

Achieving good design in Nationally Significant Infrastructure Projects

A Planning Inspectorate Webinar, 13 December 2024

Chaired by Richard Schofield with Annie Coombs and Mike Hayes



Questions

Agenda

etion 1	What is the NSIP regime?
etion 2	Requirements for good design in NSIPs
etion 3	Achieving good design in NSIPs
tion 4	Good Design Advice Page Annex A
etion 5	Linear advice page
tion 4	Good Design Advice Page Annex A

Submit your questions via the "Q&A" panel in Teams.
Use the "Upvote **1**" button to vote for questions you want answered.



National Planning Policy Framework

Achieving well-designed places



The creation of high quality, beautiful and sustainable buildings and places is fundamental to what the planning and development process should achieve. Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities. Being clear about design expectations, and how these will be tested, is essential for achieving this. So too is effective engagement between applicants, communities, local planning authorities and other interests throughout the process.

NPPF December 2024 Para. 131





Outcome focussed



Impact Assessment Outlook Journal

Volume 16: June 2023

EIA as a Design Tool and Consideration of Alternatives

Thought pieces from UK Practice



Guest Editors

Alister Kratt, Director - Infrastructure, LDA Design Peta Donkin, Director of EIA (Infrastructure), LDA Design

Alister Kratt, Director Infrastructure, LDA Design

"We have a great responsibility to care for the environment we inhabit and that society needs. We need to strive to act with intelligence and integrity and an 'outcomes-based approach' is now key to help us intentionally plan for good.

Future generations depend on what we do now-that is our legacy and their inheritance."

Sadie Morgan, OBE, Board member NIC, HS2 Design Panel chair, Partner dRMM

"Design requires rigour and process, and good outcomes never come out of haphazard thinking."





Section 1

What is the NSIP regime?

Origins

The Planning Act 2008

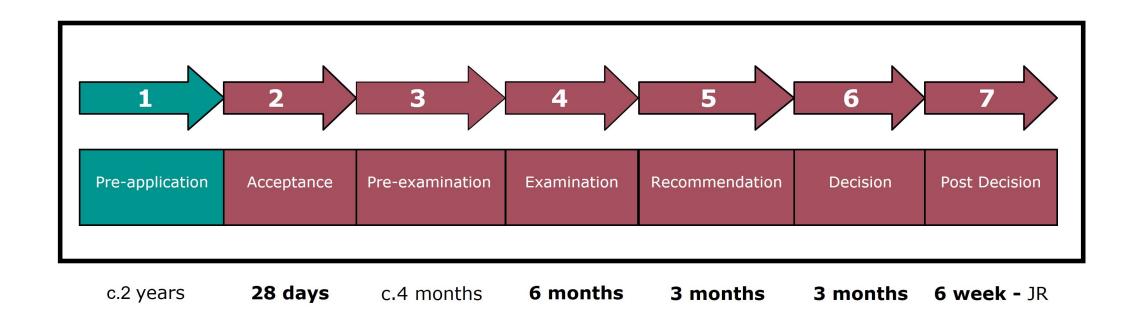
- Extended planning enquiries in the 1980s and 1990s led to a call for a more effective consenting regime for Nationally Significant Infrastructure Projects.
- A series of principles of reform were identified in the 2007
 White Paper Planning for a Sustainable Future and embodied in the 2008 Planning Act:
 - National Policy Statements to set out Government policy
 - Mandatory pre-application consultation
 - Creation of the Infrastructure Planning Commission
 - Emphasis on written procedure and an inquisitorial rather than adversarial approach
 - A single consenting process aimed at delivering 'oven ready' projects following approval of a Development Consent Order



Terminal 5 Heathrow Source: Mott Macdonald



The Planning Act 2008 stages





Planning Act 2008

The policy considerations

S. 104 Decisions in cases where national policy statement has effect

- (2) In deciding the application the Secretary of State must have regard to—
- (a) any national policy statement which has effect in relation to development
- (b) any local impact report
- (c) any matters prescribed in relation to development of the description to which the application relates, and
- (d) any other matters which the Secretary of State thinks are both important and relevant to the Secretary of State's decision.
- (3) The Secretary of State must decide the application in accordance with any relevant national policy statement, except to the extent that one or more of subsections (4) to (8) applies.

S. 105 Decisions in cases where no national policy statement has effect

- (1) This section applies in relation to an application for an order granting development consent if section 104 does not apply in relation to the application.
- (2) In deciding the application the Secretary of State must have regard to—
- (a) any local impact report (within the meaning given by section 60(3)) submitted to the Secretary of State before the deadline specified in a notice under section 60(2),
- (b) any matters prescribed in relation to development of the description to which the application relates, and
- (c) any other matters which the Secretary of State thinks are both important and relevant to the Secretary of State's decision.



Secretaries of State statutory duties

NPSs and Good Design

- The Secretaries of State are under a duty in preparing NPSs to contribute to sustainable development, mitigating and adapting to climate change and achieving good design.
- The NPSs set out criteria for achieving good design.
- The NPSs and guidance point to the importance of explaining decisions taken in the design process. This includes how EIA and views from stakeholder engagement and consultation have informed the design process.



CopenHill, also known as Amager Bakke, is a power plant located on an industrial waterfront that is capable of converting 440,000 tons of waste into clean energy annually.

It was designed by BIG to double as public infrastructure, and is complete with tree-lined hiking trails and ski slopes on its roof along with the "tallest artificial climbing wall in the world" on its façade





Section 2

Requirements for good design in NSIPs





National Policy Statements



Planning Act 2008

- 5. National policy statements
- (1) The Secretary of State may designate a statement as a national policy statement for the purposes of this Act if the statement:
- (a) is issued by the Secretary of State, and
- (b) sets out national policy in relation to one or more specified descriptions of development

Energy NPSs

- Overarching NPS for energy (EN-1)
- NPS for natural gas electricity generating infrastructure (EN-2)
- NPS for renewable energy infrastructure (EN-3)
- NPS for natural gas supply infrastructure and gas and oil pipelines (EN-4)
- NPS for electricity networks infrastructure (EN-5)
- NPSs <u>EN-1 to EN-5</u> were designated on 17 January 2024
- NPS for nuclear power generation (EN-6) (19.07.2011)

Transport NPSs

- NPS for Ports (26.01.12)
- National Networks NPS (24.05.24)
- Airports NPS (26.06.18)

Water, waste water and waste NPSs

- NPS for Hazardous Waste (06.06.13)
- NPS for Waste Water (09.02.12)
- NPS for Water Resources Infrastructure (18.09.23)
- NPS for Geological Disposal Infrastructure (17.10.19)



NPS requirement to address Good Design

Overarching NPS for Energy EN-1

- 4.7.2 Applying good design to energy projects should produce sustainable infrastructure sensitive to place, including impacts on heritage, efficient in the use of natural resources, including land-use, and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetic as far as possible. It is acknowledged, however that the nature of energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area.
- 4.7.4 Given the benefits of good design in mitigating the adverse impacts of a project, applicants should consider how good design can be applied to a project during the early stages of the project lifecycle.

NPS for National Networks

- 4.27 Applicants should include design as an integral consideration from the outset of a proposal. Applying good design to national network projects should not be limited to general aesthetics. High quality and inclusive design extends far beyond aesthetic considerations.
- 4.29 scheme design will be a material consideration in decision making. The Secretary of State needs to be satisfied that national networks infrastructure projects are sustainable, having regard to appropriate industry good design guidance, and that the applicant has considered, as far as possible, both functionality (including fitness for purpose and sustainability) and aesthetics (including the scheme's contribution to the quality of the area in which it would be located).



Design is more than a feeling



Summary by Alistair Kratt, LDA Design,
Volume 16 of the Impact Assessment Outlook
Journal.

'EIA as a Design Tool and Consideration of Alternatives'. (June 2023)

- Design is more than a feeling
- Design is more than a department
- Design is more than a phase
- Design is more than a product



Here we come, here we rise! Brent Cross Town Substation, LB Barnet by IF_DO and Lakwena Source: IF_DO



Good Design in NSIPs

Everyone gains from adopting a good design approach

(relevant) Secretary of State

Statutory duty to achieve good design

Applicant

Good design is crucial for achieving excellent functionality, sustainability, positive place-making and resilience in NSIPs

Stakeholders

Criteria for achieving good design in projects, aligning functionality with sustainability principles and balancing environmental, economic, and social factors set out in NPSs

Community

Explain decisions taken in the design process and the reasons for them, including how environmental impact assessment (EIA) and views from stakeholders and consultation have informed the process





Section 3

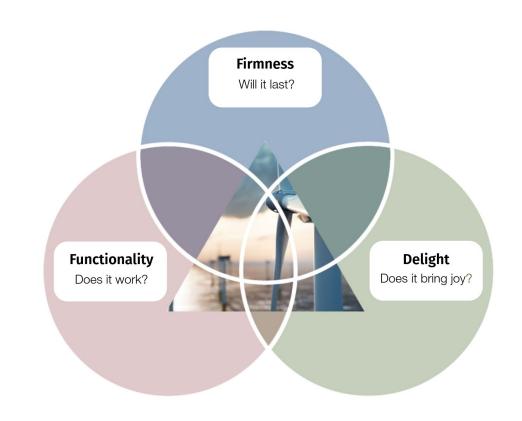
Achieving Good Design in NSIPs



What is Good Design?

Marcus Vitruvius

- Principles set out by the Roman architect and engineer Marcus Vitruvius (c70-15BC) still apply to present day infrastructure and chime with the statements in the NPSs.
- He defined good architecture as "firmitas, utilitas, venustas" meaning firmness, commodity (or functionality) and delight, emphasising the importance of functionality, durability, and aesthetic appeal in buildings and structures





Welsh Government policy on Good Design

Planning Policy Wales

Planning Policy Wales also recognises good design as a process. It defines design as "the relationship between all elements of the natural and built environment".

It emphasises the need to go beyond aesthetics and include "the social, environmental and economic aspects of the development, including its construction, operation and management, and its relationship to its surroundings."



Dame Sylvia Crowe was appointed to provide an integrated, holistic approach to architecture and landscape. Influenced design, massing, materials, colour, landform, woodland planting and attempted to integrate architecture and landscape to blend the huge mass of building into the majestic landscape.

National Infrastructure Commission

embedding good design into all NSIPs



 Create a structured design process to ensure good design is embedded in the design of the project from the beginning through site selection, construction, operation and decommissioning



 Adopt design principles for each project early in the process and use them to underpin decisions

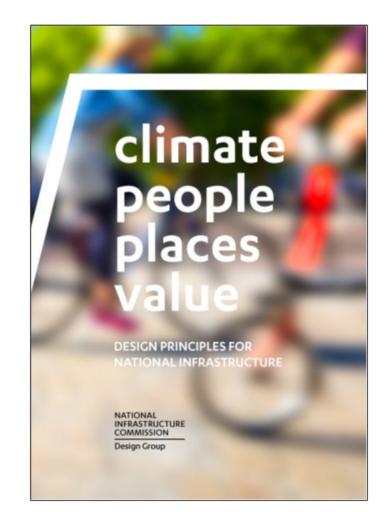


 Aim to achieve multiple beneficial outcomes so that opportunities are maximised, and maximum gain is achieved

National Infrastructure Commission's design principes

NIC's four design principles

- Climate: mitigate greenhouse gas emissions, adapt to climate change, resilience, include carbon as a metric, efficient resource use and waste reduction
- People: reflect what society wants and share benefits widely, engage locally and early, construction effects
- Places: provide a sense of identity and improve the environment
- Value: achieve multiple benefits and added value, link with other local initiatives, solve problems well, add social value - health





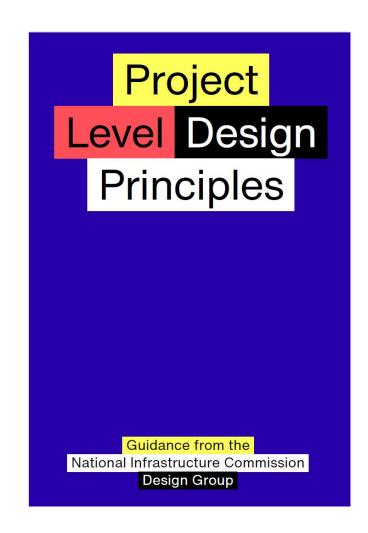
NIC's project level design principles

Project level design principles

The project level design principles set out a structured process for applying tailored design principles at every stage of a project life cycle. They emphasise the importance of design leadership.

The purpose of the design principles at a project level includes:

- having an overarching vision with a locally contextual design narrative
- being informed by affected people and groups
- being inclusive and identifying opportunities with partners for wider benefits and outcomes beyond the project itself





Achieving Good Design in NSIPs

Achieving Good Design in NSIPs

- requires a holistic approach not primarily about how infrastructure looks
- requires an effective, intentional, transparent, deliverable process to be planned, followed and secured
- success comes from a combination of securing both good process and good outcomes.
- addressing sustainability and climate change is essential given the scale and impact of NSIP developments

holistic

address sustainability and climate change intentional

good process + good outcomes



Design process

The components of a good design process

iterative within a structured approach

succinct and ambitious vision

clear statement of design principles

effective, intentional, transparent, and deliverable

clear analysis of the context for the place

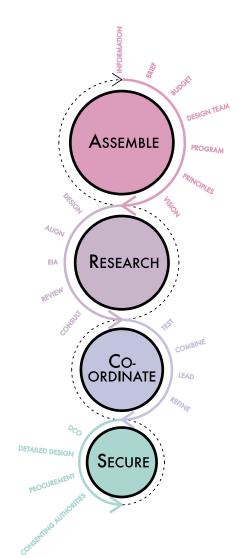
a narrative that explains how the approach to design has evolved collaborative, multidisciplinary approach including positive community and land rights engagement

opportunities for creating social value, including for the local and wider economy

design leadership supported by an engaged design champion



Design process



NSIP good design process diagram

- Assemble: a brief, a budget, a proposed timeline, a multi-disciplinary team, baseline information, alternatives and eventual site selection
- Research: iterative, constraints and opportunities, design evolution, mitigate adverse effects, positive outcomes, engagement (statutory parties, affected persons, local communities, independent design panels)
- Co-ordinate: further iteration, decisions using strong design leadership, vision, meet design principles, define process for future post-consent decision-making
- Secure: how the project's good design is secured and will be delivered



Design outcomes

The components of a good design outcome

a clearly understood, integrated design concept, consistent design language and project-wide sustainability

design principles that respond positively to the four elements – climate, people, place and value

attention on place-making to ensure the development's positive effects on the character of a place and delivery of public benefits consistent design language where all components can be followed through in post-consent decisions

realistic assessments of the project's durability and effectiveness during its operational phase, to underpin and secure a successful maintenance and monitoring regime

mechanisms to enable design outcomes to be scrutinised, assessed and developed during the post-consent design process clarity on achieving project-wide sustainability that goes beyond mitigating adverse effects to achieve economic, environmental and social net-gain

sufficient flexibility for technical innovation balanced by sufficient detail and controls for post-consent approvals that will ensure good design outcomes are achieved



Lake Lothing Third Crossing

GULL WING LOWESTOFT

Design review, vision and narrative



Photograph of Gull Wing – the largest rolling bascule bridge in the world. Opening day, 7 September 2024.
Source: Suffolk County Council

The ExA's report has just two paragraphs on good design.

.....this significant contribution to the built cultural capital of the town weighs significantly in favour of the proposals in the planning balance.

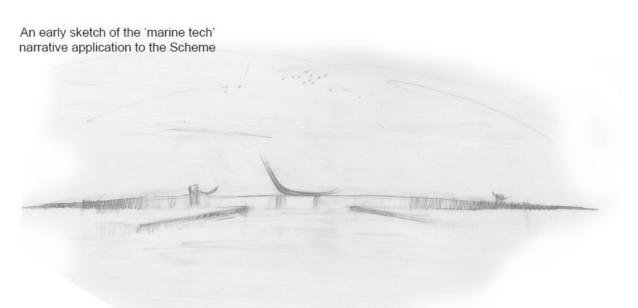
...accords with NPSNN and NPSP in respect of visual impact and good design....weighs significantly in favour of the proposals.



Gull Wing: 'Marine tech narrative'



Photographs of Gull Wing opening. Source: Suffolk County Council



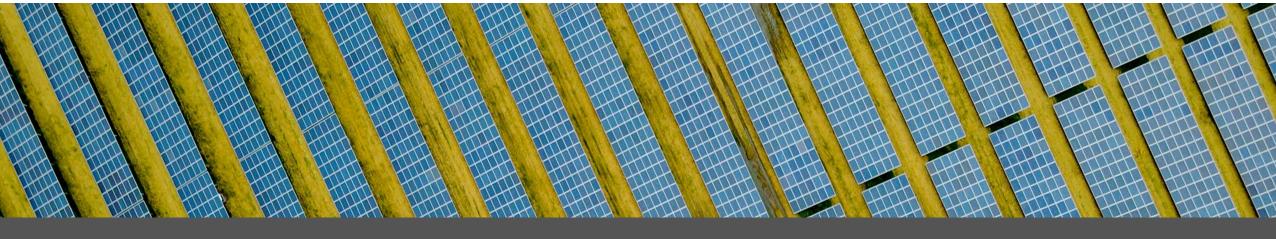












Section 4

Good design advice page Annex A



Good design advice page Annexe A

Content

Acceptance checklist



- Design Approach Document (DAD)
- Analysis, Research Response
- Vision
- Skills
- Developing the design
- Independent design review
- Delivery
- Place
- People
- Integrated design approach
- National Policy Statement requirements
- Design principles

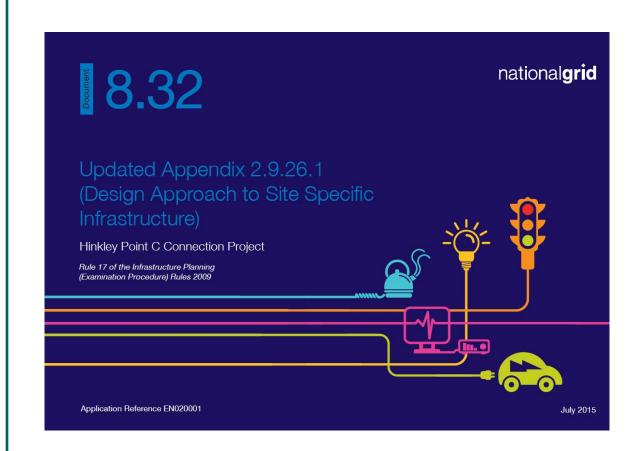


Good design advice page: Annex A

Hinkley Point C Connection

Design Approach Documents

Design Approach Document (DAD)	Is a DAD provided?
	Does the DAD address the brief, the design process, the design principles, and beneficial outcomes?
	If a DAD is not provided, where are the design process and design principles set out?





2.0 Site Location and Context

2.2 South of Mendip Hills CSE Compound and River Axe Cable Bridge

Landscape Context

Local Landscape Colours, Materials and Details

The photographs below identify appropriate colours and examples of materials and details, which are found in the local landscape.

- Local building materials and agricultural fencing
- Example of timber clad agricultural building in the local landscape
- Winter view from car park viewpoint on Webbington Road looking southwest
- 4. Summer view from Crook Peak

1 2 3

4









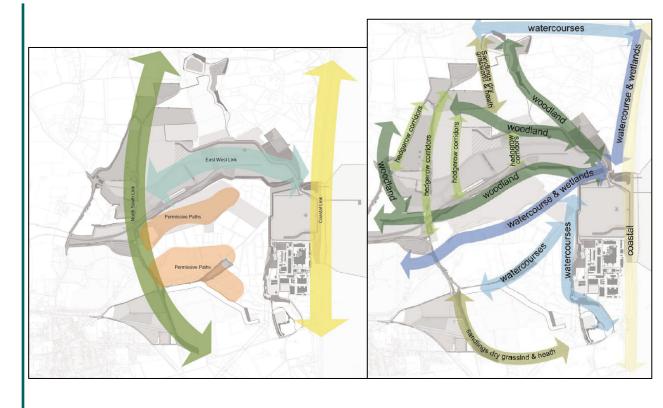


Good design advice page: Annex A

Sizewell C Nuclear Power Station

Analysis, Research and Response

Analysis, Research	How has the development site been analysed to inform a good design approach?
	What are the main conclusions from this analysis that inform the design at this stage and as it develops?
Response	What are the main significant adverse effects of the proposed development and how are they addressed to enable good design?



Site analysis leading to response to delivering good design – from Sizewell C Design and Access Statement



Materials

Sizewell C Nuclear Power Station

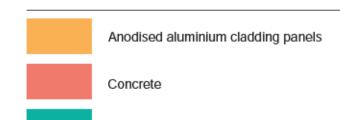
Materials strategy

Overarching materials strategy - the development is grouped into three material groups:

- focal structures/ set piece anodised aluminium for upper levels, with glass fibre reinforced concrete base
- ancillary and plant buildings less stringent safety requirements – profiled metal
- Industrial buildings within the nuclear islands material pre-determined as robust reinforced concrete



Legend



Aluminium / profiled metal cladding



Colour and materials

Sizewell C Design and Access Statement

OVERARCHING DESIGN PRINCIPLE 21

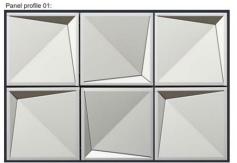
Design will utilise techniques to reduce the perceived scale of buildings from a distance by manipulating the size and arrangement of visible components and façade details, subject to operational requirements.

OVERARCHING DESIGN PRINCIPLE 24.

Subject to project requirements, visibility from public viewpoints and good masterplanning, where possible, the built forms of Sizewell C will generally be treated with an external colour palette that is responsive to and will aim to form an integrated part of the natural landscape they sit within.



Figure 7.36: The range of scaled panels reviewed within the Sizewell context for turbine hall facades



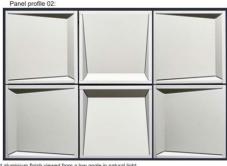


Figure 7.38: Scale mock-ups to illustrate profile alterations to turbine hall panels, light bronze anodised aluminium finish viewed from a low angle in natural light



Figure 6.28: The dominant hues and tonality found in the Sizewell landscape

OVERARCHING DESIGN PRINCIPLE 24

Subject to project requirements, visibility from public viewpoints and good masterplanning, where possible, the built forms of Sizewell C will generally be treated with an external colour palette that is responsive to and will aim to form an integrated part of the natural landscape they sit within.



Figure 6.27: Testing cladding panel finishes in relation to the existing natural and built form colou

Images from the cladding colour assessment, showing work in the field, reported in the Sizewell C Design and Access Statement,



Good design advice page: Annex A

Vision

Vision	What is the vision for the completed development and its surroundings? Where is it set out?
	Set out the narrative, how the vision will achieve sustainability, create a new place and hold the design together.

inspirational aspirational deliverable



Sizewell C Vision

Sizewell C Nuclear Power Station

"......a holistic design vision - a complementary composition to Sizewell A and B whilst accommodating operational concerns of the third phase of power production on-site and a high-quality workplace with a strong sense of place and community which safeguards the needs of the site's workforce."

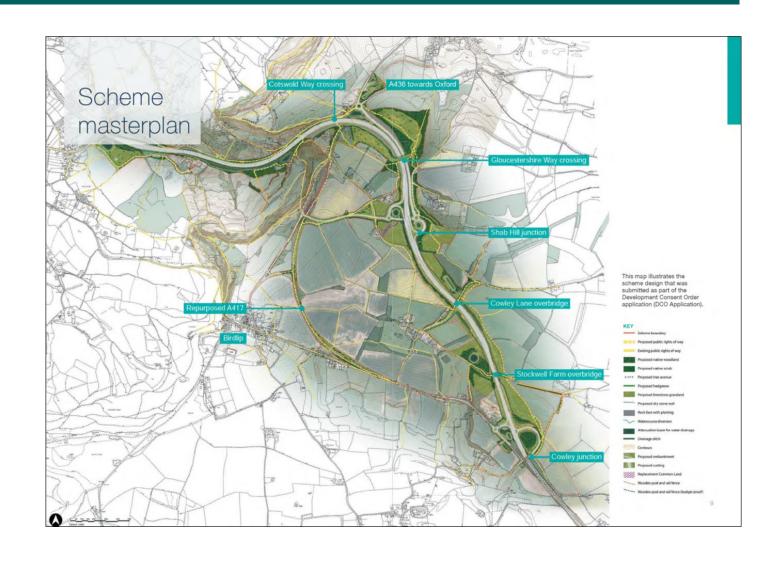


An image of existing Sizewell A and B with computer-generated Sizewell C from the Design and Access Statement submitted during examination

A417 Missing link

Vision

"We want to create a landscape-led highways improvement scheme that will deliver a safe and resilient free-flowing road while conserving and enhancing the special character of the Cotswolds Area of Outstanding Natural Beauty; reconnecting landscape and ecology; bringing about landscape, wildlife and heritage benefits, including enhancing visitors' enjoyment of the area; improving local communities' quality of life; and contributing to the health of the economy and local businesses"





Teams

Skills

Skills	What professional disciplines and skill sets are being and will be working on the design of the project?
	Is there a design champion designated for this project, and if so, who is it and what are their skills?



- Is there the right mix of skills architect, engineers, landscape architect, sustainability expert etc?
- Is there a design champion role. Are there design director(s)?
- Who advises them?



Telling the story

Developing the design

Developing the design	Describe the approach to good design and explair how the design has (and will continue) to evolve.
	How is any required flexibility being addressed?
	What design choices have (and will be) made?
	What are the emerging design principles and how have the principles directly informed decision making?
	Is there a hierarchical approach to elements of the proposal (for example in designing major and less important bridges in a highways scheme)?
	Have digital techniques, including algorithms and Al been used in design development? If so, explain the tools and data used.
	Is there a coherent narrative of how the approach to design has evolved?
	Where are design outcomes set out?
	Will additional value beyond the site boundary be incorporated?





Flexibility and detail

Richborough Connection Project





Photomontages of pylons submitted as part of the Richborough Connection Project



Physical interaction between NSIPs

- Would the Proposed Development preclude a future reservoir proposal?
- Would moving some pylon locations allow physical interaction between the reservoir proposal and its mitigation and the Proposed Development?
- Protective Provisions to regulate the positioning of elements of the Proposed Development in the area of the reservoir proposal



Independent design review

Independent design review	Has the design development been the subject of an independent design review?
	If so, what were the main comments and how has the design responded to them?
	Is it the intention to include design reviews post- consent? If so, how are these secured?

NSIP pre-application examples:

- Hinkley Point C
- Cambridge Waste Water Treatment Plant Relocation
- Sizewell C Power Station
- Lake Lothing Third Crossing
- Lower Thames Crossing
- M3 Junction 9 improvement
- A417 Missing Link
- North Falls OWF (with Five Estuaries OWF)

NSIP post-consent examples:

- Norfolk Boreas
- M25 Junction 28
- A14
- Hornsea 4



Design review

Design review 's 10 principles:

- Independent
- Expert
- Multidisciplinary
- Accountable
- Transparent
- Proportionate
- Timely
- Advisory
- Objective
- Accessible





Northwest design panel, Places Matter, in action



M25 Junction 28

Design review

To review or not to review?

Applicant: no need for an independent design review - limited visibility and public access, the area is not very sensitive in landscape terms review it can be via the Applicant's own review panel

The ExA: the ExA could not confirm it accords with NPSNN policy on good design as Applicant was unable to demonstrate that it had implemented the fundamental aspects of a design process

Secretary of State: reasonable for the design of the bridges and structures to be reviewed via the Applicant conducting the review, having first consulted the relevant planning and highway authorities.



Aerial computer generated image of M25 Junction 28 submitted during the examination



Norfolk Boreas and Norfolk Vanguard offshore windfarms

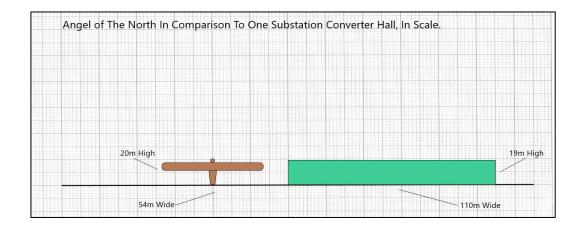
Design Review

Co-location of converter halls and substations

Applicant: flexibility is needed, equipment not yet sourced, Rochdale envelope approach, independent design review might take a different design approach - included future use of a local design forum

Boreas ExA: there should be an independent design review and a holistic design approach that could be enforced post-consent to address the co-location of the converter halls and substations of the two NSIPs

Secretary of State: included the ExA's wording for an independent design review and added that should both projects proceed, the details must be supported by a statement illustrating how the details accord with the principles of the 'Onshore Project Substation Masterplan', defined in articles as a certified document







A14 Great River Ouse Viaduct

When to review

- ExA noted the lack of independent design review
- DCO included
 - a requirement for Design Council's independent design panel
 - a requirement to consult with relevant planning authorities and local representatives
 - an additional control in respect of the River Great Ouse viaduct - a significant and unique structure – with an approval role for the SoS in respect of the external appearance, subject to consultation with the relevant planning authorities

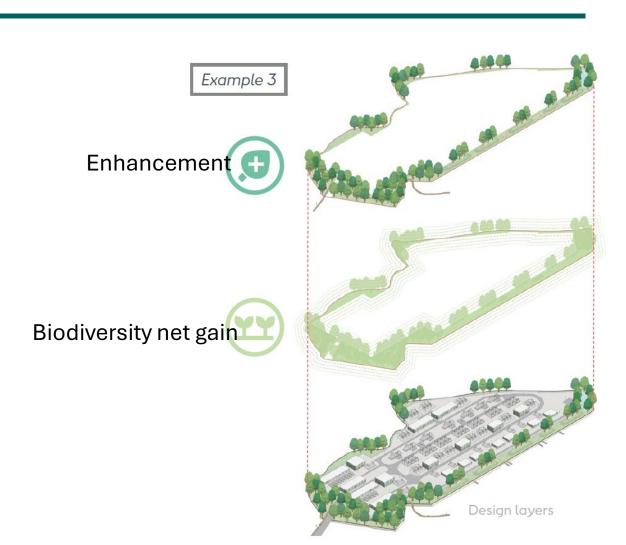






Hornsea 4 Design Code Principles

Delivery	
Delivery	How will the final design be delivered? Will there be a design management plan, a design guide or a design code? If not, why are they not required?
	Is there a design consultation plan to engage the community following consent of the DCO?
	Is there an agreed process for post-consent decisions with local planning authorities and others, where required?





Place

Place	How is placemaking being addressed?
	How will this be a distinctive place and how will the community benefit from it?
	Describe what the quality of place outcome will be, how this relates to the vision and how it will be secured?



"A brand-new piece of public space built out into the Thames as part of the super sewer project has been officially opened, in Putney."

Source: Tideway







Creative consultation

People

People	What consultation has taken place with statutory and local authorities, communities and people with an interest in the land?
	How will their views be incorporated in the design evolution and where will this be set out?





Creative visual aids

Physical models

Norfolk Boreas onshore connection

- Parish Councillors presented a non-verified scale model, with moveable parts, at a hearing
- the Parish Council used the model to make its case for:
 - an alternative site
 - more substantial planting on bunds for screening
- the ExA challenged the applicant to make its own model!



Photographs of a physical model representing substations and converter halls in their landscape setting, presented at a hearing by Necton Parish Council



Creative site inspections

Cherry pickers and drones

- cherry picker represents a pylon height in relation to local housing
- use of drones to demonstrate (unverified) height (relevant technical and GDPR considerations apply)
- pegging out, useful with landowner agreement





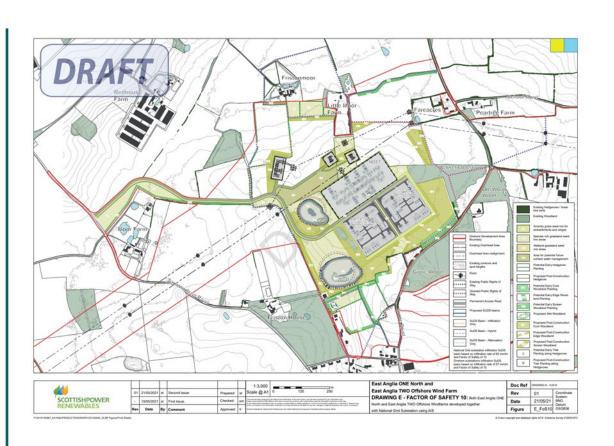






Integrated design approach

Integrated design approach	Explain how an integrated, holistic approach to the project's design will be achieved.
	Where is it shown in the documentation? Is there a masterplan?
	How will this be secured?

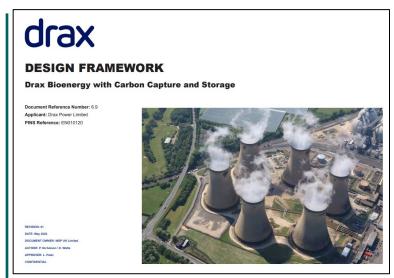


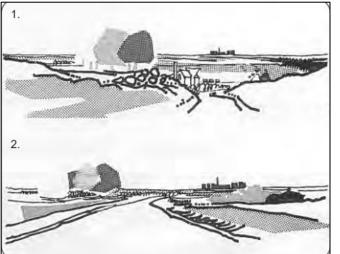
East Anglia ONE North & East Anglia Two OWFs Substation Layout and Location



Integrated design approach

Integrated design approach	Explain how an integrated, holistic approach to the project's design will be achieved.
	Where is it shown in the documentation? Is there a masterplan?
	How will this be secured?





drax

REGISTER OF ENVIRONMENTAL ACTIONS AND COMMITMENTS (CLEAN)

Drax Bioenergy with Carbon Capture and Storage

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 -

Document Reference Number: 6.5

Applicant: Drax Power Limited



DATE: July 2023



A303 Amesbury to Berwick Down (Stonehenge)

Design Principles

Design Principles	Set out the good design principles being applied to the project.
	Are the design principles structured or grouped logically?
	How will they be developed prior to consent?
	How will they be illustrated and secured?



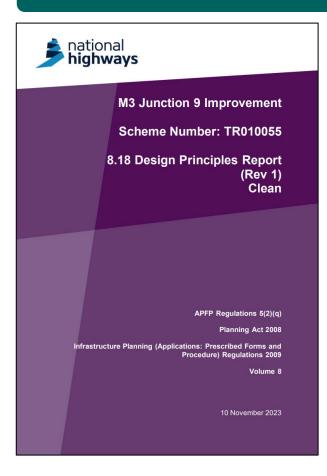
Green bridge design principles submitted in the Outline Environmental Plan by the Applicant for the A303 Amesbury to Berwick Down (Stonehenge)



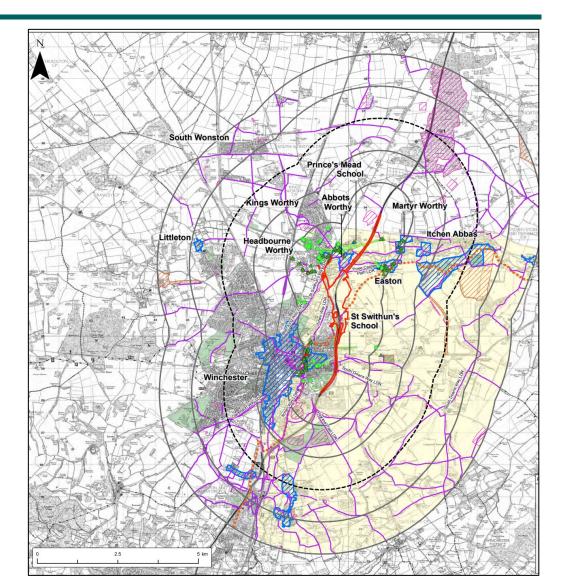
M3 Junction 9 Improvement

Design Principles Document

Design Principles



The Design
Principles document
is one of a suite of
documents that
capture the
Proposed
Development's
design and
environmental
commitments.





M3 Junction 9 Improvement design principles

Design Principles

- the ExA (and the SoS) found that the approach to design reflects the NPSNN guidance and design has been an
 integral consideration from the outset
- the Secretary of State noted that the Design Principles Report, secured by the DCO, commits to key design principles and to their further development at detailed design



A panorama view looking north showing the South Downs National Park landscape character with the M3 in the distance, submitted in the application





Section 5

Linear advice page



Linear projects advice – coming soon



Photograph of T-pylon supports across the Somerset Levels for the Hinkley Point C Connection





Discussion





Thank you for attending!



Please complete the webinar evaluation form

Further reading:

- Nationally Significant Infrastructure Projects: Advice on Good Design
- Other advice pages from the Planning Inspectorate

Forthcoming webinar:

