
CHECKED ..... DATE .....

No.	DATE	AMENDMENT	DRAFTED	APPROVED
A	11/06	RADCOFLEX METAL BELLOWS ADDED	AKD	RK

FUNDING
DESIGN W.O. No. PA001583
CONSTRUCTION W.O. No.
FUNDED BY B.C.C. (✓) EXTERNAL ( )

DRAFTED	A. Dooley	19/6/06	
DRAFTING CHECK	R. Adamson	13/9/06	
CAD FILE	3003170139.dwg		
B.C.C. FILE No.	N/A		
DESIGN CHECK		R.P.E.Q. No.	DATE

ORIGINAL SIGNED BY: R. KALSI 2148 5/10/06
DESIGN R.P.E.Q. No. DATE
ORIGINAL SIGNED BY: I. DRUMMY 5/10/06
DESIGN CHECK R.P.E.Q. No. DATE

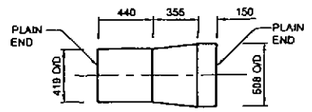
ORIGINAL SIGNED BY: R. JANFADA 5/10/06
PRINCIPAL DESIGN MANAGER DATE
ORIGINAL SIGNED BY: M. BARTON 5/10/06
PRODUCTION / NETWORK DELEGATE DATE

BRISBANE WATER

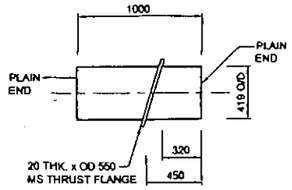
PROJECT
REDIRECTION OF HEROES AVENUE SEWAGE PUMP STATION

TITLE
HOCKINGS STREET SYPHON LIVE SEWER CONNECTION DETAILS MAINTENANCE HOLE EX. 2/4 (72/1000)

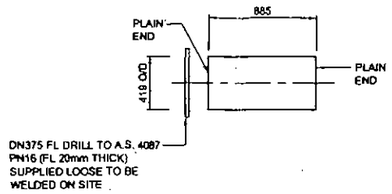
SHEET No. 4 OF 4
BRISBANE WATER DRAWING No. 3003/170-139
AMEND. A



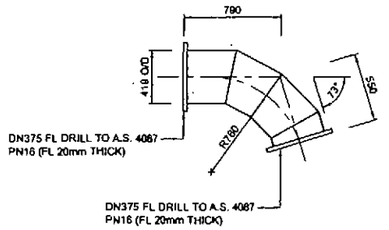
PIPE No. 6
MATERIAL: DN375-450 MILD STEEL
EXT. & INT. COATING: MEDIUM DENSITY FUSION BONDED POLYETHYLENE
WEIGHT: 57 kg (approx.)
SCALE 1:25 (A1)



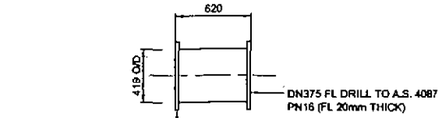
PIPE No. 7
MATERIAL: DN375 MILD STEEL
EXT. & INT. COATING: MEDIUM DENSITY FUSION BONDED POLYETHYLENE
WEIGHT: 71 kg (approx.)
SCALE 1:25 (A1)



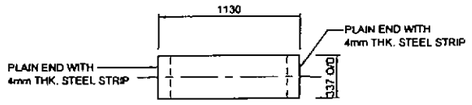
PIPE No. 8
MATERIAL: DN375 MILD STEEL
EXT. & INT. COATING: MEDIUM DENSITY FUSION BONDED POLYETHYLENE
WEIGHT: 65 kg (approx.)
SCALE 1:25 (A1)



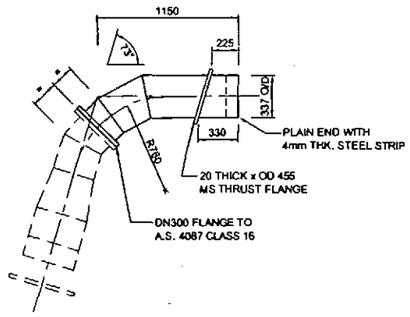
PIPE No. 9
MATERIAL: DN375 MILD STEEL
EXT. & INT. COATING: MEDIUM DENSITY FUSION BONDED POLYETHYLENE
WEIGHT: 95 kg (approx.)
SCALE 1:25 (A1)



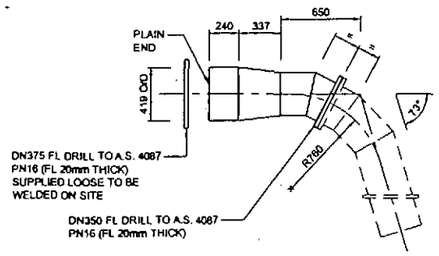
PIPE No. 10
MATERIAL: DN375 MILD STEEL
EXT. & INT. COATING: MEDIUM DENSITY FUSION BONDED POLYETHYLENE
WEIGHT: 65 kg (approx.)
SCALE 1:25 (A1)



PIPE No. 3
MATERIAL: DN350 MILD STEEL
EXT. & INT. COATING: MEDIUM DENSITY FUSION BONDED POLYETHYLENE
WEIGHT: 51 kg (approx.)
SCALE 1:25 (A1)



PIPE No. 4
MATERIAL: DN350 MILD STEEL
EXT. & INT. COATING: MEDIUM DENSITY FUSION BONDED POLYETHYLENE
WEIGHT: 79 kg (approx.)
SCALE 1:25 (A1)



PIPE No. 5
MATERIAL: DN350-375 MILD STEEL
EXT. & INT. COATING: MEDIUM DENSITY FUSION BONDED POLYETHYLENE
WEIGHT: 75 kg (approx.)
SCALE 1:25 (A1)

NOTE: REFER CONSTRUCTION SEQUENCE
NOTE No. 3 ON DRAWING No. 3003/170-138.

PIPE DIMENSIONS			
NOM. DIA.	O.D.	STEEL THICK.	I.D.
350	337	5	327
375	419	5	409
450	508	5	498

DELETED

200 0 200 400 600 800 1000
SCALE OF MILLIMETRES
1 : 25 FULL SIZE A1 SHEET

AS CONSTRUCTED
PLOTTED ..... DATE .....
CHECKED ..... DATE .....

No.	DATE	AMENDMENT	DRAFTED	APPROVED
A	11/06	DRAWING DELETED		RK

FUNDING
DESIGN W.O. No. PA001583
CONSTRUCTION W.O. No.
FUNDED BY B.C.C. (✓) EXTERNAL ( )

DRAFTED	A. Dooley	19/6/06	
DRAFTING CHECK	R. Adamson	13/9/06	
CAD FILE	3003170.dwg		
B.C.C. FILE No.	N/A		

ORIGINAL SIGNED BY: R. KALSI 248 5/10/06
DESIGN R.P.E.Q. No. DATE
ORIGINAL SIGNED BY: I. BRUMPY 5/10/06
DESIGN CHECK R.P.E.Q. No. DATE

ORIGINAL SIGNED BY: R. JANFADA 5/10/06
PRINCIPAL DESIGN MANAGER DATE
ORIGINAL SIGNED BY: M. BARTON 5/10/06
PRODUCTION / NETWORK DELEGATE DATE

BRISBANE WATER

PROJECT
REDIRECTION OF HEROES AVENUE SEWAGE PUMP STATION

TITLE
HOCKINGS STREET SYPHON
LIVE SEWER CONNECTION
DETAILS
PIPE DETAILS - EX. 2/4 (72/1000)

SHEET No. 5 OF 5
BRISBANE WATER DRAWING No. 3003/170-140
AMEND. A

McCONNELL DOWELL

McCONNELL DOWELL CONSTRUCTORS (AUST) PTY LTD

REDIRECTION OF HEROES AVENUE SEWAGE STATION

PROJECT NUMBER - 7799

Hobas GRP Pipe Dimension Summary

Pipe Dimensions

DN	DE (od)	Class 4 SN 5,000		Class 6 SN 5,000		Class 6 SN 10,000		Class 10 SN 5,000		Class 10 SN 10,000	
	(mm)	thickness (mm)	Mass (kg/m)	thickness (mm)	Mass (kg/m)	thickness (mm)	Mass (kg/m)	thickness (mm)	Mass (kg/m)	thickness (mm)	Mass (kg/m)
300	345	7	13	7	12	10	16	7	12	8	15
375	426	8	20	8	19	11	24	8	18	10	23
450	507	10	27	10	27	13	34	9	26	12	32
525	587	11	37	11	36	15	46	11	34	13	43
600	667	13	48	12	46	17	59	12	43	15	55
675	747	14	60	14	58	19	74	13	54	17	68
750	826	15	74	15	70	20	90	14	65	18	83
900	924	17	93	17	88	23	112	16	81	20	103
1000	1026	19	114	18	107	25	137	18	100	22	127
1200	1229	22	162	22	153	30	195	21	142	26	181

DN	DE (od)	Class 12.5 SN 5,000		Class 12.5 SN 10,000		Class 16 SN 10,000		Class 20 SN 10,000		Class 25 SN 10,000	
	(mm)	thickness (mm)	Mass (kg/m)	thickness (mm)	Mass (kg/m)	thickness (mm)	Mass (kg/m)	thickness (mm)	Mass (kg/m)	thickness (mm)	Mass (kg/m)
300	345	7	13	8	14	8	14	8	14	8	14
375	426	8	20	10	22	10	21	10	21	10	20
450	507	9	27	11	32	11	30	11	29	11	28
525	587	11	37	13	42	13	40	13	39	13	37
600	667	12	48	15	54	14	51	14	49		
675	747	13	60	16	67	16	64				
750	826	15	74	18	82	17	78				
900	924	16	93	20	101	19	97				
1000	1026	17	97	22	124	21	118				
1200	1229	21	139	26	177	25	169				

Coupling Dimensions

DN	Class<6		Class 10		Class 12.5, 16		Class 20		Class 25	
	DEC (o/d) mm	Mass kg	DEC (o/d) mm	Mass kg	DEC (o/d) mm	Mass kg	DEC (o/d) mm	Mass kg	DEC (o/d) mm	Mass kg
300	386	6	386	6	386	6	386	6	390	8
375	467	8	467	8	467	8	467	8	471	10
450	548	9	548	9	548	9	548	9	552	13
525	629	10	629	10	632	11	637	16	642	18
600	708	12	708	13	715	17	722	20		
675	785	13	785	14	795	21				
750	867	21	867	22	878	27				
900	966	23	966	25	978	30				
1000	1068	25	1068	29	1084	39				
1200	1271	30	1271	37	1294	47				

Line Summary

	Nominal Bore	Nominal Diameter	Pipe Class	Pressure Class	Pipe i.d	Pipe o.d	Coupling o.d
EX 1/4 to GT 1/4	600 NB	DN 600	SN 10,000	PN 12.5	637 mm	667 mm	708 mm
Line A, B & C	350 NB	DN 300	SN 10,000	PN 12.5	329 mm	345 mm	386 mm
	450 NB	DN 450	SN 10,000	PN 12.5	485 mm	507 mm	548 mm
Line E/F & G	600 NB	DN 600	SN 10,000	PN 10	637 mm	667 mm	708 mm

27/11/2006 10:38 AM

Hobas Pipe Dimension Summary.xls

3.2.2 *Pipe Materials, Classes and Diameters*

The following information represents a summary of the liner pipe requirements for the various sections of the pipeline. The Tenderer shall refer to the Technical Schedules of the Request for Tender for full details.

350 NB – Line A

	GRP	PE	ABS
Nominal Diameter	DN 300	DN 400	DN 350
Internal Diameter	327mm	340mm	313mm
Pipe Class	SN 10000	PE 100	S1 (Duraflo)
Pressure Class	~~Non-Pressure~~ PN 12.5	PN 12.5	PN 12

450 NB – Line A

	GRP	PE	ABS
Nominal Diameter	DN 450	DN 560	DN 450
Internal Diameter	483mm	476mm	427mm
Pipe Class	SN 10000	PE 100	S1 (Duraflo)
Pressure Class	~~Non-Pressure~~ PN 12.5	PN 12.5	PN 12

350 NB – Lines B and C

	GRP	PE	ABS
Nominal Diameter	DN 300	DN 400	DN 350
Internal Diameter	327mm	340mm	313mm
Pipe Class	SN 10000	PE 100	S1 (Duraflo)
Pressure Class	PN 12.5	PN 12.5	PN 12

450 NB – Lines B and C

	GRP	PE	ABS
Nominal Diameter	DN 450	DN 560	DN 450
Internal Diameter	483mm	476mm	427mm
Pipe Class	SN 10000	PE 100	S1 (Duraflo)
Pressure Class	PN 12.5	PN 12.5	PN 12

600 NB – Lines E, F and G

	GRP	PE
Nominal Diameter	DN 600	DN 710

	GRP	PE
Internal Diameter	637mm	624mm
Pipe Class	SN 10000	PE 100
Pressure Class	PN 10	PN 10

For liner pipe materials other than those listed above, the internal diameters, stiffness and pressure ratings are to be at least equivalent to the above requirements.

The Contractor shall complete in full the Liner Pipe Detail schedules in Section C of this RFT. The information provided shall clearly describe the proposed pipe materials, pressure classes, stiffness classes, jointing methods etc. as required in the schedules such that the proposed installation is clearly defined.

3.2.3 *Valves, Specials and Fittings*

All valves, tapers, flanges, fasteners and fittings to be installed under this Contract shall be stainless steel grade 316. Flange drilling shall be in accordance with AS 4087.

3.2.4 *Restraint of Liner Pipe*

The liner pipe shall be adequately secured within the host pipe and chambers to resist all forces resulting from installation, testing and grouting. The Contractor shall design all pipe supports, restraints and thrust blocks such that any deflections, stresses and strains induced by installation, testing and grouting are within allowable limits as specified by the pipe manufacturer. In the event of a spigot & socket system being offered, intermediate supports shall be introduced between collars to comply with the pipe manufacturer's requirements.

The Contractor shall submit with his Tender a method statement clearly describing the proposed methods of restraint.

The cost of design, supply and installation of such restraint system shall be included in the Tendered Price.

3.2.5 *Grouting Around Liner Pipe*

The Contractor shall completely fill the annular space between the host pipe and the liner pipe with a neat cement grout or other approved filler material. The grout/filler installation shall be in accordance with Clause 3.4 of the Specification.

The design for the grout/filler shall give due consideration to, but not be restricted to the following considerations: