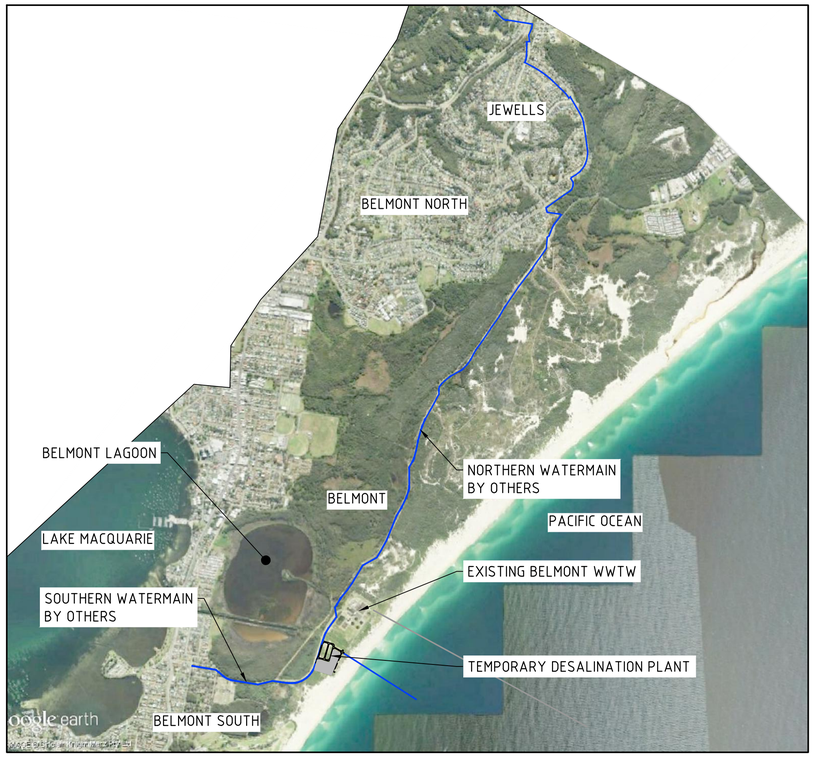
HUNTER WATER CORPORATION

BELMONT DROUGHT RESPONSE DESALINATION PLANT



LOCALITY PLAN
NOT TO SCALE

DRAWING LIST

DRG No.	DRAWING TITLE
15830-001	COVER SHEET, LOCALITY PLAN AND DRAWING LIST
15830-002	GENERAL ARRANGEMENT
15830-003	NOTES AND LEGEND
15830-004	PROCESS FLOW DIAGRAM
15830-005	PROCUREMENT PLAN
15830-006	PROCESS AND INSTRUMENTATION DIAGRAM (CONCEPT LEVEL)
15830-008	EXISTING SITE FEATURES AND SITE PREPARATION
15830-010	SITE LAYOUT
15830-011	TREATMENT PLANT GENERAL ARRANGEMENT
15830-020	SITE LAYOUT
15830-021	TREATMENT PLANT GENERAL ARRANGEMENT
15830-030	EARTHWORKS PLAN AND CROSS SECTION
15830-040	GROUND WATER INTAKE STRUCTURE SHEET 1 OF 2
15830-041	GROUND WATER INTAKE STRUCTURE SHEET 2 OF 2
15830-300	BRINE DISCHARGE PLAN AND LONGITUDINAL SECTION
15830-500	DIRECT OCEAN INTAKE PLAN
15830-501	DIRECT OCEAN INTAKE SECTION

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
C	FINAL ISSUE	DH	15/04/20
B	DRAFT FINAL ISSUE	JR	06/11/19
A	PRELIMINARY ISSUE	LC	-

VERSION 4

CONSULTANT DETAILS:
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CONSULTANT REFERENCE No. 2219573

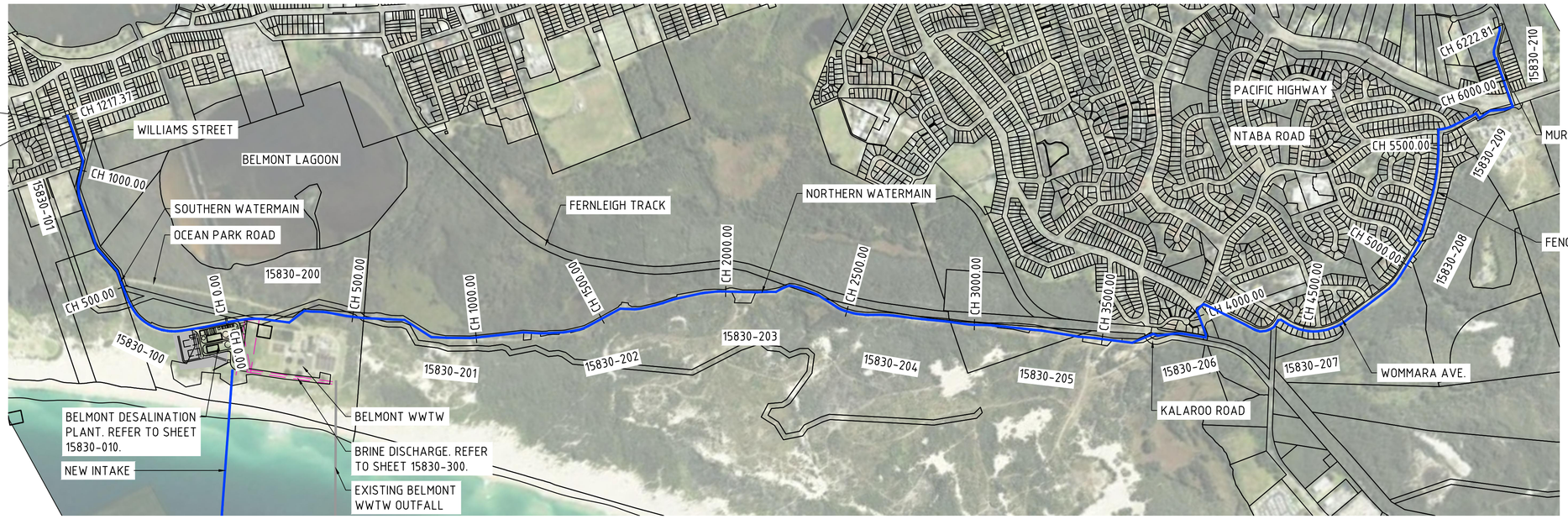
HUNTER WATER

DESIGNED: LC	DATE: 15/04/20	COMPANY: GHD PTY LTD	
DRAWN: RG	DATE: 15/04/20	COMPANY: GHD PTY LTD	
CHECKED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	
APPROVED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	

TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
COVER SHEET, LOCALITY PLAN AND DRAWING LIST

SIZE:	SCALE:	INDEX No.	DRAWING No.	SHEET	REV No.
A1	NTS	-	15830	001	0C

Plot Date: 15/04/20 - 15:15 Cad File: G:\22\19573\Design\03 Drawings\15830-001_0B.dwg



PLAN

SCALE 1:10000

POWER SUPPLY:

1. POWER CROSS CONNECTDION SCOPE TO BE CONFIRMED WITH AUSGRID AT TIME OF CONSTRUCTION. SCOPE GENERALLY COMPRISES INSTALLING A CONNECTION BETWEEN FEEDERS 33597 AND 33596 (NORMALLY OPEN) AT THE INTERSECTION OF HUDSON AND MARRIOT STREET.
2. WORKS TO BE DESIGNED BY ASP3 ACCREDITED DESIGNER.
3. NORTHERN AND SOUTHERN WATERMAIN BY OTHERS

WARNING:
PUBLIC UTILITY SERVICES MAY EXIST ON OR ADJACENT TO THE SITE OF WORKS. THESE SERVICES MAY NOT BE SITUATED WITHIN REGISTERED EASEMENTS OR WITHIN STANDARD FOOTPATH ALLOCATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO IDENTIFY THE LOCATION OF ALL SERVICES PRIOR TO CONSTRUCTION WORKS AND TO AVOID DISTURBANCE OF THESE SERVICES.

DIAL BEFORE YOU DIG www.1100.com.au

THIS DRAWING INCLUDES COLOURED INFORMATION. IF YOU HAVE A BLACK AND WHITE COPY YOU DO NOT HAVE ALL THE INFORMATION. THIS NOTE IS COLOURED RED.

HORIZONTAL SCALE 1:10000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
C	FINAL ISSUE	DH	15/04/20
B	DRAFT FINAL ISSUE	JR	15/11/19
A	PRELIMINARY ISSUE	LC	-

VERSION 7

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APPROVED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	

TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
GENERAL ARRANGEMENT

SIZE:	SCALE:	INDEX No.	DRAWING No.	SHEET	REV No.
A1	1:10000	-	15830	002	0C

Plot Date: 15/04/20 - 10:08 Cad File: \\ghdnet\ghd\PH\Manila\Projects\22\19573\Design\03 Drawings\15830-002_0B.dwg

NOTES:

1. THESE DRAWINGS REFLECT A CONCEPT DESIGN FOR THE BELMONT DROUGHT RESPONSE DESALINATION PLANT AT BELMONT WWTW.
2. THESE DRAWINGS SHALL BE REVIEWED IN CONJUNCTION WITH THE RELEVANT ENVIRONMENTAL ASSESSMENT AND DESIGN REPORTS.
3. THIS PROJECT WILL BE SUBJECT TO DETAILED DESIGN. THEREFORE FINAL ARRANGEMENTS, MATERIALS. CONSTRUCTION METHODS WILL BE REVISED DURING.
4. PORTIONS OF THE WORKS MAY BE PROCURED INCREMENTALLY AND IN PACKAGES. PROCUREMENT DETAILS ARE NOT COVERED IN THIS SET AND WILL BE REFINED DURING DETAILED DESIGN.
5. GENERALLY THE DESIGN OF PIPELINE AND ASSOCIATED COMPONENTS SHALL COMPLY WITH THE HUNTER WATER VERSION OF THE WSA03 WATER SUPPLY CODE OF AUSTRALIA.
6. REFERENCES TO STANDARD DRAWINGS REFER TO THE MAIN DRAWING. HOWEVER OTHER DRAWINGS FROM THE WSA CODE MAY APPLY.
7. THE FOLLOWING ORDER OF PRECEDENCE APPLIES TO THIS PROJECT:
   A. THESE DRAWINGS
   B. HUNTER WATER VERSION OF THE WSA CODE
   C. RELEVANT AUSTRALIAN STANDARDS
   D. COUNCIL STANDARDS
   E. OTHER INDUSTRY GUIDELINES

ABBREVIATIONS:

WWTW	-	WASTEWATER TREATMENT WORKS
HCS	-	HYDRAULIC CONTROL STRUCTURE
GTA	-	GEOTECHNICAL TESTING AUTHORITY
CEMP	-	CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN, INCLUSIVE OF SPECIALIST SUBPLANS SUCH AS SEDIMENT AND EROSION, WATER MANAGEMENT PLANS, ETC.
EA	-	ENVIRONMENTAL ASSESSMENT
COUNCIL	-	LAKE MACQUARIE CITY COUNCIL
HWC	-	HUNTER WATER CORPORATION
AC	-	ASPHALTIC CONCRETE ROAD SURFACE TO COUNCIL STANDARDS

PIPELINE NOTES:

1. PIPELINE ALIGNMENT DETAILS TO GENERALLY BE IN ACCORDANCE WITH WAT-1250-H AND SUPPLIER'S REQUIREMENTS.
2. MINIMUM COVER IS TYPICALLY 750mm IN TRAFFIC AREAS AND 600mm ELSEWHERE. THIS IS TO BE CONFIRMED FOLLOWING FINAL DESIGN.
3. REFER TO WAT-1302-V FOR HYDRANT AND INLINE STOP VALVE ARRANGEMENT.
4. REFER TO WAT-1302-V FOR AIR VALVE DETAILS.
5. REFER TO WAT-1202 TO WAT-1204 FOR TRENCH TYPES.
6. REFER TO WAT-1205 TO WAT-1208 FOR THRUST BLOCK DETAILS.
7. STOP VALVES AT TEES TO BE INSTALLED IN ACCORDANCE WITH WAT-1254-H.
8. DRIVEWAY CROSSING TO BE IN ACCORDANCE WITH WAT-1255-H. WHERE TRENCHING THROUGH A DRIVEWAY IS REQUIRED, THEN A FULL PANEL SHALL BE REPLACED. FOR PAVED DRIVEWAYS, RELAY THE EXISTING PAVERS AND REPLACE ANY DAMAGED ONES AS DIRECTED BY THE SUPERINTENDENT.
9. REFER TO WAT-1307-V FOR SCOUR DETAILS. PLEASE NOTE THAT SCOURS SHALL BE DIRECTED TO A PIT FOR DECHLORINATION AND MONITORING. WHERE PITS CANNOT BE DIRECTED TO A WATERCOURSE OR STORMWATER AREA, TEMPORARY EROSION CONTROL TO BE INSTALLED PRIOR TO OPENING SCOUR.
10. FINAL ALIGNMENT TO BE ADJUSTED BY CONTRACTOR SUIT FINAL LOCATION OF SCOURS AND AIR VALVES.
11. INTERACTION BETWEEN THRUST BLOCKS AND ADJACENT SERVICES TO BE CONFIRMED DURING DETAILED DESIGN.
12. FINAL ALIGNMENT OF HYDRANT CONTROL VALVES TO BE CONFIRMED DURING DETAILED DESIGN.

CONSTRUCTION NOTES:

1. CONSTRUCTION CORRIDOR TO BE CONFIRMED BY SUPERINTENDENT IN CONJUNCTION WITH ECOLOGIST AT TIME OF CONSTRUCTION.
2. CONSTRUCTION CORRIDOR TO BE PEGGED PRIOR TO COMMENCING CONSTRUCTION.
3. CEMP TO BE APPROVED PRIOR TO MOBILISING TO SITE. ENVIRONMENTAL CONTROLS TO BE INSTALLED PRIOR TO COMMENCING EXCAVATION.
4. CONTRACTOR SHALL UNDERTAKE ALL ADDITIONAL DESIGN TO COMPLETE THE WORKS.

SERVICES AND SURVEY:

1. CONTRACTOR TO UNDERTAKE UPDATED SERVICES SEARCH PRIOR TO MOBILISING TO SITE AND LOCATE ALL SERVICES WITHIN 2m OF EXCAVATION. SERVICES TO BE INCLUDED ON WAC DOCUMENTATION.
2. ALL SERVICE CROSSINGS TO BE POTHOLED PRIOR TO COMMENCING WORKS. THE CONTRACTOR SHALL NOTIFY THE PRINCIPALS REPRESENTATIVE OF ANY IMPACTS TO THE DESIGN.
3. THE CONTRACTOR SHALL UNDERTAKE A BOUNDARY DEFINITION SURVEY OF ALL AREAS WITHIN 5m OF THE BOUNDARY.
4. THE CONTRACTOR SHALL UPDATE THE SERVICES SEARCH EVERY THREE MONTHS AND PROVIDE UPDATED RESULTS TO THE PRINCIPALS REPRESENTATIVE IN WRITING.

SERVICES:

1. ALL SERVICES ARE INDICATIVE AND BASED ON DBYD DATA, WAE DATA AND GIS INFORMATION. SERVICE LOCATIONS TO BE CONFIRMED DURING DETAILED DESIGN.
2. CONTRACTOR SHOULD ALLOW FOR CROSSING OF PRIVATE DRAINAGE LINES FOR WORKS IN THE ROAD CORRIDOR.
3. CONTRACTOR SHOULD ALLOW TO INSTALL PIPELINES IN ROAD CORRIDOR WHERE IT IS ASSESSED THEY CANNOT BE INSTALLED IN THE FOOTPATH AREA. PRICE IS TO INCLUDED ALL ASSOCIATED ITEMS, SUCH ARE REDESIGN OF ALIGNMENT, ALTERNATE MATERIALS AND QUANTITIES, TRAFFIC MANAGEMENT AND ROAD OCCUPANCY LICENCES, ETC.

LEGEND:

GENERAL

	HWC CADASTRAL BOUNDARY
X.00	MAJOR CONTOUR
	MINOR CONTOUR
	ROAD RECONSTRUCTION

EXISTING SERVICES

W(A) W(A)	HWC WATERMAIN
S(A) S(A)	HWC SEWERMAIN
D(A) D(A)	LMCC DRAINAGE
HV(A) HV(A) HV(A)	AUSGRID LINE (OVERHEAD HIGH VOLTAGE)
LV(A) LV(A) LV(A)	AUSGRID LINE (OVERHEAD LOW VOLTAGE)
HV(A) HV(A)	AUSGRID LINE (UNDERGROUND HIGH VOLTAGE)
LV(A) LV(A)	AUSGRID LINE (UNDERGROUND LOW VOLTAGE)
OHP(A) OHP(A)	POWER SERVICE LINE (OVERHEAD)
E(A) E(A)	POWER SERVICE LINE (UNDERGROUND)
T(A) T(A)	COMMUNICATIONS LINE (OPTUS, TELSTRA AND NBN)
G(A) G(A)	JEMENA UNDERGROUND GAS

ENVIRONMENTAL

	COASTAL EROSION ZONE
	FLOOD LEVELS

UNDERCONSTRUCTION

HV(A) HV(A) HV(A)	HUNTER WATER OVERHEAD ELECTRICITY UPGRADES

DESIGN

	POTABLE WATERMAIN
	BRINE DISCHARGE
	NEW INTAKE
	EXISTING BELMONT WWTW OUTFALL
SV	STOP VALVE
AV	AIR VALVE
	SCOUR VALVE
	CONSTRUCTION CORRIDOR
	ENVIRONMENTAL ASSESSMENT AREA
X.00	FINISHED GRADE MAJOR CONTOUR
	FINISHED GRADE MINOR CONTOUR
	FENCE

SERVICE QUALITY INDICATOR

W(A) W(A)	SURVEYED FROM SERVICE LOCATION
W(B) W(B)	SURVEYED WITH SOME GROUND TRUTHING
W(C) W(C)	GIS DATA FROM WAE
W(D) W(D)	INDICATIVE / FROM DBYD

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
C	FINAL ISSUE	DH	15/04/20
B	DRAFT FINAL ISSUE	JR	15/11/19
A	PRELIMINARY ISSUE	LC	-

VERSION 4

CONSULTANT DETAILS:

CONSULTANT REFERENCE No. 2219573

HUNTER WATER

DESIGNED: LC	DATE: 15/04/20	COMPANY: GHD PTY LTD	
DRAWN: RG	DATE: 15/04/20	COMPANY: GHD PTY LTD	
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TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
NOTES AND LEGEND

SIZE:	SCALE:	INDEX No.	DRAWING No.	SHEET	REV No.
A1	NTS	-	15830	003	0C

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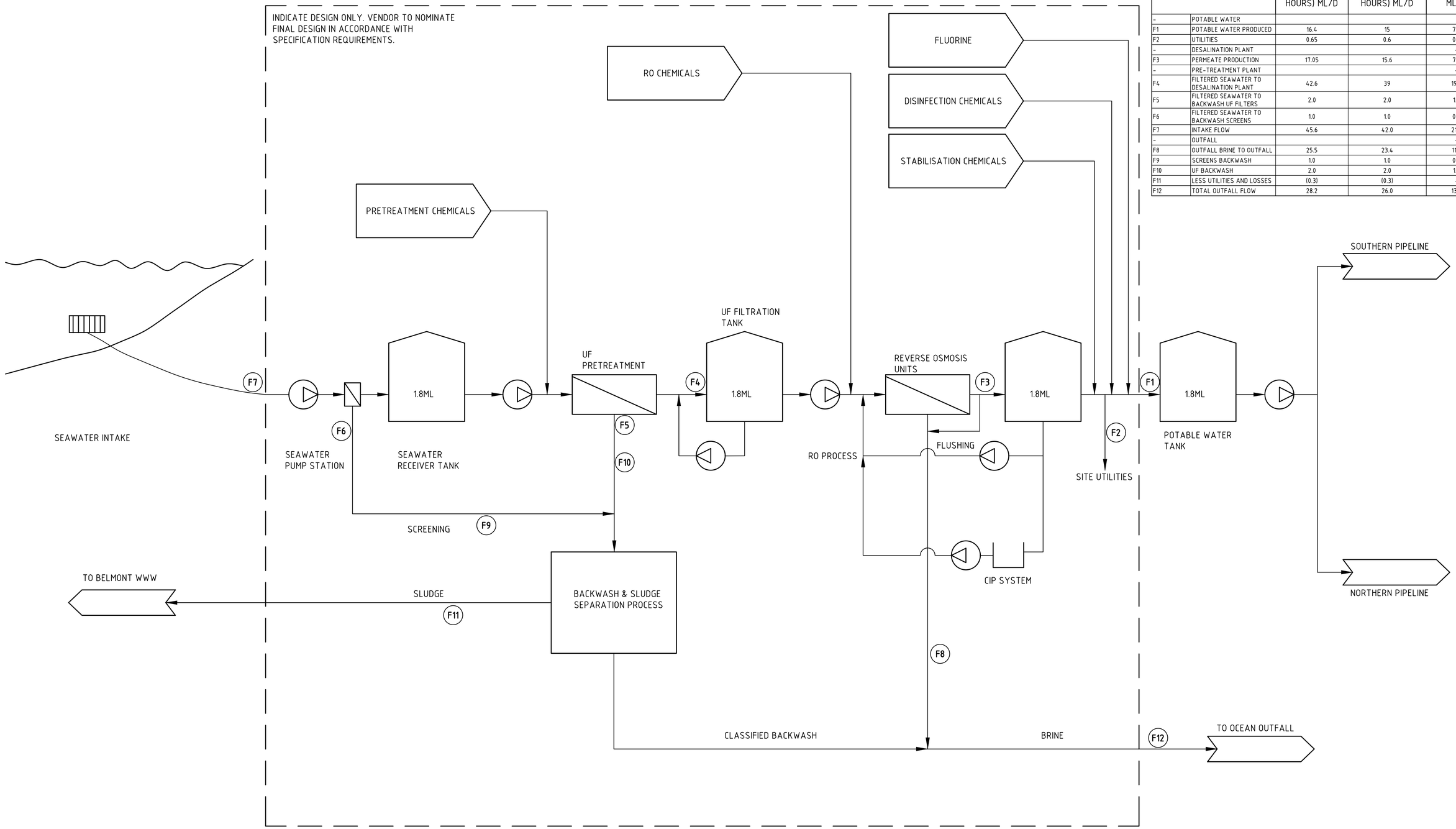

FLOW STREAM		MAXIMUM DAILY FLOWS (OVER 22 HOURS) ML/D	MAXIMUM DAILY FLOWS (OVER 24 HOURS) ML/D	MAXIMUM DAILY FLOWS ML/D
-	POTABLE WATER			
F1	POTABLE WATER PRODUCED	16.4	15	7.5
F2	UTILITIES	0.65	0.6	0.3
-	DESALINATION PLANT			-
F3	PERMEATE PRODUCTION	17.05	15.6	7.8
-	PRE-TREATMENT PLANT			-
F4	FILTERED SEAWATER TO DESALINATION PLANT	42.6	39	19.5
F5	FILTERED SEAWATER TO BACKWASH UF FILTERS	2.0	2.0	1.0
F6	FILTERED SEAWATER TO BACKWASH SCREENS	1.0	1.0	0.5
F7	INTAKE FLOW	45.6	42.0	21.0
-	OUTFALL			-
F8	OUTFALL BRINE TO OUTFALL	25.5	23.4	11.7
F9	SCREENS BACKWASH	1.0	1.0	0.3
F10	UF BACKWASH	2.0	2.0	1.0
F11	LESS UTILITIES AND LOSSES	(0.3)	(0.3)	-
F12	TOTAL OUTFALL FLOW	28.2	26.0	13.0

CHEMICAL DOSING

SCALE 1:100

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
C	FINAL ISSUE	DH	15/04/20
B	DRAFT FINAL ISSUE	JR	06/11/19
A	PRELIMINARY ISSUE	RG	-

VERSION 4

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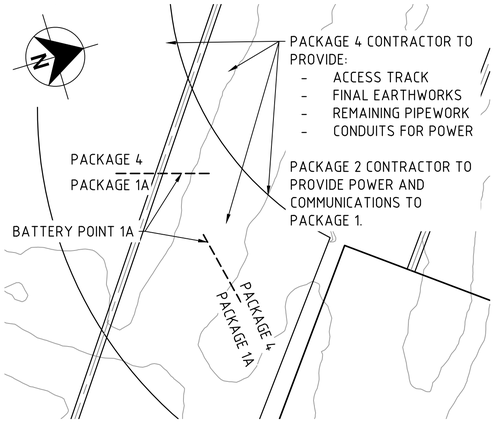
TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
PROCESS FLOW DIAGRAM

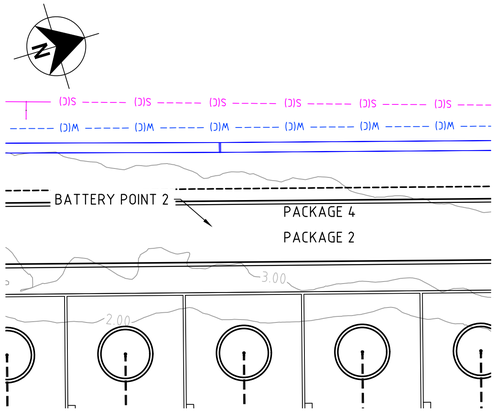
SIZE:	SCALE:	INDEX No.	DRAWING No.	SHEET	REV No.
A1	NTS	-	15830	004	0C

Plot Date: 15/04/20 - 10:15 Cad File: \\ghdnet\ghd\PH\Manila\Projects\22\19573\Design\03 Drawings\15830-004_0B.dwg



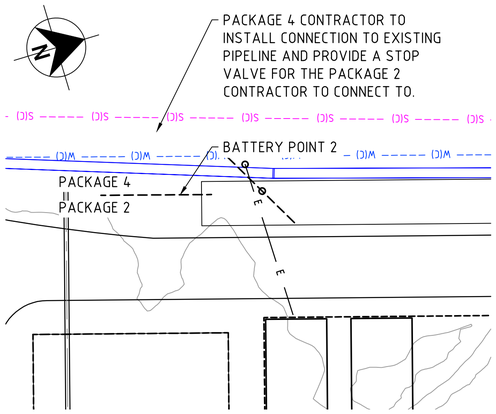
BATTERY POINT 1A DETAIL
SCALE 1:250

BATTERY POINT 1B DETAIL
SCALE 1:250

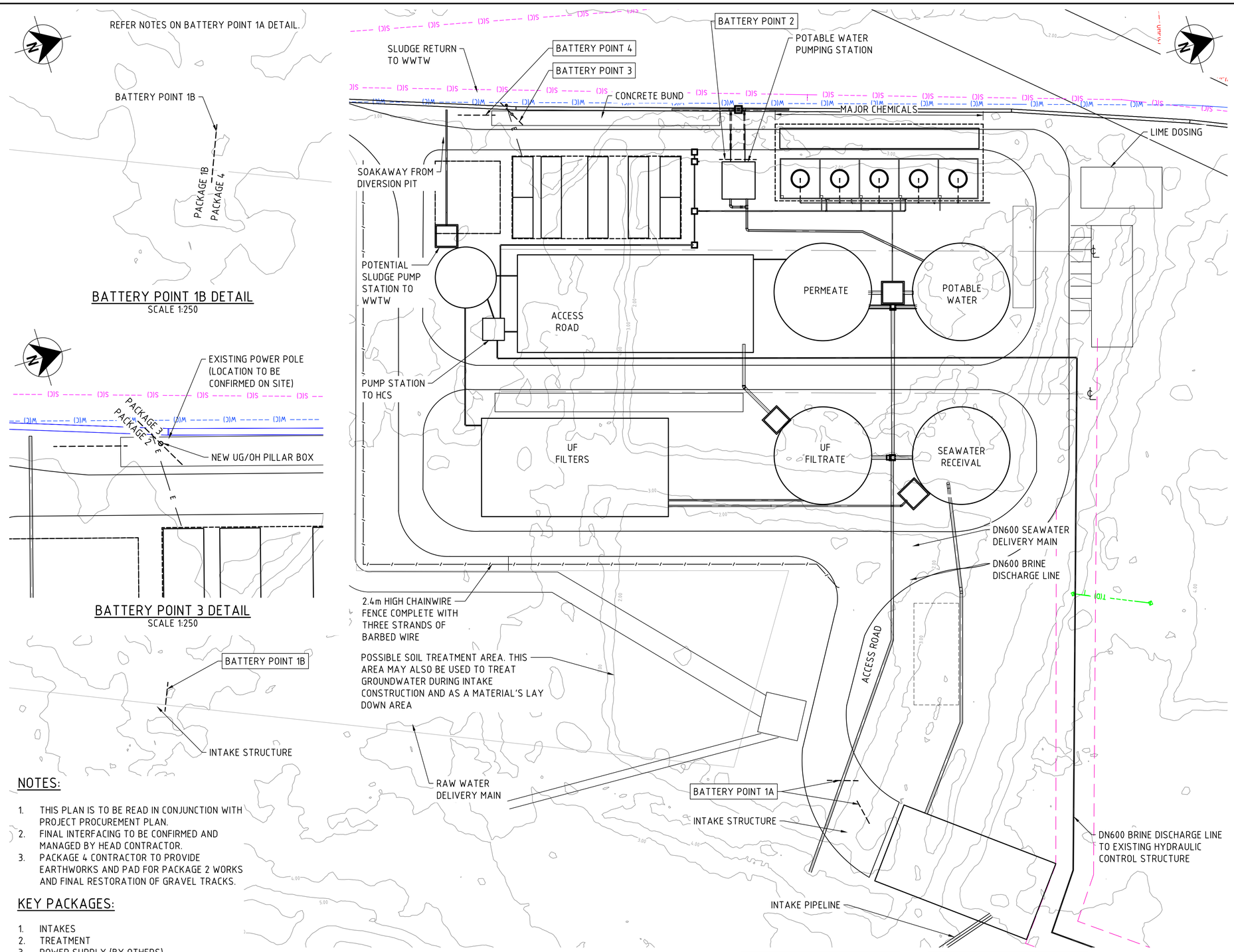


BATTERY POINT 2 DETAIL
SCALE 1:250

BATTERY POINT 3 DETAIL
SCALE 1:250



BATTERY POINT 4 DETAIL
SCALE 1:250



PLAN
SCALE 1:500

HORIZONTAL SCALE 1:250

HORIZONTAL SCALE 1:500

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

NOTES:

1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH PROJECT PROCUREMENT PLAN.
2. FINAL INTERFACING TO BE CONFIRMED AND MANAGED BY HEAD CONTRACTOR.
3. PACKAGE 4 CONTRACTOR TO PROVIDE EARTHWORKS AND PAD FOR PACKAGE 2 WORKS AND FINAL RESTORATION OF GRAVEL TRACKS.

KEY PACKAGES:

1. INTAKES
2. TREATMENT
3. POWER SUPPLY (BY OTHERS)
4. CIVIL AND PIPELINE (PIPELINE BY OTHERS)
5. DECOMMISSIONING

No.	REVISION DETAILS	DWN	DATE
D	FINAL ISSUE	JL	14/05/20
C	DRAFT FINAL ISSUE	DH	14/04/20
B	DRAFT FINAL ISSUE	JR	06/11/19
A	PRELIMINARY ISSUE	LC	-

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TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
PROCUREMENT PLAN

SIZE	SCALE	INDEX No.	DRAWING No.	SHEET	REV No.
A1	AS SHOWN	-	15830	005	0D

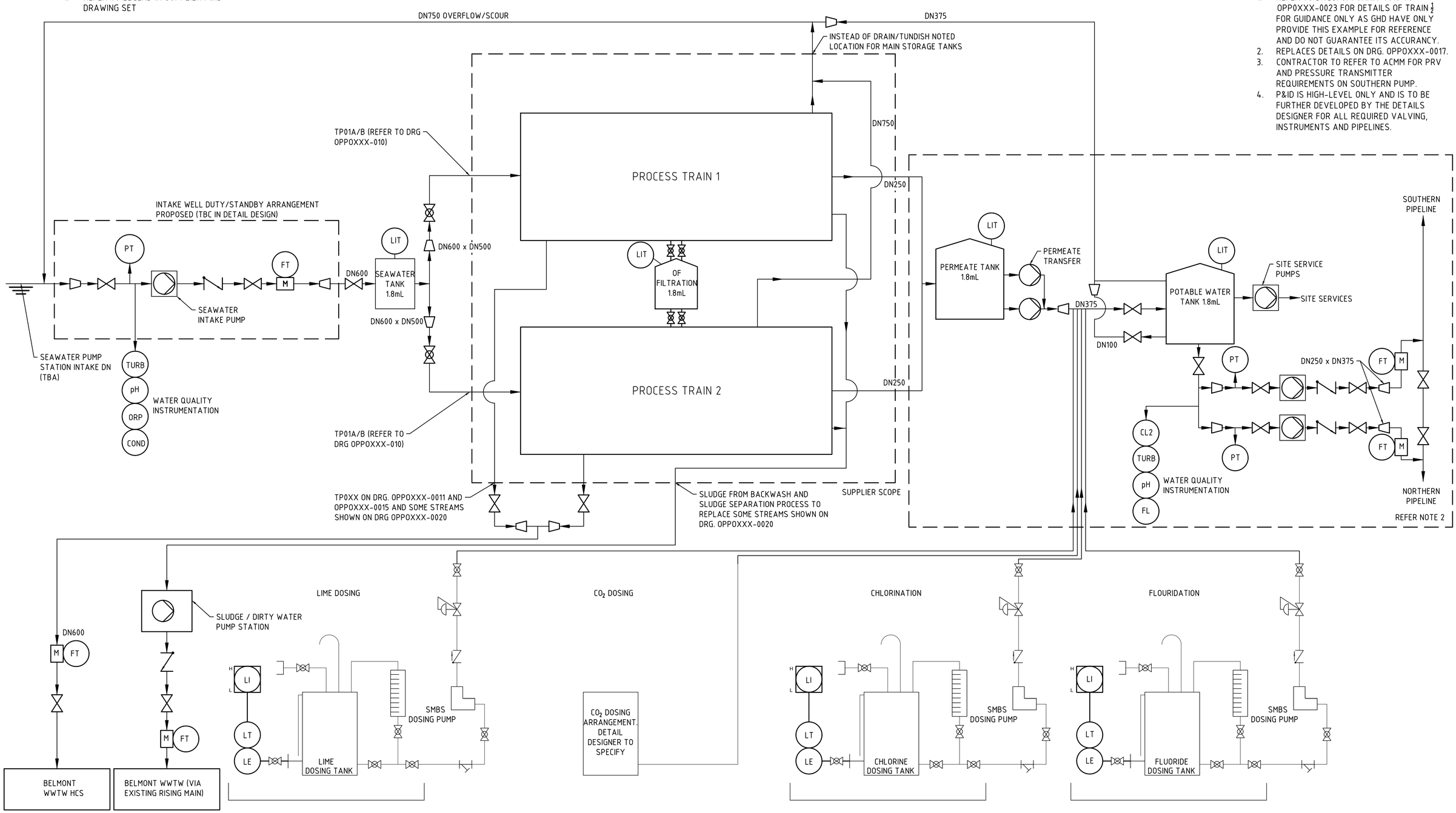
Plot Date: 10/07/20 - 16:37 Cad File: C:\Users\dchornijas\Desktop\desalination\03 Drawings\15830-005_0D.dwg

LEGEND:

1. REFER TO LEGEND IN SUPPLIER P&ID DRAWING SET

NOTE:

1. REFER TO DRGS. OPP0XXX-0010 TO OPP0XXX-0023 FOR DETAILS OF TRAIN 1 & 2 FOR GUIDANCE ONLY AS GHD HAVE ONLY PROVIDE THIS EXAMPLE FOR REFERENCE AND DO NOT GUARANTEE ITS ACCURANCY.
2. REPLACES DETAILS ON DRG. OPP0XXX-0017.
3. CONTRACTOR TO REFER TO ACMM FOR PRV AND PRESSURE TRANSMITTER REQUIREMENTS ON SOUTHERN PUMP.
4. P&ID IS HIGH-LEVEL ONLY AND IS TO BE FURTHER DEVELOPED BY THE DETAILS DESIGNER FOR ALL REQUIRED VALVING, INSTRUMENTS AND PIPELINES.



PROCESS AND INSTRUMENTATION DIAGRAM

NTS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
C	FINAL ISSUE	DH	15/04/20
B	DRAFT FINAL ISUUE	JR	06/11/19
A	PRELIMINARY ISSUED	JR	23/09/19

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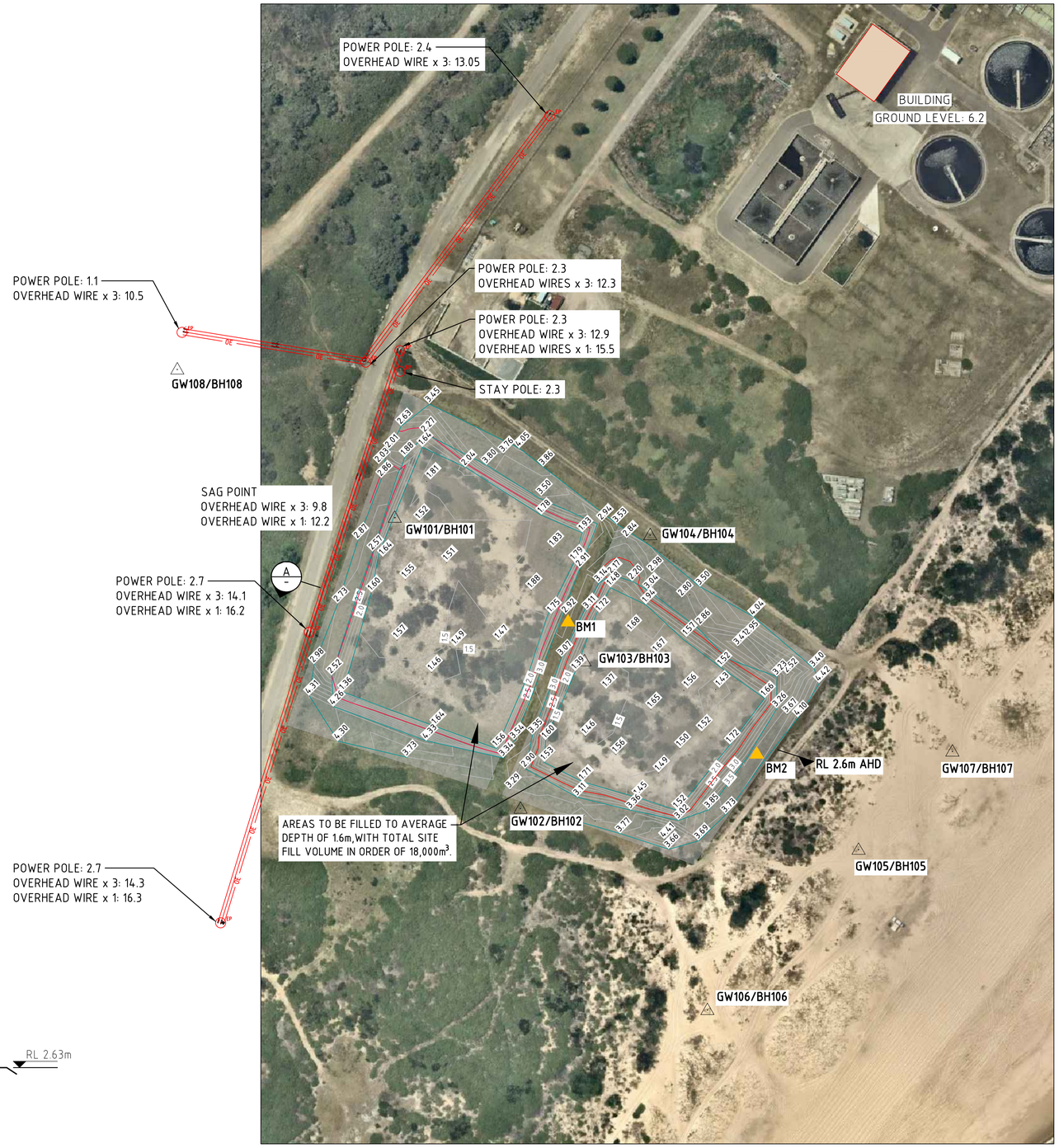
TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
PROCESS AND INSTRUMENTATION DIAGRAM (CONCEPT LEVEL)

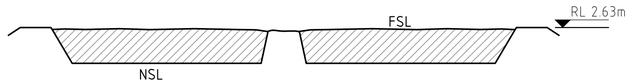
SIZE	SCALE	INDEX No.	DRAWING No.	SHEET	REV No.
A1	NTS	-	15830	006	0C

IMPORTANT NOTES: DETAIL SURVEY

1. THIS PLAN WAS PREPARED FOR THE SOLE PURPOSES OF THE CLIENT FOR THE SPECIFIC PURPOSE OF PRODUCING A DETAIL PLAN. THIS PLAN IS STRICTLY LIMITED TO THE PURPOSE AND DOES NOT APPLY DIRECTLY OR INDIRECTLY AND WILL NOT BE USED FOR ANY OTHER APPLICATION, PURPOSE, USE OR MATTER. THE PLAN IS PRESENTED WITHOUT THE ASSUMPTION OF A DUTY OF CARE TO ANY OTHER PERSON (OTHER THAN THE CLIENT) ("THIRD PARTY") AND MAY NOT BE RELIED ON BY THIRD PARTY.
2. RPS AUSTRALIA EAST PTY LTD WILL NOT BE LIABLE (IN NEGLIGENCE OR OTHERWISE) FOR ANY DIRECT OR INDIRECT LOSS, DAMAGE, LIABILITY OR CLAIM ARISING OUT OF OR INCIDENTAL TO:
   - A. A THIRD PARTY PUBLISHING, USING OR RELYING ON THE PLAN;
   - B. RPS AUSTRALIA EAST PTY LTD RELYING ON INFORMATION PROVIDED TO IT BY THE CLIENT OR A THIRD PARTY WHERE THE INFORMATION IS INCORRECT, INCOMPLETE, INACCURATE, OUT-OF-DATE OR UNREASONABLE;
   - C. ANY INACCURACIES OR OTHER FAULTS WITH INFORMATION OR DATA SOURCED FROM A THIRD PARTY;
   - D. RPS AUSTRALIA EAST PTY LTD RELYING ON SURFACE INDICATORS THAT ARE INCORRECT OR INACCURATE;
   - E. THE CLIENT OR ANY THIRD PARTY NOT VERIFYING INFORMATION IN THIS PLAN WHERE RECOMMENDED BY RPS AUSTRALIA EAST PTY LTD;
   - F. LODGMENT OF THIS PLAN WITH ANY LOCAL AUTHORITY AGAINST THE RECOMMENDATION OF RPS AUSTRALIA EAST PTY LTD;
   - G. THE ACCURACY, RELIABILITY, SUITABILITY OR COMPLETENESS OF ANY APPROXIMATIONS OR ESTIMATES MADE OR REFERRED TO BY RPS AUSTRALIA EAST PTY LTD IN THIS PLAN.
3. WITHOUT LIMITING PARAGRAPH 1 OR 2 ABOVE, THIS PLAN MAY NOT BE COPIED, DISTRIBUTED, OR REPRODUCED BY ANY PROCESS UNLESS THIS NOTE IS CLEARLY DISPLAYED ON THE PLAN.
4. ANY ELECTRONIC FILE IS PROVIDED WITHOUT WARRANTY AND SHOULD BE USED ONLY IN CONJUNCTION WITH THE SUPPLIED PDF/PAPER COPY OF THIS PLAN.
5. NO BOUNDARY SURVEY HAS BEEN UNDERTAKEN AND NO BOUNDARIES HAVE BEEN SHOWN ON THIS PLAN.
6. SERVICES SHOWN ARE INDICATIVE ONLY. POSITIONS ARE BASED ON VISIBLE SURFACE INDICATORS. OTHER SERVICES MAY EXIST WHICH ARE NOT SHOWN.
7. LEVELS ARE BASED ON AUSTRALIAN HEIGHT DATUM (AHD) USING SSM 87714 WITH RL OF 8.851m LOCATED AT OCEAN PARK ROAD, BELMONT SOUTH
8. ORIGIN OF CO-ORDINATES SSM 87714 WITH MGA CO-ORDINATE VALUES OF E 375825.713 N 66342866.992
9. CONTOUR INTERVAL 0.5m. CONTOURS ARE AN INDICATION OF LANDFORM AND SHOULD NOT BE TAKEN IN PREFERENCE TO SPOT LEVELS.
10. POWER POLE SIZE HAS BEEN EXAGGERATED FOR DIAGRAMATIC PURPOSES DUE TO THE SCALE OF THIS PLAN AND ARE NOT TO SCALE.



EXISTING SITE FEATURES AND SITE PREPARATION
SCALE 1::1000



A SECTION
SCALE 1 : 1000

N

LEGEND:

- BUILDING WALLS
- TOP/TOE BANK
- MAJOR CONTOUR
- MINOR CONTOUR
- OVERHEAD ELECTRICITY
- EP POWER POLE (NOT TO SCALE)
- BUILDING HATCH
- BENCHMARK (m)
- GROUNDWATER MONITORING WELL/BOREHOLE - SEE TABLE (AHD)

BENHMARKS

NAME	EASTING	NORTHING	R.L.	DESCRIPTION
BM1	375682.83	6342522.97	3.16	PEG IN TOP OF BUND WALL
BM2	375756.99	6342468.81	3.76	PEG IN TOP OF BUND WALL

TABLE OF BOREHOLE LOCATIONS

BOREHOLE	EASTING	NORTHING	GROUND LEVEL	TOP OF POST
101	375613.64	6342562.90	1.73	2.781
102	375663.18	6342447.75	2.85	3.853
103	375688.54	6342506.06	1.49	2.19
104	375714.53	6342556.01	2.88	3.584
105	375797.14	6342431.37	4.90	5.998
106	375737.32	6342367.92	4.55	5.647
107	375834.13	6342470.38	5.25	6.35
108	375527.20	6342621.45	1.13	2.234

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WARNING
ALL SERVICES SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY AND EXACT LOCATION IS TO BE CONFIRMED ON SITE BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORKS.

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
C	FINAL ISSUE	DH	15/04/20
B	DRAFT FINAL ISSUE	JE	06/11/19
A	PRELIMINARY ISSUED	JR	12/09/19

VERSION 4

CONSULTANT DETAILS:
GHD
Level 3 GHD Tower 24 Honeysuckle Drive
Newcastle NSW 2300
T 61 2 4979 9999 F 61 2 4979 9988
E ntlmail@ghd.com.au www.ghd.com.au
CONSULTANT REFERENCE No.

HUNTER WATER

DESIGNED: LC	DATE: 15/04/20	COMPANY: GHD PTY LTD	
DRAWN: JR	DATE: 15/04/20	COMPANY: GHD PTY LTD	
CHECKED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	
APPROVED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	

TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
EXISTING SITE FEATURES AND SITE PREPARATION

SIZE	SCALE	INDEX No.	DRAWING No.	SHEET	REV No.
A1	1:1000	-	15830	008	0C

POTENTIAL SOLIDS HANDLING AREA
POTENTIAL SLUDGE RETURN TO WWTW INLET WORKS
SOUTHERN PIPELINE
POTENTIAL SLUDGE PUMP STATION TO WWTW
KIOSKS, SWITCH ROOMS AND TRANSFORMERS AREA
POTABLE WATER PUMP STATION
CONCRETE DELIVERY BUND
CHEMICAL STORAGE AND DELIVERY BUND ROOF
MAJOR CHEMICALS
HARDSTAND AREA
LIME DOSING
HARDSTAND AREA
ADMIN BUILDING WITH CARPARK
CLARIFIER
RO BUILDING
PERMEATE
POTABLE WATER
TEMPORARY CAR PARK
NORTHERN PIPELINE
ACCESS ROAD
HARDSTAND AREA
24000
10000
24000
UF FILTERS
UF FILTRATE
RAW SEA WATER
STORMWATER SWALE
OVERFLOW
ACCESS ROAD
POSSIBLE PRE-TREATMENT FACILITY
INDICATIVE COMPOUND/ LAYDOWN/STOCKPILE/SOIL
STORMWATER BASIN
GROUND WATER TREATMENT AREA
SEAWATER INTAKE, SCREENING AND PUMPING STRUCTURE
BRINE PIPELINE DISCHARGE
INTAKE PIPELINE
BRINE DISTRIBUTION GROUND WATER TREATMENT AREA CORRIDOR
BRINE DISCHARGE PUMP STATION
HCS

NOTES:

1. LAYOUT AND DESIGN IS INDICATIVE FOR THE PURPOSES OF ENVIRONMENTAL APPROVAL.
2. SYSTEM DESIGN IS SUBJECT TO DETAILED DESIGN AND MAY OCCUR ANYWHERE IN THE CONSTRUCTION FOOTPRINT.
3. PIPELINES SHOWN MAY COMPRISE A MIXTURE OF MULTIPLE RUNS AND ABOVE AND BELOW GROUND.
4. SIZING IS INDICATIVE AND IS LIKELY TO BE OPTIMISED DURING DETAILED DESIGN AND BASED ON AVAILABLE TECHNOLOGY.

PLAN
SCALE 1:750

0 7.5 15.0 22.5 30 37.5 45 52.5
7.5 0
HORIZONTAL SCALE 1:750

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
D	FINAL ISSUE	JL	14/05/20
C	FINAL ISSUE	DH	15/04/20
B	DRAFT FINAL ISSUE	JR	06/11/19
A	PRELIMINARY ISSUE	LC	-

VERSION 4

CONSULTANT DETAILS:
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E ntlmail@ghd.com.au
www.ghd.com.au

CONSULTANT REFERENCE No. 2219573

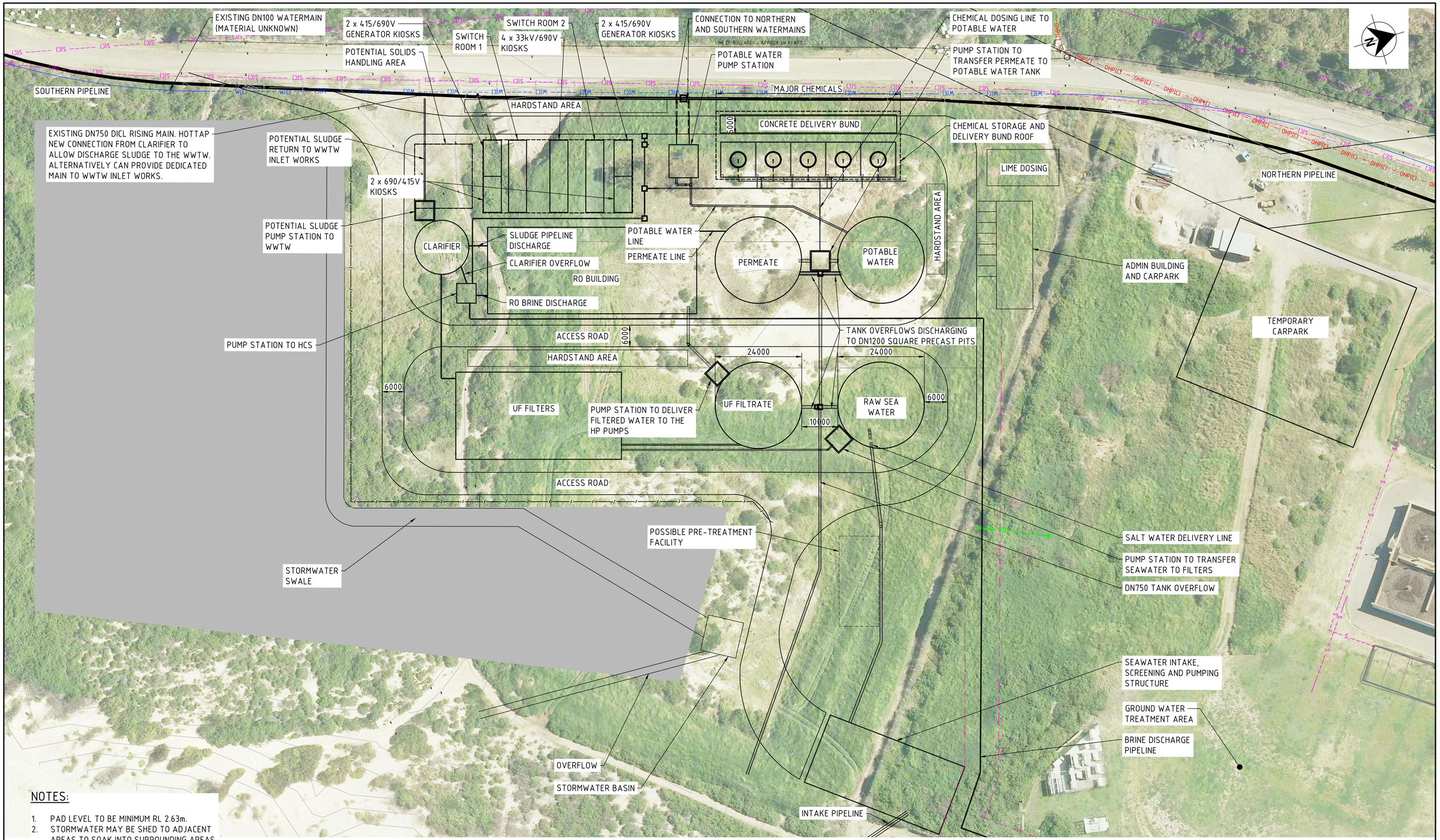
HUNTER WATER

DESIGNED: LC	DATE: 15/04/20	COMPANY: GHD PTY LTD	
DRAWN: RG	DATE: 15/04/20	COMPANY: GHD PTY LTD	
CHECKED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	
APPROVED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	

TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
SITE LAYOUT

SIZE:	SCALE:	INDEX No.	DRAWING No.	SHEET	REV No.
A1	1:750	-	15830	010	0D

Plot Date: 10/07/20 - 18:46 Cad File: \\ghdnet\ghd\PH\Manila\Projects\22\19573\Design\03 Drawings\15830-010_0D.dwg



NOTES:

1. PAD LEVEL TO BE MINIMUM RL 2.63m.
2. STORMWATER MAY BE SHED TO ADJACENT AREAS TO SOAK INTO SURROUNDING AREAS.
3. MOST FILTERS AND PRESSURE VESSELS SHOWN ARE CONTAINERISED WITH CONTAINERS NOT SHOWN FOR CLARITY.

PLAN
SCALE 1:500

HORIZONTAL SCALE 1:500

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
D	FINAL ISSUE	JL	14/05/20
C	FINAL ISSUE	DH	15/04/20
B	DRAFT FINAL ISSUE	JR	06/11/19
A	PRELIMINARY ISSUE	LC	-

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E ntlmail@ghd.com.au www.ghd.com.au

CONSULTANT REFERENCE No. 2219573

HUNTER WATER

DESIGNED: LC	DATE: 15/04/20	COMPANY: GHD PTY LTD	
DRAWN: RG	DATE: 15/04/20	COMPANY: GHD PTY LTD	
CHECKED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	
APPROVED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	

TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
TREATMENT SITE GENERAL ARRANGEMENT

SIZE:	SCALE:	INDEX No.	DRAWING No.	SHEET	REV No.
A1	1:500	-	15830	011	0D

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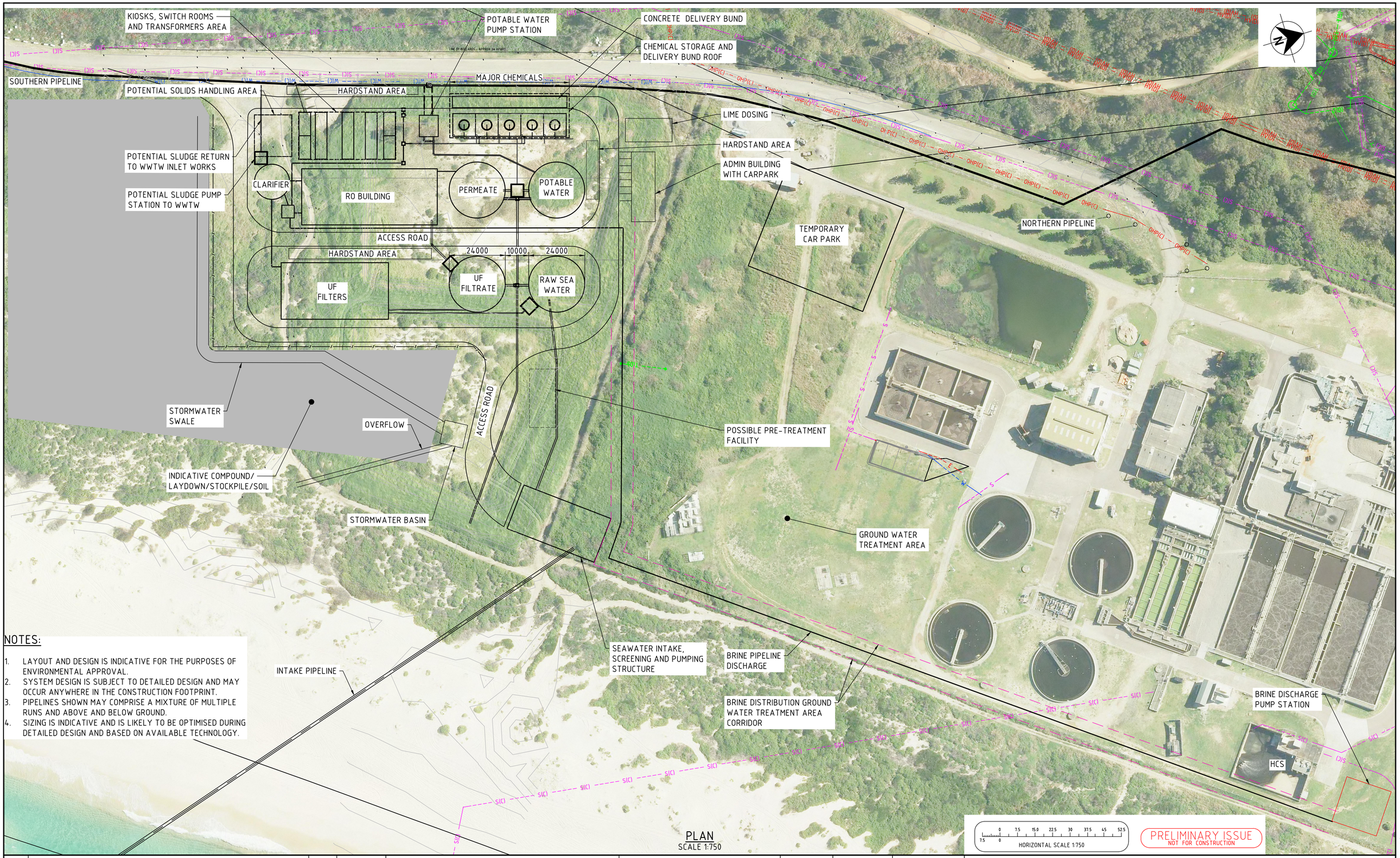

NOTES:

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PLAN
SCALE 1:750

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
D	FINAL ISSUE	JL	14/05/20
C	FINAL ISSUE	DH	15/04/20
B	DRAFT FINAL ISSUE	JR	06/11/19
A	PRELIMINARY ISSUE	LC	-

VERSION 4

CONSULTANT DETAILS:
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E ntlmail@ghd.com.au
www.ghd.com.au

CONSULTANT REFERENCE No. 2219573

HUNTER WATER

DESIGNED: LC	DATE: 15/04/20	COMPANY: GHD PTY LTD	
DRAWN: RG	DATE: 15/04/20	COMPANY: GHD PTY LTD	
CHECKED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	
APPROVED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	

TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
SITE LAYOUT

SIZE:	SCALE:	INDEX No.	DRAWING No.	SHEET	REV No.
A1	1:750	-	15830	020	0D

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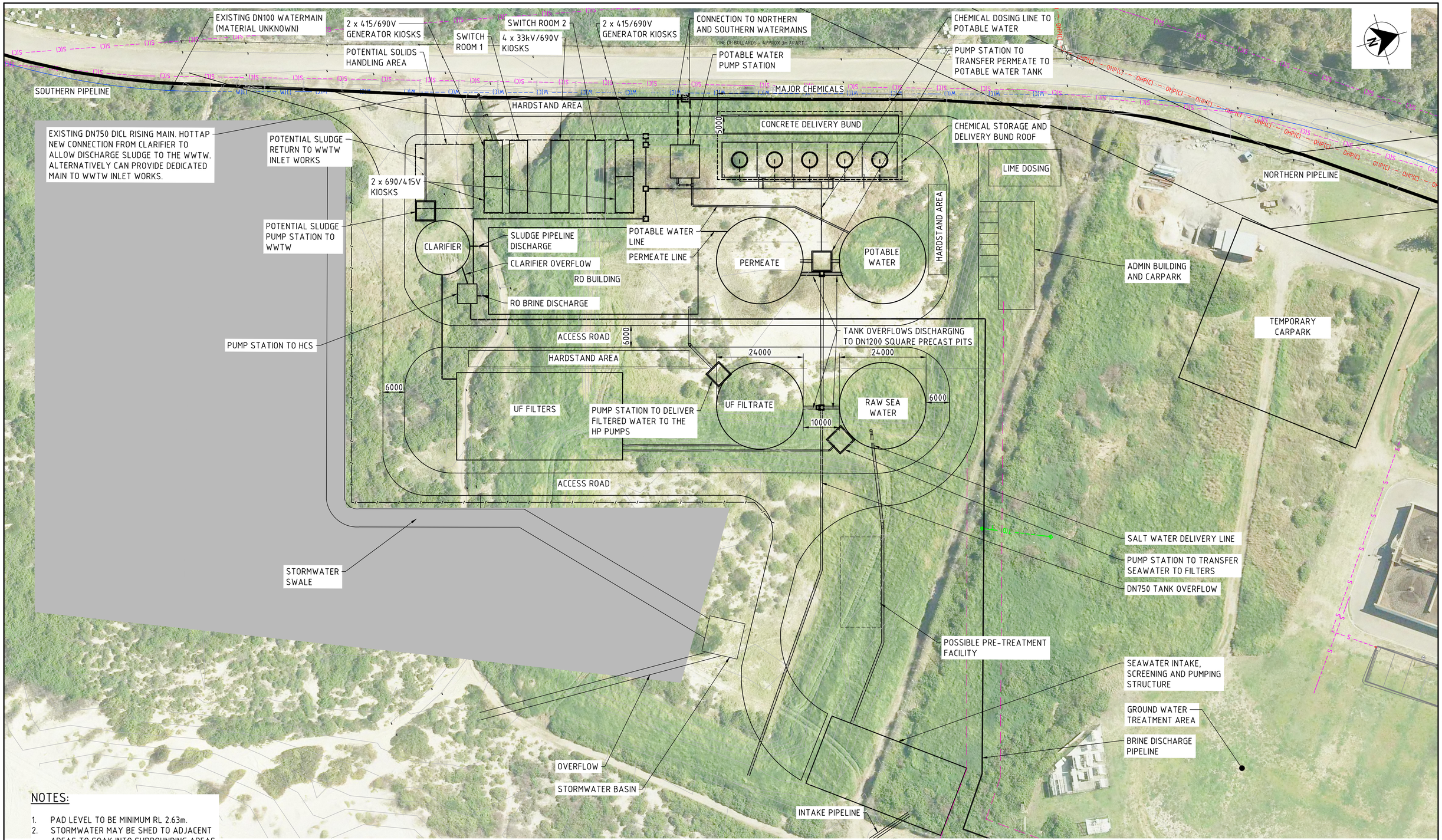

NOTES:

1. PAD LEVEL TO BE MINIMUM RL 2.63m.
2. STORMWATER MAY BE SHED TO ADJACENT AREAS TO SOAK INTO SURROUNDING AREAS.
3. MOST FILTERS AND PRESSURE VESSELS SHOWN ARE CONTAINERISED WITH CONTAINERS NOT SHOWN FOR CLARITY.

PLAN
SCALE 1:500

HORIZONTAL SCALE 1:500

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
D	FINAL ISSUE	JL	14/05/20
C	FINAL ISSUE	DH	15/04/20
B	DRAFT FINAL ISSUE	JR	06/11/19
A	PRELIMINARY ISSUE	LC	-

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E ntlmail@ghd.com.au www.ghd.com.au

CONSULTANT REFERENCE No. 2219573

HUNTER WATER

DESIGNED: LC	DATE: 15/04/20	COMPANY: GHD PTY LTD	
DRAWN: RG	DATE: 15/04/20	COMPANY: GHD PTY LTD	
CHECKED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	
APPROVED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	

TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
TREATMENT SITE GENERAL ARRANGEMENT

SIZE:	SCALE:	INDEX No.	DRAWING No.	SHEET	REV No.
A1	1:500	-	15830	021	0D

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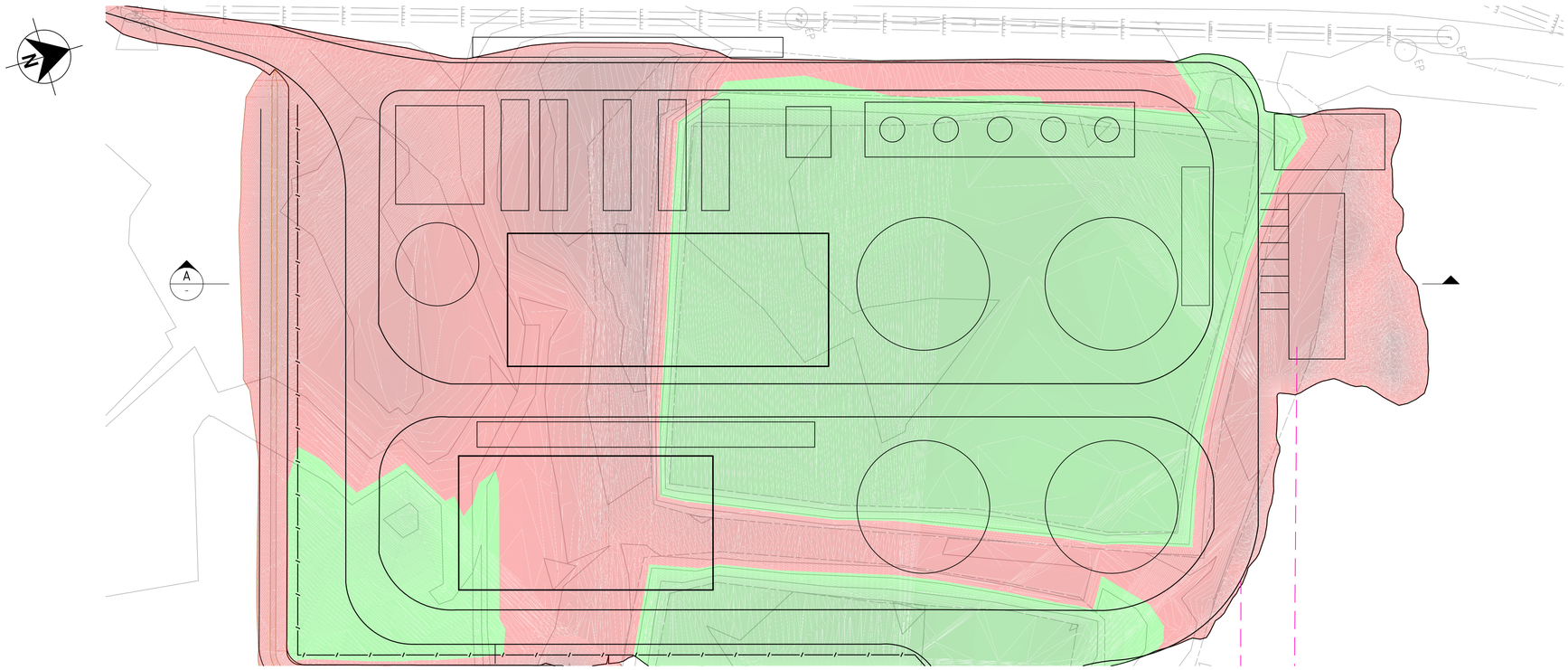


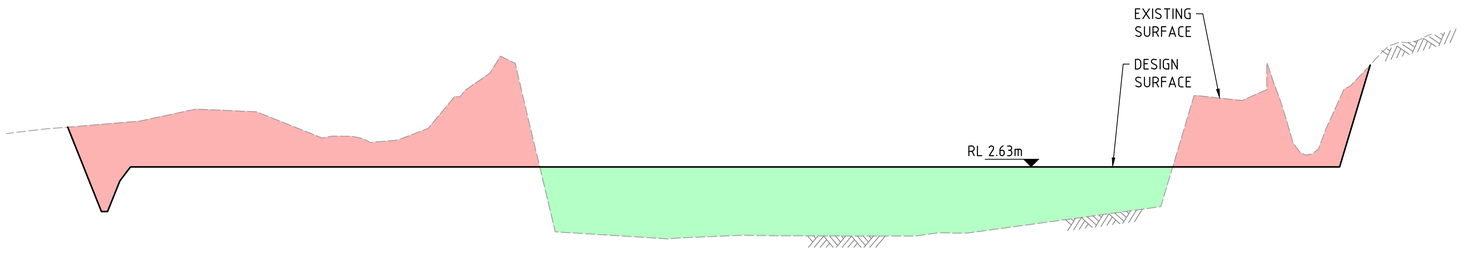
LEGEND:

CUT AREA

FILL AREA

PLAN

SCALE 1:500



A - SECTION

SCALE H 1:500 , V 1:50

HORIZONTAL SCALE 1:50

HORIZONTAL SCALE 1:500

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
B	FINAL ISSUE	JL	15/04/20
A	PRELIMINARY ISSUE	JC	05/03/20

VERSION 4

CONSULTANT DETAILS:
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E nrlmail@ghd.com.au www.ghd.com.au
CONSULTANT REFERENCE No.

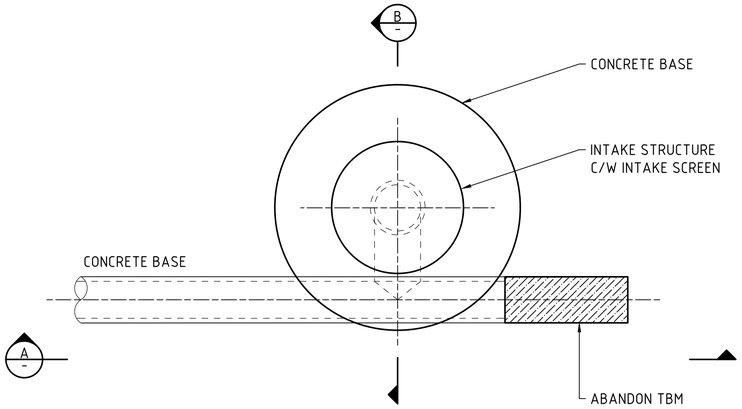
HUNTER WATER

DESIGNED: LC	DATE: 15/04/20	COMPANY: GHD PTY LTD	
DRAWN: JC	DATE: 15/04/20	COMPANY: GHD PTY LTD	
CHECKED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	
APPROVED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	

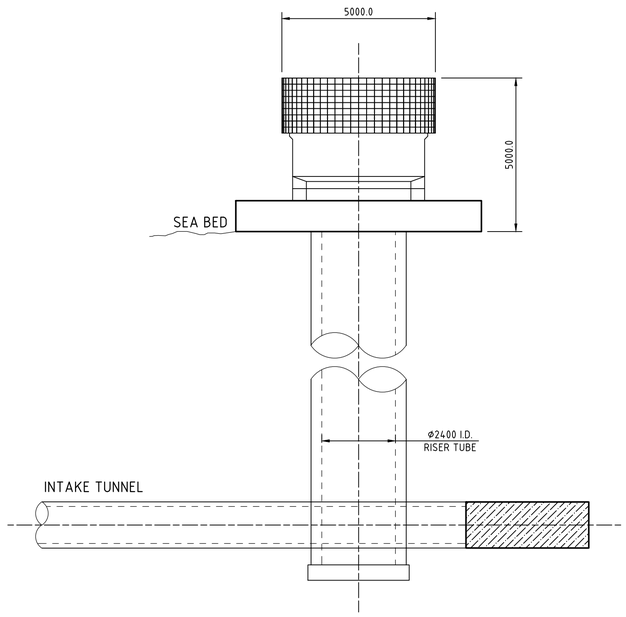
TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
EARTHWORKS PLAN AND CROSS SECTION
-

SIZE:	SCALE:	INDEX No.	DRAWING No.	SHEET	REV No.
A1	AS SHOWN	-	15830	030	0B

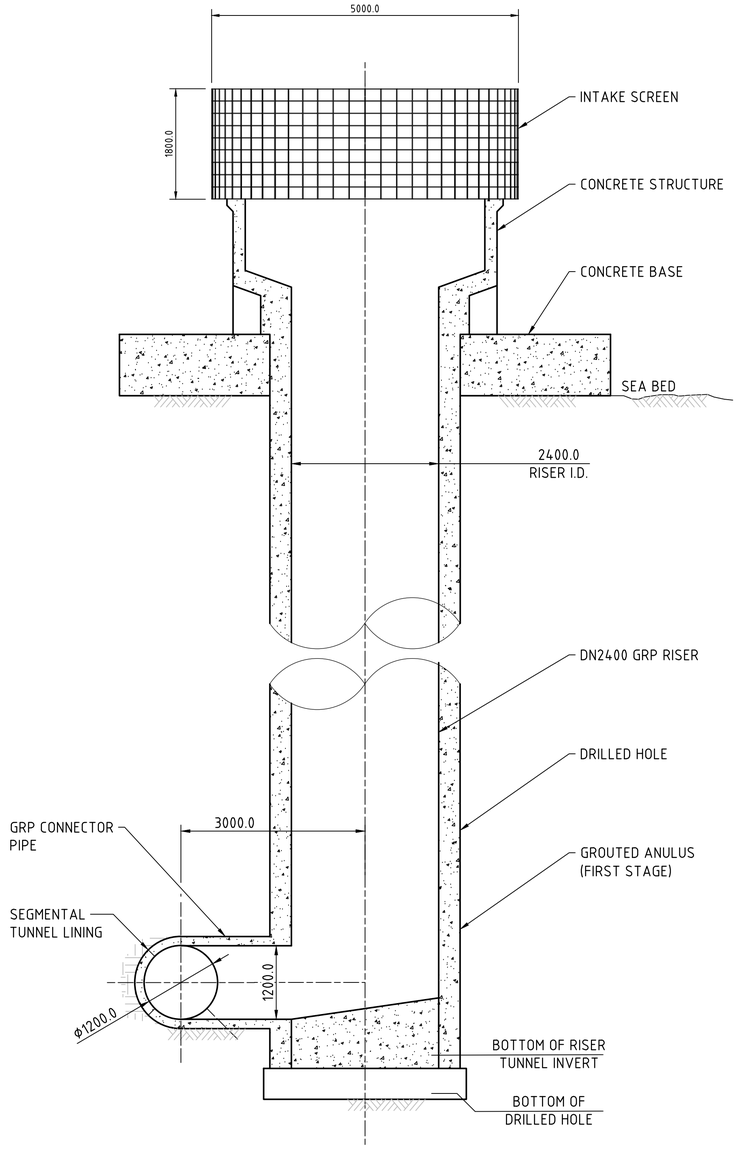
Plot Date: 09/07/20 - 11:19 Cad File: \\ghdnet\ghd\PH\Manila\Projects\22\19573\Design\03 Drawings\15830-030_0A.dwg



INTAKE RISER VELOCITY CAP
SCALE 1:100



SECTION A
SCALE 1:100



SECTION B
SCALE 1:50

SECTION THROUGH INTAKE
RISER PIPE IN RISER BORE

HORIZONTAL SCALE 1:50

HORIZONTAL SCALE 1:100

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
A	PRELIMINARY ISSUED	JR	23.08.19

VERSION 4

CONSULTANT DETAILS:

CONSULTANT REFERENCE No.

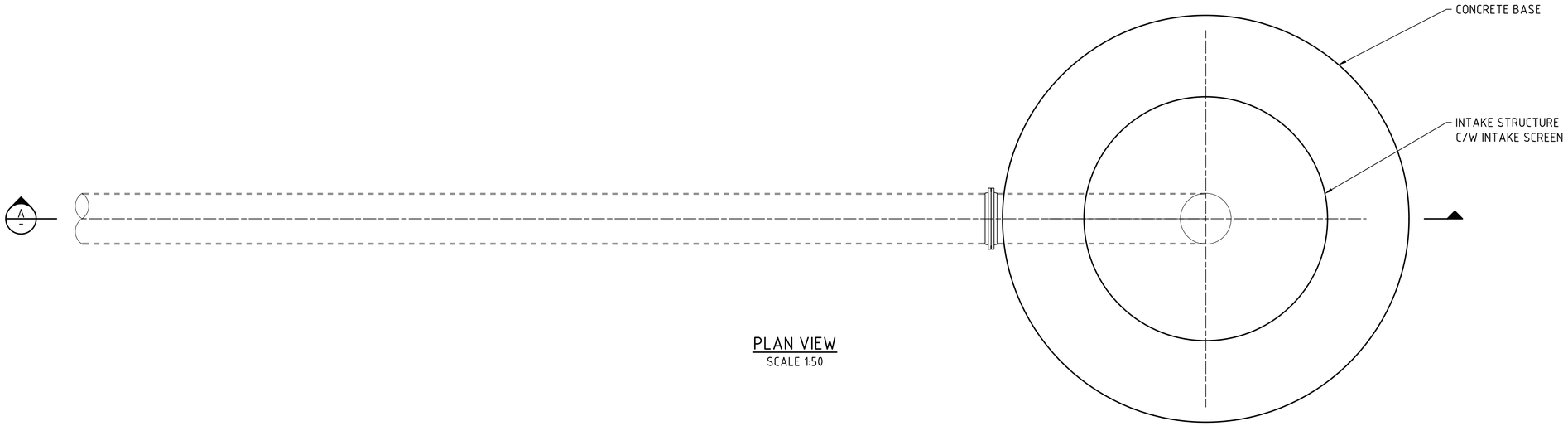
HUNTER WATER

DESIGNED:	DATE:	COMPANY:
DRAWN:	DATE:	COMPANY:
CHECKED:	DATE:	COMPANY:
APPROVED:	DATE:	COMPANY:

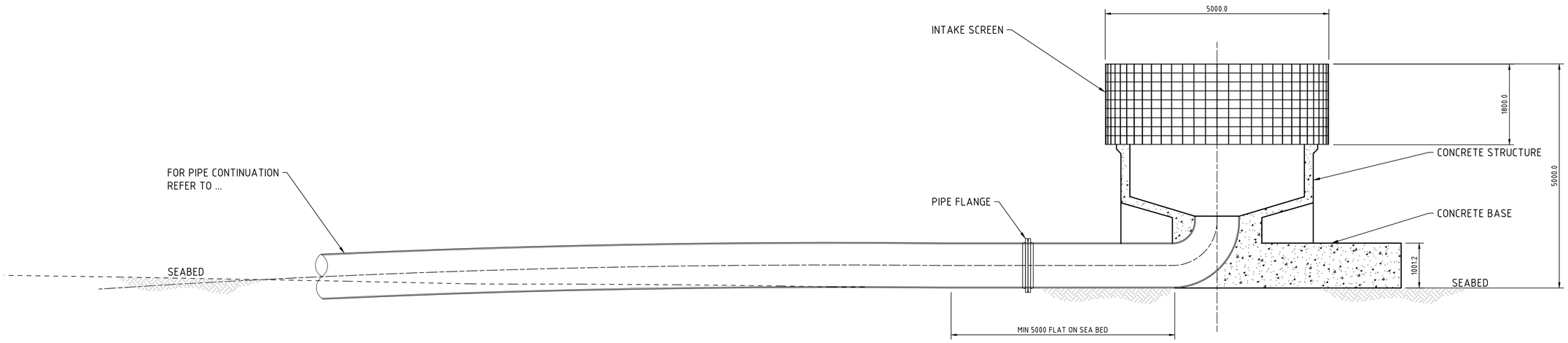
TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
-
SEAWATER INTAKE STRUCTURE
-

SIZE:	SCALE:	INDEX No.	DRAWING No.	SHEET	REV No.
A1	AS SHOWN	-	15830	040	0A

Plot Date: 23/06/20 - 11:56 Cad File: \\ghdnet\ghd\PH\Manila\Projects\22\19573\Design\03 Drawings\15830-040__0A.dwg



PLAN VIEW
SCALE 1:50



SECTION A
SCALE 1:50

VELOCITY CAP STRUCTURE

HORIZONTAL SCALE 1:50

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
A	PRELIMINARY ISSUED	JR	23.08.19

VERSION 4

CONSULTANT DETAILS:

CONSULTANT REFERENCE No.

HUNTER WATER

DESIGNED: DATE: COMPANY:
DRAWN: DATE: COMPANY:
CHECKED: DATE: COMPANY:
APPROVED: DATE: COMPANY:

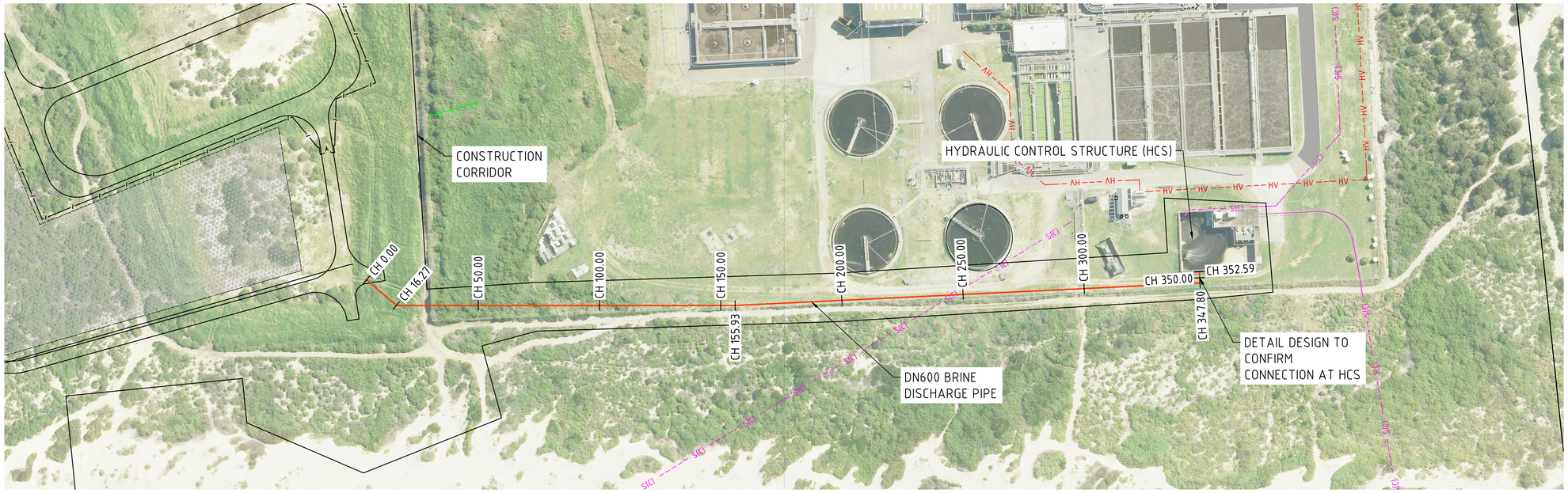
TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
-
SEAWATER INTAKE STRUCTURE
-

SIZE:	SCALE:	INDEX No.	DRAWING No.	SHEET	REV No.
A1	1:50	-	15830	041	0A

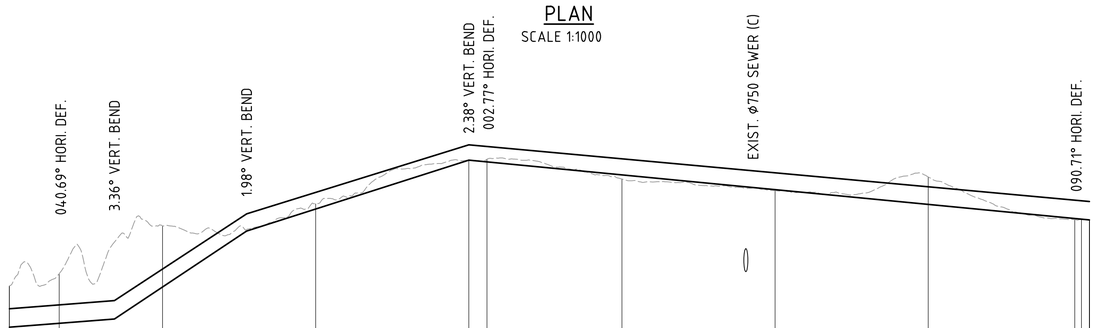
Plot Date: 23/06/20 - 11:59 Cad File: \\ghdnet\ghd\PH\Manila\Projects\22\19573\Design\03 Drawings\15830-041_0A.dwg

NOTE:

1. MINOR CUT/FILL WILL BE REQUIRED TO PROVIDE FLAT BASE.



PLAN
SCALE 1:1000



TENURE: BELMONT WWTW LOT

BEDDING TYPE: TYPE B — ABOVE GROUND

PIPE TYPE: DN600 PIPE

DESIGN GRADELINE DATUM -4.000: 0.78% — 6.65% — 3.19% — -0.96%

DEPTH TO INVERT	1.35	1.62	2.51	2.00	0.05	0.17	0.00	0.09	-0.14	-0.03	0.89	-0.04	-0.02	0.00
PIPE INVERT LEVEL	1.35	1.48	1.62	2.66	4.49	5.21	6.80	6.75	6.32	5.84	5.36	4.90	4.88	4.85
EXISTING SURFACE LEVEL	2.70	3.10	4.13	4.66	4.54	5.38	6.80	6.83	6.19	5.81	6.25	4.86	4.86	4.85
CHAINAGE	0.00	16.27	34.29	50.00	77.43	100.00	150.00	155.93	200.00	250.00	300.00	347.80	350.00	352.59

LONGITUDINAL SECTION
SCALE H 1:1000 V 1:100

WARNING:
PUBLIC UTILITY SERVICES MAY EXIST ON OR ADJACENT TO THE SITE OF WORKS. THESE SERVICES MAY NOT BE SITUATED WITHIN REGISTERED EASEMENTS OR WITHIN STANDARD FOOTPATH ALLOCATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO IDENTIFY THE LOCATION OF ALL SERVICES PRIOR TO CONSTRUCTION WORKS AND TO AVOID DISTURBANCE OF THESE SERVICES.

DIAL BEFORE YOU DIG www.1100.com.au

THIS DRAWING INCLUDES COLOURED INFORMATION. IF YOU HAVE A BLACK AND WHITE COPY YOU DO NOT HAVE ALL THE INFORMATION. THIS NOTE IS COLOURED RED.

HORIZONTAL SCALE 1:1000 — VERTICAL SCALE 1:100

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
C	FINAL ISSUE	JL	15/04/20
B	DRAFT FINAL ISSUE	JR	06/11/19
A	PRELIMINARY ISSUE	LC	-

CONSULTANT DETAILS:
GHD
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E ntlmail@ghd.com.au
www.ghd.com.au

CONSULTANT REFERENCE No. 2219573

HUNTER WATER

DESIGNED: LC	DATE: 15/04/20	COMPANY: GHD PTY LTD	
DRAWN: RG	DATE: 15/04/20	COMPANY: GHD PTY LTD	
CHECKED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	
APPROVED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	

TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
BRINE DISCHARGE PIPE PLAN AND LONGITUDINAL SECTION

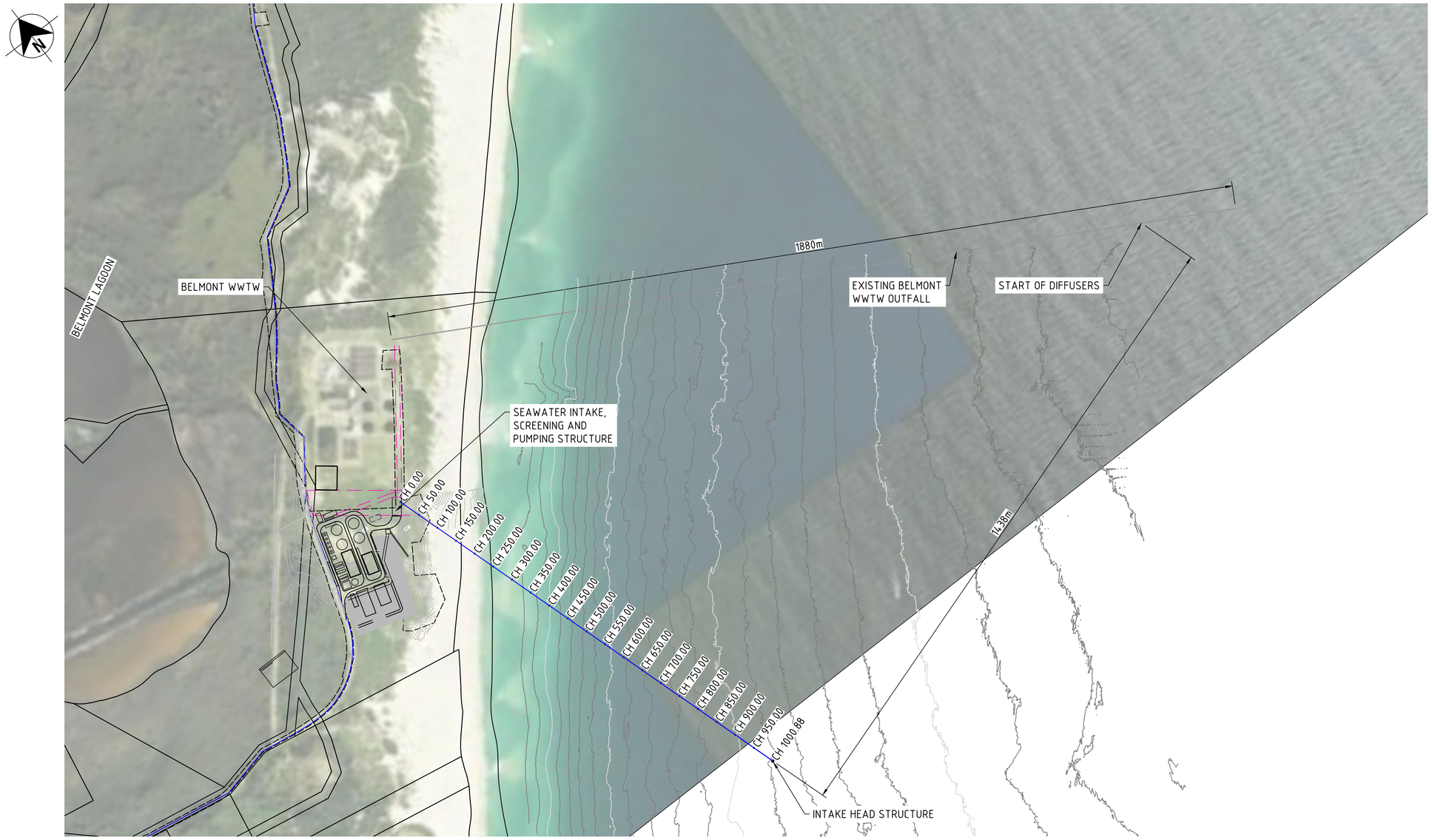
SIZE:	SCALE:	INDEX No.	DRAWING No.	SHEET	REV No.
A1	AS SHOWN	-	15830	300	OC

VERSION 4

Plot Date: 07/11/19 - 12:51 Cad File: N:\PH\Manila\Projects\22\19573\Design\03 Drawings\15830-300_0B.dwg

LEGEND:

- MAJOR CONTOUR
- MINOR CONTOUR
- NEW INTAKE
- EXISTING BELMONT WWTW OUTFALL



PLAN
SCALE 1:5000

WARNING:
PUBLIC UTILITY SERVICES MAY EXIST ON OR ADJACENT TO THE SITE OF WORKS. THESE SERVICES MAY NOT BE SITUATED WITHIN REGISTERED EASEMENTS OR WITHIN STANDARD FOOTPATH ALLOCATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO IDENTIFY THE LOCATION OF ALL SERVICES PRIOR TO CONSTRUCTION WORKS AND TO AVOID DISTURBANCE OF THESE SERVICES.

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HORIZONTAL SCALE 1:5000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
C	FINAL ISSUE	JL	14/05/20
B	FINAL ISSUE	JL	15/04/20
A	PRELIMINARY ISSUE	JR	-

VERSION 4

CONSULTANT DETAILS:
GHD
Level 3 GHD Tower 24 Honeysuckle Drive
Newcastle NSW 2300
T 61 2 4979 9999 F 61 2 4979 9988
E ntlmail@ghd.com.au
www.ghd.com.au

CONSULTANT REFERENCE No. 2219573

HUNTER WATER

DESIGNED: LC	DATE: 15/04/20	COMPANY: GHD PTY LTD	
DRAWN: JR	DATE: 15/04/20	COMPANY: GHD PTY LTD	
CHECKED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	
APPROVED: NM	DATE: 15/04/20	COMPANY: GHD PTY LTD	

TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
DIRECT OCEAN INTAKE PLAN

SIZE:	SCALE:	INDEX No.	DRAWING No.	SHEET	REV No.
A1	1:5000	-	15830	500	0C

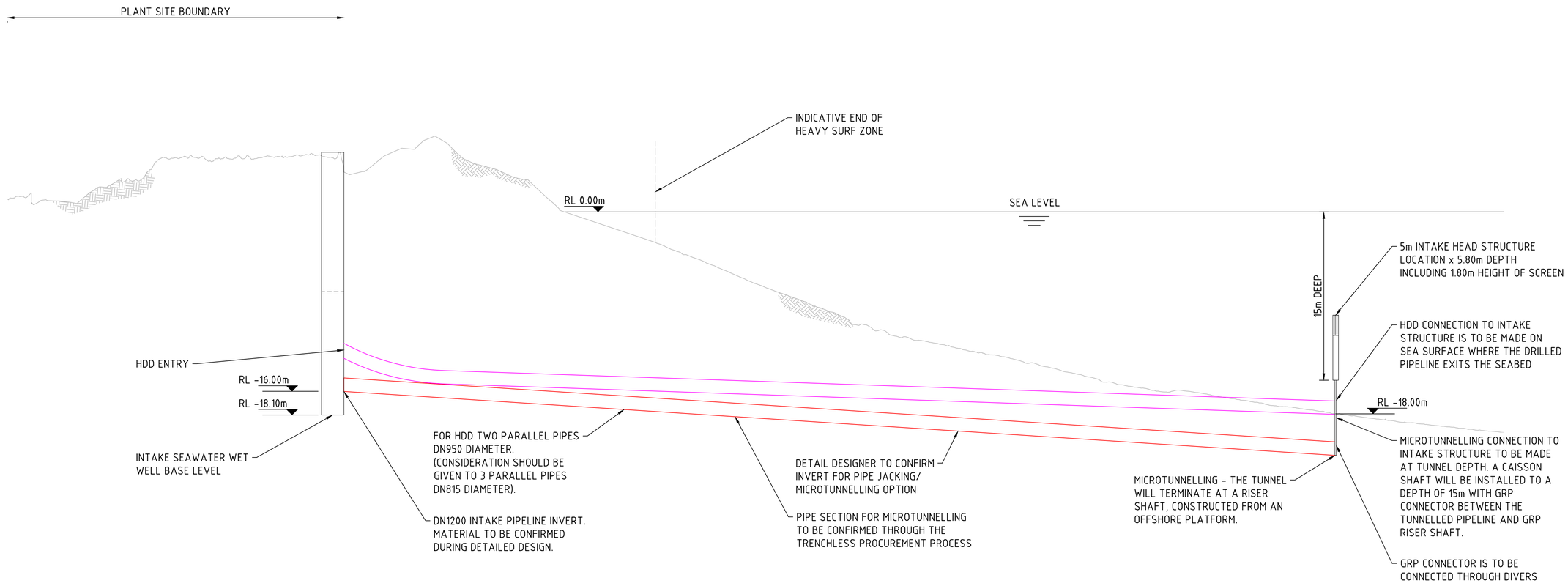
Plot Date: 09/07/20 - 11:45 Cad File: \\ghdnet\ghd\PH\Manila\Projects\22\19573\Design\03 Drawings\15830-500__0C.dwg

NOTES:

1. VERTICAL ALIGNMENTS AND SEAWATER INTAKE WELL LEVELS TO BE CONFIRMED BY DETAIL DESIGNER. INDICATIVE ALIGNMENTS AND VALVES SHOWN ONLY.
2. INDICATIVE ALIGNMENT SHOWN ONLY FOR RL -15 INTAKE OPTION FOR CLARITY.
3. INTAKE HEAD STRUCTURE BY DETAIL DESIGN. DIMENSION ARE INDICATIVE ONLY.
4. ASSUMED CLEARANCE BETWEEN INTAKE SCREEN AND SEABED MINIMUM OF 4m.
5. MAXIMUM DISTANCE BETWEEN INTAKE STRUCTURE AND SEAWATER PUMP STATION IS APPROX. 1000m

LEGEND:

- FSL / NSL FROM LAND SURVEY LINEAR AND BATHYMETRY
- HDD OPTION
- PIPE JACKING OPTION



SECTION AND DETAIL PLAN

SCALE H 1:2000; V 1:200

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HORIZONTAL SCALE 1:200

HORIZONTAL SCALE 1:2000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

No.	REVISION DETAILS	DWN	DATE
C	FINAL ISSUE	JL	14/05/20
B	FINAL ISSUE	JL	15/04/20
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HUNTER WATER

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TITLE:
CS0865
BELMONT DROUGHT RESPONSE DESALINATION PLANT
CONCEPT DESIGN
DIRECT OCEAN INTAKE SECTION

SIZE:	SCALE:	INDEX No.	DRAWING No.	SHEET	REV No.
A1	AS SHOWN	-	15830	501	0C

Plot Date: 23/06/20 - 12:16 Cad File: \\ghdnet\ghd\PH\Manila\Projects\22\19573\Design\03 Drawings\15830-501_0C.dwg