Water Use

Regulatory Method (WAT-RM-02)

Regulation of Licence-level Engineering Activities

Version: v8.0

Released: Jan 2022

Copyright and Legal Information

Disclaimer

Whilst every effort has been made to ensure the accuracy of this document, SEPA cannot accept and hereby expressly excludes all or any liability and gives no warranty, covenant or undertaking (whether express or implied) in respect of the fitness for purpose of, or any error, omission or discrepancy in, this document and reliance on contents hereof is entirely at the user's own risk.

Registered Trademarks

All registered trademarks used in this document are used for reference purpose only.

Other brand and product names maybe registered trademarks or trademarks of their respective holders.

Update Summary

Version	Description
v1.1	First issue for Water Use reference using approved content from the following documents: *E1_Engineering_Process_Summary_v8.doc* *E6_Engineering_Technical_Assessment_v4.doc* *RM_02_Eng_Activity_v1.doc*
v1.2	Revision to update all field text in document.
v2.0	Doc links updated to new website, new template applied
v3.0	Revised conservation procedure, sections 6.2 & 7.5.2
v4.0	Doc revised with updates to standards test, good practice test and conservation procedures.
v5.0	Remove flood risk test refs (esp. Sect. 1.7), update Figs 1,2,4,5 & amend 'in the vicinity' rules (App V)
v6.0	Updates to reflect the changes to the position on regulating embankments and clarification of text on good practice test.
v6.1	Revised to clarify 'river width' for registrations and licences
v7.0	Triage risk assessment added to process. Appendix VII and VIII added to update process for large construction (infrastructure) projects and low risk activities
V8.0	Minor edit to table in Appendix V to include bank top works

Table of Contents

1. Technical Assessment Overview

This technical assessment applies to all licence applications under the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) or "CAR" for engineering works in inland surface waters and wetlands.

The first step of the technical assessment is to triage the licence application. The triage process sets the level of scrutiny required based on environmental risk. Small low risk activities are fast-tracked and larger projects or activities receive a more detailed assessment.

The assessment options are:

- Standard (see figure 1 below and sections 1.5 onwards)
- Maintenance of Existing Pressure (Appendix VI)
- Large Construction – (Appendix VII)
- Small Scale (Appendix VIII)

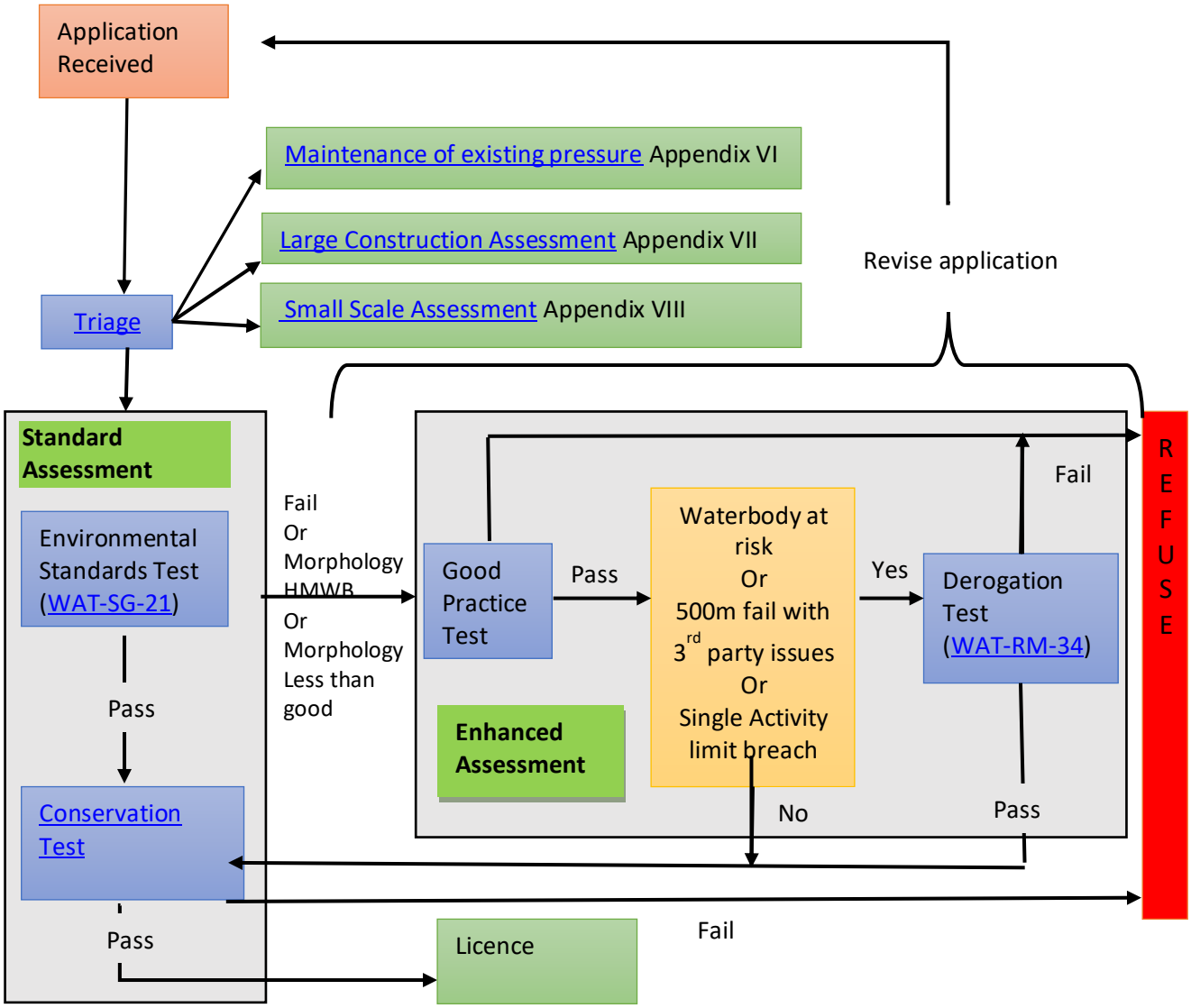
The tests that may apply are:

- Environmental standards for morphology
- Conservation i.e. to protect designated areas
- Good practice-for applications that fail standards test
- Derogation- for applications that fail standards test

The tests are designed to assess the level of potential impact and to prevent deterioration of the water environment.

For general information on the impacts of engineering in the water environment please refer to Appendix I of this document.

Figure 1 Standard Assessment



1.1 River Basin Planning Objectives

River Basin Management Plans (RBMP) have been developed for all waterbodies. These plans identify the classification of the water body and any measures required to bring about improvements. The key objectives of the RBMP are to:

1. **Prevent deterioration in ecological status of a waterbody**. SEPA risk-assesses new activities to ensure this objective is met. If a proposed activity is likely to cause deterioration in waterbody status, but passes the other relevant tests, then it can only be authorised if it passes the derogation tests set out in WAT-RM-34: Derogation Determination - Adverse Impacts on the Water Environment.
2. **Improve a waterbody to good ecological status, where its existing ecological status is less than good**. Any new application which compromises the ability of a waterbody to reach good status may need to be refused. SEPA GIS displays RBMP measures for individual waterbodies. Alternatively the SEPA 'Measures Database' (available on Oracle via the SEPA intranet) can be accessed to establish what measures are planned for a particular water body.

1.2 Pre-application Discussions

These are an excellent means of clarifying whether an application must be made, what information SEPA is likely to need and minimising the number of incomplete applications. They can also be used to promote general good practice i.e. prevention of pollution, limiting impacts upon aquatic habitats and adherence to SEPA Position Statements.

Pre-application discussion themes:

- Scope of the engineering regime
- Levels of authorisation (in Controlled Activities Regulations: A Practical Guide)
- Application Forms
- Charging Scheme (application fee and subsistence charges)
- Potential for post project monitoring (see IPM-WG-10: Monitoring Guidance For Engineering Activities)
- Technical Assessment (environmental standards, good practice, conservation, derogation tests)
- Advertising and Consultation (see WAT-RM-20: Advertising and Consultation)

1.3 Validate Application

Does the activity require a Licence?

Engineering activities are identified as:

- Building, engineering or other works in, or in the vicinity of, any body of inland surface water or wetland.
- 'In the vicinity' refers to work that is outwith the immediate river channel or loch etc., but which could have a significant adverse impact on it. This includes embankments, land raising or flood walls which for example significantly constrain the river. Land lowering may also pose a risk as well as activities that could damage surface water dependent wetlands.

Further guidance about regulating activities 'in the vicinity' and protection of 'wetlands' is available in 0.

The level of authorisation for the activity can be determined from the Controlled Activities Regulations: A Practical Guide. In addition this guide lists engineering activities that will not normally require authorisation. Applicants should be directed to this guide and the Application Guidance provided with the Licence Application Forms on the SEPA website.

Application Forms

For all licence applications, the general application Form A should be completed, along with Form E which will detail the engineering activities. Please refer to the Application Forms page for:

- Licence Application Forms: (Form A and Form E)
- Licence Application Guidance

Engineering activities upon which another controlled activity depends, such as intakes and outfalls associated with abstractions and discharges, will not normally require a separate engineering authorisation. Conditions to control the impact of these works will be added to the appropriate CAR authorisation.

1.3.1 Key validation steps

- Check appropriate level of authorisation has been applied for
- To assess if Advertising and/or Consultation may be required for a particular application then see WAT-RM-20: Advertising and Consultation.
- Check all relevant information is submitted to allow technical assessment

1.4 Triage

This step is to identify the general risk posed to the environment by a proposal. Completing the triage with allocate the proposal to the relevant process:

- **Maintenance of existing pressures:** for managing sediment within an existing high impact realigned channel follow procedure set out in Appendix VI.
- **Large Construction** construction projects >4ha or 5km such as those associated with infrastructure which can pose a larger risks especially from cumulative impacts. –see Appendix VII.
- **Single Small Scale:** single activities which are unlikely to pose a threat to waterbody status or local standards. See Appendix VIII.
- **Standard Assessment**: All other proposals not covered by construction or small scale. See procedure as described from section 1.5 below.

To carry out the triage work through the steps in table 1 below:

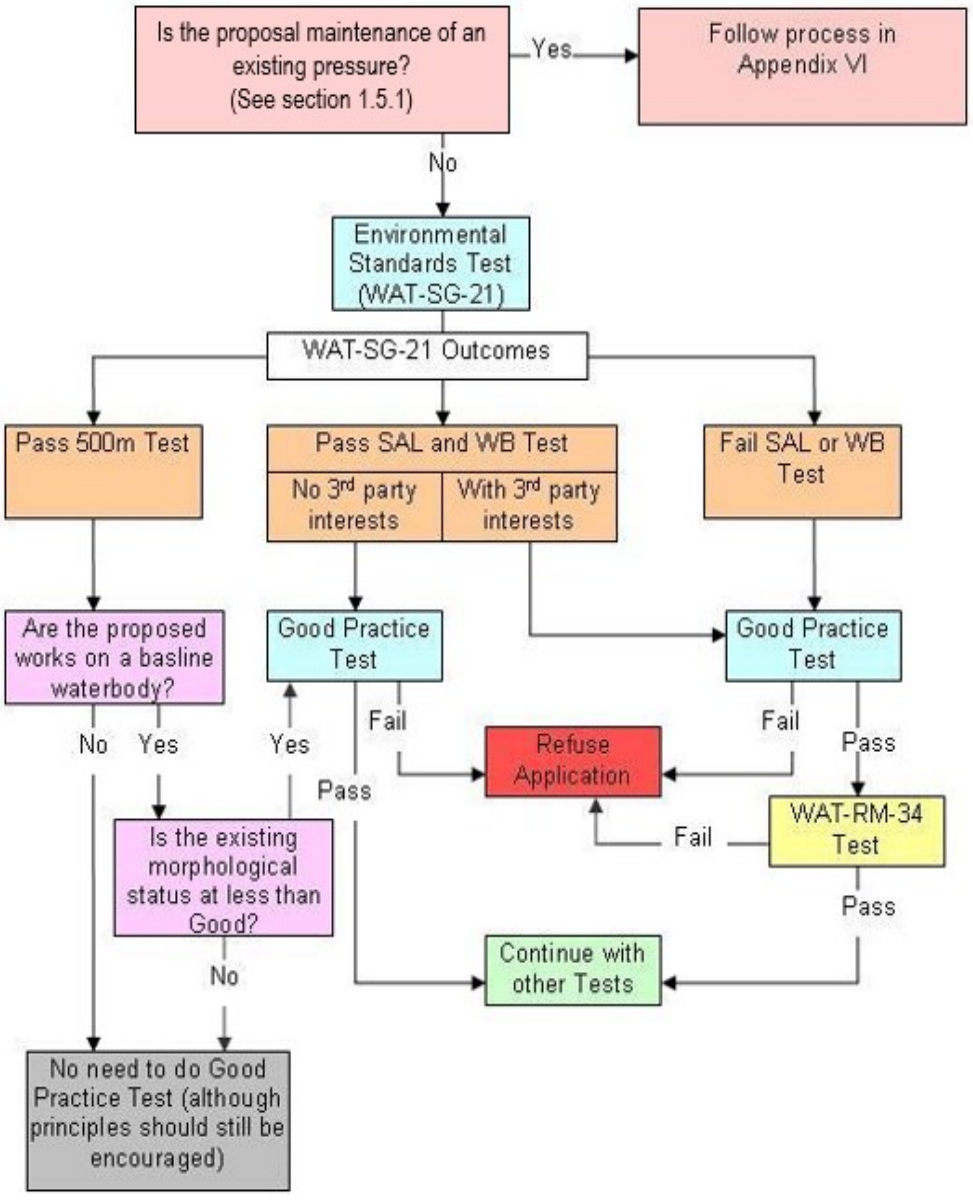
Table1: Triage Steps			
Step No.	**Criteria**	**YES**	**No**
1	Does the activity involve managing sediment within an existing high impact realigned channel (Maintenance of an existing pressure)? Appendix VI	Go to Sect 1.5.1	Go to 2
2	Looking at the criteria in Appendix VII do the proposals relate to a **Large scale construction site**? (>4ha or 5km etc.)	Use **Large Construction** process in Appendix VII	Go to 3
3	Do the proposals involve a single activity?	Go to 4	Use **Standard Assessment** process as from sect 1.5 onwards Environmental Standards Test
4	Looking at the criteria in Appendix VIII do the proposals relate to a **Small Scale Activity**? (In table 8.1, Good status etc.)	The activity should be subject to the **Small Scale t process** see Appendix VIII	

1.5 Environmental Standards Test

What level of impact will the activity have on morphology?

Supporting Guidance WAT-SG-21: Environmental Standards for River Morphology **should be referred to when conducting the Environmental Standards Test and using MImAS**. Figure 2 below summarises how the outcomes of the Environmental Standards test influence the assessment of an application. (If the works affect an inland loch then advice on loch morphology should be sought directly from a regional specialist).

Figure 2 Summary of outcomes from the Environmental Standards test



1.5.1 Maintenance of Existing Pressures

SEPA permits operators to maintain existing engineering works if the footprint and materials remain the same. Existing engineering includes structures, such as bridges or bank protection works, and channel engineering, which include modifications to the width, depth or size of the channel (e.g. high impact re-alignment).

Maintenance activities do not require a licence where the footprint and materials remain the same and there is minimal impact on the watercourse. Other maintenance activities which have potential to adversely impact the water environment will require a licence.

A land manager may apply to maintain a section of realigned channel by managing sediment within the affected section. In order for the works to qualify as maintenance, there must be evidence that such engineering has previously taken place at a given location and that the morphology remains impacted as a result. (It should be clear to the COs that the works have been undertaken at that location before, and that the morphology remains impacted as a result of those works). Works do not qualify as maintenance if the river has recovered from the original modification.

0 describes the detailed process for assessment of such licence applications.

Maintenance on a large scale may create significant adverse environmental impacts (e.g. extensive sediment management in a section of realigned channel could cause major de-stabilisation of the river bed or banks). 0 provides a technique for assessing if a proposal would cause significant adverse environmental impacts, and whether or not the scale and type of engineering required is appropriate (i.e. modifications to the Environmental Standards Test and Good Practice test). Note that the Conservation test will be carried out in the usual way for **all** applications to maintain existing pressures.

0 does **not** apply if:

- the proposal will create a **new** pressure (i.e. no such pressure already exists in the reach) OR
- the proposal is to undertake dredging, sediment management or channel realignment in a reach affected by existing low-impact realignment. If you are not sure whether the reach is subject to low impact realignment, please contact a member of the E&F Helpdesk.

Where activities cannot be considered to be maintenance of an existing pressure, continue with the following four application tests: Environmental Standards, Good Practice, and Conservation.

1.5.2 The Environmental Standards Test Process

The environmental standards for morphology (also referred to as 'Morphological Condition Limits') are assessed on two scales as it is

important to distinguish between activities that may only breach standards on a local scale, and those which may risk downgrading the ecological status of an entire waterbody.

Environmental standards for morphology have been built into the MImAS assessment tool to determine the 'morphological capacity' that will be used up by proposed activities. (Note: MImAS can be also used to assess the morphological benefit of physical improvements within rivers e.g. the removal of structures or restoration of features.)

SEPA will consider the **type**, **size** and **existing quality** of a river which will be impacted by engineering works. For example, smaller waterbodies and water bodies which are close to a threshold between quality classifications will be more sensitive to change than larger waterbodies which are well within a particular quality class.

The test is therefore slightly different for water bodies which are already close to a status boundary due to existing engineering impacts (i.e. within 2.5% of morphological capacity), or is less than 5km in length. This is because small waterbodies and water bodies close to capacity thresholds require a more detailed assessment. WAT-SG-21: Environmental Standards for River Morphology is the primary source of guidance providing the full details of the Environmental Standards test.

However, for any baseline water body there are 3 key steps involved in assessing the impact of engineering works. See BOX 1.

BOX 1 Environmental Standards Test: Key Steps

Step 1 Baseline water bodies: check the existing waterbody classification. Is it already less than Good Ecological Status or a morphological HMWB? Advice may need to be sought from a SEPA hydromorphologist if this is the case. The Good Practice Test will also apply if the waterbody is currently at less than Good Status

Step 2 Assess impacts on a local scale i.e. a 500 m section of the affected river. This will assess if the morphological quality of a localised stretch of river will be pushed into a lower quality class by the works. Activities which fail the 500m assessment (a 'local scale') must pass the Good Practice Test to be licensable.
Note: **Minor tributaries and small coastal streams will be assessed using the 500m test only and not the SAL and WB test**. See WAT-SG-21 for details.

Step 3 Assess impacts on a waterbody scale and against Single Activity Limits. This allows SEPA to assess if the **status** of the water body will be deteriorated by engineering works.
Single Activity Limits (SALs) give the maximum length of an activity which, in its own right, could cause a significant impact upon a river.

Activities which are a threat to waterbody status or breach an SAL are high risk activities. If they are poorly justified (see Good Practice test in section 1.5) they may be refused. High risk activities for which a strong justification is argued must pass the derogation determination before they can be licensed.

Note: To ensure 3rd parties are given an opportunity to comment on activities that may threaten the quality of a watercourse such applications are required to be **advertised**. See WAT-RM-20: Advertising and Consultation.

1.5.3 Derogation Determination – Adverse Impacts on the Water Environment (WAT-RM-34)

If an activity:

- threatens a 500m stretch and has attracted relevant third party representation,
- fails an SAL,
- threatens to deteriorate the status of a waterbody,

then the derogation tests need to be applied: see WAT-RM-34: Derogation Determination - Adverse Impacts on the Water Environment.

Additionally, activities which threaten the achievement of an RBMP objective may also be assessed using *WAT-RM-34*.

In effect SEPA are using this method to assess if an activity can be derogated from the objectives of the Water Framework Directive.

BOX 2 WAT-RM-34 Summary

WAT-RM-34 assesses the following points to determine if a high risk proposal should be licensed:

all practicable steps will be taken to mitigate the adverse impacts of the activity on the status of the water environment.

the benefits to the environment and to society of preventing deterioration of status or achieving a River Basin Management Plan objective would be outweighed by the benefits of the proposal to human health; the maintenance of human safety; or sustainable development; or the reasons for the proposal are of overriding public interest.

the benefits that would result from the proposal cannot for reasons of technical infeasibility or disproportionate cost be provided by other means, which are a significantly better environmental option; and

the application of a derogation would be consistent with the implementation of other Community environmental legislation (e.g. the achievement of an objective for a Protected Area would not be compromised).

For example, such engineering activities may be licensable if;

they include every effort to mitigate harm and offset the impacts of the activities.

there is no substantially better option to achieve the stated purpose of the works

*clear benefits are provided which justify the need for the works:

- benefits to human health, and/or
- benefits to human safety, and/or
- the works facilitate sustainable development

*Depending upon the site specific issues involved, examples may include new public flood defence schemes, public drinking water works, works to sustain vital transport routes such as railways or developments where temporary environmental harm is outweighed by benefits (such as the economic benefits or creation of important employment opportunities). **Note that each application is assessed on a case by case basis**.

1.5.4 Results of the Environmental Standards test

- Proposals which do not breach an environmental standard pass this test.
- Proposals which fail a 500m test must pass the Good Practice Test to gain authorisation. But if SEPA receive relevant 3rd party representation about the proposal then it must also pass a derogation determination using WAT-RM-34: Derogation Determination - Adverse Impacts on the Water Environment.
- Proposals which threaten waterbody status, or breach a Single Activity Limit, must pass both the Good Practice Test and *WAT-RM-34* to gain authorisation.

1.6 Good Practice Test

SEPA promotes general good practice for any works; however this specific test will only apply to **licensed** activities:

- which cause a failure of an environmental standard; or
- proposed on a water body already below Good Status or close to the lower class boundary.
- For applications to maintain an existing pressure see 1.5.1.

Applying good practice will ensure that harm to the water environment is minimised and that engineering activities will be sustainable in the long term. SEPA defines good practice as:

> "the course of action which serves a demonstrated need, while minimising ecological harm, at a cost that is not disproportionately expensive"

Where this test is applied there will be a presumption to fail a licence application unless the applicant can demonstrate that the basic principles of good practice have been followed

BOX 3 Basic principles of good practice

1. Demonstrate need	Sometimes engineering activities may be carried out to address a perceived problem rather than a real problem. E.g. removing sediment from an area where sediment deposition is not increasing. Quantifying the problem will help to determine if engineering is required and will ensure that any solution is proportionate to the scale of the problem.
2. Consider a range of options	Most engineering requirements can be addressed in a number of ways so a range of options to address any problem or need should be considered. The cause of any problem should be identified and options that address the cause, not the symptoms, should be considered. Without considering a range of options it is not possible to determine if the chosen approach represents the most suitable option - i.e. the option that minimises ecological harm at a cost that is not disproportionately expensive.
3. Include mitigation	All reasonable mitigation should be identified and implemented e.g. ensure measures are taken to reduce the risk of pollution when works are being carried out.

The Good Practice Test will involve a degree of judgement. This can of course be supported by other specialist opinion and guidance but there is no standard answer to fit all cases.

The level of information required from the applicant to satisfy the above points should be proportionate to the environmental risk. This could take the form of fixed point time-series photographs, diagrams, interpretation of historic maps, survey data, or expert opinion. Anecdotal evidence alone should not be considered sufficient to justify the activity but may be included to help a case. In lower risk cases only a limited amount of effort and information may be required to pass this test.

Where there are significant concerns about the impacts of a proposal, more detailed assessments of physical **impact**, **design** and **mitigation** will be required. The nature of any detailed assessments should be based on the risk posed by the proposal refer to 0 when deciding whether to require a technical assessment:

If the risk to the environment from an activity is high, then there is a greater chance that further information will be needed (hydro morphologist support may be required).

1.6.1 Demonstrate need

- Has the applicant justified the need for the proposed activity?
- Is there a genuine problem to be solved requiring action to be taken?

- Has the applicant quantified the problem?
- Has the applicant demonstrated the benefits that the engineering activity will provide?

In some cases engineering may be carried out to address a perceived, rather than a real, problem e.g. river bank erosion may not be increasing, a fisheries pool may not be filling in. Quantifying the scale and the significance of the problem will help determine if engineering is required and it will also ensure that any solution is proportionate to the scale of the problem.

Quantifying the problem could include:

- What is the rate of erosion / sediment deposition?
- Is this more than the natural rate of erosion / sediment deposition?

The applicant should demonstrate that the proposed works will provide the intended benefits e.g. these benefits may include the protection of important infrastructure and buildings, valuable land resource, installation of public flood defences or renewable energy production.

1.6.2 Consider a range of options

Most engineering requirements can be addressed in a number of ways. It is a basic principle of good practice to consider a range of options to address any river engineering problem or need and to carry out an options appraisal. Without considering a range of options it is not possible to determine if the chosen approach represents the most suitable option i.e. the option that minimises ecological harm at a cost that is not disproportionately expensive.

BOX 4 Proportionate cost

The most cost-effective solution is the one that minimises environmental harm or maximises environmental benefit at a proportionate cost. Large absolute cost, in itself, does not constitute disproportionate cost. For example, incurring significant costs to prevent significant environmental harm or achieve significant environmental benefits e.g. safeguarding protected species and designated sites, would be considered proportionate. But incurring significant costs for minor environmental benefits would be considered disproportionate.

When considering the different options available, a developer should follow the principles of sustainable river management highlighted in BOX 5 below. SEPA Good Practice Guides also contain sections on selecting alternatives.

BOX 5 Principles of sustainable river management

Following the principles of sustainable river management below will help to ensure the good practice has been carried out.

Quantify the problem

Identify and address the cause

Consider use of existing structures

Consider maintenance

Allow the river room

Consider Doing Nothing!

Respect channel form

Quantify the problem: Quantifying the scale and the significance of the problem will help determine if engineering is required and it will also ensure that any solution is proportionate to the scale of the problem.

Identify and address the cause of the problem: How effective will a proposal be at dealing with the underlying cause of a problem – rather than the symptoms? Identifying and addressing the cause of a problem is more effective than treating the symptoms and more sustainable in the long term. For example, a sediment deposition problem at a favourite fishing pool may be caused by channel widening due to a loss of bank strength, which in turn was caused by vegetation removal or livestock grazing. Rather than repeatedly dredging the pool, improving the bank management may solve the problem.

Consider use of existing structures: Can existing structures be used, upgraded or replaced instead of building new structures? Existing structures should be used where possible instead of building new ones. For example if a river crossing is required it should be assessed if there are other existing crossings that are suitable to be used instead of building a new one. If an existing unsuitable structure needs upgrading then there is an opportunity to improve them e.g. mitigating an existing culvert that is a barrier to fish passage.

Consider maintenance: How often will a structure have to be replaced, or be repeated (such as gravel removal)? Projects that work against natural processes often result in high maintenance. For example, channelisation of rivers to increase flood capacity can result in sediment deposition, reducing capacity over time, which in turn requires dredging. Has this cost been built into consideration of alternatives? A project which takes account of natural processes such as sediment movement could avoid or at least reduce these costs.

Allow the river room: A lot of time and effort managing rivers can be saved by simply allowing room for the river to behave like a river. This will not only avoid conflicts with natural processes such as erosion and flooding, but also create the important habitats associated with wider river corridors. Larger green river corridors can often be achieved with simple measures, such as; setting back embankments to allow green space to become part of the river

corridor, managed retreat from rivers in urban corridors to relieve flooding pressures, and allowing a bigger corridor for rivers on development sites. Ultimately rivers need space and problems will only increase where we limit what space is available.

Consider doing nothing!: When considering any river or loch works proposal, the option to do nothing should always be considered where it is relevant. Most rivers and lochs have a capacity to absorb a certain amount of morphological change before deterioration becomes evident in the ecology. This capacity needs to be managed carefully, and used only where there is an obvious need to do so, e.g. protecting infrastructure or promoting sustainable development.

Respect channel form: Non-modified channels are a particular shape for a good reason. They represent a long-term balance between the forces of water flowing downhill and resistance caused by sediment and vegetation. Any project that significantly alters channel form (i.e. width, depth, slope, planform) will affect the natural balance in the river with consequences for erosion, transport and deposition of sediment. Always encourage options that accommodate natural river form.

A reasonable assessment of commonly available options will help the applicant demonstrate they have made decisions based not only on cost but also on scale of impact and the necessity for an activity. The effort involved in an alternatives analysis must be proportionate to the risk of the activity.

Once a range of options have been identified they should be compared for their costs, feasibility of use, suitability for the problem to be solved, their impact upon river attributes and other local factors such as conservation designations, species of interest or important features (e.g. wetlands, backwaters, large woody debris etc.). Capital and maintenance costs should also be included.

When the desired approach is decided upon it should achieve the intended purpose, minimise harm and be at a cost that is not disproportionately expensive. If it is unclear whether the option submitted is satisfactory, or in more contentious cases and at sensitive sites, then more detailed assessments of the designs may need to be requested (see 0 and 0).

1.6.3 Is all reasonable mitigation included?

Considerations:

- Mitigation of the direct impacts of the proposal
- Mitigation to offset morphological capacity used up by a proposal
- Mitigation of construction impacts

0 gives more detail on how mitigation proposals can be evaluated.

Construction methods

How an operator goes about constructing a licensed structure is clearly important. Pollution and physical habitat damage can be a threat from construction operations and temporary measures imposed on a river or loch e.g. coffer dams and diversions etc. SEPA must be satisfied that reasonable methods are being employed which protect the environment around a construction site. In many cases this may be straight forward, for example over pumping to maintain a dry working area, fencing off sensitive areas to avoid uncontrolled access, keeping heavy machinery out of the river channel etc.

Detailed guidance on temporary construction methods is available: WAT-SG-29: Good Practice Guide - Construction Methods. Construction Method Statements may be submitted with the application or be a licence condition. They should demonstrate that the principles of this guidance have been followed. More information on method statements can be found in the guidance for licence application form E.

1.6.4 Results of the Good Practice test

If the result of a good practice test is uncertain the CO may require further information. For example;

- If there is no or insufficient information on a demonstrated need.
- If there are no alternative approaches detailed or the CO believes that some key alternatives have not been assessed.
- There is insufficient information to support a conclusion that the proposal represents the best option.
- There is no or insufficient information detailed in the method statement regarding the construction phase.

Activities which fail the good practice test, even after further information has been submitted, may be refused. Before formally seeking to refuse an application, the CO is advised to seek advice from SEPA hydromorphologists (requests for help should be routed through the E&F Helpdesk).

Note: Activities failing the environmental standards test and good practice test may not be able to pass any required *WAT-RM-34* derogation assessment (for example, they may not have demonstrated an adequate options appraisal, justified need for the engineering involved or included all reasonable mitigation).

1.6.5 Good Practice Guides

Applicants who demonstrate that they are adhering to the principles of good practice set out in activity specific good practice guides should find this test

less onerous. A selection of guides is currently available to aid applicants in their decision making, and is available on the SEPA website:

- WAT-SG-23: Good Practice Guide - Bank Protection
- WAT-SG-25: Good Practice Guide - River Crossings
- WAT-SG-26: Good Practice Guide - Sediment Management
- WAT-SG-28: Good Practice Guide - Intakes & Outfalls
- WAT-SG-29: Good Practice Guide - Construction Methods
- WAT-SG-44: Good Practice Guide - Riparian Vegetation Management

1.7 Conservation Test

Will the activity impact upon designated sites or conservation species and habitats?

Undertake the SEPA Conservation test using the standardised SEPA Nature Conservation Procedure.

Engineering activities can affect a wide range of conservation issues. The SEPA Nature Conservation Procedure is used for all environmental licensing in SEPA and should be followed to asses what, if any, impacts the proposal will have. In summary, a conservation site should be considered for assessment where:

- The proposed licensed **engineering activity** lies within the boundary of an area of conservation, or within 250m upstream of such an area (GIS should be used to determine the proximity of an activity to a conservation site).
- This distance may be increased at the discretion of the Co-ordinating officer, depending on the activity being considered.

Internal advice can be sought from specialist staff such as biodiversity officers, ecologists and other scientists. You may also informally approach SNH for their advice to clarify issues that may help with your assessment. Note: Please have regard to internal protocols when requesting help from colleagues.

The Conservation Test is passed when a proposal does **not** pose a risk to conservation interest (e.g. designated species, sites and their integrity).

Activities which will cause unacceptable harm to conservation interests, such as those which are formally objected to by SNH, may need to be refused or must be substantially revised. Where SNH and SEPA have concern about a proposal but more information could help determine the impacts in greater detail, an information request should be required (see Section 2).

1.8 CAR and Flood Risk

SEPA's regulatory duties under CAR only extend to the protection of the water environment from harm e.g. adverse impacts upon ecology and habitats. CAR is not a regulatory function for controlling flood risk and SEPA will not seek to control or regulate flood risk through CAR. SEPA will not set licence conditions specifically for the control of flood waters, or the successful operation of any flood defences.

There may be circumstances where flood related matters inform the determination of an application.

- Works which will cause harm (breach an environmental standard e.g. 500m test). An applicant will be expected to justify the proposed works and demonstrate that good practice will be adhered to (see 'Good Practice Test'). Justification for higher impact engineering may include benefits to flood risk management e.g. installation of properly designed flood defence structures to protect a community from flooding. Works which cause environmental harm but are poorly justified are more likely to require amendment or may even be refused, to avoid unnecessary or unjustified adverse impacts to the water environment.
- Applications subject to a Derogation Test (WAT-RM-34). Where an application is likely to cause a high degree of environmental harm, e.g. downgrade a waterbody, an assessment of the balance between negative and positive impacts of the proposal will be undertaken (WAT-RM-34). The flood risk impact (increases or decreases in risk) resulting from the proposal may be fed into the balancing assessment. Should the wider benefits of the proposal be outweighed by the adverse environmental impacts then the application may need to be amended, or potentially refused to avoid unnecessary or unjustified adverse impacts to the water environment.

For further information see CAR flood risk standing advice for engineering discharge and impoundment activities.

Notes:

- 13 June 2012 The Scottish Government issued a Policy Note to SEPA clarifying that while SEPA is obliged to promote or encourage sustainable flood risk management under CAR, SEPA does not have a regulatory duty to control or reduce flood risk using CAR.
- SEPA is only required to take account of flood risk in CAR when determining whether the WFD derogation tests are met, alongside a wide range of social, environmental and economic factors – SEPA WAT-SG-67 guidance refers.
- Local Authorities, and in particular their Planning procedures, remain the primary tool for controlling flood risk in Scotland. The mitigation of the effects of floods and droughts should also be a feature of the RBMP process between interested parties. SEPA provides advice to planning

authorities on the implications of proposed development on flood risk, and it is the role of planning authorities to set any conditions they consider appropriate to mitigate that risk.

2. Requiring Further Information

If any of the above tests are failed then the applicant should be asked to submit more detailed information to aid SEPA's assessment. For example:

- the technical details of designs for proposed works,
- the morphological processes influencing a reach, and the impact of a new proposal on them
- proposed mitigation to prevent, limit or offset those impacts

The Appendices at the back of this document give more details on:

Appendix I: General Guidance on the Impacts of Engineering

Appendix II: Mitigation

Appendix III: Detailed Design and Construction Methods

Appendix IV: Detailed Impact Assessments

Appendix VI: Regulating Applications to Maintain Existing River Engineering

Appendix VI: Regulating Applications to Maintain Existing River Engineering

Appendix VII: Regulating River Engineering Aspects of Large Construction Sites

Appendix VIII: Regulating of Single Small Scale Licence Activities

Additionally the CO may also seek support from specialist staff, science staff and others, where an information request is being considered.

Remember requests for further information from applicants need to be proportionate to risk. There may be cases where only a small amount of simple information is required and the CO may use their discretion about how to receive this, such as by email, letter or telephone. However, in cases where a test is clearly failed due to a lack of information then a formal information request may be required under Regulation 14 of CAR.

BOX 6 Information requests

SEPA may request additional information in relation to any application under Regulation 14 (1) of the Controlled Activity Regulations. Under Regulation 14(2) SEPA must specify, or agree with the applicant, when the additional information must be submitted by. SEPA have 4 months to determine a licence application but the 'clock stops' beginning on the date that further information is requested until the expiry period of the request (Under Regulation 16 (2)(b))

WAT-LETT-14: Letter Requesting Further Information should be used to request further information. This letter should set out clearly what information is required and the date this information is due. The letter should also inform the applicant that the time taken to receive this information is in addition to the normal 4 month determination period.

A suitable time period should be agreed with the applicant for the completion of impact assessment studies. Technical information requests should be reviewed by relevant Operations, Ecology and Hydrology specialists before they are forwarded to the applicant.

3. Inspections, Monitoring and Subsistence Charging

3.1 Inspections and Monitoring

An activity may be inspected by SEPA to assess construction impacts and licence compliance (during works or once works are complete). Additionally an operator may be required to carry out post project monitoring and submit data returns.

Inspection and monitoring of engineering activities is not common but occasionally has been required for larger works.

Inspection and monitoring of licensed activities may be required depending upon:

- the scale of activity
- the length of affected waterbody (bed or banks)
- the sensitivity of a site e.g. protected areas, such as SACs, SPAs and SSSIs.

Inspection and monitoring guidance can be found in IPM-WG-10: Monitoring Guidance For Engineering Activities.

3.2 Subsistence Charging

Under the Environmental Regulation Scotland Charging Scheme there are no subsistence charges for individual engineering activities.

However for large construction sites (>4ha or 5km in length) charges may be levied in connection with pre application work, applications and subsistence for authorised activities in accordance with the guidance on large and complex activities See Sect 3.4 Charging Scheme 2018 Guidance for further details.

4. Recording Test Results

All decisions made when assessing a licence application must be recorded in the working file. A standard form is provided for recording the assessment results (WAT-FORM-19: Engineering Licence Decision Record). If a licence application fails any of the tests, especially if further information has already been requested or the application is revised by the applicant, the CO is advised to discuss the application with their Unit Manager as the application may be refused.

5. Refusing an Application

Before refusing an application, the applicant should be given an opportunity to revise their proposal. If the applicant's revised submissions are not enough to satisfy SEPA then the application may be refused. The CO should refer to regulatory method WAT-RM-22: Managing Refusals and Appeals.

Note: If a derogation assessment is required under *WAT-RM-34* and the application fails this assessment, then the application must be refused.

6. Licence Conditions and Issue

Where an application is granted, the applicant will receive a licence nominating the Responsible Person and detailing the conditions with which they should comply. The licence will contain

- Conditions that relate to the period of construction and any period of post-project monitoring, if relevant.
- Generic schedules and schedules specific to engineering. The simplest option is to use one of the standard licence templates for common engineering activities which have been created. In addition you should refer to the standard bank of conditions for all engineering conditions (WAT-TEMP-37: Engineering Bank of Conditions).

For further guidance on licence conditions, templates and issuing of a licence or registration please refer to:

- Licence Consistency: Manual for the Preparation of Licences, Notices and Letters
- WAT-TEMP-09: Generic Water Use Licence Front Sheet
- WAT-TEMP-10: Multiple Water Use Licence Template
- WAT-TEMP-15: Bank of Conditions Generic Schedules 1 and 2
- WAT-TEMP-37: Engineering Bank of Conditions
- WAT-TEMP-38: Engineering Licence Template
- WAT-TEMP-81: Simple Licence Template (Engineering)

Appendix I: General Guidance on the Impacts of Engineering

Table 1 below lists a range of WFD attributes sensitive to engineering works. They reflect the definition of hydro-morphology given in 0 of the directive. They include a range of physical features and processes that are important to ecological and morphological quality. These attributes form the basis of the risk assessment undertaken by MImAS (see WAT-SG-21: Environmental Standards for River Morphology).

Table 1 Hydro-morphology Attributes

Attributes	Definition
River Depth and Width Variation	
Planform	Spatial pattern and location of a channel, as viewed from above.
Cross section	The cross sectional form of the channel (width-depth).
Profile (Slope)	Slope of the channel bed and the variation of that slope.
Structure and Substrate of Bed	
Substrate condition	The size, structure and sorting of riverbed gravels. Includes the size distribution of sediment, the embeddedness of gravels (the extent to which framework gravels are covered or sunken into the silt, sand, or mud of the stream bottom), and the compaction (a measure of the degree of sediment imbrication and, thus, potential mobility under normal sediment mobilizing flows).
Erosion/deposition character	Trends in sediment, mobilization, transport and deposition, including the lateral rate of adjustment (the extent and rate at which a channel can move in the river corridor), the size, distribution and stability of natural deposition features (or bars), and the bed form pattern (topography of the riverbed and bed features).
Structure and extent of in-stream vegetation	The character and density of aquatic and terrestrial vegetation.
Structure and extent of Woody debris	The character and density of large woody debris, linked to geomorphic structure and flow patterns.
Hydraulic diversity and complexity	Range of natural flow types within a given river section
Continuity	
Floodplain connectivity	Ability of the channel to flood the adjacent land
Migratory movement	Ability of aquatic organisms to migrate freely through the channel
Sediment transport	The transport capacity of the channel. A measure of the capacity/competency of a channel to transport sediment.
Banks and Riparian zone	
Bank morphology	The shape and character of the bank and presence of erosion features
Riparian vegetation structure	The character and density of vegetation, linked to geomorphic structure and flow patterns.
Bank roughness	The roughness of the channel banks (includes consideration of materials and presence of vegetation).

Table 2 Impacts of Activities on Hydro-morphology Attributes

Attributes	Sediment Management	Bank Modifications	Channel Modifications
Depth and Width Variation			
Planform			X
Cross section	X	X	X
Profile (Slope)	X		X
Structure and Substrate of Bed			
Substrate condition	X	X	X
Erosion/deposition character	X	X	X
Structure and extent of in-stream vegetation	X		X
Structure and extent of Woody debris	X		X
Hydraulic diversity and complexity	X		X
Continuity			
Floodplain connectivity	X	X	X
Migratory movement	X		X
Sediment transport	X	X	X
Banks and Riparian zone			
Bank morphology		X	X
Riparian vegetation structure		X	X
Bank roughness		X	X

Attributes	Impoundments	In-stream Structures	Crossings
River Depth and Width Variation			
Planform			
Cross section	X	X	X
Profile (Slope)	X		
Structure and Substrate of Bed			
Substrate condition	X	X	X
Erosion/deposition character	X	X	X
Structure and extent of in-stream vegetation	X	X	X
Structure and extent of Woody debris	X		
Hydraulic diversity and complexity	X	X	X
Continuity			
Floodplain connectivity	X		
Migratory movement	X		X
Sediment transport	X	X	X
Banks and Riparian zone			
Bank morphology	X	X	X
Riparian vegetation structure		X	X
Bank roughness		X	X

Appendix II: Mitigation

Mitigation must not be used to trade off the impacts of unsuitable and unjustified activities, in an effort to pass the environmental standards test.

Mitigation is SEPA's means of limiting or even offsetting the impacts of licensed engineering projects.

The licence assessment tests will identify a range of possible impacts and their spatial extent. As far as is reasonable and practical, measures should be adopted by the applicant to minimise the risks from these impacts.

SEPA will only require mitigation that is proportionate to the environmental risk of new activities. Mitigation measures should always be prioritised on the basis of cost-effectiveness, environmental benefit and ease of implementation. Many of the measures required to mitigate impacts from new activities can be dealt with through adoption of 'Good Practice', for instance, minimising the extent of the new activity or its impact footprint, or adopting the softest engineering solution that will meet the desired engineering outcome.

If there are uncertainties about the environmental benefit of a mitigation measure, guidance from science staff (Hydro-morphologists) and specialist EPI staff may be sought, or other options should be considered.

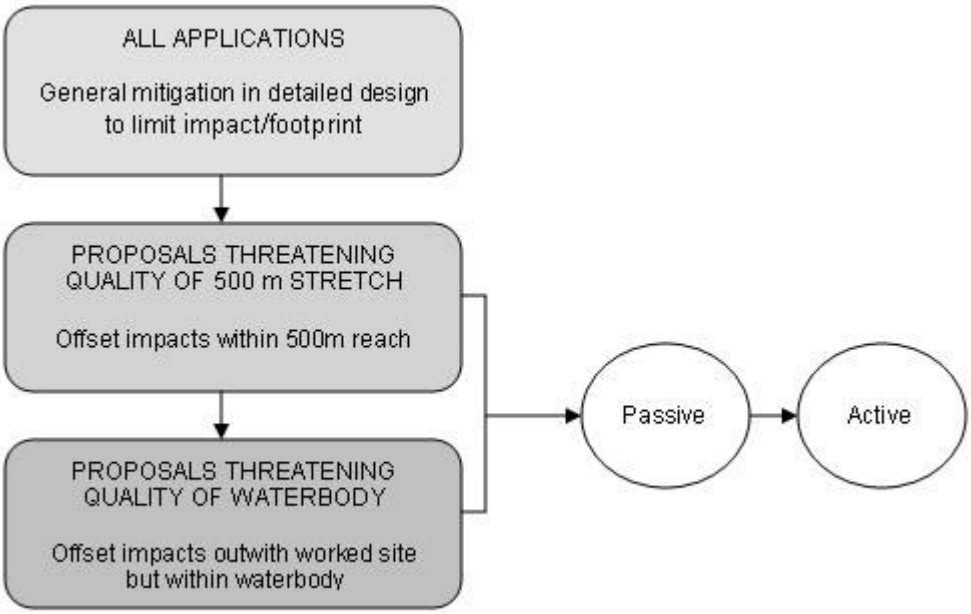
SEPA will also use mitigation to promote sustainable use of available capacity within the water environment. There are a number of ways an applicant may include mitigation in their proposals.

- Mitigation in the design of a structure to limit impact.
- Mitigation within the worked reach (e.g. 500m reach) to offset engineering impacts
- Mitigation elsewhere within the waterbody to offset impacts.

Any of these options may include **passive** measures to provide mitigation, or **active** measures which involve some form of beneficial engineering of a river or loch.

Figure 3 shows how to prioritise mitigation. Further guidance on the various types of mitigation is given in the following sections.

Figure 3 Deciding upon required mitigation



As every case will be different there is no single answer to mitigation decision making. Table 3 & Table 4 list other potential measures to offset impacts. This list isn't exhaustive, and shouldn't exclude measures identified by relevant experts as part of the impact assessment process. Measures which are passive should be considered initially, and supplemented with active mitigation if necessary.

Table 3 Mitigation measures – Passive

Mitigation Measure	Description	Offset impact on:
Passive		
Re-establish more natural riparian vegetation	E.g. with an appropriate mix of native species. Requires management to ensure vegetation establishes and develops correct structure (i.e. mix of old and new plants, and diversity of plant types). This enhances bank stability and sustains more natural in-channel features and processes. For further guidance see WAT-SG-44.	All hydro-morphology attributes
Review channel maintenance operations	The routine management of sediments and vegetation affects the quality of in-stream habitats and dependent ecology. Reviewing the frequency, timings and amount of work undertaken can have significant benefits for aquatic ecology. Consideration should be given to ceasing maintenance activities where possible.	River Depth and Width Variation Structure and Substrate of Bed Continuity
Fence off channel to create wider riparian corridor	This will have significant benefits in terms of regeneration of riparian vegetation, which in turn will enhance bank stability and help to sustain more natural in-channel features and processes.	All hydro-morphology attributes
Improve land management to reduce inputs of fine sedimentary materials into channels	Excessive inputs of fine sediment can seriously damage aquatic ecology and comprise water quality objectives. Buffer strips and installation of sediment traps in field drains can reduce inputs. For further guidance, please refer to the Farming and Watercourse Management document produced by WWF.	Structure and Substrate of Bed
Remove or set-back embankments	Embankments have multiple impacts on river hydro-morphology and ecology. They can simplify and narrow riparian corridors, increase in-channel velocities and scour during high flows, disconnect important floodplain wetlands and other habitats, and disrupt the lateral migration of channels. Removing or setting back embankments can have multiple benefits in terms off improving channel condition, naturalness of river processes and quality of habitat. Care should of course be taken when changing the behaviour and pattern of floods (The local authority is the flood risk authority in Scotland).	All hydro-morphology attributes

Table 4 Mitigation measures – Active

Mitigation Measure	Description	Offset impact on:
Active		
Remove or redesign existing structures	The removal of redundant structures (old weirs, croys, fords or in-stream supports for abandoned crossings) can provide significant channel improvement. Where structures continue to serve a purpose, opportunities for redesign to minimise ongoing impacts should be examined e.g. replacing a culvert crossing with a span crossing, or reducing the length of bed reinforcement associated with a bridge.	River Depth and Width Variation Structure and Substrate of Bed Continuity
Remove or redesign existing bank protection	The removal of redundant bank protection measures, especially grey or hard bank protection can provide significant benefits in terms of bank and riparian habitat and geomorphic processes. Where hard structures continue to serve a purpose, options for redesign or softening of impacts should be considered. For further guidance on bank protection measures, please refer to WAT-SG-23.	Banks and Riparian Zone
Enhancing urban and other heavily modified channels	In urban and other heavily modified channels, it's unlikely that the removal of minor structures will improve the condition of the channel. It's also unlikely to be technically or economically feasible to remove any major engineering. In these instances, it may be appropriate to introduce structures to enhance the habitat value of the channels, for instance introducing flow deflectors, undertaking sediment management to create pools or riffles and introducing boulders. This form of mitigation should be viewed as habitat enhancement and restricted to sites where there are no opportunities to create a more natural channel. Increased use of physical capacity for habitat enhancement in these channels should be permitted.	Structure and Substrate of Bed Continuity
Channel Re-alignment	The re-alignment of previously modified channels can have significant positive benefits for in-channel habitat and geomorphic processes. However, channel re-alignment is a very intrusive option for mitigation, and should only be considered where there are clear opportunities to improve the quality of habitat available. Consideration should always be given to less intensive measures first. Any proposals for channel re-alignment should be subject to a full assessment in their own right following the procedure outlined in this method.	All hydro-morphology attributes

Sediment Augmentation	This involves the placement of sediment (similar to natural bed material of the affected watercourse) into a channel to improve habitats or support natural geomorphic processes. A common example is the use of gravel to create riffle features within degraded channels. Careful consideration should be given to the naturalness of such features in any given setting and their maintenance, particularly their vulnerability to erosion during high flows and the rate of any re-supply of sediment from upstream. For further guidance on sediment augmentation, please refer to the sediment management good practice guidance (WAT-SG-26).	Structure and Substrate of Bed Continuity

Note: An associated application under CAR may be required for many of the activities described above. This will help ensure adequate care is taken to minimise impacts.

General Mitigation (limiting Impact)

The most basic way an activity can reduce its impact is to reduce its footprint. Pre-application discussions, adherence to good practice guidance and the principles of sustainable river management, as well as careful design, can all help limit the impact of works or structures within watercourses.

Mitigation to Offset Impacts (recovering capacity)

Mitigation can also include measures which recover used capacity, for instance by actively removing a redundant structure to off-set capacity used by a new structure. Measures to promote sustainable use of capacity should be located within, or within the vicinity of, the site where the activity is being undertaken.

MImAS can be used to identify how much and what type of mitigation should be adopted to promote sustainable use of available capacity. Examples of using MImAS to assess mitigation options are provided in the MImAS guide (WAT-SG-21: Environmental Standards for River Morphology)

Mitigation to support sustainable use of available capacity should be sought in the following situations:

- Where a proposal breaches the environmental standard of a 500m assessment stretch. Mitigation to offset the environmental damage such that the 500m standard is no longer exceeded should be considered by an applicant.

  MImAS should be used to help identify what potential mitigation measures could be put in place to ensure that the 500m standard is not exceeded. Only mitigation within the affected site, or adjacent areas under the ownership or other control of the applicant should be considered for mitigation. Normally only passive measures should be considered at this

stage. However, if in the opinion of the CO, active measures would be reasonable and practical, they should also be included.

- Where a proposal is a risk to at the Waterbody scale (e.g. 2.5 km) then mitigation to offset damage to the environment on a waterbody scale should be sought.

  MImAS should be used to help identify what potential mitigation measures could be put in place to ensure that the amount of capacity used is off-set. Mitigation should be first sought within the affected site, or adjacent areas under the ownership or other control of the applicant. Clearly the applicant may also investigate mitigation opportunities outwith the immediate site to achieve the desired 'off set' result. Both passive and active measures should be considered for waterbody mitigation, but with priority given to passive measures where possible.

Once Mitigation is agreed

Where suitable mitigation can be agreed with the applicant, that either off-sets the capacity used, or in the opinion of the CO is all that would be reasonable and practical to require, appropriate conditions should be included within the licence.

For larger projects or at more sensitive sites a "Mitigation Plan" should be produced by the applicant, detailing measures proposed and the steps required for maintenance of those measures as appropriate (i.e. how will the applicant ensure re-vegetation of riparian zones becomes established). The plan should normally be submitted and agreed prior to authorisation being granted.

Mitigation may require additional associated activities to be included within the licence. For example, if a structure is to be removed as part of a mitigation plan, that should be included within the licence as an associated activity. Mitigation measures may qualify as an 'environmental service' and therefore not attract charges.

Where suitable and reasonable mitigation can not be agreed with the applicant, the licence should be recommended for refusal (see WAT-RM-22: Managing Refusals and Appeals for further guidance).

Appendix III: Detailed Design and Construction Methods

An assessment of the detailed design of the chosen design option is required to ensure that adequate care is taken to minimise and mitigate impacts from a structure. In effect SEPA are requiring the applicant to show:

- the decision making which lead to the final specification for a structure or design,
- what environmental attributes were considered during that process and,
- how these are protected and incorporated into the designs.

This assessment may be required for applications failing the environmental standards, conservation and good practice tests. It will require the applicant to provide justification for key design criteria and attributes. For example:

- Does the depth of scour protection or bed reinforcement for a bridge, allow for a natural bed to be maintained during high flows?
- How will the design of a culvert allow for free passage of fish and other aquatic fauna?
- What is the basis for the volume of planned sediment removal? It is based on observed rates of deposition or estimates of upstream supply?
- What is the basis for the channel cross-section, planform and slope within a channel diversion? Is it based purely on hydraulic conveyance (i.e. the 1:200 year event), or does the channel design take account of a natural and stable channel morphology?

Specialist internal advice may be sought to help assess any submitted detailed design reports e.g. from regional CAR specialists and senior regional ecologists.

The impact assessment techniques outlined in 0 may aide the process of ensuring adequate care is taken with the detailed design stage of a project. All critical criteria in the design of the project should be clearly shown in drawings and referenced as part of the licence conditions. Further guidance on detailed design is available SEPA good practice guidance documents.

Detailed Construction Methods

A key component of good practice is ensuring every reasonable effort is taken during the construction phase of a project to minimise damage to habitat and risk of pollution. Guidance on temporary construction methods for engineering projects has been developed and should be discussed with the applicant, preferably before an application is made. The method statement submitted at the time of application, or before commencement of the works, should reflect this guidance. If the determining officer is not satisfied that the

guidance on temporary construction methods has been followed, then the proposal should fail the good practice test.

As part of the application process, a method statement is required at the time of application. The purpose of the method statement is to explain exactly how the applicant and any contractors will ensure risk of pollution and damage to habitats is minimised during the construction of works. As a minimum, an outline method statement is required at time of application. A licence condition will then be inserted requiring a full method statement be agreed with SEPA some fixed period before works commence. The outline method statement requires details of timings, temporary works, site drainage, pollution prevention measures, fish migration measures and measures to protect habitats during works.

If concerns exist with regard to any of these issues, a more detailed method statement should be requested with specific working methods and other measures detailed prior to authorisation being issued. Additional guidance on temporary construction methods is available in WAT-SG-29: Good Practice Guide - Construction Methods. For guidance on method statements see licence application guidance (on the Application Forms page).

Appendix IV: Detailed Impact Assessments

Where there are significant concerns about the impacts of a proposal, more detailed assessments of physical **impact**, **design** and **mitigation** will be required. The type and extent of any detailed assessments should be based on the risk posed by the proposal. Consider the following principles when deciding whether to ask for technical assessment:

Assessment is **unlikely** to be required if a new proposal fails a standard due to the cumulative impact with existing activities (the proposed activities may only use a relatively small amount of system capacity in their own right and it would normally be disproportionate and unreasonable to require the applicant to carry out an expensive assessment).

Assessment will only **occasionally** be needed if a proposal fails a standard in its own right by a small margin (e.g., by < 5% above the standard threshold) and there are other concerns (e.g., the requirements of the good practice test are only just met), then assessment would be reasonable and proportionate. If a proposal fails by a small margin and the requirements of the good practice test are met, technical assessment is not normally recommended.

Assessment will **normally** be needed if a proposal fails a standard by a large margin (e.g., by 50% capacity use, which is double the good / moderate boundary standard); OR if the proposal fails by a moderate margin and there are other concerns (e.g., it fails by 32.5% capacity use [i.e. 1.5 times the good/moderate boundary standard] and the requirements of the good practice test are only just met). In these circumstances assessment should be required unless other evidence demonstrates that a proposal will have little impact. An example would be that a long length of sediment management may not need technical assessment if the officer had previously observed the same type and extent of activity being carried out in the same location and it had caused only minor and acceptable adverse impacts.

The impact assessment techniques (or equivalent) are listed below in Table 5. More information on impacts, design and assessments the individual Good Practice Guides

Many of the methods and techniques developed to support standardised approaches to geomorphological investigations are detailed in the Guidebook of Applied Fluvial Geomorphology.

Available techniques range from fully analytical approaches (e.g. 1-D hydraulic and sediment transport modelling) to approaches that rely more on interpretation (e.g. River reconnaissance and fluvial audit). Analytical approaches are best suited to understanding response over shorter time-scales where the nature of the problem justifies the required investment of time and effort (e.g. because of associated financial investment). Interpretative approaches are best suited to problems where large-scale processes, such as sediment supply, may influence decision making, or

where the scale of project doesn't warrant significant investments of effort. Often analytical approaches can only be properly applied within the context of a more interpretative study (e.g. applying 1-D hydraulic and sediment transport modelling in the context of a fluvial audit).

Table 5& Table 6 are adapted from a report by Haycock and Associates, which provides a review of impact assessment tools (available as WAT-SG-30: Review of River Geomorphology Impact Assessment Tools and Post Project Monitoring Guidance for Engineering Activities). The list of tools summarised below is not exhaustive and shouldn't preclude other approaches suggested by relevant experts.

Table 5 Summary of Recommended Impact Assessment Techniques*

Technique	Description
River Reconnaissance	River reconnaissance is a rapid survey of a reach noting the morphological forms of interest and establishing an overview of geomorphic processes. It is perhaps the most standard and frequently used technique by practising geomorphologists and is central to many other geomorphic tools. The output from a river reconnaissance is normally a several page document, supported by photographs, contemporary and historic (where available) maps, and sketches of dominant features. It should be focussed on providing an understanding of the geomorphic processes acting within a reach and how they affect management of that reach. Typically this may take 2 to 3 days to compile.
Fluvial Audit	The fluvial audit technique was developed by Malcolm Newson (University of Newcastle) and David Sear (University of Southampton) in the early 1990s. Details of the procedure are outlined further in the Environment Agency's practical guide to River Geomorphology (1998) and DEFRA's latest Guidebook of Applied Fluvial Geomorphology. The basis of the fluvial audit is to obtain an understanding of a broad qualitative sediment budget of a reach paying close attention to sediment transport processes, the impact of flood events and impacts of land use change (Environment Agency, 1998). The Fluvial Audit is a catchment based survey with each reach being defined by virtue of its geomorphological characteristics. The level of effort required for a fluvial audit is significantly greater than a river reconnaissance.
River Dynamics Assessment (RDA) (also known as fluvial dynamics assessment)	This is a generic term for a range of detailed, intensive, small-scale assessments of the channel in an individual problem reach. The method aims to provide a comprehensive assessment of geomorphological processes, channel forms and process-form interactions at a site or reach scale. Each case will be site specific and a period of monitoring might be required to fully understand the nature of the problem. RDA techniques are largely developed from a research level and are tailored to the specific case in question. As a result, it is not possible to define a full brief for such an assessment. Techniques have been developed as part of the Flood Risk Management Research Consortium (FRMRC). These include a stream power screening tool and the River Energy Audit System (REAS). For more information, refer to the FRMRC website The bank assessment methodology would also fall within this category. The bank assessment methodology was developed for the Environment Agency in 1999 by Cranfield University. The guide to the bank assessment methodology details processes for bank erosion and procedures for assessing bank erosion as well as methodologies for determining appropriate solutions.

Technique	Description
Reach Based Sediment Budgets	Reach based sediment budgets are an attempt to quantify the timing and volumes of sediment moved through a reach under various project scenarios and flow conditions. Changes in sediment budgets (i.e. increased erosion or deposition) can be used to infer channel response (e.g. aggradation, incision, widening etc.) and assess scale of impacts and appropriate mitigation measures. The Sediment Impact Assessment Method (SIAM) is an example of a sediment budgeting tool. The aim of SIAM is to create a reach-scale sediment budget for the fluvial system being analysed that identifies reaches as sediment sources, transfer links or sinks and which indicates the magnitude of sediment imbalance in non-equilibrium reaches. SIAM differs from conventional sediment routing models (such as ISIS Sediment Transport) in that it aims to account explicitly for sediment in the fluvial system derived from erosion of the catchment, gullies and ditches, and the channel banks, as well as that sourced from the channel bed. SIAM has been partly developed by the US Army Corps of Engineers Hydraulic Engineering Centre (HEC), and is available through their HEC-RAS river modelling software.
1-D hydraulic modelling	1-dimensional (1-D) hydraulic models are able to simulate flow conditions in complex and branched channel networks. They generally also include methods for simulating floodplain as well as in-channel flows. They represent averaged (depth and width averaged) flow conditions (velocities and water depths) at cross-sections representative of river channels. Once calibrated for observed conditions, a 1-D hydraulic model is often used to estimate inundation levels associated with extreme (flood) events. They can also be used to investigate the hydrodynamic impacts of proposed engineering works, in-channel and/or floodplain activities or changes to catchment hydrology. Commonly used 1-D hydraulic models include ISIS, HEC-RAS and MIKE-11. See Policy 22: Flood Risk Assessment Strategy (Table 1), for technical standards for undertaking hydraulic modelling work.
1-D hydraulic modelling + sediment	Many of the 1-D hydraulic models now have sediment transport bolt-ons. These account for sediment transport and bed level changes through aggradation or degradation. Prediction of sediment transport rates, changes in bed elevation and amounts of erosion and deposition throughout the channel system are made by inputting the channel flow hydraulics calculated in the 1-D hydraulic model with information on the bed material of the channel to a range of sediment transport prediction equations included within the sediment transport module. A sediment balance is undertaken, where the capacity of the channel at that cross-section (or reach) to transport sediment is compared to sediment supply (from the reach or cross-section upstream) and any deficit or excess is exchanged with the bed.

Technique	Description
2-D hydraulic modelling	2-dimensional (2-D) hydraulic models are able to simulate flow conditions in complex channel networks and floodplains. They represent depth averaged flow conditions (velocities and water depths) at a number of points (nodes) that define the geometry of the study reach and floodplain. Once calibrated for observed conditions, like 1-D hydraulic models, 2-D models can be used to estimate inundation levels and extents associated with extreme (flood) events. Their main advantage over 1-D models is an ability to simulate more complex flow patterns associated with natural channels (e.g. flow around a meander bend) and in-channel structures.

* Adapted from Haycock Report (WAT-SG-30: Review of River Geomorphology Impact Assessment Tools and Post Project Monitoring Guidance for Engineering Activities)

The following table provides a summary of recommended assessment techniques for each category of engineering activity linked to level of environmental risk. This is not an exhaustive list of techniques, and shouldn't preclude other approaches developed by relevant experts. It is recommended that one technique from each bullet point is used.

Table 6 Recommended Assessment Techniques*

Activity	Low Risk e.g. Low impact (500m scale)	Moderate Risk e.g. Activities that threaten 500m stretch	High Risk e.g. Substantial impacts, activities that threaten waterbody status
Dredging and substantial Sediment Management	River reconnaissance	River reconnaissance with 1-D hydraulic modelling or river dynamics assessment	Fluvial audit, with 1-D hydraulic modelling + sediment or reach based sediment budget
Bank Modifications	River reconnaissance	River reconnaissance, or river dynamics assessment	Fluvial audit with River dynamics assessment or reach based sediment budget
Channel Modifications	River reconnaissance	River reconnaissance, with River dynamics assessment or reach based sediment budget	Fluvial audit, with 1-D hydraulic modelling + sediment or reach based sediment budget
Impoundments	River reconnaissance	River reconnaissance, with River dynamics assessment or reach based sediment budget	Fluvial audit, with 1-D hydraulic modelling + sediment or reach based sediment budget
In-stream structures	River reconnaissance	River reconnaissance, with 1-D hydraulic modelling	1-D hydraulic modelling + sediment, or 2-D hydraulic modelling
Crossings	River reconnaissance	River reconnaissance, with 1-D hydraulic modelling	1-D hydraulic modelling + sediment, or 2-D hydraulic modelling
Developments in the vicinity of River	River reconnaissance	River reconnaissance, with River dynamics assessment	Fluvial Audit, with Fluvial dynamics assessment or 1-D hydraulic modelling + sediment

* Adapted from Haycock Report (WAT-SG-30: Review of River Geomorphology Impact Assessment Tools and Post Project Monitoring Guidance for Engineering Activities)

Qualifications for Undertaking Assessment

It's important that the individuals undertaking assessments are suitably qualified and experienced to ensure robust results and conclusions are drawn. Hydraulic and sediment transport modelling, and applied geomorphology are specialist subjects. It is the responsibility of the coordinating officer to satisfy themselves that the persons carrying out the assessments are suitably qualified (this would normally mean a form of graduate qualification in the relevant subject with several years of experience in applying the technique). Further guidance on suitable experience and qualifications for applying some of the assessment techniques above is available in the Guidebook of Applied Fluvial Geomorphology.

Appendix V: 'In the Vicinity' and Wetlands Guidance

Only works out with the immediate channel (bed and banks) which carry a significant risk of harm require authorisation. The table below identifies where authorisation (permission) is required and the Practical Guide sets out the level of authorisation.

Table 7 Do I need permission from SEPA?

Where do you want to do it?	What do you want to do?				
	Maintenance (ie running repairs to existing structure)	Heighten	Reinstate	Build new or extend	Remove, lower & set further back
On the bank or bank top	**You don't need permission from SEPA for routine maintenance.**	**You must get permission from SEPA**	**You must get permission from SEPA unless routine maintenance**	**You must get permission from SEPA**	**You must get permission from SEPA**
Closer to the bank top than the shorter of 2 channel widths* or 10 metres	You don't need permission from SEPA for routine maintenance. If, rather than routine maintenance, you are planning to change the fabric of the structure, you may need authorisation from SEPA: You will need authorisation if the work requires careful management to avoid pollution or if you are planning to convert a vegetated structure to a non-vegetated structure. **If in doubt, check with SEPA.**	You don't need permission from SEPA unless there is a risk that the heightening could significantly increase erosion in the watercourse. **Check with SEPA**	You won't normally need permission from SEPA if the structure failed within the last 18 months. You may do if the failure occurred longer ago. **If in doubt, check with SEPA**	You must get permission from SEPA	You must get permission from SEPA if removing/lowering more than 500 metres measured along the bank. The authorisation will require you to plan how to minimise the risk of soil and other material entering the watercourse. It will normally be free. You may need permission from SEPA if the set-back structure is replacing a structure that failed more than 18 months ago; or the set-back structure will be higher than the previous structure & still closer to the bank top than the shorter of 2 channel widths or 10 metres. **If in doubt, check with SEPA**
Further from the bank top than the above	You don't need permission from SEPA.	You don't need permission from SEPA.	You don't need permission unless the structure failed so long ago that there are now river-dependent wetlands beyond it	You don't need permission from SEPA unless there are river-dependent wetlands beyond the proposed line of structure.	You don't need permission from SEPA

* Channel width means the straight line distance that is between opposite bank tops of a river, burn or ditch and which spans the bed of a river, burn or ditch, including any exposed bars and vegetated islands

Regulation of wetlands under the CAR engineering regime

Only activities which could affect **surface water dependent wetlands** should be assessed for potential authorisation. Activities that can affect the quality of surface water dependent wetlands include, but are not limited to:

- Drainage operations (dredging or excavation of drainage channels)
- Removal through excavation, or
- Changing elevations using fill material.

SEPA has specialist wetland ecologists who can provide help and advice about wetland issues, and they should be contacted via your senior regional ecologist. There are some key wetlands* which may be associated with surface waters e.g. river channels, loch sides, river banks and flood plains:

- Wet Woodlands (type 1b)
- Marshy grassland (type 2a)
- Fen (type 4)
- Swamp (type 5)
- Reed Bed (type 6)
- Wet heath (type 7)
- Quaking bog (type 8b)

Wetland engineering may be highlighted to SEPA directly and indirectly.

- Directly: during an application for a CAR licence, such as loch shore engineering or flood prevention measures on riverbanks or the floodplain.
- Indirectly: through complaints about pollution from engineering in wetlands, developers inquiring about land drainage works, waste management operations or other construction activities.

If it is unclear whether a wetland is implicated by engineering works please ask the senior regional ecologist for advice.

SEPA GIS currently identifies protected wetlands (e.g. SACs, SPAs, SSSIs) and wetlands of local biodiversity value. Wetland locations can also be

* Taken from A Functional Wetland Typology for Scotland. The above wetland categories are described in Appendix A of the referenced document. Further descriptions and a wetland identification field guide are available from the SEPA Intranet, or from senior regional ecologist or national wetland staff.

highlighted by information submitted by applicants, site visits and the use of OS maps, photographs and through the consultation process.

In future GIS will contain a layer based on the national wetland database to help with the assessment of authorised engineering works affecting wetlands, which will contain a wider range of identified wetlands. In the meantime, the CO should have regard to the above categories of wetlands that may be affected by the works, and seek advice from senior regional ecologists if they believe wetlands are implicated.

Appendix VI: Regulating Applications to Maintain Existing River Engineering

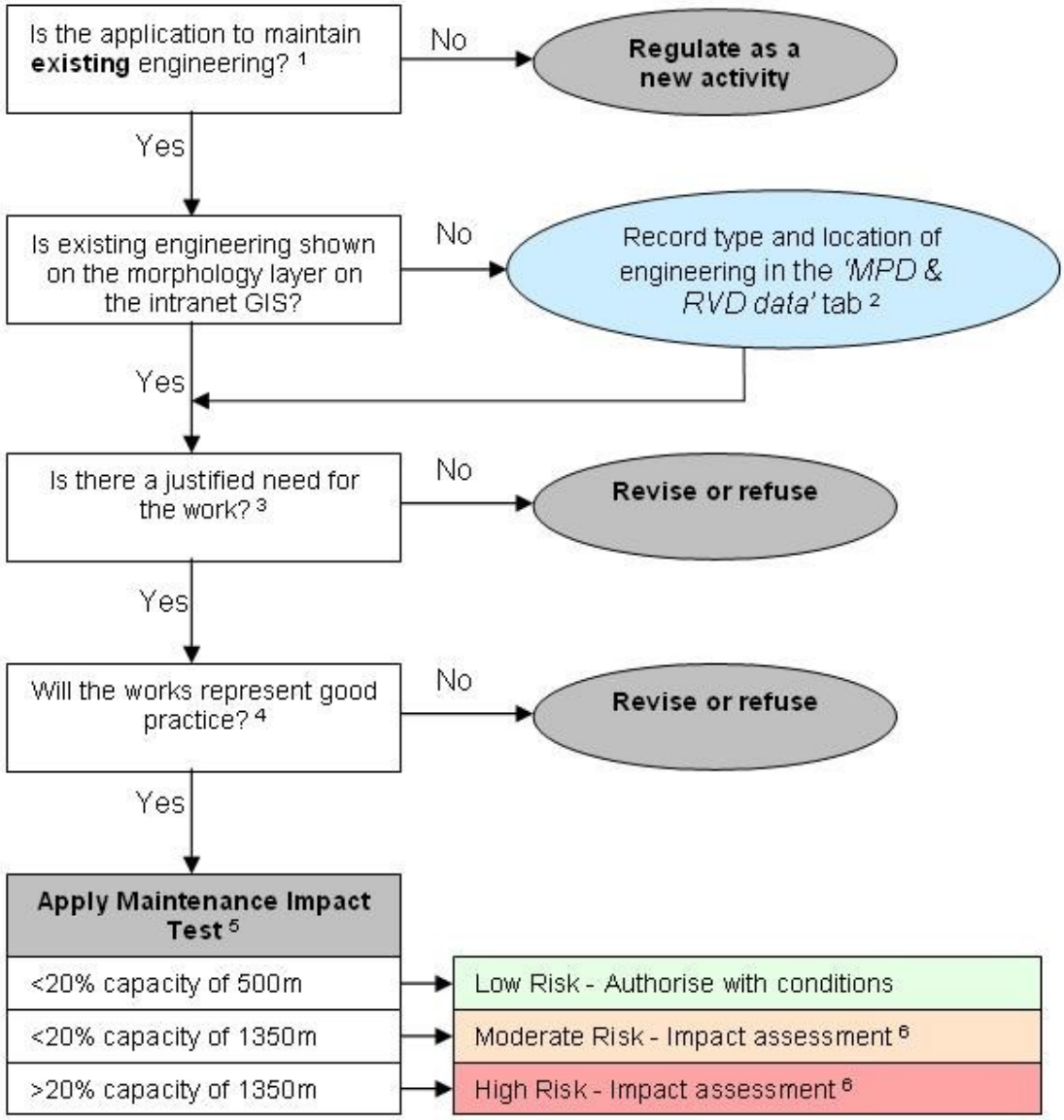
SEPA currently permit operators to maintain engineering structures such as bank protection, bridges, embankments etc., providing that the footprint of the works and the materials used remain the same.

Operators may also wish to maintain existing river engineering that involved a change to the shape (or morphology) of the river, such as realignment. This appendix describes how to regulate applications to maintain the following:

- high impact realignment;
- low impact realignment;
- sediment management; and
- dredging.

The Coordinating Officer should use the flowchart and steps below to regulate applications to maintain such works. Guidance on completing each step is also provided below.

Figure 4 Maintenance of existing pressures



Notes:
1. See **Error! Reference source not found.** and **Error! Reference source not found.**
2. Use WAT-FORM-29: Morphology Database Update Template to enter details
3. See **Error! Reference source not found.**
4. See **Error! Reference source not found.**
5. See **Error! Reference source not found.** for details
6. See 0 for guidance on impact assessment techniques. Contact the E&F Helpdesk for more advice.

Steps to follow:

Start: will the proposal create a new pressure or maintain an existing pressure?

1. Determine whether the application is to create a new pressure or to maintain an existing pressure. Refer to **Error! Reference source not found.** for a definition of existing engineering and **Error! Reference source not found.** for a definition of what qualifies as maintenance.

- if the proposal involves **maintenance** of existing engineering, go to step 2.
- if the proposal will create a new pressure (i.e. no such pressure already exists in the reach) the engineering should be regulated as a new activity. Return to Section 1: Technical Assessment Overview.

Regulating applications to maintain existing engineering

2. Check whether SEPA has a record of existing engineering where the maintenance is proposed – look on the morphology layer of the intranet GIS.
   - If the intranet GIS shows that engineering exists where maintenance is proposed, go to step 3.
   - If the intranet GIS does not show that engineering exists where maintenance is proposed, briefly collate and check what other evidence there is that engineering took place in the past. **Error! Reference source not found.** describes how to do this. Where there is field evidence that engineering exists where maintenance is proposed, go to step 4.
   - If there is no evidence (either on the GIS or from elsewhere) that engineering exists where maintenance is proposed then you should regulate the application as a new pressure.
3. Regulating applications to maintain existing engineering that **is** shown on the morphology layer of the intranet GIS
   - Check that the application involves maintenance of existing engineering (see **Error! Reference source not found.**)
   - Check that the works are justified (see **Error! Reference source not found.**)
   - Check that the maintenance represents good practice (see **Error! Reference source not found.**)
   - Apply the maintenance test (see **Error! Reference source not found.**)
   - Check whether advertising is required i.e. if 3rd party interests will be affected (see WAT-RM-20: Advertising and Consultation).
   - Continue with authorisation assessment i.e. conservation test.
4. Regulating applications to maintain existing engineering that is evident from a field visit, but is NOT shown on the morphology layer of the intranet GIS.
   - Record the location and type of engineering in the tab labelled ‘MPD & RVD data’ in WAT-FORM-29: Morphology Database Update Template. The pressure will then be digitized and included in the next classification run.
   - Check that the application involves maintenance of existing engineering (see **Error! Reference source not found.**)

- Check that the works are justified (see **Error! Reference source not found.**)
- Check that the maintenance represents good practice (see **Error! Reference source not found.**)
- Apply the maintenance test (see **Error! Reference source not found.**)
- Check whether advertising is required i.e. if 3rd party interests will be affected (see WAT-RM-20: Advertising and Consultation).
- Continue with authorisation assessment.

An example of how to apply the steps above is provided in **Error! Reference source not found.**.

Guidance

Lifetime of authorisation and frequency of maintenance:

Operators may apply for authorisation to undertake repeated maintenance operations at specific frequency (e.g., to undertake maintenance annually, every 3 years etc) or if certain conditions occur (e.g., if a bar of sediment extends more than halfway across a channel). Repeat maintenance should be authorised on the condition that it follows the method statement (see 'before works commence'), occurs at an appropriate interval (see 'Frequency of maintenance') and will not prevent WFD objectives from being met. A time limit (or a 'lifetime' for the authorisation) should not normally be placed on the authorised activity if the water body is at good or high status, or if the operation is to take place on minor tributaries that have not been classified. A time limit should be included if either (a) the water body is at less than good status or (b) the team consider that a frequency condition should be applied for other reasons, which are left to their discretion. The time limit applied to operations in rivers at less than good status should be set so that it allows the RBMP objectives for the river to be met. For instance, if a straightened river is failing and has an objective to achieve good status by 2021 and if the maintenance is reasonably likely to threaten this objective, a time limit should be applied well before 2021. Staff should make operators aware of such situations when assessing authorisations. Box F provides an example.

Before works commence:

A construction method statement, and maps showing where works will be undertaken, should be provided prior to works being carried out. This should cover the expected locations, areas and types of engineering, and should be applicable for the first operation and any repeat operations. For example, a map may show 500m of river that could be affected by works, with an accompanying method statement specifying that dry sediment shall only be managed within this reach when it has built up to a certain level (e.g., 0.5m above the normal low-flow water level) or area (e.g., a bar more than half the width of the channel).

Frequency of maintenance:

A licence should contain a condition specifying the frequency of operation. This may be once or at a specified interval (e.g., maintenance shall not be undertaken within a period of X years since the last maintenance operation). The interval will depend on the specific site, but as a rule of thumb rivers tend to adjust their shape (i.e. recover from engineering) during large and infrequent flows – typically once a year or less – so repeat maintenance should normally occur less frequently than annually. Contact the E&F Helpdesk for help on how frequently maintenance should be undertaken.

Notifying SEPA when maintenance is repeated:

Operators should notify SEPA when maintaining the river. Coordinating Officers should record the operation in WAT-FORM-29: Morphology Database Update Template – the data will then be used in future classification runs. Notification of maintenance will also provide the CO with the opportunity to visit the site if necessary. Each time maintenance is carried out, it should follow the method statement provided in the original licence application – hence, an MS is not required each time the operation is carried out. If a change to the MS is required, this should be notified to SEPA and agreed in writing in accordance with the licence condition.

Subsistence charging

Staff should use existing guidance to assess whether the maintenance should be subject to subsistence charges. Long stretches of sediment management in channels that have been realigned in the past may have a significant enough impact that repeat inspections are required.

Advertising

Maintenance that is likely to affect the interests of third parties significantly e.g., conservation interests - if a site directly or indirectly affected by the works is of recognised importance for such interests (e.g. a Site of Special Scientific Interest)) may require advertising. See WAT-RM-20: Advertising and Consultation for further information.

Derogation

Maintenance activities that are authorised (i.e. pass all the tests above) do not require derogation even if the maintenance test indicates that they are a high-risk activity. This is because:

- The good practice test ensures that the spatial impact of the maintenance should not extend upstream or downstream of the existing engineering, so there will be no significant additional environmental impacts; AND
- The existing impact is either
    - significant enough to downgrade the waterbody, but it is being managed within the RBMP (via RBMP objectives) and the conditions

in the authorisation ensure that maintenance will not threaten the objective; or

- not significant enough to threaten waterbody status (waterbody is at good or high status for morphology), so permitting ongoing maintenance will not affect the status.

BOX 7 Definition of existing engineering

Existing engineering may be recorded in the morphology layer of the intranet GIS (realignment is usually recorded, for instance), but some of it is not (particularly dredging and sediment management).

Existing engineering includes that shown in the morphology layer on the intranet GIS and pressures that are obvious from a field inspection but are not recorded in the morphology layer on the intranet GIS. The field evidence should show that

- the maintenance is of existing engineering (e.g., the landowner reports that they used to dredge the river and provides photos to show where); AND
- it must be clearly evident that the river is still impacted as a result (e.g., deepened river bed; embankments; floodplain that clearly never floods, etc).

If evidence is lacking (e.g. landowner says that they dredged the river – but can't remember where and there is no evidence of where it took place), then the river has probably recovered. In such cases the application should be regulated as a new engineering activity.

CAUTION: if the existing engineering post-dates CAR, but has not been authorised (e.g., river was dredged, without authorisation, in late 2008), then DO NOT authorise maintenance of that engineering! Contact the Engineering Task Team for advice in these situations.

BOX 8 Definition of maintenance for existing engineering

Maintenance of an existing pressure occurs if:

- The proposal is a repeat of engineering that occurred in the same location and to the same (or a lesser) extent in the past (e.g., dredging 50m of a dredged section that was originally 100m long, or management of sediment on a bar subject to past sediment management); OR
- The proposal is to dredge, realign or manage sediment within a reach that is subject to high impact realignment; AND
- The footprint of the proposed maintenance is no larger than the footprint of the existing engineering.

Notes

The following situations do NOT qualify as maintenance: dredging OR sediment management OR channel realignment IF they are proposed within a reach affected by existing low-impact realignment. Dredging, sediment management or channel realignment in a reach affected by low impact realignment should be regulated as a new activity. Return to Section 1: Technical Assessment Overview.

If the footprint of the maintenance is larger than the original engineering, contact the Engineering Task Team for advice.

BOX 9 Justified need

Maintenance is justified if it is required to achieve a clear benefit for sustainable human development activities, or to ensure human health and safety. For instance, maintenance is justified if it is required to prevent damage to built infrastructure (e.g., to prevent erosion reaching a road or house) or to maintain engineering required to support existing land use (e.g., to ensure that land that was drained 30 years ago remains drained today).

BOX 10 Definition of good practice maintenance

Good practice maintenance is engineering to return an already modified section of river to an earlier modified shape providing that the works do not make the channel unstable as a result and that the impact does not extend downstream or upstream.

Examples of good practice maintenance, which should be authorised if they pass the other tests:

- Within a reach that is subject to high impact realignment, removal of part of a bar of accumulated sediment once every five or ten years to keep the channel in the position to which it was moved historically, providing that the removed sediment does not lead to habitat degradation downstream;
- Within a reach that is subject to high impact realignment, moving short sections (typically < 50m) of low-flow channel back to the position to which it was moved historically, providing that the works will not lead to a head cut forming upstream

Examples of poor practice maintenance, which should not be authorised:

- Removal of all the sediment that accumulates each year leading to 'starvation' of sediment in reaches downstream and erosion of bed and bank habitats;
- Excavation of an entire bar and the adjacent bed, deepening the channel and causing erosion;
- Moving a realigned channel to a new location that it hasn't occupied before (e.g., if the channel was realigned in 1950 to the west side of the floodplain, then it should not be moved to the east side of the floodplain during maintenance).

BOX 11 Maintenance impact test

Although maintenance involves repeating an operation that has been done before, there may still be an environmental impact that needs assessment and, in some instances, mitigation. For instance, dredging 3km of a river that is subject to high impact realignment could trigger instability unless it is undertaken sensitively. COs should assess the risk that maintenance will cause environmental harm as follows:

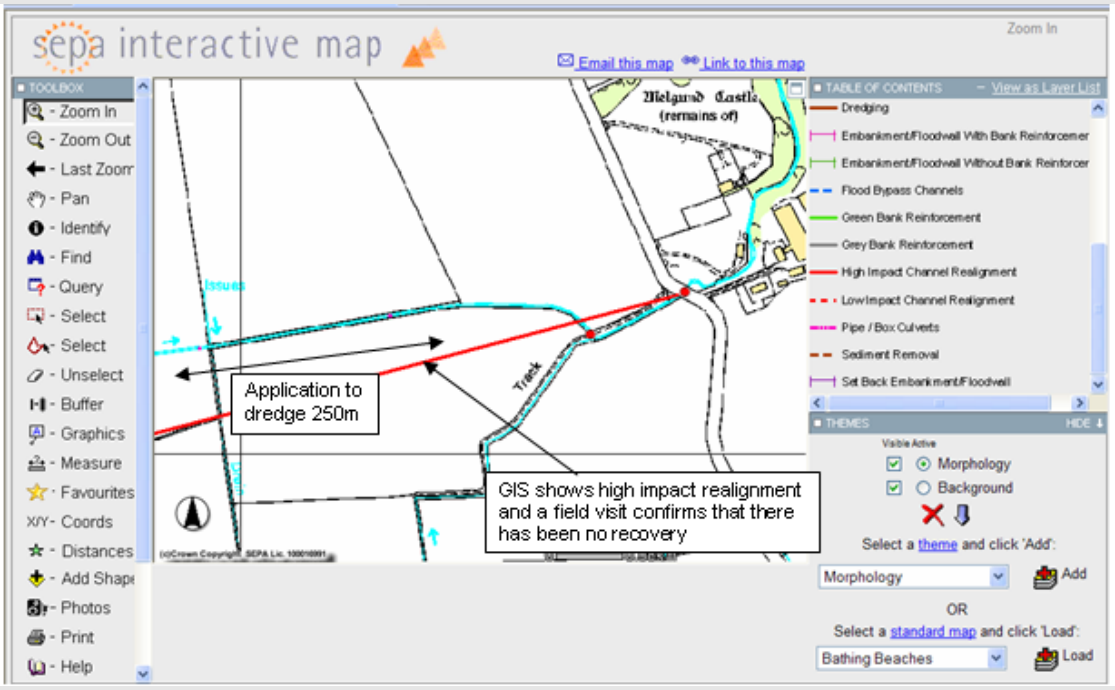
- Use MImAS to assess the impact at a scale of 500m, but with no other engineering pressure. If the proposal uses < 20% capacity at a 500m scale, it should be considered low risk and the test is passed;
- If the proposal uses up > 20% capacity at the 500m scale, use MImAS to assess the impact at a scale of 1350m, again with no other engineering pressure. If the proposal uses < 20% capacity at a scale of 1350m, it should be considered medium risk. A technical assessment of the impact may be required in these instances. See 0 for guidance.
- If the proposal uses up > 20% capacity at a scale of 1350m, it is a high risk. A technical assessment of the impact will normally be required in these instances. See 0 for guidance.

BOX 12 Case study: an application to dredge 250m of river

- Check existing engineering in morphology layer on the GIS intranet: proposal lies within a reach that is already subject to 1612m of high impact realignment. Dredging is a way to maintain high impact realignment and is required because the channel has filled with sediment, which is threatening to block the road bridge downstream.

The proposal represents maintenance.

- There is a justified need: sediment accumulation is making floodwater flow over the road, which is damaging the infrastructure of the road.
- The work will involve removal of accumulated sediment to a depth of 50cm. The impact will not extend upstream or downstream, so it will be good practice maintenance.
- MImAS is used to predict the impact of 250m of dredging in a reach 500m long. This uses >20% capacity so an assessment over 1350m is carried out. This uses up 20.1% capacity and therefore a high risk activity. CO refers to 0 and discusses application with Hydromorphology who advise that a river dynamics assessment is required. The applicant is asked to provide a river dynamics assessment, which subsequently shows that the realignment is likely to remain stable.
- There are no third party interests affected at the site.
- The CO authorises the maintenance on the condition that it is undertaken with appropriate measures in place to control fine sediment pollution during works, avoids fish spawning, and that it is undertaken only when there is a clear risk to the integrity of the road.



Appendix VII: Regulating River Engineering Aspects of Large Construction Sites

Summary:

Large Construction Criteria:

A large construction site is defined as any site with:

- **A construction area:**
  - **over 4 hectares (based on the planning boundary) ; OR**
  - **over 5km total length of track, road, structure or any combination.**

Large Construction Assessment:

For any proposed new or modified engineering licence level activity that forms part of a large construction site:

- **the Environmental Standards, Good Practice and Conservation tests will be applied to ALL licenceable activities.**

7.1 Large Construction Overview

Large Construction Sites are projects or phases of a large project that exceed 4 hectares or have a road, track or structure of over 5km. The total area or length can include any combination of elements or individual stretches (e.g.3 km road + 1km track + 2km flood wall or 6 x 1km of track). This includes infrastructure, housing and other large construction projects. These projects often involve other Controlled Activities and additional regulatory controls may therefore apply e.g. point source construction runoff licence see WAT-SG-75: Sector-specific Guidance - Construction Sites.

Projects of this type often extend over several waterbodies and catchments and though the impact on each may be limited the cumulative impact can be significant. The process set out in the Standard Assessment can potentially miss this cumulative impact as each waterbody is treated separately in Mimas. To address this risk the Large Construction Assessment should be used for all licence level activities within the project. This assessment is the same as standard except the Good Practice Test must always be undertaken.

7.2 Large Construction Criteria:

The Large Construction Assessment will be applied where the following criteria are met:

A large construction site is defined as any site with:

- A construction area:
  - over 4 hectares (based on the planning boundary) ; OR
  - over 5km total length of track, road, structure or any combination.

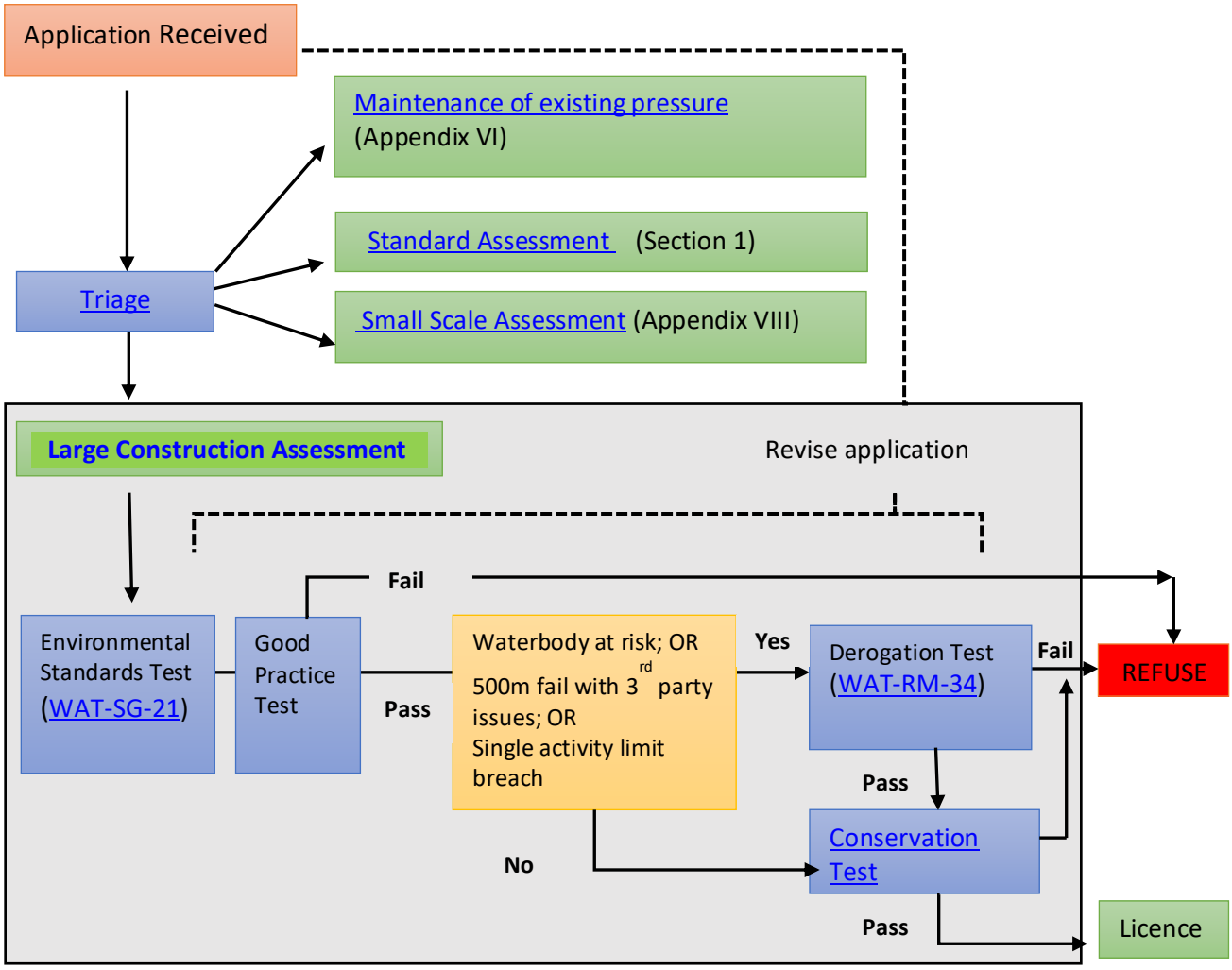
The area and length are based on either the planning boundary, 'Land made available' or total length of road/track/structures being constructed and can include any combination of elements or individual stretches. However if the construction project is phased the construction area will be that of each individual phase. Further details on what constitutes a large infrastructure project are contained in WAT-SG-75: Sector-specific Guidance - Construction Sites and WAT-SG-93 Guidance for Transport Infrastructure Projects

Any licence application relating to a large construction site is then subject to the large construction assessment as detailed below.

Any licence application that does not meet the criteria above should return to the Triage to determine if the application should be subject to follow the Standard Assessment or the Small Scale Assessment

Large Construction Assessment:

This is similar to the standard assessment but includes the Good Practice Test for ALL licensable activities. See summary figure below:



Licence Template and Conditions

Large construction projects should use the relevant template and may be charged on a time and materials basis, guidance on charging is available on the internet on the Construction site licences and Charging Scheme pages.

Appendix VIII: Regulating of Single Small Scale Licence Activities

Small Scale Criteria:

The following criteria must apply for any proposed new or modified engineering licence level application to be subject to the small scale assessment process:

- **is a single activity listed in table 8.1 below (within the scale criteria) ; and**
- **is on a baseline waterbody with a status of Good for morphology and has no more than 23% of total MIMAS capacity used ; OR Is on a watercourse which is not classified as a baseline waterbody**

Small Scale Assessment:

- **The environmental standard test will NOT be required**
- **The conservation test will still apply**

8.1 Small Scale Overview

This Appendix outlines where the use of the MIMAS Environmental Standards assessment tool in determining the morphological impact of single small scale engineering activities is not required. It sets out a position which will streamline the processing of such license applications ensuring SEPA's resources are spent on higher risk applications.

The simplified procedure allows single activities which are extremely unlikely to breach standards to be fast tracked using a combination of reduced assessment and standard licence template (WAT-TEMP-81).

8.2 Small Scale Activity Criteria

The small scale assessment will apply to activities which meet the following criteria:

Any proposed new or modified engineering licence level application which:

- is a single activity and is listed in table 8.1 below and within the scale criteria; and
- is on a baseline waterbody with a status of Good for morphology and has no more than 23% of total MIMAS capacity used (see columns I and E respectively on Morphology Classification Summary ES-ECOL-S-01); OR Is on a watercourse which is not classified as a baseline waterbody.

will be subject to the small scale assessment shown below.

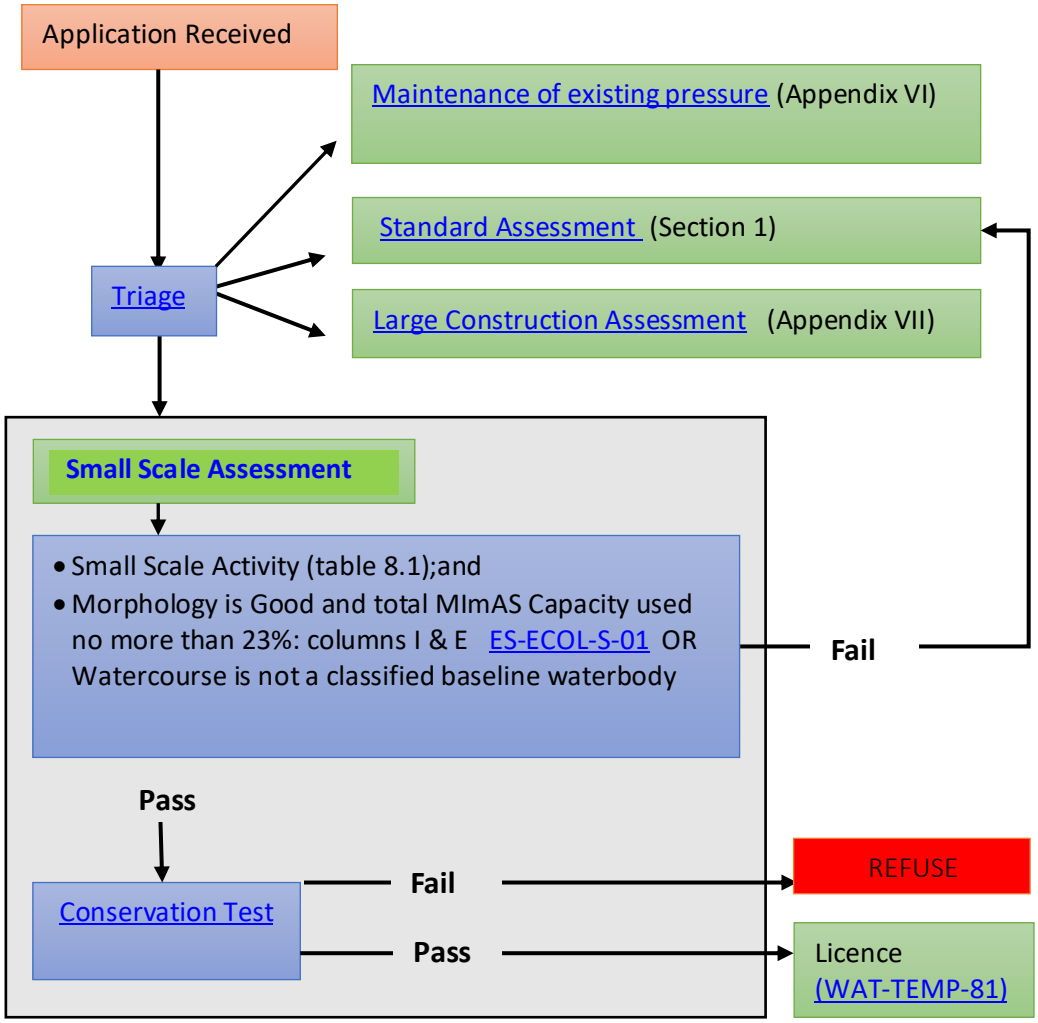
For any licence application that does not meet the criteria above you should use the Standard Assessment or Large Construction Assessment as indicated by the Triage.

Note this does not apply to high status waterbodies. The single activities below are more likely to adversely impact high status as the capacity for acceptable deterioration is very small. It is therefore important to accurately assess the potential impact using the Standard Assessment on High morphological status waterbodies.

Table 8.1: Small Scale Licensable Activities and Thresholds	
Activities	Threshold
Bed reinforcement	<=10m
Croys, Groyns, Flow Deflector	<=10m
Culvert with natural bed (Open, box or arch)	<=5m
Embankment/Floodwall	<=10m
Grey bank protection	<=20m
Maintenance/replacement using same materials	Same footprint as original +/- Activity threshold
Maintenance/replacement using different materials where activity type remains the same e.g. • Concrete wall replace/repaired with rock armour (remains Grey Bank Protection) • Reprofiled bank repaired with riprap (remains Green Bank Protection/reprofiling) • Corrugated iron culvert replaced with concrete culvert (remains closed culvert)	Same footprint as original +/- Activity threshold
Maintenance/replacement where the level of impact is reduced e.g. • Culvert replaced by clear span bridge (Closed culvert to Bridge) • Rock armour replaced by reprofiled bank (Grey Bank Protection becoming Green Bank Protection/ reprofiling) • Reduction in footprint of structure	No limit
Open cut Pipe crossings	No limit
Removal of structure (except impoundments)	No Limit
Replacement of failed structure	Same footprint as original +/- Activity threshold
Sediment Management/Removal	<=10m
WEF project	No limit

Small Scale Assessment:

This is a reduced process which does not involve having to do the environmental standards test. The conservation test still applies. See summary figure below:



- **Environmental Standards Test:** does not apply to those small scale activities

- **Conservation Test**
    - Use the procedure set out in WAT-SG-90 and refer to Section 1.7 in the main document above.
    - Where this is passed proceed to licencing.

- **Licence template and conditions:**

- The low risk nature of these applications should be reflected in the Permit. The simple fast track licence template (WAT-TEMP-81) should be used.

References

Key References

WAT-RM-20: Advertising and Consultation

WAT-RM-22: Managing Refusals and Appeals

WAT-RM-34: Derogation Determination - Adverse Impacts on the Water Environment

WAT-SG-21: Environmental Standards for River Morphology

WAT-SG-90: Application of environmental standards in assessing risks to river and loch Natura 2000 interests

Good Practice Guides

WAT-SG-23: Good Practice Guide - Bank Protection

WAT-SG-25: Good Practice Guide - River Crossings

WAT-SG-26: Good Practice Guide - Sediment Management

WAT-SG-28: Good Practice Guide - Intakes & Outfalls

WAT-SG-29: Good Practice Guide - Construction Methods

WAT-SG-30: Review of River Geomorphology Impact Assessment Tools and Post Project Monitoring Guidance for Engineering Activities

WAT-SG-44: Good Practice Guide - Riparian Vegetation Management

Forms, Letters and Templates

WAT-FORM-19: Engineering Licence Decision Record

WAT-FORM-29: Morphology Database Update Template

WAT-LETT-14: Letter Requesting Further Information

WAT-TEMP-09: Generic Water Use Licence Front Sheet

WAT-TEMP-10: Multiple Water Use Licence Template

WAT-TEMP-15: Bank of Conditions Generic Schedules 1 and 2

WAT-TEMP-37: Engineering Bank of Conditions

WAT-TEMP-38: Engineering Licence Template

WAT-TEMP-81: Simple Licence Template (Engineering)

Other SEPA References

Application Forms: **Registration** and **Licence** forms and guidance (www.sepa.org.uk)

CAR flood risk standing advice for engineering discharge and impoundment activities (www.sepa.org.uk)

Controlled Activities Regulations: A Practical Guide (www.sepa.org.uk/water/water_publications.aspx) including **Levels of Authorisation** for Engineering activities (pp 15-19)

IPM-WG-10: Monitoring Guidance For Engineering Activities , (QPULSE, Doc No: IPM-WG-10)

Licence Consistency: Manual for the Preparation of Licences, Notices and Letters (QPULSE, Doc No: OBP-LCM-1)

Nature Conservation Procedure (SEPA Intranet)

Policy 41: Development at Risk of Flooding - Advice and Consultations (www.sepa.org.uk)

Environmental Regulation (Scotland) Charging Scheme (www.sepa.org.uk)

External Document References

A Functional Wetland Typology for Scotland WFD95 (2009), (www.fwr.org)

Flood Risk Management Research Consortium (https://researchportal.hw.ac.uk/

Guidebook of Applied Fluvial Geomorphology Technical Report FD1914, DEFRA (http://randd.defra.gov.uk)

- End of Document –