



COASTAL VULNERABILITY ASSESSMENT REPORT

**SITE: THE MAHARAJAH RESTAURANT,
CLIFF ROAD, NEWQUAY**

Issue Record			
Issue	Date	Reason	Prepared by
Rev0	13/10/2023		Tim Green

Our Ref: **TJG/CVA/G011.Maharajah.Rev0**

13th October 2023

This report is confidential to the named recipient (Helen Swansbury). No assurance should be extended, or legal liability accepted by Slope Stability Southwest (SlopeGeo Ltd), to any parties not named on this report.

Re: Coastal Vulnerability Assessment (CVA) works

Proposed development site at The Maharajah, 39 Cliff Road, Newquay, Cornwall

Introduction

Slope Stability Southwest (SSSW) have been requested to undertake a Coastal Vulnerability Assessment for the proposed redevelopment of The Maharajah, located at No 39 Cliff Road in Newquay. A site inspection was undertaken by a Chartered Engineering Geologist on Monday 25th September 2023.

The Maharajah is located to the north of Cliff Road, on Tolcarne Point and at the southern end of Tolcarne Beach in Newquay. The site is on a plot approximately 435 m² in size and at an elevation of approximately 30 metres above Ordnance Datum (aOD (mean sealevel)).

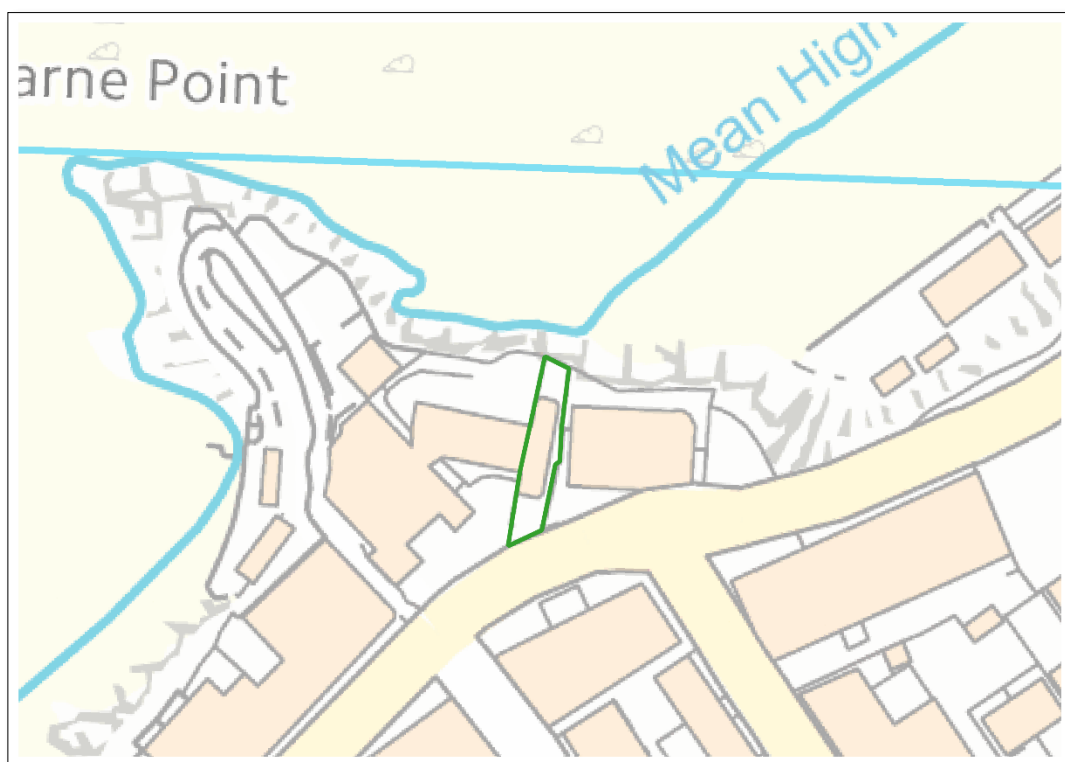


Figure 01: Site location plan (proposed development in green).

Proposed development

The proposed development is a refurbishment of the existing (Maharajah restaurant) structure and change of use from commercial to residential end use. It is proposed to re-purpose and refurbish the existing ground floor and lower ground floor levels into four separate apartments (two per level). The first and second floors are to be extended to create space for a single apartment on both the first and second floor levels.

Please refer to Appendix A for the proposed development plan and sections.

Report limitations

This report is based on desk study information from a variety of published sources and a walkover inspection of the site. This methodology is non-intrusive and does not include ground investigation works (digging or drilling) which may be necessary to make a definitive assessment of ground conditions. Evidence of deep-seated global instability may not be visually evident within the areas inspected as part of the walkover. The potential for such is considered low and has therefore not been considered further in this report.

Readers of this report should be aware of the limitations of this report as presented at the end of this document.

Planning guidance

National Planning Policy Framework (NPPF)

This report is compiled in accordance with guidance from the NPPF¹ and the *Cornwall Council Climate Emergency Development Plan*² so as to demonstrate the proposed development:

- *Is consistent with policy statements for the local policy unit in the current Shoreline Management Plan,*
- *Will not impair the ability of communities and the natural environment to adapt sustainably to the impacts of a changing climate,*
- *Will be safe through its planned lifetime, without increasing risk to life or property, or requiring new or improved coastal defences,*
- *Provides safe access and egress for the site and its users,*

¹ National Planning Policy Framework. Ministry of Housing, Communities and Local Gov (2021) (Para 170-173)

² Cornwall Council Climate Emergency Development Plan. February 2023.

- *Would not affect the natural balance and stability of the coastline or exacerbate the rate of shoreline change to the extent that changes to the coastline are increased nearby or elsewhere, and*
- *Where applicable makes provision for coastal access and the Southwest Coast Path.*

Cornwall and Isles of Scilly Shoreline Management Plans

The *Shoreline Management Plan for Cornwall and the Scilly Isles*³ is a non-statutory policy document for coastal defence planning and sets out the recommended approach to managing the shoreline over the next 100 years. This is done by considering location, time and policy. The SMP 2 document was adopted by Cornwall Council in 2011 and is the current shoreline management plan (inclusive of a midterm review in 2016⁴).

The proposed development site falls within Management Area MA32 (Policy unit 32.5 – Tolcarne Beach) as part of Policy Development Zone 12, (PDZ-12)⁴. The specific policies for MA 32.5 are 'Hold The Line (HTL)' to 2025, followed by 'Hold The Line and No Active Intervention (NAI)' to 2055 and 'No Active Intervention' to 2105.

The proposed development site (structural footprint) falls outside of the 'Erosion Risk Zone (with no active intervention) 2105', and outside of the '2105 - 200-year flood event' extents, suggesting the proposed development site is not considered to be at risk over these time periods (up to 2105). The northern boundary of the plot, directly adjacent to the shoreline appears to fall within the erosion risk zone (2025), indicating the northern boundary line may be subject to coastal erosion with epoch 1.

The SMP2 report makes the following statement regarding the ongoing and future flood risk management at Tolcarne Beach:

*'The significant importance to the local economy of the development to the rear of Tolcarne Beach is recognised through a proposed 'Hold the Line' policy during epoch 1 (up to 2025). During epoch 2 and 3 (2055 and 2105 respectively) coastal squeeze and rising sea levels are likely to put increasing pressure on this frontage. Monitoring of beach levels should assist in indicating how rapidly the risk and pressure is increasing, but it is probable that by mid-century technical and economic sustainability of maintaining defences will be reduced to the extent that NAI may need to be adopted.'*⁴

Coastal Change Management Area (CCMA)

CCMAs are defined as areas 'likely to be affected by physical changes to the coast, such changes include erosion and coastal landslip.'⁵ CCMAs may be defined where rates of erosion are expected

³ Cornwall Isles of Scilly SMP2 – Final report (Feb 2011)

⁴ Cornwall Isles of Scilly SMP2 – Mid Term Review (2016)

⁵ Guidance: Flood Risk and Coastal Change. Dept for Levelling up, Housing and Communities. August 2022

to be significant over the next 100 years, and where the accepted shoreline management plan is not 'Hold The line'.

The coastline of Newquay parish (where not designated 'Hold the line'), including that of Tolcarne Beach and adjacent to the proposed development area has been designated CCMA in the Newquay Neighbourhood Development Plan.

Newquay Neighbourhood Development Plan

The recently published *Newquay Neighbourhood Development Plan* (NNDP)⁶ has established the following coastal erosion zones:

- The Exclusion Zone: defined as the 100-year erosion line plus a 10 m buffer, and
- The Coastal Erosion Vulnerability Zone (CEV): defined as 30 metres from the landward edge of the exclusion zone.

No permanent development or redevelopment is to be permitted within the exclusion zone.

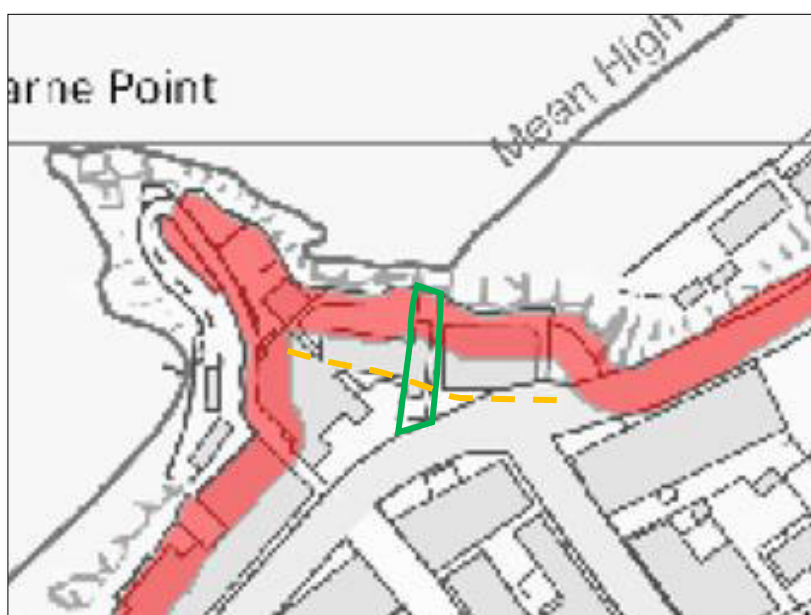


Figure 02: Newquay Neighbourhood Development Plan – Exclusion Zone (red).
Coastal Erosion Vulnerability Zone (CEV) – orange hatched line (approximate extents)

The structural footprint of the proposed refurbishment extensively falls outside of the exclusion zone, though it is recognised the northern extent of the structure does fall with the exclusion zone by approximately 3 to 5 metres. The proposed development also lies within the CEV. Development or redevelopments with the CEV must be accompanied by a Coastal Erosion Vulnerability Assessment (this document).

⁶ Newquay Neighbourhood Development Plan – 2019 to 2030 (V.1.0)

Desk Study

Published geology

Published geology indicate the prevailing geology underlying the proposed development site to be interbedded mudstone, siltstone and sandstone of the Bovisand Formation,⁷ There are no recorded superficial soils underlying the site.⁸

There are no linear structural geological features in the immediate vicinity of the site, the nearest is a northwest to southeast trending mineralised vein which is located approximately 180 metres to the east-northeast of the site. The fault is recorded as 'inferred' and any displacement and downthrow are not recorded.

Historical records: Landslides

According to the BGS Landslides Database⁹, there are several recorded landslide events in the vicinity of Great Western and Tolcarne Beach. These may be summarised as follows:

- Landslide – Great Western Beach (2020). Landslide ID 20788. Located 100 metres west of the proposed development site, and
- Landslide – Tolcarne Point (2015). Landslide ID 19984. Located 110 metres northwest of the proposed development site – southern end of Tolcarne Beach.
- Landslide – Newquay (1986). Landslide ID 20671. Located 260 metres northeast of the proposed development site – northern end of Tolcarne Beach, and
- Landslide – Tolcarne Beach (2016). Landslide ID 20165. Located 270 metres northeast of the proposed development site – northern end of Tolcarne Beach.

Historical records: Ordnance Survey

Table 1: Summary of historical Ordnance Survey datasets.¹⁰

Date of OS dataset	Changes to the site	Changes to the surrounding area
1880	Undeveloped agricultural land	The surrounding area is extensively undeveloped, with the exception of the alignment of Cliff Road / Narrowcliff Road and several buildings including The Great Western Hotel and Seaward Villas located on Tolcarne Point to the immediate west of the site. To the southeast of the site, on the other side of Cliff Road are Newquay railway sidings and terminus building. There are some historic mine

⁷ British Geological Survey dataset – Sheet 346 Newquay 1:50,000 (Ver 8.24 2017)

⁸ British Geological Survey dataset – Sheet 346 Newquay Superficial 1:50,000 (Ver 8.24 2017)

⁹ <http://mapapps2.bgs.ac.uk/geoindex/home.html> (accessed 03/10/2023)

¹⁰ National Library of Scotland. Cornwall (XXXIX.NE Newquay)–Published 1880, 1908, 1938, 1947

		workings including spoil heaps and historic shafts associated with the former East Tolcarne workings. The nearest of which are located 280 metres to the southeast.
1908	The site has now been subject to residential development along 'Station Road'.	Further residential and commercial development in the vicinity of the site, including development around Cliff Road, Narrowcliff Road and Tolcarne Road. Great Western Hotel is still annotated.
1938	No change.	No significant change. Further residential and commercial development of Cliff Road and Narrowcliff.
1946	No change.	No change.

Historic rates of coastal erosion

An inspection of the historical OS maps and satellite aerial photography has enabled an approximation of shoreline erosion and regression to be made from 1880 to the present day. The distance was measured along the coastline and the cove around Bishop's Rock, which represent the nearest point of coastline to the northern corner of the site.



Figure 02: Ordnance Survey dataset from 1880 (proposed development site in green).

The historical OS maps indicate a maximum measurable extent of erosion and regression of the shoreline at this location of < 3.5 metres since 1880.

It should also be noted that there is a variable Mean High Water Mark (MHWM) recorded between the historic and modern OS datasets on Great Western Beach. This suggests a net widening of the beach of < 20 metres since 1880. This suggests there is a process of net accretion of sediment along the beach

and at the base of the sea cliff, suggesting that erosion of the sea cliffs as a result of wave action is likely to reduce in the short term, pending projected increased in sea level.

National Coastal Erosion Risk Mapping

The National Coastal Erosion Risk Mapping (NCERM)¹¹ was published in 2018, and is intended to provide an up to date and reliable benchmark dataset indicating estimated erosion extents and rates, around the coastline of Cornwall, for three time periods:

- Short term (0 – 20 year),
- Medium term (20 – 50 Year), and
- Long term (50 – 100 year).

The dataset shows the 2018 coastal baseline in sections which show consistent characteristics based on the geology, topography and shoreline defences. The dataset provides the estimated erosion rate based on a 'No Active Intervention' (NAI) policy scenario and 5% percentile confidence (most conservative).

For the site, the NCERM (assuming a NAI policy) may be summarised as follows:

- Shoreline feature / type: Erodible,
- Defence type: Natural,
- Short term erosion extent (5% percentile confidence): 1.32 m retreat distance,
- Medium term erosion extent (5% percentile confidence): 3.3 m retreat distance, and
- Long term erosion extent (5% percentile confidence): 6.6 m retreat distance.

Estimated sea level rise

In accordance with the recommendations set out in the Planning Practice Guidance – Flood Risk and Coastal Change,¹² SSSW have used the EA Guidance on Climate Change Allowances (Table 1)¹³ to predict net sea level rise due to climate change.

The predicted cumulative sea level rise due to climate change in the southwest is 1.45 metres based on the conservative 'upper end' scenario (95th percentile confidence). This projection is based over a 100-year period from 2017 (datum year).

Flood Risk

¹¹ Environment Agency National Coastal Erosion Risk Map: <https://www.arcgis.com> (accessed 04/10/23)

¹² Ministries of Housing, Communities and Local Government (DCLG). April 2015.

¹³ <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances> (accessed 04/10/23)

The site is within Flood Zone 1¹⁴. The probability of flooding from river and the sea is therefore considered to be **Low**.

Site Inspection

A site inspection was undertaken by a Chartered Engineering Geologist on Monday 25th September 2023. The weather at the time of the inspection was cool and overcast, with some wet weather in the preceding days.

The Maharajah

The Maharajah Restaurant (the site) is located to the north of Cliff Road, on Tolcarne Point and at the southern end of Tolcarne Beach. The site is bordered by commercial and residential properties to the east and west, with part of the Great Western Hotel to the west and the Rocklands Building to the immediate east of the site, which is a 5-storey building with residential apartments and shops and restaurants to the ground floor. The sea cliffs of Tolcarne Point are on the northern boundary of the site, and the southern boundary of the site is demarked by Cliff Road, with residential and commercial properties on the other side.

The Maharajah Restaurant is on a plot approximately 435 m² in size and at an elevation of approximately 30 metres above Ordnance Datum (aOD (mean sealevel)).



Figure 03: The Maharajah Restaurant – image taken from the site entrance off Cliff Road, looking north-northeast.

¹⁴<https://flood-map-for-planning.service.gov.uk/flood-zone-results> (accessed 04/10/23)

The Maharajah Restaurant is a three storey brick and concrete structure with a pitched tiled roof and a basement level to the northern elevation (seaward). The entrance to the building is off Cliff Road to the south, the ground floor contains a dining room and restaurant facilities, and it is understood there is residential accommodation on the upper floors. The building was extended to the north with the provision of a conservatory to the restaurant. A planning application for these works was submitted in December 2003. The structural footprint of the Maharajah Restaurant (including the conservatory) is approximately 230 m².

At the time of the inspection the Maharajah Restaurant was observed to be operational with paying guests. The building was observed to be in a good state of structural repair and appeared to be well maintained, the building, rear garden and parking areas off Cliff Road were observed to be structurally intact with no evidence of damage (cracking) that may be indicative of ground movement or bearing failure.

The rear garden and northern boundary of the site

The rear garden of the site is an open space with stone gravel surfacing and several small, raised planters with palm trees. Along the western edge of the garden there is a large, galvanised steel vent pipe that leads from the kitchens and discharges over the northern boundary of the site. The rear garden is approximately 8.0 metres in width, 10.5 metres in length, and covers an area of approximately 75 m².

The northern boundary of the garden marks the top of the sea cliffs with Tolcarne Beach below. The northern boundary comprises a single skin concrete block wall which is believed to be contemporary to the construction of the restaurant itself in the 1980s. A separate glass façade has been added to the boundary wall at a later date (date unknown).

At the time of the inspection, the ground surface and northern boundary walls were observed to be structurally intact with no evidence of damage (cracking) that may be indicative of ground movement or bearing failure.

Surrounding properties

As part of the site inspection, the properties surrounding the site were also subject to limited visual inspection.

The site is bordered by commercial and residential properties to the east and west, with part of the Great Western Hotel to the west and the Rocklands Building to the immediate east of the site, which is a 5-storey building with residential apartments and shops and restaurants to the ground floor. On the basis of limited visual inspection of the exterior of these structures (where publicly accessible), there was no observation of significant structural damage (cracking) to the exterior that may be indicative of ground movement or ground bearing failure.

The sea cliffs – Tolcarne Beach

The site is located on the eastern edge of Tolcarne Point, at the western extent of Tolcarne Beach. The sea cliffs at this location are approximately 30 metres in height, the lower part of the slope is at a slope face gradient of approximately 80 to 90 degrees from horizontal, from beach level to a height of approximately 10 to 15 metres. The bedrock comprises blue grey metasedimentary mudstone (slates), medium strong to strong in-situ with a fine cleavage.

The upper part of the slope face is at a slightly reduced slope face gradient of approximately 60 to 80 degrees from horizontal. The bedrock in the upper part of the slope is yellow and grey-brown, interbedded mudstones and fine sandstones, weak to medium strong in-situ where exposed, the upper part of the slope face is also partially obscured with vegetation including grasses and small bushes.

There is a prevailing bedding structure within the rock mass at this location, which is dipping towards the north and northeast at a variable angle of dip of between 30 and 50 degrees from horizontal. There are several degraded quartz seams observed within the slope face which were dipping to the east at approximately 45 degrees, the quartz seams were observed to be extensively degraded, with some discolouration suggesting some mineralisation. The base of the sea cliffs (at sea level) are approximately vertical (in slope face profile), with some limited wave cutting observed.



Figure 04: Tolcarne Point sea cliffs below the Maharajah site.

At the base of the sea cliffs there are three small, incised sea caves, each < 3.0 metres in height, < 1.2 metres in width and < 2.5 metres in depth, the sea caves appear to be located on the degraded quartz structures, a short distance to the east of the site.

There was an observation of some limited vertical and sub vertical tension cracking within the upper part of the slope face at a height of approximately 20 metres. The affected area was localised,

approximately 5.0 meters in width and height, however this secondary fracturing gives rise to the likelihood of limited wedge type failure of material from this location in the future.

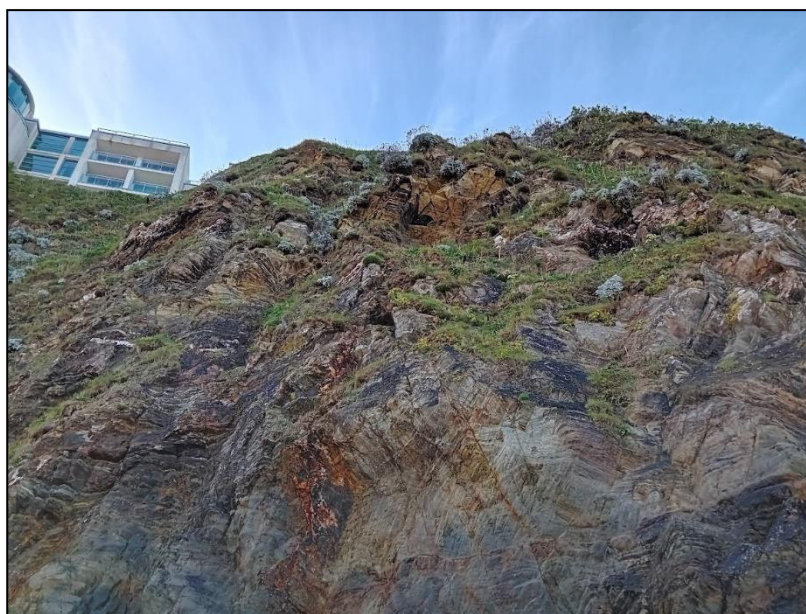


Figure 05: Tolcarne Point sea cliffs below the Maharajah site – localised tension cracking within the upper part of the slope face.

There was no observation of recent failure scars in the slope face and no observation of rockfall debris at the base of the slope. The slope crest was also observed (from the garden area) and found to be extensively intact with no observation of failure or collapse.

Observations of groundwater

At the time of the inspection, the base of the sea cliffs were observed to be extensively dry, with the exception of some limited seepage from one of the sea caves. There was no waterflow or discharge onto the beach.

There is a diverted adit portal located approximately 60 metres to the east of the site, though this portal is diverted from the actual adit within the sea cliffs which is located behind the Colonial Hotel, located 130 metres to the east. This adit is known to be part of the East Tolcarne workings.

Coastal Stability Assessment

The principal mechanism for shoreline erosion and regression along Tolcarne Point and Tolcarne Beach and in the vicinity of the proposed development area, is considered to be the erosion of the base of the sea cliffs as a result of wave and tidal activity. Over significant time, this results in the formation of erosional features within the sea cliffs such as wave cut features and ultimately sea caves. As part of this erosional process, the sea cliffs will become overly steepened and undercut by the sea caves,

which in turn may lead to progressive collapse of material from the cliff face and ultimately the erosion and regression of the shoreline.

This process may be locally exacerbated by the nature and orientation of the metasedimentary bedrock that form the sea cliffs along Tolcarne Beach, whereupon landslide and slope instability has been caused not as a result of wave or tidal activity, but more as a result of physical weathering processes acting on the prevalent bedding plane orientations within the rock mass. This has resulted in the recorded history of landslide and slope instability in the vicinity of the site, as recorded in the BGS Landslide Database, where the most part these landslides have occurred in the upper part of the slope face, typically within the weathered deposits and overburden located within the upper slope and slope face.

The principal causal factors of these recorded landslide events are considered to be the orientation of the prevalent bedding planes of the metasedimentary deposits, which give a kinematic mechanism for failure to occur via wedge and sliding type movement, active on certain slope face orientations (westerly and south westerly). This kinematic mechanism is not active for the Maharajah site, as the sea cliffs are orientated to the northeast.

The base of the sea cliffs (at Tolcarne Point) comprise competent metasedimentary lithology, which are considered to be medium strong and strong in-situ. The base of the sea cliffs are observed to be within the intertidal zone, and there are erosional features such as wave cutting and small sea caves that indicates the sea cliffs have been subject to historic wave and tidal impact and that a process of erosion is underway.

However, the information from the desk study suggests the historic rate of erosion is very slow, as indicated by the information from the historic OS datasets. These datasets indicate a low rate of shoreline erosion and regression of approximately 3.5 metres over the 140-year timeframe.

This rate of erosion and regression is considered to be consistent with the nature and orientation of the rock mass and the coastline at this location whereby:

- The sea cliffs at this location are substantial and there is a significant mass of bedrock beneath the site.
- The nature and orientation of the predominant discontinuities (bedding planes) are orientated to the south and southwest and therefore into the slope face (non-daylighting), this results in limited kinematic mechanism for rockfall and slope instability to occur from the slope face, and
- The geomorphology of the coastline at this location comprises Tolcarne Point, with the site coastal frontage on the lee side. This provides effective natural protection from the prevailing west and north-westerly swells.

However, the stability of the coastline must be considered against the projected sea level rise, which is 1.45 metres over the design life of the proposed development. This will result in an increase in wave and tidal activity acting on the rear area of the beach and is likely therefore to result in a relative

increase in the rate of erosion and coastal regression along the entirety of the Newquay frontage, which will come into effect progressively over a 100-year period.

The results of this inspection and assessment indicate that the overall stability of the coastline adjacent to the site is not considered unacceptable in terms of the long-term development of the (Maharajah Restaurant) site. It is accepted that coastal erosion and regression will occur as sea levels rise in the future, however it is considered that the rates of erosion extent projected in the NCERM data (5th percentile confidence) are appropriately conservative. The proposed structures are not therefore expected to be impacted (structurally) by coastal erosion and regression within a 100-year design life, though some loss of the rear garden area of the site is anticipated.

It is recognised the proposed refurbishment area does lie within the Coastal Erosion Vulnerability Zone (CEV) and partially within the Exclusion Zone and will therefore require a Coastal Vulnerability Assessment (CVA).

Coastal Vulnerability Assessment

This report is compiled in accordance with guidance from the NPPF¹ and the *Cornwall Council Climate Emergency Development Plan*² so as to demonstrate the proposed development (Maharajah Restaurant):

1. *Is consistent with policy statements for the local policy unit in the current Shoreline Management Plan?*

The proposed development site falls within Management Area MA32 (Policy unit 32.5 – Tolcarne Beach) as part of Policy Development Zone 12, (PDZ-12)¹⁵. The specific policies for MA 32.5 are 'Hold The Line (HTL)' to 2025, followed by 'Hold The Line and No Active Intervention (NAI)' to 2055 and 'No Active Intervention' to 2105.

It is understood the Flood and Coastal Management Advisor for the Environment Agency was further consulted on this Management Area, within the Newquay neighbourhood Development Plan (8.8.2 CC2.2 Justification)⁶, in which they state '*monitoring and observations are supporting the move towards implementation of full NAI in epoch 2*'. Therefore for the purpose of this assessment, it is assumed that NAI will be the specific policy for epochs 2 and 3, up to 2055 and 2105.

Discussion

The planned development is the refurbishment and re-purposing of an existing commercial structure (The Maharajah Restaurant) to create residential accommodation. No additional structures and no additional net increase to the structural footprint are proposed. No additional coastal defences or stabilisation infrastructure is planned or anticipated, and the proposed development area is clear of

¹⁵ Cornwall Isles of Scilly SMP2 – Mid Term Review (2016)

maximum projected levels of coastal erosion and regression as presented in the published NCERM data and supported by the findings of the coastal stability assessment in this report.

The risk of the proposed development impeding or affecting the natural coastal realignment process are therefore considered to be acceptably low. The planned development is considered to be consistent with the strategy of 'no active intervention presented in the Shoreline Management Plan.

2. *Does the development impair the ability of communities and the natural environment to adapt sustainably to the impacts of a changing climate?*

The principal impacts of changing climate to the community off Tolcarne Point, Tolcarne Beach and the Newquay area, and the natural environment are considered to be:

- Increased storm activity.
- Loss of beach amenities, rearshore and intertidal areas as sea level rises.
- Coastal erosion and shoreline regression leading to possible future loss of shoreline amenities such as public access to Tolcarne Beach and the restaurant and accommodation located to the rear of the beach.
- Disruption of natural coastal processes of erosion and deposition, with the risk of sediment starvation and / or accretion (accumulation of sediment), and
- Loss of habitat within the coastal environment.

The priorities of a coastal community such as Newquay in the sustainable management of a changing climate are likely to include:

- Protection of property and community assets along the shoreline, likely to include commercial areas and residential properties to the north of Cliff Road and the restaurant and accommodation located to the rear of Tolcarne beach.
- Access to Tolcarne Beach and coastal areas, and
- The maintenance of coastline sustainability.

Discussion

The planned development is the refurbishment and re-purposing of an existing commercial structure (The Maharajah Restaurant) to create residential accommodation. No additional structures and no additional net increase to the structural footprint are proposed. No additional coastal defences or stabilisation infrastructure is planned or anticipated, and the proposed development area is clear of maximum projected levels of coastal erosion and regression as presented in the published NCERM data and supported by the findings of the coastal stability assessment in this report. The impact of the development on natural coastal process is therefore considered to be negligible.

There is no net change in land use and no net impairment of access to the coastline or coastal areas, and the impact on the community or natural environment is considered to be negligible, other than

the proposed redevelopment represents significant investment in the community and surrounding area and will increase the provision of housing to Newquay in accordance with the requirements of the Newquay Neighbourhood Development Plan.

3. *Will the development be safe through its planned lifetime (100 years) without increasing risk to life or property, or the requirement of new or improved coastal defences?*

The principal risk factor to the proposed development is considered to be coastal erosion as a result of projected sea level rise in line with climate change. The desk study component of this assessment report has highlighted the following:

- According to the Shoreline Management Plan³ the proposed development site (structural footprint) falls outside of the 'Erosion Risk Zone 2105' indicating the site is not considered to be at risk of shoreline erosion through this time period (to 2105).
- The proposed development footprint extensively falls outside of the exclusion zone, though it is recognised the northern extent of the structure does fall within the exclusion zone by approximately 3 to 5 metres. The proposed development also lies within the CEV.
- The historical OS maps indicate a maximum measurable extent of erosion and regression of the shoreline at this location of < 3.5 metres over the preceding 140 year period (since 1880).
- The National Coastal Erosion Mapping dataset indicates (based on 5th percentile data), that there will be projected long term erosion extent of 6.6 metres of the coastline adjacent to the development site, over the design life of the proposed development (assuming no active intervention).
- Estimated sea level rise over the 100-year design life period, published by the Environment Agency gives a predicted cumulative sea level rise (due to climate change in the southwest) of 1.45 metres (based on the conservative 'upper end' scenario (95th percentile)).
- The site is at 'Low' risk of surface water flooding.

Discussion

The results of desk study assessment and the coastal stability assessment indicate that the overall stability of the coastline adjacent to the site is not considered unacceptable in terms of the proposed long-term development of the Maharajah Restaurant site. It is accepted that coastal erosion and regression will occur as sea levels rise in the future, however it is considered that the rates of erosion extent projected in the NCERM data (5th percentile confidence) are appropriately conservative. The proposed structures are not therefore expected to be impacted by coastal erosion and regression.

The proposed development should therefore be considered safe through its planned lifetime (100 years) without increasing risk to life or proposed development site, or the requirement of new or improved coastal defences.

4. Will the development provide safe access and egress for the site and its users?

Access and egress from the site and the proposed development is via Cliff Road to the south on the landward site of the proposed development, therefore safe access and egress to the site is assured.

5. *Will the development affect the natural balance and stability of the coastline or exacerbate the rate of shoreline change to the extent that changes to the coastline are increased elsewhere?*

The planned development is the refurbishment and re-purposing of an existing commercial structure (The Maharajah Restaurant) to create residential accommodation. No additional coastal defences or stabilisation infrastructure is planned or anticipated, and the shoreline will therefore remain in a 'natural' state.

The risk of the proposed development interfering with natural coastal processes so as to affect the natural balance and stability of the coastline, are therefore considered to be negligible.

6. Where applicable makes provision for coastal access and the Southwest Coast Path.

Access to the coastline and foreshore on the northern and northeastern boundary of the site is not affected or impeded by the proposed development.

7. *Proposed development 'end of life plan'.*

At the end of the design life of the proposed development (100 years), or in the event that the development or part of the development has become structurally compromised for any reason, then the property owner shall acknowledge a duty of care to ensure the structure, or any part of the structure deemed at risk of collapse, be safely dismantled and removed from the site.

The 'end of life plan' should be undertaken in accordance with the guidance and recommendations provided in *Planning Policy Statement 25 Supplement: Development and Coastal Change Practice Guide*¹⁶.

Coastal Vulnerability Assessment – Conclusion

On the basis of the findings of this report, it is the opinion of Slope Stability Southwest that the proposed development is in accordance with Planning Practice Guidance. The proposed development may be considered sustainable and safe within the prescribed design life, and in taking appropriate account of the anticipated effect of climate change.

The risk of the proposed development impacting on coastal processes is considered acceptable.

¹⁶ Planning Policy Statement 25 Supplement: Development and Coastal Change Practice Guide. Dept for Communities and Local Govt. March 2021. ISBN 978 1 4098 2323

Yours faithfully

for **Slope Stability Southwest**

Tim Green – Chartered Engineering Geologist. BSc, MSc, FGS, CGeol, APMP.

Limitations

1. This report has been produced in compliance with the agreed scope of works between Slope Stability Southwest (SSSW) and the client (**Helen Swansbury**).
2. This report is confidential to the client(s) named on the report and the client's solicitor and/or mortgage lender and/or agent(s) and does not confer of purport to confer any benefits or any right pursuant to the Contracts (Rights of 3rd Parties) Act 1999. It may not be reproduced or further distributed without the permission of Slope Stability Southwest. We shall not be under any liability to any undisclosed party who has not been named on the report. The report may be reassigned to a new client by ourselves, on payment of an appropriate administration fee).
3. The scope of this report is limited to the current proposed development site boundaries. No assurances may be extended outside of this area and SSSW accept no responsibility for the use of this report for any purpose or any project except that for which it was commissioned and prepared.
4. The conclusions and advice provided in this report are based on:
 - a. Current best practice and legislation (SSSW accept no responsibility or liability for any change in best practice guidance or statute). In the event of additional information becoming available, improved practice or changes in legislation, then amendment and re-interpretation of this report may be necessary.
 - b. Sound engineering judgement by qualified and experienced engineers. This does not take into account the perceptions of other involved and interested parties.
5. This report is not a structural assessment and should not be considered as such. Where visual observations are made of structures (the dwelling, retaining walls etc), they are made in the context of a slope or coastal stability assessment, and should not be considered as (or supersede) a structural assessment undertaken by a qualified assessor.
6. Any information and data supplied by third parties has been interpreted in accordance with guidance notes and limitations provided by those third parties. Although this information has been reviewed and is considered relevant, no guarantee can be given to its accuracy and SSSW can give no assurance to the accuracy of data supplied by third parties. In addition, interpretation of historic datasets should be considered as indicative only.
7. The findings of this appraisal report are advisory and based on a visual site inspection undertaken on a specific date. Should conditions on site change as a result of further development, severe weather conditions, animal activity or other activity or circumstances, then Slope Stability Southwest should be notified, and a re-appraisal of ground conditions may be required.
8. The findings of this report are based on a walkover survey and inspection of the site. The works undertaken are extensively non-intrusive and do not represent (nor are they intended to represent) a full and comprehensive investigation of the nature and state of the ground conditions or bedrock underlying the site (should such works (intrusive ground investigation) be required, it may be undertaken under a separate scope of works). The findings of this report should not be used for design or construction purposes.
9. Unless otherwise stated, comments made relating to groundwater are based on observations made at the time of site assessment. Groundwater may vary as a result of seasonal effects or other variable factors.

Appendices:

Appendix A1 Existing Floor Plan

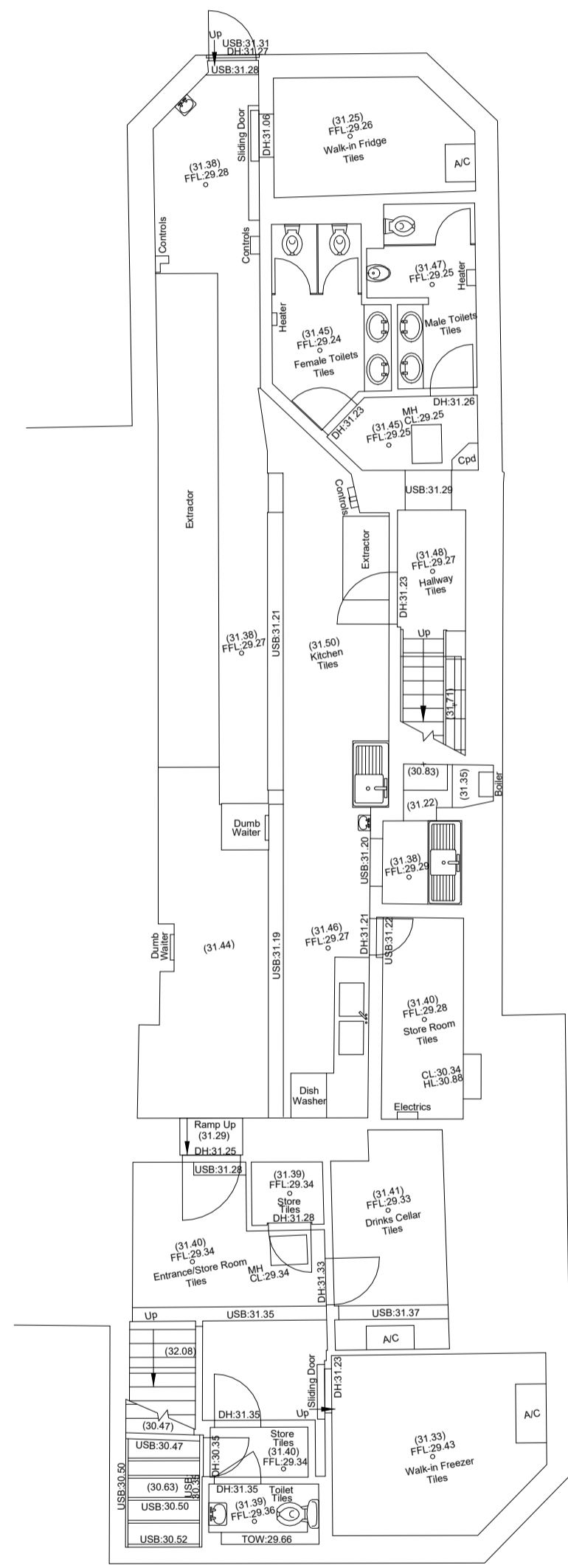
Appendix A2 Proposed Development Plan

Appendix B: Newquay Neighbourhood Coastal Erosion Exclusion Zone

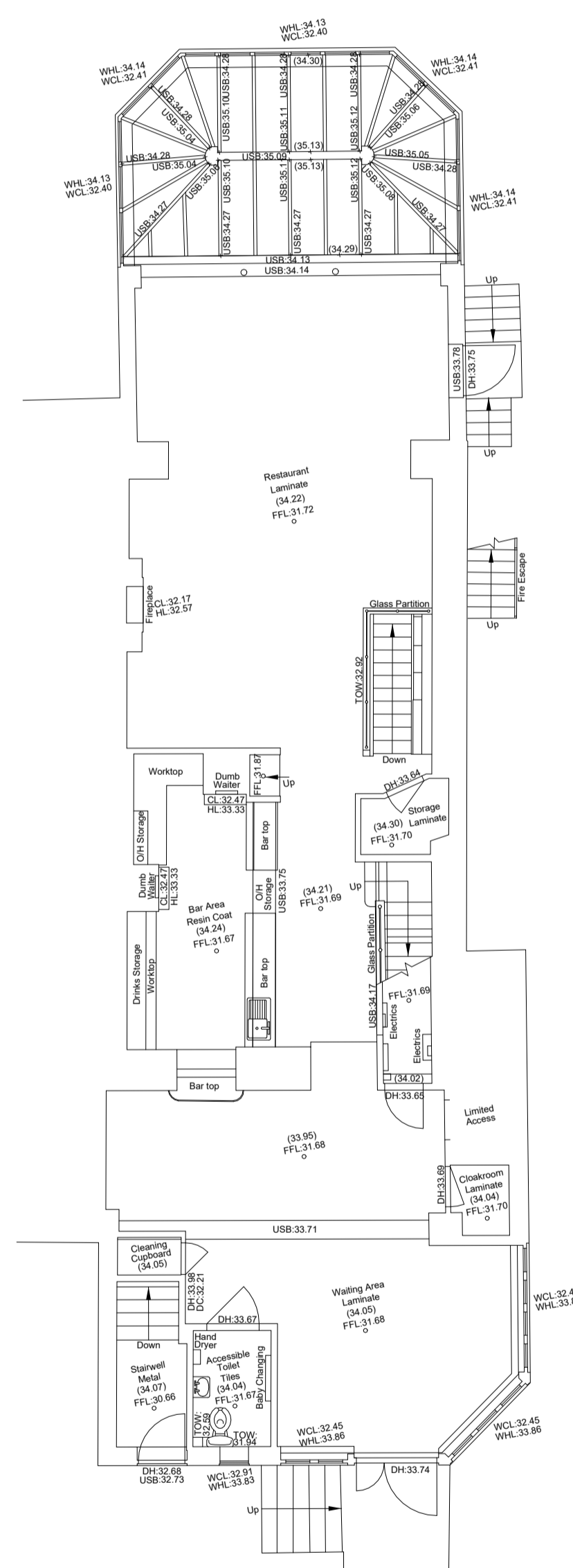
Appendix A1: Existing Floor Plan

Ref: Existing Floor Plans - Drawing Ref 2071.003 Date 18/01/2023. Cornwall Planning Group

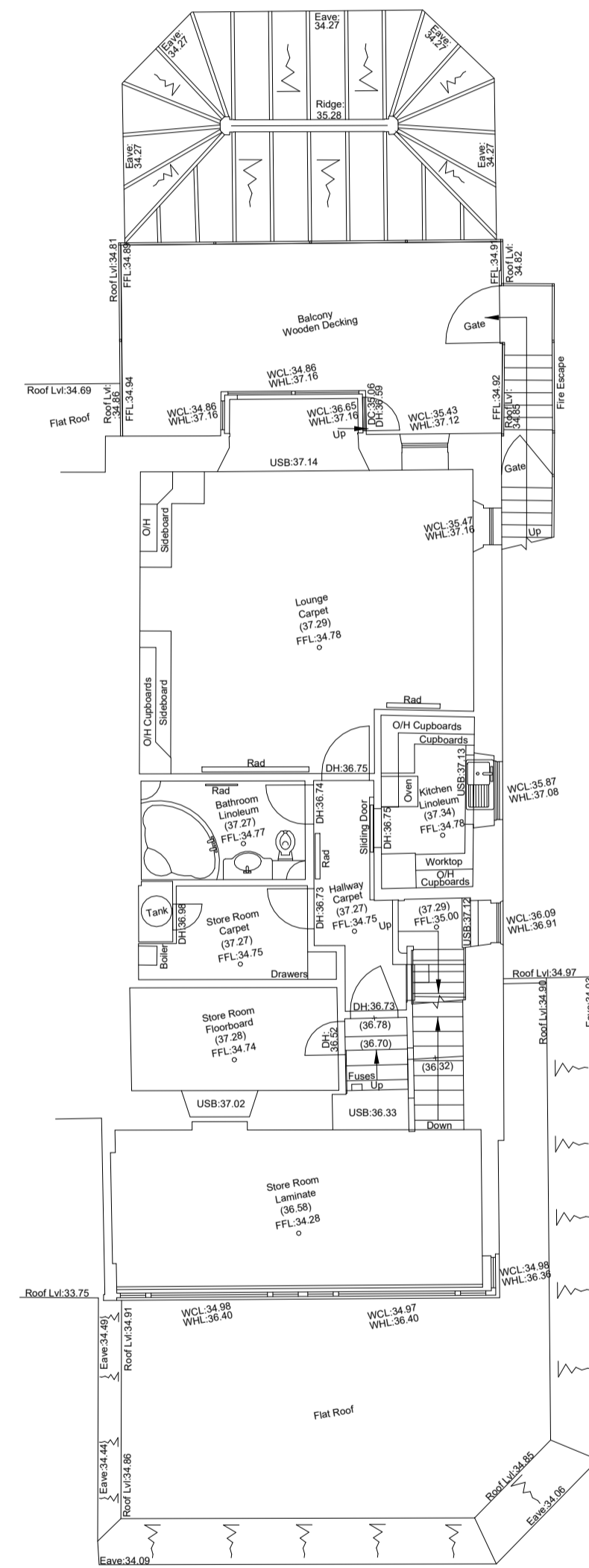
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4. No responsibility can be accepted for errors arising on site due to unauthorised variations from the Architects drawings.
5. The Contractor is recommended to visit the site before tendering to ascertain all local conditions and restrictions likely to affect the works. No claims arising from failure to do so will be considered.
6. Tenders must include for all the works described or being apparent on the drawings or can reasonably be inferred as being necessary for the proper execution of the works.
7. This drawing is for town planning and building regulations only and is not a complete working drawing.
8. Depth, size and design of foundations shown are preliminary only - actual foundation, depth, size and design may differ depending on site conditions.
9. On completion of the works, if a National Home Energy Rating Certificate is required by the client, contact the Local Authority Building Control Department.
10. L1 and L2 requirements for limiting thermal bridging & air leakage workmanship shall be executed by the Contractor in accordance with the appropriate sections and DEFRE/DTLR guidance document "Limiting Thermal Bridging & Air Leakage : Robust Construction Details for Dwellings and Similar Buildings" available from The Stationery Office Ltd.



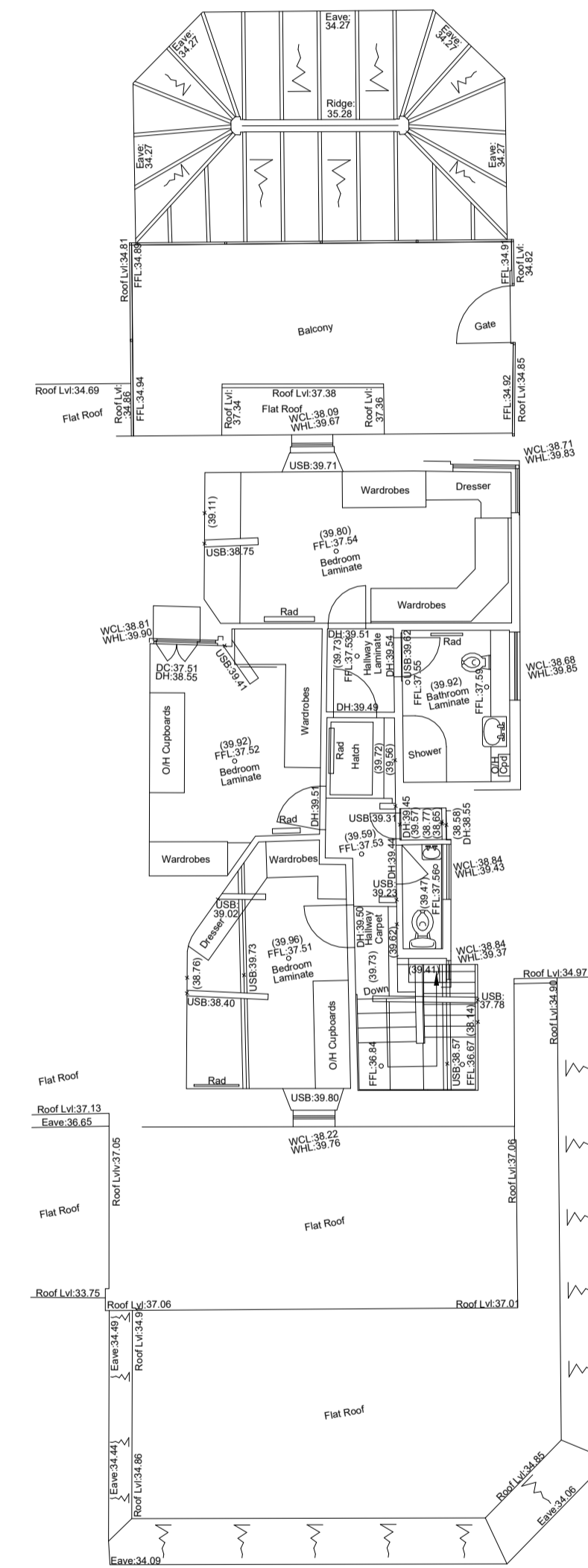
1 Lower Ground Floor Plan
1 : 100



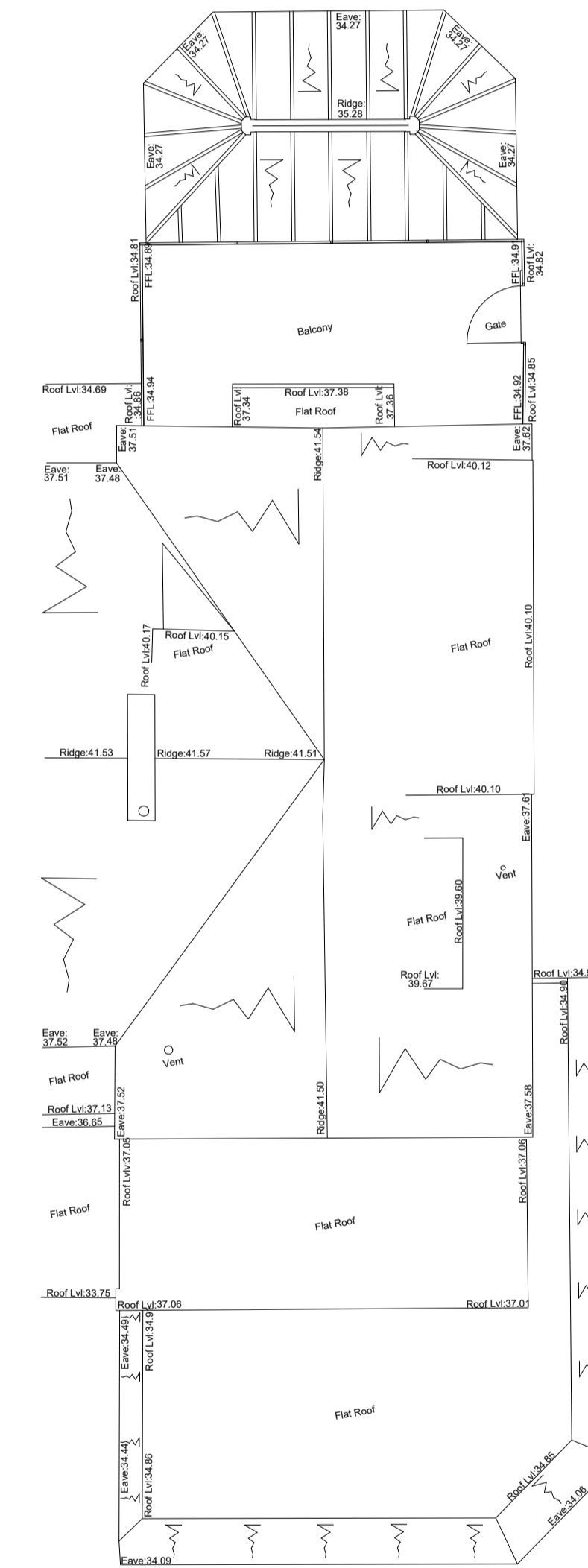
2 Ground Floor Plan
1 : 100



3 First Floor Plan
1 : 100

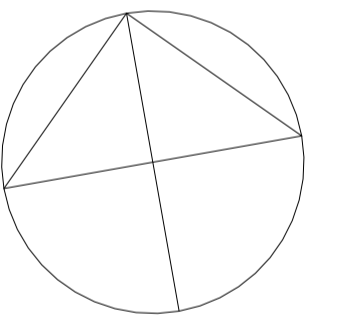


4 Second Floor Plan
1 : 100



5 Roof Plan
1 : 100

Scale = 1:50@A1
Scale = 1:100@A1



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Client: Mrs H Swansbury

Project: Conversion of Existing Building to Form Residential Apartments & Associated Works at The Maharajah, 39 Cliff Road, Newquay, Cornwall, TR7 2NE

Title: Existing Floor Plans

Stage: Planning

Scale: 1 : 100

Date: 18/01/2023

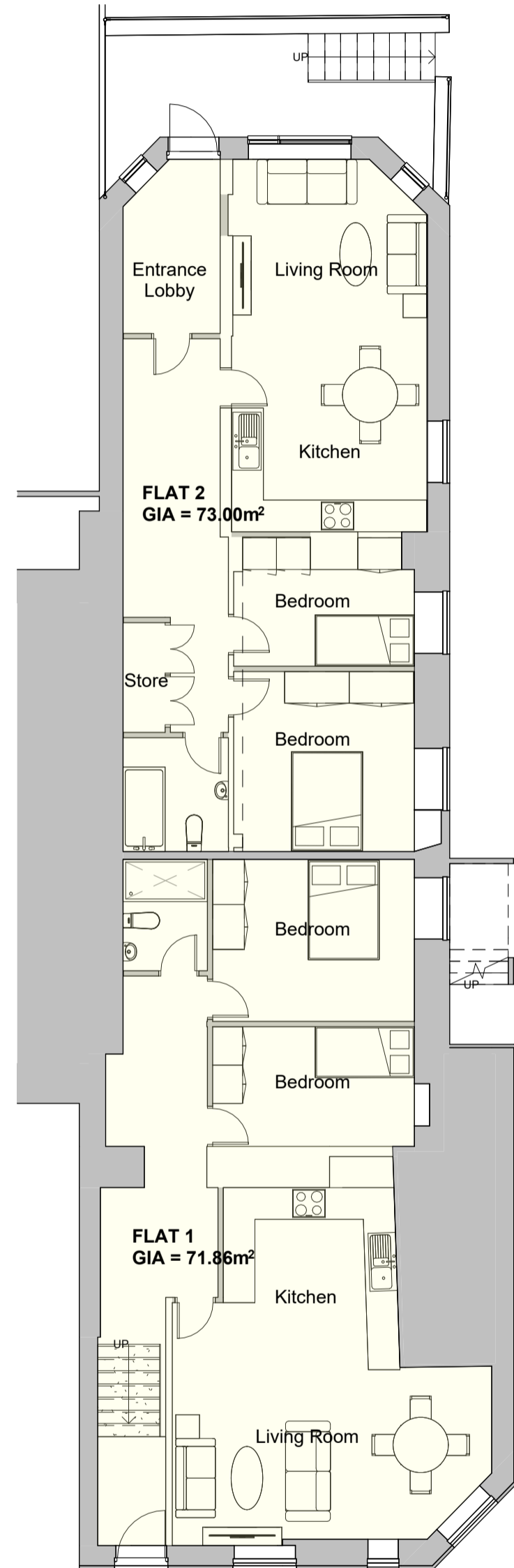
Draw: EB Checked: CM

Project No. 2071 Drawing: 003 Rev.

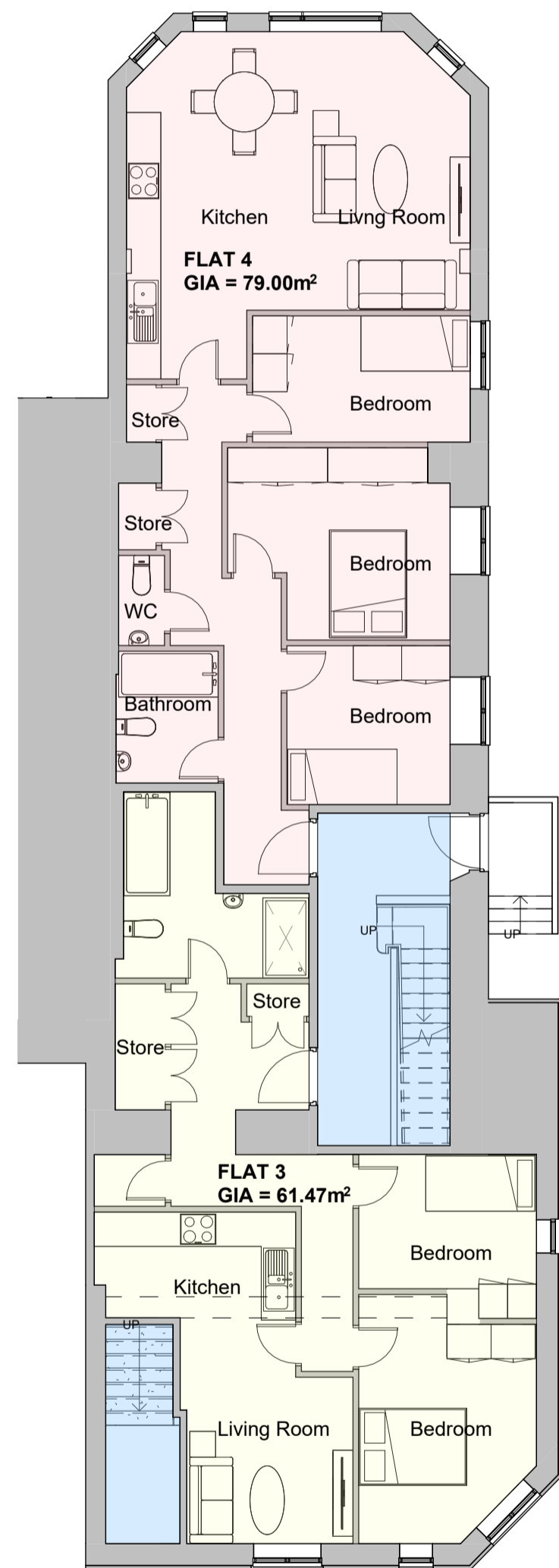
Appendix A1: Proposed Development Plan

Ref: Proposed Floor Plans - Drawing Ref 2071.005B Date 18/01/2023 Cornwall Planning Group

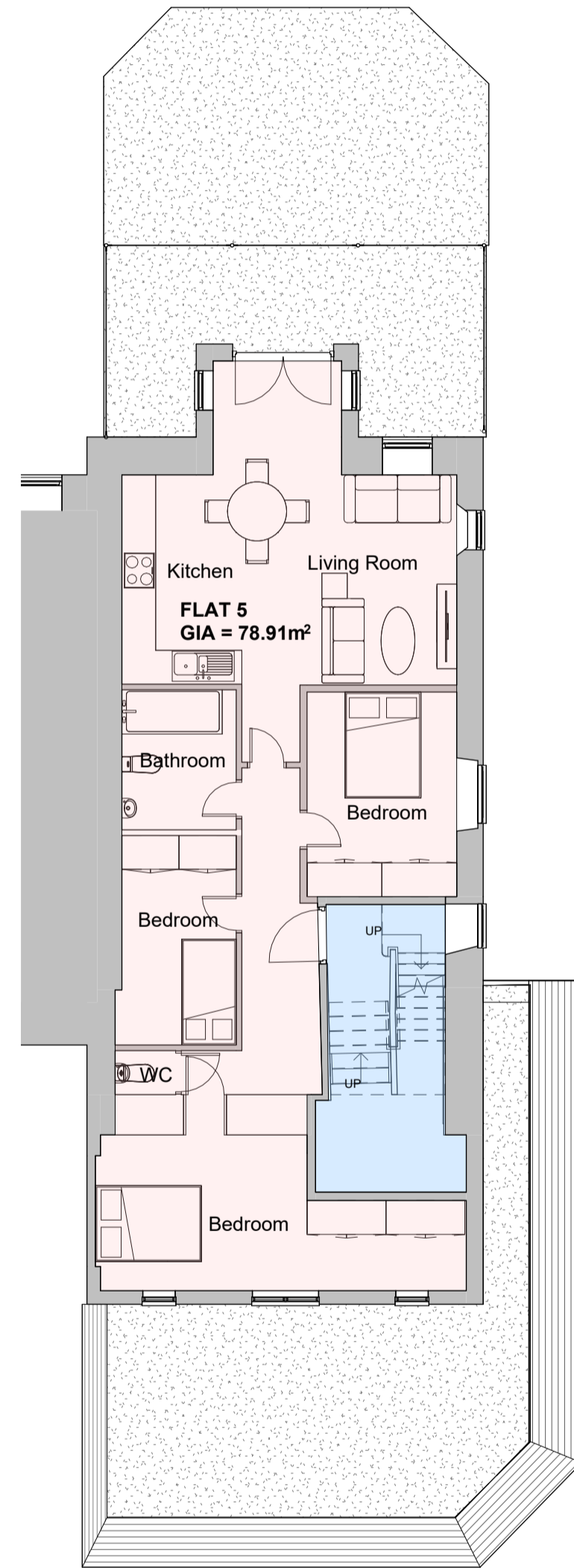
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 10. L1 and L2 requirements for limiting thermal bridging & air leakage workmanship shall be executed by the Contractor in accordance with the appropriate sections and DEFRE/DTLR guidance document "Limiting Thermal Bridging & Air Leakage : Robust Construction Details for Dwellings and Similar Buildings" available from The Stationery Office Ltd.



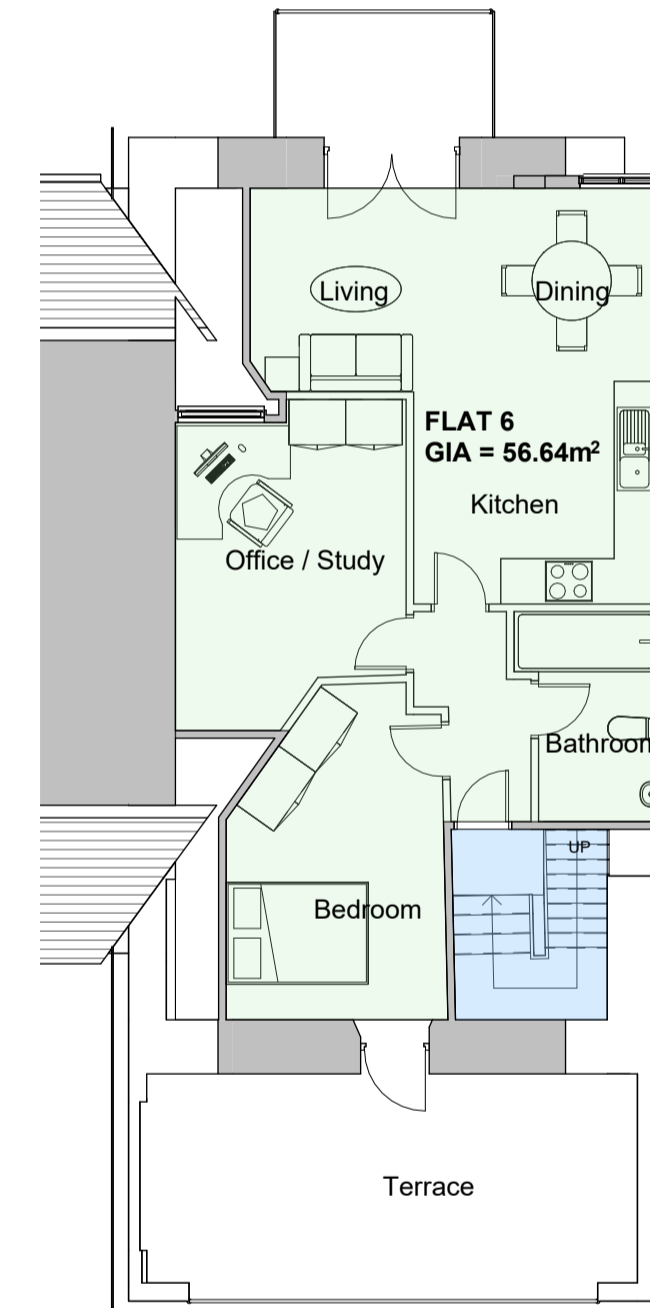
1 -01-Lower Ground Floor
1 : 100



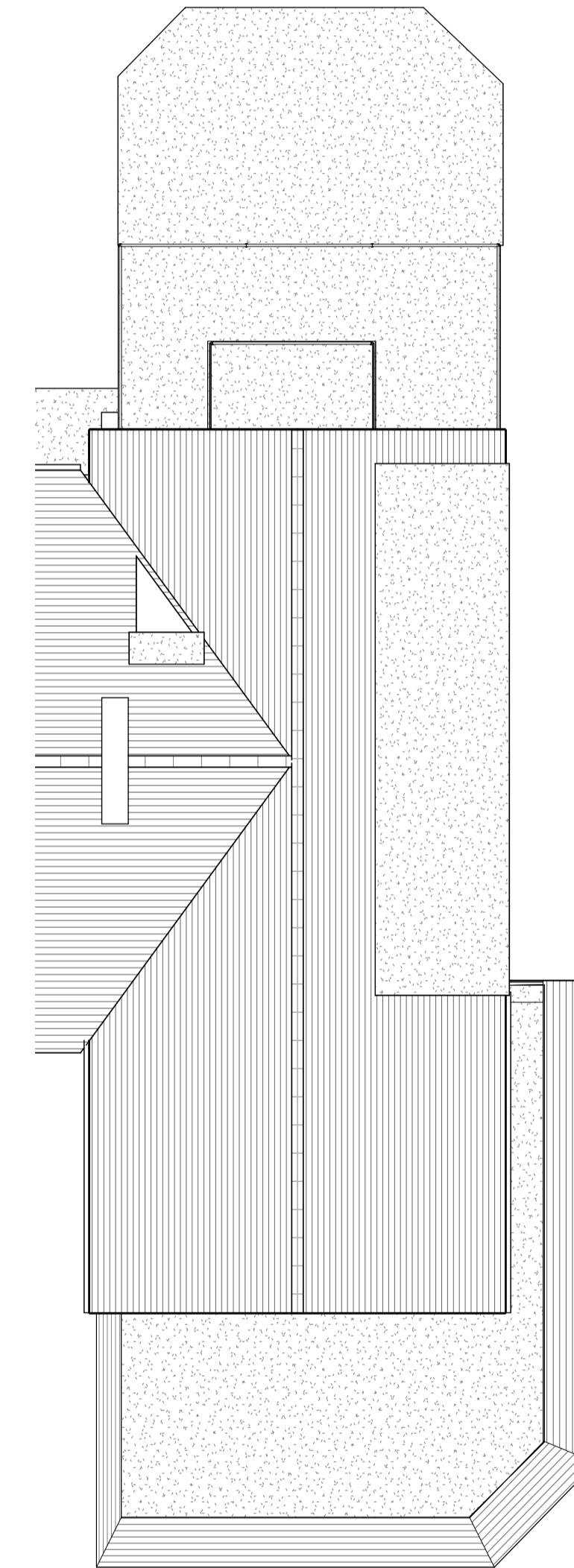
2 00-Ground Floor
1 : 100



3 01-First Floor Plan
1 : 100

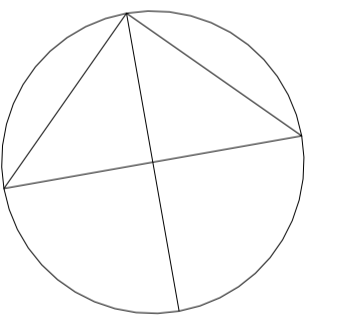


4 02-Second floor
1 : 100



5 03-Roof Plan
1 : 100

Scale = 1:50@A1
Scale = 1:100@A1



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Title: Proposed Floor Plans

Stage: Planning

Scale: 1 : 100

Date: 18/01/2023

Draw: EB Checked: CM

Project No. 2071 Drawing: 005B Rev.

Appendix B:
Newquay Neighbourhood Coastal Erosion Exclusion Zone

Ref: Drawing No 9C-Map CC: Newquay Neighbourhood Development Zone

Newquay Bay Coastal Erosion Zone – Anticipated 100 year erosion line plus 10m buffer

