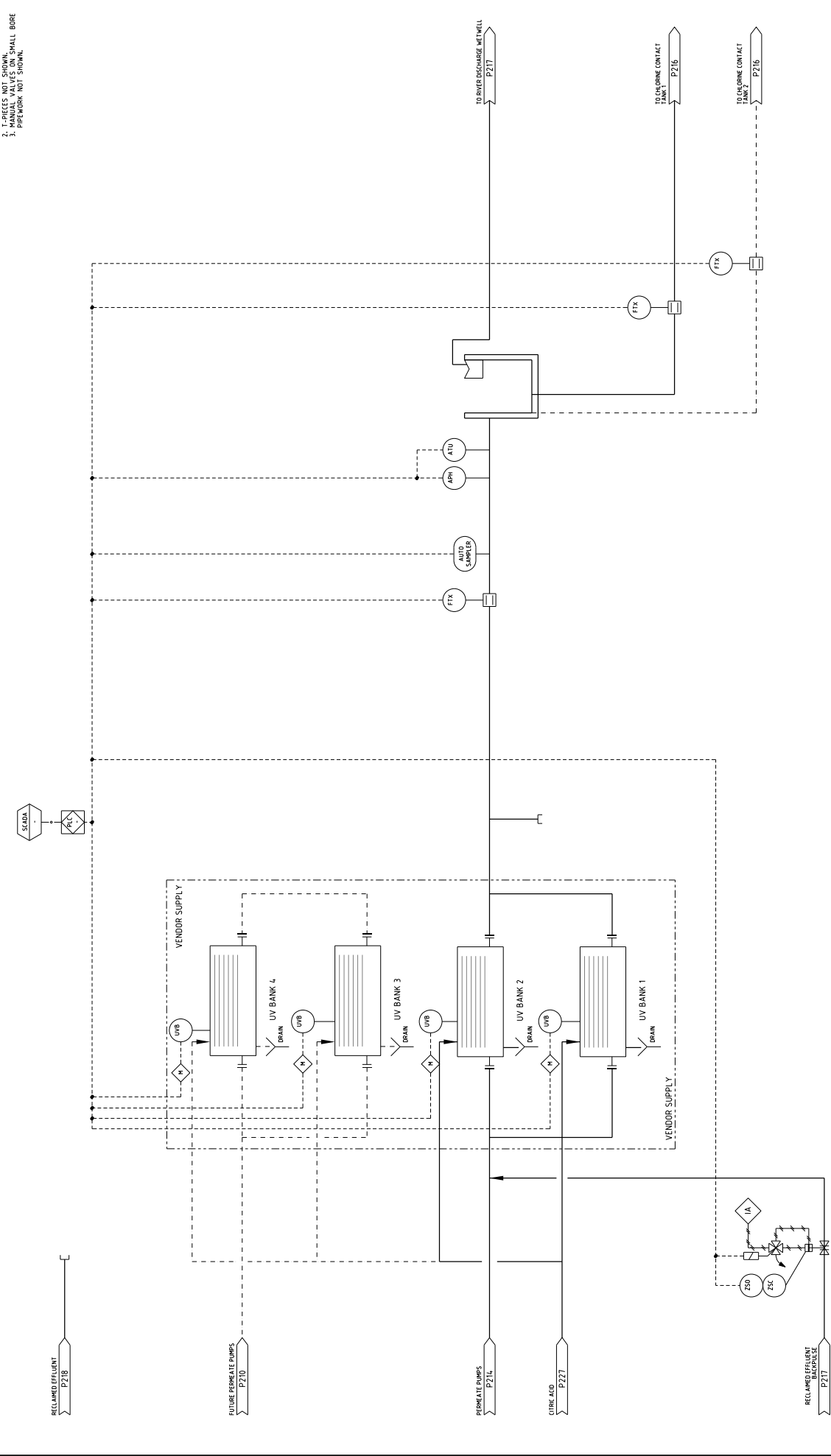


**NOTES**

1. FLANGES NOT SHOWN.
2. T-PIECES NOT SHOWN.
3. PIPEWORK NOT SHOWN.



**PRELIMINARY NOT FOR CONSTRUCTION**

PROJECT: GOOGONG INTEGRATED WATER CYCLE  
 TITLE: PIPING AND INSTRUMENTATION DIAGRAM  
 WATER RECYCLING PLANT  
 UV SYSTEM  
 SIZE: A1  
 SCALE: NTS  
 DRAWING NO: A10814.02-P215  
 REV. A



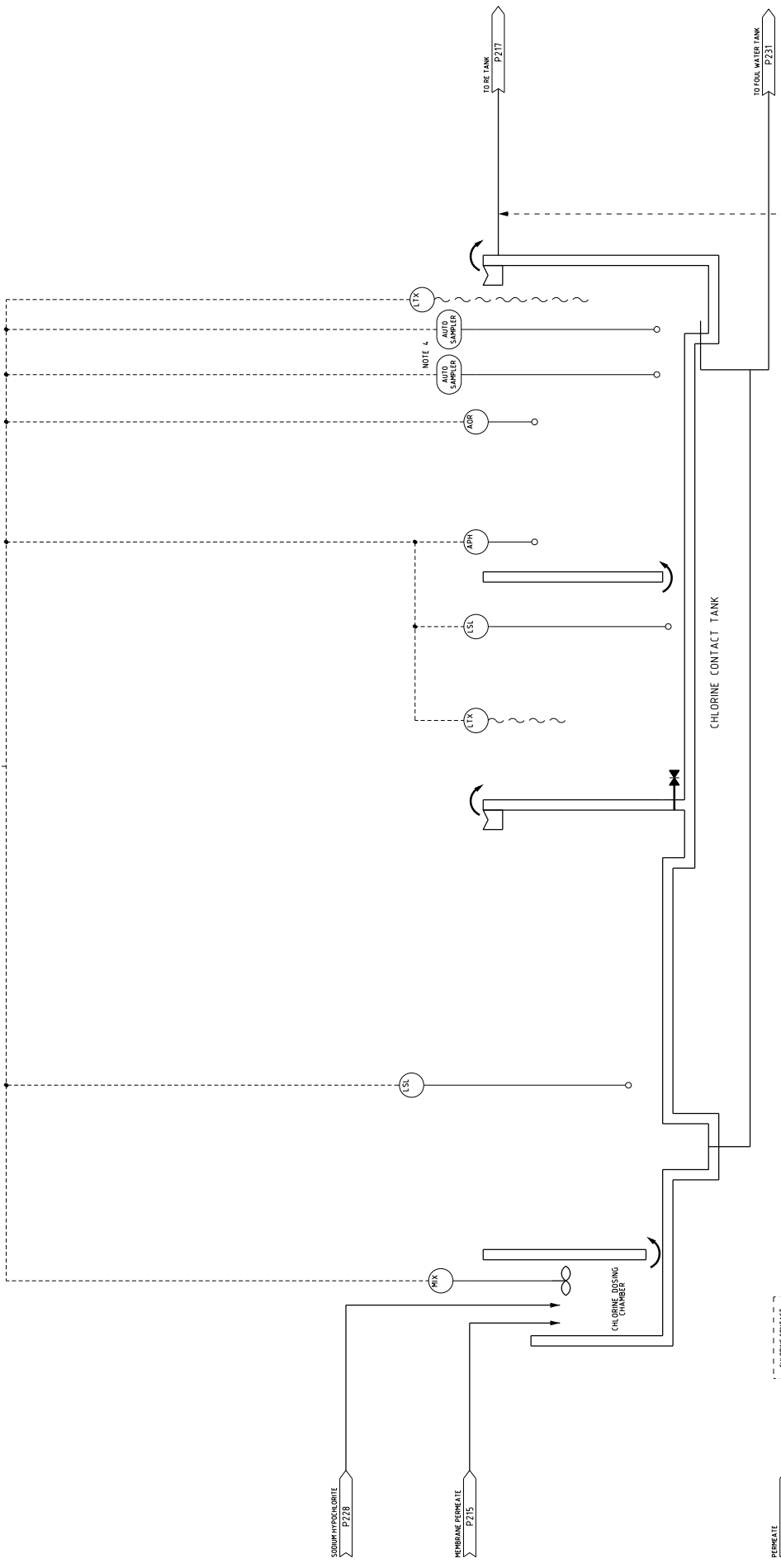
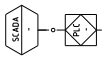
REVIEW	NAME	SIGNATURE	DATE
DESIGN CHECK			
DESIGN CHECK			
ROLL CHANGES			

Approval of the name of this document certifies that the information contained herein is true and correct to the best of the knowledge of the author at the time of preparation of this report. The author warrants that the information contained herein is true and correct to the best of the knowledge of the author at the time of preparation of this report. It is not intended to constitute a contract or any other legal instrument.

REV.	DATE	DESCRIPTION	INITIAL	DATE	CHECKED	DATE	APPROVED
A	03.11.09	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	BP	03.11.09	

**NOTES**

1. FLANGES NOT SHOWN.
2. T-PIECES NOT SHOWN.
3. PIPEDRINK NOT SHOWN.
4. PROVIDE CONTROL SIGNALS AND POWER TO ALL INSTRUMENTS BY CABLEWAY. PROVIDE FLOOR FACED CONNECTIONS TO ALL INSTRUMENTS.



RECLAIM EFFLUENT  
P2718

**PRELIMINARY NOT FOR CONSTRUCTION**

PROJECT:	GOOGONG INTEGRATED WATER CYCLE
PROCESS:	PIPING AND INSTRUMENTATION DIAGRAM WATER RECYCLING PLANT CHLORINE CONTACT TANK
SCALE:	A1 NTS
DRAWING NO.:	A10814.02-P2716
REV.:	A

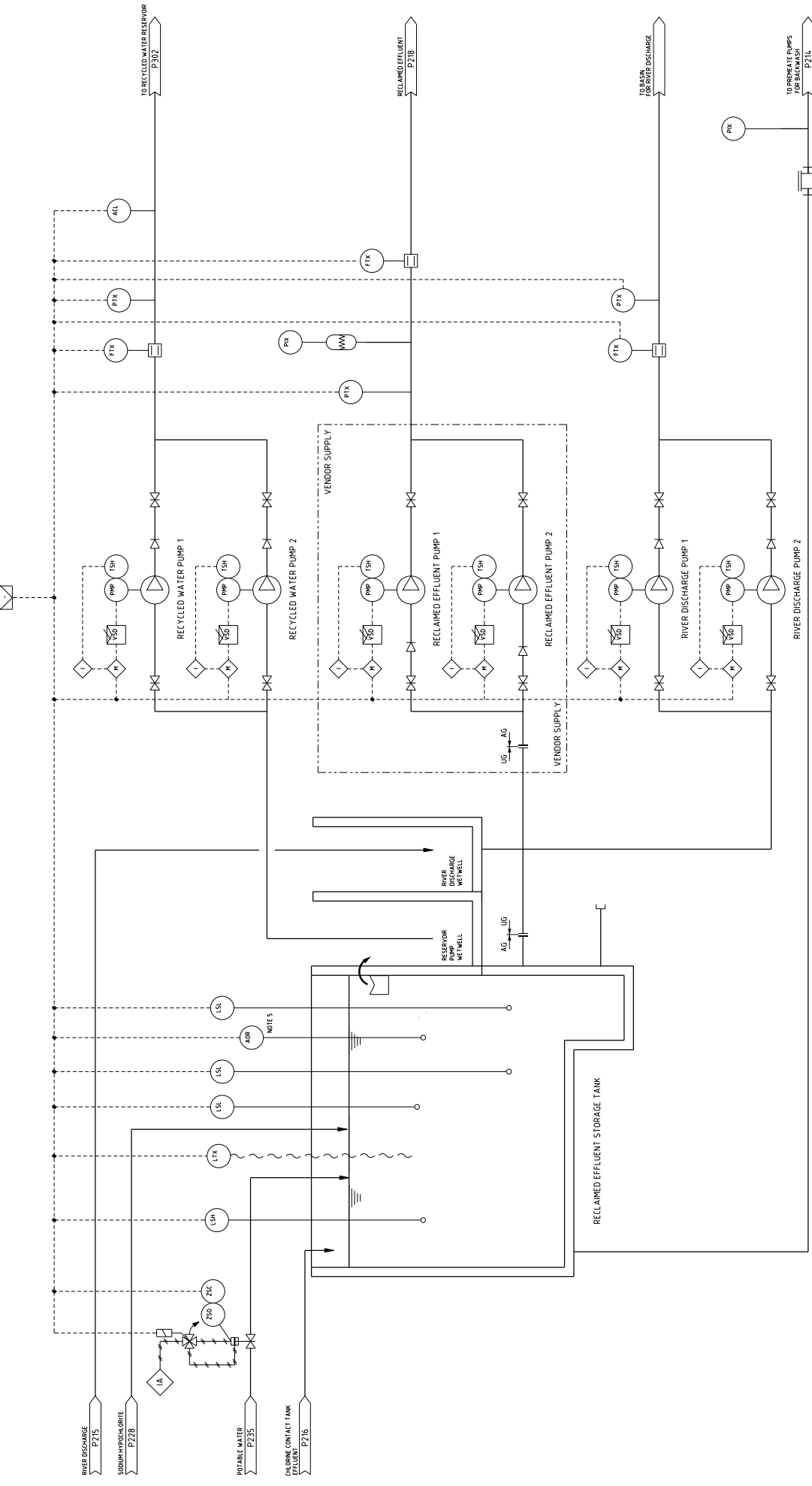


REVIEW	NAME	SIGNATURE	DATE
DESIGN CHECK			
DESIGN CHECK			
DESIGN CHECK			
DESIGN CHECK			
DESIGN CHECK			

Representation of the scope of work of this document is provided as an overview of the project. The information, data and design contained herein are preliminary and subject to change without notice. It is not intended for use for construction purposes. For more information, please contact the project manager.

REV.	DATE	DESCRIPTION	INITIAL	DATE	APPROVED	DESCRIPTION	INITIAL	DATE	APPROVED
A	03.11.09	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	BP				

- NOTES**
1. FLANGES NOT SHOWN.
  2. ALL VALVES TO BE 150MM.
  3. MANUAL VALVES ON SMALL BORE PIPEWORK NOT SHOWN.
  4. ALL VALVES TO BE 150MM.
  5. PORTABLE RESIDUAL CHLORINE ANALYSER TO BE PROVIDED.



**PROJECT:** GOOGONG INTEGRATED WATER CYCLE  
**CLIENT:** GOOGONG INTEGRATED WATER CYCLE  
**PIPING AND INSTRUMENTATION DIAGRAM**  
**WATER RECLAIMED PLANT**  
**RECLAIMED EFFLUENT STORAGE AND RESERVOIR PUMPING STATION**  
**SCALE:** A1  
**NTS**  
**DRAWING NO.:** A10814.02-P217  
**REV.:** A

**PRELIMINARY NOT FOR CONSTRUCTION**

**MWH**  
 BUILDING A BETTER WORLD  
 39-11 CHAMBERS STREET, SUITE 1901, SYDNEY NSW 1585 AUSTRALIA  
 TEL: 61 2 9103 7000 FAX: 61 2 9103 7999

REVIEW	NAME	SIGNATURE	DATE
DESIGN CHECK			
DESIGN CHECK			
PROJ. MANAGER			

Approval of the name of this document certifies that the information contained herein is true and correct to the best of the knowledge of the signatory at the time of signing. It does not constitute a warranty or any other form of assurance. The signatory is not responsible for any errors or omissions in this document.

INITIAL	DATE	APPROVED

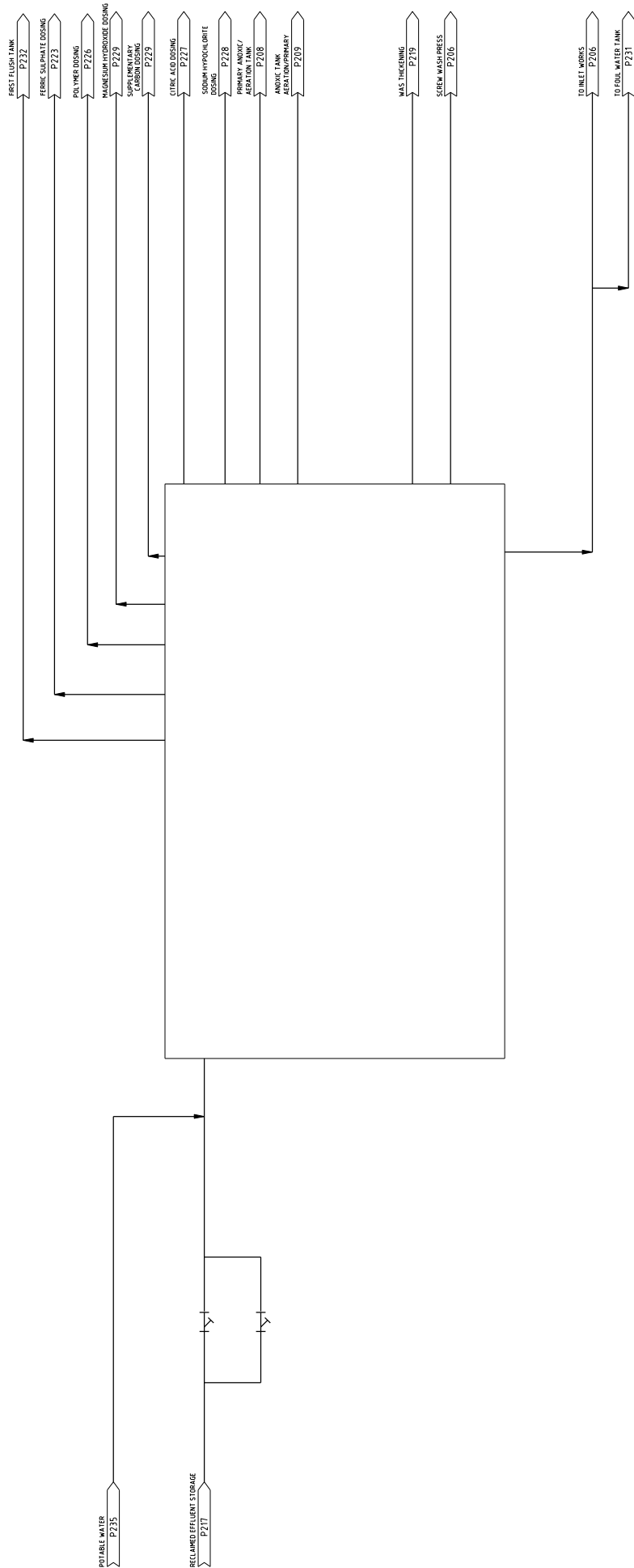
REVISION	DESCRIPTION	DATE

REV.	DATE	APPROVED	DESCRIPTION
A	03.11.09	BP	ISSUED FOR CONCEPT DESIGN REPORT

REV.	DATE	APPROVED	DESCRIPTION

**NOTES**

1. FLANGES NOTE SHOWN.
2. ALL VALVES SHALL BE SMALL BORE
3. MANUAL VALVES ON SMALL BORE PIPEWORK NOT SHOWN.



**PRELIMINARY NOT FOR CONSTRUCTION**

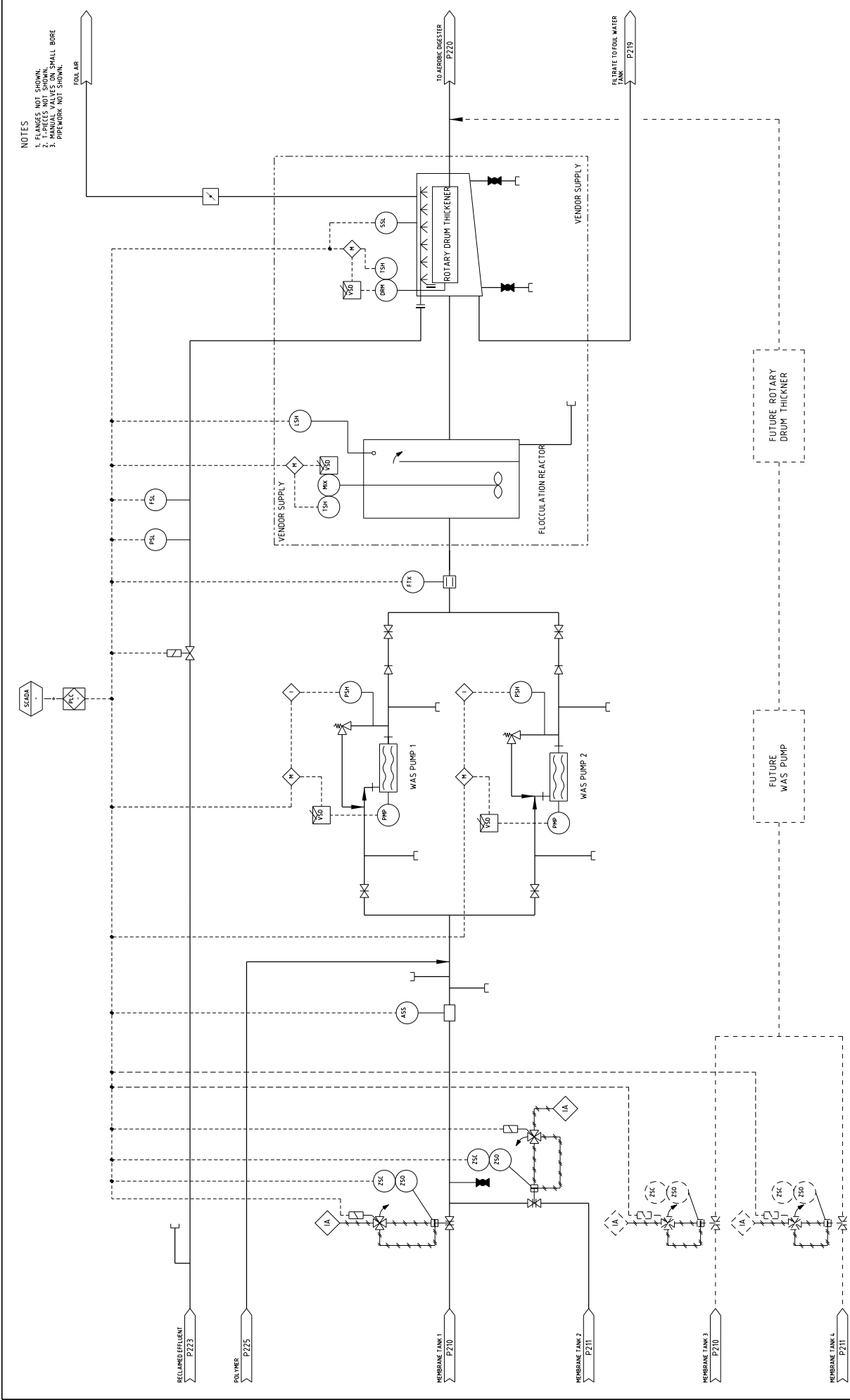
PROJECT: **GOOGONG INTEGRATED WATER CYCLE**  
 TITLE: **PIPING AND INSTRUMENTATION DIAGRAM RECLAIMED EFFLUENT STORAGE**  
 SIZE: A1 SCALE: NTS DRAWING NO: **A10814.02-P18** REV: A



**MWH**  
 BUILDING A BETTER WORLD  
 39-41 CHANDOS STREET AUSTRALIA  
 ABN: 51 885 774 601  
 TEL: 02 931 9200 FAX: 02 939 9799

REV	DATE	DESCRIPTION	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	RP	03.11.09	RP	03.11.09	RP	03.11.09	RP	03.11.09	RP	03.11.09	RP	03.11.09	RP
REV	DATE	DESCRIPTION	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	RP	03.11.09	RP	03.11.09	RP	03.11.09	RP	03.11.09	RP	03.11.09	RP	03.11.09	RP

Approval of the above or part of this document constitutes an acceptance of responsibility for information, design and drawings contained hereon. It is not intended to constitute a contract or any other legal instrument. It is not a substitute for a contract or any other legal instrument.



NOTES  
 1. FLANGES NOT SHOWN.  
 2. T-PIECES NOT SHOWN.  
 3. INSTRUMENTATION SMALL BORE  
 PIPEWORK NOT SHOWN.

PROJECT: GOOGONG INTEGRATED WATER CYCLE	
TITLE: PIPING AND INSTRUMENTATION DIAGRAM WATER RECYCLING PLANT WAS THICKENING	
SCALE: A1	DRAWING NO: A10814.02-P219
SIZE: NTS	REV: A



**PRELIMINARY NOT FOR CONSTRUCTION**

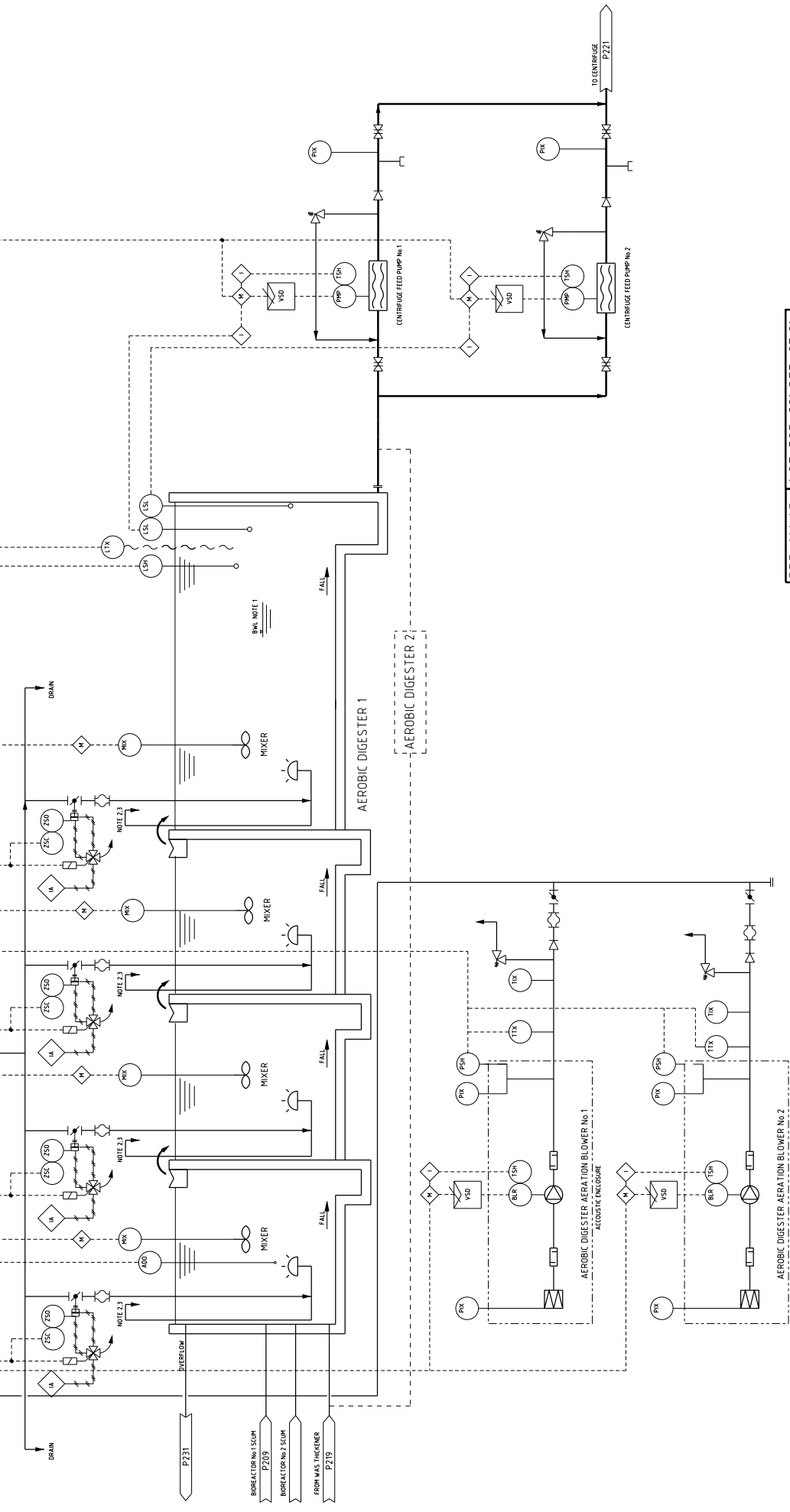
REVIEW	NAME	SIGNATURE	DATE
ISSUED FOR CONSTRUCTION			
DESIGN CHECK			
DESIGN CHECK			
PROJ. MANAGER			

INITIAL	DATE	APPROVED

REVISION	DESCRIPTION	DATE	REV.
A	ISSUED FOR CONCEPT DESIGN REPORT	03.11.09	RP

REVISION	DESCRIPTION	DATE	REV.
A	ISSUED FOR CONCEPT DESIGN REPORT	03.11.09	RP

- NOTES**
1. BKL TO BE A MINIMUM OF 0.3m ABOVE DIFFUSERS. BKL VALVES TO HAVE EXTENDED SPINDLES AND BE OPERABLE FROM WALKWAY.
  2. BKL TO BE A MINIMUM OF 0.3m ABOVE DIFFUSERS. BKL VALVES TO HAVE EXTENDED SPINDLES AND BE OPERABLE FROM WALKWAY.
  3. BLEED LINES TO DISCHARGE 50mm
  4. FLANGES NOT SHOWN.
  5. T-PIECES NOT SHOWN.
  6. PIPENWORK NOT SHOWN.



REVISION		DATE	DESCRIPTION	APPROVED	DATE	APPROVED	DATE	DESCRIPTION	APPROVED	DATE	DESCRIPTION
A	03.11.09	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	BP	03.11.09	REV.	03.11.09	REV.	03.11.09	REV.
REV.	DATE	DESCRIPTION	DATE	APPROVED	DATE	APPROVED	DATE	DESCRIPTION	DATE	APPROVED	DATE

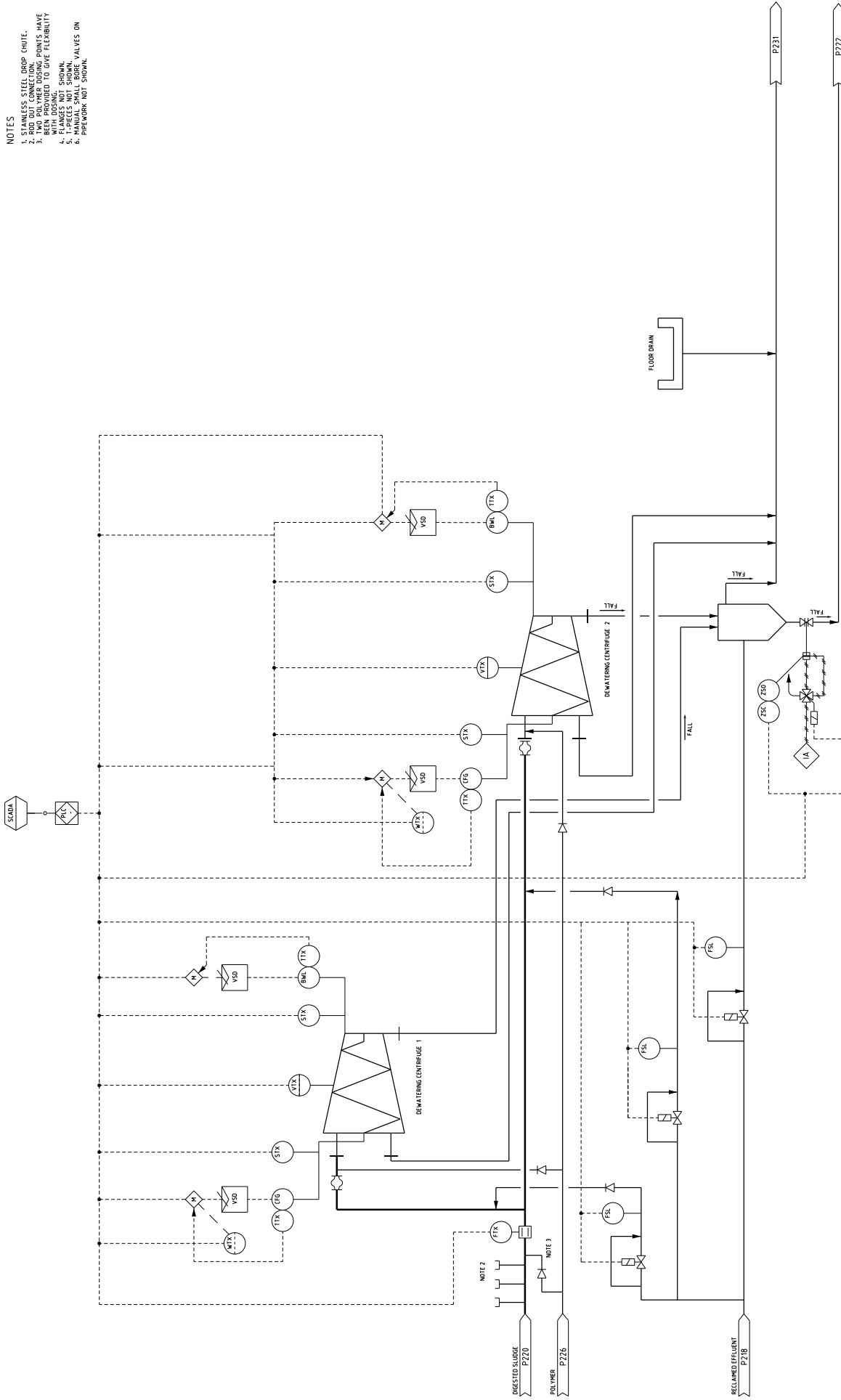
  

REVIEW	NAME	SIGNATURE	DATE
DESIGN			
CHECK			
DESIGN			
ROLL			

<b>MWH</b>		<b>PRELIMINARY NOT FOR CONSTRUCTION</b>	
BUILDING A BETTER WORLD		CLIENT	
30-11 CHANDOS STREET, AUSTRALIA		PROJECT: GOOGONG INTEGRATED WATER CYCLE	
TEL: 02 931 9700 FAX: 02 931 9799		PIECE: PIPING AND INSTRUMENTATION DIAGRAM	
		AEROBIC DIGESTER	
		SCALE: A1 NTS	
		DRAWING NO: A10814.02-P220	
		REV. A	

- NOTES**
1. UNLESS STATED, ERSP CHUTE.
  2. RFD DUCT CONNECTION.
  3. TWO POLYMER DOSING POINTS HAVE BEEN PROVIDED TO GIVE FLEXIBILITY WITH DOSING.
  4. FLANGES NOT SHOWN.
  5. MANHOLES NOT SHOWN.
  6. MANUAL SMALL BORE VALVES ON PIPEWORK NOT SHOWN.



**PRELIMINARY NOT FOR CONSTRUCTION**

**PROJECT:** GOOGONG INTEGRATED WATER CYCLE  
**PIECE:** PIPING AND INSTRUMENTATION DIAGRAM  
**SLUDGE DEWATERING - CENTRIFUGE**

**SCALE:** A1 NTS  
**DRAWING NO.:** A10814.02-P221  
**REV.:** A



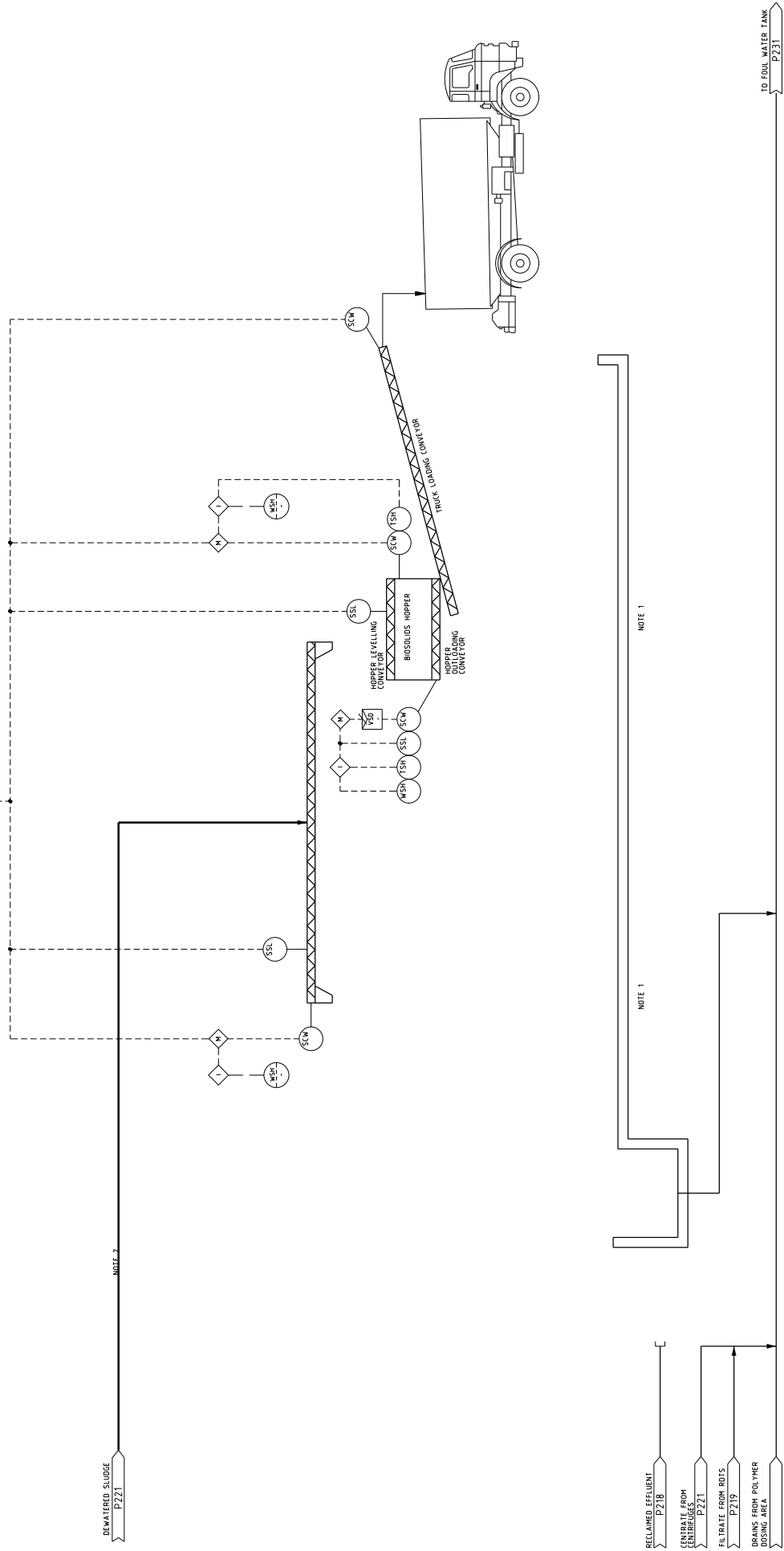
**MWH**  
**BUILDING A BETTER WORLD**  
 ABN: 51 485 774 401  
 30-11 CHARDOS STREET, AUSTRALIA  
 TEL: 61 431 1202 FAX: 61 431 1999

REVIEW	NAME	SIGNATURE	DATE
DRAWING CHECK			
DESIGN CHECK			
DESIGN CHECK			
PROJ. MANAGER			

Approval of the name of this document certifies its use in accordance with the conditions of the contract. It does not constitute an endorsement or approval of the design or the quality of the work. For more information please refer to the contract documents.

REV.	DATE	DESCRIPTION	INITIAL	DATE	APPROVED
A	03.11.09	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	BP

- NOTES**
1. LIDS, LOAD CELLS POSITIONED UNDER
  2. STAINLESS STEEL, DRIP CHUTE.
  3. REVERSIBLE CONVEYOR.
  4. 1.5% SLOPE.
  5. 1.5% SLOPE.
  6. MANUAL VALVES ON SMALL BORE PIPEWORK NOT SHOWN.



REV.	DATE	DESCRIPTION	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	BP	03.11.09	REV.	DATE	DESCRIPTION	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	BP	03.11.09	REV.	DATE	DESCRIPTION
A	03.11.09	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	BP	03.11.09												

**PRELIMINARY NOT FOR CONSTRUCTION**

**MWH**  
BUILDING A BETTER WORLD

39-41 CHANDOS STREET, AUSTRALIA  
TEL: 02 831 9700 FAX: 02 831 9799

**AUSTRALIA**  
Communities in the making

PROJECT: GOOGONG INTEGRATED WATER CYCLE  
TITLE: PIPING AND INSTRUMENTATION DIAGRAM  
SLUDGE DEWATERING - UNLOADING  
SCALE: A1 NTS  
DRAWING NO: A10814.02-P222

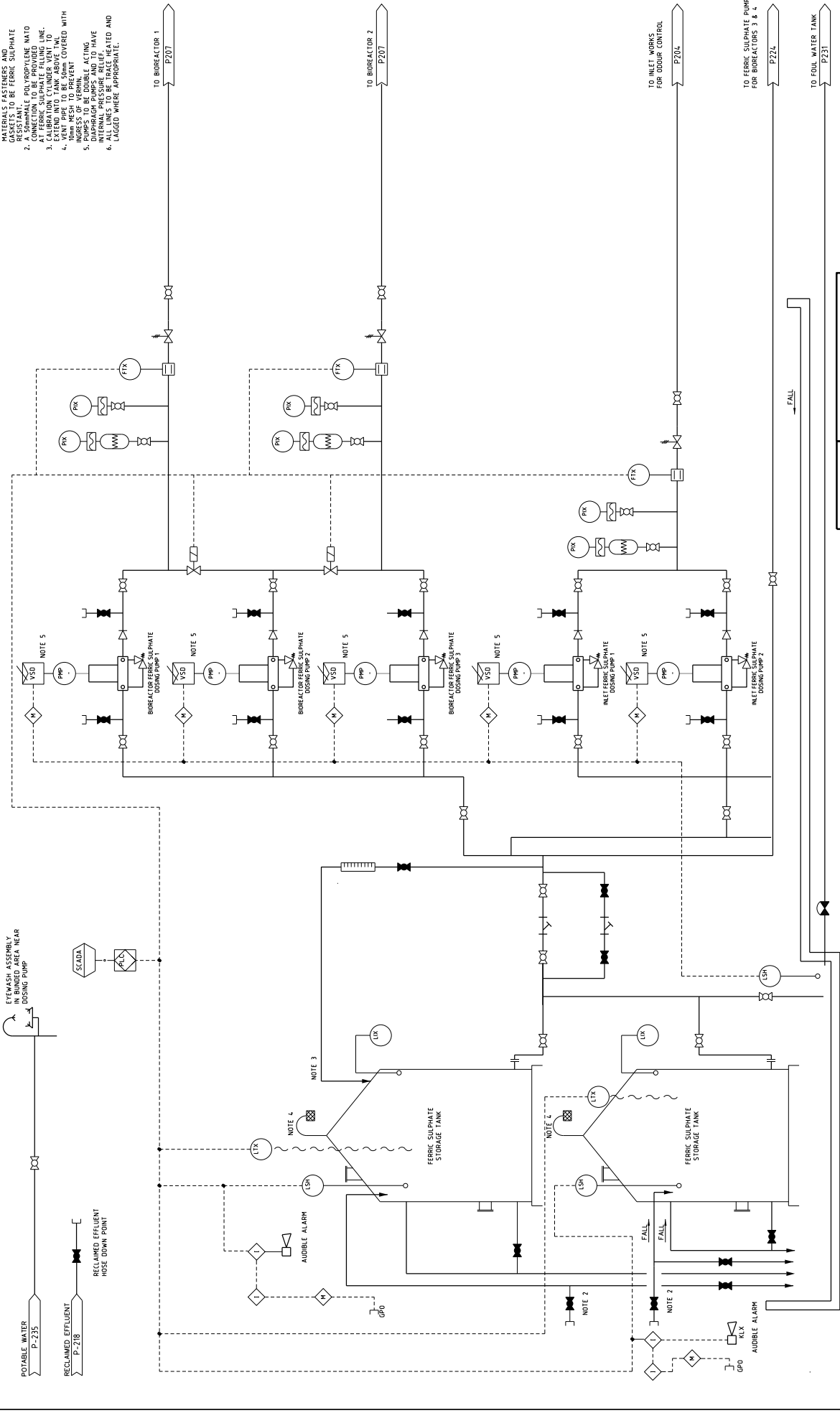
REVIEW	NAME	SIGNATURE	DATE
DESIGN CHECK			
DESIGN CHECK			
PROJ. MANAGER			

Approval of this drawing is based on the information, data and drawings contained in the project files. It is not intended to be used for any other purpose without the written consent of MWH.



**NOTES**

1. ALL EQUIPMENT PIPERWORK, JOINING MATERIALS FASTENERS AND GASKETS TO BE FERRIC SULPHATE
2. A 50mm DIA POLYPROPYLENE NATO CONNECTION TO BE PROVIDED
3. CALIBRATION CYLINDER VENT TO EXHAUST TO PREVENT VAPORING
4. 10mm MESH TO PREVENT WASTING
5. PUMPS TO BE DOUBLE ACTING
6. DIAPHRAGM PUMPS AND TO HAVE
7. ALL LINES TO BE TRACE HEATED AND LAGGED WHERE APPROPRIATE.



**PRELIMINARY NOT FOR CONSTRUCTION**



**MWH**  
 BUILDING A BETTER WORLD  
 30-11 CHANDOS STREET, AUSTRALIA  
 TEL: 61 81 709 FAX: 61 81 709

REVIEW	NAME	SIGNATURE	DATE
DESIGN CHECK			
SECTION CHECK			
PROJ. MANAGER			

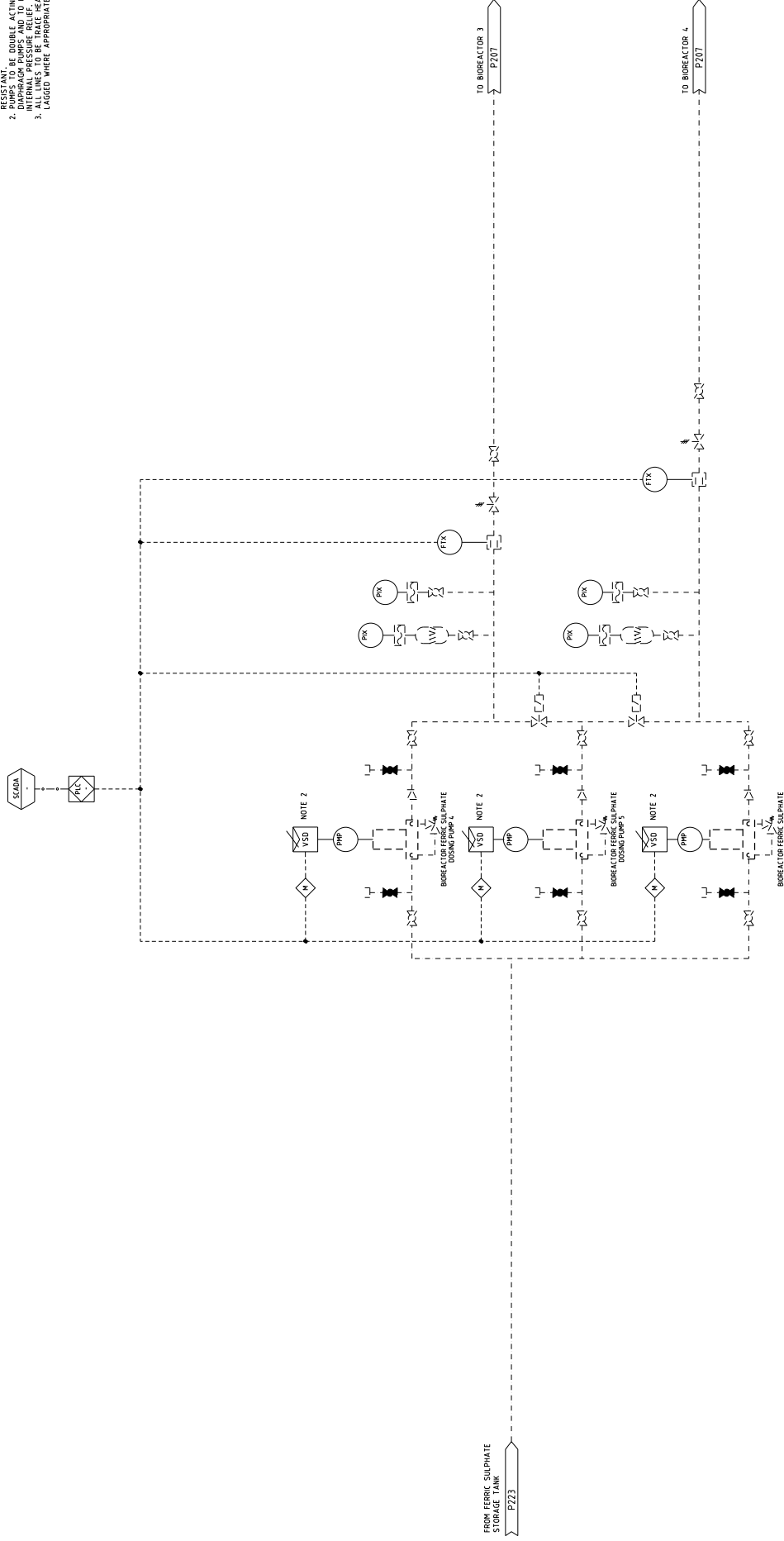
INITIAL	DATE	APPROVED

ISSUED FOR	DESCRIPTION	DATE	REV.	DATE	APPROVED	DESCRIPTION
A	ISSUED FOR CONCEPT DESIGN REPORT	03.11.09	SK	03.11.09	RP	

PROJECT:	GOOGONG INTEGRATED WATER CYCLE
TYPE:	PIPING AND INSTRUMENTATION DIAGRAM
SCALE:	A1
DRAWING NO.:	A10814.02-P223
REV.:	A

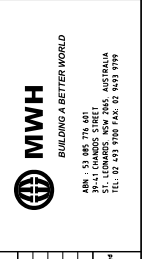
**NOTES**

1. ALL EQUIPMENT PIPING, JOINING MATERIALS FASTENERS AND GASKETS TO BE FERRIC SULPHATE
2. PUMPS TO BE DOUBLE ACTING DIAPHRAGM PUMPS AND TO HAVE ALL PIPING TO BE TRAPE HEATED AND LAGGED WHERE APPROPRIATE.
3. ALL LINES TO BE TRAPE HEATED AND LAGGED WHERE APPROPRIATE.



**PRELIMINARY NOT FOR CONSTRUCTION**

PROJECT:	GOOGONG INTEGRATED WATER CYCLE		
ITEM:	PIPING AND INSTRUMENTATION DIAGRAM		
SIZE:	SCALE:	DRAWING NO.:	REV.
A1	NTS	A10814.02-P224	A



REVIEW	NAME	SIGNATURE	DATE
DESIGN CHECK			
DESIGN CHECK			
PROJ. MANAGER			

INITIAL	DATE	APPROVED

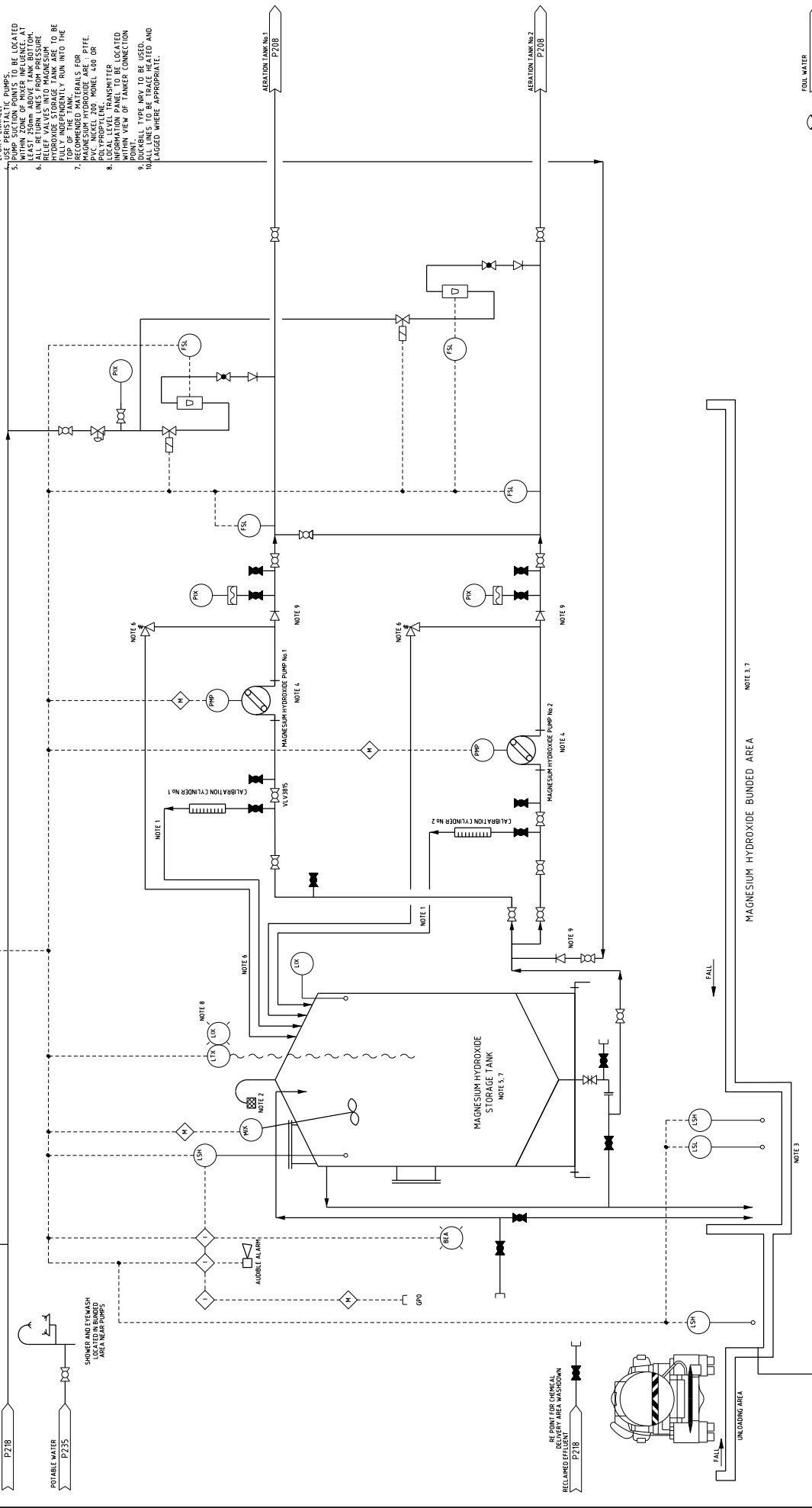
INITIAL	DATE	CHECKED

REV.	DATE	INITIAL	DATE	APPROVED	REV.	DATE	INITIAL	DATE	APPROVED
A	03.11.09	SK	03.11.09						

REV.	DATE	DESCRIPTION
A	03.11.09	ISSUED FOR CONCEPT DESIGN REPORT

Approval of the above is that of the client and does not constitute an approval of the design or construction details and is subject to change without notice. It is the responsibility of the client to ensure that the design is suitable for the intended use.

- NOTES**
1. CALIBRATION CYLINDER WENT TO EXTEND MAGNESIUM HYDROXIDE TANK ABOVE PNL INDEPENDENTLY.
  2. ALL BOND INTERNAL SURFACES TO BE COATED WITH EPOXY. COMPATIBLE TWO PART EPOXY IS RECOMMENDED.
  3. USE PERISTALTIC PUMPS, OR PACKED WITHIN ZONE OF MIXER INFLUENCE AT LEAST 250mm ABOVE TANK BOTTOM.
  4. RELIEF VALVES INTO MAGNESIUM HYDROXIDE STORAGE TANK ARE TO BE LOCATED AT THE TOP OF THE TANK.
  5. RECOMMENDED MATERIALS FOR POLYPROPYLENE TRANSMITTER INFORMATION PANEL TO BE LOCATED WITHIN VIEW OF TANKER CONNECTION.
  6. DUCKBILL TYPE NRV TO BE USED. TRANSMITTERS TO BE ASSESSMENT AND PACKAGED WHERE APPROPRIATE.



**PROJECT:** GOOGONG INTEGRATED WATER CYCLE  
**PIECE:** PIPING AND INSTRUMENTATION DIAGRAM  
**TITLE:** WATER RECYCLING PLANT  
**CLIENT:** MAGNESIUM HYDROXIDE SYSTEM  
**SCALE:** A1  
**NTS**  
**DRAWING NO.:** A10814.02-P225  
**REV.:** A

**PRELIMINARY NOT FOR CONSTRUCTION**

**MWH**  
 BUILDING A BETTER WORLD  
 39-41 CHANDOS STREET, AUSTRALIA  
 ABN: 51 885 774 001  
 TEL: 02 931 2000 FAX: 02 931 9799

REVIEW	NAME	SIGNATURE	DATE
DESIGNING			
CHECK			
DESIGN			
DESIGN CHECK			
PROJ. MANAGER			

APPROVED	DATE
INITIAL	DATE
CHECKED	DATE

DESCRIPTION	DATE	REV.
ISSUED FOR CONCEPT DESIGN REPORT	03.11.09	
ISSUED FOR CHEMICAL DESIGN REPORT	03.11.09	

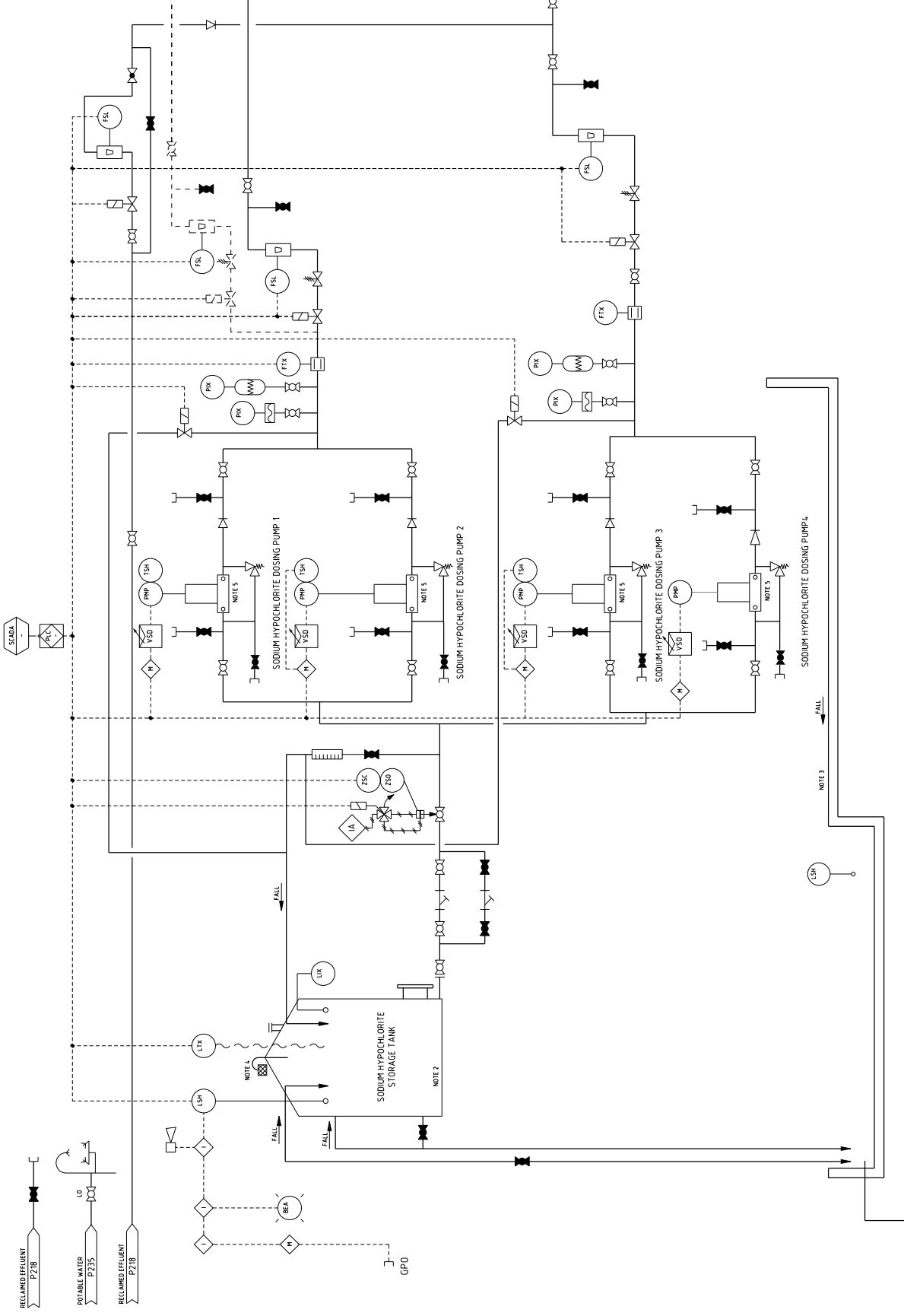
REV.	DATE	DESCRIPTION
A	03.11.09	ISSUED FOR CONCEPT DESIGN REPORT
A	03.11.09	ISSUED FOR CHEMICAL DESIGN REPORT

REVISIONS:





- NOTES**
1. ALL EQUIPMENT, PIPING, JOINTING, FASTENERS AND GASKETS TO BE HYPO RESISTANT.
  2. ALL TANKS TO BE CONCRETE BASE TO BE INSTALLED BETWEEN STORAGE TANK AND CONCRETE PLINTH.
  3. ALL LEAK INTERFACES TO BE CHEMICAL RESISTANT PAINT.
  4. VENT PIPE TO BE COVERED WITH VERMIN.
  5. PUMPS TO BE DOUBLE DIAPHRAGM PUMP WITH INFLUENT PRESSURE RELIEF.



**PRELIMINARY NOT FOR CONSTRUCTION**

PROJECT: GOOGONG INTEGRATED WATER CYCLE  
 TITLE: PIPING AND INSTRUMENTATION DIAGRAM  
 SODIUM HYPOCHLORITE DOSING SYSTEM

SIZE: A1 SCALE: NTS DRAWING NO.: A10814.02-P228 REV. A



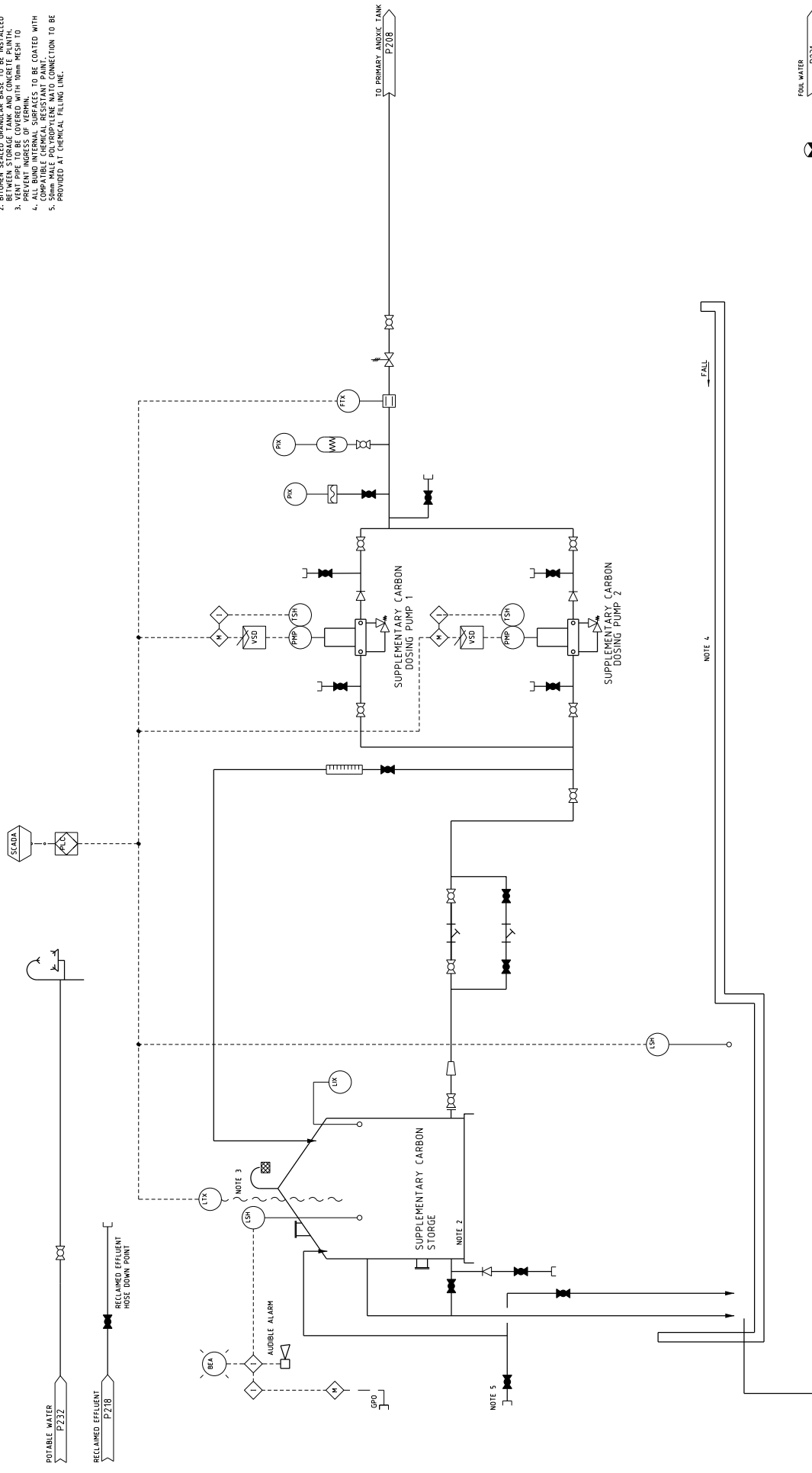
**MWH**  
 BUILDING A BETTER WORLD  
 ABN: 51 885 774 001  
 39-41 CHANDOS STREET, AUSTRALIA  
 TEL: 02 931 7000 FAX: 02 931 7999

REV.	DATE	ISSUED FOR CONCEPT DESIGN REPORT	DESCRIPTION	DATE	REV.	DATE	APPROVED	DESCRIPTION	DATE	INITIAL	DATE	CHECKED	DATE	INITIAL	DATE	APPROVED	DESCRIPTION
A	03/11/09	SK		03/11/09	RP												

Approval of the name of this document is subject to the approval of the client. The information, data and drawings contained herein are preliminary and subject to change without notice. For a complete list of drawings, visit the project website.

**NOTES**

1. ALL EQUIPMENT, PIPEWORK, JOINTING, FASTENERS AND GASKETS TO BE CORROSION RESISTANT TO ACETIC ACID.
2. ALL OPEN SEALED GRANULAR BASE TO BE INSTALLED BETWEEN STORAGE TANK AND CONCRETE PLINTH.
3. VENT PIPE TO BE COVERED WITH 10mm MESH TO PREVENT INTRUSION OF BIRDS AND OTHER ANIMALS.
4. ALL BOND INTERNAL SURFACES TO BE COATED WITH COMPATIBLE CHEMICAL RESISTANT PAINT.
5. 10mm MESH POLYPROPYLENE INTO CONNECTION TO BE PROVIDED AT CHEMICAL FILLING END.



NOTE 4

**PRELIMINARY NOT FOR CONSTRUCTION**

**MWH**  
BUILDING A BETTER WORLD  
39-41 CHAMBERS STREET, SYDNEY, AUSTRALIA  
TEL: 61 2 9170 9000 FAX: 61 2 9170 9199

**GOOGONG INTEGRATED WATER CYCLE**  
PIPING AND INSTRUMENTATION DIAGRAM  
WATER RECYCLING PLANT  
SUPPLEMENTARY CARBON DOSING

PROJECT: GOOGONG INTEGRATED WATER CYCLE  
TITLE: PIPING AND INSTRUMENTATION DIAGRAM  
SUPPLEMENTARY CARBON DOSING  
SCALE: A1 NTS  
DRAWING NO: A10814.02-P229  
REV. A

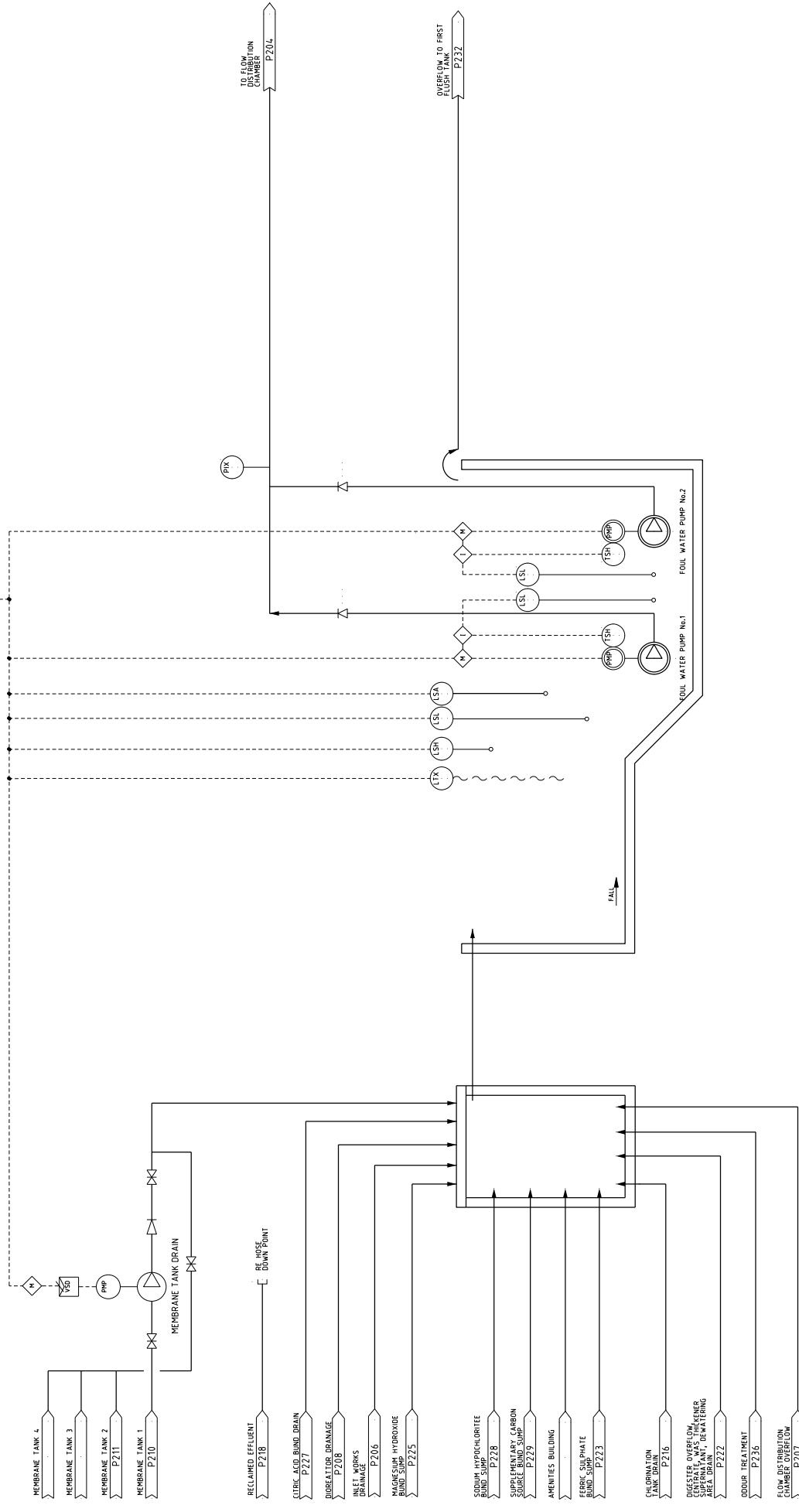
REV.	DATE	DESCRIPTION	INITIAL	DATE	APPROVED	DESCRIPTION	INITIAL	DATE	APPROVED
A	03.11.09	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	RP				

REVIEW	NAME	SIGNATURE	DATE
DESIGN CHECK			
DESIGN CHECK			
ROLL CHANGES			

Approval of the name of this document certifies that it is a preliminary design and is not intended for construction. It is not to be used for construction purposes. It is not to be used for procurement purposes. It is not to be used for tendering purposes.

NOTES  
 1. FLANGES NOT SHOWN.  
 2. T-PIECES NOT SHOWN.  
 3. MANUAL VALVES ON SMALL BORE PIPING NOT SHOWN.



PROJECT:	GOOGONG INTEGRATED WATER CYCLE		
PIECE:	PIPING AND INSTRUMENTATION DIAGRAM		
SIZE:	A1		
SCALE:	NTS		
DRAWING NO.:	A10814.02-P231		
REV.:	A		

PRELIMINARY NOT FOR CONSTRUCTION



REVIEW	NAME	SIGNATURE	DATE
DESIGN CHECK			
DESIGN CHECK			
PROJECT MANAGER			

ISSUED FOR	DATE	INITIAL	DATE
CONCEPT DESIGN REPORT	03.11.09	SK	03.11.09
ISSUED FOR	DATE	INITIAL	DATE

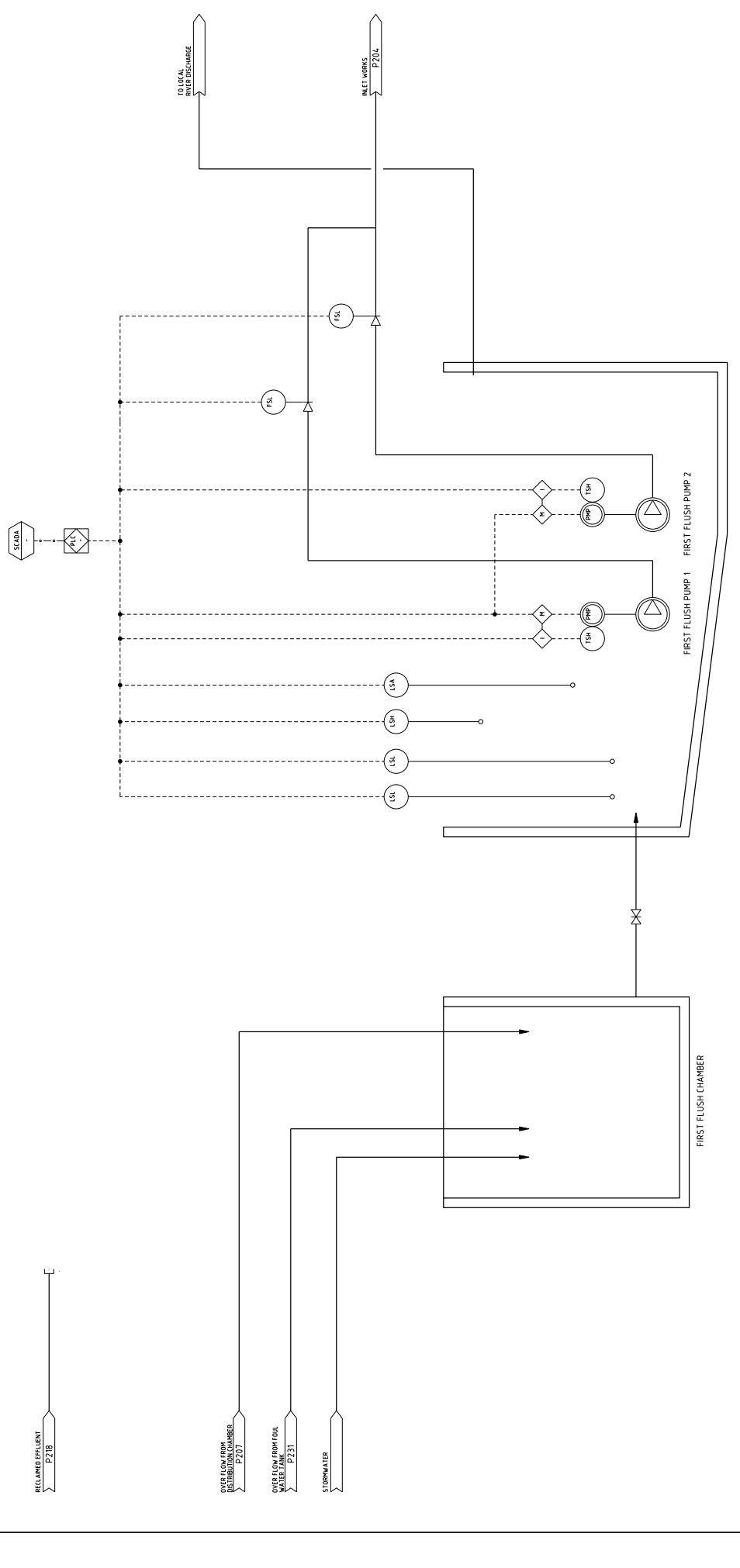
REV.	DATE	DESCRIPTION	ISSUED FOR	DATE	INITIAL	DATE
A	03.11.09	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	SK	03.11.09

Representation of the state of art of this document constitutes an acceptance of responsibility for information, design and drawings contained hereon. It is not intended to constitute a contract or any other legal document. For more information please contact the project manager.



**NOTES**

- 1. FLANGES NOT SHOWN.
- 2. T-PIECES NOT SHOWN.
- 3. PIPE SIZES ARE SMALL BORE.
- 4. PIPING AND INSTRUMENTATION DIAGRAM.
- 5. PIPING AND INSTRUMENTATION DIAGRAM.



**PRELIMINARY NOT FOR CONSTRUCTION**

PROJECT: GOOGONG INTEGRATED WATER CYCLE  
 TITLE: PIPING AND INSTRUMENTATION DIAGRAM  
 WATER RECYCLING PLANT  
 FIRST FLUSH STORAGE TANK  
 SIZE: A1  
 SCALE: NTS  
 DRAWING NO: A10814.02-P232  
 REV: A



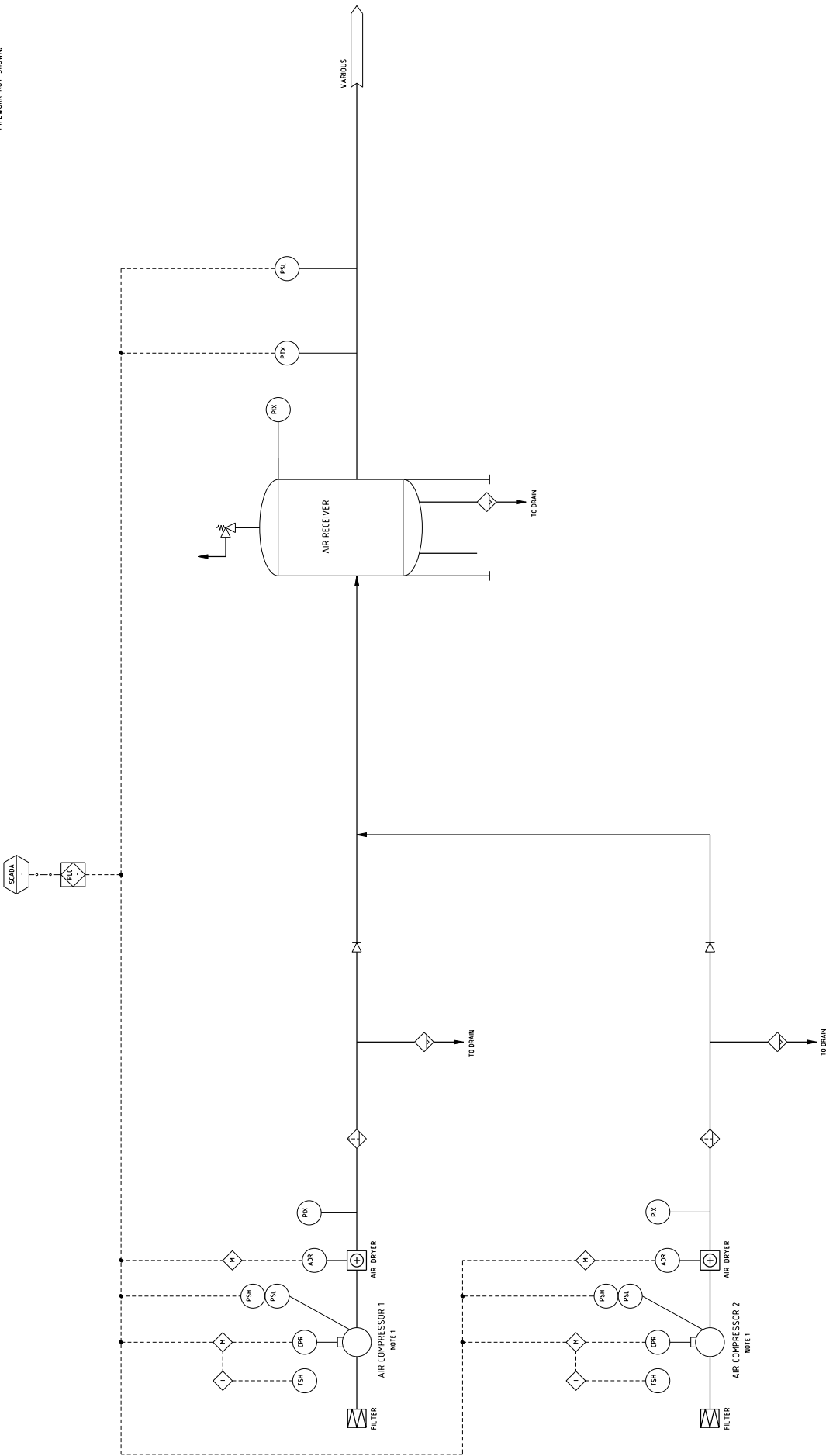
**MWH**  
 BUILDING A BETTER WORLD  
 39-11 CHAMBERS STREET, AUSTRALIA  
 ABN: 51 885 776 401  
 TEL: 61 03 9200 4000 FAX: 61 03 9200 4001

REV#	DATE	DESCRIPTION	INITIAL	DATE	APPROVED	REVIEW	NAME	SIGNATURE	DATE
A	03.11.09	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	BP	DESIGN CHECK			
						DESIGN CHECK			
						PROL. CHECKER			

Representation of the name of all of the relevant individuals as approved at the time of the design. This does not constitute an approval of the design or the information, data and drawings contained herein. It is the responsibility of the individual named in this column to ensure that the design is correct and that the information is accurate.

**NOTES**

1. COMPRESSORS TO HAVE AIR FILTERS
2. FITTED TO DISCHARGE.
3. FLANGES NOT SHOWN.
4. MANUAL VALVES ON SMALL BORE PIPEWORK NOT SHOWN.



**PRELIMINARY NOT FOR CONSTRUCTION**

PROJECT: GOOGONG INTEGRATED WATER CYCLE  
 TITLE: PIPING AND INSTRUMENTATION DIAGRAM  
 WATER RECYCLING PLANT  
 COMPRESSED AIR SYSTEM  
 SIZE: A1 SCALE: NTS DRAWING NO.: A10814.02-P233  
 REV. A



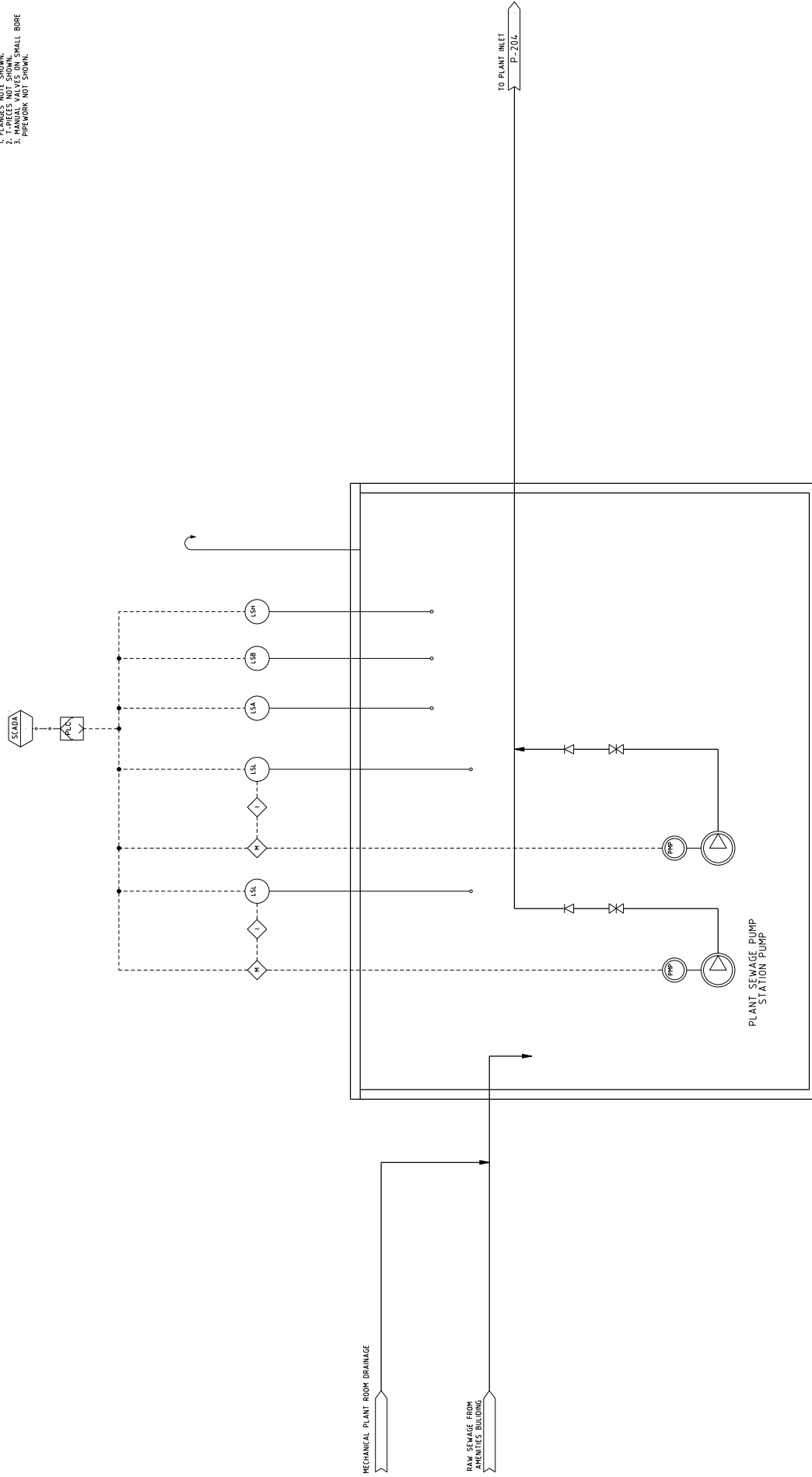
**MWH**  
 BUILDING A BETTER WORLD  
 ABN: 51 885 774 001  
 39-41 CHANDOS STREET, AUSTRALIA  
 TEL: 02 931 9700 FAX: 02 931 9799

REV.	DATE	DESCRIPTION	APPROVED		CHECKED		DATE	DESCRIPTION	DATE	APPROVED	DATE	DESCRIPTION	DATE	APPROVED
			INITIAL	DATE	INITIAL	DATE								
A	03.11.09	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	BP		03.11.09							

REVISIONS OF THE WORK OR PART OF THE DOCUMENT IDENTIFIED AS A RESULT OF THE DESIGN PROCESS SHOULD BE MADE IN ACCORDANCE WITH THE PROJECT'S DESIGN CONTROL SYSTEM. THIS DOCUMENT IS THE PROPERTY OF MWH AUSTRALIA. IT IS TO BE USED ONLY FOR THE PROJECT AND NOT TO BE REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF MWH AUSTRALIA.

**NOTES**

1. ELANGES NOT SHOWN.
2. T-PIECES NOT SHOWN.
3. MANUAL VALVES DIM. SHALL BORE REFERRED NOT SHOWN.



PLANT SEWAGE PUMPING STATION

**PRELIMINARY NOT FOR CONSTRUCTION**

PROJECT:	GOOGONG INTEGRATED WATER CYCLE
PIECE:	PIPING AND INSTRUMENTATION DIAGRAM WATER RECYCLING PLANT PLANT SEWAGE PUMPING STATION
SIZE:	A1
SCALE:	NTS
DRAWING NO.:	A10814.02-P234
REV.:	A



**MWH**  
BUILDING A BETTER WORLD

ABN: 51 885 774 001  
30-11 CHANDOS STREET, AUSTRALIA  
TEL: 02 931 9700 FAX: 02 931 9799

REVIEW	NAME	SIGNATURE	DATE
DESIGN CHECK			
REVISION CHECK			
PROJ. MANAGER			

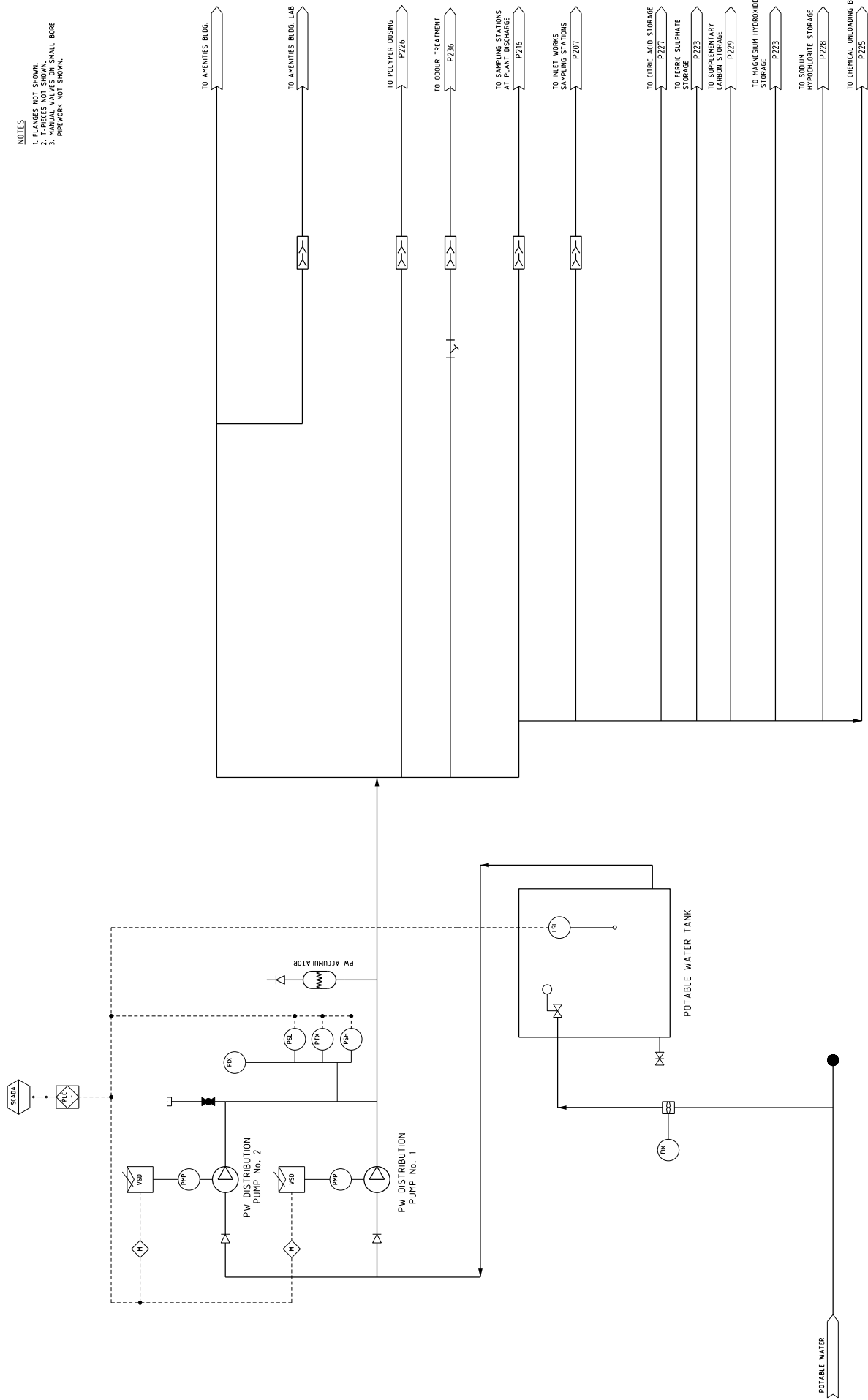
  

ISSUED FOR	CONCEPT DESIGN REPORT
REV. DATE	DESCRIPTION
INITIAL	DATE
CHECKED	DATE
APPROVED	DATE

Representation of the above is that of MWH. MWH does not warrant, represent or assume any liability for the accuracy or completeness of the information, data and drawings contained herein. It is the responsibility of the client to ensure that the information is correct and complete.

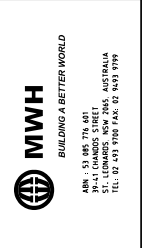
**NOTES**

1. FLANGES NOT SHOWN.
2. T-PIECES NOT SHOWN.
3. MANUAL VALVES ON SMALL BORE PIPING NOT SHOWN.



**PRELIMINARY NOT FOR CONSTRUCTION**

PROJECT:	GOOGONG INTEGRATED WATER CYCLE		
FILE:	PIPING AND INSTRUMENTATION DIAGRAM POTABLE WATER		
SIZE:	A1	SCALE:	NTS
REV.:		DRAWING NO.:	A10814.02-P235
			A



REVIEW	NAME	SIGNATURE	DATE
DESIGN CHECK			
DESIGN CHECK			
PROJ. MANAGER			

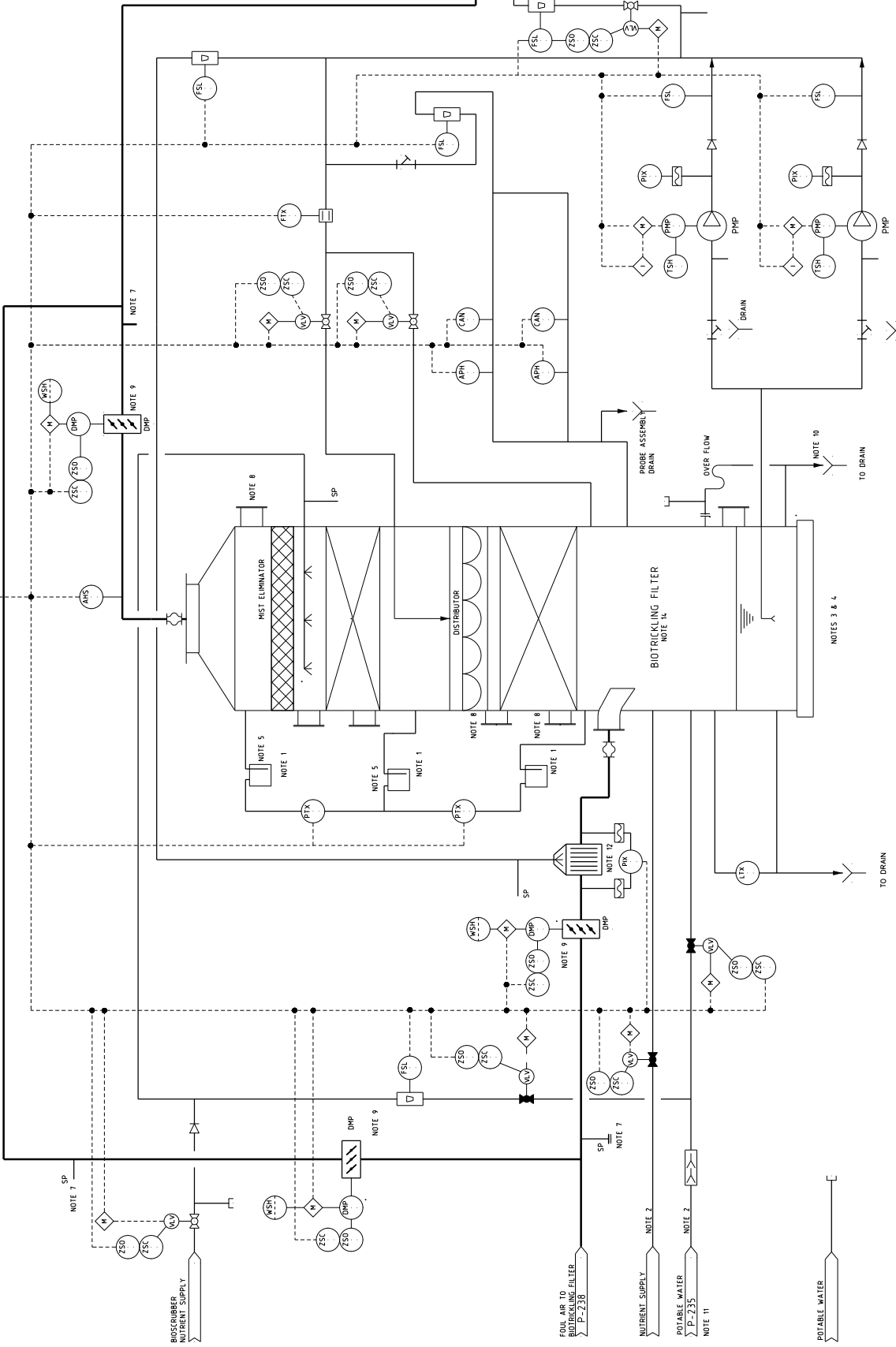
APPROVED	DATE
INITIAL	DATE
CHECKED	DATE

DESCRIPTION	DATE	REV.
ISSUED FOR CONCEPT DESIGN REPORT	03.11.09	SK
	03.11.09	BP

DATE	DESCRIPTION	DATE	REV.

**NOTES**

1. ALL DRAIN POINTS ARE LOCAL TO THE EQUIPMENT.
2. LINE SIZING IS VENDOR DESIGN UNLESS NOTED OTHERWISE.
3. SCOURING INVERTS TO BE PROVIDED TO ALL DRAIN POINTS.
4. RIMS TO BE FINISHED WITH SULPHURIC ACID RESISTANT COATING.
5. CONDENSATION POTENTIAL FROM CLEAR PERIODIC DRAINING.
6. N/A
7. N/A
8. N/A
9. ALL DUCTWORK DAMPERS TO HAVE MANUAL OPERATION.
10. SCOURING SWAMP / DRAIN DESIGN TO ENSURE SWAMP CAN BE FULLY DRAINED.
11. WATER SUPPLY REQUIRED FOR HIGH QUALITY NON CHLORINATED RW.
12. RTF CONDITIONING UNIT.
13. RW VESSEL TO RES-99A.
14. N/A
15. FLANGES NOT SHOWN.
16. N/A
17. PIPEWORK NOT SHOWN.



**PRELIMINARY NOT FOR CONSTRUCTION**

PROJECT:	GOOGONG INTEGRATED WATER CYCLE
FILE:	PIPING AND INSTRUMENTATION DIAGRAM WATER RECYCLING PLANT BIOTRICKLING FILTER (TYPICAL)
SIZE:	A1
SCALE:	NTS
DRAWING NO.:	A10814.02-P236
REV.:	A

**MWH**  
BUILDING A BETTER WORLD

ABN: 51 485 774 401  
30-11 CHANDOS STREET, AUSTRALIA  
TEL: 61 81 702 7000 FAX: 61 81 702 7009

**AUSTRALIA**  
Communities in the making

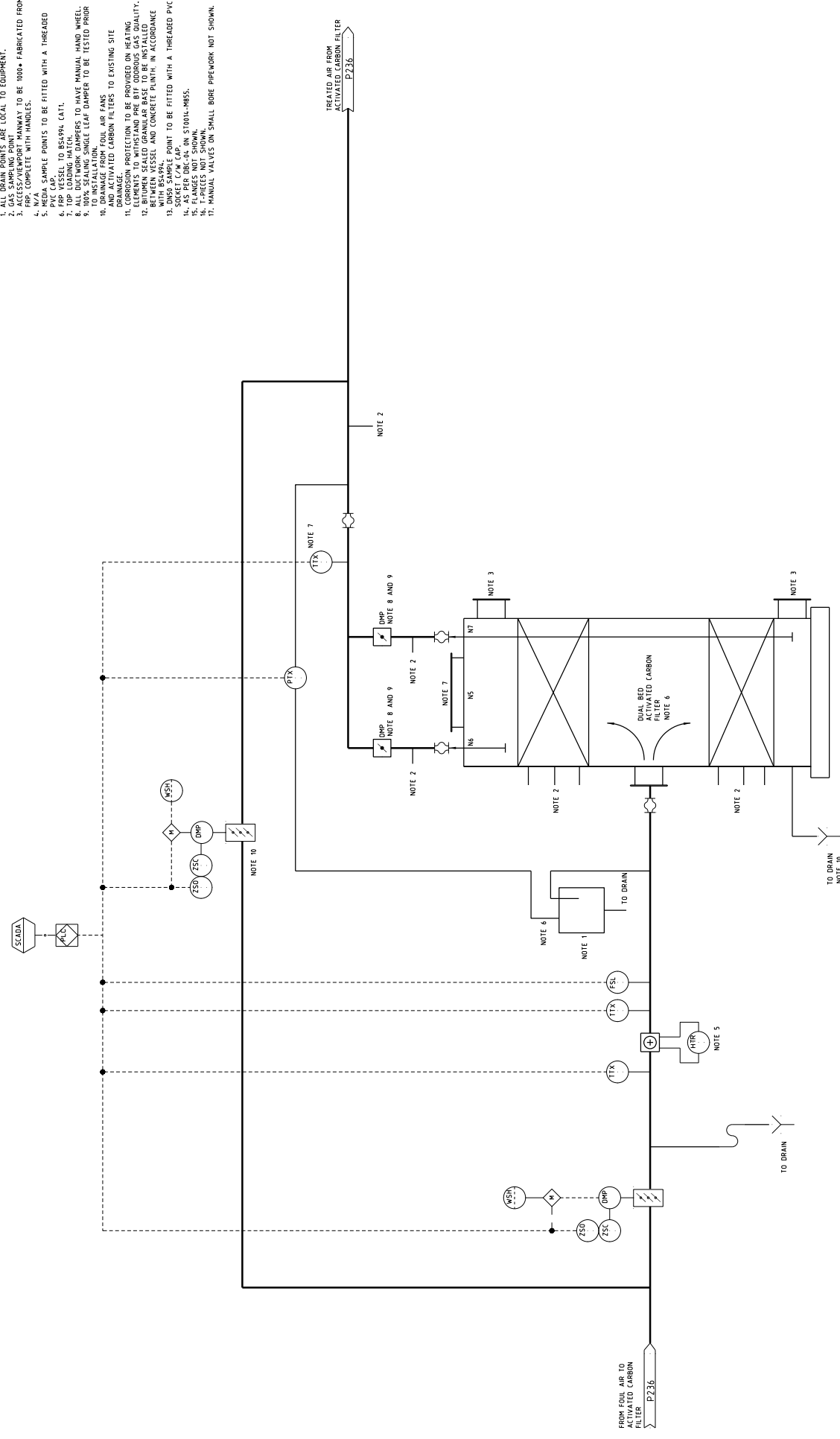
REV.	DATE	DESCRIPTION	DATE	APPROVED	DATE	APPROVED	DATE	APPROVED
A	03.11.09	ISSUED FOR CONCEPT DESIGN REPORT	03.11.09	SK	03.11.09	RP	03.11.09	

REVIEW	NAME	SIGNATURE	DATE
DRAWING CHECK			
DESIGN CHECK			
PROJ. MANAGER			

Reproduction of this drawing or any part of this document constitutes an infringement of copyright. All information, ideas and concepts contained herein are the property of MWH. No part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of MWH.

**NOTES**

1. DRAIN POINTS ARE LOCAL TO EQUIPMENT.
2. ALL CORROSION PROTECTION SHALL BE AS SHOWN.
3. ACCESS/VIEWPORT MANWAY TO BE 1000\* FABRICATED FROM FRP. COMPLETE WITH HANDLES.
4. MEDIA SAMPLE POINTS TO BE FITTED WITH A THREADED PVC CAP.
5. MEDIA SAMPLE POINTS TO BE FITTED WITH A THREADED PVC CAP.
6. TOP LOADING HATCH TO BS5946 CAT1.
7. TOP LOADING HATCH TO BS5946 CAT1.
8. ALL DUCTWORK DAMPERS TO HAVE MANUAL HAND WHEEL.
9. 100% SEALING SINGLE LEAF DAMPER TO BE TESTED PRIOR TO INSTALLATION.
10. DRAINAGE FROM FOUL AIR FANS AND ACTIVATED CARBON FILTERS TO EXISTING SITE DRAINAGE.
11. CORROSION PROTECTION TO BE PROVIDED ON HEATING ELEMENTS TO WITHSTAND PRE-BYF ODOROUS GAS QUALITY.
12. ALL PIPING TO BE INSTALLED ON CONCRETE BASES TO BE INSTALLED BETWEEN WELLS AND CONCRETE FLOORING IN ACCORDANCE WITH BS5946.
13. DMSG SAMPLE POINT TO BE FITTED WITH A THREADED PVC CAP.
14. AS PER DBCS-04-01 ON S1001L-MB55.
15. FLANGES NOT SHOWN.
16. ALL VALVES TO BE 150mm.
17. MANUAL VALVES ON SMALL BORE PIPEWORK NOT SHOWN.



**PRELIMINARY NOT FOR CONSTRUCTION**

PROJECT:	GOOGONG INTEGRATED WATER CYCLE		
PIECE:	PIPING AND INSTRUMENTATION DIAGRAM		
SIZE:	DUAL BED ACTIVATED CARBON FILTER (TYPICAL)		
SCALE:	A1	NTS	REV. A
DRAWING NO.:	A10814.02-P237		



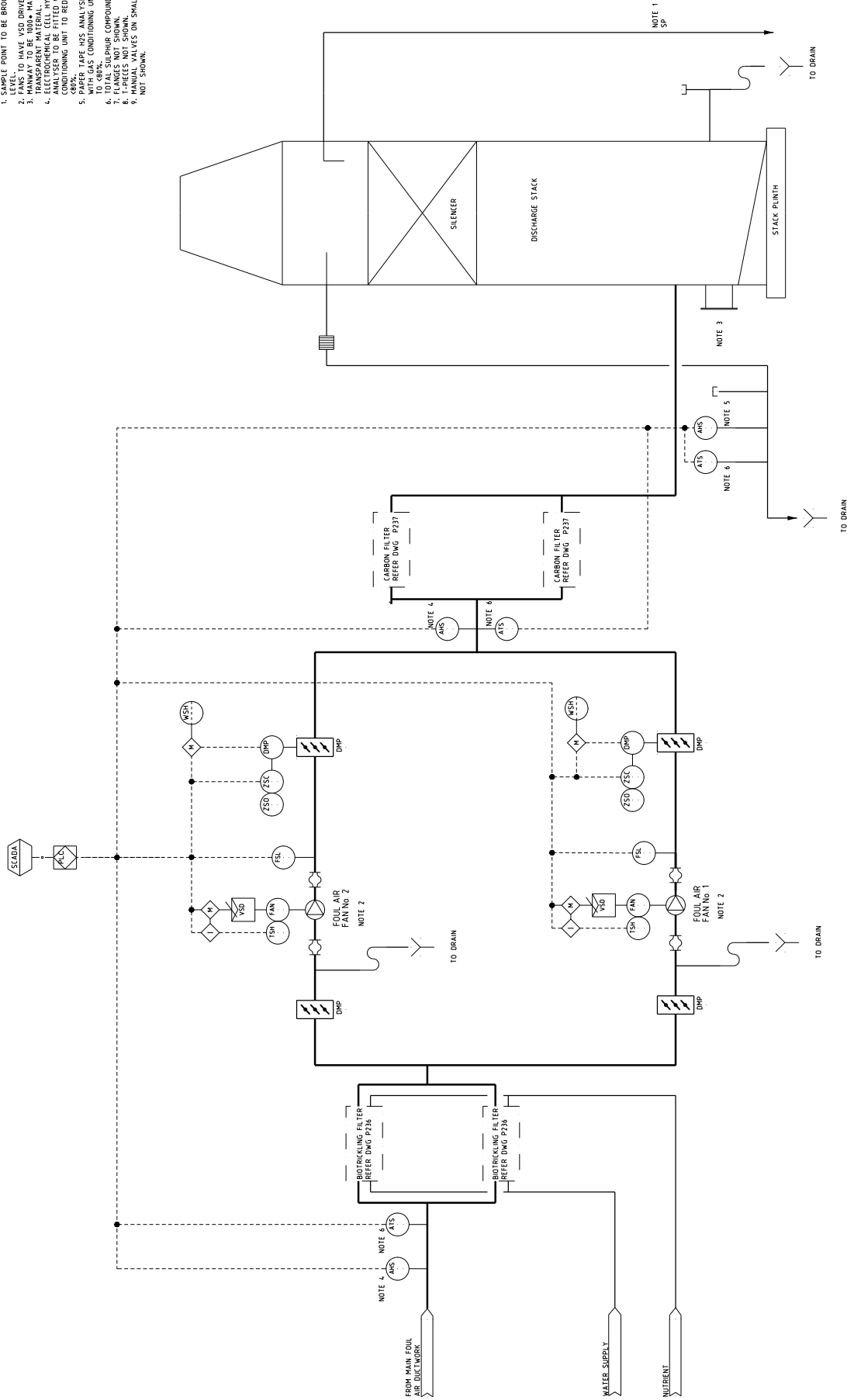
REVIEW	NAME	SIGNATURE	DATE
DESIGNING CHECK			
DESIGN CHECK			
PROJ. MANAGER			

Approval of the scope of work of this document certifies that the design of this project has been reviewed and approved by the design engineer. It does not constitute a warranty or a guarantee of fitness for a particular purpose. The design engineer shall not be held liable for any consequences arising from the use of this document.

REV.	DATE	DESCRIPTION	INITIAL	DATE	APPROVED	REVISION	INITIAL	DATE	APPROVED
A	03.11.09	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	RP				

30-11 CHANDOS STREET, SUITE 101, MELBOURNE, VIC 3000  
 TEL: 03 931 9700 FAX: 03 931 9799  
 ABN: 51 985 774 001

- NOTES**
1. SAMPLE POINT TO BE BROUGHT TO GROUND LEVEL.
  2. TO MAKE VSD DRIVE.
  3. MAINWAY TO BE 1000mm MADE FROM CLEAR TRANSPARENT MATERIAL (POLYPROPYLENE, POLYCARBONATE, POLYETHYLENE TEREPHTHALATE).
  4. ANALYSES TO BE FITTED WITH GAS CONDITIONING UNIT TO REDUCE GAS RH TO 60%.
  5. WITH GAS ANALYSES COMPLETE TO 60%.
  6. 1-PIECES ON SHALLOW COMPOUND ANALYSES.
  7. FLANGES NOT SHOWN.
  8. 1-PIECES NOT SHOWN.
  9. MANUAL VALVES ON SMALL BORE PIPEWORK NOT SHOWN.



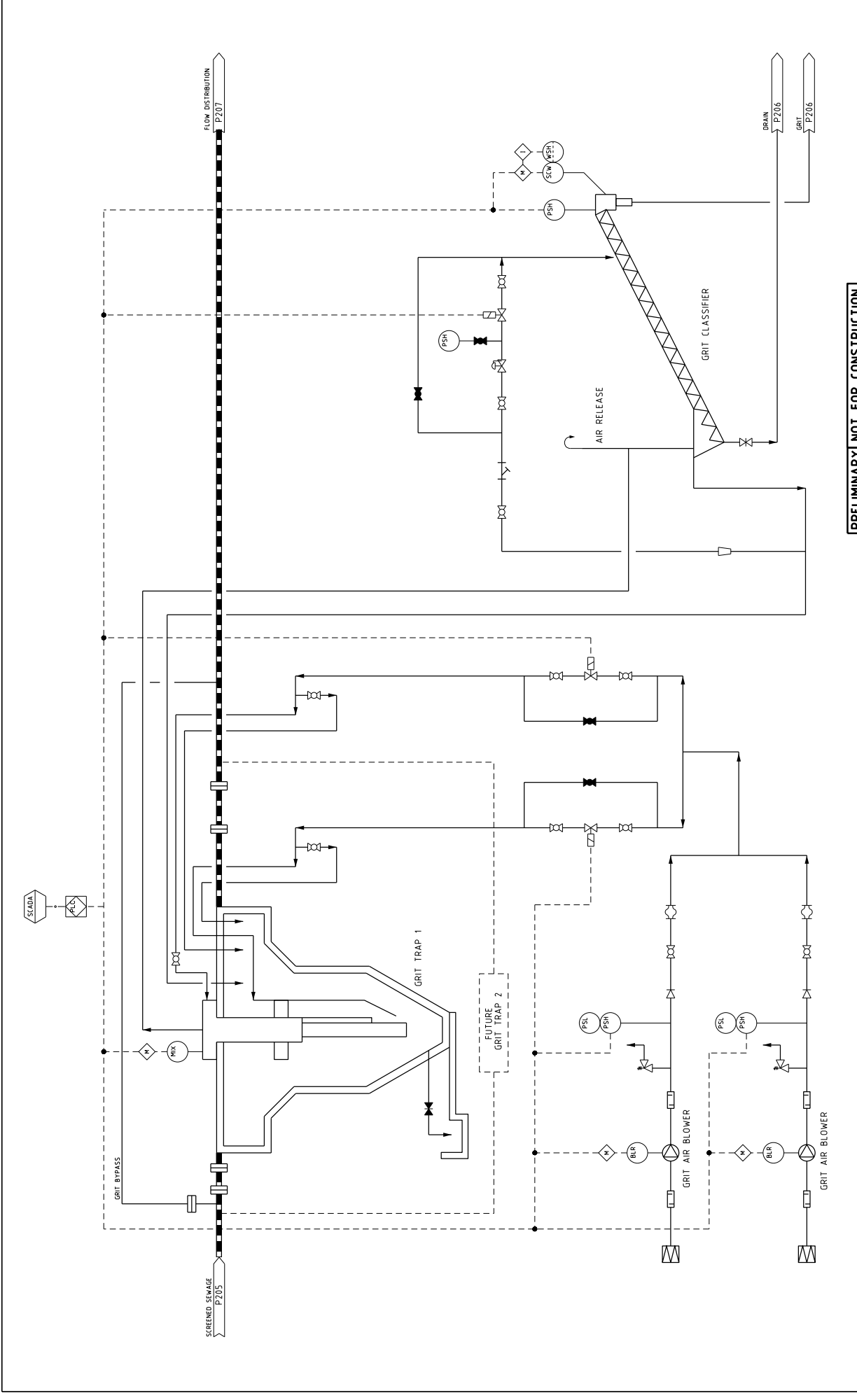
**PRELIMINARY NOT FOR CONSTRUCTION**



**PROJECT:** GOOGONG INTEGRATED WATER CYCLE  
**TITLE:** PIPING AND INSTRUMENTATION DIAGRAM  
**ODOUR CONTROL FACILITY OVERVIEW**  
**FANS AND DISCHARGE STACK**  
**SCALE:** A1 NTS  
**DRAWING NO.:** A10814.02-P238  
**REV.:** A

REV.	DATE	DESCRIPTION	CHECKED		APPROVED		DATE	DATE	DATE	DATE	DATE	DATE	REVIEW						
			INITIAL	DATE	INITIAL	DATE							INITIAL	DATE	INITIAL	DATE	INITIAL	DATE	INITIAL
A	03.11.09	ISSUED FOR CONCEPT DESIGN REPORT	SK	03.11.09	RP	03.11.09													

Representation of the state of affairs at the time of issue of this document is intended as an indication of the state of affairs at the time of issue of this document and does not constitute a warranty or representation of any kind. The information, data and drawings contained herein are for preliminary design purposes only and are subject to change without notice.



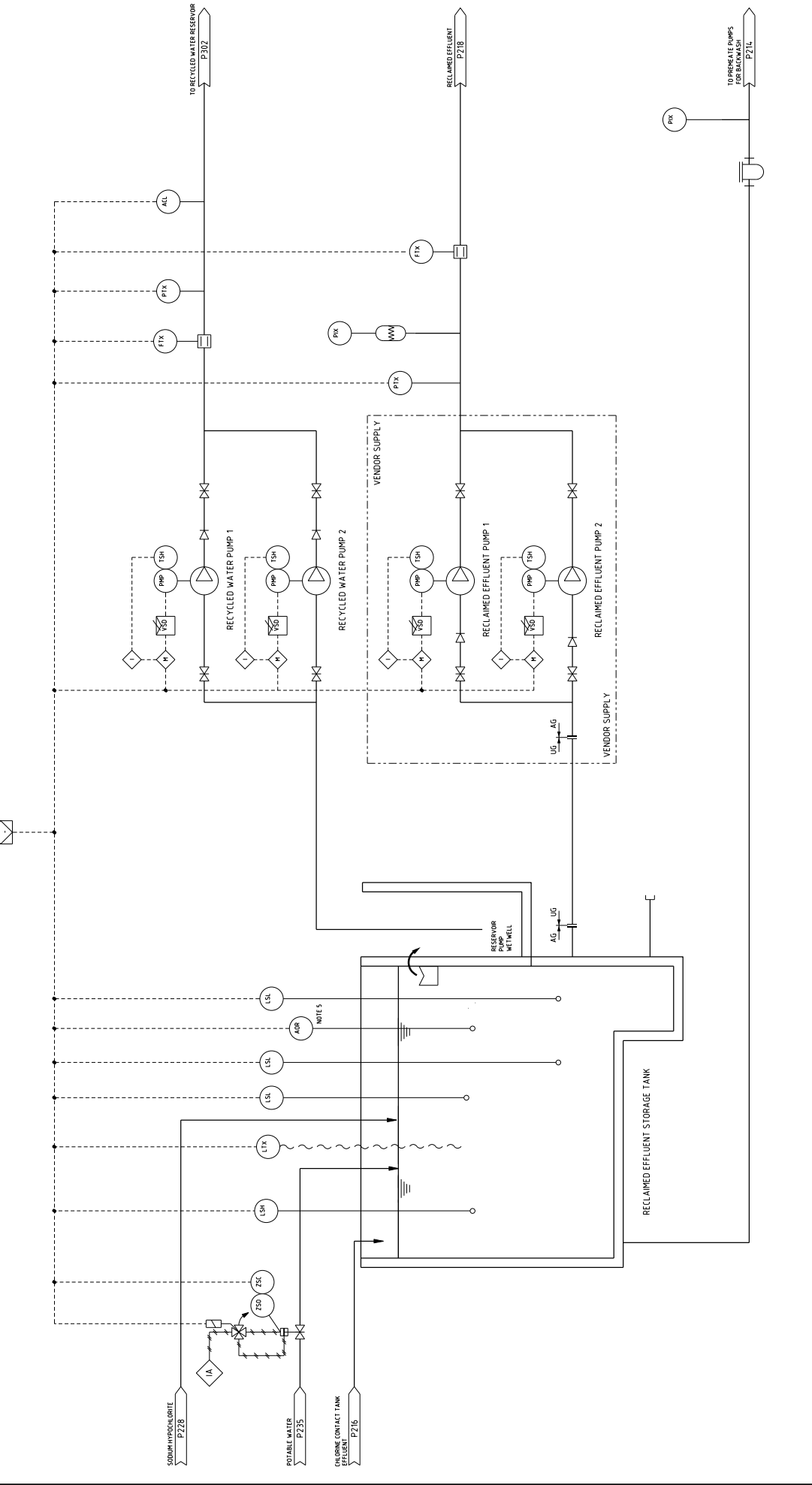
REV.		ISSUED FOR CONCEPT DESIGN REPORT		ISSUED FOR CONSTRUCTION		MWH		PROJECT	
DATE	DESCRIPTION	DATE	DESCRIPTION	DATE	DESCRIPTION	NAME	SIGNATURE	DATE	DESCRIPTION
A	03.11.09	SK	03.11.09	BP	03.11.09	DESIGN CHECK			GOOGONG INTEGRATED WATER CYCLE
						DESIGN CHECK			PIPING AND INSTRUMENTATION DIAGRAM
						DESIGN CHECK			WATER RECYCLING PLANT
						PROL. CHANGES			GRIT REMOVAL
						<small>Approval of this drawing is based on the information, data and drawings submitted in accordance with the contract. It is not intended to be a final design. It is subject to change without notice.</small>			
									SCALE: A1 NTS
									DRAWING NO: A10814.02-P239
									REV. A



**PRELIMINARY NOT FOR CONSTRUCTION**



- NOTES**
1. FLANGES NOT SHOWN.
  2. ALL VALVES TO BE 150MM.
  3. MANUAL VALVES ON SMALL BORE PIPEWORK NOT SHOWN.
  4. ALL VALVES TO BE 150MM.
  5. PORTABLE RESIDUAL CHLORINE ANALYSER TO BE PROVIDED.



**PRELIMINARY NOT FOR CONSTRUCTION**

CLIENT: **GOOGONG INTEGRATED WATER CYCLE**

PROJECT: **GOOGONG INTEGRATED WATER CYCLE**

PRICE: **PIPING AND INSTRUMENTATION DIAGRAM**

TITLE: **WATER RECYCLING PLANT**

DESCRIPTION: **RECLAIMED EFFLUENT STORAGE**

OPTION: **OPTION TO DISCHARGE THROUGH BASIN 4**

SCALE: **A1**

DRAWING NO: **A10814.02-P306**

REV. **A**

---

**MWH**  
BUILDING A BETTER WORLD

30-11 CHANDOS STREET, SUITE 101, MELBOURNE, VIC 3000  
 TEL: 03 9370 7900 FAX: 03 9370 7999

REV.	DATE	DESCRIPTION	INITIAL	DATE	APPROVED	DESCRIPTION	INITIAL	DATE	APPROVED
A	13-11-09	ISSUED FOR CONCEPT DESIGN REPORT	SJK	13-11-09	RP				

Reproduction of the name of any of the clients of MWH is prohibited without the prior written consent of MWH. MWH is not responsible for any errors or omissions in this document. MWH is not responsible for any damage or loss of any kind arising from the use of this document.