Introduction

Hawick has had a long history of flooding, and most recently experienced severe floods in winter 2015/16 (Figure 1). The Scottish Borders Council (SBC) has undertaken studies into flood risks affecting its towns in recent years, and Hawick was identified by Scottish Environment Protection Agency (SEPA) as at risk of severe flood events and priority for flood risk reduction.

In 2013, SBC commissioned a study into the feasibility of a Flood Protection Scheme (FPS) at Hawick to mitigate the impacts of flooding in Hawick from the River Teviot and backwater effects associated with the Slitrig Water. SBC set twenty objectives for the Scheme relating to economic, hydraulic, technical, environmental and social factors. The Scheme forms the second phase of the SBC’s implementation plan for flood protection in Hawick.

Over fifty separate flood protection options were considered and taken through a detailed option selection process to determine the proposed Scheme (referred to here as the “Scheme”). The selection process examined the merits and disadvantages against the twenty scheme objectives and options were refined using technical, economics and environmental assessments, taking into account factors such as cost-benefit, practicability, environmental impact, and the stakeholder consultation and comments from the general public.

The resultant proposed Scheme for Hawick comprises a number of flood protection measures, including: flood walls; an embankment; raising of three footbridges over the Teviot; and drainage improvements.

In order to comply with the Flood Risk Management (Scotland) Act 2009, SBC commissioned an Environmental Impact Assessment (EIA) of the Scheme, and Environmental Statement (ES) documents were produced which detail the findings of the EIA. This Non-Technical Summary (NTS) provides an outline of the content of the ES documents for the general public and non-specialist third parties.

Site Location

Hawick lies in the Scottish Borders on the confluence of River Teviot and Slitrig Water, within the upper section of the Tweed catchment. It is located approximately 50 miles from Edinburgh and 45 miles from Carlisle (see Figure 2).
Flooding Problem in Hawick

Owing to its riverside location on the Teviot and Slitrig, Hawick has had a long history of flooding and associated disruption and property damage. Severe events occurred in October 2005, November 2009 and most recently in December 2015 and January 2016 (Figure 3).

In addition to the risk to life, such severe flooding also resulted in the inundation of a number of business premises and structural damage to walls and bridges throughout the catchment, and associated economic damages and potential infrastructure disruption.

Since November 2015 alone, there have been numerous large and smaller scale floods. The frequency and severity of flood events in Hawick (and across the UK) will also rise with climate change.

SBC’s studies have shown that as part of their long term strategy of flood protection in Hawick, a FPS will significantly reduce flood risk to hundreds of properties and businesses in Hawick without compromising economic or environmental requirements.
The Proposed Scheme

The FPS has been designed to manage the flood risk from the Teviot and backwater effects by the Slitrig Water in six discrete areas (called flood cells) throughout Hawick, as shown in Figure 4.

The outline design of the proposed Hawick FPS comprises a series of new flood defences on either side of the River Teviot from Volunteer Park to Weensland, and the lower section of the Slitrig Water from the Drumlanrig Bridge to the confluence with the Teviot. The flood defences have total length of approximately 6km and are located on both banks of the River Teviot and Slitrig Water, and some further inland.

The flood defences are predominantly new flood walls, with an embankment at Weensland, and they range in height from approximately 0.2m to 2.8m in height [TO BE CONFIRMED]. To accommodate the flood defences within the town, the Scheme also includes seven flood gates, ramps, footpaths and landscaping. In summary, the key Scheme flood protection measures comprise:

- 5,583m flood walls (including glazing and stone cladding in parts);
- 287m flood embankments;
- 185m culverts;
- Abutment modifications and raising of three footbridges over the River Teviot;
- Erosion protection for the riverbank and toe of some flood walls; and
- Seepage protection, improved drainage and six pumping stations.

The outline of the proposed layout of the Hawick FPS is given in Figure 5.

The Scheme has been designed to allow for future flexibility, in that the flood walls/bank may in future be increased in height should greater protection be required in future. This measure, along with future natural flood management measures in the wider catchment may help account for the future effects of climate change under which flood events are predicted to become more frequent and severe.
Figure 5: Hawick FPS proposed Scheme alignment
The proposed Scheme will protect approximately 724 residential and commercial properties from the effects of flooding up the 1 in 75 year fluvial flood event\(^1\) and from a variety of other flood water sources including seepage (groundwater), high intensity rainfall and secondary (surcharging water mains or sewers) flood sources.

**Construction**

The anticipated construction programme is outlined as follows:

- **Enabling works**: February 2018- April 2019
- **Main construction phase**: May 2019 – November 2021 (Scheme operational by June 2021)

The likely construction methodology was considered to ensure that the preferred Scheme could be constructed safely and without major logistical challenge. Methods will be developed further during detailed design in liaison with stakeholders such as statutory consultees, landowners, utilities companies and SBC.

Enabling works will take place before the main construction phase, including traffic management arrangements, utilities diversions, tree felling and vegetation clearance. For the main works, site compounds will be established around the town and construction activities such as sheet piling, earthworks, shuttering and concrete pouring, dismantling existing walls;

There are many constraints to constructing works near the rivers in Hawick, from the proximity of buildings and bridges (several of which are of heritage importance), roads, pavements, buried utilities and other infrastructure very close to the riverbanks. Therefore, some of the construction works will be required to be located within the river channel, for a length of approximately a third of the lengths of proposed flood defences (see example in Figure 6).

Temporary road and footpath closures will also be required to provide a suitable working area, and suitable diversions will be put in place and work will be carried out in to minimise disruption.

Also, the appointed contractor will be required to provide temporary flood protection measures so that the town does not receive a greater flood risk than currently as the construction works are in progress.

The working areas will be reinstated, and in some cases, landscaping and other enhancements to public space are proposed.

**Operation**

The Scheme has been designed to have a minimal operations and maintenance requirements during the life of the project (anticipated to be over 100 years). Once constructed, the Scheme will only require occasional interventions to operate, such as closing flood gates during predicted flood events, and maintain the flood protection measures by SBC, such as pointing, removal of debris from bridges, and replacing seals.

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\(^1\) Flood event severity: 1 in 10 year flood event is less severe than a 1 in 100 year event, which is less severe than a 1 in 200 year event.
Stakeholder Engagement

Between 2010 and 2016, the Project Team undertook a wide range of consultation exercises with the local businesses, residents and key stakeholders. This consultation helped to confirm whether a FPS for Hawick was economically, socially, environmentally and technically viable, and has also been an important influence on the development of the proposed Scheme design, mitigation and enhancements.

Activities have included face to face meetings with statutory authorities, landowners and third party interest groups; site meetings; stakeholder workshops; working group meetings; public exhibitions; written consultations (letters and emails); and telephone conversations. The Project Team have also used press releases, and set up a dedicated website (www.hawickfloodscheme.com) and Facebook page to disseminate information on the proposals and planned consultation events.

A key public exhibition for the proposed Scheme was held on 23 and 24 August 2016 at Hawick Town Hall (Figure 7), which was well attended.

Visitors to the exhibition were encouraged to fill in simple questionnaire forms and provide written comments on the proposed Scheme. Feedback provided during the event indicated that:

- 85.5% of respondents were in favour of the Scheme;
- 9.5% were undecided; and
- 5% were not in favour of the Scheme.

The wall height was the most frequently noted concern on the questionnaire.

The EIA Process

EIA is the process of gathering together and assessing the environmental information pertinent to a proposed development. EIA aims to ensure the likely environmental effects are properly understood before any development consent is granted or approved, and it provides a means of assessing the likely significant effects of a proposal and the potential for avoiding, reducing or offsetting any adverse impacts. EIA is also a means of ensuring that planning decisions are made with full engagement of statutory bodies, local and national groups and members of the public.

The environmental information is presented in an ES and NTS and is submitted with an application for the scheme consent. In the case of flood protection schemes in Scotland, the ES is submitted to the Local Authority (SBC in this case) together with the Scheme information as part of the scheme confirmation process in accordance with the provisions of the Flood Risk Management (Scotland) Act 2009 and The Flood Risk Management (Flood Protection Schemes, Potentially Vulnerable Areas and Local Plan Districts) (Scotland) Regulations 2010.

The following sections of this NTS outline the results of the assessments undertaken.
Population, Recreation and Amenity

There are various cultural, heritage and recreation features in Hawick that are important to locals and visitors, and Hawick hosts several festivals each year. The rivers are key focal points for the town and, in recent years, Hawick has transformed itself from being the centre of the textile industry in the Scottish Borders to developing new industries and enhancing its role as a gateway town and tourist attraction.

Construction of the Scheme offers opportunities for local trades, contractors, apprentices and service providers. However, potential adverse impacts on local residents, businesses and visitors are identified with the following:

- Continued and changing traffic diversions and associated driver confusion / frustration; regional and local movements of large plant and machinery; constrained pedestrian and cyclist access and crossing points; risks associated with people accessing construction areas, and risks to construction workers.
- Disruption: access, noise, dust, greenspace and pathway provision, visual impact.
- Disruption: access to community services, angling, greenspace and pathway provision, noise, dust, visual impact.

Mitigation includes ensuring employees sourced locally, consulting local businesses to discuss maximising potential opportunities from the works, and providing training/apprenticeships where feasible. Also effective liaison with businesses will be required to understand access needs and busy periods and clear and accessible information will be shared with the public to explain the anticipated disruption. Construction works will be planned to minimise disruption as much as possible, with effective monitoring put in place to manage the impacts.

In the long term, the town will however benefit from improved flood risk management with respect to economy (reduced repair and clean-up costs for the Council, residents and businesses); better health and safety (reduced disruption and stress); and, with sensitive planning, improved recreation and amenity (from greenspace and path network improvements). The sensitive choice of materials, use of glazed panels, restoration of footpaths, replanting of trees using a 2:1 ratio, providing public art and the sensitive redesign of public spaces will all help to mitigate adverse impacts from the Scheme in the long term.

Biodiversity and Nature Conservation

The River Teviot and Slitrig Water flowing through Hawick are designated for their importance to nature conservation under European law and are further protected through local planning policy and in part national law. The river environment offers suitable habitat for a number of important fish species (e.g. Atlantic salmon and sea lamprey) and protected mammal species (e.g. otter, bats) as well as breeding birds (in trees and along the riverbanks).

The design of the Scheme includes some measures to minimise ecological impacts, such as setting back the defences from the river edge or avoiding trees as much as possible. However, the main impacts are associated with the construction phase of the proposed Scheme, and include:

- Temporary habitat loss for riparian species (inc. otters, birds, spawning salmon and bats) and reduction in habitat connectivity along river (inc. loss of trees from the riverbanks).
- Potential pollution or sedimentation incidents.
- Potential barriers to the movement of migratory fish (inc. salmon) and otters, and disturbance to a bat roost and loss of an otter holt.
- Potential spread of non-native, invasive species.

Mitigation includes minimising the length of in-river working and adopting SEPA guidelines on construction in or near rivers; ensuring the fish ladder at the Coble Cauld is open to fish passage during
works; consulting with SNH on how best to deal with potentially affected protected species and applying for licences as needed; ensuring provision of an appropriate landscaping plan; undertaking vegetation clearance as required outside bird nesting season; and removing fish from the temporary working areas.

Although the mitigation will protect the nature conservation designations and ensure compliance of the Scheme with nature conservation legislation and biodiversity policy, the temporary loss of salmon habitat during construction will be significant, and there remains a risk of pollution and sedimentation that could affect salmon, although unlikely to happen. However in the long term, the landscaping and habitat created by the Scheme (including replanting trees on a 2 for 1 ratio) will be beneficial to biodiversity in and around Hawick.

**Noise and Vibration**

Building such a large structure along the rivers in Hawick will require over two years and involve a number of noisy and vibrating activities, such as site clearance, sheet piling and earthworks that will be sustained on a near daily basis. The associated noise and the proximity of residential and commercial properties has been considered, along with the potential vibration impacts that can affect the cosmetic or structural integrity of buildings.

The main impacts are associated with the construction phase, with noise effects on local residents and vibration on residents and buildings. A number of likely mitigation measures to reduce noise impacts have been identified including surrounding working areas with temporary barriers and timing works sensitively in agreement with SBC Environmental Health Department and monitoring the noise levels. Also, the use of ‘soft-start’ piling techniques and vibration monitoring could reduce vibration impacts to some extent.

The most significant noise and vibration impacts are predicted at Sandbed, where temporary rehousing may be required for residents/workers in the vicinity of Bridge House due to the proximity of works. Also close measurement of nearby structures (and some structures in other areas) will help address any potential cosmetic or structural damage to buildings from vibration.

**Townscape / Landscape and Visual Effects**

Hawick is a gateway town from the lowland and upland valleys within the region, and has its own distinctive architecture, such as within the Conservation Area. The town is made up of a number of districts with their own characters, ranging from the medieval heart, broad nineteenth century High Street, employment land and residential areas dating from Victorian times to present day.

Sensitive construction site management will be required to minimise impacts on views and the townscape over the relatively long construction period and the approximately 6km extent of the works. Building such a large structure through the historic centre of the town along the riverside could have a major effect on key viewpoints and the character of the townscape, which will potentially negatively affect residents, visitors, businesses and footpath users throughout the town. The forthcoming detailed stage will inform the best approach to addressing such potential long term impacts and will consider the use of glass panels; wall finishes; stepped footpaths; widened pavements; the integration of artistic elements; the redesign of Little Haugh Park; and the nature and position of replacement vegetation.

Further recommended mitigation measures include removing existing walls; using consistent street furniture; providing linking footpaths along the river’s edge; improving access to the riverside and providing new seating zones and following best practice guidelines and recommendations to in relation to landscaping.

Although mitigation will reduce these negative changes, they cannot be fully avoided in several places, including key viewpoints (such as from James Thompson Bridge, Mart Street Bridge and Albert Bridge), residential areas (such as Teviot Crescent, Duke Street and Teviot Road), and recreation/visitor areas (such as Common Haugh, Little Haugh, and Buccleuch Park).
Water and Resilience to Climate Change

Impacts upon the water environment considered in the environmental assessment include impacts of flooding and the interactions of the area affected by the Scheme with hydrology, water quality, and hydrogeology. The River Teviot, Slitrig Water and groundwater bodies are considered to be of particular importance, and average peak flows are estimated to increase in the catchment in the future, increasing the number of flooding events without a flood protection scheme.

The main impacts on the water environment identified during the construction phase relate to potential sediment run-off during a flood event or heavy rainfall affecting water quality in the River Teviot, and pollution incidents affecting water quality of the River Teviot and groundwater bodies. These can be minimised through best working practices and monitoring of the watercourses and groundwater. Another key impact will be bringing in materials to build up the in-river working platforms, which will require careful planning to minimising risks of pollution or being washed away.

The creation of new flood defences can increase flow and levels in the river from channel narrowing and separate the channel from its floodplain. However within the Hawick FPS design, wherever it is possible these defences have been set back to allow continuity with the floodplain.

Geomorphology (changes in landform)

Impacts upon the fluvial geomorphology of the Teviot catchment considered in the environmental assessment include the interactions of water and sediment within the river channels and floodplains.

The proposed engineering works have the potential to change flow regimes, sediment transport patterns and channel morphology. Good working practices, minimising the extent of in-river working, and restoration of the river bed will minimise damage to the riverbank and channel beds, although there will still remain some increase in sediment from potential disturbance and scouring.

The nature of the proposed Scheme will result in long term changes to the flow and sediment dynamics. However the proposed Scheme has been designed to minimise the long term negative impact from fixing the channel position and reducing its connection with the floodplain by setting defences back from the channel where possible. As such it is considered highly unlikely that any of the proposed development will impact upon the Water Framework Directive status of any of the water bodies.

Regular monitoring during construction and post-construction of the affected waterbodies would highlight any unexpected geomorphological consequences of implementing the Scheme and allow these to be addressed. The later, third stage of SBC’s flood risk management strategy for Hawick includes Natural Flood Management measures and restoration in the upper catchment outside of this Scheme. If that proposed work is commissioned, it provides an opportunity to further compensate for the loss of natural bank, riverbed and reduced channel-floodplain connection.

Soils, Geology and Land Contamination

A review of the site history as well as an assessment of the chemical analysis results from intrusive site investigations has revealed that overall there is a low risk associated with land contamination at the site. However, there are a number of areas of made ground at the site and asbestos contamination, although the presence of asbestos is not considered widespread.

Consequently, care will be taken during the works and if any unexpected contaminated material is encountered during the construction works then this material should be treated separately and advice taken from taken from a contamination specialist. In particular, care will be taken when excavating near the former gas works as there is a potential for some contaminated groundwater in this area. If groundwater is to be removed from excavations it should be tested prior to being pumped out if necessary for licensed removal or discharge as agreed by SEPA.
In summary, if good working practices and the appropriate mitigation measures are implemented, the construction of the proposed Scheme poses only a low risk from ground conditions to construction workers, recreational users and the water environment.

**Archaeology and Cultural Heritage**

Hawick has its origins in medieval times, and was expanded by the development of the wool-milling industry and as a result has many cultural heritage assets and the potential for buried archaeology.

A key impact during construction is the potential for vibration impacts from piling to damage buildings at the Sandbed area including the Albert Bridge and other Listed Buildings. The level of potential damage is unknown and would not be fully mitigated through monitoring and historic building recording although should repair work be necessary, the results of historic building recording can be utilised to guide the necessary work. Further consultation with SBC Archaeology’s Advisor, landowners and the local heritage group will take place.

Another key impact is that proposed Scheme will affect the setting of the Conservation Area and Listed Buildings (especially at Sandbed and the historic buildings concentrated around the confluence of the Slitrig and Teviot) during construction works and from the presence of flood walls along the river in the long term. However, the design of the proposed FPS has incorporated measures to reduce the heights of the proposed flood defences as much as possible and the selection of wall cladding that complements the historic character of the area will help them to integrate into the local environment as much as possible. On the other hand, in the long term, the improved flood protection for the town will also support the preservation of historic assets within Hawick and retain the integrity of the historic townscape.

**Traffic and Transportation**

Construction of a large engineering project covering a large area within the centre of Hawick has the potential to affect the road network, access and local active travel movements.

There will be an increase in traffic within Hawick associated with the construction of the proposed Scheme, which will affect some areas more than others, but is unlikely to be significant at most locations. The temporary closure of Commercial Road will also lead to a temporary negative impacts at Princes Street and High Street.

The placement of working areas has been considered to minimise impacts on key parts of the road network, construction traffic will be directed to use particular routes (A7, A697 and A6088) as much as possible and substantial traffic and pedestrian management measures will be in place to minimise delays and optimise safety, in liaison with SBC officers and bus operators and local businesses. Careful planning will be made for the temporary river crossings closures needed to accommodate the construction works to minimise severance impacts on traffic, pedestrians and cyclists.

The forthcoming detailed design stage will consider the best practice guidance for alteration of the walking/cycling facilities as a result of the works, and presents an opportunity for delivering some path network improvements.
Next Steps

The ES is being submitted with other Scheme documents required under the Flood Risk Management Act to the consultative bodies and made available for comment by the public. Some other consent applications will also be made during this period.

The provisional dates for the next stages for delivering the proposed Scheme are set out below:

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<tr>
<th>Date</th>
<th>Activity</th>
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<tr>
<td>March 2017</td>
<td>Environmental Statement submitted</td>
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<tr>
<td>April 2017</td>
<td>Scheme published</td>
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<tr>
<td>August 2017</td>
<td>Scheme confirmed</td>
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<tr>
<td>September 2017</td>
<td>Deemed planning application submitted</td>
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<tr>
<td>October 2017</td>
<td>Deemed planning consent granted</td>
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<tr>
<td>February 2018</td>
<td>Enabling works start</td>
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<tr>
<td>July 2018</td>
<td>Detailed design completed</td>
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<tr>
<td>August 2018</td>
<td>Tender documentation completed</td>
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<td>September 2018</td>
<td>OJEU notice published</td>
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<tr>
<td>April 2019</td>
<td>Construction contract awarded</td>
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<tr>
<td>May 2019</td>
<td>Construction started</td>
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<tr>
<td>June 2021</td>
<td>Completion of Flood Protection Scheme</td>
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<tr>
<td>November 2021</td>
<td>Construction completion</td>
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For any queries about the proposed Hawick FPS, please contact the Project Manager:

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Feedback can also be submitted via the Hawick FPS website (www.hawickfloodscheme.com), which will also publish updates on the project’s progress through the subsequent stages.