Report

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Rother Valley Railway Limited

Water Framework Directive Screening Assessment Technical Report
Final

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Report for: **Rother Valley Railway Ltd**

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Summary

- The European Union's (EU) Water Framework Directive (WFD) requires the completion of an assessment of the impact of any works and modifications made to waterbodies. Any scheme, which has the potential to significantly impact upon a surface or groundwater body, should undertake a WFD Assessment.
- For surface water bodies, consideration must be given to the impact of the scheme on riverine ecology, water quality and hydro-morphology. For groundwater bodies, consideration must be given to the body itself and to any linked surface water bodies or ecosystems it may support.
- Several components of the Rother Valley Railway have the potential to impact upon the River Rother and are therefore considered within this assessment.
- There is potential for a number of effects on fish, invertebrates, diatoms and macrophytes as a result of the proposed scheme, either directly as a result of changes to the watercourse, or in-directly via effects on water quality and / or hydro-morphology.
- This screening assessment report evaluates the proposed scheme to date. This assessment scopes out aspects of the scheme which comply under the WFD and makes recommendations for sensitive design and mitigation options.
- A full detailed assessment should be undertaken at detailed design stage in order to assess the impact of specific scheme components on the ecological status of the River Rother, and the Kent Weald Eastern-Rother groundwater body via connected surface water areas.
- All permanent impacts should be mitigated by best practice design, and construction of embankments, bridges and river diversions must be based on robust baseline data. All construction impacts should be mitigated by best practice methods.
- More conclusive testing and further assessment is required to determine if there is potential for contaminated land within the old railway embankment to pose a subsequent associated risk to the River Rother or Kent Wealds Eastern-Rother groundwater body.

1. Introduction

1.1. Purpose of the Report

1.1.1. The Directive 2000/60/EC, known as the Water Framework Directive (WFD), came into force in 2000 and represents the most substantial piece of European Union (EU) water resources legislation to date. This directive establishes a legislative framework for the protection of inland surface waters (rivers and lakes), transitional waters (estuaries), coastal waters and groundwater within all EU Member States. The overall requirement of the Directive is to ensure that all water bodies throughout the EU Member States achieve 'Good Status' in terms of low levels of chemical pollution as well as healthy ecosystems.

1.1.2. Any schemes or development that have the potential to significantly impact any surface or groundwater body, should undertake a Water Framework Directive Assessment (WFDA) to determine the effects of the proposed scheme. Considerations must be given to the effects on ecological quality, chemical quality and hydro-morphology. The assessment must identify any potential impacts, which could cause deterioration in the status of the water body, or connected water bodies, or could hinder the water body from reaching its WFD objectives.

1.1.3. In summary, a WFDA should[1]:

- Include any component of the scheme which interact with or pose a risk to a water body, and provide a description of the specific scheme component being assessed for 'potential impacts';
- Identify all potentially impacted water bodies (surface and sub-surface) and provide baseline information;
- Assess the impact of each scheme component on the relevant water body, with regard to the objectives in the Water Framework Directive;
- If the assessment identifies components which are not compliant with the WFD objectives, mitigation must be detailed; and
- Finally, if the assessment concludes that any aspect of the proposed scheme causes deterioration, or prevents a WFD status being reached, the scheme should be reviewed.

1.1.4. The proposed Scheme would reinstate approximately 3.4km of the former Kent and East Sussex Railway between the B2244 Junction Road in the east, near Udiam and Northbridge Street in Robertsbridge to the west. The proposed scheme will cross the River Rother and associated agricultural land drains in several locations and therefore has the potential for significant impact of the River Rother. This assessment considers the potential effects caused by the preferred scheme on the WFD objectives and will be submitted as part of the Environmental Impact Assessment (EIA).

1.1.5. This Water Framework Directive Screening Assessment Technical Report has been prepared in support of the Ecology and Nature Conservation and Water, Hydrology and Hydrogeology assessments, and should be read in conjunction with these two

[1] Based on Northern Ireland Environment Agency (NIEA) Water Management Unit Guidance Note, 'Carrying Out a Water Framework Directive (WFD) Assessment on EIA Developments', March 2012

components of the Environmental Statement (Volume 2, Chapters 9 and 10) in particular. A Construction Environmental Management Plan (CEMP) is included in the Environmental Statement (Volume 3) as Appendix 4.

1.2. Background

1.2.1. The EU Water Framework Directive was introduced as law in England and Wales by the Water Environment (Water Framework Directive) Regulations 2003. It provides an opportunity to plan and deliver a better water environment, focussing on ecology. It sets out environmental objectives that must be met for all water bodies within the EU Member States.

1.2.2. The aim of the Directive is to protect and enhance the quality of freshwater surface bodies (including lakes, streams and rivers), groundwater, groundwater dependent ecosystems, estuaries and coastal waters.

1.2.3. The implementation of the WFD is based on six-year management cycles defined as follows: 2009-2015, 2015-2021 and 2021-2027 being respectively the first, second and third planning cycle for achieving the Directive's ambitious targets. The WFD initial objectives required to 'aim to achieve' good status by 2015. In certain cases, this target has not been achieved, and alternative objectives have been set. The deadline for achieving the WFD objectives has hence been extended to further planning cycles: 2021 and 2027. Alternative objectives must be justified, generally for reasons of disproportionate cost or the technical feasibility of restoration measures, provided that the water body is protected from further deterioration taking place.

1.2.4. This requires a management plan for each river basin to be developed every 6 years. In December 2009, the Environment Agency (EA) published the first set of River Basin Management Plans (RBMP) for England and Wales, including a RBMP for the Rother Catchment. The RBMP for the South East was last updated in 2015.

1.2.5. New developments which have the potential to affect waterbodies should be assessed against the Directive's environmental objectives to determine whether they have the potential to prevent these objectives from being met. The EA are the 'competent authority' responsible for implementation of the WFD.

1.2.6. The WFD sets a number of different objectives. Based on the South East RBMP, in summary, the environmental objectives for surface waters and groundwater are[2]:

- to prevent deterioration of the status of surface waters and groundwater;
- to achieve objectives and standards for protected areas;
- to aim to achieve good status for all water bodies or, for heavily modified water bodies and artificial water bodies, good ecological potential and good surface water chemical status;
- to reverse any significant and sustained upward trends in pollutant concentrations in groundwater;
- the cessation of discharges, emissions and loses of priority hazardous substances into surface waters; and
- progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants.

[2] Environment Agency, Part I South East River Basin Management Plan, December 2015

1.3. Achieving Good Status for Surface and Groundwater Bodies

1.3.1. The Directive presents a framework for monitoring and classifying the quality of surface and ground waters. It is based on establishing the existing status of all designated surface and ground waters, setting environmental objectives and implementing programmes of measures to meet those objectives.

1.3.2. Each water body is defined by three different status objectives; the overall status objective, the ecological status or potential objective and the chemical status objective.

1.3.3. For surface water bodies, 'good' overall status can only be achieved if both good ecological status and good chemical status is recorded. Assessment of chemical status is recorded as 'good' or 'fail' and is tested based on a number of chemical elements for the most polluting chemical substances. Not all surface water bodies require chemical assessment.

1.3.4. Ecological status is assessed on a scale of high, good, moderate, poor and bad, and is based on three main elements:

- Biological elements- composition and abundance of aquatic flora, invertebrate and fish fauna;
- Hydro-morphological elements (which support the biological elements)- hydrological regime, connection to groundwater bodies, river continuity and morphological conditions (depth, width variations, structure of river bed and riparian zone);
- Physico-chemical elements (which support the biological elements) - thermal, oxygenation and salinity conditions, acidification status, nutrient conditions and pollution by any substance; and
- Specific pollutants.

1.3.5. The overall status of a water body is determined by the lowest 'quality element' assessment. Where the ecological status is below 'good', an assessment of the certainty of this status is made.

1.3.6. High status would require that the biological, chemical and hydro-morphological conditions were subject to no or minimal human impacts and is the 'reference condition' against which all other status categories are measured. Good status would indicate a slight deviation from the reference condition, so the further a water body deviates from the reference condition, the poorer its quality is.

1.3.7. For a groundwater body to be in overall 'good' status, both quantitative and chemical status must be 'good'. The 'quantitative' quality of a groundwater body is the degree to which is it affected by direct or in-direct abstractions. Quantitative elements assessed include:

- Impact on Groundwater Dependent Terrestrial Ecosystems (GWDTEs) or wetlands;
- Impact on connected surface waters;
- Saline intrusion; and
- Water balance.

1.3.8. Groundwater status is recorded as good or poor. 'Good' status is achieved when the level of ground water in the body is such that available resource is not exceeded by long-term annual average rate of abstraction. Importantly, it also must not be subject to

anthropogenic alterations that would result in; failure to achieve status, diminution of status or damage to terrestrial ecosystems or connected rivers which depend on the groundwater body.

1.4. Artificial or Heavily Modified Bodies

1.4.1. It is acknowledged that some water bodies contain features, such as flood defence schemes or reservoirs, which provide valuable social and / or economic benefits. These rivers may have had physical modifications, including weirs or dams, and to achieve 'good ecological status' these structures would need to be removed. Therefore, these water bodies are designed as artificial and heavily modified water bodies (HMWB) and the directive sets separate, less stringent goals for identified HMWBs.

1.4.2. Good ecological status is defined as a 'slight' variation from the natural, undisturbed condition of the water body. Artificial and heavily modified water bodies (including urban rivers) are unable to achieve their natural targets and as such, these water bodies have a target of 'good ecological potential' (GEP), which makes sure ecology is protected in so far as possible whilst balancing other pressures on the water body. Ecological potential is measured on a scale of bad to high, in the same way as ecological status. The chemical status of HMWBs is measured in the same way as for natural water bodies.

1.4.3. In order to understand potential pressures on the HMWB, a mitigation measures assessment was applied to identify the relevant physical characteristics. Environment Agency guidance on river basin management planning states that:

> "*For a water body to be able to reach good ecological potential, all of the reasonable mitigation measures to improve and protect the environment have to be in place and functioning. Some mitigation measures may already be in place, but one or more may be missing. If this is the case, the mitigation measures assessment would not support good ecological potential and the water body can only be classified at moderate ecological potential at best.*
>
> *If a specific mitigation measure would have a significant adverse impact on the designated use or the socio-economic benefits of that water body it is excluded from the classification process and thus would not prevent a water body from achieving good ecological potential.*
>
> *If every possible mitigation measure would create a significantly adverse impact on socioeconomic, heritage or conservation interests, then a sustainable balance has already been reached and the mitigation measures assessment in the water body is considered to support good ecological potential."*

1.5. Prevention Deterioration in Status and Exceptions

1.5.1. The Directive requires that all Member States implement measures to prevent deterioration of the status of each water body, no matter what the initial status is. This is particularly important when deterioration may be caused by physical modifications. Developments and new activities may change physical characteristics of a surface water

body (i.e. with a river diversion or new flood defence) or alter the water level of a groundwater body (i.e. with a new public supply borehole).

1.5.2. Any activity which has the potential to have an impact on the ecology of a water body will need consideration in terms of whether it could cause deterioration in its Ecological Status or Potential.

1.5.3. Where the following criteria apply, it may not be possible to prevent deterioration of status:

- The deterioration results from effects that occurred before the introduction of the controls required as part of the Directive's Programme of Measures;
- It is unfeasible, technically, or economically, to prevent deterioration of status; and
- All practicable steps are taken to mitigate the adverse impacts on the status of the water body.

1.5.4. The Directive does not provide any exemptions from its objective of preventing deterioration of status in the circumstances described above. However, no Member State would be able to meet the objective of no deterioration in status in such circumstances.

1.5.5. The WFD has two exceptions to the requirement to prevent deterioration of status. These are set out in Article 4.6 and Article 4.7.

1.5.6. Article 4.6 allows a temporary deterioration of status where this is the result of circumstances of natural cause or 'force majeure' which are exceptional or could not reasonably have been foreseen. In particular:

- Extreme floods;
- Prolonged droughts; and
- The result of circumstances due to accidents which could not reasonably have been foreseen.

1.5.7. This only applies if the deterioration of status is temporary and the previous status will be restored as soon as reasonably practicable.

1.5.8. Article 4.7 makes provision for deterioration of waterbody status provided that the following conditions are met:

- All practicable steps are taken to mitigate the adverse impact on the status of the water body;
- The reasons for those modifications or alterations are specifically set out and explained in the river basin management plan required under Article 13 and the objectives are reviewed every 6 years;
- The reasons for those modifications or alterations are of overriding public interest and/or the benefits to the environment and to society of achieving the objectives set out in paragraph 1 are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development;
- The beneficial objectives served by those modifications or alterations of the water body cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are significantly better environmental option; and

- Exemption for activities that prevent the future achievement of good status through restoration activities have been defined.

1.6. Application of the WFD

1.6.1. River Basin Districts (RBDs) are the main units for the management of river basins and they have been delineated by Member States under the Article 3 of the WFD. An RBD covers an entire river system including river, lake, groundwater, estuarine and coastal water bodies.

1.6.2. At a local scale, the WFD is implemented through river basin management plans (RBMP) that involve setting environmental objectives for the sustainable management of groundwater and surface waters within each RBD.

1.6.3. The RBMPs are produced every six years and are designed to protect and improve the quality of the water environment, in accordance with the river basin management cycle.

1.6.4. First versions of the RBMP were published in 2009. They describe the river basin district and the pressures the water environment faces. Particularly, it defines the current state of the water environment and what actions will be taken to address the pressures.

1.6.5. The proposed Scheme lies within the South East River Basin District. An updated version of the South East River Basin Management Plan was published in December 2015 and replaces the RBMP published in 2009. The RBMP (2015) Annex B of the South East RBMP outlined the status of waterbodies and provides objectives to reach the target of the WFD.

1.6.6. The updated RBMP version defines the baseline status for all quality elements in each water body, highlights the areas of land and water bodies which have specific uses that need special protection and also sets out legally binding objectives for each quality element in every water body, including an objective for the water body as a whole. Finally, it also provides a framework for action and future regulation to achieve the statutory objectives.

1.6.7. Up to date data on all RBDs is available via the Environment Agency's Catchment Data Explorer website, which will be used to inform this assessment.[3]

[3] https://environment.data.gov.uk/catchment-planning/ .

2. Rother Valley Railway Scheme

2.1. Location

2.1.1. The location of the proposed extension of the Rother Valley Railway will extend from Robertsbridge (in the west) to Bodiam Station (in the east) with X (Eastings) and Y(Northings) 573377, 123488 to 578305, 124995 respectively.

2.1.2. New infrastructure is required from The Clappers, Robertsbridge (573807, 124014) to Udiam Bridge (577186, 124322), covering a distance of approximately 3.4km.

2.1.3. The surrounding area is predominately agricultural land, with areas of woodland south of the proposed route. Residential areas within the vicinity of the scheme include Salehurst, Northbridge Street and Robertsbridge, which are all located at the westerly end of the proposed route, and Udiam Bridge to the most easterly point.

2.1.4. The River Rother has been altered and bypasses have been incorporated into the catchment in the past. The proposed scheme will cross the River Rother in three locations; one crossing will be over a River Rother bypass known locally as the Mill Stream and another two will be replacement bridges on the River Rother.

2.1.5. There are culverts and pipe embankments proposed along the new section of the route, as well as a new bridges and culverts along the existing disused section of the route. The culverts consist of a mixture of boxes and pipes, as appropriate by location.

2.1.6. A number of farm access bridges will also be constructed which cross the Mill Stream downstream of 'Bridge 12', a small field drain south of Salehurst and another two to the east of Salehurst.

2.1.7. The watercourse impacted by the proposal is illustrated in Figure 2.1[4].

2.2. Scheme Overview

2.2.1. The proposed scheme comprises of construction of railway line together with associated infrastructure.

2.2.2. The key element of the scheme will be construction of approximately 3.4km of single track ballasted railway line on the alignment of the former railway between Northbridge Street, Robertsbridge and the B2244 Junction Road near Udiam. This section of the track is the "missing link" that will enable trains on the Kent and East Sussex Railway to run the full distance between Tenterden in Kent to Robertsbridge in East Sussex (approximately 20km). Approximately 2km of the former railway corridor is still intact as

[4] 2014, ES, Volume 4, Figure 2.1

delineated in the landscape by trees bounding the alignment (see Figure 2.2, 2014 ES, Volume 4). The remainder of the route has been reclaimed as agricultural land.

2.2.3. With specific reference to water features, the scheme will comprise of the following:

- two new bridges crossing the River Rother (including the Mill stream);
- two new bridges across a linear water feature;
- one existing bridge over the River Rother to be refurbished;
- one piped crossing of a tributary to the River Rother;
- two farm access bridges over the River Rother (including Mill Steam); and
- 15 culverts, two pipe embankments and one further access bridge along the length of the route.

2.3. River Crossings

2.3.1. Two new bridge crossings of the River Rother will be constructed for the new section of track. Taking the most recent elevation drawings 'Underbridge 6' crosses the River Rother and 'Underbridge 12' crosses a watercourse locally known as the Mill Stream (but classed by the Environment Agency as part of the River Rother). Two additional bridges are also proposed (Underbridges 17 and 24) to cross the floodplain. In addition, there are 15 culverts and 2 pipe embankments planned. There are also two new farm access bridges proposed and a number of access level crossings within the floodplain.

2.3.2. Underbridge 6 will be constructed to allow the proposed railway embankment to cross the width of the River Rother east of The Clappers at approximately 573830, 124030. The bridge proposals are for a 10m span, rectangular structure. Based on the original drawings, provided prior to completion of the 2013 draft of this WFD report, this bridge was shown with soffit level of 10.863m AOD. On the most recent design drawings (plan drawing - July 2017 and elevations February 2018), the soffit level has not been included. However, it is assumed that clear span construction with significant headroom will be maintained. The railway embankment will cross a large area of floodplain of the River Rother. The crossing is approximately perpendicular in this location and therefore no diversion of the watercourse is expected to be required.

2.3.3. Underbridge 12 crosses the Mill Stream (River Rother bypass), close to the A21 at approximately 573830, 124030. The bridge proposed is a 10m span, rectangular structure with a soffit level of 10.563m AOD, based on most recent design drawings. Realignment of the watercourse may be required to the structure to ensure that the bridge supports can be constructed without reducing the flow area of the channel. It is also recommended that the abutments should be relocated to not obstruct flood flows or reduce capacity of the channel.

2.3.4. Underbridge 16 (as named in the previous design drawings and 2013 draft WFD) crosses a land drain that is a tributary to the River Rother. The location of the Underbridge 16 is approximately 574800, 124080. The bridge structure is a recycled (Ex-Staplehurst) steel span superstructure. The underbridge will have trough floor infilled with concrete with reinforced concrete walls to support the structure. The bridge structure proposed is 5.5m wide and has a soffit level of approximately 9.15m AOD. It is assumed that the structure has a clear span over the channel and no channel realignment is required. In the most recent design drawings, this bridge does not have a

number assigned to it, nor is it shown on the elevation drawings. It has therefore been assumed that the design is as per the previous assessment.

2.3.5. Underbridge 17 (as named in the previous design drawings and 2013 draft WFD) is located on the western side of the pond positioned south of Salehurst at approximately 574850, 124060. The bridge structure is a recycled steel double span bridge (Ex-Staplehurst) superstructure. The underbridge is 5.5m wide with a soffit level of 8.99m AOD to 9.25m AOD depending on location. This bridge has a reinforced concrete pier in the watercourse and reinforced concrete walls to support the structure. In the most recent drawings, this bridge does not have a number assigned to it nor is it shown on the elevation drawings. It has therefore been assumed that the design is as per the previous assessment.

2.3.6. Underbridge 24 crosses an agricultural land drain that drains into the River Rother. The underbridge structure is a recycled (Ex-Staplehurst) steel single span. The underbridge will have trough floor infill concrete structure with planned reinforced concrete walls to support the structure. The structure has a span of 5.5m wide and has a soffit level of 6.23m AOD. It is assumed that the structure has a clear span over the channel and no channel realignment are required. In the most recent drawings, this bridge does not have a number assigned to it nor is it shown on the elevation drawings. It has therefore been assumed that the design is as per the previous assessment.

2.3.7. A number of farm access crossings are planned for the proposed scheme. One will cross the River Rother downstream of the confluence with the Mill Stream at approximately 574220, 124020. In addition, other crossings required over agricultural land drains may be required. Detailed design of these structures should be provided for the detailed WFD Assessment.

2.3.8. The river crossing at 576675, 124030, is shown as Underbridge 26 in the most recent plans and as Underbridge 25 in the most recent elevations. It is also known as Austins Bridge. This bridge is existing and is to be refurbished.

2.3.9. There are a total of 15 culverts proposed for the scheme, according to the most recent designs (Plans - July 2017, Sections – February 2018). The most recent drawings do not provide specific details however the original drawings showed that there was mixture of culverts in the form of 0.3m internal diameter pipes, 0.75m internal diameter pipes, 3m box culverts and 5m box culverts. It is assumed that these designs will be as per the previous assessment. The locations of structures are shown within Appendix 2 and Table 1: Summary of crossings on new section of track - Bridges.

2.3.10. The preliminary design drawings for the culverts show concrete footings (specification dependant on ground conditions), backfilled with granular fill or selected fill as per the structural engineer's design. The pipe culverts will also have hollow concrete block wall with reinforcement surrounding the pipe. No updated design drawings have been provided for the purposes of this assessment.

2.3.11. In addition to the culverts, there are two pipe embankments proposed for the new section of the railway. The pipe embankments are proposed to consist of concrete bedding with suitable infill backfilled with around three or four (depending on location) pipes of 2.5m as per the structural engineer's drawings. No updated design drawings have been provided for the purposes of this assessment.

2.3.12. Land Drainage Consent will be required for culverting of any watercourse, and the consenting authority varies between the Environment Agency for Main Rivers (River Rother and the Mill Stream) and the Lead Local Flood Authority (East Sussex County

Council) for ordinary watercourses (which include all other watercourses such as tributaries, ditches and land drains).

2.3.13. Table 1 and Table 2 show a summary of the proposed crossings for the scheme. Where information is lacking within the current designs, it is assumed that details will be as per the previous assessment.

Table 1: Summary of crossings on new section of track - Bridges

Location Number	**6**	**12**	**16**	**17**	**24**
Watercourse crossing	River Rother	Mill Stream (River Rother)	Dry Valley	Dry Valley	Linear Water Feature
Type of crossing	Underbridge	Underbridge	Underbridge (single-span)	Underbridge (double-span)	Underbridge
Construction in/adjacent to River	Ex-Reading 12' wide span steel structure, 15m deep steel sheet pile, concrete. Height of opening approximately 3867mm. Width approximately 10m.	Ex-Reading 12'6" wide single-span steel bridge, steel sheet pile, concrete. Height of opening approximately 3m. Width approximately 10m but skew.	Ex-Staplehurst steel span bridge, trough floor infilled concrete, reinforced concrete walls. Height 2230mm. Width 2000mm.	Ex-Staplehurst steel span bridge (double), reinforced concrete pier, reinforced concrete walls. Height 1160mm. Width 6690mm x 2.	Recycled (Ex-Staplehurst) steel single span, trough floor infill concrete structure, reinforced concrete walls. Hieght 1140mm. Width 6000mm wide. .
Estimated Ground Level (m AOD)	11.05	9.63	7.11	8.09	5.09
Rail Level (m AOD)	11.53	11.23	10.04	9.95	6.93

Table 2: Summary of crossings on new section of track - Culverts

Location Number	7	8	9	10	11	13	14	19	20	21	22	25
Type of crossing	0.75m Pipe Culvert	5m Wide Box Culvert	5m Wide Box Culvert	5m Wide Box Culvert	5m Wide Box Culvert	Pipe Embankment	5m Wide Box Culvert	3m Box Culvert	3m Box Culvert	3m Box Culvert	Pipe Embankment	3m Box Culvert
Construction in/adjacent to River	Concrete slab, Reinforced concrete walls, selected backfill	Concrete slab, Reinforced concrete walls, selected backfill	Concrete slab, Reinforced concrete walls, selected backfill	Concrete slab, Reinforced concrete walls, selected backfill	Concrete slab, Reinforced concrete walls, selected backfill	Concrete bedding, selected backfill	Concrete slab, Reinforced concrete walls, selected backfill	Concrete slab, Reinforced concrete walls, selected backfill	Concrete slab, Reinforced concrete walls, selected backfill	Concrete slab, Reinforced concrete walls, selected backfill	Concrete bedding, selected backfill	Concrete slab, Reinforced concrete walls, selected backfill
Estimated Ground Level (m AOD)	10.38	9.91	9.3	9.27	9.31		8.63	8.03	7.3	7.22		6.55
Rail Level (m AOD)	11.53	11.53	11.44	11.42	11.34	11.12	10.63	9.48	9.26	9.24	9.18	5.67

2.4. River Diversions

2.4.1. Minor realignment of the Mill Stream is likely to be required at Underbridge 12 to ensure that the bridge supports can be constructed without reducing the flow area of the channel. In addition, a number of agriculture drainage channels that enter the River Rother may require realignment or temporary diversion during construction to enable culverting through the proposed embankment.

2.4.2. Any sections of river requiring realignment or diversion should be sensitively designed to ensure that the diversion mimics, or improves upon, the natural conditions of the channel. The river planform should be optimised to ensure that the meanders are replicated within the existing floodplain and are hydraulically stable. The gradient through the reach should be derived from detailed topographic survey to ensure a constant gradient and scour protection should be included on the bed of the channel at the entrance to the bridge structures. Habitats and vegetation should be protected, replicated and enhanced where possible.

2.5. Surface Water Runoff

2.5.1. Any surface water runoff from the Rother Valley Railway should be intercepted to prevent oils or other potential pollutions from the running off directly into the watercourse.

2.5.2. A surface water management plan should be implemented before the detailed WFD Assessment is undertaken. Typically, a railway would have a surface water drainage system (SuDS) with have at least three ‘trains’ in the SuDS system to attenuate flows from impermeable components and filter pollutants before discharge to the watercourse.

3. Assessment Methodology

3.1. Guidance

3.1.1. The EA has published guidance on Water Framework Directive risk assessments[5], targeted at Environmental Permit applicants, on how to assess the risk of the proposed activity. It explains the circumstances under which it is necessary to assess any risks to local RBMP objectives and lists activities including bed and bank reinforcement, culverts and outfalls as some of those which require assessment.

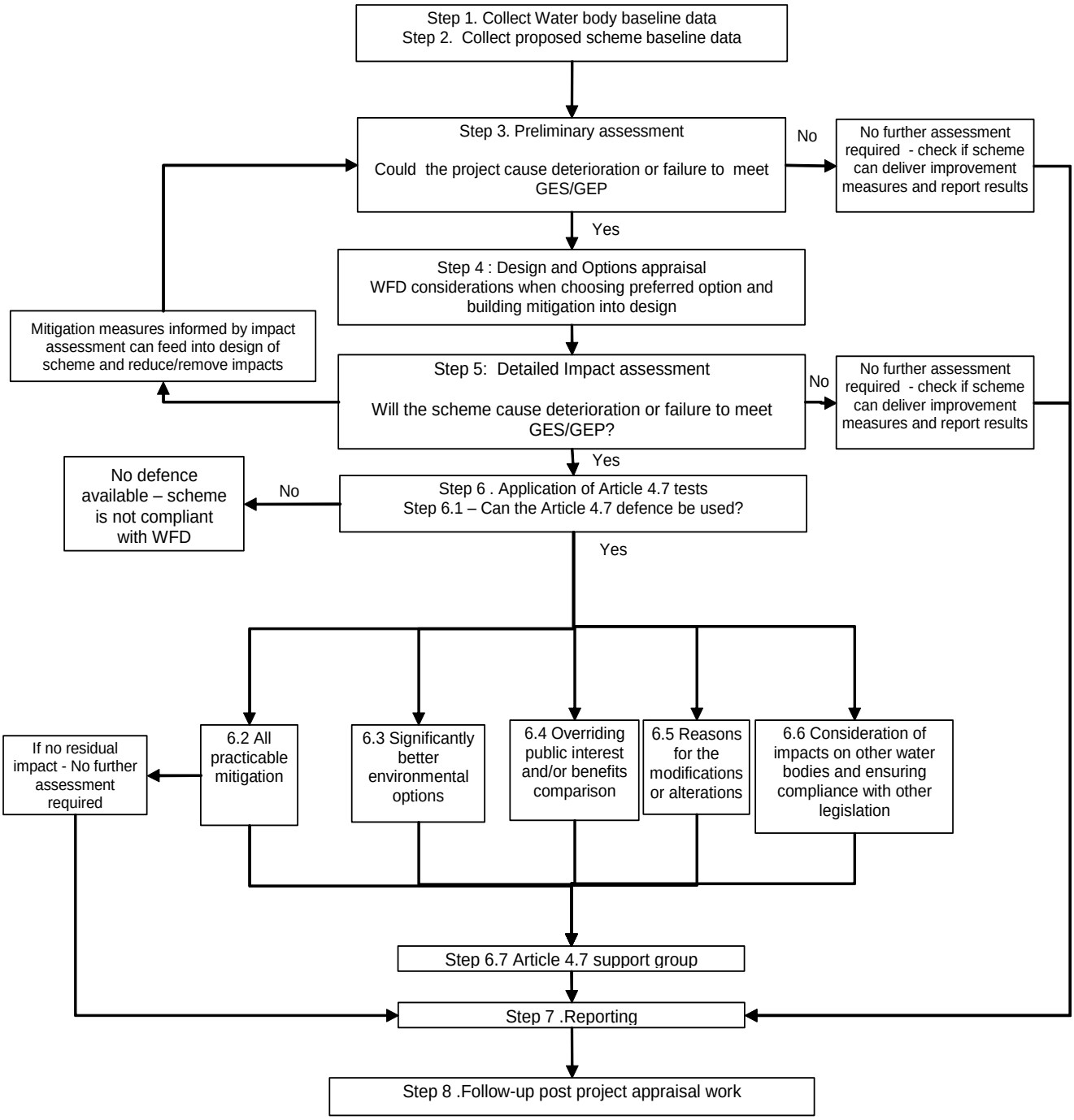
3.1.2. The above guidance provides details on how to carry out a risk assessment, in order to ensure that the proposed activity supports the objectives of the local RBMP and does not cause any deterioration of status or potential of surface or groundwater bodies. It is important to show that the proposals try to avoid, minimise, mitigate, or compensate for any risks to the WFD receptors, and a full assessment has been undertaken bearing in mind that:

- a water body deteriorates in status when one WFD receptor is affected such that it drops from one WFD status class to another;
- a significant localised impact is either long-lasting; causes severe harm; or affects a wide area within a water body; and
- consideration must be given to upstream and downstream impacts.

3.1.3. The Environment Agency has outlined an 8-step process to assess the compliance of proposed schemes with the Water Framework Directive, shown in Figure 1. This methodology will be followed throughout this assessment and should be used for subsequent assessments as required.

[5] Environment Agency (6th April 2016) Water Framework Directive risk assessment – How to assess the risk of your activity

Figure 1 - Environment Agency's 8 step process to assess compliance of modifications with WFD Rother



3.2. Initial Data Collection

3.2.1. This stage identifies the different water bodies (surface and groundwater) which could be impacted and are at potential risk as a result of the construction and operation of the proposed Rother Valley Railway.

3.2.2. To do so, the Rother RBMP, Catchment Data Explorer website and EA online maps were reviewed.

3.3. Preliminary Assessment Methodology

3.3.1. This initial assessment aims to identify any potential impacts the proposed Rother Valley Railway scheme components may have on the WFD objectives, via the ecological, chemical and quantitative status elements for each waterbody (surface and groundwater).

3.3.2. This initial assessment will consider the potential of the scheme to cause non-temporary impacts to any of the quality elements, which may be enough to cause deterioration in water body status. This will be broken down into the potential impact of the various scheme components on each quality element so that risks are clearly identified.

3.3.3. Ecological status is particularly important and assessing the impact of the scheme components on the biological elements (fish, invertebrate and aquatic fauna), either directly or in-directly via impact on the physico-chemical or hydro-morphological supporting elements, is key.

3.3.4. Following initial assessment, any proposed scheme components which do not pose any risk will be screened out and will not be considered further. Any part of the scheme which has the potential to cause a detrimental impact should be considered in the form of a detailed assessment.

3.4. Detailed Assessment Methodology

3.4.1. The second stage of assessment should consider include water bodies and their quality elements that are considered likely to be affected by scheme components. This includes; identification of any areas of non-compliance, consideration of embedded mitigation measures, enhancements, and contributions to the RBMP objectives. A separate detailed assessment should be carried out for each of the water bodies identified during the screening stage.

3.4.2. The detailed design of each individual scheme component should be assessed against each of the individual quality elements which are potentially at risk. Both long-term operational and short-term construction impacts must be considered at this detailed stage.

3.4.3. Finally, the following objectives will be used to confirm that the general scheme components comply with the overarching aims of the Water Framework Directive. These objectives were derived from the Environmental Objectives of the Directive for both surface water and groundwater bodies:

- Objective 1: The proposed Scheme component does not cause deterioration in the status of the water body (river or groundwater), for any element;
- Objective 2: The proposed Scheme component does not compromise the ability of the water body to achieve its WFD status objectives by the set date;
- Objective 3: The proposed Scheme component does not cause any negative impacts on other water bodies, or compromise achievements of any other water body; and
- Objective 4: The proposed Scheme contributes to the delivery of the WFD in a positive way.

3.4.4. If it is shown that the scheme will cause deterioration in the water body status or will impede the water body from reaching its objective status, then the scheme must be revised, or an assessment must also be made against Article 4.7 of the WFD.

4. Impacted Waterbodies and Current Status

4.1. Selection Stage

4.1.1. Water bodies to be considered within this WFDA have been selected based on the following criteria:

- All surface water bodies that could potentially be directly impacted by the proposed Scheme;
- Any surface water bodies that have direct connectivity and could potentially be indirectly affected by the proposed works (within 5 km of the proposed Scheme); and
- Any groundwater bodies that have direct or indirect connectivity to the proposed works.

4.1.2. The Rother River Basin Management Plan (RBMP) and the Environment Agency's internet maps were used to obtain the status classification and objectives of the precise reach of the water body. A detailed breakdown of the status elements is found on the EA catchment data explorer. The entries specific to this assessment can be found in Appendix 1. Information on the status and objective of the relevant groundwater body was also obtained from the Environment Agency's website.

4.2. South East River Basin Management Plan

4.2.1. A RBMP for the South East region was prepared by the Environment Agency and was updated in 2015[2]. The plan describes the pressures facing the water environment in the South East River Basin District and the actions that will address them. It has been prepared under the WFD and is the second document of a series of six-year planning cycles.

4.2.2. The RBMP covers one of the most unusual regions in England with the South and North Downs, White Cliffs, Solent and the New Forest. The Rother Valley is one of the catchments included.

4.2.3. The River Rother is a designated Main River within the South East RBMP, which flows into the sea at Rye. The River Rother catchment passes primarily through rural areas but is urbanised in parts as it flows through town centres, such as Robertsbridge.

4.3. Surface Water Body: Rother River

4.3.1. The only surface waterbody impacted by the scheme is the River Rother. The watercourse is currently crossed in one place by the old Kent and East Sussex Railway infrastructure, which is at present being used as an access route to cross the River Rother. The proposed scheme will cross the river in two additional locations.

4.3.2. The River Rother is designated as a Heavily Modified Water Body (HMWB) due to urbanisation and flood defence structures.

4.3.3. Flood risk is a particular concern in Robertsbridge and hence there has been significant modification to the River Rother as it passes through the town centre. This is the reason for the HMWB status of the watercourse, which aims to meet 'Good Ecological Potential (GEP)' rather than 'Good Ecological Status (GES)'. The 'Ecological Potential' classification acknowledges that it is not possible for the watercourse to be reach natural

state, as a result of the flood defence infrastructure, and instead aims for a best-case status whilst maintaining the current standard of protection.

4.3.4. Table 3 provides a summary of details for the River Rother based on the EA Catchment Data Explorer. Full details can be found in Appendix 1.

Table 3 – Current River Rother status taken from the EA Catchment Data Explorer

Waterbody Category and Map Code	River- R29
Waterbody ID and Name	GB107040013640 Lower Rother from Etchingham to Scot's Float
National Grid Reference	TQ 8770326704
Hydro morphological Designation	Heavily Modified
Catchment Area and Length	144 km^2 48.6 km
Current Status (Cycle 2 Classifications 2019)	Moderate Ecological – Moderate Chemical - Fail
Status Objective (Overall)	Good by 2027
Justification if overall objective is not good status by 2015	Technically infeasible for ecological potential, with disproportionate burdens (specific pollutants)
Protected Area Designation	Drinking Water Protected Area, Nitrates Directive.

4.3.5. Based on further details included within the Catchment Data Explorer, the overall Ecological Potential is considered 'Moderate' for the River Rother. Biological quality elements are 'good', an improvement from the previous assessment in 2016. Macrophytes and phytobenthos, and fish are classed as 'Good', with invertebrates designated as 'High'.

4.3.6. The hydrological regime of the River Rother support 'Good' status, presumably due to its predominantly natural state past Robertsbridge, and hydromorphological supporting elements support good overall. However, physical modifications are listed as a reason for non-achievement of good status. This includes land drainage, as listed in the Mitigation Measures Assessment.

4.3.7. In terms of physico-chemical elements, these are considered 'Moderate' overall, with many at 'High' status, but limited by 'Moderate' phosphate levels and temperatures, and 'Poor' dissolved oxygen levels. Specific pollutants are 'High' overall. Agricultural land management is considered a known source of pollutants, plus a reported point source incidence from a sewage discharge.

4.3.8. The overall Chemical Status of the River Rother is currently considered to 'Fail' assessment, due to priority hazardous substances.

4.4. Groundwater Body: Kent Weald Eastern-Rother

4.4.1. The Kent Weald Eastern-Rother is the ground waterbody underlying the Rother Valley area. Table 4 provides a summary of details for the Kent Weald Eastern-Rother from the South East River Basin Management Plan.

Table 4– Current Kent Weald Eastern Rother status taken from the EA Catchment Data Explorer

Waterbody Category and Map Code	Groundwater G9
Waterbody ID and Name	GB40702G502200 Kent Weald Eastern – Rother
National Grid Reference	TQ8716222224
Groundwater Area	407 km^2
Current Status (Cycle 2 Classifications 2019)	Poor Quantitative – Good Chemical - Fail
Status Objective (Overall)	Good by 2027
Justification if overall objective is not good status by 2015	Disproportionate burdens
Protected Area Designation	Drinking Water Protected Area

4.4.2. Based on further details from the Catchment Data Explorer, the quantitative status of the Kent Weald Eastern-Rother is currently 'Good'. All quantitative elements for groundwater are 'Good', including water balance and connected surface waterbodies.

4.4.3. All chemical quality assessments are considered 'Good' except for chemical dependent surface water body status which is 'Poor'. The overall chemical status of the groundwater body is therefore currently 'Poor'. It is confirmed that this is as a result of contaminated land within the catchment from the refineries and fuel industry.

4.4.4. The Kent Weald Eastern-Rother will not reach good status by 2015, due to 'disproportionate burdens'. It therefore aims to reach good status by 2027.

5. Preliminary Assessment

5.1. Impact on Biological Elements

5.1.1. Whilst the overall ecological status of the River Rother is 'Moderate', for biological quality elements, the current status for the River Rother is 'good' and therefore exceptional care must be taken to ensure that this does not deteriorate. Macrophytes and phytobenthos, and fish are classed as 'Good', with invertebrates designated as 'High'.

5.1.2. Specific macrophyte surveys were carried out by the Environment Agency and these show a moderately diverse aquatic flora. Survey data was gathered at Robertsbridge Pumping Station (TQ74170 23950), West of Robertsbridge Pumping Station (TQ71400 23908), Robertsbridge Recreation Ground (TQ73643 23816), Bodiam (TQ78330 25300), Glottenham (TQ74145 23905), Etchingham (TQ71800 26200) and Udiam (TQ77130 24330) and are included in Appendix 1.

5.1.3. A number of aquatic invertebrate surveys were also carried out by the Environment Agency at Robertsbridge Pumping Station (TQ74170 23950), Russet Farm, Robertsbridge (TQ74600 23710), Etchingham (TQ71800 26200) and Udiam (TQ77130 24330) and these are included in Appendix 1.

5.1.4. Annual fish surveys are undertaken by the Environment Agency at Salehurst (TQ 7418723976) and Bodiam (TQ 7858825357). These were last surveyed in July 2013 producing a wide variety of fish species including; Bullhead, Eel, Chub, Minnow, Pike, Perch, Roach, Stoneloach, Bleak, Silver Bream, Common Bream, Gudgeon, Brown/Sea Trout and Ruffe. Species richness at Salehurst is shown to be 'good' although there are limited signs of eel. Recruitment at Bodiam is shown to be 'excellent'. Survey data is included within Appendix 1.

5.1.5. The results of the fish survey show that the fish at these locations are associated with clean lowland watercourses which have both fast and slow flows. Moreover, the presence of minnows at both locations indicates that the River Rother is well oxygenated[6]. The Kent and East Sussex Fisheries Survey Report by the Environment Agency for Salehurst and Bodiam (July 2010) also shows there are past records of salmonids within the fish counts from 2005 to 2008.

5.1.6. It is considered unlikely that the proposed development would impact on the nutrient status of the River Rother therefore potential effects on phytobenthos (diatoms) which are used as a measure of nutrient status are scoped out of this assessment.

5.1.7. Whilst it is unlikely that bridge construction will result in significant long term loss of habitats which would impact the biological elements (fish, invertebrates and macrophytes) of the WFD, impacts may be seen as a result of necessary river realignments.

5.1.8. Therefore, these elements will be considered further in the detailed assessment to ensure that there is no deterioration in their status. Furthermore, any opportunities for

[6] Purnel *et al* (1998) The Concise Encyclopaedia of Fishing; Course, Sea and Fly Fishing.

ecological enhancement should be considered as part of the works to create conditions where marginal vegetation can develop.

5.2. Impact on Supporting Elements

5.2.1. The EA Catchment Data Explorer provides the physico-chemical quality elements for the water bodies including; ammonia, dissolved O2, pH, phosphate, temperature, and acid neutralising capacity. The current status of all of these supporting elements is generally 'good' or 'high' except dissolved oxygen which is 'poor'. Thus, the proposed works must ensure that there is no status deterioration for these elements.

5.2.2. The surface water plan for the railway embankment and bridges should be designed to not introduce oils or other pollutants from the proposed scheme or the disruption on the potentially contaminated old embankments into the river or groundwater bodies.

5.2.3. There will be limited long-term risks of impact on the water quality as a result of the in-channel works, however, the physico-chemical elements are potentially at-risk during construction. As such, general physico-chemical quality elements will be considered in the detailed assessment as a precautionary approach.

5.2.4. The EA catchment explorer includes hydro-morphological quality elements for the River Rother and typically, conditions support good status despite the heavily modified status. Several components of the proposed railway, dependent on construction and design, have potential for impacts on hydro-morphology and continuity as a result of alterations to channel alignment and bed / bank / pier structures to accommodate new bridges and culverts.

5.2.5. Therefore, all hydromorphological quality elements should be considered further at detailed assessment stage.

5.3. Impact on Chemical Status

5.3.1. The overall Chemical Status of the River Rother is currently considered to 'Fail' assessment, due to priority hazardous substances.

5.3.2. However, the proposed scheme does not include any treated effluent discharge to surface waters and will not have any detrimental impact on the chemical status of the River Rother. Therefore, chemical status can be scoped out of further assessment.

5.4. Off-site Impacts

5.4.1. The proposed scheme only covers the River Rother. Due to relatively small scale of the scheme in relation to the Rother catchment, effects downstream of the immediate location are not considered to be an issue. As such, water bodies further downstream are not considered to be at risk and will therefore not be assessed further.

5.4.2. The nearest Natura 2000 site to the proposed scheme is Pevensey Levels SAC which is located 14km to the south west, with the hydrologically linked Dungeness to Pett Level SPA located 15 km to the south east. Due to the relatively small scale of the scheme, and consequentially the limited effects downstream, it is not considered that a Habitats Regulations Assessment is required since there is unlikely to be a significant effect on any Natura 2000 site.

5.4.3. The 2014 Environment Statement: Ecology and Nature Conservation chapter (Volume 2, Chapter 9) indicates that alterations to the land surrounding the proposed scheme may affect European Protected Species (EPS), namely; otters, bats, dormice and great crested newts. The scheme may also impact upon three habitats; broadleaved

woodland, floodplain grazing marsh and ponds[7]. Mitigation measures have therefore been proposed to avoid and minimise adverse effects of the proposed scheme within the Ecology and Nature Conservation Chapter.

5.5. Impact on Groundwater Bodies

5.5.1. The current quantitative status of the Kent Weald Eastern-Rother is 'poor' due to 'chemical dependent surface water body status'. This indicates that any depletion or pollution of this ground water body could have an impact on linked surface water bodies. All other elements are considered 'good' but there is low confidence generally with the status classifications.

5.5.2. Saline intrusion is not a possibility in this location due to the proposed scheme being over 15km from the sea. These elements can be scoped out of the assessment.

5.5.3. There will be no direct pumped abstraction or cuttings into the groundwater body as a result of the proposed development. Therefore, there should be no impact on chemical status or pollution of the groundwater body as a result.

5.5.4. A section of the proposed scheme is within a UK Biodiversity Action Plan (UK BAP) Priority Habitat - Floodplain Grazing Marsh, which is defined as periodically inundated pasture, or meadow with ditches, which maintain the water levels and containing standing brackish or fresh water[8.] Marshes are a form of wetland and, since the western part of the proposed scheme (embankment and underbridges 6 and 12) plans to cross the marsh; further assessment of the impact on groundwater will be required for these elements.

5.5.5. The Preliminary Contaminated Land Assessment (Ref 2014 ES, Volume 3, Report 6) indicates that there is the possibility of contamination contained within the made ground, which comprises the old railway embankment. However, the assessment concludes that, given that the railway was constructed over 110 years ago it seems unlikely that significant pollution of groundwater would be ongoing via leaching contaminates from the waste in the embankments.

5.5.6. Nevertheless, it has been recommended that further risk assessment be carried out to determine whether disturbance due to construction of the proposed scheme could adversely affect the chemical status of the groundwater body. This has been conditioned as part of the planning application (Condition 10 RR/2014/1608/P). If the risk assessment confirms there is a risk of contaminated land, there could be a detrimental impact on the chemical and ecological status of the connected surface water body, the River Rother. Condition 12 requires a remediation strategy if there are found to be pollutant linkages.

5.6. Temporary Works

5.6.1. Temporary effects during construction may disturb aspects of the water bodies including; habitat loss, river flow and continuity, channel morphology, water quality and groundwater levels. The disturbance will be limited, and all usual legislation adhered to

[7] Environmental Statement: Ecology and Nature Conservation Chapter, CLM, April 2013 (Ref Volume 2, Chapter 9)

[8] BRIG (ed. Ant Maddock) 2008, UK Biodiversity Action Plan; Priority Habitat Descriptions: Coastal and Floodplain Grazing Marsh

in order to prevent flood risk, ecological damage or pollution incidents. This will be managed with appropriate mitigation as detailed within the CEMP.

5.6.2. Temporary bridge crossings over the River Rother have the potential to impact on fish, invertebrates, macrophytes and river morphology directly. Should any temporary bridge crossings be required, these should be considered within the detailed assessment.

5.6.3. For additional confidence, mitigation measures should be detailed, where appropriate, within further assessment and will be subject to agreement with the Environment Agency and in compliance with Environmental Permitting regulations.

5.7. Preliminary Assessment Summary

5.7.1. During this initial screening assessment, all potential high-level impacts as a result of the scheme components have been considered. Some elements have been screened out of further assessment; however, many elements will require further consideration at the detailed stage of WFDA.

5.7.2. Table 5 details each of the scheme components and the potential impact each could have on relevant status elements. The impact of these individual elements should be considered in detail once the proposed scheme design is finalised. The potential impact, the embedded mitigation and any resulting residual effects should be covered further once detailed designs are available for assessment.

Table 5 - Potential impacts as a result of the scheme components

Scheme Component	Surface Water Status		Groundwater Status	
	Ecological Status	Chemical Status	Quantitative Status	Chemical Status
Railway embankment	Yes	Yes (if contamination proved within existing embankment)	Yes	Yes (if contamination proved within existing embankment)
Underbridge 6	Yes	No	Yes	No
Underbridge 12	Yes	No	Yes	No
Underbridge 16	Yes	No	No	No
Underbridge 17	Yes	No	No	No
Underbridge 24	Yes	No	No	No
Surface Water Drainage	Yes	No	No	No
Box Culverts	Yes	No	Yes	No
Pipe Culverts	Yes	No	Yes	No
Pipe Embankment	Yes	No	Yes	No
River realignment for Underbridges	Yes	No	Yes	No
River realignment for Culverts	Yes	No	Yes	No
Temporary river crossings [if any]	Yes	No	Yes	No

6. Recommendations for Detailed Assessment

6.1. Overview

6.1.1. Further assessment will be required in order to assess the specific scheme components on the quality elements indicated as potentially at risk as a result of the preliminary assessment in

6.1.2. Table 5.

6.1.3. However, a thorough and detailed assessment cannot be undertaken for the proposed scheme at this stage since elements of design are yet to be finalised. This section evaluates the preliminary design of the proposed scheme and provides recommendations ensure compliance with the Water Framework Directive to inform and guide detailed design.

6.1.4. Consideration must be given to both long-term operational and short-term construction impacts of the proposed scheme on surface and groundwater bodies.

6.1.5. Mitigation measures will be required to ensure there are no detrimental impacts to water bodies as a result of the proposed scheme. Details of mitigation measures will be formulated once scheme design has been completed and will likely be embedded within the overall design.

6.1.6. In addition, further assessment should detail any potential improvements which could be made to the water body as a result of the proposed scheme where feasible and practicable.

6.2. Ecological Impacts: Biological Quality Elements

6.2.1. A detailed assessment will be required in order to assess each of the specific scheme components, and their individual details where necessary, on each of the ecological status elements.

Embankments

6.2.2. The embankments of the proposed scheme should have no long-term effect on biological quality elements of the River Rother. However, during construction, there could be the potential for pollution from vehicles or spillages on site. The CEMP details pollution prevent mitigation measures, which include the presence of spill kits on site and construction staff suitably qualified and experienced in their use. The Control of Pollution (Oil Storage) Regulations 2001 will be adhered to on site, with regards to storage of oils and fuel on site.

River Crossings

6.2.3. Within the 2013 designs underbridge 6 and underbridge 12 were shown to be constructed with sheet steel pile caissons and concrete plugs in the riverbed. The updated drawings do not provide details on whether the design has been updated, and therefore for the purposes of assessment it is assumed that this design remains as per previous assessment.

6.2.4. The sheet piles will create a hard, vertical wall from bed to surface level, which could potentially have long-term impacts on the River Rother. The trench sheeting will not

allow small fish and macro-invertebrates to burrow into the bankside at this location, and macrophytes cannot thrive on the sheet piles.

6.2.5. Sensitive design measures such as rock rolls could mitigate against the lack of environment for fish and macro-invertebrates beneath the bridge structures and could support macrophyte communities. Detail of mitigation measures will be included as part of the detailed design stage, and should be evaluated against the objectives of the WFD during the detailed assessment.

6.2.6. During construction of all underbridges, care should be taken to avoid sediment disturbance and bank collapse. Sediment disturbance due to work within the river can lead to increased sediment transport and turbidity within the river. Predominantly, construction will take place offline to minimise direct impacts on the watercourse. Wherever possible, excess sediment should be stored outside of the functional floodplain to minimise risk of spillage during an out of bank flow event, such as flooding which is typical to this catchment during the winter months.

6.2.7. It is important to minimise damage to habitat and species during construction. No in-channel work will be conducted during fish spawning times and an appropriately qualified fisheries contractor should be onsite to supervise fish rescue during dewatering of channel reaches if required to allow realignment of channels. Where possible, channel substrate will be retained for translocation following construction and any affected banks will be restored by re-establishing native riparian vegetation.

6.2.8. Bridge crossing should be designed with surface water drainage to mitigate any detrimental effects to the watercourse and be fit for purpose.

6.2.9. Any temporary bridge crossings which may be required in order to facilitate construction of the proposed scheme should be designed to ensure there is no disturbance within the channel directly, which may impact upon fish, invertebrates or macrophyte habitats within the River Rother.

Culverts

6.2.10. The newest guidance for the design of culverts was published by CIRIA in December 2019, in conjunction with the EA. The Culvert, Screen and Operation Manual C786 provide a screening assessment on the requirements culverts and screens. The EA and DEFRA have since published a document citing that their culvert design document is retracted and that the CIRIA guidance is the current guidance.

6.2.11. However, this guidance was not prepared specifically with regard to the Water Framework Directive. The Scottish Environment Protection Agency (SEPA) state that the culverting of watercourses in regard to the WFD would only be acceptable on small crossing of less than 2m in width[9]. In addition, culvert crossings must be justified fully. SEPA state that culvert crossings are only justified if other options are demonstrated to be unsuitable, with disproportional costs or technical infeasibility, and if the influence is

[9] SEPA (December 2015 Version 2.0) SEPA Position Statement to support the implementation of Water Environment (Controlled Activities) (Scotland) Regulation 2011: Culverting Watercourses.

likely to be negligible within watercourse. Moreover, mitigation measures must ensure impacts for culverts are no greater than at any other crossings structures.

6.2.12. In term of impacts on biological quality, culverts must not be barrier to fauna, natural flow rates, depths and velocities must be maintained, and consideration must be given to light levels within the culvert.

6.2.13. Further consideration of impacts of the proposed scheme, including culverts, on terrestrial ecology such as including otters and beavers, are considered further in Ecology sections of the ES. Although they can benefit from a healthy aquatic environment and are a good indicator of overall river health, species dependent on water, but living outside it, are not included in WFD ecological status assessment.

River Diversions

6.2.14. If required to facilitate perpendicular flow entry into bridges, river diversions and realignments should include the following detailed design measures to ensure impacts to biological quality elements are mitigated:

- Woody debris, gravel beds and any bank features should be replicated as closely as possible where notably present;
- Pool-riffle features should be recreated in areas where these are found to be present in the lost river reach;
- Standard channel cross sections should be based on standardised section of the reach from detailed topographic survey;
- Gradients through the river diversion reach should be constant and derived from detailed topographic survey; and
- Additional riverine habitats should be provided with backwaters, bank enhancements or in-channel features where possible and feasible.

6.2.15. The river planform should optimised to ensure that the meanders are replicated where possible and are located within the existing floodplain. A two-stage channel approach through meanders could help provide habitat at lower return period flows.

6.2.16. Overall, the design should aim to replicate and, where possible, enhance upon the existing reach to provide habitat variation for fish and invertebrates.

6.3. Ecological Impacts: Physico-Chemical Elements

6.3.1. There is a risk to River Rother as a result of pollutants from surface water drainage from the track entering the watercourse. Drainage design should ensure that all water runoff into the watercourse is intercepted by at least three streams of treatment. These could include infiltration, filtration, detention, trapped gullies or swales.

6.3.2. Mitigation by design must ensure there is no long-term impact on the water quality of the River Rother. This should be included within the detailed assessment.

6.3.3. Mitigation will also be required during construction of the proposed scheme to ensure there is no impact on physico-chemical supporting elements. Appropriate mitigation strategies are suggested below:

- Leaving dead vegetation to rot in the channel can cause release of hydrogen sulphide which can kill fish. If any vegetation is cut as a result of construction of

the bridges, it should not be allowed to drop into the channel. Any excess vegetation in or near the watercourse should be removed.

- Care must also be taken to reduce disturbance of dust or sediments when moving or transporting material near the watercourse. This can cause turbidity in the water which may upset ion exchange rates between aqueous and solid phases of inorganics. Dust also contributes to nitrogen and phosphorus loading.
- Straw bales could be used to intercept any runoff from the construction site into the watercourse (HR Wallingford, River Diversion Design Guide).

6.3.4. Detailed assessment should assess specific construction information against the objectives of the WFD to ensure no negative impact on the River Rother.

6.4. Ecological Impacts: Hydro-morphology Quality Elements

6.4.1. Detailed assessment should measure the impact of each of the proposed scheme elements on the hydro-morphological supporting elements of the River Rother's ecological status. Key concerns include; continuity and sediment transport, hydrological regime, fluvial flow and morphological conditions.

Embankments

6.4.2. The proposed embankments will have no effect on the River Rother's hydro-morphological quality elements in the long term or during construction, since they will not directly impact upon flow regimes or channel morphology.

River Crossings

6.4.3. The preliminary designs for Underbridge 6 and 12 show sheet piles, which create a hard vertical wall beneath the structures, and could have long term impacts on the River Rother. Trench sheets do not allow for erosion and consequently a lack of sediment transport will occur downstream. In addition, vertical bank profiles will be created which have the potential to change fluvial flow patterns.

6.4.4. Alterations to flow velocities could affect ecological receptors in two ways. Firstly, if velocities increase significantly this could result in increased scour through bridges, washing out of river gravels, disturbing habitats and impeding passage of fish upstream. Conversely, if flow velocity is significantly reduced, this could result in increased silt deposition and smothering of river bed gravels, which provide spawning habitat. Further information, including hydraulic modelling, should be provided be required to advise the detailed WFD assessment and understand potential effects on flow velocities.

6.4.5. Underbridge 6 and 12 are the only two new bridges over the River Rother (including the Mill Stream) along the 3.4km route. Both are clear span bridges and although the support structures will be partially in the flow area of the channel, any impacts are expected to be localised. In addition, Underbridge 17 is shown to include a concrete pier within the channel.

6.4.6. Mitigation measures such as rock rolls can mitigate against the change of fluvial flow patterns and allow some material to be transported downstream. Moreover, the rock rolls can also reduce erosion of the steel pile footing. Full, specific mitigation measures may

be required based on the detailed assessment to ensure any impact on hydro-morphological conditions are mitigated.

Culverts

6.4.7. There are a significant number of culverts along the line of route. Although all the culverts are of tributaries and not the River Rother, the route is in close proximity to the River Rother and the crossings are near the outfalls. Therefore, any localised impact on these small tributaries could have an indirect impact on the River Rother and a detailed assessment of the impact on hydro-morphological elements will be required.

6.4.8. Mitigation measures mentioned within the SEPA Culverting Watercourses document suggests the following design aspects:

- the soffit level of culvert should be greater than natural bank height;
- culvert alignment should match alignment of watercourse;
- culvert should be the same width as the natural active channel;
- culvert base should be submerged to allow a naturalised culvert bed to be maintained; and
- culverts must not exacerbate flooding, natural flow depths must be maintained and there should be no changes to flow regime.

6.4.9. The CIRIA Culvert, Screen and Operation Manual C786 Chapter 9 is dedicated to design with consideration of the environment and natural processes. This includes hydrogeomorphology of culverts in relation to the natural channel bed and design for fish, eels, and small mammals' movement.

6.4.10. There is potential for impacts on surface watercourses during construction of the culverts. Care should be taken to avoid excess sediment disturbance and prevent flood events as a result of temporary blockage of watercourses.

River Diversions

6.4.11. Should permanent minor river realignments be required, there will be the potential for a risk to hydro-morphological aspects of the River Rother. All diversion designs should be based on the following factors to reduce the impact on hydro-morphological conditions:

- The river planform, where possible, should follow the topographic lows of the floodplain and be located within the 100 year event flood area;
- The planform shape should be based on the sinuosity of the reference reach, mimicking the existing where possible; and
- The river planform should be designed to cross perpendicular to the scheme in order to reduce the length of the crossing required.

6.4.12. Channel realignments present opportunities for habitat enhancement as part of the scheme. Where possible and feasible diversion design could seek to increase the river length (by approximately 20%) and create additional habitat conditions by providing a

range of cross-sectional shapes and channel dimensions to vary flow velocities throughout the reach.

6.4.13. River realignments should be modelled hydraulically to determine the impact on flow velocities through the reach and ensure there is no impact in terms of flood risk.

6.5. Groundwater Impacts

6.5.1. A detailed assessment will be required in order to assess each of the specific scheme components on the groundwater elements for the Kent Weald Eastern Rother groundwater body.

6.5.2. The scoping assessment highlights that there are potential risks to the BAP Floodplain Grazing Marsh at the western end of the proposed scheme, from the construction of the embankment and underbridges 6 and 12. Additionally, the detailed design of culverts is yet to be completed, and therefore potential impacts on the wetland area as a result cannot be excluded at this stage. Connectivity to surface water habitats is a key concern for groundwater in the WFD, and once construction methodologies are confirmed, detailed assessment should seek to confirm that the proposed scheme will not have any detrimental effects on groundwater via the wetland area.

6.6. Contaminated Land

6.6.1. The Preliminary Land Quality Risk Assessment indicates that there is the possibility of contamination contained within the made ground which comprises the old railway embankment. However, no trials pits or in-situ tests were conducted to confirm contamination and ultimately more conclusive testing and evidence is required.

6.6.2. Disturbance of any contamination as a result of the proposed scheme could adversely affect the chemical status of the groundwater body beneath the area. This could, as a result, have a negative impact on the chemical and ecological conditions of the River Rother.

6.6.3. The planning permission for the Scheme has a condition related to additional risk assessment works required to determine if there is a hazard from contaminated land (Condition 12). The required detailed risk assessment will determine if contaminated land is present and if required a remediation strategy is to be completed if there are

pollutant linkages. Until, this conclusive contamination assessment has been undertaken, potential risks under the WFD cannot be ruled out.

6.6.4. Therefore, this screening assessment concludes that there is the potential of a risk to both ground and surface waterbodies due to disturbance of contaminated land within the old embankment till evidence can be shown otherwise.

6.7. Objective Assessment

6.7.1. Finally, an overarching assessment is required to conclude whether the proposed scheme components impacts upon the general objectives of the Water Framework Directive assessment.

6.7.2. The four objectives of the Water Framework Directive are:

- The proposed scheme element should not cause deterioration in the status of the water body (river or groundwater), in any component;
- The proposed scheme element does not compromise the ability of the water body to achieve its WFD status objectives by the set date;
- The proposed scheme element does not cause any negative impacts on other water bodies, or compromise achievements of any other water body; and
- The proposed scheme contributes to the delivery of the WFD in a positive way.

6.7.3. Until such time as detailed assessment has been completed, the proposed scheme's compliance with the objectives of the WFD cannot be confirmed.

7. Conclusions

7.1.1. The proposed scheme presents the potential for a number of impacts on the ecological status of the River Rother, either directly on biological elements (fish, invertebrates or macrophytes), or in-directly via impacts on water quality and hydro-morphological conditions. In addition, there is potential for impact on the Kent Weald Eastern-Rother groundwater body via supported areas of marshland within the floodplain.

7.1.2. Any proposed scheme elements which have the potential to negatively impact upon the waterbody or cause deterioration in status, require full, detailed WFD assessment. Although this screening assessment was able to scope out certain aspects of the proposed scheme from further assessment, detailed design and construction methodologies are required to complete a full assessment.

7.1.3. Mitigation of potential impacts can be provided with sensitive design and best practice construction of embankments, bridges, culverts and diversions (if required). All detailed design should be based on robust baseline data, including topographic, geomorphological and ecological survey information, and detailed hydraulic modelling. A number of key design principles have been recommended within this report; in order ensure that effects on surface water ecology, physico-chemistry and hydro-morphology are negligible and these should be taken into consideration during detailed design.

7.1.4. All construction work should adhere to the guidelines set out in the CEMP and best practice pollution control methods are recommended to avoid contamination of the watercourse. All temporary works should be sensitively re-instated and will be subject to agreement with the Environment Agency. Best practice methods for rescue and transfer of fish, invertebrates and macrophytes from culvert construction and / or river diversions (where necessary) should be undertaken with advice from an ecological clerk of works. Monitoring and feedback on water quality, channel morphology and ecology should be undertaken during and after construction.

7.1.5. Further investigation is required in order to investigate potential contaminated land within the old railway embankment. Condition 12 of the approved planning application (RR/2014/1608/PP) requires the Scheme to demonstrate that any potential contamination risk has been investigated and that an appropriate assessment is undertaken. Should contamination be confirmed, appropriate remediation methods will need to be undertaken during construction to ensure there is no leaching of contaminants and no resulting impact on surface or groundwater bodies. Condition 12 requires a remediation strategy to be produced if any contamination pathway is found. The work to dismiss Condition 12 This should be considered as part of the detailed WFD assessment.

7.1.6. Detailed, finalised design with exact locations and construction methodology plans are required to complete a further detailed WFD assessment. However, provided that the suggested mitigation measures outlined within this report are implemented within the final design this screening assessment suggests that the proposed scheme is unlikely to cause a significant detrimental impact on either the River Rother or the Kent Weald Eastern-Rother groundwater body.

Appendix 1
Baseline Data

River R29- Lower Rother from Etchingham to Scotts Float

https://environment.data.gov.uk/catchment-planning/WaterBody/GB107040013640

Groundwater G9-Kent Weald Eastern-Rother

https://environment.data.gov.uk/catchment-planning/WaterBody/GB40702G502200

Environment Agency Fish Survey

Kent and East Sussex Fisheries Report for Salehurst and Bodiam with an update for Summer 2013

Appendix 2
Drawings

Draft 2013 WFD Assessment Included:

J.C. White Geomatics Limited

Title Plans Drawing Number Plan B1, B2, B3, B4 and B5

Halcrow-Underbridge 6 and 12.

RVR-UB6-001 Rother Bridge Site Plan

RVR-UB6-002 Rother Bridge No.6 (BR2377) Deck General Arrangement Ex Cow Lane 12'0" wide

RVR-UB12-001 Mill Stream Site Plan

RVR-UB12-002 Rother Bridge No.12 (BR2375) Deck General Arrangement Ex Cow Lane 12' 6" wide

Alan Hayworth

Bridge 7, 15, 18 & 23, 0.75 Diameter Pipe Culverts

Bridge 8, 9, 10, 11 & 14, 5m Wide Box Culverts

Bridge 13 & 22 Pipe Embankments

Bridge 16-Superstructure Ex-Staplehurst

Bridge 17-Superstructure Ex-Staplehurst, 2-spans

Bridge 19, 20, 21 & 25, 3m Width Box Culverts

Bridge 24-Superstructure Ex-Staplehurst

Final 2021 WFD Update Includes:

J.C. White Geomatics Limited

Title Plans Drawing Number Plan Sheet 1 to Sheet 8 Dated July 2017

Elevations Drawing No: RVR-S-001, RVR-S-002, RVR-S-003 dated 12/02/2018

Appendix 3
Glossary

CEMP	Construction Environmental Management Plan
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EIA	Environmental Impact Assessment
ES	Environmental Statement
EU	European Union
GEP	Good Ecological Potential
GES	Good Ecological Status
HMWB	Heavily Modified Water Body
RBD	River Basin District
RBMP	River Basin Management Plan
SEPA	Scottish Environment Protection Agency
SuDS	Sustainable (urban) drainage system
WFD	Water Framework Directive
WFDA	Water Framework Directive Assessment

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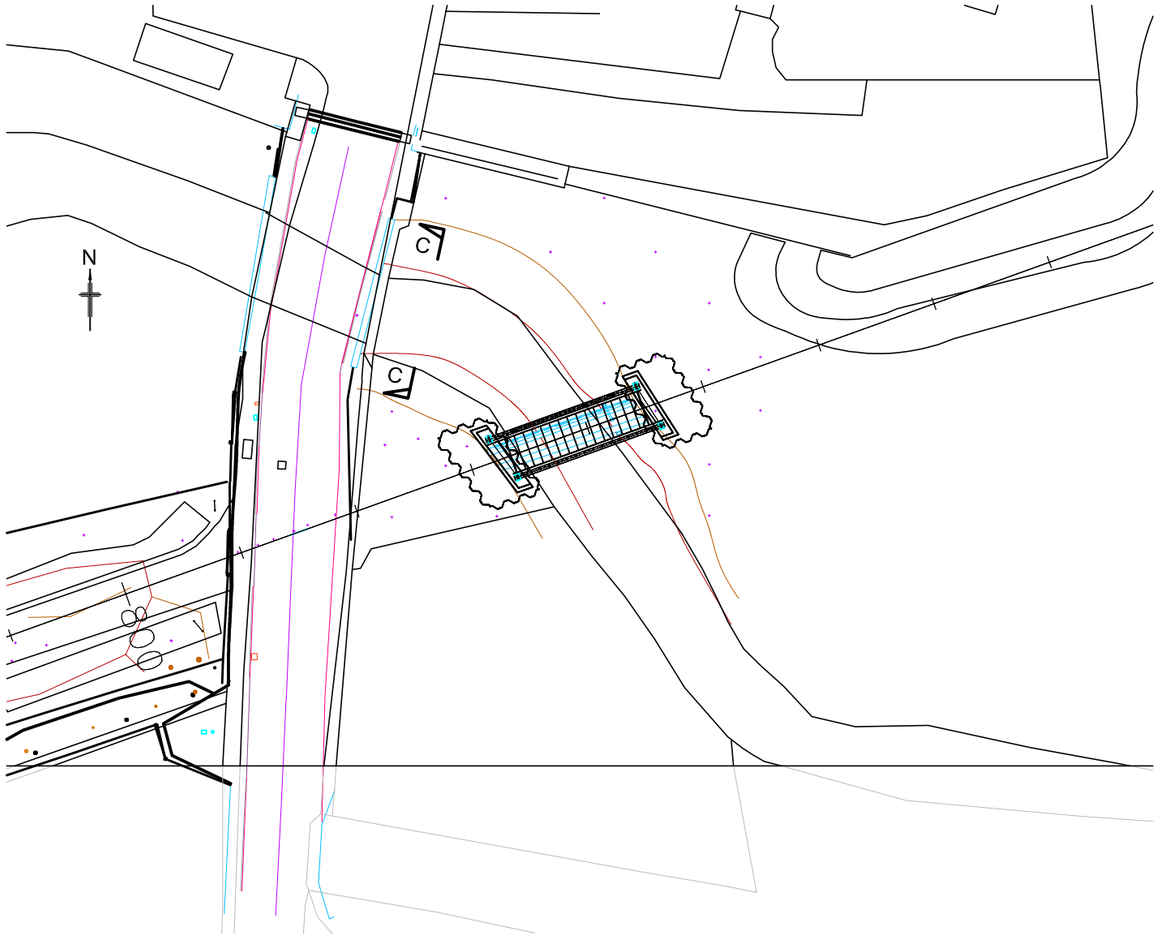
PLANNING & SUSTAINABILITY.



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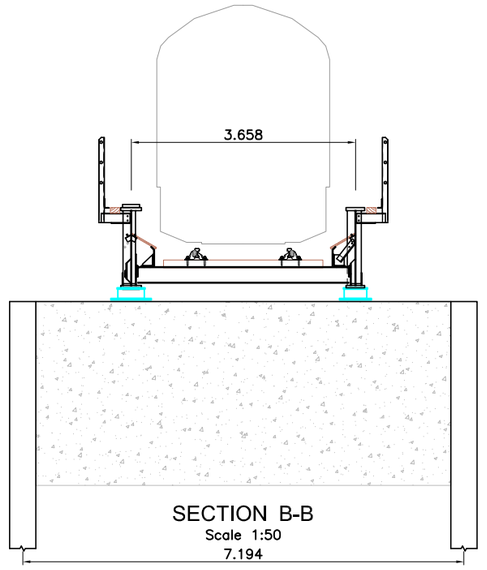

SECTION B-B
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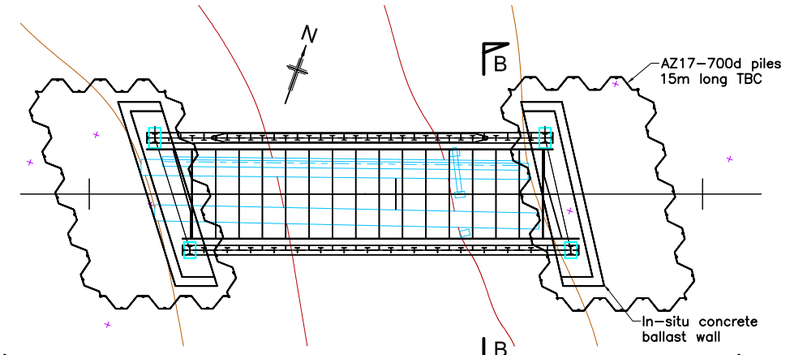
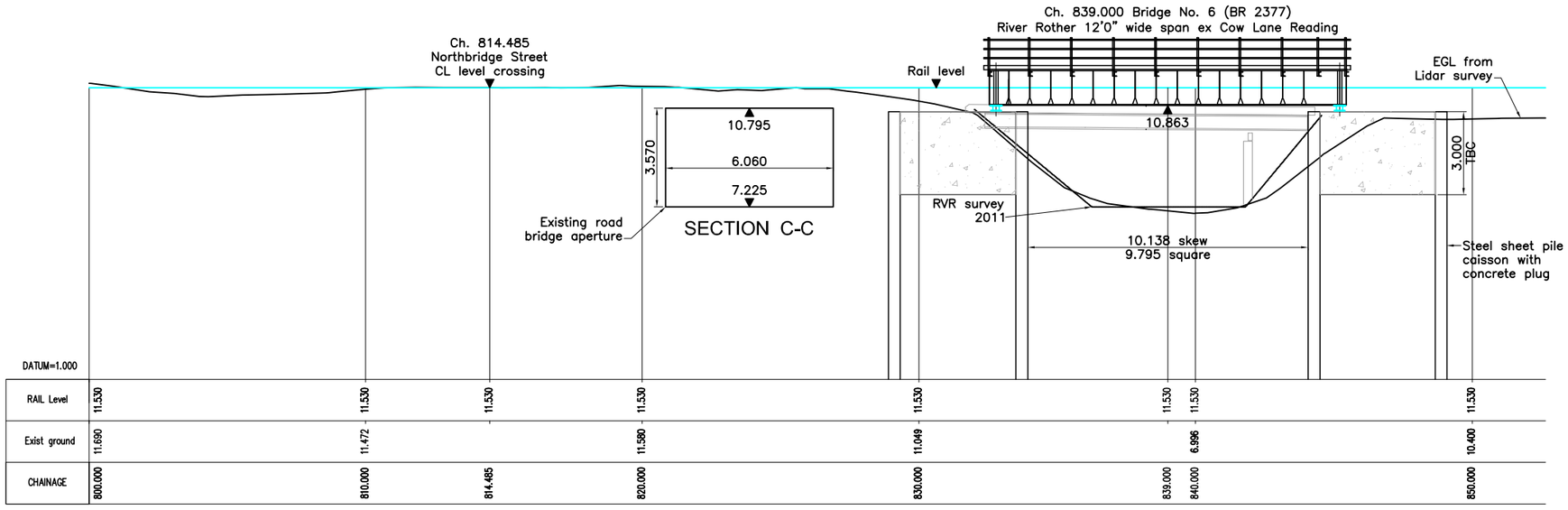


BRIDGE PLAN
Scale 1:100



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Exist ground	11.690	11.472		11.580	11.049		6.996	10.400
CHAINAGE	800.000	810.000	814.485	820.000	830.000	839.000	840.000	850.000

LONGITUDINAL PROFILE & ELEVATION A-A
Scale 1:100

NOTES

1 Imperial measurements are exact and take precedence over metric.

2 .

1:250 5 0 5 10m

1:100 2 1 0 2 4m

1:50 1 0 1 2m

Revision	By	Checked	Approved	Date	Description

Client
Rother Valley Railway Ltd
Rother Valley Railway Station, Robertsbridge, East Sussex, TN32 5DG
Tel 01580 881833
www.rvr.org.uk

Halcrow Transportation Infrastructure
Burderop Park Swindon Wiltshire SN4 0QD
Tel 01793 812479 Fax 01793 812089
www.halcrow.com

Project
ROTHER VALLEY RAILWAY

Drawing
RIVER ROTHER BRIDGE
SITE PLAN

Drawn by JCS	Date: 10/10/13
Checked by -	Date: -
Authorised by -	Date: -

Drawing No. **RVR - UB6 - 001** Revision **-**

Drawing Scale: 1:25, 12.5 at A1

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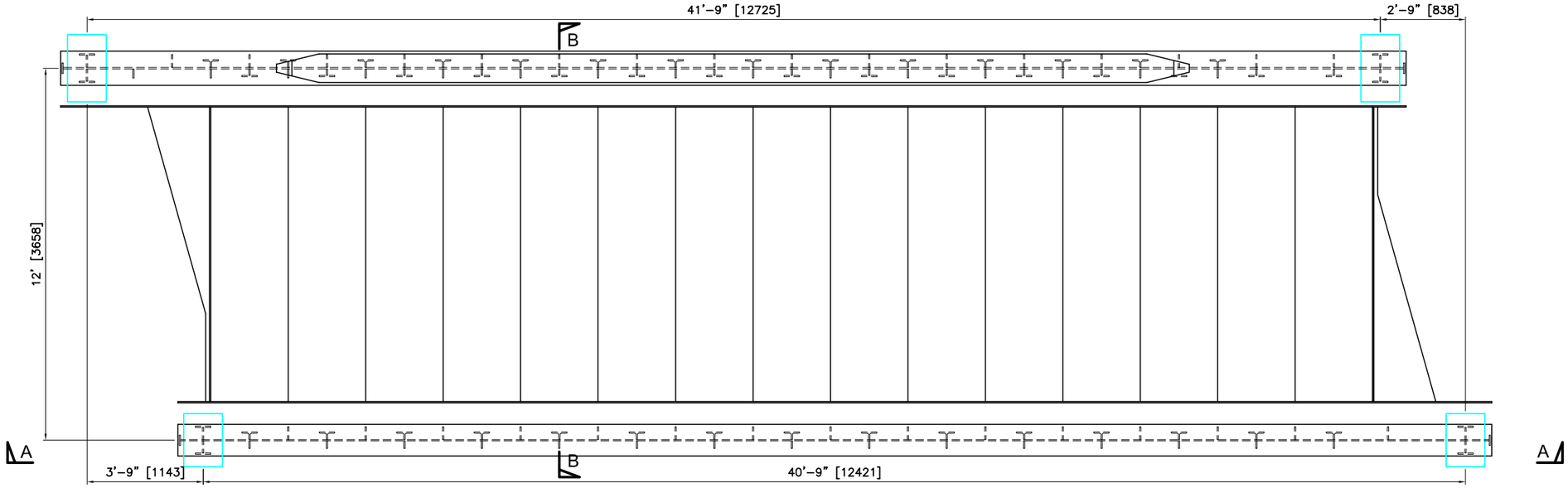
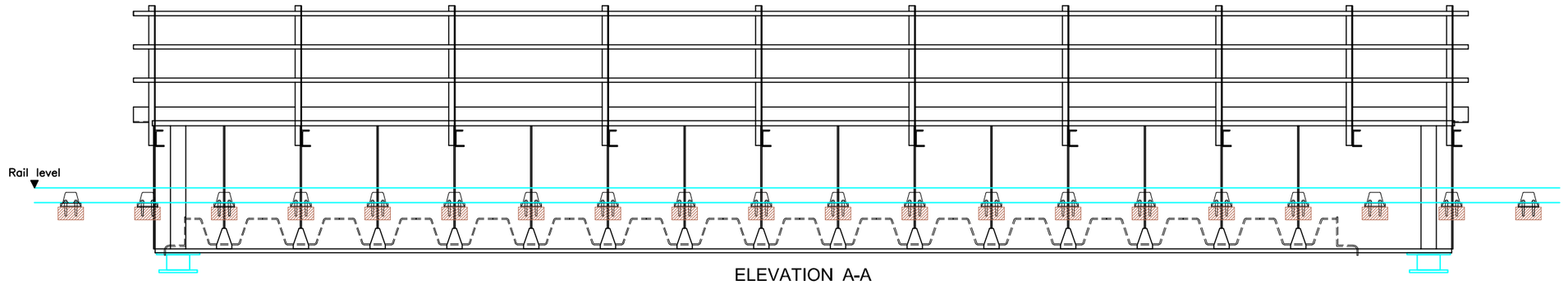
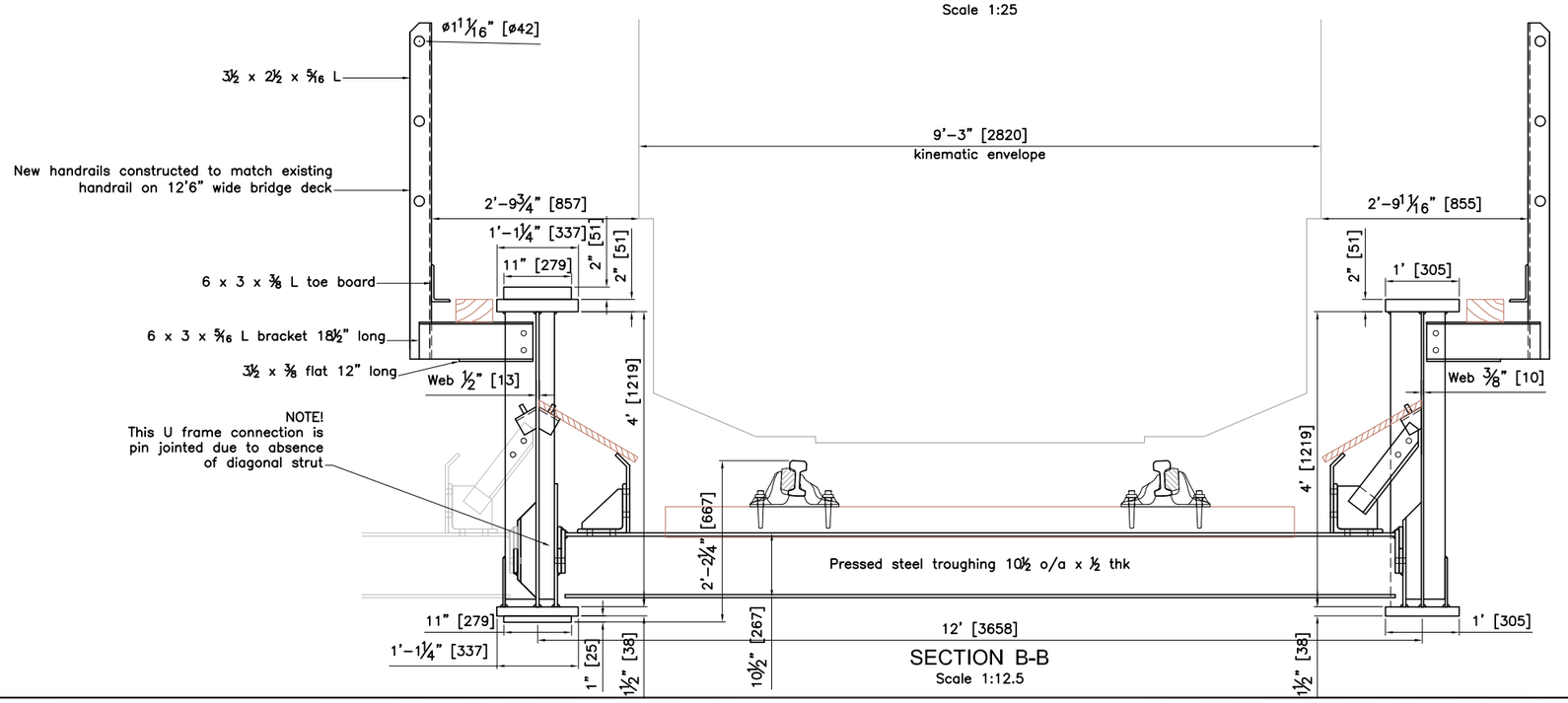
PLOT DATE = 10/10/13



PLAN ON BRIDGE 12' 0" WIDE
Scale 1:25



ELEVATION A-A
Scale 1:25



SECTION B-B
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NOTES

1 Imperial measurements are exact and take precedence over metric.

2 .

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1:25
0.25 0 0.25 0.5m
1:12.5

Revision	By	Checked	Approved	Date	Description

Client
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Rother Valley Railway

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Halcrow

Project

ROTHER VALLEY RAILWAY

Drawing

ROTHER BRIDGE No.6 (BR 2377)
DECK GENERAL ARRANGEMENT
EX COW LANE 12' 0" WIDE

Drawn by JCS	Date: 10/10/13
Checked by -	Date: -
Authorised by -	Date: -

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User and Plot Date : SreevesJC ; 8 Oct 2013 – 6:48 am

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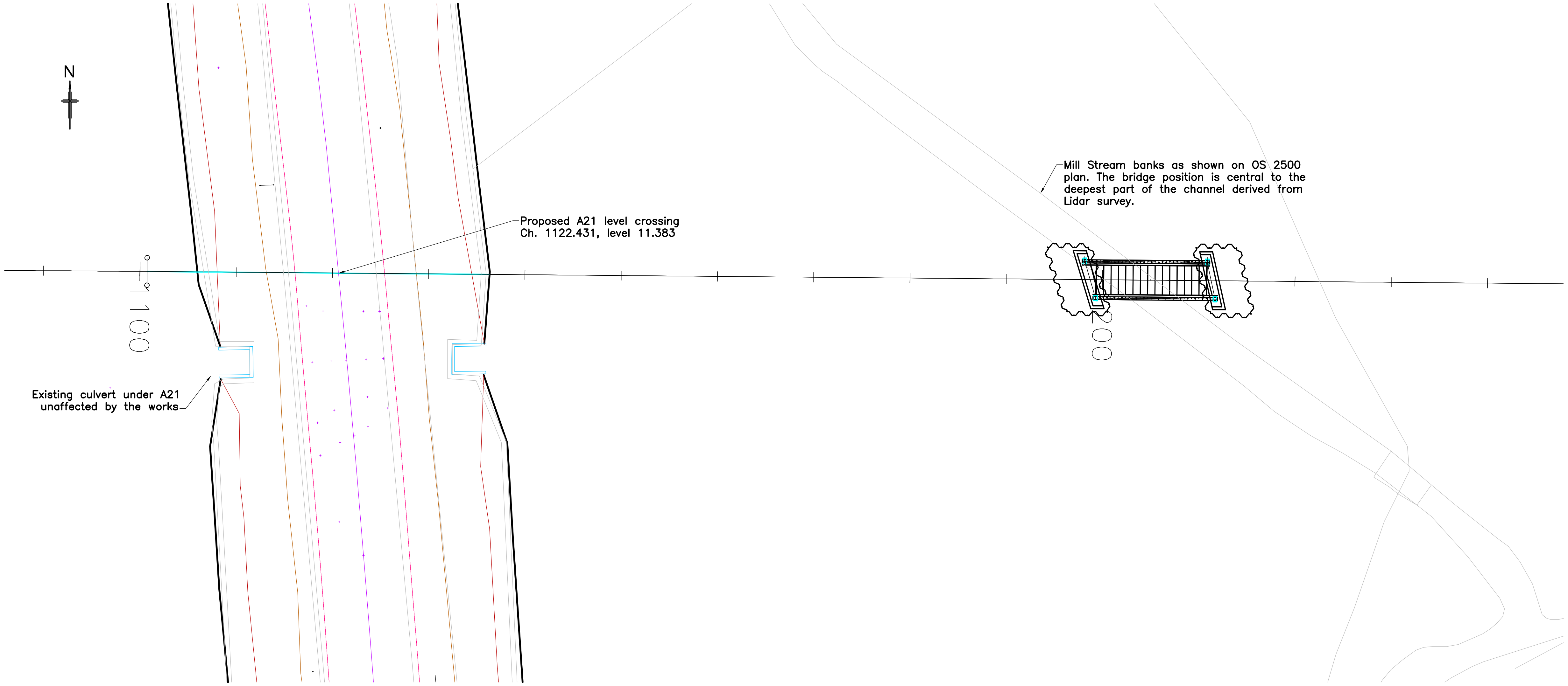

SITE PLAN
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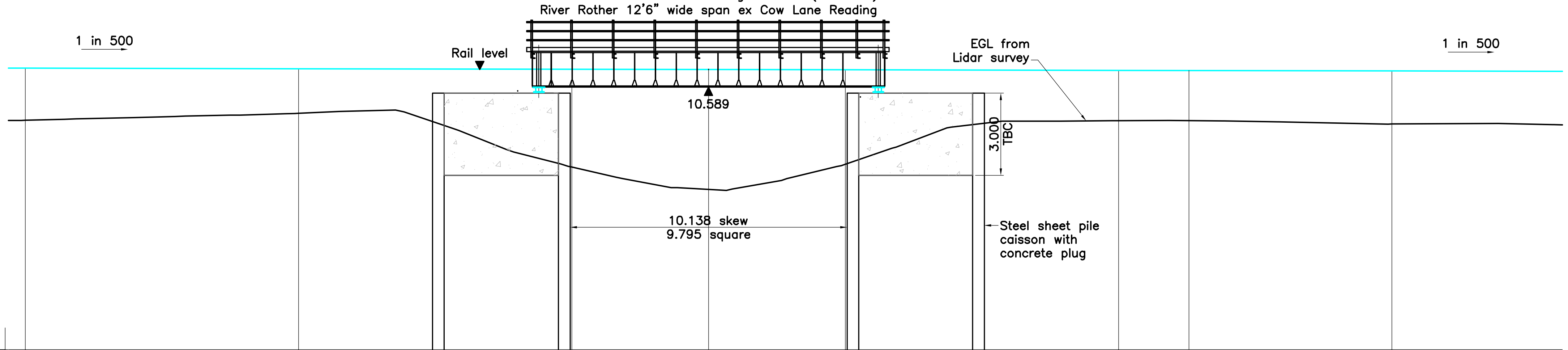

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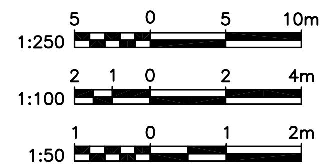
Exist ground	9.374	9.631	7.666		7.769	9.358		9.239
CHAINAGE	1180.000	1190.000	1200.000	1205.000	1210.000	1220.000	1222.573	1230.000

LONGITUDINAL PROFILE & ELEVATION A-A
Scale 1:100

NOTES
1 Imperial measurements are exact and take precedence over metric.

2 .



Revision	By	Checked	Approved	Date	Description

Client
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www.rvr.org.uk

Halcrow Transportation Infrastructure
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Tel 01793 812479 Fax 01793 812089
www.halcrow.com

Project
ROTHER VALLEY RAILWAY

Drawing
MILL STREAM BRIDGE
SITE PLAN

Drawn by JCS — Date: 10/10/13
Checked by - — Date: -
Authorised by - — Date: -

Drawing No. RVR - UB12 - 001 — Revision -

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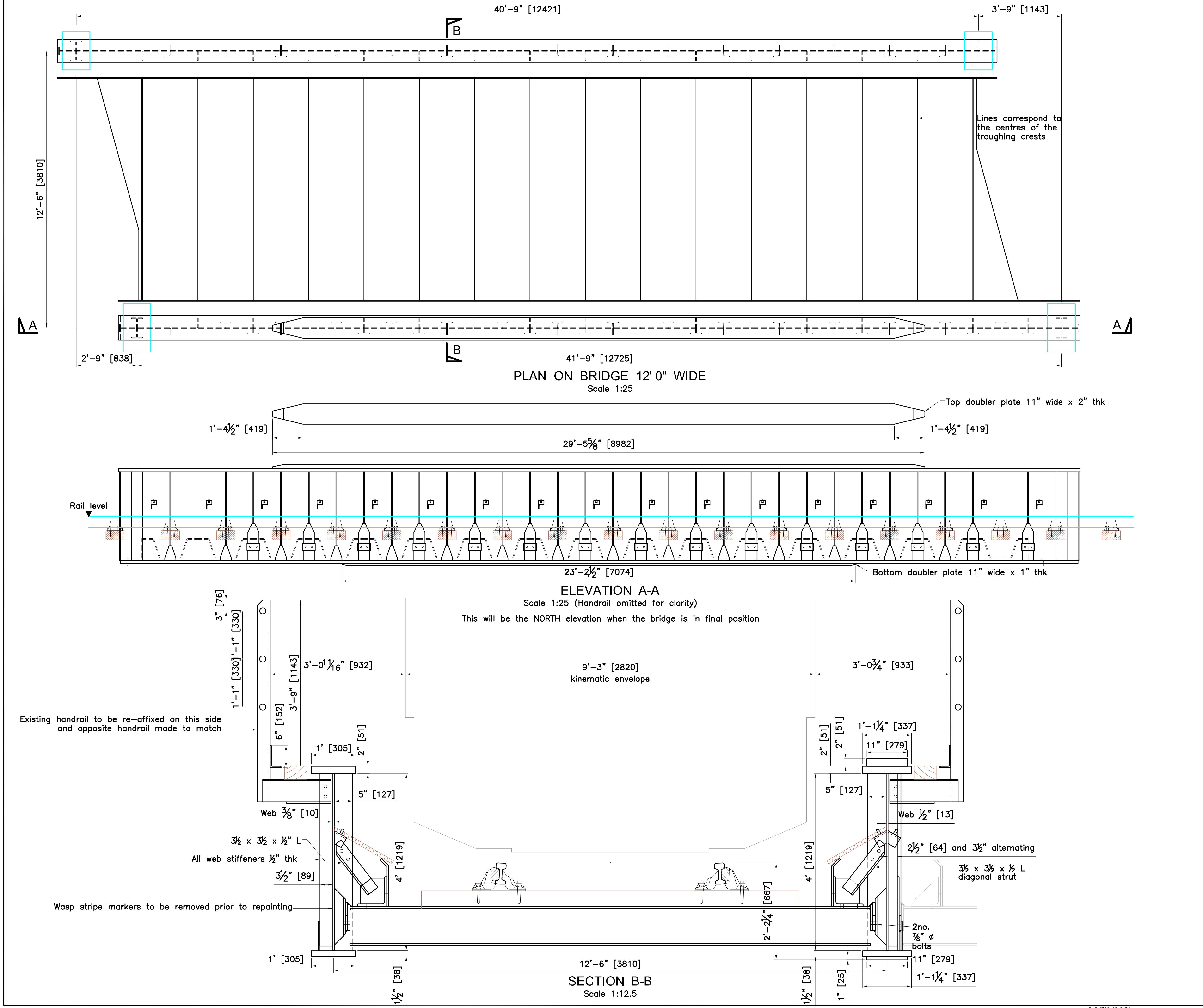

NOTES

1 Imperial measurements are exact and take precedence over metric.

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Revision	By	Checked	Approved	Date	Description

Client
Rother Valley Railway
Rother Valley Railway Ltd
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Halcrow

Project
ROTHER VALLEY RAILWAY

Drawing
MILL STREAM NO. 12 (BR 2375)
DECK GENERAL ARRANGEMENT
EX COW LANE 12' 6" WIDE

Drawn by JCS Date: 10/10/13
Checked by - Date: -
Authorised by - Date: -

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Revision -

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PLOT DATE = 10/10/13

NOT FOR CONSTRUCTION

Contract No.	Sheet No. B1	Rev.

ALAN HAYWARD
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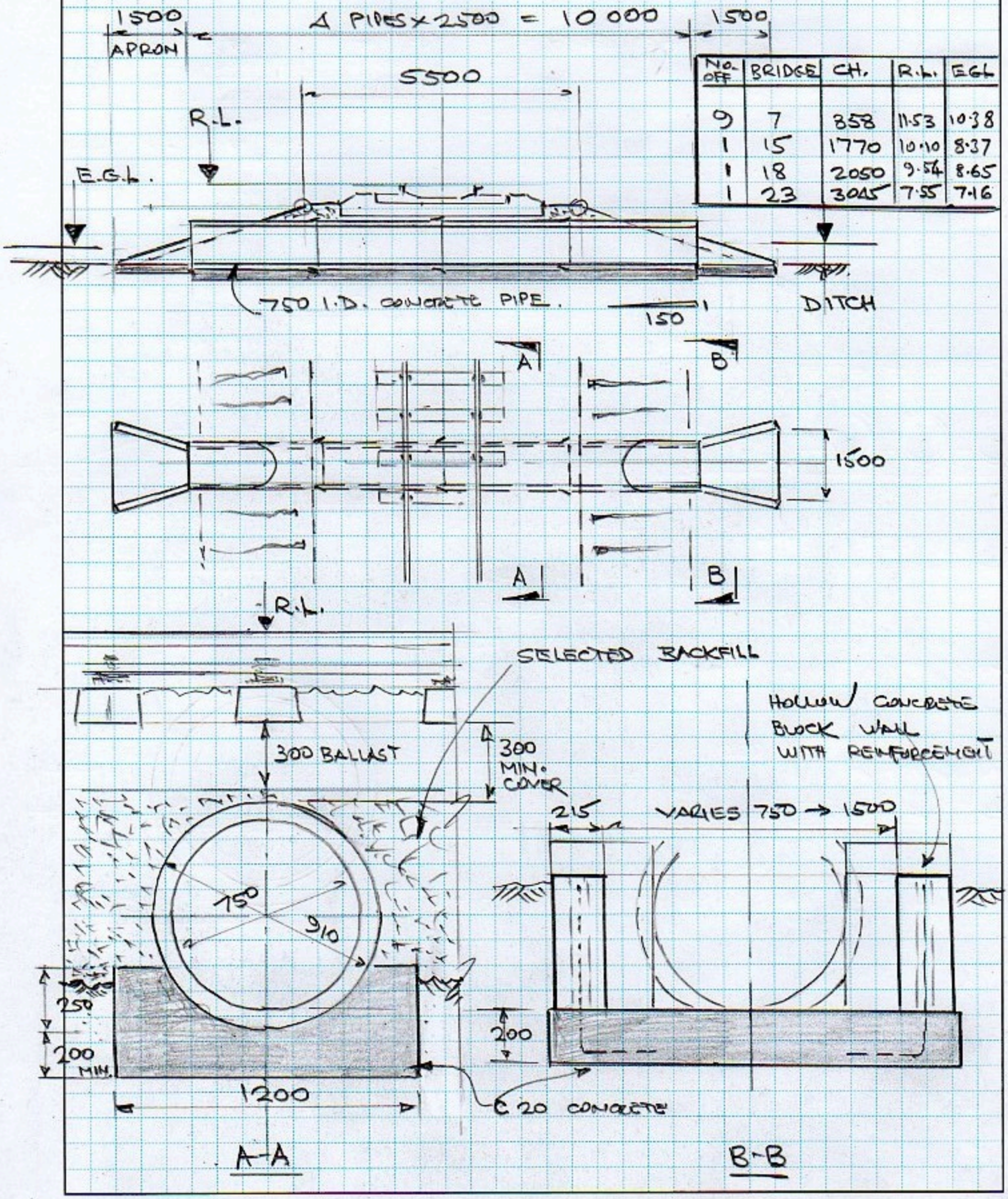
Client ROTHER VALLEY RAILWAY

Project PRELIMINARY BRIDGE DESIGNS

BRIDGES 7, 15, 18 & 23
0.75m DIA. PIPE CULVERTS

By: ACGH | Date: 6 SEPT. 2013



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1	18	2050	9.54	8.65
1	23	3045	7.55	7.16

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Contract No.	Sheet No. B2	Rev.

ALAN HAYWARD
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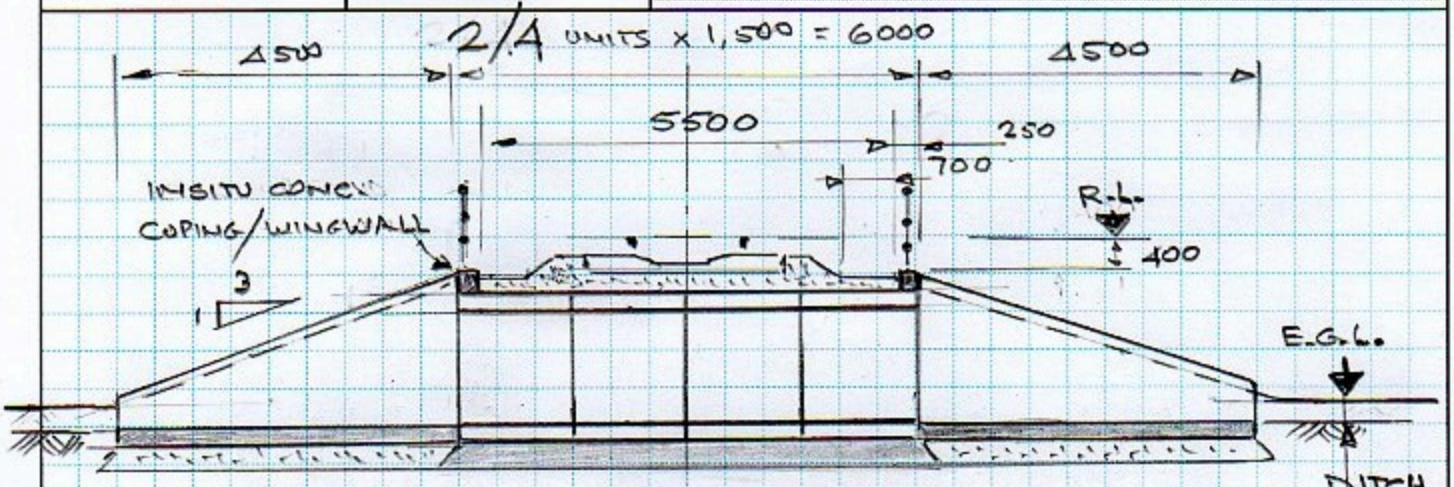
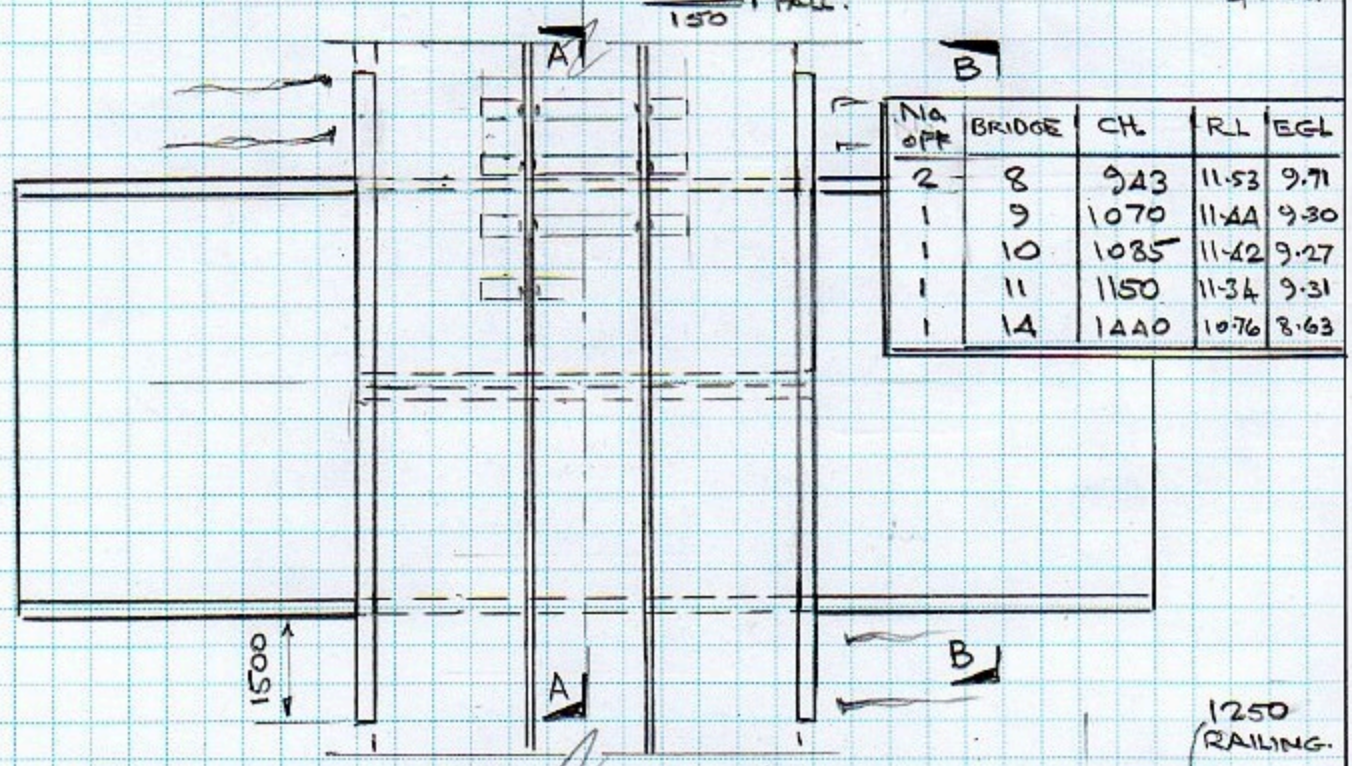
Client ROTHER VALLEY RAILWAY.

Project PRELIMINARY BRIDGE DESIGNS

BRIDGES 8, 9, 10, 11 & 14
5m WIDTH BOX CULVERTS

By: ACGH | Date: 8 SEPT 2013





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1	10	1085	11.42	9.27
1	11	1150	11.34	9.31
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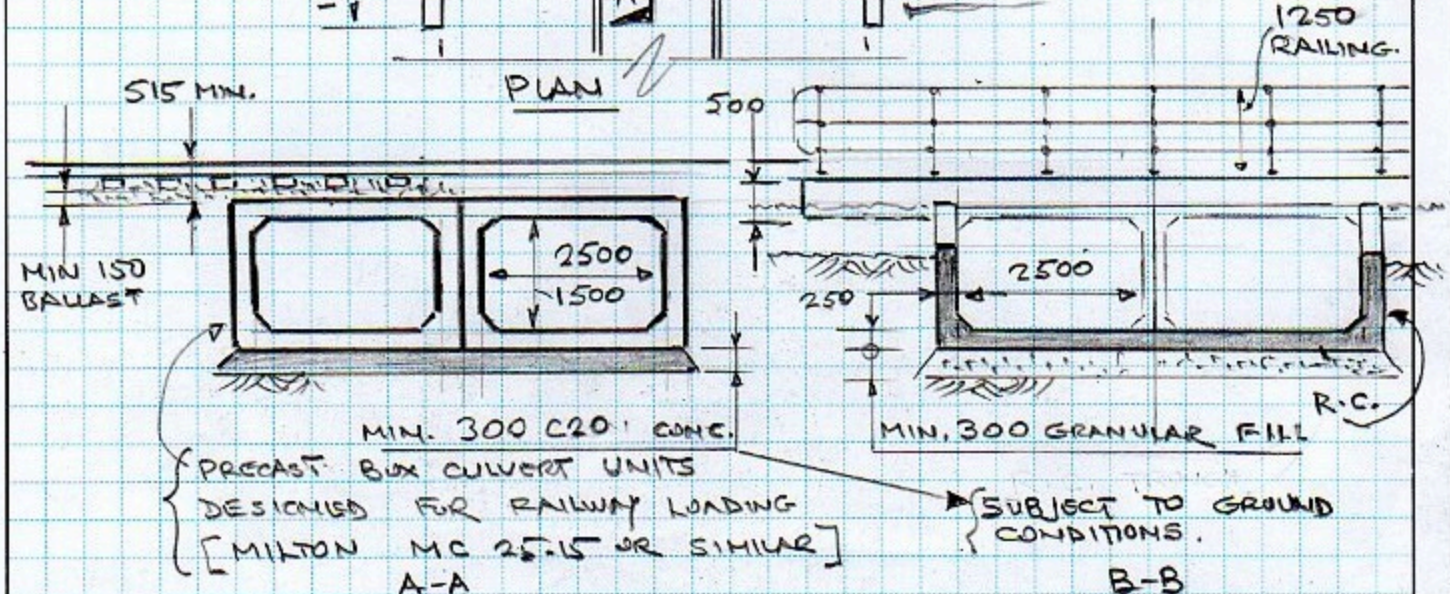

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Contract No.	Sheet No. B3	Rev.

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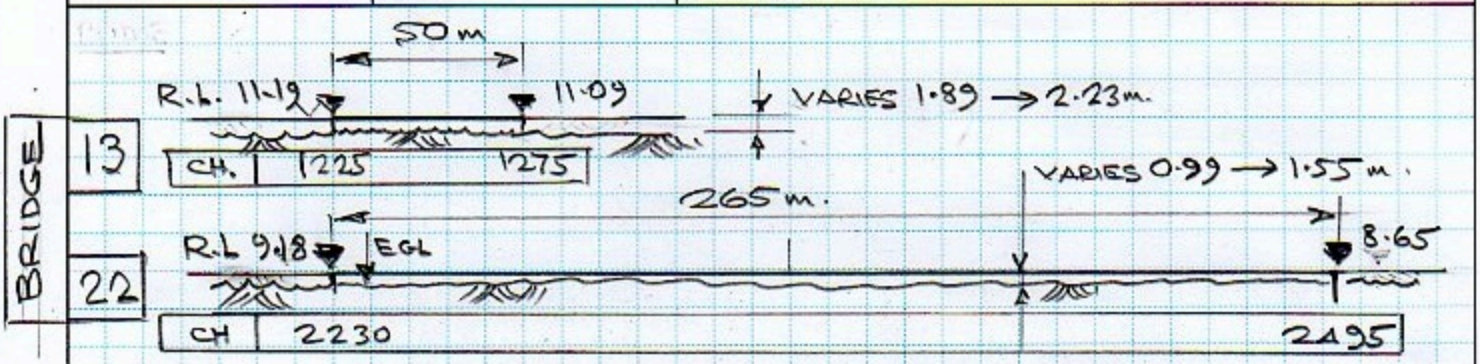
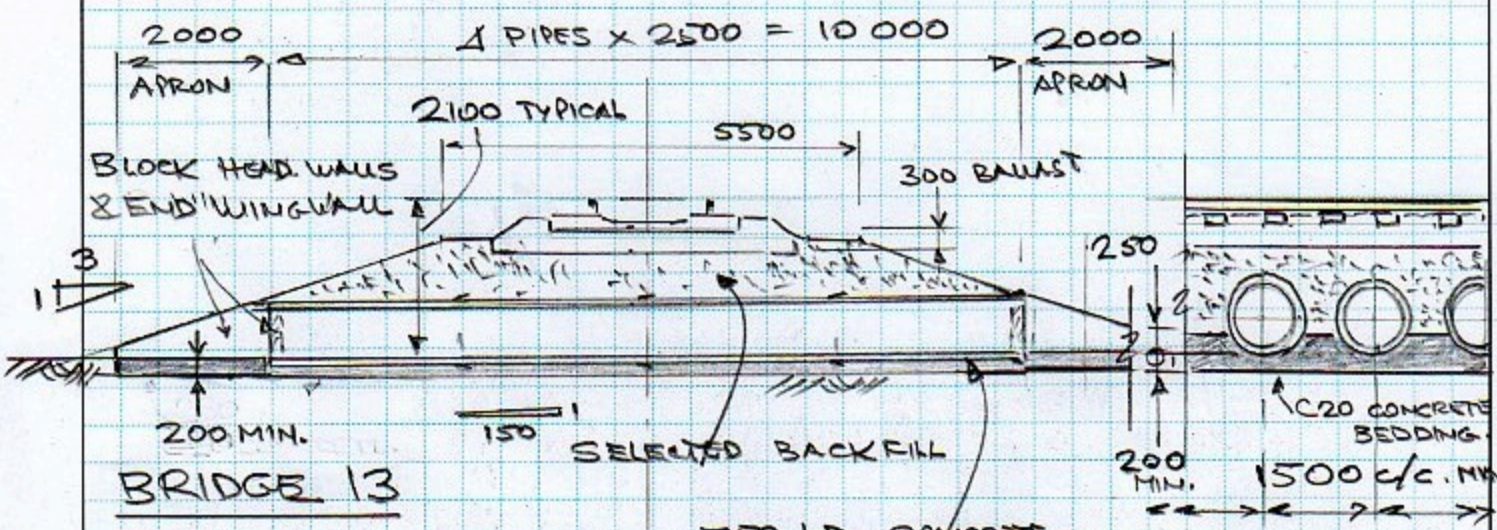
Client ROTHER VALLEY RAILWAY

Project PRELIMINARY BRIDGE DESIGNS

BRIDGES 13 & 22
PIPE EMBANKMENTS

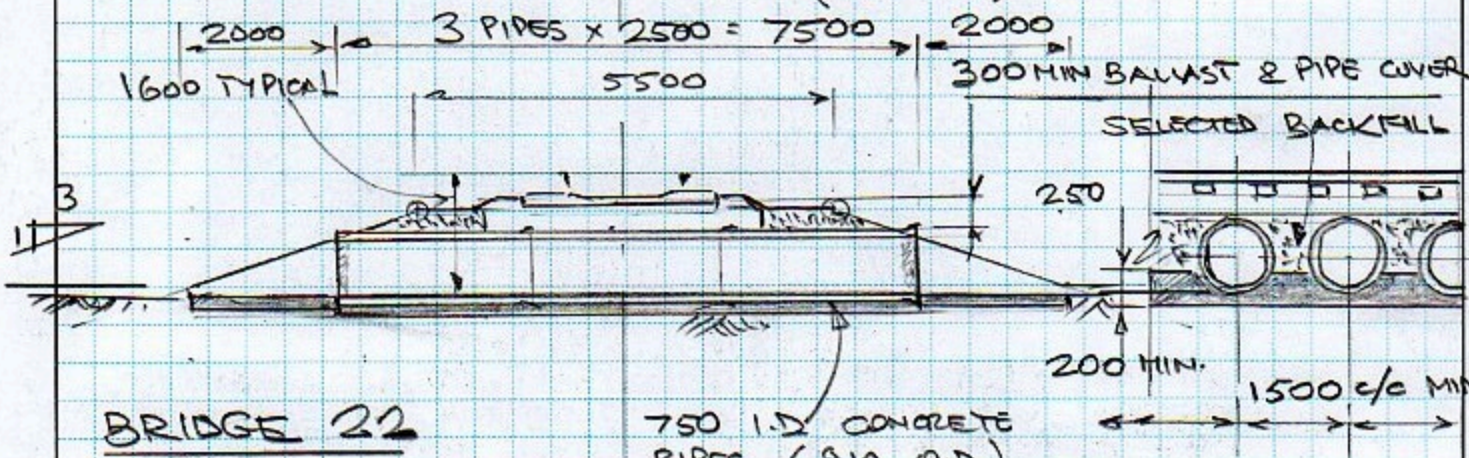
By: ACGH | Date: 8 SEPT. 2013





BRIDGE 13

750 I.D. CONCRETE PIPES (910 O.D.)



BRIDGE 22

750 I.D. CONCRETE PIPES (910 O.D.)

NOT FOR CONSTRUCTION

Contract No.	Sheet No. B4	Rev.

ALAN HAYWARD
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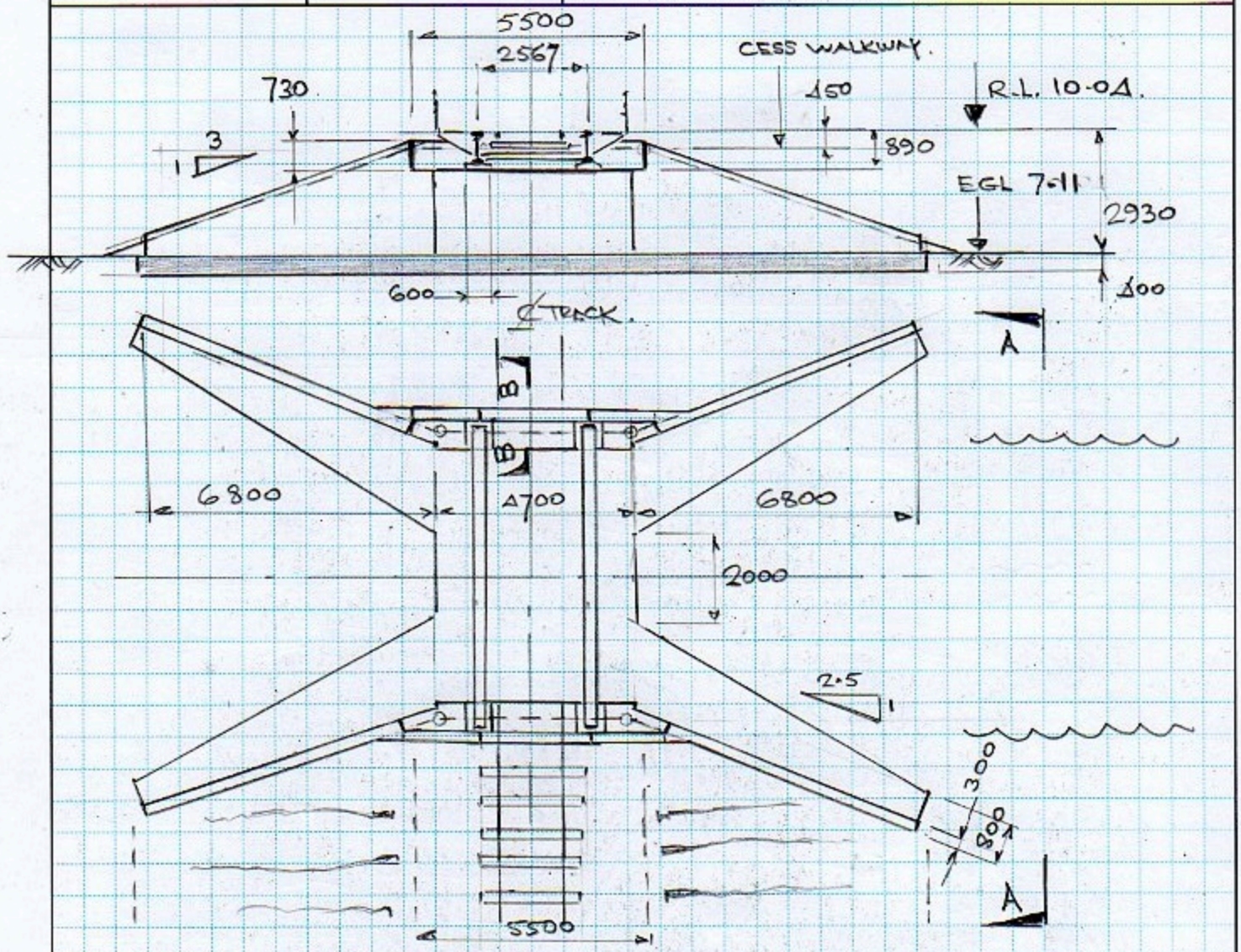
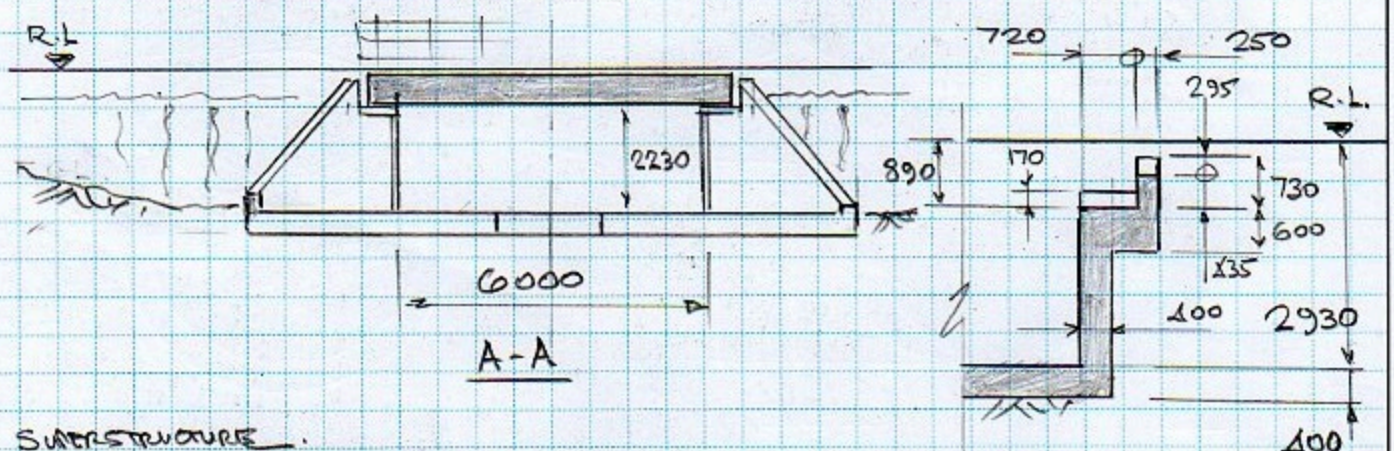
Client ROTHER VALLEY RAILWAY

Project PRELIMINARY BRIDGE DESIGNS

BRIDGE 16
- SUPERSTRUCTURE EX STAPLEHURST.

By: ACGH | Date: 8 SEPT 2013





SUPERSTRUCTURE.

EX STAPLEHURST STEEL SPAN TROUGH FLOOR INFILLED CONCRETE.
SHORT TIMBER SLEEPERS ON BALLAST.
REPLACEMENT WALKWAYS

NOT FOR CONSTRUCTION

Contract No.	Sheet No. B5	Rev.

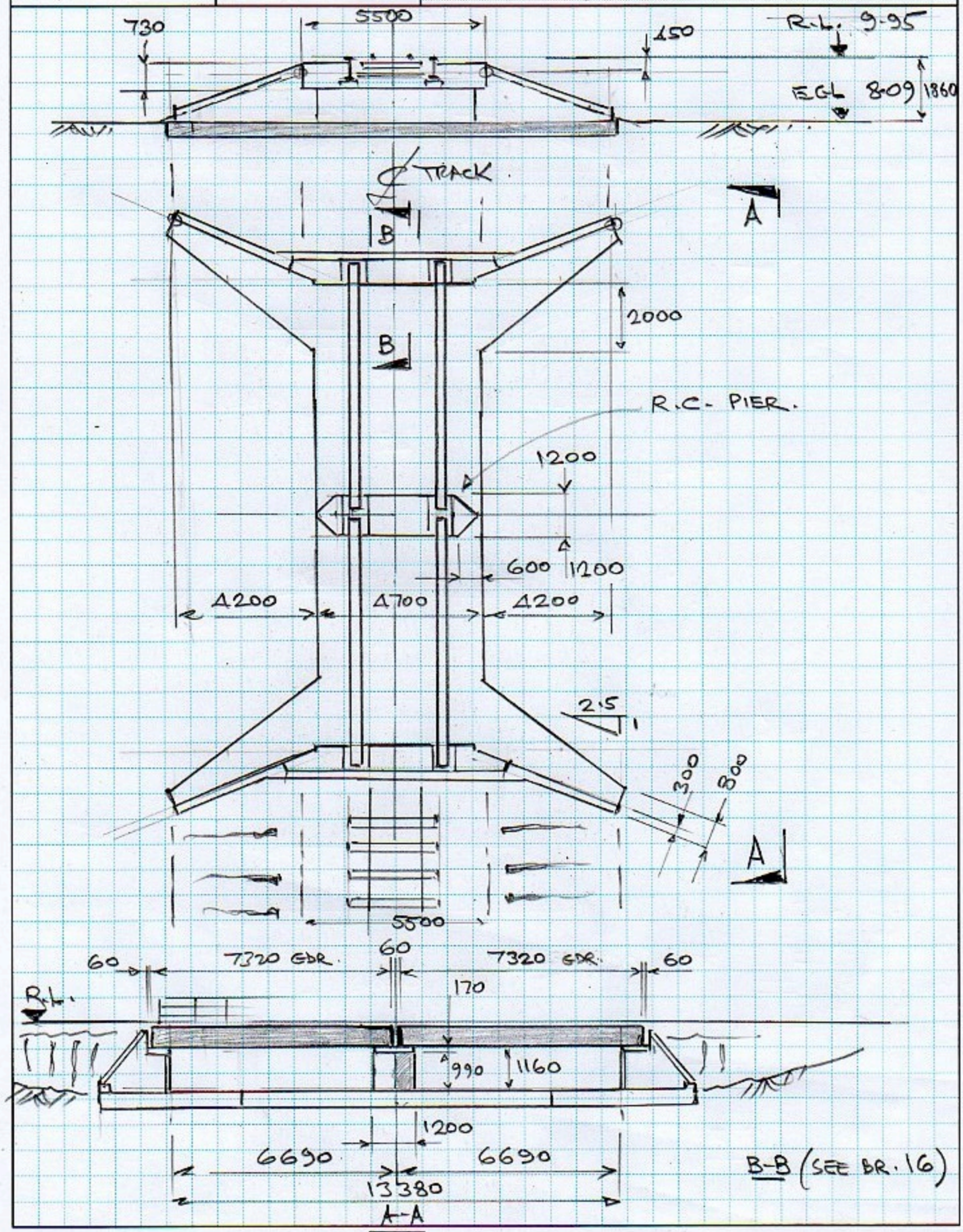
ALAN HAYWARD
FREng CEng FICE FIStructE

Client ROTHER VALLEY RAILWAY

Project PRELIMINARY BRIDGE DESIGNS

BRIDGE 17
SUPERSTRUCTURE EX STAPLEHURST
2-SPANS.

By: ACGH | Date: 8 SEPT 2013



NOT FOR CONSTRUCTION

Contract No.	Sheet No. B6	Rev.

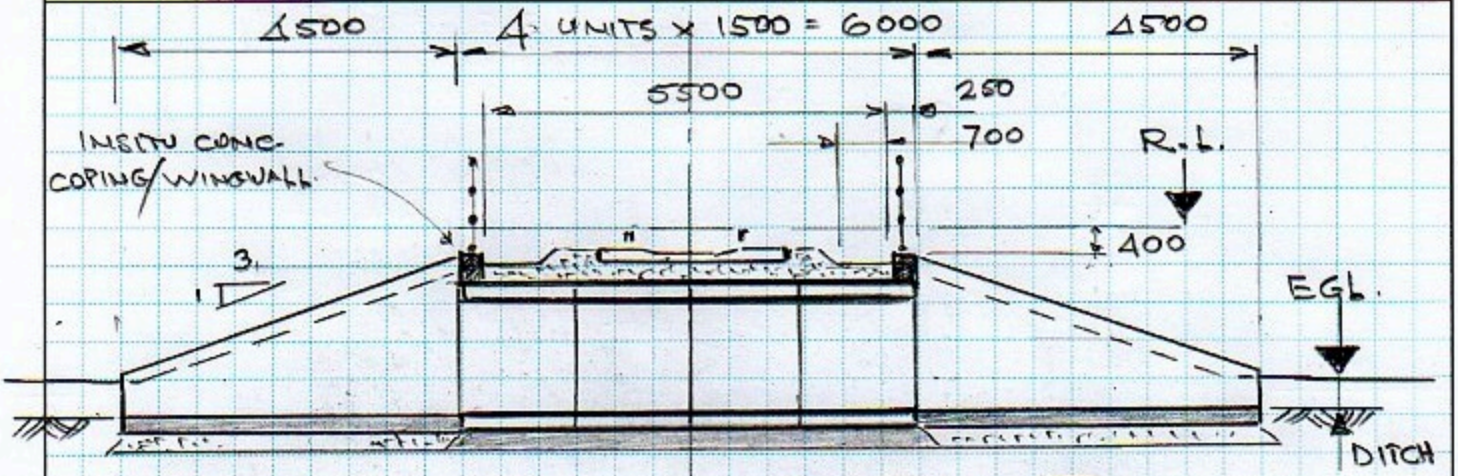
ALAN HAYWARD
FREng CEng FICE FIStructE

Client ROTHER VALLEY RAILWAY

Project PRELIMINARY BRIDGE DESIGNS

BRIDGES 19, 20, 21 & 25
3m WIDTH BOX CULVERTS

By: ACGH | Date: 8 SEPT. 2013



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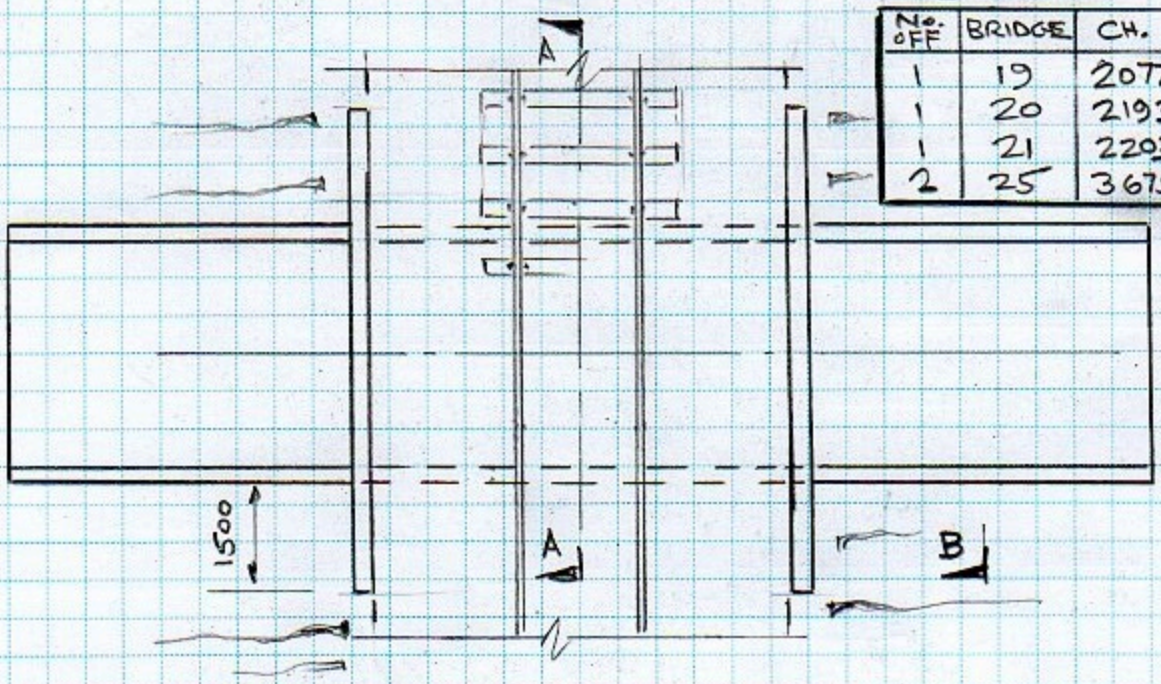

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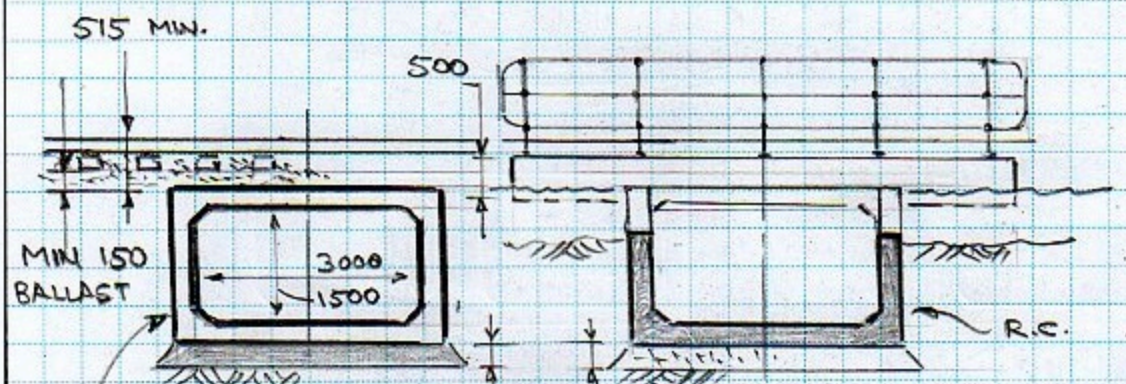
1	20	2193	9.26	7.30
1	21	2203	9.24	7.22
2	25	3675	5.67	6.55



PRECAST BOX CULVERT UNITS DESIGNED FOR RAILWAY LOADING [MILTON MC 30.15A OR SIMILAR]

SUBJECT TO GROUND CONDITIONS

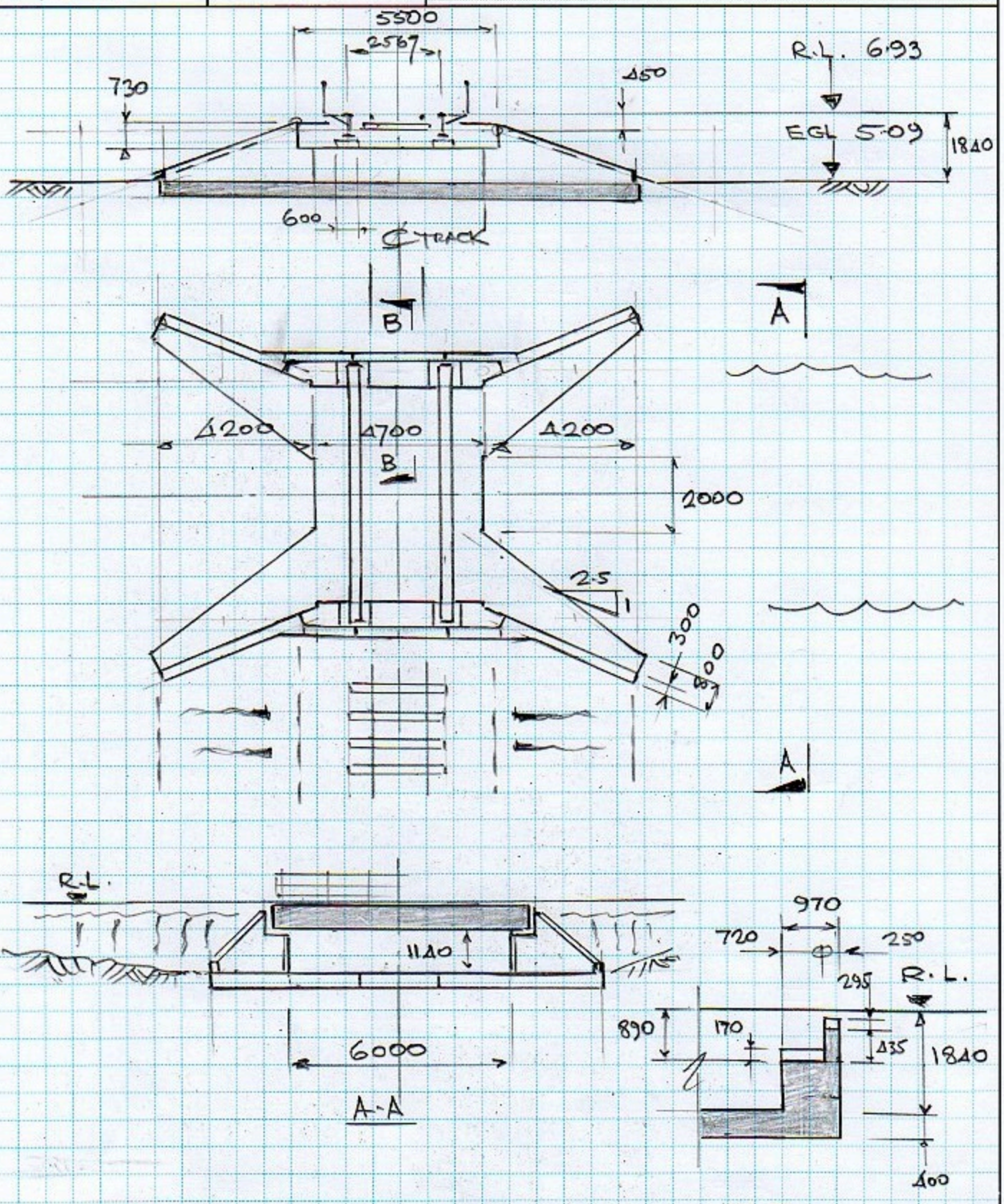
A-A

B-B

NOT FOR CONSTRUCTION

ALAN HAYWARD
FREng CEng FICE FIStructE

Contract No.	Sheet No. B7	Rev.
Client ROTHER VALLEY RAILWAY		
Project PRELIMINARY BRIDGE DESIGNS.		
BRIDGE 24 – SUPERSTRUCTURE EX STAPLEHURST		
By: ACGH	Date: 8 SEPT 2013	




Rother Valley Railway
LIMITED
The Rother
Valley Railway
Past, Present
& Future

DEPARTMENT FOR TRANSPORT

TRANSPORT AND WORKS ACT 1992

Rother Valley (Bodiam to Robertsbridge Junction) Order

DEPOSITED PLANS AND SECTIONS

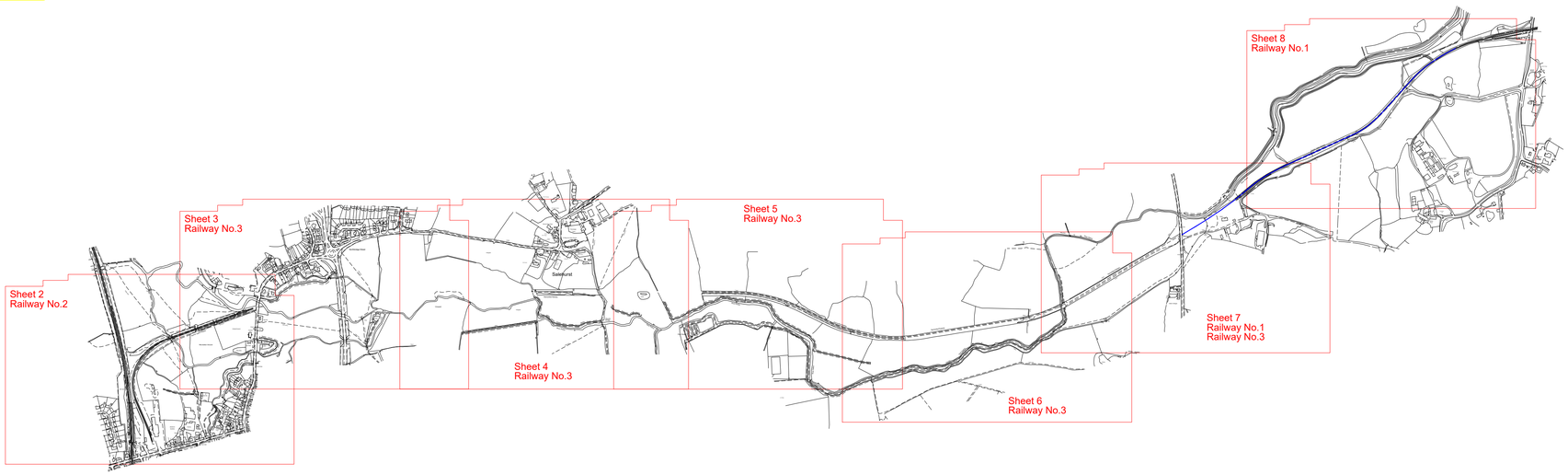
Rother Valley Railway Ltd Robertsbridge Junction Station Station road Robertsbridge East Sussex TN32 5DG Applicant			Winckworth Sherwood LLP Minerva House 5 Montague Close London SE1 9BB Solicitors and Parliamentary Agents

ORIGINAL SHEET SIZE A1

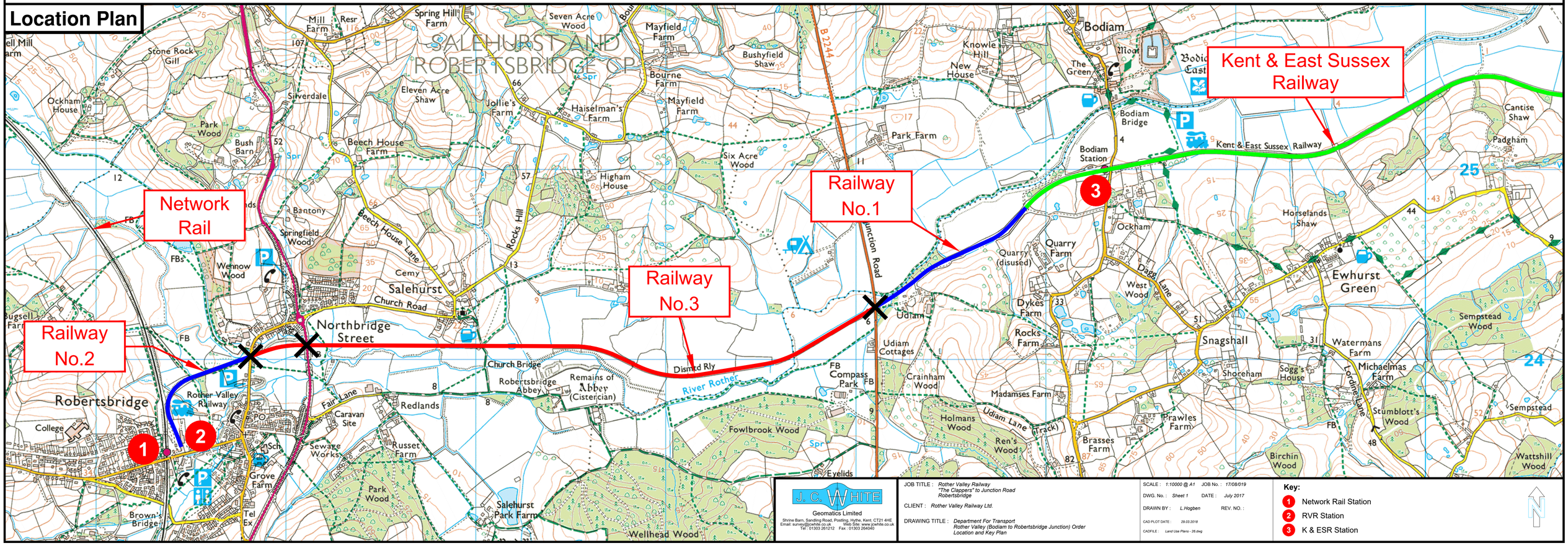
COUNTY OF EAST SUSSEX
DISTRICT OF ROTHER

SHEET 1

Key Plan



Location Plan



J. C. WHITE Geomatics Limited	JOB TITLE : *Rother Valley Railway "The Clappers" to Junction Road Robertsbridge*
Shrine Barn, Sandling Road, Postling, Hythe, Kent, CT21 4HE. Email: survey@jcwhite.co.uk Web Site: www.jcwhite.co.uk Tel : 01303 261212 Fax : 01303 264040	CLIENT : *Rother Valley Railway Ltd.*
	DRAWING TITLE : *Department For Transport Rother Valley (Bodiam to Robertsbridge Junction) Order Location and Key Plan*

SCALE : *1:10000 @ A1*	JOB No. : *17/08/019*	**Key:**	
DWG. No. : *Sheet 1*	DATE : *July 2017*	1	Network Rail Station
DRAWN BY : *L.Hogben*	REV. NO. :	2	RVR Station
CAD PLOT DATE : *29.03.2018*		3	K & ESR Station
CADFILE : *Land Use Plans - 25.dwg*			

ORIGINAL SHEET SIZE A1

COUNTY OF EAST SUSSEX
DISTRICT OF ROTHER

SHEET 2

Railway No.2

124000mN

123800mN

123600mN

573600mE 573800mE 574000mE 574200mE 574400mE

MP 49.25 SP

Path (um)

FB

Footpath S&R 16a

Drain

Weir

SI

El Sub Sta

T1

NORTHBRIDGE STREET

Aquarius

Swimming Pool

Flood Gate

River Rother

Termination of Railway No.2

0+800

11.5m

Commencement of Railway No.3

Ppg Sta

Path (um)

9.9m

Rother Valley Railway

0+600

Cricket Ground

Pond

Pavilion

Pond

Pond

0+400

Collects

Recreation Ground

Car Park

Play Area

T2

11.5m

Museum

Bridge Bungalow

Sheet 2

Sheet 3

Flood Gate

Drain

Path (um)

Footpath S&R 27

MP 49.5

Ponds

0+300

Commencement of Railway No.2

El Sub Sta

Pelham Walk

ABBEY MEWS

11.0m

Cut Line

14.3m

Allotment Gardens

Factory

Surgery

Car Park

FB

Robertsbridge Station

LB

TCB

SP

LC

17.2m

Lodge Farm

GLENLEIGH WALK

The Meadows

Brookside House

Ramblers

11.5m

STATION ROAD

Flood Gate

Comhill

Provident Cottage

Western Ho

BENNETTS YARD

Bakery Cott

Bakery Place

Warehouse Cottage

The Cottage

HIGH STREET

TCB

16.6m

GP

12.3m

DEPARTMENT FOR TRANSPORT

Rother Valley Railway (Bodiam to Robertsbridge Junction) Order

HIGHWAY TO BE STOPPED UP TEMPORARILY

Northbridge Street/The Clappers between points T1 and T2.

- CENTRE LINE OF WORK
- LIMIT OF DEVIATION
- LIMIT OF LAND TO BE ACQUIRED OR USED
- LIMIT OF LAND FOR SURVEY & INVESTIGATION (SHOWN HATCHED OR CROSS HATCHED)

X & Y — EXTENSION AND STRENGTHENING OF RIVER WALL BETWEEN POINTS X & Y

Notes:

The area enclosed by any limit of deviation or any land to be acquired or used is the area extending to the outer edge of the line marking those limits.

- GPS surveys
- volumetric surveys
- topographical surveys
- measured building surveys
- setting out
- boundary disputes
- engineering surveys
- deformation & settlement surveys

JOB TITLE : *Rother Valley Railway "The Clappers" to Junction Road Robertsbridge*

CLIENT : *Rother Valley Railway Ltd.*

DRAWING TITLE : *Plan*

SCALE : *1:1250* JOB No. : *17/08/019*

DWG. No. : *Sheet 2* DATE : *July 2017*

DRAWN BY : *L.Hogben* REV. NO. :

CAD DATE : *29.03.2018*

CADFILE : *Land Use Plans - 26.dwg*

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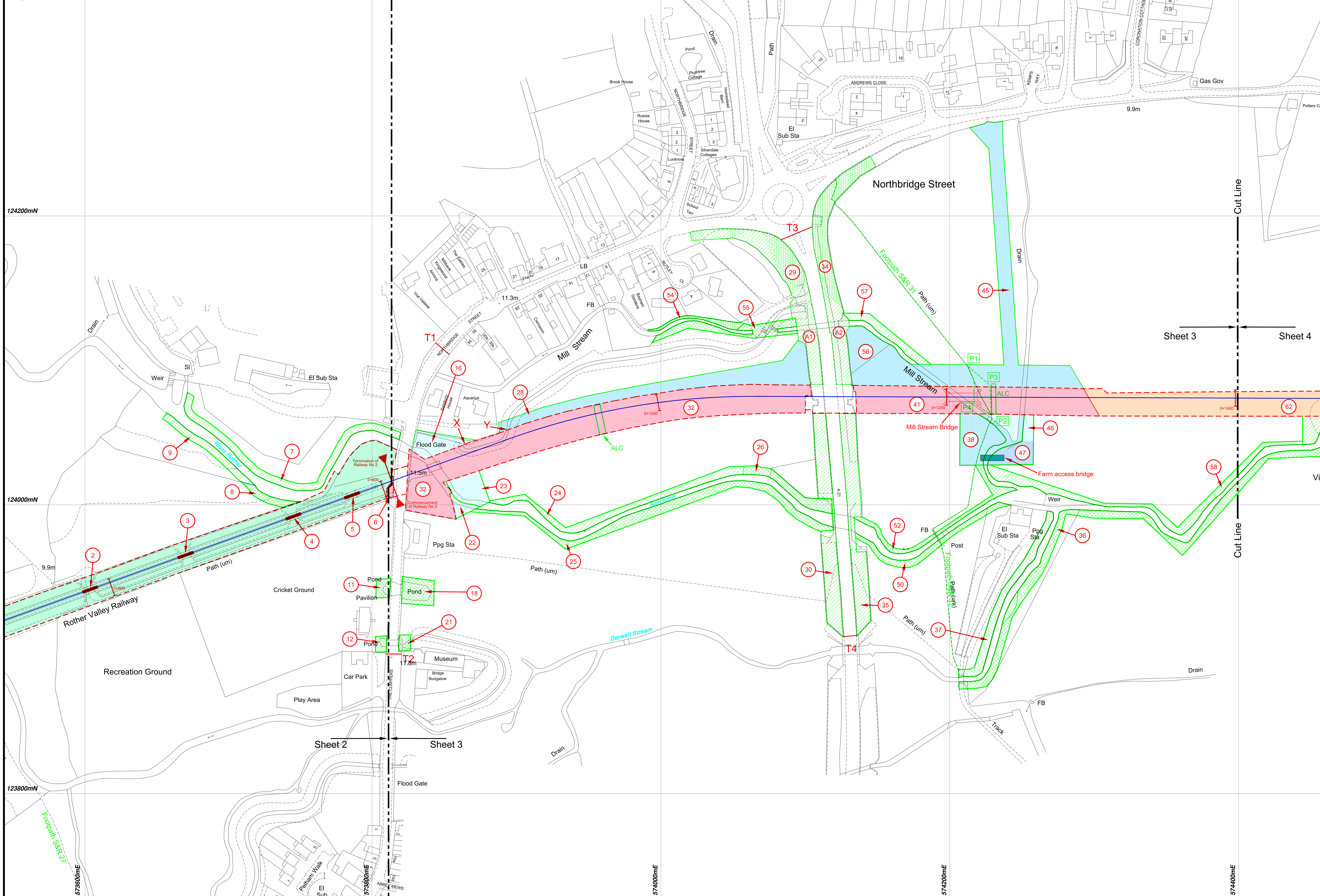
ORIGINAL SHEET SIZE A1

COUNTY OF EAST SUSSEX
DISTRICT OF ROTHER

SHEET 3
Railway No.3



DEPARTMENT FOR TRANSPORT
Rother Valley Railway (Bodiam to Robertsbridge Junction) Order
HIGHWAY TO BE STOPPED UP TEMPORARILY
Northbridge Street/The Clappers between points T1 and T2. A21 stopped up between points T3 and T4.
HIGHWAY TO BE STOPPED UP PERMANENTLY
Footpath S&R 31 to be permanently stopped up between points P1 and P2 and temporarily diverted between points P1, P3 and P2 and permanently diverted between points P1, P4 and P2.

- CENTRE LINE OF WORK
- LIMIT OF DEVIATION
- LIMIT OF LAND TO BE ACQUIRED OR USED
- LIMIT OF LAND FOR SURVEY & INVESTIGATION (SHOWN HATCHED OR CROSS HATCHED)
- A1 & A2 — NEW TEMPORARY ACCESS
- X & Y — EXTENSION AND STRENGTHENING OF RIVER WALL BETWEEN POINTS X & Y

Notes:

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- GPS surveys
- volumetric surveys
- topographical surveys
- measured building surveys
- setting out
- boundary disputes
- engineering surveys
- deformation & settlement surveys

JOB TITLE : Rother Valley Railway "The Clappers" to Junction Road Robertsbridge	SCALE : 1:1250	JOB No. : 17/08/019	
CLIENT : Rother Valley Railway Ltd.	DWG. No. : Sheet 3	DATE : July 2017	
	DRAWN BY : L.Hogben	REV. NO. :	
DRAWING TITLE : Plan	CAD DATE : 29.03.2018		
	CADFILE : Land Use Plans - 26.dwg		

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ORIGINAL SHEET SIZE A1

COUNTY OF EAST SUSSEX
DISTRICT OF ROTHER

SHEET 4
Railway No.3

124400mN
124200mN
124000mN
123800mN
574400mE
574600mE
574800mE
575000mE
575200mE

Cut Line
Sheet 3
Sheet 4
Sheet 5

CORONATION COTTAGES
Gas Gov
CHURCH LANE
Potters Croft
9m
16.9m
Vineyard
Old Orchard
Drain
Church Farm Oast
29.1m
GP
El Sub Sta
Parsonage Farm
Church Farm Cottage
Church Farm House
St Mary the Virgin Church
Church Terrace
Nethergers
20.7m
Salehurst Halt
(PH)
Old Stone Cottage
Salehurst Halt Barn
LB
Post Office Terrace
Goodgrooms
Goodgrooms Oast
Tennis Court
Pond
Track
Path (um)
Salehurst
22.0m
Bridleway S&R 36b
Salehurst halt 120m x 4m
Farm access ALC
Farm access bridge
Dismantled Railway
River Rother
Church Bridge
Fish Ponds
T5
T6
T7
58
59
60
62
65
67
68
69
70
72
74
76
78
36
0+1400
0+1600
0+1800
0+2000
0+2200

DEPARTMENT FOR TRANSPORT

Rother Valley Railway (Bodiam to Robertsbridge Junction) Order

HIGHWAY TO BE STOPPED UP TEMPORARILY

Bridleway S&R 36b between points T5 & T6 and diverted between points T5, T7 & T6.

- CENTRE LINE OF WORK
- LIMIT OF DEVIATION
- LIMIT OF LAND TO BE ACQUIRED OR USED
- LIMIT OF LAND FOR SURVEY & INVESTIGATION (SHOWN HATCHED OR CROSS HATCHED)

Notes:

The area enclosed by any limit of deviation or any land to be acquired or used is the area extending to the outer edge of the line marking those limits.

JOB TITLE : *Rother Valley Railway "The Clappers" to Junction Road Robertsbridge*
CLIENT : *Rother Valley Railway Ltd.*
DRAWING TITLE : *Plan*

SCALE : *1:1250* JOB No. : *17/08/019*
DWG. No. : *Sheet 4* DATE : *July 2017*
DRAWN BY : *L.Hogben* REV. NO. :
CAD DATE : *29.03.2018*
CADFILE : *Land Use Plans - 26.dwg*

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ORIGINAL SHEET SIZE A1

COUNTY OF EAST SUSSEX
DISTRICT OF ROTHER

SHEET 5
Railway No.3

124400mN
124200mN
124000mN
123800mN
575200mE
575400mE
575600mE
575800mE
576000mE

Cut Line
Path (um)
Drain
Farm access
ALC
Track
Pond
River Rother
Fish Ponds
Bridleway S&R 36c
Dismantled Railway
New farm access road
Def
Sheet 4
Sheet 5
Sheet 6
74
75
76
78
79
81
82
83
86
87
88
91
97
0+2200
0+2400
0+2600
0+2800
0+3000

DEPARTMENT FOR TRANSPORT

Rother Valley Railway (Bodiam to Robertsbridge Junction) Order

- CENTRE LINE OF WORK
- LIMIT OF DEVIATION
- LIMIT OF LAND TO BE ACQUIRED OR USED
- LIMIT OF LAND FOR SURVEY & INVESTIGATION (SHOWN HATCHED OR CROSS HATCHED)

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JOB TITLE : *Rother Valley Railway "The Clappers" to Junction Road Robertsbridge*
CLIENT : *Rother Valley Railway Ltd.*
DRAWING TITLE : *Plan*

SCALE : *1:1250* JOB No. : *17/08/019*
DWG. No. : *Sheet 5* DATE : *July 2017*
DRAWN BY : *L.Hogben* REV. NO. :
CAD DATE : *29.03.2018*
CADFILE : *Land Use Plans - 26.dwg*

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ORIGINAL SHEET SIZE A1

COUNTY OF EAST SUSSEX
DISTRICT OF ROTHER

SHEET 6
Railway No.3

124200mN
124000mN
123800mN
576000mE
576200mE
576400mE
576600mE
576800mE

Sheet 5 | Sheet 6
Sheet 6 | Sheet 7

Cut Line

Dismantled Railway
Track
Drain
Pond
New farm access road
ALC
Bridge 26 Existing
River Rother
CR
Ward Bdy
Path (um)
FB
9.1m

91 97 93 98 103 83 109 115 107 108 104 105 96

0+3000 0+3200 0+3400 0+3600 0+3800 0+4000

DEPARTMENT FOR TRANSPORT

Rother Valley Railway (Bodiam to Robertsbridge Junction) Order

- CENTRE LINE OF WORK
- LIMIT OF DEVIATION
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- LIMIT OF LAND FOR SURVEY & INVESTIGATION (SHOWN HATCHED OR CROSS HATCHED)

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- GPS surveys
- volumetric surveys
- topographical surveys
- measured building surveys
- setting out
- boundary disputes
- engineering surveys
- deformation & settlement surveys

JOB TITLE : *Rother Valley Railway "The Clappers" to Junction Road Robertsbridge*
CLIENT : *Rother Valley Railway Ltd.*
DRAWING TITLE : *Plan*
SCALE : *1:1250* JOB No. : *17/08/019*
DWG. No. : *Sheet 6* DATE : *July 2017*
DRAWN BY : *L.Hogben* REV. NO. :
CAD DATE : *03.04.2018*
CADFILE : *Land Use Plans - 27.dwg*

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ORIGINAL SHEET SIZE A1

COUNTY OF EAST SUSSEX
DISTRICT OF ROTHER

SHEET 7

Railway No.3
Railway No.1

T8

River Rother

CR

Weir

ALC (existing)

0+4400

0+4000

Drain

Drain

9.9m

11.1m

Sheet 7

Sheet 8

Udiam

14.4m

Termination of Railway No.3

5.9m

122

123

Drain

ALC (existing)

6.5m

Drain

0+4200

Commencement of Railway No.1

Drain

6.3m

Ward Bdy

CR

River Rother

124400mN

124200mN

Cut Line

Sheet 6

Sheet 7

Dismantled Railway

Drain

Track

0+4000

0+3800

115

108

107

Bridge 26 Existing

104

105

96

124000mN

Drain

FB

FB

Cut Line

Junction Road

Track

1

3

6

Drain

Udiam Cottages

T9

B 2244

Drain

576800mE

577000mE

577200mE

577400mE

DEPARTMENT FOR TRANSPORT

Rother Valley Railway (Bodiam to Robertsbridge Junction) Order

HIGHWAY TO BE STOPPED UP TEMPORARILY

Junction Road between points T8 & T9.

- CENTRE LINE OF WORK
- LIMIT OF DEVIATION
- LIMIT OF LAND TO BE ACQUIRED OR USED
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JOB TITLE : *Rother Valley Railway "The Clappers" to Junction Road Robertsbridge*

CLIENT : *Rother Valley Railway Ltd.*

DRAWING TITLE : *Plan*

SCALE : *1:1250* JOB No. : *17/08/019*

DWG. No. : *Sheet 7* DATE : *July 2017*

DRAWN BY : *L.Hogben* REV. NO. :

CAD DATE : *03.04.2018*

CADFILE : *Land Use Plans - 27.dwg*

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ORIGINAL SHEET SIZE A1

COUNTY OF EAST SUSSEX
DISTRICT OF ROTHER

SHEET 8

Railway No.1

N

125000mN

124800mN

124600mN

124400mN

577400mE

577600mE

577800mE

578000mE

578200mE

Cut Line

Sheet 7 | Sheet 8

Kent & East Sussex Railway

Station Works

Bodiam Station

Termination of Railway No.1 0+5399

9.1m

Ockham House

Def

Track

Drain

Drain

0+5200

ALC (existing)

Pond

18.6m

14.6m

15.1m

13.8m

15.0m

11.6m

4.3m

Pond

Barnfield House

Path (um)

5.6m

0+5000

ALC (existing)

4.3m

Wand Bdy

Rother Valley Railway

0+4800

7.4m

Drain

Drain

Drain

Drain

7.7m

0+4600

Sinks

Quarry Farm

Pond

Quarry Farmhouse

Pond

Pond

El Sub Sta

GP

30.3m

31.5m

9.9m

11.1m

34.1m

DEPARTMENT FOR TRANSPORT

Rother Valley Railway (Bodiam to Robertsbridge Junction) Order

- CENTRE LINE OF WORK
- LIMIT OF DEVIATION
- LIMIT OF LAND TO BE ACQUIRED OR USED
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- volumetric surveys
- topographical surveys
- measured building surveys
- setting out
- boundary disputes
- engineering surveys
- deformation & settlement surveys

JOB TITLE : *Rother Valley Railway "The Clappers" to Junction Road Robertsbridge*

CLIENT : *Rother Valley Railway Ltd.*

DRAWING TITLE : *Plan*

SCALE : *1:1250* JOB No. : *17/08/019*

DWG. No. : *Sheet 8* DATE : *July 2017*

DRAWN BY : *L.Hogben* REV. NO. :

CAD DATE : *29.03.2018*

CADFILE : *Land Use Plans - 26.dwg*

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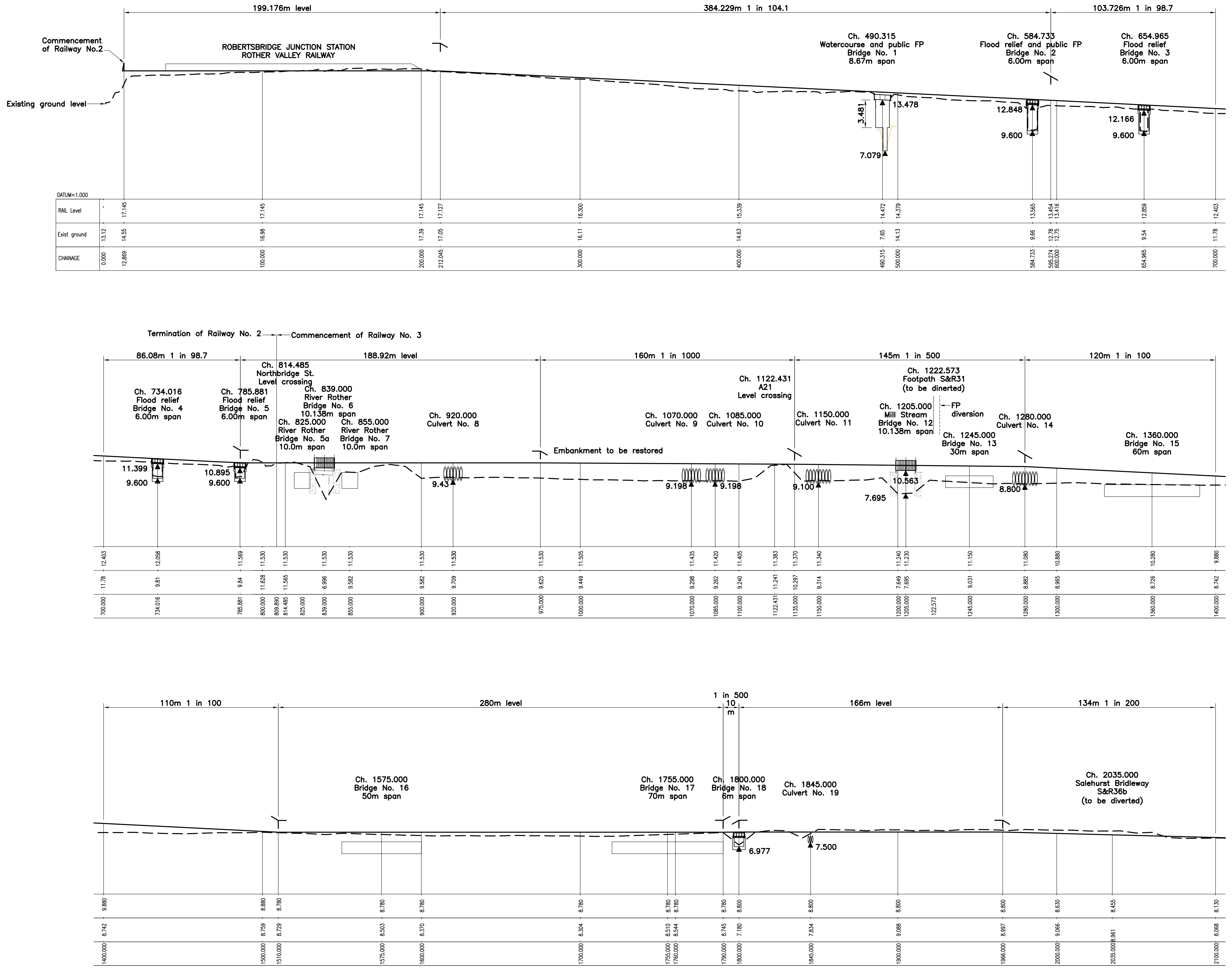
Email: survey@jcwhite.co.uk Web Site: www.jcwhite.co.uk
Tel : 01303 261212 Fax : 01303 264040



RAIL Level	Exist ground	CHAINAGE
	13.12	0.000
17.145	14.55	12.869
17.145	16.98	100.000
17.145	17.39	200.000
17.127	17.05	212.045
16.300	16.11	300.000
15.339	14.63	400.000
14.472	7.65	490.315
14.379	14.13	500.000
13.565	9.66	584.733
13.454	12.78	595.274
13.416	12.75	600.000
12.859	9.54	654.965
12.403	11.78	700.000
12.403	11.78	700.000
12.058	9.81	734.016
11.569	9.84	785.881
11.530	11.628	800.000
		809.890
11.530	11.560	814.485
		825.000
11.530	6.996	839.000
11.530	9.582	855.000
11.530	9.582	900.000
11.530	9.709	920.000
11.530	9.625	975.000
11.505	9.449	1000.000
11.435	9.298	1070.000
11.420	9.262	1085.000
11.405	9.240	1100.000
11.383	11.241	1122.431
11.370	10.297	1135.000
11.340	9.314	1150.000
11.240	7.649	1200.000
11.230	7.695	1205.000
		122.573
11.150	9.031	1245.000
11.080	8.882	1280.000
10.880	8.965	1300.000
10.280	8.726	1360.000
9.880	8.742	1400.000
9.880	8.742	1400.000
8.880	8.759	1500.000
8.780	8.729	1510.000
8.780	8.503	1575.000
8.780	8.370	1600.000
8.780	8.304	1700.000
8.780	8.510	1755.000
8.780	8.544	1760.000
8.780	8.745	1790.000
8.800	7.180	1800.000
8.800	7.834	1845.000
8.800	9.088	1900.000
8.800	8.997	1966.000
8.630	9.666	2000.000
8.455	8.561	2035.000
8.130	8.068	2100.000

SHEET 9

SECTION RAILWAY NO. 2

SECTION RAILWAY No. 3

A	–	–	–	–	–
Revision	By	Checked	Approved	Date	Description

Client
Rother Valley Railway Ltd
Rother Valley Railway Station, Robertsbridge, East Sussex, TN32 5DG
Tel 01580 881833
www.rvr.org.uk

Rother Valley Railway

Project

ROTHER VALLEY RAILWAY

Drawing

SECTIONS CH 0-2100
RAILWAY No. 2 (PART)
RAILWAY No. 3 (PART)

Drawn by JCS — Date: 12/02/18
Checked by - — Date: -
Authorised by - — Date: -

Drawing No.: **RVR - S - 001** — Revision: **-**

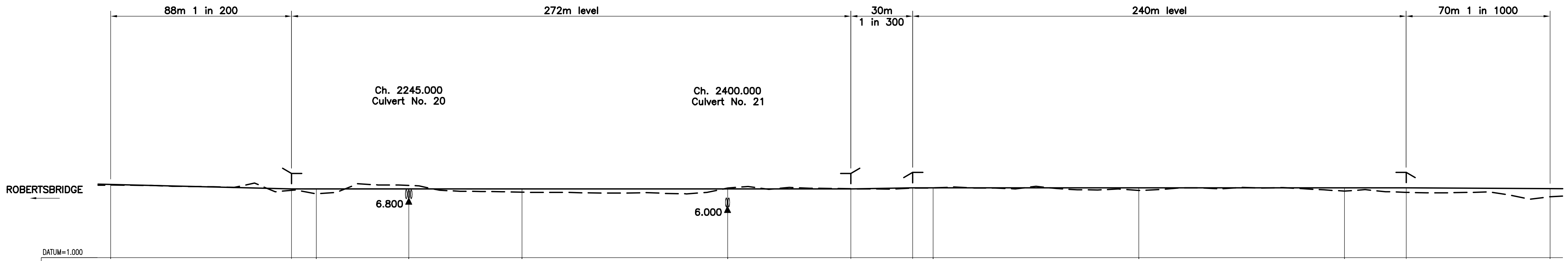
Drawing Scale: 1:250 V, 1 : 1250 H

CAD Filename: - — Plot Scale: 1:1

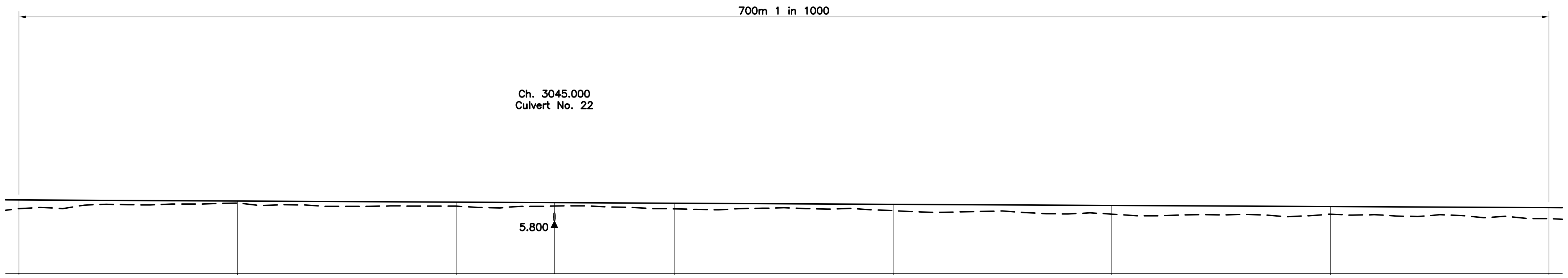
Drawing file path & name : C:\Users\sheevesjc\Documents\private\KESR\CAD\Surveys\RVR long section 2018-02-07.dwg
User and Plot Date : SheevesJC : 10 Feb 2018 - 8:37 am

FILE STORAGE PATH =
XREF STORAGE PATH =

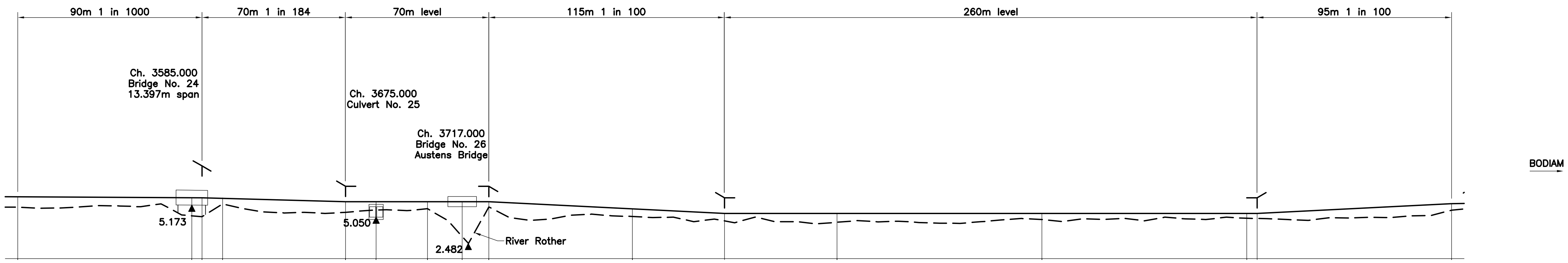
ORIGINATING DEPT = HTI – BP
PLOT DATE = 12/02/18



CHAINAGE	RAIL Level	Exist ground
2100.000	8.130	8.068
2188.000	7.690	7.595
2200.000	7.690	7.219
2245.000	7.690	8.026
2300.000	7.690	7.345
2400.000	7.690	7.663
2460.000	7.690	7.656
2490.000	7.790	7.664
2500.000	7.790	7.665
2600.000	7.790	7.509
2700.000	7.790	7.419
2730.000	7.790	7.359
2800.000	7.720	6.879



Chainage	Rail level	Exist ground
2800.000	7.720	6.879
2900.000	7.620	7.405
3000.000	7.520	7.161
3045.000	7.475	7.159
3100.000	7.420	7.000
3200.000	7.320	6.737
3300.000	7.220	6.387
3400.000	7.120	6.412
3500.000	7.020	6.020



Chainage	Rail level	Exist ground
3500.000	7.020	6.020
3585.000	6.935	5.173
3590.000	6.930	5.086
3600.000	6.920	6.247
3660.000	6.550	5.507
3675.000	6.550	5.726
3700.000	6.550	5.846
3717.000	6.550	3.150
3730.000	6.538	6.007
3800.000	5.850	5.067
3845.000	5.400	4.475
3900.000	5.400	4.624
4000.000	5.400	4.826
4100.000	5.400	4.931
4110.000	5.450	4.761
4200.000	6.350	5.727

SHEET 10

SECTION RAILWAY No. 3

1:1250 — 250 0 250 500

1:250 — 5 0 5 10m

A	–	–	–	–	–
Revision	By	Checked	Approved	Date	Description

Client
Rother Valley Railway Ltd
Rother Valley Railway Station, Robertsbridge, East Sussex, TN32 5DG
Tel 01580 881833
www.rvr.org.uk

Rother Valley Railway

Project
ROTHER VALLEY RAILWAY

Drawing
SECTIONS CH 2100-4200
RAILWAY No. 3 (PART)

Drawn by JCS — Date: 12/02/18
Checked by - — Date: -
Authorised by - — Date: -

Drawing No. RVR - S - 002 — Revision -

Drawing Scale: 1:250 V, 1 : 1250 H

CAD Filename: - — Plot Scale: 1:1

FILE STORAGE PATH =
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PLOT DATE = 12/02/18

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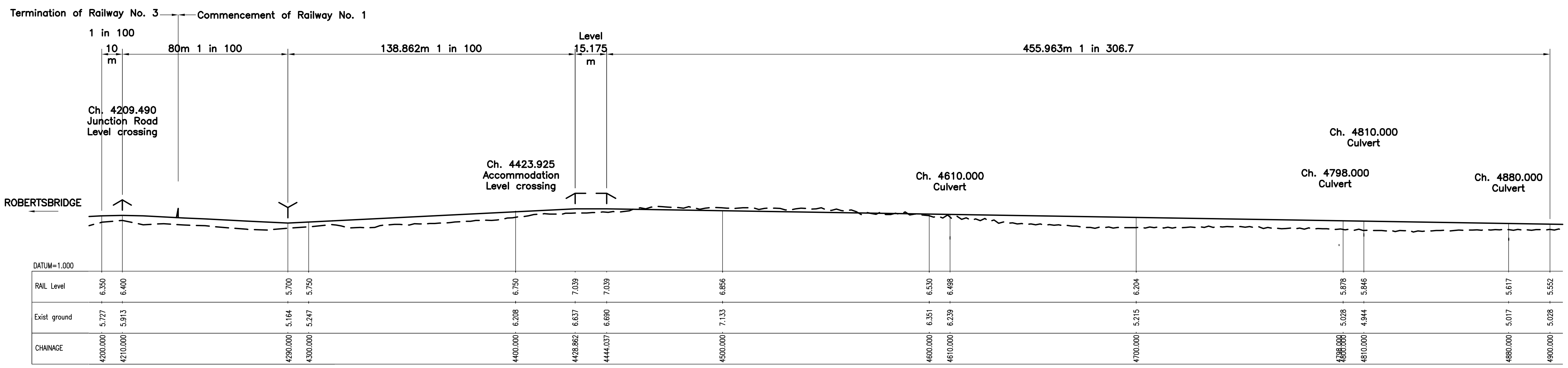
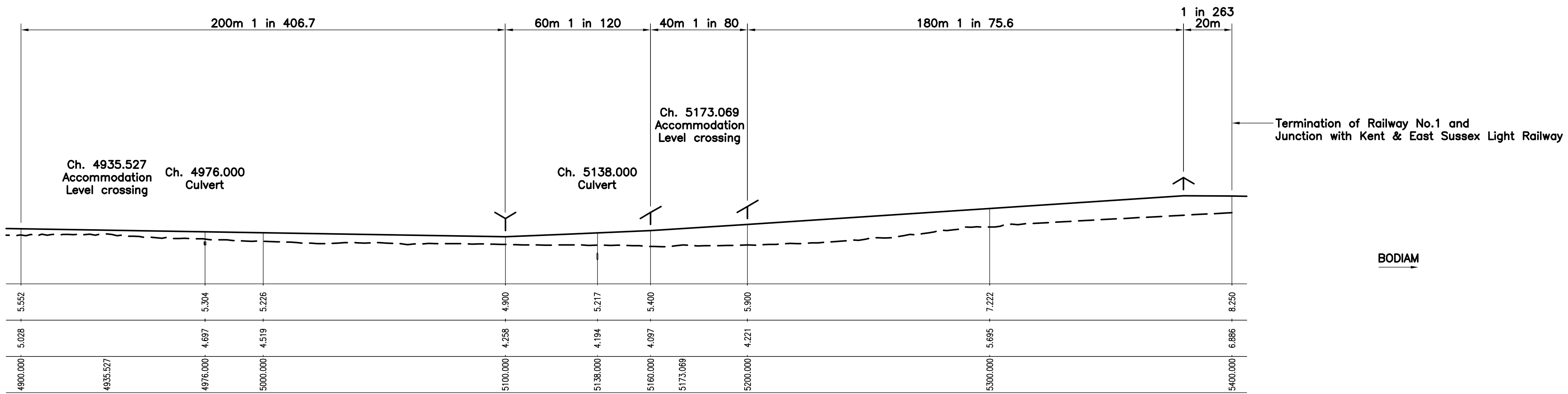
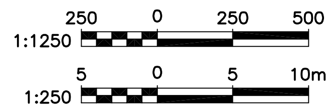




SHEET 11

SECTION RAILWAY No. 3

SECTION RAILWAY No. 1



Revision	By	Checked	Approved	Date	Description
A	-	-	-	-	-

Client
Rother Valley Railway Ltd
Rother Valley Railway Station, Robertsbridge, East Sussex, TN32 5DG
Tel 01580 881833
www.rvr.org.uk

Rother Valley Railway

Project

ROTHER VALLEY RAILWAY

Drawing

SECTIONS CH 4200-5400
RAILWAY No. 3 (PART)
RAILWAY No. 1

Drawn by JCS Date: 12/02/18
Checked by - Date: -
Authorised by - Date: -

Drawing No. RVR - S - 003 Revision -

Drawing Scale: 1:250 V, 1 : 1250 H

CAD Filename: - Plot Scale: 1:1

Drawing file path & name : C:\Users\sreevesjc\Documents\private\KESR\CAD\Survey\ RVR long section 2018-02-07.dwg
User and Plot Date : SreevesJC : 10 Feb 2018 - 8:34 am

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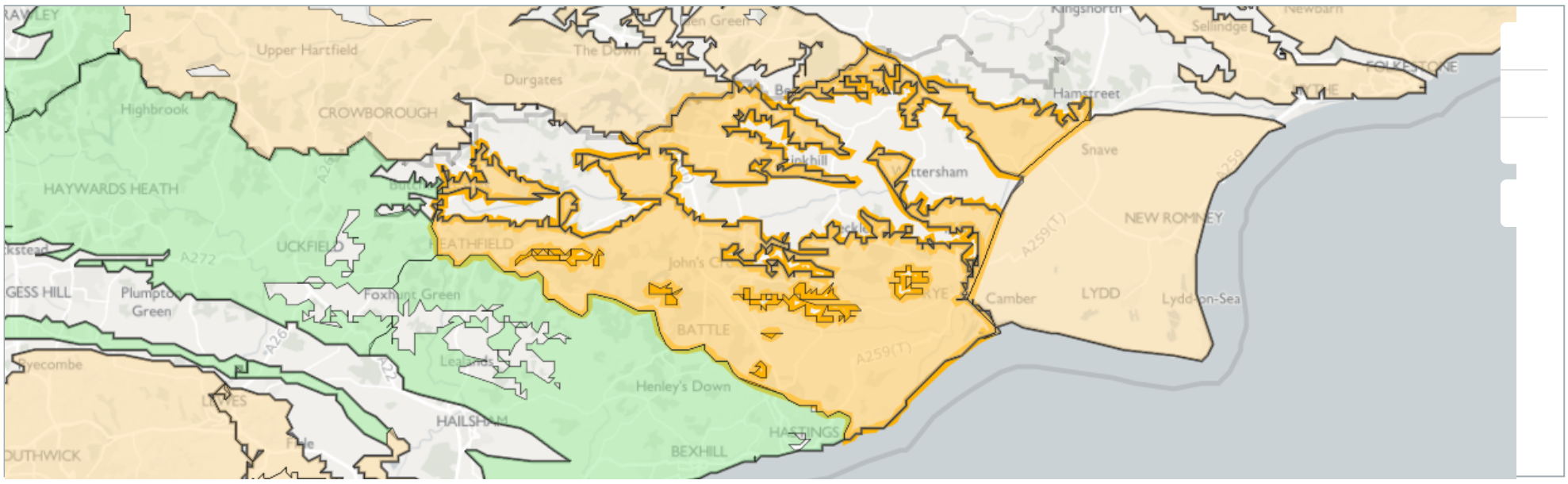
PLOT DATE = 12/02/18

Catchment Data Explorer



Kent Weald Eastern - Rother Overview

Download Water Body as CSV / GeoJSON

Overall classification for 2019
Poor

Id	GB40702G502200
Type	Groundwater Body
Hydromorphological designation	not applicable
NGR	TQ8716222224
Groundwater area	40691.66 ha
Surface area	406.917 km2
Surveillance Water Body	No

Classifications

Cycle 2 classifications

Download as CSV

Classification Item	2013	2014	2015	2016	2019
Overall Water Body	Poor	Poor	Poor	Poor	Poor
Quantitative	Good	Good	Good	Good	Good
Quantitative Status element	Good	Good	Good	Good	Good
Quantitative Saline Intrusion	Good	Good	Good	Good	Good
Quantitative Water Balance	Good	Good	Good	Good	Good
Quantitative GWDTEs test	Good	Good	Good	Good	Good
Quantitative Dependent Surface Water Body Status	Good	Good	Good	Good	Good
Chemical (GW)	Poor	Poor	Poor	Poor	Poor
Chemical Status element	Poor	Poor	Poor	Poor	Poor
Chemical Drinking Water Protected Area	Good	Good	Good	Good	Good
General Chemical Test	Good	Good	Good	Good	Good

Classification Item		2013	2014	2015	2016	2019
	Chemical GWDTEs test	Good	Good	Good	Good	Good
	Chemical Dependent Surface Water Body Status	Poor	Poor	Poor	Poor	Poor
	Chemical Saline Intrusion	Good	Good	Good	Good	Good

Cycle 1 classifications Show

Upstream water bodies

Name
No data to show

Downstream water bodies

Name
No data to show

Investigations into classification status

Download as CSV

Classification Element	Cycle	Year	Status	Outcome
No data to show				

Reasons for not achieving good status and reasons for deterioration

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Reason Type	SWMI	Activity	Category	More	Classification Element
RNAG	Point source	Contaminated land	Industry	Details	Chemical Dependent Surface Water Body Status

Objectives

Download as CSV

Classification Item	Status	Year	Reasons
Overall Water Body	Good	2027	Disproportionate burdens
Quantitative	Good	2015	
Quantitative Status element	Good	2015	
Quantitative Saline Intrusion	Good	2015	
Quantitative Water Balance	Good	2015	
Quantitative GWDTEs test	Good	2015	
Quantitative Dependent Surface Water Body Status	Good	2015	
Chemical (GW)	Good	2027	Disproportionate burdens
Chemical Status element	Good	2027	Disproportionate burdens
Chemical Drinking Water Protected Area	Good	2015	
General Chemical Test	Good	2015	
Chemical GWDTEs test	Good	2015	
Chemical Dependent Surface Water Body Status	Good	2027	Disproportionate burdens
Chemical Saline Intrusion	Good	2015	

Protected areas

Download as CSV

PA Name	ID	Directive	Type	More information
Kent Weald Eastern - Rother	UKGB40702G502200	Drinking Water Protected Area		

Issues preventing waters reaching good status

Issues preventing waters reaching good status and the sectors identified as contributing to them are shown in a table in the new summary page.

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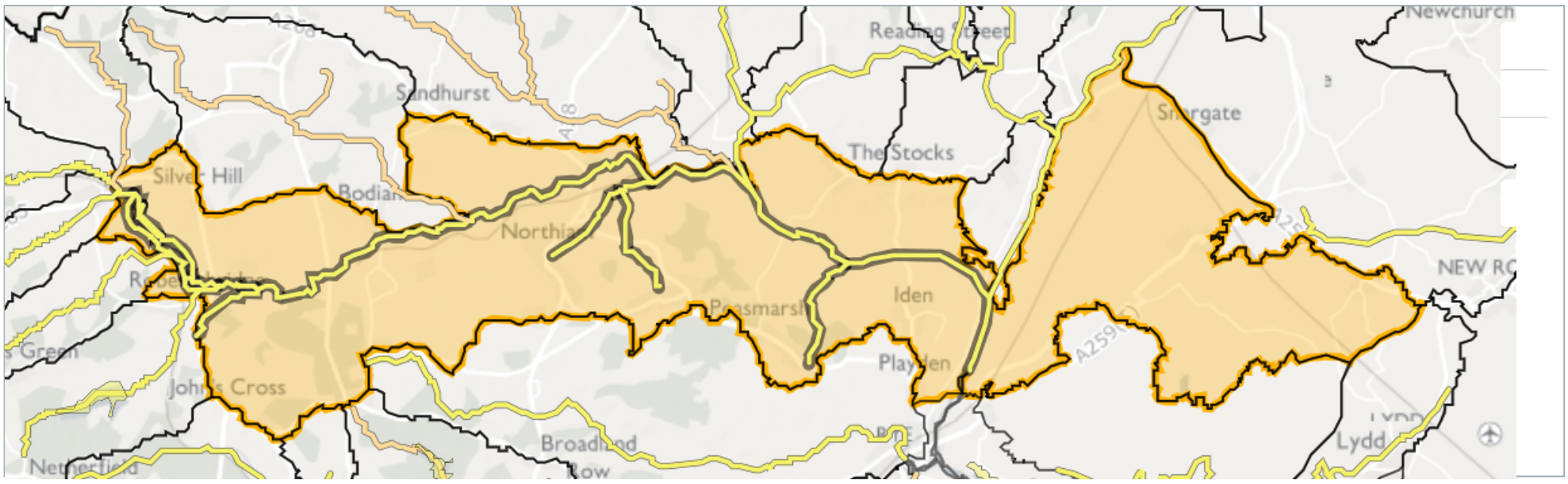
Catchment Data Explorer



Lower Rother from Etchingham to Scot's Float Overview

Download Water Body as CSV / GeoJSON

Overall classification for 2019
Moderate

Id	GB107040013640
Type	River
Hydromorphological designation	heavily modified
NGR	TQ8770326704
Catchment area	14377.486 ha
Length	48.661 km
Surveillance Water Body	Yes
Catchment area	143.775 km2

Classifications

Cycle 2 classifications

Download as CSV

Classification Item	2013	2014	2015	2016	2019
Overall Water Body	Moderate	Moderate	Moderate	Moderate	Moderate
Ecological	Moderate	Moderate	Moderate	Moderate	Moderate
Supporting elements (Surface Water)	Moderate	Moderate	Moderate	Moderate	Moderate
Mitigation Measures Assessment	Moderate or less	Moderate or less	Moderate or less	Moderate or less	Moderate or less
Biological quality elements	High	Poor	Moderate	Moderate	Good
Macrophytes and Phytobenthos Combined	-	-	Good	Good	Good
Fish	High	Good	Moderate	Moderate	Good
Invertebrates	High	Poor	Good	Good	High
Hydromorphological Supporting Elements	Supports Good	Supports Good	Supports Good	Supports Good	Supports Good
Hydrological Regime	Supports Good	Supports Good	Supports Good	Supports Good	Supports Good

Classification Item	2013	2014	2015	2016	2019
Physico-chemical quality elements	Moderate	Moderate	Moderate	Moderate	Moderate
Acid Neutralising Capacity	-	High	High	High	High
Ammonia (Phys-Chem)	High	High	High	High	High
Dissolved oxygen	Moderate	Moderate	Poor	Good	Poor
pH	High	High	High	High	High
Phosphate	Moderate	Moderate	Moderate	Moderate	Moderate
Temperature	High	High	Moderate	Good	Moderate
Specific pollutants	High	High	Moderate	Moderate	High
Chlorothalonil	-	-	-	-	High
Pendimethalin	-	-	-	-	High
Triclosan	High	High	-	-	High
Manganese	High	High	Moderate	Moderate	High
Arsenic	High	High	High	High	High
Copper	High	High	High	High	High
Iron	-	-	High	High	High
Permethrin	-	-	-	-	High
Zinc	High	High	High	High	High
Chemical	Good	Good	Good	Good	Fail
Priority substances	Good	Good	Good	Good	Fail
Other Pollutants	Good	Good	Good	Good	Good
Priority hazardous substances	Good	Good	Good	Good	Fail

Cycle 1 classifications Hide

Download as CSV

Classification Item	2009	2010	2011	2012	2013	2014
Overall Water Body	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Ecological	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Supporting elements (Surface Water)	Moderate	-	-	Moderate	Moderate	Moderate
Mitigation Measures Assessment	Moderate or less	Moderate or less	Moderate or less	Moderate or less	Moderate or less	Moderate or less
Biological quality elements	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Fish	Good	Good	High	High	High	Good
Invertebrates	Good	High	High	High	Good	Good
Macrophytes	-	Moderate	Moderate	Moderate	Moderate	Moderate
Phytobenthos	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Hydromorphological Supporting Elements	Supports Good	Supports Good	Supports Good	Supports Good	Supports Good	Supports Good

Classification Item	2009	2010	2011	2012	2013	2014
Hydrological Regime	Supports Good	Supports Good	Supports Good	Supports Good	Supports Good	Supports Good
Physico-chemical quality elements	Good	Good	Good	Good	Moderate	Moderate
Ammonia (Phys-Chem)	High	High	High	High	High	High
Biochemical Oxygen Demand (BOD)	-	-	-	Good	-	-
Dissolved oxygen	High	High	High	Good	Moderate	Moderate
pH	High	High	High	High	High	High
Phosphate	Good	Good	Good	Good	Good	Good
Temperature	High	High	High	High	High	High
Specific pollutants	High	High	High	High	High	High
Arsenic	High	High	High	High	-	-
Copper	High	High	High	High	High	High
Cypermethrin (Specific pollutants)	High	High	High	High	-	-
Iron	High	High	High	High	High	High
Phenol	High	High	High	High	-	-
Zinc	High	High	High	High	High	High
Ammonia (Annex 8)	High	High	-	-	-	-
Chemical	Good	Good	Good	Good	Does not require assessment	Does not require assessment
Priority substances	Good	Good	Good	Good	Does not require assessment	Does not require assessment
Fluoranthene	Good	Good	Good	Good	-	-
Lead and Its Compounds	Good	Good	Good	Good	-	-
Nickel and Its Compounds	Good	Good	Good	Good	-	-
Trichlorobenzenes	Good	Good	Good	Good	-	-
Other Pollutants	Good	Good	Good	Good	Does not require assessment	Does not require assessment
Aldrin, Dieldrin, Endrin & Isodrin	Good	Good	Good	Good	-	-
para - para DDT	Good	Good	Good	Good	-	-
Priority hazardous substances	Good	Good	Good	Good	Does not require assessment	Does not require assessment
Benzo (b) and (k) fluoranthene	Good	Good	Good	Good	-	-

Classification Item		2009	2010	2011	2012	2013	2014
	Benzo (ghi) perelyene and indeno (123-cd) pyrene	Good	Good	Good	Good	-	-
	Benzo(a)pyrene	Good	Good	Good	Good	-	-
	Cadmium and Its Compounds	Good	Good	Good	Good	-	-
	Hexachlorobenzene	Good	Good	Good	Good	-	-
	Hexachlorobutadiene	Good	Good	Good	Good	-	-
	Hexachlorocyclohexane	Good	Good	Good	Good	-	-
	Mercury and Its Compounds	Good	Good	Good	Good	-	-

Upstream water bodies

Name
Walland Marsh/RMC (Iden to Appledore)
Hexden Channel
Glottenham Stream
Rother between Coggins Mill Stream and Etchingham
Kent Ditch
Newmill Channel downstream of A28
Limden
Socknersh Stream
Dudwell

Downstream water bodies

Name
ROTHER

Investigations into classification status

Download as CSV

Classification Element	Cycle	Year	Status	Outcome
No data to show				

Reasons for not achieving good status and reasons for deterioration

Download as CSV

Reason Type	SWMI	Activity	Category	More	Classification Element
RNAG	Physical modification	Other (not in list, must add details in comments)	Agriculture and rural land management	Details	Mitigation Measures Assessment
RNAG	Diffuse source	Poor soil management	Agriculture and rural land management	Details	Phosphate
RNAG	Suspect data	Not applicable	No sector responsible	Details	Fish
RNAG	Point source	Sewage discharge (continuous)	Water Industry	Details	Phosphate
RNAG	Diffuse source	Poor nutrient management	Agriculture and rural land management	Details	Phosphate

Reason Type	SWMI	Activity	Category	More	Classification Element
RNAG	Natural	Natural mineralisation	No sector responsible	Details	Manganese

Objectives

Download as CSV

Classification Item	Status	Year	Reasons
Overall Water Body	Moderate	2015	Disproportionate burdens No known technical solution is available Cause of adverse impact unknown
Ecological	Moderate	2015	Disproportionate burdens No known technical solution is available Cause of adverse impact unknown
Supporting elements (Surface Water)	Good	2027	Disproportionate burdens
Mitigation Measures Assessment	Good	2027	Disproportionate burdens
Biological quality elements	Good	2027	Disproportionate burdens No known technical solution is available
Macrophytes and Phytobenthos Combined	Good	2015	
Fish	Good	2027	Disproportionate burdens
Invertebrates	Good	2015	
Hydromorphological Supporting Elements	Supports Good	2015	
Hydrological Regime	Supports Good	2015	
Physico-chemical quality elements	Moderate	2015	No known technical solution is available
Acid Neutralising Capacity	Good	2015	
Ammonia (Phys-Chem)	Good	2015	
Dissolved oxygen	Moderate	2015	No known technical solution is available
pH	Good	2015	
Phosphate	Moderate	2015	No known technical solution is available
Temperature	Good	2015	
Specific pollutants	High	2027	Cause of adverse impact unknown
Manganese	High	2027	Cause of adverse impact unknown
Arsenic	High	2015	
Copper	High	2015	
Iron	High	2015	
Zinc	High	2015	
Chemical	Good	2015	
Priority substances	Good	2015	
Fluoranthene	Good	2015	
Lead and Its Compounds	Good	2015	
Nickel and Its Compounds	Good	2015	
Other Pollutants	Good	2015	
Aldrin, Dieldrin, Endrin & Isodrin	Good	2015	
para - para DDT	Good	2015	
Priority hazardous substances	Good	2015	
Benzo (b) and (k) fluoranthene	Good	2015	
Benzo (ghi) perelyene and indeno (123-cd) pyrene	Good	2015	
Benzo(a)pyrene	Good	2015	
Cadmium and Its Compounds	Good	2015	
Hexachlorocyclohexane	Good	2015	
Mercury and Its Compounds	Good	2015	

Protected areas

Download as CSV

PA Name	ID	Directive	Type	More information

PA Name	ID	Directive	Type	More information
Lower Rother from Robertsbridge to Scots Float	UKGB107040013640	Drinking Water Protected Area		
Lower Rother from Robertsbridge to Iden NVZ S509	S509	Nitrates Directive		
Brede between Battle and Winchelsea S502	S502	Nitrates Directive		
Newmill Channel downstream of A28 NVZ S508	S508	Nitrates Directive		
Limden NVZ S506	S506	Nitrates Directive		
Kent Ditch NVZ S505	S505	Nitrates Directive		
Hexden Channel NVZ S513	S513	Nitrates Directive		
SWSGZ4221	SWSGZ4221	Safeguard Zone		
Rother between Witherenden Hill and Etchingham NVZ S504	S504	Nitrates Directive		
Tillingham NVZ S503	S503	Nitrates Directive		

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