



THE PROPOSED DEVELOPMENT IS FOR THE CONSTRUCTION OF A IBAA STORAGE SITE WITH CONCRETE PAD FOUNDATION AND LAGOON FOR WATER STORAGE AND REUSE FOR DUST SUPPRESSION.

THE REDLINE APPLICATION AREA IS APPROXIMATELY 21480m².

THE RUNOFF GENERATED ON THE PROPOSED SITE IS DEEMED HAZARDOUS TO THE ENVIRONMENT AND DISCHARGES TO THE GROUND OR WATERCOURSE ARE NOT FEASIBLE. ANY RUNOFF GENERATED WITHIN THE CONFINES OF THE EARTH BUNDS WOULD BE REUSED ON-SITE AND IN A WORST-CASE SCENARIO TANKERED TO A SPECIALIST TREATMENT FACILITY. (1/5)

THE PRINCIPAL CATCHMENT AREA OF THE SITE IS 18210m² (1.821ha) AND IS COMPRISED BY THE CONCRETE HARDSTANDING, WHICH INCLUDES THE IBAA STOCKPILING AREA AND LAGOON, AND INTERNAL BUND SLOPE AREA.

THE REMAINING EXTERNAL BUND AREAS (LIGHT RED HATCH) WOULD CONSTITUTE A SECONDARY CATCHMENT OF 2730m².

DUE TO THE STEEP SLOPE OF THE BUNDS, THE RESPECTIVE AREAS WOULD BE CONSIDERED AS IMPERMEABLE IN CALCULATIONS.

THE TOTAL STORAGE REQUIREMENT FOR THE PROPOSED IMPERMEABLE AREA OF 18210m² (INC. LAGOON AND BUNDS SLOPES) DURING THE 7 DAYS, 1 IN 100 YEAR + 40% EVENT IS 2861m³.

THE PROPOSED LAGOON WOULD HOLD APPROXIMATELY 1654m³ OF THE ATTENUATION VOLUME REQUIREMENT AND THE REMAINING 1207m³ WOULD BE ACCOMMODATED IN THE SITE BELOW THE 60.5m CONTOUR LEVEL. SEE PROPOSED CALCULATIONS (A) SHEETS. (2/5)

ANALYSIS OF THE MET OFFICE MORECS CLIMATE DATA AT THE LOCATION OF THE SITE, INDICATES THAT IN ANY GIVEN AVERAGE YEAR THE COMPARISON BETWEEN TOTAL RAINFALL AND POTENTIAL EVAPORATION RESULTS IN A TOTAL WATER SURPLUS OF 255mm.

THE CALCULATION USES POTENTIAL EVAPORATION RATE WAS USED DUE TO THE FACT THAT THE PROPOSED DEVELOPMENT WOULD SPRAY THE IBAA STOCKPILE ON A REGULAR BASIS FOR DUST SUPPRESSION. ALSO, THE IBAA'S POROSITY WOULD INCREASE THE OVERALL EXPOSED SURFACE AREA WHICH INCREASES THE REAL EVAPORATION RATE OF THE SITE. FOR CONSERVATIVE REASONS THIS ELEMENT SHOULD NOT BE ACCOUNTED FOR IN CALCULATIONS GIVEN THE VARYING IBAA STOCKPILE LEVELS ACROSS THE YEAR.

IT IS SUGGESTED TO PROVIDE ADDITIONAL STORAGE FOR 255mm WATER DEPTH, OR 4644m³ (18210m² x 0.255m). AS SUCH, IN THE CIRCUMSTANCE THAT IN A PARTICULAR YEAR THERE WOULD BE NO REUSE OF WATER, THE SITE TO HAVE CAPACITY TO ACCOMMODATE A 1 IN 100 YEAR + 40% STORM EVENT.

THE DESIGN RUNOFF ATTENUATION VOLUME IS COMPRISED OF THE 7 DAY, 1 IN 100 YEAR + 40% EVENT PLUS THE AVERAGE YEARLY WATER SURPLUS, TOTALING APPROXIMATELY 7505m³.

THIS ATTENUATION VOLUME WOULD BE AVAILABLE UNDER THE 61.5m CONTOUR. (3/5)

THE WETTEST YEAR SINCE 1855 (ACCORDING TO MET OFFICE HISTORICAL DATA) WAS IN 1960 WHEN 1366mm OF RAINFALL WAS RECORDED. FOR THIS YEAR THE NET SURPLUS OF RUNOFF AFTER EVAPORATION WOULD HAVE BEEN APPROXIMATELY 640mm - OR 11655m³ FOR THE PROPOSED SITE.

ACCORDING TO THE WATER BALANCE REPORT (Tier 3 SSA - Front field A303 Enviropark IBAA storage facility - RA 1197 - Issue 3.docx / Issue 3 / January 2021) THE MAXIMUM WATER STORAGE CAPACITY OF THE IBAA STOCKPILE (HIGH STOCK LEVEL - 45923m³) WHEN FULLY SATURATED WOULD BE 4650m³ - APPROXIMATELY 0.1m³ WATER STORAGE PER m² OF IBAA.

ACCOUNTING FOR IBAA VOLUME UNDER THE 61.5m CONTOUR LEVEL OF 6910m³ BEING FULLY SATURATED, THE REMAINING IBAA VOLUME (39013m³) ABOVE THE 61.5m CONTOUR, WOULD HOLD APPROXIMATELY 3900m³ OF WATER WITHIN THE STOCKPILE, ACHIEVED BY SPRAY PUMPING.

AS SUCH, ASSUMING THE SITE WOULD BE FULLY STOCKED (ANTICIPATED DURING WINTER MONTHS), THE TOTAL WATER STORAGE CAPACITY OF THE SITE WOULD BE APPROXIMATELY 12554m³, ENOUGH TO ACCOMMODATE THE WATER EXCESS GENERATED BY THE LARGEST RAINFALL ON RECORD. (4/5)

AS PART OF THE PROPOSED WORKS, A BENTONITE LINER WOULD BE BUILT BENEATH THE LAGOON TO PROTECT AGAINST LEACHING OF HAZARDOUS CHEMICALS FROM THE IBAA TO THE GROUNDWATER.

THE CLIENT HAS STIPULATED THAT RUNOFF FROM THE LAGOON COULD BE DISPOSED OF TO A SPECIALIST TREATMENT FACILITY IF NECESSARY. THE PROPOSED SITE SHOULD AT ALL TIMES HAVE CAPACITY TO ACCOMMODATE A 1 IN 100 YEAR + 40% STORM EVENT, THEREFORE IT IS SUGGESTED TO USE THE 61m CONTOUR LEVEL AS THE CRITICAL WATER LEVEL TO START DISPOSING OF RUNOFF UNTIL THE WATER LEVEL RETURNS TO THE 60.5m CONTOUR. FURTHERMORE, IF THE LAGOON'S CAPACITY IS EXCEEDED, THE IBAA STOCKPILE SHOULD BE SPRAYED CONTINUOUSLY AND KEPT FULLY SATURATED TO INCREASE THE OVERALL EVAPORATION RATE OF THE SITE.

ACCORDING TO THE WATER BALANCE REPORT (Tier 3 SSA) THE MEASURED EVAPORATION RATE AT A NEARBY IBAA STORAGE SITE WOULD BE 8.5 mm/day (EXCLUDING WINTER MONTHS). THE ANTICIPATED IBAA STORAGE AREA IS 12560m² (90% OF THE CONCRETE PAD AREA), ACHIEVING AN EVAPORATION RATE OF MORE THAN 100m³/day ON AVERAGE DURING EIGHT MONTHS OF THE YEAR.

AS SUCH, THE RISK OF WATER LEVELS EXCEEDING THE 61m CONTOUR LEVEL AND TANKERING TO BE REQUIRED IS DEEMED LOW. (5/5)

- GENERAL
 - THIS DRAWING IS NOT TO BE SCALED, WORK TO FIGURED DIMENSIONS ONLY, CONFIRMED ON SITE.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL DRAWINGS, DETAILED SPECIFICATIONS WHERE APPLICABLE AND ALL ASSOCIATED DRAWINGS IN THIS SERIES.
 - ANY DISCREPANCY ON THIS DRAWING IS TO BE REPORTED IMMEDIATELY TO THE PARTNERSHIP FOR CLARIFICATION.
 - THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORKS AND FOR THE STABILITY OF THE WORKS IN PROGRESS.
 - CDM REGULATIONS 2015. ALL CURRENT DRAWINGS AND SPECIFICATIONS MUST BE READ IN CONJUNCTION WITH THE DESIGNER'S HAZARD RISK AND ENVIRONMENTAL ASSESSMENT RECORD. DESIGN HAS BEEN PRODUCED BASED ON INFORMATION PROVIDED BY THE CLIENT/PRINCIPLE DESIGNER AVAILABLE AT TIME OF ISSUE. CONTRACTOR TO REVIEW DRAWING AND SPECIFICATION IN CONTEXT WITH THE WIDER SITE AND SPECIFIC SITE INVESTIGATION, CONTAMINATION ASSESSMENT, ASBESTOS SURVEY, ENVIRONMENTAL SURVEY, LIDAR SURVEY AND ANY OTHER RELEVANT INFORMATION AND MANAGE RISKS RELATING TO THE WORKS OUTLINED IN THE DRAWINGS AND SPECIFICATION. PRINCIPLE CONTRACTOR TO MAKE DESIGNER AND CLIENT AWARE OF SITE SPECIFIC RISKS THAT MAY AFFECT THE DRAWING AND SPECIFICATION.
 - CDM REGULATIONS 2015. FOR GENERIC MAINTENANCE AND MANAGEMENT RISKS REFER TO CHAPTER 36 OF CIRIA 752 SUDS MANUAL FOR PROPRIETARY SYSTEMS. SEE MANUFACTURERS' MANAGEMENT AND MAINTENANCE DETAILS AND RISK ASSESSMENT WITH REGARDS TO MAINTENANCE OF PROPRIETARY SYSTEMS.
- CONSTRUCTION NOTE
 - THE MAIN CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF ALL TEMPORARY WORKS, AND IS ALSO RESPONSIBLE FOR THE SAFE MAINTENANCE AND STABILITY OF EXISTING BUILDINGS AT ALL TIMES.
 - THE MAIN CONTRACTOR IS RESPONSIBLE FOR ALL OCCURRENCES OF GROUND WATER DURING THE CONSTRUCTION PERIOD.
 - ANY INFORMATION GIVEN REGARDING EXISTING UNDERGROUND SERVICES IS GIVEN IN GOOD FAITH AFTER CONSULTATION WITH THE RELEVANT AUTHORITY. HOWEVER ACCURACY IS NOT CERTAIN. THE MAIN CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL INFORMATION ON SITE PRIOR TO WORK COMMENCING AND TAKING DUE CARE AND ATTENTION WHILE UNDERTAKING THE WORKS.
 - THE CONTRACTOR MUST COMPLY WITH ALL CURRENT LEGISLATION RELATING TO HEALTH & SAFETY.
 - ALL PRODUCTS SPECIFIED SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND INSTRUCTIONS. IF THERE ARE DISCREPANCIES BETWEEN THAT INFORMATION AND THE DETAILS ON ANY AMBIENTAL DRAWINGS, THE MANUFACTURERS INSTRUCTIONS MUST BE USED.
- BELOW GROUND DRAINAGE
 - PIPEWORK TO BE UPVC-U PIPES TO BS 4660 : 2000 AND INSPECTION CHAMBERS TO BS 7158 : 2001.
 - ALL ADAPTABLE DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH 'SEWERS FOR ADOPTION' 7TH EDITION AND THE RELEVANT COUNCIL DESIGN GUIDE.
 - ALL PRIVATE SURFACE WATER SEWERS TO BE LAID AT 1 IN 100 UNLESS OTHERWISE STATED ON THE DRAWING.
 - ALL PRIVATE FOUL WATER SEWERS TO BE LAID AT 1 IN 40 AT THE HEAD OF PIPE RUNS AND 1 IN 80 ELSEWHERE UNLESS OTHERWISE STATED.
 - ALL PRIVATE FOUL SEWER PIPES TO BE 150MM DIAMETER UNLESS OTHERWISE STATED ON THE DRAWING. ALL PRIVATE SURFACE WATER SEWER PIPES TO BE 100MM DIAMETER FROM DOWNPIPES AND 150MM DIAMETER ELSEWHERE UNLESS OTHERWISE STATED ON THE DRAWING.
 - ALLOW FOR RODDING ACCESS ABOVE GROUND WHERE RAINWATER DOWNPIPES DO NOT HAVE A DIRECT CONNECTION TO AN INSPECTION CHAMBER. EXISTING SEWER PIPE TO BE RE-USED TO BE SURVEYED AND LEVELLED PRIOR TO COMMENCEMENT OF THE DRAINAGE WORKS AND REBURIED IF NECESSARY.
 - CONNECTIONS TO AN ADOPTED SEWER ONLY TO BE MADE FOLLOWING APPROVAL FROM THE RELEVANT ADOPTING AUTHORITY.
 - ALL DRAINS, SEWER PIPES AND MANHOLES TO BE CLEANED AND TESTED FOR WATER TIGHTNESS ON COMPLETION OF CONSTRUCTION.
- MANHOLE COVERS AND FRAMES
 - MANHOLE COVERS TO BE CLASS D400 IN HIGHWAYS, CLASS B125 IN FOOTWAYS AND VERGES, CLASS A15 IN NON-TRAFFICED AREAS.
 - MANHOLE COVER AND FRAME TO BE BEDDED AND SURROUNDED IN 1:3 MORTAR.

LEGEND

- STORAGE AREA BELOW 60.5m CONTOUR
- STORAGE AREA BELOW 61m CONTOUR
- STORAGE AREA BELOW 61.5m CONTOUR
- SWALE CATCHMENT
- SWALES
- OVERLAND FLOW DIRECTION

REV DATE BY CKD APPDESCRIPTION

PRELIMINARY DRAWING FOR INFORMATION ONLY. NOT FOR CONSTRUCTION.

Client
RAYMOND BROWN LTD

142750 N

Project
AMBIENTAL ENVIRONMENTAL ASSESSMENT
a company of **Royal HaskoningDHV**

Project
FORTIS IBA LTD, A303 ENVIROPARK S021 30S PROJECT 5841

Drawing
SURFACE WATER DRAINAGE SCHEME PROPOSED LAYOUT

Drawing No.
5841-01

Revision
A

Drawing Scale: 1:500 @ A1
0 5m 10m 15m 20m 25m

Drawn by: SD Date: JAN - 2021