## **Tritax Symmetry (Hinckley) Limited**

# HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

## The Hinckley National Rail Freight Interchange Development Consent Order

**Project reference TR050007** 

## **SoCG between the Applicant and Blaby District Council**

**Document reference: 19.1** 

**Revision: 01** 

#### **24 October 2023**

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(q)

October 2023

Planning Act 2008

TRITAX SYMMETRY (HINCKLEY) LIMITED

PROPOSED HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE OFF M69 JUNCTION 2, LEICESTERSHIRE

**DOC REF 19.1** 

Statement of Common Ground between
Tritax Symmetry (Hinckley) Limited and Blaby District Council

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### 1. MATTERS OF AGREEMENT AND DISAGREEMENT

### 1.1 Planning

Version	Date	Issued by
01	May	TSH
	2023	
02	20/06/23	BDC
03	04/07/23	TSH
04	28/07/23	BDC
05	11/10/23	TSH
06	23/10/23	BDC
07	23/10/23	TSH

## Matters agreed – Alternative Sites

Ref.		Record of agreement
1.	Chapter 4 of the submitted Environmental Statement (document reference 6.1.4) outlines the Alternative locations studied and has provided indication by the Applicant as to the reasons for the selection of HNRFI.	Agreed through this SoCG.
2.	It is agreed that the 'Executive Summary of the Leicester and Leicestershire Strategic Distribution Sector Study' published November 2014 identified a requirement of around 115 hectares of new land for rail – served by logistics sites.	Agreed through this SoCG.
3.	Whether the Applicant has set out the alternative considerations in the evolution of design of HNRFI on the main HNRFI site by reference to the issues identified at paragraph 4.133 of chapter 4 of the Environmental Statement (document reference 6.1.4).	Agreed through this SoCG.

## Matters not agreed – Alternative Sites

Ref.		
1.	None.	

## Matters agreed – Need for HNRFI

Ref.		Record of agreement
1.	The need for a SRFI has been established within the joint authority evidence base.  'Warehousing and Logistics at Leicester and Leicestershire: managing growth and change'.  (April 2021 amended March 2022)	Agreed through this SoCG.
2.	That the Study above identifies a short fall of 718,875 sqm of rail served sites which should be planned for the period 2041 – and that a supply shortfall for rail served sites 'starts to emerge around the mid-2020s' (Leicester and Leicestershire Authorities' 'Statement of Common Ground relating to Strategic Warehousing and Logistics Needs) (September 2021 paragraphs 3.4-3.5).	Agreed through this SoCG.
3.	It is agreed that the identified business market for HNRFI is not fully served by existing and committed SFRIs within Leicester and Leicestershire as established in joint evidence report 'Warehousing and Logistics in Leicester and Leicestershire: managing growth and change' (April 2021 amended March 2022).	Agreed through this SoCG.
4.	Both the 'Warehousing and Logistics at Leicester and Leicestershire Managing Growth and Change' (April 2021 amended March 2022) jointly commissioned by the local authorities in Leicestershire and the 'Market Needs Assessment' commissioned by the Applicant identify a need for rail served logistics sites, but the differing methodologies give different results. It is agreed that there is a need for rail served logistics sites and in principle HNRFI would meet this rail related need.	Agreed through this SoCG.
5.	That the 'Warehousing and Logistics' study will form part of the evidence base for Leicester and Leicestershire planning authorities in the preparation of the reviews of their development plan in meeting future	Agreed through this SoCG.

	development needs.	
6.	Blaby District Council will not advance argument against HNRFI alleging that HNRFI will adversely impact upon the operational viability of existing or committed SRFIs.	Agreed through this SoCG.
7.	The Applicant has undertaken a 'Market Needs Assessment' (Document 16.1) which has demonstrated HNRFI is located near to the business market it will serve and is linked to key supply chain routes.	Agreed through this SoCG.

## Matters not agreed – Need for HNRFI

Ref.		Record of agreement
1.	None.	

## Matters agreed – Strategic Rail Freight Interchanges

Ref.		Record of agreement
1.	That HNRFI will be developed in a form that can accommodate both rail and non-rail activities. (NPS NN paragraph 4.83)	Agreed through this SoCG.

## Matters not agreed - Strategic Rail Freight Interchanges

Ref.		
1.	Whether the proposal for Hinckley National satisfies the guidance for 'good design' in the NPS (paragraphs 4.28-4.35) with particular reference to the alleged impact of Hinckley National on the surrounding landscape.	Matter not agreed
2	Requirement 10 Rail which supports the construction and occupation of up to 105,000 sqm of logistics floorspace prior to the Rail Port (Phase 1) becoming operational as set out within the submitted Planning Statement (Document reference:7.1 paragraphs 3.113 – 3.117, paragraphs 3.124 – 3.126).	Matter not agreed

Whether this requirement is reasonable, proportionate and accords with paragraph 4.88 of the NPS NN. The explanation is further set out within the Highways Position Statement prepared by the Applicant section 14. This floorspace is the amount of floorspace Phase A may accommodate as shown on Parameters Plan 6.3.3.2B.	
Blaby District Council's proposed wording for Requirement 10 is as follows:  (1) The rail freight terminal which is capable of handling a minimum of four 775m trains per day and any associated rail infrastructure must be constructed and available for use prior to the occupation of any of the warehousing.  (2) No rail infrastructure may be removed which would impede the ability of the rail freight terminal to handle four intermodal trains per day unless otherwise agreed in writing by the relevant planning authority.	

# Matters Agreed – other matters arising from the policy provisions of the development plan.

Ref.	Matters agreed	Record of Agreement
1.	It is recognised that the NPS National Networks is the primary consideration in terms of examining the merits of the DCO proposal. The Development Plan is a material consideration and provides a wider context for the HNFRI proposal.	Agreed through this SoCG.
2.	That the relevant part of the development plan for the district comprises:	Agreed through this SoCG.
	<ul> <li>i. District-wide Development Plans         Blaby District Local Plan Core Strategy     </li> <li>2013         Blaby Local Plan Delivery DPD 2019     </li> </ul>	
	ii. County-wide Development Plan	

	Leicestershire Minerals and Waste Local Plan 2019  iii. Neighbourhood Plan Fosse Villages' Neighbourhood Plan 2021	
3.	The scale and locational requirements for a SRFI could not be accommodated within the limits of a built-up area within Blaby District.	Agreed through this SoCG.
4.	HNRFI is in conflict with the policy in the development plan for Blaby District which identifies the DCO site as being within a location designated as 'Countryside' in the Development Plan. In this respect, it is acknowledged that the NPS recognises that due to locational requirements for a SRFI, countryside locations may be required (NPS paragraph 4.84) SFRIs need logistics and can only realistically be located adjacent to railway lines and with good road access.	Agreed through this SoCG.
5.	Fosse Villages' Neighbourhood Plan It is agreed that part of the Main HNRFI site is located at the western end of Sapcote Civil Parish as shown cross hatched red on the plan attached as Appendix 1 which is taken from the Neighbourhood Plan.	Agreed through this SoCG.
6.	It is agreed that the Policy Maps contained in the Neighbourhood Plan identify 'limits to build area' and the settlement sections of the Plan indicate that 'outside these limits land will be designated as Countryside where development will be restricted.' The land is therefore designated as Countryside where development will be restricted in line with strategic Core Strategy Policy CS18.	Agreed through this SoCG.
7.	It is agreed that it is not the role of a Neighbourhood Plan to contain strategic planning policies.	Agreed through this SoCG

# Matters not agreed – other matters arising from the policy provisions of the development plan.

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1.	That the Planning Statement, ES or other	Matter not agreed.
	documents give sufficiently detailed	
	consideration of the Development Plan	
	documents. The Applicant considers the	
	application has had due regard to these	
	policies.	

## Matters agreed – draft national policy statement national networks.

Ref.	Matters agreed	Record of Agreement
1.	The Draft NPS is an important and relevant consideration in the decision-making process on the HNFRI. The extent to which the Draft NPS is relevant to the determination of the DCO for HNRFI is a matter for the Secretary of State to consider within the Planning Act 2008. (NPS paragraph 1.17)	Agreed through this SoCG.
2.	The Draft NPS states that 'to meet the Government's ambitions for rail freight growth there remains a need for appropriately located SRFI across all regions to enable further unlocking of the benefits.'  (NPS paragraph 3.103)	Agreed through this SoCG.

## Matters not agreed – draft national policy statement national networks.

Ref.		
1.	Whether the phasing of development for HNRFI is contrary to paragraphs 4.84 of the draft NPS.	Matter not agreed.

## 1.2 Lighting

Version	Date	Issued by
01		TSH
02		BDC
03		TSH
04	23/10/23	BDC
05	24/10/23	TSHL

## Matters agreed.

Ref.	Matter agreed	Record of agreement
1.	HNRFI complies with paragraphs 5.81 – 5.89 of the NPS in relation to artificial light by proving a detailed investigation of the issues and recommending appropriate mitigation measures are identified to avoid any adverse impact upon the site or adjacent areas.	Through amended requirement 31 and the evidence shown in the new lighting technical note this is agreed through this SoCG
2.	It therefore seeks to minimise impacts of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation by complying with best practice for roads / highways and workplaces (including BS 5489, BS 13201 and BS EN 12464) as well as the reduction of obtrusive light (ILP Guidance Note 01/21).	Through requirement 31 and the evidence shown in the new lighting technical note this is agreed through this SoCG
3	Paragraphs 1.46 – 1.49 under the lighting section of the CEMP are agreed and paragraph 4.25 of the Lighting Technical Note	Agreed through this SoCG
4	The site is classified as Environmental Zone E2, and the light obtrusion criteria should be 5lux and 1 lux.	Agreed through this SoCG
6.	The skyglow, highways, railway and heritage receptors identified in the lighting strategy are agreed.	Agreed through this SoCG
7	The use of LED lighting is now industry standard, and its recommended use is a positive. The need for high mast lighting is understood to cover the large areas required	Agreed through this SoCG –

	efficiently. The Lighting Strategy sets out the performance requirements the external lighting design has used. These are thorough and in keeping with what would be expected for this type of development. The use of LEDs and performance requirements is agreed.	
8	As discussed at the workshop meeting on 29th June 2023 a quantitative lighting assessment would be beneficial to test the parameters of the lighting strategy if requested to do so by the planning inspectorate.  This quantitative assessment has been	Agreed through this SoCG –
	provided by BWB in October 2023 and should be added to the existing lighting strategy (Document 6.2.3.2, examination reference APP-132).	
9	The amended wording of Requirement 31 –	Agreed through this SoCG –
	(1) No phase of the authorised development may be commenced until a report detailing the lighting scheme for all permanent external lighting to be installed in that phase has been submitted to and approved by the relevant planning authority. The report and schemes submitted and approved must be in accordance with the lighting strategy (document reference 6.2.3.2) and include the following;	
	(A) a layout plan with beam orientation;	
	an Isolux contour map showing light spillage to 1 lux both vertically and horizontally and areas identified as being of ecological importance.;	
	a quantitative light intrusion and luminous intensity assessment in accordance with ILP Guidance Note 01/21; and	
	measures to avoid glare on surrounding railway and highways.	
	(2) The approved lighting scheme must be implemented and maintained as approved by the relevant planning authority during operation of the authorised development and	

no external lighting other than that approved	
under this requirement may be installed.	

## Matters not agreed.

Ref.	Matters not agreed	Any actions rising	Comments
6.	Wording of Requirement 31	Requirement to be amended.	31 No phase of the authorised development may be occupied until a report detailing the lighting scheme for all permanent external lighting to be installed in that phase has been submitted to and approved by the relevant planning authority. The report and schemes submitted and approved must be in accordance with the lighting strategy and include the following;
			A layout plan with beam orientation An Isolux contour map showing light spillage to 1 lux both vertically and horizontally and areas identified as being of ecological importance. A quantitative light intrusion and luminous intensity assessment in accordance with ILP Guidance Note 01/21 Measures to avoid glare on surrounding railway and highways.
			Response: See above comment "1.b"
			Response V4 – Following on from the workshop meeting on 29 <sup>th</sup> June 2023 this requirement was agreed in principle following sign-off on the wording. See matters agreed.
			Response V5: The Applicant proposes the following amendments to the Requirement wording for further clarity:

			Lighting
			1.— (1) No phase of the authorised
			development is to be commenced until
			a report detailing the lighting scheme
			for all permanent external lighting to be
			installed in that phase has been submitted to and approved by the
			relevant planning authority. The reports
			and schemes submitted and approved
			must be in accordance with the lighting
			strategy and include the following:
			(a) a layout plan with beam
			orientation;
			(b) an Isolux contour map showing light spillage to 1 lux both vertically and horizontally and areas identified in the detailed ecological mitigation and management plan approved pursuant to requirement 20 as being of ecological importance;
			(c) a quantitative light intrusion and luminous intensity assessment in accordance with ILP Guidance Note 01/21; and
			(d) measures to avoid glare on surrounding railway and highways.
			(2) The lighting scheme for each phase must be implemented and maintained in accordance with the approved strategy for that phase and may be reviewed by the undertaker as necessary with the approval of the relevant planning authority. No external lighting other than that approved under this requirement may be installed.
7.	The lighting section in the CEMP is adequate.	Update to the CEMP to include all the lighting	The following additional measures should be included in the CEMP lighting section:
		strategy information (para 5.56-	<ul> <li>Lighting should not be aimed towards sensitive receptors, and where possible be downward facing.</li> </ul>
		5.63) as well	,

		further mitigation highlighting in the comments.	<ul> <li>To improve sustainability, lighting from diesel generators should be avoided.</li> <li>If a construction compound is required for more than 1 year a more permanent lighting design should be required including columns to avoid overuse of temporary lighting units – these units are historically harder to control light spill than traditional column-mounted lights.</li> <li>Lighting should be controlled and on timers to ensure they are only on when needed. Regular checks by a contractor should be undertaken to ensure lights are not left on when not needed.</li> <li>Response:</li> <li>This appears to be reasonable and could be incorporated.</li> <li>Response V4</li> <li>Happy that these are agreed, it would be beneficial to see an updated CEMP including these additional lighting measures.</li> <li>Response V5:</li> <li>Matter agreed. The updated CEMP will be shared once updated</li> </ul>
8.	The lighting strategy provides enough information to ensure that Rail and highways receptors won't be significantly impacted by glare from the development.	A quantitative lighting assessment including a glare assessment (Railway and roadway receptors).	The impact of lighting on the adjacent railway line or highway receptors is not mentioned in the later parts of the lighting strategy. This is important especially for the section of railway adjacent to the site as this is the main line between Birmingham and Peterborough with regular higher speed trains. A "Glare" assessment should be undertaken to calculate the Glare Rating Value so as not to impact train drivers on the railway line.  Likewise, an assessment should be undertaken of the M69 motorway as the site is adjacent to a relatively high

	conflict zone at Junction 2. Glare in drivers' eyes in this area could impact a driver's ability to notice a car entering the main line of the motorway from the junction.
	Response: See above comment "1.b"  Response V4 — As discussed at the workshop meeting on 29 <sup>th</sup> June 2023, it would be beneficial for a quantitative assessment to be produced including a quantitative lighting assessment of glare on drivers and train drivers on the adjacent M69 and railway.  Response V5: Matter agreed as per Matter Agreed Ref.8

### 1.3 Climate

Version	Date	Issued by
01		TSH
02		BDC
03		TSH
04	24.07.2023	BDC
05	10.08.23	TSH

## Matters agreed

Ref.	Matter agreed	Record of agreement
1.	ES Chapter 18 has been prepared in accordance with the National Policy Statement for National Networks (NPSNN). The proposal supports the DfT's NPS for National Networks by providing sustainable development through the reduction of transport based GHG emissions by encouraging a modal shift of freight from road to rail. Furthermore, this modal shift will help to reduce traffic congestion and improve air quality in the wider East Midlands region	Agreed through this SoCG
2.	ES Chapter 18 has been prepared in accordance with the National Planning Policy Framework (NPPF) (2021) by mitigating and adapting to climate change, including moving to a low carbon. The development has been designed in ways to a) avoid increased vulnerability to the range of impacts arising from climate change and b) help to reduce greenhouse gas emissions (paragraph 154). To help increase the use and supply of renewable and low carbon energy and heat, the development: a) provides a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts); b) considers suitable areas for	Agreed through this SoCG

	renewable and low carbon energy sources, and c) identifies opportunities to draw its energy supply from renewable or low carbon energy supply systems (paragraph 155).	
3.	HNRFI supports strategic objectives required by Blaby District Council (BDC) (Policy CS21) by minimising energy use and use of valuable resources, encouraging renewable energy production in suitable locations, minimising the risk of flooding and encouraging and developing the use of more sustainable forms of transport (Including walking, cycling and public transport)'. achieving national targets to reduce greenhouse gas emissions focusing new development in the most sustainable locations and seeking site layout and sustainable design principles which reduce energy demand and increase efficiency."	Agreed through this SoCG
4.	ES Chapter 187 acknowledge BDC's own commitments to acknowledging a climate emergency.	Agreed through this SoCG
5.	<ul> <li>The assessment methodology has been accepted comprising:</li> <li>A Study of the baseline characteristics using both survey data and third-party information;</li> <li>An Assessment of the resilience to likely climatic changes;</li> <li>An Assessment of the likely effects on climatic change;</li> <li>Recommendations to mitigate likely significant effects</li> </ul>	Agreed through the Scoping Opinion, additional consultation and this SoCG.
6.	<ul> <li>The assessment is sufficient to estimate the effects GHG emissions sources, including:</li> <li>Vehicular emissions during the construction stage;</li> <li>Embodied carbon in construction materials;</li> <li>Vehicular emissions during the operational stage; and</li> <li>Energy demand during the operational stage.</li> </ul>	Agreed through this SoCG

7.	Although the Proposed Development is not an Energy NSIP, the provision of provision of roof-mounted photovoltaic arrays with a generation capacity of up to 42.4 megawatts peak (MWp) providing direct electricity supply to the building or exporting power to battery storage, and also incorporating provision of an energy centre, HNRFI supports the Draft National Policy Statement for Renewable Energy Infrastructure 2021 (NPS EN-1 – draft)	Unsure, further discussion needed
8.	The materials demand of the development will be addressed by maximising the use of reclaimed and recycled materials where practicable throughout the construction process. The demand upon the development for the provision of recycling and waste storage will be addressed in the early detailed design stages and when detailed discussions can be held with prospective operators regarding the specific operations of the proposed units. In addition, recycling and waste will be considered for the Construction Stage. Provision has been made in the scheme for the inclusion of recycling and waste storage / compaction within the identified service areas.	Agreed through this SoCG
9	This commitment by TSH to deliver net-zero buildings should result in a significant reduction in embodied carbon sources during construction that are not anticipated to materially affect the ability of the UK to achieve its carbon reduction targets, and thus are not predicted to have a significant effect on the global climate. Opportunities for further reduction will be encouraged and captured through the incorporation of carbon targets within the procurement process.	Agreed through this SoCG
10.	The Construction Traffic Management Plan (CTMP) (document reference 17.6) will minimise and mitigate the environmental impacts of construction activities, including the reduction of GHG emissions.	Agreed through this SoCG
11.	The Framework CEMP includes good practice mitigation measures to reduce emissions	Agreed through this SoCG

	<ul> <li>during construction, including from construction plant, for example:</li> <li>Training employees in how to handle machinery to reduce GHGs;</li> <li>Switching off machinery and vehicles when not in use;</li> <li>Regular maintenance of machinery to ensure they work efficiently;</li> <li>Using electric or alternative low/zero carbon emission machinery where possible;</li> <li>Reducing water consumption where possible; and</li> <li>Using efficient vehicles and machinery where possible.</li> </ul>	
12.	The increase in electrical vehicles throughout the lifespan of HNRFI will result in a decrease of direct emissions, though it will in turn increase the demand on the national grid where indirect emissions may result depending on the energy source.	Agreed through this SoCG
13.	HNRFI proposes a suite of transport and access improvements which will help reduce GHG emissions associated with the transport of employees to and from the Main HNRFI Site during the operational phase. It should be noted that the Council considers the existing sustainable travel strategy, while partially beneficial, insufficient and in need of enhancement.	Agreed through this SoCG
14.	The impacts of climate change on HNRFI during the construction stage would be managed through the outline CEMP, which would contain detailed procedures to mitigate any potential impacts associated with extreme weather events, as listed in Appendix 18.6 (document reference 6.2.18.6). This will complement best practice mitigation measures employed in the construction industry. The lead contractor will ensure appropriate measures within this outline CEMP are implemented and, as appropriate, additional measures to ensure the resilience of the proposed mitigation of	Agreed through this SoCG

	impacts during extreme weather events.	
15.	The lead contractor's Environmental Management System will consider all measures deemed necessary and appropriate to manage extreme weather events and should specifically cover training of personnel and prevention and monitoring arrangements.	Agreed through this SoCG
16.	During operational circumstances, adaptation and resilience to climate and weather-related risks would be considered periodically through maintenance regimes. A schedule of general inspections and principal inspections of each structure should be carried out to determine condition of the structure and identify any potential maintenance requirements.	Agreed through this SoCG
17.	During the demolition of on-site structures, the re-use, recycling and reduction of construction waste will be promoted to reduce HNRFI's overall carbon footprint by reducing the need to extract raw materials.	Agreed through this SoCG
18.	Embedded emissions of HNRFI will be calculated at each stage of design as it develops to ensure that it is meeting its project specific targets and legal requirements including Building Regulations Part L and to seek to achieve a BREEAM 'Very Good' rating. This will consider both operational CO2 emissions affected by design and embodied carbon. HNRFI is committed to sourcing building materials from sustainable and, where possible, local sources whilst restricting materials which cause environmental harm. Ultimately, this strategy will reduce the overall carbon footprint and lead to a potential reduction in GHG emissions associated with HNRFI over its lifetime.	Agreed through this SoCG

## Matters not agreed

Ref. Matters not	Any actions rising	Response
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	agreed		
1.	ES Chapter 18 has been prepared in accordance with the National Policy Statement for National Networks (NPSNN). The proposal supports the DfT's NPS for National Networks by providing sustainable development through the reduction of transport based GHG emissions by encouraging a modal shift of freight from road to rail. Furthermore, this modal shift will help to reduce traffic congestion and improve air quality in the wider East Midlands region.	We aren't able to confirm compliance with the NPSNN, and guidance on the Local Impact Report suggests that it is not the Council's place to do this. I am also uncomfortable with providing blanket reassurances in respect of wider air quality improvements in the East Midlands Region	
2.	ES Chapter 18 has been prepared in accordance with the National Planning Policy Framework (NPPF) (2021) by mitigating and adapting to climate change, including moving to a low carbon economy (paragraph 7). The development has been designed in ways to a) avoid increased vulnerability to the range of impacts	We are still looking into the scheme's design merits, including from a sustainability perspective and cannot agree to these at this stage.  Again, we haven't yet concluded the scheme is acceptable in this regard.  The provision of solar on only 50% of the roof space still isn't accepted.	Chapter 18 sets out mitigation to ensure that all proposed development minimises vulnerability and provides resilience to climate change and will contribute to achieving national targets to reduce greenhouse gas emissions by "encouraging the use of sustainable materials and construction methods" and "supporting the Government's zero carbon buildings policy" which will be "increased progressively over the plan period, were feasible, to support the

arising from climate change and b) help to reduce greenhouse gas emissions (paragraph 154). To help increase the use and supply of renewable and low carbon energy and heat, the development: a) provides a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts); b) considers suitable areas for renewable and low carbon energy sources, and c) identifies opportunities to draw its energy supply from renewable or low carbon energy supply systems (paragraph 155).

Government's longer-term aspirations for sustainable design".

It further meets policy by introducing "the use of renewable, low carbon and decentralised energy at the commercial [and] community scale" which "will be supported within the district".

The Energy Strategy (Appendix 18.1, document reference 6.2.18.1) details the potential for renewable energy provision during the operational phase, which will greatly reduce GHG emissions compared to procuring this energy from the National Grid. This strategy has been developed to optimise potential onsite to its greatest means, therefore minimising energy consumption from on-grid and non-renewable services as much as feasible. The maximisation of all available roof space (51.4% due to structural limitations) is sufficient to meet 83% of the peak operational energy requirements (Table 18.2). Where supplementary energy is generated, it is proposed that this energy is captured and stored onsite for use during peak hours and when generation may be limited due to seasonal effects. Given this, to meet demands, inclusive of EV charging, we are not

proposing to develop a power station.

Further to our conversation, we ask that you review and provide objective reasoning and explanation where you may believe we are not compliant with policy.

To our knowledge, BREEAM (Building Research Establishment Environmental Assessment Method) is not a legal requirement in Blaby and targets for new industrial buildings are not defined under Policy CS21. It is a voluntary certification scheme that provides a framework for assessing and certifying the sustainability and environmental performance of buildings.

While BREEAM itself is not a mandatory requirement, by considering energy efficiency and promoting sustainable energy practices, BREEAM aims to encourage the development of buildings that are environmentally responsible and contribute to the reduction of greenhouse gas emissions. The current targets reflect the evolving understanding and priorities of potential practices and users onsite.

It is therefore demonstrated that the proposals seek to support and integrate with such initiatives to achieve

the most sustainable outcomes for the district. 3. **HNRFI** supports 'Minimise' = 'To Under Policy CS21 it is strategic objectives reduce (something, understood that required by Blaby especially something "Development which District Council (BDC) undesirable) to the mitigates and adapts to Climate Change will be (Policy CS21) by smallest possible minimising energy amount or degree'. By supported". use and use of only setting out to valuable resources, achieve BREEAM -We have observed that the encouraging 'Very Good' Energy local policy lacks defined and renewable energy use is not being fully measurable parameters for production in minimised as per the which developments should suitable locations, Policy CS21. strive. In the absence of minimising the risk specific benchmarks, we of flooding and While the energy firmly believe that our encouraging and demand may be met approach aligns with policy developing the use by solar PV, if the requirements. Our of more sustainable building energy commitment to responsible forms of transport efficiency were better and thoughtful development, (Including walking, more of this energy encompassing cycling and public could be used to feed environmental, social, and transport)'. back into grid acting as economic considerations, a carbon offset. reflects our dedication to **HNRFI** further fostering positive outcomes contributes to for the community and the It could be said the "achieving national environment. While we proposal has targets to reduce acknowledge the absence of restricted the amount greenhouse gas explicit metrics, our actions of Solar to ensure the emissions focusing remain in harmony with the development does not new development in spirit of policy objectives, exceed 50MW (NSIP). the most sustainable ensuring that our project Any structural locations and contributes positively to the limitations should be local context. seeking site layout designed out to and sustainable ensure maximum design principles We have provided additional coverage. which reduce energy clarity as to why, on plan, the demand and proposals only proved ~50% We understand increase efficiency." of solar PV but explained this BREEAM is not a legal is an erroneous perspective requirement. We are and the proposals have pointing out that the maximised all available roof proposal sets low space with solar PV. It should ambitions for energy be noted that to increase the efficient building solar provision, it will standards.

inherently increase the embodied carbon in the

6.	The assessment is sufficient to estimate		lights will be reduced and potentially reduce safety.  Further to our conversation, we ask that you review and provide objective reasoning and explanation where you may believe we are not compliant with policy.  We have provided clarity as to why differing tools have
6.		maximising renewables? I am not certain Blaby	to why differing tools have been adopted to complete the assessment. We have acknowledged and agreed that these tools are acceptable for the means of
10.	Traffic Management Plan (CTMP) (document reference 17.6) will minimise	CTMP is designed to significantly address GHG emissions other than through vehicles	Whilst the CTMP does not explicitly refer to 'climate change', it includes several key aspects that will undoubtedly reduce emissions and therefore

environmental standards. impacts of mentioned construction document. activities, including the reduction of GHG struck out. emissions.

standards. GHG isn't mentioned once in the document. Maybe this point just needs to be struck out.

standards. GHG isn't inherently better HNRFI's mentioned once in the effects on Climate Change.

Text amended to reflect discussions. By means of further explanation:

Like the CEMP, the framework CTMP serves as a foundational document that sets out the overarching principles, objectives, and strategies for managing environmental considerations during a construction project. It establishes the commitment to environmental protection, outlines key responsibilities, and provides a general roadmap for achieving environmental sustainability. As a 'live' or 'living document' it serves as a guiding document that sets the tone for all environmental protection and sustainability throughout its phased development. It provides a structure within which detailed sub-plans are developed, agreed upon with the local authority, and implemented to manage specific environmental aspects effectively. This process ensures that the project adheres to local regulations, minimises negative impacts, and contributes to a more sustainable built environment.

## 1.4 Air Quality

Version	Date	Issued by
01	24/05/2023	TSH
02	16/06/2023	BDC
03	28/07/2023	TSH
04	21/09/2023	TSH
05	23/10/2023	BDC
06	24/10/2023	TSHL

## Matters agreed

Ref.	Matter agreed	Record of agreement
1.	The air quality impacts would not adversely impact on the considerations set out at NPS paragraph 5.13.	Agreed through this SoCG.
2.	Methodology applied to the assessment including the following:  - Construction phase dust assessment utilising Institute of Air Quality Management (IAQM) guidance; and	Agreed through this SoCG
	Construction and Operational phase road traffic impact assessment utilising IAQM and Environmental Protection UK (EPUK) guidance to determine the significance of impacts at human receptor locations and Design Manual for Roads and Bridges (DMRB) guidance to determine the requirement to consider ecological designations.	
3.	Incorporation of mitigation measures within the HNRFI to minimise the impact of the HNRFI on local air quality, including:  - Electric Vehicle (EV) charging provision;  - Provision of bus stop;  - Use of Photovoltaic (PV) array as primary energy source;  - Site Wide Travel Plan to promote active and low emissions transport uptake to the HNRFI (only agreed in so far as air quality is concerned).	Agreed through this SoCG

4.	Paragraphs 1.77 to 1.79 under the heading Dust and Air Quality of the CEMP are agreed.	Agreed through this SoCG.
5.	Assessment of back-up Combined Heat and Power (CHP) unit emissions on local air quality.	Agreed through this SoCG.
6.	Requirement 29 Combined Heat and Power for Energy Centre is agreed.	Agreed through this SoCG
7.	That the following wording shall be added to Requirement 9 Sustainable Transport Strategy:	Agreed through this SoCG.
	(2) The undertaker must use reasonable endeavors to maximise the use of Euro VI compliant HGV and public transport vehicles in respect of: (a) any HGV fleets operated by occupiers of the warehouses which visit the warehouses; and (b) any public transport service provided pursuant to the sustainable transport strategy and dedicated to serving the	
	authorised development.	
8.	It can be confirmed that the 2022 version of the DEFRA Technical and Policy Guidance has been used, as detailed in paragraph 9.98 and reference 15 in Chapter 9 of the ES (document ref 6.1.9)	Agreed through this SoCG.
9.	An air quality addendum (Doc Ref: 6.4.1) has been prepared and submitted which takes consideration of the quality assessment results in accordance with the revised PM2.5 air quality objectives published in early 2023.  Overall, the impact of the HNRFI is predicted to be not significant in relation to the future PM2.5 objectives.	Agreed through this SoCG.
10.	With regards to BDC's AQMA 6, whilst the LDV contributions do marginally exceed the criteria contained within the EPUK guidance, given the response on the highest predicted impact from the scheme, the current monitored concentrations within the AQMA, and the fact that there is an overall reduction to HGV within the AQMA, any impacts at this	Agreed through this SoCG.

location are unlikely to be significant.	
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## Matters not agreed

Ref.	Matters not agreed	Any actions risi	ng	
1.	Concerns remain	The potential impacts on the Free Holt Ancien		
	regarding the potential	Woodland (AW) should be agreed through the		
	impacts on the Free Holt	Ecology SoCG. We are only able to agree		
	Ancient Woodland	matters relating	to the air quality	assessment
	located immediately	undertaken to pr	ovide input into	the ecologist's
	adjacent to the new link	assessment.		_
	road, where a percentage			
	change relative to the	The range in cha	nges of nitrogen o	deposition
	lower critical load (10 kg		e as shown in Tal	
	N ha-1 year-1) of up to	9.30 of Chapter 9	9 – Air Quality. Th	e incremental
	1.4% is predicted.		utions are shown	
	The stated N Deposition is		ges below include	
	significantly above the		m the new acces	
	critical levels (>49 kg N ha		of the AW to the	
	<sup>1</sup> y <sup>-1</sup> ) and therefore, any	•	ransects were the	
	change, no matter how		to 200m into the	
	<b>J</b>	2011 11101 (415) 4		C /
	small, can have a	Designation and	Nitrogen deposition	change (kg ha-1
	detrimental impact on	distance from road	year-1)	
	this ancient woodland.	centreline	2026	2036
	Furthermore, impacts	Freeholt Wood AW T1 P1	0.1102	0.1421
	from the scheme at this	Freeholt Wood	0.0957	0.1305
	location are unique, as it	AW_T1_P2		
	is not simply a case of	Freeholt Wood AW T1 P3	0.0841	0.1189
	additional traffic impacts	Freeholt Wood	0.0754	0.1102
	on an existing road	AW_T1_P4		
	passing the woodland, bu		0.0696	0.1015
	the introduction of a new	AW_T1_P5 Freeholt Wood	0.0609	0.0928
	heavily trafficked, HGV	AW_T1_P6	0.0003	0.0320
	access route on the	Freeholt Wood	0.0551	0.0870
	opposite side of what is, a	AW_T1_P7 Freeholt Wood	0.0493	0.0812
	relatively narrow area of	AW_T1_P8	0.0493	0.0012
	natural importance.	Freeholt Wood	0.0435	0.0783
	Therefore, further detail	AW_T1_P9	0.0406	0.0725
	relating to the assessmen	Freeholt Wood AW T1 P10	0.0406	0.0725
	of this area, i.e.,	Freeholt Wood	0.0377	0.0696
	incremental distance	AW_T1_P11		
	contributions from the	Freeholt Wood	0.0348	0.0667
	boundary of all relevant	AW_T1_P12 Freeholt Wood	0.0319	0.0638
	roads, including the new	AW_T1_P13		
	access link, is requested.	Freeholt Wood	0.0290	0.0609
		AW_T1_P14		

		Freeholt Wood AW T1 15	0.0261	0.0609
		Information rega the Ecology ES Ch Written Represer	napter, ecology re	esponses to
2.	No assessment has been undertaken of the air quality impact of queueing traffic as a result of the additional 'barrier down' time at Narborough level crossing. With residential receptors and pedestrian traffic, including school children, adjacent to these affected highways, the implication for air quality needs to be assessed by the Applicant	An assessment of queuing traffic a down' time at Na undertaken and s	s a result of addit orborough level co	tional 'barrier rossing will be
3.	BDC requests that the Applicant undertakes damage cost analysis to determine a suitable monetary contribution to offset impacts, which BDC could then use to address existing areas of concern such as the AQMA.		ng or the consult f damage costs is	ation period. not required
4.	Regarding off-site monitoring, BDC cannot make a final determination as to whether this is required without being provided with traffic flow data.	The traffic data usessessment and to provided to Edward August 2023 via a email regarding to response was reconstant and this if required.	the air quality ass ard Stacey of BDC a WeTransfer link he noise assessm seived from BDC o	cessment was Con 16th cas part an nent works. A on the 16th

## 1.5 Noise and Vibration

Version	Date	Issued by
01		TSHL
02		BDC
03	01.09.2023	TSHL
04	20.10.2023	BDC
05	24.10.2023	TSHL

## Matters agreed

Ref.	Matter agreed	Record of agreement
1.	ES Chapter 10 has been prepared in accordance with the National Policy Statement for National Networks (NPSNN)	Agreed through this SoCG
2.	In accordance with requirements 27 of the draft DCO, an assessment of the expected noise impact at relevant receptors in accordance with BS4142:2014+A1:2019 Methods for rating and assessment industrial and commercial sound and BS8233:2014 Guidance on sound insulation and noise reduction for buildings shall be submitted and approved in writing by the relevant planning authority.	Agreed through this SoCG
3.	Notwithstanding the deliverability of the acoustic barriers, Requirement 28 of the draft DCO suitable controls the provision of acoustic barriers providing the following text is added at the end of the requirement:  "and maintained and retained for the lifetime of the development."	Agreed through this SoCG
4.	Construction and Operational Phase Noise and Vibration Assessment – Assessment Criteria	Agreed through this SoCG
5.	Construction and Operational Phase Noise and Vibration Assessment – Assessment Methodology	Agreed through this SoCG
6.	Construction and Operational Phase Noise	Agreed through this SoCG

	and Vibration Assessment - Selection of Sensitive Receptors	
7.	Operational Noise and Vibration Assessment - Methodology for Additional Noise and Vibration Monitoring	Agreed through this SoCG
8.	Construction Phase Noise Assessment	Part agreed through this SoCG, see matters not agreed section
9.	Construction Phase Vibration Assessment	Agreed through this SoCG
10.	Construction Phase Traffic Assessment	Agreed through this SoCG
11.	Operational Phase Noise Assessment - Modelling Inputs and Source Data	Agreed through this SoCG
12.	Operational Phase Noise Assessment - Fixed Plant Noise Levels	Agreed through this SoCG
13.	Operational Phase Noise Assessment - Off- site Rail Movements	Agreed through this SoCG
14.	Operational Phase Ground borne Vibration Assessment from off-site rail movements	Agreed through this SoCG
15.	Operational Phase Noise Assessment of A47 Link Road	Agreed through this SoCG providing that the relevant AAWT data is provided as outlined below for verification.
16.	Operational Phase Noise Assessment of Tranquility	Agreed through this SoCG
17.	Construction Phase Noise and Vibration Mitigation	Agreed through this SoCG
18.	Operational Phase Assessment of Maximum Noise Levels with Mitigation	Agreed through this SoCG
19.	Construction Phase Noise and Vibration Assessment - Residual Impacts	Agreed through this SoCG
20.	Construction and Operational Phase Noise and Vibration Assessment – Climate Change	Agreed through this SoCG
31.	Construction and Operational Noise and Vibration Assessment - Summary and Conclusions	Agreed through this SoCG

## Matters not agreed

Ref.	Matters not agreed	Any actions rising
1.	Matters contained within the CEMP (Document reference: 17.1) and in particular paragraphs 1.71 – 1.76 in relation to noise and vibration impacts during the construction period.	Paras 1.71 – 1.76 simply highlight that there could be noise and vibration impacts and set out a framework of mitigation measures that could be employed. Identification of further measures can be incorporated into the phase-specific 'noise and vibration management plan' (NVMP), where required (as described in 1.73). Further discussion on this point is requested.
	Construction and Operational Phase Noise Assessment - Baseline Noise Survey Methodology and in particular the monitoring protocol at NMP5.  Additional monitoring should be undertaken to verify the baseline conditions at the Aston Firs Caravan Site and Castlewood Mobile home park to the south of the Site. Monitoring should be undertaken over a longer period and include at least 3no. working weekdays and a full weekend period.	The CRTN measurement undertaken at NMP5 has only been used to calibrate the noise model for the base year 2019. As reported in the Noise and Vibration Chapter, the noise levels measured at NMP1 and NMP2 which
3.	Operational Phase HNRFI Noise Assessment – the acoustic design of the illustrative masterplan	
	The applicant has not considered all	incorporate significant

possibilities. In particular, Chapter 4 of the submitted Environmental Statement indicates that residential amenities at Elmesthorpe village, including dwellings along the unadopted Bridle Path Road were considered during the masterplan design. However, the acoustic mitigation measures include onerous 4m and 6m high barriers only 20m away from single story dwellings which does not follow good acoustic design.

There is potentially to relocate internal service roads and railway lines within the Site and use the buildings to screen sound from residents which should be investigated due to the significantly onerous barriers and the residual +12 dB excess over background sound level.

acoustic screening to Elmesthorpe village through buildings on site.

As the illustrative masterplan has evolved, loading bays and service yard areas have been removed from the northern facades of Units 7, 8 and 9, with these areas now fully screened from receptors to the north.

Bunding is proposed adjacent to the A47 Link Road as it passes Bridge Farm, and this has been included within the earthworks model, incorporated within the noise model.

Where feasible, acoustic design principles have been employed, however there are other constraints that need to be balanced.

4. Operational Phase Noise Assessment – HGV movements, loading/unloading operations and service yard areas, including SRFI operations.

The applicant's acoustic consultants have advised that the relevant standard (BS 4142) excludes HGV movements along public highways. However, the A47 link road is the only access point to the Site and would not be a public highway prior to the development coming forward. It cannot be argued that putting a rail freight terminal on an environment alien to this type of operation would not have a detrimental impact on residential amenity.

The A47 link road is the only access to the Site and therefore HGV movements in accordance with BS 4142 should be assessed over a shorter time interval than DMRB which is 18-

It is not appropriate to assess noise from the A47 link road in accordance with BS4142. Whether the A47 link road was a public highway prior to the development coming forward is irrelevant. BWB's statement and BDC's statement on 3dB being just perceptible in normal conditions are the same.

hours. The applicant has failed to thoroughly apply a holistic approach and has not considered the agent of change principle within the NPPF.

Blaby District Council request that HGV movements are holistically assessed along the A47 link road to the east of the Site access towards the proposed new junction at the M69.

A more detailed assessment over a shorter time period to show the true impact of regular HGV movements should be undertaken and should be referenced against the NPSE and the NPPF

Additionally, Blaby District Council do not agree to the contextual argument made by the applicant that an ambient sound level increase of +3.9 dB will not be audible by residents. BWB (the appointed acoustics consultants) has told Blaby District Council that IEMA Guidelines (The IEMA Guidelines for Environmental Noise Impact Assessments) state that 3 dB changes are only perceptible under conditions in the field.

However, the document actually states that a change of 3 dB is perceptible under most normal conditions and that it is a 1 dB change that is only just perceptible in laboratory conditions.

The focus should be on the results of the formal BS 4142 numerical assessment which shows a +12 dB excess over background sound level even with mitigation in place.

5. Operational Phase Noise Assessment Maximum Noise Levels specifically the fact
that the applicant has stated a 10 dB
reduction for crane movements and maximum
sound levels through appropriate equipment
selection.

Further information can be provided for Deadline 3.

The applicant has used 'proof of evidence' in

	Appendix 10.7 which BWB (the appointed acoustics consultants) say proves that a 10 dB reduction can be afforded to sound levels from the crane through equipment selection.  However, analysis of the 'proof of evidence' shows that there is no evidence of this at all. The 'proof of evidence' document just states that a 10 dB reduction can be afforded but doesn't offer any data to verify this.  The applicant should provide numerical evidence, ideally empirical, of a 10 dB reduction. Otherwise, this statement and assessment should be removed from the overall submission and the detrimental impacts should be revised.	
6.	site Road Traffic	AAWT has been provided to BDC's consultant in an Excel format with link IDs and the associated GIS shapefiles.
	Blaby District Council requests AAWT data used to inform the assessment be presented in excel format with street referenced names.  The baseline data should not include any committed or development flows to enable cumulative or 'in combination' impacts to be determined. Assessing the proposed development against a committed scenario may significantly underestimate cumulative impacts on sensitive receptors.	
7.	Operational Phase Noise Assessment – Mitigation for HGV movements, loading/unloading operations and service yard areas, including SRFI operations	Further information on this can be provided by Deadline 3.

The applicant has failed to consider good acoustic mitigation options in a suitable hierarchy. The mitigation measures still result in either an Adverse, or Significant Adverse impact despite the inclusion of 4m and 6m high acoustic barriers, this is not acceptable.

No consideration of re-orientation of dwellings, acoustic barriers within service yards or operational restrictions have been considered and instead the applicant has chosen to use boundary screening measures only.

Blaby District Council request that the assessment is conducted using a good acoustic design process taking into consideration barriers at source, reorientation of buildings and operational restrictions before boundary mitigation measures.

Operational Phase Noise Assessment -8. Mitigation for Off-site Road Impacts

> The results of the DMRB assessment show that a 6m and 4m high barrier on the boundary of Aston Firs Caravan Site and Woodfield Stables will be required to suitable reduce sound levels. However, no alternative solutions have been considered such as improved glazing and ventilation options or reorientation of the A47 link road.

Furthermore, a review of the available drawings shows a proposed public footpath between the A47 link road and the aforementioned receptor and based upon the "detailed assessment of drawing there is no physical footprint available to construct such an onerous barrier.

Moreover, the indicated barriers would require the removal hedgerow that bound the sites.

The mitigation measure is completely alien to constructed can be provided

The orientation of the A47 link road is influenced by several different requirements and parameters meaning that any significant changes from a noise perspective are not feasible.

Improved glazing and ventilation options would be considered a last resort in accordance with a noise mitigation hierarchy.

Clarity on what the numerical values" refers to would be beneficial so a response can be provided.

The 6m high barrier is the most effective available and viable solution. Further details on how it will be

this receptor and highly inappropriate in the by Deadline 3. hierarchy of design. Once a detailed assessment of numerical values is presented, consideration needs to be given to residential amenity in external areas, consideration of the effect level criteria in DMRB, consideration against the NPSE and consideration against the Noise Insulation Regulations. Blaby District Council do not accept a 6m high barrier and the applicant needs to demonstrate alternative solutions. If a barrier is the only viable solution once further assessment has been completed, the applicant needs to demonstrate how this will be constructed between the residential receptor and the public right of way and A47 link road. Operational Phase Noise and Vibration Matter not agreed. 9. Assessment - Residual Impacts BWB have tried to use unjustifiable context to state that the Site will not have a detrimental impact on residential amenity. When considering each section of guidance individually, the significant impact could be easily overlooked. However, when considering all impacts collectively, it cannot be ignored that the proposals are completely alien to this environment and if the only suggestions put forward by the applicant are for onerously high acoustic barriers immediately adjacent to residential receptors, then the Site is fundamentally unsuitable. Furthermore, even with the mitigation measures in place, a Significant Adverse impact is still predicted and, in accordance with the NPSE, this would be classified as a Significant Observed Adverse Effect Level which should be avoided.

10.	Construction and Operational Noise and	Matter not agreed
	Vibration Assessment - Summary and	
	Conclusions	
	The overall summary and conclusions cannot be agreed upon until the significant matters	
	raised above are dealt with.	

# 1.6 Ecology

Version	Date	Issued by
01	18.05.2023	TSH
02	19.06.2023	BDC
03	28.06.2023	TSH
04	18.07.2023	BDC
05	04.10.2023	TSH

## Matters agreed

Ref.	Matter agreed	Record of agreement	
General Co	General Comments		
1.	ES Chapter 12 and its associated appendices and figures have been prepared in accordance with, specifically, paragraphs 5.20 to 5.38 of the National Policy Statement for National Networks (NPSNN).	Agreed through this SoCG	
2a	The Ecological Mitigation Management Plan requirement (21) is agreed.	Agreed through this SoCG	
2b	LUC is pleased to note the inclusion of consideration for terrestrial GCN within the EMMP	Agreed through this SoCG	
3.	The Woodland access management plan requirement (33) is agreed.	Agreed through this SoCG	
4	Executive summary – Paragraph 1.3.  LUC agrees that the Applicant has carried out sufficient phase 1 and phase 2 species surveys	Agreed through this SoCG	
5	Methodology – Paragraph 1.14  LUC agrees with the search radii employed for the majority of the ecological receptors, however standard guidance for barbastelle uses a 10km buffer, as determined by evidence on commuting and/or foraging activities.	Agreed through this SoCG	
6	Extended Phase 1 Survey, Paragraph 1.28  LUC agrees that the EP1HS was undertaken within the optimal survey period for such surveys.	Agreed through this SoCG	
7	Paragraphs 1.29 through to 1.39	Agreed through this SoCG	

i <del>-</del>	<u> </u>	,
	LUC agrees that all phase 2 surveys were undertaken in accordance with standard guidance and during the optimal survey periods.	
8	Annex 4 - Bat surveys - paragraph A4.16  LUC notes that the bat emergence/re-entry surveys were undertaken during the optimal survey period for roosting bats, particularly with reference to potential summer roosts)	Agreed through this SoCG
9	Annex 4 - Bat surveys - paragraph A4.16 LUC welcomes the inclusion of updated GCN surveys to be undertaken prior to any habitat loss.	Agreed through this SoCG
10	Annex 5 - GCN surveys - paragraph A5.25 LUC welcomes the inclusion of updated GCN surveys to be undertaken prior to any habitat loss.	Agreed through this SoCG
11	LUC agrees that Metric 3.1 and associated condition sheets was the appropriate metric methodology at the time of assessment.	Agreed through this SoCG
Ecology Base	eline	
12	Executive Summary, Paragraph 1.6  The Applicant states that the 'majority of the main order limits is of limited (negligible or site-level) value, however, has also stated that three LWS and seven LWS are also within the order limits.	Agreed in line with Applicant's comment
13	In general LUC agree with the outline provided regarding important ecological features within the order limits, however, does not agree that bats are only afforded 'Local' importance. Likewise, LUC does not agree that breeding birds such as lapwing and skylark are of only 'District' importance. This also applies to otters. All former European Protected Species should be of 'National' level importance irrespective of their presence within the main order limits.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.
14	Paragraph 1.80 - Search radius for bird species is stated as 3km, standard guidance suggests 5km.	Agreed in line with applicant and approach to required updated surveys in 2024/25
15	LUC disagrees with the according of importance to habitats and species, which appears to be based on their abundance	Agreed in line with Ref. 13 above.

	within the order limits as opposed to their status or level of protection.	
16	Paragraph 1.117 - LUC disagrees that GCN are not included as an IEF within the EcIA, on the basis that suitable terrestrial habitat exists within the main order limits and that a number of off-site ponds were unable to be surveyed due to access restrictions. It is therefore not inconceivable that GCN are present within those off-site ponds and therefore may be present within terrestrial habitat inside the main order limits.	Agreed in line with applicant including GCN as a potential IEF and appropriate mitigation measures in line with NE rapid risk assessment and associated construction / operational works
17	Annex 4 - Bat surveys - paragraph A4.4  LUC notes that no surveys were undertaken within areas that were considered to be 'at no risk of significant adverse impacts to potentially roosting bats', LUC would hope that these areas are given suitable consideration should any changes to the project occur.	Further clarification received - Agreed
18	Annex 4 - Bat surveys - paragraph A4.18  LUC notes that no night visual aids are mentioned with regard to emergence/reentry surveys. LUC accepts that updated BCT guidance was published after these surveys but would expect any planned preconstruction surveys are undertaken in accordance with the updated NVA guidance.	Agreed in line with applicant's comment – updated emergence surveys to include NVAs
Ecology and Bi	odiversity ES Chapter	
19	Paragraph 12.155  The loss of broadleaved plantation woodland appears to be offset by new woodland planting, with no consideration given to how long the new woodland plantation (and therefore ecological and landscape buffer) will take to establish (and act as replacement for existing mature trees). Without this consideration, the impact must be assessed as significant until replacement planting has been established.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.
20	Paragraph 12.157  The applicant states that the 'vast majority of wet ditch habitat will be retained and provided with a reasonable buffer from the proposed development'. Clarity is needed	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under

	as to what the reasonable buffer is and what guidance has been used to determine	local authority condition discharge.
21	Paragraph 12.158 Proposals regarding the re-routing of the existing stream, reinstatement and the establishment of vegetation is unclear, given little detail as to how this will be achieved in certainty. Plans must be provided including consideration of EA flood plain guidance and detailed vegetation planting.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.
22	Paragraph 12.172 Anticipated restrictions' on nighttime working is not enough to ensure adequate mitigation is included within the project with respect to bats. These mitigation measures must be outlined in full.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.
23	Paragraph 12.183  LUC notes that no consideration to fragmentation of habitats is included within the operational impacts and effects. This seems remiss as such a large development proposal will certainly impact future commuting/foraging abilities for a wide range of species.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.
24	Paragraph 12.204  Due to the omission of GCN as an IEF within the impact assessment, no consideration as been given to terrestrial habitat loss and potential killing/injuring of terrestrial GCN (relevant to the construction phase).	Now agreed in line with applicant including GCN as a potential IEF and appropriate mitigation measures in line with NE rapid risk assessment and associated construction / operational works
25	Mitigation measures – badger Further detail around provision of alternative sets, if required, and associated time delay in provision of alternative sett and closure of current set to be included within mitigation.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.
Biodiversity In	npact Assessment	
26	Biodiversity Metric 3.1 has not been provided for review with assessor comments in the baseline, nor have the condition sheets been	Agreed. Applicant confirms that a full BIA report, inclusive of condition

	included.  A full BIA report, including condition assessments and rationales for each assessment is expected. The metric and associated mapping should link between one another and be clearly labelled	assessments and assessor comments will be provided at detailed design stage.
27	The full River Condition Assessment was not provided for review. This should be included as an appendix to the main report.	Agreed as above. The RCA and supporting report should detail how post development condition will be achieved which must be reviewed by a suitably qualified ecologist (SQE).
28	Intermediate 'fairly good' and 'fairly poor' condition categories have been selected for existing habitats. For example, improved grassland has been classed as being in 'fairly poor' condition. Justification of each should relate to the condition assessment criteria and should be included within the assessor comments column of the metric tool and further detailed within the report as per best practice.	Agreed as above. Applicant confirms that a full BIA report, inclusive of condition assessments and assessor comments will be provided at detailed design stage. These matters must be addressed in the detailed metric and reviewed by an SQE.
29	Paragraphs 1.11-1.17 Improved grassland has been classed as being in 'fairly poor' condition. As per the metric and condition assessment guidance, 'fairly' categories should be justified. It is detailed in the chapter that this is due to the lack of species diversity, uniform sward height and intensive grazing, however further explanation is recommended to demonstrate why this habitat should not be classified as 'poor' or 'moderate'.	Agreed in principle, however this rationale must be provided within the assessor comments and supporting BIA.
30	It is recommended that further justification of the strategic significance is provided and disagrees that the majority of habitats should be classed as "Area/compensation not in local strategy/ no local strategy" due to habitat connectivity to the wider landscape.	SoCG discussion reached a point of agreement that strategic significance should be reviewed in the next iteration of the metric calculations with well-connected habitats being re-classified as 'location ecologically desirable but not in local strategy'.  It is agreed that hedgerows will be entered as 'formally

		identified in the local strategy' in the detailed BNG metric
31	Paragraphs 1.18-1.19 It is unclear as to how off site BNG will be provided, secured and delivered.	Agreed that this will be provided at detailed design stage. Off-site BNG must be delivered through a suitable mechanism and their calculation and delivery plan must be agreed with the planning authority and reviewed by an SQE
32	Paragraph 1.22 It is noted in the Metric 3.1 guidance that newly planted trees should be categorised as 'small'. If larger size classes are to be selected, evidence is required to justify their input into the metric.	Agreed through SoCG that all newly planted trees will be re-categorised as 'small' trees.
33	Paragraph 1.25 It is unclear as to how 'moderate' condition will be achieved, as simply allowing a watercourse to naturalise will not achieve this condition, particularly as the difficulty of creation is high.	Agreed as per point 27. The RCA and supporting report should detail how post development condition will be achieved which must be reviewed by a suitably qualified ecologist (SQE).
34	Paragraph 1.28  Best practice would dictate that the hedgerows are entered into the metric as they make up part of the baseline of the site. They would then be recorded as not being lost.	Agreed through SoCG that the metric produced at detailed design stage will incorporate hedgerows as part of the baseline assessment. This must be reviewed by a SQE and approved by the planning authority
35	Paragraphs 1.32-1.33  As per the NPPF / Environment Act and current Metric guidelines, all efforts should be made to retain and enhance biodiversity on site and where habitats will be lost, new habitats of the same or higher distinctiveness should be created. Further assessment is required to reduce habitat loss and increase BNG on site. Offsetting is no longer used as appropriate terminology. Should 10% BNG	Agreed as per above through SoCG that priority will be given to achieving a net gain for biodiversity on site, however where this is not possible, an appropriate assessment of off-site BNG and delivery mechanism through which to achieve this will be

	not be met on site, an appropriate planning mechanism, such as the forthcoming register of habitat banks should be used to purchase credits or land should be acquired that will fall under the management of the proposed management company.	reviewed by a SQE and approved by the planning authority.
36	Annex 1 Other neutral grassland in the created tab has been selected as 'fairly good' as a precautionary measure. Further clarification is sought as to the rationale for not seeking to achieve 'good' condition through long term monitoring and management.	Agreed through SoCG that further refinement of post development habitat condition will be required. Where the same habitat type is expected to reach different conditions, this must be separated into its component parts and assessed individually as per metric guidelines.
37	The BIA does not make reference to BS 8683 Process for Designing and Implementing Biodiversity Net Gain (2021).	Agreed through SoCG that any future iterations of the BIA and supporting documentation will make reference to the most recent British Standard.
Woodland Acc	ess Management Plan	
38	Paragraph 3.22 Clarification is sought regarding the protection and management of new native plants. What management and monitoring measures will be in place to ensure the desired condition of these trees is reached? It is mentioned that fencing may be used, however clarification is sought as to the existing pressure from deer/other species and whether enclosures or other methods may be required depending upon the numbers of deer present.	Agreed through SoCG that no phase shall commence until a woodland access management plan has been submitted and approved by the relevant planning authority. A detailed WAMP will be produced in consultation with NE and HBBC. It is recommended that protection and monitoring measures should be put in place as part of this document.
39	Paragraph 4.1  How will woodland management and monitoring over the lifetime of the development be secured and how will this fit with BNG expectations for 30yrs +  What is the proposed level of deadwood to be retained and how will this be zoned to ensure that the need to provide biodiversity	As above. It was agreed through the SoCG that clear distinctions would be made between BNG and woodland management for both on site and off-site woodland and trees.

	enhancements also considers health and safety risks.	
40	Clarification is sought as to the growing media proposed and whether measures such as the use of mycorrhizal fungi would be used to improve the establishment rate, paying particular regard to the pressures of climate change.	As above. In addition, it is recommended that growing media and long term risks from climate change such as drought and wild fires are included as part of this document.
Landscape and	d Ecological Management Plan	
41	A plan/map that links the BIA and LEMP proposals should be provided for review.	Agreed through SoCG that this will be provided as part of the revision to the LEMP.
42	P.g.11 Clarification is sought as to how SuDS ponds that are intended to have a dual function of biodiversity benefit and surface water attenuation, would ensure that pollution levels do not compromise the ability for species to thrive. These ponds should be designed as per the SuDS manual ch6.	Agreed through SoCG that distinctions must be made between SuDS that are intended for water quality and attenuation versus those which are intended to provide additional benefit for wildlife. The LEMP must make provision for additional maintenance for wildlife ponds that is sensitive to amphibians, invertebrates, birds and small mammals.
43	Paragraph 4.6 Again, BS 8683 Process for Designing and Implementing Biodiversity Net Gain should be referenced.	Agreed as per BIA that future iterations will refence the latest British Standard.
44	P.g.16 Clarification is sought as to what specific biosecurity measures will be in place when importing materials and plants.	SoCG did not clarify this point, however it is agreed in principle that further detail will be provided within the future iterations of the LEMP as per the Requirements.  This will be an essential component of species selection, monitoring and maintenance.

45	Paragraphs 5.11-5.12	As above.
	Clarification is sought as to the protocol should disease be noted within retained / new specimens e.g., Chalara.	
46	Paragraph 4.13 Clarification is sought as to the proposed wet woodland mix and how these species will be managed.	SoCG did not clarify this point, however it is agreed in principle that further detail will be provided within the future iterations of the LEMP as per the Requirements.
47	Paragraphs 5.4-5.6 Clarification is sought as to how loss or remedial measures will be factored in the final BNG calculations and how any delays in achieving the desired condition will be recorded and communicated to the reviewing authority.	SoCG did not clarify this point, however, it is agreed in principle that further detail will be provided within the future iterations of the LEMP and BIA as per the Requirements. This should be reviewed by the relevant authority prior to approval of the LEMP as it will be essential to understand how biodiversity loss will be accounted for.
48	Paragraph 5.35 Clarification is sought as to the desired percentage of shading that will inform pruning activities.	SoCG did not clarify this point, however it is agreed in principle that further detail will be provided within the future iterations of the LEMP as per the Requirements
49	Paragraph 6.4  The LEMP details that monitoring of retained, enhanced and created habitats will be undertaken in accordance with the condition assessments associated with the Defra Metric, however further detail as to how this will be undertaken is required, particularly the final assessment of post development condition. Further detail is required surrounding the reporting that will be undertaken by the management company	Agreed as per point 47.

	that will detail whether the expected BNG has been achieved.	
50	P.g.15 Where new trees/shrubs are planted or works are to be undertaken in proximity to existing trees/hedges/shrubs, roots should be protected through the use of hessian matting and kept damp, particularly during any periods of extreme heat.	As per the Requirements, remedial actions and habitat specific protection measures should considered and be in place during works.
Construction E	nvironmental Management Plan	
51	Paragraphs 1.181 – 1.190 under the section Ecology of the CEMP is agreed.	It is agreed in principle that further detail will be provided within the future iterations of the CEMP as per the Requirements.
52	Further detail is required regarding Birds - protocols regarding exclusion zones and working methodologies should nests be present Bats - further detail regarding bats and lighting such as lighting placement, lux levels, the use of hoods/cowls Badgers - covering of spoil and any other stored materials and the acoustic impact on badgers from noise and vibration	It is agreed in principle that further detail will be provided within the future iterations of the CEMP as per the Requirements. Method statements and species/habitat specific working restrictions and protocols should be included within the next revision of the CEMP.
Ecological Mai	nagement and Monitoring Plan	
	The EMMP is brief and lacking detail, considering that it is relied heavily upon within the ecology ES chapter.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.
53	LUC notes that there is no general section on ecological monitoring during the works covered by the EMMP, specifically regarding record keeping and success of mitigation measures proposed.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.

Lighting I	mpacts	
54	Potential impacts from light pollution have been fully assessed within Appendix 3.2: Lighting Strategy (Document reference: 6.2.3.2) and ES Chapter 12: Ecology and Biodiversity (document reference: 6.1.12). Further details are included within the Construction Environment Management Plan (CEMP), (document reference: 17.1), which includes specific mitigation measures to ensure that lighting during the construction and operational phases will not have significant adverse impacts on wildlife. Detailed design measures will be secured through suitably worded conditions.	Agreed through this SoCG
55	In accordance with requirement 31 of the Draft DCO a scheme of all permanent external lighting that accords with the submitted Lighting Strategy (Document Reference: 6.2.3.2) will be submitted and	TBC
	approved prior to occupation.	
56	The lighting strategy contains generic guidance with regard to bats and does not acknowledge utilising the updated ILP guidance that should be available preconstruction.	Agreed that future iterations of the lighting strategy will be produced in accordance with the Requirements. The lighting strategy should be reviewed by a SQE and approved by the relevant authority.
57	The lighting strategy also does not include detail regarding locations of ecological receptors and light spill effect	Agreed that future iterations of the lighting strategy will be produced in accordance with the Requirements. The lighting strategy should be reviewed by a SQE and approved by the relevant authority.
58	Matters contained within the CEMP  (Document reference: 17.1) and in particular paragraphs 1.46 – 1.49 in relation to lighting are considered to require further detail to address lighting impacts, particularly those which relate to bats and artificial lighting, during the construction	Agreed that future iterations of the lighting strategy will be produced in accordance with the Requirements. The lighting strategy should be reviewed by a SQE and approved by the relevant authority.

	period.	
Air Quality		
59	Air modelling and assessment has been undertaken using the appropriate guidance and methodology (Chapter 9: Air Quality (document reference 6.1.9).	ТВС
60	No impacts on ecological receptors are anticipated as a result of changes to air quality from the development (Chapter 9: Air Quality – table 9.22) as confirmed within ES Chapter 12: Ecology and Biodiversity (Document reference: 6.1.12) Paragraphs 12.91, 12.185, 12.187 and 12.193).	Agreed through this SoCG
61	The details at paragraphs 1.77-1.79 within the Construction Environment Management Plan (CEMP), (document reference: 17.1), include specific mitigation measures that are appropriate to avoid adverse impacts from dust pollution.	TBC
62	In accordance with Requirement 7 of the Draft DCO, a Dust Management Plan will be prepared to set out methods of dust control.	TBC
Noise and Vib	1	
63	No adverse noise or vibration impacts to any designated sites anticipated.  Potential impacts from noise pollution have been fully assessed within ES Chapter 10: Noise and Vibration (document reference: 6.1.10) and ES Chapter 12: Ecology and Biodiversity (document reference: 6.1.12). Further details are included at paragraphs 1.71 - 1.76 within the Construction Environment Management Plan (CEMP), (document reference: 17.1), which includes specific mitigation measures to ensure that noise pollution does not adversely impact ecological receptors.	ТВС
Scope of Surv		T
64	The scope of ecological survey work as described within Appendix 12.1: Ecology Baseline (Document reference: 6.2.12.1).  Ecological surveys are deemed to have been	Agreed through this SoCG

undertaken at the appropriate time during
the optimal survey period.

# Matters not agreed

Ref.	Matters not agreed	Any actions rising	Comments following SoCG
Ecology	Baseline		
1	Introduction, Paragraph 1.14 The industry standard guidelines should also include for all phase 2 species specific surveys undertaken.	Update required	Not discussed during SoCG, Applicant to confirm update to document
2	Methodology, Paragraph 1.20 Best practice methodologies should be included within the industry standard guidance section.	Update required	Not discussed during SoCG, Applicant to confirm update to document
3	Methodology, Paragraph 1.24  LUC agrees with the use of aerial photography to determine potential ponds that may be used by GCN, however the standard guidance for GCN dispersal is 500m (not 250m). Noted that within Paragraph 1.47 through to 1.48 a 500m survey buffer was used for survey purposes, LUC recommends that the methodology is updated accordingly	Update required	Not discussed during SoCG, Applicant to confirm update to document
4	Paragraph 1.58 The report states that baseline information is presented for the main order limits and that	Further clarification sought	Not discussed during SoCG, Applicant to confirm update to document

	-11		
	other areas within the DCO order limits are 'typically of negligible ecological importance', however no data is presented to support this assumption. It appears that phase 2 surveys were only conducted within the main order limits and		
	not the full DCO order limits, LUC queries the ability to assume 'negligible importance' without undertaking appropriate surveys.		
5	Paragraph 1.84 Paragraph states that 'diversity and abundance of species recorded is considered to be typical with flocks of declining farmland specialists such as those mentioned above' yet has not outlined what those species are (other than their BoCC listing). LUC notes that this information is included within the report annexes, however broad descriptions should be included within up front chapters for readers ease.		Not discussed during SoCG, Applicant to confirm update to document
6	Annex 4 - Bat surveys - table A4.1  It would be helpful to include the GLA results within the table, assuming that all buildings with three surveys were considered to be of high	Update required	Not discussed during SoCG, Applicant to confirm update to document

	suitability etc.? LUC notes that this information is included in Table A4.6, however this appears after table A4.1 so is confusing to the reader.		
7	LUC notes that no full survey results have been provided with reference to water vole, otter and badger, whilst acknowledging that there is information within the main text, as other surveys have been presented in full it would be expected that this would be applied to water vole, otter and badger. It's acknowledged that these reports are usually confidential, however for review purposes it's important to include.	Update required	Not discussed during SoCG, Applicant to confirm update to document
Ecology a	nd Biodiversity ES Chapte	r	
8	Specific comments noted within the baseline ecology report that are relevant within the ES chapter are not specified, however still relevant (e.g., regarding desk study search radii, receptor value etc.)		
9	The incorrect guidance has been cited regarding biodiversity net gain and development (this should be the updated 2021 guidance)	Update required	Not discussed during SoCG, Applicant to confirm update to document
10	LUC notes that no matrix of effects is	ober 2023	Not discussed during SoCG, Applicant to

	included within the chapter, this is usually included to help guide the reviewer in respect to impact significance.		confirm update to document
11	Paragraph 12.207  LUC disagrees that an outline decommissioning plan is not included, despite the nature and longevity of the proposed development. This high-level assessment should state that a detailed assessment must be revisited and formally submitted and approved by the SoS in the years before decommissioning.	Disagreed	Not discussed during SoCG, Applicant to confirm update to document
12	Cumulative effects - paragraph 12.245 Whilst it is acknowledged that potential cumulative schemes are considered to be spatially divorced from the proposed development, unsubstantiated claims with regard to biodiversity net gain through both onsite and offsite measures have been stated. No long-term management plan has been included with regard to BNG and offsite measures are yet to be secured. Alongside this, there seems to be a reliance on other developments proposals with regard to both to ensure no	Disagreed	Not discussed during SoCG, Applicant to confirm update to document

	adverse impacts.		
Biodivers	ity Impact Assessment		
13	The scheme demonstrates the delivery of a feasible strategy to deliver at least a 10% net gain in biodiversity value.	Further review required	Further detail is required regarding refinement of the on-site calculations and confirmation of the offsite BNG proposals
Landscap	e and Ecological Managen	nent Plan	
14	Paragraphs 2.2-2.3 Clarification is sought as to why the LEMP is designed to cover the first 25 years post completion as opposed to 30 years+ as per the Metric 3.1 guidelines and taking into consideration the rate of establishment of more complex habitat types / their time taken to reach target condition such as woodland creation, for which a bespoke agreement would be required if the time to reach target condition is beyond 30 years.	Further clarification sought	20
15	P.g.12 Further consideration of measures such as passing under/over the road are recommended as fencing is often ineffective.	Further clarification sought	Not yet agreed. It is well documented that badger fencing is of limited benefit and thus it is recommended that further consideration be made to alternative safe passes to reduce mammal mortality.
Woodland	d Access Management Pla	n	

16	LUC does not agree that the stated '50m buffer for most of the areas of ancient woodland and woodland within the SSSI' are appropriate and more detail is required on additional mitigation measures proposed within these areas to ensure no direct impact on these	Update required	
	receptors.		
Scope of S	urveys		
17	Industry standard guidelines and best practice methodologies should be included within the chapter, thus confirming that appropriate approaches were taken.	Update required	
18	It is not agreed that sufficient surveys were undertaken that cover the DCO order limits.	Disagreed	

# 1.7 Landscape

Version	Date	Issued by
01		TSH
02		BDC
03		TSH
04	27.07.2023	BDC
05	12.10.2023	TSH
06	20.10.2023	BDC

# Matters agreed – Methodology of LVIA

Ref.	Matter agreed	Record of agreement
1.	Requirement 20 Landscape Ecological Management Plan with the following additional sentence added at the end to (2) "Following such review, any proposed amendments to the LEMP must be submitted for the approval of the relevant planning authority."	Agreed through this SoCG
2.	Requirement 22 Landscape scheme with the following new paragraph (4) added "Each written landscaping scheme must be implemented as approved by the relevant planning authority or in accordance with any variation approved in writing by the relevant planning authority."	Agreed through this SoCG

# Matters not agreed – Methodology of LVIA

Ref.	Matter not agreed	Record of agreement
1.	The landscape chapter has been prepared in accordance with the National Policy Statement for National Networks (NPSNN). BDC consider the development contrary to paragraphs 5.157 and 5.158.	Matter not agreed
2.	Requirement 11 Container Stack Height should be reworded as follows:  (1) The height of any stack of containers within the container storage area	Matter not agreed, requirement wording amended;

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example statements on susceptibility and value and Appendix 11.6 does not seem to give any difference in susceptibility and value between day and night, so we remain unclear on how the method has been used.	
For some receptors (e.g. the A47 Link Road Corridor and Off-site Rail Crossings) no separate night-time value and/or susceptibility ratings are provided, albeit the overall 'Low' sensitivity rating for these receptors seems appropriate.	
It is not agreed that no significant night-time effects would be experienced at Year 1 and 15. Receptors that in the Council's opinion will experience significant residual night-time effects are set out below (Paragraph 1.7).	

# Matters agreed - Landscape and Visual Baseline

Ref.	Matter agreed	Record of agreement
1.	Viewpoint Locations were agreed via email correspondence in January 2021.	Email correspondence in January 2021 and Agreed through this SoCG
2.	The assessment study area was agreed following a clarification request by LUC on behalf of BDC during pre-application consultation correspondence. (Reference: Table 11.6 in document 6.1.11)	Agreed through this SoCG
3.	Landscape and townscape receptors were agreed following a clarification request by LUC on behalf of BDC during pre-application consultation correspondence. (Reference: Table 11.6 in document 6.1.11)	Agreed through this SoCG
4.	Residential dwellings to be considered in the LVIA were agreed following a clarification request by LUC on behalf of BDC during preapplication consultation correspondence. (Reference: Table 11.6 in document 6.1.11)	Agreed through this SoCG
5.	Baseline descriptions of lighting in relation to individual landscape and visual receptors.	Agreed through this SoCG
6.	Night-time construction effects for LCA 1:	Agreed through this SoCG

	Aston Flamville Wooded Farmland, LCA 6: Elmesthorpe Floodplain, and LCA 15: Stoney Stanton Rolling Farmland.	
7.	Planting growth rates assumed within the Year 15 photomontages.	Provide further information to clarify/justify.

# Matters not agreed - Landscape and Visual Baseline

Ref.	Matter not agreed	Record of agreement
1.	Night-time visual assessment at construction for PVPs (9, 12, 19, 20, 22, 24, 25 and 32).  Provide further information. In particular judgements and accompanying narrative on overall sensitivity (value and susceptibility), magnitude of change (scale of the change, geographical extent and duration and reversibility/proportion) and overall effects.  Not agreed. It isn't clear how the 'Low' value ratings presented in Appendix 11.5 and 11.6 for all nine night-time views relate to the night-time assessment methodology presented in Appendix 11.1 (the methodology uses 'National', 'Local', 'Community' and 'Limited' categories of value). Also, it isn't clear why different receptor groups (e.g. PRoW users and motorists) are assigned the same 'Low' susceptibility rating (paragraph A1.36 of Appendix 11.1 states that 'susceptibility of receptors reflects the different activities people undertake in hours of darkness').  It is also not agreed that no significant night-time visual effects would occur during the construction phase. Receptors that in the Council's opinion will experience significant effects are set out below (Paragraph 1.6).	Matter not agreed  Matter not agreed
2.	Night-time assessment for landscape and visual receptors at Year 1 and 15.	Matter not agreed
	provide further information.	

Including judgements and accompanying narrative on overall sensitivity (value and susceptibility), magnitude of change (scale of the change, geographical extent and duration and reversibility/proportion) and overall effects. Not agreed. As above, it isn't clear how the 'Low' value ratings presented in Appendix 11.5 and 11.6 for all nine night-time views relate to the night-time assessment methodology presented in Appendix 11.1; and it isn't clear why different receptors (e.g. PRoW users and motorists) are assigned the same 'Low' susceptibility rating. It is also not agreed that no significant nighttime visual effects would occur at Year 1 and Year 15 phase. Receptors that in the Council's opinion will experience significant night-time effects are set out below (Paragraph 1.6 and 1.7 below). Discrepancy between Appendix 11.5 and Matter not agreed 3. Table 11.23 of the LVIA chapter with regard to Year 15 night-time visual effects. For some receptors (e.g. the A47 Link Road Corridor and Off-site Rail Crossings) no separate night-time value and/or susceptibility ratings are provided, albeit the overall 'Low' sensitivity rating for these receptors seems appropriate. It is not agreed that no significant night-time effects would be experienced at Year 1 and 15. Receptors that in the Council's opinion will experience significant residual night-time effects are set out below (Paragraph 1.7

### 1.8 Heritage

# Archaeology

Version	Date	Issued by
1	May 2023	TSH
2	22 June 2023	LCC
3	29 June 2023	TSH
4	19 July 2023	BDC
5	31 August 2023	TSH
6	18 October 2023	BDC
7	23 October 2023	TSH

### **Blaby Heritage**

Version	Date	Issued by
1	May 2023	TSH
2	13 June 2023	BDC
3	28 June 2023	TSH
4	19 July 2023	BDC
5	31 August 2023	TSH
6	18 October 2023	BDC
7	23 October 2023	TSH

## **Heritage Matters agreed**

Ref.	Matter agreed	Record of agreement
1.	ES Chapter 13 has been prepared in accordance with the National Policy Statement for National Networks (NPSNN).	Agreed through this SoCG
2.	The archaeology and building recording DCO requirement is agreed as follows: Archaeology and building recording  1. (1) No phase shall commence until such time as a written scheme of investigation for that phase based on the provisions of the archaeological mitigation strategy has been submitted to and approved in writing by the relevant planning authority. The written scheme of investigation must include  (a) details of the on-site recording methodology (b) details of sampling, analysis and reporting strategy	Agreed through this SoCG

	(c) details of monitoring arrangements; and (d) details of timetable and personnel. (2) No part of the authorised development on the main site shall commence until a level 3 record of the buildings of historic interest identified in the archaeological method statement has been undertaken. The record must be carried out in accordance with a written specification first agreed with the	
	relevant planning  authority in consultation with Leicestershire County Council and prepared by a competent building recorder in accordance with Historic England Understanding Historic Buildings, A Guide to Good Recording Practice, 2016 (as amended from time to time)	
3.	Paragraphs 1.91 – 1.93 under the section Archaeology of the CEMP is agreed.	Agreed through this SoCG
4.	The submitted Cultural Heritage ES Chapter 13 includes a comprehensive assessment of the impact upon the historic environment, including the setting of nearby designated heritage assets.  BDC considers that all of the affected assets	Agreed through this SoCG
	should be identified separately within summary Table 13.8 of the ES to give a more explicit representation of the likely effects. It is agreed that TSH will submit amended tables should the Examining Authority request it, following review of BDC's relevant reps.	
5.	That the assessment of the impact of HNRFI on the significance of relevant designated heritage assets within the category of 'less than substantial harm' is agreed (NPS)	Agreed through this SoCG
6.	paragraph 5.134).  An appropriate methodology has been employed to assess relevant heritage assets and impacts of the Proposed Development. Given the different level of significance of these assets along with the varying magnitude of change they are to experience, BDC considers that all of the affected assets	Agreed through this SoCG

7.	should be identified separately within Table 13.8 of the ES to give a more explicit representation of the likely effects. It is agreed that TSH will submit amended tables should the examining panel request it, following review of BDC's relevant reps.  The assessment includes a proportionate narrative in respect of the significance of heritage assets affected and does not rely	Agreed through this SoCG
8.	solely on a tabular matrix.  The Cultural Heritage ES Chapter is supported by an adequate suite of completed archaeological and heritage surveys to inform the DCO Application.	Agreed through this SoCG
9.	The Cultural Heritage ES Chapter is supported by up-to-date baseline data for the DCO Site.	Agreed through this SoCG
10.	Any identified 'adverse effects' on heritage assets in EIA terms translates to 'harm' in terms of the National Planning Policy Framework (NPPF) and National Policy Statement (NPS).	Agreed through this SoCG
11.	Discussions between the applicant's heritage consultant and the BDC Conservation Officer have explored the assessment conclusions and it is agreed that the conclusions of the Cultural Heritage ES in respect of the potential effects of the Proposed Development on heritage assets have been informed by the conclusions of the Landscape and Visual Effects Chapter (document reference 6.1.11), Lighting Strategy (document reference 6.2.3.2), Noise and Vibration Chapter (document reference 6.1.10) and Air Quality Chapter (document reference 6.1.9), and as such are not limited to only visual considerations.	Agreed through this SoCG
12.	The Archaeological Mitigation Strategy (Document reference 6.2.13.7) sets out an appropriate strategy for the completion of required archaeological mitigation across the DCO Site.	Agreed through this SoCG
13.	The Archaeological Mitigation Strategy (Document reference 6.2.13.7) sets out an	Agreed through this SoCG

	appropriate strategy for the completion of required archaeological mitigation across the DCO Site	
14.	The requirements outlined in the Archaeological Mitigation Strategy (6.2.13.7) include provision for the completion of a two-phase programme of investigation, commencing with trial trenching, to be followed up with a second phase of appropriate further investigation and recording. While the principal of this work has been agreed and outlined in the AMS, the precise nature of the further work has not yet been defined. The provisions and procedures established within the AMS are anticipated to be sufficient to satisfactorily address the archaeological programme, including field work, post-excavation analysis, reporting/dissemination and archive deposition.	Agreed through this SoCG
15.	LCC Archaeology on behalf of BDC will be undertaking on-site archaeological monitoring and post-excavation review, to ensure appropriate and efficient management of the mitigation programme. The work will be undertaken at cost and will comprise review of all Written Schemes of Investigation for exploratory trial trenching, and any follow-up archaeological investigation / excavation, monitoring of all fieldwork, review of archaeological reports, and the resulting project archive.  In total the anticipated monitoring requirement is 15 days with a total cost of £7,312.50. The Applicant will meet these costs through the S106 Agreement.	Agreed through this SoCG

# Heritage Matters not agreed

Ref.	Matters not agreed	Any actions rising
1.	None	None

### 1.9 Socio-economics

Version	Date	Issued by
01	22/05/23	TSH
02	19/06/23	Blaby District Council
03	23/06/23	TSH
04	01/08/23	Blaby District Council
05	09/10/23	TSH
06	253/10/23	BDC

# Matters agreed

Ref.	Matter agreed	Record of agreement
1.	Up to date employment rates have been provided in the ES.	Agreed through this SoCG
2.	The effect of the Proposed Development on community land and assets (including access to Burbage Woods and Common) has been updated to report a minor adverse effect over the long term.	Agreed through this SoCG

# Matters not agreed

Ref.	Matters not agreed	Any actions rising
2	Adequacy of analysis of job skills and	- The evolving
	availability of labor	Employment and Skills
	- Lack of analysis of types of construction	Plan will ensure that
	skills / occupations required and the	the effects of
	relationship with current skill profile.	construction and
	Undermines ability to develop employment	operational
	and skills strategy	employment are
	- Inclusion of an Employment and Skills	captured locally as
	Strategy for Construction workers but not	anticipated and will
	operational workers	detail the availability of
	- Concerns about the detail and robustness	a local labor supply.
	of the Employment and Skills Strategy	
	- Mismatch between drive time TRIP	DOES NOT RESPOND TO
	model used to determine origins of	THE ISSUE REGARDING
	operational labor (types of occupations	THE TYPES OF
	suitable) [Appendix 8.1 Transport	CONSTRUCTION SKILLS

	Assessment Trip Distribution Document [APP-142] selects the future worker locations based on criteria in Table 3: Census Occupational Categories' of that document. This excludes higher Occupations 1-3] and assertion of the occupational requirements of the proposed development [Environmental Statement Volume 1: Chapter 7: Land Use and Socio-Economic Effects' in table 7.15 suggests these higher occupations will make up 33.3% of employees]. Undermines assumptions regarding catchment for labor.	REQUIRED, UNCLEAR IF THIS IS FORTHCOMING
1b	<ul> <li>Housing demand and supply impact</li> <li>Insufficient information or analysis to understand the HNRFI's impact on housing demand overall and in terms of housing affordability on relevant employment sectors.</li> <li>Appears to be a misalignment between the operational employment study impact area (ES para 7.17) and the housing market area (table 7.23). With no apparent attempt to reconcile this difference, the conclusions arrived at in the ES regarding the impact of demand for workers on housing is in question</li> </ul>	- A review of HENA 2022 was undertaken and our understanding is that the proposed annual housing target, based on the standard method supports an employment growth of circa 90,000 jobs in the 2020-36 period with the baseline forecast growth by Cambridge Econometrics (CE) over the same period being 26,900 (Table 8.3). There is no further information on the sectoral split of jobs supported by the Standard Method. However a sectoral breakdown of baseline growth projections is provided in Section 4 of the appendices of the study by CE covering the 2019-41 period. By applying the sectoral proportions of the 2019-41 period growth (23% for Wholesale, Transport and Warehousing) to the
		baseline job growth we

get a baseline job growth of 6,250 for the Wholesale, Transport and

Warehousing in the 2020-36 period. In addition to the above CE provides also an aspirational scenario growth anticipating 3,900 jobs by 2030 in addition to the baseline growth for the Wholesale, Transport and Warehousing sector. This increases the projected job growth to circa 10,000 additional jobs as the timeframes do not completely match.

- Once the same proportion is applied to the jobs supported by standard method the result is 21,600 additional jobs in the sector. This results into 15,350 jobs in addition to the baseline growth and 11,450 jobs in addition to the baseline and aspiration growth.
- Therefore the proposed housing target could support 11,450-15,350 additional jobs in the Wholesale, Transport and Warehousing sector in Leicester and Leicestershire above the CE growth scenarios.
  - HNRFI is anticipated to generate 6,300-7,800 net additional jobs on site once displacement is taken into account by 2032. Therefore by adopting the standard method target of 5,713 units per annum across the area sufficient housing is anticipated to be available for the net additional jobs generated

by HNRFI even without
taking into consideration
local unemployed
residents finding a job in
HNRFI.
- Therefore the above
doesn't affect the
conclusions of our
assessment on the effect
of HNRFI on local housing.
PREPARED TO AGREE
REGARDING LONG TERM
HOUSING SUPPLY AND
LABOUR AVAILABILITY
BASED ON STANDARD
METHOD
- REMAINING
INADEQUATE / MISSING
ANALYSIS OF WAGES AND
HOUSING AFFORDABLITY
ISSUES THAT WILL HAVE A BEARING ON LABOUR
ORIGINS
CHIDINS

### 1.10 Health

Version	Date	Issued by
01		TSH
02		BDC
03		TSH
04	28.07.2022	BDC
05	15/08/2023	TSH

# **Health Matters agreed**

Ref.	Matter agreed	Record of agreement
1.	As agreed during the formal Scoping Process with the Planning Inspectorate, the approach to considering the health and wellbeing of communities, was to focus on environmental socio, cultural and economic precursors protective of the environment and health.	Agreed
2.	Appendix 7.1 Health and Equality Briefing Note (document reference 6.2.7.1) was prepared to aid signposting as to how and where health was addressed and assessed in the DCO ES.	Agreed
3.	A supplementary statement on equality was prepared in Appendix 7.2 to respond to the PINS s51 Advice letter and more clearly demonstrates the effects of the Proposed Development on those persons with protected characteristics as defined under the Equality Act 2010 (as amended).  A Rule 17 response was received from the Planning Inspectorate regarding preferred terminology, and the revised Equality Statement is being resubmitted. There is no change to the assessment or conclusion.	Agreed
1		Agrood
4.	Potential impacts on local water supply, foul water, surface water, flood risk and EMF are addressed through planning and the	Agreed

	regulatory planning process to preclude any risk or impact to health. These items can be deferred to the pertinent technical disciplines, and does not need to be addressed through a health topic at the Issue Specific Hearing	
5.	Potential changes in local air quality during both construction and operation remain within air quality objective thresholds set specifically to be protective of health for vulnerable members of the population, and the absolute change in concentration and exposure remains orders of magnitude lower than is required to quantify any measurable adverse health outcome.	Agreed
	As such, this item can be retained under the air quality technical disciplines, and does not need to be addressed through a health topic at the Issue Specific Hearing.	
	Iceni and BDC has requested further clarification on this point in the form of high level Quantitative Exposure Response Assessment. The Applicant's position is that this request is excessive given the negligible effect of the proposal on air quality. The Applicant will prepare a separate technical note clarifying its position at the ExA's request.	
6.	As detailed in the ES and noted in the Health and Equality Briefing Note, following the implementation of mitigation, the change in noise levels are below what is considered perceptible during the day and night time periods; as a result, design and mitigation precludes any significant health impact. The item can be deferred to the acoustic noise and vibration technical discipline, and does not need to be addressed through a health topic at the Issue Specific Hearing.	Partial Agreement (parked until the noise technical specialists are in agreement, but the Applicant's position remains that the technical discipline is there to manage unwanted sound, preclude health impacts and won't need a separate health topic at the Issue Specific Hearing).
7.	Changes in visual impact are not of an order to result in any measurable adverse health outcome. The more subjective potential effect of visual impact is adequately	Agreed

#### STATEMENT OF COMMON GROUND♦ HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

	addressed within the Visual Impact technical discipline to recognised methods and an agreed scope.	
	The item can be deferred to the Visual Impact technical discipline, and does not need to be addressed through a health topic at the Issue Specific Hearing.	
8.	Income and employment are key determinants of health, which are addressed through the socio-economic Technical Discipline.	Agreed
	The item can be deferred to the socio- economic Impact technical discipline, and does not need to be addressed through any additional considerations of health at Issue Specific Hearing.	
9.	Potential changes in Public Rights of Way and Green Space are addressed, assessed and mitigated within the ES, to preclude any significant adverse health outcome, manage disruption and provide alternative provision. While residual impacts at the individual level may exist, they are not of a level to quantify any change in health outcome.	Partial Agreement (Parked, and anticipated that this can be addressed through the technical discipline that precludes health outcome, as there is no measurable risk)
	The item can be deferred to the technical discipline, and does not need to be addressed through a health topic at Issue Specific Hearing.	
10.	The health baseline applied in the Health Briefing Note was to provide further context and awareness of local circumstance priority and need. It complements the appropriate topic specific baselines contained in the ES, whose geographical scopes were agreed during scoping and vary by topic, depending on the nature of varying focus, scope, distribution characteristics and effect.	Agreed
	The Public Health Team have reviewed the contextual health baseline in the Health and Equality Briefing Note, and while minor discrepancies exist due to the granularity of	

#### STATEMENT OF COMMON GROUND ♦ HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

	data applied (ward, Super Output Area etc.) and temporal periods, these are not material. This contextual information, which complements the topic specific baseline data, has no impact on the assessment conclusions or assessment of significance.  While further clarification on the geographic scope for each technical discipline within the ES has been requested to rationalise the contextual baseline in the Health and Equality Briefing Note, this has no bearing on the ES, and does not require a health topic discussion at the Issue Specific Hearing.	
11.	Mental health has been raised as a residual concern, however, none of the environmental changes are sufficient to cause any manifest mental health outcome. It is unclear if Iceni are referring to general stress and anxiety from the imposition of change, or risk perception. The potential for perception to cause anxiety can only be addressed through the factual investigation and dissemination of robust information, as contained in the ES.	Parked I am still not clear what you mean by mental health, and from what? Please can you explain what gap you have or countervailing evidence of a significant mental health impact.

#### Matters not agreed

Ref.	Matters not agreed	Any actions rising
12.	Concern has been raised regarding a potential breach of the Equality Act.  Comments so far centre on the potential failure to consider the traveling community in proximity to the site. However, they are categorically identified in each of the pertinent technical disciplines as sensitive receptors. It was deemed unnecessary and undesirable to repeat every technical discipline receptor methodology and sensitivity rating in the Health and Equality Briefing Note.	It is hoped that this clarification text is sufficient to remove this as a disagreement.  If not, the matter will proceed to the health topic Issue Specific Hearing.

Concern has also been raised regarding discrimination against disabled individuals due to additional down time at Narborough level crossing. However, this does not discriminate against any protected characteristic as the barrier does not selectively open or close depending on age, sex, ethnicity, sexual orientation, disability etc. In other words all members of the population are equally affected by barrier down time.

Furthermore, there is no significant disproportionate impact, where the Network Rail analysis of Narborough Station and crossing indicates the only possible time for additional intermodal freight trains would be for 2 trains between 4 – 7 pm. Each train would cause a maximum barrier downtime of 2.5mins. This is far less than a stopping passenger train coming from Leicester, which is 4-5 minutes.

In each hour the total barrier down time would be approximately 20 minutes, with 40 minutes open which is well within Network Rail's acceptable barrier down time at a level crossing. This does not constitute a significant impact to health, equality or constitute any significant impact on emergency services.

The Equality Act is to prevent illegal discrimination, foster opportunity for improved equality, and relations between those with and without a protected characteristic.

Concern has been raised regarding the absence of an equality baseline to establish the presence of individuals with a protected characteristic.

As previously explained, it is not appropriate or needed to set a detailed baseline for age, gender reassignment, being married or in a civil partnership, being pregnant or on maternity leave, disability, race including colour, nationality, ethnic or national origin, religion or belief, sex or sexual orientation.

It is hoped that this clarification text is sufficient to remove this as a disagreement.

If not, the matter will proceed to the health topic Issue Specific Hearing which we consider to be a waste of Examination time.

To do so firstly runs the risk of discrimination, but it also sets a level of false accuracy, as the data will never fully capture all of the characteristics, or account for how some of these characteristics vary over stages of life and none will be static spatially.

As an example, if there was a baseline that indicated the absence of all protected characteristics at that time, then any individual missed in that baseline, or moved in following it, would not be considered. Equally, depending on personal circumstance and stage of life, an individual could fall within and out of the definition of a protected characteristic.

Asking for a baseline that will not be accurate, or to enter this into the public domain that might result in discrimination is therefore inappropriate and contrary to the Equality Act.

The correct approach is to therefore consider the hazard in general, and then consider if it presents any discrimination or disproportionate risk to any and all of the protected characteristics (irrespective of if you know they are present or not).

This way you don't need to know who lives in which house, it removes false accuracy, and you have a far broader and more precautionary means to test any discrimination or disproportionate risk from what is proposed.

14.

There remains a fundamental disagreement to the Planning Inspectorate's agreed approach and scope to the assessment of health, and that a voluntary, non-regulatory Health Impact Assessment would have been preferential. The Applicant's position remains that no evidence has been advanced to substantiate this point and that the health briefing note that it produced to help consolidate the relevant information was constructive, and a more than sufficient response to concerns raised during consultation.

Disagree

Do you still want this one in there?

## STATEMENT OF COMMON GROUND♦ HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

#### 1.11 Contaminated Land

Version	Date	Issued by
01	12/05/2023	TSH
02	N/A	N/A
03	15/08/2023	TSH

#### Matters agreed

Ref.	Matter agreed	Record of agreement
1.	ES Chapters 15 and 16 have been prepared in accordance with the National Policy Statement for National Networks (NPSNN)	Agreed through this SoCG
2.	The contaminated land requirement is agreed.	Agreed through this SoCG
3.	Paragraphs 1.110 – 1.115 under the section Ground Conditions, Contamination and Hazardous Material.	Agreed through this SoCG
3.	The approach to considering contamination and the proposed remediation of the site in general is accepted.	The response to the Stage 2 Statutory Consultation and agreed through this SoCG
	Preliminary Ground investigation has been completed which has not identified any significant contamination sources at the site.	
	Potential contamination source may be present around existing farms including fuel storage and asbestos in farm buildings.  Detailed investigation will be required and a remediation strategy prepared following examination.	
	The remediation strategy will include contingency measures for dealing with any unidentified contamination.	
	A verification report will be prepared to	

#### STATEMENT OF COMMON GROUND♦ HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

	demonstrate that the remediation strategy has been implemented and the site is suitable for use.	
4.	The development will include incorporation of interceptors and sealed drainage systems in operational areas, yards and chemical storage will prevent any deterioration of underlying groundwater quality during the life of the development.	The response to the Stage 2 Statutory Consultation and agreed through this SoCG
5.	There would be a watching brief during removal of any existing tanks during decommissioning and demolition	Meeting 23 November 2022 and secured through the details to be submitted as part of the contaminated land requirement.
6.	ES Chapter 17 agrees with the ambitions to reuse most demolition materials from existing buildings and barns within the development. Off-site removal to landfill is to be minimised, with the exception of any contaminants (e.g. asbestos). This is included as an aim within a Site Waste Management Plan/Materials Management Plan.	Agreed through this SoCG

#### Matters not agreed

Ref.	Matter agreed	Record of agreement
	n/a	

#### 2. AGREEMENT ON THIS SOCG

This Statement of Common Ground has been jointly prepared and agreed by:

Name:	
Signature:	
Position:	
On behalf of:	Tritax Symmetry (Hinckley) Limited
Date:	
Name:	
Signature:	
Position:	·
-	
On behalf of:	Blaby District Council
Date:	
-	

## Appendix A

# Tritax Symmetry (Hinckley) Limited HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

#### The Hinckley National Rail Freight Interchange Development Consent Order

**Project reference TR050007** 

**Technical Note for Obtrusive Light** 

Report Prepared by: BWB Consulting Ltd

Revision: 04

#### October 2023

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(a)

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 Regulation 14

## This document forms a part of the Environmental Statement for the Hinckley National Rail Freight Interchange project.

Tritax Symmetry (Hinckley) Limited (TSH) has applied to the Secretary of State for Transport for a Development Consent Order (DCO) for the Hinckley National Rail Freight Interchange (HNRFI).

To help inform the determination of the DCO application, TSH has undertaken an environmental impact assessment (EIA) of its proposals. EIA is a process that aims to improve the environmental design of a development proposal, and to provide the decision maker with sufficient information about the environmental effects of the project to make a decision.

The findings of an EIA are described in a written report known as an Environmental Statement (ES). An ES provides environmental information about the scheme, including a description of the development, its predicted environmental effects and the measures proposed to ameliorate any adverse effects.

Further details about the proposed Hinckley National Rail Freight Interchange are available on the project website:

http://www.hinckleynrfi.co.uk/

The DCO application and documents relating to the examination of the proposed development can be viewed on the Planning Inspectorate's National Infrastructure Planning website:

https://infrastructure.planninginspectorate.gov.uk/projects/east-midlands/hinckley-national-rail-freight-interchange/

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#### DOCUMENT ISSUE RECORD

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Appendix 1: Obtrusive Light Layout
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#### 1. INTRODUCTION

#### Instruction

- 1.1. BWB Consulting (BWB) was instructed by Tritax Symmetry to carry out a Technical Note to supplement the Lighting Strategy (ES Appendix 3.2, Document reference: 6.2.3.2, APP-132 to APP-134) for the Proposed Development.
- 1.2. This Technical Note has been produced to provide additional information to supplement the original Lighting Strategy following requests made by consultees as part of the Statement of Common Ground (SoCG) process.
- 1.3. The full project description is in included in Environmental Statement Volume 1: Main Statement, Chapter 3: Project Description (Document reference 6.1.3, APP-112), hereafter referred to as the 'Proposed Development'.

#### **Scope of Works**

- 1.1. The primary objective of this Technical Note is to reach a common agreement between Tritax Symmetry and relevant stakeholders in respect to external lighting at the Proposed Development by:
  - Demonstrating, by calculated examples, that the Proposed Development can be provided with an external lighting installation that complies with the criteria as set out in the Lighting Strategy, while not exceeding the obtrusive light limitations outlined herein.
  - Provide additional clarification, information and criteria for reference to applicable elements that was not specifically covered in the original Lighting Strategy.

#### 2. RELEVANT POLICY AND GUIDANCE

2.1. Relevant international, national, and local policy documents are summarised in this section and are provided to supplement the documents referenced in Section 2 of the Lighting Strategy.

#### **International Guidance**

#### Glare Evaluation System (CIE 112)

- 2.2. This technical report describes a practical glare evaluation system for outdoor sports- and area lighting. The system can be used both for checking the glare situation of existing installations, provided suitable measuring instrumentation is available, and for predicting the degree of glare at the design stage for new installations, but the validity of the system is restricted to viewing directions below eye level. For the main categories of these applications, general glare rating limits are specified.
- 2.3. CIE 112 provides a nine-point glare assessment scale which is summarised in **Table 2.1.** This scale provides insight in the practical meaning of differences in glare ratings for the purposes of evaluating predicted glare.

Table 2.1: Nine-point glare assessment scale

Glare control mark GF		Glare rating GR
1	Unbearable	90
2		80
3	Disturbing	70
4		60
5	Just admissible	50
6		40
7	Noticeable	30
8		20
9	Unnoticeable	10

2.4. CIE 112 also provides recommendations for glare rating limits for various types of application. This table is summarised in **Table 2.2**.

Table 2.2: Recommended glare rating limits

Type of application		GR <sub>max</sub>
Lighting for		
	Low Risk	55
Safety and Security	Medium Risk	50
	High Risk	45
	Pedestrians only	55
Movement and Safety	Slow moving traffic	50
	Normal traffic	45
	Very rough	55
Work	Rough – medium	50
	Rough – fine	45

#### Institute of Lighting Professionals (ILP) Guidance

## ILP Professional Lighting Guide (PLG) 04 - Guidance on Undertaking Environmental Lighting Impact Assessments (2013)

2.6. This document is designed to provide and explanation of, and guidance on, the process for producing a Lighting Assessment. It can also be used as a prompt for the lighting designer on important aspects of specific projects which should be used to remove or minimise potential environmental problems.

#### ILP Guidance Notes for the Reduction of Obtrusive Light (Guidance Note 01/21)

- 2.7. This guide is intended to be used in the planning context and can be applied through planning conditions. It sets out best practice for lighting design and control of obtrusive light (light pollution), defines environmental zone categories based on their capacity to absorb lighting effects, and gives guidance on the limitation of obtrusive light in terms of sky glow, glare and light trespass for each category.
- 2.8. The limits for the luminous intensity (Glare) of bright luminaires are dependent on the viewing distance d, (between the observer and the bright luminaire(s)) and the projected area A<sub>p</sub>, of the bright part of the luminaire in the direction of the observer.
- 2.9. The ILP GN 01/21 provides limits for the luminous intensity of bright luminaires. **Table 2.3** shows the maximum values for the luminous intensity of luminaires in designated directions where views of bright surfaces of luminaires are likely to be a nuisance to occupants of premises. This table is referenced from Commission International e L'Eclairage (CIE 150:2017) *Guide on the Limitation of Effects of Obtrusive Light from Outdoor Lighting Installations*.

Table 2.3: Limits for the luminous intensity of bright luminaires

Light	Application		Luminaire group (projected area A <sub>p</sub> in m²)				
technical	conditions	0 <a<sub>p</a<sub>	0.002 <a<sub>p</a<sub>	0.01 <a<sub>p</a<sub>	0.03< A <sub>p</sub>	0.13 <a<sub>p</a<sub>	$A_p > 0.5$
parameter		≤0.002	≤0.01	≤0.03	≤0.13	≤0.50	
	EO						
	Pre-curfew	0	0	0	0	0	0
	Post-curfew	0	0	0	0	0	0
	E1						
Maximum	Pre-curfew	0.29 d	0.3 d	1.3 d	2.5 d	5.1 d	2,500
luminous	Post-curfew	0	0	0	0	0	0
intensity	E2						
emitted	Pre-curfew	0.57 d	1.3 d	2.5 d	5.0 d	10 d	7,500
by	Post-curfew	0.29 d	0.63 d	1.3 d	2.5 d	5.1 d	500
luminaire	E3						
(I in cd)	Pre-curfew	0.86 d	1.9 d	3.8 d	7.5 d	15 d	10,000
	Post-curfew	0.29 d	0.63 d	1.3 d	2.5 d	5.1 d	1,000
	E4						
	Pre-curfew	1.4 d	3.1 d	6.3 d	13 d	26 d	25,000
	Post-curfew	0.29 d	0.63 d	1.3 d	2.5 d	5.1 d	2,500
Aid to gaugi	ng A <sub>p</sub>	2 to 5cm	5 to 10cm	10 to 20cm	20 to 40cm	40 to 80cm	>80cm
Geometric mean of diameter (cm)		3.2	7.1	14.1	26.3	56.6	>80
Corresponding A <sub>P</sub> representative area (m2)		0.0008	0.004	0.016	0.063	0.251	>0.5

#### NOTE:

- 1. 'd' is the distance between the observer and the glare source in meters;
- 2. A luminous intensity of 0 cd can only be realised by a luminaire with a complete cut off in the designated directions;
- 3. AP is the apparent surface of the light source seen from the observer position;
- 4. For further information refer to Annex C of CIE 150
- 5. Upper limits for each zone shall be taken as those with column  $A_p>0.5$
- 2.10. The limits for light intrusion (Illuminance in the vertical plane) for each Environmental Zone are described in **Table 2.4**, extracted from the ILP GN01/21 guidance.

Table 2.4: Maximum values of vertical illuminance on properties.

Light Technical Parameter	Application Conditions	Environmental Zones				
		E0	E1	<b>E2</b>	E3	E4
Illuminance in the vertical plane $(E_v)$	Pre-curfew	n/a	2 lx	5 lx	10 lx	25 lx
	Post-curfew	n/a	<0.1 lx	1 lx	2 lx	5 lx

#### 3. METHODOLOGY

#### Introduction

- 3.1. The original lighting model, used to generate the indicative lighting layout which was appended to the Lighting Strategy, shall be rebuilt in alternative lighting calculation software to enable additional detailed assessment of the lighting installation. AGi32 is an advanced industry standard lighting design software package, capable of undertaking luminous intensity assessments on residential receptors based on the CIE 150:2017 methodology and calculating glare rating for assessment against the CIE 112 glare assessment scale.
- 3.2. For the purpose of the obtrusive light assessment, all luminaires reasonably considered to contribute to any quantity of obtrusive light upon the receptors identified shall be modelled.
- 3.3. The Maintenance Factor for all luminaires shall be set to 1.0 to represent a worst-case scenario for the obtrusive light assessment. This shall enable the scheme to be assessed based on the "day-one" lumen output for all luminaires. This is in accordance with the recommendations of ILP PLG 04 (2013). The original indicative lighting design as part of the Lighting Strategy based on a Maintenance Factor of 0.9 in line with the applicable guidance for external lighting design to allow for the luminaire degradation over time.
- 3.4. In order to accurately assess obtrusive light at the identified sensitive receptors, all calculation planes and points shall be inserted into the model based on existing topographical information and the proposed earthworks levels of the Proposed Development.
- 3.5. The lighting model shall not consider any existing vegetation and off-site buildings. Any existing screening therefore shall not be accounted for to simulate a conservative worst-case scenario for the assessment of obtrusive light.

#### **Obtrusive Light Limits**

- 3.1. The following obtrusive light limitations have been established based on the methodology provided by ILP GN01/21, CIE 150 and CIE 112.
- 3.2. To demonstrate acceptable levels of obtrusive light, the lighting model shall prove that these limitations are not exceeded. Acceptable levels shall be proven based on an external lighting scheme that complies with the criteria as set out in the Lighting Strategy which is to be used for any proposed lighting design at detailed stage.

#### **Residential Receptors**

- 3.3. ILP GN01/21 and CIE 150 methodology shall be utilised to undertake obtrusive light assessments on the identified residential receptors.
- 3.4. As established in the Lighting Strategy, the Site has been deemed to fall into Environmental Zone E2, defined as a rural surrounding with low district brightness. Obtrusive light calculations on residential properties shall therefore be undertaken based on the criteria set out in **Table 2.3** and **2.4**. Post-curfew criteria shall be utilised in order to demonstrate the worst-case scenario.
- 3.5. The exact positions of the residential property windows assessed can not be accurately established therefore the full extents of all elevations of residential properties shall be calculated.
- 3.6. The maximum acceptable illuminance in the vertical plane  $(E_{\nu})$  for an Environmental Zone E2

area (post-curfew) is 1 lux. The maximum allowable glare (source intensity) value is calculated from CIE 150:2017 and varies by Projected Area sq.m., Distance Factor and Viewing Angle. Calculations shall be undertaken AGi32, resulting in a confirmed PASS/FAIL result for each receptor.

#### Railway and Highway Receptors

- 3.7. The CIE 112 glare assessment methodology shall be utilised to undertake obtrusive light assessments on railway and highway receptors.
- 3.8. With reference to **Table 2.2** both railway and highway applications are considered as Normal Traffic Areas. The glare rating limit (GR<sub>max</sub>) for this application is 45, which is also the most sensitive limit noted in CIE 112. In practical terms, with reference to **Table 2.1**, this limit is considered to fall between *Noticeable* (30) and *Just Admissible* (50).
- 3.9. A number of sample railway and highway receptor points shall be included in the assessment. The receptors shall be positioned 1.5m above their respective existing elevation based on the topographical information. Calculations shall be undertaken AGi32 and shall be assessed against the limits set out above.

#### 4. OBTRUSIVE LIGHT ASSESSMENT

#### **Lighting Model Development**

- 4.1. The original lighting model was used to produce the indicative lighting layout which was appended to the Lighting Strategy was based on horizontal average lux levels and uniformity values. For the additional assessments proposed the original lighting model has since been reproduced in AGi32.
- 4.2. The new lighting model used to form the basis of this assessment replicates the Design Parameters and Performance Criteria set out in the Lighting Strategy.
- 4.3. This assessment has been undertaken in accordance with the methodology set out above.
- 4.4. The lighting model has been further developed to demonstrate that the Proposed Development can be provided with an external lighting installation that complies with the criteria as set out in the Lighting Strategy, while not exceeding the obtrusive light limitations outlined above.
- 4.5. The lighting model has been utilised to produce an Obtrusive Light Layout drawing which can be viewed in **Appendix 1**. This drawing illustrates the luminaires modelled, receptor locations, sample on-site calculations and horizontal lux contours. The drawing also includes a schedule of luminaires used within the model and a detailed summary of the calculation results.
- 4.6. **Table 4.1** summarises the key design developments that have been implemented to the lighting model and explains the reasons behind the amendments.

Table 4.1: Key Developments to the Lighting Model

Design Development	Reason
Substitution of Luminaire Type 'A', on a	Improved luminous intensity at angles towards sensitive
'point-for-point' basis	receptors
Substitution of Luminaire Type 'J', on a	Improved luminous intensity at angles towards sensitive
point-for-point basis	receptors
Reconfiguration of Luminaire Type 'L-	Improved calculated glare rating on the railway
Twin' and 'K' at the extreme ends of	
the rail chord	

4.7. Sample on-site calculations have been provided at areas within the immediate vicinity of where design development has taken place to demonstrate the Performance Criteria as set out in the Lighting Strategy can still be achieved. The calculation results at areas which are considered to have been affected are provided in **Table 4.2**. The calculated results appear slightly higher than the target results owing to the 1.0 Maintenance Factor.

**Table 4.2: Sample On-Site Calculations** 

Type of area, task, or activity	Target Maintained illuminance, Em (Lux)	Target Illuminance uniformity, U0	Calculated Maintained illuminance, Em (Lux)	Calculated Illuminance uniformity, U0
Container Stack	50	0.40	59.3	0.72
Railport Returns	30	0.40	35.2	0.50
Service Yard	30	0.40	36.2	0.41

#### **Residential Receptors**

- 4.8. Obtrusive light assessments have been undertaken at the following residential properties.
  - Travellers Site (Aston Firs Caravan Park);
  - Bridge Farm; and,
  - Langton Farm.
- 4.9. Any residential properties situated further away from the Proposed Development, relative to the above properties, are reasonably assumed to experience less obtrusive light and have therefore not been considered as part of the additional assessment.

#### **Light Intrusion**

4.10. The calculated light intrusion results are summarised in **Table 4.3**.

**Table 4.3: Light Intrusion Assessment** 

Receptor	Light Intrusion Limit (lux)	Calculated Maximum Light Intrusion (lux)	Result
Travellers Site	1.0	0.0	PASS
Bridge Farm	1.0	0.1	PASS
Langton Farm	1.0	0.0	PASS

4.11. **Table 4.3** demonstrates that the calculated levels of light intrusion comply with the ILP GN01/21 and CIE 150 guidance limits for Environmental Zone E2 post-curfew conditions.

#### **Luminous intensity**

4.12. The calculated luminous intensity results are summarised in **Table 4.4**.

**Table 4.4: Luminous Intensity Assessment** 

Receptor	Luminous Intensity Limit (Cd)	Calculated Maximum Luminous Intensity (Cd)	Result
Travellers Site	See Note 1	132	PASS
Bridge Farm	See Note 1	306	PASS
Langton Farm	See Note 1	191	PASS

#### NOTE:

- 1. The luminous intensity limit varies for each receptor based on Projected Area sq.m., Distance Factor and Viewing Angle, in accordance with the CIE 150 methodology. AGi32 outputs a PASS result only in the instance where the specific limit is not exceeded.
- 4.13. **Table 4.4** demonstrates that the calculated levels of luminous intensity comply with the ILP GN01/21 and CIE 150 guidance limits for Environmental Zone E2 post-curfew conditions.

#### **Railway and Highway Receptors**

- 4.14. Obtrusive light assessments have been undertaken at the following railway and highways properties.
  - M69 Motorway; and,
  - Birmingham-Peterborough Railway.
- 4.15. Any railway and highway situated further away from the Proposed Development, relative to the above, are reasonably assumed to experience less obtrusive light and have therefore not been considered as part of the assessment.

#### Glare Rating

4.16. The calculated glare rating results are summarised in **Table 4.5**.

**Table 4.5: Glare Rating Assessment** 

Receptor	Glare Rating Limit (GR <sub>max</sub> )	Calculated Glare Rating (GR)	Result
M69 North Obs 1	45	25.4	PASS
M69 North Obs 2	45	19.9	PASS
M69 North Obs 3	45	19.7	PASS
M69 North Obs 4	45	18.2	PASS
M69 North Obs 5	45	19.3	PASS
M69 North Obs 6	45	25.9	PASS
M69 South Obs 1	45	35.1	PASS
M69 South Obs 2	45	37.1	PASS
M69 South Obs 3	45	34.9	PASS
M69 South Obs 4	45	36.5	PASS
M69 South Obs 5	45	42.7	PASS
M69 South Obs 6	45	36.0	PASS
M69 South Obs 7	45	35.4	PASS
M69 South Obs 8	45	34.6	PASS
Railway Obs 1	45	31.0	PASS
Railway Obs 2	45	29.4	PASS
Railway Obs 3	45	30.1	PASS
Railway Obs 4	45	28.4	PASS
Railway Obs 5	45	30.2	PASS
Railway Obs 6	45	28.3	PASS
Railway Obs 7	45	30.2	PASS
Railway Obs 8	45	27.8	PASS

4.17. **Table 4.5** demonstrates that the calculated levels of glare on railway and highway receptors comply with the CIE 112 guidance limits for glare at Normal Traffic Areas.

#### **Luminaire Selection**

- 4.18. The lighting model has been produced with high quality luminaires as manufactured by Holophane Lighting, Urbis Schreder, Kingfisher Lighting and Kellwood Lighting. Manufacturer's Information can be viewed in **Appendix 2**.
- 4.19. The final detailed design may deviate from the lighting design presented and/or luminaires selected however any amended or updated design shall meet all parameters and criteria as set out the Lighting Strategy and demonstrate compliant levels of obtrusive light as per the assessments in this Technical Note. An adequate and safe level of lighting must be provided for site tasks, amenity, and security, whilst maintaining acceptable impact on the site surroundings, environment, railway and neighbouring properties.

**Table 4.6: Proposed luminaires.** 

Luminaire type	Manufacturer information	Image
Column mounted	Holophane Lighting – D-Series	
Building mounted	Mounting height 6m – 12m	
	2,000 – 30,000 Lumens	
	CRI>70	
	Variety of optics	
	Die-cast aluminium body IP65, IK10	
Column mounted	Kingfisher Lighting – Zactis	
Building mounted	Mounting height 6m – 12m	
	16,790 - 46,768 Lumens	· · · · · · · · · · · · · · · · · · ·
	CRI>70	
	Variety of optics	
	Die-cast aluminium body IP65, IK10	
High mast	Kellwood Lighting – Ayrton Series	
	Mounting height 20m – 25m	
	58,420 - 116,840 Lumens	
	CRI>70	
	Variety of optics	
	Aluminium allow body IP67, IK07	

Column Mounted	Urbis Schreder – Ampera Evo 3	
A47 Link Road	Mounting height 8m – 10m	
	600 – 21200 Lumens	
	CRI>70	l"
	Variety of optics	
	Die-cast aluminium body IP65, IK09	

#### **Clarifications**

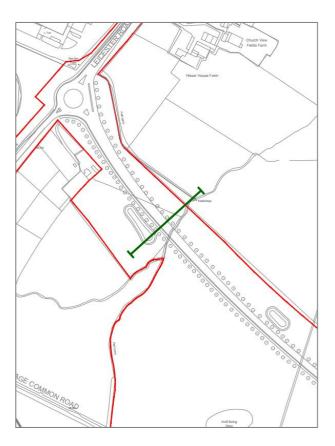
#### **Car Park Lighting**

- 4.20. The target maintained illuminance and uniformity in car park areas shall range between 10 20 lux at 0.25 uniformity. This range is in line with BS EN 12464-2:2014 Light and lighting Lighting of work places Part 2: Outdoor work places, Table 5.9.2 Parking areas, Medium traffic (10 lux) and Table 5.9.3 Parking areas, Heavy traffic (20 lux).
- 4.21. The final lux level shall be defined as part of the detailed design based upon the anticipated final use and/or end user criteria. The lux level shall be within the stated 10 20 lux.

#### **Link Road Lighting**

- 4.22. In reference to the proposed Link Road and clauses 5.36 to 5.39 of the Lighting Strategy, the proposed Link Road connects the M69 Junction 2 with a proposed roundabout on the B4668 to provide connectivity to the A47. Both the M69 Junction 2 and the B4668 are currently illuminated by adoptable standard street lighting at the locations where the Link Road is proposed to connect.
- 4.23. The Link Road is currently anticipated to be illuminated between the M69 Junction 2 and the railway bridge only, the remainder of the Link Road is not currently anticipated to be illuminated and will remain unlit as existing.
- 4.24. At the proposed junction on the B4668 lighting will be provided to the requirements of Leicestershire Highways and to match existing which is expected to extend as far as five seconds drive time from the proposed junction as indicated in **Figure 4.1**.

Figure 4.1: Five seconds driving time from the proposed junction on the B4668



#### **Construction Phase Lighting**

- 4.25. In addition to the measures outlined in the Lighting Strategy, the following additional measures should also be incorporated into the CEMP:
  - Lighting should not be aimed towards sensitive receptors, and where possible be downward facing.
  - To improve sustainability, lighting from diesel generators should be avoided where practicable.
  - If a construction compound is required for more than 1 year a more permanent lighting
    design should be required including columns to avoid overuse of temporary lighting
    units these units are historically harder to control light spill than traditional columnmounted lights.
  - Lighting should be controlled and on timers to ensure they are only on when needed. Regular checks by a contractor should be undertaken to ensure lights are not left on when not needed.

#### 5. CONCLUSION

- 5.1. The Obtrusive Light Assessment provided within this report demonstrates that the Proposed Development can be provided with an external lighting installation that complies with the parameters and criteria as set out in the Lighting Strategy, while not exceeding the defined obtrusive light limitations set out in this report and the associated applicable guidance and standards identified.
- 5.2. The final detailed design of any phase of the Proposed Development may deviate from the lighting design presented within the Lighting Strategy and/or the Obtrusive Light layout however they shall meet all parameters and criteria as set out in the Lighting Strategy while not exceeding the defined obtrusive light limitations set out in this Technical Note.
- 5.3. The appointed Ecologist has reviewed the Obtrusive Light Layout included within **Appendix**1. The appointed Ecologist concluded that the light spill indicated is an overall improvement in terms of ecological impact in comparison to the original indicative lighting design presented as part of the Lighting Strategy.
- 5.4. In accordance with dDCO Requirement 31, each phase of the authorised development shall not be occupied until a scheme for all permanent lighting in that phase has been submitted to and approved by the relevant planning authority. The schemes submitted and approved must be in accordance with the lighting strategy.

#### **References**

- Commission Internationale De L'Eclairage Guide on the Limitation of Effects of Obtrusive Light from Outdoor Lighting Installations (CIE 150) (2017)
- Commission Internationale De L'Eclairage Glare Evaluation System (CIE 112) (1992)
- ILP Guidance Notes for the Reduction of Obtrusive Light GN01 (2021)
- ILP Professional Lighting Guide (PLG) 04 Guidance on Undertaking Environmental Lighting Impact Assessments (2013)

#### **Abbreviations**

CEMP	Construction Environmental Management Plan
CIE	Commission Internationale De L'Eclairage
CRI	Colour Rendering Index
EIA	Environmental Impact Assessment
ES	Environmental Statement
E <sub>m</sub>	Maintained Illuminance
E <sub>v</sub>	Illuminance in the Vertical Plane
GR	Glare Rating
$GR_{max}$	Maximum Glare Rating
ILP	Institute of Lighting Professionals
LED	Light Emitting Diode
u0	Illuminance Uniformity

#### **APPENDICES**

**Appendix** 1: Obtrusive Light Layout



This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

All dimensions in millimetres unless noted otherwise. All levels in Any discrepancies noted on site are to be reported to the engineer

For E2-Low District Brightness, Projected Area and Distance Factors (0.002, 0.29) (0.01, 0.63) (0.03, 1.3) (0.13, 2.5) (0.5, 5.1)

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INFRASTRUCTURE | BUILDINGS | Nottingham | 0115 924 1100 |

TRITAX SYMMETRY A TRITAX BIG BOX COMPANY

Hinckley National Rail

Freight Interchange

Electrical Services
Obtrusive Light Layout
Proposed Site Plan

BWB Ref: NTT2814 Date: 06.09.23 Scale@A0: 1:2500

#### **APPENDICES**

**Appendix 2: Manufacturer's Information** 





# D-SERIES

The modern styling of the **D-Series** is striking yet unobtrusive - making a bold, progressive statement as it blends seamlessly with its environment. **D-Series** takes all the benefits of LED technology and moulds it into a high performance, high efficacy and long life area lighting luminaire.

With its exceptional 'finned' thermal management system, **D-Series** is capable of delivering over 100,000 hours LED module life. Offering a wide range of lumen packages and optical distributions, **D-Series** delivers optimised lighting application designs.

With the integrated ZD4i compatibility **D-Series** delivers a controllable luminaire that helps you realise energy consumption goals and demonstrate environmental responsibility. With its unique optics placed below each LED it ensures light is delivered where it needs to be, providing a uniform Nightime Friendly environment with minimal light pollution.

#### **Applications**

- Amenity Areas
- Car Parks
- s W
- Retail Parks

#### Optics / Light Source

- Lumen packages ranging from 2,000 36,000 in 3 different luminaire variants
- Fully soak tested light engines ensuring LED reliability and eliminating early failures.
- 4000K/3000K colour temperature
- RA 70.

#### Approvals

Complies with EN60598



IP IP65 luminaire and LED optic

**Ta** -40°C to +40°C







For further information please visit the Holophane website www.holophane.co.uk

## AN ENVIABLE REPUTATION THROUGHOUT THE WORLD



When Holophane was founded in 1896 in London, headed by Pelham Trotter, it marked the start of an incredible history that has now seen Holophane become a global business revered throughout the world for its expertise, quality, innovation and excellence in lighting.

Holophane's first product was the famous patented globe in 'white' or 'rose crystal' that sold for around 2 shilling (10p). Today, Holophane continues this proud tradition with our values deeply rooted in the dedication to creating luminaires, with exceptional lighting performance, innovative patented technologies, and delivering added customer value beyond illumination.

### What does it mean for our customers?

#### A Trusted & Reliable UK Manufacturer

From Royalty all the way to small residential projects, Holophane has been a trusted manufacturer over the decades for all manner of projects. You can be sure you are in good hands and can rely on the collective knowledge and expertise we have gathered since our inception in 1896.

#### **Development of Innovative Products**

As part of our design philosophy, Holophane are always trying to push boundaries in the development of unique product innovations. As such many of our luminaires hold UK and International design patents.



#### **Products That Deliver Added Value**

In today's world, sustainability and added value are becoming increasingly important. As such our products and solutions go further than just lighting. Many of our innovations include integrated smart connected solutions to help customers achieve further energy savings and can also enable remote monitoring.

#### **Delivering excellent customer service**

Over our 125-year history we have always been committed to delivering the best service to our customers and supporting in a myriad of ways to ensure the best possible outcomes. This goes as far as offering a free lighting design service to one-off products/ solutions to meet customers unique needs.



4

# PRODUCT FEATURES

# **D-SERIES**



### **Enhanced** Performance

The **D-Series** range features the very latest LED technologies. In conjunction with PMMA optics this delivers the best lighting performance coupled with low-energy consumption and high efficacy. This also means D-Series meets BREEAM compliance.

0% ULOR

### **Class leading** optics

The **D-Series** range has the flexibility of 4 optimised optical distributions. Through using individual bubble optics per LED D-Series controls the light exactly where it's needed. This results in a luminaire that provides best in class spacings and uniformity.



The **D-Series** range has an easily accessible gear compartment ensuring fast and simple component changes if required.





DSX1



DSX2

### Connected

The **D-Series** range is ZD4i compatible when specified with the 4-pin Zhaga socket options (TZ01 or TZ02) enabling a future proof luminaire that can be used in conjunction with Controlux Air or a expanding ecosystem of third party devices and sensors.

**Note:** Post Top Bracket for The D-Series range is sold separately. Please enquire with your Holophane representative for the full range of mounting options.



# THERMAL MANAGEMENT

The reliability and performance of an LED luminaire is dependent on a combination of factors. Keeping the temperature of the drivers, LEDs and electronic components as low as possible is critical to maintaining the luminaire's efficiency.

One of Holophane's key luminaire design principles ensures that the **D-Series** family utilises all three heat transfer principles of conduction, convection and radiation.



# Convection

From luminaire heat sink chassis and LED module to ambient air.

The **D-Series** range is designed to have drivers and LEDs that are mounted separately to avoid compound heating of components. This ensures critical components are kept as cool as possible to ensure long system life.

# THERMAL MANAGEMENT



# Radiation

Surface finish and form designed to maximise heat radiation.

The **D-Series** range incorporates a large finned casting design which increases the total surface area of the luminaire and in turn helps to promote cooling through radiation.



# **SPECIFICATION**

#### **Specification**

Single-piece die-cast aluminium housing, that conforms to EN1706 AC-46500, with integral heat sink fins to optimise thermal management through conductive cooling. LED modules are IP65 with individual lenses, and high grade aluminium housing to transfer heat away from the LEDs and dissipate through the finned housing for cooling. The LED driver is mounted in direct contact with the finned housing for cooling to promote low operating temperature and long system life. Housing is completely sealed against moisture and environmental contaminants (IP65). Installation is via the integrated mounting block and integral arm that facilitate a quick and easy installation.

3000K or warmer must be selected for IDA dark sky certification.

#### **Features and benefits**

#### **System Longevity**

- The D-Series's diecast aluminium housing acts as its primary heat sink. Its longitudinal fins employ conductive cooling techniques to dissipate heat away from the key LED components and driver that extends the life of the luminaire.
- Light engine(s) consist of either 20 or 30 high efficacy LEDs (subject to chosen configuration) mounted to a metalcore circuit board to maximize heat dissipation and promote long life.

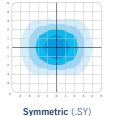
#### **Exceptional Performance**

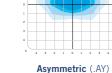
- Offering six lumen packages ranging from 2000 lm to 36,000 lm with efficiencies of up to 143 lpw (Lumens Per Watts).
- Three optimised distributions (asymmetric, symmetric and forward throw) delivered by quality LEDs and bespoke UV stabilised optics.
- LED light engines with 0% ULOR ensuring night time friendly.

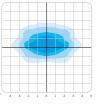
#### Complete Light Package

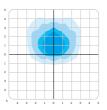
- Available with ZD4i compatibility for use with range of 3rd-party sensors and devices.
- Fully integrated into Holophane standard column range.

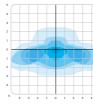
#### **Light Distributions**











Forward Throw (.FW)

Long & Narrow (.NR)

# **DIMENSIONS** & PERFORMANCE

#### Typical luminaire performance

Configuration	Delivered Lumens	Circuit Power (W)	Driver output current (mA)	Luminaire total number of LEDs	Luminaire efficacy (Ilm/W)
DSX0.1.LA02X	c.2,000	15	450	20	133
DSX0.1.LA03X	c.3,000	21	650	20	143
DSX0.1.LA04X	c.4,000	29	450	20	138
DSX0.1.LA05X	c.5,000	37	570	20	135
DSX0.1.LA06X	c.6,000	45	700	20	133
DSX0.1.LA08X	c.8,000	64	990	20	125
DSX0.1.LA10X	c.10,000	81	1250	20	123
DSX1.2.LA11X	c.11,000	105	1050	30	116
DSX1.2.LA16X	c.16,000	131	700	60	126
DSX1.2.LA22X	c.22,000	208	1050	60	113
DSX1.2.LA30X	c.30,000	286	1400	60	105
DSX2.2.LA30X	c.30,000	282	1050	100	115
DSX2.2.LA36X	c.36,000	328	1000	100	121

Weight (with control gear)

DSX 0 8.0 kg DSX 1 12.2 kg DSX 2 15.0 kg

Windage (effective projected area)

DSX 0 0.09 m<sup>2</sup> DSX 1 0.09 m<sup>2</sup> DSX 2 0.10 m<sup>2</sup>

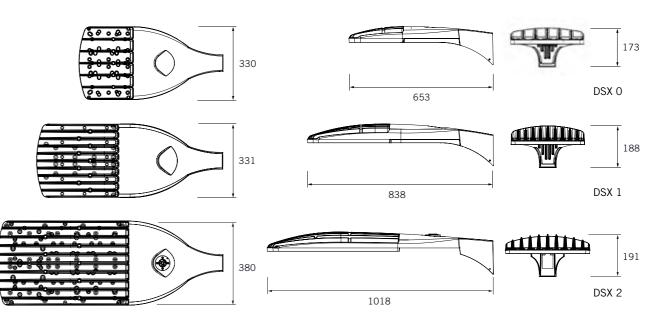
TA

-40°C to 40°C

\* For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.

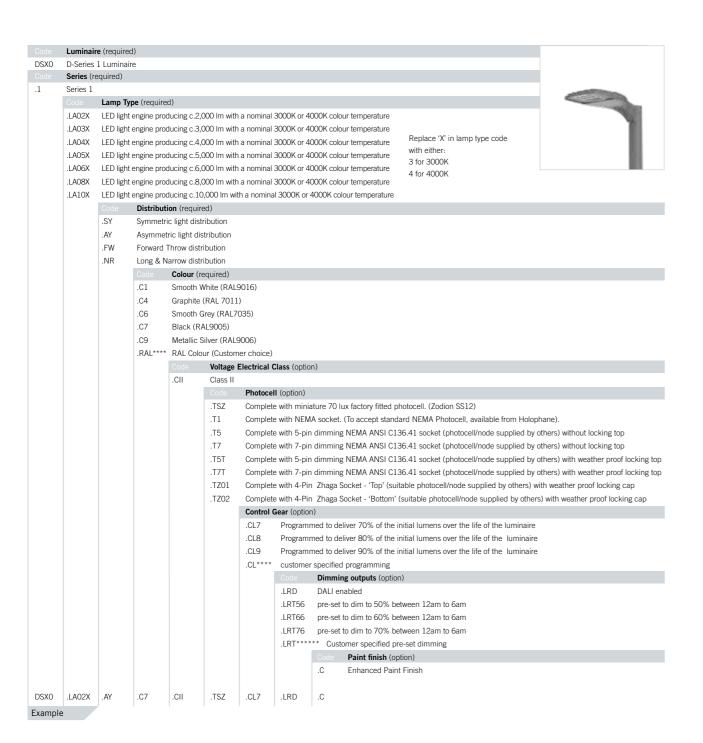


dimensions in mm



15 14





	Lumiral	o (roquire	d)							
		Luminaire (required) D-Series 1 Luminaire								
DSX1										
DSX2		2 Luminai								
		pe (require								
		_	t engine pro							
		_	t engine pro	_				-		
		_	t engine pro	_			With a nominal 3000K or 4000K colour temperature.			
		_	t engine pro	_			Replace X with 3 for 3000K or 4 for 4000K.			
		_	t engine pro	_						
		_	t engine pro	_						
			t engine pro							
	.LA364**	_	t engine pro			nens				
		Code		cion (requi	red)					
		.AY	Asymme							
		.SY	Symmetr					The state of the s		
		.FW	Forward							
			Code		required)					
			.C1 .C4 .C6 .C7 .C9		White (RAL					
					(RAL 701					
					Grey (RAL7	_				
				Black (RAL9005)  Metallic Silver (RAL9006)  *** RAL Colour (Customer choice)						
							)			
				Code		II (option)				
				.T	Mini Pho					
				.T1			MA socket (To accept standard NEMA Photocell, available from Holophane)	and a service of the		
				.T5			n dimming NEMA ANSI C136.41 socket (suitable photocell/node supplied by	= :		
				.T7			n dimming NEMA ANSI C136.41 socket (suitable photocell/node supplied by	= :		
				.T5T			n dimming NEMA ANSI C136.41 socket (photocell/node supplied by others)			
				.T7T			n dimming NEMA ANSI C136.41 socket (photocell/node supplied by others)			
				.TZ01			in Zhaga Socket - Top (suitable photocell/node supplied by others) with weath	= :		
				.TZ02	Complet		in Zhaga Socket – Bottom (suitable node/presence detector supplied by othe	rs) with weather proof locking top *		
					.CL7	Code	Control Gear (option) med to deliver 70% of the initial lumens over the life of the luminaire			
					.CL7	_	med to deliver 80% of the initial lumens over the life of the luminaire			
					.CL9	_	med to deliver 90% of the initial lumens over the life of the luminaire			
					.D2	_	electronic control gear			
					.02	Code	Dimming outputs (option)			
						.LRT56	3			
						.LRT66				
						.LRT76	Pre-set to dim to 70% between 12am to 6am			
							Code Paint finish (option)			
							.C Enhanced Paint Finish			
DSX1	.LA224	.AY	.C7	.T1	.CL7	.LRT56	.c			
		"	"							
Example	:									

\*DSX1 only +DSX1 & 2 \*\*DSX2 only

Note: The specifications of the Holophane luminaire, all descriptions, illustrations, drawings and specifications in the Holophane catalogue and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.

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# HIGH MAST HMAO

The High Mast Advanced Optix (HMAO) luminaire has been engineered for new and retrofit high mast applications. With the latest in high-efficiency LED technology it provides a complete lighting solution for the simplest through to the most complex area lighting applications.

The specially engineered optical modules come with a full range of distribution options to meet the highest performance standards and deliver outstanding visibility and uniformity. For over 125 years Holophane has enjoyed an enviable reputation throughout the world for expertise, quality and innovation in lighting. From the earliest days, when the company pioneered its famous glass refractor, the Holophane name has been ever present as a leader in the field of luminaire and lighting design. HMAO is a continuation of this proud tradition.

#### **Applications**

- Freight Terminals
- Industrial Facilities
- Car Parks •
- Truck ston
- Notor waysToll Plazas

#### Overview

- 3000°K & 4000°K colour temperature.
- CRI > 70
- Lumen packages ranging from 30,000 100,000 lumens.

#### Approvals



Complies with EN60598

IP65 and IK07

 $-20^{\circ}$ C to  $+45^{\circ}$ C (L75X limited to  $+40^{\circ}$ C

Durability
Performance
Reliability







For further information please visit the Holophane website **www.holophane.co.uk** 

# PRODUCT FEATURES

In this very competitive environment, it is becoming increasingly important to reduce operating costs and improve efficiency. Holophane is your expert when it comes to delivering the most efficient lighting solutions to help you achieve that goal.

Taking advantage of the most advanced technologies available, you can achieve an energy saving of up to 66% over existing installations. Holophane's High Mast Advanced Optix (HMAO) helps you to reduce installation and long term maintenance costs.

#### **Glass** Refractor •

The major advantage of glass over aluminium or plastic is its low electrostatic charge, which makes it less attractive to dust and dirt accumulation over time. A glass refractor has a much lower light depreciation over time than either aluminium or plastic, fewer luminaires are required, significantly reducing installation, operating and maintenance costs.



The glass optics and the vertical ventilation slots in the heat-sink chassis work together in creating a self-cleaning optic. The heat generated by the LEDs helps to channel cooler and denser air across the low static optical glass surface thus preventing the settling of dust particles and enhancing the lumen maintenance of the luminaire.

HMAO is available in 6, 9 or

12 optical pod configurations

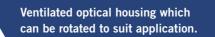
dependent on lumen package.

# HIGH MAST HMAO

Two piece electrical housing. Upper casting can be detached/hinged to aid installation.

# Advanced optical control

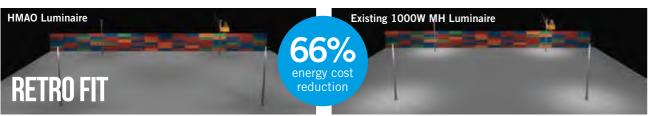
By combining the latest in LED technology with our advanced glass refractor optic we are able to break up the image of the LEDs with a PrismGlow effect. This reduces the glare normally associated with individual LEDs and eliminates hot stops on the working environment thus creating a more uniformed vertical and horizontal lighting solution.





# RETROFIT **NEW BUILD**

Customer benefit expressed in numbers on a new build and retrofit installation.



#### **Design Parameters**

- Designed to EN 12464-2:2014
- Target of 30 lux
- 30m mounting height in a 1000m grid
- Designed to 8000 hours

#### **Product Used**

32 High Mast Advanced Optix

- Luminous flux: c45,000
- Luminous efficiency: 144 lpw

32 1000MH Luminaire

- Luminous flux: c67,000
- Luminous efficiency: 62 lp/W

#### **Benefits**

- 66% year 1 energy savings
- Improved light control
- · Horizontal/vertical uniformity improved

#### Year 1 energy consumption 4.74 12.03 HMAO Existing 1000W MH

HMAO		1000W MH
32	No of Luminaires	32
32	Eav (lux)	31
0.597	Uniformity	0.552
12.03	Total Power Load kW	34.72
€4,831	Year 1 Energy	£13,940

Year 1

HMAO

26

30

0.779

13.00

£5,220

energy consumption

13.00

HMAO

No of Luminaires

Eav (lux)

Uniformity

Total Power Load kW

Year 1 Energy

Equivalent LED high mast luminaire

Equivalent LED

0.651

15.86

£6,368



#### **Design Parameters**

- Designed to EN 12464-2:2014
- Target of 30 lux
- 30m mounting height in a 1000m grid
- Designed to 8000 hours

\* Designed to EN12464-2:2014 ref 5.4

#### **Product Used**

26 High Mast Advanced Optix (HMAO)

- Luminous flux: c60.000
- Luminous efficiency: 144 lpw

26 Equivalent LED High Mast Luminaire

- Luminous flux: c56,000
- Luminous efficiency: 93 lp/W

#### **Benefits**

- 19% year 1 energy savings
- 20% improvement in uniformity
- Improved vertical illumination
- Low glare

#### **Specification**

**SPECIFICATION** 

HMAO shall consist of six, nine or twelve prismatic glass refractors manufactured from borosilicate glass to ensure longevity and minimise dirt depreciation. Each glass lens houses an LED module and creates individual optical pods. Each optical pod is housed in a fully ventilated and finned housing manufactured from aluminium to maximise heat transfer. The electrical housing consists of two castings containing the drivers, 10kV surge protection and electrical termination. The luminaire chassis and electrical housing utilises all three heat transfer mechanisms of conduction, convection and radiation to ensure that the high density modules and electronic drivers are thermally managed. Mounting is via the four bolt side arm mounting with +/-5 degree tilt and suitable for 42mm and 60mm.

3000K or warmer must be selected for IDA dark sky certification.

#### Features and benefits

#### Thermally Managed Solution

- Utilises convection and conduction to thermally manage the LEDs ensuring longer life and high delivered lumen outputs to replace 400-1000 watt metal halide systems.
- · Gear housing designed to maximise heat dissipation, via conduction, from critical electronic components to ensure that they are run as cool as possible to deliver a long system life.

#### **Exceptional Optical Performance**

- Glass refractor technology which delivers a wholly luminous effect that accurately controls the output of the LEDs, reduces glare with its 'PrismGlow' and delivers excellent uniformity.
- · Rotatable optical assembly providing on site alignment of distributions to specific lighting requirements and ensuring equal weight distribution on existing mast head frame.
- · Seven dedicated distributions designed for all types of retrofit or new installations where high mounting is required.

#### **Enhanced Lumen Maintenance**

- Glass optics ensure a low electrostatic charge which make it less attractive to dust and dirt accumulation over time so improving dirt depreciation.
- · Ventilated luminaire chassis works together with the glass optics to create self-cleaning system which enhances the lumen maintenance of the luminaire over time.

#### **Installation Flexibility**

· Suitable for side entry mounting via the integrated four bolt mounting system

#### **Light Distributions**





Symmetric (.SY)





High Beam

Long & Narrow (.NR)

Square Wide (.SQW)\*

which also offers 0 or 5 degree tilt.

# HIGH MAST SYSTEM

HMAO is available as a replacement for existing high mast luminaires or as part of a complete highmast system.

#### Holophane High Mast System

The most sophisticated system on the market. This mast system consists of a headframe mounting ring for luminaire mounting, winch assembly and suitably rated switchfuse mounted in the mast base, complete with foundation set. The latched raise and lower system utilises heavy duty stainless steel cables in conjunction with three continuous contact iris action guide arms on the lowering ring. This allows all maintenance to be carried out at ground level using a portable power tool connected to the mast supply.

Available at heights of 15m, 20m, 25m or 30m.



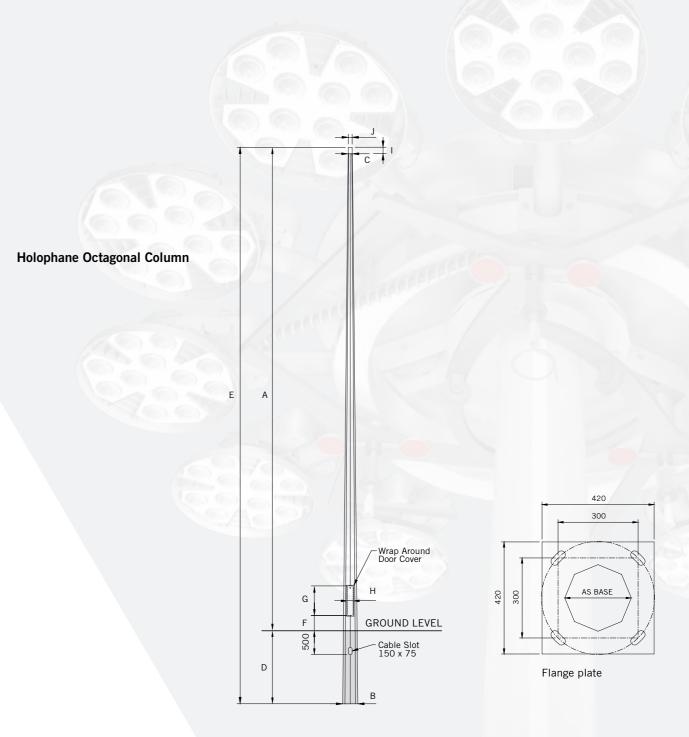


Positive fail-safe latching



Continuous contact guide arms

# HIGH MAST



	Nominal Height	Root End Diameter*	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length*	Spigot Diameter*	Shaft Diameter*	Weight kg* (Rooted/Flange Plate)	Bending Moment (ULS) Nm
description	Α	В	С	C+D	E	F	G	Н	- 1	J		
8m standard duty	7700	246.3	1200	8900	300	600	115	130	76.1	N/A	111/113	
10m standard duty	9700	308	1500	11200	300	600	115	130	76.1	N/A	167/153	Please contact Holophane for Information
12m standard duty	11700	308	1700	13400	300	600	115	130	60.3	N/A	197/179	
12m heavy duty	11700	290	1700	13400	300	600	115	130	76.1	N/A	203/192	
15m standard duty	14700	322	1700	16400	300	600	115	130	60.3	N/A	257/240	
15m heavy duty	14700	379	2000	16700	300	600	115	130	88.9	N/A	421/398	

\* Exclusion TBC

8-12m std Poles	Flange Plate FB2	Bolts	M24 x 820	
15m std Poles	Flange Plate FB2	Bolts	M30	

Contact Holophane for more information

Flange Plate and J-Bolt information will be confirmed at time of order due to the necessity in ensuring the correct plate and J-Bolts are supplied.

std = Standard hd = Heavy Duty Column type to be confirmed at time of order as this is based on luminaire weight, windage and geographical location.

#### Luminaire (required) HMAO High Mast Advanced Optix Series (required) Series 3 Series 4 LED light engine producing c.30,000 lm with a nominal 3000K or 4000K colour temperature .130X .L35X LED light engine producing c.35,000 lm with a nominal 3000K or 4000K colour temperature 1.45X LED light engine producing c.45,000 lm with a nominal 3000K or 4000K colour temperature LED light engine producing c.52,000 lm with a nominal 3000K or 4000K colour temperature Replace 'X' LED light engine producing c.60,000 lm with a nominal 3000K or 4000K colour temperature in lamp type .L60X code with either 3 for 3000K .L70X LED light engine producing c.70,000 lm with a nominal 3000K or 4000K colour temperature .L75X LED light engine producing c.75,000 lm with a nominal 3000K or 4000K colour temperature 4 for 4000K .LC80X LED light engine producing c.80,000 lm with a nominal 3000K or 4000K colour temperature .LC90X LED light engine producing c.90,000 lm with a nominal 3000K or 4000K colour temperature .LC100X LED light engine producing c.100,000 lm with a nominal 3000K or 4000K colour temperature NR Long and Narrow light distribution .HS High beam symmetric distribution .AY Asymmetric light distribution .FW Forward throw light distribution .SQ Square light distribution .SY Symmetrical light distribution Square wide light distribution\*\* Colour Metallic Silver RAL9006 .RAL\*\*\*\* RAL Colour (customer choice) Control Gear (options) .LRD DALI, number of addresses will vary on the lumen version configured .CL7 Programmed to deliver 70% of the initial lumens over the life of the luminaire Programmed to deliver 80% of the initial lumens over the life of the luminaire Programmed to deliver 90% of the initial lumens over the life of the luminaire CI 9 Photocell (options) .TSZ Complete with miniature 70 lux factory fitted photocell. (Zodion SS12) .TSZ Complete with miniature 70 lux factory fitted photocell. (Zodion SS12) Complete with NEMA socket to accept standard NEMA Photocell, .T1 available from Holophane\* Complete with 5-pin dimming NEMA ANSI C136.41 socket .T5 (photocell/node supplied by others) without locking top. Complete with 5-pin dimming NEMA ANSI C136.41 socket .T5T (photocell/node supplied by others) with weather proof locking top Complete with 7-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top Complete with 4-Pin Zhaga Socket - Top (suitable photocell/node supplied by others) with weather proof locking top.† Paint Finish (options) Enhanced Paint Finish Voltage (options) .C-PROTEC With 20kV/10kA surge protection HMAO .3 .L30X .NR .C9 .LRD .TSZ Example

Note: 42/60mm side entry, 10kV/10kA surge protection as standard.

\*Luminaire is IP65 when options .T1 or .T are selected. † Not available with .LRD \*\*Series 4 only.

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturers data) and luminaire power of +/- 5%.

#### accessories

10

Code	
HMAO.SD90	90° shield
HMAO.SD120	120° shield
HMAO.SD180	180° shield

Note: The specifications of the Holophane luminaire, all descriptions, illustrations, drawings and specifications in the Holophane catalogue and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.

# **DIMENSIONS & PERFORMANCE**



Weight

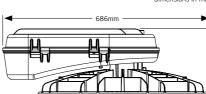
Windage

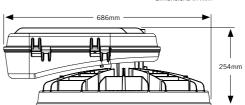
HMAO 23 kg

HMAO 0.120 m<sup>2</sup>

Note: 15m twin head for HEZ wind zone not available as standard.

Please contact Holophane for further information.





#### Typical luminaire performance

Configuration	Delivered Lumens	Power Consumption (W)	Driver output current (mA)	Luminaire total no. of LED modules	Luminaire efficacy (Ilm/W)	Rated life of LED module (L70B50 @Tq 25°C)
HMAO.3.L30X	c.30,000	208	640	6	144	100,000
HMAO.3.L35X	c.35,000	247	750	6	142	100,000
HMAO.3.L45X	c.45,000	313	640	6	144	100,000
HMAO.3.L52X	c.52,000	370	750	6	141	100,000
HMAO.3.L60X	c.60,000	417	640	12	144	100,000
HMAO.3.L70X	c.70,000	494	750	12	142	100,000
HMAO.3.L75X	c.75,000	555	860	12	135	100,000
HMAO.4.LC80X	c.80,000	502	792	12	159	100,000
HMAO.4.LC90X	c.90,000	583	919	12	154	100,000
HMAO.4.LC100X	c.100,000	658	1040	12	152	100,000

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturers data) and luminaire power of +/- 5%.



Four bolt mounting suitable for 42mm and 60mm side entry



11

Hinged upper casting

HMAOE	HMAO O	ctagonal o	column						
		Luminaiı	re mounti	ng height					
	.10	10 metre	tre column						
	.12	12 metre	metre column						
	.15	15 metre	column						
			Brackets						
		.1S	Single he	ead short bracket					
		.1L	Single head long bracket						
		.2S	Twin hea	ad short bracket					
		.2L	Twin head long bracket						
				Bracket type					
			.SA60	Side arm bracket suitable for 60mm entry					
		.S/	.SA605	5° tilt side arm bracket suitable for 60mm entry					
				Code Column category					
				.LMZ For light & medium area wind zones					
				.HVZ For heavy area wind zones					
				.HEZ For extra heavy area wind zones					

					,			
			.HEZ	For extra heavy area wind zones				
					Colour (	bracket finish only)		
				.GV	Galvanis	Galvanised only bracket		
				.GV9	Galvanis	Galvanised and painted metallic silver (RAL 9006)		
					Optional base type			
					.FB4	Flange base mounting (suitable for ground level installation only).		
						420 x 420 plate with 300 x 300 centres.		
	.1L	.SA60	.LMZ	.GV	.FB4			

Anchor bolt kit M24 x 820mm. Suitable for Octagonal columns.

accessories

HMAOE .12

Example

# **AMPERA EVO**













#### High-performance LED lighting solution with fast return on investment

Creating an efficient, economical and sustainable LED lighting solution was the driving force behind the development of AMPERA EVO.

AMPERA EVO is a road luminaire highlighting high performance, technical innovation, and simplicity. This innovative luminaire thus provides powerful lighting, fast and simple installation, easy lighting network management, as well as the fastest return on investment.

Available with various lumen packages - and numerous lighting distributions - the AMPERA EVO can meet all your road and urban lighting needs.































#### Concept

AMPERA EVO comes in two separate high-pressure die cast aluminium parts for the greatest installation and maintenance ease. The two parts are connected by two tool-free side latches. The electrical connection is automatically triggered on closing via a knife-type connector. This system allows safe connection with the mains cabling and prevents from any cabling error inside the gear compartment.

AMPERA EVO is available in two sizes to offer maximum flexibility and aesthetic coherence for town and city centres. AMPERA EVO takes advantage of the latest photometric innovations. It uses the LensoFlex®4 and MidFlex™ photometric engines, which have been developed around the concepts of high performance, compactness, versatility and standardisation

AMPERA EVO comes with the IzyFix universal fixation system adapted to post-top and side-entry mounting on any pole arms (from Ø32mm, with adapter, to Ø76mm). The IzyFix system enables the luminaire to be switched from one position to another at any time, without removing it from the pole, offering complete versatility regarding pole and bracket configuration. The inclination angle can be adjusted on-site (tilting range of 110°), in both the post-top and side-entry position, to optimise the light distribution.

AMPERA EVO is a future-proof luminaire designed for a more sustainable future. It is made of highly recyclable materials and offers tool-free access for maintenance operations. Moreover, AMPERA EVO can be equipped with various control options allowing easy remote management of lighting network, with advanced features that enable the light intensity to be adjusted to what is strictly needed, thus creating environments favourable to flora and fauna.

#### TYPES OF APPLICATION

- URBAN & RESIDENTIAL STREETS
- BRIDGES
- BIKE & PEDESTRIAN PATHS
- RAILWAY STATIONS & METROS
- CAR PARKS
- LARGE AREAS
- SQUARES & PEDESTRIAN AREAS
- ROADS & MOTORWAYS

#### KEY ADVANTAGES

- Cost-effective and efficient lighting solution for a fast return on investment
- On-site adjustment from post-top to side-entry without disconnecting the luminaire from the pole thanks to IzyFix
- Tool free access: easy and safe maintenance
- Connected-ready for your future Smart city requirements
- Compatible with the Schréder EXEDRA control platform
- Zhaga-D4i certified
- Adjustable inclination on-site



Tool-free opening, and a mounting with two separate parts for easy installation.



The IzyFix universal fixation system, with switching from a post-top to a side-entry position, facilitates luminaire ordering and installation.



Connected-ready for your future smart city projects.



Designed for a more sustainable future



LensoFlex®4

LensoFlex®4 maximises the heritage of the LensoFlex® concept with a very compact yet powerful photometric engine based upon the addition principle of photometric distribution. The number of LEDs in combination with the driving current determines the intensity level of the light distribution. With optimised light distributions and very high efficiency, this fourth generation enables the products to be downsized to meet application requirements with an optimised solution in terms of investment.





MidFlex™

The MidFlex™ photometric engine is based on the same principle as LensoFlex®2: each LED is associated with a specific lens that generates the complete photometric distribution of the luminaire. MidFlex™ takes advantage of the maturity of mid-power LEDs for professional applications. The MidFlex™ photometric engines are based on the combination of several modules of 48 mid-power LEDs tightly positioned to maximise the LED density. This concept provides high lumen packages with a limited product footprint. The MidFlex™ photometric engines offers excellent efficiency for a sustainable performance.





#### Back Light control

As an option, the LensoFlex®2 and LensoFlex®4 modules can be equipped with a Back Light control system.

This additional feature minimises light spill from the back of the luminaire to avoid intrusive light towards buildings.





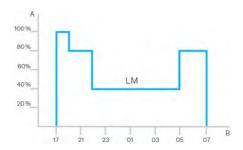
A. Without Back Light control | B. With Back Light control



#### Custom dimming profile

Intelligent luminaire drivers can be programmed with complex dimming profiles. Up to five combinations of time intervals and light levels are possible. This feature does not require any extra wiring.

The period between switching on and switching off is used to activate the preset dimming profile. The customised dimming system generates maximum energy savings while respecting the required lighting levels and uniformity throughout the night.



A. Dimming level | B. Time



#### Daylight sensor / photocell

Photocell or daylight sensors switch the luminaire on as soon natural light falls to a certain level. It can be programmed to switch on during a storm, on a cloudy day (in critical areas) or only at nightfall so as to provide safety and comfort in public spaces.





#### PIR sensor: motion detection

In places with little nocturnal activity, lighting can be dimmed to a minimum most of the time. By using passive infrared (PIR) sensors, the level of light can be raised as soon as a pedestrian or a slow vehicle is detected in the area.

Each luminaire level can be configured individually with several parametres such as minimum and maximum light output, delay period and ON/OFF duration time. PIR sensors can be used in an autonomous or interoperable network.





The Schréder IzyFix patented high-pressure die-casted aluminium universal fixation system is an integral part of the luminaire mounted in the factory. The IzyFix system aims to fit needs worldwide by meeting IEC and ANSI 3G testing requirements. It is intended to simplify life for customers and installers in the process of purchasing and installing luminaires for various applications.

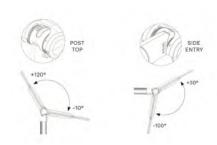
#### From post-top to side-entry in one movement

The innovative design allows changing from a side-entry to a post-top position – even with luminaires ordered with factory precabling – without any switching work on the fixation or disconnection from the pole. Therefore the type of mounting (horizontal or vertical) does not have to be considered when ordering. This unique feature also eases installation. After setting the correct position, an accessory is provided to cover the resulting space and ensure further protection of the luminaire.

#### Best-in-class tilting range

The IzyFix universal fixation system enables a best-in-class range of mounting angle of 130°\*, to ensure maximum lighting performance for all kinds of road scenarios and offer the possibility of installing the luminaire in extreme situations as well. With a setting mark on the body and angles on the spigot, adjusting is carried out in 5° increments by loosening two screws. The wide tilting range enables more comfortable access to the gear compartment during field maintenance.

\*Depending on the size and shape of the luminaire, the inclination angle may be reduced. For more accurate information, always consult the installation sheets.



#### Variation for all poles

Due to the many different applications used worldwide, Schréder has created a range of fixation systems and reducers to satisfy all needs that might come up on the market.

IzyFix Ø60mm - suitable for:

- Ø32mm spigot (with reducer)
- Ø42-48mm spigot
- Ø60mm spigot

IzyFix Ø76mm - suitable for:

- Ø32mm spigot (with reducer)
- Ø42-48mm spigot (with reducer)
- Ø60mm spigot
- Ø76mm spigot





The Zhaga consortium joined forces with the DiiA and produced a single Zhaga-D4i certification that combines the Zhaga Book 18 version 2 outdoor connectivity specifications with the DiiA's D4i specifications for intra-luminaire DALI.

#### Standardisation for interoperable ecosystems

As a founding member of the Zhaga consortium, Schréder has participated in the creation of, and therefore supports, the Zhaga-D4i certification program and the initiative of this group to standardise an interoperable ecosystem. The D4i specifications take the best of the standard DALI2 protocol and adapt it to an intra-luminaire environment but it has certain limitations. Only luminaire mounted control devices can be combined with a Zhaga-D4i luminaire. According to the specification, control devices are limited respectively to 2W and 1W average power consumption.

#### Certification program

The Zhaga-D4i certification covers all the critical features including mechanical fit, digital communication, data reporting and power requirements within a single luminaire, ensuring plug-and-play interoperability of luminaires (drivers) and peripherals such as connectivity nodes.



#### Cost-effective solution

A Zhaga-D4i certified luminaire includes drivers offering features that had previously been in the control node, like energy metering, which has in turn simplified the control device therefore reducing the price of the control system.

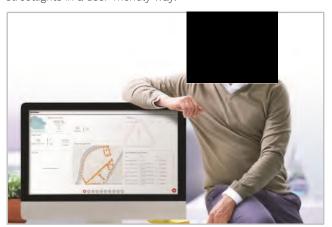
#### 2 sockets: top and bottom

The Zhaga socket is small and suited to applications where aesthetics is essential. The architecture of Zhaga-D4i also foresees the possibility of putting two sockets on one luminaire, allowing for instance, the combination of a detection sensor and a control node. This also has the added value of standardising certain detection sensor communications with the D4i protocol.





Schréder EXEDRA is the most advanced lighting management system on the market for controlling, monitoring and analysing streetlights in a user-friendly way.



Schréder EXEDRA includes all advanced features needed for smart device management, real-time and scheduled control, dynamic and automated lighting scenarios, maintenance and field operation planning, energy consumption management and third-party connected hardware integration. It is fully configurable and includes tools for user management and multi-tenant policy that enables contractors, utilities or big cities to segregate projects.

# A powerful tool for efficiency, rationalisation and decision making

Data is gold. Schréder EXEDRA brings it with all the clarity managers need to drive decisions. The platform collects massive amounts of data from end devices and, aggregates, analyses and intuitively displays them to help end-users take the right actions.

#### Protected on every side

Tailored experience

Schréder EXEDRA provides state-of-the-art data security with encryption, hashing, tokenisation, and key management practices that protect data across the whole system and its associated services

#### Standardisation for interoperable ecosystems

Schréder plays a key role in driving standardisation with alliances and partners such as uCIFI, TALQ or Zhaga. Our joint commitment is to provide solutions designed for vertical and horizontal IoT integration. From the body (hardware) to the language (data model) and the intelligence (algorithms), the complete Schréder EXEDRA system relies on shared and open technologies. Schréder EXEDRA also relies on Microsoft™ Azure for cloud services, provided with the highest levels of trust, transparency, standards conformance and regulatory compliance.

#### Breaking the silos

With EXEDRA, Schréder has taken a technology-agnostic approach: we rely on open standards and protocols to design an architecture able to interact seamlessly with third-party software and hardware solutions. Schréder EXEDRA is designed to unlock complete interoperability, as it offers the ability to:

- $\boldsymbol{\cdot}$  control devices (luminaires) from other brands
- manage controllers and to integrate sensors from other brands
- · connect with third-party devices and platforms

#### A plug-and-play solution

As a gateway-less system using the cellular network, an intelligent automated commissioning process recognises, verifies and retrieves luminaire data into the user interface. The self-healing mesh between luminaire controllers enables real-time adaptive lighting to be configured directly via the user interface.

# AMPERA EVO | CHARACTERISTICS

# Schréder

GENERAL INFORMATION					
Recommended installation height	4m to 15m+   13' to 49'+				
Circle Light label	Score ≥90 - The product fully meets circular economy requirements				
Driver included	Yes				
CE mark	Yes				
ENEC certified	Yes				
ENEC+ certified	Yes				
Zhaga-D4i certified	Yes				
UKCA marking	Yes				
Testing standard	EN 60598-1 IEC TR 62778 EN 62262 LM 79-08 (all measurements in ISO17025 accredited laboratory) LM 80 (all measurements in ISO17025 accredited laboratory)				

HOUSING AND FINISH	
Housing	Aluminium
Optic	PMMA
Protector	Tempered glass
Housing finish	Polyester powder coating
Standard colour(s)	AKZO grey 900 sanded
Tightness level	IP 66
Impact resistance	IK 09
Vibration test	Compliant with ANSI C 136-31 standard, 3G load Compliant with modified IEC 68-2-6 (0.5G)
Access for maintenance	Tool-less access to gear compartment

OPERATING CONDITIONS					
Operating temperature range (Ta)	-40°C up to +50°C / -40° F up to 122°F				

 $<sup>\</sup>cdot$  Depending on the luminaire configuration. For more details, please contact us.

ELECTRICAL INFORMAT	TION
Electrical class	I, II
Nominal voltage	220-240V AC - 50-60Hz
Surge protection options (kV)	10
Electromagnetic compatibility (EMC)	EN 55015 / EN 61000-3-2 / EN 61000-3-3 / EN 61547
Control protocol(s)	1-10V, DALI
Control options	AmpDim, Bi-power, Custom dimming profile, Photocell, Remote management
Socket	Zhaga (optional) NEMA 7-pin (optional)
Associated control system(s)	Schréder EXEDRA
Sensor	PIR (optional)
OPTICAL INFORMATION	I
LED colour temperature	2200K (WW 722)

OPTICAL INFORMATION	ON
LED colour	2200K (WW 722)
temperature	2700K (WW 727)
	3000K (WW 730)
	3000K (WW 830)
	4000K (NW 740)
	5700K (CW 757)
Colour rendering	>70 (WW 722)
index (CRI)	>70 (WW 727)
	>70 (WW 730)
	>80 (WW 830)
	>70 (NW 740)
	>70 (CW 757)
ULOR	0%
ULR	0%
· ULOR may be differen	nt according to the configuration. Please consult

<sup>·</sup> ULOR may be different according to the configuration. Please consult us.

#### LIFETIME OF THE LEDS @ TQ 25°C

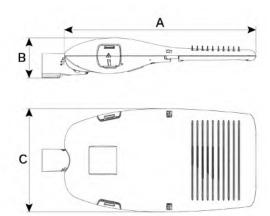
All configurations	100,000h - L95	
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 $<sup>\</sup>cdot$  Lifetime may be different according to the size/configurations. Please consult us.

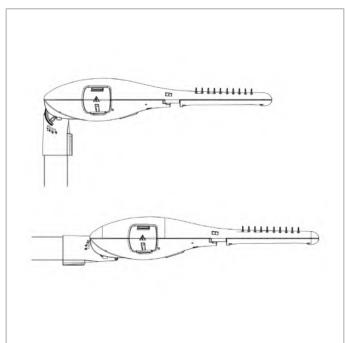
 $<sup>\</sup>cdot$  ULR may be different according to the configuration. Please consult us.

AxBxC (mm   inch)	AMPERA EVO 1: 524x128x308   20.6x5.0x12.1							
	AMPERA EVO 3: 679x143x365   26.7x5.6x14.4							
Weight (kg   lbs)	AMPERA EVO 1 : 5.9-7.3   13.0-16.1							
	AMPERA EVO 3: 8.9-10.4   19.6-22.9							
Aerodynamic resistance (CxS)	AMPERA EVO 1: 0.04							
	AMPERA EVO 3: 0.04							
Mounting possibilities	Side-entry slip-over – Ø32mm							
	Side-entry slip-over – Ø42mm							
	Side-entry slip-over – Ø48mm							
	Side-entry slip-over – Ø60mm							
	Side-entry penetrating – Ø60mm							
	Post-top slip-over – Ø32mm							
	Post-top slip-over – Ø42mm							
	Post-top slip-over – Ø48mm							
	Post-top slip-over - Ø60mm							
	Post-top slip-over – Ø76mm							
	Post-top penetrating – Ø60mm							

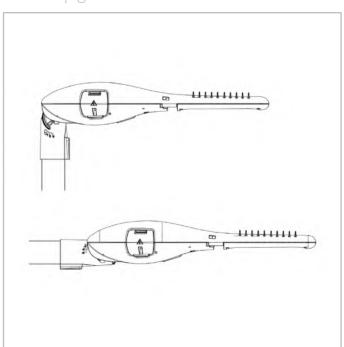
 $<sup>\</sup>cdot \textit{For more information about mounting possibilities, please consult the installation sheet.}$ 



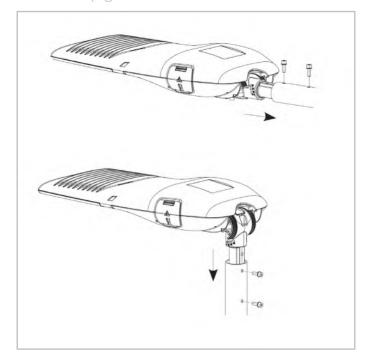
AMPERA EVO | Slip-over mounting for Ø32-60mm spigot - 2xM10 screws



AMPERA EVO | Slip-over mounting for Ø32-76mm spigot - 2xM10 screws



AMPERA EVO | Penetrating fixation for Ø60mm spigot - 2xM8 screws



			outpı (lı Warm	inaire ut flux m) White 22	outpu (lr Warm	inaire ut flux m) White 27	outpu (lr Warm	inaire ut flux m) White 30	outpu (lr Warm	inaire ut flux m) White 30	outpı (lı Neı	iinaire ut flux m) utral e 740	outpı (lı Cool	inaire ut flux m) White 57	Power consumption (W)	Luminaire efficacy (lm/W)	
Luminaire	Number of LEDs	Current (mA)	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		Up to	Photometry
	10	200	600	700	700	800	800	900	700	900	800	1000	800	1000	7.8	128	LENSO FLEX*4
	10	300	900	1100	1000	1200	1200	1400	1100	1300	1200	1500	1200	1400	10.8	139	LENSO FLEX"4
	10	350	1000	1200	1200	1400	1300	1600	1200	1500	1400	1700	1400	1600	12.3	138	LENSO FLEX 4
	10	400	1200	1400	1400	1600	1500	1800	1400	1700	1600	1900	1500	1800	13.8	138	LENSO FLEX"4
	10	500	1400	1700	1700	2000	1800	2200	1700	2000	1900	2300	1900	2200	17	135	LENSO FLEX 4
	10	600	1700	2000	1900	2300	2100	2500	2000	2400	2200	2700	2200	2600	20.4	132	LENSO FLEX"4
	10	700	1900	2200	2200	2600	2400	2800	2200	2700	2500	3000	2500	2900	23.6	127	LENSO FLEX 4
	10	800	2100	2500	2400	2900	2600	3100	2500	2900	2800	3300	2700	3200	26.9	123	LENSO FLEX"4
	10	870	2200	2600	2600	3000	2800	3300	2600	3100	3000	3500	2900	3400	29.4	119	LENSO FLEX"4
	20	200	1300	1500	1500	1700	1600	1900	1500	1800	1700	2000	1700	2000	13.8	145	LENSO FLEX"4
	20	300	1900	2200	2100	2500	2400	2800	2200	2600	2500	3000	2400	2900	19.8	152	LENSO FLEX"4
	20	350	2100	2500	2500	2900	2700	3200	2500	3000	2900	3400	2800	3300	22.9	148	LENSO FLEX"4
10/	20	400	2400	2900	2800	3300	3000	3600	2900	3400	3200	3800	3100	3700	25.9	147	LENSO FLEX"4
AMPERA EVO 1	20	500	2900	3500	3400	4000	3700	4400	3500	4100	3900	4600	3800	4500	32.3	142	LENSO FLEX"4
AMP	20	600	3400	4000	3900	4600	4300	5100	4000	4800	4500	5400	4400	5200	38.9	139	LENSO FLEX"4
	20	700	3800	4500	4400	5200	4800	5700	4500	5400	5100	6100	5000	5900	45.5	134	LENSO FLEX"4
	20	800	4200	5000	4900	5800	5300	6300	5000	5900	5600	6700	5500	6500	52.5	128	LENSO FLEX"4
	20	870	4500	5300	5200	6100	5700	6700	5300	6300	6000	7100	5800	6900	57	125	LENSO FLEX"4
	30	200	1900	2300	2200	2600	2400	2900	2300	2700	2600	3100	2500	3000	19.1	162	LENSO FLEX"4
	30	300	2800	3300	3200	3800	3600	4200	3300	4000	3800	4500	3700	4400	28.2	160	LENSO FLEX"4
	30	350	3200	3800	3700	4400	4100	4800	3800	4600	4300	5100	4200	5000	32.9	155	LENSO FLEX"4
	30	400	3600	4300	4200	5000	4600	5400	4300	5100	4900	5800	4700	5600	37.5	155	LENSO FLEX"4
	30	500	4400	5200	5100	6000	5500	6600	5200	6200	5900	7000	5700	6800	47	149	LENSO FLEX"4
	30	600	5100	6100	5900	7000	6400	7600	6100	7200	6800	8100	6700	7900	56.5	143	LENSO FLEX"4
	30	700	5800	6800	6600	7900	7300	8600	6800	8100	7700	9100	7500	8900	66.5	137	LENSO FLEX"4
	30	800	6400	7500	7300	8700	8000	9500	7500	8900	8500	10100	8300	9800	76	133	LENSO FLEX"4
	30	870	6800	8000	7800	9200	8500	10100	8000	9500	9000	10700	8800	10400	86	124	LENSO PLEX "4

Tolerance on LED flux is  $\pm$  7% and on total luminaire power  $\pm$  5 %

	-		outpı (lı Warm	inaire ut flux m) White 22	Lumi outpu (lr Warm 72	it flux n) White	(lr Warm	inaire ut flux m) White 30	outpu (lr Warm	naire It flux n) White	outpu (lr	inaire ut flux m) utral e 740	Lumi outpu (lr Cool '	it flux n) White	Power consumption (W)	Luminaire efficacy (lm/W)	
Luminaire	Number of LEDs	Current (mA)	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		Up to	Photometry
	40	200	2600	3100	3000	3500	3300	3900	3100	3700	3500	4100	3400	4000	25.9	158	LENSO FLEX "4
	40	300	3800	4500	4300	5100	4800	5600	4500	5300	5000	6000	4900	5800	37.8	159	LENSO FLEX "4
	40	350	4300	5100	5000	5900	5500	6500	5100	6100	5800	6900	5600	6700	44	157	LENSO FLEX"4
	40	400	4900	5800	5600	6600	6100	7300	5800	6800	6500	7700	6300	7500	50	154	LENSO FLEX"4
	40	500	5900	7000	6800	8000	7400	8800	7000	8300	7800	9300	7600	9100	62	150	LENSO FLEX"4
	40	600	6800	8100	7900	9300	8600	10200	8100	9600	9100	10800	8900	10500	76	142	LENSO FLEX"4
	40	700	7700	9100	8900	10500	9700	11500	9100	10800	10300	12200	10000	11900	88	139	LENSO FLEX 4
	40	800	8500	10100	9800	11600	10700	12700	10100	11900	11300	13500	11100	13100	101	134	LENSO FLEX 4
	40	870	9000	10700	10400	12300	11400	13500	10700	12700	12000	14300	11700	13900	110	130	LENSO FLEX"4
	48	100	-	-	-	-	2000	2100	-	-	2100	2200	-	-	15.9	138	MID FLEX*
	48	117	-	-	-	-	2300	2400	-	-	2500	2600	-	-	18.4	141	MID FLEX*
.VO 1	48	133	-	-	-	-	2600	2800	-	-	2800	2900	-	-	20.9	139	MID FLEX*
AMPERA EVO 1	48	167	-	-	-	-	3200	3300	-	-	3400	3500	-	-	26.2	134	MID FLEX*
AM	48	200	-	-	-	-	3700	3900	-	-	3900	4100	-	-	31.7	129	MID FLEX*
	48	233	-	-	-	-	4200	4400	-	-	4500	4600	-	-	37.3	123	MID FLEX*
	48	266	-	-	-	-	4700	4900	-	-	4900	5100	-	-	44	116	MID FLEX*
	48	300	-	-	-	-	5100	5300	-	-	5300	5600	-	-	50	112	MID FLEX*
	96	100	-	-	-	-	4100	4300	-	-	4300	4500	-	-	29.8	151	MID FLEX*
	96	117	-	-	-	-	4700	4900	-	-	5000	5200	-	-	34.8	149	MID FLEX*
	96	133	-	-	-	-	5300	5600	-	-	5600	5800	-	-	39.8	146	MID FLEX*
	96	167	-	-	-	-	6500	6700	-	-	6800	7100	-	-	50	142	MID FLEX*
	96	200	-	-	-	-	7500	7900	-	-	7900	8300	-	-	61	136	MID FLEX*
	96	233	-	-	-	-	8500	8900	-	-	9000	9300	-	-	72	129	MID FLEX*
	96	266	-	-	-	-	9400	9800	-	-	9900	10300	-	-	84	123	MID FLEX*
	96	300 s + 7% and	-	-	-	-		10600	-	-	10700	11200	-	-	96	117	MID FLEX*

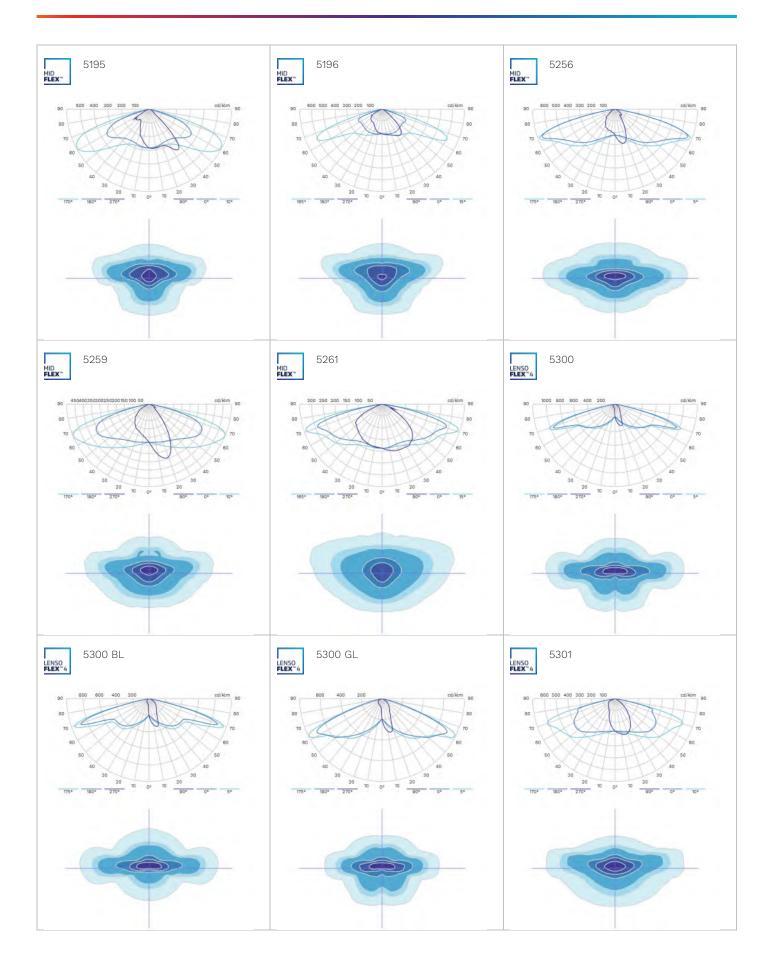
Tolerance on LED flux is ± 7% and on total luminaire power ± 5 %

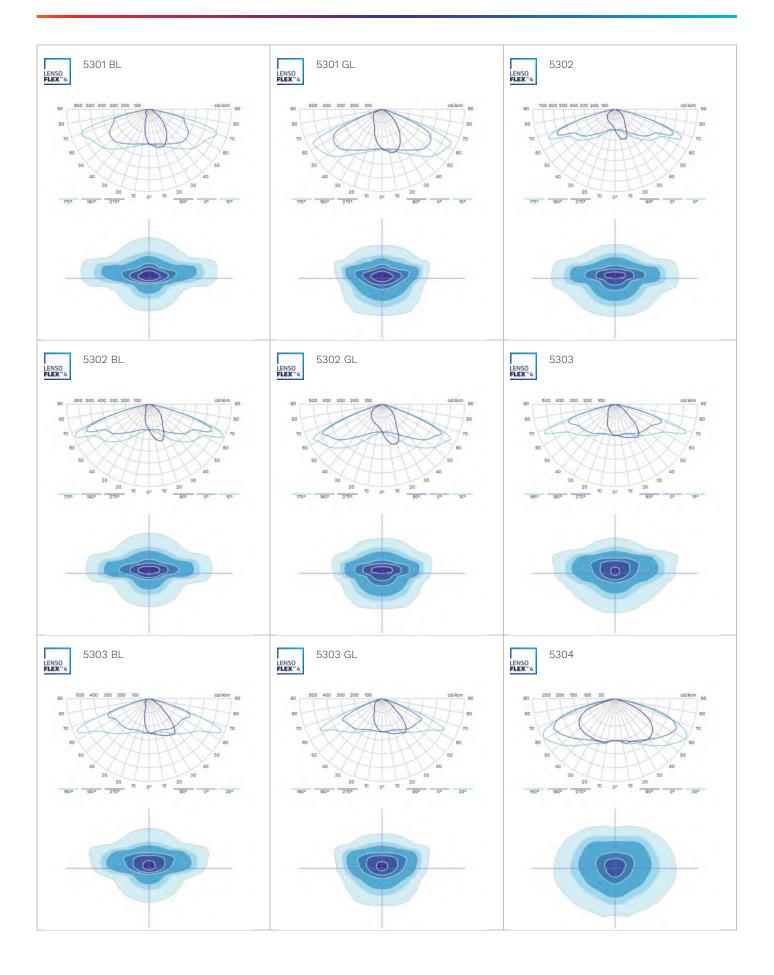
	Luminaire efficacy (lm/W)	Power consumption (W)	n) White	Lumi outpu (lr Cool \	n) tral	outpu (lr Neu White	t flux n) White	Lumi outpu (lr Warm 83	it flux m) White	(lr	n) White	outpu (lr Warm	inaire ut flux m) White 22	outpu (lr Warm			
Photome	Up to		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Current (mA)	Number of LEDs	Luminaire
LENSO FLEX 4	158	25.9	4000	3400	4100	3500	3600	3100	3900	3300	3500	3000	3100	2600	200	40	
LENSO FLEX*4	156	37.8	5800	4900	5900	5000	5300	4500	5600	4800	5100	4300	4400	3800	300	40	
LENSO FLEX 4	155	44	6600	5600	6800	5800	6000	5100	6400	5500	5900	5000	5100	4300	350	40	
LENSO FLEX 4	152	50	7500	6400	7600	6500	6800	5800	7200	6200	6600	5600	5700	4900	400	40	
LENSO FLEX 4	150	62	9000	7700	9300	7900	8200	7000	8700	7400	8000	6800	6900	5900	500	40	
LENSO FLEX 4	141	76	10500	8900	10700	9200	9500	8100	10100	8600	9300	7900	8000	6900	600	40	
LENSO FLEX 4	138	88	11800	10100	12100	10300	10700	9200	11400	9700	10400	8900	9100	7700	700	40	
LENSO FLEX 4	133	101	13000	11100	13400	11400	11900	10100	12600	10800	11500	9800	10000	8500	800	40	
LENSO FLEX 4	123	118	14100	12100	14500	12400	12900	11000	13700	11700	12500	10700	10900	9300	900	40	
LENSO FLEX 4	117	132	15100	12900	15500	13200	13800	11800	14700	12500	13400	11400	11600	9900	1000	40	
LENSO FLEX 4	160	31.8	5000	4300	5100	4400	4500	3900	4800	4100	4400	3800	3800	3300	200	50	
LENSO FLEX 4	159	46.5	7200	6200	7400	6300	6600	5600	7000	6000	6400	5400	5500	4700	300	50	
LENSO FLEX*4	157	54	8300	7100	8500	7300	7500	6400	8000	6800	7300	6200	6400	5400	350	50	
LENSO FLEX*4	156	61.5	9300	8000	9600	8200	8500	7200	9000	7700	8200	7000	7200	6100	400	50	
LENSO FLEX*4	151	77	11300	9600	11600	9900	10300	8800	10900	9300	10000	8500	8700	7400	500	50	
LENSO FLEX*4	144	93	13100	11200	13400	11500	11900	10200	12700	10800	11600	9900	10100	8600	600	50	
LENSO FLEX*4	139	109	14800	12600	15200	12900	13400	11500	14300	12200	13100	11100	11400	9700	700	50	VO 3
LENSO FLEX*4	131	127	16300	13900	16700	14300	14800	12700	15800	13500	14400	12300	12500	10700	800	50	AMPERA EVO
LENSO FLEX*4	125	145	17700	15100	18100	15500	16100	13700	17100	14600	15600	13300	13600	11600	900	50	AMPE
LENSO FLEX"4	119	163	18900	16100	19400	16600	17200	14700	18300	15600	16700	14300	14600	12400	1000	50	
LENSO FLEX*4	164	37.8	6000	5100	6200	5300	5500	4700	5800	5000	5300	4500	4600	3900	200	60	
LENSO FLEX 4	162	55	8700	7400	8900	7600	7900	6700	8400	7200	7700	6500	6700	5700	300	60	
LENSO FLEX 4	159	64	10000	8500	10200	8700	9100	7700	9600	8200	8800	7500	7700	6500	350	60	
LENSO FLEX"4	158	73	11200	9500	11500	9800	10200	8700	10800	9200	9900	8400	8600	7300	400	60	
LENSO FLEX*4	150	92	13500	11500	13800	11800	12300	10500	13100	11100	11900	10200	10400	8800	500	60	
LENSO FLEX"4	143	112	15600	13300	16000	13700	14200	12100	15100	12900	13800	11800	12000	10200	600	60	
LENSO FLEX**4	137	131	17600	15000	18000	15400	16000	13600	17000	14500	15500	13300	13500	11500	700	60	
LENSO FLEX 4	131	151	19300	16500	19800	16900	17600	15000	18700	16000	17100	14600	14900	12700	800	60	
LENSO FLEX 4	166	43.5	7000	6000	7200	6100	6400	5500	6800	5800	6200	5300	5400	4600	200	70	
LENSO FLEX 4	164	63.5	10100	8700	10400	8900	9200	7900	9800	8400	9000	7600	7800	6600	300	70	
LENSO FLEX 4	161	74	11600	9900	11900	10200	10600	9000	11300	9600	10300	8800	8900	7600	350	70	
LENSO FLEX 4	158	85	13100	11100	13400	11400	11900	10100	12600	10800	11500	9800	10000	8600	400	70	
LENSO FLEX*4	153	106	15800	13400	16200	13800	14300	12200	15300	13000	13900	11900	12100	10300	500	70	
LENSO FLEX*4	145	129	18200	15600	18700	16000	16600	14200	17700	15100	16100	13800	14000	12000	600	70	
LENSO FLEX"4	138	152	20500	17500	21000	18000	18700	15900	19900	16900	18100	15500	15800	13500	700	70	

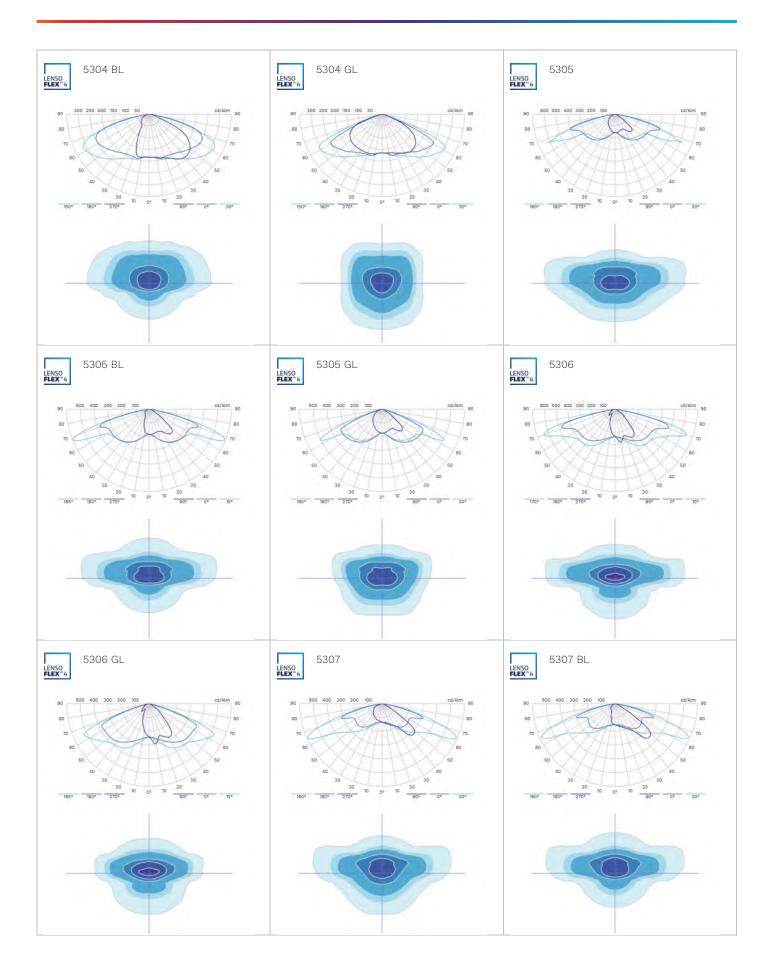
Tolerance on LED flux is  $\pm$  7% and on total luminaire power  $\pm$  5 %

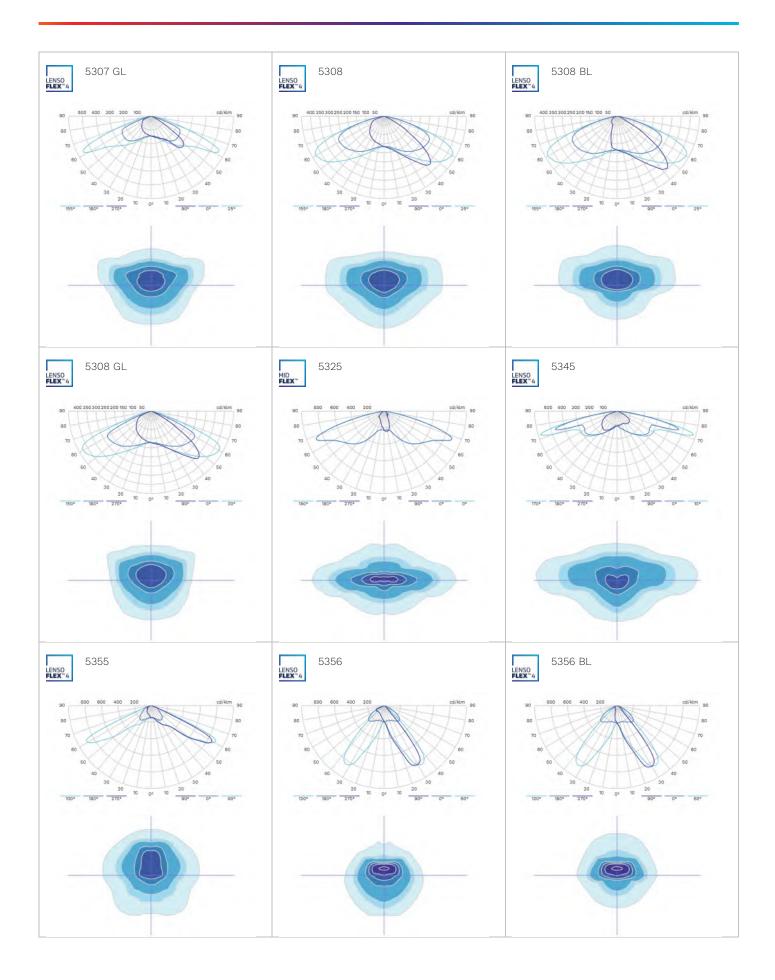
			outpı (lı Warm	inaire ut flux m) White 22	outpı (lr Warm	inaire ut flux m) White 27	outpı (lı Warm	inaire ut flux m) White 30	outpu (lr Warm	inaire ut flux m) White 30	outpu (lr Neutra	inaire ut flux m) Il White 40	outpu (lr Cool	inaire ut flux m) White 57	Power consumption (W)	Luminaire efficacy (lm/W)	
Luminaire	Number of LEDs	Current (mA)	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		Up to	Photometry
	70	830	15200	17800	17500	20500	19100	22400	18000	21100	20300	23800	19800	23200	180	132	LENSO FLEX 4
	80	200	5300	6200	6000	7100	6600	7800	6200	7300	7000	8200	6800	8000	47.5	173	LENSO FLEX 4
	80	300	7600	8900	8700	10200	9600	11200	9000	10600	10100	11900	9900	11600	72	165	LENSO FLEX"4
	80	350	8700	10200	10000	11800	11000	12900	10300	12100	11600	13600	11300	13300	84	162	LENSO FLEX "4
	80	400	9800	11500	11200	13200	12300	14400	11600	13600	13100	15300	12700	14900	96	159	LENSO FLEX"4
	80	500	11800	13800	13600	15900	14900	17400	14000	16400	15700	18500	15300	18000	121	153	LENSO FLEX "4
	80	600	13700	16000	15700	18400	17200	20200	16200	19000	18200	21400	17800	20800	147	146	LENSO FLEX*4
	80	730	15800	18600	18200	21300	19900	23400	18800	22000	21100	24800	20600	24100	182	136	LENSO FLEX"4
	96	67	-	-	-	-	2900	3000	-	-	3000	3200	-	-	20	160	MID FLEX*
	96	100	-	-	-	-	4200	4400	-	-	4500	4600	-	-	29.8	154	MID FLEX*
	96	117	-	-	-	-	4900	5000	-	-	5100	5300	-	-	34.8	152	MID FLEX*
	96	133	-	-	-	-	5500	5700	-	-	5800	6000	-	-	39.8	151	MID FLEX
	96	167	-	-	-	-	6600	6900	-	-	7000	7200	-	-	50	144	MID FLEX
	96	200	-	-	-	-	7700	8000	-	-	8100	8400	-	-	61	138	MID FLEX*
	96	233	-	-	-	-	8700	9000	-	-	9200	9500	-	-	72	132	MID FLEX*
m	96	267	-		-	-	9600	10000	-	-	10100	10500	-	-	84	125	MID FLEX*
EVO	96	300	-		-	-	10100	10500	-	-	10700	11000	-	-	92	120	MID FLEX
AMPERA EVO	144	67	-		-	-	4400	4500	-	-	4600	4800	-	-	30.4	158	MID FLEX*
A	144	100	-	-	-	-	6400	6600	-	-	6700	6900	-	-	44.5	155	MID FLEX
	144	117	-	-	-	-	7300	7600	-	-	7700	8000	-	-	52	154	MID FLEX
	144	133	-	-	-	-	8200	8500	-	-	8700	9000	-	-	59	153	MID FLEX*
	144	167	-	-	-	-	10000	10400	-	-	10500	10900	-	-	74	147	MID FLEX
	144	200	-	-	-	-	11600	12000	-	-	12200	12700	-	-	91	140	MID FLEX*
	144	233	-	-	-	-	13100	13500	-	-	13700	14200	-	-	107	133	MID FLEX
	144	267	-	-	-	-	14500	15000	-	-	15200	15800	-	-	126	125	MID FLEX
	144	300	-	-	-	-	15700	16300	-	-	16500	17100	-	-	145	118	MID FLEX
	192	67	-	-	-	-	5800	6000	-	-	6100	6400	-	-	39.7	161	MID FLEX
	192	100	-	-	-	-	8500	8800	-	-	9000	9300	-	-	58	160	MID FLEX
	192	117	-	-	-	-	9800	10100	-	-	10300	10700	-	-	68	157	MID FLEX
	192	133	-	-	-	-	11000	11400	-	-	11600	12000	-	-	78	154	MID FLEX
	192	167	-	-	-	-	13300	13800	-	-	14000	14500	-	-	98	148	MID FLEX
	192	200	-	-	-	-	15500	16100	-	-	16300	16900	-	-	120	141	MID FLEX
	192	233	-	-	-	-	17500	18100	-	-	18400	19100	-	-	142	135	MID FLEX*
	192	270	_	_	_	_	19500	20200	_	_	20500	21200	_	_	167	127	MID FLEX*

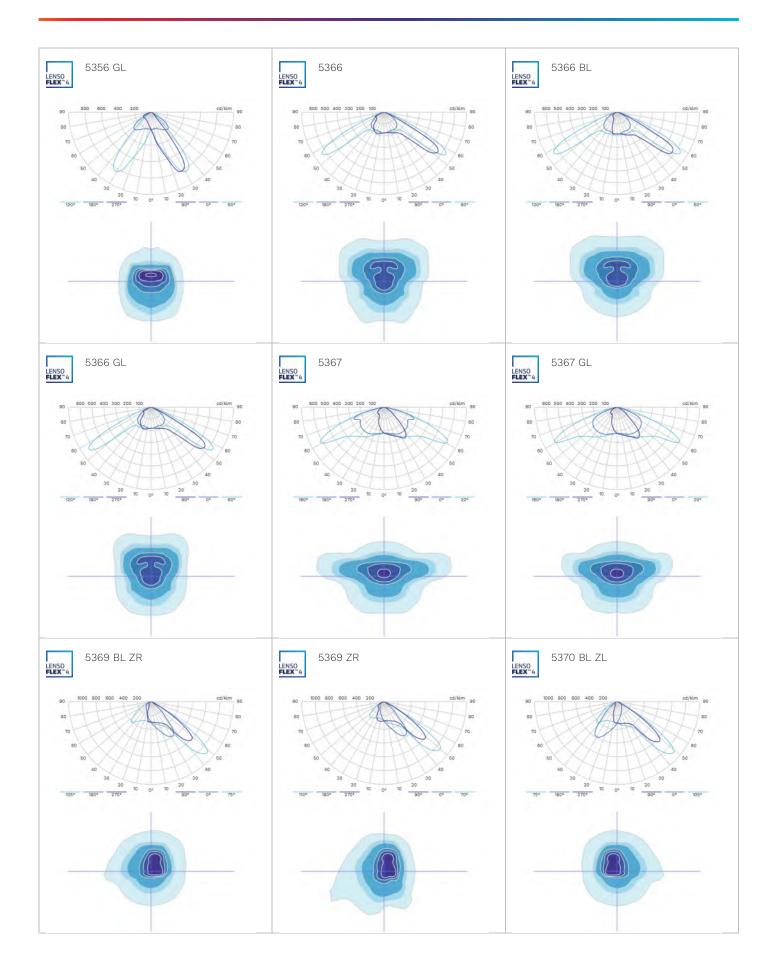
Tolerance on LED flux is  $\pm$  7% and on total luminaire power  $\pm$  5 %

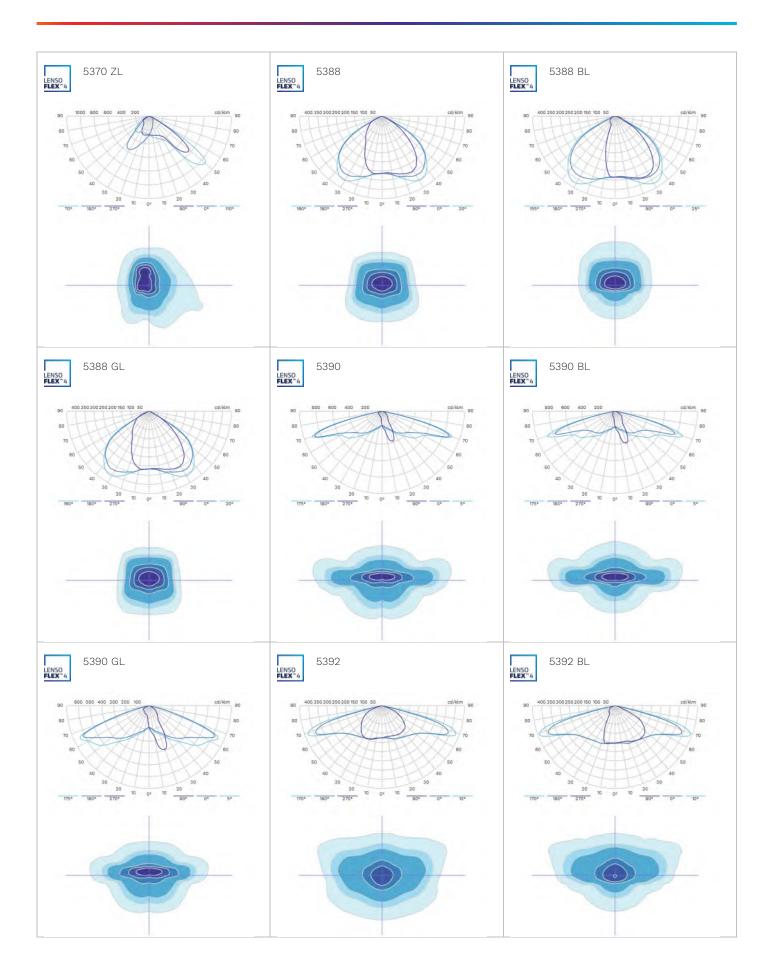


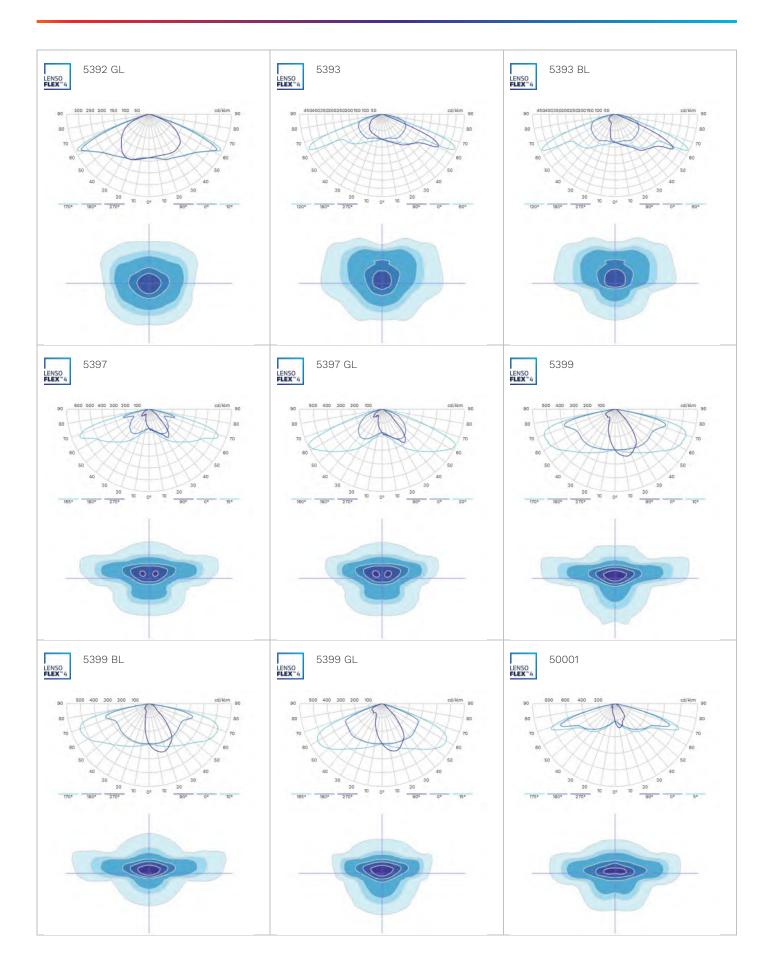


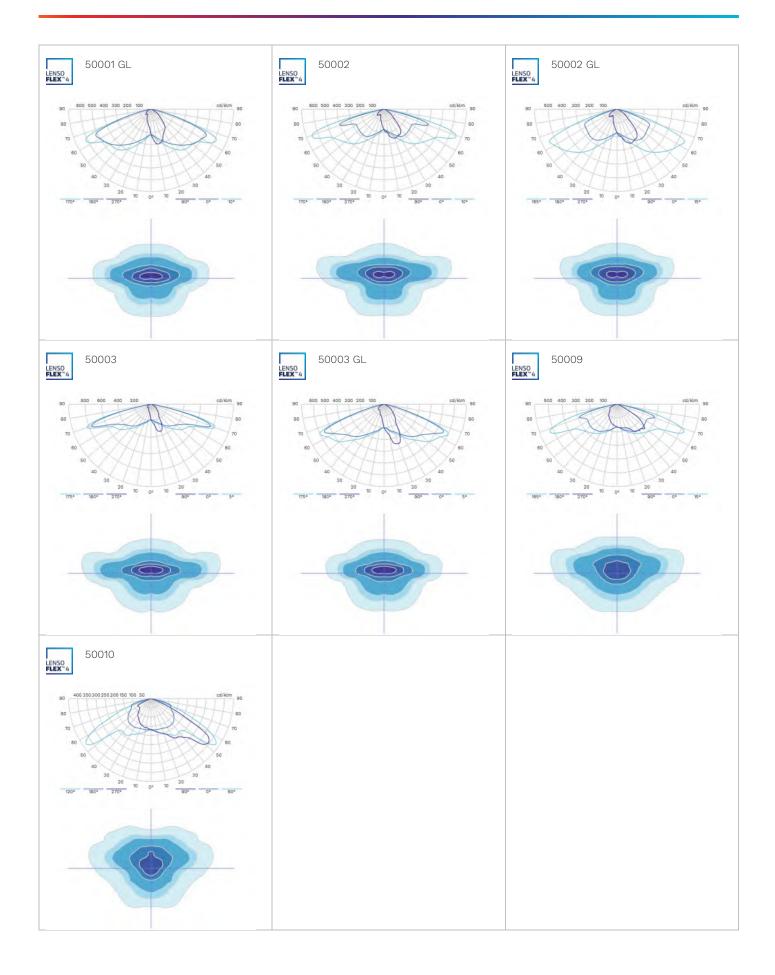


















460W-920W series range - Impact, ingress, optional marine-grade corrosion, & vibration resistance as standard - >120lm/W family efficacy, - 15+ general purpose & task-specific optics - Advanced colour rendering capabilities - Integrated, standalone, & wireless network intelligent control options

CE, RoHS, DLC, UL, CB, international product marks



# **Ayrton 3 Series**

Mast, Tower, & High Bay Light

CDN:SPEC139REVS





# **Technical Specifications Summary**



Performance Summary:							
Code (Series-Wattage/Size)	AYR3-460	AYR3-610	AYR3-770	AYR3-920			
Nominal Power	450W	600W	750W	900W			
Luminaire Efficacy @ CRI>70, 5000K CCT	127lm/W	127lm/W	121lm/W	121lm/W			
Lumen Output @ CRI>70, 5000K CCT	58,420lm	77,470lm	97,790lm	116,840lm			
Lumen Maintenance (TM21 Reported)		L90B10 ≥80,000 hours (	@ Tj 80°C, 25°C Ambient				
Lumen Maintenance (TM21 Calculated)		L80B10 ≥100,000 hours	@ Tj 80°C, 25°C Ambient				
Certification		CE, RoHS, [	DLC, UL, CB				
Product Warranty		5 Years, 2 Years	s (Emergency)				
Light Source and Photometric Pa	arameters:						
Chip Brand, Model, & Size	Nichia 3535 NVSL219C						
Chip Efficacy @ CRI>70, 5000К ССТ	174lm/W @ 350mA @25°C						
Light Emmission	Direct						
сст	5000K, (3000K, 4000K, 5700K optional)						
CRI	≥70, ≥80						
SDCM	≤5						
Diffusers	Clear, (Frosted optional)						
Symmetric Light Distribution	10°, 25°, 40°, 60°, 90°, 120°, 150°						
Asymmetric Light Distribution	IESNA Type 1M, 2M, 3M, 3L, 4S, 4M						
Optical Accessories	Backspill Guard						
Electrical Parameters1:							
System Operating Power	460W	610W	770W	920W			
Driver Brand		Phil	lips				
Driver Model	Xitanium 929001401680						
Typical Driver Lifetime	100,000 hours @TCase 70°C						
Input Voltage	220-240VAC, (120-277VAC (D3), 347-480VAC optional)						
Input Frequency	50-60Hz						
Qty of Drivers per Light	3	4	5	6			
Inrush Current Per Driver @ 230VAC measured at 50% Ipeak (Peak/Duration)	46A/440μs						
Recommended Lights per Circuit (16A Type B MCB)	≤3pcs ≤2pcs ≤1pc						
Power Factor	>0.95						
THD	<10%						

Insulation Class	Class I
Surge Protection/Fusing	10kA, (20kA optional)   TVS (Transient Voltage Suppressors on individual LED Modules)
Environmental Parameters:	
IP Rating	IP67

IK RatingIK10Ambient Usage Tolerance-40°C to 50°CAmbient Storage Tolerance-40°C to 50°C

**Driver automatic turn-off temperature**TCase 85°C - Power to LEDs is reduced



# **Technical Specifications Summary**

Code (Series-Wattage/Size)	AYR3-460	AYR3-610	AYR3-770	AYR3-920					
Physical/Mechanical Parameters:									
Product Dimensions: LxWxH (mm)	765 x 635 x 83	885 x 635 x 83	1065 x 635 x 83	1185 x 635 x 83					
Spigot Diameter (mm)	60								
Minimum Tenon Length (mm)	120								
Qty of LED Chips	216	288	360	432					
Qty of Modules	6	8	10	12					
Windage	0.072m <sup>2</sup>	0.079m²	0.089m²	0.096m <sup>2</sup>					
Electrical Connection	Terminal Block or 800mm cable								
Fixture Weight <sup>2</sup>	19.63kg	23.21kg	27.45kg	30.72kg					
Fixture Primary Material(s)	Aluminium Alloy and Stainless Steel Fasteners								
Fixture Finish	AzkoNobel Powder Coat (Marine-Grade 100 micron corrosion resistant polyester optional)								
Lens(es) Materials	UV Stabilised Polycarbonate								
Dimming/Controls Parameters:									
Dimming Options	1-10V, DALI								
Built-in Controls	Photocell, NEMA Socket and Cap								
Compatible intelligent lighting systems	Wireless Controls and Monitoring								
Options/Accessories:									
Mounting Styles	Universal Bracket, Slip Fit, Cable Suspension								
Available Product Colours	Grey (RAL 7004), Black (RAL 9011), White (RAL 9010)								

<sup>&</sup>lt;sup>1</sup> Electrical Parameter data is for D1 drivers, unless otherwise stated

All stated values should be considered indicative only. Technical data is provided from sample luminaires and construction components as assessed by OEM(s) under industry-standard, laboratory conditions. In practice, stated values can vary. Kellwood Lighting operates a policy of continual product improvement. Our luminaires' capabilities are regularly enhanced to outperform in-class market alternatives. Please contact our technical team directly for clarifications prior to purchase. All images depicted should be considered indicative only. Stated product warranty periods do not include associated labour costs. Stated product warranty periods are for UK projects only. For international projects, please contact our offices directly. Optional upgrades can often affect or supersede unit technical parameters, capabilities, and warranties. It is the responsibility of the purchasing authority to ensure selected hardware is suitable for application. For further documentation, including Returns Policy and Conditions of Unit Failure, please contact our offices. Hazardous area documentation (eg. ATEX) are issued to OEM codes. WEEE compliance reference code: WEE/MP3838PR/SCH. Please do not look directly at LED lighting products during operation.

This datasheet & corresponding certification should be reviewed by a competent person to ensure project suitability. ©2020 Kellwood Engineering Ltd. All rights reserved.

<sup>&</sup>lt;sup>2</sup> Excludes bracketry. Refer to the Packaging Weights & Dimensions data sheet for bracketry and accessory weights

### Features Summary



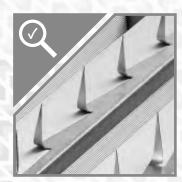
**Mounting Options** 

<u>Universal bracket</u>, slip fit, cable suspension



**Optional Fitting Colours** 

Grey RAL:7004, black RAL:9001, white RAL:9010, bronze RAL:8014, custom (subject to MOQ)



**Special Features** 

Integrated spirit level, Wago internal quick-connectors, safety wire & carabiner secondary securing system, 3G vibration tolerance as per ANSI C136.31-2010, bird spikes



**Environmental Protection** 

IP67, copper-free aluminium chassis & modules c/w corrosion-resistant powder coat & anodisation finishes - Salt spray testing reports available - 304 stainless steel exposed fixtures



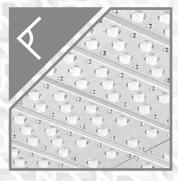
Impact Protection

IK09 rated



Windage

460W model 0.072m<sup>2</sup> 610W model 0.079m<sup>2</sup> 770W model 0.089m<sup>2</sup> 920W model 0.096m<sup>2</sup>



Distribution

>15no. optic variants are available for general & task-specific applications - Optional back-spill guards available



**Driver Protocols** 

Non-dimming, 0-10V, DALI



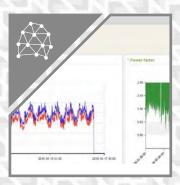
Sensor(s)

Integrated, standalone (single or multiple luminaires per sensor options)



**Sensor Functions** 

Occupancy, multi-step dimming, photocell, daylight harvesting



#### **Advanced Controls**

System energy reporting, data monitoring, IoT (wireless/wired) networks



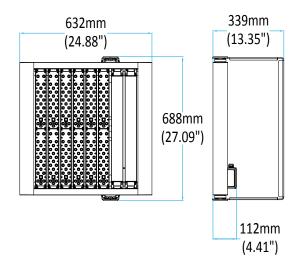
**Electrical Protection** 

<u>10KA</u>, 20KA, integrated surge protection device

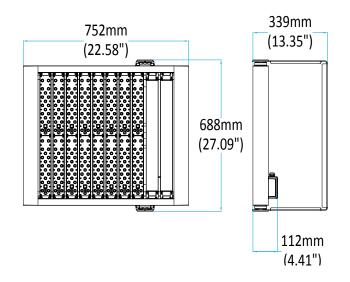


## **Dimensional Drawings**

#### Universal Bracket - 460W



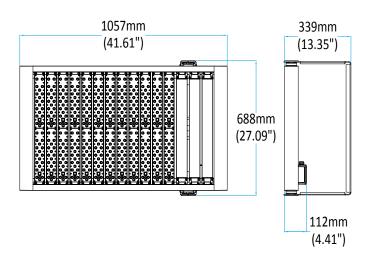
### Universal Bracket - 610W



### Universal Bracket - 770W

# 937mm (36.89") (13.35") 688mm (27.09")

### Universal Bracket - 920W

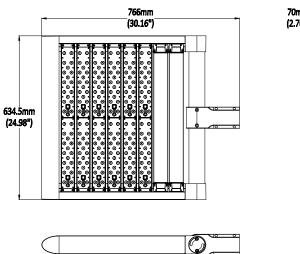


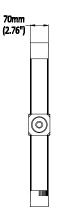


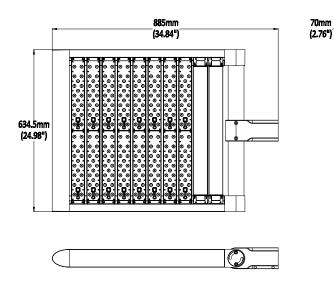
### **Dimensional Drawings**

#### Slip Fit - 460W



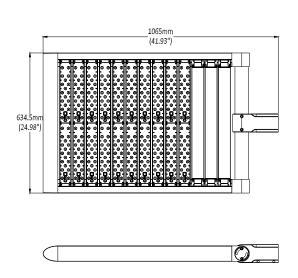


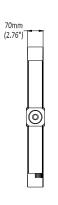


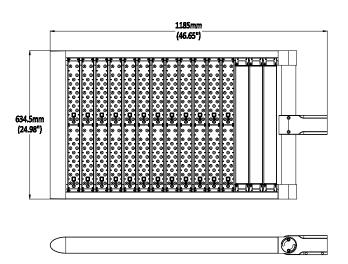




Slip Fit - 920W





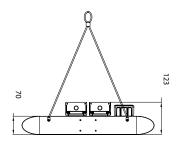


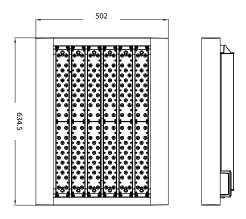
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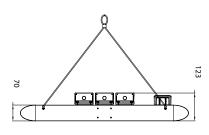
# **Dimensional Drawings**

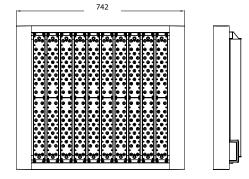
#### Cable Suspension - 460W



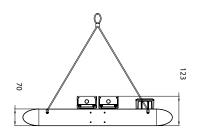


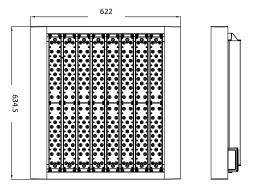
Cable Suspension - 770W



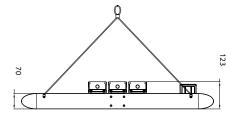


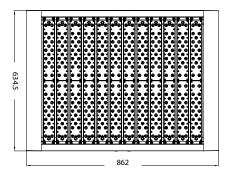
Cable Suspension - 610W





Cable Suspension - 920W



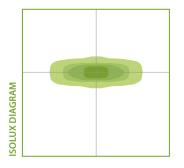


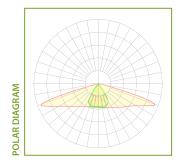


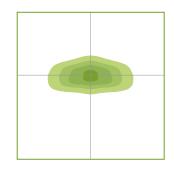
Please note - images shown are intended to be illustrative only. For exact data, please refer to specific product photometry, available for download from our website.

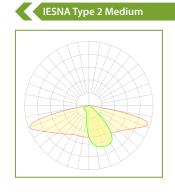
# Indicative Product Photometry

### IESNA Type 1 Medium

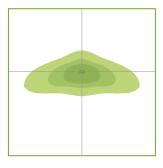


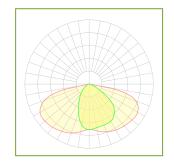


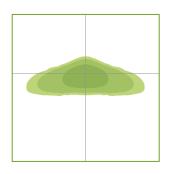


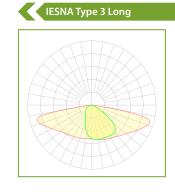


IESNA Type 3 Medium

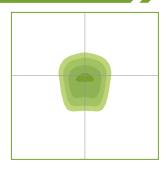


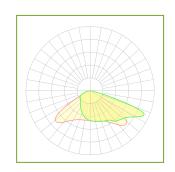


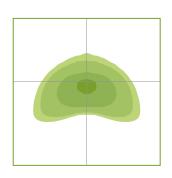


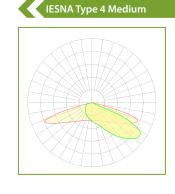


IESNA Type 4 Short

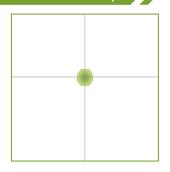


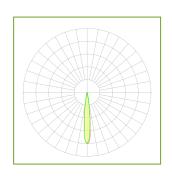


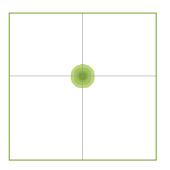


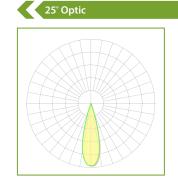


10° Optic

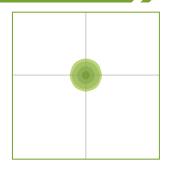


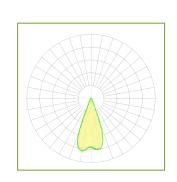


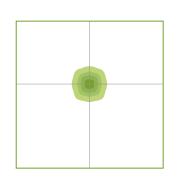


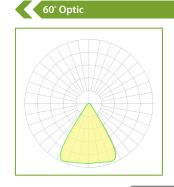


40° Optic







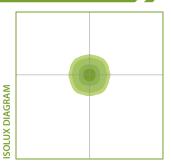


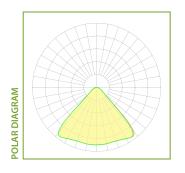


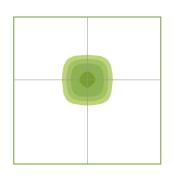
Please note - images shown are intended to be illustrative only. For exact data, please refer to specific product photometry, available for download from our website.

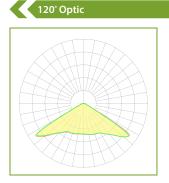
# Indicative Product Photometry

### 90° Optic

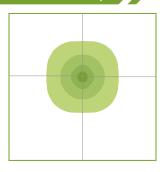


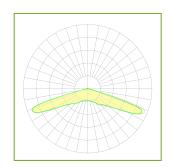






#### 150° Optic





### Diffusers

This series is available with the following diffusers. Each diffuser will have a varying effect on photometric distribution and intensity. Please refer to downloadable photometrics for exact data.





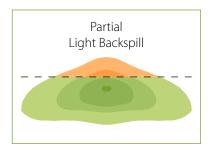
Clear Optic (Various Beam Angles)

Frosted Diffuser (117°)

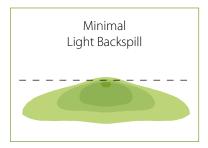
### Backspill Guards

Optional backspill guards are available for the above Type 3 and Type 4 optics.

These modify the light distribution to reduce/eliminate backward light trespass. An illustrative example is shown below:









Standard product code fields are presented as: Further customisation may be available - please contact us if required





PRODUCT •	POWER -	CRI & CCT	• ОРТІС	DRIVER -	- MOUNTING -	- COLOUR	MODIFICATIONS		
AYR3	<b>460</b> 460W	<b>730</b> CRI >70, 3000K	1M IESNA TYPE I MEDIUM	D1 NON-DIM	<b>UB</b> UNIVERSAL BRACKET	<b>GR</b> GREY	PH1 PHOTOCELL		
	<b>610</b> 610W	<b>740</b> CRI >70, 4000K	<b>2M</b> IESNA TYPE II MEDIUM	<b>D2</b> 1-10V	<b>SF</b> SLIP FIT	<b>BL</b> BLACK	<b>BG</b> BACKSPILL GUARD		
	<b>770</b> 770W	<b>750</b> CRI >70, 5000K	<b>3M</b> IESNA TYPE III MEDIUM	D3 DALI	<b>CS</b> CABLE SUSPENSION	<b>WH</b> WHITE	<b>SP2</b> SURGE PROTECTION DEVICE (20KV)		
	<b>920</b> 920W	<b>757</b> CRI >70, 5700K	<b>3L</b> IESNA TYPE III LONG		US UNIVERSAL BRACKET - 304 STAINLESS STEEL	<b>GR2</b> <sup>1</sup> GREY - MARINE GRADE			
		<b>830</b> CRI >80, 3000K	<b>4S</b> IESNA TYPE IV SHORT			<b>BL2</b> <sup>1</sup> BLACK - MARINE GRADE			
		<b>840</b> CRI >80, 4000K	4M IESNA TYPE IV MEDIUM			<b>WH2</b> <sup>1</sup> WHITE - MARINE GRADE			
		<b>850</b> CRI >80, 5000K	<b>10</b> 10° CIRCULAR						
		<b>857</b> CRI >80, 5700K	<b>25</b> 25° CIRCULAR						
			<b>40</b> 40° CIRCULAR						
60 60° CIRCULAR  1 Upgraded AkzoNobel polyester powder coat for increased salt corrosion resistance.									
			<b>90</b> 90° CIRCULAR			AL NOTES: E THAN ONE MODIFICATION	ON IS REQUIRED. SEPARATE EACH		
120 120° CIRCULAR  MODIFICATION WITH A HYPHEN AT THE END OF THE I									
			<b>150</b> 150° CIRCULAR			ENSURE SELECTION OF C WITH DIMMING FUNCTION	COMPATIBLE DRIVER FOR OCCUPANCY ENALITY		
			FR FROSTED DIFFUSER				ONS WHICH AFFECT LIGHT OUTPUT ES IDENTIFIED WITH"+(MODIFICATION)"		
Product Ordering Code Examples:						4. ALTERNATIVE DRIVERS MAY BE AVAILABLE - PLEASE CONTACT OUR OFFICE FOR FURTHER DETAILS			
AYR3-460-757- AYR3-920-850-		PH1-BG					DES WILL BE ALTERED AS NECESSARY		

DRIVER MANUFACTURER							
POWER	D1	D2	D3				
<b>460</b> 460W	Philips	Philips	Philips				
<b>610</b> 610W	Philips	Philips	Philips				
<b>770</b> 770W	Philips	Philips	Philips				
<b>920</b> 920W	Philips	Philips	Philips				

ACCESSORIES

AYR3-BS
BIRD SPIKES

CONTACT OUR OFFICE FOR FURTHER INFORMATION ON DRIVER PARAMETERS



# Datasheet

# **ZACTIS**



### **Product Description**

Zactis is a high-performance flat-to-ground LED flood light perfect for sports, high mast and area applications. As well as facilitating easy installation and maintenance, the sleek, low-profile design, reduces the load together with decreasing windage.

### Specification Text

The luminaire shall be manufactured from high-pressure die-cast aluminium. It shall have an LED efficacy of up to 134.0 lm/W and will be capable of producing up to 43,026 luminaire lumens at 2700K, 4000K, with a CRI >70. It shall have an asymmetric forward throw optic and is rated at IP65 and IK08.

### Specification

Weight: 15.0 - 16.5kg

0.1m<sup>2</sup> Windage:

Material: Die-cast Aluminium

Paint finish: RAL7016 Anthracite Grey Marine Grade

Embodied Carbon: 236 - 289 kg CO<sup>2</sup>e

### **Key Features**

- 125.0 320.0W
- 16,447 43,026 Luminaire Lumens
- Efficacy up to 134 Im/W
- 2700K, 4000K, CRI >70
- Lifetime >100,000hr, L70

















### **Mounting Options**

Stirrup Mount

### Other Options

- Part Night Dimming
- **Colour Temperature Options**
- **Photocell Option** Contact for details

## **Optics**





Asymmetrical Forward Throw Optic 70°



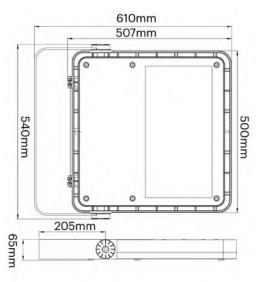
DESIGNED & ENGINEERED

Circular Economy Score

Code	Power	Luminaire Lumens	Drive Current	Optic	CCT(K)	IP	IK	Weight kg	Paint Finish	Driver Included
ZAC-FW70-27.5-125D	125.0	16,447	645		2700	IP65	IK08	15.0	RAL7016 Anthracite Grey Marine Grade	Driver Inc
ZAC-FW70-27.7-160D	160.0	20,166	808		2700	IP65	IK08	15.0	RAL7016 Anthracite Grey Marine Grade	Driver Inc
ZAC-FW70-27.5-250D	250.0	33,327	645	Asymmetrical Forward Throw Optic - 70°	2700	IP66	IK08	16.5	RAL7016 Anthracite Grey Marine Grade	Driver Inc
ZAC-FW70-27.7-320D	320.0	43,026	808		2700	IP66	IK08	16.5	RAL7016 Anthracite Grey Marine Grade	Driver Inc
ZAC-FW70-4.5-125D	125	17,125	645		4000	IP65	IK08	15.0	RAL7016 Anthracite Grey Marine Grade	Driver Inc
ZAC-FW70-4.7-160D	160	21,920	808		4000	IP65	IK08	15.0	RAL7016 Anthracite Grey Marine Grade	Driver Inc
ZAC-FW70-4.5-250D	250	34,250	645		4000	IP66	IK08	16.5	RAL7016 Anthracite Grey Marine Grade	Driver Inc
ZAC-FW70-4.7-320D	320	44,156	808		4000	IP66	IK08	16.5	RAL7016 Anthracite Grey Marine Grade	Driver Inc











All measurements in mm

