

Dean Moor Solar Farm

Environmental Statement: Appendix 2.4 – Flood Risk Assessment and Outline Drainage Strategy (3 of 3)

on behalf of FVS Dean Moor Limited

March 2025

Prepared by: Stantec UK Ltd

PINS Ref: EN010155 Document Ref: 6.3

Revision: 1





Appendix B Topographic Survey





Bank Top	Gate
Book Bottom	Kerb Top
Hedge Outline	Chonnel
Fence Interwoven	Drop Kerb
Fence Barbed Wire	Change Si
Fence Iron Rail	Concrete
Fence Post Rail	Footpath
Electricity OH	Water

ABBREVIATIONS

		Collara	·Ρ	minp post
ı	bb	belisho beocon	mp	marker post
ı	b.i.g.	back inlet gully	mh	manhole
ı	bs	bus stop	nb	notice board
ı	bt	British Telecom	np	nameplate(road)
ı	bwf	barbed wire fence	P	post
ı	catv	cable tv cover	prf	post and rail fence
ı	cbf	close boarded fence	re	rodding eye
ı	cl	cover level	rg	road gully
ı	dk	drop kerb	rp	reflector post
ı	eic	electricity ic	rs	road sign
ı	ess	elec. sub-station	rwp	rainwater pipe
ı	ep	electricity pole	sp	signpost
ı	fb	flower bed	st	stop top
ı	fh	fire hydrant	sv	stop valve
ı	ffI	floor level	tow	top of wall
ı	fp	footpath	tp	top pipe
ı	fl.p	flagpole	ts	traffic signal
ı	g	gully	utl	unable to locate
ı	gv	gas valve	utr	unable to raise
ı	ic	inspection cover	VΡ	vent pipe
ı	ī1	invert level	wm	water meter
ı	irf	iron rail fence	DT	door threshold
1	ko	kerb outlet	DHH	door height height
1				-

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Revision No.	Description	Date	Issued By

AUsurveys

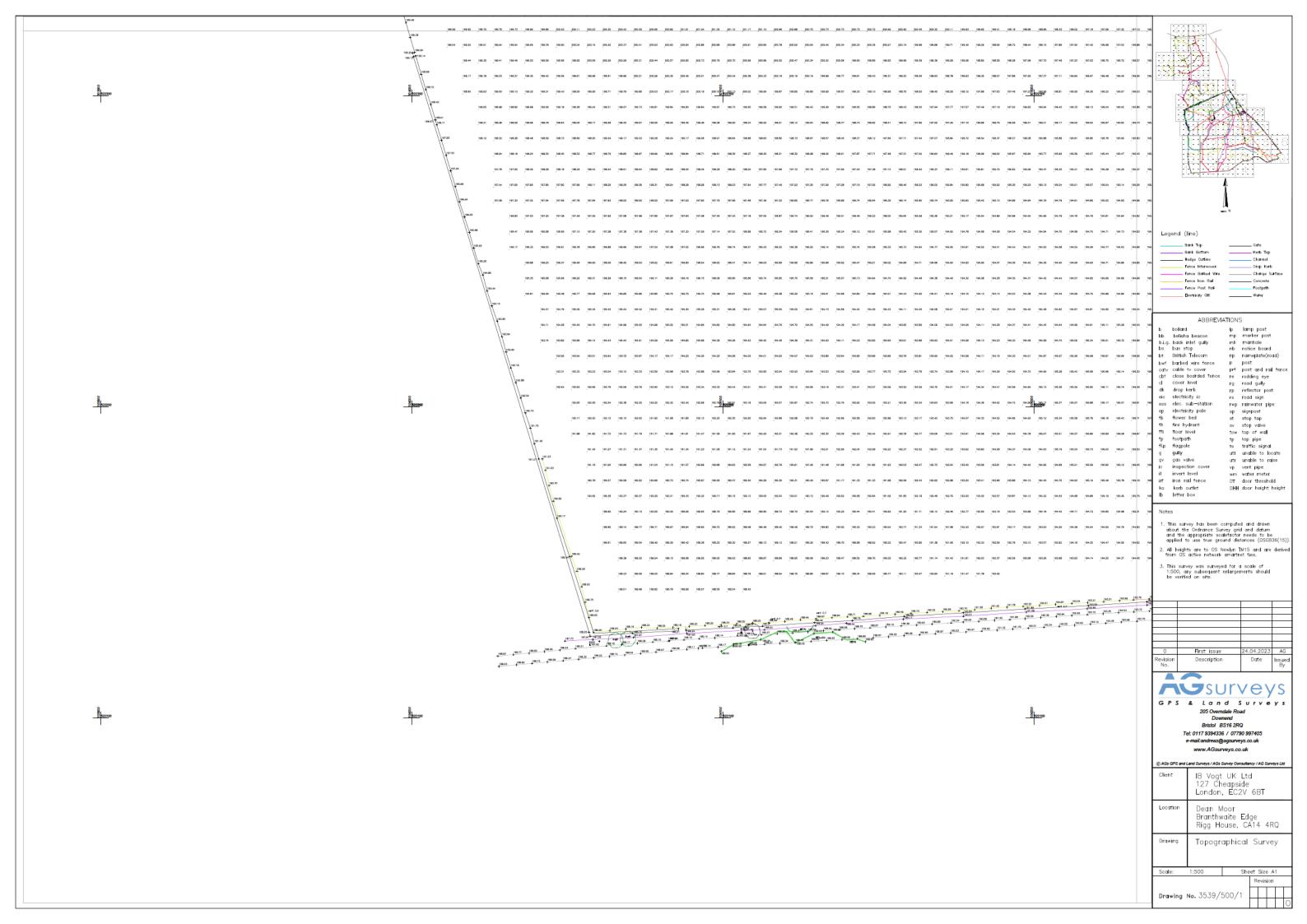
GPS & Land Surveys

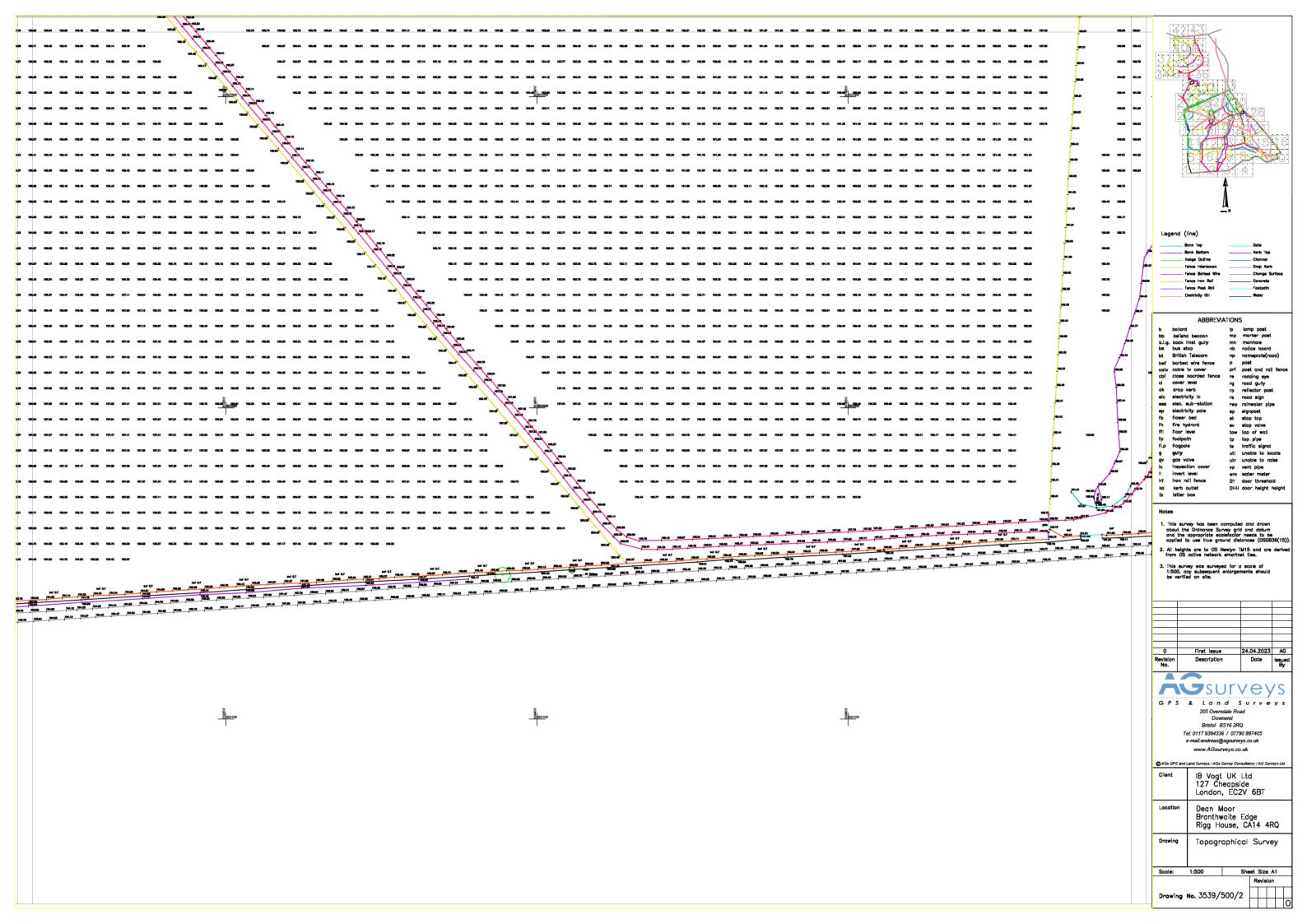
www.AGsurveys.co.uk

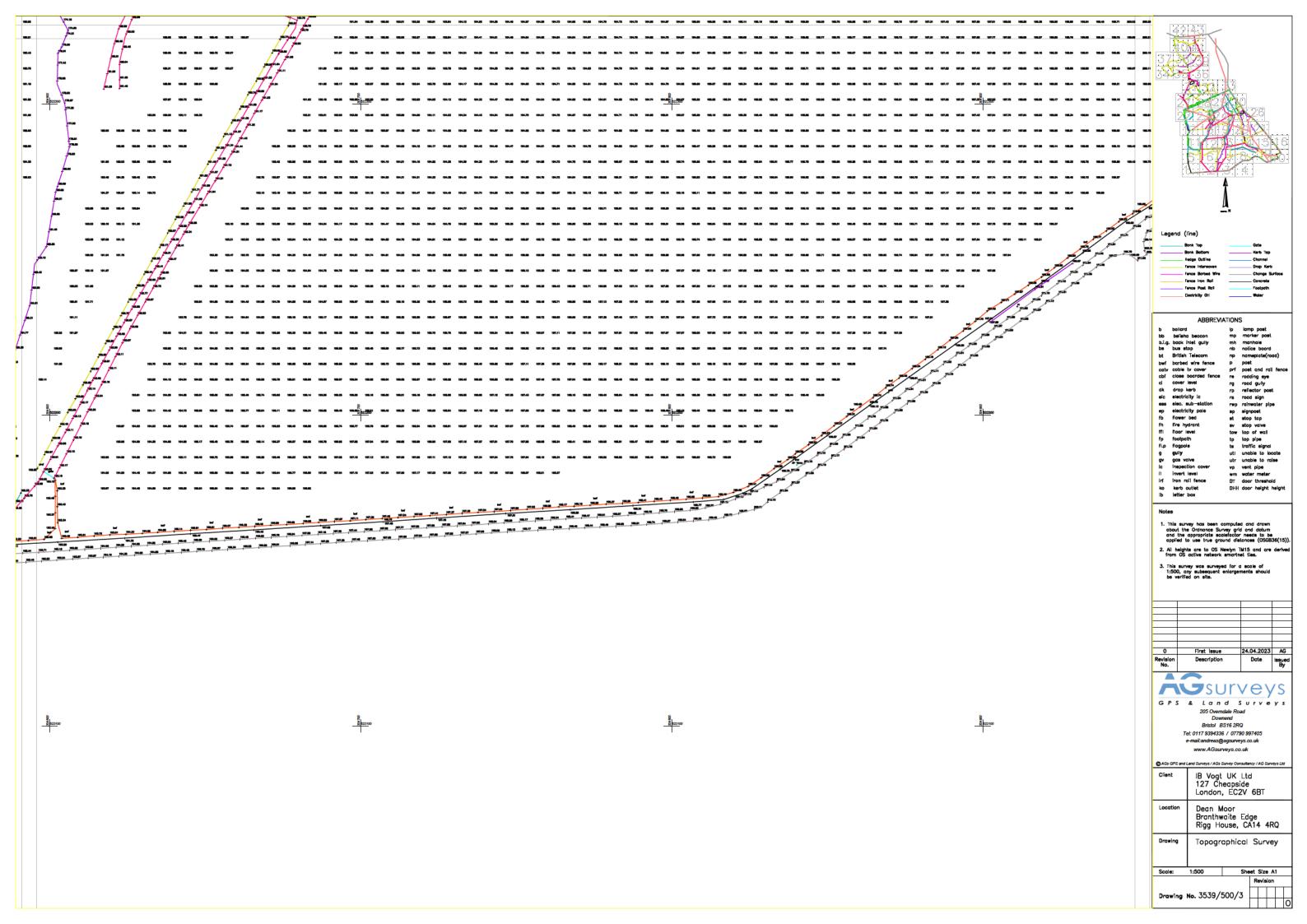
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	Location	Dean Moor Branthwaite Edge Rigg House, CA14 4RQ

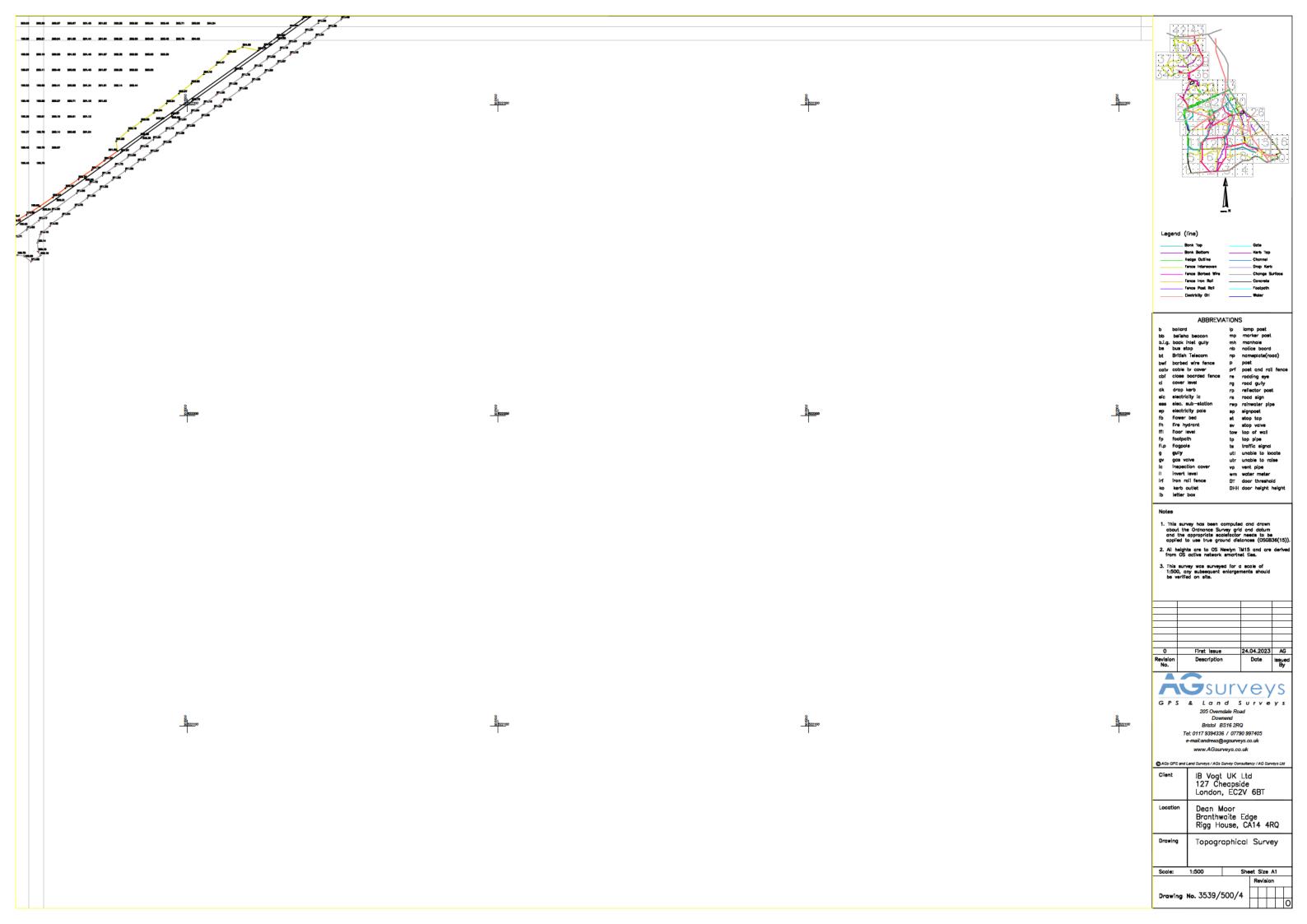
Topographical Survey

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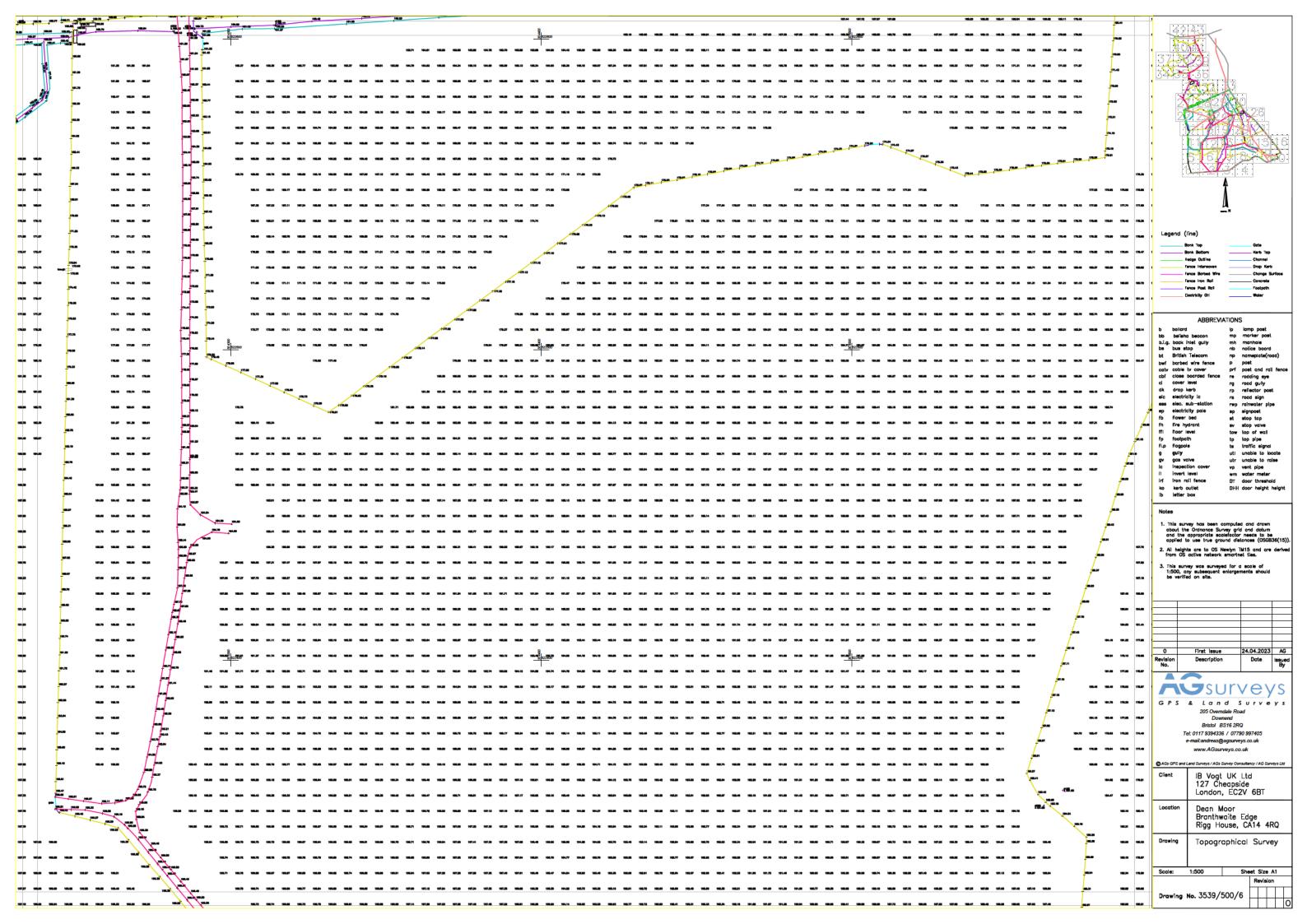


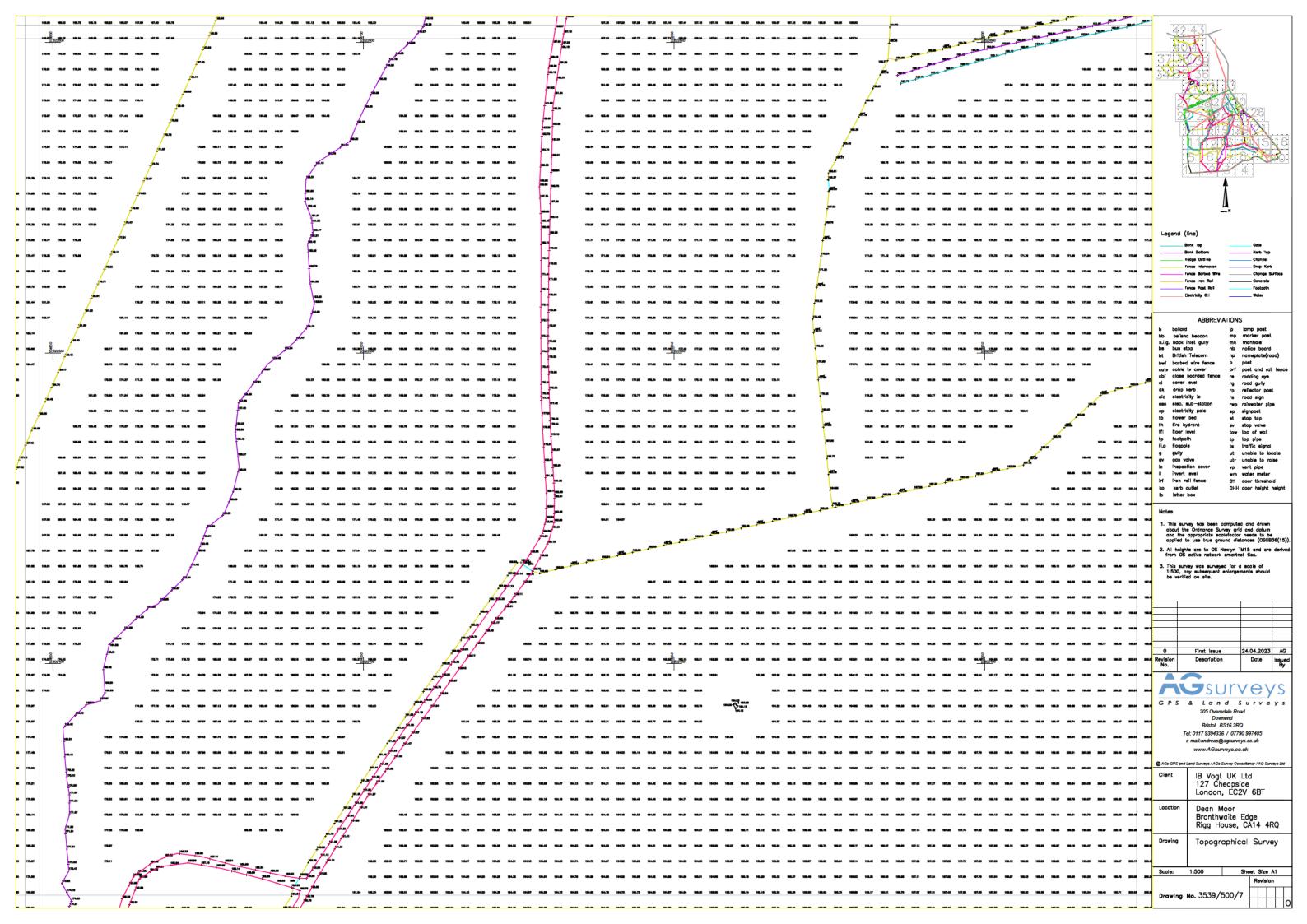






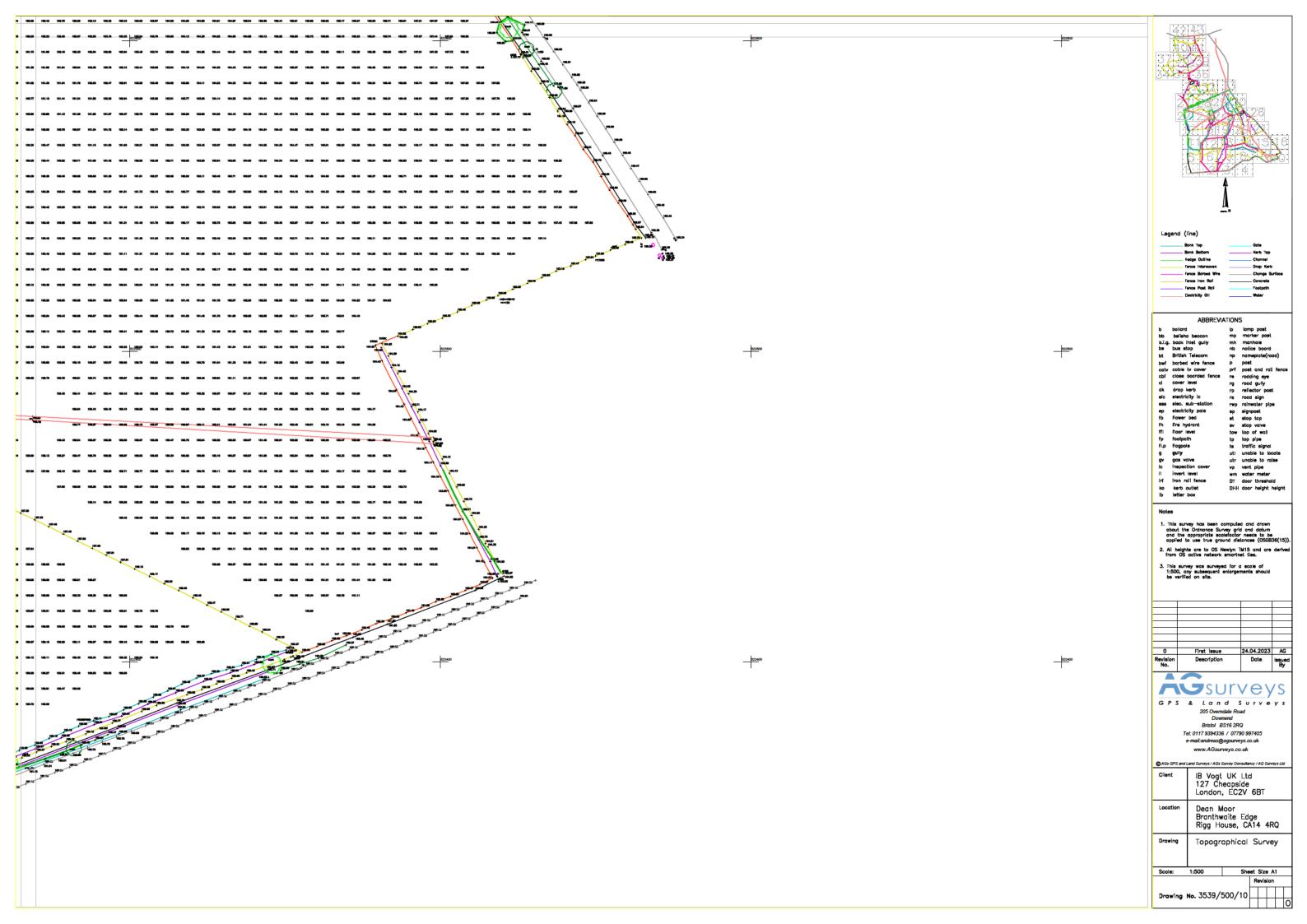


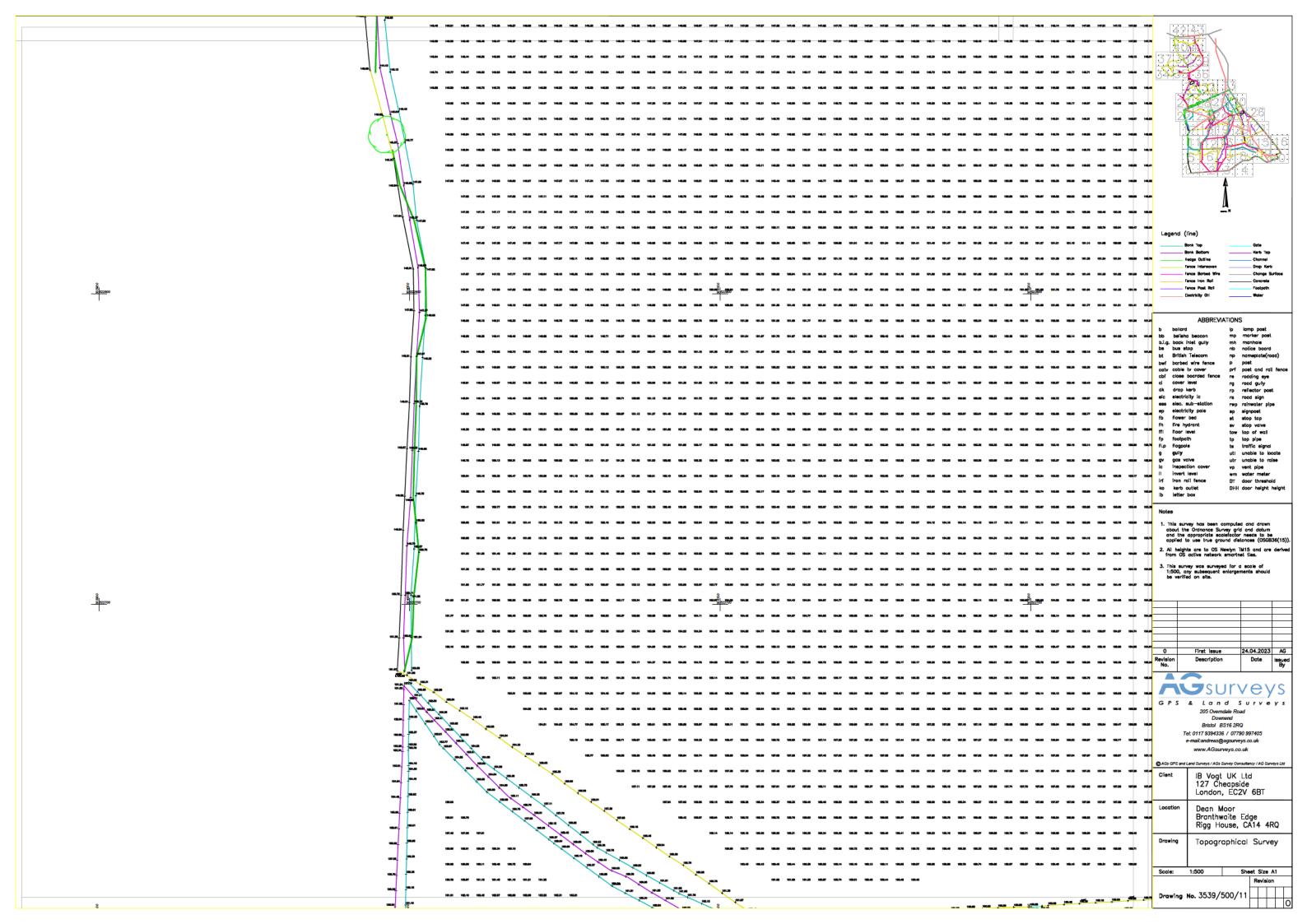


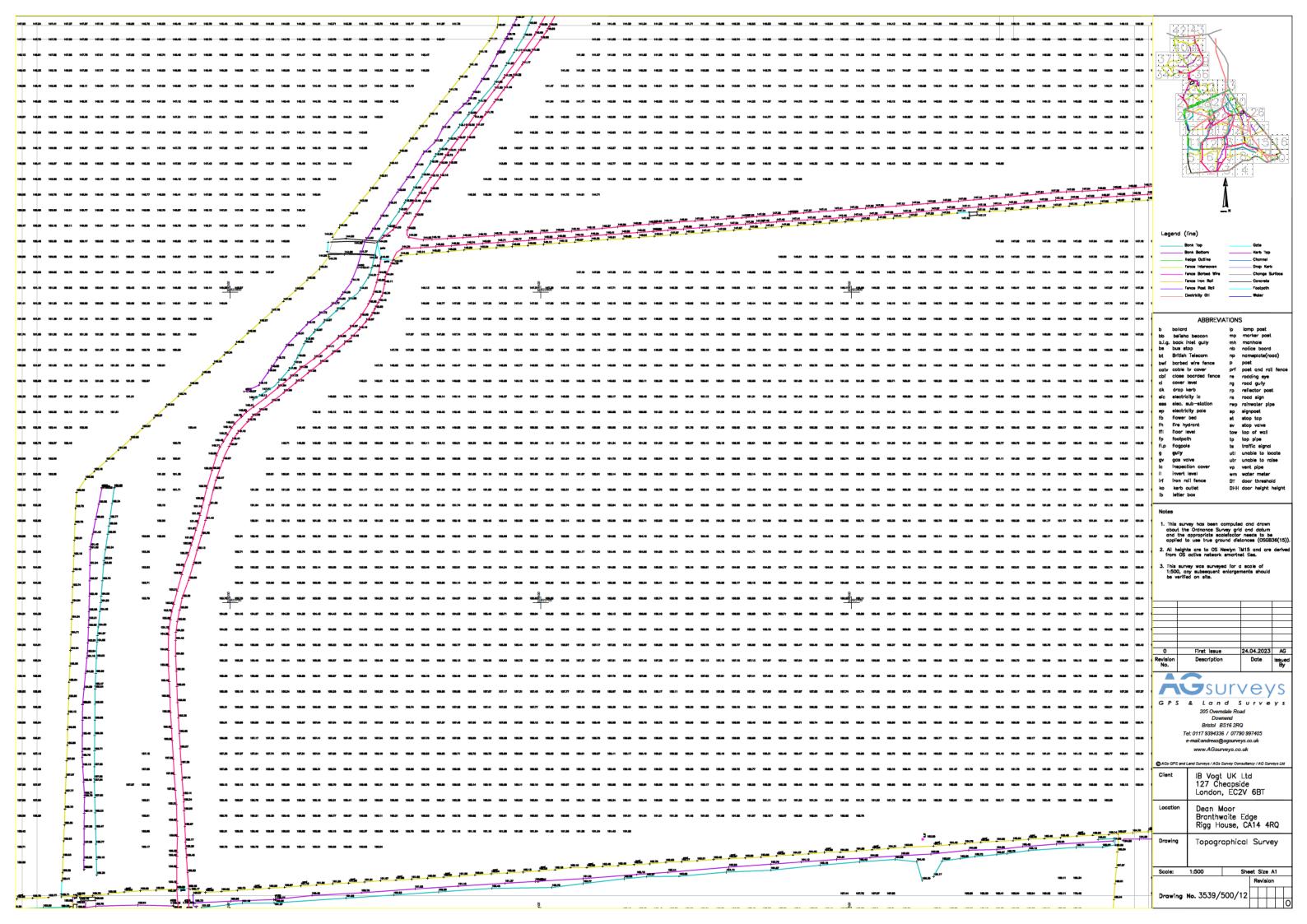


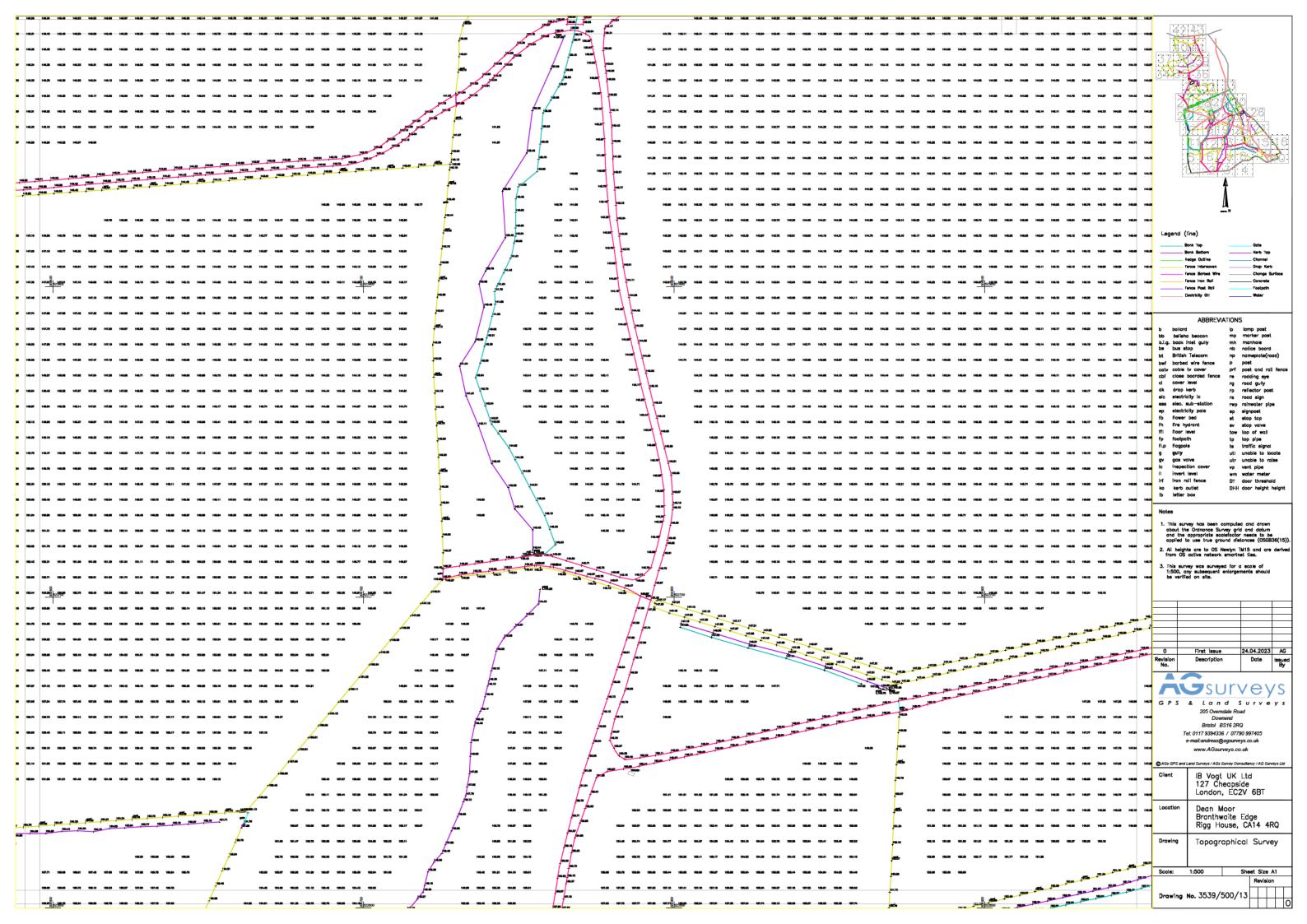




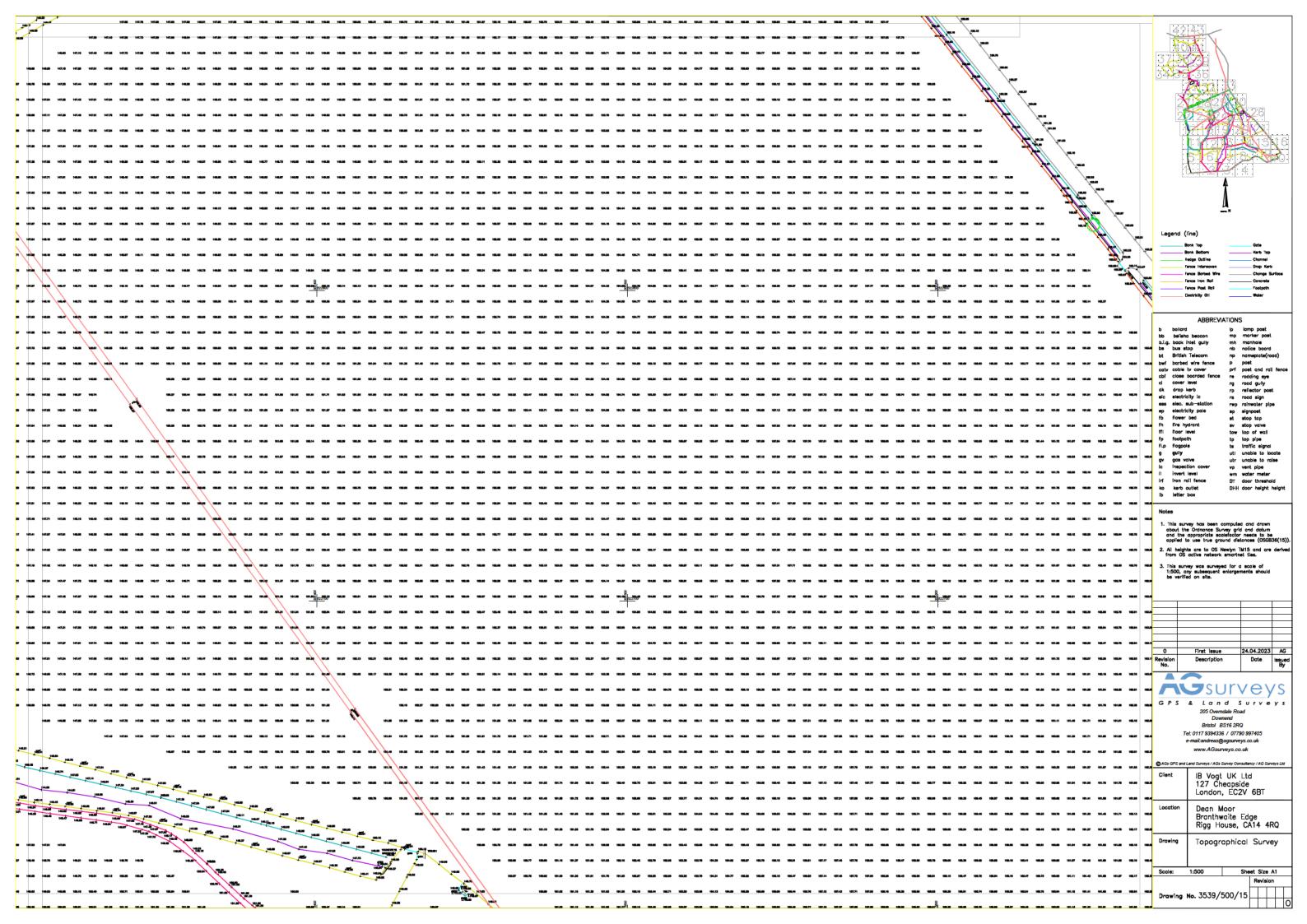
















Legend (line)

Bonk Top	Gote
Bank Bottom	Kerb
Hedge Outline	Chann
Fence Interwov	en Drop
Fence Borbed	Wire Chang
Fence Iron Roll	Concr
Fence Post Ro	7 Footpo

ABBREVIATIONS

- IDIONS

 Ip imp pest mp morker poet mp morker poet mb molice boord not poet poet poet mp morker poet mb molice boord not poet poet and roll fence rodding eye road gully reflector poet road sign rwp rainwater pipe sy angopet st stop top sy stop volve tow top of wall to pop if pe ts traffic alignal util unable to locate utr unable to raise vp vent pipe wm water meter DT door threshold DHH door height height

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GPS & Land Surveys

205 Overndale Road Downend Bristol BS16 2RQ

Tel: 0117 9394336 / 07790 997405

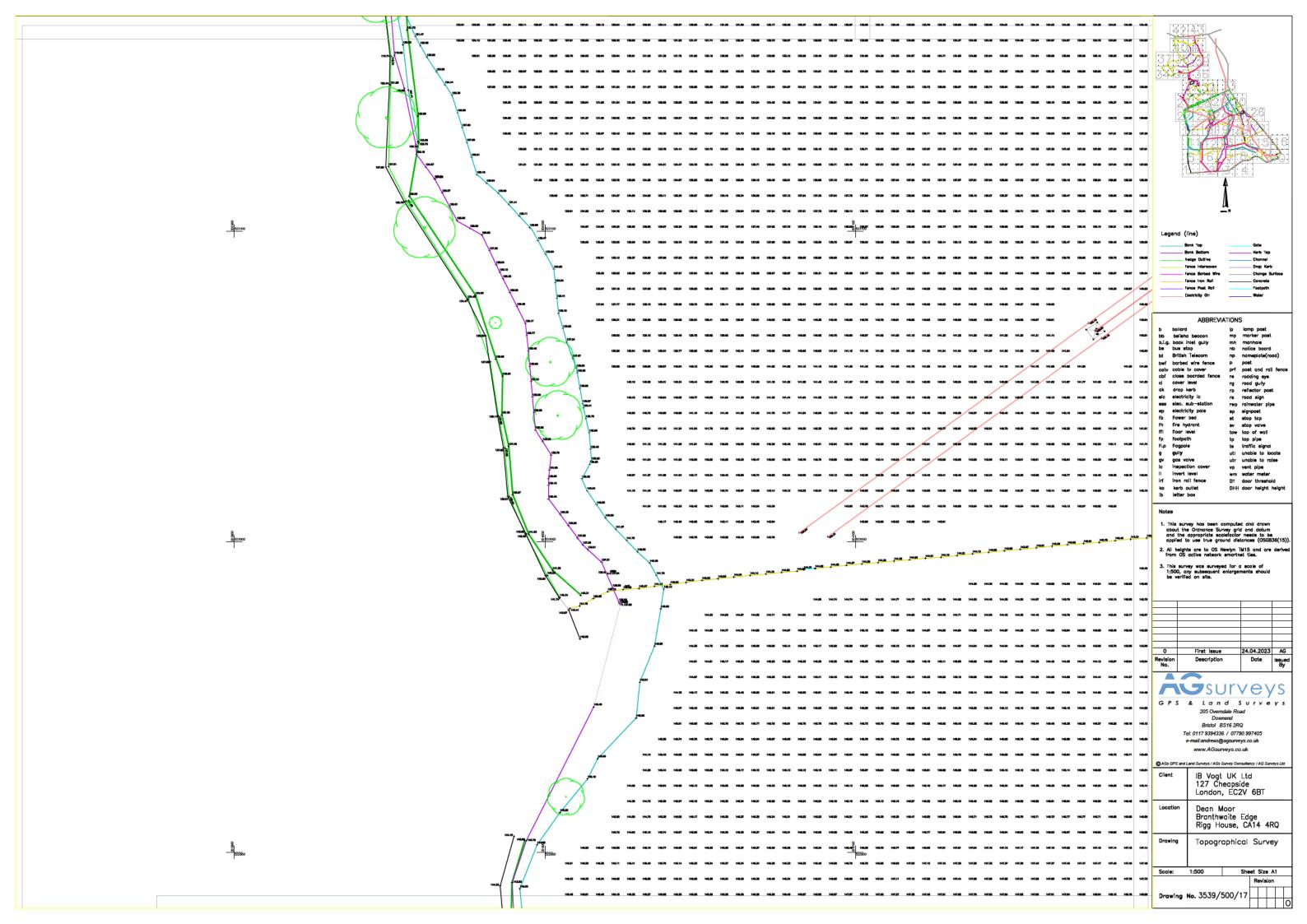
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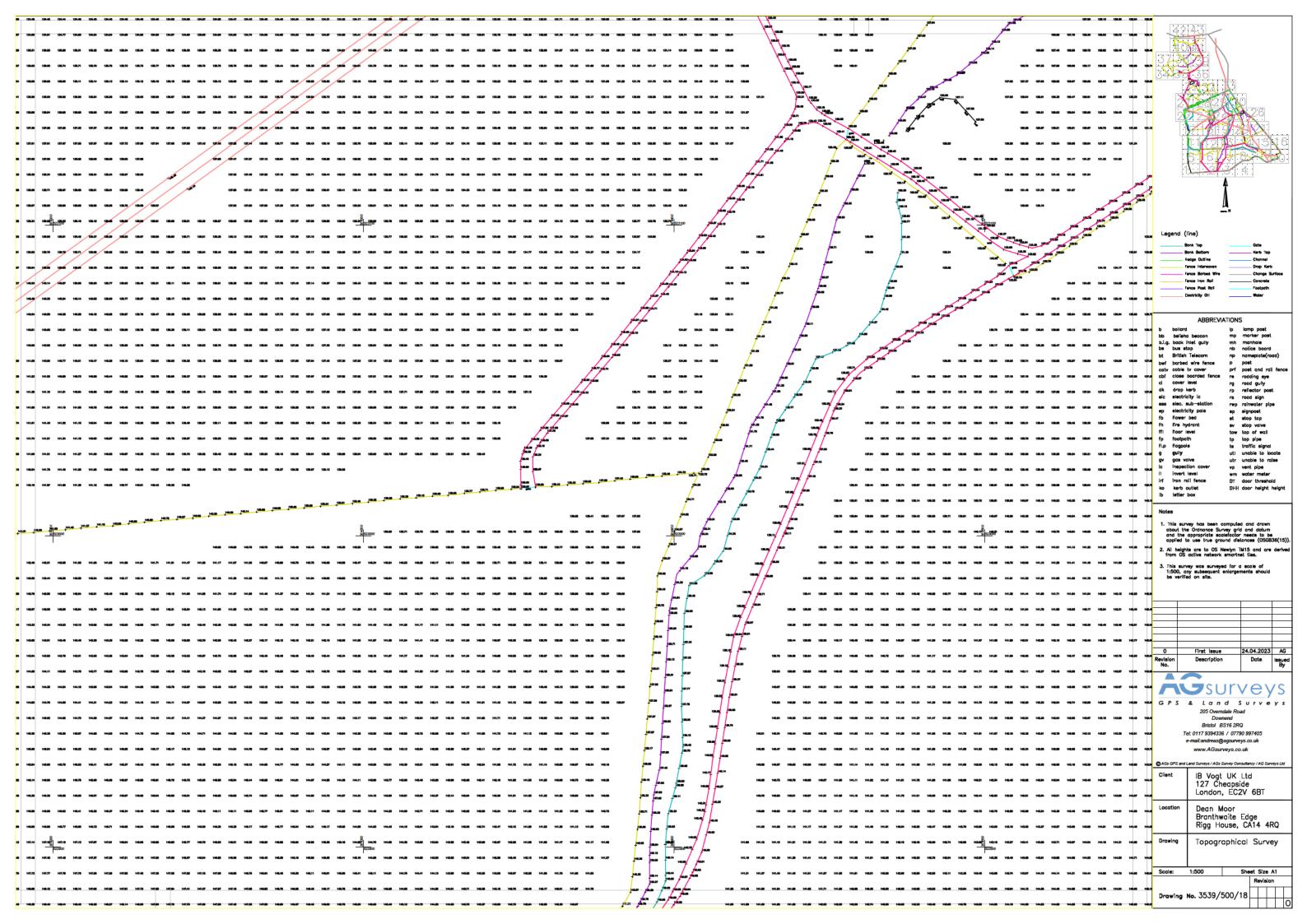
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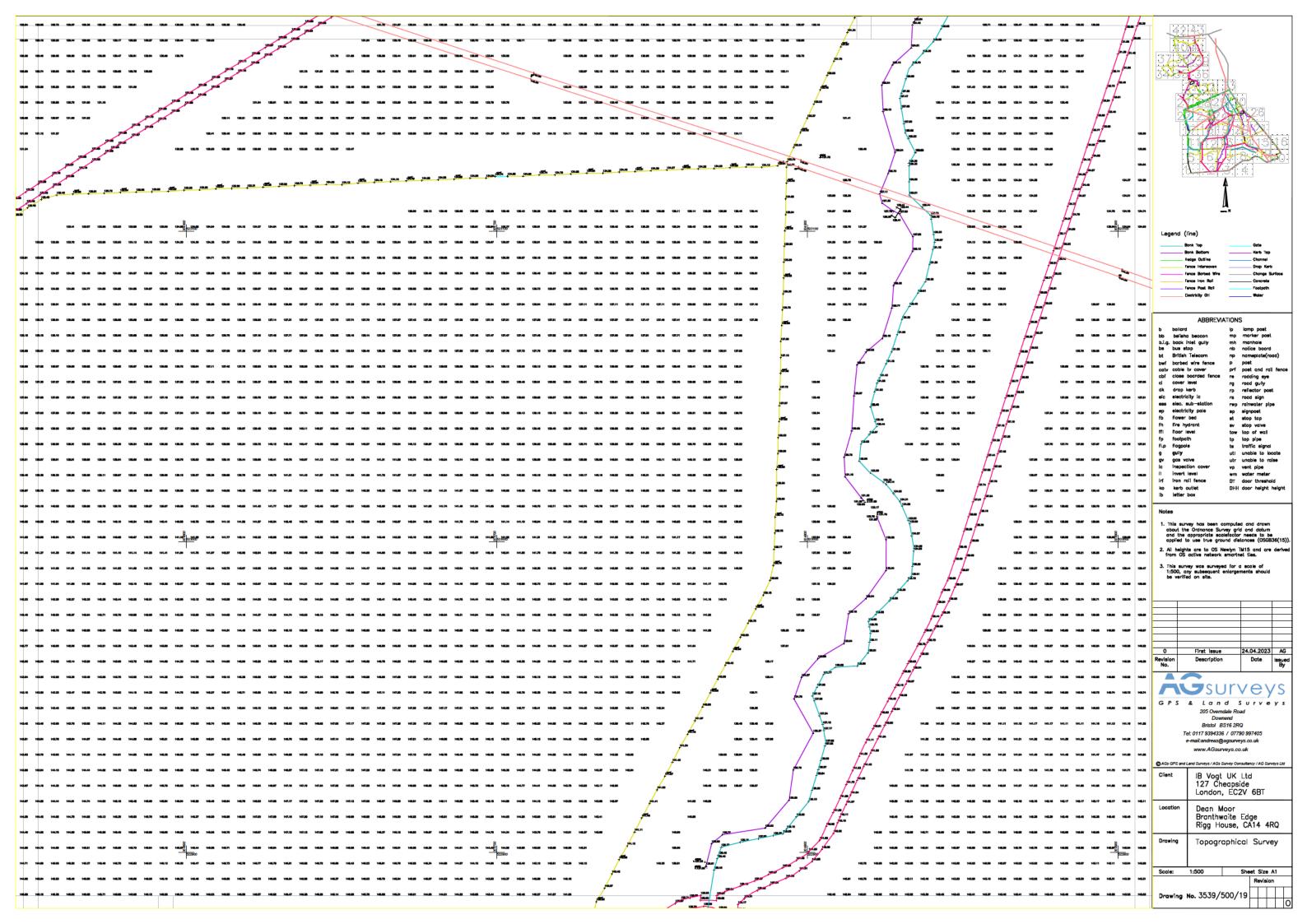
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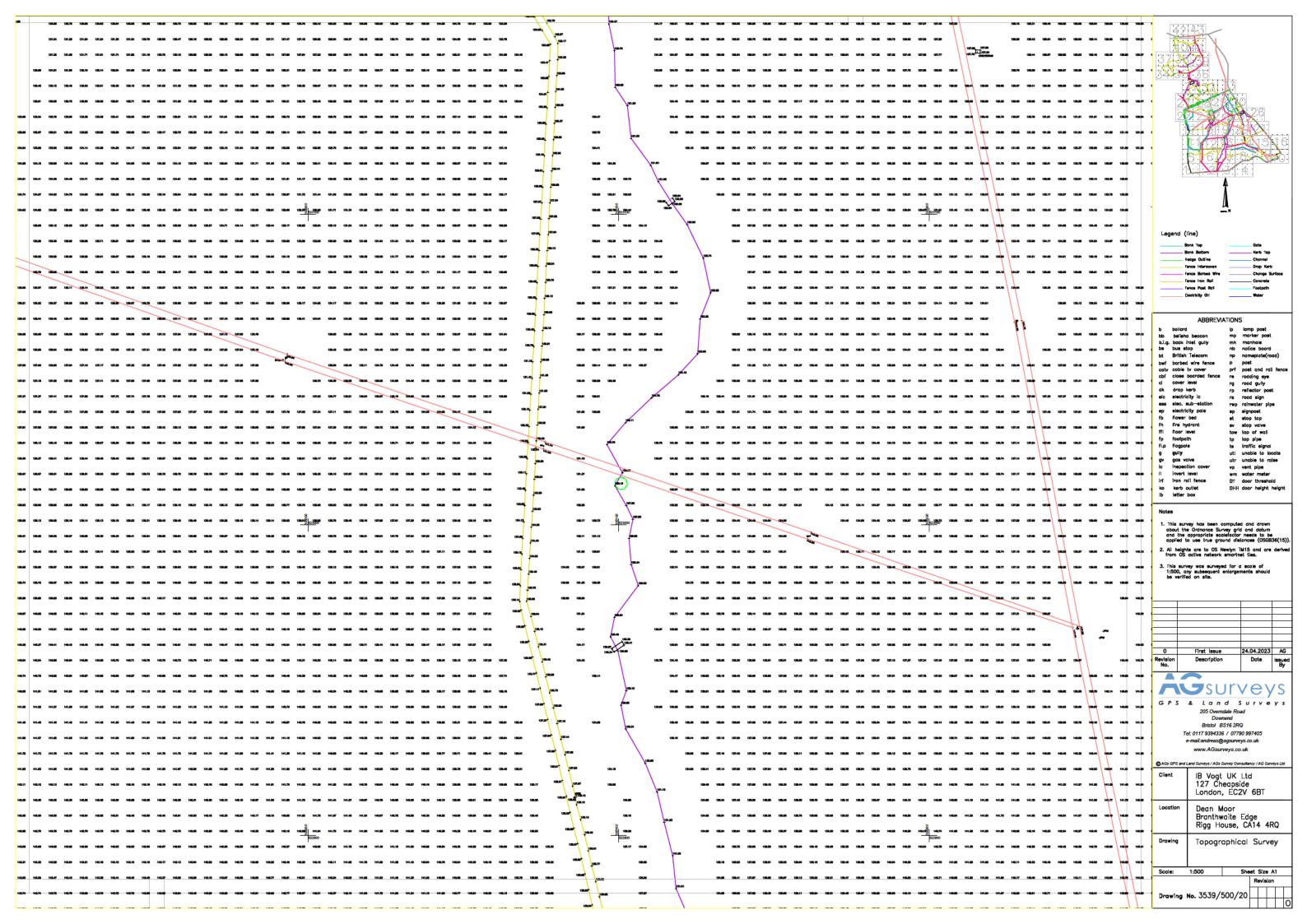
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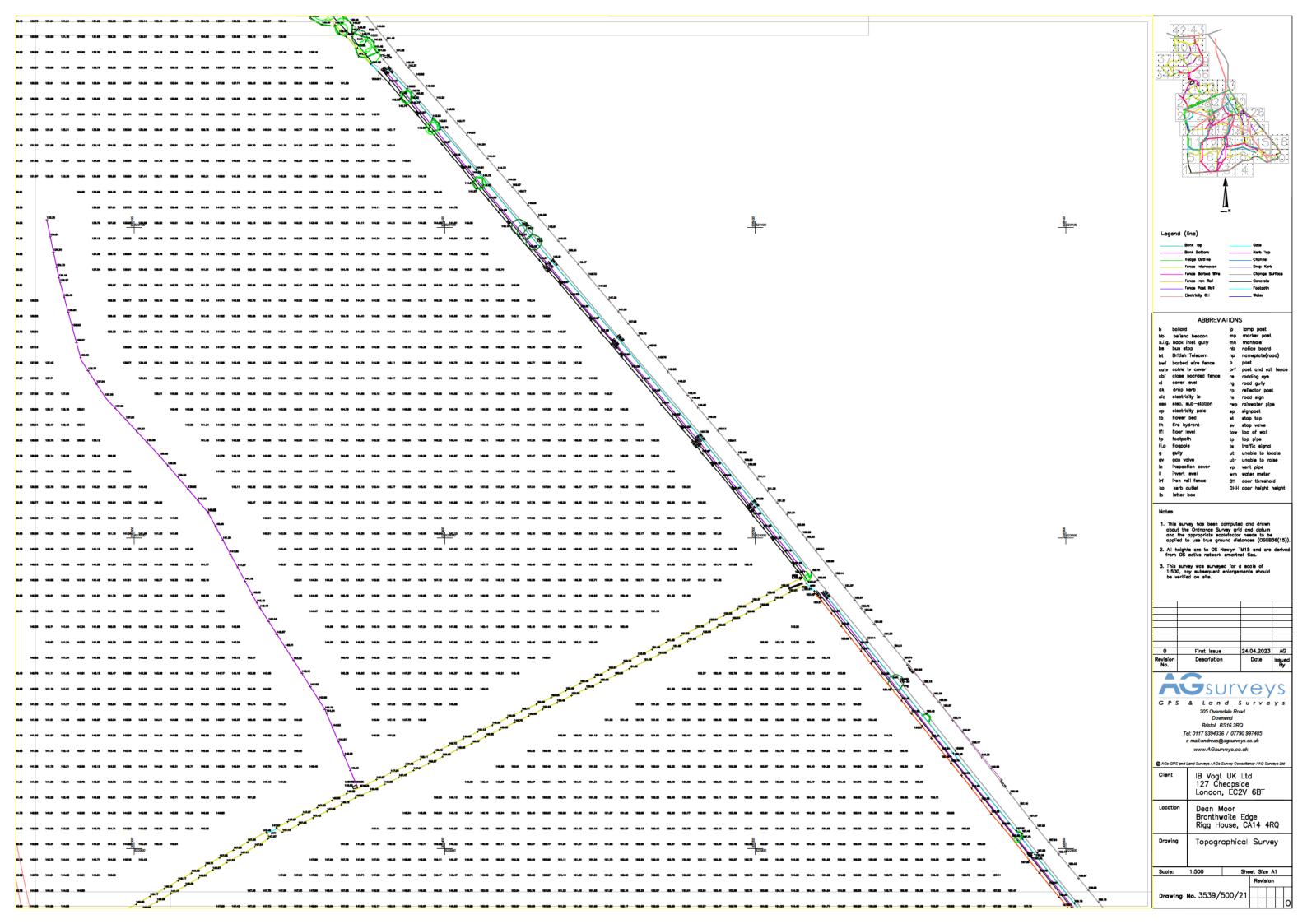
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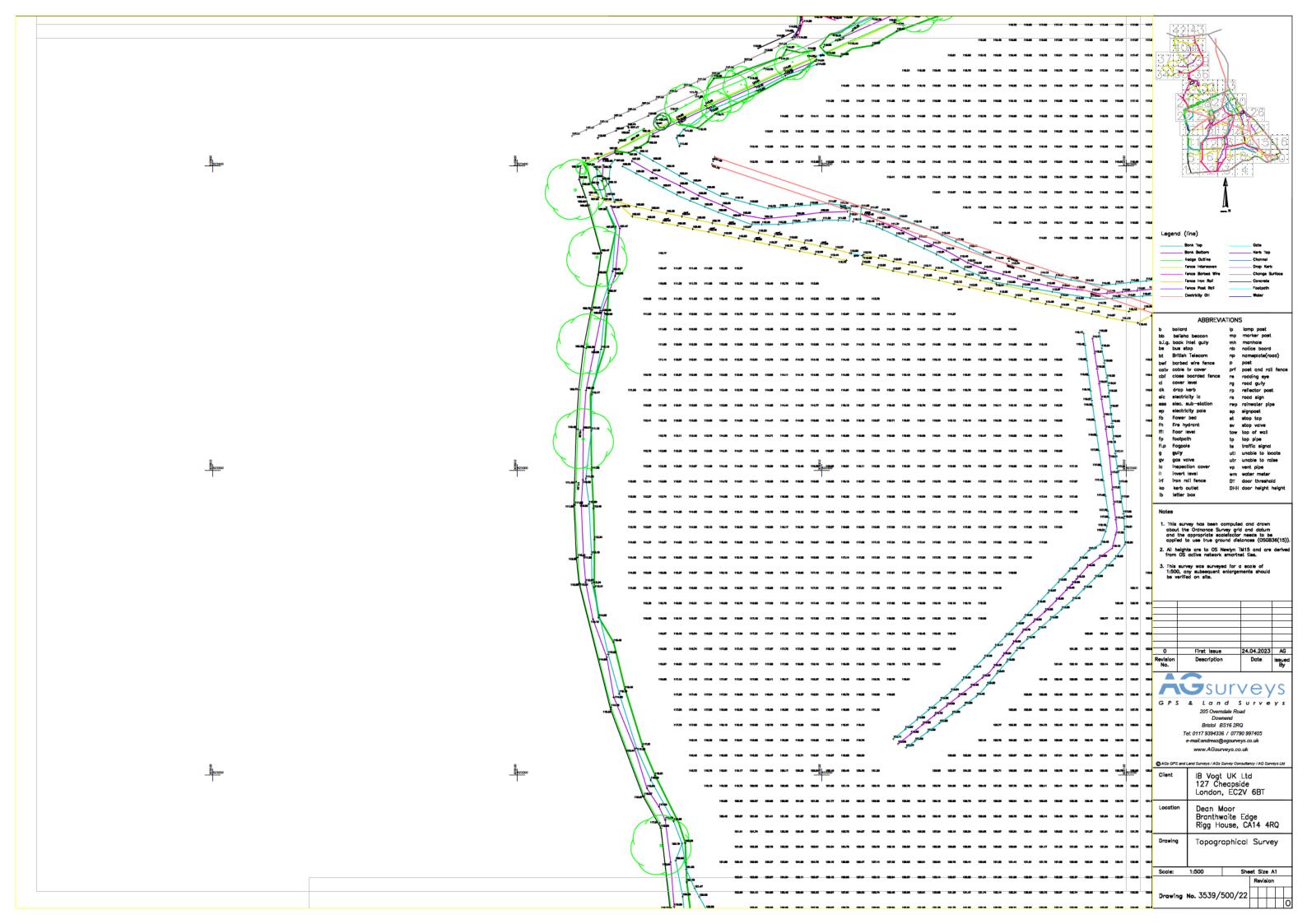


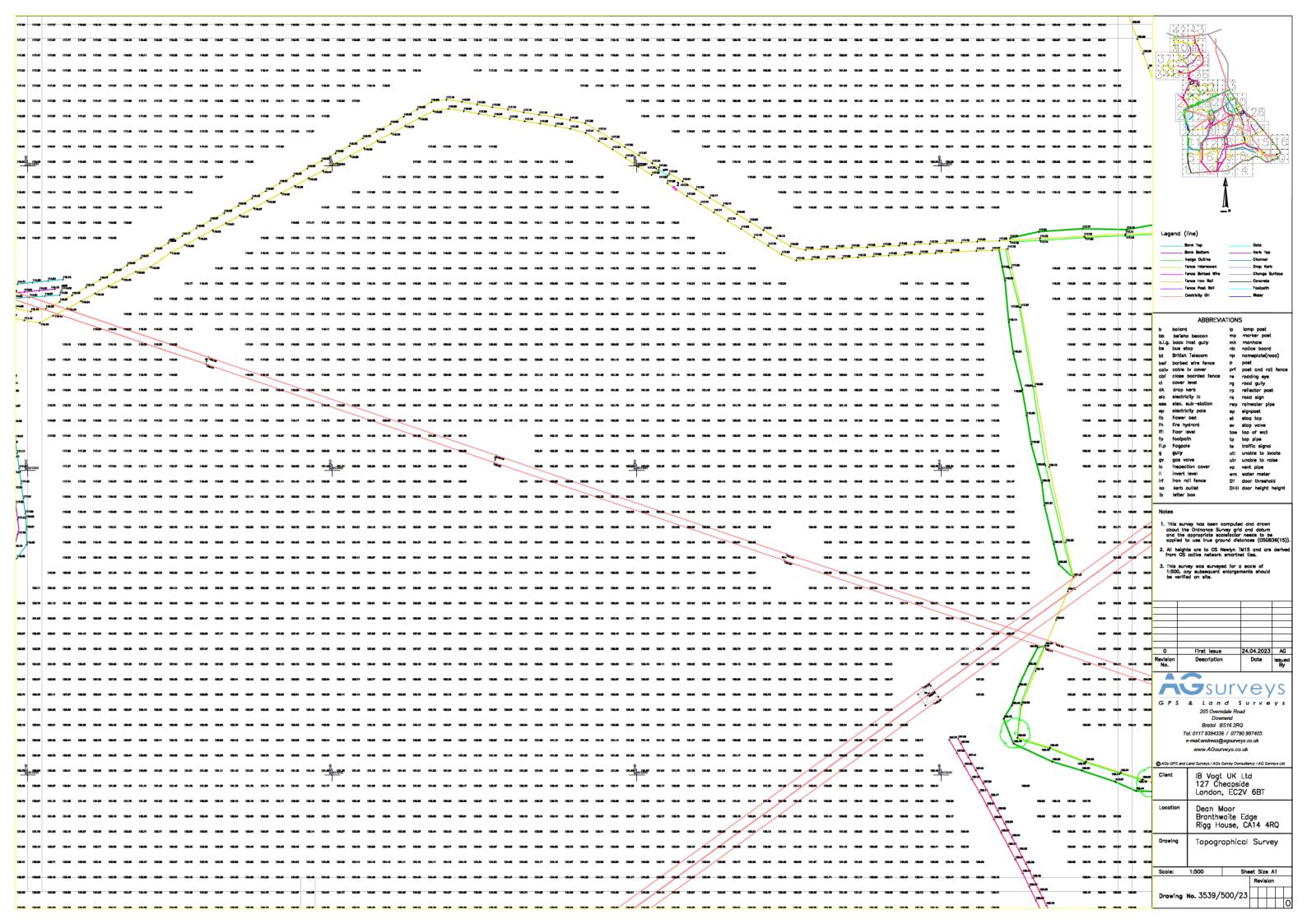


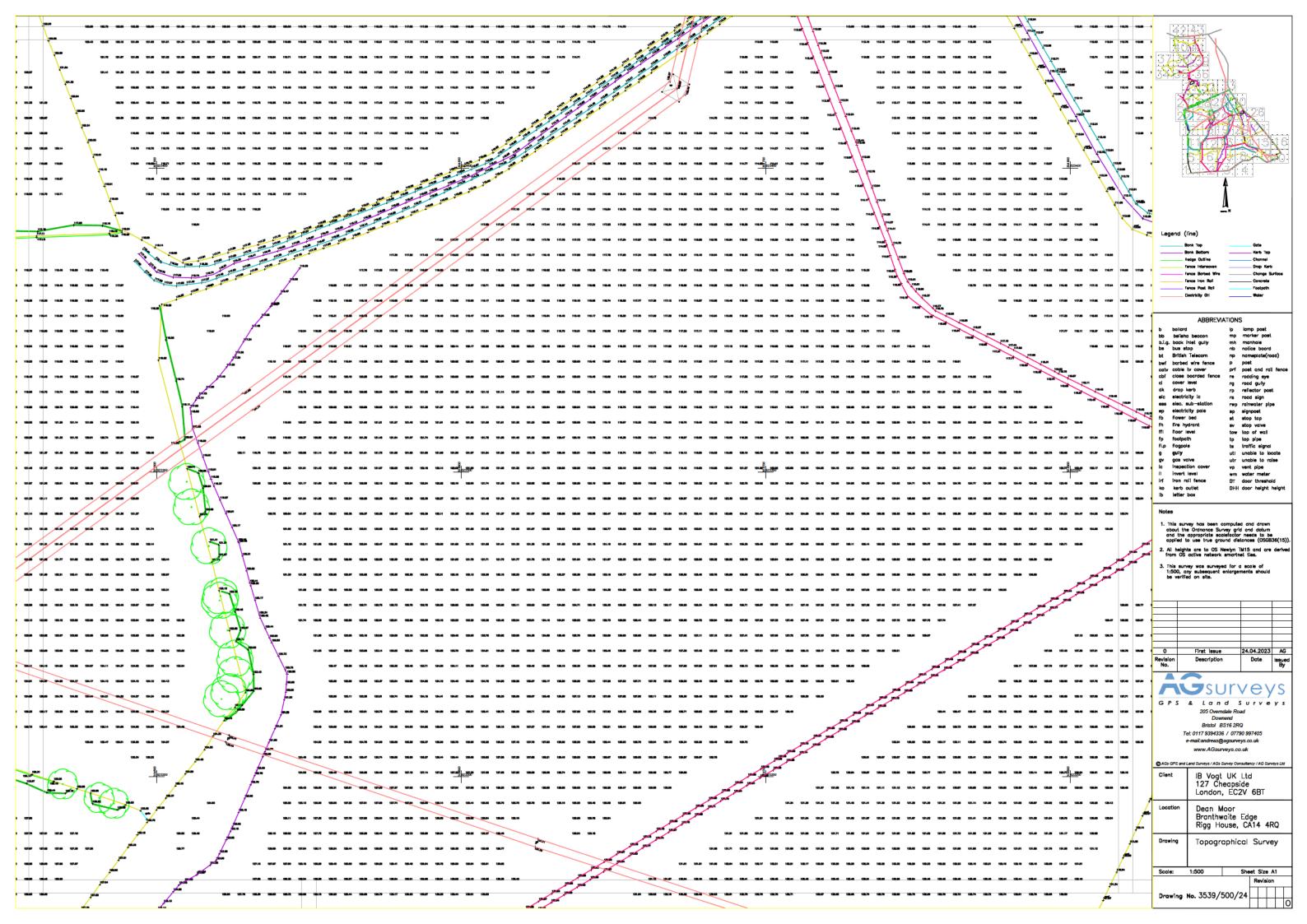




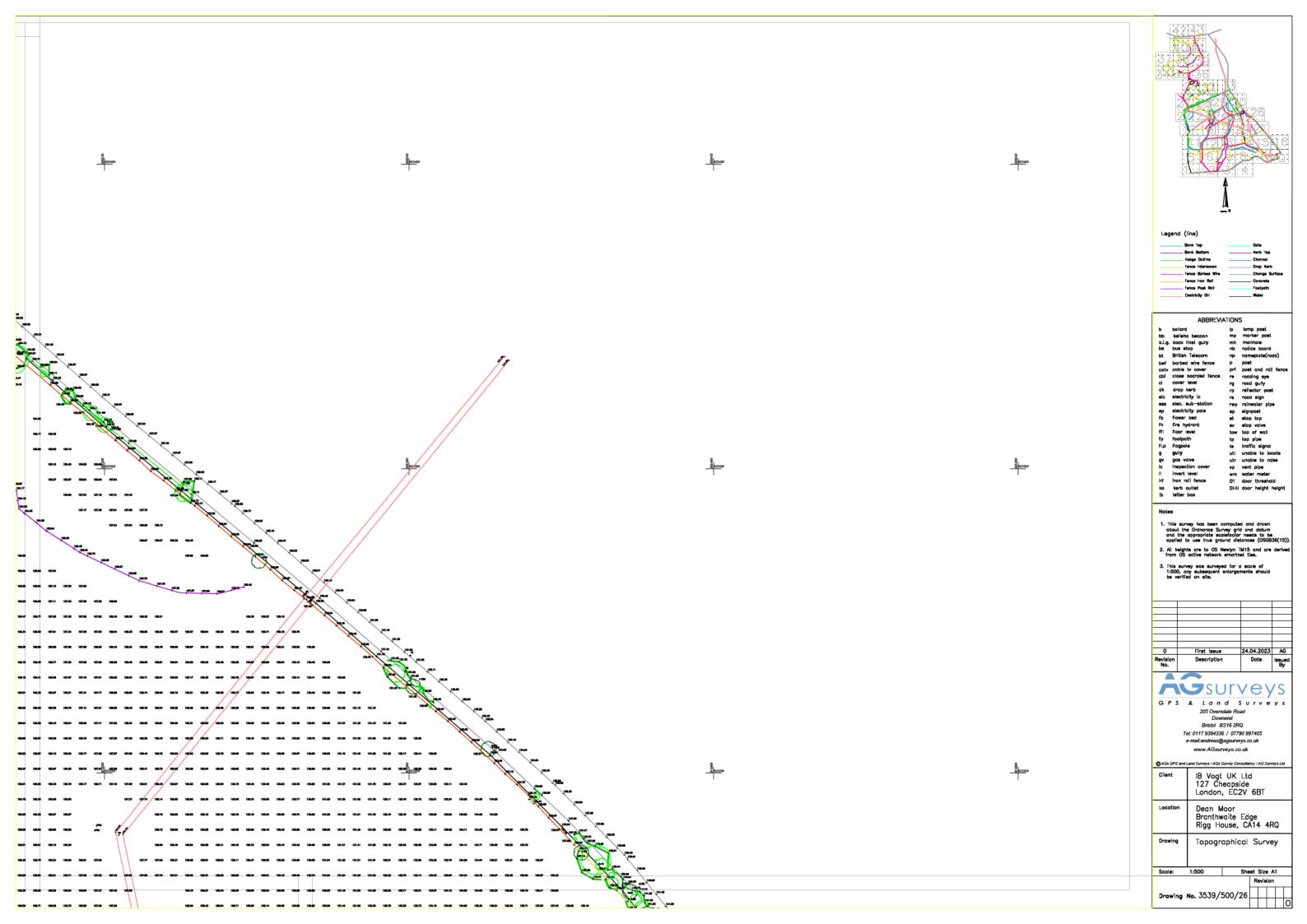


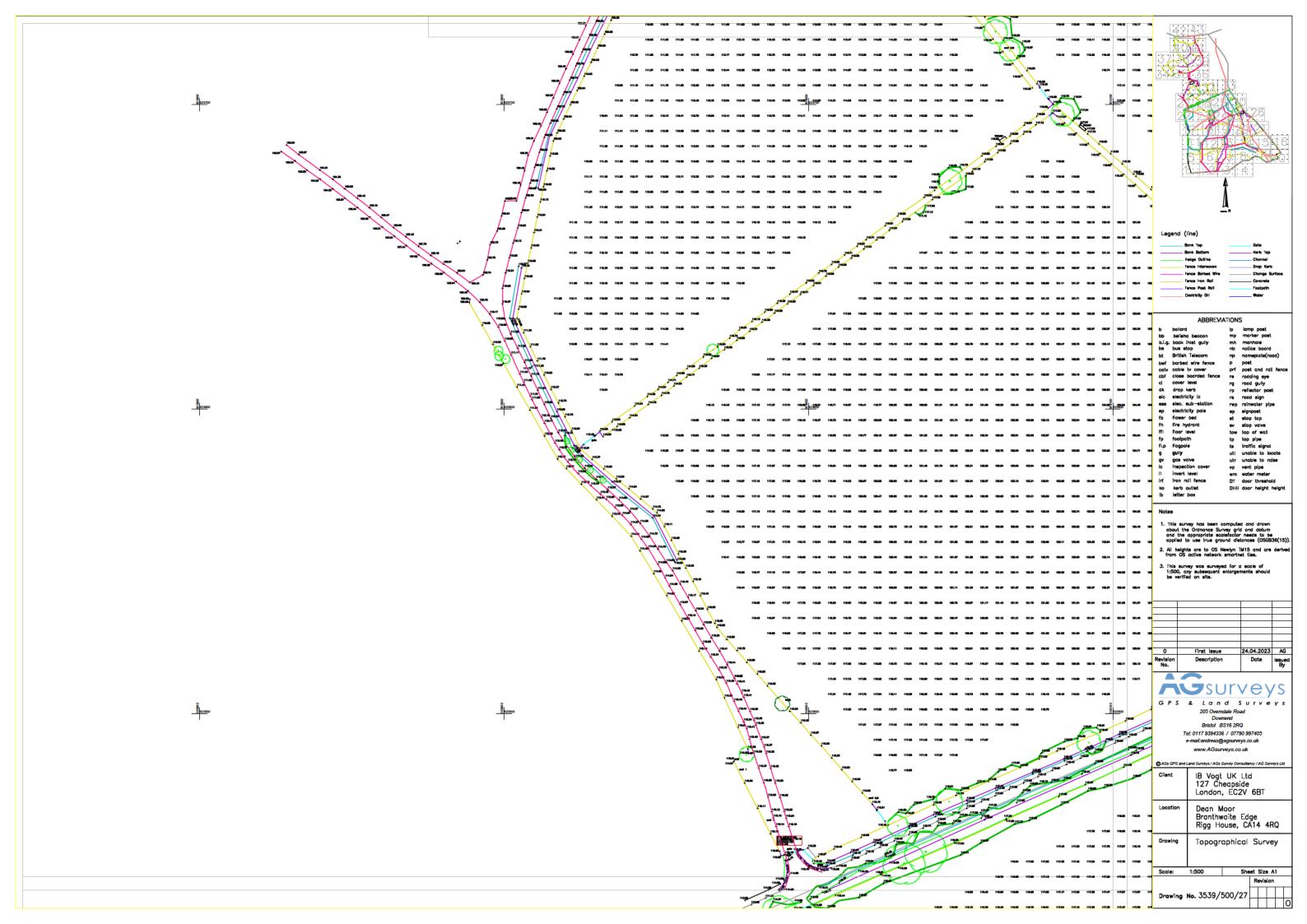


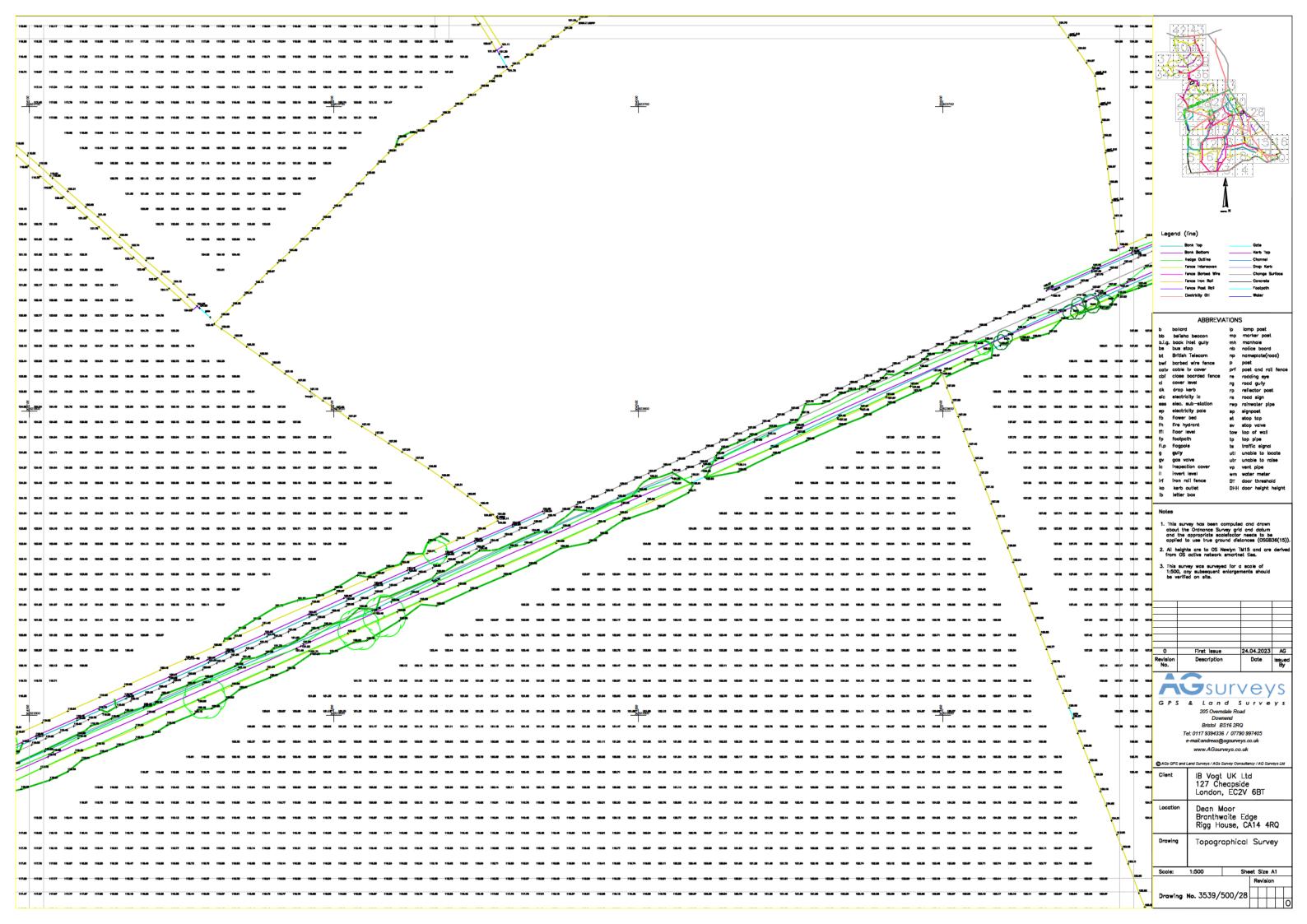


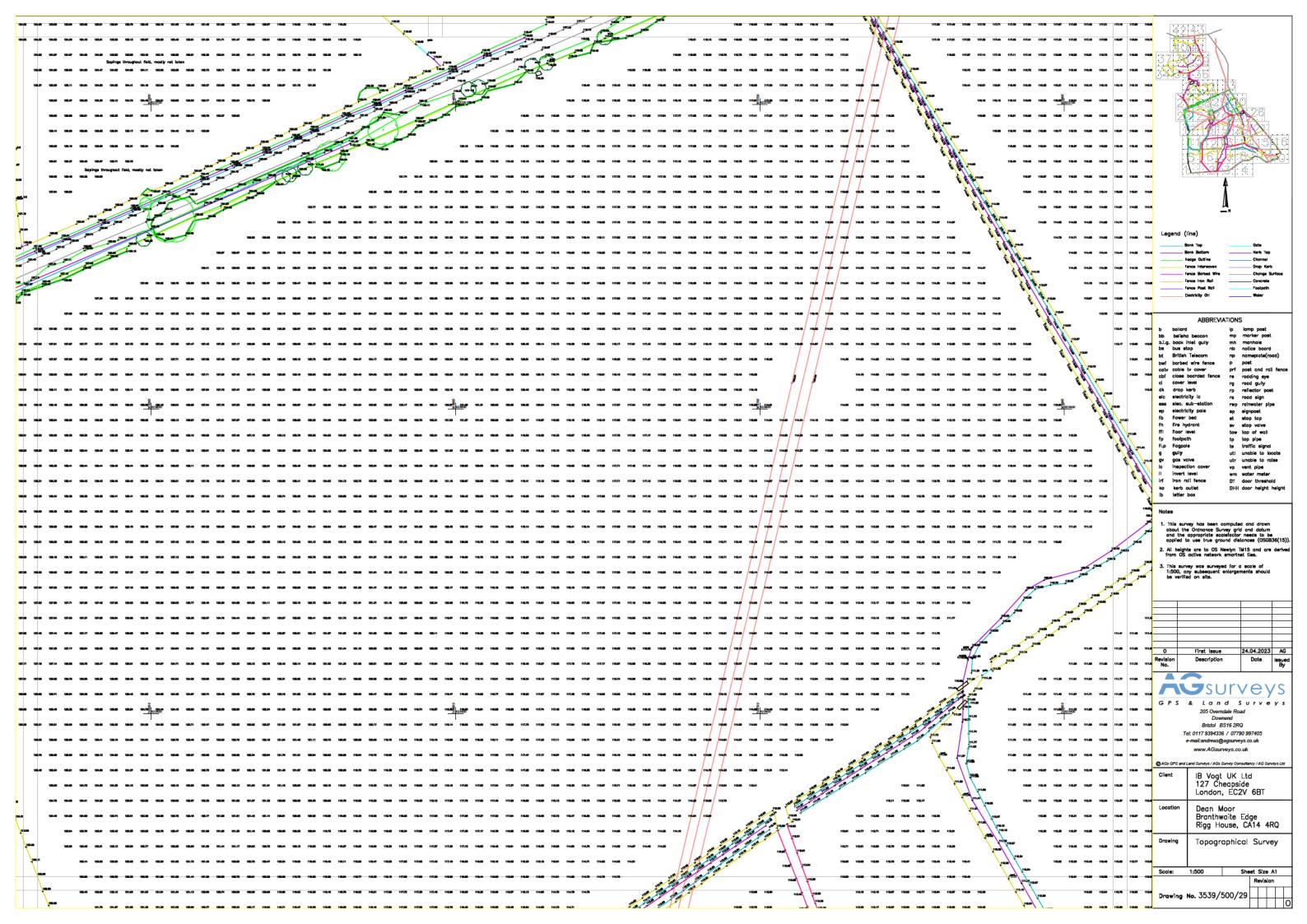










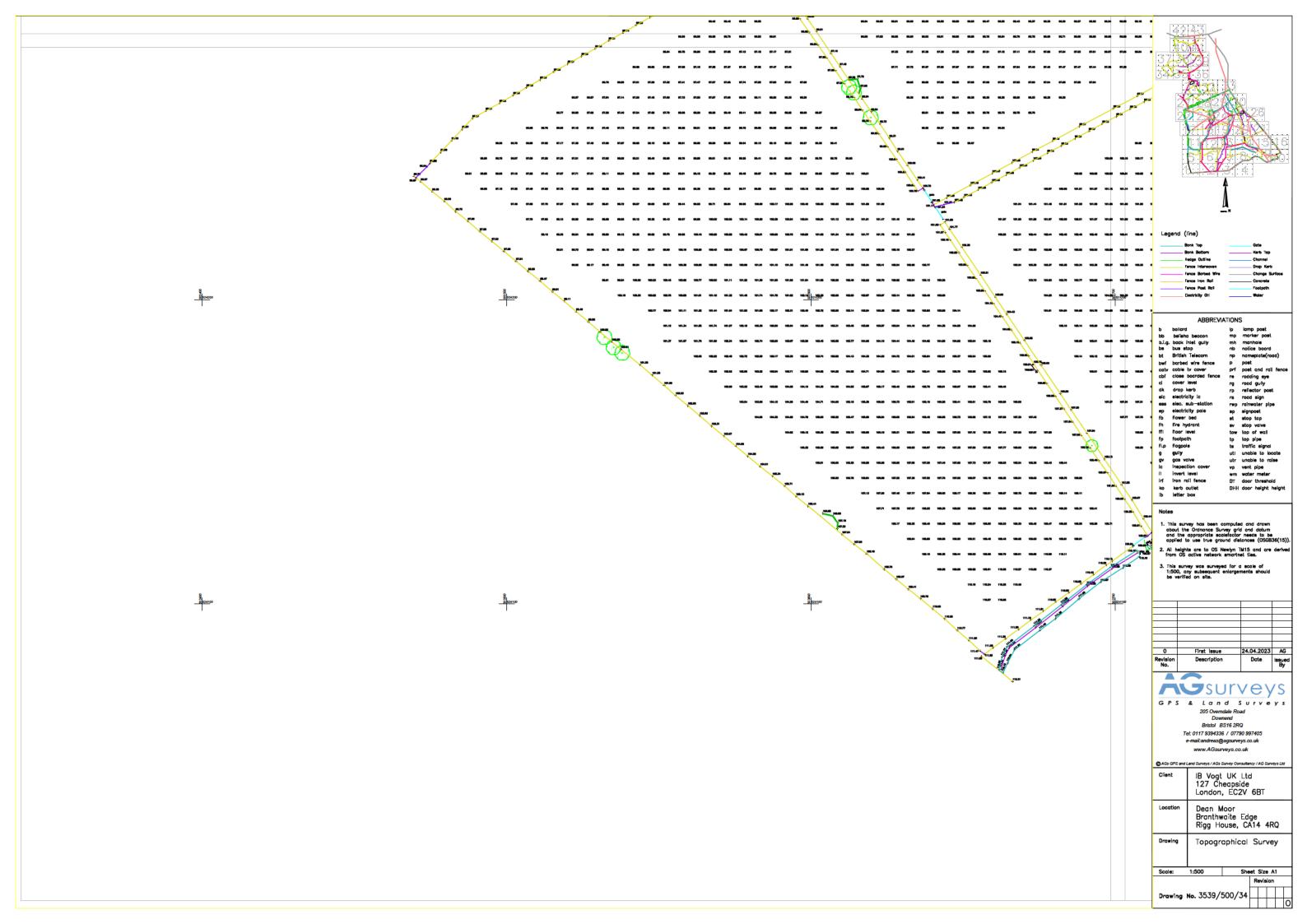




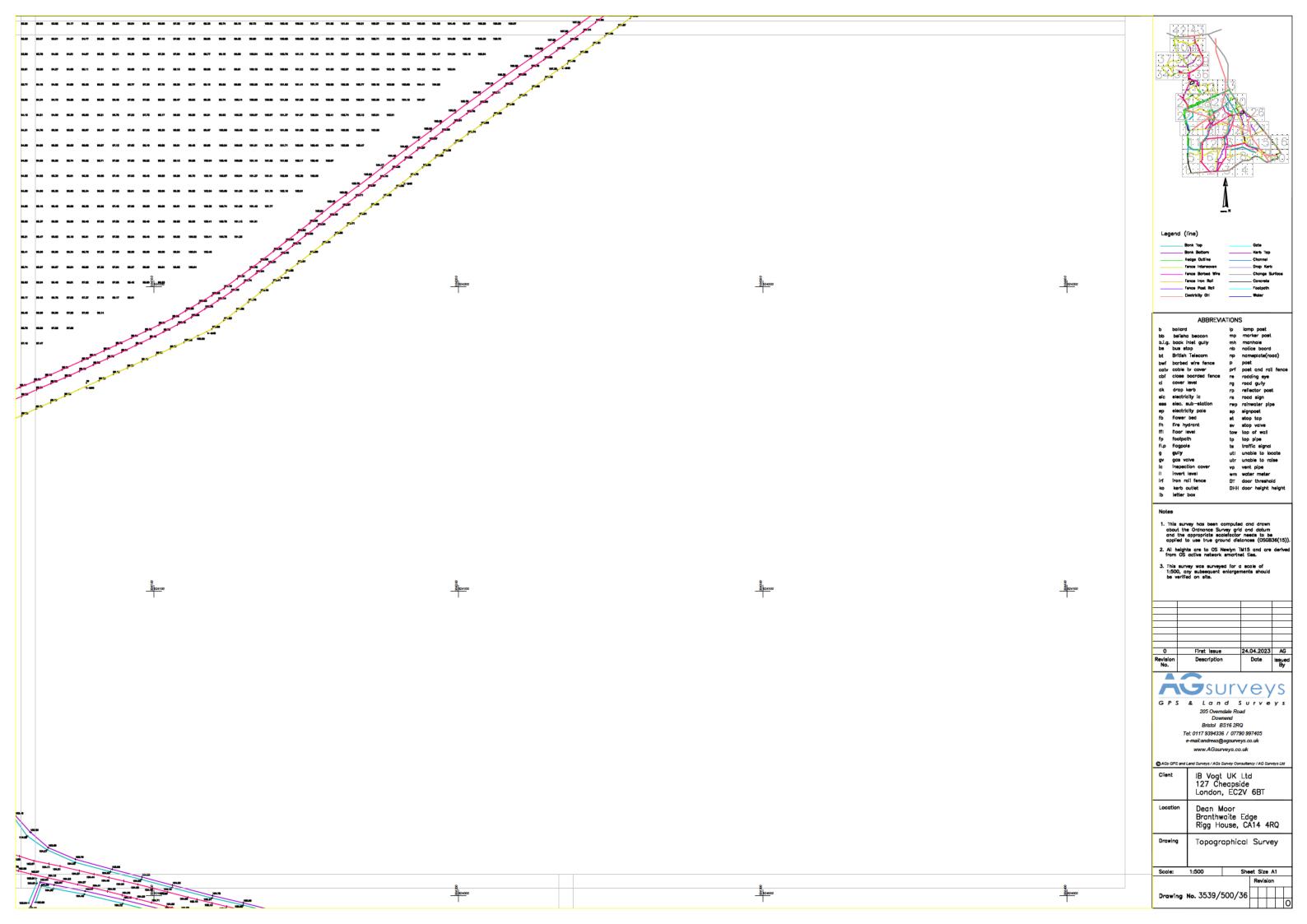


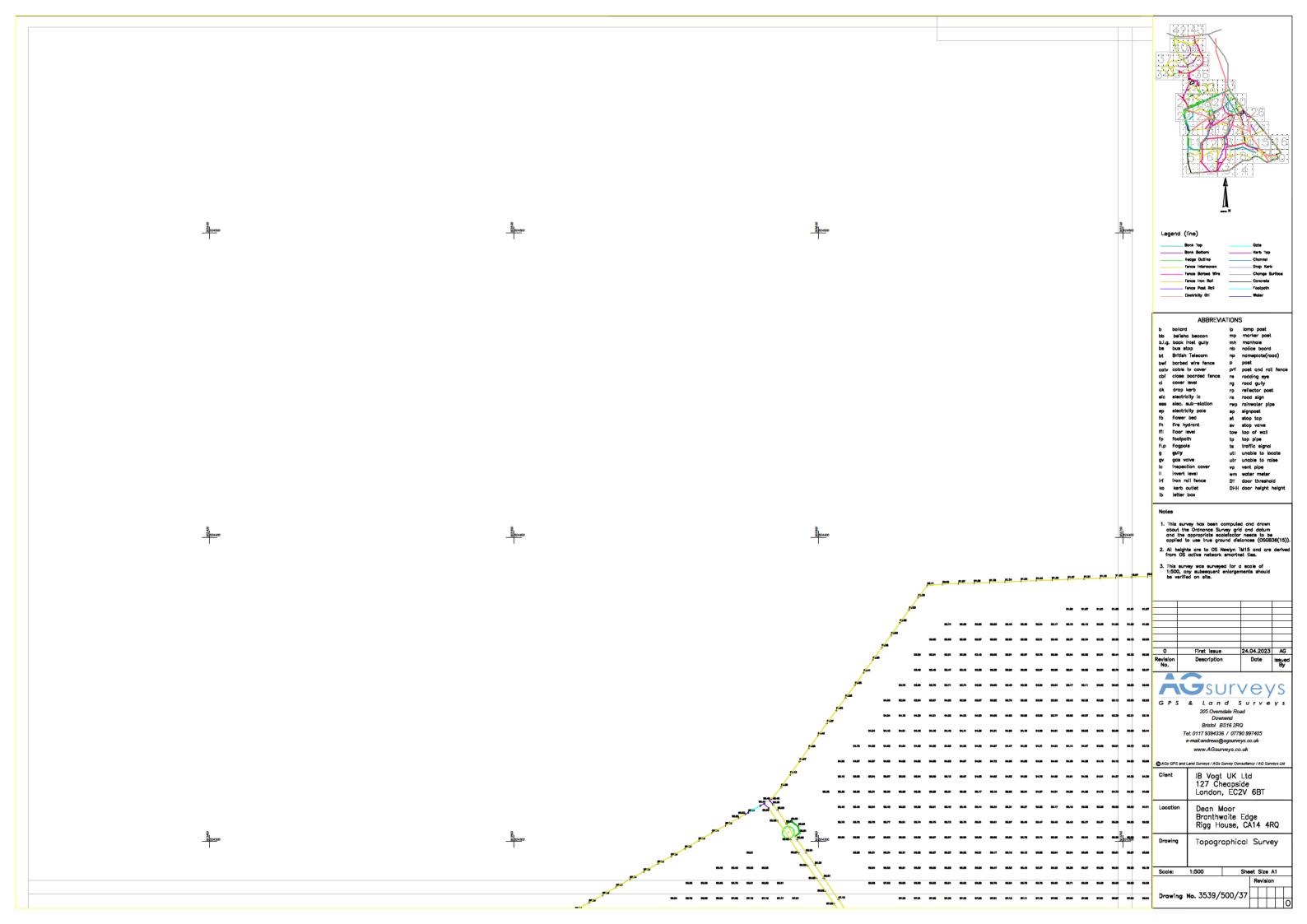


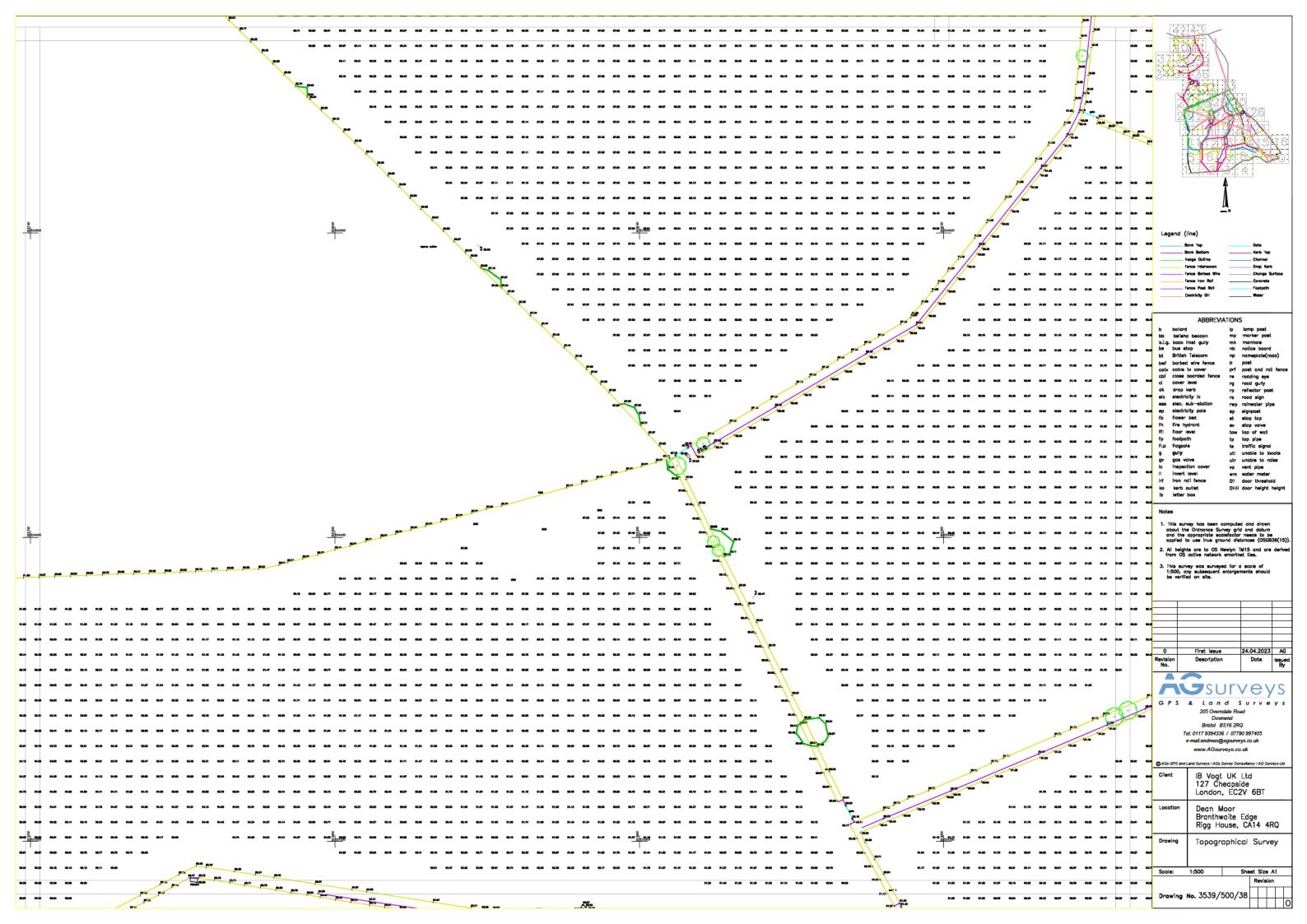


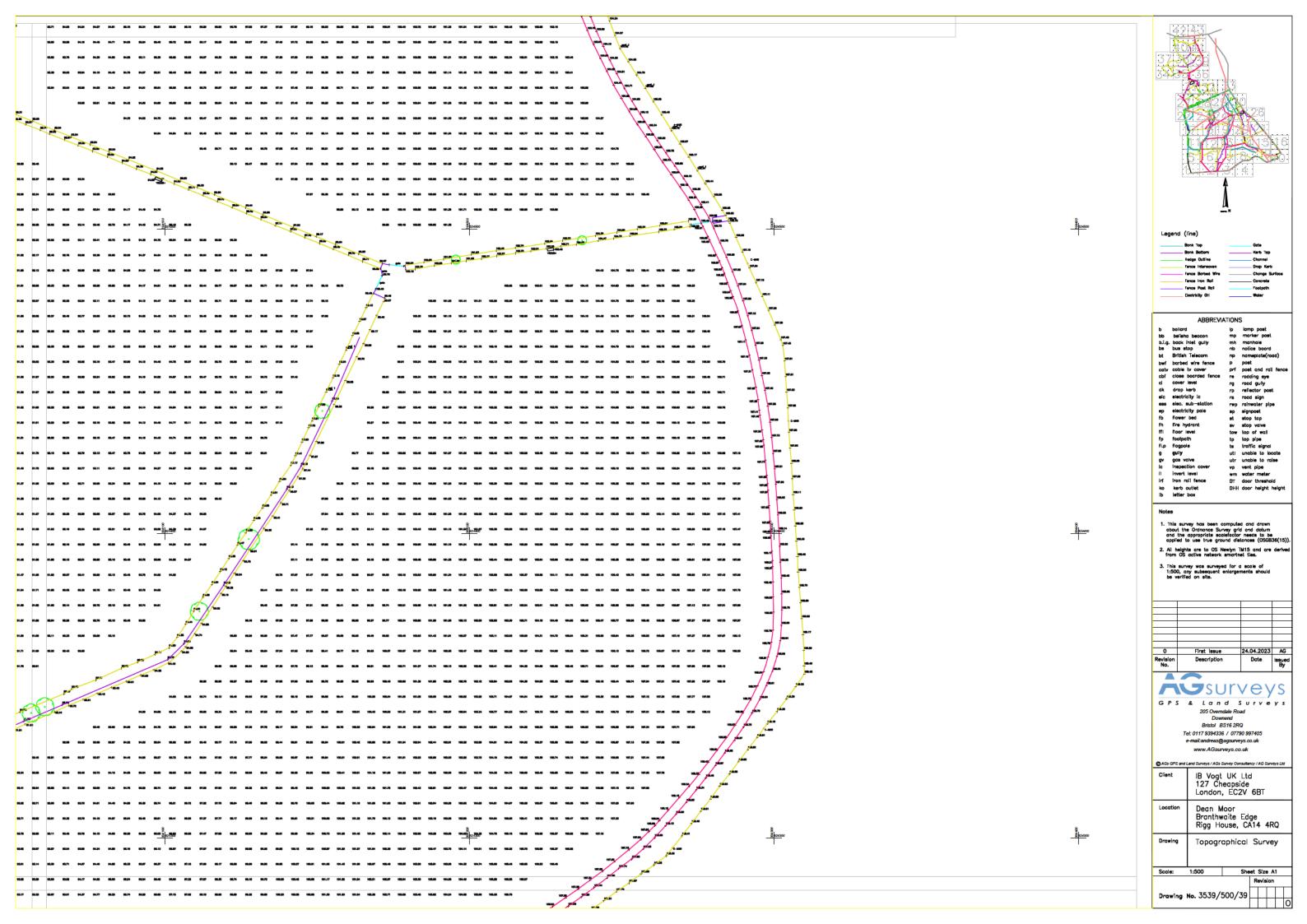






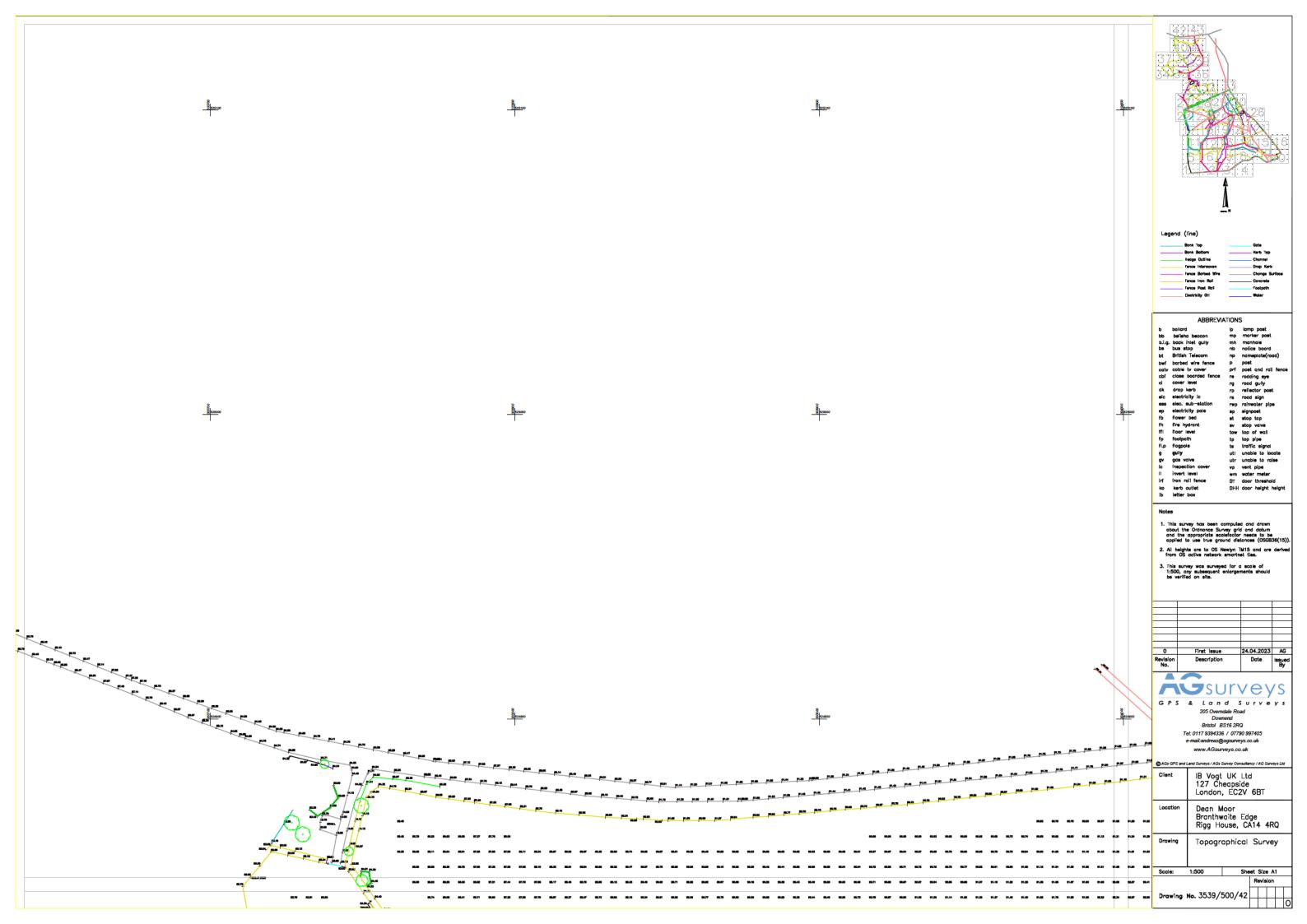


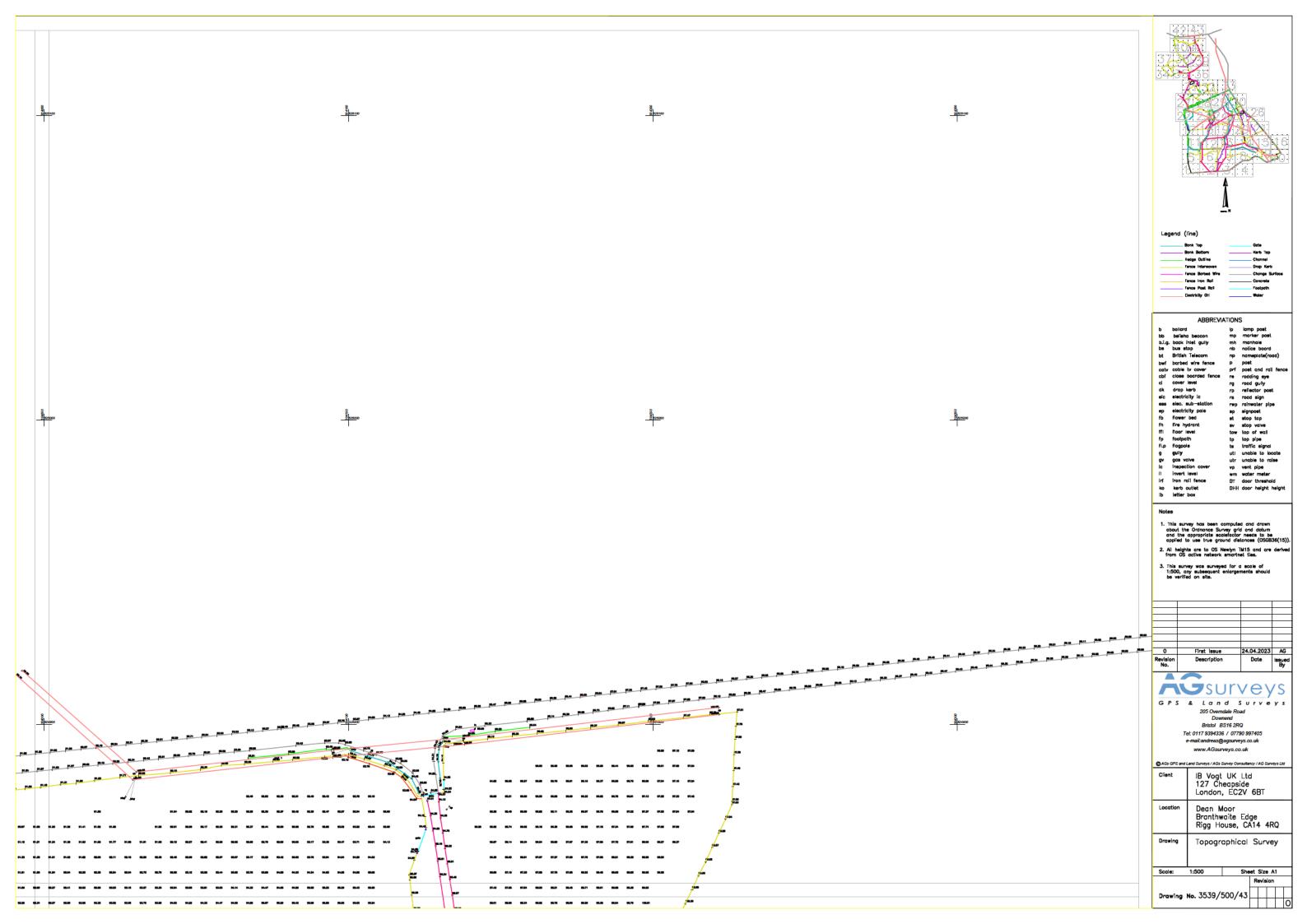














Appendix C Stakeholder Correspondence



Meeting Notes

LLFA Meeting

Project/File: Dean Moor

Date/Time: 13 October 2023 / 10am

Location: MS Teams

Next Meeting: [Next Meeting Date]
Attendees: Cumberland: MR, SG.

IB Vogt: RJ.

Stantec: JL, SO, NS, RF, SC.

Project update (JL, Stantec)

Item	Action
Project Summary	
The proposal is for a 150MW Solar Farm including a 100MW Battery Energy Storage System which will be in place for 40 years. The land to North is a former colliery and the South primarily agricultural use. A wind turbine farm is also present on the Site.	
Programme	
A non-statutory public consultation is ongoing and will end on the 3 rd November 2023.	
Stantec have received the Scoping Opinion from the Planning Inspectorate. This was informed by input from the Council and the Environment Agency. Stantec are now working on producing the PEIR (draft ES) to prepare for a Statutory consultation in February 2024.	
Key dates within the current Programme for the Project are as follows:	
EIA Scoping Opinion	
 Non-Statutory Consultation – October 2023 	
 Statement of Community Consultation – November 2023 	
 Statutory Consultation (including PEIR) – February 2024 	
 Draft Docs – August 2024 	
Submission – October 2024	
Examination – February 2025	
 SoS Decision – November 2025 – February 2026 	
This meeting part of the Projects non statutory pre application consultation.	
Stantec also have previously met with from Cumberland Council's planning team.	
The LLFA will be consulted formally during the Statutory consultation in February.	

Item	Action
The LLFA may be asked to provide further comment during the examination process depending on whether there are any remaining issues.	
There will also be DCO requirements similar to planning conditions. It is likely the Project would need to submit further detailed designs of the proposed drainage arrangements prior to commencement. The LLFA's would be the named stakeholder for the Council to consult when determining the application for such a DCO Requirement.	
Pre-application Fees	LLFA to discuss pre-
As an NSIP, the application for the Project is not determined by Cumberland Council. The Applicant is keen to make a voluntary contribution to the LLFA to ensure that the Council is able to engage at the appropriate time. On this basis, a bespoke pre-app fee arrangement should be agreed with the LLFA. This will need to suit the programme of consultation, and the resourcing needs of the LLFA.	application fees internally before proposing fees.
The LLFA's pre-application fees for drainage advice are listed on Cumberland Council's website. The fee which has been discussed with the LLFA initially is £540, and applies to major planning applications. From a scale perspective, such applications are likely to require similar input from the LLFA. However, it is noted that the programme and structure of consultation and engagement within the DCO Regime have different requirements and resourcing needs.	
It is noted, Stantec have paid Cumberland Council planning team the cost of pre-application advice on major development to support the Council with resourcing their input into the Planning Inspectorate's consultation with key stakeholders on the EIA Scoping Report.	
Subject to confirmation from the LLFA, the £540 could cover the LLFA providing advice on the LLFA's initial expectations regarding the proposed drainage design (ahead of the Statutory consultation).	

Drainage

Item	Action
General approach to drainage	
The development will mainly consist of solar array panels, tracks, and ancillary infrastructure (including buildings and structures associated with the BESS and Substation).	
The Project's preferred drainage approach will be informed by other DCO Solar Farm schemes.	
It is proposed that the Project's drainage design would be progressed broadly in line with the recent paper. This paper concludes that assuming they are appropriate arranged, and designed, panels will not have a significant effect on runoff volumes or peak flows unless the ground is bare where it could increase peak discharge.	
The drainage strategy will be to provide a natural-looking and landscape-led approach. The solar arrays would not necessitate any engineered SUDS.	

Item	Action
Panel Array and Landscape Design	
Land underneath the panels will be left natural and there won't be any paving so the runoff will be the same as the existing regime.	
The angle of the panels is gentle. There would not be a solid façade. The panels feature 1cm gaps between panel sections, so the water doesn't sheet off in one area but will fall from multiple points across the array onto vegetated ground. In addition, current technology means they are bifacial, and allows light to reach the grass underneath (supporting the growth of vegetation, rather than creating bare ground underneath panels).	
Year-round vegetation underneath solar panels will act as energy spreader to promote low erosivity sheet flow.	
By leave the ground to act naturally the aim is that rate of flow or the volume would not be increased.	
Access track design	
Existing access tracks would be retained where possible. As the network of existing tracks within the site is relatively extensive and well developed (both for the sheep farm, and the existing Potato Pot Wind Farm), the need for additional permanent tracks should be fairly minimal.	
Where new or improved tracks are needed, these would be established using an aggregate sub-base and geotextile membrane underneath. Crushed aggregate will allow water to percolate through the access tracks. It would be natural and mimic the existing area.	
Inverters/transformer station	
Would sit on plinths which would allow water to flow through the surface naturally. Permeable gravel sub-base and geotextile material would imitate natural flow regime of the site.	
Watercourse buffers	
The design will include standard buffers, for example there wouldn't be any development close to watercourses.	
Shamus: The Environment Agency minimum distance will be 9m so that will be suitable.	
Conclusion Drainage Strategy will be landscape-led strategy, retaining the natural ground of the Site. There will be few ancillary buildings and they will be spread across the Site. Most of Site will be left in a natural state. There will be targeted SUDS for ancillary buildings and tracks.	

LLFA Response to Presentation

Item		Action
Discussion of presentation	academic paper and JBA Consulting	

Item	Action
There is no solar farm drainage design guidance for Cumbria.	
A 2014 presentation from JBA Consulting looking at the development of a previous Site identifies the flooding and land degradation which can occur if improperly managed. The LLFA will be keen to see that the conclusions and management arrangements of this presentation have been addressed. The applicant should seek to address the points it raises within the drainage strategy.	
The LLFA will be seeking robust construction phase surface water management measures. In the event the construction drainage is improperly managed, runoff from construction could be significant e.g. mobilising silt and mud as runoff, and degrading the surface.	
RJ (lb Vogt):	
We are aware of that presentation, and the conclusions. It has informed other Council's LLFA guidance. There have been significant improvement to the design of solar farms, the approach to and management and construction of solar farms have moved on. Assuming we adopt such measures, as proposed, the outcomes identified in the presentation will not occur.	
The issues which are identified in the pictures from the JBA Consulting presentation can occur if construction is not managed properly. The application for this Project would be supported by a CEMP which will detail the necessary management arrangements, and a Soil Management Plan which will describe the arrangements to properly protect soils and the watercourse habitats.	
: Until the field is established with vegetation you might need silt traps or temporary ponds. The Soil Management Plan should detail measures to address soil compaction and/ or rivulets.	
RJ: Rivulets can occur on bare ground. The gaps between rows in the Site will be natural filter strips. In addition, panels will be angled at 15 degrees, and not as steep as the panels pictured in the JBA Consulting presentation. At their highest, the arrays and panels will be 3m off the ground. In addition, there will be gaps of around 3.5-5m between each row of pure grassland.	
This Project won't involve earth moving, unlike the project identified in the JBA Consulting presentation. Posts with a small surface area of 0.012 metres squared will be driven into the ground. The Site is pastoral, so has better soil structure compared to arable land (shown in the JBA Consulting example) which is regularly churned up.	
Grazing Management	
RJ: The Site is pastoral, so has better soil structure compared to arable land but is bare in places so could be harrowed and re-seeded before installation.	
M (LLFA): Will the landowner continue grazing the land during operation? The ground could be compacted by sheep or become overgrazed. In the past the LLFA have promoted aeration of soil in farmland to minimise surface water runoff.	
RJ: Ongoing grazing will be used for maintenance purposes. Grazed soils have better nutrient and carbon sequestration than mown soils according to Natural England. A Grazing Management Plan would	

Item	Action
ensure the grazing is not intense. The grassland will be covered with wildflowers to improve its quality and the grazing arrangements will be approved by an ecologist. It won't be business-as-usual co-located farming.	
Construction	
MR: Low ground pressure tyres would ideally be specified within the drainage strategy, and compliance required through a DCO Requirement to mitigate construction impact on soil.	
RJ: During operation there will be 1 or 2 vans per month (i.e. low level of operational access).	
During construction, compounds will be located near various access points to the highway where loading/unloading of HGVs will happen. Materials will be taken around Site by tractor/trailer vehicles, so will not cause compaction.	
SG: During construction, can work be postponed if the ground is saturated after a storm to stop it being churned up?	
RJ: Construction will not begin if it is raining and will put down temporary mats if caught in the rain.	
SG: Assuming the necessary mitigation is, which has been identified through the JBA Consulting presentation, then the LLFA's concerns with the development should be addressed.	
The Construction Surface Water Management Plan needs to be dynamic and adaptable to the conditions and phase.	
JL: A separate Construction Surface Water Management Plan will be provided for the operational phase. A draft can be provided to the LLFA with the PEIR and can be revised before submission.	
Access Tracks	
MR: Consider the stone used for roads and how that could affect runoff into watercourses and rivers downstream. There could be an ecology impact from introducing limestone into the development, so avoid this if possible.	
RJ: Limestone will not be used. Aggregate used for access tracks will have low fines content and high void ratio. In ecologically sensitive locations with risk of compaction, tracks will be built up.	
Watercourse	
Flow path analysis of nearby watercourses to be considered by the Applicant.	
Ancillary Buildings	
RJ: Ancillary buildings will use targeted SUDS, and be sited to minimise risk to existing surface water features	
SG: LLFA not concerned about run-off from ancillary buildings, as it is anticipated such effects can be managed. However, concerned about the channelling effect of water running off from rivulets which should be managed and designed-for appropriately.	

Item	Action
SG: Do you learn lessons from previous jobs and build things into method statements from other applications?	Stantec to consider lessons from other solar
JL: Stantec consider lessons from other solar developments and monitors.	developments and previous projects.
RJ: IB Vogt have built almost 500MW of UK solar farm sites and consider the lessons learnt from projects.	, , , , , , , , , , , , , , , , , , , ,

Further Meeting/AOB

Item	Action
JL (Stantec): We can arrange a meeting later in the year, once the design has progressed. Discussed potential of using a Planning Performance Agreement for advice. Consensus was that this was complex to set up and for a solar farm, given the likely issues, seems excessive.	Stantec to arrange a further meeting.



Meeting Notes

Dean Moor Solar Environment Agency Meeting

Project/File: 3461

Date/Time: 21 November 2023 / 13:30am

Location: MS Teams

Attendees: MM (Planning Adviser),

LMcK (Account Manager for Energy),

NN (Project Lead),

JL (Stantec – Planning Lead),SO (Stantec – Water Lead),

NS (Stantec – EIA), SC (Stantec - Planner)

Dean Moor Solar		
Agenda		Action
Project Up	odate (JL)	1
1.	Introductions and Overview of the Scheme	
	The proposal is for a solar farm of approximately 150MW export capacity and a 100MW Battery Energy Storage System. The Site is currently in agricultural use. The location is rural. There are 16 properties within 500m. Development will last for circa 40 years.	
	The application is for a Development Consent Order.	
	The Site is located in west Cumbria between Branthwaite Edge and Gilgarran.	
	The Site layout has been published after the non-statutory consultation. The hatched areas are where the BESS would be based on the boundaries for noise. Substation will be focused. The farm will be retained, and the Site will continue to be grazed. The area to the south is a steep escarpment.	
2.	Programme	
	The Preliminary Environmental Impact Report (PEIR) is currently being prepared which functions as a draft of the Environmental Statement (ES) which will be submitted. This is not the last time that the Council can	

	The EA will review the construction documents, for example the Code of Construction Practice. However, it is not anticipated that there will be lots of points of discussion on this Project.	
6.	: The EA's response to the Scoping Opinion recommended that we consider the potential impact of hydrology on Ordinary Watercourses within the FRA. Flood risk modelling would not normally be included in an FRA for a Project in FZ1, so this is not planned. Those were general comments and guidance if	Stantec to consider providing further clarification on the scope of the FRA.
	you were planning to do larger scale modelling.	
7.	NN: How will the Project consider pollution. Will there be a Water Framework Directive Assessment. The concern would be the river and the measures taken to protect it, for example possible Biodiversity Net Gain enhancements in the area. JL: A WFD will be prepared (as per the EIA Scoping Opinion). The Council's planning officers have raised the matter of nutrient neutrality and the issue of phosphates in the River Marron as part of our pre-application engagement. As the solar farm would reduce the intensity of sheep grazing, the nutrient flow into the river would be reduced, although any beneficial effects from the project are not expected to result in a substantive change to the overall issue of nutrients in the Marron. We have been made aware that the Cumbria Wildlife	
	Trust have also been establishing mussel colonies on the tributaries to the nearby streams, and these are sensitive to nutrients. We have had some informal engagement with them. The Thief Gill stream flows through the Site, and runs through a steep gulley in the southern part of the Site. The Applicant is considering establishing interception and additional trees and vegetation within the gulley, as part of our BNG measures. These may improve water quality.	

8. Peat

JL:

The Phase 1 Ground Conditions Assessment which was submitted with the EIA Scoping Opinion request included the British Geological Survey records identifying Peat in the southern part of the Site.

Peat is located close to the area which we are considering siting the substation and BESS. Our initial layout avoids the BGS records, but the location and extend of peat is subject to further assessment.

We are undertaking ongoing surveys to confirm the presence and location of peat. The approach to surveying for peat is based on SEPA Guidance, as there is not such detailed guidance in England.

The initial survey involves a Site walkover and limited sampling to establish the presence of peat.

SEPA's Guidance is to avoid effects on peat where possible. The Project will be avoiding foundations in the areas where peat is found to be present. We are also considering avoiding these areas for solar panels.

The Project is keen to respond to the presence of peat in a positive way. We will be ensuring the drainage arrangements protect and enhance the peat which is present. This is also an opportunity to demonstrate carbon sequestration by ensuring peat which is on site is protected and enhanced where possible.

Engagement Strategy

9. Sharing draft documents ahead of PEIR (in February 24)

NN

It would be good to see the draft of the PEIR before it goes to statutory consultation or a meeting.

Ш

It may be possible to share a draft/outline of the PEIR chapter and FRA in early January. However, the aim is to submit these documents in February in the PEIR. This approach will be discussed internally first to ensure it fits with the Programme.

Applicant to consider whether it is possible to share draft PEIR Chapter (or supporting reports) ahead of a future meeting.

10. Engagement ahead of Submission (in October 24)

The EA strongly recommends that the draft documents are shared so that they can be commented on before submission.

The Applicant to discuss the approach/ strategy to future engagement internally.

JL:

	We would look to prepare a Statement of Common Ground with the EA in due course, if necessary.	
	LMcK: The EA have been using a RAG (red amber system) for flagging risks (and considering mitigation). This will derisk the project and provide confidence going forwards. We prefer this approach to adopting a SoCG.	
11.	Fee for Pre-Application Advice	
	NN: The pre application advice fee is £100/hour/person not including VAT.	
	This includes any work such as meetings, phone calls, reviewing documents.	
	LMcK: The Environment Agency will provide a cost estimate once the Applicant outlines the strategy after meetings internally.	
12.	Planning for Future Meetings	
	NN: The Community Engagement Strategy should be considered ahead of any future engagement. The appropriate information should be provided in advance of a meetings. The technical specialists will need to see information on screen in advance of meetings.	
13.	Escalation	
	LMcK: The Community Engagement Strategy includes detail on escalation. The Environment Agency offers an escalation strategy for all developers. If something occurs on a technical level which cannot get resolved it would get escalated. The Stantec counterpart can also escalate issue to as the Escalation Officer. This is a service which reduces any blockers.	The Applicant to consider EA guidance on escalation outlined in the Community Engagement Strategy.
	JL: The appropriate counterpart to contact regarding this would be . The need to share information in advance is appreciated an the technical memo will be shared with the EA in advance of any future meeting.	
АОВ		
14.	N/A	
	ı	1



Meeting Notes

Lead Local Flood Authority (LLFA) Meeting

Project/File: Dean Moor

Date/Time: 05 June 2024 / 2pm

Location: MS Teams

Attendees: Cumberland: MR, SG.

IB Vogt: RJ.

Stantec: SO, NS, RF, SC.

ltem	Action
Agenda / Introductions	
SO: The purpose of this meeting is to discuss the statutory consultation responses received by the Applicant from the Lead Local Flood Authority (LLFA) and the Environment Agency (EA) in relation to the Preliminary Environmental Information Report (PEIR) for Dean Moor Solar Farm.	
In general, the EA have indicated that they are satisfied with the scope and contents of the report. However, they have raised concerns about the assessment of flood risk around the confluence of the ordinary watercourses and upstream limit of the main river in the north-eastern part of the site.	
Fluvial Flood Risk	
EA comments on the PEIR are as follows (the full response has been shared separately with the LLFA):	
'We require confirmation that the Lostrigg Beck river does not pose a significant risk to this site. The current EA models in this area only offer a higher level overview onlyThere could likely be fluvial flood risk at the confluence between the ordinary watercourse and the Lostrigg Beck and we would like confidence that the risk has been investigated. It may be a very minor risk and a meeting with the LLFA to address our concerns could be sufficient.'	
'The flood risk on site is not fully understood. Environment Agency flood maps/ models do not go into sufficient detail to assess third-party developments. The developer should not assume that the maps/models is suitable for assessing the flood risk associated with the proposed development.'	
SO: There is no 'detailed' hydraulic modelling data of the ordinary watercourses within the Site. The Lostrigg Beck 'main river' has Flood Zone extents beyond the site which are generated using the coarse national scale JFlow data, and this has been referenced in the PEIR.	

Item	Action
SG: Noted that there had been recent flooding in the wider catchment but this area was not identified as a concern or location of any recorded incidents.	
Assessment of Site Flood Risk	
RF: The form of Flood Zones and lack of detailed modelling over the site is largely due to the low sensitivity of the rural location at the upstream end of the catchment. The approach considers the EA surface water flood maps a suitably accurate representation of the areas of risk, and are considered proportionate given the form and location of the Proposed Development.	
SG: There are several ordinary watercourses running through the Site. The mapping used in the PEIR matches the GIS mapping that the LLFA uses. Concurs that LiDAR is very realistic and accurate in other projects and representative of where flooding would occur (the exception being areas of significant tree cover).	
Impact of the Proposed Development	
The Proposed Development is classified as Essential Infrastructure, which is appropriate in all Flood Zones subject to suitable planning justification. Critically, the form and design of the proposals ensure there is no detrimental impact on flood risk – either to the site or to land downstream of the site.	
Although the development is considered essential infrastructure, any form of hardstanding elements would seek to be located outside of the flood risk areas where possible.	
If infiltration is feasible, the proposed drainage arrangements would consider implementing permeable drainage features such as permeable surfaces/subbase materials to discharge the drainage via infiltration.	
In conclusion, the view is that the available data is suitable for use in the assessment and proportionate to both the site conditions and the proposed form of development, and no further detailed modelling assessment is required.	
SG: It is agreed that the proposed form of development would not represent any risk of flooding.	
Buffer Offset	
A minimum buffer of 8m to watercourses has been applied which is consistent with the recommended EA guidance for main river watercourses. The development is flood resilient so solar panels would be able to be placed on a floodplain, and as they are on stilts (of negligible plan area) they do not detrimentally impact on floodplain storage area. There would not be an impact from the Proposed Development on flood risk and vice versa. In relation to the main river to the east where the EA have requested more detail, the LLFA do not have an issue in principle.	
SG: Agrees with the 8m offset/buffer	

Item	Action
MR: Agrees that the available information is sufficient to satisfy LLFA concerns.	
Surface Water Management	Stantec to provide
SG: Would solar panels be placed on flood areas between ordinary watercourses?	figures indicating flood risk areas and development
RJ: The concept layout indicates the areas where solar panels could be placed (areas shaded in blue). The focus will be on land outside any risk areas but as the layout is further detailed it is feasible that some elements could be placed in the low risk areas on the fringe of the surface water flood risk areas. The development in these locations would not include any 'vulnerable' infrastructure and would be limited to deer fencing and solar panels.	areas at Environmental Statement (ES) stage.
RJ: Maps should be provided that overlay the surface water flood risk areas with proposed development.	
A Construction Environmental Management Plan (CEMP) and Soil Management Plan (SMP) will be provided which will detail the practices and mitigation measures imposed during construction to avoid negative impacts on watercourses.	
SG: The LLFA expresses confidence in the outlined approach, finding it robust. It suggests implementing this approach in areas of 'low' or 'medium' surface water flood risk but advises against its use in 'high' risk areas whenever feasible.	
Culverted watercourses	
SG: There may be access tracks where culverts are required, although only if absolutely necessary.	
RJ: The Site benefits from a good network of existing access tracks which will be utilised. Existing culverts will be used and applications for Ordinary Watercourse Consent will be made for any culverts or cable crossings.	
SG: Happy with approach and agrees there is nothing more to discuss on this issue at this stage as more detail will follow.	
Battery Energy Storage System Drainage Strategy	Applicant to
EA comment:	implement agreed
'Issue: The Outline Surface Water Drainage Strategy confirms that the SuDS strategy for the BESS will be considered more fully in the Environmental Statement. Until the drainage strategy for the BESS is understood, we are unable to assess the mitigation proposed to prevent firewater entering surface waters or groundwater.	BESS drainage measures following the hierarchy of drainage and the
Impact: There is a risk that we could have low confidence in the ability to retain firewater at the BESS, depending on the design of the drainage design for that area. If the firewater is not contained it can cause	preferences of the LLFA.

Item	Action
significant pollution and detrimental impacts on the environment and protected species.	
Solution: it should be clear within either the Outline Surface Water Drainage Strategy or the Framework Battery Safety Management Plan how retention of firewater will be achieved. If this level of detail is not possible within the Environmental Statement, then there should be a clear method of securing this mitigation within the detailed versions of these documents.'	
SO: The BESS arrangements have not been finalised and the Applicant is open to input from the LLFA regarding the BESS drainage strategy. It is currently considered that the BESS drainage strategy would be similar to what is proposed for other ancillary buildings where gravel would be used. The BESS aims to adhere to the drainage hierarchy for surface water disposal.	
RJ: For reference, the application will be guided by the application for a 400MW BESS (Ref: 24/0093) (4x larger than the proposed BESS) which was approved in Carlisle in February 2024.	
By the time the application is approved, the BESS technology and guidance will have progressed so a bespoke drainage strategy for the BESS would only be able to be designed after the submission of the DCO. The aim for this stage is to fix the parameters and agree the minimum standards for what needs to be done as a DCO Requirement. The DCO application will include further details about the ground conditions work, such as infiltration testing, which will be implemented.	
SG: As with any other development, the LLFA would want to know the impermeable area size and the location of the existing land drains (to avoid creating flow routes to different catchment areas). The first priority would be facilitating infiltration by providing permeable material around the BESS. If this is not feasible then swales or attenuation basins are the preferred method for ecological and maintenance purposes, discharges from which would meet the greenfield run-off rate.	
Agree that it would be inappropriate to design the BESS now and the LLFA would only seek a detailed drainage design up-front if the site was very constrained. As such it is agreed there are no concerns in relation to BESS drainage provided the principles are outlined.	
Accounting for extreme weather events	Applicant to
SG: In light of flooding two weeks ago which affected development in progress near Carlisle, potential severe weather events should be accounted for in the CEMP and surface water management plan.	ensure extreme weather / high rainfall is covered in CEMP and SMP
NS: The CEMP and Soil Management Plan (SMP) will include wording which specifies the mitigation measures to be implemented in the event of extreme weather and, if mitigation is not feasible, work would be moved to unaffected areas.	

Item	Action
Meeting Minutes Meeting minutes will be circulated from this meeting if the LLFA would indicate their agreement with the minute once shared or indicate any amendments they wish to be made. This will likely form part of the Statement of Common Ground which the Applicant will seek to produce with Cumberland Council and agree with the LLFA.	Applicant to circulate meeting minute to form part of the Statement of Common Ground.

Topic	Subtopic	EA's broad	EA's suggestion	Response
Groundwater	Section 4.3: Water Resources & Flood Risk	position EA comfortable with our approach set out in the scoping report.	If fluid-filled cables are proposed, pollution prevention from such cables should be included in the CEMP. We note that private water supplies have not been mentioned in the report. An enquiry should be made to the local authority to see if there are any small unlicensed private water supplies in the vicinity of the proposed	We welcome the EA's comments and will provide pollution prevention within a fluid breakout plan should fluid-filled cables be required. We will enquire about water network in the area from the relevant authority.
	Section 4.7: Ground Conditions	EA are satisfied with the presented approach in relation to land contamination.	development. If contamination is identified, we may request that a foundation works risk assessment is completed for the proposed development.	We welcome the EA's comments and may provide a foundation works risk assessment.
	Drainage	LLFA engagement		We have discussed and broadly agreed a drainage approach with the Lead Local Flood Authority (LLFA). The drainage approach is outlined within the FRA is largely landscaped surface drainage approach that will not interact with ground water. Where very limited targeted SUDS are utilised, pollution protection measures will be implemented. For all stages of the

			proposed
			development.
Flood Risk	The EA concur	We advise that you	We have and
	that a separate	discuss the proposals	continue to liaise
	chapter may not	with the LLFA.	with the LLFA to
	be required within		establish a suitable
	the ES due to the		drainage proposal
	development		for the proposed
	located in flood		development.
	zone 1. The EA are		Measures to
	satisfied that a		mitigate or limit the
	combined FRA		impacts of
	with a drainage		vibrations on the
	strategy and a		waterbodies during
	Water Framework		all phases of the
	Directive (WFD)		proposed
	assessment will		development will
	accompany the ES		be set out in the
	at this stage.		CEMP and oCEMP
Water	The EA are	The WFD Assessment	The drainage
Quality	broadly against	should explore	system will not
-	the used of deep	measures to improve	utilise any
	infiltration	the ecology and	infiltration
	systems for	chemistry. of the	discharge of flows.
	surface water or	waterbodies on site,	Particularly, there
	sewage effluent	e.g. creation of	will not be any
	disposal.	riparian buffer zones.	deep excavation on
	·	'	site as such there
			will be no impact
			on ground water
			quality during the
			operational phase
			of the proposed
			development.
			Where drilling and
			excavations are
			necessary during
			the construction
			and
			decommissioning
			phases, appropriate
			mitigation
			measures will be
			taken to eliminate
			or limit the impact
			to ground water
			from a water
			quality point of
			view. These
			measures will be
			ilicasules Will De

			set out within the CEMP. The impact of the proposed development of surface water runoff on water quality will also be minimal to non-existent. Most of the of the site will be covered in Solar
			flows beneath and drain naturally along the surface with natural green vegetation below acting as a natural flow and pollution control. The very limited ancillary buildings/structures will implement target SUDS designed to mimic the natural catchment characteristics and runoff without any point source discharges by implementing appropriate measures outlined in the FRA and discussed with the LLFA.
Biodiversity		The design of bridges and culverts will need to be carefully designed to avoid ecological, geomorphological and flood risk impacts.	We welcome the EA's comments. The CEMP will outline measures that considers flood risk and biodiversity implications were culverts and

		bridges are	
		necessary.	
		The ordinary	
		watercourses	
		across the site are	
		all subject to	
		existing flow	
		controls at the	
		downstream end of	
		the Site and the	
		watercourses	
		primarily serve a	
		land drainage	
		function across the	
		site. The proposed	
		development will	
		seek to retain and	
		reuse ordinary	
		watercourse	
		existing crossings.	
		Where necessary,	
		any new crossing	
		would be suitably	
		designed so they	
		don't impede the	
		ordinary	
		watercourses	
		across the	
		proposed	
		development Site.	
		i.e., no lesser cross-	
		sectional area than	
		the existing	
		channels.	
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