

Work Package Plan

Title:	Spine Road and Western Gateway 1 FRAP Construction Methodology
Project Name:	CRXSS076 – South Wokingham Distributor Road
Reference No:	WHMP-BB-SRWG1-WPP-EA-0001
Revision No:	P04
Review Date:	30/05/2024

WORK PACKAGE DETAILS			
Project Name:	South Wokingham Distributor Road		
Project Number:	CRXSS076		
Principal Contractor:	Balfour Beatty		
Responsible Contractor:	Balfour Beatty		
Programme Dates:	Start:	Sept 2024	Finish: Mar 2026

DOCUMENT APPROVAL		
Prepared By:	Name:	Craig Morris
	Title:	Site Agent
	Signed:	
Appraised By:	Name:	Vinay Roopun
	Title:	Project Manager
	Signed:	
Approved By Client or Specialist:	Name:	Jean Mulovi
(If applicable)	Title:	WBC Project Manger
	Signed:	
	Date:	

REVISION STATUS DETAILS		
Revision No	Date	Description
P01	1/11/2021	Draft (for comment)
P02	27/04/2022	WBC comments addressed
P03	25/05/2024	EA comments addressed
P04	30/05/2024	Issued for Approval addressing outstanding comments Updated Document Reference Number to BIM Format

PROJECT TEAM BRIEFING

The following members of the Project Management Team (including the Supervisor responsible for the works) have been fully briefed in the content of this document, in order to execute their respective roles and responsibilities in delivery of this Work Package Plan in a safe manner.

Job Title	Name (Print)	Signature	Date

Contents

A WORK PACKAGE DETAILS

- A.1 Description of Work
 - A.1.1 Brief outline of work methodology
- A.2 Resources
 - A.2.1 Personnel
 - A.2.2 Plant and Equipment
 - A.2.3 Materials and Tools
 - A.2.4 PPE
 - A.2.5 Design Documentation
- A.3 Permits
- A.4 Inspection and Test

B SITE DETAILS

- B.1 Access, Plant and Machinery Movements
- B.2 Site Constraints
- B.3 Protection and Exclusion
- B.4 Communication and Contact Details
- B.5 Emergency Arrangements
- B.6 Accidents and Contingencies
- B.7 Interfaces
- B.8 Welfare

C BRIEFING

- C.1 Briefing Arrangements
- C.2 Work Instructions (Delete if not applicable)

D MONITORING

- D.1 Monitoring of Work Package Plans

Appendices (where applicable)

- Appendix 1 – EA Risk Assessments
- Appendix 2 – Design Documentation
- Appendix 3 - Temporary Works Sketches
- Appendix 4 – Guidance and Tool Box Talk Documents

A WORK PACKAGE DETAILS

A.1 Description and Sequence of Work

This Work Package Plan is to outline the sequence of works and control measures required to carry out all works associated with the construction of various carriageway works, flood relief structures and new river crossings over or within 8m to the Emm Brook (EA River) and the Luckley Brook (Ordinary Watercourse OWC) or works undertaken within Flood Zone 3 (see Figure 1 and Figure 2 below). (The planning application number is: 192928.)

Figure 1: Extract from Flood Map for Planning for South Wokingham Distributor Road

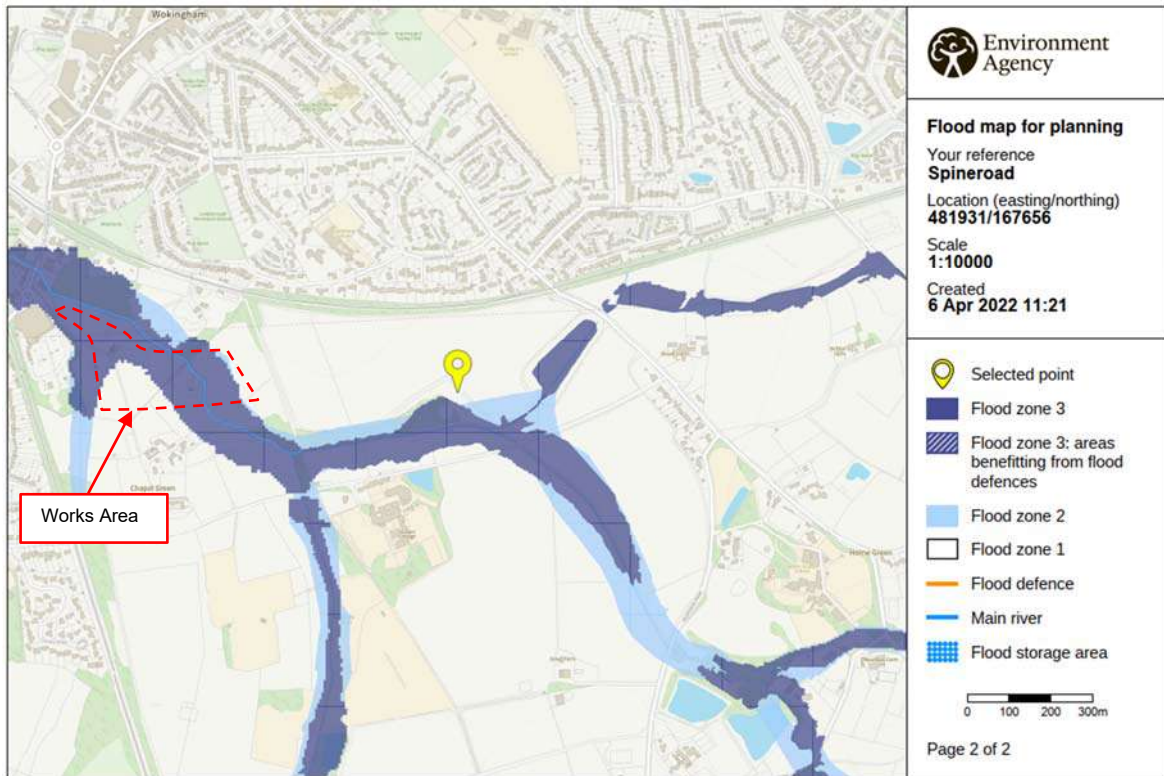
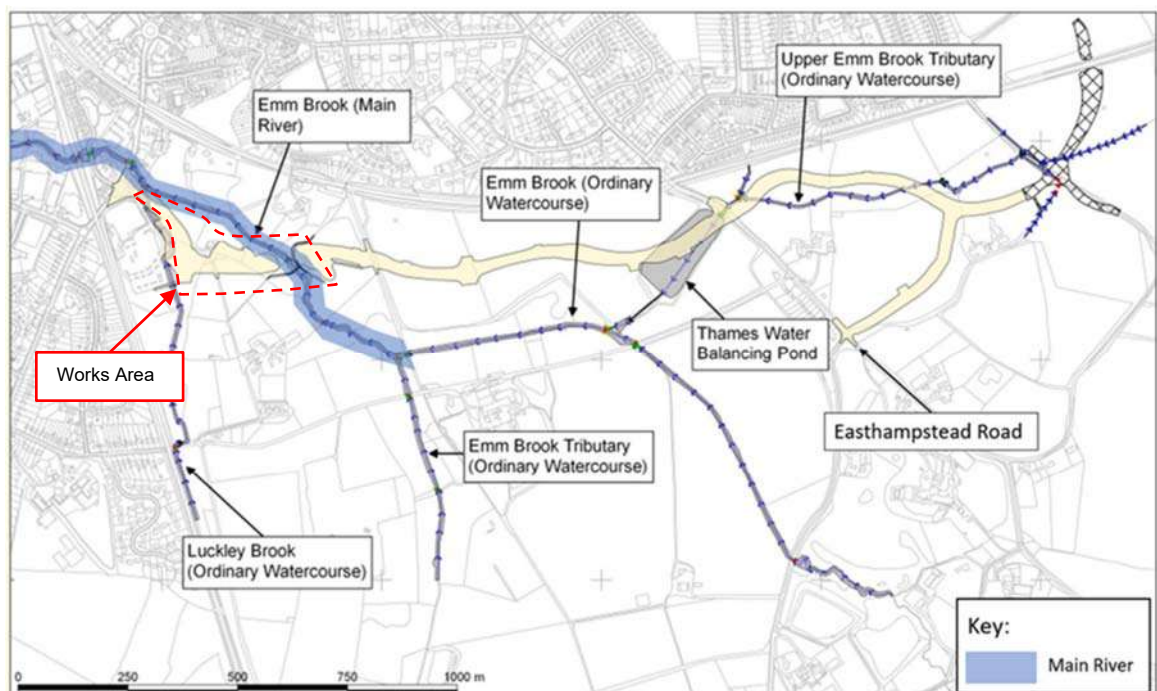


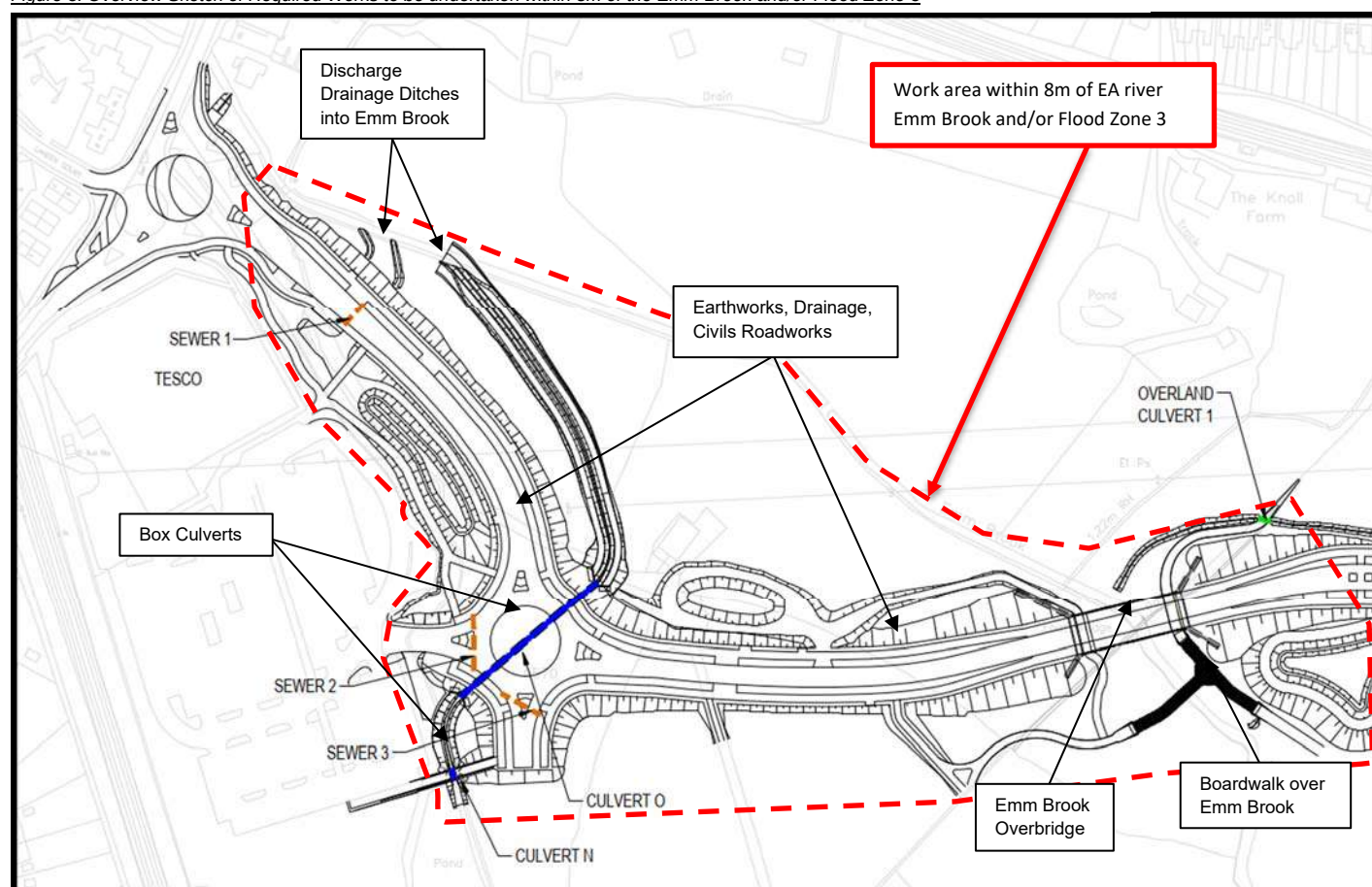
Figure 2: Proposed Highway and Existing Watercourses



The works will consist of the following:

- Vegetation removal & site clearance
- Installation of haul road and temp bridge
- Utility diversions
- Excavation
- Construction of piling mat
- Installation of bridge beams
- Installation of Box Culverts
- Earthworks filling operations
- Drainage and duct installation
- Roadworks
- Footpath works
- Installation of new footbridge
- Topsoil and landscaping

Figure 3: Overview Sketch of Required Works to be undertaken within 8m of the Emm Brook and/or Flood Zone 3



Sequence of Works – Main Site Environmental Controls

NOTE: The main work activities have been planned so that they occur when expected water levels within the main river and stream are at a minimum. The method of working will be as follows:

A pre-construction check for protected species will be undertaken by a suitably qualified ecologist (no more than 48 hours prior to construction commencing) This will be conducted for the duration of the works and at such time that a new piece of work commences.

All personnel involved in the works are to undergo a Balfour Beatty Site Specific Induction prior to any activities taking place on site. This site-specific induction will emphasise the importance of maintaining environmental controls when working within Flood Zone 3.

The site boundary is to be fenced with double clipped and braced Heras fencing panels.

Balfour Beatty will obtain a FRAP consent permit from EA to cover the construction works described below.

- The following environmental controls are to be followed at all times:
 - Silt Fencing will be installed and maintained along both banks of the Emm Brook and other watercourses in the works area to prevent any silt runoff following topsoil strip and other works.
 - Any material arising from the works is to be stored on the opposite side of the works from the watercourse.
 - Any material, plant or equipment not immediately involved with the works is to be securely stored at a minimum distance of 10m+ from the work site or out of Flood Zone 3.
 - Refuelling of any plant is not permitted within 10m of any watercourse or within Flood Zone 3 and will take place in the designated refuelling points and only by the named designated refueller. The fuel tank will be between 2000 and 5000L double bunded tank or similar approved.
 - Suitably stocked spill kits are to be kept on hand at all times. Spill kit contents should be appropriate to the nature of the materials to be used and suspected to be encountered on site.
 - Booms are available to be placed across watercourse to contain any potential spill from critical activities. These will be monitored daily and cleaned of any trapped debris
 - In the event of any spillage within the works area, the appropriate spill kit materials are to be used immediately. Specialist Spill Contractors are available to contact and attend site in the event of a significant spill on site
 - Any materials used to catch this spillage are to be collected in polythene bags and then sealed for off-site disposal at an appropriate waste management facility.
 - Should any contaminant enter any watercourse and subsequently an EA main river or appear likely to enter the EA main river then the EA is to be immediately notified on the EA incident hotline Tel: 0800 80 70 60

The limits of the works will be set out and a CAT and Genny utility survey will be carried out to ensure that the proposed works do not conflict with any known underground service.

Balfour Beatty will then issue a Permit to Break Ground detailing the control measures and limits of works.

Balfour Beatty and their nominated subcontractors can then proceed to carry out the works as per their approved Method Statements and Risk Assessments.

Figure 4: Map to show proposed position of site compound and access haul route

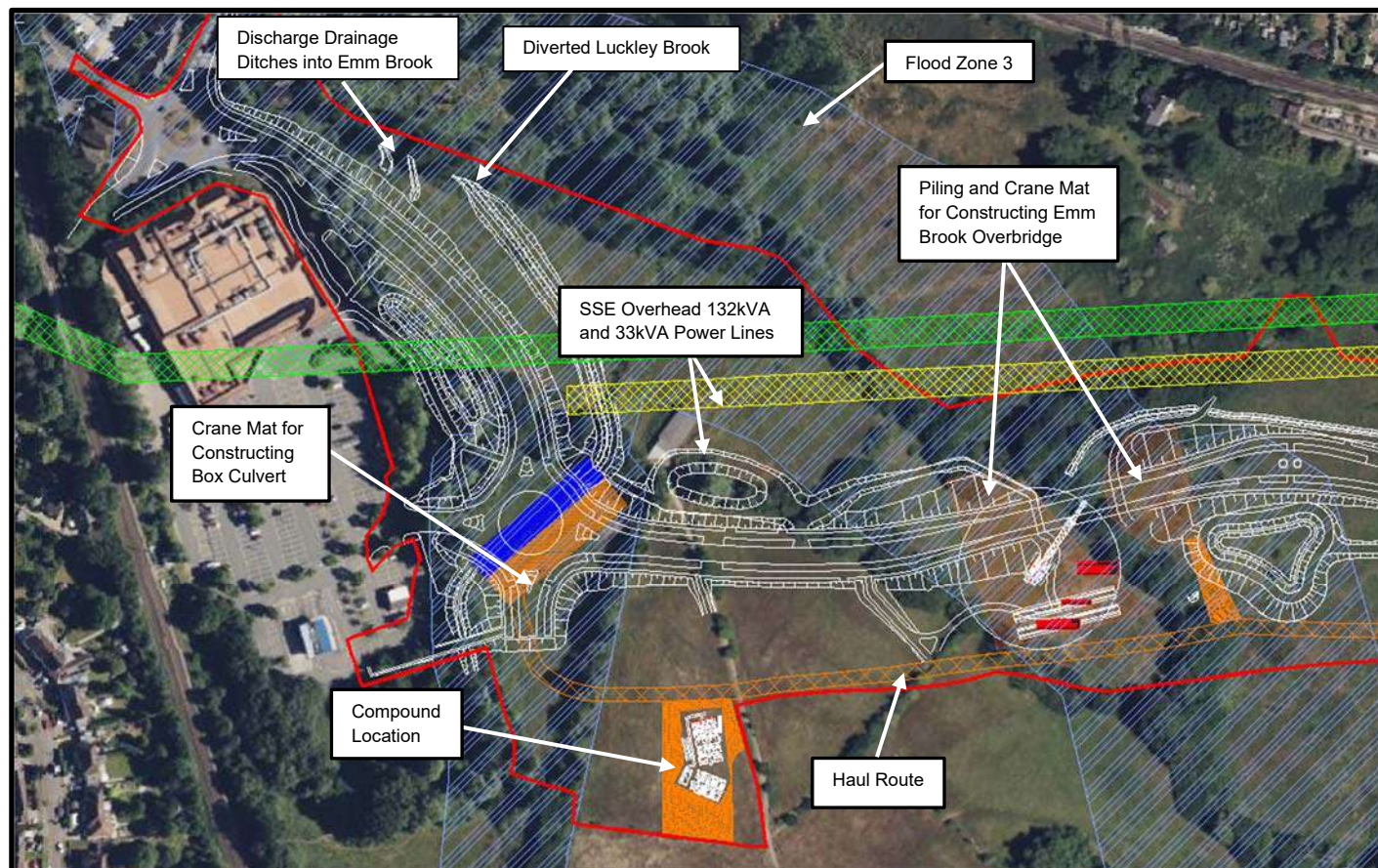
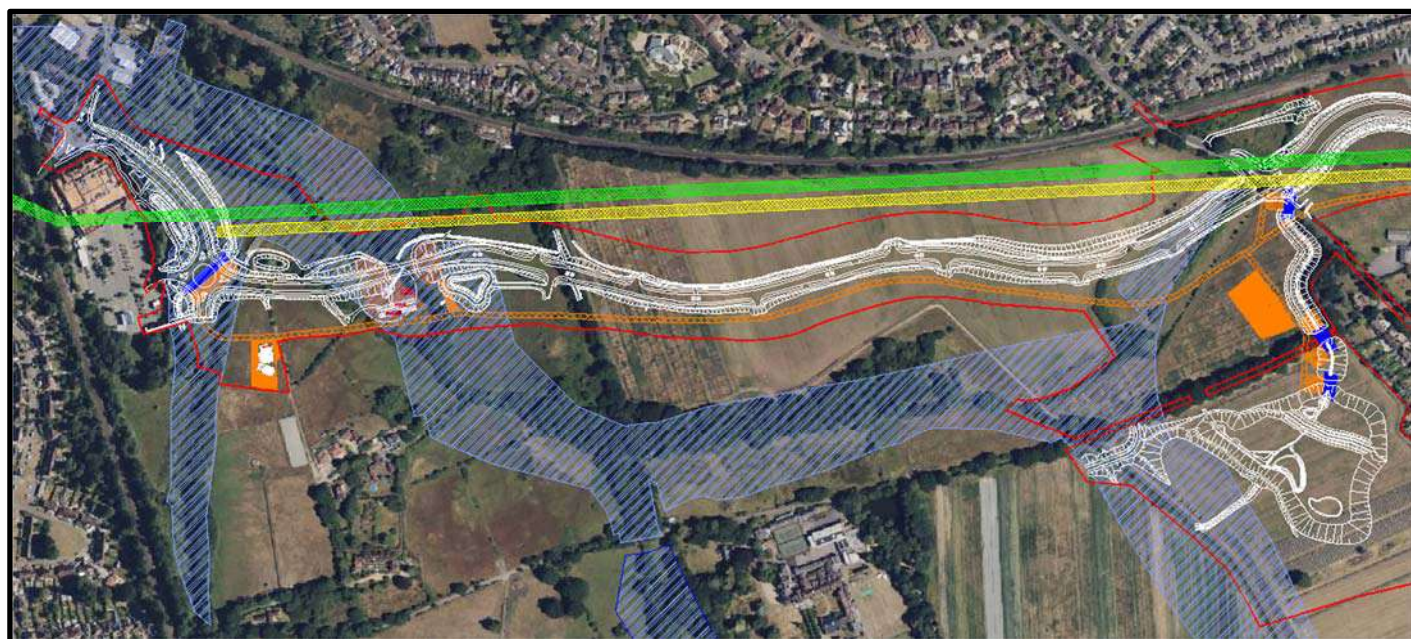


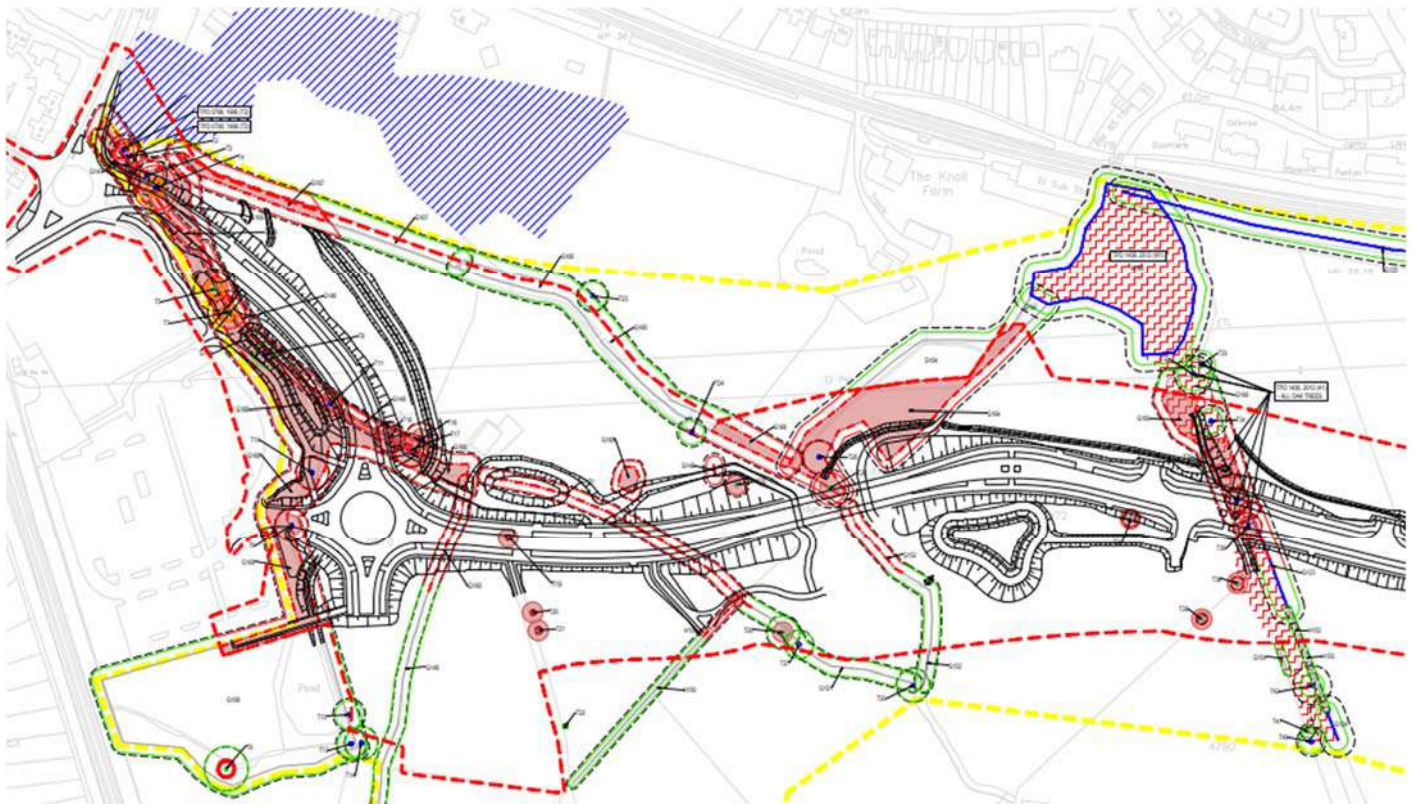
Figure 5: Map to show proposed haul route access from Easthampstead Road towards The Emm Brook



Sequence of works – Site Clearance & Vegetation Removal

- As part of the works several hedges and trees are required to be removed to allow for the works to take place. Any trees and hedgerows will be inspected by a suitably qualified ecologist prior to being soft felled, cut up and set aside for reuse as terrestrial invertebrate habitat within the site.
- Following inspection for birds and other vulnerable fauna, any trees scheduled for removal within the works footprint are to be soft felled, cut up and set aside for reuse as terrestrial invertebrate habitat within the site.
- If any nesting birds are identified, then a 5m exclusion zone will be erected around the nest and advice sought from Ecologist.
- Any trees that have been identified as bat or bird roost trees are to be felled under the supervision of a suitably qualified ecologist under licence from Natural England. Any mitigation measures stipulated in the licence are to be in place before the felling of any trees.
- Any vegetation clearance and removal of the hedgerows within the works footprint are to be trimmed or mown to a short height of 150mm. Following a period of time, the vegetation will then be cut to ground level. The vegetation clearance will be carried out under the supervision of a suitably qualified ecologist. Any reptiles found will be moved to suitable habitat outside the site boundary area.
- Any protected trees identified will be bounded with a fence around the Root Protection Area (RPA) with Tree Protection Fencing.
- The identified trees and hedgerows to be removed as part of the works are identified in Figure 6 below.

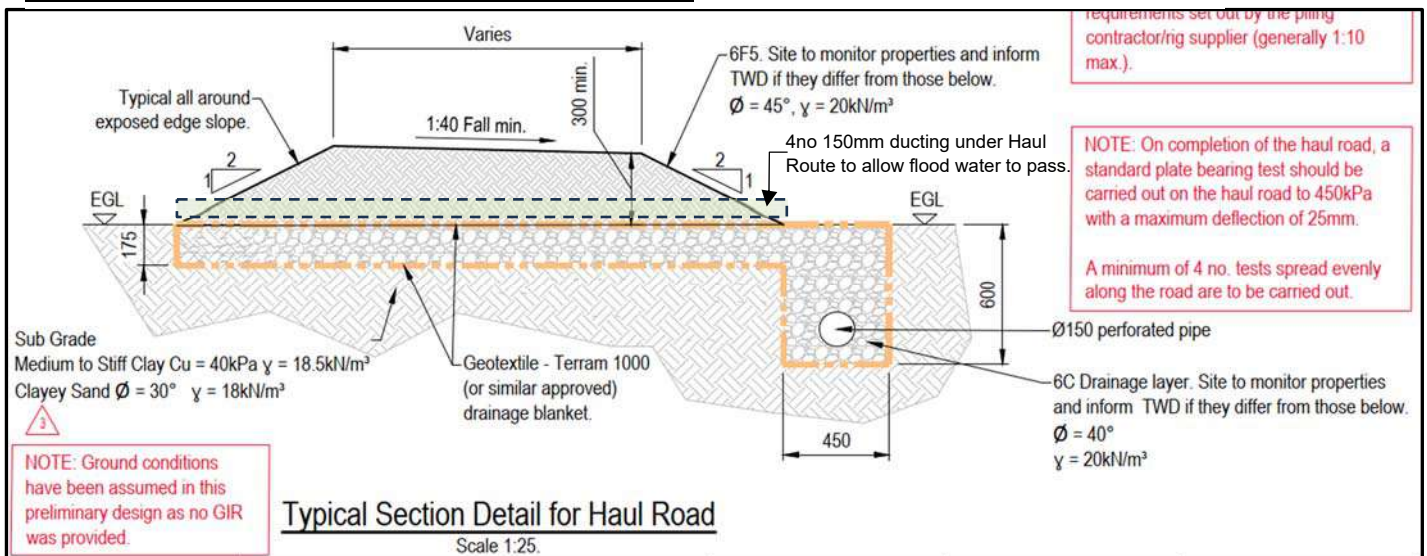
Figure 6: Map to show proposed extents of Site Clearance and Vegetation Removal



Sequence of works – Site Setup and Haul Routes

- Heras fencing will be installed around the site. This fencing will be delivered to the site by the supplier and offloaded using suitable lifting equipment into the work area. This will then be walked out and erected by Balfour Beatty around the perimeter of the site.
- The topsoil from within the works footprint is to be stripped and stockpiled within the site boundary for reuse within the project. Topsoil stockpiles are not to exceed 2m in height. Topsoil bunds will be located outside of Flood Zone 3 where possible.
- A haul road will be constructed throughout the length of the site which will act as the main route to the work areas to construct the scheme. Figure 4 above shows proposed position of site compound (for enabling) and haul road route
- Where the haul road lies within Flood Zone 3 then the haul road will be constructed as Figure 7 below.
- A drainage layer will be installed under the length of the haul road for collecting any rainwater runoff from the stone hard standing and adjacent land. The filter drain will be lined with terram so that it filters out any silt, before draining to collection point. All Discharge points will be filtered through straw bails and pumped through a siltbuster before discharging into the local ditches ordinary watercourses
- Minimum of 300mm 6F5 will be placed and compacted to form the haul road with a 1:2 slope to exposed edges and 1:40 cross fall to shed water into the drainage channel. Final detail subject to temporary works design sign off by Temporary Works Designer.
- Where the haul route is within Flood Zone 3 and higher than adjacent ground, then 4no 150mm diameter pipes will installed at 20m intervals across the haul road to allow the water to flow across in the event of flooding events.

Figure 7: Typical Section of Haul Road within 8m of Watercourse & Flood Zone 3



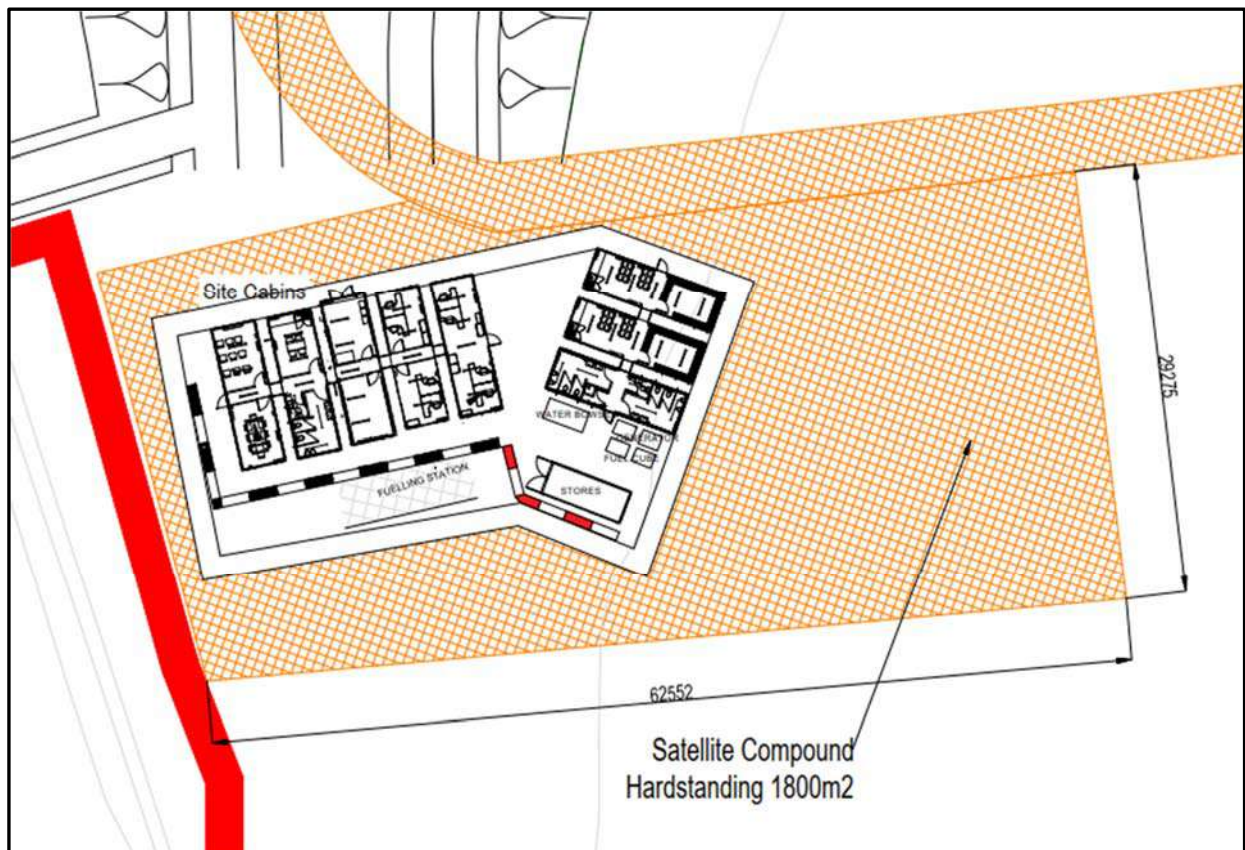
- For areas outside the flood zone, the haul route will be constructed as a hydraulically bound aggregate layer as per Figure 8 below. A proprietary product from company called Soil Science.

Figure 8: Western Hydraulically bound aggregate layer Haul Road



- Topsoil will be removed from the area of the haul road and stored on site for reuse outside of flood zones and then the top 350mm of subsoil will be stabilized and finished with 150mm thick a bound type 1 surface for running on.
- A small V-ditch between 500m to 1m deep will be cut along the edge of the haul route to capture any rainwater runoff from the stone hard standing and adjacent land. The water will be filtered through straw bails along length of the ditch, before draining to a collection point. The water will be pumped through a siltbuster before discharging into the local ditches ordinary watercourses
- A site satellite compound consisting of Porta-cabins, parking and materials yard is to be built at the western end of the works. The site compound is to be self-contained, generator powered and reliant on tanked water and septic systems. Access for the compound is intended to be obtained off Easthampstead road along the haul route. The main and satellite compounds are located outside Flood Zone 3.

Figure 9: Western Compound Layout and Offices / Welfare



Sequence of works – Temporary Access Bridge across the Emm Brooke

- In order to access the site from Easthampstead Road and avoid having to bring earthworks materials and the bridge beams through Wokingham Town Centre, a temporary bridge crossing over the Emm Brook is required to connect the haul route through site. Circa 11m span as shown below, exact span will be confirmed prior to construction.

Figure 10: Typical Cross Section of Retro Bridge crossing the Emm Brooke

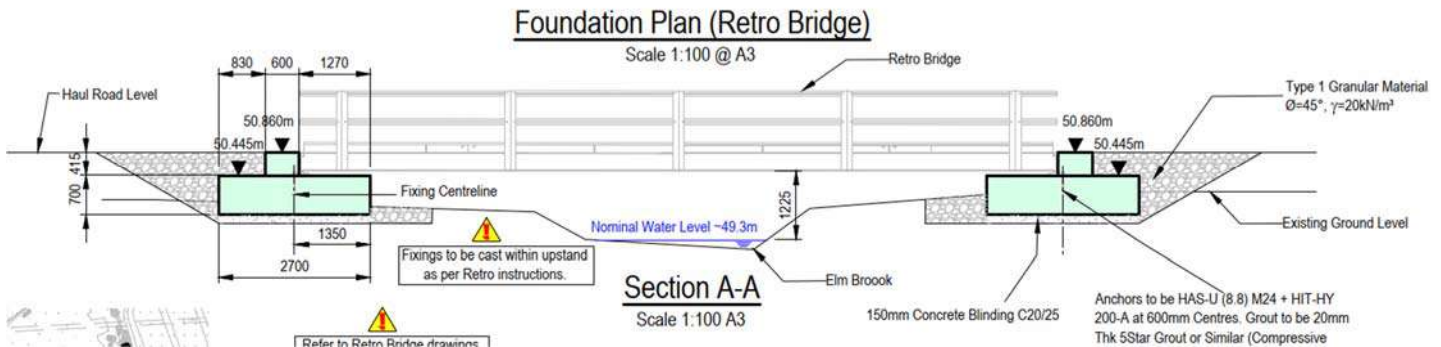
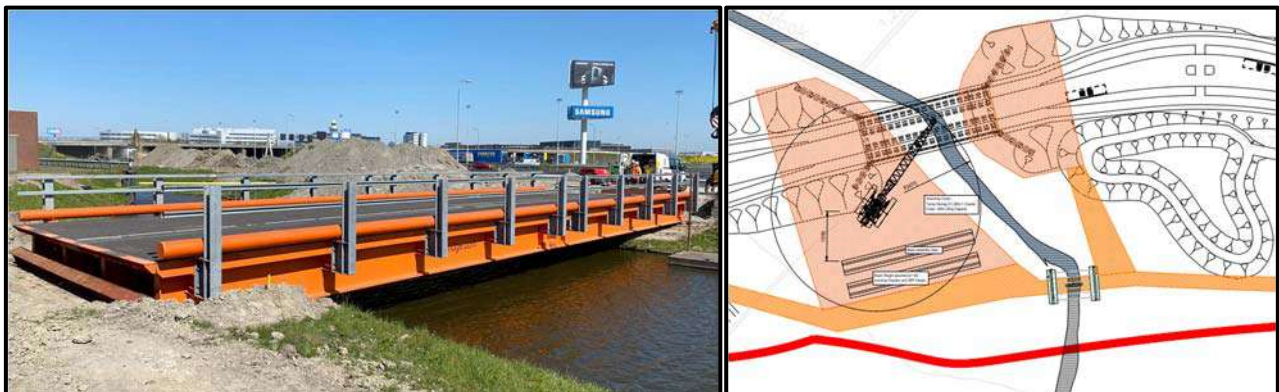


Figure 11: Typical Picture of an installed Retro Bridge over a Watercourse and Indicative proposed location of the crossing point

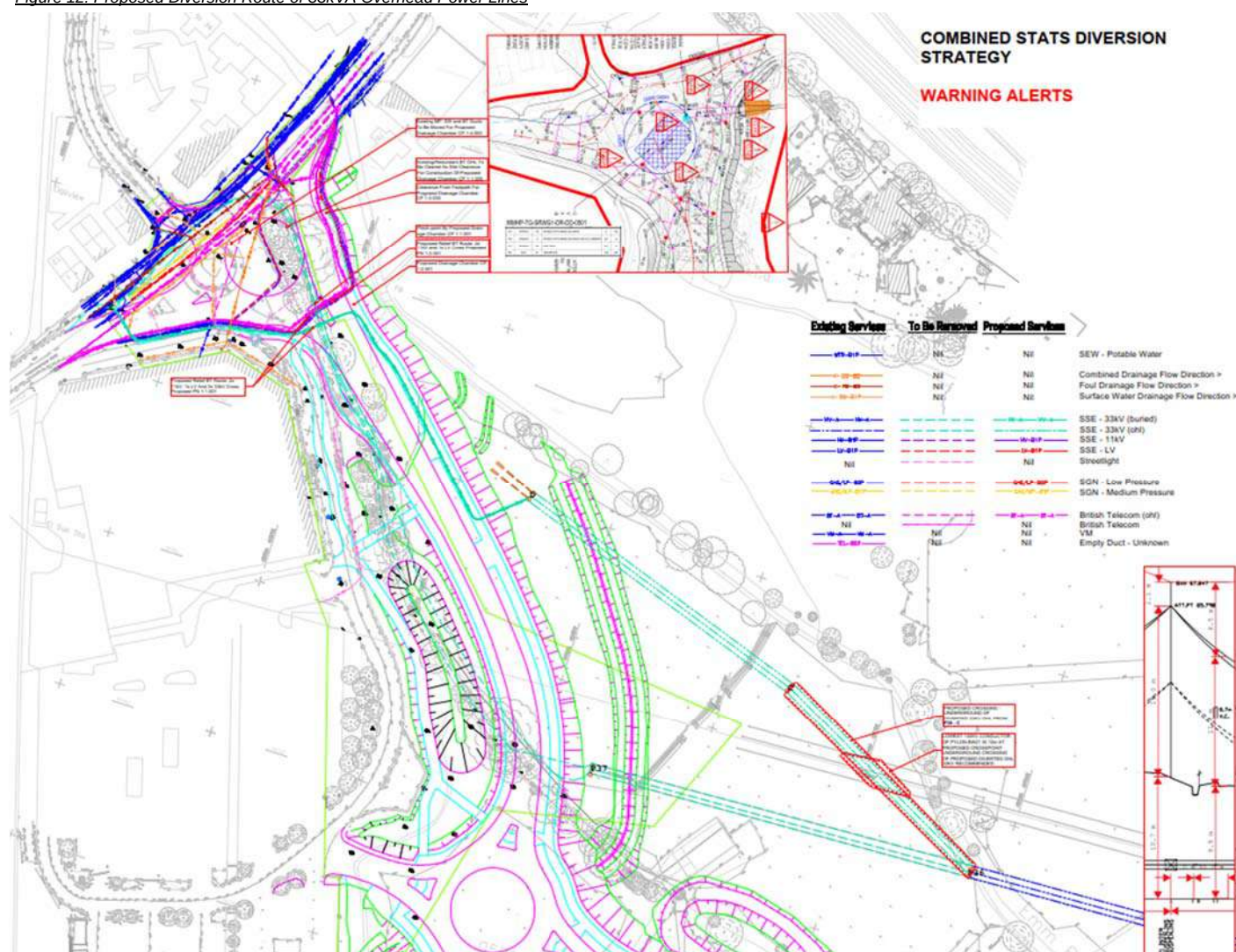


- The trees and vegetation will have been cleared previously and silt fencing will be installed along either embankment of the Emm Brooke to prevent silt run off during construction of the temp bridge
- The embankment will be levelled and excavated to suitable foundation level and Type 1 granular fill placed and compacted to form suitable formation for bridge foundations pad.
- A preformed reinforcement cage will be placed into position and proprietary shuttering erected to form the bridge bearing slab before C40/50 concrete placed using concrete pump to both bases.
- After suitable curing time, the Retro Bridge Beams will be brought to site by Lorry via the Easthampstead Road haul route and lifted into position using a suitable sized mobile crane as per lift plan
- The Retro Bridge will be commissioned and then be used for the majority of traffic movements through site to build the earthworks west of the Emm Brook and the new Emm Brooke Overbridge and avoid large lorry movements through Wokingham Town Centre as per planning constraints.

Sequence of works – Utility diversions

- C2 searches have been conducted and no statutory undertakers have indicated they have any buried assets within the location of the proposed bridge, however SSE currently have 132kVA and 33kVA overhead power lines running across the length of the site.
- In order to construct the new embankment and roundabout at Tesco's, a diversion of the 33kVA overhead power lines is required at this location. The last termination post P37, will be removed and the overheads will be undergrounded and a new temporary buried route will run NW parallel to the Emm Brooke and tie back into the Tesco Roundabout

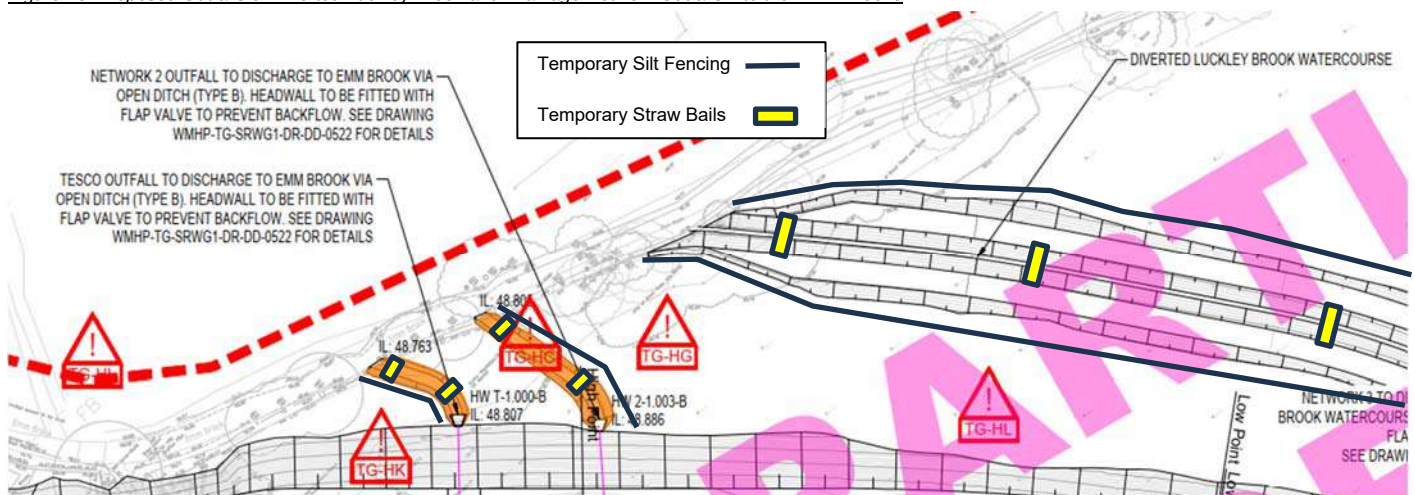
Figure 12: Proposed Diversion Route of 33kVA Overhead Power Lines



Sequence of works – Outfalls into Emm Brook

- The area will be scanned and a permit to break ground issued
- A 25T excavator will be used to excavate to Swale / Ditch to formation level and place and 200 self-compacting Class 6A granular bedding
- Formation level to be inspected and any soft areas tested in accordance with specification. Any soft areas to be dug and replaced with 300mm thick Class 6A self-compacting fill.
- The swale / ditch will be excavated to formation levels and the batter slopes graded off at 1 in 3 slope
- Erosion mattress will be installed to extend 20m from each end of the culvert and be formed from the gabion reno mattress to prevent erosion
- A small 5t mini digger will be used to prep the ground level and trim a 1 in 3 slope to form the formation for the Macaferri Enkamat A20
- The Macaferri Enkamat A20 will be rolled out and press out any unwanted creases and then pin to hold into position
- The opening into the river will be completed following the excavation of the swales/ditches and in low water level / flow rate of the river.
- The ditches/swales open up into the river embankment. The material will be pulled into site and loaded straight into the dumper for disposal offsite to prevent any loose material entering the stream
- On the west side the swale begins with a precast head wall outfall into the swale. This will be excavated to formation level and a 20mm stone bedding placed and compacted and the precast headwall will be lifted into position and bedded on the stone.
- The headwall will be backfilled and the profile of the adjacent embankment
- Straw Bales will be placed across the ditches and swales and silt fencing will erected along the lengths to prevent any runoff and silt from entering the Emm Brooke during the construction works.

Figure 13: Proposed Outfalls of Diverted Luckley Brook and Drainage Network Outfalls into the Emm Brooke



Sequence of works – Construction of Luckley Brook Diversion Culvert

- Luckley Brook, which flows south to north along the perimeter of the Tesco Land and has a confluence with the Emm Brook at the downstream end of the scheme will need to be diverted to the north of the proposed SWDR route as clashes with the new roundabout and embankment works.
- The Luckley Brooke will be diverted via a new 2100 x 2100mm clear opening concrete precast culvert that will run for 68m under the new roundabout and embankment before discharging into the Emm Brooke via the new ditch alignment as shown below in Figure 14.

Figure 14: Proposed Diverted Luckley Brook and into the Emm Brooke

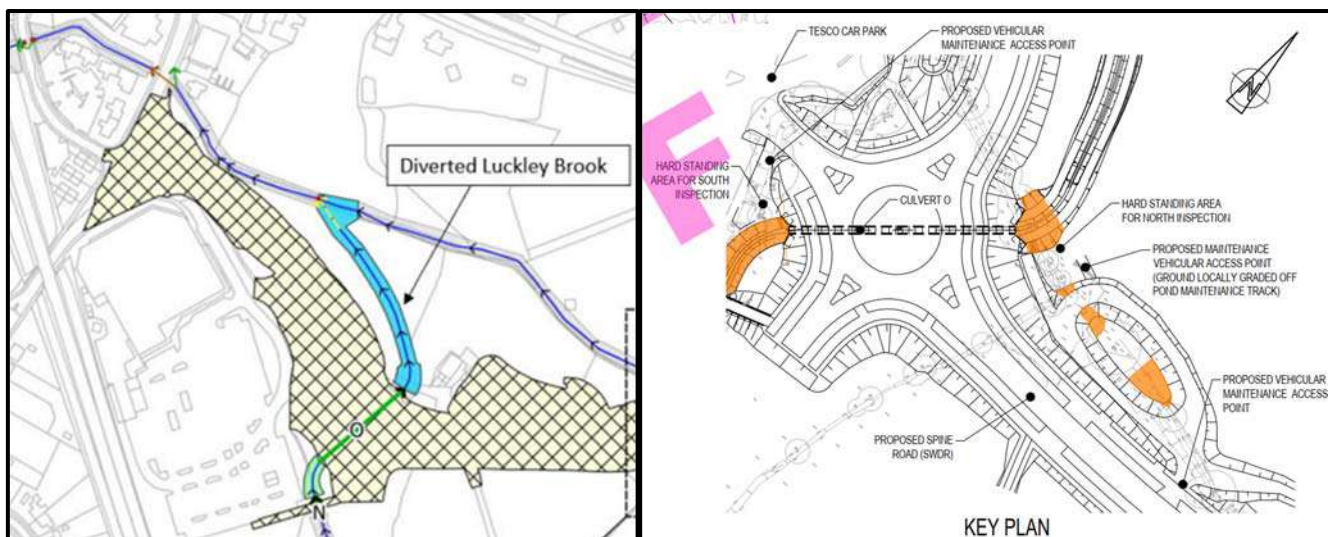
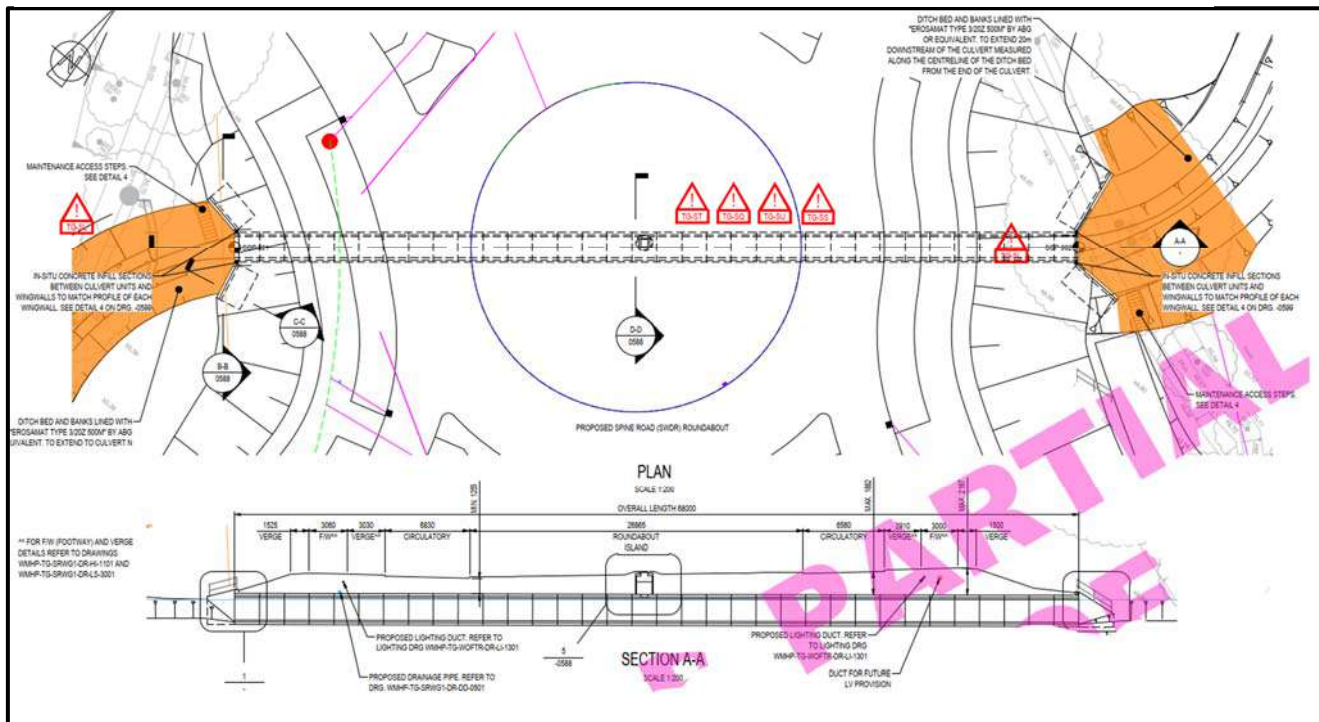


Figure 15: Plan & Long Section View of Luckley Brook Culvert Diversion



Installation

Document Authoriser:
Date of Issue:

Craig McCallum
22/05/2017

Page 15 of
40

Version: 1.0

Uncontrolled when printed or downloaded
A Balfour Beatty UK Document

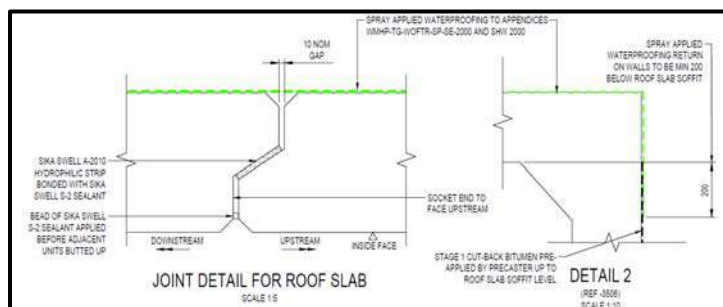
- The area will be scanned and a permit to break ground issued
- A 25T excavator will be used to excavate to formation level and place and 200 self-compacting Class 6A granular bedding
- Formation level to be inspected and any soft areas tested in accordance with specification. Any soft areas to be dug and replaced with 300mm thick Class 6A self-compacting fill.
- 600mm of 6F5 will be placed and compacted along the length of the culvert at 15m width to provide adequate working platform and crane mat for lifting in the units as shown in Figure 16
- Screed rails will be installed to formation level and 100mm of ST5 blinding concrete will be placed and compacted to form a stable and level surface to place the culvert units.
- The Culvert Units will be delivered on a flatbed artic and via the haul route from Easthampstead Road and lifted into position using a suitable sized crane.
- The Crane will be positioned on the crane mat and Lifts plans will be submitted for approvals and Temps Works Design to provide crane mat / outrigger mats as required.

Figure 16: Plan of Working Platform / Crane Mat for Luckley Brook Culvert Diversion



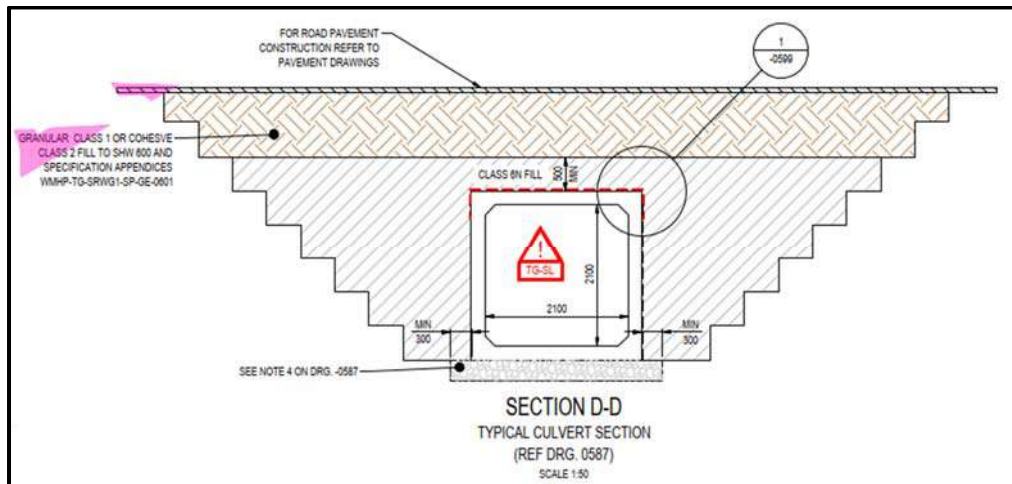
- All units will be checked for line and level as installed.
- A Sika Swell A-2010 Hydrophilic Strip bonded with Sika Swell S-2 Sealant will be applied to each joint between units to ensure a watertight joint as shown in Figure 17 below.

Figure 17: Joint Details for Culvert Units



- Backfill to culverts must be in a uniform and balanced manner with no more than 200mm level difference between the 2 opposing walls. Class 6N/6P fill material will be imported and placed and compacted to method specification to a level of 500mm below top of culvert. See Figure 18 below.
- Spray applied waterproofing to the tops and 500mm down sides of culvert
- Following the waterproofing the back can continue to 500mm above the culvert units with the 6N/6P fill material and then the type 1 subbase to verge level

Figure 18: Typical Culvert Section



- Following the completion and sign off with the client of the new culvert, then the Luckley Brooke will be diverted through the new permanent alignment.
- The remaining section of ditch from the culvert to the Luckley Brooke will be excavated to formation levels and the batter slopes graded off at 1 in 3 slope
- Erosion mattress will be installed to extend 20m from each end of the culvert and be formed from the gabion reno mattress to prevent erosion
- A small 5t mini digger will be used to prep the ground level and trim a 1 in 3 slope to form the formation for the Macaferri Enayat A20
- The Macaferri Enkamat A20 will be rolled out and press out any unwanted creases and then pin to hold into position
- The opening into the brook will be completed following the excavation of the swales/ditches and in low water level / flow rate of the brook.
- The ditches material will be pulled into site and loaded straight into the dumper for disposal offsite to prevent any loose material entering the stream
- Following the diversion of the Luckley Brook into the new culvert, the remainder of the old ditch can be excavated of soft material and filled as per earthworks specification and the remainder of the embankments can be completed.

- The new road alignment crosses the Emm Brook at the western end of the scheme and requires the construction of an overbridge. A twin beam composite bridge with a of 40m clear span. Figure 19 below shows the Cross Section and Side Elevation of bridge

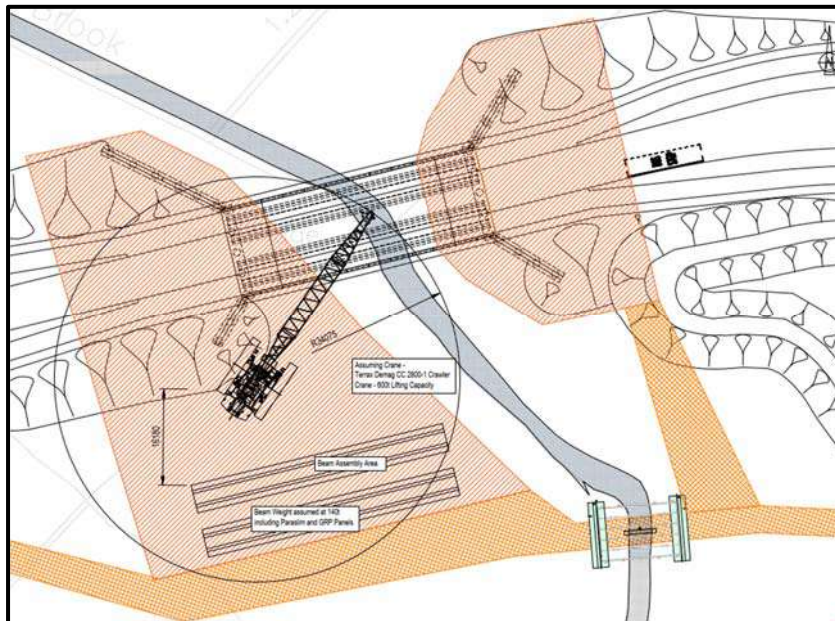
An aerial view of a modern bridge with a pedestrian walkway and a landscaped area with trees and a winding path. The bridge has a wide, flat deck with a metal railing. A blue car is driving on the bridge. Below the bridge, there is a landscaped area with green grass, several trees, and a winding path. A concrete wall separates the bridge from the landscaped area. In the background, there is a body of water and more trees.

[illegible]

Construction of Piling mat, Crane Mat and Beam Assembly Area

- Balfour Beatty will excavate the existing ground to competent formation level and install the temporary piling/crane mats on either side of the Emm brook. The existing ground material will be loaded into site dumpers and will be stockpiled outside the flood zone 3 area.
- Primary limestone 6F5 or similar will be imported and installed in the excavation to construct the temporary piling/crane mat. The design for the piling/crane mat is likely to be around 1.2m thick and will be subject to approved Temporary Works Design by the project Temporary Works Co-ordinator.
- Edge of piling mat will be a minimum of 8m from top edge of Emm Brooke watercourse embankment
- Silt Fencing and Straw bales will be installed along the edge of the piling mat, to stop any runoff from the piling mat from going into the brook.

Figure 21: Plan view of proposed temporary Piling Mat, Crane Mat, Beam Assembly Area and General Works Area



Install Sheet Pile Cofferdams

- Temporary Works will be required to build the abutment bases. Sheet pile cofferdams will be installed to support the ground and prevent water ingress into excavation during the construction of the abutments and installed using an excavator mounted vibrating hammer from the hardstanding platform

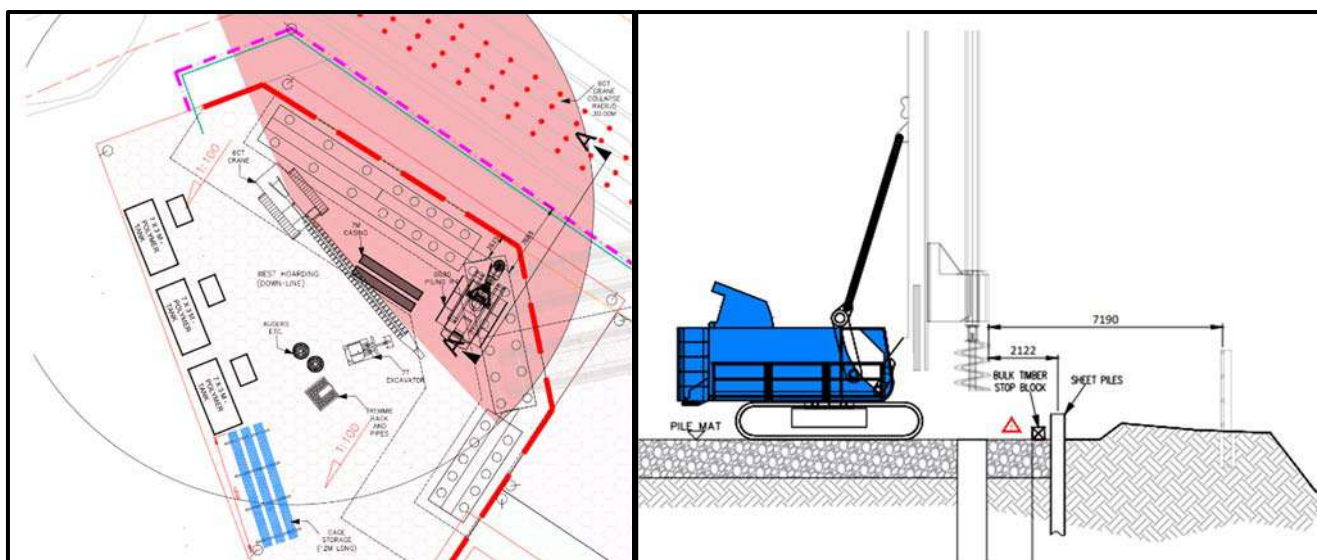
Figure 22: Typical Section of Sheet Piling and example of the Movax Piling Rig



Installation of CFA Piles

- The new Emm Brook Overbridge requires the installation of 27no x 1200mm diameter rotary bored piled foundations for the abutments and wingwalls. For both abutments the piles lengths are to be a minimum 23.5m and for the wingalls a minimum pile length of 8.5m. All piles are to be constructed under polymer support fluid due to water strike at depth.
- Site mobilisation will consist of a rotary piling rig Bauer BG30 or similar, a mobile crane and all associated piling equipment. Figure 23 below shows typical site set up.

Figure 23: Typical Plan view and Section of CFA Piling Setup



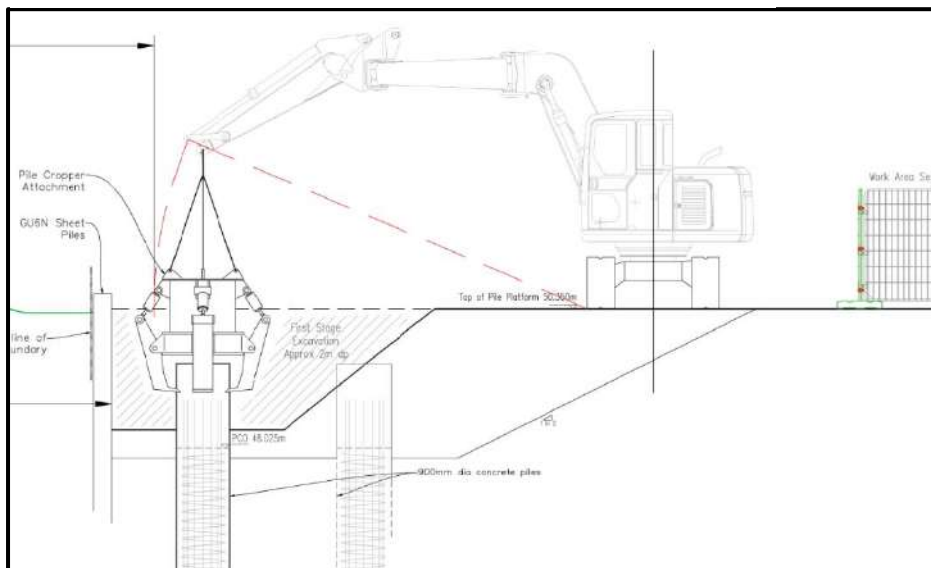
- All deliveries to site will follow the haul route from Easthampstead Road. The mobile crane and rig will be both unloaded and the crane setup first to assist in the rigging up of the BG30 piling rig.
- Following setting out of the piles, the rig will be positioned over the pile and drill the initial hole using a continuous flight auger under close supervision to maintain verticality and prevent drift. A temporary casing will be inserted to stabilise the borehole, particularly through water-bearing strata.
- After reaching the prescribed depth the auger shall be held and the depth checked and recorded on the rig operator's log. The auger is withdrawn only when pumping has commenced. As the auger is withdrawn, concrete shall be pumped through the auger stem to construct the pile.
- As the auger is being withdrawn, the flights above ground shall be cleaned of spoil by the rigs double auger cleaner.
- At regular intervals during withdrawal, spoil build-up at the foot of the auger shall be cleared by the attendant excavator to allow auger cleaning to continue. When the auger tip is withdrawn from the ground the rig shall be tracked away from the pile position.
- Any remaining spoil at the head of the pile shall be removed by the attendant excavator to expose the freshly cast pile head.
- The top 300mm of concrete from the fresh pile is to be dug out by hand by the banksman to remove any contaminated concrete.
- A lined washout area will be provided by Balfour Beatty where the truck can wash off his discharge chute (chute only) before exiting the site. The pump will be washed out in to purpose built wash out box that is then emptied in to the wash out skip.
- The pile cage reference tag will be checked by the Rig Banksman prior to lifting into position by the mobile crane (subject to lift plan).

- The cages will be lifted using designated lifting points which will be clearly marked on the cages. Welded skid spacers will be attached to the cage to ensure that the correct concrete cover is achieved around the reinforcement and supplemented with wheeled spacers as necessary.
- The cage will be lowered vertically into the fluid concrete.
- Care shall be taken to ensure the pile is not tracked over, or the nearby ground surcharged until the concrete has achieved sufficient strength to withstand such additional stress.

Pile Breakdown

- Excavations will commence around the concrete piles on both abutments and wingwalls using the 14t 360° Zero Tail Swing Tracked Excavators and be reduced to approximately 2m below the top of the piling platform level.
- A 45deg batter will be formed to the side nearest the excavator. The base of the excavation shall be levelled off roughly and sealed with the back of the excavator bucket. No persons shall be permitted in the excavation at this stage.
- The excavated spoil shall be loaded in to the 12t Hydrema Dumpers and transported to segregated spoil heaps away from the work area and outside flood zone.

Figure 24: Typical Section view of Pile Cropping



- Once the piles have been excavated sufficiently to allow space for a 2nd excavator to work safely the cropping operations shall begin. The piles shall be broken down to approximately 400mm above the design cut off level.
- The pile cropping shall be carried out using an excavator mounted cropping attachment fitted to 20t 360° zero tail swing tracked excavator and the concrete sections shall be lifted into the 12t Hydrema Dumper and transported to a stockpile away from the work area.
- After all of the piles in the section have been cropped, the 14t excavator shall return to carry out the final stage of excavation to the formation level and to form a 1:2 embankment.
- Stepsafe slope access stairs shall be placed on the embankment to provide safe access for operatives to hand trim remaining earth around the pile bases.
- The pile cut off level shall be marked onto the piles by the engineer. This cut off level will then be cut using a petrol saw cutting to a maximum depth of 40mm.
- The final pile trim will be undertaken using hand breakers to finish the breakdown of the pile to the required level to a flat even surface

FRC Works to Pile Caps and Abutments

- Once all sheet piling and groundworks have been completed and safe access has been installed, the pile cap pours shall be blinded.
- The position of the pile caps to be constructed will be marked out clearly on the blinding.
- Reinforcement shall be placed using the attendant ROTO 360° telehandler / to lift bundles of reinforcement from the laydown area
- Reinforcement will be fixed as per ITP and IFC drawings observing the cover as stated in the specification. Stainless steel tie wire will be used to fix reinforcement for all elements of the works. Protection caps shall be placed on all exposed bars when fixing has been completed.
- Formwork panels will be prefabricated on the laydown areas, behind the pile cap locations and away from the NR boundary fence and constructed as per approved TW drawings.

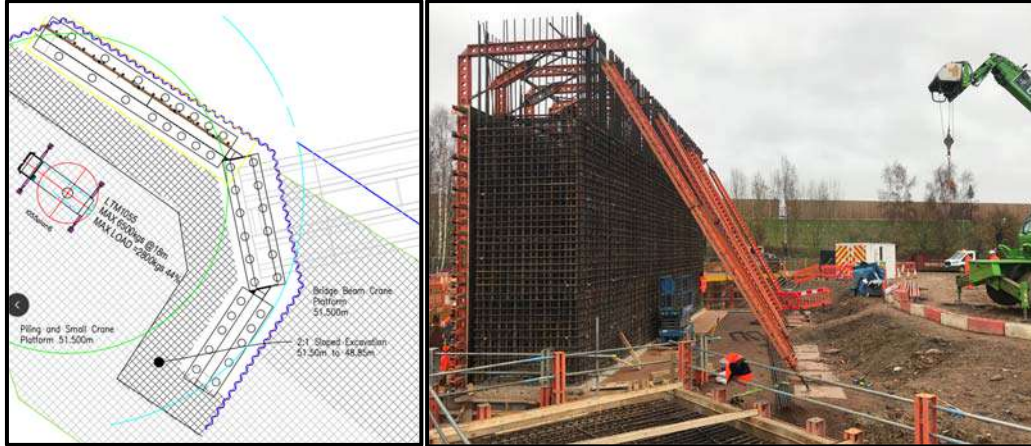
Figure 25: Typical example of formwork for pile base



- The formwork will be inspected and a permit to load issued by the TWC. Concrete will be poured using Concrete Pump.
- The concrete shall be vibrated, using a minimum of 2no. electric vibrating pokers as the concrete is delivered evenly into the shutters.
- All exposed concrete surfaces shall be hand troweled to achieve required surface finish as per contract drawings, specifications and approved ITPs.
- After completion of the pour, the concrete shall be sprayed with curing agent and covered with Myothene (frost blanket) in cold weather or damp Hessian/ polythene (warm weather) where required by the specification.
- Kickers will have been sprayed with retarder as required. After a minimum 12 hour curing period the surface of all kickers will be jet washed off to leave an exposed aggregate.
- Striking of the Pile cap shutters will be carried out after min' agreed curing time has been achieved, by operatives using hand tools. Shutter panels will be removed and lifted out by the ROTO and transported to the next pour location.
- The pile caps will be backfilled with 6N granular fill to the top of the pile cap and form a level platform for construction of the Abutment Walls.
- MEWPs and a Merlo ROTO 360° tele handler will be used to fix the reinforcement bars to the abutment walls. Reinforcement will be fixed as per ITP and IFC drawings observing the cover as stated in the specification. Stainless steel tie wire will be used to fix reinforcement for all elements of the works.
- Formwork panels will be prefabricated on the laydown areas, behind the abutment locations constructed as per approved TW drawings.

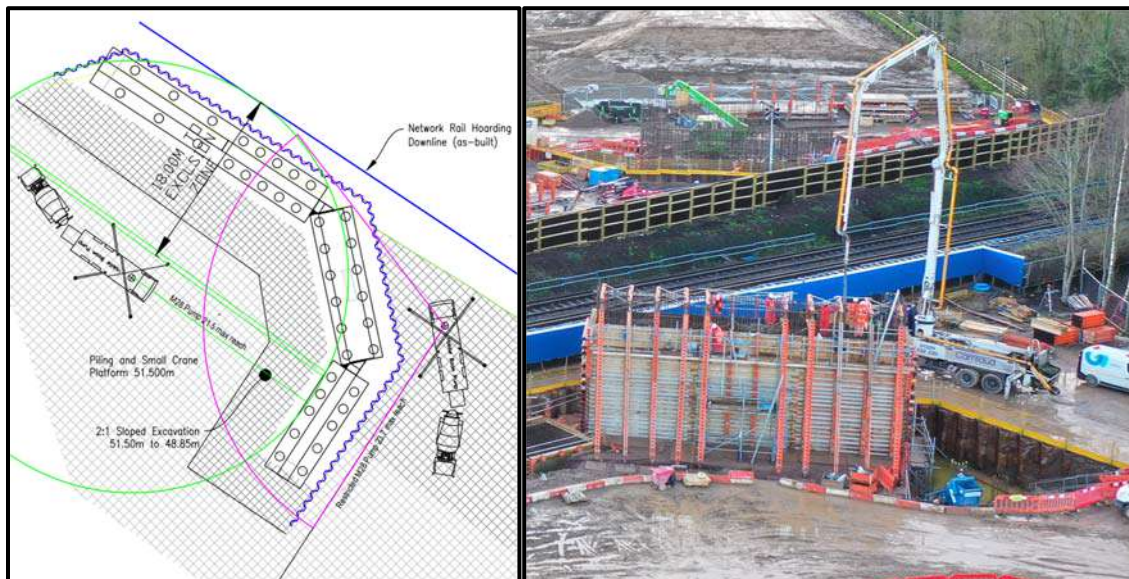
- Formwork panels and stop ends panels will be installed using the LTM1055 Mobile Crane and will be tied to a previously installed propped panel before releasing the chains. All installation will be undertaken in accordance with approved TW drawings.

Figure 26: Typical example Installing formwork for Abutments Walls with mobile Crane



- On completion the formwork will be checked that has been constructed as per approved TW design, with any faults being identified and remediated then a permit to load for concrete pouring shall be issued.
- Concrete will be poured using Concrete Pump and the concrete shall be vibrated, using electric vibrating pokers as the concrete is delivered evenly into the shutters.

Figure 27: Typical example Pouring Concrete with Concrete Pump



- All exposed concrete surfaces shall be hand trowelled to achieve required surface finish as per contract drawings, specifications and approved ITPs.
- After completion of the pour, the concrete shall be sprayed with curing agent and covered with Myothene (frost blanket) in cold weather or damp Hessian/ polythene (warm weather) where required by the specification.
- Striking of the abutment wall shutters will be carried out after minimum agreed curing time has been achieved. Shutter panels will be removed and lifted out by the LTM1055 Mobile Crane. Striking time will be as advised by the project TWC or in accordance with Highway Works specification.

Installation of the bridge beam

- The steelwork will be delivered to site as 4 fabricated open top boxes and the structure will be built offline in an area near the west abutment on temporary supports for assembly, these will be offloaded and assembled by a 350te mobile crane directly off the transport.
- The welding operations will be encapsulated to fully weld and blast clean the joints.
- The FRC contractor will install and fit the cantilever falsework prior and GRP deck panels to the beams whilst at ground level prior to installation of the beams.

Figure 28: Typical example welding of the beams and setting up the cantilever formwork for installation to beams



- The TC2800 main erection crane will lift the beams into position including the installed GRP Panels and Cantilever formwork, the crane will be sited either behind the abutment wall or on the side of the span.
- The beams will be installed onto the abutments and then the central diaphragm and bracing members installed between the two beams.
- The remaining GPR permanent formwork panels will be placed between the girder's flanges along the centre between the two beams and at either end of the bridge and secured down with timbers and ratchet straps to prevent uplift. This formwork will be signed off by the temporary works coordinator prior to any concrete being poured.
- To mitigate any risk of materials contaminating the stream, 2mm gap between all formwork panels will be sealed with tape sealant before pouring concrete to ensure no leakage into the Emm brook.

Figure 29: Typical example of lifting operation for installation of bridge beams and completed GRP Panels and Cantilever Formwork



- All crane movements will be controlled by the lift supervisor.
- Reinforcement will be fixed in place as well as parapets anchorage cradles and services sleeves.
- Temporary timber edge shutters will be fitted to the deck edges (over-height) to prevent any spillage during the concrete pour and will help reduce the risk of materials falling into the watercourse.
- Service sleeves will be tie down to prevent uplift during concrete pour, and the end will be sealed off.
- Concrete will be placed using a truck-mounted boom pump, again with care not to place concrete directly within 2m of the deck edge. The wet concrete will be spread by hand tools and compacted using electric vibrating pokers. The surface will be finished using a rotating beam-screed.
- Pump and washout skips will be positioned away from watercourse to prevent any spillages into Emm brook.

Figure 30: Typical example of lifting operation for installation of bridge beams and completed GRP Panels and Cantilever Formwork



- The Parapet Fencing will be lifting onto the bridge deck and installed using a 5t machine for lifting components into final position on the parapet for bolting together.
- After the parapet is installed, the cantilever formwork can be removed. Each section will be stripped of the timber hoarding and then the crane positioned and chains attached to the lifting points of the paraslim. The units will be unbolted from the bridge deck and lifted down to the ground for removal from site.

Figure 31: Typical example of lifting operation for installation of Parapet Fencing and the removal of the Cantilever Paraslim Units



Earthworks filling operations, Groundworks and Final Surfacing

- Embankments will be built up to required highway formation level.
- Backfilling behind the abutments and wingwalls will be done in layers to ensure adequate compaction and with great care to ensure that no fill material falls into the stream.
- If necessary, debris netting may be erected on the bank of the stream and this to be continually monitored during filling and cleared of material whenever necessary.
- Waterproofing over the bridge deck and section down back of abutments will be installed
- The groundworks subcontractor will install remaining drainage, kerbs and footways.
- Finally the surfacing subcontractor will complete the blacktop across the new bridge.

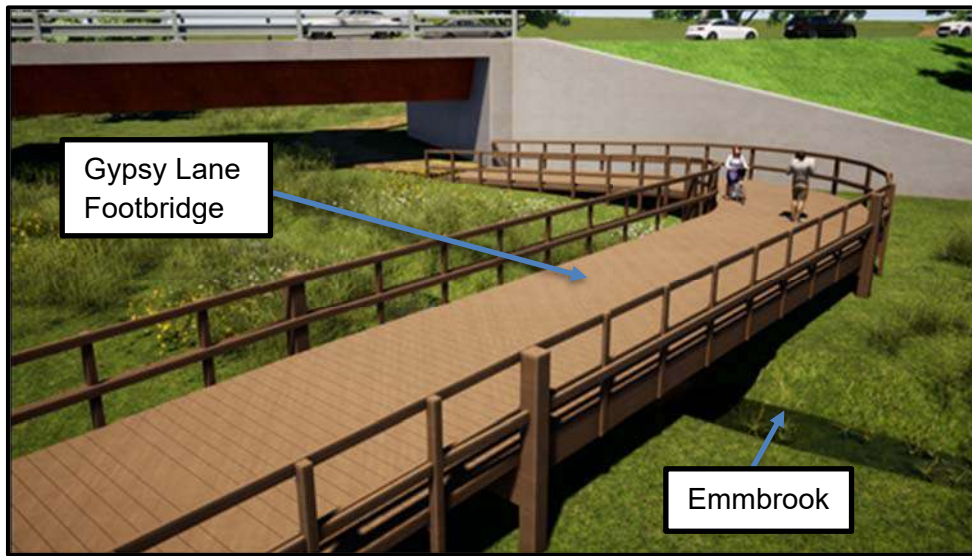
Figure 32: Typical example backfill to the bridge and final groundworks and surfacing to the bridge



Sequence of works – Gypsy Footbridge works

- The structure is to provide a minimum clear width of 4m to accommodate pedestrians and cyclists. The structure will be supported on steel screw piles to minimise the impact on the ecological corridors and surrounding flood plain.
- It will comprise simply supported spans of timber beams tied together with transverse diaphragms / noggins and decked out with timber decking boards.

Figure 33: Gypsy Lane Footbridge



Gypsy lane footbridge Construction

NOTE: The main work activities have been planned so that they occur during the dry season to minimise the risk of high ground water levels when working. The method of working will be as follows:

- Balfour Beatty will set out the site boundary and carry out a CAT and Genny utility survey to ensure that the proposed works do not conflict with any underground service prior to construction.
- Site clearance and removal of soil top layer. The topsoil will be excavated either side of the Emmbrook for the footbridge foundation. All clearance works will be undertaken under the direct supervision of the ecologist.
- Any material arising from the works will be transported and stored within the Balfour Beatty compound. No materials are to be stored next to the watercourse.
- Screw piles including fixing of termination plate will be installed with minimal intrusion and disturbance using equipment mounted on small excavator.
- During piling, the stream and its bank will be continually monitored so prevent anything falling in.
- As necessary measures, debris netting will be erected on the bank of the stream and this will be continually monitored to prevent debris entering and contaminating the watercourse

Figure 34: Piling Galvanised Screw Piles

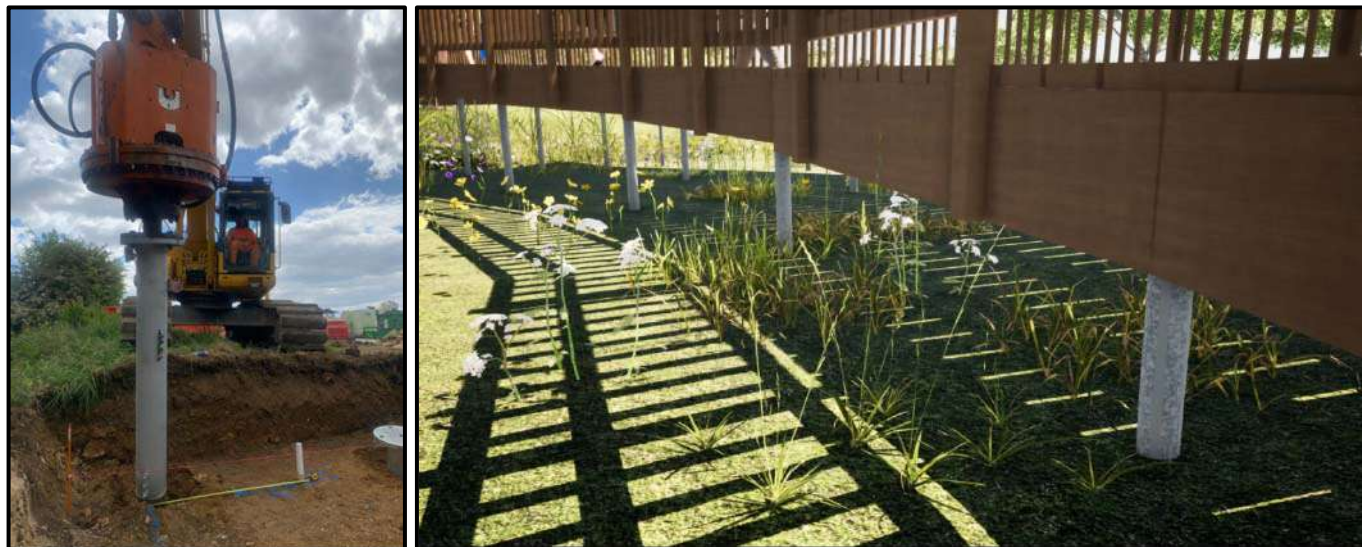
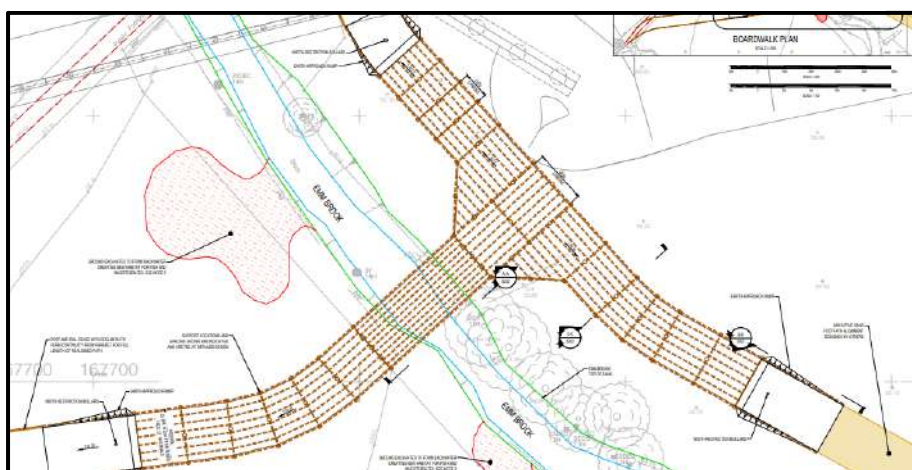
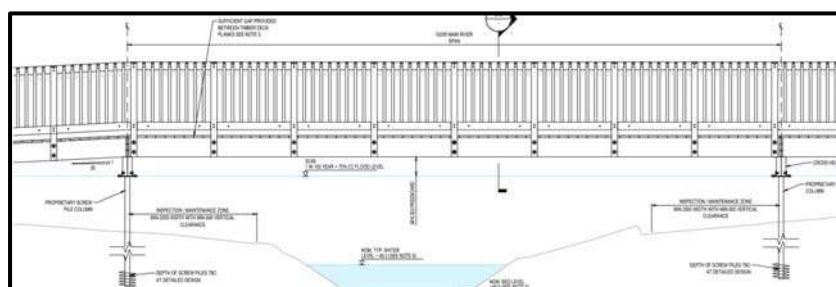


Figure 35: Boardwalk Plan



- The Timber cross beams deck with decking board including parapets will be constructed at ground level and lifted into position and attached onto galvanised screw piles termination plate. No person should work from within the watercourse or its banks.
- A containment bund will be incorporated around the piling to stop any silty water entering the stream.
- Installation of fencing to mitigate dogs running off the PROW and disturbing the natural areas.

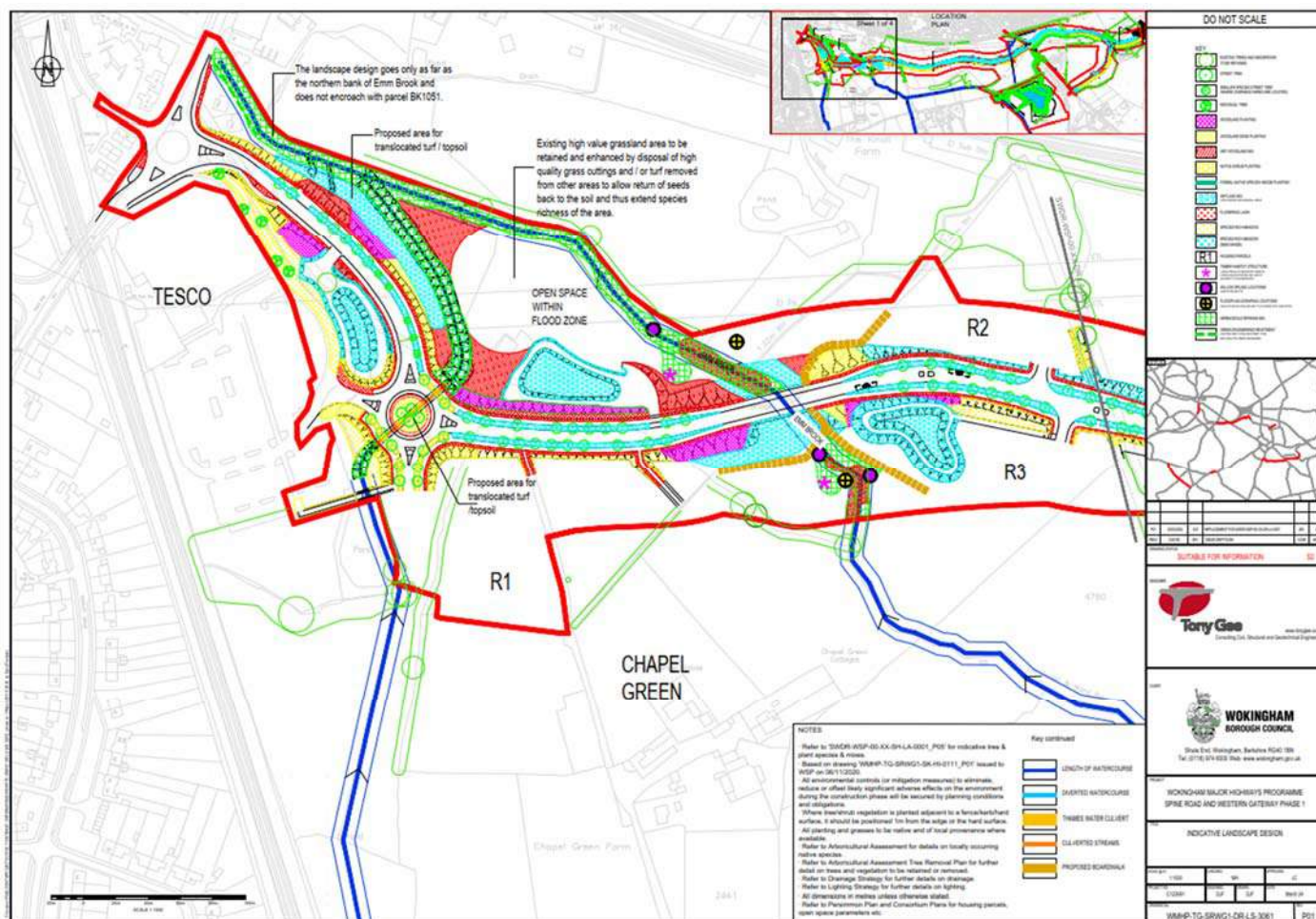
Figure 36: Boardwalk Section



Sequence of works – Topsoil and landscaping

- The verges and embankments will be topsoiled using suitable mechanical plant and seeded in accordance with the approved landscape management drawings.

Figure 37: Landscape Plan



A.1.1 Task Briefing Sheets

The specific Task Briefing Sheets required to deliver this Work Package are as follows:

TBS Reference	Title	Responsibility for Production
ENV-TB-0019a	Working near Watercourses	Balfour Beatty
ENV-TB-0019b	Working near water-Environmental Permit	Balfour Beatty
ENV-TB-0007 g	Interfacing with Water-Pollution Prevention	Balfour Beatty

A.2 Resources

The resources required to complete the works are detailed below.

A.2.1 Personnel

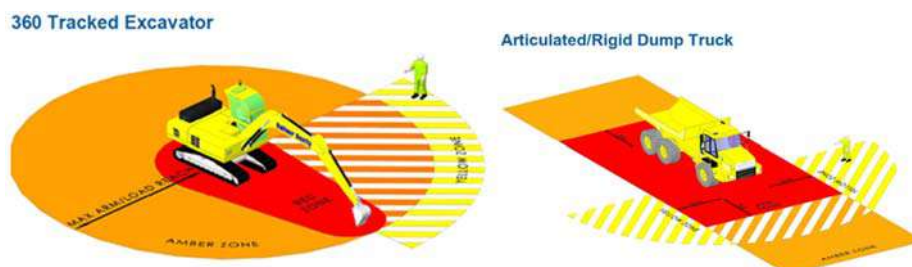
Title	No.	Specific Requirements
Balfour Beatty Project Manager	1	SMSTS trained, CSCS Gold or Black card
Balfour Beatty Supervisor	1	SSSTS trained, CSCS Gold or Black card
Piling supervisor	1	CSCS Gold or Black card
Piling Rig operative	1	CSCS Card
Crane operator	1	CPCS Card
Piling Operatives	1	CSCS Card
Groundwork Manager	1	CSCS Gold or Black card
Groundwork Supervisor	1	CSCS Gold or Black card
Groundworks Operatives	1	CSCS Card
Excavator Operator	1	CPCS Card
Dumper Operator	1	CPCS Card
Roller Operator	1	CPCS Card

A.2.2 Plant and Equipment

Item	Specific Requirements
Wheeled and Tracked Excavator	Height restrictor. As per BB minimum standards, up to date service logbook and test certificates are required.
Articulated Dumper trucks	Up to date service logbook and test certificates are required.
Smooth wheeled vibrating rollers	Up to date service logbook and test certificates are required.
Piling rig	Up to date service logbook and test certificates are required.
Mobile crane	Up to date service logbook and test certificates are required.

Mobile Plant Operations:

For all mobile plant operations suitable exclusion zone in place as per the Balfour Beatty exclusion zone requirements and the Plant Vehicle Movement Plan. Excavators will isolate whenever personnel are required to enter the exclusion zones. In the instance of personnel being required to work in close proximity to the excavator, the operator must ensure that the bucket is on the ground and the machine is switched off before they enter.



A.2.3 Materials and Tools

The specialist materials and tools required over, and above standard hand tools are detailed below. Include details in the specific requirements column regarding how the materials and/or tools are to be delivered/distributed to the work face:

Item	Specific requirements
Backfill materials	Class 1A and class 6F5 granular material
Temporary culvert material	Clean angular stone or similar approved
Sheet piling	TBC as detailed by Temporary Works design
Formwork	TBC as detailed by Temporary Works design
Access platforms/scaffolding	TBC as detailed by Temporary Works design

A.2.4 PPE

Site Mandatory PPE shall be worn at all times. (Orange HI-Vis long sleeved vest, orange Hi-vis trousers, Hard hat, Gloves suitable to task, Light eye protection(glasses), Boots with steel toe-cap and mid sole protection). In addition, the following specific PPE shall also be worn when carrying out particular activities relevant to this work Package Plan, as follows:

Item	Activity
Safety goggles	As required
Ear Defenders / Plugs	As required
Self-inflating Life jacket	To be worn for any short duration activity immediately adjacent to the watercourse

A.2.5 Design Documentation

The latest revisions of the following design documentation are relevant to this Work Package Plan:

Document Reference	Title
WMHP-TG-SRWG1-DR-SE-4002	SWDR Spine Road crossing Emmbrook General arrangement
WMHP-TG-SRWG1-DR-SE-5101	New Gypsy Lane Footbridge general arrangement
WMHP-TG-SRWG1-DR-HI-0001	General Arrangement
WMHP-TG-SRWG1-DR-HI- (201 to 209)	Site Clearance Plans

A.3 Permits

The respective permits which are applicable to the works being carried out within this work package plan are the following. All personnel involved within the works will be briefed on the works and will sign the briefing attendance record sheet to acknowledge their understanding of the requirements.

Type of Permit	Issued by	Additional Information
Flood Risk Activity Permit	EA	tbc
Ordinary Watercourse consent	WBC	tbc
Permit to break ground	Balfour Beatty	tbc
Permit to lift	Balfour Beatty	tbc

A.4 Inspection and Test

Operation	Inspection/Test	Responsibility	Document Reference
Piling Works	During construction and upon completion	Balfour Beatty	QA Check sheets
Bridge construction	During construction and upon completion During	Balfour Beatty	QA Check Sheets
Earthworks	During construction and upon completion During	Balfour Beatty	QA Check Sheets



B SITE DETAILS

This section must include the relevant extracts from the Project Plant, Vehicle and Pedestrian Management Plan associated with this package of work.

B.1 Access, Plant and Machinery Movements

Access to the works will be through Tesco road access and Haul roads of spine road

B.2 Site constraints

Environmental controls as described in section A.1

B.3 Protection and Exclusion

Area	Protection/Exclusion measures	Responsibility	Specific requirements
Within Flood Zone 3	Spillage Protection to be installed before any works commence	Balfour Beatty	As per section A.1

B.4 Communication and Contact details

Area	Company	Title	Contact
Vinay Roopun	Balfour Beatty	Project Lead	tbc

B.5 Emergency Arrangements

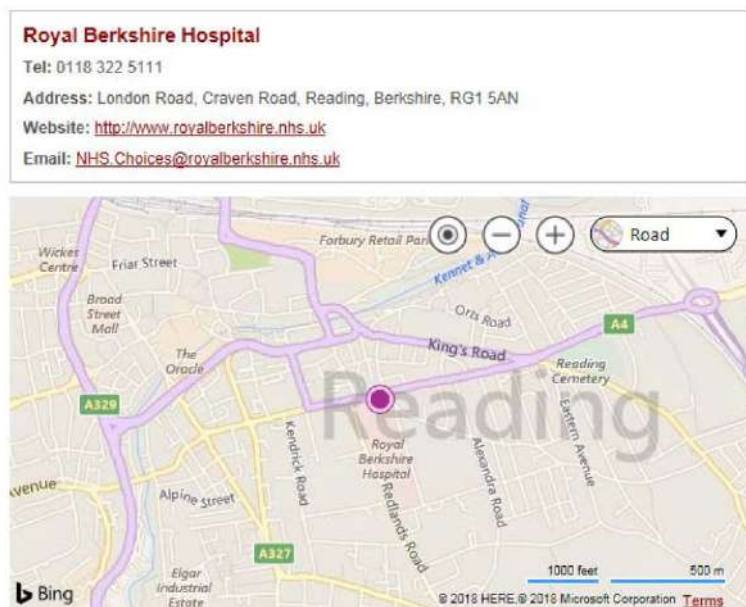
Emergency Arrangements are detailed in the Balfour Beatty Site Specific Induction.

In the event that the emergency services are required phone 999 and ask for the appropriate service (Police, Fire brigade or Ambulance)

All accidents must be reported to the Balfour Beatty Director and SHEQ Manager as soon as reasonably practicable.

Name	Tel. Number	Additional Information
Emergency Services	999	
Environment Agency	0875 80 70 60	
BT	0800 917 3993	
Virgin Media	0800 316 9800	
SSE Electric	0800 072 7282	
SGN Gas	0800 111 999	
Thames Water	0800 316 9800	

Nearest A&E Hospital



In the event of polluting the watercourse contact: Wokingham Borough Council on **0800 21 21 11** or EA incident hotline phone :**0800 80 70 60**

B.6 Accidents and Contingencies

Should any accidents or unforeseen conditions occur, all works are to cease immediately and any affected plant or personnel be moved away from the riverbank to a place of safety as described below:

Any accident causing injury to any personnel is to be recorded in the site accident book.

Any injured party is to receive first aid and if necessary, taken to the Royal Berkshire Hospital for further treatment.

Should the drilling rig fail to operate as designed, it is to be switched off, de-rigged and moved to the storage area >10m away from any watercourse. No repair works beyond any required to de-rig and move the drilling rig will be permitted within 10m of any watercourse.

B.7 Interfaces

Liaison with landowners and stakeholders is through WBC, Liaison with Contractors and Sub-contractors is through Balfour Beatty. Any liaison (communication or complaints) with general members of the public will be directed through Wokingham Borough Council, where their complaints management system will be used.

B.8 Welfare

Welfare will be maintained in the self-contained site compound provided by Balfour Beatty.

C Briefing

C.1 Briefing Arrangements

Task Briefing Sheets shall be prepared as identified in Section 1 of this Work Package Plan. The risks associated with each task are detailed in Section A2 of this document.

C.2 Work Instructions (Delete if Not Applicable)-No Instruction issued to date

WI Reference	Title

D MONITORING

D.1 Monitoring of Work Package Plan

The work activity shall be monitored during operation for any deviation to this Work Package Plan and records of these checks noted in the table below.		
Checked By	Date Checked	Deviation from Work Package Plan (Yes /No)
If Yes, any deviations to the method of work described must be detailed in the table below, identifying the operation numbers affected. The Project Lead must be made aware of any changes to the Work Package Plan and must ensure the associated Task Briefing Sheets are reviewed to assess the impact of these changes. Operatives must be re-briefed on any revised content within the Task Briefing Sheets, as appropriate.		
Operation No	Description of Deviation	

Appendix 1 – EA Risk Assessments

Environmental Risk Assessment for Activity T1 - Installation of temporary bridge

Standard facility:	Installing temporary bridge across the Emm Brook
Location:	Emm Brook Stream, Wokingham
Location of environmentally sensitive sites (km / m):	See below - Emm Brook Stream is not within the location of any environmentally sensitive sites
Risk assessment carried out by:	Balfour Beatty - Vinay Roopun
Date:	27-Apr-22

The scope of the standard permit is defined by the following risk criteria:

Parameter 1	Permitted activities - Installation of a temporary bridge across the Emm Brook, 11m span
Parameter 2	The bridge shall have a wider cross sectional area of the existing watercourse so that no flow is restricted.
Parameter 3	The foundation of the bridge shall be set above the river level as per drawing, and clean natural gravel placed on top so that there shall be no step or drop in the final level of the bed.
Parameter 4	The foundation of the bridge shall not cause erosion of the bank or bed, either downstream or upstream.
Parameter 5	The new slope/embankment around shall match the slope of the existing river
Parameter 6	The temporary bridge shall be designed so that flood flows that exceed the capacity in the river are able to bypass the structure and re-enter the watercourse downstream.
Parameter 7	The capacity and design of the bridge shall ensure that it shall not cause increased flooding or erosion of the bank or bed, either downstream or upstream.
Parameter 8	The temporary bridge shall not restrict the free passage of migratory fish (if any, toc via surveys) and other fauna.
Parameter 9	Measures must be taken to address the flood, land drainage and environmental risks described.
Parameter 10	The temporary bridge must not be made into a main river on or within 500 metres upstream and 100 metre radius of a designated nature conservation site; 50 metres of a Local Nature Reserve, Local Wildlife Site, Ancient woodland or Scheduled Monument; 50 metres of an area containing relevant protected or priority species, 50 metres of relevant priority habitat; or in or within 100 metres of water bodies of high ecological or morphological status.

Data and information				Judgement			Action (by permitting)		
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).

Local population and erosion	Reduction in variability of bed and flow velocities; high flows kept within culvert. Reduced species and habitat connectivity in low flows	Direct loss of or damage to habitat / species; indirect changes to ability of river to form and sustain habitat.	Change in quantity and dynamics of water flow; change in river connectivity; change in structure and substrate of river bed	Low	High	Medium	The activity may reduce flow depths to a degree that habitat and species are effected.	The bases of the temporary bridge shall be set well away from the rivers edge to avoid any risk/need to ineterfere with the river bed.	Low
Local population and erosion	Reduction in variability of bed and bank from additional bank / bed reinforcement.	Direct loss of or damage to habitat / species; indirect changes to ability of river to form and sustain habitat.	Change in river depth and width variation; Change in structure of riparian zone	Medium	Medium	Medium	Any variation in alignment could change flows and impact on flood risk.	The existing slopes of the river shall not be disturbed during construction. New slope to the base of the bridge shall be battered back from the edge of the existing one. Silt fencing to be erected prior to any work starting.	Low
Local population and erosion	Increased flow and sedimentation	Direct loss of or damage to habitat / species; indirect changes to ability of river to form and sustain habitat.	Change in quantity and dynamics of water flow	Medium	Medium	Medium	To reduce the risk of impact on local population	The temporary bridge will be subjected to a full Temporary Works design which will be carried out by Balfour Beattys Temporary Works Deparment. This will be designed to the parameters described by the site in the Temporary Works Design Brief. This design will be issued to the site and will b be accompanied by a designers risk assessment and check certificate. The temporary bridge will be constructed to the temporary works design drawing and then checked by the nominated temporary works supervisor and signed off for first use by the project temporary works coordinator. The design of the temporary bridge will be sufficiently sized to allow unrestricted flow. Site will undertaken regular inspection checks and will clear any obstacles, stone or similar. In the event of any extreme floods flows which exceeds the channel capacity will be allowed to flow over the bridge. Draft design is a per drawing CRWT0569-BBMP-OO-XX-DR-W-0097 P1	Low
Local population and erosion	Reduction in variability of bed and bank; engineered channel. Disconnection with riparian zone.	Direct loss of or damage to habitat / species; indirect changes to ability of river to form and sustain habitat.	Change in river depth and width variation; Change in structure of riparian zone	Medium	Medium	Medium	The smaller the watercourse the smaller the flow and therefore impact on flood risk	The existing profile of the Emm Brook is not to be changed eliminating the risk.	Low

Local population and erosion	Increased flow and sedimentation	Reduction in flow rate during a flood event	Change in quantity and dynamics of water flow	Medium	Medium	Medium	Considered best practice.	The temporary works design of the temporary bridge shall be designed so that the capacity of the culvert shall not cause increased flooding or erosion of the bank, upstream or downstream. The culvert will be designed for minimum of current flow + 20% for climate change	Low
Local population	Increased flood risk	Impact on local population and businesses, damage to property	Out of channel flow	Medium	Medium	Medium	Working close to a structure may cause damage or increase flood risk.	There is no flood risk management structure within the vicinity of the temporary bridge therefore this risk is not applicable	N/A
Historic environment	Physical damage to designated sites	Damage to designated sites	During construction works	Medium	Medium	Medium	Construction works that dig into the ground can cause damage to Scheduled Monuments	There is no Scheduled monuments within the vicinity of the temporary culvert therefore this risk is not applicable	N/A
Habitat and species	Reduction in variability of bed and bank; engineered channel. Disconnection with riparian zone.	Direct loss of or damage to habitat / species; indirect changes to ability of river to form and sustain habitat.	Change in river depth and width variation; Change in structure of riparian zone	Medium	Medium	Medium	The activity can cause increased sedimentation and other damage, which may be large enough to adversely affect a conservation site or species.	A double line of silt fencing shall be installed spanning 10m beyond the location of the proposed temporary bridge.	Low
Habitat and species	Spread of non native invasive species and plant and animal diseases	Loss of or damage to habitat or species	Spread of species in the catchment caused by non-native species being disturbed and spread downstream or transported by machinery and equipment to another site	Medium	Medium	Medium	Use of biosecurity measures and good site management will reduce the spread of non-native invasive species	The site will have environmental/ecological surveys undertaken by a competent ecologist who will confirm the presence of any invasive non-native species. On site inspections will be carried out by a competent ecologist prior to the installation of the culvert. Suitable controls in terms of exclusions will then be set up if it is appropriate to prevent the spread of invasive non-native species/plants. Toolbox talks/training will be given to the site team to be able to spot invasive non-native species/plants and about working in agricultural land.	Low
Habitat and species	Reduction in variability of bed and bank; engineered channel. Disconnection with riparian zone.	Direct loss of or damage to habitat / species; indirect changes to ability of river to form and sustain habitat.	Change in river depth and width variation; Change in structure of riparian zone	Medium	Medium	Medium	The activity can cause increased sedimentation and other damage, which may be large enough to adversely affect a conservation site or habitat.	No Priority habitat within the vicinity of the site	N/A

Habitat and species	Reduction in variability of bed and bank; engineered channel. Disconnection with riparian zone.	Direct loss of or damage to habitat / species; indirect changes to ability of river to form and sustain habitat.	Change in river depth and width variation; Change in structure of riparian zone	Medium	Medium	Medium	The activity can cause increased sedimentation and other damage, which may be large enough to adversely affect a conservation site or species.	The works are not within 50 metres of an area containing protected or priority species, therefore this risk is not applicable.	N/A
Habitat and species	Reduction in variability of bed and bank; engineered channel. Disconnection with riparian zone.	Direct loss of or damage to habitat / species; indirect changes to ability of river to form and sustain habitat.	Change in river depth and width variation; Change in structure of riparian zone	Medium	Medium	Medium	Limiting the size of the activity reduces the impact on receptors	The existing profile of the Emm Brook is not to be changed eliminating the risk.	Low
Habitat and species	Reduction in variability of bed and flow velocities; high flows kept within culvert. Reduced species and habitat connectivity in low flows	Direct loss of or damage to habitat / species; indirect changes to ability of river to form and sustain habitat.	Change in quantity and dynamics of water flow; change in river connectivity; change in structure and substrate of river bed	Medium	Medium	Medium	The activity may reduce flow depths to a degree that habitat and species are effected.	The existing profile of the Emm Brook is not to be changed eliminating the risk.	Low
Habitat and species	Reduction in variability of bed and flow velocities; high flows kept within culvert. Reduced species and habitat connectivity in low flows	Direct loss of or damage to habitat / species; indirect changes to ability of river to form and sustain habitat.	Change in quantity and dynamics of water flow; change in river connectivity; change in structure and substrate of river bed	Low	High	Medium	The activity may reduce flow depths to a degree that habitat and species are effected.	The existing profile of the Emm Brook is not to be changed eliminating the risk.	Low
Habitat and species	Reduction in variability of bed and flow velocities; high flows kept within culvert. Reduced species and habitat connectivity in low flows	Direct loss of or damage to habitat / species; indirect changes to ability of river to form and sustain habitat.	Change in quantity and dynamics of water flow; change in river connectivity; change in structure and substrate of river bed	Medium	Medium	Medium	To ensure that access is possible during incidents etc	Regular inspections of the temporary bridge will be carried out by the site team and any obstructions will be cleared/removed. As the temporary bridge is short in its length, no further access will be required for special maintenance equipment as general site tools can be used to clear any obstruction.	Low

Habitat and species	Reduction in variability of bed and bank from additional bank / bed reinforcement.	Direct loss of or damage to habitat / species; indirect changes to ability of river to form and sustain habitat.	Change in river depth and width variation; Change in structure of riparian zone	Low	High	Medium	The culvert has the potential to increase banks and bed erosion.	The culvert will be designed to prevent creation or exacerbation of the downstream and upstream banks and bed erosion	Low
Habitat and species	Siltation and erosion	Loss of or damage to habitat or species or additional bank protection	Changes to longitudinal connectivity for sediment transfer, to channel depth & its variability, to channel planform & its continuing evolution and to profile of the river bank	Medium	Medium	Medium	Provides established best practice	There is very little vegetation which is current on the sides of the bank. Any vegetation is proposed to be left in place and only removed in the local area to the temporary bridge bases, therefore alteration to the flows should be minimal and as such erosion/scour should be minimised.	Low
Fish	Direct damage, siltation and erosion	Loss of or damage to species and breeding grounds	Changes in: quantity and dynamics of water flow; structure and substrate of river bed; and structure of riparian zone.	Low	High	Medium	Prohibiting works during breeding periods will greatly reduce the risk to spawning grounds.	The existing profile of the Emm Brook is not to be changed which shall not interfere with any aquatic life, eliminating the risk.	Low
Species	Connectivity	Loss of or damage to species	Loss of connectivity	Medium	Medium	Medium	Restriction minimises the impact on connectivity for species that use the river corridor.	The temporary bridge is designed so that it does not interfere with the existing river therefore not interfering with any possible corridors.	Low

Species	Connectivity	Loss of or damage to species	Loss of connectivity	Low	High	Medium	Restriction minimises the impact on connectivity for species that use the river corridor and limits cumulative impacts.	The culvert is not within 100 metres of any manmade structure within the existing channel of the Emm Brook	Low
Water quality	Increased siltation caused by working next to the river, direct disturbance whilst undertaking construction works or footprint of the finished works.	Increase in sediment load.	Direct run-off from site, or in-channel flow from works within bank.	Medium	Medium	Medium	Will reduce risk due to limited mobilisation of sediment or pollutants.	Biosecurity measures will be defined and followed; this will include the use of clean and dry machinery when working within 8m of the watercourse, No plant not essential to works in the channel will be stored within 8m of the watercourse. Silt Fences will be installed along areas of the river / stream adjacent to the worksites to prevent any run off from entering the watercourse. Booms will be installed across the watercourse chanel at downstream of worksites to in the case of accidently spillages.	Low
WFD biological quality elements	changes in flow, water quality or to habitat	deterioration of ecological status through loss or harm to biology	Changes in: quantity and dynamics of water flow; connection to groundwater bodies; river connectivity; river depth and width variation; structure and substrate of river bed; and structure of riparian zone.	Medium	Medium	Medium	Limiting the size of the activity reduces the impact on receptors	The existing profile of the Emm Brook is not to be changed which shall not interfere with any aquatic life, eliminating the risk.	Low
WFD hydromorphology quality elements	Geomorphological processes altered by activity	Deterioration of high morphology status as measured by WFD.	Changes in: quantity and dynamics of water flow; connection to groundwater bodies; river connectivity; river depth and width variation; structure and substrate of river bed; and structure of riparian zone.	Low	High	Medium	Working in the channel can cause increased sedimentation and other damage, which may be large enough to adversely affect the status of the water body.	The existing profile of the Emm Brook is not to be changed which shall not interfere with any aquatic life, eliminating the risk.	Low

Environmental Risk Assessment for Activity T1 - Installation of temporary bridge

Standard facility:

Installing New Road Bridge across the Emm Brook

Location:

Emm Brook Stream, Wokingham

Location of environmentally sensitive sites (km / m):

See below - Emm Brook Stream is not within the location of any environmentally sensitive sites

Risk assessment carried out by:

Balfour Beatty - Vinay Roopun

Date:

01/07/2024

The scope of the standard permit is defined by the following risk criteria:

- Parameter 1

Permitted activity - installing a clear span bridge, being a bridge that requires no bed or bank reinforcement and no support in the watercourse.
- Parameter 2

Bridge deck shall be no more than 4.2m wide, watercourse no wider than 8m, soffits a minimum of 0.6m higher than the top of the bank, no bridges within 200m.
- Parameter 3

The bridge shall not be associated with, or lead onto or off, the public highway.
- Parameter 4

Foundations shall be set back 1metre from the bank top, so that they do not impact on flood flows.
- Parameter 5

There shall be no light spill from artificial lighting into the watercourse or river margin.
- Parameter 6

Must not increase flood risk
- Parameter 7

Measures must be taken to address the flood, land drainage and environmental risks described.
- Parameter 8

The activity must not be carried out within 200m of EU designated nature conservation sites, SSSI and National Nature Reserves; 50 metres of a Local Nature Reserve, Local Wildlife Site, Ancient woodland or Scheduled Monument; 50 metres of an area containing protected or priority species or priority habitat that could be impacted; or 100m of water bodies of high morphological status

Data and information				Judgement			Action (by permitting)		
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).
Local population	Increased flood risk	Impact on local population and businesses, damage to property	Out of channel flow	Low	High	Medium	Reducing the capacity of the flood plain, increases the risk to local population	The enabling works will remove existing trees and vegetation and clean out and clear existing ditches improving current capacity and will help offset the required temporary works piling & crane platforms and haul roads that reduce the capacity of the flood plain. The platforms and haul roads will not exceed the existing ground levels by more than 500mm and 200mm diameter pipes will be installed under the haul routes at locations to allow water to drain away in the event of flooding in the area. In the event of a flood event, works will be stopped in the area until the flood water recedes. There are no public buildings / dwellings within the area of the works that can be affected by the site works.	Low

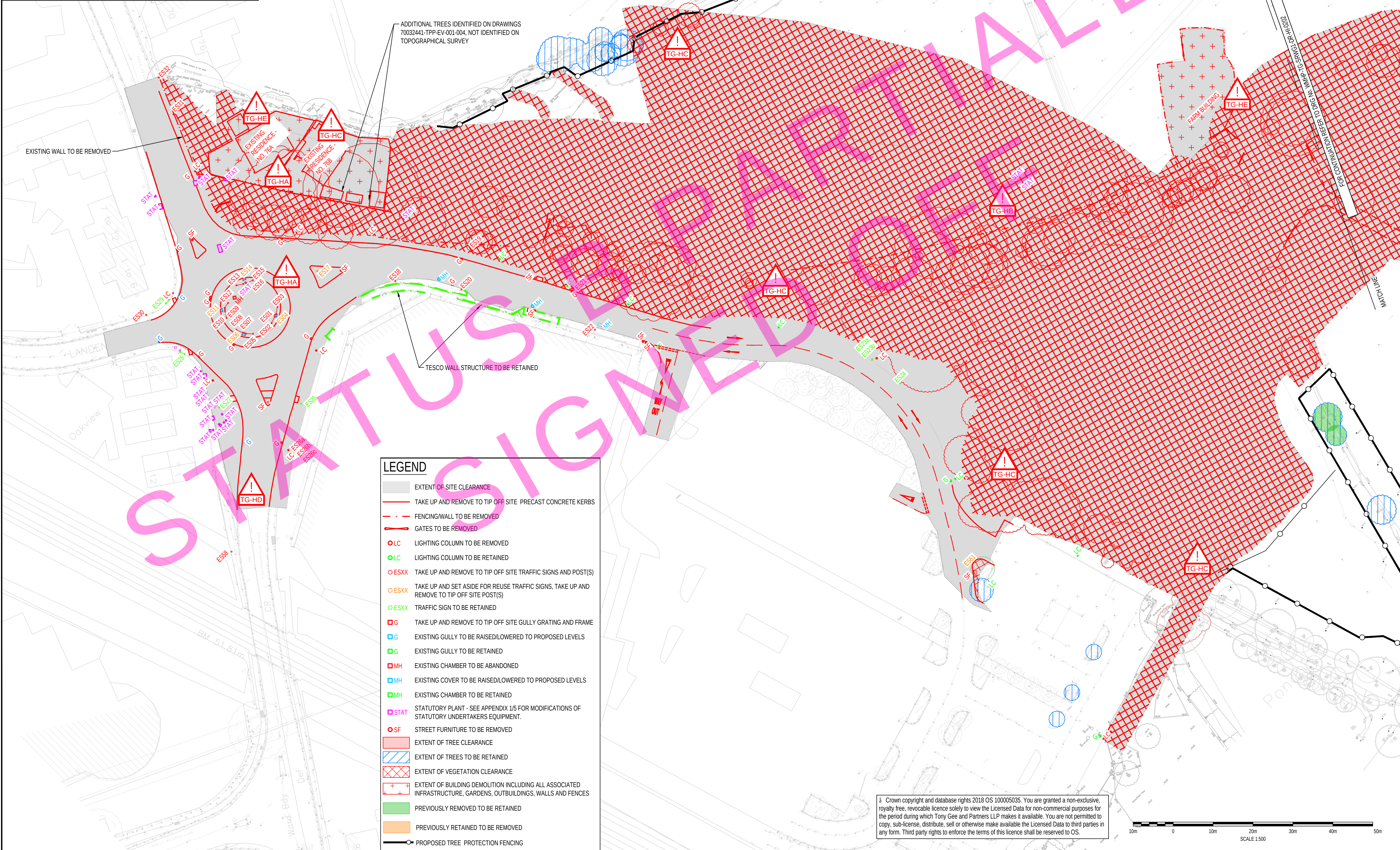
Local population	Increased flood risk	Impact on local population and businesses, damage to property	Out of channel flow	Medium	Medium	Medium	Working close to a structure may cause damage or increase flood risk.	There is no flood risk management structure within 8m of the construction.	Low
Local population	Increased flood risk	Impact on local population and businesses, damage to property	Out of channel flow	Low	High	Medium	Working in the channel may increase flood risk to the local population.	All works are not carried out within 100m of any non-agricultural buildings in the floodplain. The nearest property being around 200m away outside Flood Zone 3.	Low
Local population	Increased flood risk	Impact on local population and businesses, damage to property	Out of channel flow	Low	High	Medium	Will provide capacity for flood water and potential debris.	The soffit is a minimum of 2.440m above the top of bank (on each side).	Low
Local population	Increased flood risk	Impact on local population and businesses, damage to property	Out of channel flow	Medium	Medium	Medium	Will provide capacity for flood water and potential debris.	The foundations are set back minimum of 18m so that they do not impact on flood flows.	Low
Historic environment	Physical damage to designated sites	Damage to designated sites	During construction works	Medium	Medium	Medium	construction works that dig into the ground can cause damage to Scheduled Monuments	The are no works within 50m of Scheduled Monuments.	low
Habitat and species	Non-natural flow regime reduces flow variability; increased flows may increase floodplain connectivity.	Changes to ability of river to form and sustain habitat; Direct loss of or damage to habitat / species from additional bank protection.	Change in quantity and dynamics of water flow; change in river connectivity; change in structure and substrate of river bed	Medium	Medium	Medium	The activity can cause increased sedimentation and other damage, which may be large enough to adversely affect a conservation site or species.	There are no works within 200m of EU designated nature conservation sites, SSSI and National Nature Reserves. There are no works within 50m of a Local Nature Reserves(LNR), Local Wildlife Site (LWS) or Ancient woodland.	Low
Habitat and species	Non-natural flow regime reduces flow variability; increased flows may increase floodplain connectivity.	Changes to ability of river to form and sustain habitat; Direct loss of or damage to habitat / species from additional bank protection.	Change in quantity and dynamics of water flow; change in river connectivity; change in structure and substrate of river bed	Medium	Medium	Medium	The activity can cause increased sedimentation and other damage, which may be large enough to adversely affect a conservation site or habitat.	Sediment from the site will be prohibited from entering the water body with a sucession of silt barriers and sediement traps. The only works within the channel itself is the installation of culvert outlet headwalls and outfall ditches. Floating booms will surround the works on the riverside and silt fencing on the land side of the works as the headwalls and ditches are dug and installed. Clean and dry machinery will be used when working within the channel.	Low
Habitat and species	Spread of non native invasive species and plant and animal diseases	Loss of or damage to habitat or species	Spread of species in the catchment caused by non-native species being disturbed and spread downstream or transported by machinery and equipment to another site	Medium	Medium	Medium	Use of biosecurity measures and good site management will reduce the spread of non-native invasive species	The site will have environmental/ecological surveys undertaken by a competent ecologist who will confirm the presence of any invasive non-native species. On site inspections will be carried out by a competent ecologist prior to the installation of the culvert. Suitable controls in terms of exclusions will then be set up if it is appropriate to prevent the spread of invasive non-native species/plants. Toolbox talks/training will be given to the site team to be able to spot invasive non-native species/plants and about working in agricultural land.	Low

Habitat and species	Non-natural flow regime reduces flow variability; increased flows may increase floodplain connectivity.	Changes to ability of river to form and sustain habitat; Direct loss of or damage to habitat / species from additional bank protection.	Change in quantity and dynamics of water flow; change in river connectivity; change in structure and substrate of river bed	Medium	Medium	Medium	The activity can cause increased sedimentation and other damage, which may be large enough to adversely affect a conservation site or species.	No Priority habitat within the vicinity of the site within 50 metres	Low
Habitat and species	Reduction in variability of bed and bank from supporting reinforcement.	Direct loss of or damage to habitat / species; indirect changes to ability of river to form and sustain habitat.	Change in quantity and dynamics of water flow; Change in river depth and width variation	Medium	Medium	Medium	Works in the watercourse disturb habitat and species.	The bridge is a clear span bridge and the works involve no bed or bank reinforcement and no in-stream pier/support. The only works within the channel itself is the installation of culvert outlet headwalls and outfall ditches. Floating booms will surround the works on the riverside and silt fencing on the land side of the works as the headwalls and ditches are dug and installed. Clean and dry machinery will be used when working within the channel.	Low
Species	Lighting	Loss of or damage to species	Construction of new lighting	Medium	Medium	Medium	Will allow adequate protection of species and habitat from impact of light	There will be no light spill from external artificial lighting into the watercourse or adjacent river corridor habitat from the permanent works. There are no permanent light works associated with the design. Where temporary lighting is required for the works, this will be directed towards the associated tasks and aimed away from habitats and watercourses. There will be no light spill onto the river or its associated riparian corridor.	Low
Species	Connectivity	Loss of or damage to species	Loss of connectivity	Medium	Medium	Medium	Restriction minimises the impact on connectivity for species that use the river corridor.	The bridge deck is not wider than 15.3m. There is no part of the bridge structure within the water course and will have a minimal impact on connectivity for species that use the river corridor.	Low
Species	Connectivity	Loss of or damage to species	Loss of connectivity	Low	High	Medium	Restriction minimises the impact on connectivity for species that use the river corridor.	The bridge deck carries the new South Wokingham Distributor Road across the Emm Brook and flood area. IT has been designed so that does not interfere with the existing river and therefore not interfering with any possible corridors.	Low
Species	Connectivity	Loss of or damage to species	Loss of connectivity	Medium	Medium	Medium	Restriction minimises the impact on connectivity for species that use the river corridor.	The width of the existing river channel varies between 2.75 to 3.6m at the location with a clear span of the bridge of 40m. There is no part of the bridge structure within the water course.	Low
Species	Connectivity	Loss of or damage to species	Loss of connectivity	Low	High	Medium	Restriction minimises the impact on connectivity for species that use the river corridor and limits cumulative impacts.	There are no other bridges or culverts within 200 metres.	Low
Water quality	Increased siltation caused by working in the river, direct disturbance whilst undertaking construction works or footprint of the finished works.	Increase in sediment load.	Direct run-off from site, or in-channel flow from works within bank.	Medium	Medium	Medium	Will reduce risk due to limited mobilisation of sediment or pollutants.	A series of silt barriers will be installed to prohibit silt run-off into the existing watercourse from excavations and stockpiles. Clean and dry machinery will be used when working within the channel. Only plant required for the works will be allowed adjacent to the channel. When removing ground water from excavations, the water will be pumped out, filtered, run through sediment fences and discharged under the EA discharge licence	Low

WFD biological quality elements	changes in flow, water quality or to habitat	deterioration of ecological status through loss or harm to biology	Changes in: quantity and dynamics of water flow; connection to groundwater bodies; river connectivity; river depth and width variation; structure and substrate of river bed; and structure of riparian zone.	Medium	Medium	Medium	Limiting the size of the activity reduces the impact on receptors	The existing profile of the Emm Brook is not to be changed which shall not interfere with any aquatic life, eliminating the risk	Low
WFD hydromorphology quality elements	Geomorphological processes altered by activity	Deterioration of high morphology status as measured by WFD.	Changes in: quantity and dynamics of water flow; connection to groundwater bodies; river connectivity; river depth and width variation; structure and substrate of river bed; and structure of riparian zone.	Low	High	Medium	Working in the channel can cause increased sedimentation and other damage, which may be large enough to adversely affect the status of the water body.	There are no high status morphology bodies of waterbodies within 100m of the works area. Sediment from the site will be prohibited from entering the water body with a succession of silt barriers.	Low

Appendix 2 – Design Documentation

SIGNIFICANT RESIDUAL HAZARDS			SIGNIFICANT RESIDUAL HAZARDS		
RESIDUAL HAZARD	STAGE	SUGGESTED CONTROL MEASURE	RESIDUAL HAZARD	STAGE	SUGGESTED CONTROL MEASURE
 STRIKING UNDERGROUND SERVICES	C/D	HAND DIGGING AND CAT SCANNING TECHNIQUES SHALL BE UNDERTAKEN TO LOCATE SERVICES/UTILITIES. MARK UP ON SITE IF REQUIRED. NO WORKS TO BE UNDERTAKEN WITHOUT A VALID PERMIT TO DIG. DIVERTED SERVICES TO BE ACCURATELY RECORDED FOR FUTURE WORKS INCLUDING DECOMMISSIONED PLANT.	 PLANT/EQUIPMENT STRIKING THE RESTRICTED HEIGHT RAIL UNDERBRIDGE ON FINCHAMPS ROAD (NORTH OF THE ROUNDABOUT) - 12'6" (3.8M) AT CENTRE 99' (3.0M) ABOVE NORTHBOUND LANE (DUE TO ARCH)	C/D	DUE CONSIDERATION SHOULD BE MADE TO ACCESS AND EGRESS FOR LARGE PLANT ENTERING OR LEAVING THE SITE WITH ROBUST PLANNING WITH REGARDS TO TM AND DIVERSIONS TO TRAFFIC BEING RESOLVED WITH THIS IN MIND. APPROPRIATE SIGNAGE SHOULD REMAIN OR TEMPORARY SIGNS ERECTED IN THEIR PLACE AT ALL TIMES IN ACCORDANCE WITH TSM CHAPTER 8
 ELECTROCUTION OF OPERATIVES. LARGE PLANT STRIKING OVERHEAD CABLES. SMALL PLANT/EQUIPMENT STRIKING ELECTRICITY PYLON/POLES(S).	C/D	ALL OPERATIVES WORKING IN THE VICINITY ARE TO BE AWARE OF THE LOCATION OF OVERHEAD CABLES AND ELECTRICITY PYLON/POLES(S) AT ALL TIMES DURING THE WORKS. IF THE EXISTING POSITION REMAINS DURING THE SITE CLEARANCE WORKS, ENSURE THAT THE PROCEDURES SET OUT IN GUIDANCE NOTE G58 AND AGRICULTURE INFORMATION SHEET NO. 8 ARE CARRIED OUT AND A SAFE SYSTEM OF WORK IS IN PLACE. IF THE SERVICE DIVERSION WORKS TO REDIRECT THE ELECTRICITY CABLES MEAN THAT OVERHEAD CABLES REMAIN POSITIONED IN CLOSE PROXIMITY OF THE WORKS (AS PER GUIDANCE), A SIMILAR PROCEDURE SHOULD BE UNDERTAKEN FOR THE NEW LOCATION(S). TEMPORARY FENCE TO BE ERECTED AROUND PYLON AT 6M FROM ITS BASE TO CREATE EXCLUSION ZONE.	 INJURY OCCURRING DUE TO DEMOLITION OF BUILDINGS, INCLUDING FALLS FROM HEIGHT, INJURY FROM FALLING MATERIALS, UNCONTROLLED COLLAPSE, CONNECTED SERVICES, NOISE AND VIBRATION, FIRE AND HAZARDOUS MATERIALS INCLUDING ASBESTOS	C/D	BUILDING DEMOLITION ONLY TO BE UNDERTAKEN BY A SPECIALIST QUALIFIED DEMOLITION CONTRACTOR.
 WORKING IN CLOSE PROXIMITY TO WATERCOURSES. EXPOSURE TO HAZARDOUS SUBSTANCES, E.G. LEPTOSPIROSIS.	C/D	CONTRACTOR TO LIAISE WITH THE LEAD LOCAL FLOOD AUTHORITY TO GAIN FLOOD ALERTS. ENSURE WORKFORCE IS SUITABLY TRAINED AND COMPETENT AND ARE WEARING THE APPROPRIATE LEVEL OF PPE FOR THE INTENDED TASK TO REDUCE THE RISK OF WORKERS CONTRACTING LEPTOSPIROSIS OR WEL'S DISEASE.	NOTE: The above hazards do not include every hazard or assumption, but identify significant residual construction hazards that are not likely to be obvious to a competent contractor and those that could be difficult to manage effectively. Refer also to the designer's risk documentation.		
NOTE: The above hazards do not include every hazard or assumption, but identify significant residual construction hazards that are not likely to be obvious to a competent contractor and those that could be difficult to manage effectively. Refer also to the designer's risk documentation.					



DO NOT SCALE

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

2. ALL LEVELS ARE IN METRES AOD UNLESS NOTED OTHERWISE.

3. DRAWING TO BE READ IN CONJUNCTION WITH SPECIFICATION REFERENCE WMHP-TG-SRWG1-SP-HI-0201.

4. SITE CLEARANCE BASED ON EXTENTS AND CONTENT OF TOPOGRAPHICAL SURVEYS:
xtposurvey.dwg, RECEIVED 23/04/2019
SD19630-01.dwg, RECEIVED 24/01/2020
SD19630-02.dwg, RECEIVED 24/01/2020
SD20428-01 2D TOPO.dwg, RECEIVED 08/09/2020

5. REFER TO DETAILED ABRICULTURAL REPORT 70032441-ARB_0.3 FOR TREE PROTECTION DETAILS.

6. ALL WORKS ARE WITHIN THE PLANNING APPLICATION BOUNDARY, WHICH HAS BEEN REMOVED FOR CLARITY, AND LAND MAINTAINED BY WOKINGHAM BOROUGH COUNCIL.

1 2 3 4 5 6 7 8 9

INSET

SHEET LOCATION PLAN

N.T.S.

KEYPLAN

SWOR - SPINE ROAD AND WESTERN GATEWAY PHASE 1

PO6 02/06/2022 GKC MATTERS OUTSTANDING WMHP-TG-SRWG1-RG-DM-0010 BH JC

PO5 10/03/2022 AH ADS UPDATED JG JC

PO4 22/10/2021 BC REVISED FOR SCO COMMENTS BH JC

REV DATE BY DESCRIPTION CHK APP

DRAWING STATUS: PARTIALLY SIGNED-OFF B

DESIGNER:

 Tony Gee

Tony Gee and Partners LLP
Hardy House
140 High Street
Esher, Surrey
KT10 9QJ
Tel: 01372 461600
www.tonygee.com
Consulting Civil, Structural and Geotechnical Engineers

CONTRACTOR:

 Balfour Beatty

CLIENT:

 WOKINGHAM BOROUGH COUNCIL

Shute End, Wokingham, Berkshire RG40 1BN
Tel: (0118) 974 6000 Web: www.wokingham.gov.uk

PROJECT:

WOKINGHAM MAJOR HIGHWAYS PROGRAMME
SPINE ROAD AND WESTERN GATEWAY PHASE 1

TITLE:

HIGHWAYS
SITE CLEARANCE
PLAN LAYOUT

SHEET 1

SCALE @ A1:
1:500

CHECKED:
BH

APPROVED:
JC

PROJECT NO:
C118047

DESIGNED:
ALM

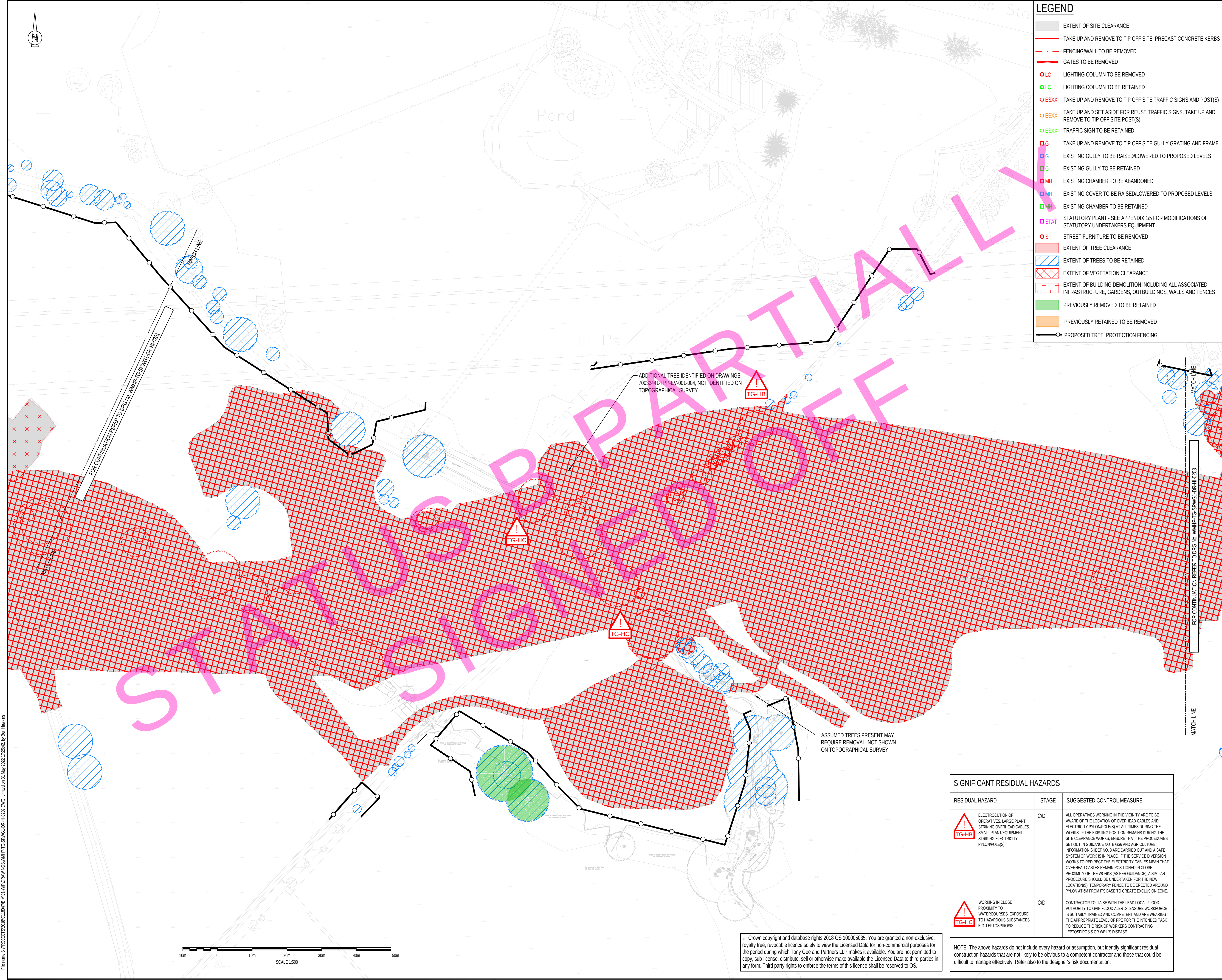
DRAWN:
TCH

DATE:
March 21

DRAWING NO:
WMHP-TG-SRWG1-DR-HI-0201

REV:
P06

a Crown copyright and database rights 2018 OS 100005035. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which Tony Gee and Partners LLP makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.

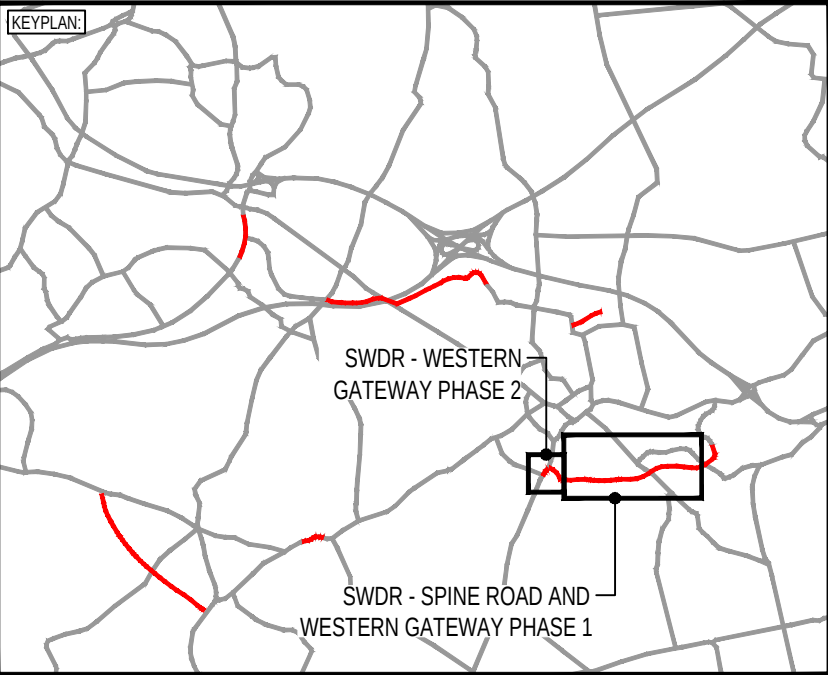
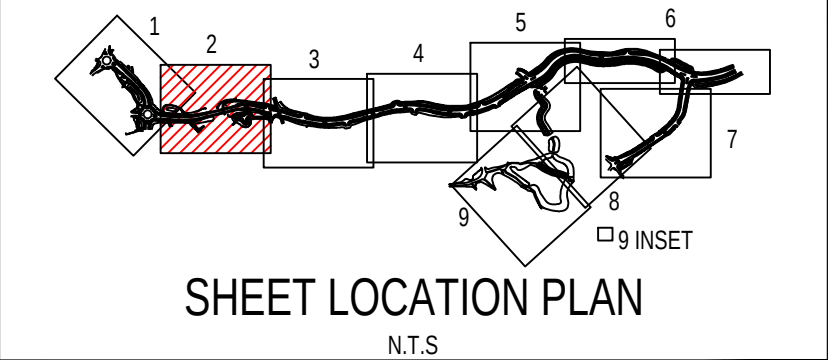


LEGEND	
	EXTENT OF SITE CLEARANCE
	TAKE UP AND REMOVE TO TIP OFF SITE PRECAST CONCRETE KERBS
	FENCING/WALL TO BE REMOVED
	GATES TO BE REMOVED
	LIGHTING COLUMN TO BE REMOVED
	LIGHTING COLUMN TO BE RETAINED
	TAKE UP AND REMOVE TO TIP OFF SITE TRAFFIC SIGNS AND POST(S)
	TAKE UP AND SET ASIDE FOR REUSE TRAFFIC SIGNS, TAKE UP AND REMOVE TO TIP OFF SITE POST(S)
	TRAFFIC SIGN TO BE RETAINED
	TAKE UP AND REMOVE TO TIP OFF SITE GULLY GRATING AND FRAME
	EXISTING GULLY TO BE RAISED/LOWERED TO PROPOSED LEVELS
	EXISTING GULLY TO BE RETAINED
	EXISTING CHAMBER TO BE ABANDONED
	EXISTING COVER TO BE RAISED/LOWERED TO PROPOSED LEVELS
	EXISTING CHAMBER TO BE RETAINED
	STATUTORY PLANT - SEE APPENDIX J.5 FOR MODIFICATIONS OF STATUTORY UNDERTAKERS EQUIPMENT.
	STREET FURNITURE TO BE REMOVED
	EXTENT OF TREE CLEARANCE
	EXTENT OF TREES TO BE RETAINED
	EXTENT OF VEGETATION CLEARANCE
	EXTENT OF BUILDING DEMOLITION INCLUDING ALL ASSOCIATED INFRASTRUCTURE, GARDENS, OUTBUILDINGS, WALLS AND FENCES
	PREVIOUSLY REMOVED TO BE RETAINED
	PREVIOUSLY RETAINED TO BE REMOVED
	PROPOSED TREE PROTECTION FENCING

DO NOT SCALE

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- ALL LEVELS ARE IN METRES AOD UNLESS NOTED OTHERWISE.
- DRAWING TO BE READ IN CONJUNCTION WITH SPECIFICATION REFERENCE WMHP-TG-SRWG1-SP-HI-0201.
- SITE CLEARANCE BASED ON EXTENTS AND CONTENT OF TOPOGRAPHICAL SURVEYS:
xtposurvey.dwg, RECEIVED 23/04/2019
SD19630-01.dwg, RECEIVED 24/01/2020
SD19630-02.dwg, RECEIVED 24/01/2020
SD20428-01 2D TOPO.dwg, RECEIVED 08/09/2020
- REFER TO DETAILED ABRORICULTURAL REPORT 70032441-ARB_0.3 FOR TREE PROTECTION DETAILS.
- ALL WORKS ARE WITHIN THE PLANNING APPLICATION BOUNDARY, WHICH HAS BEEN REMOVED FOR CLARITY, AND LAND MAINTAINED BY WOKINGHAM BOROUGH COUNCIL.



PO5	02/06/2022	GKC	MATTERS OUTSTANDING WMHP-TG-SRWG1-RG-DM-0010	BH	JC
PO4	22/10/2021	BC	REVISED FOR SCO COMMENTS	BH	JC
PO3	29/09/2021	AMG	REVISED FOR SCO COMMENTS	BH	JC
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: **PARTIALLY SIGNED-OFF** **B**

DESIGNER:

**Tony Gee**
Consulting Civil, Structural and Geotechnical Engineers

Tony Gee and Partners LLP
Hardy House
140 High Street
Esher, Surrey
KT10 9QJ
Tel: 01372 461600
www.tonygee.com

CONTRACTOR:

Balfour Beatty

CLIENT:

**WOKINGHAM BOROUGH COUNCIL**
Shute End, Wokingham, Berkshire RG40 1BN
Tel: (0118) 974 6000 Web: www.wokingham.gov.uk

PROJECT: **WOKINGHAM MAJOR HIGHWAYS PROGRAMME
SPINE ROAD AND WESTERN GATEWAY PHASE 1**

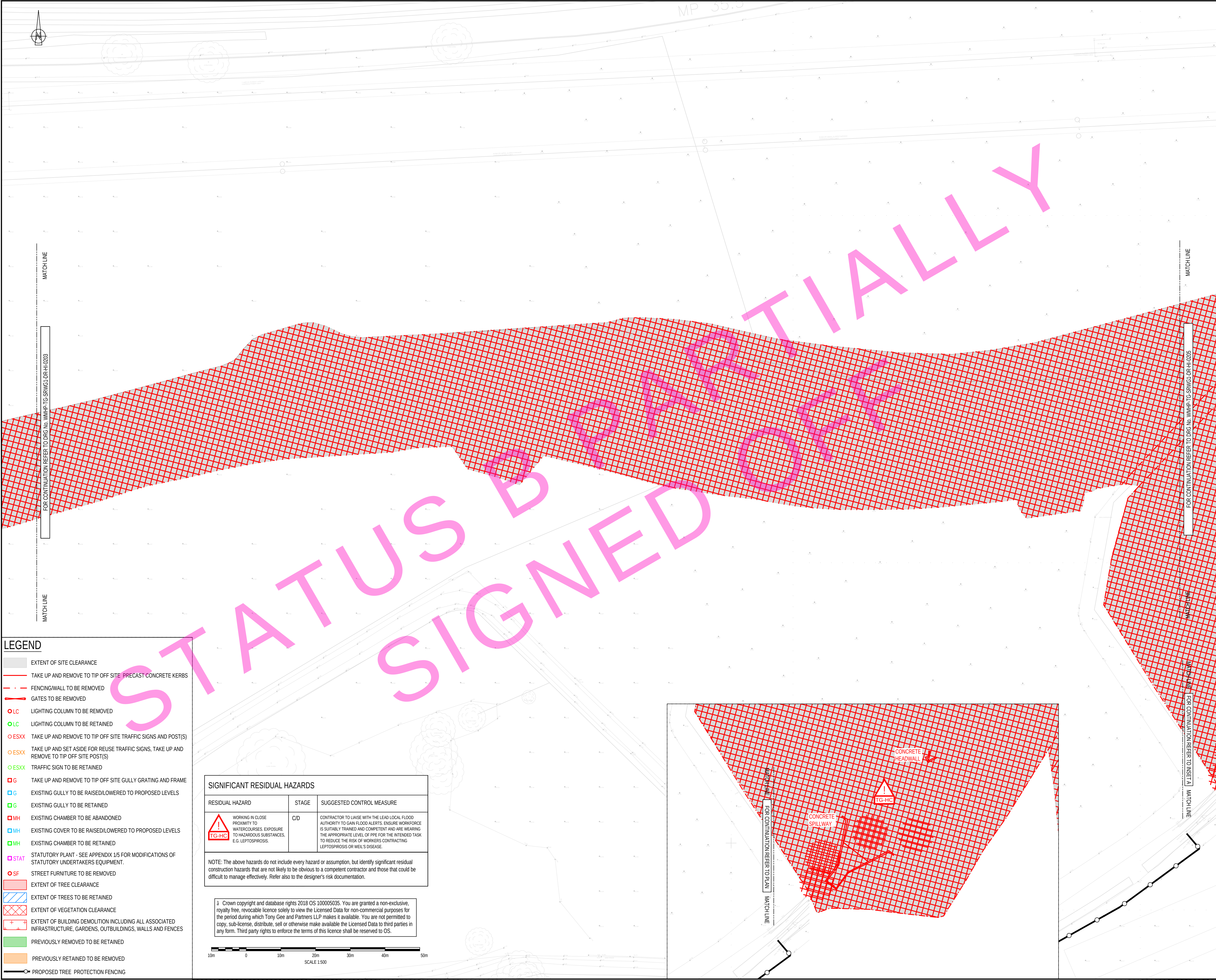
TITLE: **HIGHWAYS
SITE CLEARANCE
PLAN LAYOUT**

SCALE @ A1: 1:500	CHECKED: BH	APPROVED: JC
PROJECT NO: C118047	DESIGNED: ALM	DRAWN: TCH
DRAWING NO: WMHP-TG-SRWG1-DR-HI-0202	DATE: March 21	REV: P05

SIGNIFICANT RESIDUAL HAZARDS		
RESIDUAL HAZARD	STAGE	SUGGESTED CONTROL MEASURE
 ELECTROCUTION OF OPERATIVES. LARGE PLANT STRIKING OVERHEAD CABLES. SMALL PLANT/EQUIPMENT STRIKING ELECTRICITY PYLON/POLE(S).	C/D	ALL OPERATIVES WORKING IN THE VICINITY ARE TO BE AWARE OF THE LOCATION OF OVERHEAD CABLES AND ELECTRICITY PYLON/POLES AT ALL TIMES DURING THE WORKS. IF THE EXISTING POSITION REMAINS DURING THE SITE CLEARANCE WORKS, ENSURE THAT THE PROCEDURES SET OUT IN GUIDANCE NOTE G56 AND AGRICULTURE INFORMATION SHEET NO. 3 ARE CARRIED OUT AND A SAFE SYSTEM OF WORK IS IN PLACE. IF THE SERVICE DIVERSION WORKS TO REDIRECT THE ELECTRICITY CABLES MEAN THAT OVERHEAD CABLES REMAIN POSITIONED IN CLOSE PROXIMITY OF THE WORKS (AS PER GUIDANCE). A SIMILAR PROCEDURE SHOULD BE UNDERTAKEN FOR THE NEW LOCATION(S). TEMPORARY FENCE TO BE ERRECTED AROUND PYLON AT 6M FROM ITS BASE TO CREATE EXCLUSION ZONE.
 WORKING IN CLOSE PROXIMITY TO WATERCOURSES. EXPOSURE TO HAZARDOUS SUBSTANCES. E.G. LEPTOSPIROSIS.	C/D	CONTRACTOR TO LIAISE WITH THE LEAD LOCAL FLOOD AUTHORITY TO GAIN FLOOD ALERTS. ENSURE WORKFORCE IS SUITABLY TRAINED AND COMPETENT AND ARE WEARING THE APPROPRIATE LEVEL OF PPE FOR THE INTENDED TASK TO REDUCE THE RISK OF WORKERS CONTRACTING LEPTOSPIROSIS OR WEL'S DISEASE.
NOTE: The above hazards do not include every hazard or assumption, but identify significant residual construction hazards that are not likely to be obvious to a competent contractor and those that could be difficult to manage effectively. Refer also to the designer's risk documentation.		

© Crown copyright and database rights 2018 OS 100005035. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which Tony Gee and Partners LLP makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.

P05



LEGEND

- EXTENT OF SITE CLEARANCE
- TAKE UP AND REMOVE TO TIP OFF SITE. PRECAST CONCRETE KERBS
- FENCING/WALL TO BE REMOVED
- GATES TO BE REMOVED
- LC LIGHTING COLUMN TO BE REMOVED
- LC LIGHTING COLUMN TO BE RETAINED
- ESXX TAKE UP AND REMOVE TO TIP OFF SITE TRAFFIC SIGNS AND POST(S)
- ESXX TAKE UP AND SET ASIDE FOR REUSE TRAFFIC SIGNS, TAKE UP AND REMOVE TO TIP OFF SITE POST(S)
- ESXX TRAFFIC SIGN TO BE RETAINED
- G TAKE UP AND REMOVE TO TIP OFF SITE GULLY GRATING AND FRAME
- G EXISTING GULLY TO BE RAISED/LOWERED TO PROPOSED LEVELS
- G EXISTING GULLY TO BE RETAINED
- CH EXISTING CHAMBER TO BE ABANDONED
- MH EXISTING COVER TO BE RAISED/LOWERED TO PROPOSED LEVELS
- MH EXISTING CHAMBER TO BE RETAINED
- STAT STATUTORY PLANT - SEE APPENDIX 1/5 FOR MODIFICATIONS OF STATUTORY UNDERTAKERS EQUIPMENT.
- SF STREET FURNITURE TO BE REMOVED
- EXTENT OF TREE CLEARANCE
- EXTENT OF TREES TO BE RETAINED
- EXTENT OF VEGETATION CLEARANCE
- EXTENT OF BUILDING DEMOLITION INCLUDING ALL ASSOCIATED INFRASTRUCTURE, GARDENS, OUTBUILDINGS, WALLS AND FENCES
- PREVIOUSLY REMOVED TO BE RETAINED
- PREVIOUSLY RETAINED TO BE REMOVED
- PROPOSED TREE PROTECTION FENCING

SIGNIFICANT RESIDUAL HAZARDS

RESIDUAL HAZARD	STAGE	SUGGESTED CONTROL MEASURE
WORKING IN CLOSE PROXIMITY TO WATERCOURSES. EXPOSURE TO HAZARDOUS SUBSTANCES, E.G. LEPTOSPIROSIS.	C/D	CONTRACTOR TO LIAISE WITH THE LEAD LOCAL FLOOD AUTHORITY TO GAIN FLOOD ALERTS. ENSURE WORKFORCE IS SUITABLY TRAINED AND COMPETENT AND ARE WEARING THE APPROPRIATE LEVEL OF PPE FOR THE INTENDED TASK TO REDUCE THE RISK OF WORKERS CONTRACTING LEPTOSPIROSIS OR WELL'S DISEASE.

NOTE: The above hazards do not include every hazard or assumption, but identify significant residual construction hazards that are not likely to be obvious to a competent contractor and those that could be difficult to manage effectively. Refer also to the designer's risk documentation.

© Crown copyright and database rights 2018 OS 100005035. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which Tony Gee and Partners LLP makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.

10m 0 10m 20m 30m 40m 50m
SCALE 1:500



DO NOT SCALE

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- ALL LEVELS ARE IN METRES AOD UNLESS NOTED OTHERWISE.
- DRAWING TO BE READ IN CONJUNCTION WITH SPECIFICATION REFERENCE WMHP-TG-SRWG1-SP-HI-0201.
- SITE CLEARANCE BASED ON EXTENTS AND CONTENT OF TOPOGRAPHICAL SURVEYS:
xtoposurvey.dwg, RECEIVED 23/04/2019
SD19630-01.dwg, RECEIVED 24/01/2020
SD19630-02.dwg, RECEIVED 24/01/2020
SD20428-01 2D TOPO.dwg, RECEIVED 08/09/2020
- REFER TO DETAILED ABRORICULTURAL REPORT 70032441-ARB_0.3 FOR TREE PROTECTION DETAILS.
- ALL WORKS ARE WITHIN THE PLANNING APPLICATION BOUNDARY, WHICH HAS BEEN REMOVED FOR CLARITY, AND LAND MAINTAINED BY WOKINGHAM BOROUGH COUNCIL.

SHEET LOCATION PLAN
N.T.S.

KEY PLAN

SWOR - SPINE ROAD AND WESTERN GATEWAY PHASE 1

POS	DATE	BY	DESCRIPTION	CHK	APP
P05	02/06/2022	HD	MATTERS OUTSTANDING WMHP-TG-SRWG1-RG-DM-0010	BH	JC
P04	22/10/2021	BC	REVISED FOR SCO COMMENTS	BH	JC
P03	29/09/2021	AMG	REVISED FOR SCO COMMENTS	BH	JC

DRAWING STATUS: **PARTIALLY SIGNED-OFF** **B**

DESIGNER:

Tony Gee
Consulting Civil, Structural and Geotechnical Engineers

Tony Gee and Partners LLP
Hardy House
140 High Street
Esher, Surrey
KT10 9QJ
Tel: 01372 461600
www.tonygee.com

CONTRACTOR:

Balfour Beatty

CLIENT:

WOKINGHAM BOROUGH COUNCIL
Shute End, Wokingham, Berkshire RG40 1BN
Tel: (0118) 974 6000 Web: www.wokingham.gov.uk

PROJECT:

WOKINGHAM MAJOR HIGHWAYS PROGRAMME
SPINE ROAD AND WESTERN GATEWAY PHASE 1

TITLE:

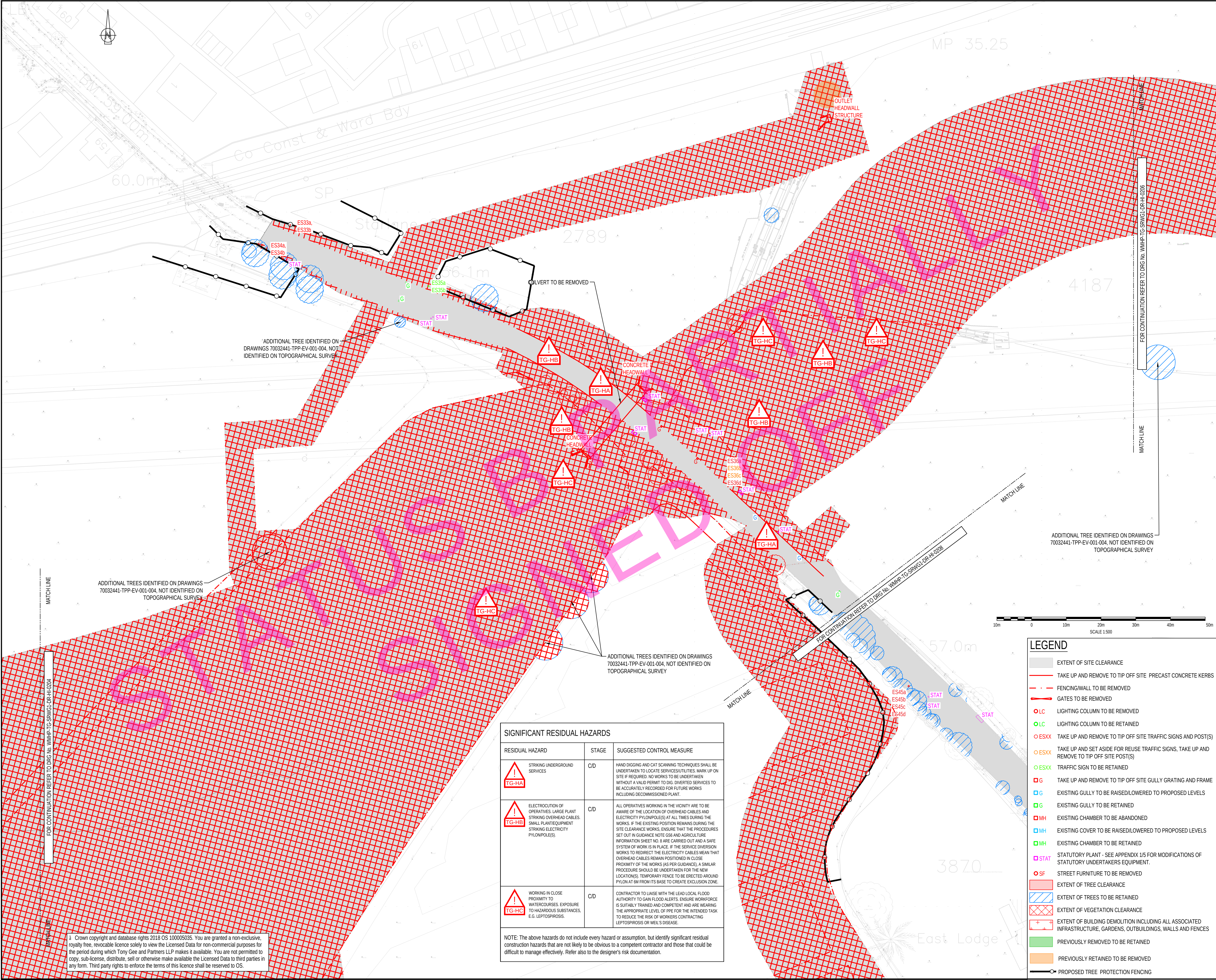
HIGHWAYS
SITE CLEARANCE
PLAN LAYOUT

SHEET 4

SCALE @ A1:	CHECKED:	APPROVED:
1:500	BH	JC

PROJECT NO:	DESIGNED:	DRAWN:	DATE:
C118047	ALM	TCH	March 21

DRAWING NO:	REV:
WMHP-TG-SRWG1-DR-HI-0204	P05



DO NOT SCALE

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

2. ALL LEVELS ARE IN METRES AOD UNLESS NOTED OTHERWISE.

3. DRAWING TO BE READ IN CONJUNCTION WITH SPECIFICATION REFERENCE WMHP-TG-SRWG1-SP-HI-0201.

4. SITE CLEARANCE BASED ON EXTENTS AND CONTENT OF TOPOGRAPHICAL SURVEYS:
xtoposurvey.dwg, RECEIVED 23/04/2019
SD19630-01.dwg, RECEIVED 24/01/2020
SD19630-02.dwg, RECEIVED 24/01/2020
SD20428-01 2D TOPO.dwg, RECEIVED 08/09/2020

5. REFER TO DETAILED ABRORICULTURAL REPORT 70032441-ARB_0.3 FOR TREE PROTECTION DETAILS.

6. ALL WORKS ARE WITHIN THE PLANNING APPLICATION BOUNDARY, WHICH HAS BEEN REMOVED FOR CLARITY, AND LAND MAINTAINED BY WOKINGHAM BOROUGH COUNCIL.

1 2 3 4 5 6 7 8 9 INSET

SHEET LOCATION PLAN

N.T.S.

KEYPLAN

SWOR - SPINE ROAD AND WESTERN GATEWAY PHASE 1

P05	02/06/2022	HD	MATTERS OUTSTANDING WMHP-TG-SRWG1-RG-DM-0010	BH	JC
P04	22/10/2021	BC	REVISED FOR SCO COMMENTS	BH	JC
P03	29/09/2021	AMG	REVISED FOR SCO COMMENTS	BH	JC
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS:
PARTIALLY SIGNED-OFF

DESIGNER:

Tony Gee
Consulting Civil, Structural and Geotechnical Engineers

CONTRACTOR:
Balfour Beatty

CLIENT:

WOKINGHAM BOROUGH COUNCIL
Shute End, Wokingham, Berkshire RG40 1BN
Tel: (0118) 974 6000 Web: www.wokingham.gov.uk

PROJECT:
WOKINGHAM MAJOR HIGHWAYS PROGRAMME
SPINE ROAD AND WESTERN GATEWAY PHASE 1

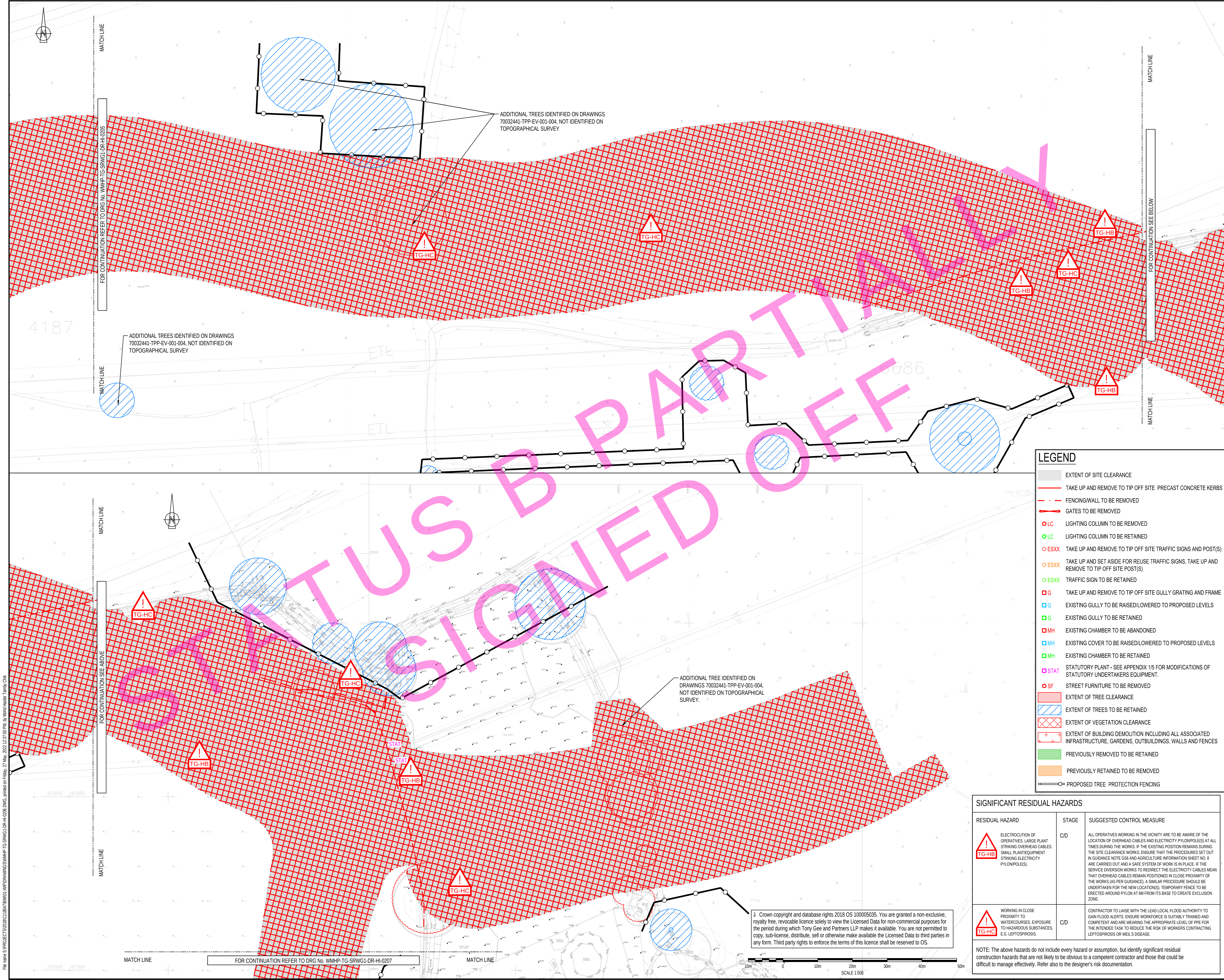
TITLE:
HIGHWAYS
SITE CLEARANCE
PLAN LAYOUT

SCALE @ A1: 1:500	CHECKED: BH	APPROVED: JC
PROJECT NO: C118047	DESIGNED: ALM	DRAWN: TCH
DRAWING NO: WMHP-TG-SRWG1-DR-HI-0205	DATE: March 21	REV: P05

SIGNIFICANT RESIDUAL HAZARDS		
RESIDUAL HAZARD	STAGE	SUGGESTED CONTROL MEASURE
STRIKING UNDERGROUND SERVICES	C/D	HAND DIGGING AND CAT SCANNING TECHNIQUES SHALL BE UNDERTAKEN TO LOCATE SERVICES/UTILITIES. MARK UP ON SITE IF REQUIRED. NO WORKS TO BE UNDERTAKEN WITHOUT A VALID PERMIT TO DIG. DIVERTED SERVICES TO BE ACCURATELY RECORDED FOR FUTURE WORKS INCLUDING DECOMMISSIONED PLANT.
ELECTROCUTION OF OPERATIVES, LARGE PLANT STRIKING OVERHEAD CABLES, SMALL PLANT/EQUIPMENT STRIKING ELECTRICITY PYLON/POLES.	C/D	ALL OPERATIVES WORKING IN THE VICINITY ARE TO BE AWARE OF THE LOCATION OF OVERHEAD CABLES AND ELECTRICITY PYLON/POLES AT ALL TIMES DURING THE WORKS. IF THE EXISTING POSITION REMAINS DURING THE SITE CLEARANCE WORKS, ENSURE THAT THE PROCEDURES SET OUT IN GUIDANCE NOTE GSS AND AGRICULTURE INFORMATION SHEET NO. 8 ARE CARRIED OUT AND A SAFE SYSTEM OF WORK IS IN PLACE. IF THE SERVICE DIVERSION WORKS TO REDIRECT THE ELECTRICITY CABLES MEAN THAT OVERHEAD CABLES REMAIN POSITIONED IN CLOSE PROXIMITY OF THE WORKS (AS PER GUIDANCE), A SIMILAR PROCEDURE SHOULD BE UNDERTAKEN FOR THE NEW LOCATION(S). TEMPORARY FENCE TO BE ERRECTED AROUND Pylon AT 8M FROM ITS BASE TO CREATE EXCLUSION ZONE.
WORKING IN CLOSE PROXIMITY TO WATERCOURSES, EXPOSURE TO HAZARDOUS SUBSTANCES, E.G. LEPTOSPIROSIS.	C/D	CONTRACTOR TO LIAISE WITH THE LEAD LOCAL FLOOD AUTHORITY TO GAIN FLOOD ALERTS. ENSURE WORKFORCE IS SUITABLY TRAINED AND COMPETENT AND ARE WEARING THE APPROPRIATE LEVEL OF PPE FOR THE INTENDED TASK TO REDUCE THE RISK OF WORKERS CONTRACTING LEPTOSPIROSIS OR WEIL'S DISEASE.

NOTE: The above hazards do not include every hazard or assumption, but identify significant residual construction hazards that are not likely to be obvious to a competent contractor and those that could be difficult to manage effectively. Refer also to the designer's risk documentation.

© Crown copyright and database rights 2018 OS 100005035. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which Tony Gee and Partners LLP makes it available. You are not permitted to copy, sub-licence, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.



DO NOT SCALE

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

2. ALL LEVELS ARE IN METRES AOD UNLESS NOTED OTHERWISE.

3. DRAWING TO BE READ IN CONJUNCTION WITH SPECIFICATION REFERENCE WMHP-TG-SRWG1-SP-HI-0201.

4. SITE CLEARANCE BASED ON EXTENTS AND CONTENT OF TOPOGRAPHICAL SURVEYS:
xtposurvey.dwg, RECEIVED 23/04/2019
SD19630-01.dwg, RECEIVED 24/01/2020
SD19630-02.dwg, RECEIVED 24/01/2020
SD20428-01 2D TOPO.dwg, RECEIVED 08/09/2020

5. REFER TO DETAILED ABRORICULTURAL REPORT 70032441-ARB_0.3 FOR TREE PROTECTION DETAILS.

6. ALL WORKS ARE WITHIN THE PLANNING APPLICATION BOUNDARY, WHICH HAS BEEN REMOVED FOR CLARITY, AND LAND MAINTAINED BY WOKINGHAM BOROUGH COUNCIL.

1 2 3 4 5 6 7 8 9 INSET

SHEET LOCATION PLAN

N.T.S.

KEYPLAN

SWDR - WESTERN GATEWAY PHASE 2

SWDR - SPINE ROAD AND WESTERN GATEWAY PHASE 1

POS	02/06/2022	HD	MATTERS OUTSTANDING WMHP-TG-SRWG1-RG-DM-0010	BH	JC
P04	22/10/2021	BC	REVISED FOR SCO COMMENTS	BH	JC
P03	29/09/2021	AMG	REVISED FOR SCO COMMENTS	BH	JC
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: PARTIALLY SIGNED-OFF B

DESIGNER:

Tony Gee
Consulting Civil, Structural and Geotechnical Engineers

Tony Gee and Partners LLP

Hardy House

140 High Street

Esher, Surrey

KT10 9QJ

Tel: 01372 461600

www.tonygee.com

CONTRACTOR:

CLIENT:

WOKINGHAM
BOROUGH COUNCIL

Shute End, Wokingham, Berkshire RG40 1BN

Tel: (0118) 974 6000 Web: www.wokingham.gov.uk

PROJECT:

WOKINGHAM MAJOR HIGHWAYS PROGRAMME

SPINE ROAD AND WESTERN GATEWAY PHASE 1

TITLE:

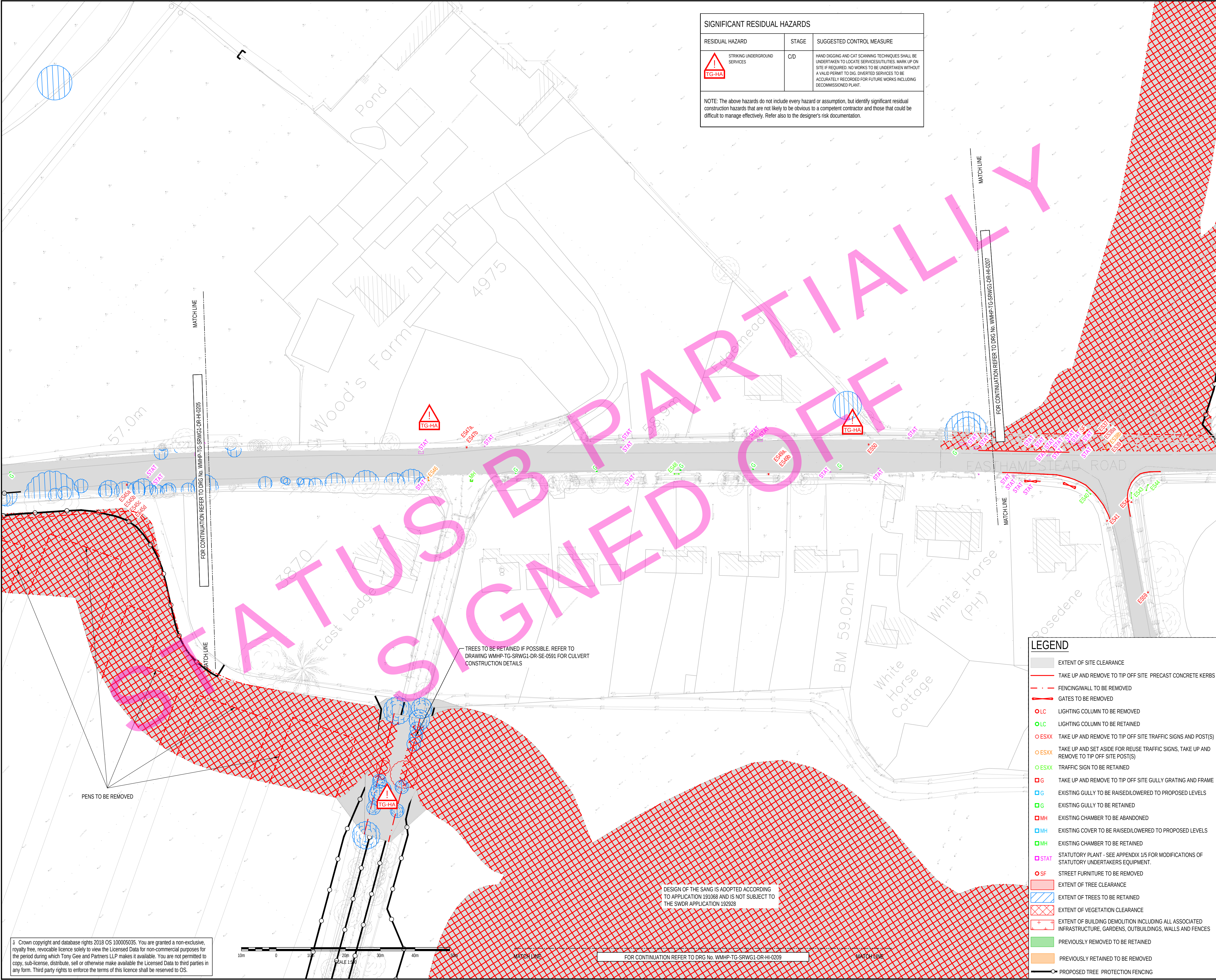
HIGHWAYS

SITE CLEARANCE

PLAN LAYOUT

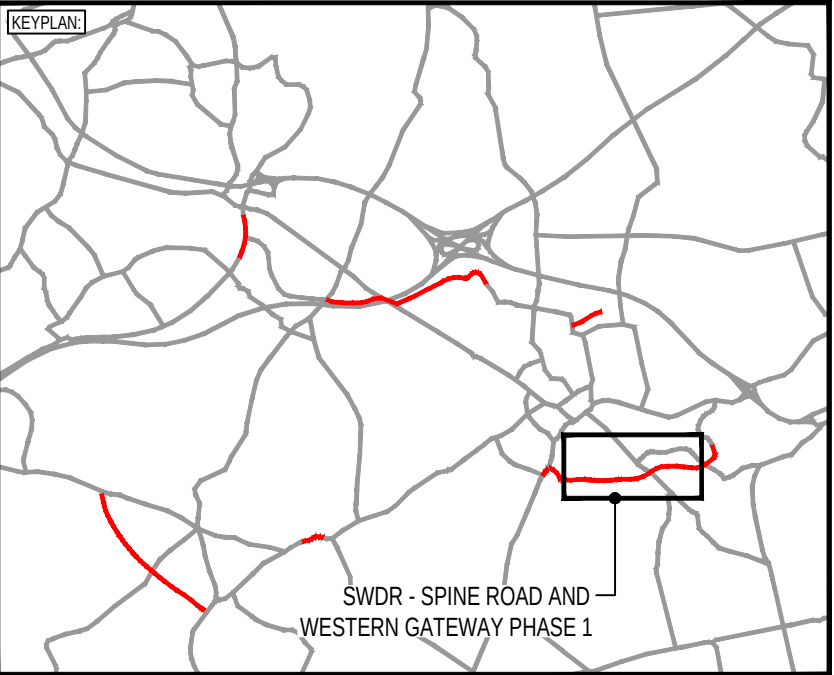
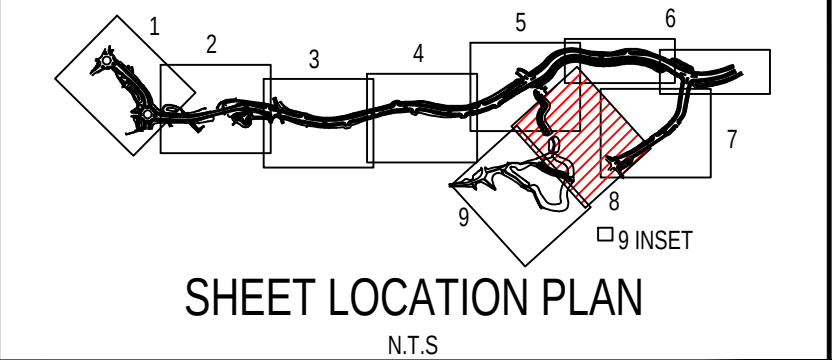
SHEET 6

SCALE AT: 1:500	CHECKED: BH	APPROVED: JC
PROJECT NO: C118047	DESIGNED: ALM	DRAWN: TCH
DRAWING NO: WMHP-TG-SRWG1-DR-HI-0206	DATE: March 21	REV: P05



SIGNIFICANT RESIDUAL HAZARDS		
RESIDUAL HAZARD	STAGE	SUGGESTED CONTROL MEASURE
 STRIKING UNDERGROUND SERVICES	C/D	HAND DIGGING AND CAT SCANNING TECHNIQUES SHALL BE UNDERTAKEN TO LOCATE SERVICES/UTILITIES. MARK UP ON SITE IF REQUIRED. NO WORKS TO BE UNDERTAKEN WITHOUT A VALID PERMIT TO DIG. DIVERTED SERVICES TO BE ACCURATELY RECORDED FOR FUTURE WORKS INCLUDING DECOMMISSIONED PLANT.
NOTE: The above hazards do not include every hazard or assumption, but identify significant residual construction hazards that are not likely to be obvious to a competent contractor and those that could be difficult to manage effectively. Refer also to the designer's risk documentation.		

- DO NOT SCALE
- NOTES:
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
 - ALL LEVELS ARE IN METRES AOD UNLESS NOTED OTHERWISE.
 - DRAWING TO BE READ IN CONJUNCTION WITH SPECIFICATION REFERENCE WMHP-TG-SRWG1-SP-HI-0201.
 - SITE CLEARANCE BASED ON EXTENTS AND CONTENT OF TOPOGRAPHICAL SURVEYS:
xtposurvey.dwg, RECEIVED 23/04/2019
SD19630-01.dwg, RECEIVED 24/01/2020
SD19630-02.dwg, RECEIVED 24/01/2020
SD20428-01 2D TOPO.dwg, RECEIVED 08/09/2020
 - REFER TO DETAILED ABRORICULTURAL REPORT 70032441-ARB_0.3 FOR TREE PROTECTION DETAILS.
 - ALL WORKS ARE WITHIN THE PLANNING APPLICATION BOUNDARY, WHICH HAS BEEN REMOVED FOR CLARITY, AND LAND MAINTAINED BY WOKINGHAM BOROUGH COUNCIL.



REV	DATE	BY	DESCRIPTION	CHK	APP
P06	02/09/2022	HD	MATTERS OUTSTANDING WMHP-TG-SRWG1-RO-DM-0010	BH	JC
P05	17/03/2022	BC	ROSEBENE PRIVATE ACCESS AMENDED	BH	JC
P04	22/10/2021	BC	REVISED FOR SCO COMMENTS	BH	JC

DRAWING STATUS: PARTIALLY SIGNED-OFF B

DESIGNER: Tony Gee and Partners LLP
Hardy House
140 High Street
Esher, Surrey
KT10 9QJ
Tel: 01372 461600
www.tonygee.com
Consulting Civil, Structural and Geotechnical Engineers

CONTRACTOR: Balfour Beatty

CLIENT: WOKINGHAM BOROUGH COUNCIL
Shute End, Wokingham, Berkshire RG40 1BN
Tel: (0118) 974 6000 Web: www.wokingham.gov.uk

PROJECT: WOKINGHAM MAJOR HIGHWAYS PROGRAMME
SPINE ROAD AND WESTERN GATEWAY PHASE 1

TITLE: HIGHWAYS
SITE CLEARANCE
PLAN LAYOUT

SCALE @ A1: 1:500	CHECKED: BH	APPROVED: JC
PROJECT NO: C118047	DESIGNED: ALM	DRAWN: TCH
DRAWING NO: WMHP-TG-SRWG1-DR-HI-0208	DATE: August 21	REV: P06

File name: S:\PROJECTS\2018\18047\BIM\03\WIP\DRAWINGS\WMHP-TG-SRWG1-DR-HI-0208.DWG, printed on Friday, 27 May 2022 12:47:44 PM, by Mohd Hadeer Tamim Chik

© Crown copyright and database rights 2018 OS 100005035. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which Tony Gee and Partners LLP makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.

File name: S:\PROJECTS\2019\03\18047\BIM\03\WIP\DRAWINGS\WIP\WIP-TG-SRWG1-DR-HI-0208.DWG, printed on Friday, 27 May 2022 12:50:02 PM, by Mohd Hadeer Tammy Chik

SIGNIFICANT RESIDUAL HAZARDS		
RESIDUAL HAZARD	STAGE	SUGGESTED CONTROL MEASURE
 STRIKING UNDERGROUND SERVICES	C/D	HAND DIGGING AND CAT SCANNING TECHNIQUES SHALL BE UNDERTAKEN TO LOCATE SERVICES/UTILITIES. MARK UP ON SITE IF REQUIRED. NO WORKS TO BE UNDERTAKEN WITHOUT A VALID PERMIT TO DIG. INVERTED SERVICES TO BE ACCURATELY RECORDED FOR FUTURE WORKS INCLUDING DECOMMISSIONED PLANT.
 WORKING IN CLOSE PROXIMITY TO WATERCOURSES. EXPOSURE TO HAZARDOUS SUBSTANCES, E.G. LEPTOSPIROSIS	C/D	CONTRACTOR TO LIAISE WITH THE LEAD LOCAL FLOOD AUTHORITY TO GAIN FLOOD ALERTS. ENSURE WORKFORCE IS SUITABLY TRAINED AND COMPETENT AND ARE WEARING THE APPROPRIATE LEVEL OF PPE FOR THE INTENDED TASK TO REDUCE THE RISK OF WORKERS CONTRACTING LEPTOSPIROSIS OR WEIL'S DISEASE. CONSTRUCTION ACTIVITIES WILL BE DIRECTLY ADJACENT TO AN EXISTING WATERCOURSE. CONTRACTORS METHOD STATEMENT TO CONSIDER WORKING ADJACENT TO EXISTING WATERCOURSE TO ENSURE WASTE IS NOT INADVERTENTLY DIRECTED INTO WATERCOURSE.
NOTE: The above hazards do not include every hazard or assumption, but identify significant residual construction hazards that are not likely to be obvious to a competent contractor and those that could be difficult to manage effectively. Refer also to the designer's risk documentation.		

WATER LINE

FOR CONTINUATION REFER TO DRG No. WMHP-TG-SRWG1-DR-HI-0208

WATCH LINE

DESIGN OF THE SANG IS ADOPTED ACCORDING TO APPLICATION 191068 AND IS NOT SUBJECT TO THE SWDR APPLICATION 192928

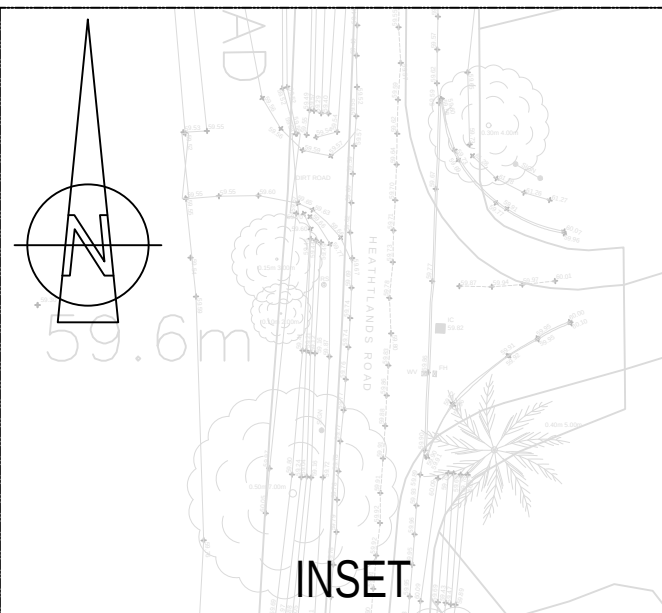
PENS TO BE REMOVED

PEN TO BE REMOVED

TUS B F
SIGNED OFF

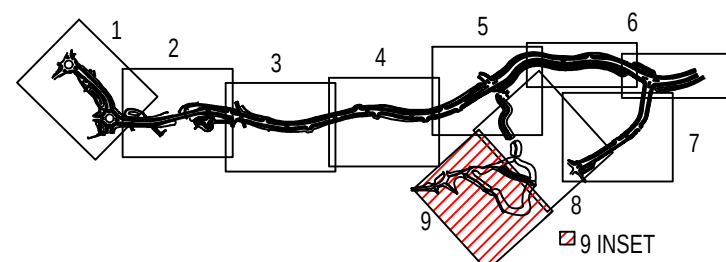
LEGEND

- EXTENT OF SITE CLEARANCE
- TAKE UP AND REMOVE TO TIP OFF SITE. PRECAST CONCRETE KERBS
- FENCING/WALL TO BE REMOVED
- GATES TO BE REMOVED
- LC LIGHTING COLUMN TO BE REMOVED
- LC LIGHTING COLUMN TO BE RETAINED
- ESXX TAKE UP AND REMOVE TO TIP OFF SITE. TRAFFIC SIGNS AND POST(S)
- ESXX TAKE UP AND SET ASIDE FOR REUSE TRAFFIC SIGNS, TAKE UP AND REMOVE TO TIP OFF SITE POST(S)
- ESXX TRAFFIC SIGN TO BE RETAINED
- G TAKE UP AND REMOVE TO TIP OFF SITE GULLY GRATING AND FRAME
- G EXISTING GULLY TO BE RAISED/LOWERED TO PROPOSED LEVELS
- G EXISTING GULLY TO BE RETAINED
- MH EXISTING CHAMBER TO BE ABANDONED
- MH EXISTING COVER TO BE RAISED/LOWERED TO PROPOSED LEVELS
- MH EXISTING CHAMBER TO BE RETAINED
- STAT STATUTORY PLANT - SEE APPENDIX 1/5 FOR MODIFICATIONS OF STATUTORY UNDERTAKERS EQUIPMENT.
- SF STREET FURNITURE TO BE REMOVED
- EXTENT OF TREE CLEARANCE
- EXTENT OF TREES TO BE RETAINED
- EXTENT OF VEGETATION CLEARANCE
- EXTENT OF BUILDING DEMOLITION INCLUDING ALL ASSOCIATED INFRASTRUCTURE, GARDENS, OUTBUILDINGS, WALLS AND FENCES
- PREVIOUSLY REMOVED TO BE RETAINED
- PREVIOUSLY RETAINED TO BE REMOVED
- PROPOSED TREE PROTECTION FENCING

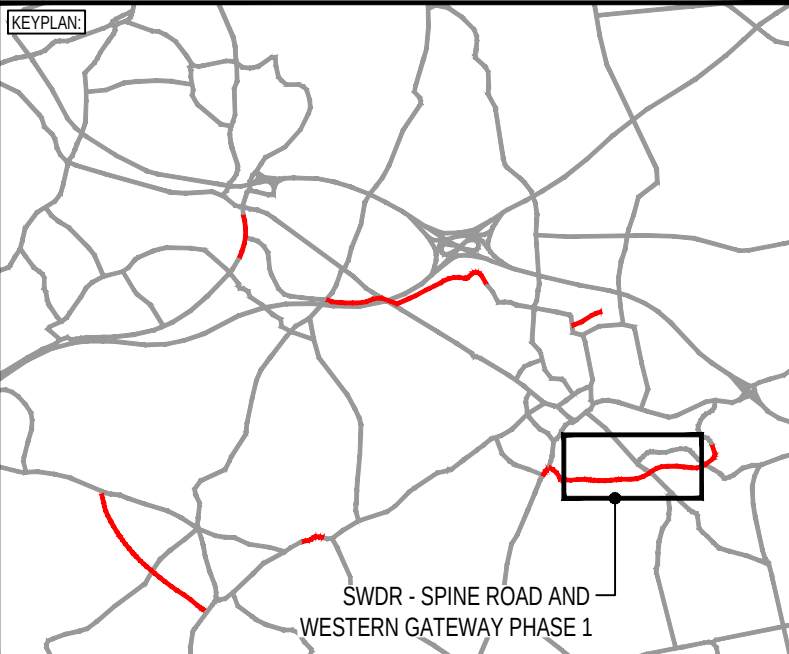


DO NOT SCALE

- NOTES:
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
 - ALL LEVELS ARE IN METRES AOD UNLESS NOTED OTHERWISE.
 - DRAWING TO BE READ IN CONJUNCTION WITH SPECIFICATION REFERENCE WMHP-TG-SRWG1-SP-HI-0201.
 - SITE CLEARANCE BASED ON EXTENTS AND CONTENT OF TOPOGRAPHICAL SURVEYS:
xtoposurvey.dwg, RECEIVED 23/04/2019
SD19630-01.dwg, RECEIVED 24/01/2020
SD19630-02.dwg, RECEIVED 24/01/2020
SD20428-01 2D TOPO.dwg, RECEIVED 08/09/2020
 - REFER TO DETAILED ABRORICULTURAL REPORT 70032441-ARB_0.3 FOR TREE PROTECTION DETAILS.
 - ALL WORKS ARE WITHIN THE PLANNING APPLICATION BOUNDARY, WHICH HAS BEEN REMOVED FOR CLARITY, AND LAND MAINTAINED BY WOKINGHAM BOROUGH COUNCIL.



SHEET LOCATION PLAN



PO4	02/06/2022	HD	MATTERS OUTSTANDING WMHP-TG-SRWG1-RG-DM-0010	BH	JC
PO3	22/10/2021	BC	REVISED FOR SCO COMMENTS	BH	JC
PO2	29/09/2021	AMG	REVISED FOR SCO COMMENTS	BH	JC
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: **PARTIALLY SIGNED-OFF** **B**

DESIGNER:

 **Tony Gee**
Consulting Civil, Structural and Geotechnical Engineers

Tony Gee and Partners LLP
Hardy House
140 High Street
Esher, Surrey
KT10 9QJ
Tel: 01372 461600
www.tonygee.com

CONTRACTOR:

Balfour Beatty

CLIENT:

 **WOKINGHAM BOROUGH COUNCIL**

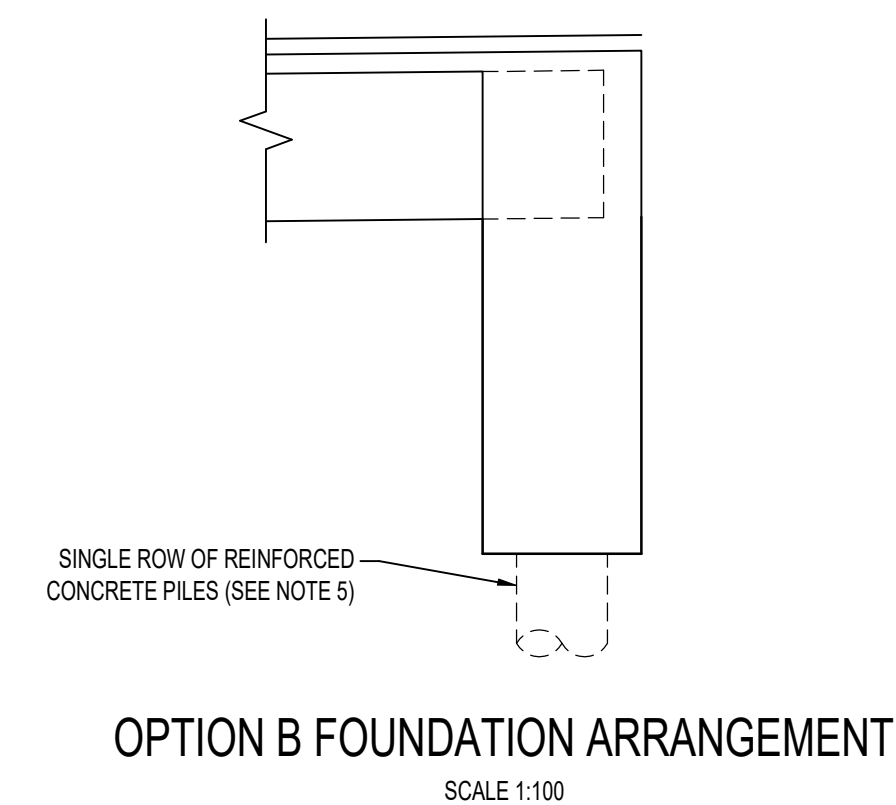
Shute End, Wokingham, Berkshire RG40 1BN
Tel: (0118) 974 6000 Web: www.wokingham.gov.uk

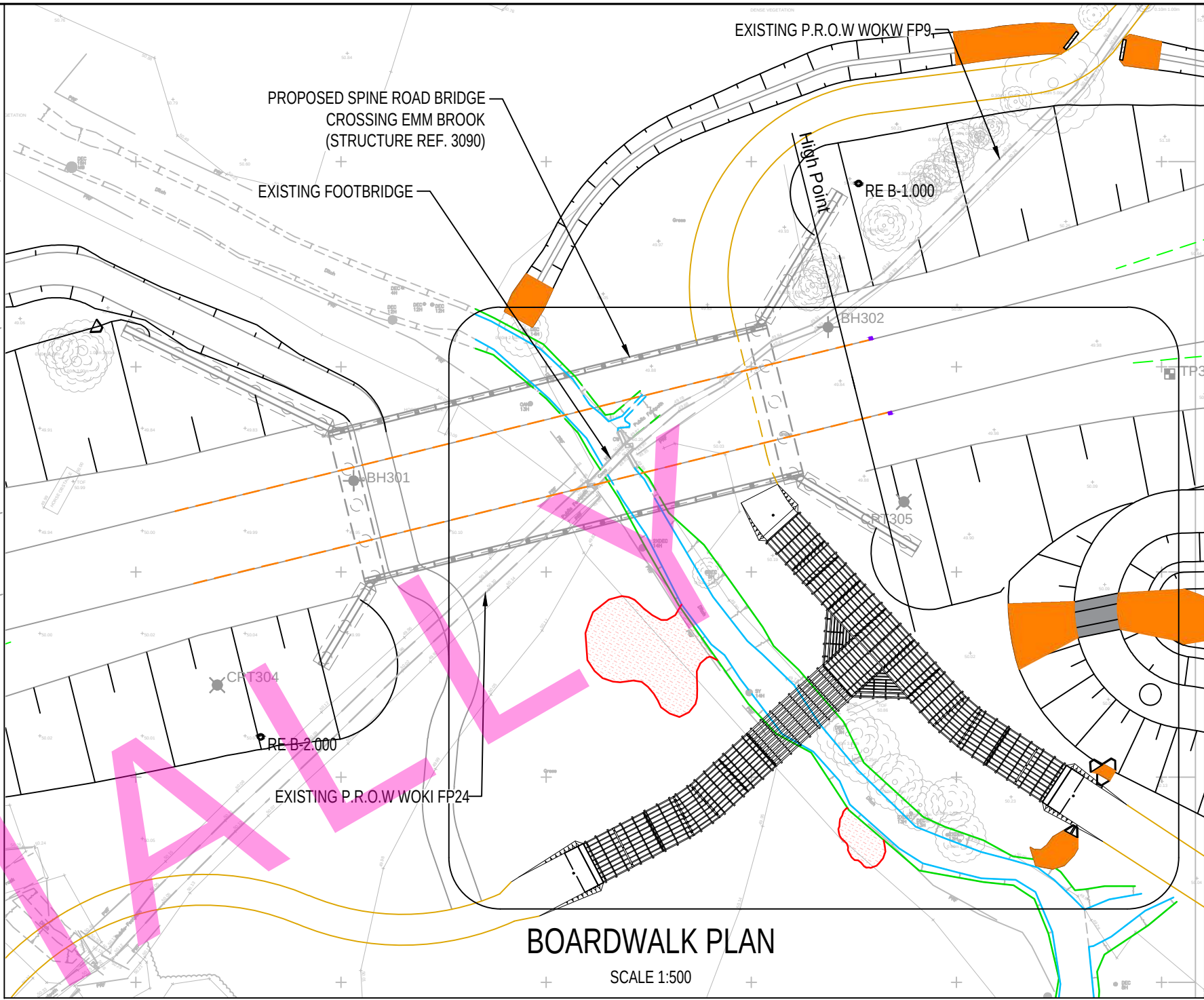
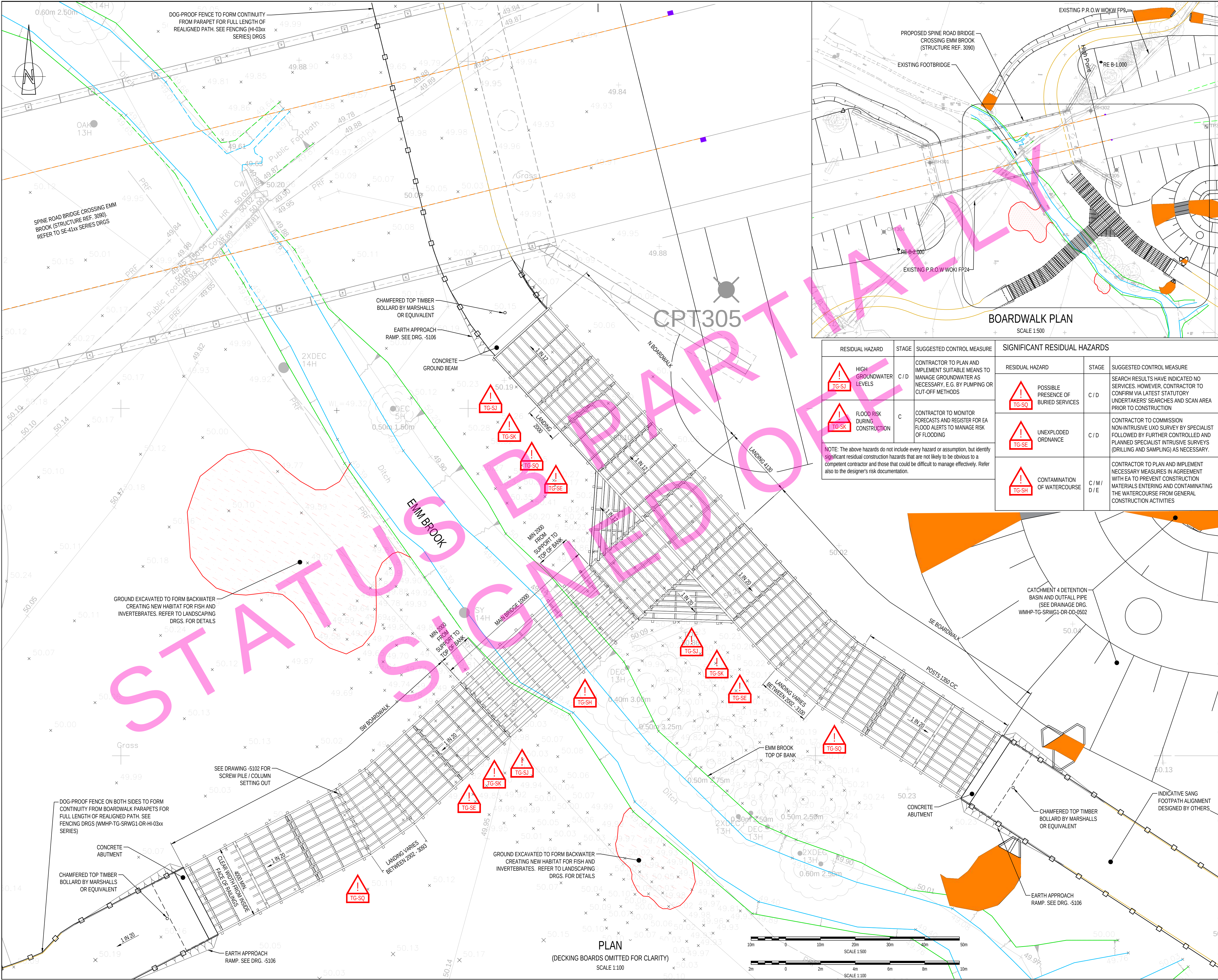
PROJECT: **WOKINGHAM MAJOR HIGHWAYS PROGRAMME
SPINE ROAD AND WESTERN GATEWAY PHASE 1**

TITLE: **HIGHWAYS
SITE CLEARANCE
PLAN LAYOUT**

SCALE @ A1: 1:500	CHECKED: BH	APPROVED: JC
PROJECT NO: C118047	DESIGNED: MS	DRAWN: MS
DRAWING NO: WMHP-TG-SRWG1-DR-HI-0209	DATE: August 21	REV: P04

© Crown copyright and database rights 2018 OS 100005035. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which Tony Gee and Partners LLP makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.





RESIDUAL HAZARD			SIGNIFICANT RESIDUAL HAZARDS		
RESIDUAL HAZARD	STAGE	SUGGESTED CONTROL MEASURE	RESIDUAL HAZARD	STAGE	SUGGESTED CONTROL MEASURE
HIGH GROUNDWATER LEVELS	C/D	CONTRACTOR TO PLAN AND IMPLEMENT SUITABLE MEANS TO MANAGE GROUNDWATER AS NECESSARY, E.G. BY PUMPING OR CUT-OFF METHODS	POSSIBLE PRESENCE OF BURIED SERVICES	C/D	SEARCH RESULTS HAVE INDICATED NO SERVICES. HOWEVER, CONTRACTOR TO CONFIRM VIA LATEST STATUTORY UNDERTAKERS' SEARCHES AND SCAN AREA PRIOR TO CONSTRUCTION
FLOOD RISK DURING CONSTRUCTION	C	CONTRACTOR TO MONITOR FORECASTS AND REGISTER FOR EA FLOOD ALERTS TO MANAGE RISK OF FLOODING	UNEXPLODED ORDNANCE	C/D	CONTRACTOR TO COMMISSION NON-INTRUSIVE UXO SURVEY BY SPECIALIST FOLLOWED BY FURTHER CONTROLLED AND PLANNED SPECIALIST INTRUSIVE SURVEYS (DRILLING AND SAMPLING) AS NECESSARY.
NOTE: The above hazards do not include every hazard or assumption, but identify significant residual construction hazards that are not likely to be obvious to a competent contractor and those that could be difficult to manage effectively. Refer also to the designer's risk documentation.			CONTAMINATION OF WATERCOURSE	C/M/D/E	CONTRACTOR TO PLAN AND IMPLEMENT NECESSARY MEASURES IN AGREEMENT WITH EA TO PREVENT CONSTRUCTION MATERIALS ENTERING AND CONTAMINATING THE WATERCOURSE FROM GENERAL CONSTRUCTION ACTIVITIES

DO NOT SCALE

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- ALL LEVELS ARE IN METRES AOD UNLESS NOTED OTHERWISE.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS WMHP-TG-SRWG1-DR-SE-5102 TO -5107.
- GREY BACKGROUND INCLUDING SPOT LEVELS ARE BASED ON SURVEY FILES "XTOPOSURVEY" (DRG. No. MSL15152-T3D-RevA-23) COMMISSIONED BY WSP AND UNDERTAKEN BY MURPHY SURVEYS, DATED JUNE 2016, AND "SD19630-01" COMMISSIONED BY BALFOUR BEATTY AND UNDERTAKEN BY TECHNICS, DATED NOVEMBER 2019. THE CONTRACTOR SHALL VERIFY ITS ACCURACY ON SITE BEFORE CONSTRUCTION.
- NO UTILITIES SHOWN ON DRAWING AS STATUTORY UNDERTAKER SEARCHES HAVE INDICATED THAT NO SERVICES ARE LOCATED WITHIN THE STRUCTURE FOOTPRINT. HOWEVER, CONTRACTOR SHALL VERIFY THROUGH FURTHER SURVEY AND SCANS. REFER TO HAZARD TG-SQ.

KEYPLAN

P04	02/06/2022	NZM	MATTERS OUTSTANDING WMHP-TG-SRWG1-RG-DM-0010	BH	JC
P03	07/10/2021	BPH	STRUCTURE NAME UPDATED IN DRG TITLE	KL	CMF
P02	13/08/21	BPH	BACKGROUND DRAINAGE DESIGN UPDATED	KL	CMF
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: **PARTIALLY SIGNED-OFF**

DESIGNER: **Tony Gee**
Consulting Civil, Structural and Geotechnical Engineers

CONTRACTOR: **Balfour Beatty**

CLIENT: **WOKINGHAM BOROUGH COUNCIL**
Shute End, Wokingham, Berkshire RG40 1BN
Tel: (0118) 974 6000 Web: www.wokingham.gov.uk

PROJECT: **WOKINGHAM MAJOR HIGHWAYS PROGRAMME**
SPINE ROAD AND WESTERN GATEWAY PHASE 1

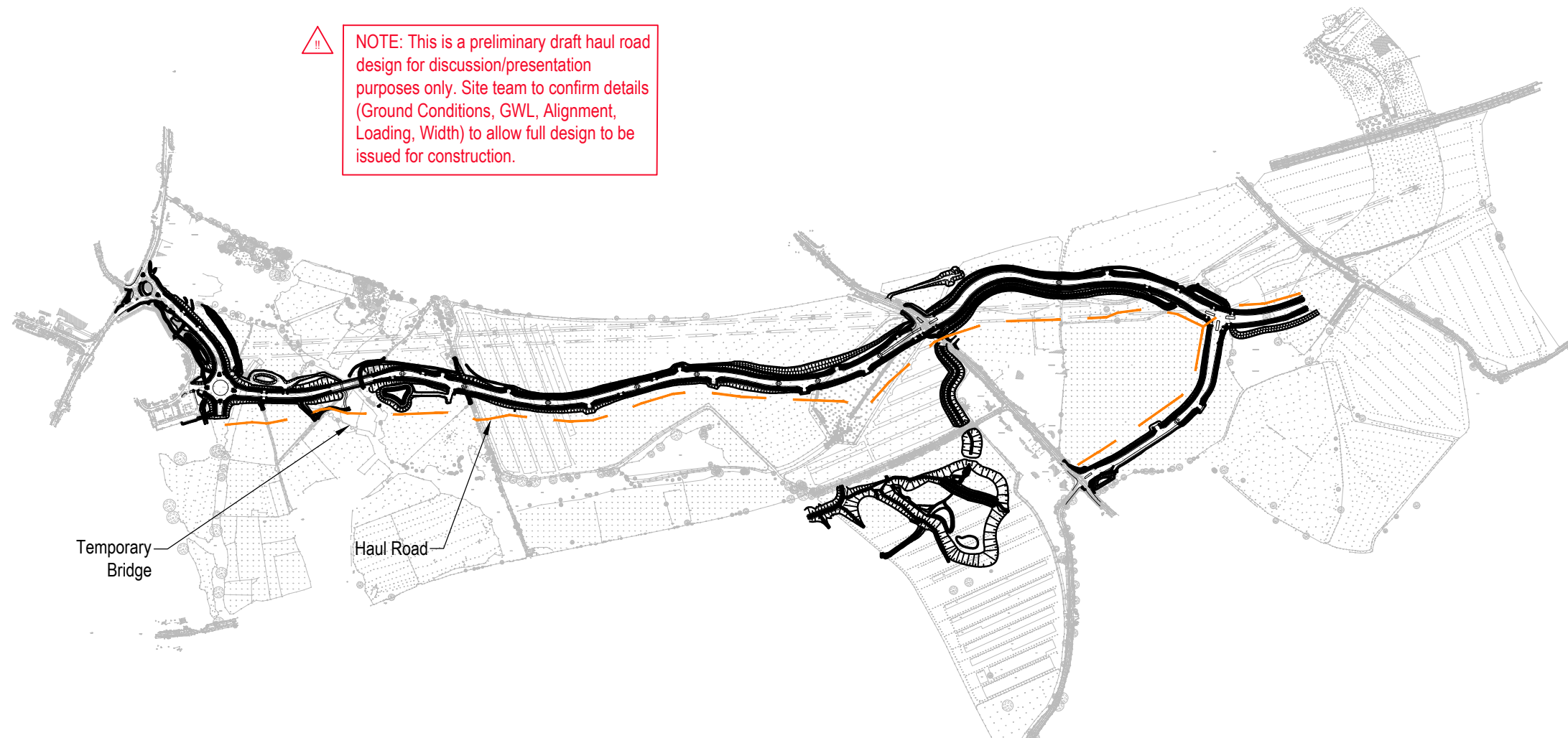
TITLE: **NEW GYPSY LANE FOOTBRIDGE / BOARDWALK**
STRUCTURE REFERENCE: 3094
GENERAL ARRANGEMENT

SCALE @ A1:	N/A	CHECKED:	KL	APPROVED:	CMF
PROJECT NO:	C118047	DESIGNED:	EPM	DRAWN:	TCH
DRAWING NO:	WMHP-TG-SRWG1-DR-SE-5101	DATE:	July 21	REV:	P04

Appendix 3 - Temporary Works Sketches

1! Hazard Triangles indicate residual risks from the Design Risk Assessment
Details can be found in the Health, Safety and Environmental Risk box

!! NOTE: This is a preliminary draft haul road design for discussion/presentation purposes only. Site team to confirm details (Ground Conditions, GWL, Alignment, Loading, Width) to allow full design to be issued for construction.



Key Plan Showing Haul Road

Scale 1:TBC

1! NOTE: Site has confirmed that no services are expected within proximity of the haul road. Any services located within this area are to be either diverted or protected.

4! NOTE: Haul road to be inspected regularly, and monitored for wear and rutting.

NOTE: All soft spots in formation to be removed and filled with compacted 6F5 prior to installation of base Terram layer.

NOTE: Depth of 6F5 may be increased to accommodate join to adjacent PWD road and/or piling platform. Any slope from haul road to piling platform should suit the requirements set out by the piling contractor/rig supplier (generally 1:10 max.).

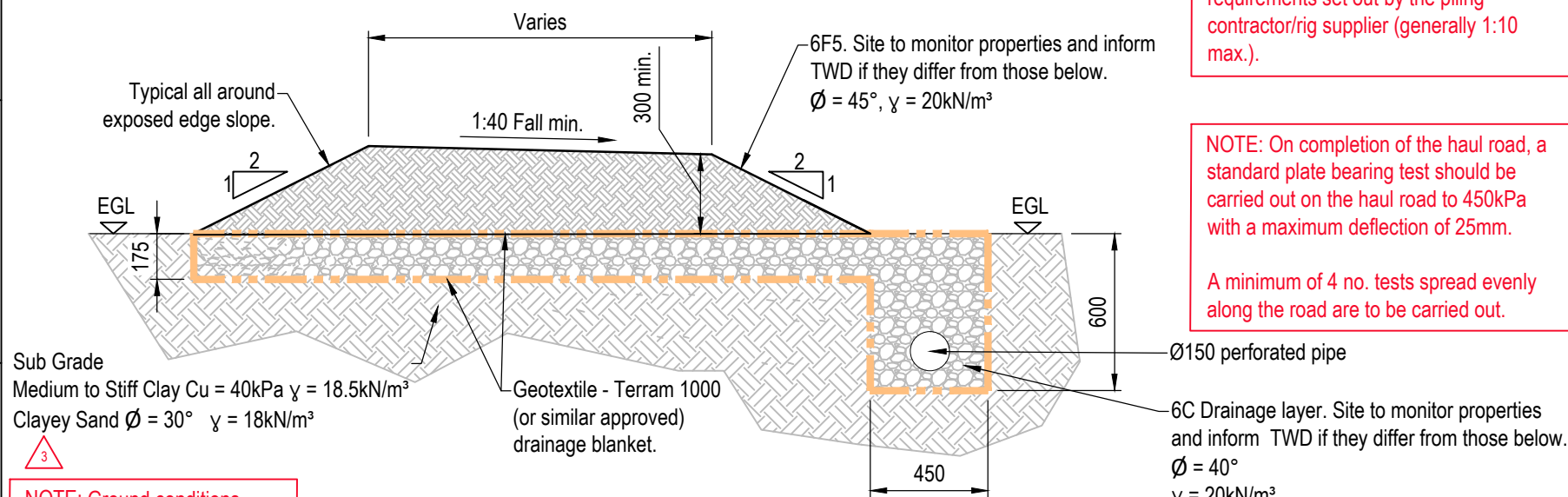
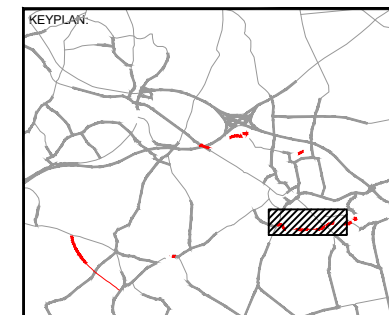
NOTE: On completion of the haul road, a standard plate bearing test should be carried out on the haul road to 450kPa with a maximum deflection of 25mm.

A minimum of 4 no. tests spread evenly along the road are to be carried out.

Haul Road Additional Notes:

1. The haul road material assumed to be as follows: free of organic material, free draining, durable and not easy degrading within it's design life.
2. The crossing shall be subject to regular inspection throughout it's design life by a competent person.
3. Haul road shall be kept free draining, water and slurry shall not be permitted to build up.

NOTE: Haul road designed for a maximum 12t axle load with twin wheel. Vehicles considered include 80t CFA piling rig, 80t mobile crane and 30t excavators and delivery vehicles. If these are to be exceeded inform TWD immediately.



Typical Section Detail for Haul Road

Scale 1:25.

3! NOTE: Ground conditions have been assumed in this preliminary design as no GIR was provided.

Uncontrolled if printed or downloaded

© Balfour Beatty Group Limited 2014

The copyright in this drawing or plan (together with all confidential information contained in it) is the property of Balfour Beatty Group Limited and may only be copied when used by the Company or person for whom it was prepared and only for the purpose for which it was prepared. Disclosure to any other person or use for any other purpose is not permitted without prior written consent.

Health, Safety and Environmental Risks

RA Number CRWT0569-BBMP-00-XX-RA-TBC

Risk No	Risk
1	Underground Services
2	Ground Conditions
3	Overloading
4	Road Maintenance & Degradation
--	--
--	--
--	--
--	--

ZEROHARM
MAKE SAFETY PERSONAL

SUSTAINABILITY
a collective responsibility

Notes

1. General Notes:
2. All Dimensions in Millimetres U.N.O.
3. Fill Material to be Class 6C and 6F5 Fill laid in separate layers and compacted in accordance with Specification of Highways Works series 600 table 6/4.
4. Site confirmed, no services expected within proximity of haul road. All services within area of haul road to be located and either protected or diverted if they clash with the plant location.
5. If any conditions change work should stop and the TWD or TWC be contacted.
6. Haul road to be inspected regularly and monitored for wear and rutting during use.
7. Any vegetation or top soil must be stripped away prior to placing haul road.
8. Water table considered "Well below Ground Level".
9. Should the Exposed Ground be "Not as Expected", the Work should be Suspended and the Temporary Works Department Contacted.
10. This Drawing to be Read in Conjunction with Risk Assessment CRWT0569-BBMP-00-XX-RA-W-TBC.

Document History

Revision	Description	Date	Des	Chk
P1	First Issue - Tender Design	25/04/2022	JT	BA
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

Designer

Balfour Beatty

"Driving Innovative Temporary Works Design and Engineering Excellence"

Client



Paper Size	Scale	Designer	Checker
A3	As Shown	JT	BA

Project

Wokingham Major Highways

Drawing Title

DB - WMHP-BB-SRWG1-TWDB-001
SRWG1 Haul Road Design

Status

Tender

Client Drawing Number	Revision
-	-
Drawing Number	Revision
CRWT0569-BBMP-00-XX-DR-W-0096	P1

0mm Scale 1:1 40mm Scale 1:1 80mm

Appendix 4 – Guidance and Tool Box Talk Documents

1. Environmental Risk Assessment

When working near, in or under a watercourse a detailed risk assessment should be completed to ensure that appropriate controls measures are put in place to eliminate or mitigate the environmental impact of the activity. The risk assessment should ensure that our works do not:

- Cause pollution
- Have a negative impact on water quality
- Have a negative impact on wildlife
- Increase flood risk

2. Legal Consenting Process

There are a number of activities Balfour Beatty carries out which may require formal permission from the Environmental Agency (EA), Natural Resources Wales (NRW) or the Lead Local Flood Authority (LLFA). The type of permission required depends on the classification of the watercourse.

There are 2 classifications of watercourses (rivers, brooks and streams):

- Main River
- Ordinary Watercourse

In order to identify whether a river, brook or stream is classed as a Main River contact the Environment Agency on 08708 506 506 or Natural Resources Wales 0300 065 3000. The EA / NRW will need to know the grid reference of where Balfour Beatty will be working as the classification of rivers can alter along their length. If a river is not classed as a 'Main River' it is automatically classed as an 'Ordinary Watercourse'.

It is a legal requirement to ensure that the appropriate consents are obtained from the relevant regulator of the watercourse.

2.1 Main Rivers

Working in or near to main rivers is covered by the Environmental Permitting Regulations (on 6th April 2016 the flood defence consenting regime moved into the environmental permitting regulations). The regulator is the Environment Agency (EA) in England and Natural Resources Wales (NRW) in Wales.

2.2 Ordinary Watercourses

Working in or near to ordinary watercourses is covered by Land Drainage Consents. The regulator is the Lead Local Flood Authority (LLFA).

3.0 Main Rivers and Environmental Permits (previously flood defence consents)

An environmental permit for flood risk activities may be required if work is going to be carried out:

- In, under, over or near to a main river (including where the river is in a culvert)
- On or near a flood defence on a main river
- In the flood plain of a main river
- On or near a sea defence

'Near' means:

- Within 8 metres of the bank of a main river, or 16 metres if it is a tidal main river
- Within 8 metres of any flood defence structure or culvert on a main river, or 16 metres on a tidal river, or where it is a sea defence structure.

3.1 Activities covered by Environmental Permitting

Flood risk activities covered by the environmental permitting regulations include:

- Erecting any temporary or permanent structure in, over or under a main river, such as a culvert, outfall, weir, dam, pipe crossing, erosion protection, scaffolding or bridge
- Altering, repairing or maintaining any temporary or permanent structure in, over or under a main river, where the work could affect the flow of water in the river or affect drainage work
- Building or altering any structure designed to contain or divert flood waters from a main river
- Dredging or removing any material from a main river, including when you are intending to improve flow in the river or use the materials removed
- Diverting or impounding the flow of water or changing the level of water in a main river
- Activities carried out within 8 metres of a non-tidal main river (or 16 metres of a tidal main river)
- Activities carried out on the floodplain of a main river, more than 8m from the riverbank (or 16m if it's a tidal main river), if you don't have planning permission
- Quarrying or excavation within 16m of any main river or flood defence structure or culvert which is likely to cause damage or endanger the stability of banks of the river

They also include activities which could affect flood risk or land drainage, or interferes with the Environment Agency or natural Resources Wales' access, and are carried out:

- Within 8m of the bank of a main river, or 16m if it is a tidal main river.
- Within 8m of any flood defence structure or culvert on a main river, or 16m on a tidal river, or where it is a sea defence structure.

3.2 Levels of Environmental Permit Authorisation

Work activities can fall into one of three levels of authorisation:

- Flood Risk Activity Exclusion
- Flood Risk Activity Exemption
- Flood Risk Activity Permit
 - o Standard Rules Permit
 - o Bespoke Permit

3.2.1 Flood Risk Activity Exclusion

Some activities which pose a very low risk are removed from control altogether and will not require a permit. These are known as exclusions.

Exclusions will also apply where the activity is covered by other regimes such as planning permission or a marine licence.

For further details on excluded activities and their conditions refer to the EA website

<https://www.gov.uk/guidance/flood-risk-activities-environmental-permits#exclude> or the NRW website <https://naturalresources.wales/apply-for-a-permit/flood-risk-activities/flood-risk-activity-exclusions/?lang=en>

Anyone wishing to carry out excluded activities will not need to apply for a permit or to register these activities with the EA or NRW, so long as they comply with rules specified in the relevant regulations.

If works fall within a flood risk activity exclusion, this must be documented in the project environmental management plan or project file.

If the activity or working methods change and this results in the works no longer meeting the requirements of the flood risk activity exclusion, then work must stop immediately. Works cannot continue until:

- an appropriate exclusion is identified and documented in the project environmental management plan or project file, or
- an appropriate exemption is registered and received, or
- a standard rules or bespoke permit is applied for and received.

3.2.2 Flood Risk Activity Exemption

Some low risk activities are not excluded from control but are exempt from needing a permit.

Anyone wishing to carry out an exempt activity must register an exemption with the Environment Agency using form FRAEX001 (England) or FRAX01 (Wales) and must comply with the rules specified in the relevant regulations; it is free to register for an exemption.

For further details on what the exemptions cover and their conditions refer to EA document 'EPR Exempt Flood Risk Activities: descriptions and Conditions' available from the EA website

<https://www.gov.uk/government/publications/environmental-permitting-regulations-exempt-flood-risk-activities>

Or GPG221 Technical Guidance Flood Risk Activity Exemption from the NRW website

<https://naturalresources.wales/apply-for-a-permit/flood-risk-activities/flood-risk-activity-exemptions/?lang=en>

It takes the EA / NRW 15 working days to register an exemption. Work must not start until confirmation of the registration has been received from the EA / NRW.

The Environment Agency or Natural Resources Wales should be contacted prior to applying for an exemption to enable them to check if there are any reasons why an exemption can't be registered at a particular location. They can also answer any questions about the conditions in an exemption.

Once an exemption has been registered, the conditions must be complied with.

If the activity or working methods change then work must stop. Works cannot continue until an assessment is made as to whether the existing exemption covers the activity or working method changes. A record of this assessment must be made within in the project environmental management plan or project file.

An appropriate exemption registration must be gained or a standard rules permit or bespoke permit must be applied for. The exemption must be in place or the permit must be received before work can continue.

The regulator is legally allowed to take the full consultation period when a new exemption is applied for. If a standard or bespoke permit is required due to changes to the activity or working method then the regulator is likely to take the full consultation period (2-4 months).

3.2.3 Flood Risk Activity Permit

There are 2 different types of flood risk activity permit:

- Standard Rules Permit
- Bespoke Permit

3.2.3a Flood Risk Activity Permit – Standard Rules Permit

Standard Rules Permits are issued for specific activities. There is a strict set of rules that the works must meet, including things like the size and scale of the works, the location of the works, what time of year the works can be carried out.

The rules cannot be varied. If the works do not meet the rules of a standard rules permit then a bespoke permit will be required.

It is advisable to contact the EA / NRW before applying and they will check if there are any reasons why you can't apply for a standard permit to work in that location.

There are charges for applying for a standard rules permit (the charge will depend of the activities being carried out).

In England anyone applying for a standard rules permit must fill in 3 forms: Application for an Environmental Permit Part A (about you), Part B11 (standard rules permit for flood risk activities) and Part F3 (charging for flood risk activities and declarations).

In Wales, contact NRW via their Customer Care Centre and once preliminary details have been agreed NRW will request you to fill in the appropriate application form.

Standard permits usually take up to 2 months to obtain if they relate only to flood risk activities. The EA / NRW will consult with other authorities during this 2-month period. It can take up to 4 months if the application is part of an application for combined activities (such as a flood risk activity and a water discharge activity together) or a public consultation has been carried out.

Once a standard rules permit has been registered, the conditions must be complied with.

If there are changes to the activity or working methods, then work must stop. Works cannot continue until an assessment is made as to whether the changes meet the existing standard rules permit. A record of this assessment must be made within project documentation.

If the existing standard rules permit does not cover the work, then an appropriate standard rules permit or bespoke permit must be applied for and received before work can continue.

The regulator is legally allowed to take the full consultation period when issuing a new standard rules permit. If a bespoke permit is required due to changes to the activity or working method, then the regulator is likely to take the full consultation period (2-4 months).

England – further details on standard rules permits can be found at <https://www.gov.uk/guidance/flood-risk-activities-environmental-permits#standard-rules-permits>

3.2.3b Flood Risk Activity Permit - Bespoke permit

A bespoke permit is required where activities do not fit the conditions of the exclusion, exemptions or standard rules. These cover more complex activities presenting higher environmental or flood risk.

Speak with your Environmental, Sustainability or HSE Advisor before applying for a bespoke permit.

There are charges for applying for a bespoke permit (the charge will depend of the activities being carried out).

It is advisable to contact the EA / NRW before applying and they will be able to offer advice prior to the bespoke permit application being submitted.

In England anyone applying for a bespoke permit must fill in 3 forms: Application for an Environmental Permit Part A (about you), Part B10 (flood risk activities) and Part F3 (charging for flood risk activities and declarations).

In Wales anyone applying for a bespoke permit must fill in 2 forms: Application for an Environmental Permit Part B8 Flood Risk Activity New Bespoke Permit and Part F3 (charging for flood risk activities).

Bespoke permits usually take up to 2 months to obtain if they relate only to flood risk activities. The EA / NRW will consult with other authorities during this 2-month period. It can take up to 4 months if the application is part of an application for combined activities (such as a flood risk activity and a water discharge activity together) or a public consultation has been carried out.

Once a bespoke permit has been registered, the conditions must be complied with.

If there are changes to the activity or working methods, then work must stop. Works cannot continue until an assessment is made as to whether the changes meet the existing bespoke permit. A record of this assessment must be made within project documentation.

If the existing bespoke permit does not cover the work, then the EA / NRW must be consulted and a formal application made to vary the permit. Work cannot continue until this consultation has taken place and a new or revised bespoke permit received.

The regulator is legally allowed to take the full consultation period when varying an existing bespoke permit.

England – further details on bespoke permits can be found at <https://www.gov.uk/guidance/flood-risk-activities-environmental-permits#bespoke-permits>

Wales – further details on bespoke permits can be found at <https://naturalresources.wales/permits-and-permissions/flood-risk-activities/apply-for-a-new-bespoke-permit/?lang=en>

4.0 Ordinary Watercourses and Land Drainage Consents

All work taking place in an ordinary watercourse must have written permission from the Lead Local Flood Authority (LLFA) in the form of a Land Drainage Consent.

From 6th April 2012, LLFAs are responsible for regulating activities on ordinary watercourses. LLFAs are Unitary Authorities (where they exist) and County Councils elsewhere.

Within an Internal Drainage District area (about 10 per cent of the country) the Internal Drainage Board (IDB) undertakes ordinary watercourse regulation (unless this is in an area where the Environment Agency Acts as the IDB).

If work is being carried out over, under or next to an ordinary watercourse, checks must be made with the LLFA to establish whether the work being carried out requires consent.

Land Drainage Consents can take up to 3 months to obtain from the LLFA and a fee is payable.

If there are changes to the activity or working methods, then work must stop. Work cannot continue until an assessment is made as to whether the changes meet the existing land drainage consent. A record of this assessment must be made within project documentation.

If the existing land drainage consent does not cover the work, then the LLFA must be consulted and a formal application made to vary the consent. Work cannot continue until this consultation has taken place and a new or revised land drainage consent is received.

4.1 Types of Land Drainage Consent

Land Drainage Consents can be either 'Permanent' or 'Temporary':

4.1.1 Permanent Consent

Is required for the permanent asset installed e.g. water pipe / gas pipe / electric cable. Permanent consents are usually the responsibility of the asset owner. Permanent consents are granted for the construction of a permanent structure in or close to a watercourse.

4.1.2 Temporary Consent

Is required for work in / over / under / next to a watercourse. Temporary consents are usually the responsibility of Balfour Beatty or Principle Contractor. A Temporary Consent is required to do work on a permanent structure (even when there is a Permanent Consent in place for the permanent structure).

A Temporary Land Drainage application must include a method statement, a drawing and a location map detailing how the work will be completed.

4.2 Complying with Land Drainage Consent

When consent is granted the method of work detailed in the method statement must be followed. If there is any change in the planned work, the Lead Local Flood Authority must be consulted on the changes potential impact.

If there is any change in the planned work, work must not start until the Land Drainage Consent has been re-issued by the Lead Local Flood Authority.

The Consent will include a number of requirements that must be followed. These should be included in the methods of work for the site, including any notification requirements to the Environment Agency / Natural Resources Wales or Lead Local Flood Authority.

Temporary Land Drainage Consent must remain on site at all times while work is taking place.

4.3 Calculating Sustainable Urban Drainage Capacity

In some cases, it may be necessary to install temporary sustainable urban drainage system (SUDS) ponds or water course crossings. In order to do this, it is important to ensure these mitigation measures are designed appropriately taking into account a 1 in 10-year return rate storm and a 10% climate change factor for rainfall. [ENV-RM-0019d](#) Estimating and preparing for site runoff for Temporary SUDS and water crossings explains in detail how to calculate the drainage capacity and design ponds for effective settlement. [ENV-SF-0019c](#) Peak Runoff and SUDS Capacity Calculator can be used to calculate the peak flow rate and the size of the SUDS ponds needed.

5.0 Monitoring

Before any activities are carried out near to water [ENV-SF-0019d](#) pre-works commencement checklist must be completed to ensure all control measures are in place

All monitoring arrangements must be detailed within the project management plan.

To ensure controls are being adequately managed [ENV-SF-0019e](#) daily pollution prevention checklist should be completed daily confirming if mitigation is in place and appropriate. If any noncompliance is identified, then corrective action must be carried out and recorded.

Regular inspections must be carried out to ensure that no deterioration in surface water quality occurs. The frequency of inspections should be documented and carried out in accordance with the requirements of the relevant environmental permit or consent. If no frequency is stipulated, inspection frequency must be based on the level of risk of the activity and the type of control measures applied depending on the maturity of the activity and the observed performance of the control measures.

[ENV-SF-0019a](#) Watercourse Inspection should be used to record inspections.

UK Documentation

Reference	Type	Title
ENV-RM-0019b	Reference Material	Working Near Watercourses Scotland
ENV-RM-0019c	Reference Material	Marine Licensing
ENV-RM-0019d	Reference Material	Estimating and preparing for site runoff for temporary SUDS and water crossings
ENV-SF-0019a	Standard Form	Watercourse Inspection
ENV-SF-0019c	Standard Form	Peak Runoff and SUDS capacity Calculator
ENV-SF-0019d	Standard Form	Pre-works near watercourse commencement checklist
ENV-SF-0019e	Standard Form	Daily pollution prevention checklist
ENV-TB-0019a	Toolbox Talk	Watercourses
ENV-TB-0019b	Toolbox Talk	Working near Water Environmental Permits
ENV-AL-0019a	Alert	Legal Briefing - Flood Risk Activities in England and Wales

ENV-AD-0019a	Advice Note	Culvert Installation and Breach of the Controlled Activities Regulations (CAR) in Scotland
ENV-AD-0019b	Advice Note	Peat Slippage and Breach of the Controlled Activities Regulations (CAR) in Scotland

External Documents

Reference	Type	Title
External Document	Supply Chain School	Supply Chain Sustainability School Water TBT (video)
External Document	Environment Agency	Blockage Management Guide – a guide on the assessment and management of blockage in watercourses

Frequently Asked Questions

When do I need to carry out an Environmental Risk Assessment?

- An environmental risk assessment must be carried out for all works we carry out and should include working in or close to watercourses. Particular consideration should be given to activities that could cause pollution, have a negative impact on water quality, have a negative impact on wildlife or increase flood risk.
- Adequate site-specific mitigation measures need to be identified, put in place and monitored to ensure they are adequate and working.

How do I carry out an Environmental Risk assessment and what do I need to think about?

- Please refer to [ENV-PR-0001](#) Environmental Risks and Opportunities and [ENV-SF-0001a](#) Environmental Risks and Opportunities Tool.

What type of watercourses do I need to consider?

- Water courses can have flowing water, tidal waters or be dry depending on the recent rain patterns and groundwater flows. They include rivers, estuaries, brooks, streams, drainage ditches, culverted rivers, canals, reservoirs, lakes and ponds.

There are 2 different classifications of rivers (including brooks and streams) – how do I establish the classification?

There are 2 classifications of rivers, brooks and streams:

- Main River
- Ordinary Watercourse

In order to identify whether a river, brook or stream is classed as a Main River contact the Environment Agency (England) on 08708 506 506 or Natural Resources Wales 0300 065 3000. The EA / NRW will need to know the grid reference of where Balfour Beatty will be working as the classification of rivers can alter along their length. Contacting the regulator is the ONLY way to determine the classification.

If a river is not classed as a 'Main River' it is automatically classed as an 'Ordinary Watercourse'.

Who is the regulator?

In England & Wales the regulator varies depending on the type of watercourse you are working in or close to:

- Main River:
 - o England = Environment Agency.
 - o Wales = Natural Resources Wales.
- Ordinary Watercourse:
 - o England and Wales = Lead Local Flood Authority. The Lead Local Flood Authority is likely to be the Unitary Authority or County Council or Internal Drainage Board (IDB).

There are other bodies of water such as canals and reservoirs and these are regulated differently:

- Canals – Canal & River Trust.
- Reservoirs - Reservoirs are privately owned by undertakers. Where any work is planned within the boundaries of the private land, the owner must be consulted. The Environment Agency / Natural Resources Wales are the enforcing Authority and may require notification before work begins due to the potential risk of causing flooding.

The relevant regulator MUST be contacted and will be able to confirm whether you need consent to carry out works.

What type of consent do I need?

For rivers, estuaries, brooks, streams and culverts the name of the permission depends on the classification of the river and the type of activity which is being carried out:

- Environmental Permit (Main Rivers):
 - o There are three levels of authorisation within the environmental permitting regime.
 - Flood risk activity exclusion.
 - Flood risk activity exemption.
 - Flood risk activity permit (standard rules or bespoke).
- Land Drainage Consent (Ordinary Watercourses).

What information will I need to provide when applying for consent or permit?

- Completed application form.
- Method statement, drawing and location map detailing how the work will be completed.

How long will it take to get consent or permit?

- It can take up to 4 months to obtain, depending on the type of consent / permit required.

What if I need to alter the working methods?

- Work must stop.
- You must apply to vary the original permit or consent application and wait for it to be re-issued before works can commence.

When can I start work on site?

- You can only start work on site when you have received the copy of the consent or permit from the regulator and ensured that any conditions can be complied with.

I think the Client is applying for the environmental permit or land drainage consent:

- Balfour Beatty MUST be clear which consent(s) or permit(s) we are responsible for applying for (this will vary between clients and projects). If Balfour Beatty is not responsible for applying for the consent or permit, we MUST obtain a copy of it so we can satisfy ourselves it is in place and to ensure we are aware of any conditions and that these can be met.

Where can I get more information on environmental permits and land drainage consents?

- More information can also be found on the Environment Agency and Natural Resources Wales websites:

England <https://www.gov.uk/guidance/flood-risk-activities-environmental-permits>

Wales <https://naturalresources.wales/apply-for-a-permit/flood-risk-activities/?lang=en>

What if I already have a flood defence consent in place?

There are transitional arrangements which have been put in place under the environmental permitting regulations. These can be summarised as:

- On 6th April 2016 your flood defence consent will automatically become an Environmental Permit, unless it is an activity which is exempt or excluded under the Environmental Permitting Regulations, or not covered by the regulations.
- If your flood defence consent is for an activity that would now need an environmental permit, it will automatically change into an environmental permit. The activity must continue to be carried out as detailed in the flood defence consent. If the work is still on-going and you need to change any of the details of the permit, then a formal application must be made to the EA or NRW to vary the permit.
- If your flood defence consent is for an activity which is now exempt from environmental permitting, then you don't need to register the activity as an exemption. The EA / NRW will keep the flood defence consent on record and treat it as though it has already been registered. Activities must be carried out as set out in the description and conditions of the exemption. If the flood defence consent is similar but not exactly within the description and conditions of exemption, then it will not qualify as an exempt activity. Instead, it will automatically become an environmental permit. The activity must continue to be carried out as detailed in the flood defence consent.
- If your flood defence consent is for an activity that is now excluded under the environmental permitting regulations, the flood defence consent will lapse. You may continue to carry out this activity, but you must do it as set out in the description activities for that excluded activity.
- Before the 6th April 2016 there were local variations in the regulations. This meant that in some locations, you needed a flood defence consent for a particular activity but in others you didn't. For example, before 6th April 2016 some activities up to 10 metres from an inland non-tidal river needed a flood defence consent. Under the environmental permitting regulations, activities are only regulated up to 8 metres from an inland non-tidal river. So, if you have a flood defence consent for an activity between 8 and 10 metres from an inland non-tidal river the flood defence consent will lapse as this work is not covered by the environmental permitting regulations. If your flood defence consent is for an activity that is less than 8 metres from an inland non-tidal river it will still be regulated and will automatically transfer to an environmental permit. You can continue to do the activity and must comply with any other environmental legislation that may apply.

What if I applied for a flood defence consent before 6th April 2016 but I haven't received it?

- If you applied for a flood defence consent before 6th April 2016 and the EA / NRW have not issued it, they will treat it as an application for an environmental permit. If the activity is exempt or excluded under the environmental permitting regulations, the application will be returned to you.

I think there are animals such as great crested newts, otters, water voles or fish in the watercourse I need to work in. What should I do?

- You must notify your Environmental, Sustainability or HSE Advisor and they will be able to provide advice to ensure that an appropriate and adequate assessment is completed to understand the risk of the planned activities to animals in or using the water course.

Do I need specialist advice?

- Depending on the nature of your works it may be necessary to obtain specialist advice, e.g. from an ecologist registered and licensed to assess specific protected species or a fisheries consultant. Your Environmental, Sustainability or HSE Advisor will provide further advice and guidance to ensure that a licensed professional is engaged to complete the assessment.

What should I do to protect ecology?

Precautions must be taken to ensure flora and fauna is protected when working in or near watercourses. This includes protection of species which live in watercourses and along their banks. Measures should include:

- Carrying out an environmental risk assessment to identify species which may be impacted by the planned works.
- Obtaining existing ecology reports from the client along with any relevant details of previous works in the area and building this into the environmental risk assessment.
- Engaging an ecologist to provide an ecological report, any further species-specific surveys as required and advising of appropriate mitigation measures.
- Engaging other specialists such as a fisheries consultant / arboriculturalist / ornithologist as required.
- Obtaining any relevant wildlife licences / protected species licences.
- Ensuring adequate mitigation measures are put in place to protect flora and fauna and written into method statements.
- Ensuring ecologists / other specialists are on site during works if required.

Where can I get more information on what species I may need to consider when working in or close to watercourses?

- Please refer to [ENV-RM-0016a](#) Managing Ecological Risk.

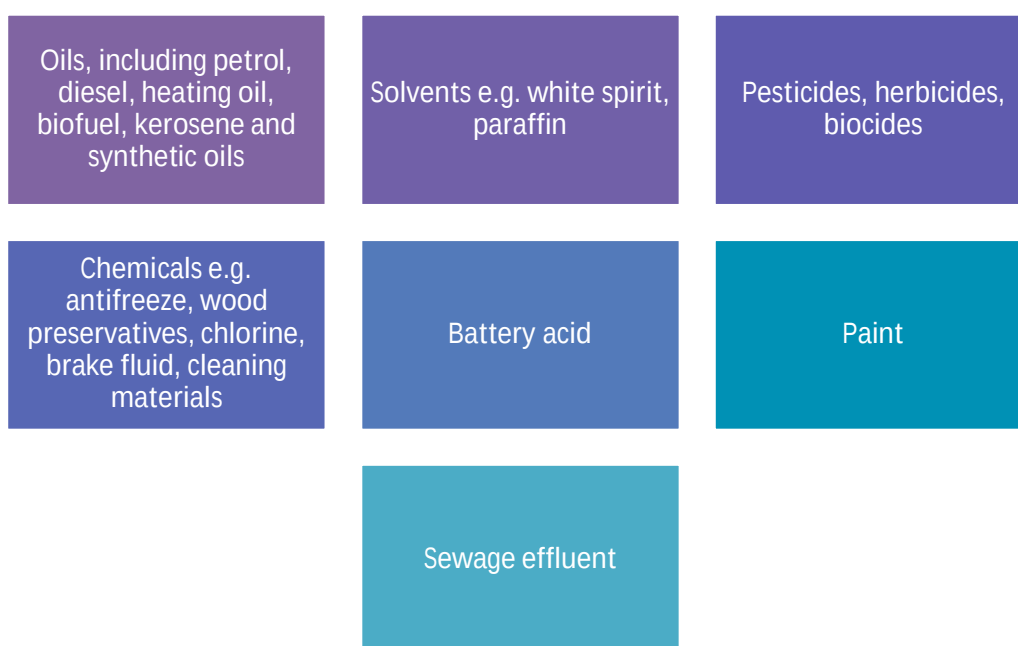
TOOLBOX TALK

Interfacing with water - pollution prevention

What are pollutants?

Do you use fuels, oils or other liquids, which have the potential to cause significant environmental pollution if spilled or leaked? Could they enter drainage and ground, or contaminate ground water or water supplies?

Harmful liquids may include:



Legislation and regulation

It is an offence to discharge polluting substances into water without prior approval from the Environment Agency, Natural Resources Wales, Scottish Environment Protection Agency, the Department for Agriculture, Environment and Rural Affairs (NI) or the Sewerage Undertakers.

Have you spilt a pollutant? Quickly call the appropriate emergency helpline:

ENGLAND: The Environment Agency - 0800 80 70 60

WALES: Natural Resources Wales - 0300 065 3000

SCOTLAND: Scottish Environment Protection Agency - 0800 80 70 60

NORTHERN IRELAND: Northern Ireland Environment Agency - 0800 80 70 60

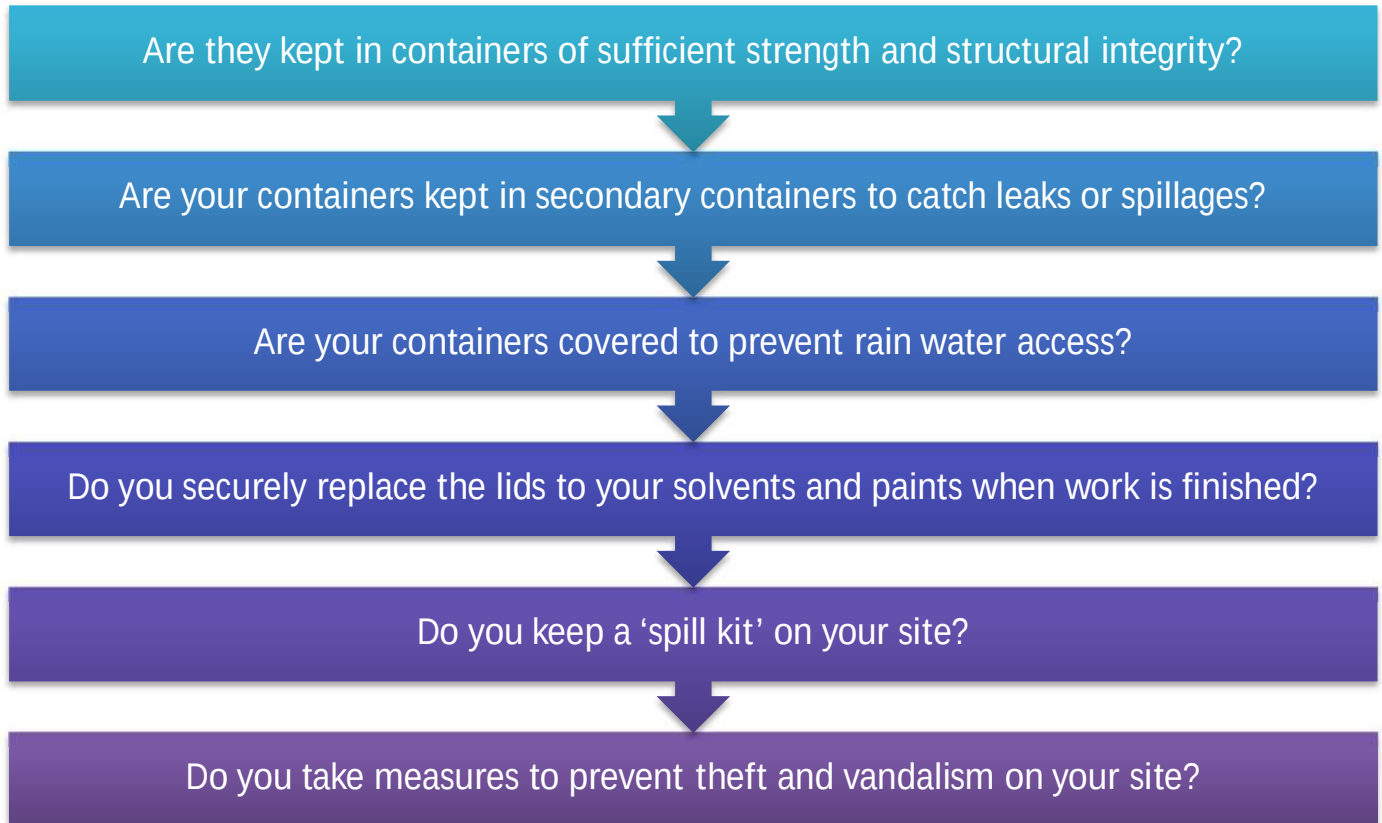
Oil containers that hold ≥ 200 litres must regulate storage in line with the Control of Pollution Regulations.

All spills must be reported; it is an offence to work without the correct consent and/or cause water pollution, and we could face an unlimited fine from the relevant authorities.

Could you prevent a spillage?

Spillages can affect you directly too! They pose health and safety risks, particularly while cleaning up.

Consider:



How to handle oil

- Bowsers and tanks should be placed on hard standing wherever possible.
- Oil must not be stored within 10 metres of any watercourse or a surface water drain, and within 50 metres of a spring, well or borehole.
- All oil storage tanks and containers should be maintained and tested in line with the manufacturers' requirements - monitoring the amount of oil being used can help to identify a leak.
- Refuelling vehicles and mobile plant must only take place at designated refuelling points, these locations should be shown on site plans.

The Oil Care Campaign provides information on 'Getting to know your oil tank' at:

<http://oilcare.org.uk/look-after-your-oil/gtkyot/>.

For additional information please see:

- [ENV-RM-0019a Working Near Watercourses England and Wales](#)
- [ENV-RM-0019b Working Near Water Scotland](#)

TOOLBOX TALK

INTRODUCTION

A watercourse is defined as a natural body of water flowing on or under the earth. This includes all brooks, streams, rivers, burns, canals, drainage ditches and any other body of moving water. Watercourses are an essential part of life and support a vast ecological network. They also have the ability to flood and cause major damage and disruption to towns and cities within their flood plains; as a result, they are strictly regulated.



England and Wales

In England & Wales, watercourses are regulated in three different ways, depending on how they are classified:

- The Environment Agency (England) and Natural Resources Wales (Wales) regulate watercourses classified as Main Rivers. These are generally large rivers or streams but can include smaller watercourses. A company can face an unlimited fine (in February 2017 a construction company was fined £54,000 after polluting a watercourse with silt) plus remedial costs if they:
 - o Carry out work without consent, within 8 metres of a main river which could affect flood risk or land drainage
 - o Abstract or discharge water without consent
 - o Cause pollution
- The Lead Local Flood Authority (LLFA) which is likely to be the Unitary Authority, County Council or Internal Drainage Boards (IDBs) regulates watercourses classified as Ordinary Watercourses and drainage ditches. IDBs regulate approximately 10% of the country.
- The Canal and River Trust regulates canals; work will require consent if it will be within 6 metres of a canal.

Scotland

- The Scottish Environment Protection Agency (SEPA) regulates all natural watercourses in Scotland. Consent is required if works are beyond what is allowed in a general binding rule.
- Scottish Canals regulates all canals; consent is required if works will be within 6 metres of a canal.

Northern Ireland

- The Rivers Agency regulates all natural watercourses in Northern Ireland. Approval is required from the Rivers Agency if works are going to be carried out that will impact on the free flow of a watercourse.
- Waterways Ireland must be contacted if work is going to take place close to a canal.

It is an offence to work without the correct consent and/or cause water pollution, and we could face an unlimited fine from the regulator.

AFFECT OF WORKS

Construction work in or near water has the potential to cause serious pollution incidents or increase flood risk. Works in, near to, over or under watercourses will have to occur during some projects. Works can impact on a watercourse by impeding flow or adding material to the watercourse, including silt and chemicals.



IDENTIFICATION

- It is not possible to determine if a river is a Main River or Ordinary Watercourse by looking at it. Additionally, some rivers may have a mixture of Main River and Ordinary Watercourse sections. Identification can only be made by contacting the Environment Agency (England) on **tel: 03708 506 506** or Natural Resources Wales (Wales) on **tel: 0300 065 3000**
- In Scotland, SEPA should be contacted for all watercourses on **tel: 03000 99 66 99**
- In Northern Ireland, The Rivers Agency should be contacted for all natural watercourses on **tel: 028 9054 0540**

CONTROL MEASURES

- **OBTAIN** consent before working within 10 metres of any watercourses; this includes working over or drilling under the watercourse.
- **ALWAYS** keep a copy of the consent on site.
- **FOLLOW** any stipulations in the consent and your methods of works.
- **REPORT** any pollution incidents which occur.
- **NEVER** store uncovered spoil, stone or similar material within 10 metres of a watercourse.
- **NEVER** pump unfiltered (silty) water into a watercourse. Use a silt filter sock or pump out over land.

For additional information please see:

[ENV-RM-0019a](#) Working Near Watercourses England and Wales

[ENV-RM-0019b](#) Working Near Watercourses Scotland

For further information contact your Site Lead

TOOLBOX TALK

Interfacing with water

Environmental permits

A watercourse is defined as a natural body of water flowing on or under the earth. This includes all brooks, streams, rivers, burns, canals, drainage ditches and any other body of moving water. Watercourses are an essential part of life and support a vast ecological network. They also have the ability to flood and cause major damage and disruption to towns and cities within their flood plains; as a result, they are strictly regulated.

England and Wales

In England & Wales, watercourses are regulated in three different ways, depending on how they are classified:

- The Environment Agency (England) and Natural Resources Wales (Wales) regulate watercourses classified as Main Rivers. These are generally large rivers or streams but can include smaller watercourses. A company can face an unlimited fine (in February 2017 a construction company was fined £54,000 after polluting a watercourse with silt) plus remedial costs if they:
 - Carry out work without consent, within 8 metres of a main river which could affect flood risk or land drainage
 - Abstract or discharge water without consent
 - Cause pollution
- The Lead Local Flood Authority (LLFA) which is likely to be the Unitary Authority, County Council or Internal Drainage Boards (IDBs) regulates watercourses classified as Ordinary Watercourses and drainage ditches. IDBs regulate approximately 10% of the country.
- The Canal and River Trust regulates canals; work will require consent if it will be within 6 metres of a canal.

Scotland

- The Scottish Environment Protection Agency (SEPA) regulates all natural watercourses in Scotland. Consent is required if works are beyond what is allowed in a general binding rule.
- Scottish Canals regulates all canals; consent is required if works will be within 6 metres of a canal.

Northern Ireland

- The Rivers Agency regulates all natural watercourses in Northern Ireland. Approval is required from the Rivers Agency if works are going to be carried out that will impact on the free flow of a watercourse.
- Waterways Ireland must be contacted if work is going to take place close to a canal.

It is an offence to work without the correct consent and/or cause water pollution, and we could face an unlimited fine from the regulator.

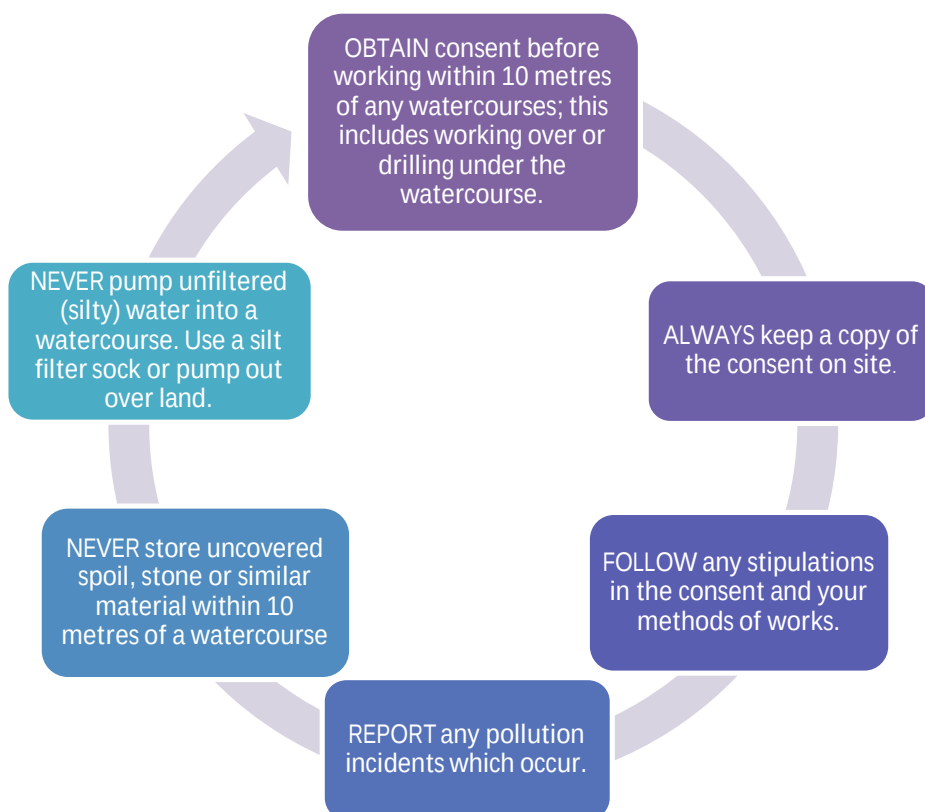
Impact on works

Construction work in or near water has the potential to cause serious pollution incidents or increase flood risk. Works in, near to, over or under watercourses may occur during some projects. Works can impact on a watercourse by impeding flow or adding material to the watercourse, including silt and chemicals.

Identification

England and Wales	Scotland	Northern Ireland
Identification can only be made by contacting the Environment Agency (England) on tel: 08708 506 506 or Natural Resources Wales (Wales) on tel: 0300 065 3000	In Scotland, SEPA should be contacted for all watercourses on tel: 03000 99 66 99	In Northern Ireland, The Rivers Agency should be contacted for all natural watercourses on tel: 0300 200 78 52

Control Measures



For additional information please see:

- [ENV-RM-0019a Working Near Watercourses England and Wales](#)
- [ENV-RM-0019b Working Near Water Scotland](#)