

Statement of Common Ground between Transport for London and the Environment Agency

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Silvertown Tunnel

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1.0	August 2016	First issue for comment to stakeholder
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Contents

1.	Introduction	5
1.1	Purpose of the document	5
1.2	Parties to this Statement of Common Ground	5
1.3	Structure of the Statement of Common Ground	5
1.4	The proposed scheme	5
1.5	Introduction to the Environment Agency	7
2.	Record of engagement undertaken.....	8
3.	Topics contained within this SoCG	13
3.1	Topics included in SoCG.....	13
4.	Matters agreed.....	14
4.1	Marine Ecology	14
4.2	Geology, Soils and Hydrogeology	19
4.3	Water Framework Directive Assessment	21
4.4	Materials and Waste	23
4.5	Surface Water Quality and Flood Risk	23
5.	Matters still under discussion and not yet agreed	25
5.1	Marine Ecology	25
5.2	Geology and Soils.....	26
5.3	Surface Water Quality and Flood Risk	26
5.4	Flood Risk Management	28
5.5	Protective Provisions.....	38
6.	Agreement	39

1. Introduction

1.1 Purpose of the document

1.1.1 This Statement of Common Ground (SoCG) is submitted to the Examining Authority in relation to the application by Transport for London (TfL) under section 37 of the Planning Act 2008 (the Act) for an order granting development consent for the construction of the Silvertown Tunnel (“the Scheme”).

1.1.2 The aim of this SoCG is to provide a clear record of the issues discussed and the current status of those discussions. The SoCG can be used as evidence of these discussions in representations to the Examining Authority as part of its examination of the DCO application.

1.2 Parties to this Statement of Common Ground

1.2.1 This Statement of Common Ground (SoCG) has been jointly prepared by TfL and the Environment Agency. It sets out matters which are agreed between both parties, as well as matters which are not agreed and matters which are under discussion.

1.3 Structure of the Statement of Common Ground

1.3.1 This SoCG comprises six sections:

Section 1 is an introduction to the SoCG and the Scheme;

Section 2 provides an overview of consultation to date between TfL and the Environment Agency;

Section 3 provides a summary of the main areas and topics covered by this SoCG;

Section 4 provides a list of matters agreed;

Section 5 provides a list of matters under discussion and not yet agreed;

1.4 The proposed scheme

1.4.1 The Scheme involves the construction of a twin bore road tunnel providing a new connection between the A102 Blackwall Tunnel Approach on Greenwich

Peninsula (Royal Borough of Greenwich) and the Tidal Basin roundabout junction on the A1020 Lower Lea Crossing/Silvertown Way (London Borough of Newham). The Silvertown Tunnel will be approximately 1.4km long and will be able to accommodate large vehicles including double-deck buses. It will include a dedicated bus, coach and goods vehicle lane, which will enable TfL to provide additional cross-river bus routes.

- 1.4.2 The Scheme also includes the introduction of free-flow user charging at both the Blackwall Tunnel (northern portal located in London Borough of Tower Hamlets) and the new Silvertown Tunnel. This measure will play a fundamental role in managing traffic demand and supporting the financing of the construction, maintenance and operation of the Silvertown Tunnel.
- 1.4.3 On the north side, the tunnel approach road connects to the Tidal Basin Roundabout, which will be altered to create a new signal-controlled roundabout linking the Silvertown Way, Dock Road and the Lower Lea Crossing. Dock Road will be realigned to accommodate the new tunnel and approach road. On the south side, the A102 will be widened to create new slip road links to the Silvertown Tunnel. A new flyover will be built to take southbound traffic exiting the Blackwall Tunnel over the northbound approach to the Silvertown Tunnel. The Scheme includes minor changes to Tunnel Avenue including the removal of the bus-only gate allowing access for all vehicles between Blackwall Lane and Ordnance Crescent. The Boord Street footbridge over the A102 will be replaced with a pedestrian and cycle bridge.
- 1.4.4 New portal buildings will be located close to each tunnel portal to house the plant and equipment necessary to operate the tunnel.
- 1.4.5 Main construction works could commence in late 2018 and will last approximately 4 years with the new tunnel opening in 2022/23. A Tunnel Boring Machine (TBM) will be used to bore the main tunnel sections under the river with shorter sections of cut and cover tunnel at either end linking the bored sections of the tunnel to the portals. The proposal is to erect and launch the TBM from specially constructed chambers at Silvertown and Greenwich Peninsula where the bored sections and cut and cover sections of the tunnel connect. The main construction worksite will be located at Silvertown, utilising the existing barge facilities at Thames Wharf along with a new temporary jetty for the removal of spoil and delivery of materials by river. A secondary worksite will be located adjacent to the alignment of the proposed cut and cover tunnel on the Greenwich Peninsula.

1.5 Introduction to the Environment Agency

1.5.1 The Environment Agency is an executive non-departmental public body, sponsored by the Department for Environment, Food and Rural Affairs. The Environment Agency works to create better places for people and wildlife, and support sustainable development. Within England the Environment Agency is responsible for:

- Regulating major industry and waste;
- Treatment of contaminated land;
- Water quality and resources;
- Fisheries;
- Inland river, estuary and harbour navigations; and
- Conservation and ecology.

1.5.2 The Environment Agency is also responsible for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea.

2. Record of engagement undertaken

2.1.1 A summary of the meetings and correspondence that has taken place between Transport for London and the Environment Agency in relation to the Scheme is outlined below.

Date	Form of correspondence	Key outcomes and points of discussion
24/07/14	Response letter to Scoping Report	Main points raised include: <ul style="list-style-type: none"> - Water environment (flood risk, climate change, surface water drainage, water quality) - Geology and soils, materials and waste, ecology and nature conservation.
09/04/15	Pre-application advice letter on the Reference Design Documents	Points of advice provided on: <ul style="list-style-type: none"> - Flood risk - Jetty options - Groundwater and contaminated land - Waste - Pollution prevention measures
21/04/2015	Meeting to discuss Draft Reference Design	Points of advice provided on: <ul style="list-style-type: none"> - Wharf arrangements - Flood defences - Drainage design parameters (climate change allowance)
12/06/15	Meeting to discuss the Flood Risk Assessment (FRA), Water Environment	Provides advice on the FRA including breach modelling and Flood Warning and Evacuation Plan (FWEP) as well as:

Silvertown Tunnel

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Date	Form of correspondence	Key outcomes and points of discussion
	Chapter of the Environmental Statement, and Flood Evacuation Plan.	<ul style="list-style-type: none"> - Surrendering permits - Flood defences (river wall survey)
08/09/15	Meeting	<p>Main points of discussion include:</p> <ul style="list-style-type: none"> - Flood defences (river wall survey feedback) - PEIR Chapter 16 Water Environment - Geology and soils (abstraction licences and water discharge)
11/09/15	Meeting	<p>Main point of discussion relates to in-river works (dredging, temporary jetty, lighting of the jetty, hydrodynamic modelling, marine surveys).</p>
17/09/15	Letter response providing comments on draft PEIR Chapter: Marine Ecology, Flood Risk and Water Quality, Geology and Soils	<p>Comments on the PEIR Chapters including:</p> <ul style="list-style-type: none"> - Marine Ecology (cumulative effects of dredging, installation and operation of the jetty, including lighting, removal of moorings, dredging) - Flood Risk and Water Environment (dewatering, groundwater level monitoring, water discharge) - Geology and Soils (risk assessment of dewatering and disturbance of ground water flow, ground water monitoring)
21/10/15	Meeting	<p>Discussion about condition of the river wall and a requirement to undertake an intrusive survey to better understand the condition of the wall.</p>
16/11/15	Meeting	<p>Main points of discussion relates to hydrogeology (dewatering, abstraction licences,</p>

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Date	Form of correspondence	Key outcomes and points of discussion
		discharge permits, groundwater monitoring).
23/11/15	Section 42 response letter to Statutory Consultation	<p>Comments on the PEIR covering issues including:</p> <ul style="list-style-type: none"> - Marine Ecology (impacts of dredging including cumulative effects, installation and operation of the jetty, including lighting, removal of moorings, Water Framework Directive Screening) - Geology and Soils (risk assessment of dewatering and disturbance of groundwater flow, groundwater monitoring) - Materials and Waste (Site Waste Management Plan) - Flood Risk and Water Environment (dewatering, water discharge, intrusive river wall survey)
15/12/15	Meeting	Main points of discussion relate to breach modelling results and drainage including climate change allowance and discharge rates.
04/02/16	TfL's response to the Environment Agency section 42 Consultation Letter	Provides response on the relevant PEIR chapters, timing of an intrusive river wall survey, and protective provisions.
08/02/16	Meeting	Main points of discussion relate to Chapter 12 Geology and Soils and in particular hydrogeology – dewatering, construction techniques, pile abstraction, groundwater monitoring.
07/04/16	Environment Agency response to	Main point of discussion relates to the breach

Silvertown Tunnel

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Date	Form of correspondence	Key outcomes and points of discussion
	TfL letter dated 4 th Feb 2016.	modelling results and the river wall.
08/04/16	Meeting	Main point of discussion relate to Materials and Waste (waste facilities), river wall works and the objectives of the intrusive survey as well as any protective provisions.
28/04/16	Consultation letter on pre-submission DCO documents	Comments and advice provided on the Environmental Statement including: <ul style="list-style-type: none"> - Marine ecology (dredging, lighting, survey results, WFD assessment, mitigation) - Flood Risk and Surface Water Quality (FRA, intrusive river wall survey) - Draft Protective Provisions
21/06/16	Meeting	Main point of discussion relate to the river wall condition survey and draft protective provisions.
30/08/16	Relevant Representation letter	Comments provided on: <ul style="list-style-type: none"> - Flood risk management (including river wall works to ensure flood defences are adequately safeguarded including monitoring) - Hydrodynamic modelling (potential levels of scour and impacts assessment on the flood defences) - WFD assessment (hydromorphology, water quality assessment) - Ground water protection and land contamination - Fisheries and biodiversity (impacts from

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Date	Form of correspondence	Key outcomes and points of discussion
		dredging, piling) - Waste and Materials - Protective provisions

2.1.2 Transport for London has aimed to address the points raised during consultation and will continue to work with the Environment Agency to resolve any outstanding matters to ensure the best environmental outcome for this project.

3. Topics contained within this SoCG

3.1 Topics included in SoCG

3.1.1 The following topics have been discussed with the Environment Agency

3.1.2 Matter agreed:

- Marine Ecology
- Geology, Soils and Hydrogeology
- Water Framework Directive Assessment
- Materials and Waste
- Surface Water Quality and Flood Risk

3.1.3 Matters still under discussion and not yet agreed

- Marine Ecology
- Geology and Soils
- Surface Water Quality and Flood Risk
- Flood Risk Management
- Protective Provisions

4. Matters agreed

Ref	Description of matter	Details of agreement	Record of agreement
4.1 Marine Ecology			
4.1.1	<p>Potential effects of relocation of existing moorings</p> <p>The Environment Agency commented that in the event any existing moorings or structures need to be moved to accommodate the jetty, the effects of this (even if temporary) must be included in the Environmental Statement. (s42 response 23 November 2015)</p>	<p>As set out in section 10.6 of Chapter 10 Marine Ecology (Document Reference 6.1), the removal of moorings may result in a negligible amount of sediment suspension with an overall significance of effect recorded as negligible.</p> <p>The conclusions of the assessment of the potential effects related to relocation of existing moorings, as undertaken in Chapter 10 Marine Ecology of the ES (Document Reference 6.1) are agreed.</p>	<p>Agreed (Email 13th December 2016)</p>
4.1.2	<p>Potential effects of dredging and mitigation</p> <p>The Environment Agency advised that potential impacts from dredging on marine sensitive receptors should be considered in</p>	<p>Revision 1 of the CoCP, updated and submitted at deadline 1 (REP1-119) has been amended to include restrictions on dredging.</p> <p>Paragraph 8.1.13 states 'Any planned (ie. non-emergency) dredging work must avoid the</p>	<p>Agreed in principle (Email 23rd January 2017)</p> <p>(EA considering whether the DML wording needs any specific reference to</p>

Silvertown Tunnel

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Ref	Description of matter	Details of agreement	Record of agreement
	<p>the Environmental Statement (s42 response 23 November 2015).</p> <p>Any planned (i.e. non-emergency) dredging work must avoid the period of June- August inclusive. (relevant representation letter 30th Aug 2016)</p>	<p>period of June-August inclusive’.</p> <p>It is agreed that the seasonal constraints as outlined within the COCP are appropriate and adequately mitigate any potential impacts on marine sensitive receptors as a result of the dredging.</p> <p>In addition, under the deemed marine licence, dredging would be considered a “licenced activity” and therefore EA could have the opportunity to comment as a consultee to the MMO if any concerns about a dredging activity arose.</p> <p>It is agreed that the mitigation outlined within the CoCP in relation to dredging are appropriate and adequately mitigate any potential impacts as a result of construction activity within marine environment.</p>	<p>the EA being a consultee to the MMO in these circumstances)</p>
4.1.3	<p>Potential effects of piling and mitigation</p>	<p>Version 1 of the COCP (updated and submitted at deadline 1) includes piling</p>	<p>Agreed (Phone call 25th January 2017)</p>

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Ref	Description of matter	Details of agreement	Record of agreement
	<p>The Environment Agency noted that the commitment to vibro piling techniques is not firm within the Construction Method Statement whereas the description of embedded mitigation in Chapter 10 Marine Ecology assumes percussive piling will only be used to achieve the final depth of piles.</p> <p>A piling method statement, which seeks to minimise the impact of piling on the migration and movement of fish in the River Thames should be secured as a requirement on the DCO. (relevant representations 30th August 2016)</p>	<p>restrictions in paragraph 8.1.1 including: ‘the use of soft start procedures during piling for a minimum of 20 minutes. Should piling cease for a period greater than 10 minutes the soft start procedure must be repeated;</p> <ul style="list-style-type: none"> • no piling between March and October to avoid fish migration periods percussive piling will be limited to November-March inclusive (unless otherwise agreed with the MMO, PLA and EA)’ <p>A construction method statement (which would include piling) is required by the Deemed Marine Licence and would be submitted to the Marine Management Organisation for approval prior to construction.</p> <p>It is agreed that the mitigation outlined within the CoCP in relation to marine piling are appropriate and adequately mitigate any potential impacts as a result of construction activity within marine environment.</p>	<p>EA consider that this point is now agreed in principle. Piling will be covered by the DML, and the EA will be a consultee on that. (EA considering whether the DML wording needs any specific reference to the EA being a consultee to the MMO in these circumstances)</p>

Silvertown Tunnel

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

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4.1.4	<p>Potential effects of light disturbance and mitigation</p> <p>The Environment Agency noted that the potential impact of light disturbance upon fish species and marine mammals is considered in Chapter 10 Marine Ecology (Document Reference 6.1). However noted this should be supported by clear information/drawings demonstrating the amount of lighting and how these will be arranged along the jetty (s42 response 23 November 2015).</p>	<p>As presented within paragraph 12.2.1 of the CoCP updated at Deadline 2 (REP2-027) and requirement 5(e) of the draft DCO updated at Deadline 2 (REP2-021) the Lighting Management Plan is to be prepared in consultation with the relevant planning authority and the Environment Agency.</p> <p>It is agreed that the mitigation outlined within the CoCP and draft DCO to consult EA on details of the Lighting Management Plan are appropriate and adequately mitigate any potential impacts as a result of temporary lighting on the marine environment during construction of the Scheme.</p>	Agreed (email 23 rd January 2017)
4.1.5	<p>Cumulative effects assessment</p> <p>The Environment Agency advised that the cumulative effects assessment should consider the Thames Tideway Scheme as there will be some overlap in the</p>	<p>As presented in Appendix 17.A Cumulative developments (Reference Number 6.3.17.1), the Thames Tideway Scheme has been included in the list of developments to be considered and assessment of any cumulative effects relating to marine ecology is included</p>	Agreed (Email 13 th December 2016)

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Ref	Description of matter	Details of agreement	Record of agreement
	<p>construction periods of the two projects (as noted in section 42 letter dated 23rd November 2015).</p>	<p>in section 10.7 of Chapter 10 Marine Ecology and Chapter 17 Cumulative and Synergistic Effects of the ES (Reference Number 6.1). The assessment findings conclude that cumulative effects associated with noise from increased navigational activities are considered to be negligible.</p> <p>It is agreed that the cumulative effects assessment and the conclusions reached within Chapter 10 Marine Ecology and Chapter 17 Cumulative and Synergistic Effects of the ES (Document Reference 6.1) are robust and reflect the advice provided by the Environment Agency.</p>	
4.1.6	<p>Water Framework Assessment (hydromorphology)</p> <p>The Environment Agency outlined that the assessment with regard to hydromorphology presented in the WFD assessment was found</p>	<p>It is agreed that the conclusions of the assessment with regard to hydromorphology, as undertaken in Appendix 10.A Water Framework Directive Assessment (Document Reference 6.3.10.1) are agreed.</p>	<p>Agreed (Email 13th December 2016)</p>

Ref	Description of matter	Details of agreement	Record of agreement
	accurate. (relevant representations 30 Aug 2016)		
4.2 Geology, Soils and Hydrogeology			
4.2.1	<p>Impacts from dewatering and mitigation</p> <p>The Environment Agency advised that potential quantitative impacts of dewatering on the aquifer and local licensed abstractions should be considered in the assessment. Another potential risk from dewatering to be considered is the induced movement of existing contamination in the groundwater and pollution of other areas (as noted in section 42 letter dated 23rd November 2015).</p>	<p>The concerns regarding dewatering and earthworks on land affected by contamination have been considered in detail in Chapter 12 Geology, Soils and Hydrogeology (Document Reference 6.1) including appropriate construction techniques to avoid any impacts from dewatering during construction. Quantitative assessment of potential impacts on aquifers and local abstractions will be assessed during the detailed design stage when more detailed information will be available. This is outlined within the CoCP and requirement 5 of the DCO which requires that a Groundwater Monitoring and Verification Plan be approved by the Environment Agency. A draft groundwater monitoring strategy has been submitted as Appendix F to the updated</p>	<p>Agreed (Email 23rd January 2017)</p> <p>EA consider this is agreed in principle, subject to agreeing the wording of the protective provision which relates to this. However, we are satisfied with the wording of requirement 5(3)(h)</p>

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Ref	Description of matter	Details of agreement	Record of agreement
		<p>CoCP at deadline 1 [REP1-119]</p> <p>It is agreed that the qualitative assessment of the risks associated with dewatering, as set out in Chapter 12 Geology, Soils and Hydrogeology (Document Reference 6.1), is as accurate and robust as possible and the level of assessment is appropriate for the stage of the project.</p>	
4.2.2	<p>Mitigation measures</p> <p>As noted in the meeting with the Environment Agency dated 16th November 2015, all drilling additives planned to be used on site should be fully disclosed to the Environment Agency to ensure that the substances are suitable in terms of preventing pollution of groundwater.</p>	<p>As set out in Chapter 9 of the CoCP (Document Reference 6.10), polymers used for the Tunnel Boring Machine operation will be bio-degradable and non-hazardous to the water environment.</p> <p>Agreement with the Environment Agency will be sought prior to their use and any licences obtained (where necessary).</p> <p>Discharges which contain polymers will be tested to show that they are bio-degradable and low risk to the water environment.</p>	Agreed (Email 13 th December 2016)

Silvertown Tunnel

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Ref	Description of matter	Details of agreement	Record of agreement
		It is agreed that the mitigation measures as set out within the CoCP (Document Reference 6.10) are appropriate and adequately mitigate any potential impacts geology and hydrogeology resulting from the Scheme.	
4.3 Water Framework Directive Assessment			
4.3.1	<p>Calculation of contribution of sediment to water column contaminant concentrations</p> <p>As outlined in the relevant representation letter dated 30th August 2016, further detail is required regarding the method of calculation used to assess the contribution of the sediment water column contaminant concentrations</p>	The Water Framework Assessment has been updated to provide further detail with regard to the method of calculation the contribution of the sediment water column contaminant concentrations and was submitted at deadline 1 (REP1-117).	Agreed (Email 23rd January 2017).

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Ref	Description of matter	Details of agreement	Record of agreement
4.3.2	<p>Evidence and further assessment</p> <p>As outlined in the relevant representation letter dated 30th August 2016, further assessment of Polycyclic Aromatic Hydrocarbon (PAH) compounds and Tributyltin (TBT) is required to determine the possibility of dredging generating an exceedance against the Environmental Quality Standards (EQS) in water.</p>	<p>The Water Framework Assessment has been updated and submitted at deadline 1 (REP1-117) to provide further assessment of Polycyclic Aromatic Hydrocarbon (PAH) compounds and Tributyltin (TBT).</p>	<p>Agreed (Email 13th December 2016)</p>
4.3.3	<p>CEFAS analyses</p> <p>As outlined in the relevant representation letter dated 30th August 2016, full CEFAS analyses should be included as an appendix in order to characterise the nature</p>	<p>Full CEFAS analyses are attached as an appendix to the updated WFD submitted at deadline 1 (REP1-117).</p>	<p>Agreed (Email 13th December 2016)</p>

Ref	Description of matter	Details of agreement	Record of agreement
	of the dredged material.		
4.4 Materials and Waste			
4.4.1	<p>Overall approach to assessment findings, and mitigation</p> <p>The overall assessment and findings of the likely effects of the Scheme. Proposed mitigation including the production of plans and strategies, and the conclusions reached within Chapter 13 Materials and Waste (Document Reference 6.1).</p>	<p>It is agreed that the overall assessment and findings of the likely effects of the Scheme and the conclusions reached within Chapter 13 Materials and Waste (Document Reference 6.1) are robust and reflect advice provided by the Environment Agency during the pre-application stage.</p> <p>It is agreed that the mitigation measures, plans and strategies as set out within the CoCP (Document Reference 6.10) are appropriate.</p> <p>EA accept they do not require to be a consultee on the Site Waste Management Plan document.</p>	Agreed (Email 13 th December 2016)
4.5 Surface Water Quality and Flood Risk			

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Ref	Description of matter	Details of agreement	Record of agreement
4.5.1	<p>River Wall Baseline Condition</p>	<p>It is agreed there is limited information available on the current condition of the flood defence held by the landowner and the EA. The EA has provided TfL with all relevant information which they hold (to their knowledge) on these defences.</p> <p>Subsequently TfL have begun to undertake a series of surveys to better secure reliable asset record data and condition assessment for the river wall (River Wall Structural Condition Survey dated July 2015 and Draft Silvertown River Walls – Dimensional Survey and Thickness Measurements dated September 2016)</p> <p>It is agreed the surveys undertaken by TfL reveal there are areas of the river wall in Silvertown which are in very poor condition.</p>	<p>Agreed (Email 13th December 2016)</p>

5. Matters still under discussion and not yet agreed

Ref	Description of stakeholder issue	Transport for London response	Current position	Record of discussions
5.1 Marine Ecology				
5.1.1	<p>Overall Approach to Mitigation</p> <p>Pre-application advice on the Reference Design Documents dated 9th April 2015 and the relevant representation letter dated 30th August 2016 contain mitigation measures suggested by the Environment Agency to be considered in the Environmental Statement including soft-start piling procedures,</p>	<p>As noted in section 10.5 ‘Scheme design and mitigation’ of Chapter 10 Marine Ecology (Document reference 6.1) and the CoCP, the measures suggested by the Environment Agency will be implemented throughout the construction, operation and demolition phase of the temporary jetty to avoid and minimise any effects on ecological receptors.</p>	<p>EA have some outstanding concerns relating to the construction activity associated with the NAABSA on marine ecology. TfL are working to address these concerns.</p>	

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Ref	Description of stakeholder issue	Transport for London response	Current position	Record of discussions
	timing of construction works and pollution prevention measures.			
5.2 Geology and Soils				
5.2.1	<p>Contaminated land</p> <p>EA requested a requirement to secure contamination investigation, remediation and validation as this is not currently included in the draft DCO.</p>	EA have provided TfL with suggested wording of a requirement regarding ground investigation, remediation and validation. TfL are considering this wording in updates to the dDCO.	Discussions between TfL and the EA on wording within the DCO are ongoing.	
5.3 Surface Water Quality and Flood Risk				
5.3.1	Flood Risk	It is agreed that, in principle, the FRA methodology and	Discussions between TFL and the EA are	Ongoing – need to agree wording of PPs and any

Silvertown Tunnel

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

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	<p>Assessment</p> <p>As noted in the meetings with the Environment Agency dated 12th June 2015 and 15th December 2015, breach locations and breach modelling results were agreed and the Environment Agency generally agree with the flood risk assessment (FRA) methodology and findings.</p>	<p>findings of the likely effects of the Scheme and the conclusions reached within Chapter 16 Surface Water Quality and Flood Risk of the ES (Document Reference 6.1) are robust and reflect advice provided by the Environment Agency during the pre-application stage.</p>	<p>ongoing, particularly in relation to the protective provisions around the river wall.</p>	<p>other requirements we believe are necessary</p>
5.3.2	<p>River Wall Responsibility</p>	<p>Under legislation specific to the London area, the riparian owner is responsible for maintaining and repairing the flood defence on their respective properties.</p>	<p>Discussions between TFL and the EA are ongoing</p> <p>EA note it is common practice, in London specifically, for the EA</p>	

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Ref	Description of stakeholder issue	Transport for London response	Current position	Record of discussions
		<p>The Environment Agency has the power to enforce riparian owners to carry out their legal obligations and also have powers to maintain or construct new works on main rivers to manage flood risk.</p>	<p>to request developers to invest in improvements of the flood defences, to demonstrate that the defences will be fit for purpose for the lifetime of the development</p>	
<p>5.4 Flood Risk Management</p>				
<p>5.4.1</p>	<p>Flood defences (River wall surveys)</p> <p>As outlined in the section 42 statutory consultation response (dated 23rd November 2015) and letter dated 7th April 2016, an intrusive survey</p>	<p>Paragraph 49 (1), (b) and (c) of Schedule 13, Part 5 of the Development Consent Order (Document Reference 3.1) ensures that prior to construction TfL must submit for the approval of the Environment Agency the results of an intrusive survey</p>	<p>Discussions between TFL and the EA are ongoing.</p> <p>TfL are currently drafting a report to demonstrate concepts and costs for future</p>	

Silvertown Tunnel

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Ref	Description of stakeholder issue	Transport for London response	Current position	Record of discussions
	<p>will be required to identify the current state and residual life of the river walls within the red line boundary to determine the potential ability of the river walls to withstand foreseeable construction activities; and to identify whether the scheme would affect the feasibility of future raising of the river walls to TE2100 levels (6.2m AOD).</p>	<p>and demonstrate that the works will not prevent the river wall being raised to TE2100 levels in the future.</p> <p>Following the guidance provided by the Environment Agency in s.42 letter dated 23rd November 2015 (Attachment 1), the objectives, timings, scope and methodology of the intrusive river surveys were discussed and agreed with the Environment Agency in a meeting on 21st June 2016.</p>	<p>raising of the wall post construction of the tunnel.</p>	
5.4.2	<p>Construction impacts on the flood defences</p>	<p>Paragraph 49 (1), (b) and (c) of Schedule 13, Part 5 of the Development Consent Order</p>	<p>An intrusive survey of the river wall is currently being</p>	<p>Discussions between EA and</p>

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

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	<p>As noted in the relevant representation letter dated 30th August 2016, following the completion of the intrusive river wall survey, TfL will need to provide evidence that construction activities will not have an impact on the structural integrity of the defences</p>	<p>(Document Reference 3.1) ensures that prior to construction TfL must submit for the approval of the Environment Agency the results of an intrusive survey and demonstrate that the works will not prevent the river wall being raised to TE2100 levels in the future.</p> <p>Should there be any damage to the river walls during the construction process, the Contactor will be obligated to repair it to its pre-existing condition by virtue of the protective provisions contained in the draft DCO for the benefit of the Environment Agency.</p>	<p>undertaken by TfL. Following completion of the survey, a report will present the results and inform any monitoring and mitigation required during the construction period to ensure the structural integrity of the flood defence.</p> <p>Regular discussions have been held with the Environment Agency to discuss the methodology and interim results of the surveys undertaken to date.</p> <p>Comments on the</p>	<p>TfL are ongoing.</p>

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			<p>protective provisions have been received from the EA (including provisions relating to condition survey, monitoring and mitigation plans to be required). TfL are currently considering the provisions.</p>	
5.4.3	<p>Monitoring of flood defences</p> <p>The Environment Agency noted that the Monitoring and Settlement Plan should include the river wall as an asset and commit to monitoring the flood defences and delivering</p>	<p>The draft DCO (Document Reference: 3.1) requires that any works carried out under the DCO within 16m of the banks of the River Thames or River Lea, or which might affect flood defences require the prior approval of the Environment Agency, which may be given subject to</p>	<p>Discussions between TFL and the EA are ongoing.</p> <p>The EA have recently put forward a revised version of protective provisions which includes the addition of requirements for structural condition</p>	<p>EA's WR requested a clause in the PPs requiring monitoring during construction. Note: TfL will need a baseline – so monitoring will likely need to begin ASAP to make this possible.</p>

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Ref	Description of stakeholder issue	Transport for London response	Current position	Record of discussions
	<p>a mitigation plan if required (as noted in relevant representations letter dated 30th August 2016)</p>	<p>requirements for the protection of water resources and the prevention of flooding.</p>	<p>surveys, a monitoring plan and mitigation plan with respect of the flood defence.</p> <p>TfL are currently considering the protective provisions and will incorporate them into the next draft of the dDCO.</p>	
<p>5.4.4</p>	<p>Use of NAABSA</p> <p>In their Written Representation letter (dated 15th November 2016) the EA requested further information on the proposed use of the NAABSA berth noting that the activities may</p>	<p>The Applicant is committed to transport a minimum of 55% by weight of all construction materials by river. Paragraph 4.4.48 of the Construction Methodology Statement (CMS) [APP – 046] envisages that the NAABSA berth will be used to unload predominantly: aggregates, crushed stone</p>	<p>The EA have queried the impact the NAABSA works would have on Marine Ecology, TfL are currently working to address these comments.</p> <p>In addition, the EA is</p>	

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	<p>not have the same loadings on the flood defence as the current activities. The EA note that evidence should be provided to ensure activities including dredging to level the berth should be assessed to inform any mitigation requirements.</p>	<p>and granular sub base. The berth may also be used by long reach excavator/crane to offload stockpiled tunnel arisings to waiting Thames Barges.</p> <p>The river bed in front of the NAABSA berth will be levelled to create a uniform surface to allow barges to sit on the river bed at low tide. This work will involve excavating 0.5m to 1.0m of river bed and replacing with crushed stone. The crushed stone layer will not only create a uniform bed, but will help to protect against river bed erosion from the increased movement of barges, and also create a</p>	<p>not yet satisfied with the assumption that similar levels of stability will be provided to current wall usage.</p> <p>EA's position is that TfL need to demonstrate the wall can withstand the proposed activities <i>against a recognised design code</i> (such as Euro Codes).</p> <p>At present, there is no information to suggest that the wall is sufficiently strong to support current activities under all</p>	

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

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		<p>stabilising effect of the soil in front of (or on the ‘passive’ side of) the river walls.</p> <p>The Applicant in assessing river wall stability has used various numerical analysis code to assess the structural capacity of the river wall under existing usage, and future operations associated with the Scheme. An additional visual survey and recording of sheet piled river walls thicknesses was commissioned in September 2016 by the Applicant. The information acquired from this survey has been used to assess further the condition of river walls and apply the</p>	<p>relevant loading conditions. It is therefore important that results are quantified against a design code, rather than the existing assumed case.</p> <p>Through these calculations TfL will be able to define the maximum allowable loading in these various areas. We consider it should be possible to do these calculations with a reasonable level of confidence based on the information that</p>	

Silvertown Tunnel

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

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		<p>corrosion rates of the steel sheet piles used in the analyses.</p> <p>Results of the Applicant's river wall analyses allowing for both (conservative) loading within the 10m rear wall (exclusion) zone in addition to construction material surcharge, and with a 0.5m reduction in river bed level, provide similar levels of stability to the current wall usage.</p> <p>The protective provisions contained in Schedule 13 to the DCO will provide the EA control over construction activity near the river wall – similar assessments</p>	<p>TfL already has.</p> <p>In the event that loading restrictions are necessary which would impede the proposed activities, it may be necessary for the applicant to carry out works to strengthen the wall.</p>	

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

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		<p>supporting the Contactor’s works proposals for EA approval will be undertaken prior to construction of the Scheme, alongside the results of intrusive survey in respect of the river wall. The approval rights will allow EA to ensure that use of the NAABSA will not adversely affect the integrity of the river wall or the EA’s ability to access it.</p>		
	<p>Hydrodynamic modelling</p> <p>As noted in the relevant representation letter dated 30th August 2016, the Hydrodynamic Modelling of the temporary jetty suggests</p>	<p>A detailed assessment of jetty pile scour in the nearshore has been prepared and submitted to the Environment Agency for review.</p>	<p>Discussions between TFL and the EA are ongoing.</p> <p>TfL reissued the Jetty Scour note following incorporation of comments from the EA. A copy was sent</p>	

Silvertown Tunnel

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

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	<p>the potential levels of scour and accretion are not such that they necessitate impact assessment on the flood defences. The foreshore and riverbed level changes predicted between 0.5-0.8m in relation to the existing levels could have a destabilising impact on existing structures, especially if the current condition and structural integrity are taken into account. These findings should be incorporated into the impact assessment, and followed up by</p>		<p>to EA on 19th January 2017 and also submitted to the examination at Deadline 3.</p> <p>EA reviewed the updated report and replied to TfL with comments outlining some outstanding concerns on 26th January 2017.</p>	

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

Ref	Description of stakeholder issue	Transport for London response	Current position	Record of discussions
	appropriate monitoring and mitigation plans. (Relevant Representations letter dated 30 th August 2016)			
5.5 Protective Provisions				
5.5.1	<p>Conditions included in the protective provisions</p> <p>Agreement of protective provisions within the Development Consent Order</p>	<p>TfL and the Environment Agency have discussed the protective provisions and received comments from the EA on 9th January 2017. TfL are considering these comments and continue to discuss with EA with the aim of coming to an agreement.</p>	<p>Discussions between TfL and the EA are ongoing</p>	

Silvertown Tunnel

Statement of Common Ground between Transport for London and the Environment Agency

SOCG Reference: SoCG005

6. Agreement

Signed	
Name	
Position	
Company	Transport for London
Date	
Signed	
Name	
Position	
Company	Environment Agency
Date	