EXISTING EARTHWORKS BUND. APPROXIMATE AREA OF EXISTING BUND TOTAL VOLUME 22,000m³. WITHIN PROPOSED SCHOOL SITE TO BE LEVELLED. CUT MATERIAL ARISINGS TO BE USED AS FILL IN THE SANDY BAY × -0.535m × -0.928m × -0.598m × -1.118m × -0.986n \times -0.375m × -0.211m \times -0.467m \times -0.635m \times -0.414m \times -0.332m \times 0.131m \times 0.020m \times -0.110m \times -0.259m \times -0.205m \times 0.106m \times 0.218m \times 0.506m \times -1.067m \times =0.057m \times =0.007m \times -0.185m \times -0.217m \times 0.088m \times 0.165m \times 0.367m \times 0.367m \times 0.422m \times 0.300m \times 0.058m \times 0.106m \times 0.422m \times 0.382m \times 0.428m \times -1.603m \times 0.424m) \times 0.481m) \times 0.495m) \times 0.658m) \times 0.872m) \times 1.143m) \times 0.746m) \times -0.370m) \times -0.801m) \times -1.889m) \times 0.671m) \times 0.671m) \times -0.521m) \times -0.558m) \times -0.274m) \times -1.97 $\sqrt{-0.190}$ \times -0.687 \times -1.327 \times -2.054 \times -2.407 \times -2.415 \times -2.555 \times -3.251 \times -3.251 \times -1.701 \times -1.701 \times -0.324 \times -0.146 \times -0.274 \times -0.274 \times -0.159 \times -0.646 \times -1.59-1.152m $\times -0.558$ m $\times -0.990$ m $\boxed{-4.774\text{m} \times -3.838\text{m} \times -2.909\text{m} \times -2.046\text{m} \times -1.116\text{m} \times -0.784\text{m} \times 0.083\text{m} \times -0.206\text{m} \times 0.377\text{m} \times 0.578\text{m} \times 0.712\text{m} \times 0.892\text{m} \times 0.817\text{m} \times 0.817\text{m} \times 0.945\text{m} \times 1.390\text{m} \times -1.012\text{m} \times 0.817\text{m} \times 0.817\text{m} \times 0.817\text{m} \times 0.817\text{m} \times 0.945\text{m} \times 0.945\text$ -2.001m -4.567m -4.240m -3.504m $(-0.944 \text{m}) \times (-0.528 \text{m}) \times (-0.528 \text{m}) \times (-0.065 \text{m}) \times (0.282 \text{m}) \times (0.729 \text{m}) \times (0.748 \text{m}) \times (0.002 \text{m}) \times (0.480 \text{m}) \times (0.282 \text{m}) \times (0.748 \text{m}) \times (0.282 \text{m}) \times (0.282 \text{m}) \times (0.748 \text{m}) \times (0.282 \text{m}) \times$ \times 0.756m \times 0.829m \times 1.53m \times 1.095m \times 0.972m \times 0.986m \times 0.989m \times 1.162m \times 1.402m \times 1.804m \times 1.926m \times 1.941m \times 2.436m \times 2.436m \times 2.474m \times -0.1 \times 0.152m \times 0.281m \times 0.258m \times 0.258m \times 0.344m \times 0.646m \times 0.654m \times 1.056m \times 1.121m \times 1.264m \times 2.048m \times 2.054m \times 2.516m \times 2.821m \times 2.626m \times 0.1 EXISTING BOWL SHAPED DEPRESSION. APPROXIMATE TOTAL $\sqrt{0.521}$ m) $\times -0.563$ m, $\times -0.089$ m, $\times -0.1/3$ m/ $\times -0.226$ m, $\times 0.063$ m) $\times 0.368$ m, $\times 0.807$ m, $\times 0.807$ m, $\times 1.378$ m, $\times 1.378$ m, $\times 1.713$ m, $\times 2.150$ m, $\times 2.035$ m, $\times 2.324$ m, $\times 1.66$ m, VOLUME TO FILL 81,000m3. \times -0.228m \times -0.197m \times 1.812m \times 4.385m \times 4.487m \times 4.483m) \times 4.402m \times 4.353m \times 2.965m \times 0.744m \times -0.557m \times -1.085m \times -0.694m \times 0.078m \times 0.659m \times 1.239m \times 1.022m \times 0.449m) \times 0.600m \times 0.957m \times 3.313m \times 4.236m \times 4.297m \times 4.313m \times 4.305m \times 4.302m \times 4.302m \times 4.000m \times 2.851m \times -0.768m \times -0.984m \times 0.060m \times 0.295m \times -0.030m \times -0.454m \times -1.454m \times 1.612m \times 0.915m \times 3.723m \times 4.125m \times 4.130m \times 4.014m \times 4.084m \times 4.177m \times 4.134m \times 3.960m \times 3.808m \times 1.653m \times -0.742m \times 0.067m \times -0.044m \times 0.610m \times -0.552m \times -1.720m \times 0.879m \times 1 212m \times 0.623m \times 0.322m \times 3.726m \times 3.905m \times 3.896m \times 4.035m \times 3.912m \times 3.795m \times 3.753m \times 2.902m \times -0.446m \times -0.055m \times -0.416m \times 0.480m \times -0.244m \times 0.384m \times 0.892m \times 1.066m \times 0.475m \times 0.013m \times 1.168m \times 3.183m \times 3.301m \times 3.468m \times 3.481m \times 3.568m \times 3.568m \times 3.510m \times 2.100m \times -0.635m \times -0.635m \times -0.403m \times -1.023m \times -2.488m $(-0.286m) \times 0.204m \times 0.940m \times 0.588m \times 0.478m) \times 0.133m \times -0.391m \times -1.219m \times 1.427m \times 2.686m) \times 3.224m \times 2.830m \times 2.403m \times -0.842m \times -0.908m \times -0.769m \times -0.773m \times -1.537m) \times -2.485m$ $(-2.531m) \times (-1.470m) \times (-1.545m) \times (-2.089m) \times (-1.648m) \times (-2.057m) \times (-1.971m) \times (-1.493m) \times (-1.372m) \times (-0.224m) \times (-1.638m)$ \times -0.381m \times -0.588m \times 0.071m \times 0.156m X-0.478m X -0.196m X -0.013m X -0.995m X -0.815m X -0.463m X -1.586m X -2.860m X -3.087m X -3.087m X -3.938m X -4.091m X -1.262m X -1.281m X -0.789m $(-0.333m \times -0.471m \times -0.371m \times -0.231m \times -0.324m \times -0.397m \times -0.382m \times -0.405m \times -0.403m \times -0.419m \times -0.531m \times -0.586m \times -0.541m \times -0.435m \times -0.331m \times -0.331m \times -0.586m \times -0.541m \times -0.435m \times -0.331m \times -0.331m \times -0.331m \times -0.586m \times -0.541m \times -0.541m \times -0.435m \times -0.331m \times -0.331m \times -0.331m \times -0.586m \times -0.541m \times -0.541m \times -0.435m \times -0.331m \times -0.$ NOTES: DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT DRAWINGS AND PHASE 1 GEOTECHNICAL AND GEOENVIRONMENTAL DESK 2. THIS BULK EARTHWORKS EXERCISE PRODUCED FOR OUTLINE PLANNING PURPOSES AND INDICATES THE POTENTIAL FINAL EARTHWORKS RESULT BASED ON A SIMPLIFIED SURFACE COMPARISON BASIS ONLY. IT IS SUBJECT TO DETAILED DESIGN AND FULL REASSESSMENT AGAINST PROPOSED FORMATION LEVELS DURING THE NEXT STAGE. 3. THIS PLAN SHOWS A CUT AND FILL VOLUME COMPARISON BETWEEN THE FOLLOWING TWO SURFACES, (SITE STRIP MODEL) & (PROPOSED FORMATION MODEL) WHICH IS THEN SPLIT IN A SUMMARY TABLE. 4. TOPSOIL AND NEAR SURFACE MATERIAL REMOVAL IS SEPARATED OUT AS A BULK VOLUME FIGURE IN THE SUMMARY TABLE THIS IS GEOMETRIC VOLUME ANALYSIS AND THEREFORE NO ALLOWANCE HAS BEEN MADE FOR BULKING AND SHRINKING OF ANY MATERIAL OR GEOTECHNICAL SUITABILITY OF MATERIAL REUSE IN THE FINAL CONSTRUCTION. CONTRACTOR TO CONSULT THE GROUND INVESTIGATION AND INSTRUCT A DETAILED EARTHWORKS STRATEGY AND MATERIALS MANAGEMENT PLAN, BASED ON THE FINAL CUT AND FILL VOLUME ASSESSMENT TO DETERMINE FINAL SOLUTION. OTHER THAN A GENERAL REFERENCE AND CONSIDERATION FOR THE OVERALL PRINCIPLES OF THE GEOTECHNICAL AND GEOENVIRONMENTAL PHASE 1 DESK © Crown copyright and database rights 2025 . Unauthorised reproduction STUDY, NO DETAILED REFERENCE HAS BEEN MADE TO SPECIFIC INTERPRETATIVE OR FACTUAL GROUND INVESTIGATION AND NO CONSIDERATION HAS BEEN infringes Crown copyright and may lead to prosecution or civil proceedings.

Ordnance Survey

SCALE 1:1000

MADE IN RELATION TO THE GEOTECHNICAL ACCEPTABILITY OF EXISTING EXCAVATED MATERIALS FOR REUSE IN FILL AREAS

ARE TO BE RE-USED ON SITE THEN A MATERIALS MANAGEMENT PLAN MIGHT BE REQUIRED.

CUT FILL VOLUMES HAVE BEEN DERIVED VIA A DIRECT VOLUMETRIC COMPARISON BETWEEN THE SITE STRIP MODEL (ASSUMED 200mm BELOW E.G.L.) AND THE

PROPOSED FORMATION MODEL (ASSUMED UNIFORMLY 500mm BELOW P.G.L.) THIS EXERCISE TAKES NO ALLOWANCE FOR DEMOLITION OR ANY OTHER CONSTRUCTION VOLUMES (INCLUDING BUT NOT LIMITED TO FEATURES SUCH AS SOFT SPOTS, BURIED OBSTRUCTIONS, FOUNDATIONS, DRAINAGE, ARISING

8. ALL EXCAVATED MATERIALS SHOULD BE DISPOSED OF BY A SUITABLY LICENSED WASTE CARRIER WITH APPROPRIATE TESTING. IF EXCAVATED MATERIALS

SURFACE LEVEL DATA MINIMUM LEVEL | MAXIMUM LEVEL | COLOUR | AREA | VOLUME -5.000 -4.000 825m² -4.000 2328m² 1938m³ -3.000 4266m² -2.000 -2.000 11371m² 12311m³ -1.000 -1.000 35328m² 33911m³ 38672m² 56803m³ 1.000 2.000 17099m² 30173m³ 2.000 3.000 6410m² 18688m³ 3.000 4.000 8173m² 13170m³ 4.000 5.000 8075m² 1938m³

Earthworks Assessment - Part 1, Sandy Bay

SUMMARY FOR OUTLINE PLANNING STAGE

Objective:

The purpose of this preliminary assessment is to quantify the magnitude of the bulk earthworks "cut and fill" volumes that may be required to enable the construction of the development on the Sandy Bay plot. The objective is to demonstrate physical viability and to assist with the development budget work.

The volume assessment has been carried out by comparing the level "surfaces" between the existing site stripped of its top surface layer (e.g. topsoil, hard surfacing and gravel) and the "formation" level surface, which has been set at a general average depth of 500mm below the proposed ground level. This is appropriate for this stage of the project.

Conetrainte:

The vast majority of the Sandy Bay Lake plot is underlaid by wind-blown sands, which have some potential to be used as general fill in the right conditions. There may be other limited constraints relating to the quality and usability of excavated ground and some limited environmental factors. This does not adversely affect the technical viability of the proposed development and it will need to be considered within the development budget and the planning of the physical construction works.

Exclusions:

This preliminary assessment does not include the following excavations, which are not expected to significantly alter the outcome of the strategy and the conclusions made.

- Foundations (based on structures being piled)
- Drainage & Utilities (and diversions)
- Removal of near surface obstructions

This assessment does not cover geotechnical or geo-environmental aspects of the earthwork exercise, foundations, ground water, geotechnical design, settlement control, materials management, licensing and consents - all of which will be required at the appropriate later stage of the development and can be phased to suit the development programme.

Site Strip:

Considering the mix of grass, with limited gravel and hard surfacing across the plot, the general average depth of material to be removed during a site strip exercise is 200mm. The preliminary assessment shows an anticipated volume of 26,470m³ being generated during this exercise, 95% of this is deemed to be surplus sandy topsoil that does not serve a directly useful filling purpose within the proposed Salt Lake development proposals and shall need to be moved off site. The small remainder may be useful as general fill within this phase.

Bulk Earthworks Summary:

The key factor of the earthworks strategy for this plot is a significant filling exercise, both to fill the Sandy Bay Bowl and to raise general development levels to support the drainage strategy, by creating site falls from the mid-point out to the northern and southern boundaries.

It is important to understand the magnitude and influence of the works solely associated with filling the Sandy Bay Bowl, using the existing bunded material situated to the north of the bowl. The bowl has a volume of around 81,000m³, the bund is circa 22,000m³, therefore there is need for significant additional material required to bring that up to the top of the existing top of bowl level alone.

The preliminary comparison of the stripped and formation level surfaces shows that a total filling volume of 121,000m³ is expected to be required. This includes the filling of the bowl and excavation of the drainage basins. This suggests that around 65% of the overall filling works is associated with filling the bowl alone.

The comparison of the stripped and formation level surfaces shows that an excavated (cut) volume of 59,500m³ is expected to be generated. The majority of this is expected to be suitable for use as general fill, which contributes to the overall fill volume requirement. The need to transfer or import further materials from other phases, sites or suppliers is a key requirement for this plot and will inform the next stage of engineering design and the cost plan. Any removal and import of material must be undertaken in accordance with the appropriate legislation, standards and validation.

Therefore the preliminary estimate of additional fill material required to be brought to site is in the order of 61,200m³. During the developed design stage, adjustments to the overall development levels can be made to reduce the cut volume, but the conclusion is still expected to be that there is a significant of material to be brought into the site.

As an initial test, a general drop in proposed levels of around 500mm is expected to result in a closer cut and fill volume relationship, but implications on the drainage strategy will need to be determined through the next stage of design to determine the full feasibility of this improvement.

Phasing;

There is potential to move surplus suitable fill material from earlier enabling works phases to the Sandy Bay phase for re-use, providing processes are followed on materials management and consents.

PORTHCAWL WATERFRONT - CUT AND FILL PART 1 - SANDY BAY

SITE STRIP SUMMARY TABLE										
	CUT FACTOR	FILL FACTOR	2D AREA (m²)	STRIP DEPTH (m)	STRIP VOLUME (m³)					
SITE STRIP TOPSOIL - SANDY BAY SITE	1.000	1.000	128976.595	0.200	25795.319					
SITE STRIP TOPSOIL - BUND IN SCHOOL AREA	1.000	1.000	3374.615	0.200	674.923					
SITE STRIP TOTAL			132351.210		26470.242					

SUBSOIL EARTHWORKS SUMMARY TABLE (SITE STRIP TO FORMATION LEVEL)

	CUT FACTOR	FILL FACTOR	2D AREA (m ²)	CONSTRUCTION DEPTH (m)	CUT (m ³)	FILL (m³)	NET (m ³)	CUT OR FILL
FORMATION SITE WIDE	1.000	1.000	128976.595	0.500	52112.100	120766.900	68654.800	FILL
FORMATION BUND IN SCHOOL AREA	1.000	1.000	3374.615	0.200	7481.600	0.000	7481.600	CUT
FORMATION TOTAL	1.000	1.000	132351.210		59593.700	120766.900	61173.200	FILL



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(EY

SITE BOUNDARY

CUT AND FILL BOUNDARY

PROPOSED CONTOUR (0.1m INTERVALS)

CUT AND FILL DEPTH

 P01 FIRST ISSUE FOR PAC
 MPC
 RB
 07/11/2025

 Issued/Revision
 By
 Appd
 DD.MM.YYYY

 MPC
 MPC
 RB
 21/10/2025

 Dwn.
 Dsgn.
 Chkd.
 DD.MM.YYYY

Issue Status

S2 - FOR INFORMATION

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BRIDGEND COUNTY BOROUGH COUNCIL

PORTHCAWL WATERFRONT

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CUT AND FILL - PART 1 SANDY BAY

Project No. A1 Scale 1:1000

Revision Drawing No.

32485-STN-XX-XX-DR-C-1200