River Thames Scheme

Protecting our communities
Securing our economy
Enhancing our Thames

Preliminary Environmental Information Report

Volume 4
Appendix 11.3

Health Summary Tables for Likely Significant and Non-Significant Environmental Effects

Health Summary Tables

1 Potential Likely Significant Construction Effects

Table 1: Potential Likely Significant Construction Effects

Receptor Name	Project Component	Project Activity	Description of Effects	Secondary Mitigation
Residents, including vulnerable groups, along routes used to transport materials / waste.	Runnymede Channel; Spelthorne Channel; Temporary materials processing sites; Temporary wharfs (River Thames); Construction compounds; Temporary material storage sites.	Movement of construction vehicles, equipment and operatives (off site); Processing / placement of non-hazardous waste; Movement of construction vehicles, equipment and operatives (on site).	Negative Temporary (short-term) increased emissions and dust due to the transportation of construction materials and waste may exacerbate health risks including, but not limited to, asthma, and respiratory disease.	No secondary mitigation is identified as it is considered likely that the tertiary mitigation (standard construction practices, including an Air Quality Management Plan) will be sufficient at Environmental Statement (ES) stage. However, the tertiary mitigation is not sufficiently developed to assume its full achievement in this Preliminary Environmental Information Report (PEIR) preliminary assessment.. Hence this effect is currently assessed as likely to be significant.
Residents, businesses and visitors, including vulnerable groups, near site compounds, materials processing sites and excavated material storage.	All project components.	General construction activities (land); Sheet piling; Temporary changes in land levels; Temporary stockpiling of materials; Creation/use of construction compounds; Use of materials processing sites.	Negative Temporary (short-term) increased risk of flooding may cause or exacerbate health risks including, but not limited to, anxiety, physical injury and drowning.	No secondary mitigation is identified as it is considered likely that the primary and tertiary mitigation will be sufficient at ES stage. However, the primary and tertiary mitigation are not sufficiently developed to assume their full achievement in this PEIR preliminary assessment. Hence this effect is currently assessed as likely to be significant.
Residents, including vulnerable groups, near construction activities producing dust and particulate matter.	All project components; Runnymede Channel; Priority areas for habitat creation, enhancement or mitigation.	General construction activities (land); Movement of construction vehicles, equipment and operatives (off site); Movement of construction vehicles, equipment and operatives (on site); Material excavation (contaminated); Material excavation (natural ground); Temporary changes in land levels; Temporary changes in hard-standing; Habitat improvements and planting; Sheet piling	Negative Temporary (short-term) increased dust and particulate matter generated by construction activities may exacerbate health risks including, but not limited to, asthma, and respiratory disease.	No secondary mitigation is identified as it is considered likely that the tertiary mitigation (standard construction practices, including an Air Quality Management Plan) will be sufficient at ES stage. However, the tertiary mitigation is not sufficiently developed to assume its full achievement in this PEIR preliminary assessment. Hence this effect is currently assessed as likely to be significant.

Receptor Name	Project Component	Project Activity	Description of Effects	Secondary Mitigation
Residents, including vulnerable groups, near lakes and businesses operating on lakes.	Runnymede Channel; New blue open spaces; Spelthorne Channel.	General construction activities (water); Bed lowering; Dewatering / over-pumping of waterbodies	Negative Temporary (medium-term) changes at lakes in water quality and levels, hydromorphology, flow regime or sediment processes may cause or exacerbate health risks including, but not limited to, water-borne illness and other physical effects.	In addition to the identified tertiary mitigation (standard construction practices - Handling of Soils; Site Waste Management Plan (SWMP); Construction Surface Water Management Plan; Application of the Waste Hierarchy), water quality monitoring (during construction) and subsequent remedial activities where these are required.
Residents, including vulnerable groups, visiting waterbodies, and businesses on waterbodies.	All project components.	General construction activities (land); General construction activities (water); Movement of construction vehicles, equipment and operatives (off site); Bed lowering; Dewatering / over-pumping of waterbodies.	Negative Temporary (short-term) worsened amenity values at bodies of water due to construction activities may cause or exacerbate health risks including, but not limited to, anxiety due to limited access to open / blue space.	No secondary mitigation is identified as it is considered likely that the tertiary mitigation will be sufficient at ES stage. However, the tertiary mitigation is not sufficiently developed to assume its full achievement in this PEIR preliminary assessment. Hence this effect is currently assessed as likely to be significant.
Residents, including vulnerable groups, and workers travelling along construction vehicle routes.	All project components.	General construction activities (land); Movement of construction vehicles, equipment and operatives (off site).	Negative Temporary (short-term) increased traffic congestion from construction plant and vehicles on local roads may cause or exacerbate health risks including, but not limited to, stress and anxiety.	No secondary mitigation is identified as it is considered likely that the tertiary mitigation will be sufficient at ES stage. However, the tertiary mitigation is not sufficiently developed to assume its full achievement in this PEIR preliminary assessment. Hence this effect is currently assessed as likely to be significant.
Residents, including vulnerable groups, near lighting.	All project components	General construction activities (land); Movement of construction vehicles, equipment and operatives (off site).	Negative Temporary (short-term) light pollution from construction works may cause or exacerbate health risks including, but not limited to, sleep deprivation, fatigue, stress and blood pressure.	No secondary mitigation is identified as it is considered likely that the tertiary mitigation will be sufficient at ES stage. However, the tertiary mitigation is not sufficiently developed to assume its full achievement in this PEIR preliminary assessment. Hence this effect is currently assessed as likely to be significant.

Receptor Name	Project Component	Project Activity	Description of Effects	Secondary Mitigation
Residents, including vulnerable groups, and businesses using existing public open space.	Construction compounds; Priority areas for habitat creation, enhancement or mitigation.	Creation/use of construction compounds; General construction activities (land); Habitat improvements and planting; Use of materials processing sites.	Negative Temporary (short-term) closures or reduced access at open / green spaces may cause or exacerbate health risks including, but not limited to, anxiety due to limited access to open / green space and obesity due to limiting access to exercise.	No secondary mitigation is identified as it is considered likely that the tertiary mitigation will be sufficient at ES stage. However, the tertiary mitigation is not sufficiently developed to assume its full achievement in this PEIR preliminary assessment. Hence this effect is currently assessed as likely to be significant.
All receptors.	Off-site car parks for construction workers.	Establishment and use of off-site car parks including associated traffic movements.	Temporary (short-term) increase in off-site parking for workers and subsequent travel into the Study Area could have negative impacts on human health due to increased traffic congestion, air pollutants and noise.	No further mitigation identified The selection and design of these car parks is yet to be undertaken, at which point the need for and nature of any secondary mitigation will be considered.
Residents, including vulnerable groups, and businesses near construction activities.	All project components.	General construction activities (land); Movement of construction vehicles, equipment and operatives (on site); Movement of construction vehicles, equipment and operatives (off site); Creation/use of construction compounds; Use of materials processing sites.	Negative Temporary (short-term) airborne noise causing a disturbance to receptors near construction areas may cause or exacerbate health risks including, but not limited to, stress and quality of sleep.	Additional location specific best practicable means and/or receptor specific noise mitigation Site specific mitigation measures may include management techniques; physical mitigation such as barriers or noise insulation improvements; or monitoring.

2 Potential Likely Significant Operational Effects

Table 2: Potential Likely Significant Operational Effects

Receptor Name	Project Component	Project Activity	Description of Effects	Secondary Mitigation
Residents, including vulnerable groups, near lakes and businesses operating on lakes.	Runnymede Channel; New blue open spaces; Spelthorne Channel.	Existence of the flood channel and other components; Operation during flood events; Channel maintenance to restore design profile.	Negative Potential for permanent fluctuations at lakes in water quality and levels, hydromorphology, flow regime or sediment processes may cause or exacerbate health risks including, but not limited to, water-borne illness and other physical effects.	Water quality monitoring (during operation) and subsequent remedial activities where these are required Water quality monitoring will enable management of augmented flow to reduce the risk to human health from waterborne illness or other physical effects.
Residents, including vulnerable groups, and businesses near the River Thames.	All project components.	Operation during flood events; Existence of the flood channel and other components.	Positive Permanent decreased risk of flooding may remove or reduce health risks including, but not limited to, anxiety, physical injury and drowning.	No mitigation required as the effect is positive.
Residents, including vulnerable groups, and businesses along routes to / from new green, blue and landscaped spaces.	New blue open spaces; New green open spaces; New pedestrian / cycle bridges crossing River Thames at Chertsey and Desborough.	Landscape and Green Infrastructure (L&GI) provision; Operational traffic.	Negative Permanent increased traffic congestion from traffic on local roads may cause or exacerbate health risks including, but not limited to, stress and anxiety.	Junction / Highway Improvements Mitigation will be from transport improvements e.g. junction improvements and primary/tertiary mitigation, active travel improvements, Operational Travel Plan.
Residents, including vulnerable groups, and businesses using new open and landscaped spaces.	New blue open spaces; New green open spaces; New pedestrian / cycle bridges crossing River Thames at Chertsey and Desborough.	Use of publicly accessible areas.	Positive Permanent improved access to open and green space may remove or reduce health risks including, but not limited to, anxiety, inadequate physical activity and obesity.	No secondary mitigation required as the effect is positive.
Residents, including vulnerable groups, and businesses using new open and landscaped spaces.	New blue open spaces; New green open spaces; New pedestrian / cycle bridges crossing River Thames at Chertsey and Desborough; Areas of enhanced public connection.	L&GI provision; Use of publicly accessible areas.	Positive Permanent improved public access (e.g. footpaths and cycle ways) and provision of recreational facilities (e.g. moorings and visitor facilities) may remove or reduce health risks including, but not limited to, anxiety, inadequate physical activity and obesity.	No secondary mitigation required as the effect is positive.

Receptor Name	Project Component	Project Activity	Description of Effects	Secondary Mitigation
Residents, including vulnerable groups, and businesses using new open and landscaped spaces.	New blue open spaces; New green open spaces; New pedestrian / cycle bridges crossing River Thames at Chertsey and Desborough; Areas of enhanced public connection.	Use of publicly accessible areas.	Positive Potential permanent increased access, use and safety of amenity areas during times of flood may remove or reduce health risks including, but not limited to, anxiety, inadequate physical activity and obesity.	No secondary mitigation required as the effect is positive.
Residents, including vulnerable groups, and businesses near flood channels.	Runnymede Channel; Spelthorne Channel; Abbey Meads Floodway; Sunbury Weir; Molesey Weir; Teddington Weir; Abbey River watercourse improvements.	Existence of the flood channel and other components; Channel maintenance to restore design profile.	Negative A potential permanent inability to use lakes and flood channels from the introduction of River Thames water and potential pollution from maintenance could potentially cause or exacerbate health risks including, but not limited to, anxiety, inadequate physical activity and obesity.	Water quality monitoring (during operation) and subsequent remedial activities where these are required. In addition to primary and tertiary mitigation to reduce the risk to human health from disruption in access including management of augmented flow and stakeholder engagement.
Residents, including vulnerable groups, and businesses near flood channels.	Runnymede Channel; Spelthorne Channel; Abbey Meads Floodway; Sunbury Weir; Molesey Weir; Teddington Weir; Abbey River watercourse improvements.	Existence of the flood channel and other components; Channel maintenance to restore design profile.	Negative Poor water quality from permanent introduction of River Thames water to previously unconnected lakes, and pollution from maintenance activities, may cause or exacerbate health risks including, but not limited to, inadequate physical activity.	Water quality monitoring (during operation) and subsequent remedial activities where these are required In addition to primary and tertiary mitigation to reduce the risk to human health from disruption in access including management of augmented flow and stakeholder engagement.

3 Non-Significant Construction Effects

Table 3: Non-Significant Construction Effects

Receptor Name	Project Component	Project Activity	Description of Effects	Secondary Mitigation
Businesses and visitors along routes used to transport materials / waste.	Runnymede Channel; Spelthorne Channel; Temporary materials processing sites; Temporary wharfs (River Thames); Construction compounds; Temporary material storage sites.	Movement of construction vehicles, equipment and operatives (off site); Processing / placement of non-hazardous waste; Movement of construction vehicles, equipment and operatives (on site).	Negative Temporary (short-term) increased emissions and dust due to the transportation of construction materials and waste may exacerbate health risks including, but not limited to, asthma, and respiratory disease. Workers and visitors will be less susceptible given their more limited presence.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.
Residents, businesses and visitors near excavation activities.	Runnymede Channel; Temporary materials processing sites; Temporary material storage sites; Construction compounds.	Processing / placement of hazardous waste; Processing / placement of non-hazardous waste; Creation/use of construction compounds; Use of materials processing sites; Temporary changes in land levels; Use of excavated material on-site; Temporary stockpiling of materials.	Negative Temporary (short-term) poor air quality and odours caused by landfill gases / vapours may cause or exacerbate health risks including, but not limited to, asthma, and respiratory disease.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.
Businesses and visitors near lighting.	All project components.	General construction activities (land); Movement of construction vehicles, equipment and operatives (off site).	Negative Temporary (short-term) light pollution from construction works may cause or exacerbate health risks including, but not limited to, sleep deprivation, fatigue, stress and blood pressure. Workers and visitors will be less susceptible given their more limited presence.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.

Receptor Name	Project Component	Project Activity	Description of Effects	Secondary Mitigation
Residents, businesses and visitors whose access to existing active travel routes is impacted by construction activities.	All project components.	General construction activities (land); Movement of construction vehicles, equipment and operatives (off site).	Negative Temporary (short-term) closures of PRoW, cycling and equestrian routes may cause or exacerbate health risks including, but not limited to, anxiety due to limited access to open / green space, low mood from social isolation, and obesity due to limiting access to exercise. Workers and visitors will be less susceptible given their more limited presence.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.
Businesses and visitors near construction activities producing dust and particulate matter.	All project components; Runnymede Channel; Priority areas for habitat creation, enhancement or mitigation.	General construction activities (land); Movement of construction vehicles, equipment and operatives (off site); Movement of construction vehicles, equipment and operatives (on site); Material excavation (contaminated); Material excavation (natural ground); Temporary changes in land levels; Temporary changes in hard-standing; Habitat improvements and planting; Sheet piling.	Negative Temporary (short-term) increased dust and particulate matter generated by construction activities may exacerbate health risks including, but not limited to, asthma, and respiratory disease. Workers and visitors will be less susceptible given their more limited presence.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.
Visitors near construction activities.	All project components.	General construction activities (land); Movement of construction vehicles, equipment and operatives (on site); Movement of construction vehicles, equipment and operatives (off site); Creation/use of construction compounds; Use of materials processing sites.	Negative Temporary (short-term) airborne noise causing a disturbance to residential receptors near construction areas may cause or exacerbate health risks including, but not limited to, stress and quality of sleep. Visitors will be less susceptible given their more limited presence.	Additional location specific best practicable means and/or receptor specific noise mitigation.
Visitors near lakes.	Runnymede Channel; New blue open spaces; Spelthorne Channel.	General construction activities (water); Bed lowering; Dewatering / over-pumping of waterbodies.	Negative Temporary (medium-term) changes at lakes in water quality and levels, hydromorphology, flow regime or sediment processes may cause or exacerbate health risks including, but not limited to, water-borne illness and other physical effects. Visitors will be less susceptible given their more limited presence.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.

Receptor Name	Project Component	Project Activity	Description of Effects	Secondary Mitigation
Visitors to waterbodies.	All project components.	General construction activities (land); General construction activities (water); Movement of construction vehicles, equipment and operatives (off site); Bed lowering; Dewatering / over-pumping of waterbodies.	Negative Temporary (short-term) worsened amenity values at bodies of water due to construction activities may cause or exacerbate health risks including, but not limited to, anxiety due to limited access to open / blue space. Visitors will be less susceptible given their more limited presence.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.
Visitors travelling along construction vehicle routes.	All project components.	General construction activities (land); Movement of construction vehicles, equipment and operatives (off site).	Negative Temporary (short-term) increased traffic congestion from construction plant and vehicles on local roads may cause or exacerbate health risks including, but not limited to, stress and anxiety. Visitors will be less susceptible given their more limited presence.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.
Visitors using existing public open space.	Construction compounds; Priority areas for habitat creation, enhancement or mitigation.	Creation/use of construction compounds; General construction activities (land); Habitat improvements and planting; Use of materials processing sites.	Negative Closures or reduced access at open / green spaces may cause or exacerbate health risks including, but not limited to, anxiety due to limited access to open / green space and obesity due to limiting access to exercise. Visitors will be less susceptible given their more limited presence.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.
Workers undertaking earthworks and general construction activity.	Runnymede Channel; Spelthorne Channel; Abbey Meads Floodway.	Material excavation (contaminated); Material excavation (natural ground); Bed lowering; Sheet piling; Temporary stockpiling of materials.	Negative Temporary (short-term) increased exposure amongst construction workers to contaminated soils, leachate, ground gas or groundwater may cause or exacerbate health risks including, but not limited to, stomach disorders and other physical effects.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.

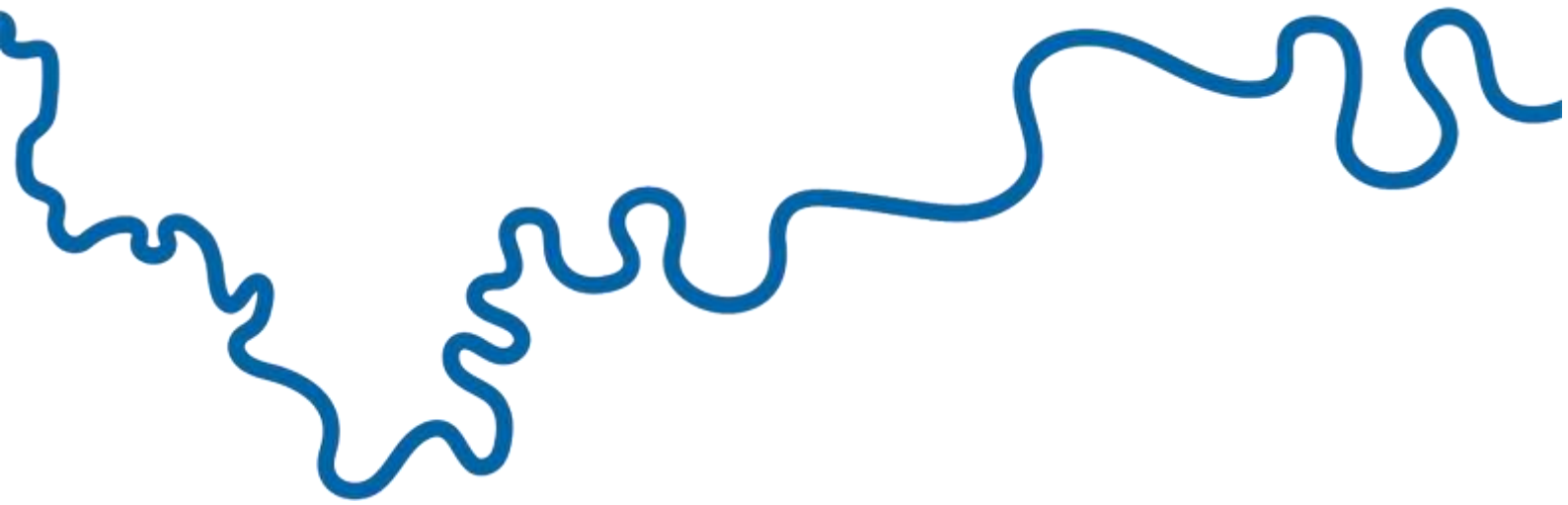
4 Non-Significant Operational Effects

Table 4: Non-Significant Operational Effects

Receptor Name	Project Component	Project Activity	Description of Effects	Secondary Mitigation
Residents, businesses and visitors near landfill areas or reused excavated material.	All project components.	Placed material on landfill areas.	Negative Permanent risk from the release of contaminants, ground gas and leachate into groundwater, surface water and other soils from landfill and excavated materials could potentially cause or exacerbate health risks including, but not limited to, stomach disorders and other physical effects.	Water quality monitoring (during operation) and subsequent remedial activities where these are required.
Visitors along routes to / from new green, blue and landscaped spaces.	New blue open spaces; New green open spaces; New pedestrian / cycle bridges crossing River Thames at Chertsey and Desborough.	L&GI provision; Operational traffic.	Negative Permanent increased traffic congestion from traffic on local roads may cause or exacerbate health risks including, but not limited to, stress and anxiety. Visitors will be less susceptible given their more limited presence.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.
Visitors near flood channels.	Runnymede Channel; Spelthorne Channel; Abbey Meads Floodway; Sunbury Weir; Molesey Weir; Teddington Weir; Abbey River watercourse improvements.	Existence of the flood channel and other components; Channel maintenance to restore design profile.	Negative Poor water quality from permanent introduction of River Thames water to previously unconnected lakes, and pollution from maintenance activities, may cause or exacerbate health risks including, but not limited to, inadequate physical activity. Visitors will be less susceptible given their more limited presence.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.

Receptor Name	Project Component	Project Activity	Description of Effects	Secondary Mitigation
Visitors near flood channels.	Runnymede Channel; Spelthorne Channel; Abbey Meads Floodway; Sunbury Weir; Molesey Weir; Teddington Weir; Abbey River watercourse improvements.	Existence of the flood channel and other components; Channel maintenance to restore design profile.	Negative A potential permanent inability to use lakes and flood channels from the introduction of River Thames water and potential pollution from maintenance could potentially cause or exacerbate health risks including, but not limited to, anxiety, inadequate physical activity and obesity. Given that visitors have alternative choices for recreational use of water bodies, the potential effects on human health will be negligible.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.
Visitors near lakes.	Runnymede Channel; New blue open spaces; Spelthorne Channel.	Existence of the flood channel and other components; Operation during flood events; Channel maintenance to restore design profile.	Negative Potential for permanent fluctuations at lakes in water quality and levels, hydromorphology, flow regime or sediment processes may cause or exacerbate health risks including, but not limited to, water-borne illness and other physical effects. Visitors will be less susceptible given their more limited presence.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.
Visitors near the River Thames.	All project components.	Operation during flood events; Existence of the flood channel and other components.	Positive Permanent decreased risk of flooding may remove or reduce health risks including, but not limited to, anxiety, physical injury and drowning.	No secondary mitigation required as the effect is positive.
Visitors using new open and landscaped spaces.	New blue open spaces; New green open spaces; New pedestrian / cycle bridges crossing River Thames at Chertsey and Desborough; Areas of enhanced public connection.	L&GI provision; Use of publicly accessible areas.	Positive Permanent improved public access (e.g. footpaths and cycle ways) and provision of recreational facilities (e.g. moorings and visitor facilities) may remove or reduce health risks including, but not limited to, anxiety, inadequate physical activity and obesity.	No secondary mitigation required as the effect is positive.

Receptor Name	Project Component	Project Activity	Description of Effects	Secondary Mitigation
Visitors using new open and landscaped spaces.	New blue open spaces; New green open spaces; New pedestrian / cycle bridges crossing River Thames at Chertsey and Desborough.	Use of publicly accessible areas.	Positive Permanent improved access to open and green space may remove or reduce health risks including, but not limited to, anxiety, inadequate physical activity and obesity.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.
Visitors using new open and landscaped spaces.	New blue open spaces; New green open spaces; New pedestrian / cycle bridges crossing River Thames at Chertsey and Desborough; Areas of enhanced public connection.	Use of publicly accessible areas.	Positive Potential permanent for increased access, use and safety of amenity areas during times of flood may remove or reduce health risks including, but not limited to, anxiety, inadequate physical activity and obesity.	The identified primary and tertiary mitigation is sufficient in reducing this effect so that it is not significant. No secondary mitigation is required.



SURREY COUNTY COUNCIL

Environment Agency

The River Thames Scheme represents a new landscape-based approach to creating healthier, more resilient and more sustainable communities by reducing the risk of flooding and creating high quality natural environments.

River Thames
Scheme