

TECHNICAL NOTE

Job Name: Ebbsfleet Riverside
Job No: 46600/4001
Note No: TN002
Date: 08 July 2021
Prepared By: M Grabowiecka
Subject: Northfleet Mixed Use Development -Robins Creek Hydraulic Modelling

1. Introduction

Stantec UK (Stantec) has been appointed by Bellway Homes to assess the potential capacity for Robins Creek to accommodate additional surface water flow from the proposed Bellway residential site. The surface water modelling has been provided by RLT Engineering Consultants Ltd.

The Technical Note 001 (June 2020) covered Baseline and Post Development model development.

This Technical Note 002 is intended to address comments received from the Environment Agency in May 2021 on Flood Risk and Flood Modelling.

2. Summary of Environment Agency comments - May 2021

In May 2021 Stantec has received comments from the Environment Agency (**Appendix A**) mainly related to Flood Risk and Flood Modelling. Key items have been summarised below:

Flood Risk:

- The freeboard of 400mm for Robin's Creek should be revised and explanation should be included in the report how the value has been arrived at;*
- The peak modelled water levels should be considered, and explanation provided on how the spill level at Robin's Creek and upstream has been assessed;*
- As mentioned by the Environment Agency, the Southern Water sewer joining the 'long culvert' at the roundabout at the junction of Stonebridge Road, Thames Road and Grove Road to the south of Robin's Creek has potential for an increase of water levels to increase surface water flooding should be considered; and,*
- The report needs to demonstrate that the proposal to discharge the surface water into Robin's Creek will not increase flood risk over the 100-year lifetime of the mixed development;*

DOCUMENT ISSUE RECORD

Technical Note No	Rev	Date	Prepared	Checked	Reviewed (Discipline Lead)	Approved (Project Director)
46600/4001/TN001	-	29.06.2020	MG	AH	AH	AH
46600/4001/TN002	-	08.07.2021	MG	AH	AH	AH

This report has been prepared by Stantec UK Limited ('Stantec') on behalf of its client to whom this report is addressed ('Client') in connection with the project described in this report and takes into account the Client's particular instructions and requirements. This report was prepared in accordance with the professional services appointment under which Stantec was appointed by its Client. This report is not intended for and should not be relied on by any third party (i.e. parties other than the Client). Stantec accepts no duty or responsibility (including in negligence) to any party other than the Client and disclaims all liability of any nature whatsoever to any such party in respect of this report.

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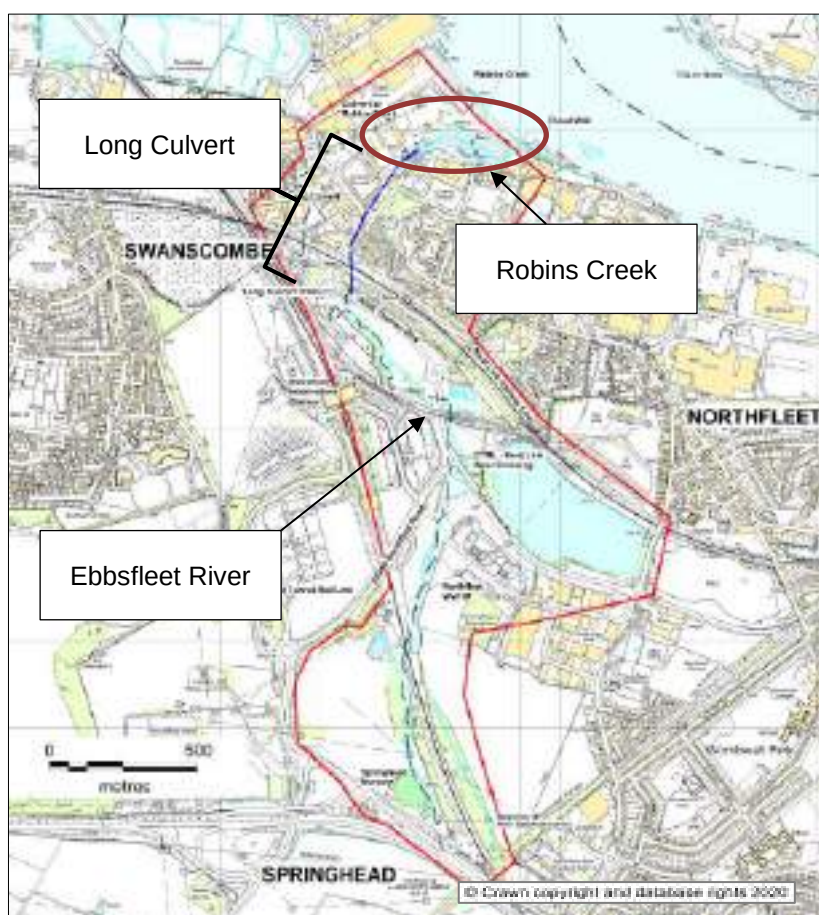
Flood Modelling:

5. *A fluvial event could occur during a high tide causing tidal locking. Whilst this will be offset by storage afforded by Robin's Creek, under such scenario flood extents and depths could be more significant to those predicted in the updated baseline model runs. This comment should be addressed by better representation of climate change inducted sea level rise over the next 100yr.*
6. *The timing of the high tide should be optimised with the timing of the fluvial flood wave to assess the maximum water level that would be achieved in Robin's Creek and the resultant backwater effect that would propagate upstream.*

3. Background

The Environment Agency (EA) Flood Map Improvement: Ebbsfleet March 2015 hydraulic model (EA 2015 hydraulic model) obtained in May 2020 comprises the reach of the River Ebbsfleet between the emergence of the watercourse channel at Springhead, located at National Grid Reference (NGR) TQ6178372559, and the confluence of the watercourse with the River Thames beyond the northern edge of Robins Creek (NGR Q6197074941). See **Figure 1** for details.

Figure 1 Environment Agency Flood Map Improvement: Ebbsfleet March 2015 hydraulic model (EA 2015 hydraulic model)



This model has been reviewed and it is acceptable for use in this assessment. The model has been updated with new fluvial climate change allowances 25%, 35% and 70% in August 2017 (EA 2017 hydraulic model).

No joint probability analysis or consideration of the timing of tidal peaks has been undertaken within the EA 2015 hydraulic model. The Highest Astronomical Tide (HAT) for the River Thames at Robins Creek was

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used for the downstream boundary for all climate change runs. A HAT event represents the highest tide level which can be predicted to occur under average meteorological conditions. The peak level on this tide curve is 3.98m AOD.

4. Stantec 2020 Updated Baseline and Post Development

In May 2020 Stantec updated the EA 2015 hydraulic model to incorporate local details as appropriate for site specific assessment (version of the model called BA_002).

Details of Baseline updates are described in the Technical Note 001 (May 2020, **Appendix B**) with short summary below:

- Topographic survey undertaken in March 2019, June 2019 and March 2020 (rev C) by Hook Survey Partnership has been incorporated into the model. The survey was supplied in form of 3D points which were processed, and a ground model has been created;
- No changes to the 2D domain were made except for amending head-exchange line and bank line in some places along the Robins Creek to be consistent with the topographical survey;
- As per the EA 2015 hydraulic model, the Highest Astronomical Tide (HAT) for the River Thames at Robins Creek was used for the downstream boundary to preserve consistency;
- For consistency the Updated Baseline 2020 hydraulic model has been run with ISIS version 3.7 and TUFLOW version 2013-12-AD-iSP-w64;
- The updated baseline 2020 was run for 1% annual probability plus higher central (35%) and upper end climate change (70%) allowances. Models were run for 38 hours, a time period considered long enough to ensure the peak flood level had been reached throughout the extent of the model

Updated Baseline 2020 hydraulic model results indicate that in comparison to the 2017 EA hydraulic model results, the changes in water level across the whole length of the model are negligible and such, updated baseline was considered appropriate to be used for the post development model.

The Updated Baseline 2020 mode has been used as a basis for the Post Development model, with summary below:

- The outflow from the proposed development was included in the 1D domain as a lateral inflow. Outflows from the proposed surface water drainage strategy were exported from a MicroDrainage network file provided by RLT Engineering Consultants on 04 June 2020;
- The existing EA hydrological inflows were not amended to account for this drainage sub-catchment. This approach is conservative, and this development area is effectively 'double counted' within the model.

Two versions of Post-development model were developed PD_100 (MicroDrainage inflow at time 0) and PD_200 (MicroDrainage inflow coinciding with the high tide at time 20.197h) details of which are described in Technical Note 001 in **Appendix B**.

Following the EA review, Bellway Homes supplied additional survey for the Cement Works location "6992-Cement Works_NORTHFLEET_LEVEL SURVEY_REV L.pdf" included in **Appendix C**. This survey was used to update the representation of the Robins Creek wall. See **Figure 2** for Robins Creek Wall location. The model has been re-run with a bank line updated, consequently with naming altered. See **Table 1** for details. No other changes have been applied to the model.

Table 1 Baseline and Post Development Hydraulic Models from July 2021 naming

Model version June 2020	Model version June 2021
BA_001	BA_002
PD_100	PD_101
PD_200	PD_201

Despite the changes in the levels on the wall, the peak water levels did not change for any modelled event, therefore, the discussion in note TN001 is still valid (see **Appendix B**), with short summary included below.

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PD_101

Examination of the long section water levels compared to baseline confirmed, that for PD_100 version for all simulated annual probability events, there is negligible impact on water levels upstream of the Robins Creek. Within Robins Creek there is a maximum water level increase of 0.01m at the peak for both climate change scenarios. There is no increase in the flood extents.

The inflow included at time 0 changed the hydrograph shape at the beginning adding extra volume at the Robins Creek with no overall changes to the hydrograph shape at the peak water levels.

PD_201

When the surface water inflow is timed, as a conservative approach, to coincide with the peak of the tide, during the 1% including 35% climate change allowance, water levels compared to baseline results confirmed negligible impact on water levels upstream of the Robins Creek. Within Robins Creek there is a maximum water level increase of 0.04m at the peak with no changes in the flood extents.

In the 1% annual probability event with 70% climate change, 0.01m water level increase is seen upstream of the Robins Creek in the long culvert, up to the culvert half-length with no influence on water levels upstream of the culvert. The increase is noted only for a short section of the long culvert with no influence on flood extents upstream of the culvert. For the Robins Creek water level increases are up to 0.07m with no changes in the flood extents.

By adding the inflow at the peak water level, the hydrograph shape has changed insignificantly increasing volume and water levels at the peak within the Robins Creek.

See **Table 2** for water level differences between Post Development models and Baseline at Robins Creek. Table for the whole model and flood extent maps are included in **Appendix D**.

Table 2 PD_101 and PD_201 maximum water level increases at Robins Creek compared to BA_002

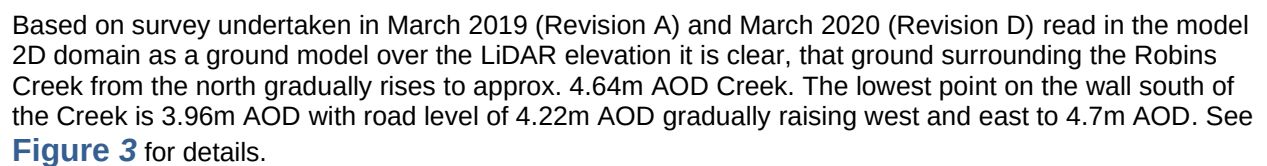
Hydraulic models	100CC35	100CC70
	[m]	[m]
PD_101	0.01	0.01
PD_201	0.04	0.07

5. Response to EA Comments

Flood Risk:

- The freeboard of 400mm for Robin's Creek should be revised and explanation should be included in the report how the value has been arrived at?*

Based on the Post Development models analysis, the maximum water level of 2.7m at the Creek occurs at 1% annual probability event with 70% climate change increase scenario PD_202. For 1% annual probability event with 35% climate change increase the maximum water level is at 2.62m AOD. Bank levels for the Creek as indicated on the **Figure 2** are higher, with the lowest bank point of 3.1m AOD north of the Creek. This indicates, that by adding additional outflow from proposed development, there is negligible impact in flood risk at the Creek and the freeboard of 0.48m (3.1m AOD – 2.62m AOD = 0.48m) for 1% annual probability event with 35% climate change increase and freeboard of 0.4m (3.1m AOD – 2.7m AOD = 0.40m) for 1% annual probability event with 70% climate change increase is maintained.



4.85m AOD

4.70m AOD

4.64m AOD

4.85m AOD

4.22m AOD

3.96m AOD

Wharf

Robins

THE CRANE

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Figure 5 Long Culvert long section – max WL 1% annual probability event with 35% climate change and 70% climate change increase (blue – baseline, red – PD_101, green – PD_201)

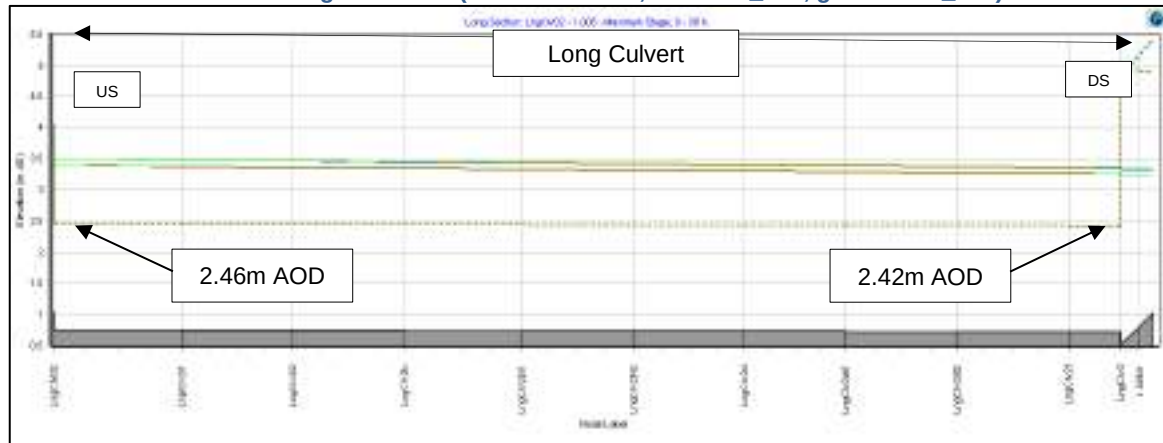
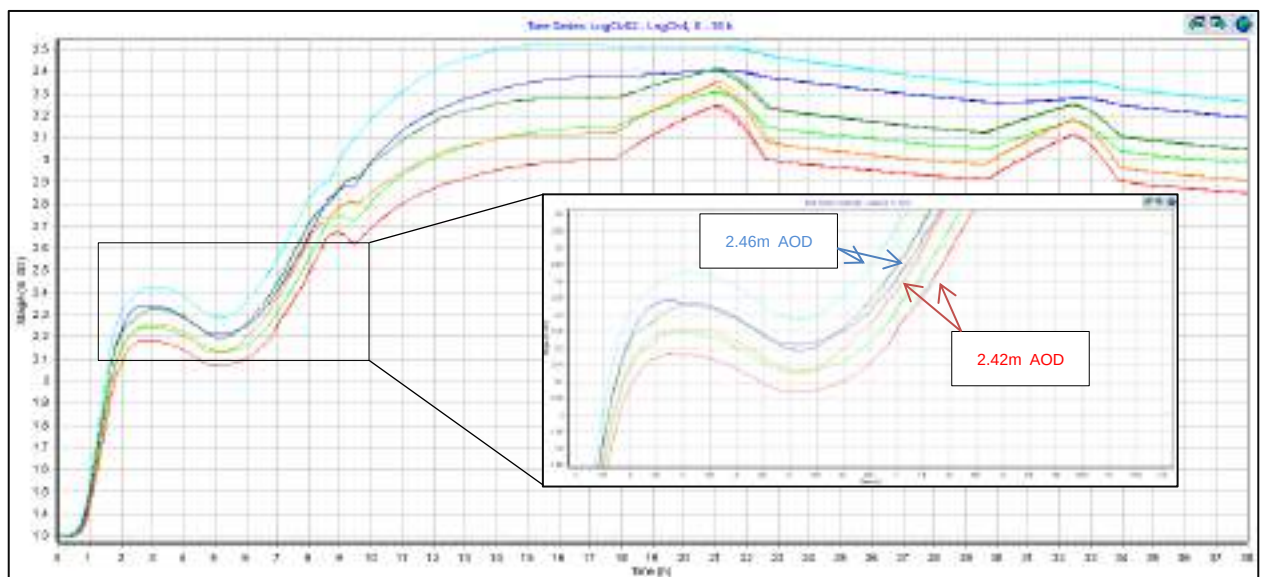


Table 3 Maximum water levels at the long culvert

Modelled scenario	1% annual probability event with 35% climate change increase			1% annual probability event with 70% climate change increase		
	US	Stonebridge roundabout	Downstream	US	Stonebridge roundabout	Downstream
	Max WL [m AOD]					
BA_002	3.40	3.30	3.24	3.51	3.41	3.34
PD_101	3.40	3.30	3.24	3.51	3.41	3.34
PD_201	3.40	3.31	3.25	3.51	3.42	3.35

The stage hydrographs extracted upstream of the culvert (section LngClv2), in the middle of the culvert (section LngClv2d) and downstream of the culvert (section LngClv4) indicate that the water elevation exceeds upstream and downstream culvert invert at time 6.5hours and 8hours respectively. See **Figure 6** for details.

Figure 6 Max WL's for all simulated events at sections: LngClv2 (blue), LngClv2d (green) and LngClv4 (red) (levels: blue for upstream invert and green for downstream invert)



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Flood Modelling:

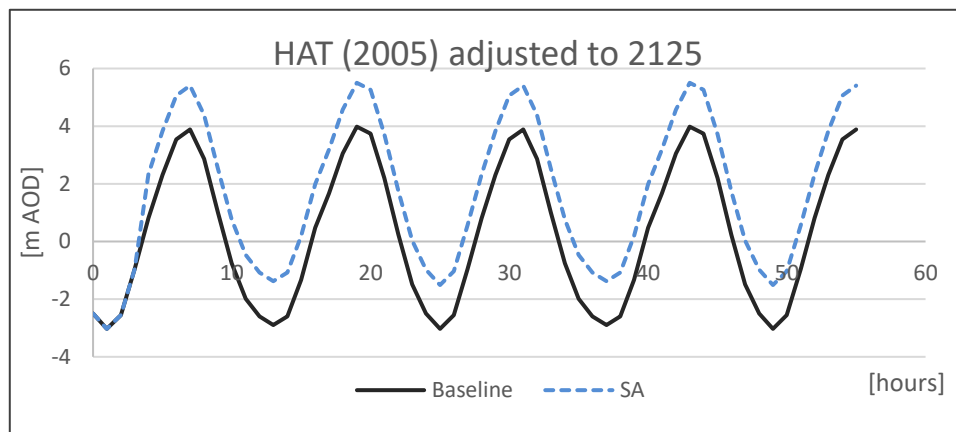
5. *A fluvial event could occur during a high tide causing tidal locking. Whilst this will be offset by storage afforded by Robin's Creek, under such scenario flood extents and depths could be more significant to those predicted in the updated baseline model runs. This comment should be addressed by better representation of climate change inducted sea level rise over the next 100yr.*

The downstream boundary of the Ebbsfleet model is at the confluence between the River Ebbsfleet and the River Thames. As agreed with the Environment Agency, 2005 model used the Highest Astronomical Tide (HAT) for the River Thames at Robins Creek as the downstream boundary condition for all updated baseline fluvial scenarios. A HAT event represents the highest tide level which can be predicted to occur under average meteorological conditions. The peak level on the tide curve was 3.98m AOD.

A similar approach was used for all the baseline (BA_002), sensitivity analysis and Post Development runs (PD_101 and PD_201).

For the downstream boundary sensitivity analysis, the Environment Agency guidance has been used to assess total potential change anticipated for the 2125. The 'south east' upper end sea level rise allowances for Thames river basin district have been applied and a cumulative sea level rise to 2125 of 1.52m was calculated. That value has been added to tide profile giving the peak level on the curve of 5.5m AOD. The initial 4 hours of the tide has been modified to match the model initial conditions. See **Figure 7** for details.

Figure 7 Highest Astronomical Tide Sensitivity Analysis



Maximum water level results and differences as well as flood extent maps are presented in **Appendix E**.

The results indicate that maximum water level changes for 1% annual probability event with 35% climate change increase upstream of the long culvert are negligible. Changes between inflow and outflow of the long culvert are between 0.04m and 0.10m. Greatest changes of up to 0.34m are as expected within Robins Creek with the maximum water level of 2.92m AOD. Changes in flood extents are mainly noted around the edges along the Thames Way and at the Sawyer's Lake.

For 1% annual probability event with 70% climate change increase water level changes upstream of the long culvert are negligible. Differences between inflow and outflow of the long culvert are between 0.01m and 0.09m. Greatest changes of up to 0.35m are as expected within Robins Creek with the maximum water level of 2.98m AOD. Changes in flood extents are only noted north of the Springhead Bridge.

See **Figure 8** for the maximum water levels across the model, **Figure 9** for water levels at Robins Creek and **Table 4** for water levels and differences.

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Table 4 Baseline and Downstream Boundary Sensitivity Analysis - water levels [m AOD] and water levels differences [m]

Node ID	100CC35			100CC70		
	BA_101	DS BDRY	Diff	BA_101	DS BDRY	Diff
	[m AOD)		[m]	[m AOD)		[m]
US of Long Culvert	4.30	4.30	0.00	4.30	4.30	0.00
Long Culvert	3.41	3.45	0.04	3.52	3.53	0.01
Between Long culvert and Robins Creek	3.24	3.34	0.10	3.34	3.42	0.09
Robins Creek	2.58	2.92	0.34	2.63	2.98	0.35

Figure 8 Long section maximum water level results for Downstream Boundary Sensitivity Analysis

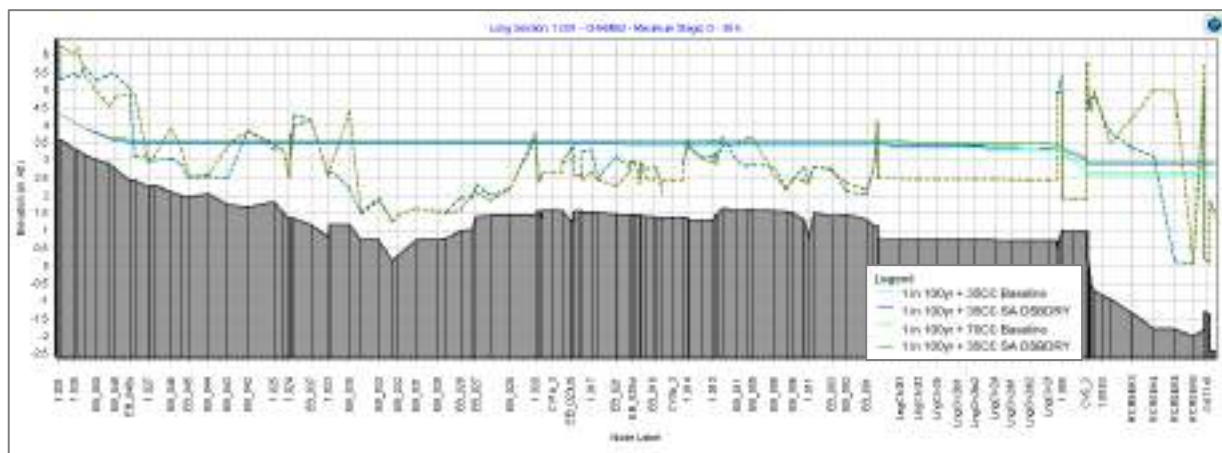
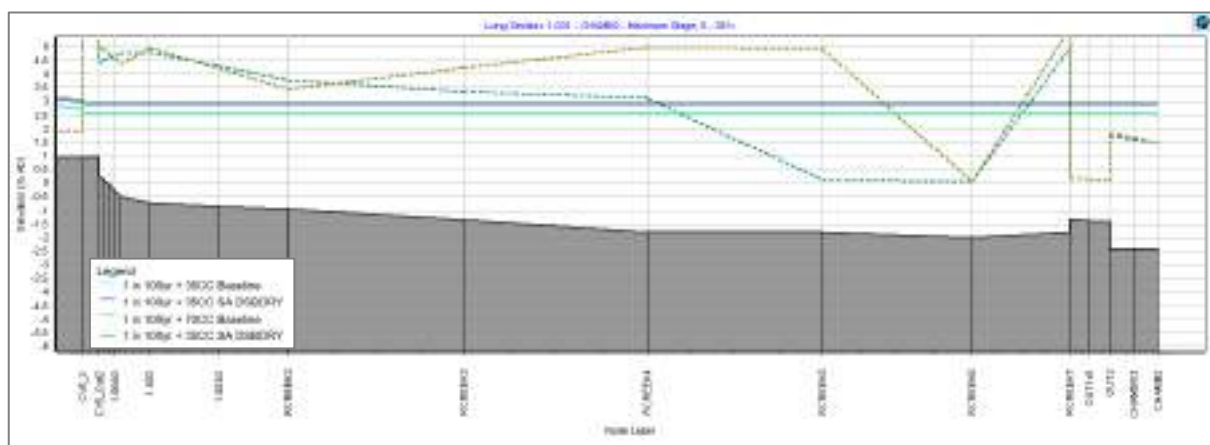


Figure 9 Robins Creek Long section maximum water level results for Downstream Boundary Sensitivity Analysis



Sensitivity Analysis on Downstream Boundary showed, that comparing to the baseline the greatest water level increases are at the Robins Creek with maximum water level increase for 1% annual probability event with 35% climate change of 2.92m AOD and for 1% annual probability event with 70% climate change of 2.98m AOD.

Sensitivity analysis proved that by adding additional 1.52m to the highest astronomical tide for the River Thames at Robins Creek, the water levels at the Creek are still below the lowest bank point 3.1m AOD. By adding additional water level increases as a result of post development the maximum water levels were still below the lowest bank point of 3.1m AOD. See **Table 5** for details.

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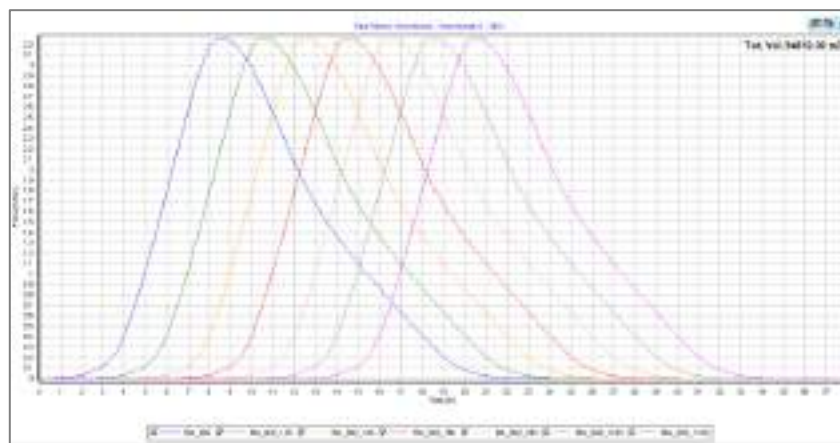
Table 5 Calculated water levels for Post Development scenario with changes as a result of downstream boundary analysis

Event	Difference BA vs PD_101	Difference BA vs PD_201	SA DS BDRY	PD_101+DSBDRY	PD_201+DSBDRY
	[m]			[m AOD]	
100CC35	0.01	0.04	2.92	2.93	2.96
100CC70	0.01	0.07	2.98	2.99	3.05

6. *The timing of the high tide should be optimised with the timing of the fluvial flood wave to assess the maximum water level that would be achieved in Robin's Creek and the resultant backwater effect that would propagate upstream.*

To assess potential changes resulting from optimisation of model inflows, sensitivity analysis has been undertaken with all inflows shifted +2hours, +4hours, +6hours, +8hours, +10hours and +12hours. See **Figure 10** for inflow example at Gravesend. Model has been run for both 1% annual probability event with 35% climate change increase and 1% annual probability event with 70% climate change increase.

Figure 10 inflow optimization sensitivity analysis - Gravesend



Maximum water level results and differences compared to baseline as well as flood extent maps are presented in **Appendix E** with a summary in **Table 6**.

Table 6 Water level differences between baseline and inflow optimization sensitivity analysis

ID	100CC35						100CC70					
	+2h	+4h	+6h	+8h	+10h	+12h	+2h	+4h	+6h	+8h	+10h	+12h
	Difference [m]											
US of long culvert	0.06	0.09	0.11	0.11	0.11	0.12	0.03	0.06	0.08	0.07	0.06	0.06
Long Culvert	0.05	0.08	0.09	0.08	0.08	0.09	0.04	0.07	0.09	0.08	0.06	0.06
Between Long culvert and Robins Creek	0.04	0.06	0.05	0.01	0.03	0.06	0.03	0.06	0.07	0.04	0.00	0.03
Robins Creek	0.02	0.01	-0.03	-0.08	-0.08	-0.07	0.01	0.01	-0.02	-0.07	-0.10	-0.09

For 1% annual probability event with 35% climate change increase the greatest backwater effect of 0.12m is noted at +12hours scenario. 0.09m increases are noted within the long culvert for the +12hours scenario however for Robins Creek itself greatest increases of 0.02m are noted for +2hours scenario with decreases of up to -0.08m for +8hours and +10hours scenarios. Changes in flood extents are mainly noted north of the Springhead Bridge, at the Sawyer's Lake and near Thames Way roundabout.

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For 1% annual probability event with 70% climate change increase the greatest backwater effect of 0.08m is noted at +8hours scenario. 0.09m increases are noted within the long culvert for the +6hours scenario however for Robins Creek itself greatest increases of 0.01m are noted for +4hours scenario with decreases of up to -0.1m for +10hours scenario. Changes in flood extents are mainly noted north of the Springhead Bridge, at the Sawyer's Lake and near Thames Way roundabout.

Above analysis demonstrated that the worst-case scenario for 1% annual probability event with 35% climate change increase at Robins Creek is +2hours and for the 1% annual probability event with 70% climate change increase is +4hours with water levels of 2.59m AOD and 2.65m AOD respectively.

Increases as a result of additional development inflows are presented in **Table 2**. **Table 7** provides details on adding these increases to worst case results of inflow optimization sensitivity analysis. Results indicates that the freeboard of 0.47m (3.1m AOD – 2.63m AOD = 0.47m) for 1% annual probability event with 35% climate change increase and freeboard of 0.38m (3.1m AOD – 2.72m AOD = 0.38m) for 1% annual probability event with 70% climate change increase will be maintained and such, the impact of the development is negligible.

Table 7 Water levels for inflow optimization sensitivity analysis and Post Development increases

CC event	SA	[m AOD]	PD	Difference BA vs PD_101	PD	Difference BA vs PD_201	SA + 2h add PD_101	SA + 4h add PD_202
				[m]		[m]	[m AOD]	
100CC35	SA +2h	2.59	PD_101	0.01	PD_201	0.04	2.60	2.63
100CC70	SA +4h	2.65	PD_101	0.01	PD_201	0.07	2.66	2.72

7. Summary

Stantec UK (Stantec) has been appointed by Bellway Homes to assess the potential capacity for Robins Creek to accommodate additional surface water flow from the proposed Bellway residential site.

The Environment Agency (EA) Flood Map Improvement: Ebbsfleet March 2015 hydraulic model (EA 2015 hydraulic model) obtained in May 2020. The model has subsequently been updated with new fluvial climate change allowances 25%, 35% and 70% in August 2017 (EA 2017 hydraulic model).

The EA 2015 hydraulic model has been updated to incorporate local detail as is appropriate for a site-specific assessment. The new 2020 updated baseline model has been created and this model consist a basis for the Post Development model.

Two versions of the Post-development model were developed; the first scenario (PD_101) with MicroDrainage inflows from development included at time 0 and the second conservative scenario (PD_201) with MicroDrainage inflow coinciding with the high tide at time 20.197h. The MicroDrainage outflows are conservative and based on a short rainfall duration however given hydrographs the worst-case design standards for the drainage system.

The results for the both post development scenarios proved that Robins Creek bank levels are high enough to accommodate additional flow from proposed development with negligible changes in water levels upstream of the Robins Creek at the Long Culvert and Ebbsfleet River.

The modelling has demonstrated that there is adequate freeboard within the Robins Creek and the additional surface water inflow from the Bellway development has only a small impact on absolute flood levels. As the development process progresses, the surface water drainage proposals may be subject to change; however, given the large freeboard and small impact, it is considered that it will not be necessary to remodel the impact on the Robins Creek as any changes will be negligible.

The sensitivity analysis demonstrated that at any modelled scenario the water level does not exceed the lowest point 3.1m, which means that for given outflows from the post development there will be no increase in flood risk from the Robins Creek and elsewhere.

TECHNICAL NOTE

Appendix A

Ebbsfleet Development Corporation
The Observatory
Castle Hill Drive
Castle Hill
Ebbsfleet
Kent DA10 1EE

Our ref: KT/2021/128317/01-L01
Your ref: EDC/21/0072
Date: 20 May 2021

Dear Sir/Madam

Partial discharge of Condition 23 (Surface Water Drainage Scheme) relating to development on the residential land pursuant to Outline Planning Permission EDC/16/0004.

The Former Northfleet Cement Works, The Shore, Northfleet, Gravesend, Kent DA11 9AN

Thank you for consulting us on the above details. We **cannot recommend discharge of Condition 23** as submitted due to insufficient information being submitted for the design of these features.

Ecology

The masterplanning for this location (Condition 8) shows this area as part of the public realm and the swale is meant to contribute ecological and amenity benefits to the development.

The ponds do not demonstrate any ecological considerations as part of the sustainable drainage principles due to the very engineered design. We need to see a design that demonstrates how ecology, amenity and drainage are integrated together.

Flood Risk

We have reviewed the Stantex Technical Note dated 29 June 2020, and have the following comments.

- The report needs to demonstrate that the proposal to discharge the surface water into Robin's Creek will not increase flood risk over the 100-year lifetime of the mixed use development.

In the Stantec Technical Note a freeboard of 400mm for Robin's Creek is referred to.

- Can the report be revised to include an explanation setting out how that value has been arrived at?
- This includes the peak modelled water levels being considered and how the spill level at Robin's Creek and upstream have been assessed.

The Southern Water sewer layer shows surface water sewers joining the 'long culvert' at the roundabout at the junction of Stonebridge Road, Thames Road and Grove Road to the south of Robin's Creek. The potential for increased water levels to increase surface water flooding should be considered.

Flood Modelling

In order to more fully assess the impact of the proposed discharge the flood model first requires some refinement to make it suitable as a base case against which to measure change.

- Specifically it needs to better represent climate change induced sea level rise over the next 100-year.

The Environment Agency flood modelling report is titled 'Flood Map Improvements: Ebbsfleet Modelling Report, March 2015'. The fluvial / tidal interaction was not a focus of that modelling because the outputs from that study would not alter the extent of the flood map in the tidal flood risk area.

In the 'Limitations' section of the Ebbsfleet modelling report it highlights that:

'...a fluvial event could occur during a high tide causing tidal locking. Whilst this will be offset by storage afforded by Robin's Creek, under such a scenario flood extents and depths could be more significant than those predicted in the updated baseline model runs.'

The timing of the high tide is not optimised with the timing of the fluvial flood wave to assess the maximum water level that would be achieved in Robin's Creek and the resultant backwater effect that would propagate upstream.

Ideally a fully combined probability assessment would be carried out. In order to simplify the assessment modellers often propose a combination of the contributing factors which they argue is sufficiently conservative in the absence of fully combined probability modelling.

Please contact me should you wish to discuss the above

Yours faithfully

Sophie Page

Mrs Sophie Page
Planning Specialist



TECHNICAL NOTE

Appendix B

TECHNICAL NOTE

Job Name: Ebbsfleet Riverside
Job No: 46600/4001
Note No: TN001
Date: 29 June 2020
Prepared By: M Grabowiecka
Subject: Northfleet Mixed Use Development -Robins Creek Hydraulic Modelling

1. Introduction

Stantec UK (Stantec) has been appointed by Bellway Homes to assess the potential capacity for Robins Creek to accommodate additional surface water flow from the proposed Bellway residential site. The surface water modelling has been provided by RLT Engineering Consultants Ltd.

2. Background

The Environment Agency (EA) Flood Map Improvement: Ebbsfleet March 2015 hydraulic model (EA 2015 hydraulic model) obtained in May 2020 comprises the reach of the River Ebbsfleet between the emergence of the watercourse channel at Springhead, located at National Grid Reference (NGR) TQ6178372559, and the confluence of the watercourse with the River Thames beyond the northern edge of Robins Creek (NGR Q6197074941). See **Figure 1** for details.

DOCUMENT ISSUE RECORD

Technical Note No	Rev	Date	Prepared	Checked	Reviewed (Discipline Lead)	Approved (Project Director)
46600/4001/TN001	-	29.06.2020	MG	AH	AH	AH

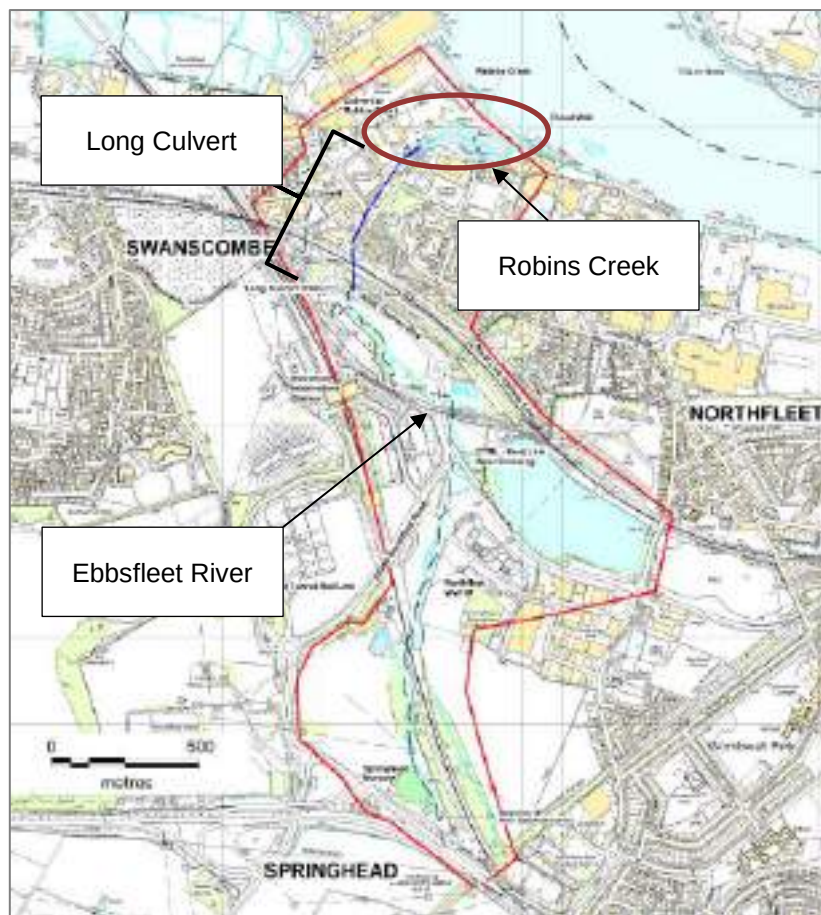
This report has been prepared by Stantec UK Limited ('Stantec') on behalf of its client to whom this report is addressed ('Client') in connection with the project described in this report and takes into account the Client's particular instructions and requirements. This report was prepared in accordance with the professional services appointment under which Stantec was appointed by its Client. This report is not intended for and should not be relied on by any third party (i.e. parties other than the Client). Stantec accepts no duty or responsibility (including in negligence) to any party other than the Client and disclaims all liability of any nature whatsoever to any such party in respect of this report.

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TECHNICAL NOTE

Figure 1 Environment Agency Flood Map Improvement: Ebbsfleet March 2015 hydraulic model (EA 2015 hydraulic model)



This model has been reviewed and it is acceptable for use in this assessment, with local refinements incorporated. The model has been run with ISIS version 3.7 and TUFLOW version 2013-12-AD-iSP-w64.

The hydraulic model was run in 2015 for the following range of Annual Exceedance Probabilities (AEP):

- 50%, 20%, 10%, 5%, 3.33%, 2%, 1%, 1% (+ 20% Climate Change), 0.5% and 0.1%

The model has subsequently been updated with new fluvial climate change allowances 25%, 35% and 70% in August 2017 (EA 2017 hydraulic model). The ISIS event files are not a part of the supplied model however, results inflows have been compared and the 1% AEP event has been multiplied by corresponding climate change allowances to get the model inflow.

No joint probability analysis or consideration of the timing of tidal peaks has been undertaken within the EA 2015 hydraulic model. The Highest Astronomical Tide (HAT) for the River Thames at Robins Creek was used for the downstream boundary for all climate change runs. A HAT event represents the highest tide level which can be predicted to occur under average meteorological conditions. The peak level on this tide curve is 3.98m AOD.

3. Stantec 2020 Updated Baseline and Post Development

Updated Baseline

The EA 2015 hydraulic model has been updated to incorporate local detail as is appropriate for a site-specific assessment. Topographic survey undertaken in March 2019, June 2019 and 2020 by Hook Survey

TECHNICAL NOTE

Partnership has been incorporated into the model. The survey was supplied in form of 3D points which were processed, and a ground model has been created. See **Appendix A** for topographical survey extent.

No changes to the 2D domain were made except for amending head-exchange line and bank line in some places along the Robins Creek to be consistent with the topographical survey.

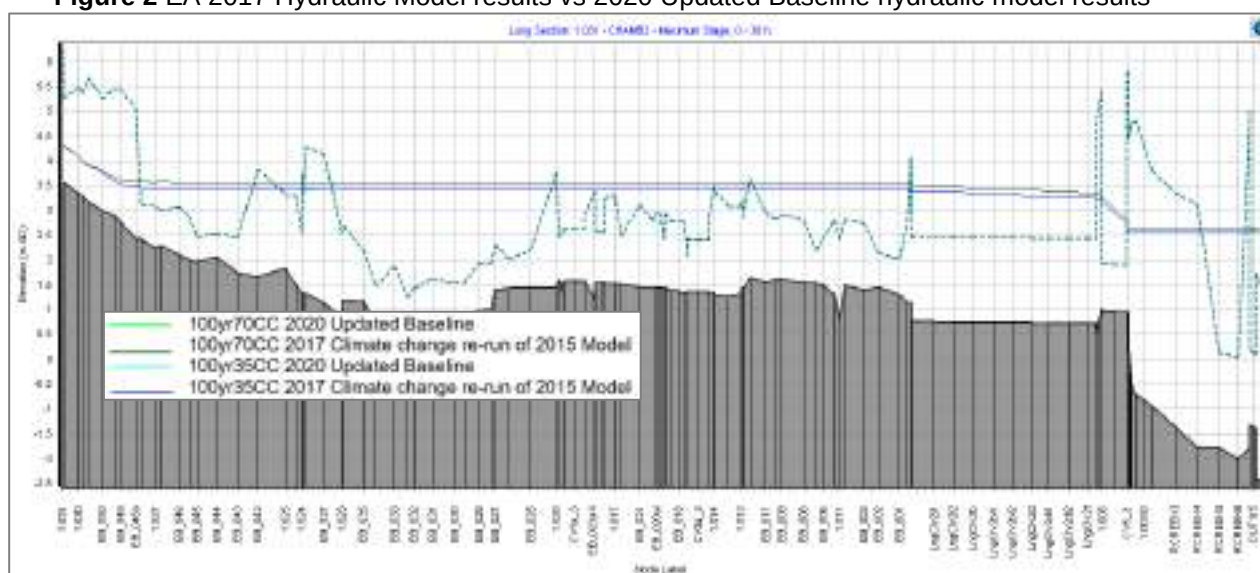
As per the EA 2015 hydraulic model, the Highest Astronomical Tide (HAT) for the River Thames at Robins Creek was used for the downstream boundary to preserve consistency.

For consistency the Updated Baseline 2020 hydraulic model has been run with ISIS version 3.7 and TUFLOW version 2013-12-AD-iSP-w64.

The updated baseline 2020 was run for 1% annual probability plus higher central (70%) and upper end climate change (35%) allowances. Models were run for 38 hours, a time period considered long enough to ensure the peak flood level had been reached throughout the extent of the model

Updated Baseline 2020 hydraulic model results indicate that in comparison to the 2017 EA hydraulic model results, the changes in water level across the whole length of the model are negligible and such, updated baseline was considered appropriate to be used for the post development model. Refer to **Figure 2** for results on updated baseline model.

Figure 2 EA 2017 Hydraulic Model results vs 2020 Updated Baseline hydraulic model results



Post-development Scenario

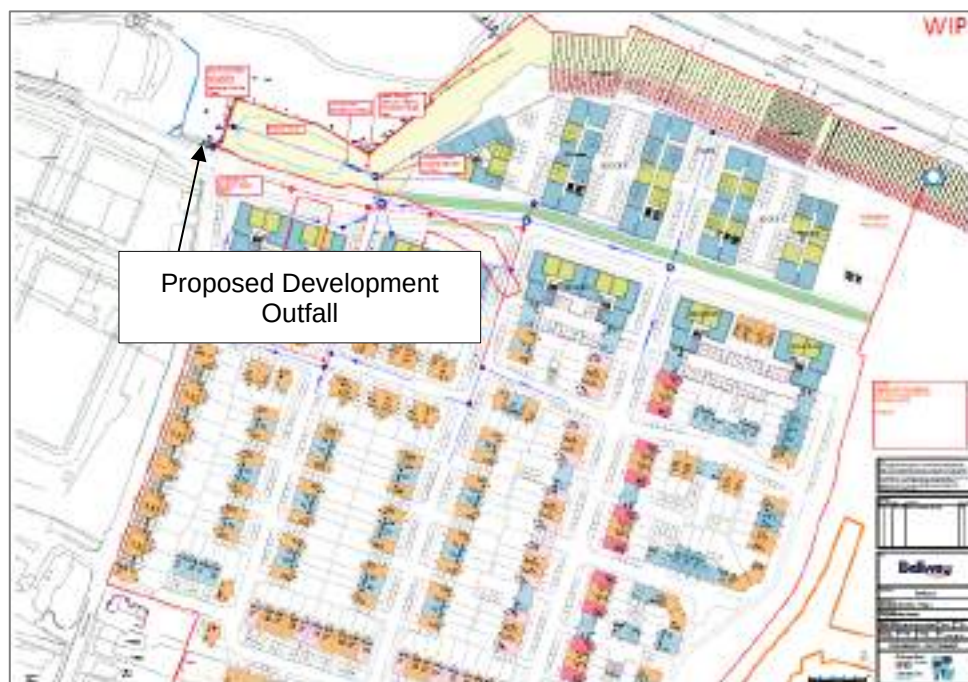
The Updated Baseline 2020 mode has been used as a basis for the Post Development model.

For the Post-development scenario, the outflow from the proposed development was included in the south edge of the Robins Creek. See **Figure 3** for details and is included in the 1D domain as a lateral inflow.

The existing EA hydrological inflows were not amended to account for this drainage sub-catchment. This approach is conservative, and this development area is effectively 'double counted' within the model.

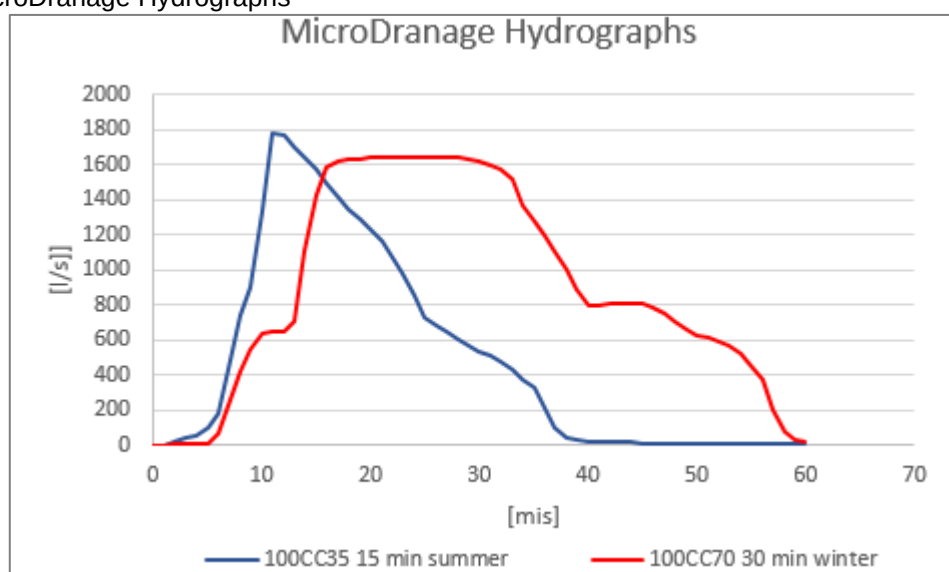
TECHNICAL NOTE

Figure 3 Proposed Development outfall location



Outflows from the proposed surface water drainage strategy were exported from a MicroDrainage network file provided by RLT Engineering Consultants on 04 June 2020 (ref: Surface Water Q100+40%CC. 03-03-20). This model utilised FSR Rainfall to generate input hydrographs to the modelled network. Simulations in the model were run for the 1 in 100 year storm to determine a “worst case” peak discharge from the proposed development to assist in the development of a robust hydraulic model of the watercourse in which the surface water drainage outfalls. These “worst case” outflows for 1% annual probability event with 35% and 70% climate change increase were exported as hydrographs and inputted into the hydraulic model so that impact of the development could be taken in account. See **Figure 4** for details.

Figure 4 MicroDrainage Hydrographs



TECHNICAL NOTE

Two versions of Post-development model were developed:

- PD_100 with MicroDrainage inflow at time 0; and,
- PD_200 with MicroDrainage inflow coinciding with the high tide at time 20.197h

PD_100

Examination of the long section profile confirmed that for PD_100 version for all simulated annual probability events, there is negligible impact on water levels upstream of the Robins Creek. Within Robins Creek there is a maximum water level increase of 0.01m at the peak of the 1% annual probability event with 70% climate change increase. There is no increase in the flood extents.

For results refer to **Figure 5** for 1% annual probability event with 35% climate change increase and **Figure 6** for 1% annual probability event with 70% climate change increase.

Figure 5 Hydraulic Modelling results for 1% annual probability event with 35% climate change increase Updated Baseline vs version PD_100

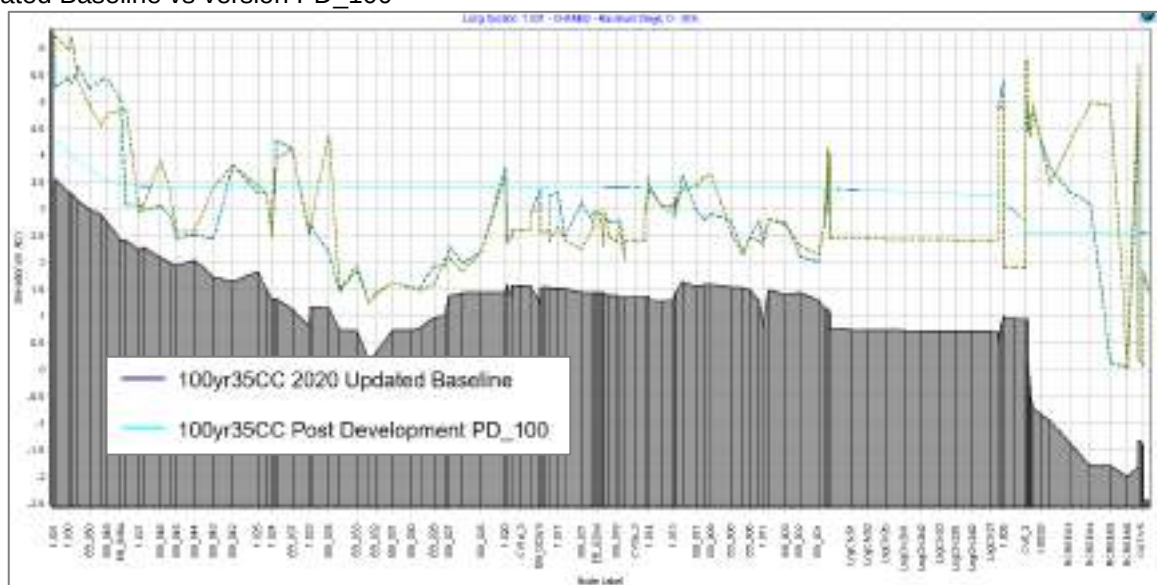
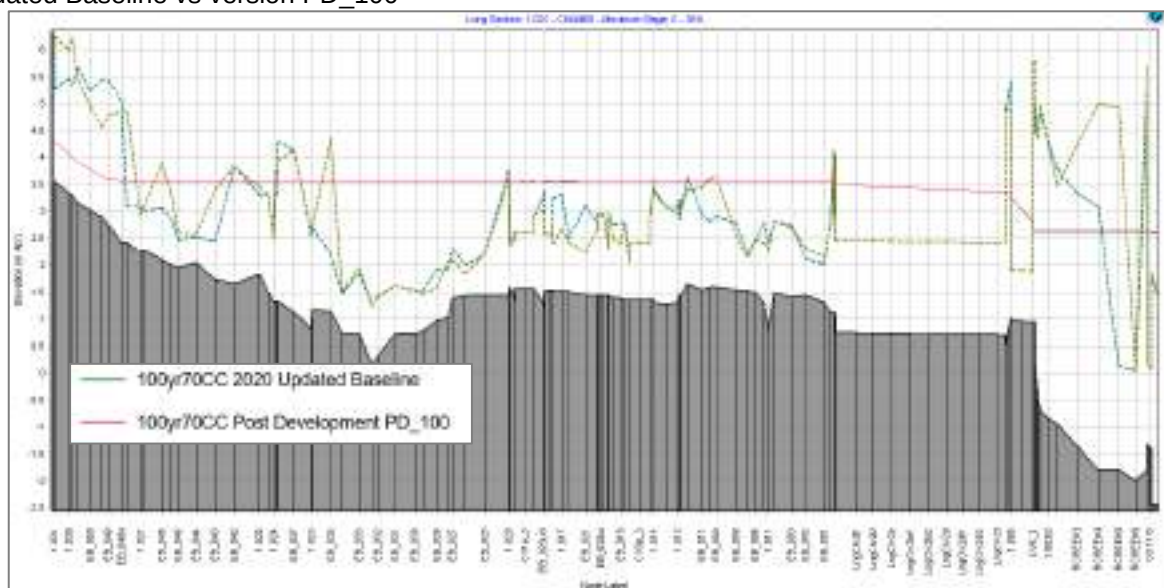


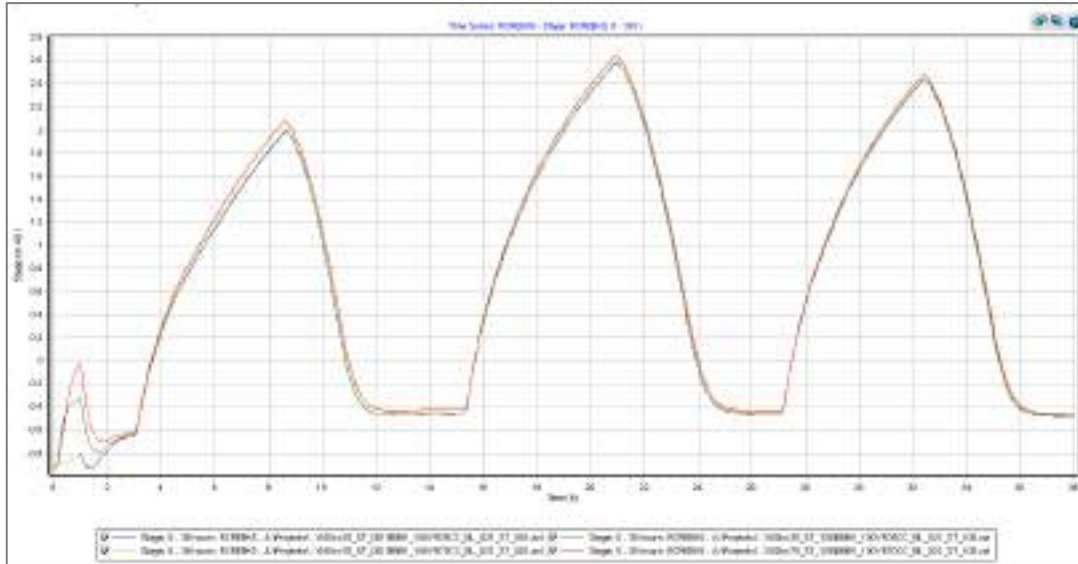
Figure 6 Hydraulic Modelling results for 1% annual probability event with 70% climate change increase Updated Baseline vs version PD_100



TECHNICAL NOTE

The inflow included at time 0 changed the hydrograph shape at the beginning adding extra volume at the Robins Creek with no overall changes to the hydrograph shape at the peak water levels. See **Figure 7** for details on both event run.

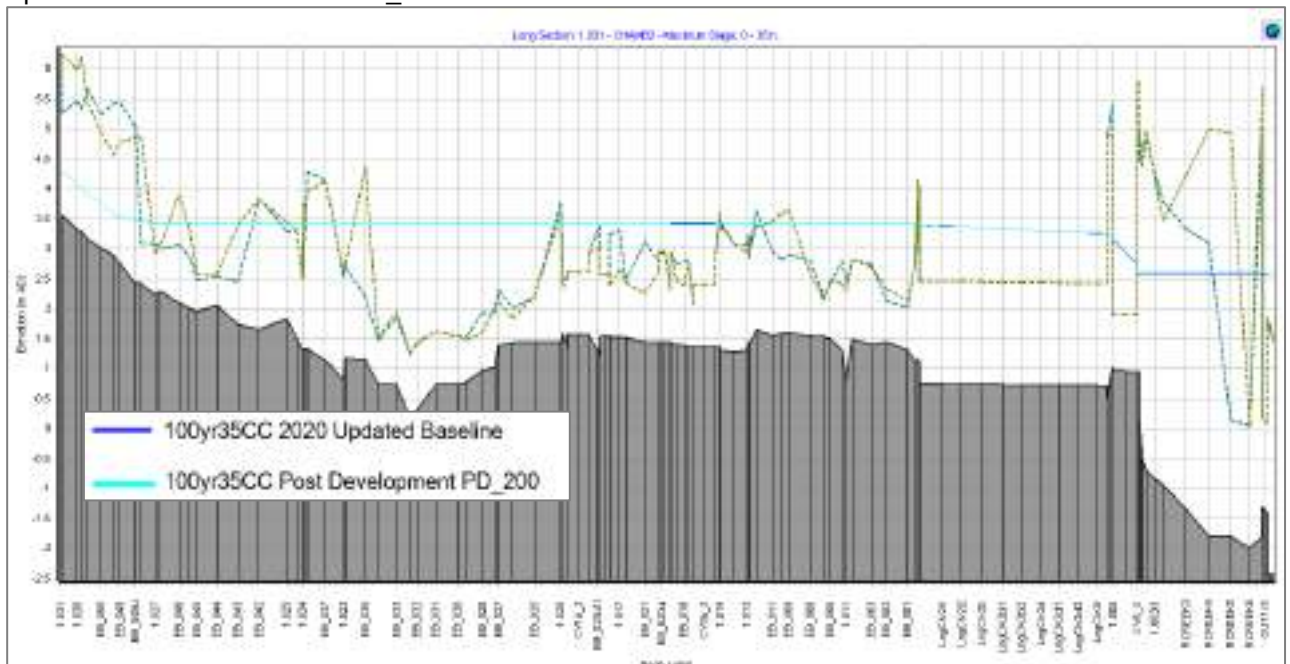
Figure 7 Hydrograph shape for Updated Baseline vs PD_100 for 1% annual probability event with 35% and 70% climate change increase



PD_200

When the surface water inflow is timed, as a conservative approach, to coincide with the peak of the tide, during the 1% including 35% climate change allowance, there is negligible pact on water levels upstream of the Robins Creek. Within Robins Creek there is a maximum water level increase of 0.04m at the peak with no changes in the flood extents. See **Figure 8** for details.

Figure 8 Hydraulic Modelling results for 1% annual probability event with 35% climate change increase Updated Baseline vs version PD_200



TECHNICAL NOTE

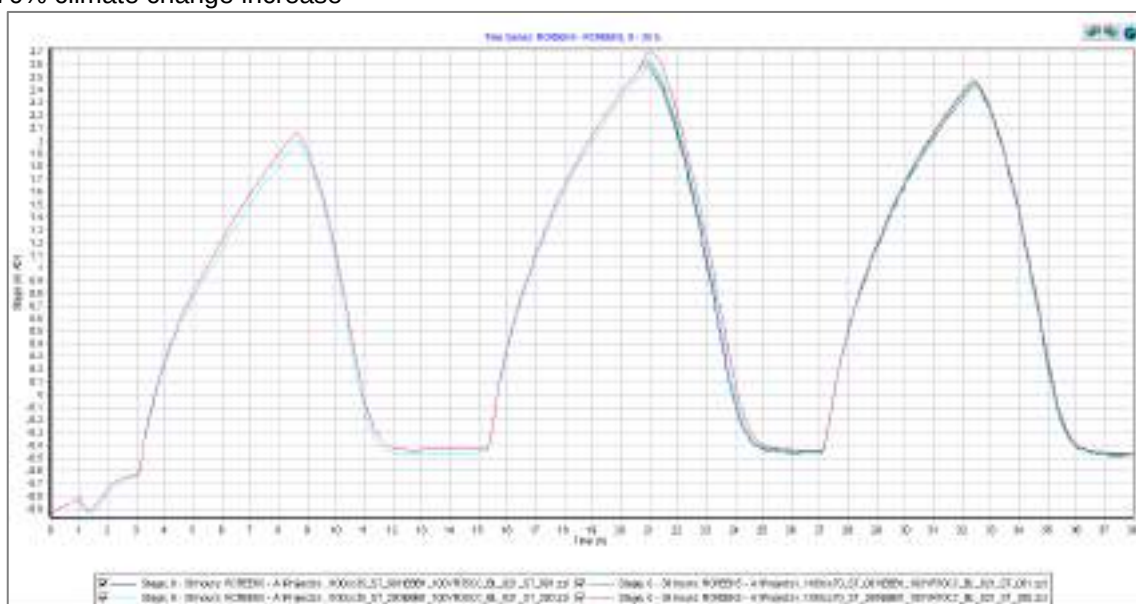
In the 1% annual probability event with 70% climate change, 0.01m water level increase is seen upstream of the Robins Creek in the long culvert, up to the culvert half-length with no influence on water levels upstream of the culvert. The increase is noted only for a short section of the long culvert with no influence on flood extents upstream of the culvert. For the Robins Creek water level increases are up to 0.07m with no changes in the flood extents.

Figure 9 Hydraulic Modelling results for 1% annual probability event with 70% climate change increase Updated Baseline vs version PD_200



By adding the inflow at the peak water level, the hydrograph shape has changed increasing volume and water levels at the peak within the Robins Creek as shown on **Figure 9** and **Figure 10**. Changes however are insignificant for both run events.

Figure 10 Hydrograph shape for Updated Baseline vs PD_200 for 1% annual probability event with 35% and 70% climate change increase



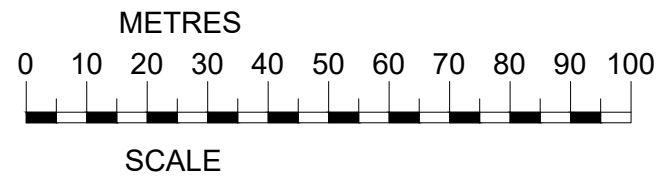
Maps for flood extents are included in **Appendix B**.

A table with maximum water level differences for the whole model is included in **Appendix C**. The changes +/-4mm are considered negligible.

TECHNICAL NOTE

Appendix A

6992-Cement Works_NORTHFLEET_LEVEL SURVEY_REV D.pdf



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[Hook Survey Legend](#)

Hedge		Telephone line	
Undergrowth		Power line	
Tree		Banking	
Bush		Contour line	
Building		Survey Station	
Glass Building		Gate	
Open Building		Level	
Ordnance Survey Benchmark			
Foul Drainage			
Storm Drainage			

Abbreviations

Animal Set	Set
As Value	AV
Borehole	BH
Blue Sign	BS
Cover Level	CL
Earth Roof	ER
Electricity Pole	EP
Fire Hydrant	FH
Inspection Cover	IC
Invert Level	IL
Lamp Post	LP
Manhole	MH
Marker	MK
Name Plate	NAP
Power Pole	PP
Rain water Pipe	RWP
Road Sign	RS
Roofing Eye	RE
Reinforced Steel Joint	RSJ
Soil Vent Pipe	SVP
Stop Valve	SV
Survey Station	STN
Telegraph Pole	TP
Tree Stamp	TS
Trail Hole	TH
Unable To Lift	UTL
Vent Pipe	VP
Water Valve	WV

Hook Survey Legend

	Bailway Land
	NWM Properties Land

Notes

All trees are identified where possible.
Shading, spread, height and girth are indicated only.

Drainage has been surveyed where found, and traced where possible.

Eaves and ridge heights of surrounding buildings have been surveyed where possible.

Ordnance Survey Data added and shown in orange, per colour 50.

Existing Site Survey by others shown in half-tone, per colour 134.

HOOK SURVEY PARTNERSHIP
Land & Building Surveyors
www.hooksurvey.com

Project:
Cement Works, Northfleet,
Kent, DA11 9HD

Client:
Bailway Homes Thames Gateway

Drawing title:
Land Parcels

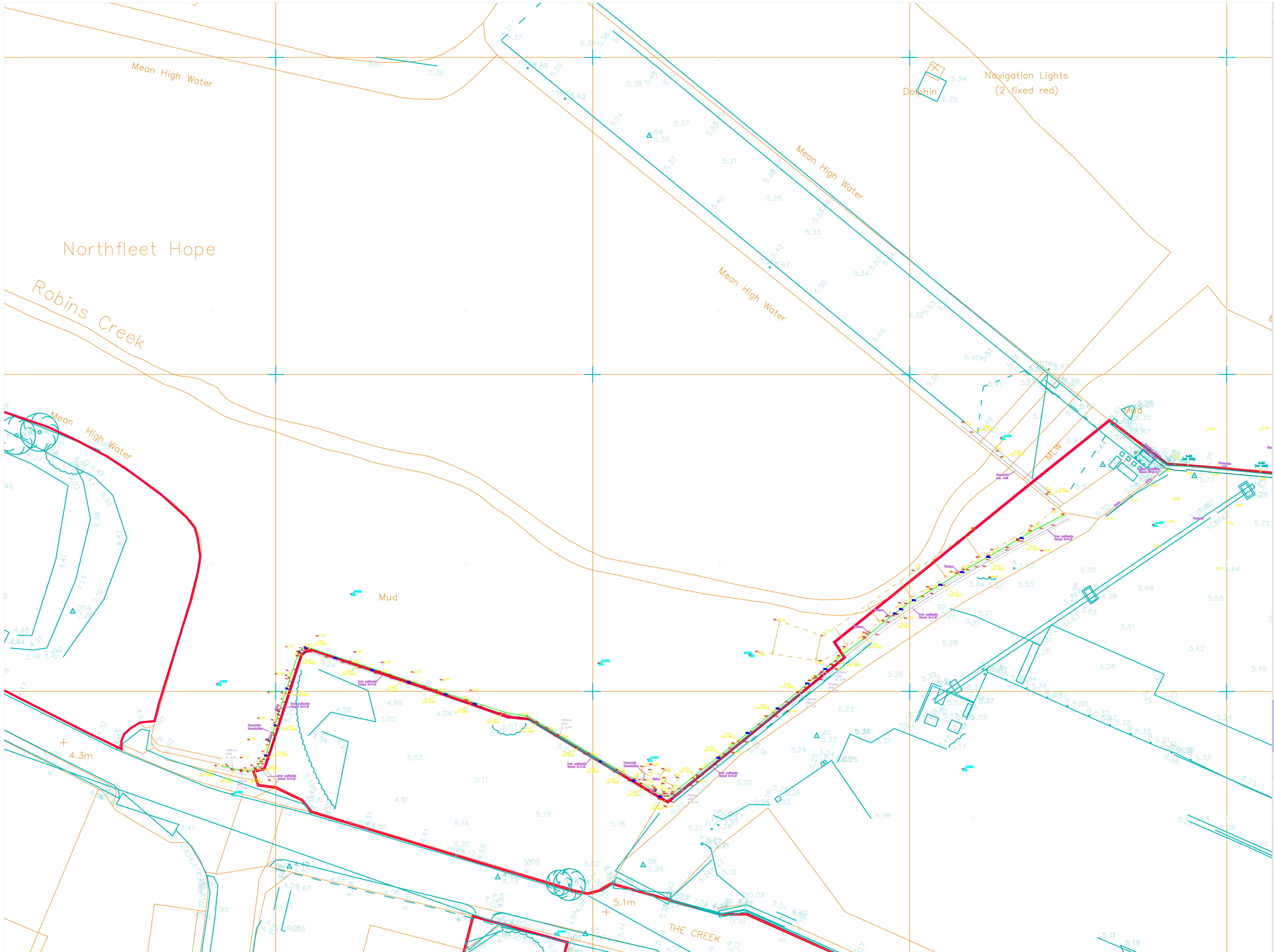
Job No.: S1000000	Dwg No.: S100000000	Revision: D
Scale: 1:1250	Date: June 2019	Drawn by: D.S.

Grid & Levels related to:
Ordnance Survey (OSGB36) coordinate system and level data defined by Geoid model OSGM15, based around 2 survey stations H1 & H2 with a scale factor of 1.00000

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Hook Survey Legend

Hedge	Telephone line
Undergrowth	Power line
Tree	Banking
Bush	Contour line
Building	Survey Station
Glass Building	Gate
Open Building	Level
Ordinance Survey Benchmark	OSBM
Foul Drainage	100mm
Storm Drainage	100mm

Abbreviations

Animal Set	Set
Air Valve	AV
Borehole	BH
Bus Stop	BS
Cover Level	CL
Earth Rod	ER
Electricity Pole	EP
Fire Hydrant	FH
Inspection Cover	IC
Invert Level	IL
Lamp Post	LP
Manhole	MH
Marker	MK
Name Plate	NP
Power Pole	PP
Rain water Pipe	RWP
Road Sign	RS
Rodding Eye	RE
Reinforced Steel joint	RSJ
Soil Vent Pipe	SVP
Stop Valve	SV
Survey Station	STN
Telegraph Pole	TP
Tree Stump	TS
Trail Hole	TH
Unable To Lift	UTL
Vent Pipe	VP
Water Valve	WV

Metres

Scale

Notes

All trees are identified where possible.
Species, spread, height and girth
are indicative only.

Drainage has been surveyed where found,
and traced where possible.

Eaves and ridge heights of surrounding buildings
have been surveyed where possible.

Ordinance Survey Data added and shown in orange,
per colour 30.

Existing Site Survey by others shown in half-tone,
per colour 134.

Sheet Layout

8

1 2

7 3 4

5 6

Rev A Off top levels added April 2019

Rev B Additional boundary information & levels added March 2020

Rev C Boundary & NWM Properties boundaries added March 2020

Rev D Robins Creek wall added March 2020

HOOK SURVEY PARTNERSHIP
Land & Building Surveyors
www.hooksurvey.com

Project: Cement Works, Northfleet, Kent, DA11 9HD

Client: Bellway Homes Thames Gateway

Drawing title: Level Survey

Job No.: S18/0902 Date: 5/18/0902/08 Revision: D

Scale: 1:200 Date: March 2019 Drawn by: B.C.

Grid & Levels related to:
Ordinance Survey (OSGB36) coordinate system and level data
defined by Geoid model OSFN15, based around 2 survey stations
M & H with a scale factor of 1.00003

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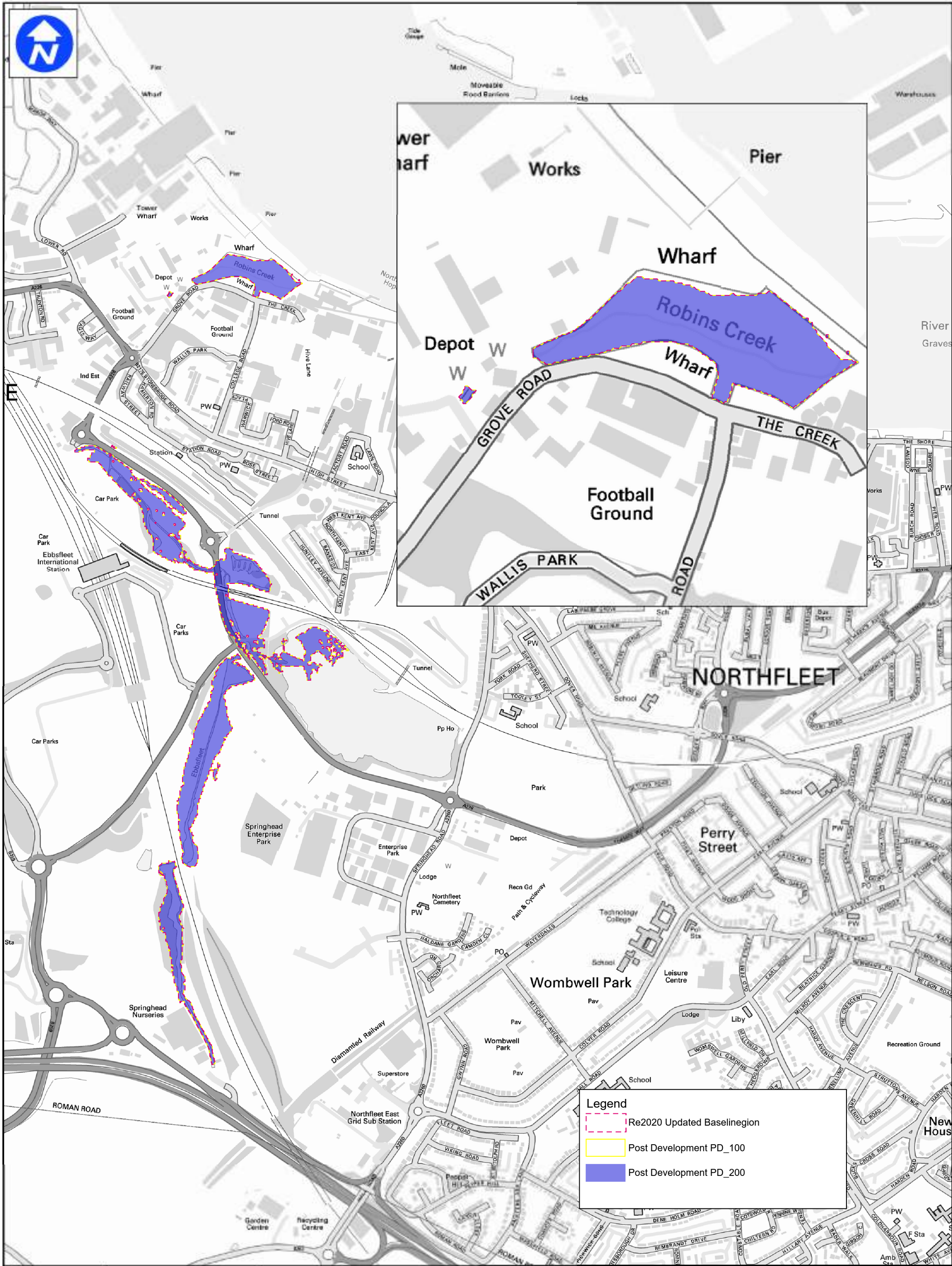
THE SURVEY ASSOCIATION

TECHNICAL NOTE

Appendix B

46600_4001_001.pdf - Flood Extents Maps 1% AEP with 35% climate change Updated Baseline and Post Development PD_100 and PD_200

46600_4001_002.pdf - Flood Extents Maps 1% AEP with 70% climate change Updated Baseline and Post Development PD_100 and PD_200



Client
RLT Engineering Consultants Ltd

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and database right 2018

Ebbsfleet Riverside Flood Extents Maps

1% AEP with 35% climate change

Updated Baseline and Post Development PD_100 and PD_200

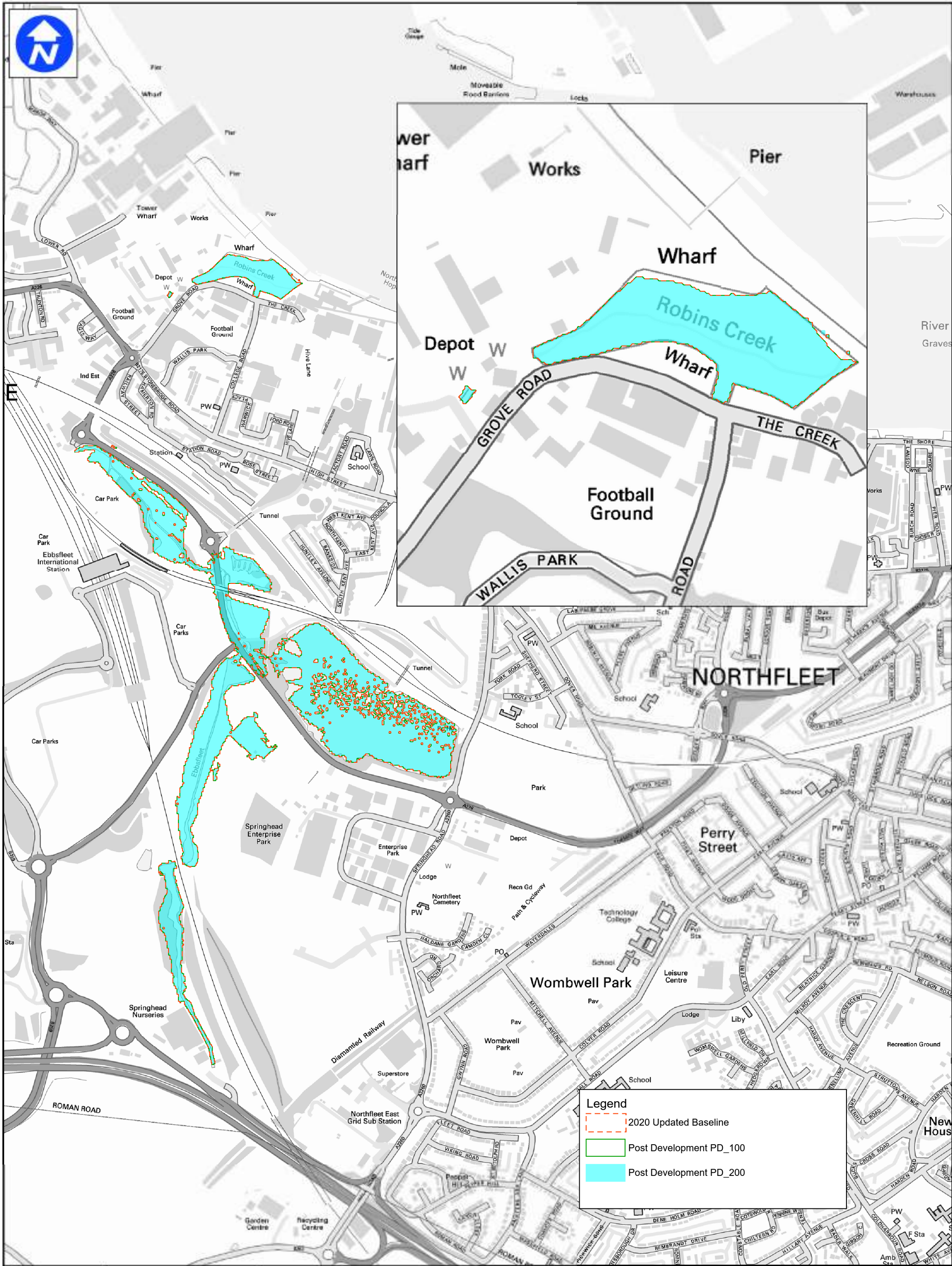
Date: 29-06-2020

Drawn by: RLS

Checked by: RLS

Rev:

Project No: 46600/4001/001



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Ebbsfleet Riverside

Flood Extents Maps

1% AEP with 70% climate change

Updated Baseline and Post Development PD_100 and PD_200

Date: 29-06-2020

Drawn by: RLS

Checked by: RLS

Rev:

Project No: 46600/4001/002

TECHNICAL NOTE

Appendix C

46600_Ebbsfleet_Hydraulic_Modelling_WL_Comp.pdf

46600/4001_TN_001 Northfleet Mixed Use Development -Robbins Creek Hydraulic Modelling														
Peak Flood Level Comparison														
										<4mm betterment +/- 4mm > 4mm detriment				
Node ID	100yr35 CC	100yr70 CC	100yr35CC	100yr70C C	Difference (m)		100yr35CC	100yr70CC	Difference (m)		100yr35CC	100yr70CC	Difference (m)	
	EA_2017 Hydraulic Model		2020 Updated Baseline		100yr35CC	100yr70CC	PD_100		20yr	100yr	PD_200		20yr	100yr
					0.00	0.00			0.01	0.03			0.04	0.07
					0.00	-0.02			0.00	0.00			0.00	0.00
Gravesend	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
Northfleet	3.41	3.52	3.41	3.52	0.00	0.00	3.41	3.52	0.00	0.00	3.41	3.52	0.00	0.00
GW_level	4.30	4.30	4.30	4.30	0.00	0.00	4.30	4.30	0.00	0.00	4.30	4.30	0.00	0.00
GW_flow	4.30	4.30	4.30	4.30	0.00	0.00	4.30	4.30	0.00	0.00	4.30	4.30	0.00	0.00
1.031	4.30	4.30	4.30	4.30	0.00	0.00	4.30	4.30	0.00	0.00	4.30	4.30	0.00	0.00
EB_052	4.30	4.30	4.30	4.30	0.00	0.00	4.30	4.30	0.00	0.00	4.30	4.30	0.00	0.00
Latinf1	4.30	4.30	4.30	4.30	0.00	0.00	4.30	4.30	0.00	0.00	4.30	4.30	0.00	0.00
1.03	4.09	4.09	4.09	4.09	0.00	0.00	4.09	4.09	0.00	0.00	4.09	4.09	0.00	0.00
EB_051	3.99	3.99	3.99	3.99	0.00	0.00	3.99	3.99	0.00	0.00	3.99	3.99	0.00	0.00
1.029	3.91	3.92	3.91	3.92	0.00	0.00	3.91	3.92	0.00	0.00	3.91	3.92	0.00	0.00
EB_050	3.77	3.78	3.77	3.78	0.00	0.00	3.77	3.78	0.00	0.00	3.77	3.78	0.00	0.00
1.028	3.59	3.66	3.59	3.66	0.00	0.00	3.59	3.66	0.00	0.00	3.59	3.66	0.00	0.00
EB_049	3.52	3.62	3.52	3.62	0.00	0.00	3.52	3.62	0.00	0.00	3.52	3.62	0.00	0.00
EB_048u	3.47	3.58	3.47	3.58	0.00	0.00	3.47	3.58	0.00	0.00	3.47	3.58	0.00	0.00
EB_048	3.46	3.58	3.46	3.58	0.00	0.00	3.46	3.58	0.00	0.00	3.46	3.58	0.00	0.00
1.027	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_047	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_046	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
1.026	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_045	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_044	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_043	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_042	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
1.025	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_041	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
1.024	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_039	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_039BU	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_039BD	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_039d	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_038	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
Latinf2	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_037	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
1.023	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_036	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_035	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_034	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_033	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
1.022	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_032	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_031	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_030	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_029	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_028	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
1.021	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_027	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
Latinf3	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_026	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_025	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
1.02	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_024	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_023u	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
CV1a_1	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
CV1b_1	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
CV1a_2	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
CV1a_3	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
CV1a_4	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_023u1	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
CV1b_2	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
CV1b_3	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
CV1b_4	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_023u1i	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_023u2	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
CV2a_1	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
CV2b_1	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
CV2a_2	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
CV2a_3	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
CV2a_4	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
EB_023	3.44	3.57	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00	3.44	3.57	0.00	0.00
CV2b_2	3.44	3.57	3.44	3.										

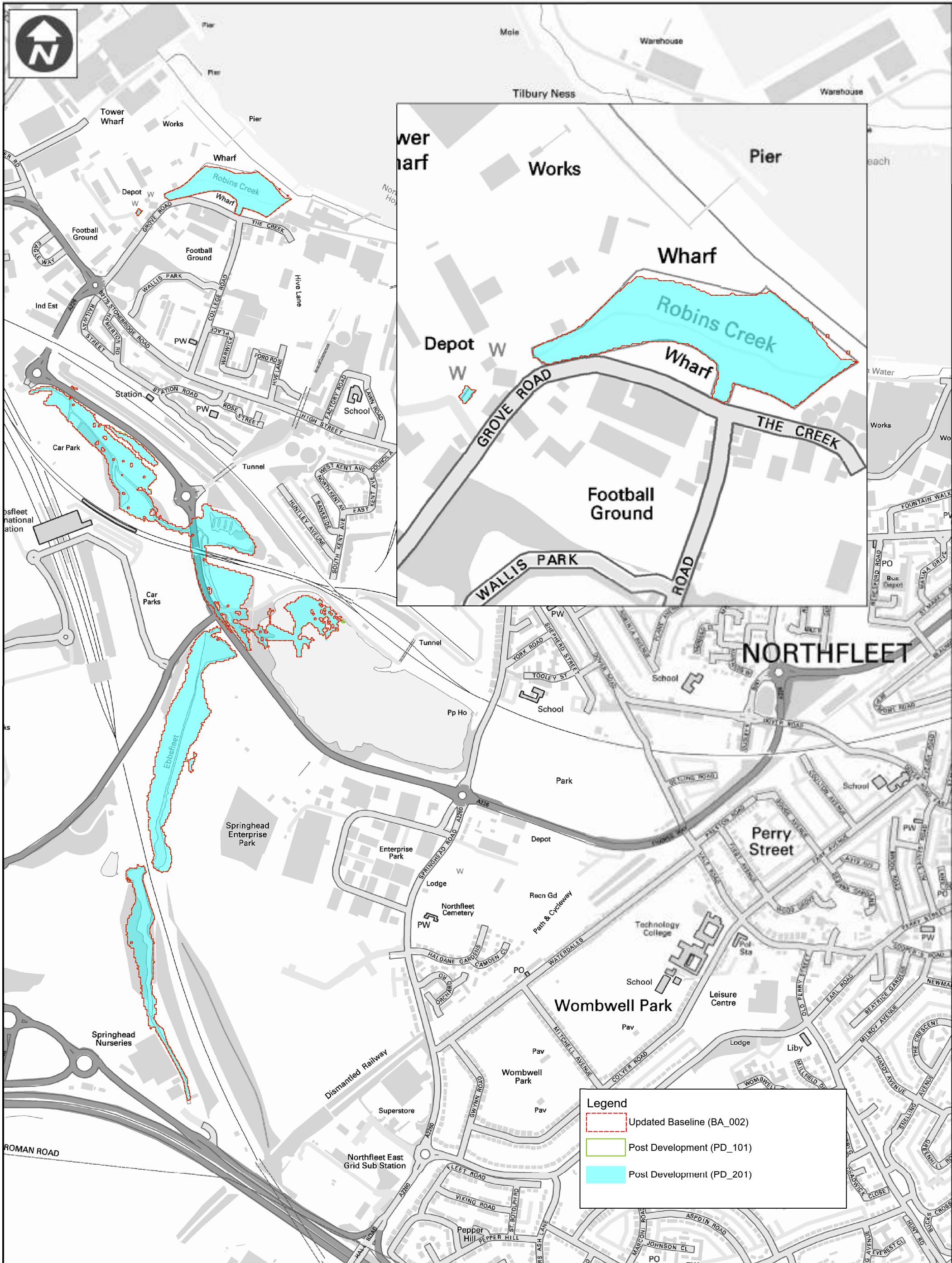
CV3b_2	3.43	3.57	3.43	3.57	0.00	0.00	3.43	3.57	0.00	0.00	3.43	3.57	0.00	0.00
CV3b_3	3.43	3.57	3.43	3.57	0.00	0.00	3.43	3.57	0.00	0.00	3.43	3.57	0.00	0.00
CV3b_4	3.43	3.57	3.43	3.57	0.00	0.00	3.43	3.57	0.00	0.00	3.43	3.57	0.00	0.00
1.014	3.42	3.56	3.42	3.56	0.00	0.00	3.43	3.56	0.00	0.00	3.43	3.56	0.00	0.00
EB_015	3.43	3.56	3.43	3.56	0.00	0.00	3.43	3.56	0.00	0.00	3.43	3.56	0.00	0.00
EB_014	3.43	3.56	3.43	3.56	0.00	0.00	3.43	3.56	0.00	0.00	3.43	3.56	0.00	0.00
1.013	3.42	3.56	3.42	3.56	0.00	0.00	3.43	3.56	0.00	0.00	3.43	3.56	0.00	0.00
EB_013	3.42	3.56	3.42	3.56	0.00	0.00	3.43	3.56	0.00	0.00	3.43	3.56	0.00	0.00
1.012	3.42	3.56	3.42	3.56	0.00	0.00	3.42	3.56	0.00	0.00	3.43	3.56	0.00	0.00
1.012Bu	3.42	3.56	3.42	3.56	0.00	0.00	3.42	3.56	0.00	0.00	3.43	3.56	0.00	0.00
1.012Bd	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
1.012d	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
EB_012	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
EB_011	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
EB_010	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
EB_009	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
EB_008	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
EB_007	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
EB_006	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
EB_005	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
1.011	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
EB_004	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
EB_003	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
EB_002	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
EB_001	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
1.009	3.42	3.55	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
EB_000	3.41	3.55	3.41	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
ThamesWy1	3.41	3.55	3.41	3.55	0.00	0.00	3.42	3.55	0.00	0.00	3.42	3.55	0.00	0.00
ThamesWy2	3.41	3.52	3.41	3.52	0.00	0.00	3.41	3.52	0.00	0.00	3.41	3.52	0.00	0.00
LngClv01	3.41	3.52	3.41	3.52	0.00	0.00	3.41	3.52	0.00	0.00	3.41	3.52	0.00	0.00
LngClv02	3.41	3.52	3.41	3.52	0.00	0.00	3.41	3.52	0.00	0.00	3.41	3.52	0.00	0.00
LngCulv1	3.41	3.52	3.41	3.52	0.00	0.00	3.41	3.52	0.00	0.00	3.41	3.52	0.00	0.00
LngClv2	3.40	3.51	3.40	3.51	0.00	0.00	3.40	3.51	0.00	0.00	3.40	3.51	0.00	0.00
LngClv2i1	3.38	3.48	3.38	3.48	0.00	0.00	3.38	3.49	0.00	0.00	3.38	3.49	0.00	0.00
LngClv2i2	3.37	3.47	3.37	3.47	0.00	0.00	3.37	3.47	0.00	0.00	3.37	3.47	0.00	0.00
LngClv2b	3.35	3.45	3.35	3.45	0.00	0.00	3.35	3.46	0.00	0.00	3.35	3.46	0.00	0.01
LngClv2bi1	3.34	3.44	3.34	3.44	0.00	0.00	3.34	3.44	0.00	0.00	3.34	3.44	0.00	0.01
LngClv2bi2	3.32	3.42	3.32	3.42	0.00	0.00	3.32	3.42	0.00	0.00	3.33	3.43	0.00	0.01
LngClv2d	3.31	3.41	3.31	3.41	0.00	0.00	3.31	3.41	0.00	0.00	3.31	3.42	0.00	0.01
LngClv2di1	3.29	3.39	3.29	3.39	0.00	0.00	3.29	3.39	0.00	0.00	3.30	3.40	0.00	0.01
LngClv2di2	3.28	3.38	3.28	3.38	0.00	0.00	3.28	3.38	0.00	0.00	3.28	3.39	0.01	0.01
LngClv2f	3.26	3.36	3.26	3.36	0.00	0.00	3.27	3.36	0.00	0.00	3.27	3.37	0.01	0.01
LngClv3	3.26	3.35	3.26	3.35	0.00	0.00	3.26	3.36	0.00	0.00	3.26	3.37	0.01	0.01
LngClv4	3.24	3.34	3.24	3.34	0.00	0.00	3.24	3.34	0.00	0.00	3.25	3.35	0.01	0.01
1.006	3.24	3.34	3.24	3.34	0.00	0.00	3.24	3.34	0.00	0.00	3.25	3.35	0.01	0.01
1.006i1	3.24	3.34	3.24	3.34	0.00	0.00	3.24	3.34	0.00	0.00	3.25	3.35	0.01	0.01
1.005	3.24	3.34	3.24	3.34	0.00	0.00	3.24	3.34	0.00	0.00	3.25	3.35	0.01	0.01
CV5_1	3.24	3.34	3.24	3.34	0.00	0.00	3.24	3.34	0.00	0.00	3.25	3.35	0.01	0.01
CV5_2	3.16	3.25	3.16	3.25	0.00	0.00	3.17	3.26	0.00	0.00	3.17	3.28	0.01	0.02
CV5_3r3	2.95	3.03	2.95	3.03	0.00	0.00	2.95	3.03	0.00	0.01	2.97	3.07	0.02	0.04
CV5_3	2.74	2.80	2.74	2.80	0.00	0.00	2.74	2.81	0.00	0.01	2.77	2.86	0.03	0.06
CV5_4	2.58	2.64	2.58	2.64	0.00	0.00	2.59	2.65	0.01	0.01	2.62	2.70	0.04	0.07
1.004	2.58	2.64	2.58	2.64	0.00	0.00	2.59	2.65	0.01	0.01	2.62	2.70	0.04	0.07
CV5_Out1	2.58	2.64	2.58	2.64	0.00	0.00	2.59	2.65	0.01	0.01	2.62	2.70	0.04	0.07
CV5_Out2	2.59	2.64	2.59	2.64	0.00	0.00	2.59	2.65	0.01	0.01	2.62	2.71	0.04	0.07
1.004i1	2.58	2.63	2.58	2.63	0.00	0.00	2.59	2.65	0.01	0.01	2.62	2.70	0.04	0.07
1.004i2	2.58	2.63	2.58	2.63	0.00	0.00	2.59	2.65	0.01	0.01	2.62	2.70	0.04	0.07
1.004i3	2.58	2.64	2.58	2.63	0.00	0.00	2.59	2.65	0.01	0.01	2.62	2.70	0.04	0.07
RCREEK1	2.58	2.63	2.58	2.63	0.00	0.00	2.59	2.65	0.01	0.01	2.62	2.70	0.04	0.07
1.003	2.58	2.63	2.58	2.63	0.00	0.00	2.59	2.65	0.01	0.01	2.62	2.70	0.04	0.07
1.003i3	2.58	2.63	2.58	2.63	0.00	0.00	2.59	2.65	0.00	0.01	2.62	2.70	0.04	0.07
RCREEK2	2.58	2.63	2.58	2.63	0.00	0.00	2.59	2.65	0.00	0.01	2.62	2.70	0.04	0.07
RCREEK3	2.58	2.63	2.58	2.63	0.00	0.00	2.59	2.64	0.00	0.01	2.62	2.70	0.04	0.07
RCREEK4	2.58	2.63	2.58	2.63	0.00	0.00	2.59	2.64	0.00	0.01	2.62	2.70	0.04	0.07
RCREEK5	2.58	2.63	2.58	2.63	0.00	0.00	2.59	2.65	0.01	0.01	2.62	2.70	0.04	0.07
RCREEK6	2.58	2.63	2.58	2.63	0.00	0.00	2.59	2.64	0.00	0.01	2.62	2.70	0.04	0.07
RCREEK7	2.58	2.63	2.58	2.63	0.00	0.00	2.59	2.65	0.01	0.01	2.62	2.70	0.04	0.07
OUT1	2.58	2.63	2.58	2.63	0.00	0.00	2.58	2.64	0.00	0.01	2.59	2.68	0.02	0.05
OUT1r5	2.58	2.64	2.58	2.63	0.00	-0.01	2.58	2.65	0.00	0.02	2.59	2.68	0.01	0.05
OUT2	2.59	2.65	2.59	2.63	0.00	-0.02	2.59	2.66	0.00	0.03	2.60	2.68	0.01	0.05
CHAMB1	2.58	2.63	2.58	2.63	0.00	0.00	2.58	2.64	0.00	0.01	2.59	2.67	0.01	0.04
CHAMB1i3	2.58	2.63	2.58	2.63	0.00	0.00	2.58	2.64	0.00	0.02	2.59	2.67	0.01	0.04
CHAMB2	2.58	2.63	2.58	2.63	0.00	0.00	2.58	2.64	0.00	0.01	2.59	2.67	0.01	0.04
Thames	4.06	4.06	4.06	4.06	0.00	0.00	4.06	4.06	0.00	0.00	4.06	4.06	0.00	0.00

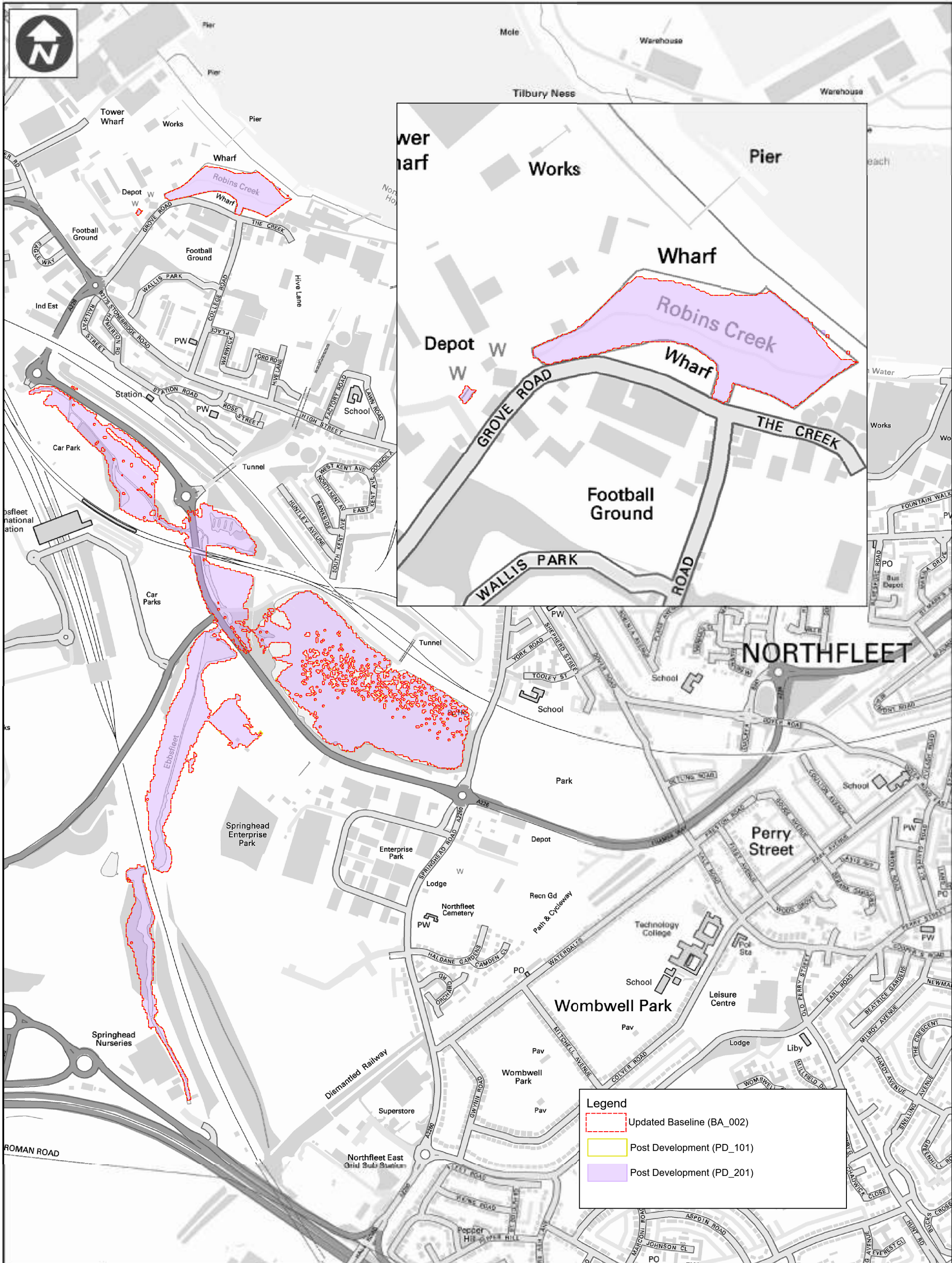
TECHNICAL NOTE

Appendix C

TECHNICAL NOTE

Appendix D



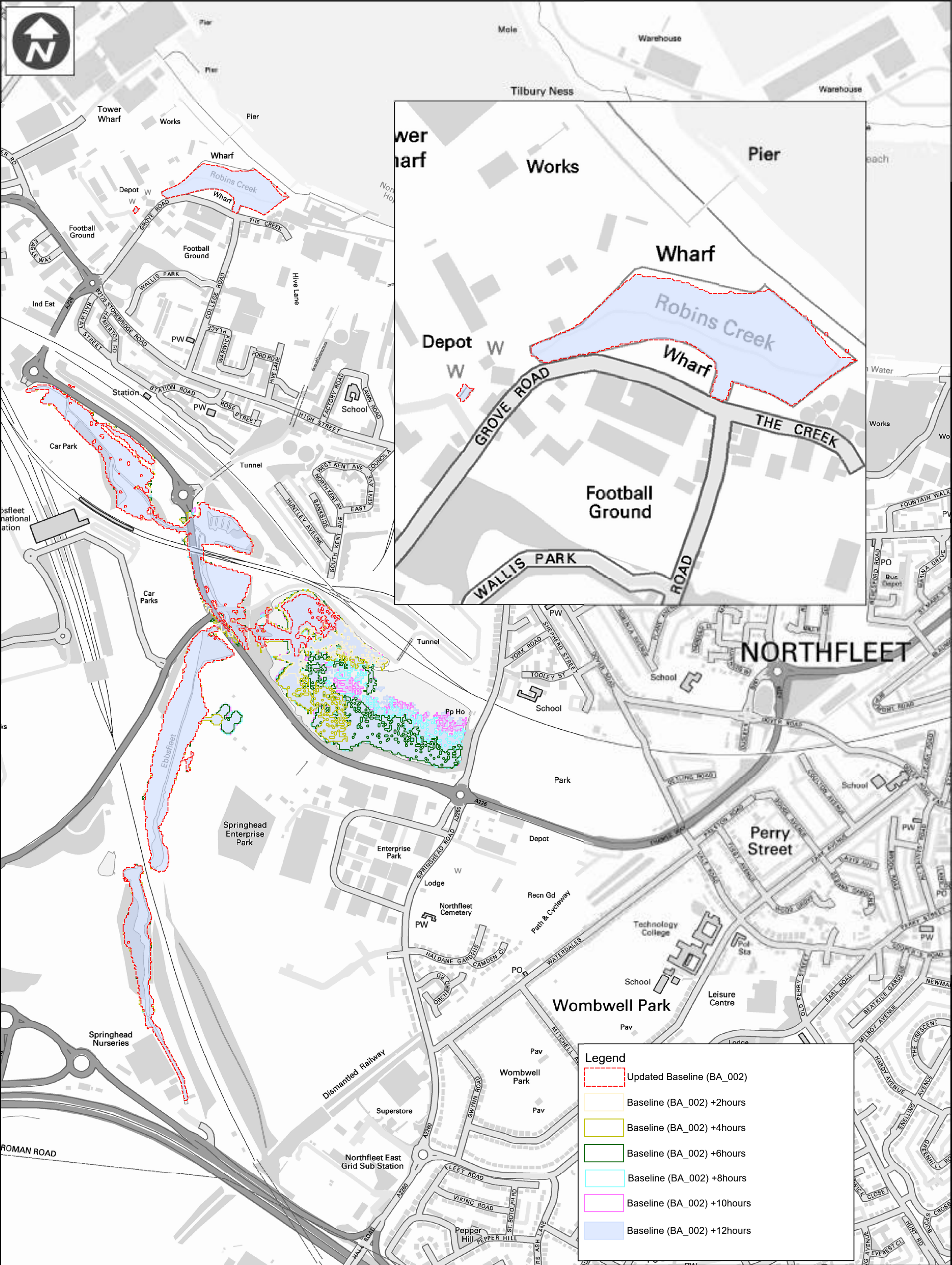


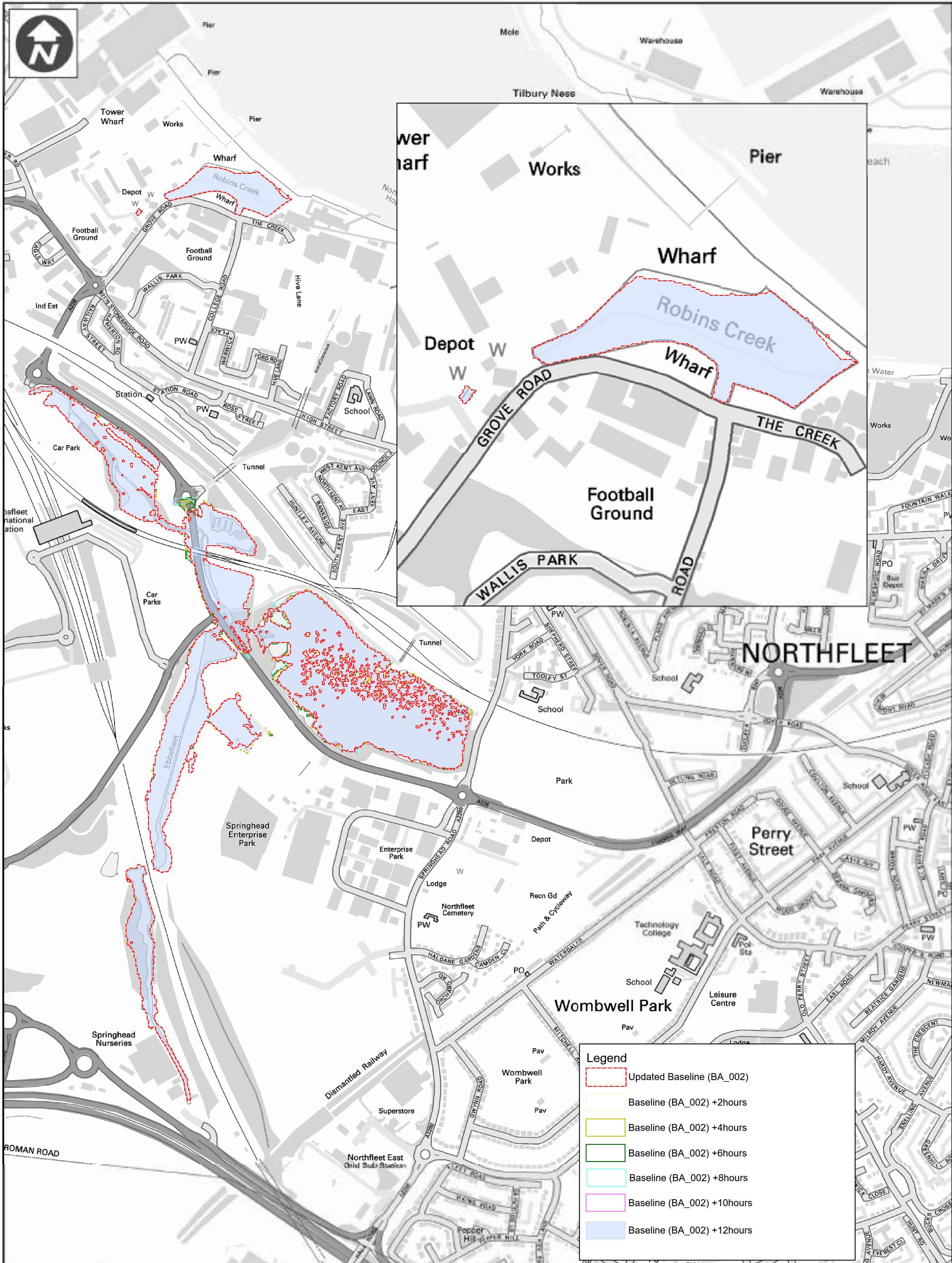
46600/4001_TN_002 Northfleet Mixed Use Development -Robbins Creek Hydraulic Modelling										
Peak Flood Level Comparison [m]										
								<4mm betterment +/- 4mm > 4mm detriment		
Node ID	Max WL [m]						Difference [m]			
	100yr35CC			100yr70CC			100yr35CC		100yr70CC	
	BA_002	PD_201	PD_201	BA_002	PD_101	PD_201	PD_101	PD_201	PD_101	PD_201
1.004	2.577	2.58	2.62	2.63	2.65	2.70	0.01	0.04	0.01	0.07
1.004i1	2.576	2.58	2.62	2.63	2.65	2.70	0.01	0.04	0.01	0.07
1.004i2	2.576	2.58	2.62	2.63	2.65	2.70	0.01	0.04	0.01	0.07
1.004i3	2.577	2.58	2.62	2.63	2.65	2.70	0.01	0.04	0.01	0.07
RCREEK1	2.577	2.58	2.62	2.63	2.65	2.70	0.01	0.04	0.01	0.07
1.003	2.577	2.58	2.62	2.63	2.65	2.70	0.01	0.04	0.01	0.07
1.003i3	2.577	2.58	2.62	2.63	2.64	2.70	0.01	0.04	0.01	0.07
RCREEK2	2.577	2.58	2.62	2.63	2.64	2.70	0.01	0.04	0.01	0.07
RCREEK3	2.577	2.58	2.62	2.63	2.64	2.70	0.01	0.04	0.01	0.07
RCREEK4	2.577	2.58	2.62	2.63	2.64	2.70	0.01	0.04	0.01	0.07
RCREEK5	2.577	2.58	2.62	2.63	2.64	2.70	0.00	0.04	0.01	0.07
RCREEK6	2.576	2.58	2.62	2.63	2.64	2.70	0.01	0.04	0.01	0.07
RCREEK7	2.576	2.58	2.62	2.63	2.64	2.70	0.01	0.04	0.01	0.07
OUT1	2.576	2.58	2.59	2.62	2.64	2.67	0.00	0.01	0.01	0.05
OUT1r5	2.574	2.57	2.59	2.63	2.63	2.67	0.00	0.02	0.00	0.04
OUT2	2.571	2.56	2.59	2.63	2.63	2.67	-0.01	0.02	0.00	0.04
CHAMB1	2.571	2.56	2.59	2.62	2.63	2.65	-0.01	0.01	0.01	0.04
CHAMB1i3	2.57	2.56	2.58	2.62	2.63	2.65	-0.01	0.01	0.01	0.04
CHAMB2	2.569	2.56	2.58	2.62	2.63	2.65	-0.01	0.01	0.01	0.04
Thames	4.057	4.06	4.06	4.06	4.06	4.06	0.00	0.00	0.00	0.00
Gravesend	3.436	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
Northfleet	3.404	3.41	3.41	3.52	3.52	3.52	0.00	0.00	0.00	0.00
GW_level	4.3	4.30	4.30	4.30	4.30	4.30	0.00	0.00	0.00	0.00
GW_flow	4.3	4.30	4.30	4.30	4.30	4.30	0.00	0.00	0.00	0.00
1.031	4.3	4.30	4.30	4.30	4.30	4.30	0.00	0.00	0.00	0.00
EB_052	4.295	4.30	4.30	4.30	4.30	4.30	0.00	0.00	0.00	0.00
Latinf1	4.295	4.30	4.30	4.30	4.30	4.30	0.00	0.00	0.00	0.00
1.03	4.087	4.09	4.09	4.09	4.09	4.09	0.00	0.00	0.00	0.00
EB_051	3.989	3.99	3.99	3.99	3.99	3.99	0.00	0.00	0.00	0.00
1.029	3.911	3.91	3.91	3.92	3.92	3.92	0.00	0.00	0.00	0.00
EB_050	3.767	3.77	3.77	3.78	3.78	3.78	0.00	0.00	0.00	0.00
1.028	3.591	3.59	3.59	3.66	3.66	3.66	0.00	0.00	0.00	0.00
EB_049	3.523	3.52	3.52	3.62	3.62	3.62	0.00	0.00	0.00	0.00
EB_048u	3.467	3.47	3.47	3.58	3.58	3.58	0.00	0.00	0.00	0.00
EB_048	3.455	3.46	3.46	3.58	3.58	3.58	0.00	0.00	0.00	0.00
1.027	3.443	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_047	3.443	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_046	3.441	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
1.026	3.441	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_045	3.441	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_044	3.441	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_043	3.441	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_042	3.441	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
1.025	3.441	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_041	3.441	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
1.024	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_039	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_039BU	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_039BD	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_039d	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_038	3.441	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
Latinf2	3.441	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_037	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
1.023	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_036	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_035	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_034	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_033	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
1.022	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_032	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_031	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_030	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_029	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_028	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
1.021	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_027	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
Latinf3	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_026	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_025	3.44	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
1.02	3.439	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_024	3.439	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_023u	3.439	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV1a_1	3.439	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV1b_1	3.439	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV1a_2	3.438	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV1a_3	3.438	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV1a_4	3.436	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_023u1	3.436	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00

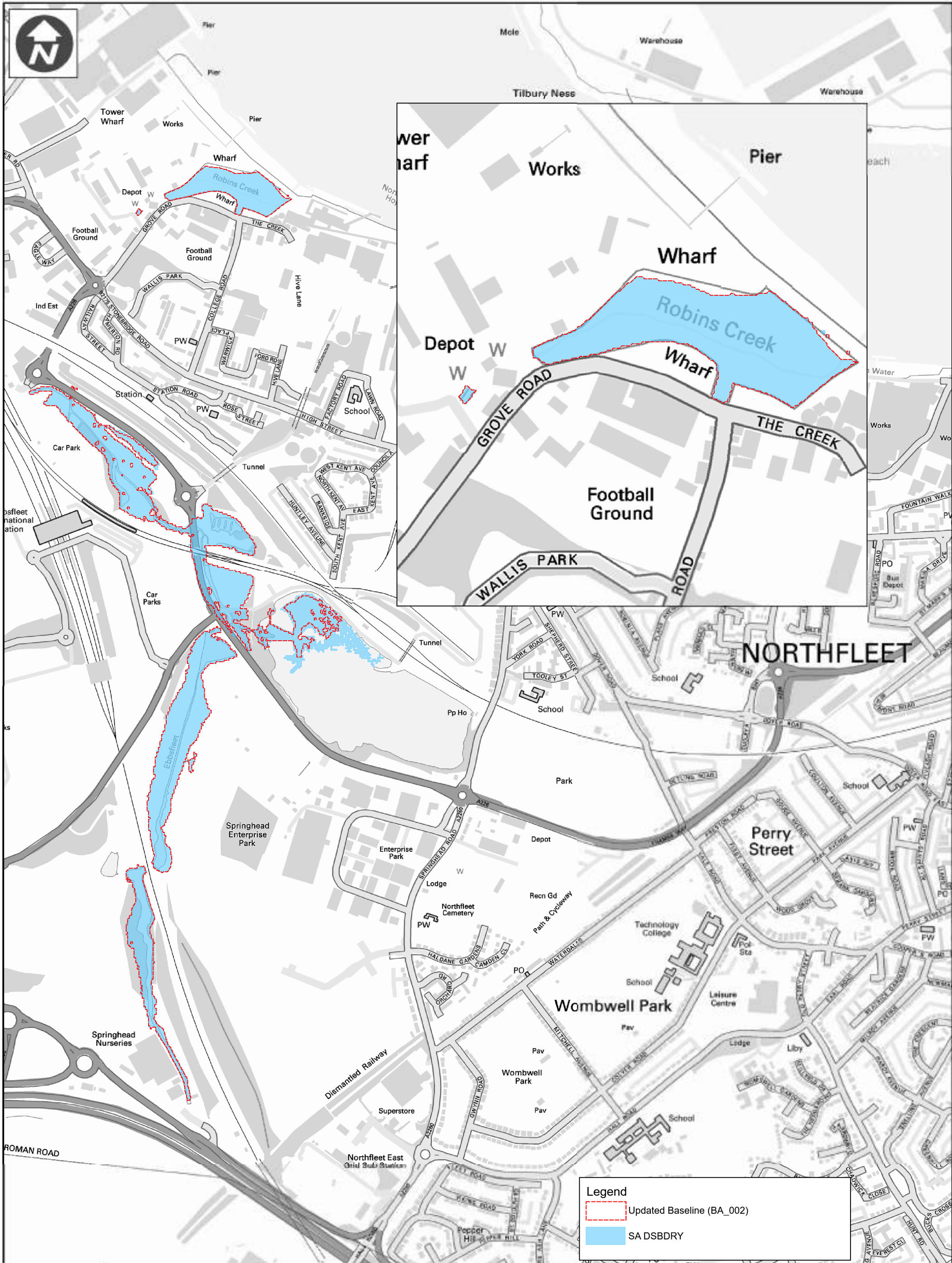
CV1b_2	3.438	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV1b_3	3.438	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV1b_4	3.436	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_023u1i	3.436	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_023u2	3.437	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV2a_1	3.437	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV2b_1	3.437	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV2a_2	3.437	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV2a_3	3.437	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV2a_4	3.437	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_023	3.437	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV2b_2	3.437	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV2b_3	3.437	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV2b_4	3.437	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
1.017	3.435	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_022	3.435	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_021	3.435	3.44	3.44	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_020u	3.433	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_020ui	3.433	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
1.016	3.433	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_020BU	3.434	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_020BD	3.414	3.41	3.42	3.56	3.56	3.56	0.00	0.00	0.00	0.00
EB_020	3.427	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_019	3.427	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_018	3.427	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_017	3.427	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_016u	3.427	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV3a_1	3.427	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV3b_1	3.427	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV3a_2	3.427	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV3a_3	3.427	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV3a_4	3.426	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
EB_016	3.426	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV3b_2	3.427	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV3b_3	3.427	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
CV3b_4	3.426	3.43	3.43	3.57	3.57	3.57	0.00	0.00	0.00	0.00
1.014	3.424	3.43	3.43	3.56	3.56	3.56	0.00	0.00	0.00	0.00
EB_015	3.425	3.43	3.43	3.56	3.56	3.56	0.00	0.00	0.00	0.00
EB_014	3.425	3.43	3.43	3.56	3.56	3.56	0.00	0.00	0.00	0.00
1.013	3.424	3.43	3.43	3.56	3.56	3.56	0.00	0.00	0.00	0.00
EB_013	3.424	3.43	3.43	3.56	3.56	3.56	0.00	0.00	0.00	0.00
1.012	3.424	3.42	3.43	3.56	3.56	3.56	0.00	0.00	0.00	0.00
1.012Bu	3.424	3.42	3.43	3.56	3.56	3.56	0.00	0.00	0.00	0.00
1.012Bd	3.417	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
1.012d	3.417	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
EB_012	3.417	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
EB_011	3.416	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
EB_010	3.416	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
EB_009	3.416	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
EB_008	3.416	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
EB_007	3.416	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
EB_006	3.416	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
EB_005	3.416	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
1.011	3.416	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
EB_004	3.415	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
EB_003	3.415	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
EB_002	3.415	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
EB_001	3.415	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
1.009	3.415	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
EB_000	3.414	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
ThamesWy1	3.414	3.42	3.42	3.55	3.55	3.55	0.00	0.00	0.00	0.00
ThamesWy2	3.405	3.41	3.41	3.52	3.52	3.52	0.00	0.00	0.00	0.00
LngClv01	3.405	3.41	3.41	3.52	3.52	3.52	0.00	0.00	0.00	0.00
LngClv02	3.404	3.41	3.41	3.52	3.52	3.52	0.00	0.00	0.00	0.00
LngCulv1	3.404	3.41	3.41	3.52	3.52	3.52	0.00	0.00	0.00	0.00
LngClv2	3.397	3.40	3.40	3.51	3.51	3.51	0.00	0.00	0.00	0.00
LngClv2i1	3.38	3.38	3.38	3.48	3.49	3.49	0.00	0.00	0.00	0.00
LngClv2i2	3.365	3.37	3.37	3.47	3.47	3.47	0.00	0.00	0.00	0.00
LngClv2b	3.35	3.35	3.35	3.45	3.46	3.46	0.00	0.00	0.00	0.01
LngClv2bi1	3.335	3.34	3.34	3.44	3.44	3.44	0.00	0.00	0.00	0.01
LngClv2bi2	3.32	3.32	3.33	3.42	3.42	3.43	0.00	0.01	0.00	0.01
LngClv2d	3.305	3.31	3.31	3.41	3.41	3.42	0.00	0.01	0.00	0.01
LngClv2di1	3.292	3.29	3.30	3.39	3.39	3.40	0.00	0.01	0.00	0.01
LngClv2di2	3.277	3.28	3.28	3.38	3.38	3.39	0.00	0.01	0.00	0.01
LngClv2f	3.262	3.26	3.27	3.36	3.36	3.37	0.00	0.01	0.00	0.01
LngClv3	3.255	3.26	3.26	3.35	3.36	3.37	0.00	0.01	0.00	0.01
LngClv4	3.241	3.24	3.25	3.34	3.34	3.35	0.00	0.01	0.00	0.01
1.006	3.241	3.24	3.25	3.34	3.34	3.35	0.00	0.01	0.00	0.01
1.006i1	3.241	3.24	3.25	3.34	3.34	3.35	0.00	0.01	0.00	0.01
1.005	3.24	3.24	3.25	3.34	3.34	3.35	0.00	0.01	0.00	0.01
CV5_1	3.24	3.24	3.25	3.34	3.34	3.35	0.00	0.01	0.00	0.01
CV5_2	3.162	3.16	3.17	3.25	3.26	3.27	0.00	0.01	0.00	0.02
CV5_3r3	2.948	2.95	2.97	3.03	3.03	3.07	0.00	0.02	0.01	0.04
CV5_3	2.734	2.74	2.77	2.80	2.81	2.86	0.00	0.03	0.01	0.06
CV5_4	2.577	2.58	2.62	2.63	2.65	2.70	0.01	0.04	0.01	0.07
CV5_Out1	2.577	2.58	2.62	2.63	2.65	2.70	0.01	0.04	0.01	0.07
CV5_Out2	2.58	2.59	2.62	2.64	2.65	2.71	0.01	0.04	0.01	0.07

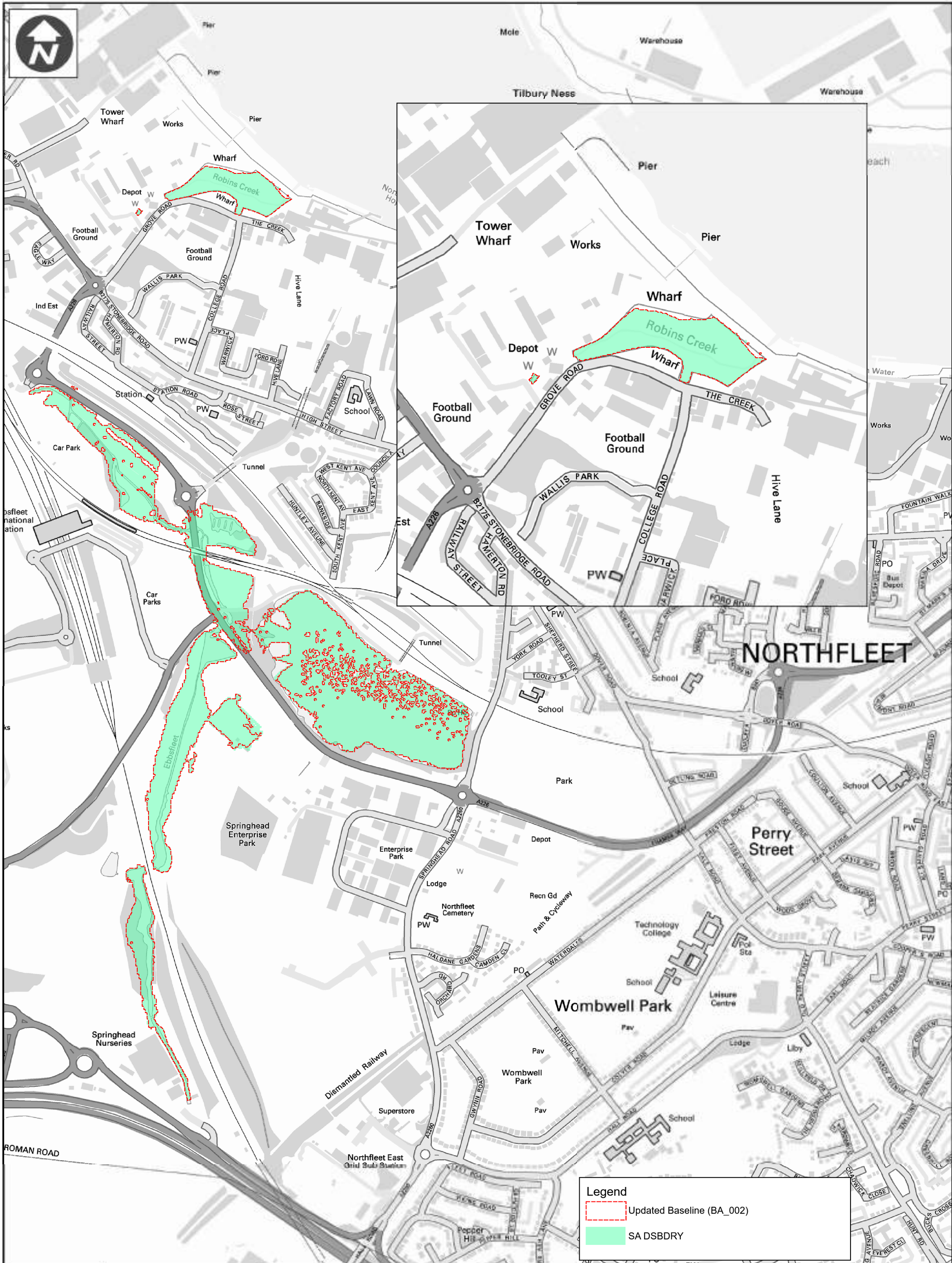
TECHNICAL NOTE

Appendix E









Ebbsfleet Riverside
Flood Extents Maps
1% AEP with 70% climate change
Sensitivity Analysis on Downstream Boundary



Client
RLT Engineering Consultants Ltd

Contains Ordnance Survey data ©
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stantec.com
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READING
Tel: 0118 950 0761

Date: 30-07-2020

Drawn By: [Name]	Checked By: [Name]
Rev: 000	
Project Number: 46600/4001/006	

46600/4001_TN_002 Northfleet Mixed Use Development -Robbins Creek Hydraulic Modelling														
Peak Flood Level Comparison [m]														
												<4mm betterment		
												+/- 4mm		
												> 4mm detriment		
Node ID	Difference (m)													
	100yr35CC							100yr70CC						
	+2h	+4h	+6h	+8h	+10h	+12h	DSBDRY	+2h	+4h	+6h	+8h	+10h	+12h	DSBDRY
1.004	0.01	0.01	-0.02	-0.08	-0.07	-0.05	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
1.004i1	0.01	0.01	-0.02	-0.08	-0.07	-0.05	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
1.004i2	0.01	0.01	-0.02	-0.08	-0.07	-0.05	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
1.004i3	0.01	0.00	-0.02	-0.08	-0.07	-0.05	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
RCREEK1	0.01	0.00	-0.02	-0.08	-0.07	-0.05	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
1.003	0.01	0.00	-0.02	-0.08	-0.07	-0.05	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
1.003i3	0.01	0.00	-0.02	-0.08	-0.07	-0.05	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
RCREEK2	0.01	0.00	-0.02	-0.08	-0.07	-0.05	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
RCREEK3	0.01	0.01	-0.02	-0.08	-0.07	-0.05	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
RCREEK4	0.01	0.00	-0.02	-0.08	-0.07	-0.05	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
RCREEK5	0.01	0.00	-0.02	-0.08	-0.07	-0.06	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
RCREEK6	0.01	0.01	-0.02	-0.08	-0.07	-0.05	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
RCREEK7	0.01	0.00	-0.02	-0.08	-0.07	-0.06	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
OUT1	0.01	0.00	-0.03	-0.08	-0.07	-0.06	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
OUT1r5	0.01	0.00	-0.02	-0.08	-0.08	-0.06	0.34	0.00	0.00	-0.02	-0.07	-0.10	-0.09	0.34
OUT2	0.02	0.00	-0.02	-0.08	-0.08	-0.07	0.34	0.00	0.00	-0.02	-0.07	-0.10	-0.09	0.34
CHAMB1	0.01	0.00	-0.02	-0.08	-0.08	-0.07	0.34	0.01	0.01	-0.01	-0.06	-0.09	-0.08	0.35
CHAMB1i3	0.01	0.00	-0.02	-0.08	-0.08	-0.07	0.34	0.01	0.01	-0.01	-0.06	-0.09	-0.08	0.35
CHAMB2	0.01	0.00	-0.02	-0.08	-0.08	-0.07	0.35	0.01	0.01	-0.01	-0.06	-0.09	-0.08	0.35
Thames	0.00	0.00	0.00	0.00	0.00	0.00	1.52	0.00	0.00	0.00	0.00	0.00	0.00	1.52
Gravesend	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.01
Northfleet	0.05	0.08	0.09	0.08	0.08	0.09	0.04	0.03	0.06	0.08	0.07	0.06	0.06	0.01
GW_level	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GW_flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.031	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB_052	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Latinf1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EB_051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.029	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00
EB_050	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.00
1.028	0.02	0.04	0.04	0.04	0.05	0.05	0.01	0.01	0.02	0.04	0.04	0.04	0.04	0.00
EB_049	0.03	0.05	0.06	0.06	0.07	0.07	0.02	0.01	0.03	0.04	0.05	0.05	0.05	0.00
EB_048u	0.04	0.07	0.08	0.08	0.09	0.09	0.02	0.01	0.03	0.05	0.05	0.05	0.05	0.00
EB_048	0.04	0.07	0.09	0.09	0.09	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.01
1.027	0.05	0.08	0.09	0.09	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.01
EB_047	0.05	0.08	0.09	0.09	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.01
EB_046	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
1.026	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_045	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_044	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_043	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_042	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
1.025	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_041	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
1.024	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_039	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_039BU	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_039BD	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_039d	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_038	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
Latinf2	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_037	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
1.023	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_036	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_035	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_034	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_033	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
1.022	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_032	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_031	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_030	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_029	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_028	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
1.021	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_027	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
Latinf3	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_026	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_025	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
1.02	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_024	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_023u	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
CV1a_1	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
CV1b_1	0.05	0.08	0.09	0.10										

CV2b_2	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.06	0.06	0.01
CV2b_3	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.06	0.06	0.01
CV2b_4	0.05	0.08	0.09	0.10	0.10	0.10	0.03	0.02	0.03	0.05	0.06	0.05	0.05	0.00
1.017	0.05	0.08	0.09	0.10	0.10	0.11	0.03	0.02	0.03	0.05	0.06	0.06	0.06	0.01
EB_022	0.05	0.08	0.09	0.10	0.10	0.11	0.03	0.02	0.03	0.05	0.06	0.06	0.06	0.01
EB_021	0.05	0.08	0.09	0.10	0.10	0.11	0.03	0.02	0.03	0.05	0.06	0.06	0.06	0.01
EB_020u	0.05	0.08	0.10	0.10	0.10	0.11	0.03	0.02	0.03	0.05	0.06	0.06	0.06	0.01
EB_020ui	0.05	0.08	0.10	0.10	0.10	0.11	0.03	0.02	0.03	0.05	0.06	0.06	0.06	0.01
1.016	0.05	0.08	0.10	0.10	0.10	0.11	0.03	0.02	0.03	0.05	0.06	0.06	0.06	0.01
EB_020BU	0.05	0.08	0.09	0.10	0.10	0.11	0.03	0.02	0.03	0.05	0.06	0.06	0.06	0.01
EB_020BD	0.06	0.09	0.11	0.11	0.11	0.12	0.05	0.02	0.04	0.06	0.06	0.06	0.06	0.01
EB_020	0.05	0.09	0.10	0.10	0.11	0.11	0.04	0.02	0.03	0.05	0.06	0.05	0.06	0.01
EB_019	0.05	0.09	0.10	0.10	0.11	0.11	0.04	0.02	0.03	0.05	0.06	0.05	0.05	0.01
EB_018	0.05	0.09	0.10	0.10	0.11	0.11	0.04	0.02	0.03	0.05	0.06	0.05	0.06	0.01
EB_017	0.05	0.09	0.10	0.10	0.11	0.11	0.04	0.02	0.03	0.05	0.06	0.05	0.05	0.00
EB_016u	0.05	0.09	0.10	0.10	0.11	0.11	0.04	0.02	0.03	0.05	0.06	0.05	0.06	0.01
CV3a_1	0.05	0.09	0.10	0.10	0.11	0.11	0.04	0.02	0.03	0.05	0.06	0.05	0.06	0.01
CV3b_1	0.05	0.09	0.10	0.10	0.11	0.11	0.04	0.02	0.03	0.05	0.06	0.05	0.06	0.01
CV3a_2	0.05	0.09	0.10	0.10	0.11	0.11	0.04	0.02	0.03	0.05	0.06	0.05	0.05	0.00
CV3a_3	0.05	0.09	0.10	0.10	0.11	0.11	0.04	0.02	0.03	0.05	0.06	0.05	0.05	0.00
CV3a_4	0.05	0.09	0.10	0.10	0.11	0.11	0.04	0.02	0.04	0.05	0.06	0.06	0.06	0.01
EB_016	0.05	0.09	0.10	0.10	0.11	0.11	0.04	0.02	0.04	0.05	0.06	0.06	0.06	0.01
CV3b_2	0.05	0.09	0.10	0.10	0.11	0.11	0.04	0.02	0.03	0.05	0.06	0.05	0.05	0.00
CV3b_3	0.05	0.09	0.10	0.10	0.11	0.11	0.04	0.02	0.03	0.05	0.06	0.05	0.05	0.00
CV3b_4	0.05	0.09	0.10	0.10	0.11	0.11	0.04	0.02	0.04	0.05	0.06	0.06	0.06	0.01
1.014	0.05	0.09	0.10	0.10	0.10	0.11	0.04	0.02	0.04	0.06	0.06	0.06	0.06	0.01
EB_015	0.05	0.09	0.10	0.10	0.10	0.11	0.04	0.02	0.04	0.06	0.06	0.06	0.06	0.01
EB_014	0.05	0.09	0.10	0.10	0.10	0.11	0.04	0.02	0.04	0.06	0.06	0.06	0.06	0.01
1.013	0.05	0.09	0.10	0.10	0.10	0.11	0.04	0.02	0.04	0.06	0.06	0.06	0.06	0.01
EB_013	0.05	0.09	0.10	0.10	0.10	0.11	0.04	0.02	0.04	0.06	0.06	0.06	0.06	0.01
1.012	0.05	0.09	0.10	0.10	0.10	0.11	0.04	0.02	0.04	0.06	0.06	0.06	0.06	0.00
1.012Bu	0.05	0.09	0.10	0.10	0.10	0.11	0.04	0.02	0.04	0.06	0.06	0.06	0.06	0.00
1.012Bd	0.05	0.08	0.09	0.10	0.10	0.10	0.04	0.02	0.04	0.06	0.06	0.06	0.06	0.00
1.012d	0.05	0.08	0.09	0.10	0.10	0.10	0.04	0.02	0.04	0.06	0.06	0.06	0.06	0.00
EB_012	0.05	0.08	0.09	0.10	0.10	0.10	0.04	0.02	0.04	0.06	0.06	0.06	0.06	0.00
EB_011	0.05	0.08	0.09	0.10	0.10	0.10	0.04	0.02	0.04	0.06	0.07	0.06	0.06	0.01
EB_010	0.05	0.08	0.09	0.10	0.10	0.10	0.04	0.02	0.04	0.06	0.07	0.06	0.06	0.01
EB_009	0.05	0.08	0.09	0.10	0.10	0.10	0.04	0.02	0.04	0.06	0.07	0.06	0.06	0.01
EB_008	0.05	0.08	0.09	0.10	0.10	0.10	0.04	0.02	0.04	0.06	0.07	0.06	0.06	0.01
EB_007	0.05	0.08	0.09	0.10	0.10	0.10	0.04	0.02	0.04	0.06	0.07	0.06	0.06	0.01
EB_006	0.05	0.08	0.09	0.10	0.10	0.10	0.04	0.02	0.04	0.06	0.07	0.06	0.06	0.01
EB_005	0.05	0.08	0.09	0.09	0.10	0.10	0.04	0.02	0.04	0.06	0.07	0.06	0.06	0.01
1.011	0.05	0.08	0.09	0.09	0.10	0.10	0.04	0.02	0.04	0.06	0.07	0.06	0.06	0.01
EB_004	0.05	0.08	0.09	0.09	0.10	0.10	0.04	0.02	0.04	0.06	0.07	0.06	0.06	0.01
EB_003	0.05	0.08	0.09	0.09	0.10	0.10	0.04	0.02	0.04	0.06	0.07	0.06	0.06	0.00
EB_002	0.05	0.08	0.09	0.09	0.10	0.10	0.04	0.02	0.04	0.06	0.07	0.06	0.06	0.01
EB_001	0.05	0.08	0.09	0.09	0.10	0.10	0.04	0.02	0.04	0.06	0.07	0.06	0.06	0.01
1.009	0.05	0.08	0.09	0.09	0.10	0.10	0.04	0.02	0.04	0.06	0.07	0.06	0.06	0.01
EB_000	0.05	0.08	0.09	0.09	0.10	0.10	0.04	0.02	0.05	0.06	0.07	0.06	0.06	0.01
ThamesWy1	0.05	0.08	0.09	0.09	0.10	0.10	0.04	0.02	0.05	0.06	0.07	0.06	0.06	0.01
ThamesWy2	0.05	0.08	0.09	0.08	0.08	0.09	0.04	0.03	0.06	0.08	0.07	0.06	0.06	0.01
LngClv01	0.05	0.08	0.09	0.08	0.08	0.09	0.04	0.03	0.06	0.08	0.07	0.06	0.06	0.01
LngClv02	0.05	0.08	0.09	0.08	0.08	0.09	0.04	0.03	0.06	0.08	0.07	0.06	0.06	0.01
LngCulv1	0.05	0.08	0.09	0.08	0.08	0.09	0.04	0.03	0.06	0.08	0.07	0.06	0.06	0.01
LngClv2	0.05	0.08	0.08	0.07	0.07	0.09	0.04	0.04	0.07	0.09	0.08	0.06	0.06	0.02
LngClv2i1	0.05	0.07	0.07	0.05	0.05	0.08	0.05	0.04	0.07	0.09	0.08	0.03	0.06	0.03
LngClv2i2	0.05	0.07	0.07	0.04	0.05	0.08	0.05	0.04	0.07	0.08	0.07	0.01	0.05	0.04
LngClv2b	0.05	0.07	0.06	0.03	0.04	0.08	0.06	0.04	0.07	0.08	0.07	0.01	0.05	0.04
LngClv2bi1	0.05	0.07	0.06	0.03	0.04	0.08	0.06	0.04	0.07	0.08	0.06	0.01	0.05	0.05
LngClv2bi2	0.05	0.07	0.06	0.03	0.04	0.07	0.07	0.04	0.07	0.08	0.06	0.01	0.05	0.06
LngClv2d	0.05	0.07	0.06	0.02	0.04	0.07	0.08	0.04	0.06	0.08	0.06	0.00	0.04	0.06
LngClv2di1	0.05	0.07	0.06	0.02	0.04	0.07	0.08	0.04	0.06	0.07	0.05	0.00	0.04	0.07
LngClv2di2	0.04	0.06	0.05	0.02	0.03	0.07	0.09	0.04	0.06	0.07	0.05	0.00	0.04	0.07
LngClv2f	0.04	0.06	0.05	0.02	0.03	0.06	0.09	0.04	0.06	0.07	0.05	0.00	0.04	0.08
LngClv3	0.04	0.06	0.05	0.01	0.03	0.06	0.09	0.03	0.06	0.07	0.05	0.00	0.04	0.08
LngClv4	0.04	0.06	0.05	0.01	0.03	0.06	0.10	0.03	0.06	0.07	0.04	0.00	0.03	0.09
1.006	0.04	0.06	0.05	0.01	0.03	0.06	0.10	0.03	0.06	0.07	0.04	0.00	0.03	0.09
1.006i1	0.04	0.06	0.05	0.01	0.03	0.06	0.10	0.03	0.06	0.07	0.04	0.00	0.03	0.09
1.005	0.04	0.06	0.05	0.01	0.03	0.06	0.10	0.03	0.06	0.07	0.04	0.00	0.03	0.09
CV5_1	0.04	0.06	0.05	0.01	0.03	0.06	0.10	0.03	0.06	0.07	0.04	0.00	0.03	0.09
CV5_2	0.04	0.05	0.04	0.00	0.02	0.05	0.13	0.03	0.05	0.06	0.03	-0.01	0.02	0.12
CV5_3r3	0.03	0.04	0.02	-0.03	-0.01	0.01	0.20	0.02	0.04	0.03	-0.01	-0.04	-0.02	0.20
CV5_3	0.02	0.02	-0.01	-0.06	-0.04	-0.03	0.28	0.02	0.02	0.01	-0.05	-0.07	-0.05	0.29
CV5_4	0.01	0.01	-0.02	-0.08	-0.07	-0.05	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
CV5_Out1	0.01	0.01	-0.02	-0.08	-0.07	-0.05	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35
CV5_Out2	0.01	0.01	-0.02	-0.08	-0.06	-0.05	0.34	0.01	0.01	-0.01	-0.07	-0.09	-0.08	0.35

46600/4001_TN_002 Northfleet Mixed Use Development -Robbins Creek Hydraulic Modelling																
Max Peak Flood Level [m AOD]																
Node ID	100yr35CC								100yr70CC							
	BA_002	+2h	+4h	+6h	+8h	+10h	+12h	DS_BDRY	BA_002	+2h	+4h	+6h	+8h	+10h	+12h	DS_BDRY
	[m AOD]															
Gravesend	3.44	3.48	3.52	3.53	3.53	3.54	3.54	3.47	3.57	3.59	3.60	3.62	3.63	3.62	3.62	3.58
Northfleet	3.40	3.46	3.48	3.49	3.49	3.49	3.49	3.45	3.41	3.55	3.58	3.60	3.60	3.58	3.58	3.53
GW_level	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30
GW_flow	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30
1.031	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30
EB_052	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30
Latinf1	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30
1.03	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09
EB_051	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	4.00	4.00	4.00	4.00	3.99
1.029	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.92	3.92	3.92	3.92	3.92	3.92	3.92
EB_050	3.77	3.77	3.77	3.78	3.78	3.78	3.78	3.77	3.77	3.79	3.79	3.80	3.80	3.80	3.80	3.78
1.028	3.59	3.61	3.63	3.64	3.64	3.64	3.64	3.60	3.59	3.67	3.68	3.69	3.70	3.70	3.70	3.66
EB_049	3.52	3.55	3.58	3.59	3.59	3.59	3.59	3.54	3.52	3.63	3.64	3.66	3.67	3.66	3.66	3.62
EB_048u	3.47	3.51	3.54	3.55	3.55	3.55	3.56	3.49	3.47	3.60	3.61	3.63	3.64	3.63	3.63	3.59
EB_048	3.46	3.50	3.53	3.54	3.54	3.55	3.55	3.48	3.46	3.59	3.61	3.63	3.64	3.63	3.63	3.58
1.027	3.44	3.49	3.52	3.54	3.54	3.54	3.55	3.47	3.45	3.59	3.61	3.62	3.63	3.63	3.63	3.58
EB_047	3.44	3.49	3.52	3.54	3.54	3.54	3.55	3.47	3.45	3.59	3.61	3.62	3.63	3.63	3.63	3.58
EB_046	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
1.026	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_045	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_044	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_043	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_042	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
1.025	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_041	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
1.024	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_039	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_039BU	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_039BD	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_039d	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_038	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
Latinf2	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_037	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
1.023	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_036	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_035	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_034	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_033	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
1.022	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_032	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_031	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_030	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_029	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_028	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
1.021	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_027	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
Latinf3	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_026	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_025	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
1.02	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_024	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
EB_023u	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
CV1a_1	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
CV1b_1	3.44	3.49	3.52	3.53	3.54	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58
CV1a_2	3.44	3.48	3.52	3.53	3.53	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.62	3.63	3.58
CV1a_3	3.44	3.48	3.52	3.53	3.53	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.62	3.63	3.58
CV1a_4	3.44	3.48	3.52	3.53	3.53	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.62	3.62	3.58
EB_023u1	3.44	3.48	3.52	3.53	3.53	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.62	3.62	3.58
CV1b_2	3.44	3.48	3.52	3.53	3.53	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.62	3.63	3.58
CV1b_3	3.44	3.48	3.52	3.53	3.53	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.62	3.63	3.58
CV1b_4	3.44	3.48	3.52	3.53	3.53	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.62	3.62	3.58
EB_023u1i	3.44	3.48	3.52	3.53	3.53	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.62	3.62	3.58
EB_023u2	3.44	3.48	3.52	3.53	3.53	3.54	3.54	3.47	3.44	3.59	3.60	3.62	3.63	3.63	3.63	3.58

EB_015	3.43	3.48	3.51	3.52	3.53	3.53	3.53	3.46	3.43	3.58	3.60	3.62	3.63	3.62	3.62	3.57
EB_014	3.43	3.48	3.51	3.52	3.53	3.53	3.53	3.46	3.43	3.58	3.60	3.62	3.63	3.62	3.62	3.57
1.013	3.42	3.48	3.51	3.52	3.53	3.53	3.53	3.46	3.43	3.58	3.60	3.62	3.63	3.62	3.62	3.57
EB_013	3.42	3.48	3.51	3.52	3.53	3.53	3.53	3.46	3.43	3.58	3.60	3.62	3.63	3.62	3.62	3.57
1.012	3.42	3.48	3.51	3.52	3.53	3.53	3.53	3.46	3.43	3.58	3.60	3.62	3.63	3.62	3.62	3.57
1.012Bu	3.42	3.48	3.51	3.52	3.53	3.53	3.53	3.46	3.43	3.58	3.60	3.62	3.63	3.62	3.62	3.57
1.012Bd	3.42	3.47	3.50	3.51	3.51	3.52	3.52	3.46	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.56
1.012d	3.42	3.47	3.50	3.51	3.51	3.52	3.52	3.46	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.56
EB_012	3.42	3.47	3.50	3.51	3.51	3.52	3.52	3.46	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.56
EB_011	3.42	3.47	3.50	3.51	3.51	3.51	3.52	3.46	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.56
EB_010	3.42	3.47	3.50	3.51	3.51	3.51	3.52	3.46	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.56
EB_009	3.42	3.47	3.50	3.51	3.51	3.51	3.52	3.46	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.56
EB_008	3.42	3.47	3.50	3.51	3.51	3.51	3.52	3.46	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.56
EB_007	3.42	3.47	3.50	3.51	3.51	3.51	3.52	3.46	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.56
EB_006	3.42	3.47	3.50	3.51	3.51	3.51	3.52	3.46	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.56
EB_005	3.42	3.47	3.50	3.51	3.51	3.51	3.52	3.46	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.56
1.011	3.42	3.47	3.50	3.51	3.51	3.51	3.52	3.46	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.56
EB_004	3.42	3.47	3.50	3.51	3.51	3.51	3.52	3.45	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.56
EB_003	3.42	3.47	3.50	3.51	3.51	3.51	3.52	3.45	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.55
EB_002	3.42	3.47	3.50	3.51	3.51	3.51	3.52	3.45	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.55
EB_001	3.42	3.47	3.50	3.51	3.51	3.51	3.52	3.45	3.42	3.57	3.59	3.61	3.62	3.61	3.61	3.55
1.009	3.42	3.47	3.50	3.51	3.51	3.51	3.52	3.45	3.42	3.57	3.59	3.61	3.61	3.61	3.61	3.55
EB_000	3.41	3.47	3.50	3.51	3.51	3.51	3.52	3.45	3.42	3.57	3.59	3.61	3.61	3.60	3.60	3.55
ThamesWy1	3.41	3.47	3.50	3.51	3.51	3.51	3.52	3.45	3.42	3.57	3.59	3.61	3.61	3.60	3.60	3.55
ThamesWy2	3.41	3.46	3.49	3.49	3.49	3.49	3.49	3.45	3.41	3.55	3.58	3.60	3.60	3.58	3.58	3.53
LngClv01	3.41	3.46	3.49	3.49	3.49	3.49	3.49	3.45	3.41	3.55	3.58	3.60	3.60	3.58	3.58	3.53
LngClv02	3.40	3.46	3.48	3.49	3.49	3.49	3.49	3.45	3.41	3.55	3.58	3.60	3.60	3.58	3.58	3.53
LngCulv1	3.40	3.46	3.48	3.49	3.49	3.49	3.49	3.45	3.41	3.55	3.58	3.60	3.60	3.58	3.58	3.53
LngClv2	3.40	3.45	3.48	3.48	3.47	3.47	3.48	3.44	3.40	3.54	3.57	3.59	3.59	3.56	3.56	3.53
LngClv2i1	3.38	3.43	3.45	3.45	3.43	3.43	3.46	3.43	3.38	3.52	3.56	3.57	3.56	3.52	3.54	3.52
LngClv2i2	3.37	3.41	3.44	3.43	3.40	3.41	3.45	3.42	3.37	3.51	3.54	3.55	3.54	3.48	3.52	3.51
LngClv2b	3.35	3.40	3.42	3.42	3.38	3.40	3.43	3.41	3.35	3.49	3.52	3.54	3.52	3.46	3.51	3.50
LngClv2bi1	3.34	3.38	3.40	3.40	3.36	3.38	3.41	3.40	3.34	3.48	3.50	3.52	3.50	3.45	3.49	3.49
LngClv2bi2	3.32	3.37	3.39	3.38	3.35	3.36	3.39	3.39	3.32	3.46	3.49	3.50	3.48	3.43	3.47	3.48
LngClv2d	3.31	3.35	3.37	3.36	3.33	3.34	3.38	3.38	3.31	3.44	3.47	3.48	3.48	3.46	3.41	3.45
LngClv2di1	3.29	3.34	3.36	3.35	3.31	3.33	3.36	3.37	3.30	3.43	3.46	3.47	3.45	3.40	3.43	3.46
LngClv2di2	3.28	3.32	3.34	3.33	3.29	3.31	3.34	3.36	3.28	3.41	3.44	3.45	3.43	3.38	3.42	3.45
LngClv2f	3.26	3.31	3.33	3.32	3.28	3.30	3.33	3.35	3.27	3.40	3.42	3.43	3.41	3.36	3.40	3.44
LngClv3	3.26	3.30	3.32	3.31	3.27	3.29	3.32	3.35	3.26	3.39	3.41	3.42	3.40	3.35	3.39	3.43
LngClv4	3.24	3.28	3.30	3.29	3.25	3.27	3.30	3.34	3.24	3.37	3.40	3.41	3.38	3.34	3.37	3.42
1.006	3.24	3.28	3.30	3.29	3.25	3.27	3.30	3.34	3.24	3.37	3.40	3.41	3.38	3.34	3.37	3.42
1.006i1	3.24	3.28	3.30	3.29	3.25	3.27	3.30	3.34	3.24	3.37	3.40	3.41	3.38	3.33	3.37	3.42
1.005	3.24	3.28	3.30	3.29	3.25	3.27	3.30	3.34	3.24	3.37	3.40	3.41	3.38	3.33	3.37	3.42
CV5_1	3.24	3.28	3.30	3.29	3.25	3.27	3.30	3.34	3.24	3.37	3.40	3.41	3.38	3.33	3.37	3.42
CV5_2	3.16	3.20	3.22	3.20	3.16	3.18	3.21	3.29	3.17	3.29	3.31	3.31	3.28	3.24	3.27	3.37
CV5_3r3	2.95	2.98	2.98	2.97	2.92	2.94	2.96	3.15	2.95	3.05	3.07	3.06	3.02	2.99	3.01	3.23
CV5_3	2.73	2.75	2.75	2.73	2.68	2.69	2.71	3.02	2.74	2.82	2.82	2.81	2.75	2.73	2.75	3.09
CV5_4	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.92	2.59	2.64	2.65	2.62	2.56	2.55	2.56	2.98
1.004	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.92	2.59	2.64	2.65	2.62	2.56	2.55	2.56	2.98
CV5_Out1	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.92	2.59	2.64	2.65	2.62	2.56	2.55	2.56	2.98
CV5_Out2	2.58	2.59	2.59	2.56	2.50	2.52	2.53	2.92	2.59	2.65	2.65	2.63	2.56	2.55	2.56	2.98
1.004i1	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.92	2.59	2.64	2.65	2.62	2.56	2.54	2.55	2.98
1.004i2	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.92	2.59	2.64	2.65	2.62	2.56	2.54	2.55	2.98
1.004i3	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.92	2.59	2.64	2.65	2.62	2.56	2.55	2.55	2.98
RCREEK1	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.92	2.59	2.64	2.65	2.62	2.56	2.55	2.55	2.98
1.003	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.92	2.59	2.64	2.65	2.62	2.56	2.55	2.56	2.98
1.003i3	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.92	2.59	2.64	2.64	2.62	2.56	2.54	2.56	2.98
RCREEK2	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.92	2.59	2.64	2.64	2.62	2.56	2.54	2.56	2.98
RCREEK3	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.92	2.59	2.64	2.65	2.62	2.56	2.54	2.56	2.98
RCREEK4	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.92	2.59	2.64	2.65	2.62	2.56	2.54	2.56	2.98
RCREEK5	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.92	2.59	2.65	2.65	2.62	2.56	2.54	2.55	2.98
RCREEK6	2.58	2.59	2.58	2.56	2.50	2.51	2.52	2.92	2.59	2.65	2.65	2.62	2.56	2.54	2.55	2.98
RCREEK7	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.92	2.59	2.64	2.65	2.62	2.56	2.54	2.55	2.98
OUT1	2.58	2.59	2.58	2.55	2.50	2.51	2.52	2.91	2.58	2.63	2.64	2.61	2.55	2.54	2.55	2.98
OUT1r5	2.57	2.59	2.58	2.55	2.49	2.50	2.51	2.91	2.58	2.63	2.63	2.61	2.55	2.53	2.54	2.96
OUT2	2.57	2.59	2.57	2.55	2.49	2.49	2.51	2.91	2.57	2.63	2.63	2.60	2.55	2.53	2.54	2.96
CHAMB1	2.57	2.58	2.57	2.55	2.49	2.49	2.50	2.91	2.57	2.63	2.63	2.60	2.55	2.52	2.54	2.96
CHAMB1i3	2.57	2.58	2.57	2.55	2.49	2.49	2.50	2.91	2.57	2.63	2.63	2.60	2.55	2.52	2.54	2.96
CHAMB2	2.57	2.58	2.57	2.55	2.49	2.49	2.50	2.91	2.57	2.63	2.63	2.60	2.55	2.52	2.54	2.96
Thames	4.06	4.06	4.06	4.06	4.06	4.06	4.06	5.58	4.06	4.06	4.06	4.06	4.06	4.06	4.06	5.58