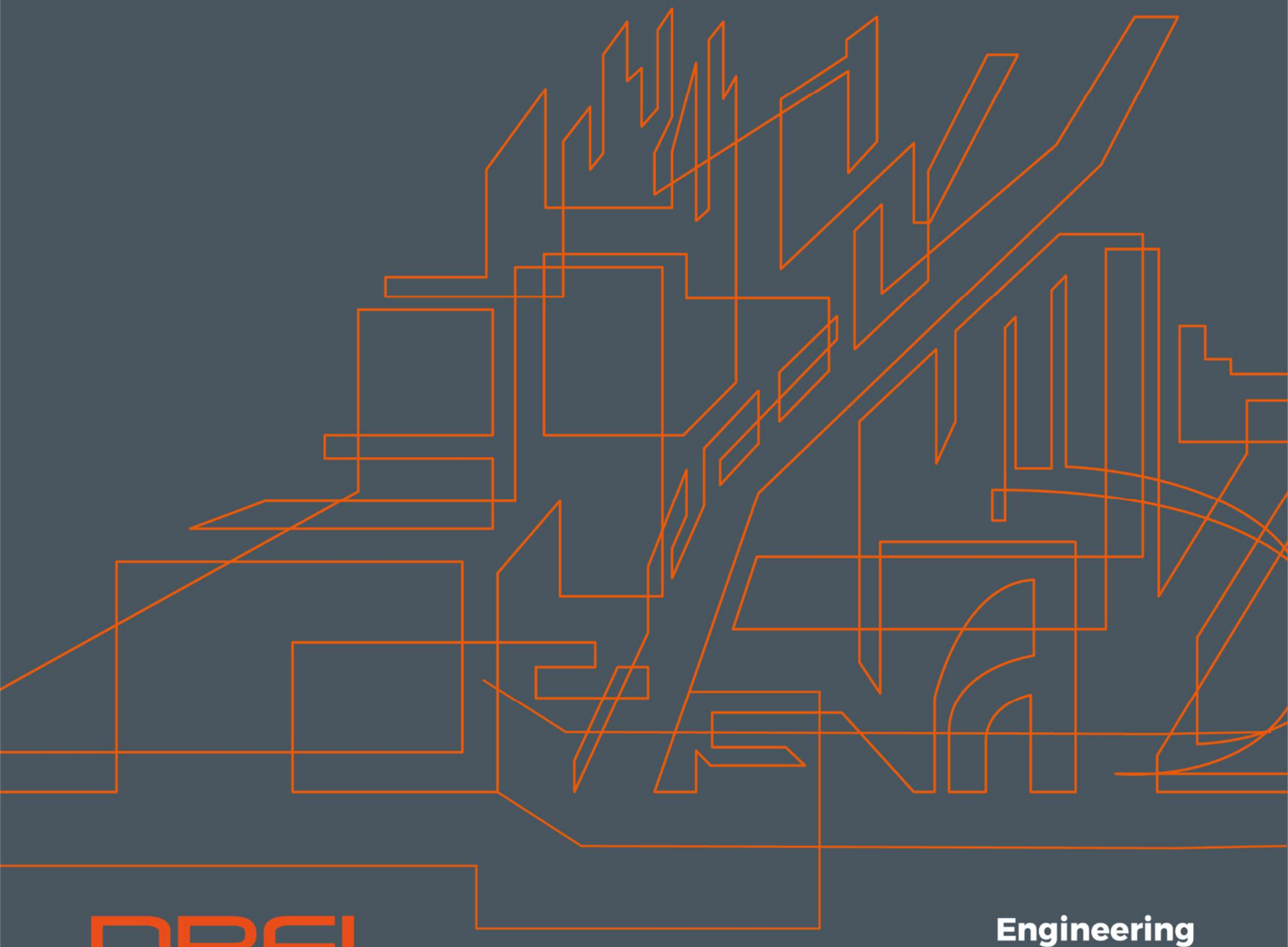
Blessington LDR

DMURS Design Statement

230199-DBFL-XXXX-XX-RP-C01-0003

October 2024



DBFL CONSULTING ENGINEERS

Engineering Sustainable Futures

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1 Introduction

DBFL Consulting Engineers have been commissioned by Marshall Yards Development Company Ltd to prepare a DMURS Design Statement with regards to the proposed Blessington LRD on a greenfield site at lands within the townlands of Blessington Demesne, Blessington, Co. Wicklow.

The application is for a mixed-use development with buildings ranging from 1 to 5 storeys. It includes 233 residential dwellings (24 one-bedroom, 103 two-bedroom, 94 three-bedroom, and 12 four-bedroom units), 36 'later living' dwellings (12 one-bedroom and 24 two-bedroom units), a medical centre, a pharmacy, and a café. The proposed development also includes 341 no. car parking spaces and 414 no. cycle parking spaces.

The purpose of this report is to identify the specific design features that have been incorporated within the proposed residential scheme with the objective of delivering a design that is consistent with both the principles and guidance outlined within the Design Manual for Urban Roads and Streets (DMURS) (Version 1.1, 2019).

The scheme proposals are the outcome of an integrated design approach that seeks to implement a sustainable community that is connected by well-designed streets which will deliver safe, convenient, and attractive route networks in addition to promoting a real and viable alternative to car-based journeys.

The following documents, which are included with the Planning submission, were reviewed among others:

- DBFL Consulting Engineers 'Traffic and Transport Assessment'
- DBFL Drawing X-04-Z00-DTM-DR-DBFL-CE-1201 Proposed Road Layout
- DBFL Drawing X-04-Z00-DTM-DR-DBFL-CE-1210 Road Hierarchy Layout

2 DMURS Objectives

2.1 Overview

DMURS seeks to balance the needs of all users, creating well designed streets at the heart of sustainable communities. It states that:

"Well designed streets can create connected physical, social and transport networks that promote real alternatives to car journeys, namely walking, cycling or public transport".

DMURS also seeks to create streets which are attractive places and encourage designs appropriate to context, character and location that can be used safely and enjoyably by the public.

2.2 The DMURS User Hierarchy

DMURS set outs a clear a user hierarchy which promotes and prioritises sustainable forms of transport that designers must follow when preparing schemes. The Blessington LRD design team have adhered to this hierarchy, by assigning higher priority to the movement of pedestrians and cyclists within the development and implementing self-regulating streets which actively manage movement in a low speed, high quality residential environment.

2.3 DMURS DESIGN PRINCIPLES

At the heart of DMURS is a place-based, integrated approach to road and street design with the following four overarching design principals to be applied to the design of all urban roads and streets.

- ***Design Principle 1:*** To support the creation of integrated street networks which promote higher levels of permeability and legibility for all users, and in particular more sustainable forms of transport
- ***Design Principle 2:*** The promotion of multi-functional, place-based streets that balance the needs of all users within a self-regulating environment.
- ***Design Principle 3:*** The quality of the street is measured by the quality of the pedestrian environment.
- ***Design Principle 4:*** Greater communication and co-operation between design professionals through the promotion of a plan-led, multidisciplinary approach to design.

The ways in which the proposed the proposed development complies and adheres to the design principles of DMURS is described in the following sections, with details of how the various design elements will be implemented throughout the scheme.

3 DMURS Design Attributes

Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
Movement Function	DMURS encourages designers to consider the movement function of a street / street network and develop a street hierarchy reflective of the levels of connectively required and volumes of traffic	The proposed development street hierarchy is composed of ***Primary*** and ***Secondary Local Streets*** as well as ***Homezone areas***. The Road Hierarchy Layout is included in **Appendix A.** The function of the ***Local Streets*** and ***Homezone*** areas will be to not only provide access within / across the development but also contribute to a high-quality sense of 'place' through the proposed landscaping proposals and material finishes. In particular, the ***Homezone*** areas will prioritise the movement of people over vehicles and promote low vehicle speeds throughout. Access to the site from the Blessington Inner Relief Road (BIRR) is provided via the ***Primary Local Street***. The BIRR, which is an ***Arterial Street***, provides connections to the wider network including ***Arterial Streets*** such as the R410 to the southwest of the site and the wider strategic network of the N81. The N81 provides connections between the proposed development and the local town centre and community infrastructure such as schools, leisure facilities, shops, and medical/healthcare facilities. The overall network design has sought to optimise connectivity to and from public transport and provide high quality facilities for pedestrians and cyclists. In parallel, the adopted design philosophy has also sought to consider the context / place status of each street in terms of level of connectivity and permeability provided, quality of the proposed design, level of pedestrian/cyclist activity and vulnerable users requirements while also identifying appropriate 'transition' solutions between the different street types.

Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
Place Function	The '*Place Function*' essentially distinguishes a street from a road, achieved largely by creating a relationship between the street and the buildings and spaces that frame it, ultimately resulting in a richer and more fulfilling environment	The adopted design philosophy has sought to achieve a quality 'sense of place' by incorporating a large central green open space area and plaza area to the west to encourage social activity including several smaller open space areas across the site. Furthermore, the type of surface materials, landscaping and street furniture have been chosen with consideration of both their aesthetic qualities and context of the existing surrounding environment. The design has also sought to minimise the impact of highway features by avoiding excessive signing, road markings and street furniture
Street Layout	DMURS looks to encourage street layouts where "*all streets lead to other streets, limiting the number of cul-de-sacs that provide no through access"* and maximise the number of walkable / cyclable routes between destinations	The street layout has been influenced by several factors including both the Blessington LAP 2019 and Wicklow Development Plan 2022-2028. Additionally, it considers existing boundary conditions, watercourses, hedgerows, archaeological features and existing / future development in the locality. The resulting street layout encompasses a limited number of cul-de-sacs with filtered permeability maintained for walking / cycling throughout and provides appropriate connections to the wider road network, thereby optimising the permeability of the site and complying with DMURS design principles.

Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
Block Sizes	DMURS state the following optimal block dimensions: • 60-80m for local centres • 100m in neighbourhoods or suburbs Block dimensions should not exceed 120m	The block sizes within the proposed Blessington LRD are optimised in line with density being predominantly <100m and thereby comply with the requirements of DMURS. These compact block sizes within the development maximise accessibility and permeability particularly for those travelling on foot or by bicycle.
Wayfinding	DMURS states "*the more the orthogonal street layout the more legible it will be (as well as being the most connected)*"	A legible street pattern has been adopted for the proposed development in accordance with DMURS through creating defined footpaths on one or both sides of the Local Streets whilst Homezone areas defined by changes in materials and landscaping. A network of footpaths throughout the open space areas provides further permeability throughout the site.
Permeability	Permeability can be categorised into four types: • Dendritic Networks • Open Networks • 3 Way Off-Set Networks • Filtered Permeability	The development strategy primarily adopts an open network model with elements of filtered permeability incorporated into the design, thereby maximising connectivity between key local destinations. The scheme affords a high degree of permeability and legibility for all network users, particularly for sustainable forms of travel. Filtered permeability is provided for example between the apartment blocks which line the BIRR providing direct links to/from to the dedicated footpaths and cycle tracks along the BIRR. Pedestrian and cycle connectivity from the site to the BIRR will promote permeability at strategic points linking residents to existing schools, the Blessington GAA playing grounds, and the new parklands located on the opposite side of the

Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
		road. Similarly, permeability for pedestrians will be provided for along the southwest and southeast site boundaries providing convenient access to the existing network and connections to the south / town centre. In addition to the paths along the ***Local Streets***, the development incorporates a network of off-road shared paths through the proposed development. The connections maximise permeability through the development and to the wider residential area and cycling network by delivering a high quality, attractive facilities along what will be key travel desire lines. The development layout also offers a well-connected, self-regulating street network with appropriate levels of internal connectivity for motorists via the ***Primary*** and ***Secondary Local Streets***.
Approach to Speed	DMURS states that designers should balance speed management, the values of place and reasonable expectations of appropriate speed according to Context and Function. Where vehicle movement priorities are low, such as on Local Streets, lower speeds limits should be applied (30km/h)	The proposed ***Local Streets*** have been designed in accordance with DMURS design parameters for a 30kph design speed. Both ***Local Streets*** and ***Homezones*** have been designed to ensure they are self-regulating through a combination of 'soft' (landscaping and active edges) and 'hard' measures (street geometry, raised tables and build outs).

Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
Street Trees, Planting & Street Furniture	DMURS primarily considers street trees in terms of enclosure and suggests that for ratios of building height and street width within this development that supplementary street trees are desirable	A comprehensive landscape masterplan for the proposed development has been prepared by Ilsa Rutgers Landscape Architecture. The landscape masterplan reinforces a sense of street enclosure through the addition of areas of planting and street trees with appropriate canopy spreads best suited to the network of internal ***Local Streets*** and ***Homezone*** areas for optimal compliance with DMURS.
Active Street Edges	Designers should aim for active street edges which provide passive surveillance and promote pedestrian activity	On-street activity is promoted within the internal layout through the adoption of 'own-door' dwellings which can be accessed from the ***Local Street*** and ***Homezone areas***. The layout of the dwellings have been arranged to ensure that pedestrian/cyclist routes through the open space areas are overlooked as much as possible to increase passive surveillance.
Signage & Line Marking	DMURS notes that designers should use discretion with regard to the self-regulating characteristics of streets and the impact of signs / line marking on the value of place	In recognition of the low speed nature and low movement function of the ***Local Streets*** and ***Homezones***, the proposed design has sought to specify minimal signage and line markings along the internal streets with such treatments used sensitively throughout.

Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
Materials & Finishes	DMURS states designers should use "*contrasting materials and textures to inform pedestrians of changes to the function of space (i.e. to demarcate verges, footway, strips, cycle paths and driveways) and in particular to guide the visually impaired*"	The range of proposed materials is in line with the requirements of DMURS with ***Primary*** and ***Secondary Local Streets*** will be formed using standard macadam / asphalt finishes. It is proposed to use a coloured asphalt surface treatment on the ***Homezone*** areas. At the entrances to the site, continuous raised footpath and cycle tracks are proposed in accordance with the Cycle Design Manual which will reinforce priority for active modes. Internally within the site at the raised flat top pedestrian crossings / traffic calming table treatments, different surface material treatments are proposed to alert and subsequently influence driver behaviour and vehicle speeds. The use of tactile paving has been applied throughout in accordance with the guidance contained within the Traffic Management Guidelines (2003) and the UK Guidance on the use of Tactile Paving Surfaces to ensure a logical and navigable pedestrian environment is delivered for those with visual impairments.
Footways	DMURS notes that well-designed footpaths are free of obstacles and wide enough to allow pedestrians to pass each other in comfort.	Clear, unobstructed footpaths of 2.0m wide are provided throughout the scheme, with connections and tie-ins to existing external pedestrian networks. High-quality off-road links through site and open space areas are provided at 3.0m wide.
Pedestrian Crossings	DMURS considers crossings to be "*one of the most important aspects of street design as it is at this*	Well-designed pedestrian crossing facilities are provided at frequent intervals along key travel desire lines throughout the scheme in addition to those located at street nodes. All courtesy crossings are provided with either dropped kerbs or a raised flat top / continuous footpath treatment thereby allowing pedestrians to informally assert a degree of priority. All informal pedestrian crossing facilities are at least 2.0m wide. Furthermore, a new Toucan crossing is proposed over the BIRR to the north of the site, a new raised Zebra

Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
	location that most interactions between pedestrians, cyclists and motor vehicles occur."	is proposed to the south (adjacent the neighbouring creche entrance) and the crossing facilities over each arm of the roundabout will be provided as part of the proposed development.
Corner Radii	Reducing corner radii improves pedestrian and cyclist safety at junctions by lowering vehicle speeds and increasing inter-visibility between users	With the objective of encouraging low vehicle speeds and maximising pedestrian safety and convenience, corner radii have been provided as per DMURS guidance being predominantly 3.0m within the site and the two vehicular access points being 4.5m.
Cycling Facilities	DMURS refers to the *National Cycle Manual (NCM)* as the principle form of guidance in relation to guidance on the design and provision of appropriate cycle facilities.	The proposed development incorporates an east-west and north-south off-road route for pedestrian and cyclist through the site. These facilities will encourage and promote cycling not only for the proposed residential development, but for existing and future residents in the wider lands. Along the internal ***Local Street*** and ***Homezones*** cyclists will share the carriageway with other street users as per the Cycle Design Manual guidance for such situations. This well designed integrated environment will provide a high Quality of Service for cyclists by offering quiet, interesting and well-surfaced streets along with the self-evident and self-enforcing nature of the environment.

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Carriageway Widths	DMURS recommends the following carriageway / lane widths: • ***Local Street*** lane widths within the range of 2.5-2.75m (i.e. carriageway width of 5.0m-5.5m) • ***Shared Surface*** carriageway width should not exceed 4.8m	The proposed residential developments internal street network and carriageway widths are compliant with DMURS, incorporating: • ***Local Streets:*** The Primary Local Streets comprise a 5.5m wide carriageway with 2.0m footpaths on one or both sides of the street The Secondary Local Streets comprise a 5.0m wide carriageway with 2.0m footpaths on one or both sides of the street • ***Homezones*** The shared surface areas will be designed to have a 5.0m wide surface width plus a 1.2m service strip and will be differentiated from local street through contrasting colour surfacing.
Carriageway Surfaces	For low design speeds (i.e. 30km/h) changes in colour and/or texture should be used, where shared carriageways proposed (i.e. 10-20km/h) applied to the full length of the street	The ***Local Street*** and ***Homezone*** network will be primarily formed using standard macadam / coloured asphalt finishes. Contrasting materials will also be applied at the at-grade flat top crossing / traffic calming treatments to assist in alert drivers to the low speed environment and reinforce pedestrian/cyclist priority at crossings. Contrasting coloured surfacing will also be applied to the cycle tracks to increase driver awareness of the presence of cyclists.
Junction Design	This is determined by traffic volumes and designers should take a balanced	All junctions within the proposed Blessington LRD site will be priority controlled which is consistent with the proposed traffic flows and complies with the requirement of DMURS.

Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
	approach to junction design catering for all users	
Forward Visibility & Visibility Splays	DMURS provides SSD Standards in relation to forward visibility requirements at junctions to ensure drivers have sufficient reaction time	Appropriate clear unobstructed visibility splays on both the horizontal and vertical planes, as per DMURS requirements; are provided / safeguarded at all internal nodes and at the site access junctions to the external road network.
Horizontal & Vertical Deflections	DMURS highlights that traffic calming features should be provided on longer straights where there is more than 70m between junctions	Vertical deflections in the form of raised tables have been strategically placed across the internal street network to promote lower design speeds, enable pedestrians to cross key nodes at-grade. Horizontal deflections including buildouts and speed reduction bends have also been incorporated at strategic locations to create a self-regulating speed environment as well as offering opportunities to facilitate soft landscaping features such as street trees.
Kerbs	DMURS recommends kerbs heights of 125mm on Link Streets and lower kerb heights of 60mm where pedestrian activity is higher & design speeds lower. No kerb for shared surface.	Internally within the development carriageway kerb heights will comply with DMURS requirements and include the following: • Flush kerbs (6mm max) will be provided in Homezone areas • Chamfered Kerbface (30mm – 50mm) provided where vehicles will cross over cycle tracks / footpaths, thereby avoid dipped tracks / paths • Reduced kerb height (60mm-75mm) in areas where Homezones abut open space areas • Full height kerb (100mm-125mm) in all remaining areas

Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
On-Street Parking	Well-designed on-street parking can help calm traffic, although a balance needs to be struck as an over provision will conflict with sustainability objectives and be visually dominant.	In accordance with DMURs, parking is provided through a mix of in curtilage and on-street spaces measuring: - In curtilage (dwellings): 5.0m x 2.5m - On-street perpendicular spaces: 5.0m x 2.4m (located off 5.5m wide streets) 5.0m x 2.6m (located off 5.0m wide streets) Furthermore, it is noted that an additional buffer of 300mm is provided between pairs of on-street spaces to aid manoeuvrability around cars when plugged into EV chargers.
Multi-disciplinary Design Team	DMURS advocates multi-disciplinary input into the development of a scheme to ensure a holistic design approach is implemented	In accordance with design philosophy of DMURS, the Blessington LRD scheme has been prepared by a multi-disciplinary design team including Thornton O'Connor (planning), by Deady Gahan Architects, Ilsa Rutgers Landscape Architects and DBFL Consulting Engineers (civil engineers & transport planning).

4 Summary and Conclusion

4.1 Summary

DBFL Consulting Engineers have been commissioned to prepare a Design Manual for Urban Road and Street (DMURS) Design Statement with regards to the proposed Blessington LRD at Blessington Demesne, Blessington, Co. Wicklow. The report has sought to identify how the scheme is consistent with and adheres to the principle and guidance within DMURS and supporting guidance such as the Cycle Design Manual (CDM).

The development layout has been prepared with careful consideration of optimising connectivity between key local areas through the provision of a high degree of permeability and legibility for all network users and particularly prioritising sustainable forms of travel.

Furthermore, the provision of a connected network of pedestrian and cyclist facilities will provide connectivity to key destinations including Blessington Town Centre and local primary / secondary schools. Accordingly, the proposed residential scheme delivers greater modal and route choices along direct, attractive and safe linkages to a range of amenities, bus stops and local service destinations.

The design approach also sought to achieve a quality 'sense of place' by incorporating several large open green spaces areas including large linear parks. The context / place status of each Local Street was also considered in terms of the level of connectivity provided, level of pedestrian/cyclist activity and vulnerable users requirements, whilst identifying appropriate 'transition' solutions between different street types.

Appropriately sized blocks, together with the grid and curvilinear street patterns and filtered permeability delivers an overall street network that is highly permeable, legible and accessible in nature for all road users.

4.2 Conclusion

The preceding sections of this report outline the specific Blessington LRD attributes which contribute to achieving the DMURS design objectives. The overall design approach successfully achieves an appropriate balance between the functional requirements of different network users, whilst also providing for an enhanced sense of place. The implementation of a self-regulating

street network will actively manage movement by offering real modal and route choices in a low speed, high quality residential environment.

Consequently, the proposed development at Blessington is the outcome of an integrated design approach which will ultimately deliver safe, convenient and attractive networks in addition to promoting real and viable alternatives to car-based journeys.

Appendix A : Road Hierarchy Drawing

ENVIRONMENT
ISO 14001:2015
NSAI Certified

HEALTH
& SAFETY
ISO 45001:2018
NSAI Certified

QUALITY
I.S. EN ISO 9001:2015
NSAI Certified

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