LIME DOWN SOLAR PROJECT

DEADLINE 6 TRANSPORT SUBMISSION
STOP LIME DOWN

September 2026

1. Introduction

1.1.1. This document and the attached paper comprises Stop Lime Down's (**SLD('s)**) Deadline 6 transport submission. It is provided late, as SLD's transport expert was on annual leave from prior to Deadline 5 to the end of August. This was highlighted at para 1.1.5 of SLD's Deadline 5 submission **[REP5-103]**. At that time SLD sought to inform the ExA of this position and apologised for the delay. SLD would respectfully request and welcome the ExA accepting SLD's traffic and transport submissions from Mr. Bamber late so that his evidence is accepted in the Examination and available to the parties in advance of ISH6. It is with this in mind that SLD has sought to submit this document at least a week in advance of ISH6.

1.1.2. This submission has not been produced with the use of AI.

2. Comments on Deadline 5 Submissions

2.1. REP5-062 –Transport Assessment

2.1.1. The location of access 12 that serves Lime Down E 132kV substation has been moved to the south-west and is now opposite access 13. Whereas the previous access made use of an existing field access, the proposed access is entirely new. It appears that the rationale for this is to allow AIL vehicles to avoid travelling along the lane. The swept path drawing for access 13 (PL13D) shows an AIL vehicle crossing the lane between access 13 (north-west of the lane) and access 12 (south-east of the lane). It is not clear how the AIL vehicle accesses the internal track network north of the lane to allow this straight across movement. Mr. Bamber considers that this should be explained.

2.1.2. A new paragraph 1.4.18 states that the route to accesses 11-17 (Lime Down E north of railway) during the operational phase would be via the lane that connects

with Rodbourne Road. It is not clear why the access route direct from the A429 cannot be used during the operational phase to avoid adverse impact on Rodbourne, users of the lane and the sensitive woodland. It is stated that all the new accesses between the A429 and Lime Down E would be permanent so the route directly from the A429 should be available during the operational phase. Mr. Bamber considers that the failure to use the direct route from the A429 should be explained.

2.2. REP5-084 – Outline Construction Traffic Management Plan

2.2.1. The changes to access 12 described above in relation to the TA are carried over into the CTMP.

2.2.2. A new Section 6.17 explains:

> "Should the number of modules in the final scheme layout exceed 600,000 modules, high cube containers with a capacity of at least 720 modules per HGV should be used where required and to allow the number of solar modules deliveries to not exceed 1,200 HGVs as shown in Table 4.

2.2.3. It has not been demonstrated that the proposed number of panels per HGV is consistent with the size of panel proposed for the development. The Applicant needs to provide clear evidence that it is possible to transport 720 x 2.7m^3 panels in a high cube container.

2.2.4. A new Section 6.18 has been added that states:

> "6.18.2 Should it be apparent that some of the construction routes become problematic or not suitable, further mitigation measure including potential road widening within existing highway verge will be considered and agreed with the local highway authority.
>
> 6.18.3 Should it become apparent that some of the HGV holding locations shown on Figure 4.3 are frequently unavailable, alternative locations will be reviewed and agreed with the local highway authority."

2.2.5. This appears to be an attempt to counter concerns that parts of the access route are not of a sufficient standard to safely accommodate construction traffic and concerns that there are no suitable marshalling areas to allow the proposed HGV management system to work. The acceptability of the access strategy should be demonstrated now since there is no assessment which allows for a conclusion that the proposed adaptive management measures would be feasible or effective. A reasonable worst case must be assessed. The measures may also fall outside of the order limits.

2.2.6. Drawing SP21A shows the swept path of an AIL vehicle at The Street/Alderton Road junction. The necessary decoupling of the tractor unit and recoupling to allow the AIL vehicle to negotiate the junction does not appear to be possible within the available highway. The Applicant has stated [**REP5-097**] that the AIL would have a tractor unit at both ends and this would eliminate the need for the unit to decouple and recouple. However, the swept path drawings do not show a vehicle with a tractor unit at both ends. The swept paths need to be repeated to demonstrate that the longer vehicle is able to negotiate the route.

2.2.7. The AIL swept paths along Alderton Road are still presented on OS base so it is not possible to assess whether the movements are feasible within the existing highway.

2.2.8. Drawing SP25A appears to show that the AIL vehicle will require the removal of the mature tree on the western side of the Fosse Way/Sherston Road junction. This has not been assessed as a potential adverse landscape impact of development.

2.2.9. Drawing SP33 shows the swept path of an AIL vehicle at the sharp bend south of the railway on Bradfield Cottages. The vehicle crosses the line that appears to show the edge of the carriageway. Observations on site reveal that there is a

steep embankment adjacent to the edge of the carriageway. There is therefore doubt as to whether the manoeuvre is possible.

2.2.10. Drawing SP22 shows the swept path of an AIL vehicle on The Street in Grittleton passing the church. It is drawn on an OS base that does not appear to accurately show the available width. The plan appears to show the road widening just to the west of the church whereas site visits suggest that such widening is not present.

2.2.11. Comparison of the information in Annex A of the Outline Ecological Protection and Mitigation Strategy [**REP5-082**] does not appear to be consistent with the plans in the CTMP that show the width of access points and thus the lengths of hedgerows to be removed. For example, at access 10 (north side of A429 providing access to Lime Down D east 132kV substation), it is suggested that 14m of hedgerow would be removed whereas Drawing PL10G in the CTMP suggests that around 35m of hedgerow would be removed. The Applicant should explain the discrepancy between the access plans showing swept paths and the ecological plans showing hedgerow to be removed.

2.3. REP5-097 – The Applicant's Response to the Examining Authority's Second Written Questions

2.3.1. TT2.3 OCTMP1 Adaptive Management: If a construction route becomes unavailable, the Applicant states that deliveries would be stopped until the route becomes available. The ExA has asked a question in respect of what would happen if a construction route is found to be inadequate. The Applicant does not respond to this point. In relation to HGV holding areas, the Applicant states that if they are found to be frequently full (unavailable), adaptive measures would be implemented. There is no assessment or consideration of those adaptive measures for provision of holding areas. It must be remembered that a reasonable worst case should be assessed.

2.3.2. TT2.4 OCTMP2 Impact on Junctions 17 and 18**:** The Applicant states that HGVs could use the junctions before 09:30 but outside the 08:00-09:00 period. This is not consistent with National Highways' requirement set out in [**REP3-151**] (NH Response to ExA's First Written Questions) which is that construction traffic should not impact on the junction before 09:30..

2.3.3. TT2.7 Highway Improvement Areas 3: This refers to potential adverse impacts on vulnerable highway users along Bradfield Cottages. The Applicant refers to Tables 3.1 and 3.2 of the ISEP Guidelines that relate to potential changes in levels of fear and intimidation. The tables in the ISEP Guidelines do not relate to the situation at Bradfield Cottages where pedestrians would be walking within the carriageway. The Applicant makes the statement, "*the Scheme is not making the road more dangerous in EIA terms*". This is evidently wrong and it is a concern that the Applicant is basing its decisions regarding mitigation on this assumption**.**

2.3.4. TT2.8 Grittleton Crossroads AIL Swept Path: The Applicant explains that the AIL vehicle would have tractor units at both ends so that it would be unnecessary for the tractor to decouple and then recouple. No swept path analysis has been undertaken for the AIL vehicle with tractor units at both ends.

2.3.5. TT2.9 Width of Construction Routes: The Applicant has submitted further plans that purport to show road widths where vehicles are able to pass. Mr. Bamber believes these to be inaccurate and an on-site meeting has been arranged for Thursday 10 September involving SLD, WC and the Applicant at which widths will be checked.

2.3.6. The Applicant has not provided information on verge buffers, something that the ExA has requested and important in relation to the safety of vulnerable highway users.

2.3.7. TT2.10 Fowlswick Lane Access 109: Mr. Bamber raised concerns over the Fowlswick Lane access from the outset. Although it is technically possible to

provide the access shown in Drawing PL109, the impact on vegetation both along Fowlswick Lane and at the junction with the B4039 has not been assessed. The Outline Ecological Protection and Mitigation Strategy suggests that only 18m of hedgerow would be removed. The visibility to the south is identified as appropriate for the speed of traffic but the visibility to the north is not. It is not clear how traffic will be controlled given the lack of visibility around the bend and the lack of verge to accommodate traffic control.

2.3.8. TT2.12 Shuttle Bus Take-Up 2: The Applicant lists shuttle bus mode share for a number of solar farms but it appears that these are all estimates and none are based on observed behaviour. The Applicant has not, therefore, demonstrated that the assumption is a reasonable worst case.

2.3.9. TT2.13 Construction Phasing: The Applicant has extended the construction period for the 400kV substation from 6 months to 20 months. With the Applicant's revised trip generation rates, the daily HGV trip generation on Bradfield Cottages reduces slightly (although it extends over a much longer period). This means that the adverse effects arising out of traffic last longer.

2.3.10. The ExA also raises the issue of an under-estimation of workers at Lime Down D due to the presence of the BESS and the 400kV substation. The Applicant has not responded to this issue. The Applicant predicts more workers at Lime Down C than at Lime Down D (West).

2.4. REP5-107 – Highways Technical Note in Response to Appendix A of SLD Deadline 4 Submissions

2.4.1. Section 2 HGV Trip Generation: The Applicant seeks to explain the differences in HGVs/ha of Works No. 1 area by referring to the differences in the amount of land that is left vacant within the Works No. 1 area and the inclusion or exclusion of waste (packaging) trips. These arguments are not convincing for two reasons:

- In order to achieve ‘compatibility of definition’, the Applicant reduces the solar array areas for Lime Down and Green Hill but does not reduce the solar array areas for West Burton and Cottam despite the relevant Works Plans identifying similar areas where solar arrays are present and where they are absent. Since the Works No. 1 areas are defined in the same way for each scheme, it is reasonable to refer to these areas to undertake a broad assessment of the reliability of the data that has been submitted for the Lime Down scheme;
- There is no evidence that packaging waste trips have been included in the estimates of solar panel and mounting structure HGV numbers for other sites. The relevant ES Chapters accompanying each of the other solar schemes have been reviewed. This confirms that panels and mounting structures are dealt with in isolation and waste is included in the ‘other’ category of movement.

2.4.2. The Applicant omits any reference to the two sites that are not Island Green Power (IGP) projects despite these displaying the highest numbers of HGVs per Works No. 1 area. Scrutiny of the relevant Works Plans again show similar distribution of land uses as shown in the IGP schemes.

2.4.3. The Green Hill HGV information states that it is based on the Cottam scheme figures, derived on a pro rata basis. Scrutiny of the Cottam ES Transport Chapter and Transport Assessment reveals that *no evidence* was produced to support the assumptions about HGV trip generation. The similarity of the IGP schemes suggests that any errors/omissions/individual variations between schemes may have been overlooked as a result of using the most convenient source of data (data that have not been challenged previously) rather than the most reliable.

2.4.4. The following table provides a comparison of the proportion of total HGVs associated with large solar schemes that are assigned to the transport of solar panels and mounting structures. This approach to comparison is entirely

independent of an approach based on Works No. 1 areas. All the schemes include a BESS and substations:

Table 1: Panels and Mounting Structures HGVs as % of Total Scheme HGVs

Scheme	Predicted number of HGVs				%
	Panels	Mounting structures	Panels + Mounting structures	Total Scheme	
Cottam			4,320	13,010	**33.2%**
Green Hill	1,577	1,240	2,817	8,146	**34.6%**
West Burton			3,280	6,930	**47.3%**
Botley West	4,241	3,182	7,423	22,263	**33.3%**
Heckington Fen	1,500	900	2,400	11,082	**21.7%**
Lime Down	1,170	703	1,873	17,925*	**10.4%**

* based on latest (increased) HGV trip generation estimates

2.4.5. It is clear from the above table that the HGV trip generation figures associated with solar panel and mounting structures deliveries for Lime Down are significantly lower than the corresponding figures for other large solar farms when expressed as a percentage of total scheme HGVs.

2.4.6. This finding does not provide any confidence that the number of HGVs predicted for the transport of solar panels and mounting structures at Lime Down is reliable and, if there is to be any confidence in predictions for other schemes, suggests that the predicted number at Lime Down is an under-estimate. It would fail to assess a reasonable worst case as a result.

Section 3.1: Review of Trip Generation Calculations

2.4.7. See separate tabulated comments in Annex A.

Section 3.2: Comparison of Total HGV Movements

2.4.8. The Applicant identifies a total HGV trip generation that is 34% higher than originally estimated. The following should be noted:

- HGVs associated with concrete footings has increased from 0 to 104;
- HGVs associated with waste has increased from 230 to 529;
- HGVs associated with compounds and spoil has increased from 2,196 to 3,053;
- HGVs associated with 33kV conversion units has increased from 0 to 166;
- HGVs associated with conversion unit foundations has increased from 0 to 701;
- HGVs associated with 132kV substations has increased from 496 to 1,022;
- HGVs associated with 400kV substation has increased from 1,369 to 2,646;
- HGVs associated with the BESS has increased from 975 to 2,466.

2.4.9. The Transport Assessment and the Transport Chapter of the ES have not been updated with the higher levels of HGV movement.

2.4.10. It should be noted that HGVs associated with BESS units and BESS PCS units have not been included in the totals in the spreadsheet and translated into the flow diagrams. Allowance for these elements increases the Applicant's estimated increase in HGV trips from 34% to 37%.

Section 3.3: Comparison for Peak Daily HGV Movements

2.4.11. A comparison is presented between the 'Applicants Submitted Calculation' and the 'Applicant Revised Calculation (Sensitivity)'. The revised calculation is not a 'sensitivity' test; rather, it is intended by the Applicant to be a reasonable worst-case assessment.

2.4.12. Table 3-3 compares the revised daily HGV movements with the figures previously adopted. On the basis of the Applicant's calculations the daily

movements to Lime Down D (West) (Bradfield Cottages) decrease by 2 HGVs. This is due to the much longer construction programme for the 400kV substation (20 months rather than the original estimate of 6 months). The total number of HGVs associated with Lime Down D has increased from around 6,000 to around 9,600.

Section 3.4: Comparison of AADT HGV Movements

2.4.13. The first part of this section has no relevance to the assessment of potential impact. It spreads total HGV movements over the total construction period (including non-working days). Each element of the development has a construction period and the relevant method for assessing impact is to apply the construction period and the number of working days. As such, this is a scenario which would never eventuate.

2.4.14. The second part of the section presents the average daily number of HGVs and thus omits the 50% uplift that has been consistently applied to represent the effects of variations in trip generation on a day-to-day basis. It is a fact that there will be daily variations in trip generation, therefore, the assessments need to make allowance for this to ensure that potential adverse impacts are not overlooked.

2.4.15. Paragraph 3.4.5 states that the increased trips, “fall within or accord with movements assessed within [the ES]”. This statement is only correct if different methods of calculating daily trips are applied that unrealistically spread construction trips over every day of the two-year construction period or ignore the effects of daily variations in traffic. If the method that has been used continues to be used (daily trips based on projected timescales of construction and increased to allow for day-to-day variation), the daily number of trips increases in almost all cases and in the one case where trip decrease slightly, the period of impact increases from 6 months to 20 months.

2.5. REP5-098 – Applicant's Response to Submissions Received at Deadline 4

2.5.1. Many of the comments relate to those issues that have been discussed at the meeting with the TPA and that are subject of the latest Technical Note (see above).

2.5.2. SLD-006 and others: The Applicant suggests that the peak HGV trip generation has been identified for every day of the construction period. This could be interpreted as meaning that the daily HGV flows, in reality would be lower on specific days. This is not the case for sections of highway providing access to individual areas (e.g. Bradfield Cottages) which have already been adjusted to account for construction timetables. On sections of highway that provide access to multiple Areas, the construction timetable needs to be taken into account. This reveals that the construction phases for Lime Down A, B and C overlap (western access route) as do Lime Down D and E (eastern access route).

2.5.3. SLD-011 Transport of Machinery and Equipment: The Applicant states that the allowance for machinery and equipment has been clearly set out. This is not the case. There is some allowance in relation to the 400kV substation and the BESS but not in relation to any other elements of the site. For West Botley, an allowance of 1,600 HGVs was allowed for "excavators, construction machinery and cranes". This is far in excess of the allowance made by the Applicant (a small proportion of the 750 HGVs associated with 'other' for the substations and BESS).

2.5.4. SLD-017 Chances of HGVs Meeting: It should be highlighted that there is agreement that 2.3 HGVs per hour would meet on the Fosse Way and 1.7 HGVs per hour would meet on Bradfield Cottages, based on the Applicant's estimate of HGV numbers.

2.5.5. SLD-021 Visibility/Road Widths: The Applicant has not provided any assessment of the adequacy of widened sections of highway as an 'opportunistic' approach to widening appears to have been adopted; widening is proposed at

existing formal or informal passing places. The accuracy of the plans showing road widths will be checked next week at the joint site visit (SLD, TPA, WC).

2.5.6. SLD-025 Road Width and Sensitivity: The Applicant maintains that road width does not affect the sensitivity of a link. This is not consistent with the ISEP Guidelines that the experience of traffic is affected by road characteristics. This is also intuitively correct as a pedestrian walking on a narrow country lane is more sensitive than a pedestrian walking on a wide footway adjacent to a road.

2.6. REP5-099 Tranquillity Assessment

2.6.1. This does not add anything to previous comments regarding transport impact. Section 3 suggests that where base HGV flows are low, increases will have a large percentage impact. The routes through the CNL do not have 'low' existing HGV flows but still experience increases in excess of 100%. The Applicant specifically refers to the fact that the B4040 and B4039 carry significant numbers of HGVs in attempting to justify the use of the roads.

3. Conclusion

3.1.1. This submission has commented upon the documents submitted by the Applicant at Deadline 6. Annex A identifies those elements of construction HGV trip generation that are agreed between the Applicant and SLD and those that are not agreed. In the latter case, details of the assumptions that SLD has made to derive alternative levels of HGV trip generation are provided and the Applicant's and SLD's estimates of HGV trip generation are compared. Daily levels of trip generation are also compared on network flow diagrams.

3.1.2. SLD apologises once again for the late provision of this document, reflecting the availability of its expert as a result of annual leave, and respectfully request that the ExA accept the submission so that it can be considered as part of the documents for ISH6.

Alternative Construction HGV Trip Generation

ANNEX A

Annex A: Comparison of Applicant's and SLD's Assessments of Construction HGV Numbers and Flows

Contents

1. Summary of table (see 2 below) showing the Applicant's original and revised estimates of HGV numbers and SLD's assessment of whether or not these estimates constitute reasonable worst cases

Item	Original Estimate	Revised Estimate	Agreed Reasonable Worst Case?
Solar panels	588,988	842,500 panels	No (justification remains unclear)
Panels per HGV	500 panels	720 panels	No (no justification provided)
Mounting structures	540 HGVs	599 HGVs	No (no justification provided)
Concrete footings	0	104 HGVs	No (approach is unclear and not justified)
Waste packaging	230 HGVs	529 HGVs	Yes
General access tracks	4,940 HGVs	3,718 HGVs	Yes
BESS/400kV substation access tracks		442 HGVs	No (no allowance for drainage)
132 kV substation access tracks		676 HGVs	No (relevant standards not provided)
Compound surfacing	2,196 HGVs (includes spoil removal and 'general')	1,080 HGVs	No (assumed all surfacing remains on site)
Compounds (other)		1,252 HGVs	No (no allowance for structures and removal)
Spoil	2,196 HGVs (includes compounds and 'general')	721 HGVs	No (10% assumption not justified)
33kV conversion units	0	166	Yes
Conversion units (foundations)	0	701	Yes
132kV substations	496 HGVs	1,022 HGVs	Yes
400kV substation	1,369 HGVs	2,646 HGVs	Yes
BESS units	975 HGVs	270 HGVs	No (not included on spreadsheet within totals)
BESS Power Conversion Units		45 HGVs	No (not included on spreadsheet within totals)
BESS foundations		2,051 HGVs	Yes
Other BESS components		100 HGVs	Yes
Cable	50 HGVs	55 HGVs	Yes
Landscaping	495	495	Accepted as reasonable worst case
General	0	0	No (inadequate allowance for excavators, construction machinery and cranes)
Drainage	0	0	No (no additional allowance)
Cable route corridor	20,160 HGVs	20,160 HGVs	Yes

2. Table reproducing the Applicant's revised estimates and supporting text with SLD's explanations where there is not agreement on a reasonable worst case

Item	Allowance in Revised Trip Generation Calculation	Applicant's Notes (see REP5-107)	SLD Comments (with actions arising from Meeting between Bruce Bamber (SLD), [redacted] 03 August 2026) (Changes in the Applicant's estimates are identified in blue)
Number of Solar Panels	842,500 panels	In accordance with the **Works Plan [REP3-004],** the Works No. 1 - Solar PV generating station areas total 385.3ha. In accordance with this area, a maximum total of 842,500 panels, has been derived from an indicative high density layouts based on a 3P fixed panel layout. This would result in a density of 2,186 panels per hectare (885 per acre). When assuming outputs of 640W per panel currently being used on other IGP schemes (including West Burton), this would result in 1.76 acres per MW, which is more intensive than the suggested range of 2-4 MW per acre set out in EN-3. It is also noted that paragraph 2.10.17 of EN-3 states that densities will '*vary significantly depending on the site, with some being larger and some being smaller. This is also expected to change over time as the technology continues to evolve to become more efficient*'. The trip generation calculations for solar panels remain broadly unchanged from calculations set out in **Annex E** of **ES Volume 3, Appendix 13-1: Transport Assessment [REP4-037]** based on the delivery of 720 panels per HGV as specified below.	(Number of panels increased from 588,988 to 842,500, number of deliveries unchanged at around 1,200 HGV deliveries) At the meeting, the Applicant advised that the previous estimate of 469ha of solar panels has now been reduced to 385.3ha. See separate comments on Applicant's approach to comparing solar panels to site areas. Other IGP schemes would, based on these figures, generate only 0.57MW per acre. This is less intensive than the EN-3 range (2-4MW per acre). The approach based on panel power output (640W/panel) gives 2194 panels/ha and 845,256 panels in 385.3ha. If the number adopted (842,500) is multiplied by a panel area of 2.7m^2, this constitutes a total panel area of 227.5ha. This would cover a horizontal area of 206ha (at an angle of 25 degrees). This would mean that 53% of the area would be covered by panels and 47% would be spaces between panels. This appears to be a very low coverage ratio. The calculations are not unchanged because it is now

			assumed that there would be 720 panels per HGV. NOT REASONABLE WORST CASE
Number of panels per HGV	720 panels	The delivery of 720 panels per High Cube 40ft container has been calculated. This has been confirmed by the manufacturer/supplier. To provide certainty, the requirement to deliver panels by 40ft High Cube container has been included in the latest Outline CTMP submitted at Deadline 5. Case Basis: REASONABLE WORST CASE (given commitment to high cube containers in Outline CTMP to secure a maximum of 1,200 deliveries for the panels)	A high cube container has a height of 9' 6". A conventional container has a height of 8' 6". A high cube therefore has 12% more capacity than a conventional container yet it is assumed that 44% more solar panels can be transported. The Applicant his stated that the area of a solar panel would be 2.7m^2. This is for the 3P fixed layout. The number of panels per HGV (720) is subject to 'non-disclosure agreement' (NDA) and therefore unverifiable. NOT REASONABLE WORST CASE
Mounting Structures	51.2% of panel HGVs	in **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]** it is suggest that the number of HGVs required to transport mounting structures would constitute 73% of the number required to transport solar panels. This is based on ratios for Botley West, Green Hill and Heckington Fen. Further to the Applicants knowledge of Green Hill, the number provided for mounting structures were not broken down in as much detail and included other elements such as waste and packaging, which have been accounted elsewhere in calculations for Lime Down Solar Park. The Applicant has obtained further detail on mounting structures from the manufacturer/supplier which confirms that mounting structures for 0.9-1.1MW of 640W solar panels can be transported per standard articulated flat bed. Assuming a worst-case of 0.9MW, this results in a total of 599 HGV deliveries. The resulting uplift in HGV trips associated with mounting structures have been updated in the trip generation calculations. Case Basis: REASONABLE WORST CASE	(Increased from 540 to 599 HGV deliveries) Green Hill trip generation was based on that presented for Cottam and Cottam assumed that waste was accounted for in 'other'. Subject to NDA and therefore unverifiable. NOT REASONABLE WORST CASE
Concrete Footings	104 HGVs	It has been identified that within the Works 1 areas, approximately 16.03 hectares is potentially archaeologically sensitive. Based on initial layouts it has been calculated that a total of 2,776 concrete footings could be required within these areas. The Applicant has confirmed with suppliers () that a worst-case assumption would be:	(Increased from 0 to 104 HGVs) The latest Illustrative Drawings (REP5-065) do not show concrete blocks but substantial concrete footings. The calculations are inconsistent.

		• 1000kg concrete on each rear upright • 500 kg on each front upright This would result in a total of 2,082 tonnes for concrete footings. There is a likelihood that solar panels will not be placed on the archaeologically sensitive areas. This therefore presents a worst case. The resulting HGV trips associated with concrete footings have been added to the trip generation calculations. Case Basis: REASONABLE WORST CASE	If there are 16.03 ha of sensitive areas, this constitutes 4.2% of the total panel areas (using Appellant's figure of 385.3ha of panels). This would result in 280 HGV deliveries based on the concrete footings shown in Appendix 3.3 of the ES (REP5-065) NOT REASONABLE WORST CASE
Waste (Packaging)	529 HGVs	This sets out the HGVs associated with the total volumes of waste (packaging) set out in **Table 3** of the **Outline Waste Management Chapter** submitted at Deadline 5**.** This includes waste associated with solar panel and mounting structure packaging, which has been updated to account for an uplift to 842,500 panels based on a 3P layout. A compactor will be provided on site to increase weight per vehicle of waste transported from site. This would allow tipper lorries to remove 11.1 tonnes loads or 20m3 of compacted waste. The resulting uplift in HGV trips associated with waste have been updated in the trip generation calculations. Case Basis: REASONABLE WORST CASE (given commitment to compactors in Outline CTMP)	(Increased from 230 to 529 HGV deliveries) REASONABLE WORST CASE
General Access Tracks	3,718 HGVs	This is based on the need for 28.1km of general access track with a width of 3.5 metres, widening to 6.0 metres at passing places. The track would also need to be widened on bends. The Applicant assumes that tracks would be constructed with 0.3m of compacted aggregate. The Applicant now includes a 5% widening allowance as per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-**	(Total for all access tracks reduced from 4,940 to 4,837 HGV deliveries)

		132]. This has been added to the trip generation calculations. Case Basis: REASONABLE WORST CASE	REASONABLE WORST CASE
BESS/ 400kV Access Track	442 HGVs	The access track required to serve the 400kV Substation and BESS would be 0.9km in length. This will be designed to accommodate AIL vehicles delivering transformers to a 400kV substation. The access road will therefore be 6.0 metres wide, widening at bends with a compacted construction depth of 0.65 metres. There would be no requirement for passing places given the infrequency of movements. The Applicant now includes a 5% widening allowance as per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]**, which has been added to the trip generation calculations. Case Basis: REASONABLE WORST CASE	The illustrative design in Appendix 3-3 shows drainage ditches that could be rock-filled or cemented to avoid collapse. No allowance has been made for this drainage infrastructure. NOT REASONABLE WORST CASE
132kV Access Tracks	676 HGVs	The access track required to serve the 132kV substations total 2.9km in length. This will be designed to accommodate AIL vehicles delivering transformers to a 132kV substation. Further information on the design parameters for 132kV Access tracks is now provided in the updated **ES Volume 3, Appendix 3-3: Illustrative Drawings** submitted at Deadline 5. This is in accordance with guidance from UKPN for access requirements to 132kV substations. The access road will therefore be 4.5 metres wide, widening at bends, with a compacted construction depth of 0.41 metres. The Applicant also includes a 5% widening allowance which has been added to the trip generation calculations. Case Basis: REASONABLE WORST CASE	This is a new category of access track that wasn't included in the initial assessments. The Applicant stated that the UKPN guidance would be made available at the next deadline but only provides an indicative drawing. The new Appendix 3-3 provides details of the new specification. The construction depth of 0.41m is not the worst case according to the illustrative design in Appendix 3-3. NOT REASONABLE WORST CASE
Compound Surfacing	1,080 HGVs	Further to **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132**], it has been agreed that the aggregate required for compounds will be 50m x 60m metres with a depth of 0.3 metres. The Applicant maintains that aggregate used for the compounds will remain on site as per Applicant's Response to SLD's Written Representation **[REP3-133]**). This will either be used to repair access tracks following construction, stored on site or in the case of Lime Down A and D, used within the proposed 132kV substations.	(Compounds plus spoil increased from 2,196 to 3,053) The Applicant has adopted SLD minimum compound dimensions of 50m x 60m. An additional compound has been added – previously 9 were assumed but now it is 10. Only 7 compounds are shown on the Works Plan in the PV areas. It remains unclear how compound aggregate could be used within the 132kV substations since the aggreg-

		The resulting uplift in HGV trips associated with waste have been updated in the trip generation calculations. These calculations assume the use of ten compounds, as shown on the Works Plans and as follows: • Lime Down A – One compound (south of road towards Sherston) • Lime Down B – One compound (north of Fosse Way) • Lime Down C – Two compounds (one either side of the Fosse Way) • Lime Down D – Three compounds (one either side of Bradfield Cottages and one north of A429) • Lime Down E – Two compounds (one north of railway line and one south of railway line) • One potential further compound in the vicinity of the BESS. Case Basis: REASONABLE WORST CASE	ate could be contaminated and mixed with soil. 'Potential further compound in the vicinity of the BESS' not shown on Works Plan. NOT REASONABLE WORST CASE
Compounds (Other)	1,252 HGVs (two per week per compound).	The Applicant accepts that other structures that will be associated with compounds include office, welfare, water tank, fuel tank, fencing, security, compactor, generator and skips. Regular HGV movements would be associated with water and fuel delivery, waste removal (foul water, chemicals solvents and oils) and the transport and movement of equipment and machinery. An allowance of two HGVs per compound per week over the construction phase for each Solar PV site is assumed. The trip generation calculations for other compound trips have been increased in comparison with those assumed in general trips set out in **Annex E** of **ES Volume 3, Appendix 13-1: Transport Assessment (Rev 4) [REP4-037].** Case Basis: REASONABLE WORST CASE	Two HGVs per week for regular servicing (water, fuel, waste removal) is reasonable but this overlooks significant numbers of movements associated with the movement of machinery and equipment and other structures. There will be a need for above-ground structures to be removed even if surfacing remains. NOT REASONABLE WORST CASE
Spoil	10% of excavated spoil taken off	The volume of material is derived directly from the volumes of material used for access roads, compounds, foundations of substations and the BESS. This amounts to 94,589m³. In accordance with the Applicant's Response to SLD's Written Representation **[REP3-133]**), the Ap-	(Not specified how calculated previously – compounds plus spoil identified as 2,196 HGVs, now 709 HGVs for spoil alone) It remains unclear why a figure of 10% is considered a

	site. 721 HGVs	plicant has included an allowance for 10% of spoil to be taken off site. The remaining spoil would be stored on site or used for bunds within the Scheme. The trip generation calculations have been updated to reflect the anticipated volume of spoil. Case Basis: REASONABLE WORST CASE	reasonable worst case. This element of the scheme has the potential to generate very large numbers of HGVs. NOT REASONABLE WORST CASE
33kV Conversion Units	166 HGVs	The Applicant now allows for 166 conversion units. These have been added to the trip generation calculations. As confirmed by the supplier, each Inverter/Transformer powerbock (4.4MVA) will comprise of a 20ft, 20 tonnes container (6.058m Length x 2.438m Width x *2.896m Height) (4.4MVA). Each unit will require one HGV delivery. Case Basis: REASONABLE WORST CASE (based on supplier information)	(Increased from 0 to 166 HGVs for units) REASONABLE WORST CASE
Conversion Unit Foundations	701 HGVs	Each conversion unit would sit on a concrete slab and a levelling layer of aggregate. As set out in ES Volume 1, Chapter 3, The Scheme [APP-055] It has been assumed that each unit would site on a 6.0m x 16.0m slab and the total depth of foundations would be 0.4m split between concrete and a levelling layer of aggregate. Trips associated with Conversion Unit foundations have been added to the trip generation calculations. Given the size of proposed 33kV conversion units set out above, the assumed area of the foundations is an absolute worst-case assumption as they are likely to be smaller.	(Increased from 0 to 701 HGVs for foundations) REASONABLE WORST CASE
132kV Substations	205 HGVs per 132kV substation (should be 256 HGVs per substation)	The indicative size of the 132 kV substations is 3,455m² (see **Applicant Response to SLD's WR [REP3-133], para. 3.5.5**). There will be 4 132kV substations within the Scheme Given the need to support components and equipment, it is accepted that the average depth of concrete used within this area would be 0.5m. It has been assumed that a maximum 50% of the area would be concrete and 50% would be aggregate at a depth of 0.3m. This provides a worst-case assessment, as indicative layouts show only 250m² (7.2%) of the area comprising concrete foundations. The trip generation calculations have been updated to include trip associated	(Increased from 496 to 822 HGVs) The Applicant identifies 205 HGVs per substation but this would only be correct if 50 additional HGV deliveries have been allowed for all other substation components. The more reasonable 100 additional trips that is identified in the text and in the spreadsheet gives 1,022 HGVs for the four 132kV substations

		with concrete and aggregate. As per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]**, there would be a need for other components (security fencing, drainage, electrical and structural infrastructure, control room, lighting, security). The Applicant has assumed an additional 100 deliveries associated with these items for each 132kV substation. The trip generation calculations have been updated to include these trips.	combined. REASONABLE WORST CASE (assuming 100 'other' HGVs per substation)
400kV Substation Foundations	2,396 HGVs per substation	The indicative size of the 400 kV substation is 38,037m² (see **Applicant Response to SLD's WR [REP3-133], para. 3.5.5**). The foundations are required to support heavy components and the equipment that handles them. it is assumed that the average depth of concrete used within this area would be 0.8m. It has been assumed that a maximum 50% of the area would be concrete and 50% would be aggregate at a depth of 0.3m. This provides a worst-case assessment, as indicative layouts show only 1,924m² (5.1%) of the area would comprise concrete foundations. The trip generation calculations have been updated to include trip associated with concrete and aggregate.	(Total for 400kV substation including foundations and other increased from 1,369 to 2,646 HGVs) REASONABLE WORST CASE (foundations)
400kV Substation Compound	0	The Applicant has already assumed an additional construction compound in the vicinity of the BESS and 400kV substation below.	Not shown on Works Plan
400kV Substation Other	250	As per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]** there would be a need for other electrical and structural components, control building, security fencing, lighting, drainage, security and the movements of equipment and machinery. The Applicant has assumed an additional 150 deliveries associated with these items. The trip generation calculations have been updated to include these trips.	REASONABLE WORST CASE
BESS Units	270	As confirmed by the supplier, each BESS unit (5MWh) will comprise of a 20ft, 43 tonne container (6.058m Length x 2.438m Width x *2.896m Height) While an AIL (in terms of weight only), each unit will require one delivery vehicle. The size of AIL vehicle delivering the BESS units will be no larger than a Max legal HGV. An example of a 5-axle SL2 Semi low loader trailer	(BESS in total increased from 975 to 2,466) 270 AIL movements were not previously assessed. **Note**: BESS unit HGVs not included in totals on spreadsheet.

		capable of delivering the BESS units is provided at **Appendix C**. The trip generation calculations have been updated to include these trips. Case Basis: REASONABLE WORST CASE (based on supplier information)	NOT REASONABLE WORST CASE
BESS Power Conversion System (PCS)/ transformer Units	45	As confirmed by the supplier (see), each of the 45 integrated PCS/ transformer units will comprise of a 40ft, 32 tonne container (12.192 Length x 2.438m Width x *2.896m Height) While an AIL (in terms of weight only), each unit will require one delivery vehicle. The size of AIL vehicle delivering the BESS units will be similar to a Max legal HGV. An example of a 7-axle SL2 Semi low loader trailer capable of delivering the PCS units is provided at **Appendix D**. The trip generation calculations have been updated to include these trips. Case Basis: REASONABLE WORST CASE (based on supplier information)	**Note**: PCS HGVs not included in totals on spreadsheet. The 7-axle low loader trailer is shown to have a length of 15.215m. With a tractor unit this would lead to a total vehicle length of over 18m. This is longer than the 16.5m HGV that has been used by the Applicant to assess swept paths. NOT REASONABLE WORST CASE (size of vehicle)
BESS Foundations	2,051 HGVs	The indicative size of the BESS area is 27,096m² (see **Applicant Response to SLD's WR [REP3-133], para. 3.5.5**). Both BESS and PCS units would sit on concrete platforms that would be supported on concrete piles. As per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]** the Applicant has assume an average depth of concrete for BESS and PCS foundations of 0.8m. As per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]** The Applicant has assumed that the entire BESS area will include the provision of a further impermeable concrete structure, likely to be filled with gravel. The Applicant has assumed a 0.3m depth of concrete and 0.3m of gravel over areas not occupied by BESS and PCS platforms. The trip generation calculations have been updated to include trips associated with BESS foundations. Case Basis: REASONABLE WORST CASE	(Total for BESS increased from original value of 975 HGVs to 2,466 HGVs) No indicative layout for the BESS has been provided in Appendix 3-3. REASONABLE WORST CASE

Other BESS Compon-ents	100	As per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]** there would be a need for other components including the BESS control room, drainage, the minimum of two fire water tanks, security fencing, equipment and machinery. The Applicant has assumed an additional 100 deliveries associated with these items. The trip generation calculations have been updated to include these trips. Case Basis: REASONABLE WORST CASE	REASONABLE WORST CASE
BESS Compound	246	The Applicant has already assumed a construction compound in the vicinity of the BESS and 400kV substation. However, the Applicant has allowed for an additional compound in Lime Down D (West). The trip generation calculations have been updated to include these trips. Case Basis: REASONABLE WORST CASE	(Increased from 0 to 246) Not shown on Works Plan REASONABLE WORST CASE
Cable	55 HGVs	The Applicant has now allowed for 50 deliveries associated with cable associated with the solar array areas. The length of DC cables has been uplifted to account for an uplift to 842,508 panels based on a 3P layout. Not uplift is required for AC cables as none of the electrical equipment upstream of these inverters needs to be uplifted. The resulting uplift in HGV trips associated with cables has been up-dated in the trip generation calculations. Case Basis: REASONABLE WORST CASE	(Increased from 50 to 55) REASONABLE WORST CASE
Landscap-ing	495 HGVs	The Applicant identifies 489 deliveries associated with landscaping. The trip generation calculations for landscaping remains unchanged from calculations set out in **Annex E** of **ES Volume 3, Appendix 13-1: Transport Assessment (Rev 4) [REP4-037].**	ACCEPTED AS REASONABLE WORST CASE
General	0	The Applicant identifies 2,685 HGVs associated with compounds, spoil removal and landscaping. These items are dealt with individually above so no additional allowance is made.	It is noted that for West Botley, a solar farm of similar size to Lime Down (Works No. 1 area 839ha), a total of 1,600 HGVs is allowed for '*excavators, construction machinery and cranes*'. Little, if any, allowance is made by the Applicant for these elements. NOT REASONABLE WORST CASE

Highway Improvements and Site Accesses	0	The Applicant has confirmed that these would be constructed before the main scheme construction period.	REASONABLE WORST CASE
Drainage Infrastructure	0	As per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132],** the Applicant agrees that areas of hard-standing would require drainage. Allowance for this has been made on 'other' trips associated with the BESS, the 400kV substation and the 132kV substations. Case Basis: REASONABLE WORST CASE	Drainage could require significant structures which may not be allowed for in the assumptions. NOT REASONABLE WORST CASE
Cable Route Corridor	4 HGV Deliveries (8 movements), 4 LGV Deliveries (8 movements) and 10 Cars/Vans (20 movements) per access	The Transport Assessment [REP3-065] states that each cable route access point would attract 4 HGV deliveries (8 movements), 4 LGV deliveries (8 movements) and 10 staff, all of whom are assumed to drive (20 movements). There are 28 cable route access points each operational for 90 days. This leads to a total of 20,160 HGV movements (28 accesses x 90 days x 8 HGV movements) and 70,560 light vehicle movements (28 accesses x 90 days x 8 LGV movements plus 28 accesses x 90 days x 20 car movements). At any one time, 4 access points are expected to be operating (4/28 of total). This gives an average of 32 HGV movements on a single day (4/28 x 20,160 HGV movements/90 days) over the 22km cable length. AIL movements are accounted for within the daily HGV movements. Case Basis: REASONABLE WORST CASE	(Unchanged vehicle movements but Applicant has now added cable route vehicle movements to solar array movements on those links that carry vehicles associated with both elements of the scheme) REASONABLE WORST CASE
Construction Days	5.5 day per week	The Applicant has updated the proposed construction days for each site based on the construction programme, 5.5 days per week and bank holidays. A 20-month construction period has now also been assumed for the 400kV substation. Case Basis: REASONABLE WORST CASE	REASONABLE WORST CASE
Concrete Density	2.4 tonnes per m^3	The Applicant has assumed that concrete used to construction various elements of the scheme would have a density of 2.4t/m^3. A concrete	Agree

		density of 3.0t/m³ used in calculations in **Appendix A** of **Stop Lime Downs Deadline 4 Comments [REP4-132]** is normally reserved for nuclear radiation shielding or offshore ballasting**.**	REASONABLE WORST CASE
Overall	17,527 HGVs		(Increased from 13,043 to 17,925 +37.4%)

3. Summary table (see 4 below) showing the Applicant's original and revised estimates of HGV numbers and SLD's current estimate of HGV numbers

Item	Applicant's Original Estimate	Applicant's Revised Estimate	SLD Estimate
Solar panels	588,988	842,500 panels	917,382 panels, 1,835 panel delivery HGVs
Panels per HGV	500 panels	720 panels	500 panels
Mounting structures	540 HGVs	599 HGVs	1,284 HGVs
Concrete footings	0	104 HGVs	275 HGVs
Waste packaging	230 HGVs	529 HGVs	529 panels
General access tracks	4,940 HGVs	3,718 HGVs	3,718 HGVs
BESS/400kV substation access tracks		442 HGVs	553 HGVs
132 kV substation access tracks		676 HGVs	773 HGVs
Compound surfacing	2,196 HGVs (includes spoil removal and 'general')	1,080 HGVs	1,620 HGVs
Compounds (other)		1,252 HGVs	1,252 HGVs
Spoil	2,196 HGVs (includes compounds and 'general')	721 HGVs	2,015 HGVs
33kV conversion units	0	166	166
Conversion units (foundations)	0	701	701
132kV substations	496 HGVs	1,022 HGVs	1,022 HGVs
400kV substation	1,369 HGVs	2,646 HGVs	2,646 HGVs
BESS units	975 HGVs	270 AIL vehicles	270 AIL vehicles
BESS Power Conversion Units		45 AIL vehicles	45 AIL vehicles
BESS foundations		2,051 HGVs	2,051 HGVs
Other BESS components		100 HGVs	100 HGVs
Cable	50 HGVs	55 HGVs	55 HGVs
Landscaping	495 HGVs	495 HGVs	495 HGVs
General	0	0	800 HGVs
Drainage	0	0	0
Cable route corridor	20,160 HGVs	20,160 HGVs	Yes
Total (solar array areas)	**13,043 HGVs**	**17,925 HGVs (+37.4%)**	**22,154 HGVs (+69.9%)**

4. Table setting out SLD's assumptions on which SLD's estimates of HGV numbers are based

Item	Allowance in Revised Trip Generation Calculation	Applicant's Notes	SLD Notes and alternative reasonable worst case estimate (assumptions stated when disagreement regarding reasonable worst case)
Number of Solar Panels	842,500 panels	In accordance with the **Works Plan [REP3-004],** the Works No. 1 - Solar PV generating station areas total 385.3ha. In accordance with this area, a maximum total of 842,500 panels, has been derived from an indicative high density layouts based on a 3P fixed panel layout. This would result in a density of 2,186 panels per hectare (885 per acre). When assuming outputs of 640W per panel currently being used on other IGP schemes (including West Burton), this would result in 1.76 acres per MW, which is more intensive than the suggested range of 2-4 MW per acre set out in EN-3. It is also noted that paragraph 2.10.17 of EN-3 states that densities will '*vary significantly depending on the site, with some being larger and some being smaller. This is also expected to change over time as the technology continues to evolve to become more efficient*'. The trip generation calculations for solar panels remain broadly unchanged from calculations set out in **Annex E** of **ES Volume 3, Appendix 13-1: Transport Assessment [REP4-037]** based on the delivery of 720 panels per HGV as specified below.	Assumptions: • 2.7m^2 panel area; • 385.3ha of panel area; • 64% coverage (based on 4.5m panel row width with 2.5m between rows. Estimate: **917,381 panels**
Number of panels per HGV	720 panels	The delivery of 720 panels per High Cube 40ft container has been calculated. This has been confirmed by the manufacturer/supplier. To provide certainty, the requirement to deliver panels by 40ft High Cube container has been included in the latest Outline CTMP submitted at Deadline 5. Case Basis: REASONABLE WORST CASE (given commitment to	Assume **500 panels per container** (no clear evidence provided by Applicant of reasonable alternative) Estimates panel deliveries: **1,835 HGVs**

		high cube containers in Outline CTMP to secure a maximum of 1,200 deliveries for the panels)	
Mounting Structures	51.2% of panel HGVs	in **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]** it is suggest that the number of HGVs required to transport mounting structures would constitute 73% of the number required to transport solar panels. This is based on ratios for Botley West, Green Hill and Heckington Fen. Further to the Applicants knowledge of Green Hill, the number provided for mounting structures were not broken down in as much detail and included other elements such as waste and packaging, which have been accounted elsewhere in calculations for Lime Down Solar Park. The Applicant has obtained further detail on mounting structures from the manufacturer/supplier which confirms that mounting structures for 0.9-1.1MW of 640W solar panels can be transported per standard articulated flat bed. Assuming a worst-case of 0.9MW, this results in a total of 599 HGV deliveries. The resulting uplift in HGV trips associated with mounting structures have been updated in the trip generation calculations. Case Basis: REASONABLE WORST CASE	Assumptions: • 73% of panel deliveries (average of Botley West, Green Hill and Heckington Fen). Estimate: **1,284 HGVs** (making allowance for panels supported by concrete footings – see below)
Concrete Footings	104 HGVs	It has been identified that within the Works 1 areas, approximately 16.03 hectares is potentially archaeologically sensitive. Based on initial layouts it has been calculated that a total of 2,776 concrete footings could be required within these areas. The Applicant has confirmed with suppliers () that a worst-case assumption would be: • 1000kg concrete on each rear upright • 500 kg on each front upright This would result in a total of 2,082 tonnes for concrete footings. There is a likelihood that solar panels will not be placed on the archaeologically sensitive areas. This therefore presents a worst case. The resulting HGV trips associated with concrete footings have been added to the trip generation calculations.	Assumptions: • 16.03ha archaeologically sensitive; • 1 concrete footing per 6 panels; • concrete footings 4.0m x 0.3m x 0.3m; • concrete density 2.4 t/m3; • concrete 20 t loads. Estimate: **275 HGVs**

		Case Basis: REASONABLE WORST CASE	
Waste (Packaging)	529 HGVs	This sets out the HGVs associated with the total volumes of waste (packaging) set out in **Table 3** of the **Outline Waste Management Chapter** submitted at Deadline 5**.** This includes waste associated with solar panel and mounting structure packaging, which has been updated to account for an uplift to 842,500 panels based on a 3P layout. A compactor will be provided on site to increase weight per vehicle of waste transported from site. This would allow tipper lorries to remove 11.1 tonnes loads or 20m3 of compacted waste. The resulting uplift in HGV trips associated with waste have been updated in the trip generation calculations. Case Basis: REASONABLE WORST CASE (given commitment to compactors in Outline CTMP)	Estimate: **529 HGVs (agreed)**
General Access Tracks	3,718 HGVs	This is based on the need for 28.1km of general access track with a width of 3.5 metres, widening to 6.0 metres at passing places. The track would also need to be widened on bends. The Applicant assumes that tracks would be constructed with 0.3m of compacted aggregate. The Applicant now includes a 5% widening allowance as per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132].** This has been added to the trip generation calculations. Case Basis: REASONABLE WORST CASE	Estimate: **3,718 HGVs (agreed)**
BESS/ 400kV Access Track	442 HGVs	The access track required to serve the 400kV Substation and BESS would be 0.9km in length. This will be designed to accommodate AIL vehicles delivering transformers to a 400kV substation. The access road will therefore be 6.0 metres wide, widening at bends with a compacted construction depth of 0.65 metres. There would be no requirement for passing places given the infrequency of movements. The Applicant now includes a 5% widening allowance as per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]**, which has been added to the trip generation calculations. Case Basis: REASONABLE WORST CASE	Assumptions: • width 6.0m; • depth 0.65m; • compaction factor 1.2; • aggregate density 2.0 t/m^3; • 20 t of aggregate per HGV; • 25% uplift to allow for drainage. Estimate: **553 HGVs**

132kV Access Tracks	676 HGVs	The access track required to serve the 132kV substations total 2.9km in length. This will be designed to accommodate AIL vehicles delivering transformers to a 132kV substation. Further information on the design parameters for 132kV Access tracks is now provided in the updated **ES Volume 3, Appendix 3-3: Illustrative Drawings** submitted at Deadline 5. This is in accordance with guidance from UKPN for access requirements to 132kV substations. The access road will therefore be 4.5 metres wide, widening at bends, with a compacted construction depth of 0.41 metres. The Applicant also includes a 5% widening allowance which has been added to the trip generation calculations. Case Basis: REASONABLE WORST CASE	Assumptions: • width 4.5m; • depth 0.47m; • compaction factor 1.2; • aggregate density 2.0 t/m^3; • 20 t of aggregate per HGV; • 25% uplift to allow for drainage. Estimate: **773 HGVs**
Compound Surfacing	1,080 HGVs	Further to **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]**, it has been agreed that the aggregate required for compounds will be 50m x 60m metres with a depth of 0.3 metres. The Applicant maintains that aggregate used for the compounds will remain on site as per Applicant's Response to SLD's Written Representation **[REP3-133]**). This will either be used to repair access tracks following construction, stored on site or in the case of Lime Down A and D, used within the proposed 132kV substations. The resulting uplift in HGV trips associated with waste have been updated in the trip generation calculations. These calculations assume the use of ten compounds, as shown on the Works Plans and as follows: • Lime Down A – One compound (south of road towards Sherston) • Lime Down B – One compound (north of Fosse Way) • Lime Down C – Two compounds (one either side of the Fosse Way) • Lime Down D – Three compounds (one either side of Bradfield Cottages and one north of A429) • Lime Down E – Two compounds (one north of railway line and one south of railway line)	Assumptions: • width of compound 50m; • length of compound 60m; • depth of surfacing 0.3m; • number of compounds 10; • removal of compound surfacing 50%. Estimate: **1,620 HGVs**

		• One potential further compound in the vicinity of the BESS. Case Basis: REASONABLE WORST CASE	
Compounds (Other)	1,252 HGVs (two per week per compound).	The Applicant accepts that other structures that will be associated with compounds include office, welfare, water tank, fuel tank, fencing, security, compactor, generator and skips. Regular HGV movements would be associated with water and fuel delivery, waste removal (foul water, chemicals solvents and oils) and the transport and movement of equipment and machinery. An allowance of two HGVs per compound per week over the construction phase for each Solar PV site is assumed. The trip generation calculations for other compound trips have been increased in comparison with those assumed in general trips set out in **Annex E** of **ES Volume 3, Appendix 13-1: Transport Assessment (Rev 4) [REP4-037].** Case Basis: REASONABLE WORST CASE	Estimate: **1,252 HGVs (agreed)**
Spoil	10% of excavated spoil taken off site. 721 HGVs	The volume of material is derived directly from the volumes of material used for access roads, compounds, foundations of substations and the BESS. This amounts to 94,589m³. In accordance with the Applicant's Response to SLD's Written Representation **[REP3-133]**), the Applicant has included an allowance for 10% of spoil to be taken off site. The remaining spoil would be stored on site or used for bunds within the Scheme. The trip generation calculations have been updated to reflect the anticipated volume of spoil. Case Basis: REASONABLE WORST CASE	Assumptions: • spoil displaced from access roads, compounds and foundations; • topsoil density 1.5 t/m³; • 20 t of topsoil per HGV; • 25% of displaced topsoil removed from site. Estimate: **2,015 HGVs**
33kV Conversion Units	166 HGVs	The Applicant now allows for 166 conversion units. These have been added to the trip generation calculations. As confirmed by the supplier, each Inverter/Transformer powerbock (4.4MVA) will comprise of a 20ft, 20 tonnes container (6.058m Length x 2.438m Width x *2.896m Height) (4.4MVA). Each unit will require one HGV delivery. Case Basis: REASONABLE WORST CASE (based on supplier information)	Estimate: **166 HGVs (agreed)**
Conversion Unit	701 HGVs	Each conversion unit would sit on a concrete slab and a levelling layer of aggregate. As set out in ES Volume 1, Chapter 3, The Scheme	Estimate: **701 HGVs (agreed)**

Foundations		[APP-055] It has been assumed that each unit would site on a 6.0m x 16.0m slab and the total depth of foundations would be 0.4m split between concrete and a levelling layer of aggregate. Trips associated with Conversion Unit foundations have been added to the trip generation calculations. Given the size of proposed 33kV conversion units set out above, the assumed area of the foundations is an absolute worst-case assumption as they are likely to be smaller.	
132kV Substations	205 HGVs per 132kV substation (should be 255 HGVs per substation)	The indicative size of the 132 kV substations is 3,455m² (see **Applicant Response to SLD's WR [REP3-133], para. 3.5.5**). There will be 4 132kV substations within the Scheme Given the need to support components and equipment, it is accepted that the average depth of concrete used within this area would be 0.5m. It has been assumed that a maximum 50% of the area would be concrete and 50% would be aggregate at a depth of 0.3m. This provides a worst-case assessment, as indicative layouts show only 250m² (7.2%) of the area comprising concrete foundations. The trip generation calculations have been updated to include trip associated with concrete and aggregate. As per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]**, there would be a need for other components (security fencing, drainage, electrical and structural infrastructure, control room, lighting, security). The Applicant has assumed an additional 100 deliveries associated with these items for each 132kV substation. The trip generation calculations have been updated to include these trips.	Estimate: **255 HGVs** (Applicant has made error in spreadsheet by not allowing for 100 additional trips as described)
400kV Substation Foundations	2,396 HGVs per substation	The indicative size of the 400 kV substation is 38,037m² (see **Applicant Response to SLD's WR [REP3-133], para. 3.5.5**). The foundations are required to support heavy components and the equipment that handles them. it is assumed that the average depth of concrete used within this area would be 0.8m. It has been assumed that a maximum 50% of the area would be concrete and 50% would be aggregate at a depth of 0.3m. This provides a worst-case assessment, as indicative layouts show only 1,924m² (5.1%) of the area would comprise concrete foundations. The trip generation calculations have been updated to include trip associated with concrete and aggregate.	Estimate: **2,396 HGVs (agreed)**

400kV Substation Compound	0	The Applicant has already assumed an additional construction compound in the vicinity of the BESS and 400kV substation below.	Not shown on Works Plan
400kV Substation Other	250	As per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]** there would be a need for other electrical and structural components, control building, security fencing, lighting, drainage, security and the movements of equipment and machinery. The Applicant has assumed an additional 150 deliveries associated with these items. The trip generation calculations have been updated to include these trips.	Estimate: **250 HGVs (agreed)**
BESS Units	270	As confirmed by the supplier, each BESS unit (5MWh) will comprise of a 20ft, 43 tonne container (6.058m Length x 2.438m Width x *2.896m Height) While an AIL (in terms of weight only), each unit will require one delivery vehicle. The size of AIL vehicle delivering the BESS units will be no larger than a Max legal HGV. An example of a 5-axle SL2 Semi low loader trailer capable of delivering the BESS units is provided at **Appendix C**. The trip generation calculations have been updated to include these trips. Case Basis: REASONABLE WORST CASE (based on supplier information)	Estimate: **270 AIL vehicles (agreed)**
BESS Power Conversion System (PCS)/ transformer Units	45	As confirmed by the supplier (see), each of the 45 integrated PCS/ transformer units will comprise of a 40ft, 32 tonne container (12.192 Length x 2.438m Width x *2.896m Height) While an AIL (in terms of weight only), each unit will require one delivery vehicle. The size of AIL vehicle delivering the BESS units will be similar to a Max legal HGV. An example of a 7-axle SL2 Semi low loader trailer capable of delivering the PCS units is provided at **Appendix D**. The trip generation calculations have been updated to include these trips. Case Basis: REASONABLE WORST CASE (based on supplier information)	Estimate: **45 AIL vehicles (agreed)**
BESS Foundations	2,051 HGVs	The indicative size of the BESS area is 27,096m² (see **Applicant Response to SLD's WR [REP3-133], para. 3.5.5**).	Estimate: **2,466 HGVs** (Applicant omits movements associated with BESS units and PCS units)

		Both BESS and PCS units would sit on concrete platforms that would be supported on concrete piles. As per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]** the Applicant has assume an average depth of concrete for BESS and PCS foundations of 0.8m. As per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]** The Applicant has assumed that the entire BESS area will include the provision of a further impermeable concrete structure, likely to be filled with gravel. The Applicant has assumed a 0.3m depth of concrete and 0.3m of gravel over areas not occupied by BESS and PCS platforms. The trip generation calculations have been updated to include trips associated with BESS foundations. Case Basis: REASONABLE WORST CASE	
Other BESS Components	100	As per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132]** there would be a need for other components including the BESS control room, drainage, the minimum of two fire water tanks, security fencing, equipment and machinery. The Applicant has assumed an additional 100 deliveries associated with these items. The trip generation calculations have been updated to include these trips. Case Basis: REASONABLE WORST CASE	Estimate: **100 HGVs (agreed)**
BESS Compound	246	The Applicant has already assumed a construction compound in the vicinity of the BESS and 400kV substation. However, the Applicant has allowed for an additional compound in Lime Down D (West). The trip generation calculations have been updated to include these trips. Case Basis: REASONABLE WORST CASE	Estimate: **246 HGVs** (see above regarding potential for removal of compound areas)
Cable	55 HGVs	The Applicant has now allowed for 50 deliveries associated with cable associated with the solar array areas. The length of DC cables has been uplifted to account for an uplift to 842,508 panels based on a 3P layout. Not uplift is required for AC cables as none of the electrical equipment upstream of these inverters needs to be uplifted. The resulting uplift in HGV trips associated with cables has been updated in the trip generation calculations. Case Basis: REASONABLE WORST CASE	Estimate: **55 HGVs (agreed)**

Landscaping	495 HGVs	The Applicant identifies 489 deliveries associated with landscaping. The trip generation calculations for landscaping remains unchanged from calculations set out in **Annex E** of **ES Volume 3, Appendix 13-1: Transport Assessment (Rev 4) [REP4-037].**	Estimate: **495 HGVs (agreed)**
General	0	The Applicant identifies 2,685 HGVs associated with compounds, spoil removal and landscaping. These items are dealt with individually above so no additional allowance is made.	Estimate: **800HGVs** (Figure is based on 50% of estimate for West Botley, a solar farm of similar size to Lime Down (Works No. 1 area 839ha) - a total of 1,600 HGVs is allowed for '*excavators, construction machinery and cranes*'. Little, if any, allowance is made by the Applicant for these elements.)
Highway Improvements and Site Accesses	0	The Applicant has confirmed that these would be constructed before the main scheme construction period.	Assume all highway works undertaken outside of scheme construction period
Drainage Infrastructure	0	As per **Table 2** of **Appendix A of Stop Lime Downs Deadline 4 Comments [REP4-132],** the Applicant agrees that areas of hard-standing would require drainage. Allowance for this has been made on 'other' trips associated with the BESS, the 400kV substation and the 132kV substations. Case Basis: REASONABLE WORST CASE	It is possible that additional drainage infrastructure would be required for substations and the BESS.
Cable Route Corridor	4 HGV Deliveries (8 movements), 4 LGV Deliveries (8 movements) and 10 Cars/Vans (20 movements) per access	The Transport Assessment [REP3-065] states that each cable route access point would attract 4 HGV deliveries (8 movements), 4 LGV deliveries (8 movements) and 10 staff, all of whom are assumed to drive (20 movements). There are 28 cable route access points each operational for 90 days. This leads to a total of 20,160 HGV movements (28 accesses x 90 days x 8 HGV movements) and 70,560 light vehicle movements (28 accesses x 90 days x 8 LGV movements plus 28 accesses x 90 days x 20 car movements). At any one time, 4 access points are expected to be operating (4/28 of total). This gives an average of 32 HGV movements on a single day (4/28 x 20,160 HGV movements/90 days) over the 22km cable length. AIL movements are accounted for within the daily HGV movements. Case Basis: REASONABLE WORST CASE	Estimate: **20,160 HGVs (agreed)**
Construction Days	5.5 day per week	The Applicant has updated the proposed construction days for each site based on the construction programme, 5.5 days per week and bank holidays.	

		A 20-month construction period has now also been assumed for the 400kV substation. Case Basis: REASONABLE WORST CASE	
Concrete Density	2.4 tonnes per m^3	The Applicant has assumed that concrete used to construction various elements of the scheme would have a density of 2.4t/m^3. A concrete density of 3.0t/m^3 used in calculations in **Appendix A** of **Stop Lime Downs Deadline 4 Comments [REP4-132]** is normally reserved for nuclear radiation shielding or offshore ballasting**.**	Estimate: **2.4 tonnes per m^3** (agreed)
Overall		**17,925 HGVs (+37.4%)**	**22,154 HGVs (+69.9%)**

5. Spreadsheet showing the Applicant's revised calculation of HGV numbers

General assumptions

red: inputs

							2.0	aggregate density (t/m³)
							2.4	concrete density (t/m³)
							20.0	tonnes of aggregate per HGV
						385.3	ha	20.0 tonnes of concrete per HGV
						2,186	panels /ha	11.1 tonnes of compacted waste per HGV
						720	panels /HGV	4.0 length of concrete footing
							0.3	width of concrete footing
							0.3	height of concrete footing
						1.7%	of total panels	20.0 tonnes of concrete footings per HGV
						6	panels/footing	1.5 topsoil density (t/m³)
								20.0 tonnes of topsoil per HGV

1. PV Modules

	A	B	C	D (West)	D (East)	E	tot
Total areas	94	70	241	172	40	131	748
Works No. 1 area	39.2	33.6	108.0	101.8	23.9	79.0	385.5
% of total	10.2%	8.7%	28.0%	26.4%	6.2%	20.5%	100.0%
Area containing panels (ha)	39	34	108	102	24	79	385
Number of panels	85,647	73,411	235,966	222,419	52,218	172,604	842,266
Number of HGV deliveries	119	102	328	309	73	240	1,170

2. Mounting Structures

	A	B	C	D (West)	D (East)	E	tot
Panels supported by concrete footings	1,473	1,263	4,059	3,826	898	2,969	14,487
Number of concrete footings	246	210	676	638	150	495	2,414
HGV deliveries (concrete footings)	11	9	29	28	6	21	104
Panels supported by piles	84,174	72,149	231,907	218,594	51,320	169,636	827,779
HGVs	61	52	168	158	37	123	599

51.2% of panel deliveries

3. Waste (packaging)

	A	B	C	D (West)	D (East)	E	tot
Tonnes of packaging	538	461	1,481	1,396	328	1,083	5,287
HGVs	54	46	148	140	33	108	529

5,287 tonnes of packaging

4. Access Tracks

	width (m)	depth (m)	compaction	vol/km (m³)	mass/km (t)	tippers/km
solar PV access track	3.5	0.3	1.2	1,323	2,646	132
132kV substation access track	4.5	0.4	1.2	2,325	4,649	232
substation/BESS access track	6.0	0.65	1.2	4,914	9,828	491

5% widening allowance
5% widening allowance
5% widening allowance 0% allowance for drainage

	A	B	C	D (West)	D (East)	E	tot
solar PV access track (km)	2.9	2.4	7.9	7.4	1.7	5.8	28.1
removal of PV access track	0.00	0.00	0.00	0.00	0.00	0.00	0.0
tipper truck deliveries/removals	384	318	1,045	979	225	767	3,718
132kV substation access track (km)	0.3	0.0	0.6	0.0	1.3	0.8	2.9
removal of 132kV access track	0.00	0.00	0.00	0.00	0.00	0.00	0.0
tipper truck deliveries/removals	70	0	128	0	291	186	674.2
400kV substation access track (km)	0	0	0	1		0	0.9
removal of 400kV access track	0.00	0.00	0.00	0.00	0.00	0.00	0.0
tipper truck deliveries/removals	0	0	0	442	0	0	442.3

0% % of access track removed
0% % of 132kV access track removed
0% % of 400kV access track removed

5. Compounds

	width (m)	length (m)	depth (m)	compaction	HGVs
surfacing per compound	50	60	0.3	1.2	108
removal of surfacing per compound	0	0	0	0	0
Total HGVs per compound (surfacing)					108

0% % of compound removed

	A	B	C	D West	D East	E	tot
number of compounds	1	1	2	3	1	2	10
HGV deliveries	108	108	216	324	108	216	1,080
weeks of operation	39	39	74	87	17	61	317
servicing HGVs	78	78	296	522	34	244	1,252

2 HGVs per week

6. Removal of Spoil

	A	B	C	D West	D East	E	tot
volume from access tracks (m³)	3,837	3,175	10,452	9,790	2,249	7,673	37,176
volume from BESS/SS access tracks (m³)	1,474	0	2,703	6,143	0	3,931	14,251
volume from compounds (m³)	900	900	1,800	2,700	900	1,800	9,000
volume from conversion units (m³)	806	614	2,035	1,459	346	1,114	6,374
volume from substations (m³)	864	0	864	0	864	864	3,455
volume from 400kV SS (m³)	-	-	-	20,920	-	-	20,920
volume from BESS (gravel and concrete) (m³)	-	-	-	16,305	-	-	16,305
Total volume (m³)	7,881	4,690	17,853	57,317	4,358	15,382	107,482
% off site	10%	10%	10%	10%	10%	10%	10%
HGVs	59	35	134	430	33	115	806

7. 33kV Conversion Units (skids/power stations)

	width (m)	length (m)	area (m²)	depth (m)	HGVs/unit
foundations (concrete)	6.0	16.0	96	0.2	2
foundations (aggregate)	6.0	16.0	96	0.2	2
total foundations				total	4

	A	B	C	D West	D East	E	tot
number of units per Area	21	16	53	38	9	29	166
transport of conversion units (HGVs)	21	16	53	38	9	29	166
HGVs for foundations	89	68	224	161	38	122	701
Total HGVs	110	84	277	199	47	151	867

1 HGV per conversion unit

8. 132 kV Substations

	width (m)	length (m)	area (m²)	depth (m)	HGVs
foundations (concrete)			1,728	0.5	104
foundations (aggregate)			1,728	0.3	52
other deliveries per substation					100
				total	255

	A	B	C	D West	D East	E	tot
number of 132kV SS per Area	1	0	1	0	1	1	4
HGVs	255	0	255	0	255	255	1,022

9. 400 kV Substation

	width (m)	length (m)	area (m²)	depth (m)	volume (m³)	HGVs
	195	195	38,037			
concrete			19,019	0.8	15,215	1,826
aggregate			19,019	0.3	5,706	571
equipment/machinery, piles, cabling, infrastructure, control building, fencing, security etc.						250
				Total	for substation	2,646

50% of area concrete foundations
50% of area aggregate

10. BESS

270	BESS units	270
45	Power conversion system units (PCSs)	45

1 AIL/BESS unit
1 AIL/PCS

	width (m)	length (m)	area (m²)	depth (m)	volume (m³)	HGVs
total compound	165	165	27,096			
BESS platform concrete	3.5	7	6,615	0.8	5,292	635
PCS platform concrete	3.5	13.5	2,126	0.8	1,701	204
aggregate (remaining compound area)			18,355	0.3	5,506	551
fire water containment (concrete)			18,355	0.3	5,506	661
equipment/machinery, piles, cabling, infrastructure, control building, fencing, security etc.						100
				Total	for BESS	2,466

11. Cable (for PV sites)

	A	B	C	D West	D East	E	tot
information from Annex E of TA	6	6	15	14	3	11	55

8. Landscaping

A	B	C	D West	D East	E	tot
50	43	139	131	31	101	495

495 HGVs (applicant's estimate)

11. Highway Improvements

	A	B	C	D West	D East	E	tot
number of accesses	2	3	6	7		9	27
HGVs	0	0	0	0		0	0
highway improvement areas	0	0	0	0		0	0
HGVs	0	0	0	0		0	0

0 per access
0 per area

12. Drainage Infrastructure

A	B	C	D West	D East	E	tot
0	0	0	0		0	0

13. Other (excavators, machinery and cranes)

A	B	C	D West	D East	E	tot
0	0	0	0		0	0

Total HGV (PV Sites)

	A	B	C	BESS + SS D West	D East	E	tot
Total HGV deliveries	1,364	881	3,178	8,787	1,175	2,540	17,925
Total HGV movements	2,729	1,761	6,355	17,574	2,351	5,080	35,850
number of days	213	213	394	467	95	325	
average daily movements	13	8	16	38	25	16	115
Average + 50%	19	12	24	56	37	23	173
% of total	11.1%	7.2%	14.0%	32.7%	21.5%	13.6%	100.0%

% higher than TA
26,086 37.4%

Light Vehicle Movements (PV Sites)

	A	B	C	D West	D East	E	tot
construction workers	62	58	175	165	39	124	623
number using shuttle buses	31	29	88	83	20	62	312
number using cars	31	29	88	83	20	62	312
number of shuttle buses (1-way)	2	2	6	6	1	4	21
number of cars (1 way)	21	19	58	55	13	41	208
number of shuttle buses (2-way)	4	4	12	11	3	8	42
number of cars per day (2-way)	41	39	117	110	26	83	415
total LV movements per day	45	43	128	121	29	91	457

622 total staff within PV areas
50% by shuttle bus
1.5 per car
15 per shuttle bus

Cable Route Corridor

Number of accesses	28		
Days operating	90		
Total HGVs	10,080	4	per access per day
Total HGV movements	20,160		
Average HGV movements on a single day	32	4	accesses open at any one time
With 50% uplift to represent day to day variation	48		
Total LGVs	10,080	4	per access per day
Total HGV movements	20,160		
Average HGV movements on a single day	32	4	accesses open at any one time
With 50% uplift to represent day to day variation	48		
cable route staff per access point	10		
car trips per day per access point	20	100.0%	single occupancy car driver mode share
total car trips	50,400		
Average total car trips on single	80		
With 50% uplift to represent day to day variation	120		
Total light vehicle movements	70,560		
Total daily LGVs and cars (50% uplift)	168		

Total HGV movements including cable route

56,010

BRB 07/09/2026

6. Spreadsheet showing SLD's assessment of HGV numbers

General assumptions

red: inputs

1. PV Modules	**A**	**B**	**C**	**D (West)**	**D (East)**	**E**	**tot**	
Total areas	94	70	241	172	40	131	748	
Works No. 1 area	39.2	33.6	108.0	101.8	23.9	79.0	385.5	385.5 ha
% of total	10.2%	8.7%	28.0%	26.4%	6.2%	20.5%	100.0%	4.5 width of row (m)
Area containing panels (ha)	39	34	108	102	24	79	385	2.5 between rows (m)
Number of panels	93,285	79,958	257,009	242,255	56,875	187,998	917,381	500 panels /HGV
Number of HGV deliveries	187	160	514	485	114	376	1,835	
2. Mounting Structures	**A**	**B**	**C**	**D (West)**	**D (East)**	**E**	**tot**	
Panels supported by concrete footings	3,879	3,325	10,686	10,072	2,365	7,817	38,143	16.02 ha sensitive area
Number of concrete footings	646	554	1,781	1,679	394	1,303	6,357	6 panels/footing
HGV deliveries (concrete footings)	28	24	77	73	17	56	275	
Panels supported by piles	89,406	76,634	246,324	232,183	54,510	180,181	879,238	
HGVs	131	112	360	339	80	263	1,284	73.0% of panel deliveries
3. Waste (packaging)	**A**	**B**	**C**	**D (West)**	**D (East)**	**E**	**tot**	
Tonnes of packaging	538	461	1,481	1,396	328	1,083	5,287	5,287 tonnes of packaging
HGVs	54	46	148	140	33	108	529	

4. Access Tracks	**width (m)**	**depth (m)**	**compaction**	**vol/km (m³)**	**mass/km (t)**	**tippers/km**		
solar PV access track	3.5	0.30	1.2	1,323	2,646	132		5% widening allowance
132kV substation access track	4.5	0.47	1.2	2,665	5,330	266		5% widening allowance
substation/BESS access track	6.0	0.65	1.2	4,914	9,828	614		5% widening allowance; 25% allowance for drainage

	A	**B**	**C**	**D (West)**	**D (East)**	**E**	**tot**	
solar PV access track (km)	2.9	2.4	7.9	7.4	1.7	5.8	28.1	
removal of PV access track	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0% % of access track removed
tipper truck deliveries/removals	384	318	1,045	979	225	767	3,718	
132kV substation access track (km)	0.3	0.0	0.6	0.0	1.3	0.8	2.9	
removal of 132kV access track	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0% % of 132kV access track removed
tipper truck deliveries/removals	80	0	147	0	333	213	773	
400kV substation access track (km)	0	0	0	1		0	0.9	
removal of 400kV access track	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0% % of 400kV access track removed
tipper truck deliveries/removals	0	0	0	553	0	0	553	

5. Compounds	**width (m)**	**length (m)**	**depth (m)**	**compaction**	**HGVs**	
surfacing per compound	50	60	0.3	1.2	108	
removal of surfacing per compound	25	30	0	1	54	50% % of compound removed
Total HGVs per compound (surfacing)					162	

	A	**B**	**C**	**D West**	**D East**	**E**	**tot**	
number of compounds	1	1	2	3	1	2	10	
HGV deliveries	162	162	324	486	162	324	1,620	
weeks of operation	39	39	74	87	17	61	317	
servicing HGVs	78	78	296	522	34	244	1,252	2 HGVs per week

	A	**B**	**C**	**D West**	**D East**	**E**	**tot**
6. Removal of Spoil							
volume from access tracks (m³)	3,837	3,175	10,452	9,790	2,249	7,673	37,176
volume from BESS/SS access tracks (m³)	1,474	0	2,703	6,143	0	3,931	14,251
volume from compounds (m³)	900	900	1,800	2,700	900	1,800	9,000
volume from conversion units (m³)	806	614	2,035	1,459	346	1,114	6,374
volume from substations (m³)	864	0	864	0	864	864	3,455
volume from 400kV SS (m³)	-	-	-	20,920	-	-	20,920
volume from BESS (gravel and concrete) (m³)	-	-	-	16,305	-	-	16,305
Total volume (m³)	7,881	4,690	17,853	57,317	4,358	15,382	107,482
% off site	25%	25%	25%	25%	25%	25%	25%
HGVs	148	88	335	1,075	82	288	2,015

7. 33kV Conversion Units (skids/power stations)	**width (m)**	**length (m)**	**area (m²)**	**depth (m)**	**HGVs/unit**	
foundations (concrete)	6.0	16.0	96	0.2	2	
foundations (aggregate)	6.0	16.0	96	0.2	2	
total foundations				total	4	

	A	**B**	**C**	**D West**	**D East**	**E**	**tot**	
number of units per Area	21	16	53	38	9	29	166	
transport of conversion units (HGVs)	21	16	53	38	9	29	166	1 HGV per conversion unit
HGVs for foundations	89	68	224	161	38	122	701	
Total HGVs	110	84	277	199	47	151	867	

8. 132 kV Substations	**width (m)**	**length (m)**	**area (m²)**	**depth (m)**	**HGVs**	
foundations (concrete)			1,728	0.5	104	
foundations (aggregate)			1,728	0.3	52	
other deliveries per substation					100	
				total	255	

	A	**B**	**C**	**D West**	**D East**	**E**	**tot**
number of 132kV SS per Area	1	0	1	0	1	1	4
HGVs	255	0	255	0	255	255	1,022

9. 400 kV Substation	**width (m)**	**length (m)**	**area (m²)**	**depth (m)**	**volume (m³)**	**HGVs**	
	195	195	38,037				
concrete			19,019	0.8	15,215	1,826	50% of area concrete foundations
aggregate			19,019	0.3	5,706	571	50% of area aggregate
equipment/machinery, piles, cabling, infrastructure, control building, fencing, security etc.						250	
					Total	for substation 2,646	

10. BESS							
	270	BESS units				270	1 AIL/BESS unit
	45	Power conversion system units (PCSs)				45	1 AIL/PCS

	width (m)	**length (m)**	**area (m²)**	**depth (m)**	**volume (m³)**	**HGVs**
total compound	165	165	27,096			
BESS platform concrete	3.5	7	6,615	0.8	5,292	635
PCS platform concrete	3.5	13.5	2,126	0.8	1,701	204
aggregate (remaining compound area)			18,355	0.3	5,506	551
fire water containment (concrete)			18,355	0.3	5,506	661
equipment/machinery, piles, cabling, infrastructure, control building, fencing, security etc.						100
					Total	for BESS 2,466

11. Cable (for PV sites)	**A**	**B**	**C**	**D West**	**D East**	**E**	**tot**	
information from Annex E of TA	6	6	15	14	3	11	55	

8. Landscaping	**A**	**B**	**C**	**D West**	**D East**	**E**	**tot**	
	50	43	139	131	31	101	495	495 HGVs (applicant's estimate)

11. Highway Improvements	**A**	**B**	**C**	**D West**	**D East**	**E**	**tot**	
number of accesses	2	3	6	7		9	27	
HGVs	0	0	0	0	0	0	0	0 per access
highway improvement areas	0	0	0	0		0	0	
HGVs	0	0	0	0	0	0	0	0 per area

12. Drainage Infrastructure	**A**	**B**	**C**	**D West**	**D East**	**E**	**tot**	
	0	0	0	0	0	0	0	

13. Other (excavators, machinery and cranes)	**A**	**B**	**C**	**D West**	**D East**	**E**	**tot**	
	81	70	224	211	0	164	800	

Total HGV (PV Sites)				BESS + SS					% higher than TA
	A	**B**	**C**	**D West**	**D East**	**E**	**tot**		
Total HGV deliveries	1,753	1,190	4,155	10,317	1,415	3,324	22,154		
Total HGV movements	3,507	2,379	8,310	20,634	2,831	6,647	44,308	26,086	69.9%
number of days	213	213	394	467	95	325			
average daily movements	16	11	21	44	30	20	143		
Average + 50%	25	17	32	66	45	31	215		
% of total	11.5%	7.8%	14.7%	30.9%	20.8%	14.3%	100.0%		

Light Vehicle Movements (PV Sites)	**A**	**B**	**C**	**D West**	**D East**	**E**	**tot**
construction workers	62	58	175	165	39	124	623
number using shuttle buses	31	29	88	83	20	62	312
number using cars	31	29	88	83	20	62	312
number of shuttle buses (1-way)	2	2	6	6	1	4	21
number of cars (1 way)	21	19	58	55	13	41	208
number of shuttle buses (2-way)	4	4	12	11	3	8	42
number of cars per day (2-way)	41	39	117	110	26	83	415
total LV movements per day	45	43	128	121	29	91	457

622 total staff within PV areas
50% by shuttle bus
1.5 per car
15 per shuttle bus

Cable Route Corridor

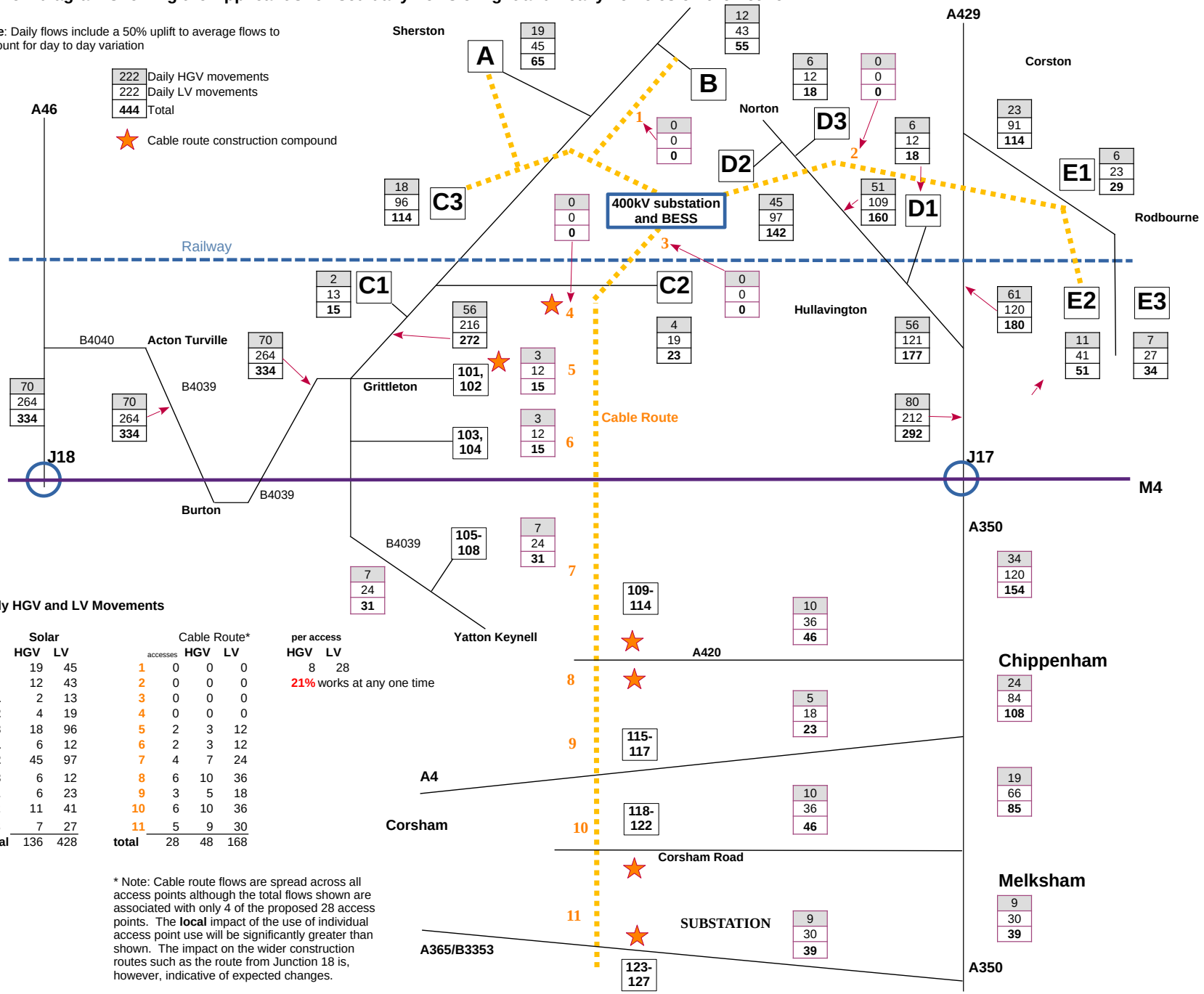
Number of accesses	28		
Days operating	90		
Total HGVs	**10,080**	4	per access per day
Total HGV movements	**20,160**		
Average HGV movements on a single day	32	4	accesses open at any one time
With 50% uplift to represent day to day variation	**48**		
Total LGVs	**10,080**	4	per access per day
Total HGV movements	**20,160**		
Average HGV movements on a single day	32	4	accesses open at any one time
With 50% uplift to represent day to day variation	**48**		
cable route staff per access point	10		
car trips per day per access point	20	100.0%	single occupancy car driver mode share
total car trips	**50,400**		
Average total car trips on single	80		
With 50% uplift to represent day to day variation	**120**		
Total light vehicle movements	**70,560**		
Total daily LGVs and cars (50% uplift)	**168**		

Total HGV movements including cable route

64,468

7. Flow diagram showing the Applicant's revised daily flows of light and heavy vehicles on the network

Note: Daily flows include a 50% uplift to average flows to account for day to day variation



Daily HGV and LV Movements

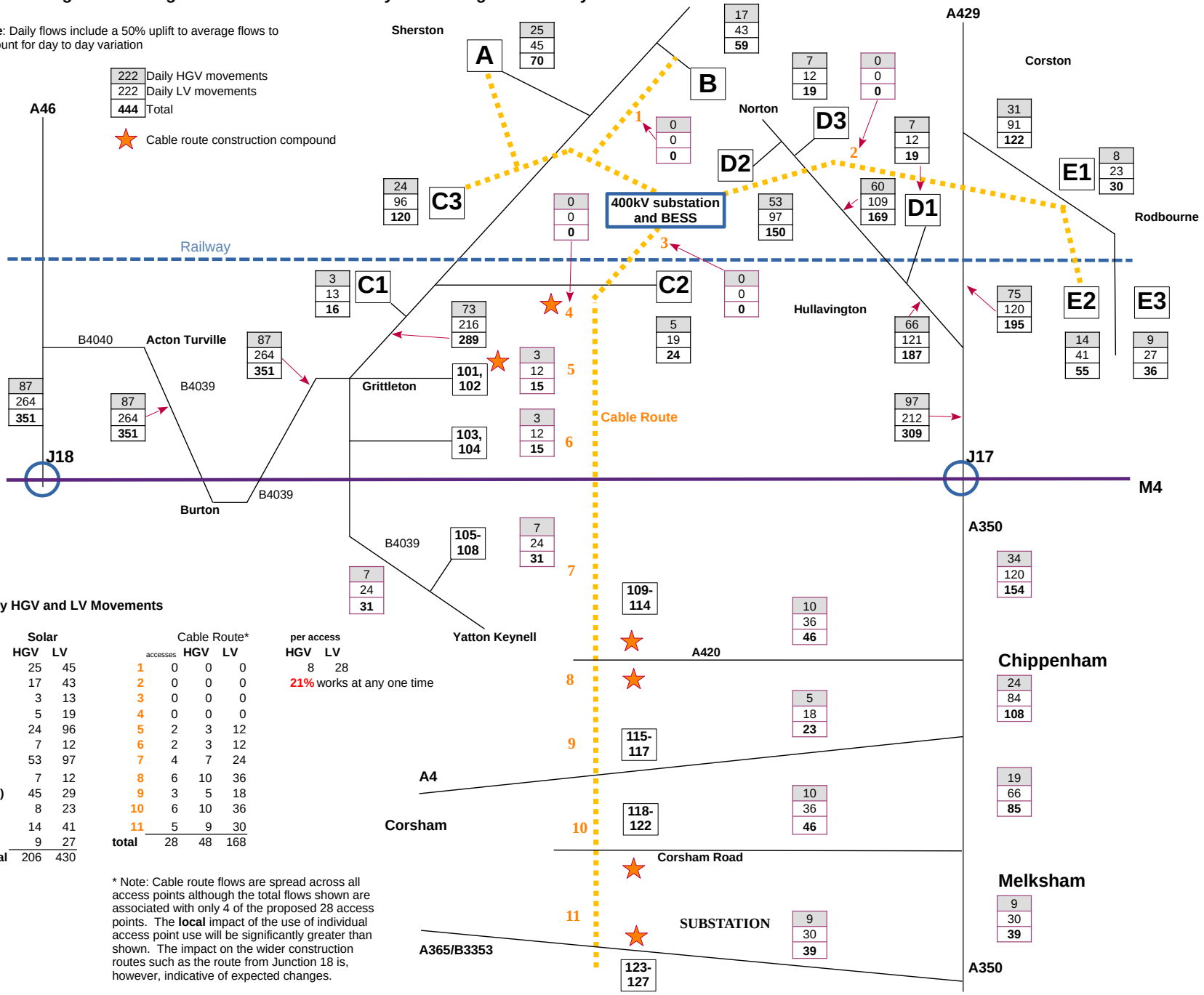
	Solar		Cable Route* accesses			per access	
	HGV	LV		HGV	LV	HGV	LV
A	19	45	1	0	0	8	28
B	12	43	2	0	0		
C1	2	13	3	0	0		
C2	4	19	4	0	0		
C3	18	96	5	2	3	12	
D1	6	12	6	2	3	12	
D2	45	97	7	4	7	24	
D3	6	12	8	6	10	36	
E1	6	23	9	3	5	18	
E2	11	41	10	6	10	36	
E3	7	27	11	5	9	30	
total	136	428	total	28	48	168	

21% works at any one time

* Note: Cable route flows are spread across all access points although the total flows shown are associated with only 4 of the proposed 28 access points. The **local** impact of the use of individual access point use will be significantly greater than shown. The impact on the wider construction routes such as the route from Junction 18 is, however, indicative of expected changes.

8. Flow diagram showing SLD's assessment of daily flows of light and heavy vehicles on the network

Note: Daily flows include a 50% uplift to average flows to account for day to day variation



Daily HGV and LV Movements

	Solar	
	HGV	LV
A	25	45
B	17	43
C1	3	13
C2	5	19
C3	24	96
D1	7	12
D2	53	97
D3	7	12
D(E)	45	29
E1	8	23
E2	14	41
E3	9	27
total	206	430

Cable Route*			
	accesses	HGV	LV
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	2	3	12
6	2	3	12
7	4	7	24
8	6	10	36
9	3	5	18
10	6	10	36
11	5	9	30
total	28	48	168

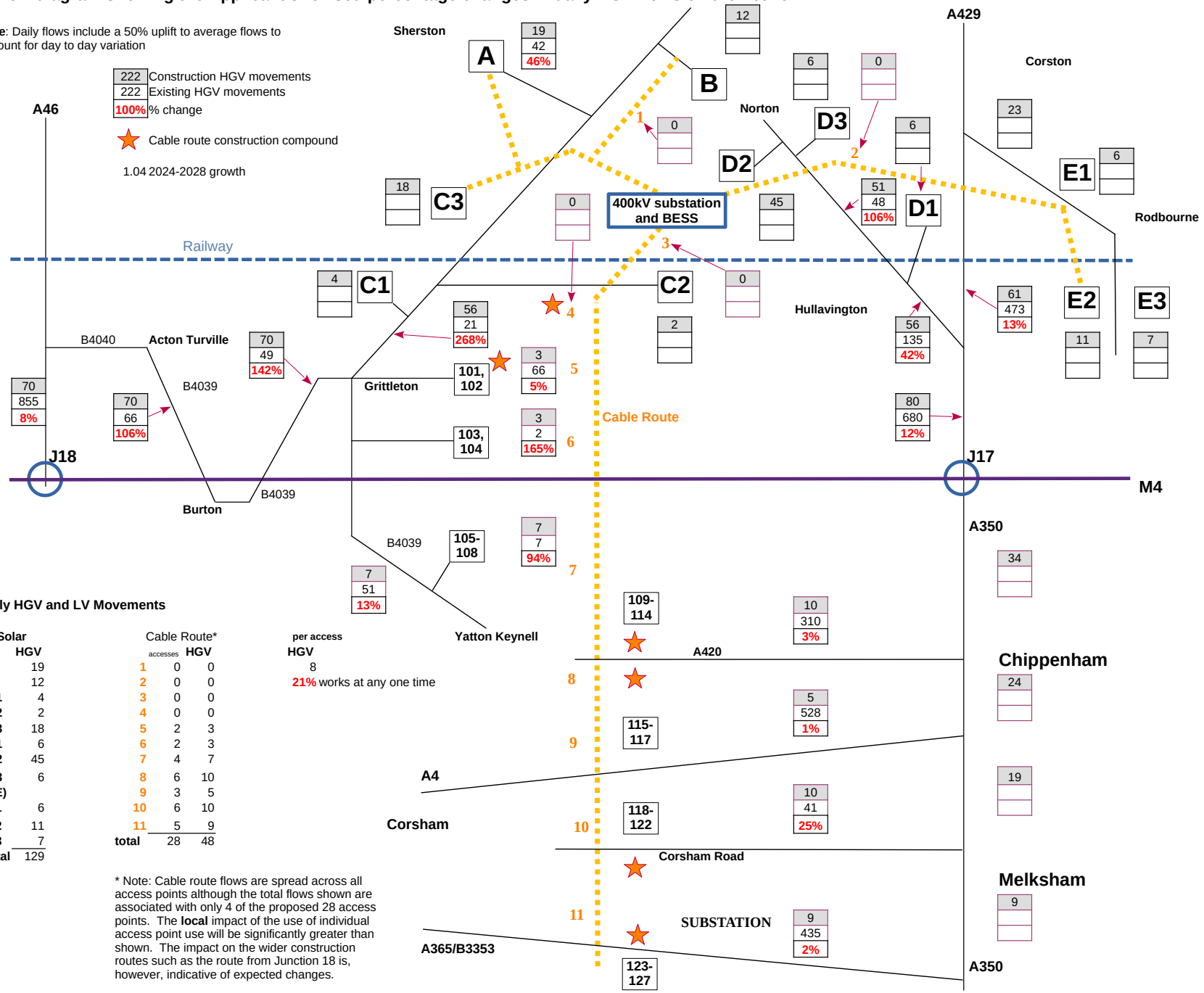
per access		
	HGV	LV
	8	28

21% works at any one time

* Note: Cable route flows are spread across all access points although the total flows shown are associated with only 4 of the proposed 28 access points. The **local** impact of the use of individual access point use will be significantly greater than shown. The impact on the wider construction routes such as the route from Junction 18 is, however, indicative of expected changes.

9 Flow diagram showing the Applicant's revised percentage changes in daily HGV flows on the network

Note: Daily flows include a 50% uplift to average flows to account for day to day variation



Daily HGV and LV Movements

	Solar HGV
A	19
B	12
C1	4
C2	2
C3	18
D1	6
D2	45
D3	6
D (E)	
E1	6
E2	11
E3	7
total	129

	Cable Route* accesses	HGV
1	0	0
2	0	0
3	0	0
4	0	0
5	2	3
6	2	3
7	4	7
8	6	10
9	3	5
10	6	10
11	5	9
total	28	48

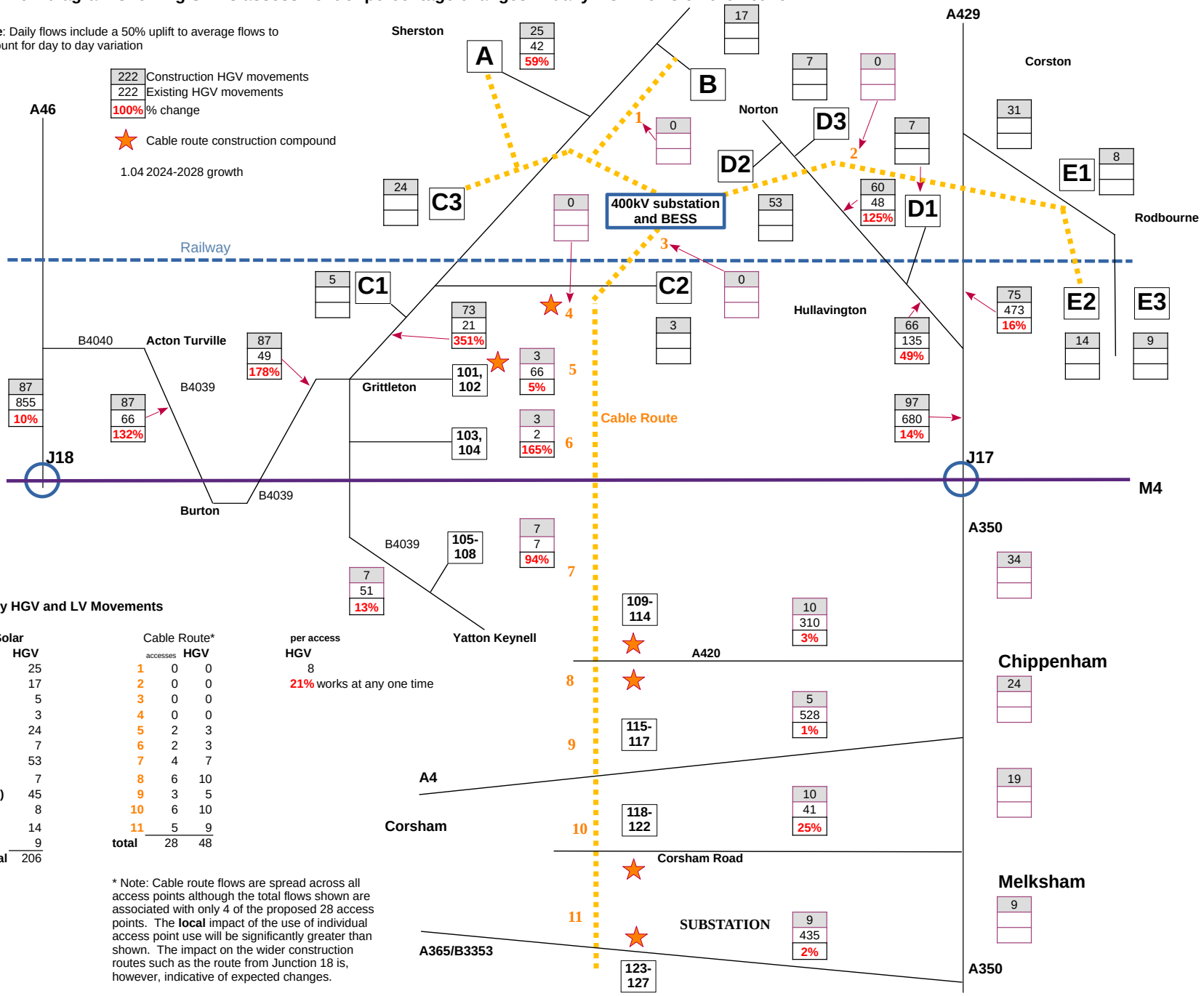
per access HGV: 8

21% works at any one time

* Note: Cable route flows are spread across all access points although the total flows shown are associated with only 4 of the proposed 28 access points. The **local** impact of the use of individual access point use will be significantly greater than shown. The impact on the wider construction routes such as the route from Junction 18 is, however, indicative of expected changes.

10. Flow diagram showing SLD's assessment of percentage changes in daily HGV flows on the network

Note: Daily flows include a 50% uplift to average flows to account for day to day variation



Daily HGV and LV Movements

Solar	HGV
A	25
B	17
C1	5
C2	3
C3	24
D1	7
D2	53
D3	7
D(E)	45
E1	8
E2	14
E3	9
total	206

Cable Route*	accesses	HGV
1	0	0
2	0	0
3	0	0
4	0	0
5	2	3
6	2	3
7	4	7
8	6	10
9	3	5
10	6	10
11	5	9
total	28	48

per access HGV: 8

21% works at any one time

* Note: Cable route flows are spread across all access points although the total flows shown are associated with only 4 of the proposed 28 access points. The **local** impact of the use of individual access point use will be significantly greater than shown. The impact on the wider construction routes such as the route from Junction 18 is, however, indicative of expected changes.