# The Cambridge South East Transport Order

## Transport And Works Act 1992

## Transport And Works (Applications And Objections Procedure) (England And Wales) Rules 2006

# Appendix 2.3 Draft Spoils Management Strategy

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| Document Reference | CSET-10-06 |
| Revision Number | 00 |
| Applicant | Cambridgeshire County Council |
| Date | January 2025 |

# Cambridge South East Transport (CSET)

## Draft Spoils Management Strategy

| Rev | Date | Prepared by | Reviewed by | Approved by | Remarks |
|---|---|---|---|---|---|
| 1 | 14/12/2020 | Samuel Okello | | | |
| 2 | | | | | |
| 3 | 24/06/2021 | Samuel Okello | James Montgomery | Gohar Hayat | Amended following MM comments |
| 4 | 13/12/2024 | Gohar Hayat | Gohar Hayat | Gohar Hayat | Reviewed in Dec 2024 for TWAO submission; no changes from Rev 3 |

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# 1. Introduction:

## 1.1. Purpose.

The purpose of the Spoils management strategy is to:

- Maximise the beneficial reuse of spoil material from the Project.
- Minimise spoil removal and associated impacts on stakeholders, community, and the environment.
- Identify the environmental management issues associated with the sourcing, handling, transportation, stockpiling, disposal, and reuse of spoil material.

In line with good practice for sustainable use of soil, as set out in the local development plans, there is a need for good soil management procedure to be in place before the commencement of specific developments on site, which should be implemented during, as well as after, construction. This Strategy suggests practical measures that need to be put in place during pre-construction, construction, and post-construction phases of the project to minimise detrimental impacts on the environment resulting from spoil management. However, while the Spoils management strategy may provide overall guidance and direction for the management of spoil, Materials management plan, Work Method Statements and Environmental Method Statements should be prepared for site specific situations by the Contractor appointed to construct the works.

## 1.2. Scope.

This document applies to both uncontaminated and contaminated material excavated for use by the project. The clean materials will be re-used without treatment on the project site, alternatively directly without treatment on other sites like surrounding farms or nearby development sites. The spoils management strategy further addresses the excavation, haulage, reuse, on-site storage /stockpiling and possible disposal options of spoils. Consideration is given to Spoil quantities for reuse within the construction site as well as maximisation of beneficial reuse off site. The Spoils management strategy does suggest measures and procedures for the management of environmental and social impacts arising from the excavation, transfer, and reuse of spoils.

## 1.3. Objectives.

- Provide an organised, integrated, and systematic approach to effectively address spoil management issues during the project
- Manage spoil generated by the CSET scheme in accordance with the waste management hierarchy of avoidance, minimisation, reuse, recycling and finally disposal
- Ensure most of the clean or treated spoil is reused or recycled.
- Minimise off-site disposal of Material.
- Ensure sediment and erosion controls are implemented on site
- Create awareness and provide staff with guidance on spoil and fill management issues.

# 2. Legislative Requirements and Guidance.

| Key legislation and guidance | Relevance to Project |
|---|---|
| Waste Strategy for England 2007 (Defra, 2007) | Seeks to avoid the disposal of soil to landfill through recycling incentives and less onerous regulation of low-risk waste processes.<br>Targets is to increase diversion of non-municipal waste (including soil) from landfill and to secure better integration of treatment processes with the aim of reducing waste |
| EU Waste Framework Directive.<br>Environmental Permitting (England and Wales) Regulations 2007 | It is an offence to undertake waste disposal or recovery operations without being in possession of an Environmental Permit. |
| Agricultural Land (Removal of Surface Soil) Act 1953 | Places restrictions on the removal of surface soil from agricultural land without planning permission. |
| Clean Neighbourhoods and Environment Act 2005 | Section 5 of the Act makes provision about the registration of carriers of different types of waste, the illegal deposit of waste and the powers of local authorities. This section also makes provision for dealing with waste at construction sites. |
| Environmental Liability Directive 2004 | Obligates operators of activities which cause or are likely to cause environmental damage to ensure they remediate the damages (Including to soil) by restoring the environment to its baseline conditions. |
| Groundwater Regulations 1998 | Ensures Control over the use and disposal of substances on land which could directly or indirectly pollute groundwater. |
| Town and Country Planning Act 1990 | Promotes the reclamation and reuse of derelict and contaminated land, including the reuse and management of soil on development sites |
| Water Resources Act 1991 | Has provisions relating to the pollution of controlled waters, these do apply to soil on constructions sites where operations may result in erosion or runoff into a local watercourse |
| British Standard code of practice for general landscape operations (excluding hard surfaces) (BS4428: 1989) | Contains recommendations for preliminary soil investigations, land drainage, grading and cultivation, seeding of grass areas, turfing, amenity tree and woodland planting, and planting of shrubs, herbaceous plants and bulbs. |
| British Standard specification for topsoil and requirements for use (BS3882: 2007) | Specifies requirements for topsoil (natural or manufactured) that is moved or traded. It contains one main grade (multipurpose topsoil), which is suitable for most needs. It further includes a section on the use and handling of topsoil. |
| British Standard Trees in relation to construction. Recommendations (BS5837: 2005) | Provides recommendations and guidance on how to decide which trees, shrubs, hedges, and hedgerows are appropriate for retention and can be protected during development and construction work.<br>It also provides means of incorporating trees into the developed landscape. |
| Construction Code of Practice for the Sustainable Use of | DEFRA Code of Practice provides guidance to assist anyone involved in the construction sector to better protect the soil resources with which they work. |

| | |
|---|---|
| Soils on Construction Sites (DEFRA, 2009). | |
| Definition of Waste: Code of Practice (DoW: CoP) | The DoW CoP provides a clear, consistent, and efficient process which enables the reuse of excavated materials on-site or their movement between sites.<br><br>The DoW CoP enables:<br>• the direct transfer and reuse of clean naturally occurring soil materials between sites<br>• the conditions to support the establishment/operation of fixed soil treatment facilities<br>• the reuse of both contaminated/uncontaminated materials on their site of origin and between sites within defined Cluster projects |

# 3. Spoil Management Overview.

## 3.1. Spoil Generating Activities.

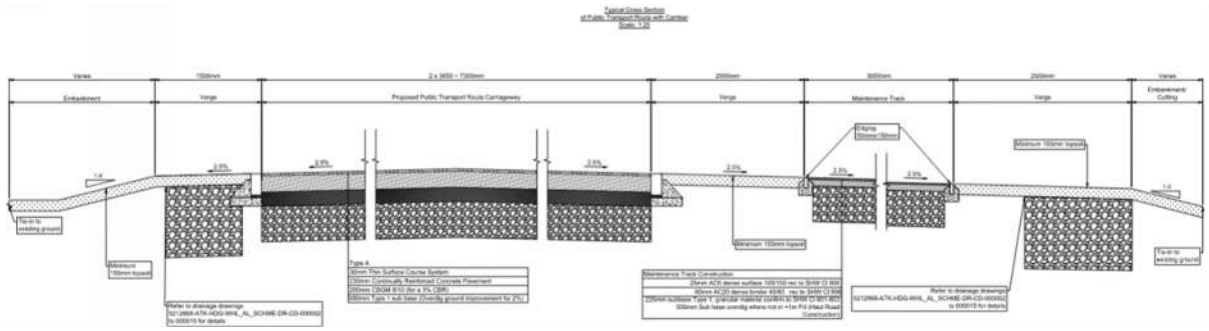
Most of the Spoil material generated on site is expected to come from excavation works. The anticipated Spoil material or fill generating activities on the project site include.

- Vegetation Clearance
- Top spoil Stripping
- Transportation of material
- Stockpiling of topsoil and mulch

## 3.2. Spoils Extraction Methodology

Topsoil will be stripped typically to a depth of 150mm within an average 16.8m cross section. However, this may vary depending on the soil conditions in areas along the scheme. The stripping will be done along the entire 8km length of the proposed public transport route. There will generally not be any topsoil stripping outside of the carriageway footprint but in certain areas there will be topsoil strip for the Travel Hub, Stops and temporary works such as river crossings and construction compounds. Where required embankments will be built onto existing ground using reused Class 1/ 2 fill (where appropriate) and topped with site won topsoil.

**Drawing 1: Typical cross section of Public Transport Route take off.**



Topsoil will be stripped in accordance with guidance recommended by DEFRA in the Construction Code of Practise for the sustainable use of soils on construction sites1 - see Box 1 below.

[1] https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites

**Box 1 : Extract relating to topsoil stripping from DEFRA guidance**

1. Topsoil is a finite resource and an important component of most landscape schemes within construction projects. It provides an anchorage and oxygen for plant roots, slowly releases nutrients, and, in conjunction with the underlying subsoil, retains moisture to sustain plant growth during dry periods. Once re-usable soil resources have been identified within a site it is important to strip them carefully for beneficial reuse on or off-site.

2. Not stripping topsoil from areas that are to be built on, regraded or trafficked by site vehicles will increase project costs, as the resource will be wasted.

**Method**

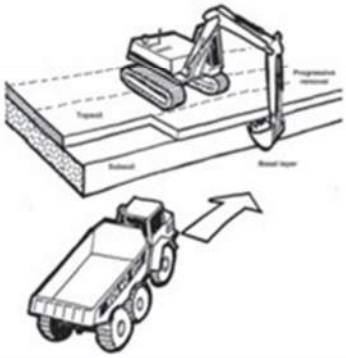
Remove surface vegetation by blading off, by scarification and raking, or kill off by application of a suitable non-residual herbicide applied not less than two weeks before stripping commences.

The method illustrated below is the preferred method for minimising damage to topsoil. It shows the transport vehicle running on the basal layer under subsoil as subsoil is also to be stripped. If only topsoil is to be stripped, the vehicle would run on the subsoil layer.

Stripping should be undertaken by the excavator standing on the surface of the topsoil, digging the topsoil to its maximum depth and loading into site or off-site transport vehicles.

Alternative stripping methods that can be shown to afford the same degree of soil protection are acceptable.

An archaeological watching brief might have to be accommodated during topsoil stripping.



## 3.3. Spoil Types.

**Spoil** is defined as any earthen material that is surplus to requirements or unsuitable for reuse in fill and embankments (such as unsuitable rock and soil material) or material that is contaminated.

**Fill** is defined as earthen material excavated from one location along the corridor for example, cut excavations and relocated elsewhere as compacted fill.

**Select material** is defined as earthen material of comparatively higher quality, necessary for engineered backfill and incorporation in upper earthworks layers as part of the overall pavement design. Typically, on the CSET project this will include high strength aggregate.

Wherever possible, select material will be sourced on site, and stockpiled as necessary until incorporated in the works. However, preliminary investigations suggest that a considerable proportion of the select material required for the project will need to be sourced off site.

Unsuitable (non-contaminated) material on the CSET project will generally originate from the out crops of chalk bedrock, however further tests may need to be completed to establish its suitability for use as a class 3 fill material.

Most of the non- hazardous unsuitable material excavated on site will be reused on the scheme in the following ways:

- Landscaping mounds.
- Widen embankments where possible.
- Noise screening mounds
- Land contouring
- Landscape treatments

Topsoil will be stripped and recovered for reuse in landscaping and revegetation. On average, the top 150mm of topsoil will be collected for future use.

## 3.4. Spoil Management Hierarchy

Where feasible and reasonably practical the CSET Scheme will apply the following strategy to achieve its spoils management objectives.

- Minimise the amount of spoil generated. This will be achieved by ensuring that the design minimises the volume of spoil generated by minimising the construction footprint within the proposed redline boundary.
- Classification of spoil and other waste materials in relation to contamination. It is also important to consider geotechnical characteristics of the spoil to determine its potential for engineering works e.g. drainage or flood mitigation.
- Depending on the contamination and geotechnical classifications, maximise the beneficial reuse of spoil on site. Spoil generated is expected to be able to be reused as general fill across the site and restoration of any pre-existing contaminated sites within the Project boundary. However, some of the unsuitable spoil will be included in capped landscaping mounds or features included in the design.
- Maximise the beneficial reuse of spoil off site based on its classification. Despite the CSET projects aim to re-use all material on-site some of the spoil will be unsuitable. This surplus of unsuitable material maybe be used off site for vegetation rehabilitation projects, farm road paving, land restoration and banding on other development sites within proximity of the project. The appointed contractor will be required to explore these options during the works on site (including the potential for advertising available materials on the CL:AIRE donor site2).
- Dispose of spoil off site based on its contamination classification. Spoil unable to be reused on site or off site will be disposed of at facilities that have the appropriate waste management and Environmental Permits to receive and store the relevant spoil/waste classifications. Some of the facilities could use it as a daily covering for landfill waste.
- Minimise environment and social Impacts through the management of the excavation, storage, reuse, transport, and disposal processes. This will entail implementing mitigation measures like onsite dust control, erosion, and sedimentation controls, monitoring and validation for contamination, tracking and monitoring spoil movements along haulage routes, to minimise noise impacts or impacts on public roads and public amenities.

**Note**: Detailed topsoil and materials management strategies will be addressed in both the final Construction Environment management Plan (CEMP) and the Materials Management Plan (MMP) to be produced by the appointed contractor of the Project. All these documents should be read in reference to each other.

[2] https://www.claire.co.uk/rom-donor-site/4/register-of-materials-donor-sites-d094

## 3.5. Volume of Take -Off

As demonstrated in Appendix A, below are the typical earthwork volumes.

**Table 1: Earthwork volumes**

| Earthwork Volumes | Area (m2) | Cut (m3) | Fill (m3) | Topsoil cut (250mm) before earthworks (m3) |
|---|---|---|---|---|
| FCA | 20,215 | 4,118 | 2,682 | - |
| PT Route | 192,474 | 24,483 | 91,861 | 48,119 |
| Travel Hub | 84,000 | 15,491 | 7,451 | 21,000 |
| Total | 296,689 | 44,091 | 101,994 | 69,119 |

## 3.6. Spoil Classification.

If the material is intended to be used under a CL:AIRE MMP it will not be classified as waste. Where materials excavated from the construction works are to be used as general fill, the limiting values for harm to human health and environment shall not be exceeded. The limiting values to assess risks to human health for general fill will be based on the CL:AIRE General Assessment Criteria (GAC). The material will be classified as acceptable where the criteria for individual chemicals in the GAC are not exceeded.

However, if the CSET scheme doesn't intend to use a CL:AIRE MMP, The assessment and classification of spoil will be undertaken in accordance with the UK government guidance on the classification and assessment of waste, Technical Guidance WM33. This will help determine whether spoil contains non-hazardous or hazardous elements that might deem it unsuitable for re-use without treatment. Appropriate List of Waste or European Waste Catalogue (EWC) codes for hazardous and non-hazardous waste will be applied to spoil based on test results. If deemed suitable (posing no environmental or H&S risk) the topsoil will be re-used on site. Contaminated material will require treatment before reuse (this would require a permit or sending it to a facility permitted to treat waste) and if it cannot be treated then it will be disposed of in accordance with the UK government Dispose of business or commercial waste guidance.

## 3.7. On-site and Off-site Spoil Storage Locations

Some material which can be re-used on-site but may not be required immediately will be stored in designated stockpile areas on-site. The Project Environmental Lead and Engineer responsible for the MMP will identify and seek the approval of the Environment Agency for the suitable storage areas prior to commencement of construction. This will ensure disturbance to residents is minimised and water sources or flood plains are protected from potential runoff. Erosion and Sediment Control Plans prepared for specific areas will contain the relevant measures for the management of the stockpiles. Potential on site spoil storage locations should be within the project red line boundary illustrated in **Appendix B.**

[3] https://www.gov.uk/government/publications/waste-classification-technical-guidance

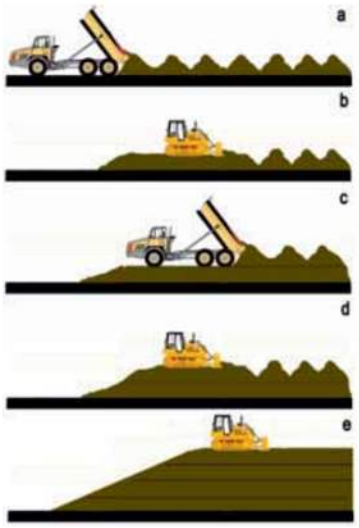
**Box 2 : Stockpiling methods**

## Soil stockpiling

Soil should be stored in an area of the site where it can be left undisturbed and will not interfere with site operations. Ground to be used for storing the topsoil should be cleared of vegetation and any waste arising from the development (e.g. building rubble and fill materials). Topsoil should first be stripped from any land to be used for storing subsoil.

### Method 1 – Dry non-plastic soils

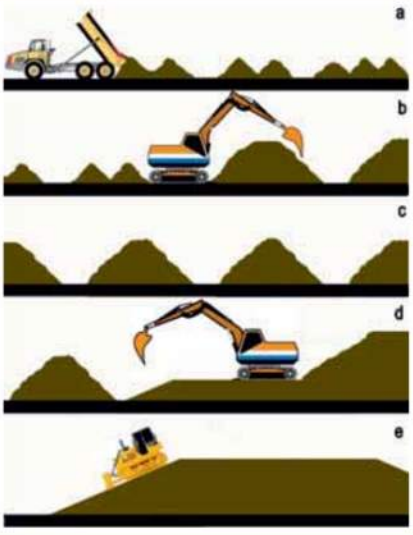
The soil is loose-tipped in heaps from a dump truck (a), starting at the furthest point in the storage area and working back toward the access point. When the entire storage area has been filled with heaps, a tracked machine (excavator or dozer) levels them (b) and firms the surface in order for a second layer of heaps to be tipped. This sequence is repeated (c & d) until the stockpile reaches its planned height. To help shed rainwater and prevent ponding and infiltration a tracked machine compacts and re-grades the sides and top of the stockpile (e) to form a smooth gradient.




### Method 2 – Wet plastic soils

The soil is tipped in a line of heaps to form a 'windrow', starting at the furthest point in the storage area and working back toward the access point (a). Any additional windrows are spaced sufficiently apart to allow tracked plant to gain access between them so that the soil can be heaped up to a maximum height of 2m (b). To avoid compaction, no machinery, even tracked plant, traverses the windrow.

Once the soil has dried out and is non-plastic in consistency (this usually requires several weeks of dry and windy or warm weather), the windrows are combined to form larger stockpiles, using a tracked excavator (d). The surface of the stockpile is then regraded and compacted (e) by a tracked machine (dozer or excavator) to reduce rainwater infiltration.




## 3.8. Spoil Re-Use And Disposal Sites

Spoil disposal and reuse sites are required to have an appropriate planning approval or environmental permits in place to lawfully receive the material from the project. If required such planning approvals will be obtained by the operators of the sites and should be in place prior to spoil being deposited at a specific location. The relevant approvals will be reviewed by the Environmental Team to ensure compliance.

**Table 2: Potential Spoil re-use sites**

| Farms within 5km of project site on which the Surplus topsoil or spoil could be re-used (Subject to agreement with Landowner) | Grid reference/ Location | License type or exemption in place |
|---|---|---|
| Hill Farm | TL4831450087 | U1 |
| Stanmoor Hall farm | TL4551248346 | U1, U10 |
| Trumpington Hall | TL4410055122 | S2, U1, U10, |
| Granhams farm | TL4629053117 | U1 |
| Copley Hill farm | TL5036551921 | U1, S2 |
| Lodge farm | TL5132153509 | U1, U10 |

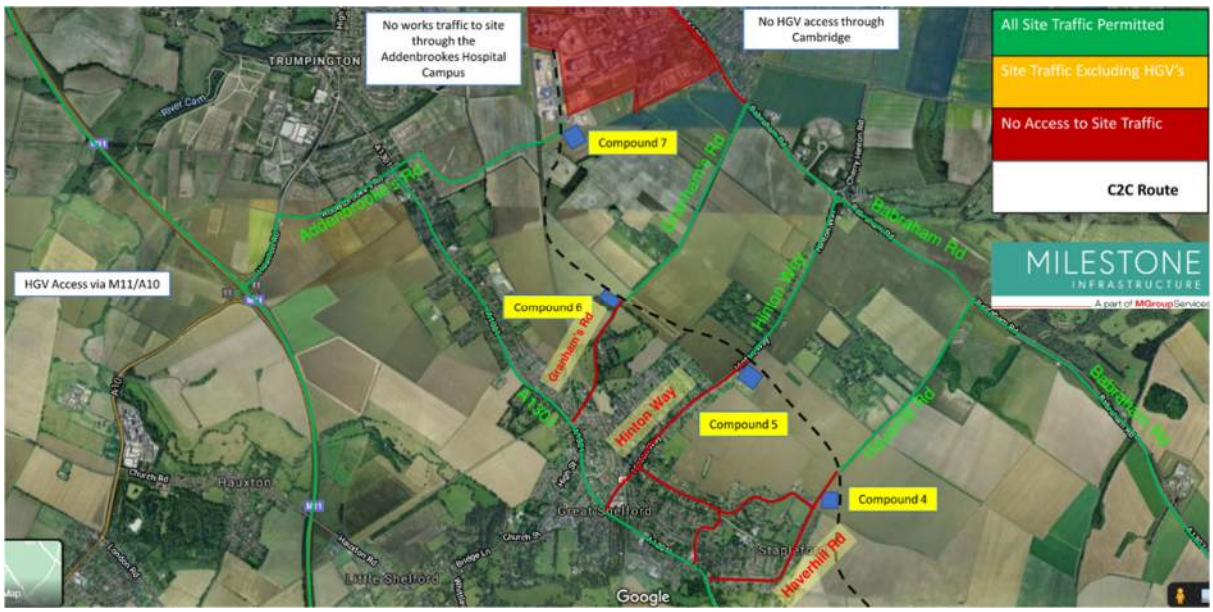
**Table 3: Spoil disposal locations near Project site.**

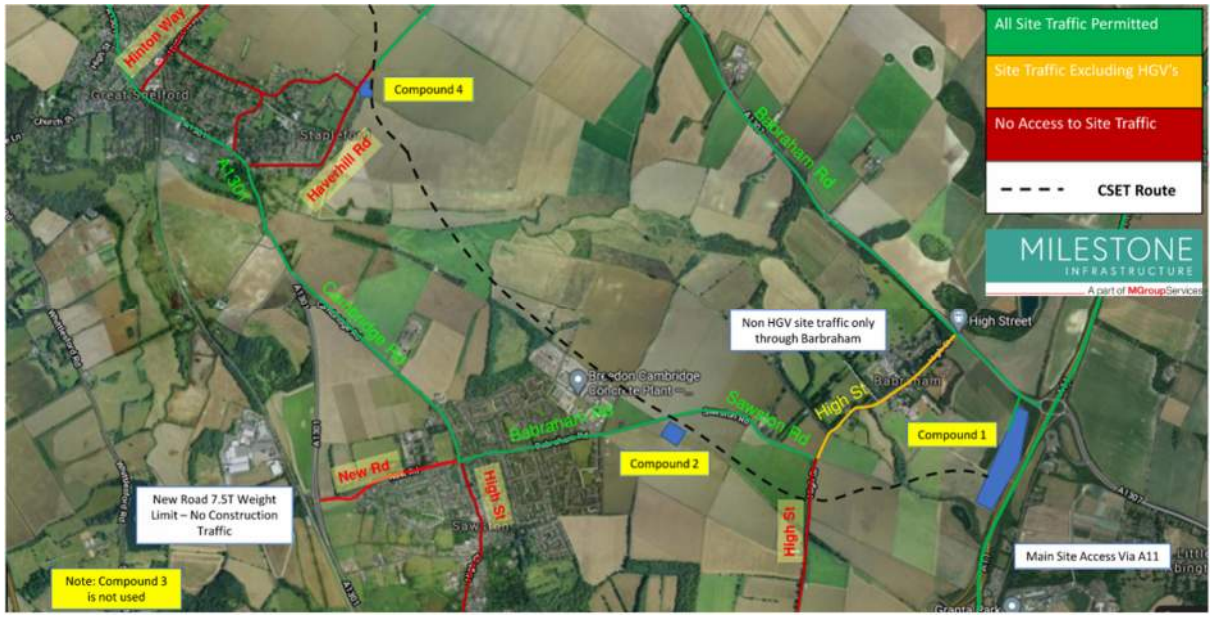
| Operators Name | Location | Type of facility |
|---|---|---|
| Cemex UK Cement limited | Barrington, Cambridgeshire, CB2 5RG | L05: Inert LF |
| Seearo Group limited | Barrington Park Farm, Cambridgeshire, CB22 7RN | Treatment of waste to produce soil |
| Aggregate Industries UK ltd | Little Paxton, Cambridgeshire, PE19 6ET | Management of Inert or extractive waste |
| Barnett Sydney | Mill Road, Fen Drayton, Huntingdon, Cambridgeshire, CB24 4ST | Treatment of waste to produce soil |
| Mick George Ltd | Block Fen Drove, Mepal, Ely, Cambridgeshire, CB6 2AY | LO5: Inert LF |
| Eaton Tractors Ltd | Pitt farm, little Paxton. PE19 6HD | Landfill taking non-biodegradable wastes |
| Land logical Thorney limited | Land at pasture house farm. PE6 0QL | L05: Inert LF |
| Mick George Ltd | Cross Leys Quarry, PE8 6NH | Deposit of waste to land as recovery |

## 3.9. Transportation and Haulage routes

40T off-road dump trucks and on-road spoil trucks will be used to move spoil material between sites in the construction corridor. Where it is impossible to restrict movement of spoil or material within the construction corridor, it will be hauled on public roads by road trucks. This will be done in accordance with the project Traffic Management and Health and Safety plans. In instances where haulage of cut material is required by road, exit from and entry to the project site will be via specific project access points, using designated haul routes. These exit routes will be equipped with wheel washers to clean the truck tyres to minimise depositing mud/soil on the public roads as specified in the CSET Scheme CEMP.

**Map 1: Preferred local access and haulage routes**



# 4. Potential Environmental Impacts

Environmental aspects and impacts associated with spoil management have been identified by reviewing the project design, materials information and studies related to the CSET project.

| Environmental Aspect | Environmental Impact |
|---|---|
| • Vegetation clearing/disturbance<br>• Removal, stockpiling and re-spreading of material (general earthworks)<br>• Site compounds set up, access points and access routes<br>• Adjustments of existing public utilities.<br>• Haulage of spoil<br>• Operation of site compound | • Loss of habitat and impacts on species due to vegetation and topsoil strip.<br>• Spread of weeds from dispersion of seeds during clearing.<br>• Damage to the local flora and fauna due to sediment runoff from spoil excavation.<br>• Water pollution due to sediment run off from spoil excavation and excess spoil storage.<br>• Water and air pollution from stockpile dust.<br>• Mud-tracking during haulage operations.<br>• Water, soil and air pollution from inappropriate storage, handling, and disposal of spoil. |

# 5. Management and Mitigation Strategies for Impacts

| Management measures and mitigation strategies | Responsibility |
|---|---|
| • Pre-Construction plan detailing all topsoil strip operations and relating these to environmental sensitivities and constraints with measures to mitigate impacts. | Project Environmental Lead |
| • Method Statements providing detailed information on work method for managing spoil associated with excavation works shall be developed for critical construction activities. | Project Environmental Lead |
| • Preparing a Materials management plan in consultation with relevant project and council departments. | Project Environmental Lead |
| • Undertaking project inductions and toolbox talks to educate all site personnel on the requirements for spoil control measures. | Project Environmental Lead/ Site Supervisor |
| • Detailed soil testing, Assessment, and classification | Project Environmental Lead |
| **Stockpile management and maintenance**<br>• Stockpiles must: | |

| | |
|---|---|
| 1. Be located within or at sites specifically identified for stockpiling<br>2. Be located on flat, grassed area where possible. Topsoil can be stored on both topsoil of the same type or subsoil, but subsoil can only be stored on top of subsoil.<br>3. Be covered where practical to do so.<br>4. Depending on the soil moisture or consistency (plastic or non-plastic) on average stockpile should be 3-4m high for dry topsoil and 2m for wet soil.<br>5. Not be positioned within the root or crown spread of trees, or adjacent to ditches, watercourses or existing or future excavations<br>6. Normally have slope angles of less than $40^0$. For stockpiles that are to be grass seeded and maintained, a maximum side slope of 1 in 2 (25°) is appropriate.<br>• Topsoil of ecological importance e.g. hedgerow or woodland soil should be stored separately from or not mixed with neighbouring agricultural soil to maintain biodiversity.<br>• Once the stockpile has been completed the area should be cordoned off with secure fencing to prevent any disturbance or contamination by other construction activities<br>• If the soil is to be stockpiled for more than six months, the surface of the stockpiles should be seeded with a grass or a mix of native species to minimise soil erosion, loss of soil nutrients and to help reduce infestation by nuisance weeds that might spread seed onto adjacent land.<br>• Weeds management should be undertaken during the summer months, either by spraying to kill them or by mowing or strimming to prevent their seeds being shed.<br>• In case of rainwater collection on top of stockpiles or storage area, drainage pathways leading into soak away areas should be provided. | Project Environmental Lead/ Project Manager/ Site Supervisor |
| **Spoil management**<br>• Re-use of material generated from the project site is to be maximised in preference to any import of fill.<br>• Unsuitable fill material is to be used for landscaping purposes on the project.<br>• Ensure all spoil/waste material removed from the site is assessed and classified in accordance with the UK government Guidance on the classification and assessment of waste, Technical Guidance WM3.<br>• Ensure that any spoil transported from the site is taken to a place that is legally permitted to accept it.<br>• Use registered and licensed waste carriers for the transportation of spoil to off-site. | Project Environmental Lead and Project Manager |

| | |
|---|---|
| • Cover all trucks transporting spoil to off-site locations and check tailgates are secured before leaving the site.<br>• Topsoil weed infestation should be identified by a qualified ecologist and should not be used in land scaping works unless treated. | Site Supervisor<br><br>Site Manager |
| **Dust management**<br>• Mitigation measures suggested in the CEMP should be implemented to minimise dust associated with spoil generation, handling and disposal or reuse. for example, spraying unseeded stockpiles with water during dry weather.<br>• Using sweepers to clean up any material that could have been dumped on the haulage road by the trucks | Project Manager<br><br>Site Supervisor |
| **Transport and traffic management**<br>• Up grading and mapping of designated haulage and light vehicles routes prior to the commencement of works. This entails having a traffic management plan in place.<br>• Transfer of large volumes of fill material between the different work sections or project phases should not coincide with peaks in delivery of construction materials.<br>• Conducting pre and post dilapidation surveys on all local roads within the project redline boundary used for haulage operations.<br>• Minimising the haulage distances between work sections. | Project Manager<br><br>Project Manager/ Designer |
| **Noise.**<br>• Ensure noise and vibration associated with spoil generation, handling and disposal or reuse is managed in accordance with mitigation measures outlined in the CEMP or Section 61 noise consents from the Local Authority.<br>• Obtaining a noise consent/ permit from the local council and Limiting work to day times 8am – 8pm.<br>• Consideration will be given to the use of unsuitable fill material as temporary or permanent noise mounds. | Project Manager |
| **Soil Erosion and Sedimentation control**<br>• Diversion banks or drains on the up-gradient sides to divert surface water around the stockpiling area.<br>• Sediment fencing, straw bales, silt traps and barriers for drains.<br>• Grassing / Turfing of embankments | Project Manager/ Supervisor |
| **Waste**<br>• Ensuring waste associated with spoil generation, handling and disposal or reuse is managed in accordance with mitigation measures outlined in the Site Waste Management Plan and MMP.<br>• Installation of wheel washing stations at project haulage exit point to minimise dumping of mud on public routes. The wheel stations should preferably be dry washers using vibrations to | Site Supervisor/ Project Manager |

| | |
|---|---|
| loosen soil from tyres as recommended in the CSET scheme Construction Environment Management Plan (CEMP).<br>• Store any hazardous and liquid wastes in a covered, labelled, and secure compound with an impermeable floor and appropriate bund walls.<br>• If suspected contaminated material is excavated, work will stop at the affected section until the material has been assessed and removed or stabilised. | |
| Post construction.<br>• All wastes at the completion of the project works shall be removed in a lawful manner<br>• Erosion and sediment control devices shall be removed once work areas have been restored.<br>• All exposed areas are to be returned to the condition of the land prior to works commencing, by compacting, sealing or re-vegetating soils as soon as practicable following completion of works. They should be restored in accordance with the Landscaping and Ecological Management Plan. | Project Manager/ Site Supervisor |

# 6. Monitoring and Reporting requirements.

**Preconstruction Phase.**

- It will be responsibility of the Project Environment Lead and Project Manager to ensure that appropriate environmental and planning approvals exist for sites identified for spoil reuse, recycling, storage or disposal.
- The Project Engineer and Manager will need to ensure soil sedimentation control measures are in place before project works can commence.

**Construction Phase.**

- The Project Environmental Lead should undertake inspections of erosion/sediment controls around stockpiles immediately following a storm, heavy rains, or high winds.

All materials subject to excavation, disposal, treatment and/or reuse must be tracked throughout, and evidence generated to provide an auditable trail. In the case of waste this is achieved via compliance with the Duty of Care requirements, e.g. description of waste and EWC code, completed Transfer or Consignment Notes and appropriately authorised facility(ies) with waste acceptance procedures set out in the Environmental Permit or Waste Exemption.

**Post construction phase.**

It is the responsibility of the Project Environmental Lead with the help of the Site Supervisor to ensure that sediment or erosion controls are removed upon completion of the site restoration works. It will also be the duty of the Project Manager and environmental lead to make sure that all spoil is either re-used, recycled, or disposed of in a lawful manner after completion of works.

If a CL:AIRE MMP is used a verification plan will be required. The Verification Plan must identify how the placement of materials is to be recorded and the quantity of material to be used. It should contain a statement on how the use of the materials relate to the remediation or design objectives. It is recognised that in some cases, it may not be possible to complete the works in accordance with the MMP. For example, if some out of specification treated material has to be discarded rather than used, or if different volumes of material are needed in certain parts of the site. In this event:

- Any deviations from the original MMP must be recorded in the document control Section of the MMP and may take the form of an addendum to the MMP and
- Any such changes must subsequently be detailed in the Verification Report.

# 7. Continuous Improvement

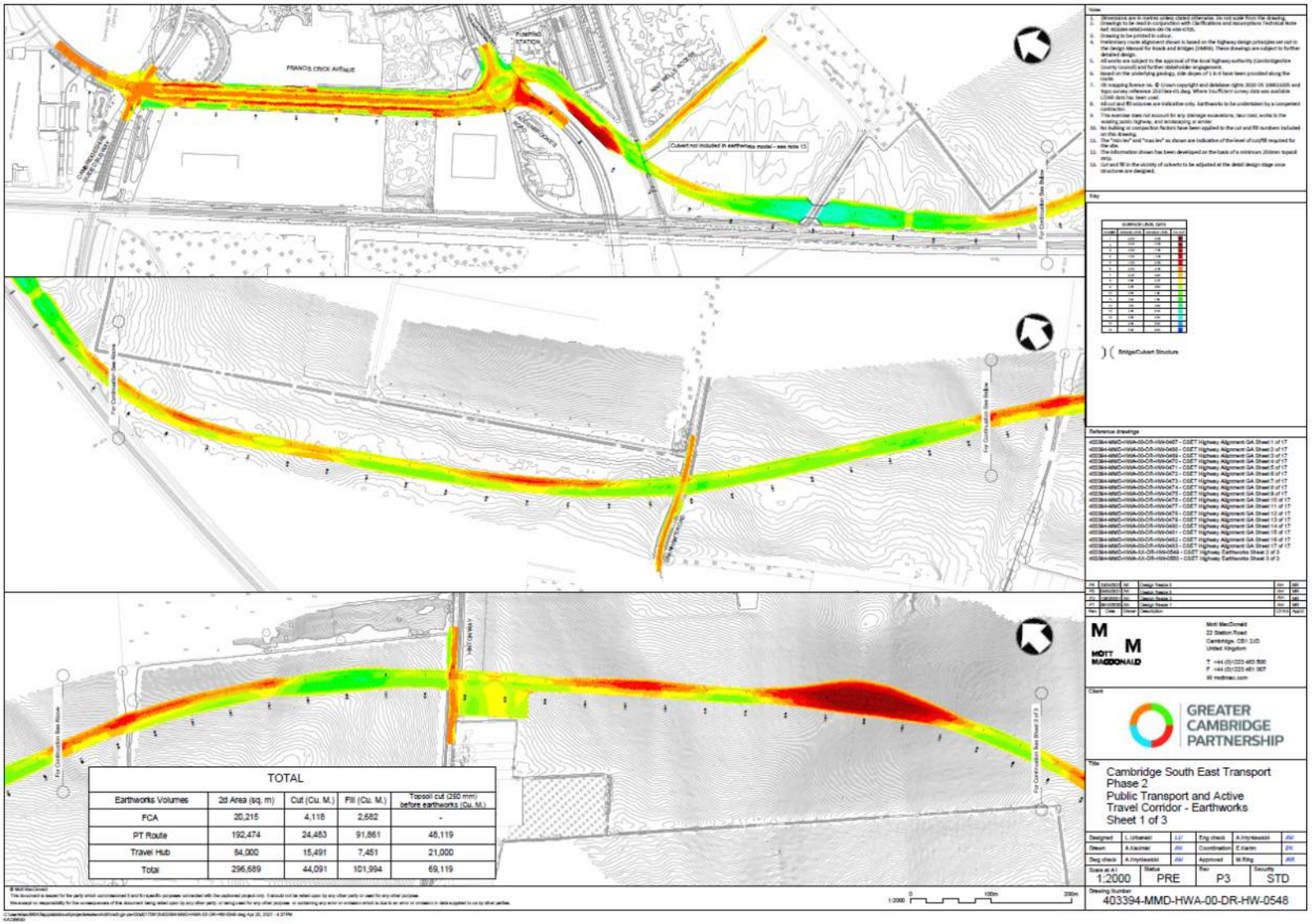
Continuous improvement of the Spoil Management Strategy will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives, and targets for the purpose of identifying opportunities for improvement. The continuous improvement process will be designed to:

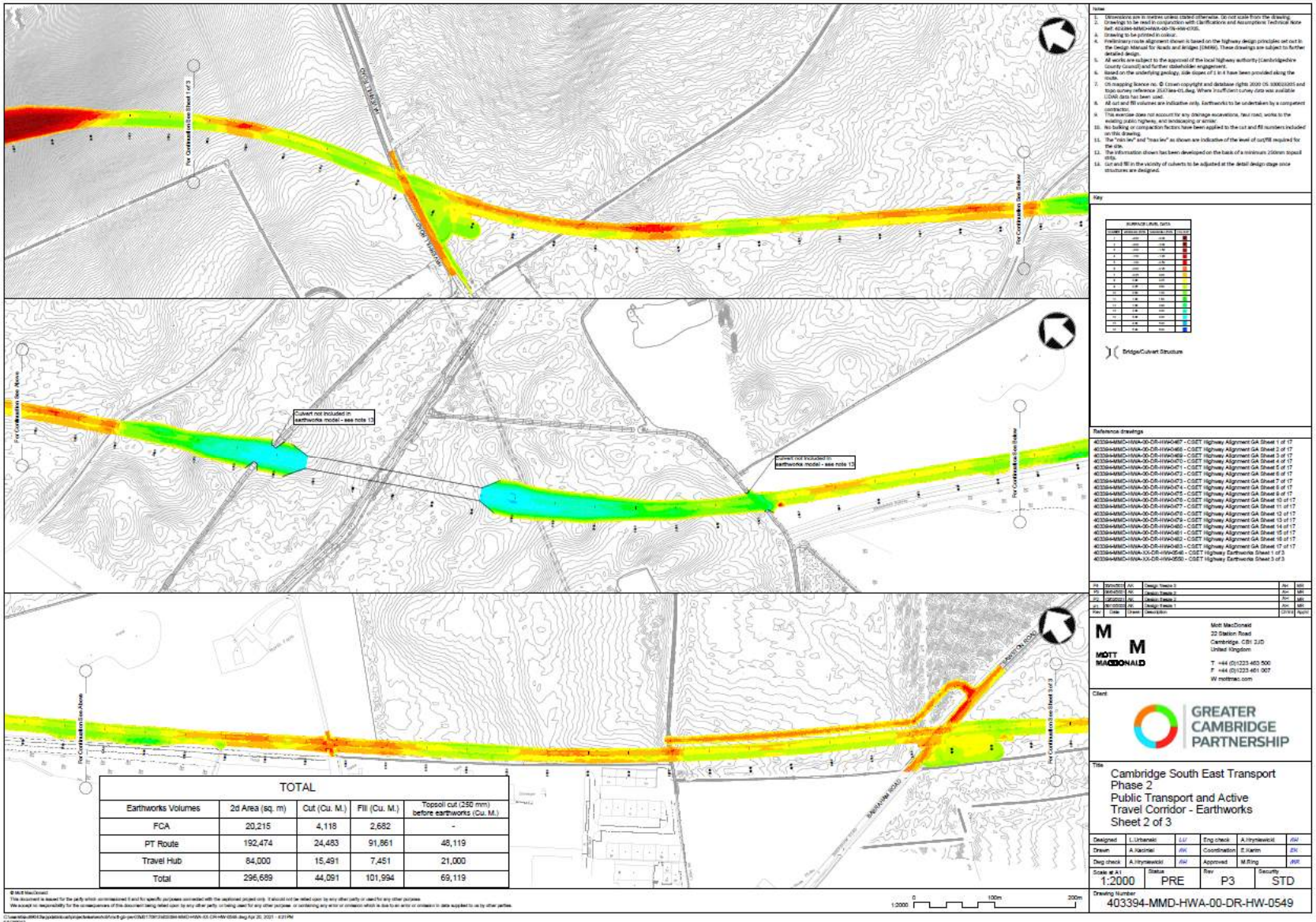
- Identify opportunities for environmental management and performance improvement.
- Determine the causes of non-conformances or deficiencies and implement a plan of corrective and preventative actions to address the root causes.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Compare the objectives with targets.

# 8. Amendments/Corrective action

Possible non-conformances may arise from non-compliance with the management measures and mitigation strategies suggested. Therefore, to ensure effective Spoil management all incidents and non-conformances are to be reported, investigated, and corrected in accordance with Construction Environmental Management Plan. All project staff will be notified of changes made to the spoil's management strategy and a copy of the updated strategy or changes distributed to all relevant stakeholders in accordance with the approved document control procedures.

# Appendix A: Earthworks

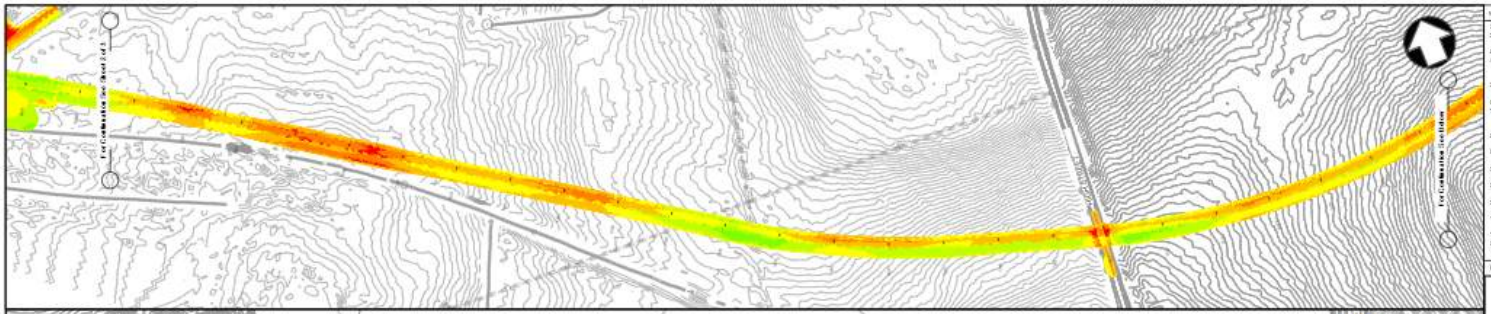

FRANCIS CRICK Avenue
PUMPING STATION
Culvert not included in earthworks model - see note 13
Bridge/Culvert Structure
For Continuation See Above
For Continuation See Below
For Continuation See Sheet 2 of 3
TOTAL
Earthworks Volumes | 2d Area (sq. m) | Cut (Cu. M.) | Fill (Cu. M.) | Topsoil cut (250 mm) before earthworks (Cu. M.)
FCA | 20,215 | 4,118 | 2,682 | -
PT Route | 192,474 | 24,483 | 91,861 | 48,119
Travel Hub | 84,000 | 15,491 | 7,451 | 21,000
Total | 296,689 | 44,091 | 101,994 | 69,119
MOTT MACDONALD
GREATER CAMBRIDGE PARTNERSHIP
Cambridge South East Transport
Phase 2
Public Transport and Active
Travel Corridor - Earthworks
Sheet 1 of 3
1:2000
PRE
P3
STD
403394-MMD-HWA-00-DR-HW-0548

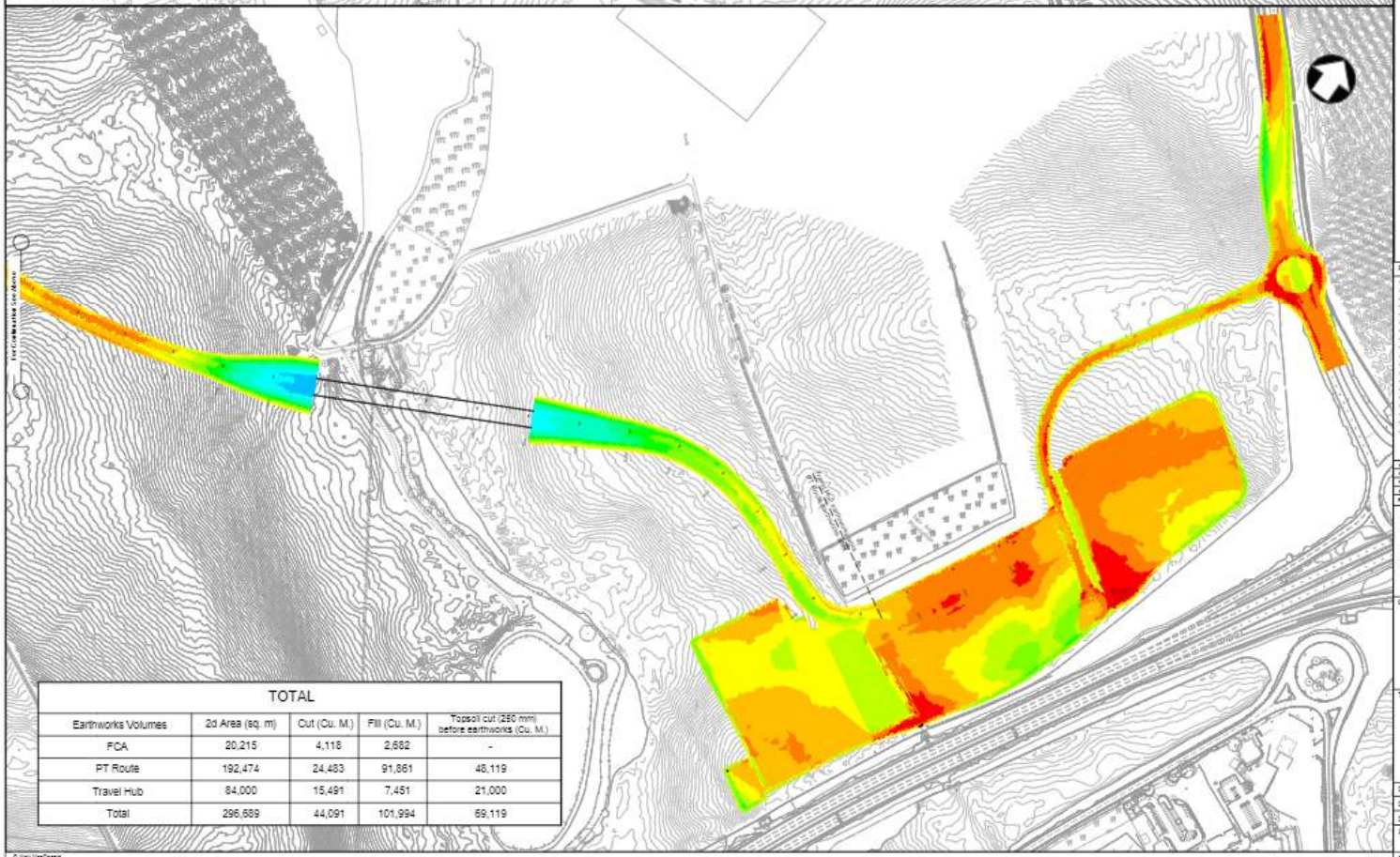



| TOTAL | | | | |
|---|---|---|---|---|
| Earthworks Volumes | 2d Area (sq. m) | Cut (Cu. M.) | Fill (Cu. M.) | Topsoil cut (250 mm) before earthworks (Cu. M.) |
| FCA | 20,215 | 4,118 | 2,682 | - |
| PT Route | 192,474 | 24,483 | 91,861 | 48,119 |
| Travel Hub | 84,000 | 15,491 | 7,451 | 21,000 |
| Total | 296,689 | 44,091 | 101,994 | 69,119 |

MILESTONE INFRASTRUCTURE

A part of MGroupServices





| TOTAL | | | | |
|---|---|---|---|---|
| Earthworks Volumes | 2d Area (sq. m) | Cut (Cu. M.) | Fill (Cu. M.) | Topsoil cut (250 mm) before earthworks (Cu. M.) |
| FCA | 20,215 | 4,118 | 2,682 | - |
| PT Route | 192,474 | 24,483 | 91,861 | 48,119 |
| Travel Hub | 84,000 | 15,491 | 7,451 | 21,000 |
| Total | 296,689 | 44,091 | 101,994 | 69,119 |

Notes

1. Dimensions are in metres unless stated otherwise. Do not scale from the drawing.
2. Drawings to be read in conjunction with Clarifications and Assumptions Technical Note Ref: 403890-MMD-HWA-00-RP-TH-HW-0002.
3. Drawing to be printed in colour.
4. Preliminary reuse alignment shown is based on the Highway design principles set out in the Design Manual for Roads and Bridges (DMRB). These drawings are subject to further detailed design.
5. All works are subject to the approval of the local highway authority (Cambridgeshire County Council) and further stakeholder engagement.
6. Based on the underlying geology, side slopes at 1 in 4 have been provided along the route.
7. OS mapping (licence no. © Crown copyright and database rights 2022 OS 100035331) and topographical survey reference 2287SiteOS.dwg. Where insufficient survey data was available LIDAR data has been used.
8. All cut and fill volumes are indicative only. Earthworks to be undertaken by a competent contractor.
9. This exercise does not account for any drainage excavations, haul road, works to the existing public highway, and landscaping or similar.
10. No bulking or compaction factors have been applied to the cut and fill numbers included on this drawing.
11. The "min cut" and "max cut" as shown are indicative of the 'level at' cut/fill required for the site.
12. The information shown has been developed on the basis of a minimum 250mm topsoil strip.
13. The levels in the Travel Hub may be subject to further refinement to optimise the cut and fill balance on the site.
14. Extent of cut & fill at High Street to be confirmed during later design stages.
15. Cut and fill in the vicinity of culverts to be adjusted at the detail design stage when structures are designed.

Key

SURFACE LEVEL (OAT)

| NUMBER | MINIMUM LEVEL | MAXIMUM LEVEL | RANGE |
|---|---|---|---|
| 1 | 7.00 | 10.00 | |
| 2 | 10.00 | 13.00 | |
| 3 | 13.00 | 16.00 | |
| 4 | 16.00 | 19.00 | |
| 5 | 19.00 | 22.00 | |
| 6 | 22.00 | 25.00 | |
| 7 | 25.00 | 28.00 | |
| 8 | 28.00 | 31.00 | |
| 9 | 31.00 | 34.00 | |
| 10 | 34.00 | 37.00 | |
| 11 | 37.00 | 40.00 | |
| 12 | 40.00 | 43.00 | |
| 13 | 43.00 | 46.00 | |
| 14 | 46.00 | 49.00 | |
| 15 | 49.00 | 52.00 | |
| 16 | 52.00 | 55.00 | |

Bridge/Culvert Structure

Reference drawings

403394-MMD-HWA-00-DR-HW-0067 - CSET Highway Alignment GA Sheet 1 of 17
403394-MMD-HWA-00-DR-HW-0068 - CSET Highway Alignment GA Sheet 2 of 17
403394-MMD-HWA-00-DR-HW-0069 - CSET Highway Alignment GA Sheet 3 of 17
403394-MMD-HWA-00-DR-HW-0070 - CSET Highway Alignment GA Sheet 4 of 17
403394-MMD-HWA-00-DR-HW-0071 - CSET Highway Alignment GA Sheet 5 of 17
403394-MMD-HWA-00-DR-HW-0072 - CSET Highway Alignment GA Sheet 6 of 17
403394-MMD-HWA-00-DR-HW-0073 - CSET Highway Alignment GA Sheet 7 of 17
403394-MMD-HWA-00-DR-HW-0074 - CSET Highway Alignment GA Sheet 8 of 17
403394-MMD-HWA-00-DR-HW-0075 - CSET Highway Alignment GA Sheet 9 of 17
403394-MMD-HWA-00-DR-HW-0076 - CSET Highway Alignment GA Sheet 10 of 17
403394-MMD-HWA-00-DR-HW-0077 - CSET Highway Alignment GA Sheet 11 of 17
403394-MMD-HWA-00-DR-HW-0078 - CSET Highway Alignment GA Sheet 12 of 17
403394-MMD-HWA-00-DR-HW-0079 - CSET Highway Alignment GA Sheet 13 of 17
403394-MMD-HWA-00-DR-HW-0080 - CSET Highway Alignment GA Sheet 14 of 17
403394-MMD-HWA-00-DR-HW-0081 - CSET Highway Alignment GA Sheet 15 of 17
403394-MMD-HWA-00-DR-HW-0082 - CSET Highway Alignment GA Sheet 16 of 17
403394-MMD-HWA-00-DR-HW-0083 - CSET Highway Alignment GA Sheet 17 of 17
403394-MMD-HWA-HX-DR-HW-0015 - CSET Highway Earthworks Sheet 1 of 3
403394-MMD-HWA-HX-DR-HW-0016 - CSET Highway Earthworks Sheet 2 of 3

| Rev | Date | Drawn | Description | Ch'kd | Appd |
|---|---|---|---|---|---|
| P1 | 30.01.2023 | JJK | Design Issue 3 | CH | LM |
| P2 | 08.02.2023 | JJK | Design Issue 3 | CH | LM |
| P3 | 03.03.2023 | JJK | Design Issue 3 | CH | LM |
| P4 | 20.10.2023 | JJK | Design Issue 3 | CH | LM |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Client

GREATER CAMBRIDGE PARTNERSHIP

Title

Cambridge South East Transport
Phase 2
Public Transport and Active Travel Corridor - Earthworks
Sheet 3 of 3

| | | | | | |
|---|---|---|---|---|---|
| Designed | L Urbanski | LU | Eng check | J Hryniewicki | KH |
| Drawn | J Kacmaz | AK | Coordination | E Karim | EK |
| Dsg check | J Hryniewicki | KH | Approved | M Ring | MR |

| Scale at A1 | Status | Rev | Security |
|---|---|---|---|
| 1:2000 | PRE | P3 | STD |

Drawing Number

403394-MMD-HWA-00-DR-HW-0550


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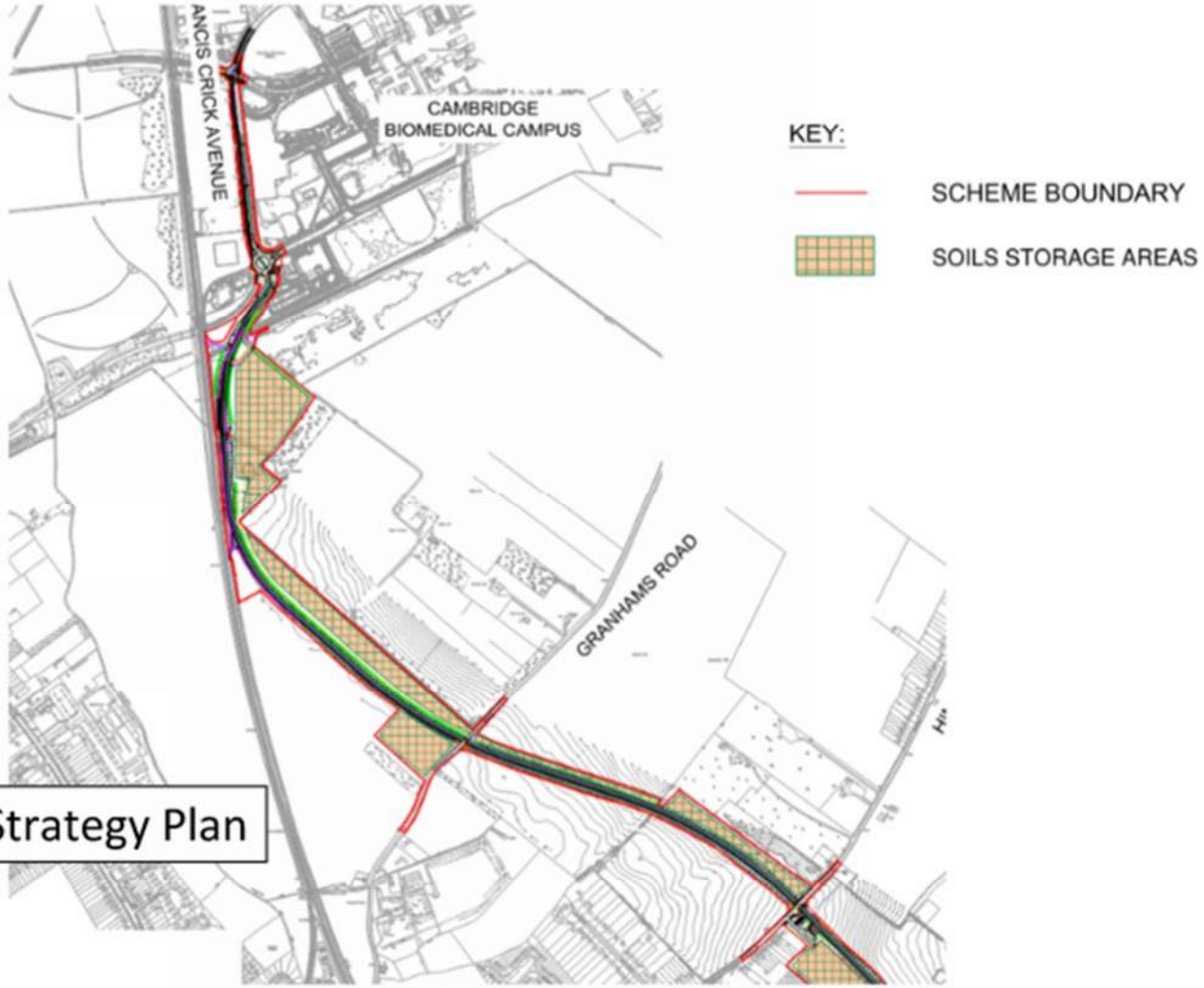
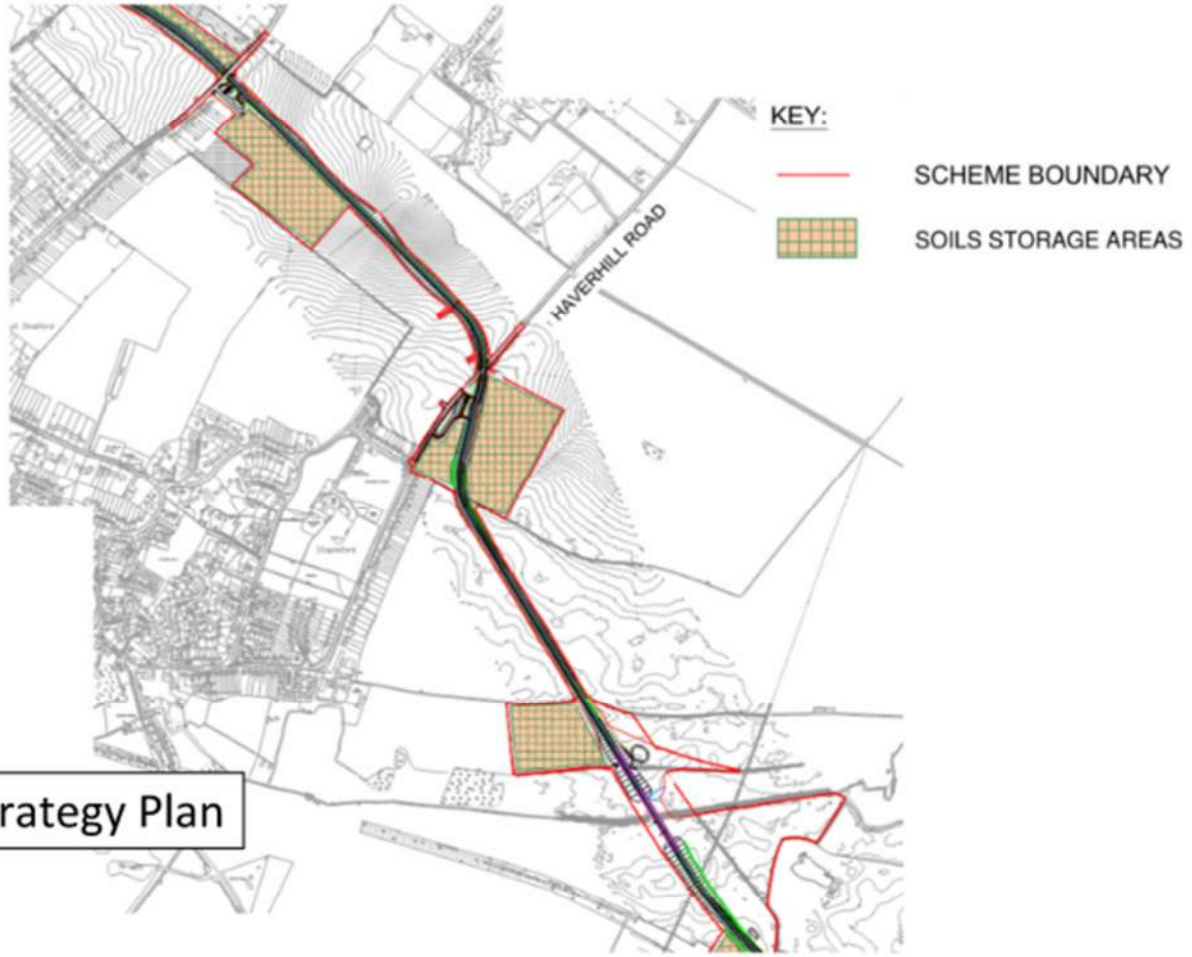
1:2000 0 100m 200m

## Appendix B: Spoils storage areas and Project Red Line Boundary



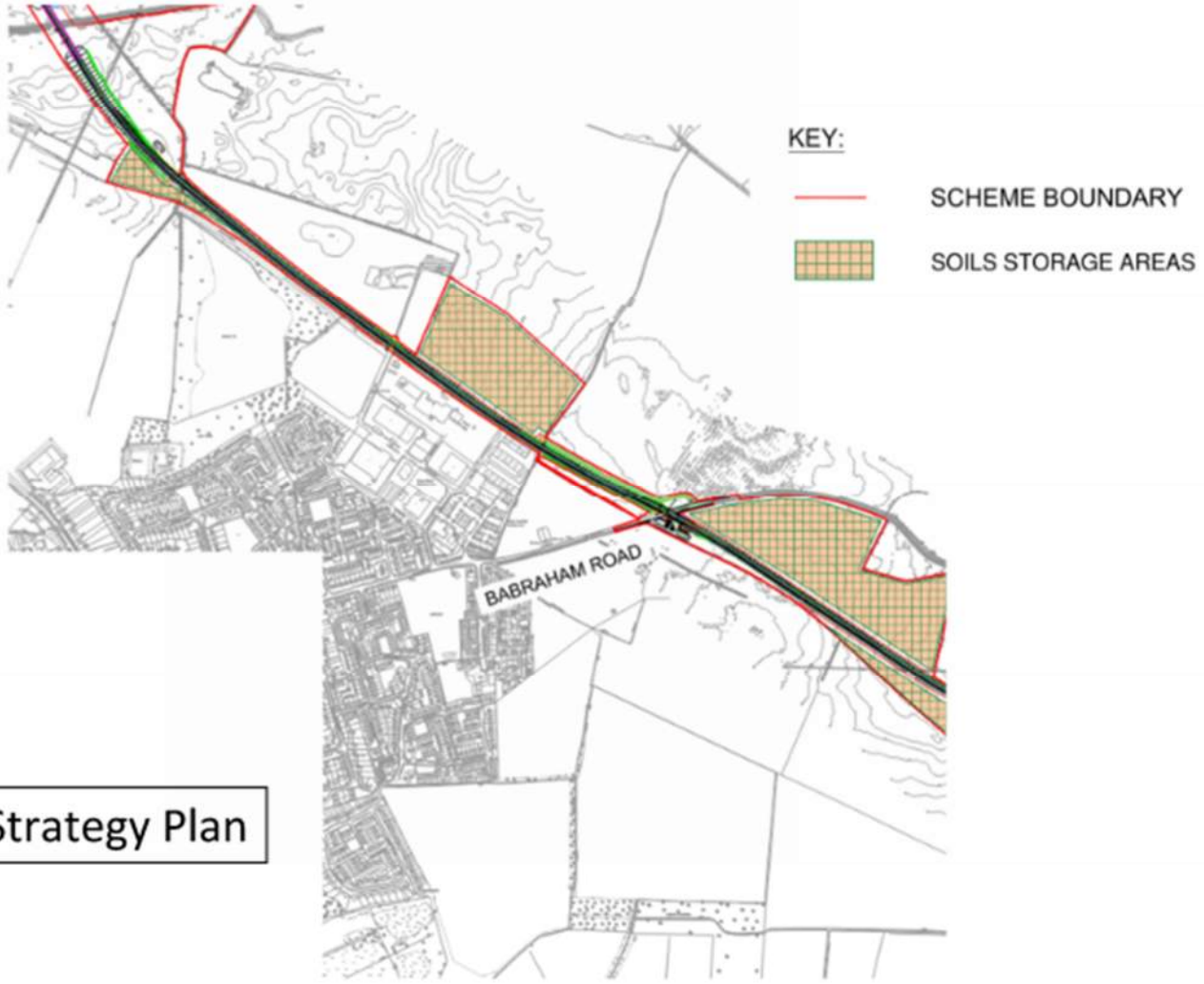

# Spoil Management Strategy Plan

Rev B




# Spoil Management Strategy Plan

Rev B

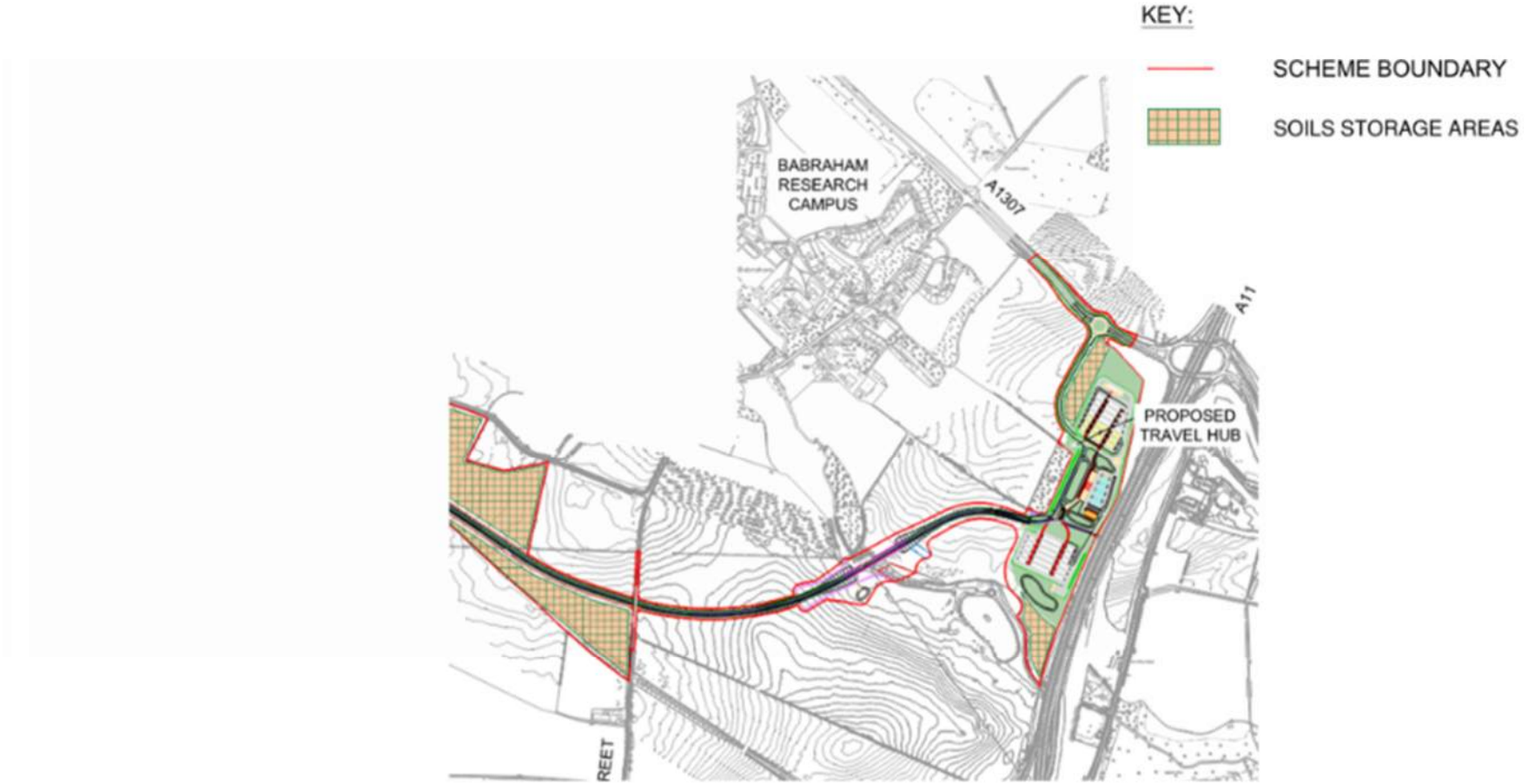



# Spoil Management Strategy Plan

Rev B

MILESTONE INFRASTRUCTURE
A part of MGroupServices

# Spoil Management Strategy Plan




Rev B