Design Manual for Roads and Bridges

Sustainability & Environment
Appraisal

LA 109
Geology and soils

(formerly DMRB Volume 11, Section 3, Part 11 & Part 6)

Revision 0

Summary
This document sets out the requirements for assessing and reporting the effects of highway projects on geology and soils.

Application by Overseeing Organisations
Any specific requirements for Overseeing Organisations alternative or supplementary to those given in this document are given in National Application Annexes to this document.

Feedback and Enquiries
Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Highways England team. The email address for all enquiries and feedback is: Standards_Enquiries@highwaysengland.co.uk

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Release notes

Version	Date	Details of amendments
0	Oct 2019	LA 109 replaces DMRB Volume 11, Section 3, Part 11 & Part 6. The full document has been re-written to make it compliant with the new Highways England drafting rules.

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Foreword

Publishing information

This document is published by Highways England.

This document supersedes DMRB Volume 11, Section 3, Part 11 (Geology & Soils) and DMRB Volume 11, Section 3, Part 6 (Land Use) which are withdrawn. This document also makes provision for requirements outlined within EU Directive 2011/92/EU as amended by 2014/52/EU EIA Directive [Ref 5.N].

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

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Introduction

Background

Highway projects can have an impact on the geology and the soils of an area.

Environmental assessment provides a framework for assessing and managing the effects associated with geology and soils resulting in:

1) effects on bedrock geology and superficial deposits, including geological designations and sensitive / valuable non-designated features;
2) effects on soil resources; and
3) effects from contamination on human health, surface water and groundwater.

This document aligns with Directive 2011/92/EU as amended by 2014/52/EU (hereafter referred to as the EIA Directive) EIA Directive [Ref 5.N].

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 9.N] apply to this document.

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Abbreviations

Abbreviations

Abbreviation	Definition
ALC	Agricultural Land Classification
ASSI	Area of Special Scientific Interest
BMV	Best and most versatile
CL:AIRE	Contaminated Land: Applications In Real Environments
CLR 11	Contaminated Land Report 11
EMP	Environmental Management Plan
ESCR	Earth Science Conservation Review sites
GCR	Geological Conservation Review (sites)
LCA	(Macaulay) Land Capability for Agriculture (Classification)
LGDS	Local Geodiversity Sites
LGS	Local Geological Sites
LNR	Local Nature Reserve
MCHW	Manual of Contract Documents for Highway Works
NIEA	Northern Ireland Environment Agency
NNR	National Nature Reserve
PRA	Preliminary Risk Assessment
PSSR	Preliminary Sources Study Report
RIGS	Regionally Important Geological Sites
SAC	Special Area of Conservation
SEPA	Scottish Environmental Protection Agency
SPA	Special Protection Area
SI	Site Investigation
SNCI	Site of Nature Conservation Importance
SSSI	Site of Special Scientific Interest
UNESCO	United Nations Educational, Scientific and Cultural Organisational

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Terms and definitions

Terms and definitions

Term	Definition
Authorities likely to be concerned by the project	Authorities or organisations (statutory or non-statutory) that have environmental responsibilities or local and regional competences (as defined by the relevant consenting regime).
Best and most versatile agricultural land	Land in grades 1, 2 and 3a of the Agricultural Land Classification.
Environmental management plan	A 'live' document for the purpose of implementing mitigation measures and compliance with legislation during the detailed design, construction and handover phases of a project.
Geology	The physical structure, substance and history of the earth (rocks and minerals).
Geomorphology	The structure, origin, and development of the topographical features of the earth's surface.
Groundwater	Water found underground in porous geological strata and soils.
Preliminary sources study report	A combination of desk study and site reconnaissance, the purpose of which is to develop an initial conceptual site model.
Prime land	Land in grades 1, 2 and 3.1 of the Land Capability for Agriculture Classification.
Site investigation	An exploratory site investigation, including field reconnaissance, field and laboratory work, designed to prove the basis of the conceptual site model, as established within the preliminary risk assessment / desk study.
Site walkover	A non-intrusive visual reconnaissance of a site recorded by notes, photographs and video.
Soil	An assemblage of mineral particles and/or organic matter which includes variable amounts of water and air (and sometimes other gases).
Soil function	The ability of soil to provide a range of environmental services, such as the support of vegetation growth, ecological habitats and biodiversity.
Surface water	Water that collects on the surface of the ground.
Topsoil	Natural topsoil or manufactured topsoil, usually covering the top 25cm in which plants can grow healthily.

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1. Scope

Aspects covered

1.1 The requirements in this document shall be applied to the assessment, reporting and management of environmental effects on geology and soils from the delivery of projects.

1.2 Environmental assessments shall describe impacts on geology and soils in accordance with the wider requirements and advice provided in:

1) LA 101 [Ref 8.N] Introduction to environmental assessment;
2) LA 102 [Ref 17.N] Screening projects for Environmental Impact Assessment;
3) LA 103 [Ref 16.N] Scoping projects for environmental assessment; and
4) LA 104 [Ref 6.N] Environmental assessment and monitoring

1.3 Environmental assessments must, in accordance with the EIA Directive [Ref 5.N], identify, describe and assess in an appropriate manner the direct and indirect significant effects of a project on soil (for example organic matter, erosion, compaction, sealing).

1.4 Environmental assessment of geology and soils effects shall report on the following elements:

1) effects on bedrock geology and superficial deposits, including geological designations and sensitive / valuable non-designated features;
2) effects on soil resources; and
3) effects from contamination on human health, surface water and groundwater.

1.4.1 Effects on geomorphology, notably effects associated with hydromorphology, should be reported in LA 113 [Ref 15.N] Road drainage and the water environment where relevant in accordance with the Overseeing Organisation's requirements.

1.4.2 Effects on geomorphology, notably effects associated with landform, should be reported in LA 107 [Ref 11.N] Landscape and visual effects where relevant in accordance with the Overseeing Organisation's requirements.

NOTE 1 *Effects on mineral deposits as a resource are assessed in LA 110 [Ref 14.N] Material assets and waste.*

NOTE 2 *Risks associated with geotechnical hazards and land stability are assessed in CD 622 [Ref 12.N] Managing geotechnical risk.*

1.5 The assessment of effects on geology and soils shall be informed by relevant information collated by other environmental factors / disciplines, notably LA 113 [Ref 15.N] Road drainage and the water environment, LA 110 [Ref 14.N] Material assets and waste, and geotechnical assessment CD 622 [Ref 12.N].

1.6 The assessment of effects on geology and soils shall be used to inform the assessment of other environmental factors, where appropriate.

Implementation

1.7 This document shall be implemented forthwith on all projects involving environmental assessment of geology and soils on the Overseeing Organisations' motorway and all-purpose trunk roads according to the implementation requirements of GG 101 [Ref 9.N].

Use of GG 101

1.8 The requirements contained in GG 101 [Ref 9.N] shall be followed in respect of activities covered by this document.

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2. Principles and purpose

Assessment and consultation

2.1 Consultation with authorities likely to be concerned by the project shall be undertaken in accordance with LA 104 [Ref 6.N] Environmental assessment and monitoring.

NOTE 1 Consultation includes the appropriate statutory body who are the primary, definitive source of policy, information and opinion on geology and soils.

NOTE 2 Stakeholders can often provide information, or are aware of certain issues which can assist the design and assessment process (i.e. concerns regarding local sensitivity).

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3. Assessment methodology

Scoping

3.1 The scoping assessment shall report on:

1) the likely nature and scale of geology and soils effects (positive, neutral or negative) during the construction and the operational phases of the project;
2) the likelihood of a project to result in significant effects; and
3) the issues requiring further assessment and the methods to be applied.

3.2 The scoping assessment shall identify potential significant effects by answering the following questions to gain an understanding of the need to undertake further assessment:

1) is the project likely to affect designated geological sites (statutory or non statutory)?;
2) is the project likely to affect the function or quality of soil as a resource?;
3) is the project likely to affect agricultural land classified as best and most versatile (BMV) or prime land?;
4) is the project likely to disturb historical contamination?;
5) is the project likely to introduce significant sources of contamination?

3.3 Where the response to one or more of the scoping assessment questions is 'yes', further assessment shall be undertaken.

NOTE *It is possible to scope in one element of assessment, e.g. geology, and scope out another, e.g. contamination.*

3.4 The scoping assessment shall include reliable design, mitigation and best practice measures when reporting against the above points.

3.4.1 Where elements are scoped out from further assessment on the basis there is not likely to be significant effects, appropriate environmental management measures should still be recorded and implemented within an environmental management plan (EMP).

Study area

3.5 The study area shall be identified on a project by project basis based on the following:

1) the construction footprint/project boundary (including compounds and temporary land take);
2) the location of contamination outside the project boundary / footprint that have the potential to migrate on site and effect receptors; and
3) the location of sensitive off site receptors (i.e. designated sites) that can be affected by the project, i.e by re-mobilisation or introduction of contaminants.

Baseline scenario

3.6 Where the need for further assessment has been established, the following shall be identified:

1) the location of designated and non designated geological sites / features, e.g;
   a) Sites of Special Scientific Interest (SSSI);
   b) Areas of Special Scientific Interest (ASSI);
   c) Regionally Important Geological Sites (RIGS);
   d) Local Geological / Geodiversity Sites (LGS);
   e) Geological Conservation Review (GCR) sites; and
   f) Earth Science Conservation Review sites (ESCR);
2) identification of the agricultural classification of land (agricultural land classification (ALC) or Land Classification for Agriculture (LCA)) affected by a project; and

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3) a preliminary sources study report (PSSR), in accordance with Contaminated Land Report 11: Model Procedures for the Management of Contaminated Land CLR11 [Ref 2.N] and / or BS 10175:2011 + A2:2017 [Ref 10.N].

3.6.1 A soil resource and / or ALC / LCA survey should be undertaken to inform the baseline scenario and assessment conclusions where data is incomplete / unavailable.

NOTE The following provide a framework for undertaking soil resource and ALC / LCA surveys;

1) Code of practice for the sustainable use of soils on construction sites CoP sustainable use of soils [Ref 1.N];

2) BS 3882:2015 [Ref 19.N];

3) where relevant BS 8601:2013 BS 8601:2013 [Ref 18.N]; and

4) the revised guidelines and criteria for grading the quality of agricultural land ALC Guidelines [Ref 20.N].

3.6.2 A site walkover may be undertaken to inform the baseline information where required to support assessment conclusions.

3.7 The desk study shall establish the nature of the underlying bedrock geology and superficial deposits.

3.8 The desk study shall identify potential sources of contamination associated with current and historical land uses, and pathways to receptors.

3.8.1 The desk study may be compiled in the form of a PSSR (see Appendix D of CD 622 [Ref 12.N]) the conclusions from which can inform the baseline scenario.

3.9 The baseline scenario within environmental assessments shall report on the proportion of identified ALC / LCA types within a region (i.e. the relative abundance of soil type in the wider geographic area and / or its contribution to a cohesive network).

3.10 The baseline scenario shall be informed by existing survey data, such as geo-environmental data obtained from site investigation(s) and monitoring data, where this information is available.

3.10.1 Geo-environmental data from site investigation(s) may be undertaken to inform the baseline scenario and subsequent assessment where required to inform / support assessment conclusions.

Significance criteria

3.11 The value (sensitivity) of receptors shall be reported in the assessment in accordance with the criteria provided in Table 3.11.

Table 3.11 Environmental value (sensitivity) and descriptions

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Receptor value (sensitivity)	Description
Very high	Geology: very rare and of international importance with no potential for replacement (e.g. UNESCO World Heritage Sites, UNESCO Global Geoparks, SSSI's and GCR where citations indicate features of international importance). Geology meeting international designation citation criteria which is not designated as such. Soils: 1) soils directly supporting an EU designated site (e.g. SAC, SPA, Ramsar); and / or 2) ALC grade 1 & 2 or LCA grade 1 & 2 Contamination: 1) human health: very high sensitivity land use such as residential or allotments; 2) surface water: relevant sensitivity criteria from Table 3.70 in Road drainage and water environment LA 113 [Ref 15.N]; and 3) groundwater: use sensitivity criteria in Road drainage and the water environment LA 113 [Ref 15.N].
High	Geology: rare and of national importance with little potential for replacement (e.g. geological SSSI, ASSI, National Nature Reserves (NNR)). Geology meeting national designation citation criteria which is not designated as such. Soils: 1) soils directly supporting a UK designated site (e.g SSSI); and / or 2) ALC grade 3a, or LCA grade 3.1. Contamination: 1) human health: high sensitivity land use such as public open space; 2) surface water: use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N]; and 3) groundwater: use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N].

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Table 3.11 Environmental value (sensitivity) and descriptions (continued)

Receptor value (sensitivity)	Description
Medium	Geology: of regional importance with limited potential for replacement (e.g. RIGS). Geology meeting regional designation citation criteria which is not designated as such. Soils: 1) soils supporting non-statutory designated sites (e.g. Local Nature Reserves (LNR), LGS's, Sites of Nature Conservation Importance (SNCIs)); and / or 2) ALC grade 3b or LCA grade 3.2. Contamination: 1) human health: medium sensitivity land use such as commercial or industrial; 2) surface water: use relevant sensitivity criteria in Table 3.70 of Road drainage and water environment LA 113 [Ref 15.N]; and 3) groundwater: use relevant sensitivity criteria in Table 3.70 Road drainage and water environment LA 113 [Ref 15.N].
Low	Geology: of local importance / interest with potential for replacement (e.g. non designated geological exposures, former quarry's / mining sites). Soils: 1) ALC grade 4 & 5 or LCA grade 4.1 to 7; and / or 2) soils supporting non-designated notable or priority habitats. Contamination: 1) human health: low sensitivity land use such as highways and rail; 2) surface water: use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N]; and 3) groundwater: use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N].
Negligible	Geology: no geological exposures, little / no local interest. Soils: previously developed land formerly in 'hard uses' with little potential to return to agriculture. Contamination: 1) human health: undeveloped surplus land / no sensitive land use proposed; 2) surface water: use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N]; and 3) groundwater: use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N].

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NOTE *Soils not categorised as best and most versatile or prime land can be allocated in a higher sensitivity category where particular agricultural practices contribute to the quality and character of the environment or local economy (e.g. in upland areas where lower quality agricultural land is integral to agricultural practices).*

3.12 The magnitude of change shall be reported in the assessment in accordance with the criteria provided in Table 3.12.

Table 3.12 Magnitude of impact and typical descriptions

Magnitude of impact (change)	Typical description
Major	Geology: loss of geological feature / designation and/or quality and integrity, severe damage to key characteristics, features or elements. Soil: physical removal or permanent sealing of soil resource or agricultural land. Contamination: 1) human health: significant contamination identified. Contamination levels significantly exceed background levels and relevant screening criteria (e.g. category 4 screening levels) SP1010 [Ref 4.N] with potential for significant harm to human health. Contamination heavily restricts future use of land; 2) surface water: use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N]; and 3) groundwater: use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N].
Moderate	Geology: partial loss of geological feature / designation, potentially adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements. Soils: permanent loss / reduction of one or more soil function(s) and restriction to current or approved future use (e.g through degradation, compaction, erosion of soil resource.) Contamination: 1) human health: contaminant concentrations exceed background levels and are in line with limits of relevant screening criteria (e.g. category 4 screening levels) SP1010 [Ref 4.N]. Significant contamination can be present. Control / remediation measures are required to reduce risks to human health / make land suitable for intended use; 2) surface water: use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N]; and 3) groundwater: use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N].

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Table 3.12 Magnitude of impact and typical descriptions (continued)

Magnitude of impact (change)	Typical description
Minor	Geology: minor measurable change in geological feature / designation attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements. Soils: temporary loss / reduction of one or more soil function(s) and restriction to current or approved future use (e.g through degradation, compaction, erosion of soil resource.) Contamination: 1) human health: contaminant concentrations are below relevant screening criteria (e.g. category 4 screening levels) SP1010 [Ref 4.N]. Significant contamination is unlikely with a low risk to human health. Best practice measures can be required to minimise risks to human health; 2) surface water: use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N]; and 3) groundwater: use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N].
Negligible	Geology: very minor loss or detrimental alteration to one or more characteristics, features or elements of geological feature / designation. Overall integrity of resource not affected. Soils: no discernible loss / reduction of soil function(s) that restrict current or approved future use. Contamination: 1) human health: contaminant concentrations substantially below levels outlined in relevant screening criteria (e.g. category 4 screening levels) SP1010 [Ref 4.N]. No requirement for control measures to reduce risks to human health / make land suitable for intended use; 2) surface water; use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N]; and 3) groundwater: use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N].

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Table 3.12 Magnitude of impact and typical descriptions (continued)

Magnitude of impact (change)	Typical description
No change	Geology: no temporary or permanent loss / disturbance of characteristics features or elements. Soils: no loss / reduction of soil function(s) that restrict current or approved future use. Contamination: 1) human health: reported contaminant concentrations below background levels; 2) surface water; use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N]; and 3) groundwater: use sensitivity criteria in Road drainage and water environment LA 113 [Ref 15.N].

3.13 The requirements of the Overseeing Organisation shall be referred to in support of the criteria outlined in Table 3.12.

3.13.1 A major magnitude impact for soils should be allocated where there is a discernible level of physical removal / permanent sealing of agricultural land.

3.14 The approach to deriving impact significance from receptor value and magnitude of effects shall be in accordance with LA 104 [Ref 6.N] Environmental assessment and monitoring.

NOTE *Significant effects typically comprise effects that remain within the moderate, large or very large categories once mitigation has been taken into account.*

3.14.1 Improvements from baseline conditions (positive effects) should be identified and reported within environmental assessments.

Design and mitigation

3.15 The design and mitigation hierarchy outlined in LA 104 [Ref 6.N] Environmental assessment and monitoring shall be applied to avoid, reduce and remediate (offset) effects on geology and soils.

3.16 Where effects on geological sites / features and soils cannot be avoided through alignment / design choices, effects shall be reduced by minimising a project's footprint.

3.17 Enhancement opportunities shall be identified during the design process and reported within environmental assessments.

NOTE *Examples or enhancement opportunities comprise improving the condition of existing geological exposures, or creating new geological exposures within design parameters and improving scientific data /understanding.)*

3.18 Impacts on soil resources during the construction phase shall be managed / minimised through an EMP.

3.18.1 The management measures within the EMP should be in accordance with:

1) CoP sustainable use of soils [Ref 1.N]; and
2) BS 3882:2015 [Ref 19.N], BS 8601:2013 [Ref 18.N] and MCHW [Ref 13.N] requirements for use of soil on construction sites.

3.18.2 Re-use of soils generated during the construction phase should be in accordance with;

1) CL:AIRE The Definition of Waste Code of Practice ISBN 978-1-905046-23-2 [Ref 3.N];

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2) CoP sustainable use of soils [Ref 1.N];
3) SEPA promoting the sustainable reuse of greenfield soils in construction guidance [Ref 1.I];
4) NIEA guidance on the regulation of greenfield soils in construction and development [Ref 7.N]; and
5) in agreement with the relevant local authority.

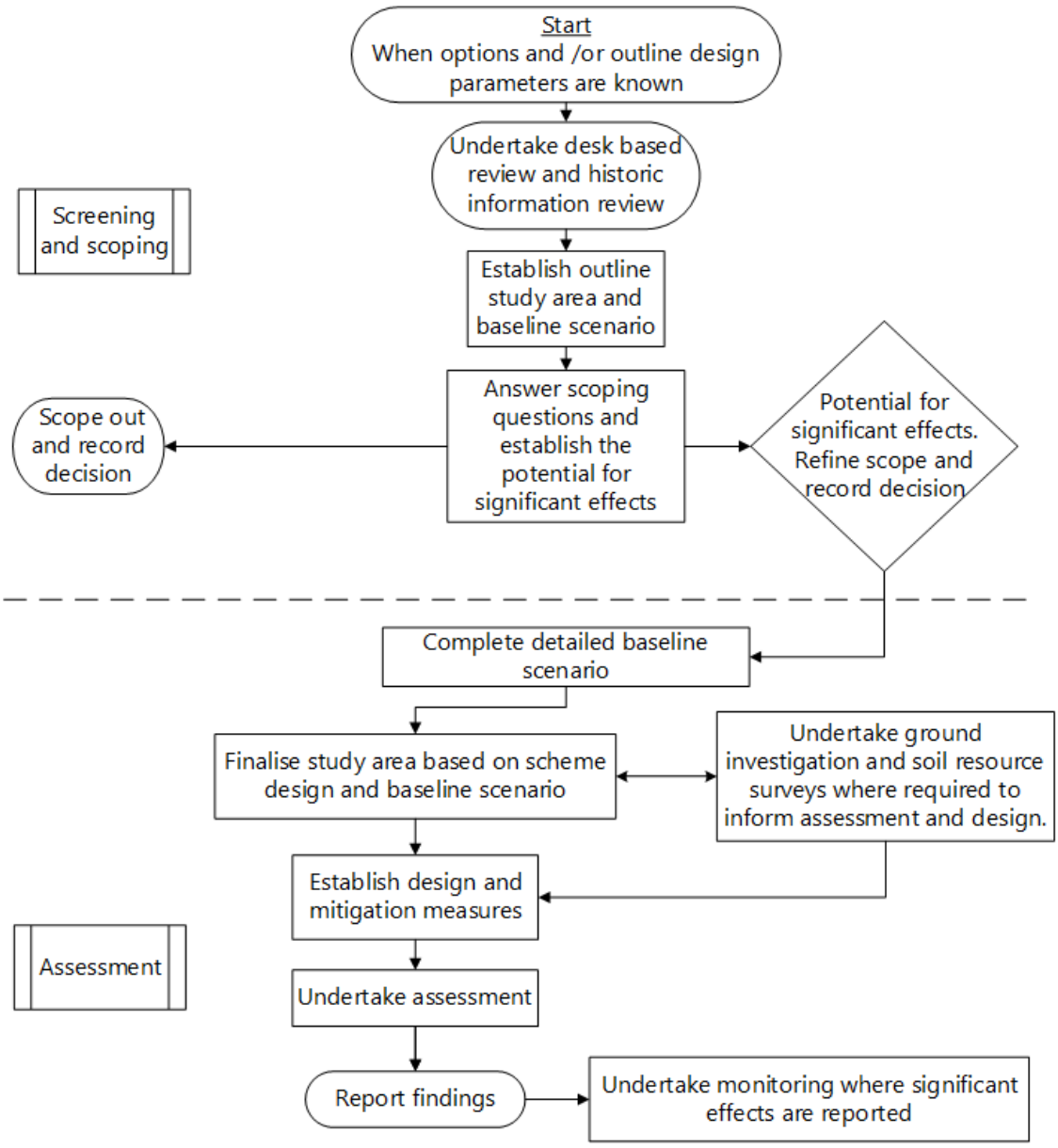
3.19 Where a preliminary risk assessment has identified the need for remediation measures, a remediation options appraisal shall be completed in accordance with CLR11 (Model Procedures for the Management of Land Contamination) (CLR11 [Ref 2.N] and / or BS10175:2011 BS 10175:2011 + A2:2017 [Ref 10.N] Code of Practice for the Investigation of Potentially Contaminated Sites.

3.20 Authorities likely to be concerned by a project shall be consulted in relation to the selection of remediation options.

Assessment & reporting process

3.21 The design and assessment shall follow the process illustrated in Figure 3.21.

Figure 3.21 Geology and soils assessment and reporting process



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4. Monitoring

4.1 Where significant effects following the inclusion of design and mitigation measures have been identified, the EMP shall be reviewed and updated to demonstrate the implementation of specified mitigation and enhancement measures, relating to:

1) geology;
2) soil resources; and
3) contamination (remediation measures).

4.2 Where the need for remediation of contaminated land has been identified, monitoring requirements shall be agreed with the authorities likely to be concerned by a project.

4.3 Where there are development or planning requirements to undertake mitigation measures, monitoring shall support these requirements being discharged prior to occupation.

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5. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref 1.N	HMSO. DEFRA. CoP sustainable use of soils, 'Code of practice for the sustainable use of soils on construction sites'
Ref 2.N	Environment Agency . CLR11, 'Contaminated Land Report 11: Model Procedures for the Management of Contaminated Land'
Ref 3.N	CL:AIRE. ISBN 978-1-905046-23-2, 'Definition of Waste Code of Practice.'
Ref 4.N	CL:AIRE 2014. Contaminated Land: Applications in real environments (CL:AIRE). SP1010, 'Development of category 4 screening levels for assessment of land affected by contamination'
Ref 5.N	EIA Directive, 'Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment'
Ref 6.N	Highways England. LA 104, 'Environmental assessment and monitoring'
Ref 7.N	NIEA. 'Guidance on the Regulation of Greenfield Soil in Construction and Development'
Ref 8.N	Highways England. LA 101, 'Introduction to environmental assessment'
Ref 9.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'
Ref 10.N	BSI . BS 10175:2011 + A2:2017, 'Investigation of potentially contaminated sites. Code of practice'
Ref 11.N	Highways England. LA 107, 'Landscape and visual effects'
Ref 12.N	Highways England. CD 622, 'Managing geotechnical risk'
Ref 13.N	Highways England. MCHW, 'Manual of Contract Documents for Highway Works'
Ref 14.N	Highways England. LA 110, 'Material assets and waste'
Ref 15.N	Highways England. LA 113, 'Road drainage and the water environment'
Ref 16.N	Highways England. LA 103, 'Scoping projects for environmental assessment'
Ref 17.N	Highways England. LA 102, 'Screening projects for Environmental Impact Assessment'
Ref 18.N	BSI. BS 8601:2013, 'Specification for subsoil and requirements for use'
Ref 19.N	BSI. BS 3882:2015, 'Specification for Topsoil'
Ref 20.N	MAFF 1988. MAFF. ALC Guidelines, 'the revised guidelines and criteria for grading the quality of agricultural land'

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6. Informative references

The following documents are informative references for this document and provide supporting information.

Ref 1.I	SEPA. 'Regulatory guidance - Promoting the sustainable reuse of greenfield soils in construction'

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Sustainability & Environment
Appraisal

LA 109
England National Application Annex to LA 109 Geology and soils

(formerly DMRB Volume 11, Section 3, Part 11 & Part 6)

Revision 0

Summary
This National Application Annex sets out the Highways England specific requirements on consultation and assessment for use with geology and soils.

Feedback and Enquiries
Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Highways England team. The email address for all enquiries and feedback is: Standards_Enquiries@highwaysengland.co.uk

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Contractual and legal considerations

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Introduction

Background

This National Application Annex sets out the Highways England specific requirements relating to consultation with Natural England and for reporting magnitude of impacts.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 2.N] apply to this document.

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Abbreviations

Abbreviations

Abbreviation	Definition
BMV	Best and most versatile

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Terms and definitions

Terms

Term	Definition
Best and most versatile	Land in grades 1, 2 and 3a of the Agricultural Land Classification.
Natural England	The government's adviser for the natural environment in England, helping to protect England's nature and landscapes for people to enjoy and for the services they provide.

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E/1. Consultation

E/1.1 Consultation shall be undertaken with Natural England where development:

1) is not for agricultural purposes;
2) is not in accordance with the provisions of a development plan; and
3) involves the loss of not less than 20 hectares of grades 1, 2 or 3a agricultural land (BMV) which is for the time being used (or was last used) for agricultural purposes.

NOTE *Land that was last used for agricultural purposes includes land that has been subject to a change of use.*

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E/2. Assessment

E/2.1 The magnitude descriptors given in Table E/2.1 shall be used to supplement Table 3.12 of LA 109 [Ref 1.N] Geology and soils.

Table E/2.1 Magnitude of impact and typical descriptions

Magnitude of impact (change)	Typical description
Major	Soil: physical removal or permanent sealing of >20ha of agricultural land.
Moderate	Soil: 1) physical removal or permanent sealing of 1ha - 20ha of agricultural land; or 2) permanent loss / reduction of one or more soil function(s) and restriction to current or approved future use (e.g through degradation, compaction, erosion of soil resource).

E/2.1.1 Physical removal or permanent sealing of <1ha of agricultural land should be reported as not discernible.

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E/3. Normative references

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Ref 1.N	Highways England. LA 109, 'Geology and soils'
Ref 2.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'

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Department for Infrastructure
An Roinn Bonneagair

Sustainability & Environment
Appraisal

LA 109
Northern Ireland National Application Annex to LA 109 Geology and soils

(formerly DMRB Volume 11, Section 3, Part 11 & Part 6)

Revision 0

Summary
This National Application Annex sets out the Northern Ireland specific requirements on assessment for use with geology and soils.

Feedback and Enquiries
Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated team in the Department for Infrastructure, Northern Ireland. The email address for all enquiries and feedback is: dcu@infrastructure-ni.gov.uk

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Release notes

Version	Date	Details of amendments
0	Oct 2019	Department for Infrastructure Northern Ireland National Application Annex to LA 109.

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Foreword

Publishing information

This document is published by Highways England on behalf of Department for Infrastructure, Northern Ireland.

This document supersedes DMRB Volume 11, Section 3, Part 11 & Part 6, which are withdrawn.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

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Introduction

Background

This National Application Annex sets out the specific requirements in Northern Ireland for reporting magnitude of impacts associated with geology and soils.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 2.N] apply to this document.

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NI/1. Assessment

NI/1.1 The magnitude descriptors given in Table NI/1.1 shall be used to supplement Table 3.12 of LA 109 [Ref 1.N] Geology and soils.

Table NI/1.1 Magnitude of impacts and typical descriptions

Magnitude of impact (change)	Typical description
Major	Soil: physical removal or permanent sealing of >20ha of agricultural land.
Moderate	Soil: 1) physical removal or permanent sealing of 1ha - 20ha of agricultural land; or 2) permanent loss / reduction of one or more soil function(s) and restriction to current or approved future use (e.g through degradation, compaction, erosion of soil resource).

NI/1.1.1 Physical removal or permanent sealing of <1ha of agricultural land should be reported as not discernible.

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NI/2. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref 1.N	Highways England. LA 109, 'Geology and soils'
Ref 2.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'

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Sustainability & Environment
Appraisal

LA 109
Scotland National Application Annex to LA 109 Geology and soils

(formerly DMRB Volume 11, Section 3, Part 11 & Part 6)

Revision 0

Summary
This National Application Annex sets out the Transport Scotland specific requirements on consultation and assessment for use with geology and soils.

Feedback and Enquiries
Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Transport Scotland team. The email address for all enquiries and feedback is: TSStandardsBranch@transport.gov.scot

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Release notes

Version	Date	Details of amendments
0	Oct 2019	Transport Scotland National Application Annex to LA 109.

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Foreword

Publishing information

This document is published by Highways England on behalf of Transport Scotland.

This document supersedes DMRB Volume 11, Section 3, Part 11 & Part 6, which are withdrawn.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

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Introduction

Background

This National Application Annex gives the Transport Scotland-specific consultation requirements for reporting the magnitude of impacts on agricultural land.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 3.N] apply to this document.

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Terms and definitions

Terms and definitions

Term	Definition
Authorities likely to be concerned by a project	Authorities or organisations (statutory or non-statutory) that have environmental responsibilities or local and regional competences (as defined by the relevant consenting regime).
Prime agricultural land	Land in grades 1, 2 and 3.1 of the Land Capability for Agriculture Classification [Ref 2.N].

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S/1. Consultation

S/1.1 Transport Scotland shall be consulted prior to consultation with the authorities likely to be concerned by a project.

S/1.2 Consultation shall be undertaken with the authorities likely to be concerned by a project when the project is contrary to an approved or adopted local plan and involves:

1) 2 hectares or more of prime agricultural land;
2) 10 hectares or more of agricultural land not classified as prime; or
3) any impact on any classification of agricultural land where authorities likely to be concerned by a project have reason to believe that there are particular local factors which could justify the need for protection on agricultural grounds.

S/1.3 Consultation shall be undertaken with the authorities likely to be concerned by a project when the project is located in an area where no local plan is in place and involves:

1) 2 hectares or more of prime agricultural land; or
2) 10 hectares or more of agricultural land not classified as prime;
3) any impact on any classification of agricultural land where authorities likely to be concerned by a project have reason to believe that there are particular local factors which could justify the need for protection on agricultural grounds

S/1.4 Where projects have the potential to impact or affect croft land the authorities likely to be concerned by a project shall be consulted on the special circumstances that apply.

NOTE *The authorities likely to be concerned by a project for crofting land are the Crofting Commission.*

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S/2. Assessment

S/2.1 The magnitude descriptors given in Table S/2.1 shall be used to supplement Table 3.12 of Geology and soils LA 109 [Ref 1.N].

Table S/2.1 Magnitude of impact and typical descriptors

Magnitude of impact (change)	Typical description
Major	Soil: 1) physical removal or permanent sealing of: a) >2ha of prime agricultural land; or b) >10ha of other agricultural land.
Moderate	Soil: 1) physical removal or permanent sealing of: a) between 1 and 2ha of prime agricultural land; or b) between 1 and 10ha of other agricultural land; and/or 2) permanent loss / reduction of one or more soil function(s) and restriction to current or approved future use (e.g through degradation, compaction, erosion of soil resource).

S/2.1.1 Physical removal or permanent sealing of <1ha of prime or other agricultural land should be reported as negligible.

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S/3. Normative references

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Ref 1.N	Highways England. LA 109, 'Geology and soils'
Ref 2.N	'https://soils.environment.gov.scot/maps/capability-maps/'
Ref 3.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'

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Llywodraeth Cymru
Welsh Government

Sustainability & Environment
Appraisal

LA 109
Wales National Application Annex to LA 109 Geology and soils

(formerly DMRB Volume 11, Section 3, Part 11 & Part 6)

Revision 0

Summary
This National Application Annex sets out the Welsh Government specific requirements on consultation and assessment for use with geology and soils.

Feedback and Enquiries
Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Welsh Government team. The email address for all enquiries and feedback is: Standards_Feedback_and_Enquiries@gov.wales

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Release notes

Version	Date	Details of amendments
0	Oct 2019	Welsh Government National Application Annex to LA 109.

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Foreword

Publishing information

This document is published by Highways England on behalf of Welsh Government.

This document supersedes DMRB Volume 11, Section 3, Part 11 & Part 6, which are withdrawn.

Contractual and legal considerations

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Introduction

Background

This National Application Annex gives the Welsh Government-specific requirements for the consultation and for reporting the magnitude of impacts.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 3.N] apply to this document.

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Abbreviations

Abbreviations

Abbreviation	Definition
BMV	Best and most versatile
T&CP DMP	Town and Country Planning (Development Management Procedure)

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Terms and definitions

Terms

Term	Definition
Best and most versatile	Land in grades 1, 2 and 3a of the Agricultural Land Classification. TIN049 [Ref 1.N]

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W/1. Consultation

W/1.1 Consultation shall be undertaken with Welsh Ministers where development:

1) is not for agricultural purposes;
2) is not in accordance with the provisions of a development plan; and
3) involves the loss of not less than 20 hectares of grades 1, 2 or 3a agricultural land (BMV) which is for the time being used (or was last used) for agricultural purposes.

NOTE *Land that was last used for agricultural purposes includes land that has been subject to a change of use.*

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W/2. Assessment

W/2.1 The magnitude descriptors given in Table W/2.1 shall be used to supplement Table 3.12 of Geology and soils LA 109 [Ref 2.N].

Table W/2.1 Magnitude of impact and typical descriptions

Magnitude of impact (change)	Typical description
Major	Soil: physical removal or permanent sealing of soil resource of >20ha of agricultural land.
Moderate	Soil: 1) physical removal or permanent sealing of 1 - 20ha of agricultural land; or 2) permanent loss / reduction of one or more soil function(s) and restriction to current or approved future use (e.g through degradation, compaction, erosion of soil resource).

W/2.1.1 Physical removal or permanent sealing of <1ha of agricultural land should be reported as not discernible.

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W/3. Normative references

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Ref 1.N	Natural England. TIN049, 'Agricultural Land Classification: protecting the best and most versatile agricultural land'
Ref 2.N	Highways England. LA 109, 'Geology and soils'
Ref 3.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'

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