



Sarah de la Coze
Principal Planner
Oxford City Council
St. Aldates Chambers
109-113 St. Aldates
Oxford, OX1 1DS

Electronic Submission

Colin Field
Town Planning Manager
Temple Point, Redcliffe Way
Bristol
BS1 6NL

07515 626 431
colin.field@networkrail.co.uk

23 September 2021

Dear Sarah,

**Application for Prior Approval – Part 18 of GPDO at Oxford Railway Station
21/02007/PA18
Response to Environment Agency**

Thank you for forwarding on the letter from the Environment Agency that you have received in relation to the above application (Ref: WA/2021/129257/01-L01 Dated: 24th August 2021).

Please find below our initial response to the points that they raise in their letter. For ease of reference the points raised by the Environment Agency are repeated below *in italics*. Further, more detailed technical information (as referred to below) will be provided directly to the Environment Agency.

Use of Prior Approval

In our opinion the use of Prior Approval - Part 18 of a GPDO is inappropriate for this application due to its impact on Botley Road residents and the scale of development proposed. We recommend that the Local Planning Authority refuse the Prior Approval and request that a full planning application be submitted.

We do not consider it appropriate for the Environment Agency to comment on the validity of the application mechanism.

Environment Agency Position

We object to the above application as the design of the building, bridge and road changes would injure the amenity of the neighbourhood and is reasonably capable of modification. Reason(s) The development as proposed poses an unacceptable risk of injure to the amenity of the neighbourhood by increasing the risk of flooding to the residents of Botley Road and additional road closures due to flooding. This increase in risk of flooding to surrounding areas is contrary to national planning policy.

We do not agree with this statement.

The FRA provided has shown that the proposed development does not cause an increase in flood risk to the residents of Botley Road. It does show that the Botley Road underbridge could flood today (via Cripsey Place, Cripsey Road and into Botley Road) with the same mechanism applying going forward for the same level of flood event. The FRA does show that in the Botley Road area the proposed development may lead to minor increases in the depth of flooding, due to the



City/County County spec for highway improvements. However, the proposed development includes for the provision of pedestrian and cycle routes adjacent to the Botley Road at a higher elevation than currently exists, which will in fact improve the amenity of the neighbourhood (during flood events) rather than injure it by improved safer, wider pedestrian and cyclist movements towards the city centre.

Climate Change Allowance

The proposal relates to railway infrastructure improvement works which under Table 2 of the PPG are deemed as essential infrastructure, with the works lying within Flood Zone 2 and 3.

Approximately 5 % of the application boundary is within Flood Zone 3, and approximately 20 % within Flood Zone 2.

It should be noted that the western entrance is a secondary entrance to the station. Although this would be closed in a significant flood event, the railway would remain fully operational and the main eastern side entrance would remain open, allowing the station to remain usable. As today the limiting factors on use of the station would be flooding of Botley Road from Cripsey Road (blocking pedestrian access from the west) and at a slightly higher level eventual flooding of Frideswide Square/Becket Street (blocking all other pedestrian access). The railway itself has in recent years had the track raised in the Hinksey South and Aristotle Lane areas to improve flood resilience. In a flood event in the city when certain key road routes are blocked by flooding the railway and station will remain open and provide a safe and reliable way to leave the city by train when car movement in some directions is not possible.

The Flood Risk Assessment (FRA) (Rev A01 June 2021) has considered the Higher Central (35%) and Upper End (70%) Climate Change Allowances. However, the application has applied the Upper end allowance (70%) for climate change as some of the elements have varying design lifetime (60-120 years according to the FRA). The climate change allowance guidance has now changed as of 20 July 2021, therefore for the 2080s epoch, the Upper End Allowance is no longer 70% but 84% and the Higher Central Allowance is no longer 35% but 41%. We would request that applicant make an assessment using the new allowances to assess the possible future flood risk for all elements of the scheme. We do not have an 84% allowance so extrapolation of the data would need to be undertaken to understand the potential. As detriment flood modelling has been undertaken to assess offsite impacts a re-run of the model with the higher allowance will be required.

We note the change in allowances as a result of the update to the guidance (Flood risk assessments: climate change allowances, Environment Agency, 27 July 2021). The guidance has also been updated to state that for essential infrastructure in flood zones 2, 3a or 3b, the higher central allowance should be used. This includes for consideration of safe access, escape routes and places of refuge. As such, the appropriate climate change allowance for the development based on the updated guidance is 41 %. The only use of the upper end allowance stated in the guidance is where a 'credible maximum scenario' needs to be assessed. This is required for Nationally Significant Infrastructure Projects (NSIP) or a 'new settlement' or 'significant urban extension'. This development is none of these things and therefore consideration of the upper end allowance is now considered unnecessary. The FRA is therefore conservative in its assessment of Climate Change, with a higher percentage change assessed than is now required.



Hydraulic modelling of the 1 % AEP event plus 35 % Climate Change Allowance was also undertaken as part of the assessment, although there was limited reporting of this within the FRA due to the guidance in place at the time of its completion. It can be seen from figures A14.6 (163390-JAC-SKE-EEN-140107IA01) and A14.7 (163390-JAC-SKE-EEN-140108IA01) that the change in flood extent due to the increase in Climate Change Allowance from 35 % to 70 % is minimal and there would be minimal difference in flood extent in the 1 % AEP event plus 41 % Climate Change Allowance from those scenarios already modelled. Flood depth varies more significantly between the 35 % and 70 % climate change scenarios, with increases in depth of up to 150mm in locations where water ponds such as the Botley Road underpass. There is no obvious change in flood mechanisms at any location within the Project between these events.

The change in Climate Change Allowance to be considered will make no difference to the mitigation measures proposed. The mechanism of flooding for the locations where mitigation is required is flood water flowing down into low lying areas and ponding until drainage infrastructure has capacity to clear it. An Emergency Plan will be put in place to ensure that the western entrance will be closed prior to any flooding occurring within the building footprint. The trigger for the Emergency Plan – assumed at this stage to be flood water flowing into Botley Road – is not dependent on modelling/specific climate change allowances.

Within the Project footprint, the change in flood depth between the 1 % AEP event for the 35 % and 70 % Climate Change Allowances is approximately 140mm (on flood depths of over 1m in both scenarios). Given this minimal difference, it is envisaged that design consideration of resilience measures shall assess the upper end allowance as a conservative approach.

It is therefore considered that the change in climate change guidance does not result in the need to reassess or remodel the development. Model runs for slightly lower and higher climate change allowances are available and provide sufficient information to assess the impact of the development, as well as allowing for a conservative approach to flood resilience measures to be taken.

We do not consider it necessary to provide a re-run of the model.

‘With scheme’ Modelling Grid resolution

The FRA has made an assessment of the flood risk, comparing ‘with scheme’ and ‘baseline’ to determine whether there is any potential flood risk implications to each of the elements (as shown in figures a14.9, a14.8, a14.7, a14.6, a14.5, a14.4, a14.14, a14.13, a14.11 and a14.10 on the LPA portal). In section 5.4.4 it states, “The Scheme is not shown to significantly increase flood risk elsewhere” and then in section 6.4.1 of the FRA it states the scheme “currently shows negligible increase in flood risk elsewhere, with an increases within model tolerance of 10mm”. The FRA provides the results of the modelling but no detail on the methodology. We would request a model summary or report to be submitted with this application to explain how the ‘with scheme’ modelling was undertaken.

A model summary report will be provided to the Environment Agency.

Due to the scale and nature of the development, we would request the ‘with scheme’ modelling files for review to ensure it is suitable for use within an FRA. As a model report and model files has



not been submitted we have not reviewed these. As such, we have been unable to fully assess whether the proposed development is adequately represented within the model.

Network Rail are happy to provide the modelling files to the Environment Agency. (Please find attached correspondence between the two parties regarding availability of pre-application reviews).

We are unable to identify whether the resolution of the model has been adjusted. A grid resolution within the 2D domain greater than 5 metres may be insufficient to robustly test offsite detriment. We would recommend the resolution be reduced to 5 metres or less if the model is being used for the purpose of testing offsite detriment.

The model resolution has been adjusted within the vicinity of the Project to a 4m grid and the results presented in the FRA are based on this. The changes made are explained in detail in the model summary report to be provided to the Environment Agency.

Built Footprint

The application includes the removal of some buildings (single storey railway buildings, Youth Hostel and removal of two small single storey commercial units between Cripsey Road and Roger Dudman Way) and the installation of a secondary station (western) entrance. The application needs to demonstrate whether there is a change in built footprint by showing what is being removed and what is being built. In the FRA there is no detail provided only stating in section 6.3.1 that the scheme “does not result in a loss of floodplain storage”. We assume there is an increase in built footprint proposed as detriment modelling runs have been undertaken to assess whether there is offsite detriment resulting from the proposed development. We would expect the applicant to confirm whether or not there is an increase in built footprint within the appropriate allowance for climate change and state the change.

The current footprint of the structures to be demolished is:

Structure to be demolished	Footprint (m ²)
YHA	725
BTP	267
GWR	423
Old Signal Box	228
FTN core node	30
Small commercial units on Cripsey Rd	100
Total	1773

The future footprint of the Project is:

Structure	Footprint (m ²)
Western entrance	793
Platform 5 and retaining wall	1200
Area lowered in from of western entrance and on Roger Dudman Way	-214
Total	1779



Therefore, the net increase in footprint would be $1779 - 1773 = 6\text{m}^2$.

Western Entrance of Railway Station

The location of the proposed new western entrance is within Flood Zone 3 based on our Flood Map for Planning. According to the information submitted in the FRA the baseline modelling shows the area is at risk of flooding up to and including the 1% Annual Exceedance Probability (AEP) plus 70% climate change allowance. We note that the western entrance siting is limited as it needs to be located near to the existing rail infrastructure. In section 3.4.8 and Table A3.3 within the FRA it shows that maximum flood depths for the western entrance would be up to 1.15m for a 1% AEP plus 70% climate change allowance flood, which is an increase of 0.6m when compared with the baseline modelling. We would recommend that the FRA assess with the latest climate change allowances and that the design of the building be considered further to reduce flood risk to users.

See response to earlier climate change allowance query.

It is proposed that there will be a subterranean underpass built to join the two halves of the station. This will be at significant risk of flooding and present a significant risk to users. An overpass would be more suitable and the design is reasonably capable of modification in this respect.

Optioneering work has considered both subway and footbridge (transfer deck) proposals for station pedestrian circulation. A footbridge would have many drawbacks including requiring relocation of most of the platform buildings to areas at the ends of the platforms where they are of less use to customers. The biggest issue is the amount of vertical travel required, which would be vastly greater for a footbridge.

Frideswide Square and the station forecourt are at 57.28m and the station platforms are at 60.60m. For a subway the customer would need to go down to 56.1m (which can be done with ramps/steps as it is less than 2m) and then back up to platform height. This is a vertical travel distance of 5.68m. For a footbridge the bridge walkway would need to be at 65.57m. This would give a vertical travel distance of 13.26m, which is 2½ times as far as for the subway. It would involve two lift journeys for persons with reduced mobility. In Network Rail's proposals the existing footbridge would still remain as a secondary circulation route around the station and therefore during a flood event this would be available for use if the subway had to be closed. It should be noted that prior to 1990 the station platforms were accessed via a previous subway (as the only circulation route).

Your statement that the underpass would 'present a significant risk to users' is not accepted. The intent would be to manage a flood event via an agreed Emergency Plan (as the comments below). This would ensure that the subway and western entrance would be closed to customers before flood water entered. If for any reason this did not happen flood water would enter gradually and rise over a period of time (as the wider streets water level gradually rose), allowing users time to exit. The maximum anticipated water depth would be 1.15m.

We note that the FRA has stated that options have been explored to prevent flooding such as raising floor levels and blocking flood flows with a barrier but these were considered not practical.



This is not completely true, as the level of the western entrance forecourt will be raised to reduce the flood event which will cause western entrance water ingress. The Cripsey Road east pavement and retaining wall have also been designed to ensure that flood water will initially flow down Cripsey Road into Botley Road and will not ingress to the western entrance external area until Botley Road has flooded to that depth.

The western entrance will be designed to be flood compatible after the waters have raised to a level such that it overtops the raised area on the western entrance forecourt.

However, it is not clear whether they have designed the western entrance to be floodable or not, to effectively make it flood compatible. Based on the visualisation plans (for example W1158C-IDM-DRG-EAR-000711 (Rev P01) (dated 19/07/2021)) submitted it suggests that only part of the building would allow flood waters to enter. Will this be sufficient to compensate for any increase in built footprint?

The western entrance will be designed to be flood compatible after the waters have raised to a level such that it overtops the raised area on the western entrance forecourt.

In the FRA the proposed mitigation is to have an emergency plan for the western entrance and that it will be closed in periods of significant flooding (Section 4.2.3). It is not clear who will be responsible for closing the western entrance – Network Rail or LLFA. It also does not state what triggers would be in place for closing the station such as when a flood alert or warning is issued or if depths reached a certain level. In addition, it is not clear whether the entrance will be allowed to flood or whether there would a barrier to ensure no public access to this entrance

In parallel with progressing the detailed design for the proposal, Network Rail will develop a detailed Emergency Plan (which will cover both the construction and operational phases of the development) to both the LLFA and the Environment Agency for agreement.

Network Rail will be responsible for closing the western entrance during a flood event (via GWR as station operator) and would do so when it is clear flood water is running down Cripsey Road into Botley Road.

Sheepwash Bridge

We note the Environment Agencies advice about the requirement for a Flood Risk Permit and as outlined in our prior approval we are fully aware of this requirement. In our submission letter we state, “separately to this submission to the Council and before the start of construction works other consents will be sought from the Environment Agency for the replacement of the Sheepwash bridge as the works are above a water course”.

As a comparison the recent prior approval for a project in Dawlish as part of our SW Rail Resilience Programme our enhanced sea wall included works to culvert part of the outflow of Dawlish Water (a river) into the sea and the Environment Agency raised no objection to siting and amenity of the works as part of the prior approval but included an advice note that a separate permit was required which was outside of the planning process. I have included a copy of that consultation letter with this letter.



Therefore, exactly in the same way as Dawlish Sea Wall this prior approval could be approved by the LPA in the full comfort that the EA will retain complete control of the technical design, abutment positions and queries of predicted flood level (which we have confirmed will be below the bridge soffit height) of the Sheepwash Bridge works. The construction of this bridge will not be able to be started until this Environmental Permit has been approved by the EA's technical experts. Once we have our build contractors on board who will be preparing detailed construction drawings and construction methodology we will engage with and submit a permit to the EA as it is the usual process for this to be completed post approval of planning consent.

Conclusion

This letter with input from our consulting flood engineers and internal project team fully addresses the technical queries and issues of concern that have been flagged up by the EA and overcomes their concerns about the amenities of the neighbourhood. We have outlined how this scheme will actually improve the amenities of the neighbourhood especially in regard to local residents using the new grade separated pedestrian and cycle path under Botley Road.

We will in the coming days submit the summary report and additional files the EA have requested in their letter directly to them. I have emailed them last night to confirm how they would like these documents transmitted to them. I have copied this letter directly to Kirsty Macpherson at the EA.

If you have any queries regarding the contents of this letter or require further information, please do not hesitate to contact me.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Colin Field', enclosed within a thin black rectangular border.

Colin Field MRTPI
Town Planning Manager
Wales and Western Region

Cc. Kirsty Macpherson, Planning Specialist, EA

Enc.

EA Consultation response for Dawlish Sea Wall including advice note.
Email from EA confirming they are unable to review modelling.
Western Entrance Flood Risk Memo and letter sent to the EA.