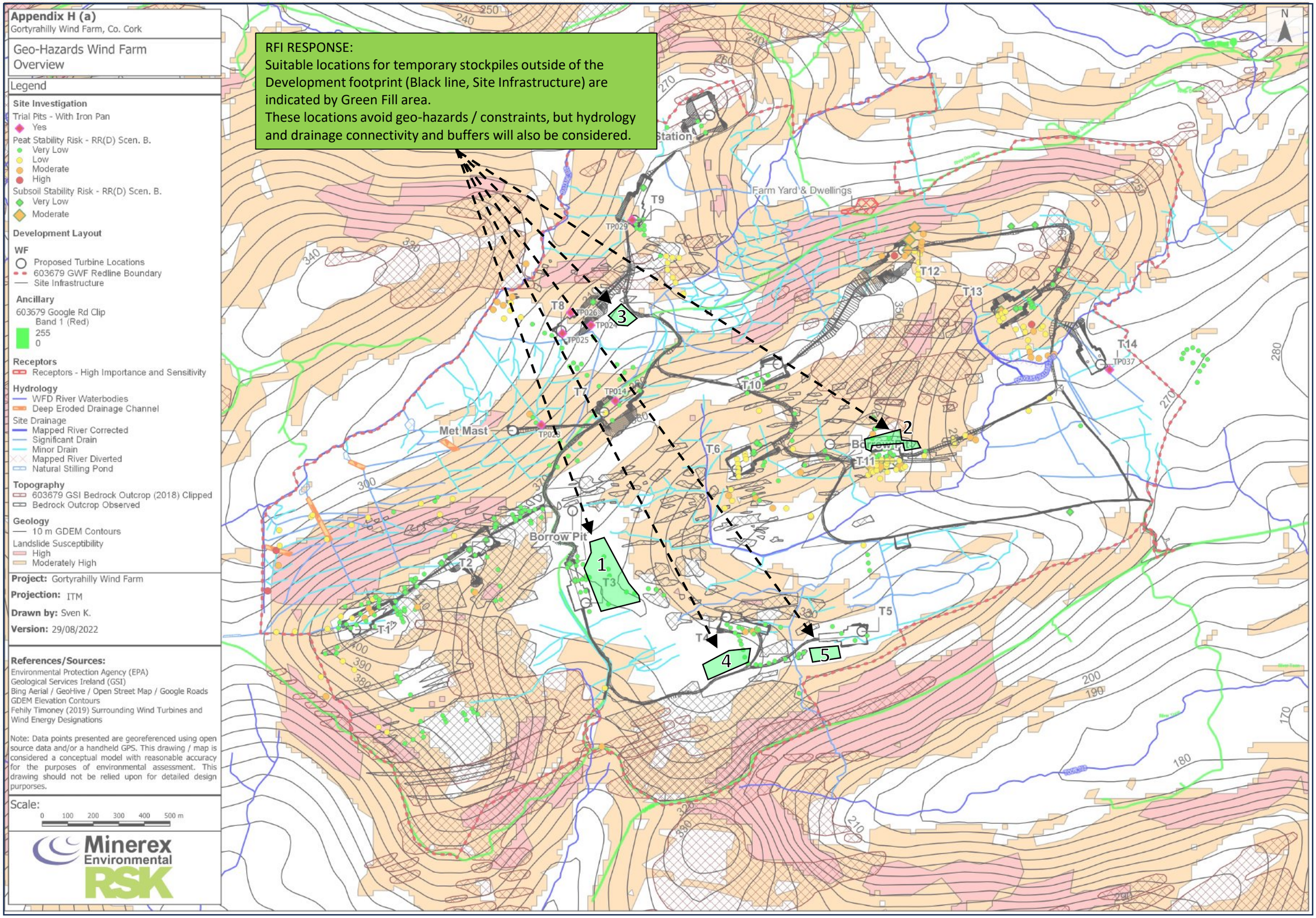
603679 Gortyrahilly WF RFI Response

Subject: Suitable Locations for Temporary Stockpiles (Annotated, Ref. EIAR Chapter 8 – Appendix 8.1 – Appendix H (a) Geo-Hazards Wind Farm Overview)

(SK 26/09/23) (File Ref. 603679 (01) RFI Response Graphics.ppt) (Print A3)

RSK



603679 Gortyrahilly WF RFI Response

Subject: Suitable Locations for Temporary Stockpiles (Annotated, Ref. EIAR Chapter 8 – Appendix 8.1 – Appendix H (b) Geo-Hazards Wind Farm W/NW)

(SK 20/09/23) (File Ref. 603679 (00) RFI Response Graphics.ppt) (Print A3)

Appendix H (b)

Gortyrahilly Wind Farm, Co. Cork

Geo-Hazards Western / North Western Area of the Site

Western / North Western area of site referred to re. elevated stability risk in deeper tills.
Areas possess steep incline, deep tills, hydrological/hydrogeological modification, deeply eroded drainage channels, high landslide sysceptibility (GSI), iron pan.

Legend

Site Investigation

Trial Pits - With Iron Pan
- Yes

Peat Stability Risk - RR(D) Scen. B.
- Very Low
- Low
- Moderate
- High

Subsoil Stability Risk - RR(D) Scen. B.
- Very Low

Development Layout

WF
- Proposed Turbine Locations
- 603679 GWF Redline Boundary
- Site Infrastructure

Ancillary

603679 Google Rd Clip
Band 1 (Red)
255
0

Hydrology
- WFD River Waterbodies
- Deep Eroded Drainage Channel

Site Drainage
- Significant Drain
- Minor Drain
- Natural Stilling Pond

Topography
- 603679 GSI Bedrock Outcrop (2018) Clipped
- Bedrock Outcrop Observed

Geology
- 10 m GDEM Contours

Landslide Susceptibility
- High
- Moderately High

Project: Gortyrahilly Wind Farm

Projection: ITM

Drawn by: Sven K.

Version: 29/08/2022

References/Sources:
Environmental Protection Agency (EPA)
Geological Services Ireland (GSI)
Bing Aerial / GeoHive / Open Street Map / Google Roads
GDEM Elevation Contours
Fehily Timoney (2019) Surrounding Wind Turbines and Wind Energy Designations

Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design purposes.

Scale: 0 0.1 0.2 km

Minerex Environmental RSK

N

T1 T2 T3 T4 T7 T8
TP014 TP024 TP025 TP026 TP028
Met Mast
Borrow Pit
340 280 290 310 320 330 340 350 360 370 300 380 390 400

603679 Gortyrahilly WF RFI Response

Subject: Suitable Locations for Temporary Stockpiles (Annotated, Ref. EIAR Chapter 8 – Appendix 8.1 – Appendix H (c) Geo-Hazards Wind Farm E/SE)

(SK 20/09/23) (File Ref. 603679 (00) RFI Response Graphics.ppt) (Print A3)

Appendix H (c)

Gortyrahilly Wind Farm, Co. Cork

Geo-Hazards Eastern / South Eastern Area of the Site

Legend

Site Investigation

Trial Pits - With Iron Pan
- Yes

Peat Stability Risk - RR(D) Scen. B.
- Very Low
- Low
- Moderate
- High

Subsoil Stability Risk - RR(D) Scen. B.
- Very Low
- Moderate

Development Layout

WF
- Proposed Turbine Locations
- 603679 GWF Redline Boundary
- Site Infrastructure

Ancillary

603679 Google Rd Clip Band 1 (Red)
- 255
- 0

Receptors
- Receptors - High Importance and Sensitivity

Hydrology
- WFD River Waterbodies

Site Drainage
- Mapped River Corrected
- Significant Drain
- Minor Drain
- Mapped River Diverted

Topography
- 603679 GSI Bedrock Outcrop (2018) Clipped
- Bedrock Outcrop Observed

Geology
- 10 m GDEM Contours

Landslide Susceptibility
- High
- Moderately High

Project: Gortyrahilly Wind Farm

Projection: ITM

Drawn by: Sven K.

Version: 29/08/2022

References/Sources:

Environmental Protection Agency (EPA)
Geological Services Ireland (GSI)
Bing Aerial / GeoHive / Open Street Map / Google Roads
GDEM Elevation Contours
Fehily Timoney (2019) Surrounding Wind Turbines and Wind Energy Designations

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Scale: 0 0.1 0.2 km

Minerex Environmental RSK

Western / North Western area of site referred to re. elevated stability risk in deeper tills.
Areas possess steep incline, potential for deep tills, hydrological/hydrogeological modification, deeply eroded drainage channels, high landslide sysceptibility (GSI), potential for iron pan.

Location of highly sensitive receptor (dwelling / farm yard) c. 200 m distance downgradient from T12

Farm Yard & Dwellings

Elevated stability risk due to geo-hazards - pockets deep peat, steep inclince etc, and proximity to sensitive receptors (yard / dwelling).

Elevated stability risk due to potential for pockets of deeper peat, and proximity to sensitive receptors (surface water)

T10 T11 T12 T13 T14 T6 TP037 Borrow Pit

River Douglas

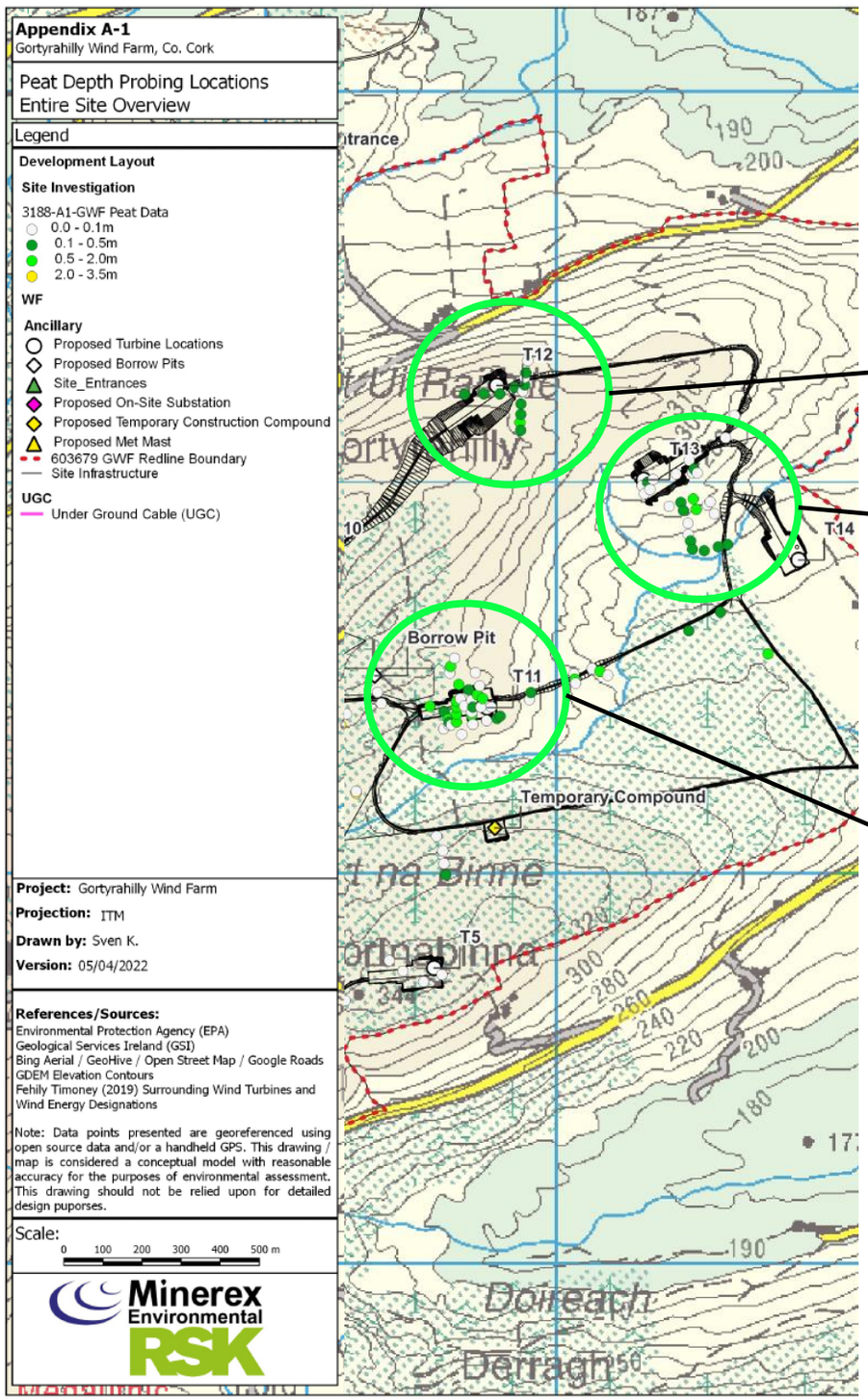
230 240 250 260 270 280 290 300 310 320 330 340 360 370

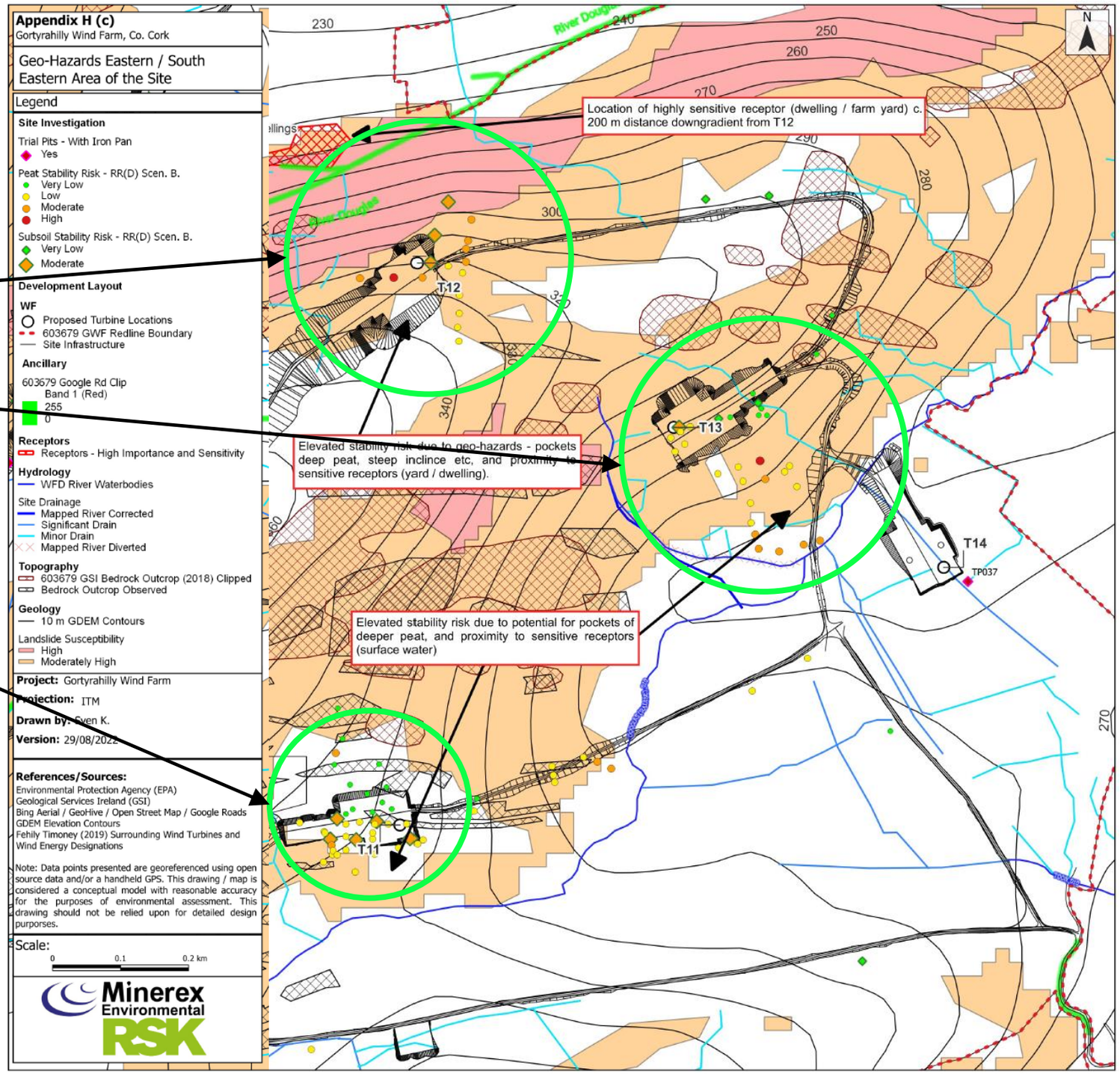
N

603679 Gortyrahilly WF RFI Response

Subject: Clarifying Stability Risk Assessment Results and Interpretation (Ref. EIAR Chapter 8 – Appendix 8.1 – Appendix A-1 and Appendix H(c)).

(SK 20/09/23) (File Ref. 603679 (00) RFI Response Graphics.ppt) (Print A3)





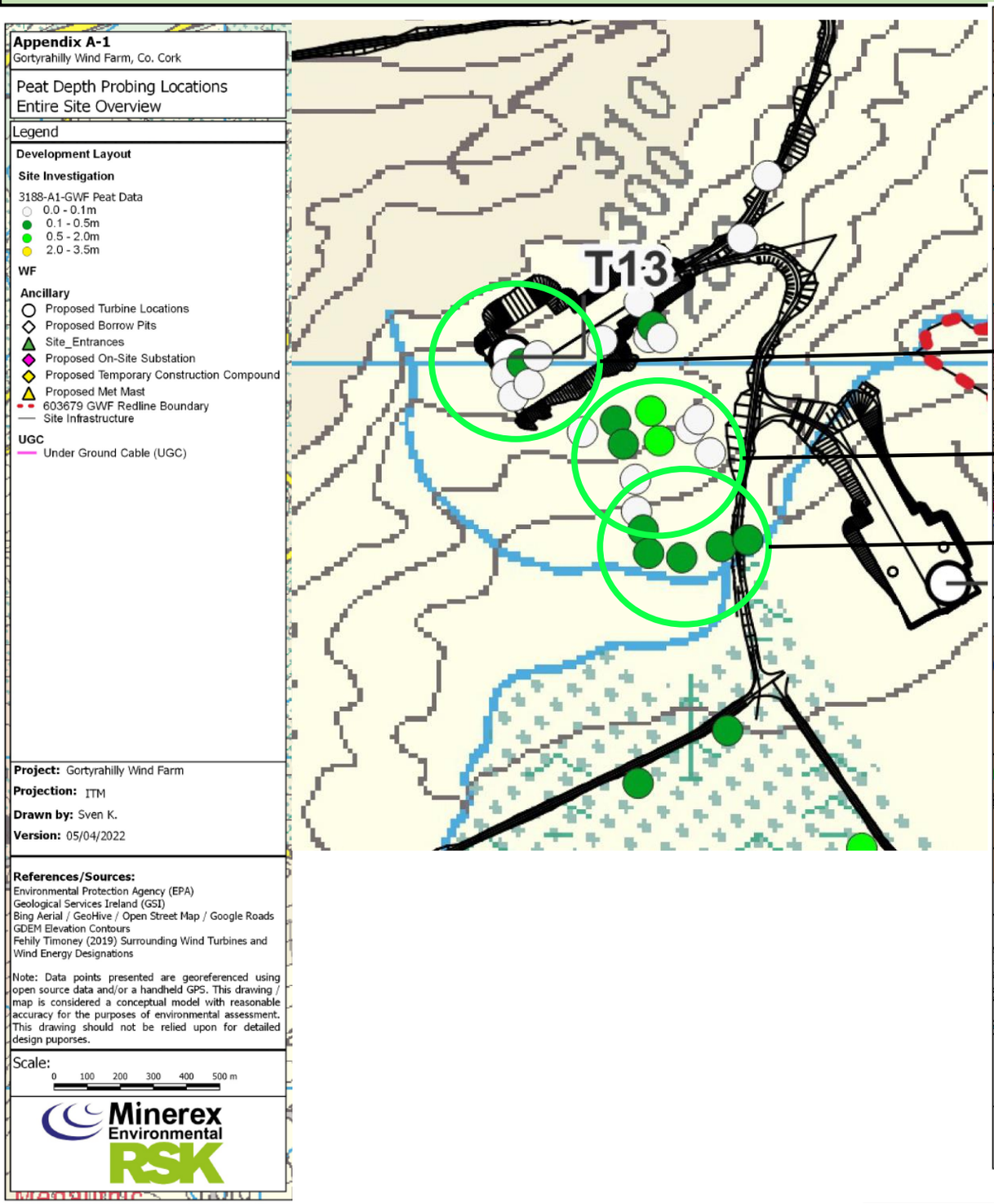
RFI RESPONSE:
Note general shallow peat depth. Generally ranging to 0m (rock at surface) to 0.5m depth, with some isolated pockets ranging up to 2.0m.

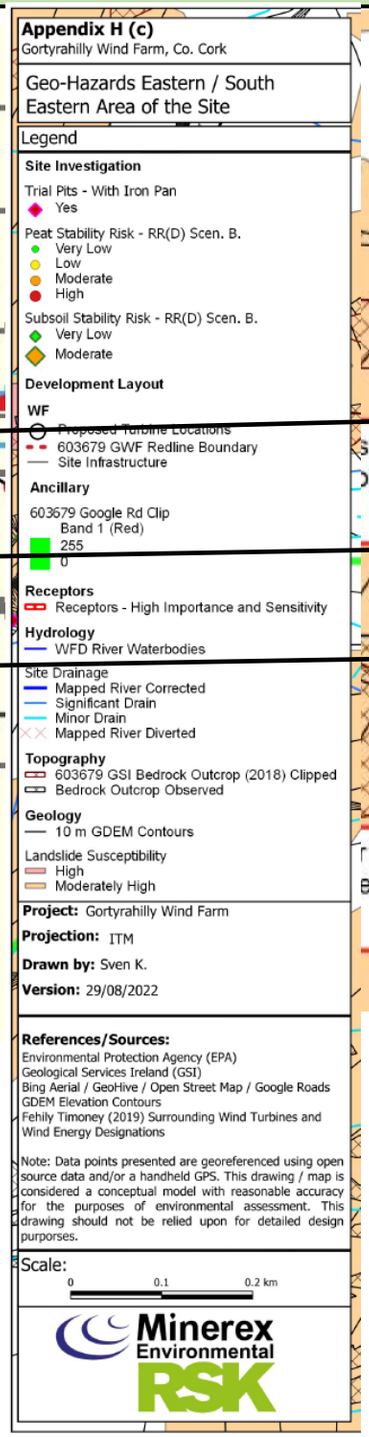
RFI RESPONSE:
Note corresponding Risk Ranking Results (RR(D)). Despite peat depths being generally shallow and with numerous rocky outcrops (0.0m) points recorded, the sampling points present as having Low to High risk. The elevated RR(D) is driven by a range of factors including slope incline and proximity to receptor, and therefore, the overall risk of a significant landslide event occurring is low, and residual localized risk will be mitigated through a broad suite of measures.

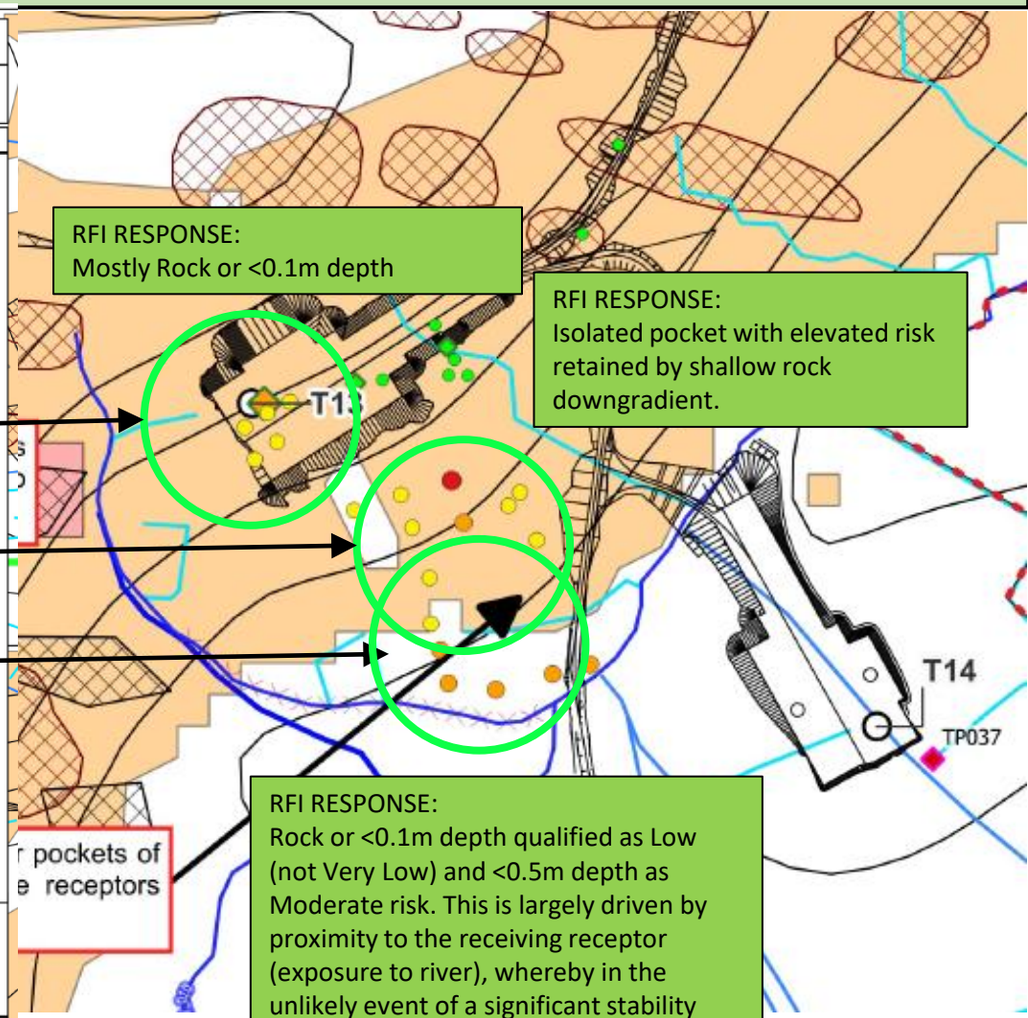
603679 Gortyrahilly WF RFI Response

Subject: Clarifying Stability Risk Assessment Results and Interpretation – T13 (Ref. EIAR Chapter 8 – Appendix 8.1 – Appendix A-1 and Appendix H(c)).

(SK 20/09/23) (File Ref. 603679 (01) RFI Response Graphics.ppt) (Print A3)







RFI RESPONSE:
Note corresponding Risk Ranking Results (RR(D)). Despite peat depths being generally shallow and with numerous rocky outcrops (0.0m) points recorded, the sampling points present as having Low to High risk. The elevated RR(D) is driven by a range of factors including slope incline and proximity to receptor, and therefore; although site conditions are challenging and localized stability issues will arise during construction works, the overall risk of a significant landslide event occurring is generally low, and residual localized risk will be mitigated through a broad suite of measures.

603679 Gortyrahilly WF RFI Response

Subject: Suitable Locations for Temporary Stockpiles (Annotated, Ref. EIAR Chapter 9 – Figure 9.8(f) Development Constraints (S))

(SK 26/09/23) (File Ref. 603679 (01) RFI Response Graphics.ppt) (Print A3)

EIAR Figure 9.8 (f)
Gortyrahilly Wind Farm, Co. Cork

Development Constraints (S)

Legend

Development Layout

WF

Ancillary
- Proposed Turbine Locations
- Proposed Borrow Pits
- Proposed Temporary Construction Compound
- Proposed Met Mast
- Settlement Ponds
- Proposed Watercourse Crossings
- Proposed Culverts
- Existing Culverts
- 603679 GWF Redline Boundary
- Site Infrastructure

Hydrology
- WFD River Waterbodies

Site Drainage

Site Drainage
- Significant Drain
- Minor Drain
- Deep Eroded Drainage Channel
- 15 m Drainage Buffer
- 50m SW Buffer

Geology

Landslide_Susceptibility
- High

Base Maps

OpenStreetMap

Project: Gortyrahilly Wind Farm
Projection: ITM
Drawn by: Sven K.
Version: 05/04/2022

References/Sources:
Environmental Protection Agency (EPA)
Geological Services Ireland (GSI)
Bing Aerial / GeoHive / Open Street Map / Google Roads
GDEM Elevation Contours
Fehily Timoney (2019) Surrounding Wind Turbines and Wind Energy Designations

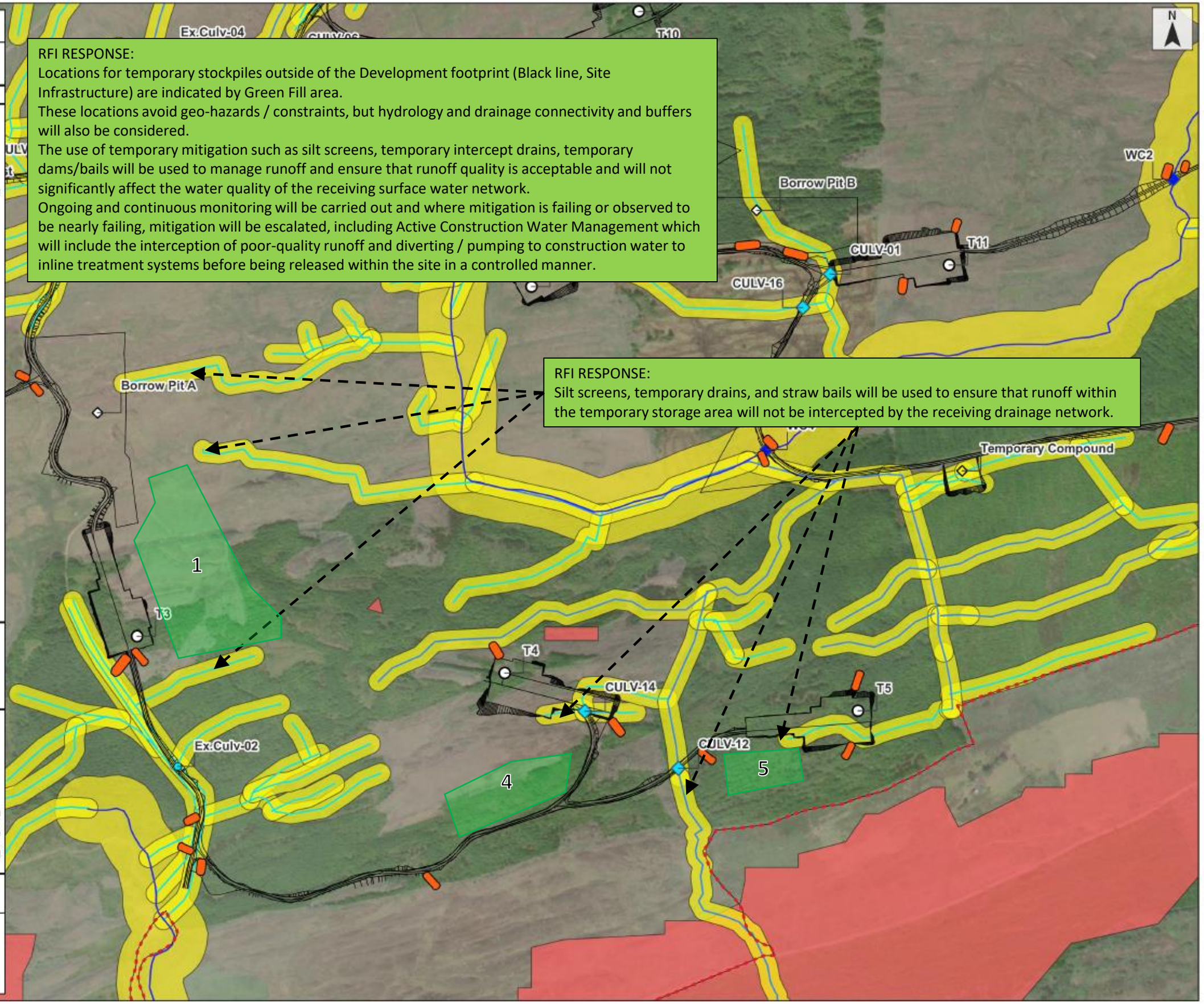
Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Scale: 0 0.1 0.2 km

Minerex Environmental RSK

RFI RESPONSE:
Locations for temporary stockpiles outside of the Development footprint (Black line, Site Infrastructure) are indicated by Green Fill area.
These locations avoid geo-hazards / constraints, but hydrology and drainage connectivity and buffers will also be considered.
The use of temporary mitigation such as silt screens, temporary intercept drains, temporary dams/bails will be used to manage runoff and ensure that runoff quality is acceptable and will not significantly affect the water quality of the receiving surface water network.
Ongoing and continuous monitoring will be carried out and where mitigation is failing or observed to be nearly failing, mitigation will be escalated, including Active Construction Water Management which will include the interception of poor-quality runoff and diverting / pumping to construction water to inline treatment systems before being released within the site in a controlled manner.

RFI RESPONSE:
Silt screens, temporary drains, and straw bails will be used to ensure that runoff within the temporary storage area will not be intercepted by the receiving drainage network.



603679 Gortyrahilly WF RFI Response

Subject: Suitable Locations for Temporary Stockpiles (Annotated, Ref. EIAR Chapter 9 – Figure 9.8(d) Development Constraints (NE))

(SK 26/09/23) (File Ref. 603679 (01) RFI Response Graphics.ppt) (Print A3)

EIAR Figure 9.8 (d)
Gortyrahilly Wind Farm, Co. Cork

Development Constraints (NE)

Legend

Development Layout

WF

Ancillary
- Proposed Turbine Locations
- Proposed Borrow Pits
- Settlement Ponds
- Proposed Watercourse Crossings
- Proposed Culverts
- Existing Watercourse Crossings
- Existing Culverts
- 603679 GWF Redline Boundary
- Site Infrastructure

UGC
- Under Ground Cable (UGC)

Hydrology
- WFD River Waterbodies

Site Drainage

Site Drainage
- Mapped River Corrected
- Significant Drain
- Minor Drain
- 15 m Drainage Buffer
- 50m SW Buffer

Geology

Landslide_Susceptibility
- High

Base Maps

OpenStreetMap

Project: Gortyrahilly Wind Farm

Projection: ITM

Drawn by: Sven K.

Version: 05/04/2022

References/Sources:
Environmental Protection Agency (EPA)
Geological Services Ireland (GSI)
Bing Aerial / GeoHive / Open Street Map / Google Roads
GDEM Elevation Contours
Fehily Timoney (2019) Surrounding Wind Turbines and Wind Energy Designations

Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Scale:
0 0.1 0.2 km

Minerex Environmental
RSK

RFI RESPONSE:
Locations for temporary stockpiles outside of the Development footprint (Black line, Site Infrastructure) are indicated by Green Fill area.
These locations avoid geo-hazards / constraints, but hydrology and drainage connectivity and buffers will also be considered.
The use of temporary mitigation such as silt screens, temporary intercept drains, temporary dams/bails will be used to manage runoff and ensure that runoff quality is acceptable and will not significantly affect the water quality of the receiving surface water network.
Ongoing and continuous monitoring will be carried out and where mitigation is failing or observed to be nearly failing, mitigation will be escalated, including Active Construction Water Management which will include the interception of poor-quality runoff and diverting / pumping to construction water to inline treatment systems before being released within the site in a controlled manner.

RFI RESPONSE:
Silt screens, temporary drains, and straw bails will be used to ensure that runoff within the temporary storage area will not be intercepted by the receiving drainage network.

N

Ex.SWC-05
CULV-17
T12
Ex.Culv-10
CULV-02
Ex.Culv-07
CULV-11
CULV-15
T13
WC5
WC1
T14
CULV-10
T10
WC2
Borrow Pit B
2
CULV-13
CULV-01
T11
T6
CULV-16
WC3
Ex.SWC-04

603679 Gortyrahilly WF RFI Response

Subject: Suitable Locations for Temporary Stockpiles (Annotated, Ref. EIAR Chapter 9 – Figure 9.8(c) Development Constraints (NW))

(SK 26/09/23) (File Ref. 603679 (01) RFI Response Graphics.ppt) (Print A3)

EIAR Figure 9.8 (c)
Gortyrahilly Wind Farm, Co. Cork

Development Constraints (NW)

Legend

Development Layout

WF

Ancillary
- Proposed Turbine Locations
- Proposed Borrow Pits
- Site_Entrances
- Proposed On-Site Substation
- Proposed Met Mast
- Settlement Ponds
- Proposed Culverts
- Existing Watercourse Crossings
- Existing Culverts
- 603679 GWF Redline Boundary
- Site Infrastructure

UGC
- Under Ground Cable (UGC)

Hydrology
- WFD River Waterbodies

Site Drainage

Site Drainage
- Significant Drain
- Minor Drain
- Deep Eroded Drainage Channel
- 15 m Drainage Buffer
- 50m SW Buffer

Geology

Landslide_Susceptibility
- High

Base Maps

OpenStreetMap

Project: Gortyrahilly Wind Farm

Projection: ITM

Drawn by: Sven K.

Version: 05/04/2022

References/Sources:
Environmental Protection Agency (EPA)
Geological Services Ireland (GSI)
Bing Aerial / GeoHive / Open Street Map / Google Roads
GDEM Elevation Contours
Fehily Timoney (2019) Surrounding Wind Turbines and Wind Energy Designations

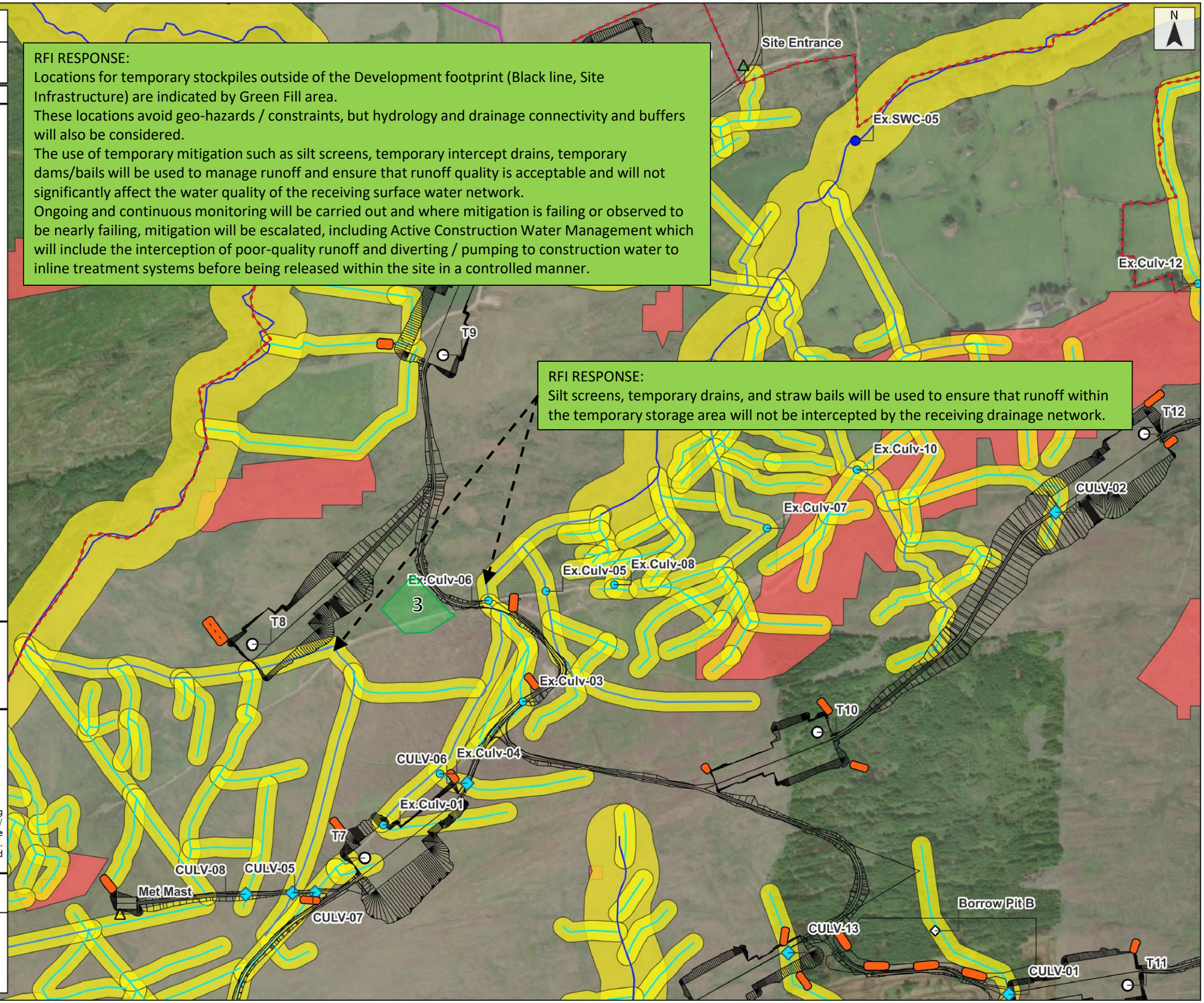
Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Scale:
0 0.1 0.2 km

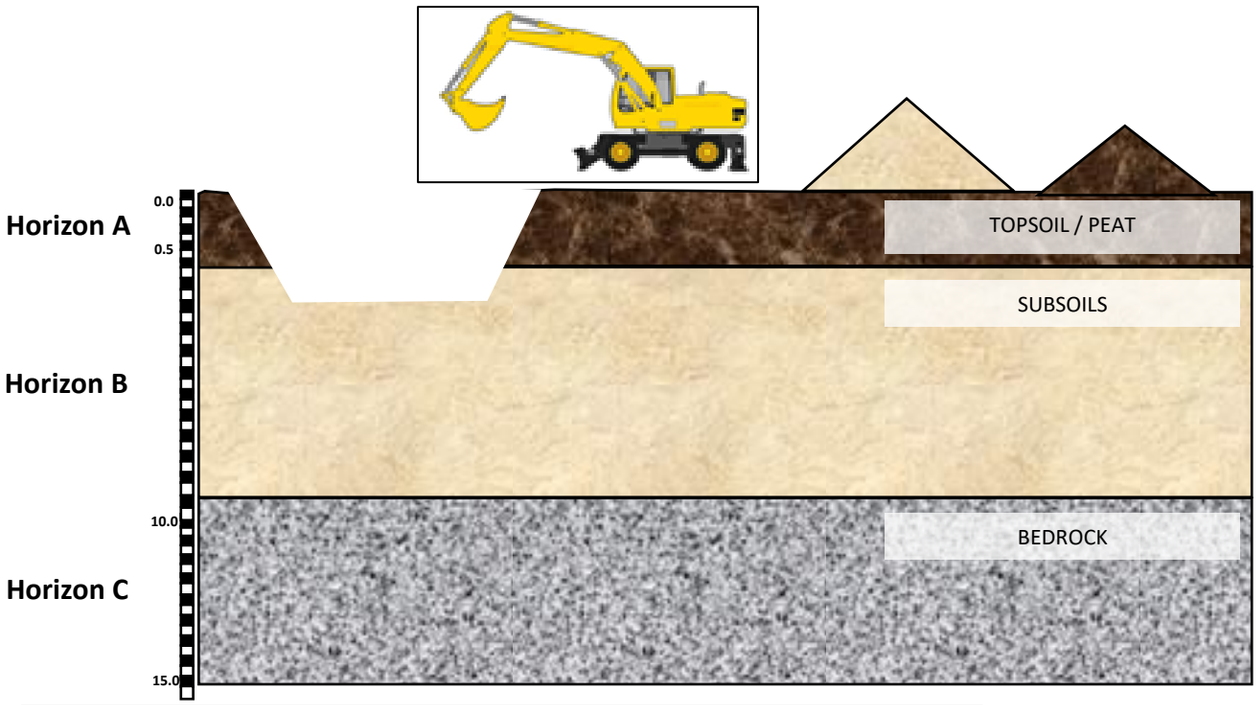
Minerex Environmental
RSK

RFI RESPONSE:
Locations for temporary stockpiles outside of the Development footprint (Black line, Site Infrastructure) are indicated by Green Fill area.
These locations avoid geo-hazards / constraints, but hydrology and drainage connectivity and buffers will also be considered.
The use of temporary mitigation such as silt screens, temporary intercept drains, temporary dams/bails will be used to manage runoff and ensure that runoff quality is acceptable and will not significantly affect the water quality of the receiving surface water network.
Ongoing and continuous monitoring will be carried out and where mitigation is failing or observed to be nearly failing, mitigation will be escalated, including Active Construction Water Management which will include the interception of poor-quality runoff and diverting / pumping to construction water to inline treatment systems before being released within the site in a controlled manner.

RFI RESPONSE:
Silt screens, temporary drains, and straw bails will be used to ensure that runoff within the temporary storage area will not be intercepted by the receiving drainage network.

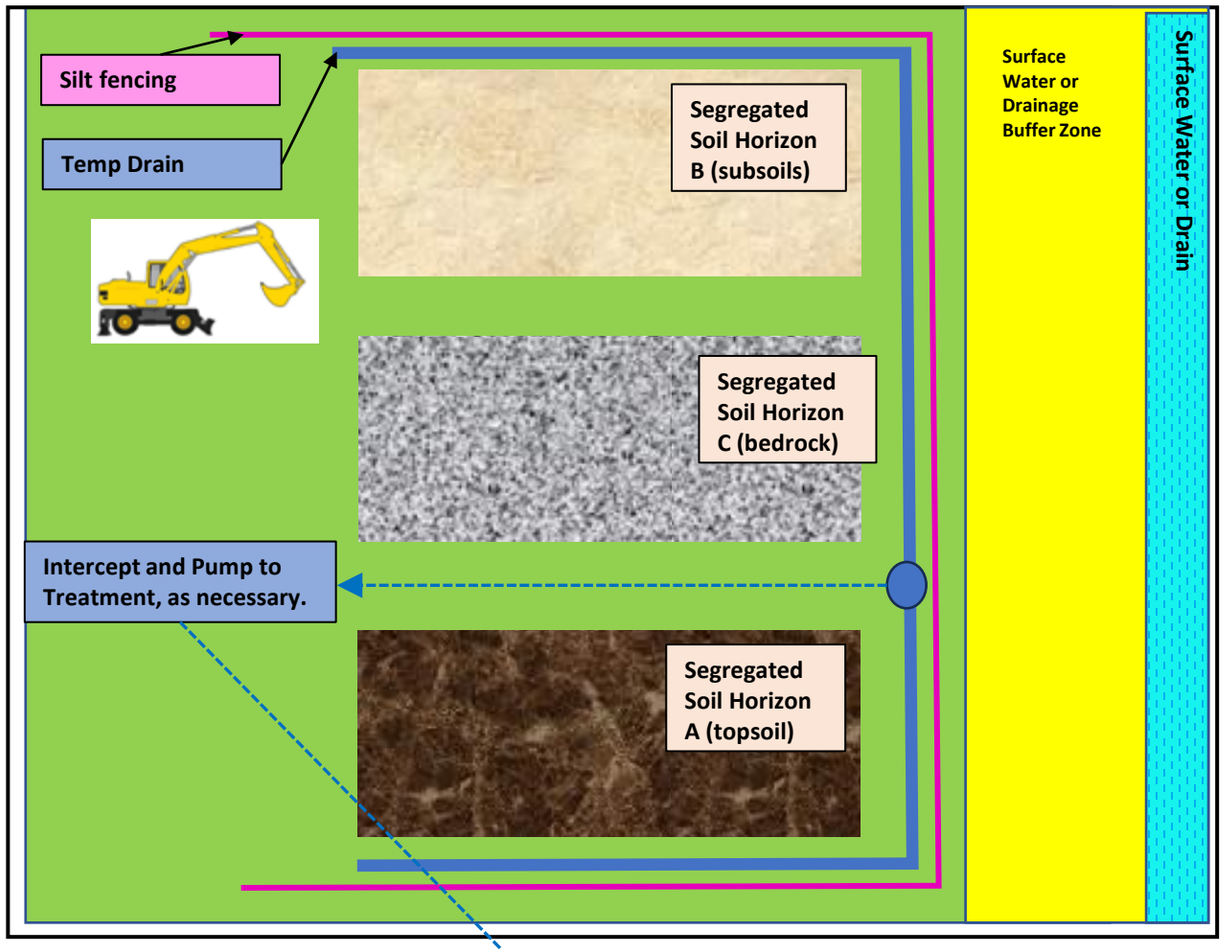


603679 Gortyrahilly WF RFI Response
Subject: Suitable Locations for Temporary Stockpiles – Management of Excavation Arisings)
(SK 20/09/23) (File Ref. 603679 (00) RFI Response Graphics.ppt) (Print A3)



Section View – Example of Segregating Excavation Arisings

- The three principal materials excavated in order of depth will include topsoil at the surface, subsoils, and weathered and broken bedrock (Horizons A-C, respectfully).
- On receipt of consent, a geotechnical site investigation will be undertaken, including trial pitting to obtain higher resolution data on soil stratigraphy and soil types.
- A suitably qualified geotechnical / soil scientist will supervise all excavation and the principal material types (topsoil, subsoil and bedrock) will be segregated as they arise.
- Temporary storage locations and stockpiled arisings will be managed in such a way that as to not mix induvial soils types which will, in turn will facilitate reuse on Site. Some measures which will be taken include;
    - Designated areas for each type of material which will be adequately sized based on Material Balance Assessment calculations and planned storage height.
    - Incorporating the planned movement of materials for example; Topsoil will be the first material to be excavated and the last to be used in reinstatement.
    - Adequate space between stockpiles to reduce the potential of mixing when material is being deposited or removed, or if localized stability issues arise for example; stockpile collapse.
    - It is also important to mitigate against the entrainment of solids in runoff (EIAR Chapter 9 – Hydrology & hydrogeology).
- In order to reduce the amount of arisings to be managed or stored at any one time during the construction phase, a Materials Balance Assessment and Materials Management Plan will be developed with a view to identifying suitable locations for permanent reinstatement as early as possible, for example; as the construction phase progresses, opportunities to move arisings to a permanent reinstatement area in one movement will be taken as often as possible.
- Backfilling in layers will be carried out at the designated reinstatement locations, this will include; use of material as fill under infrastructure, backfill around newly installed infrastructure e.g. foundations, and potentially in improvement areas.
- Infilling with material in identified soil horizons to revert these areas to baseline levels.

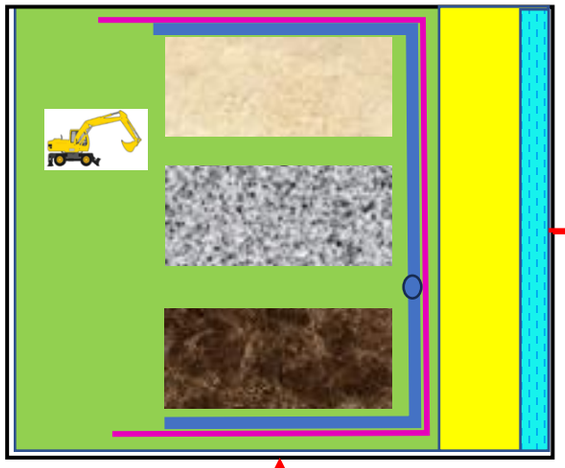


Plan View – Example of Mitigating Temp Storage Area

- All stockpiles will be covered with high-grade polythene sheeting to prevent run-off of rainwater and leaching of potential contaminants from the stockpiled material generation and/or the generation of dust.
- Recovered material destined for reuse off site will comply with Article 27 or Article 28 of the EPA to be classified as a by-product or as end-of-life waste, or Certificate of Registration for topsoil.
- Excess soils which cannot be reused will be tested and classified as a waste and disposed of appropriately. This is not envisaged on this site i.e. all arisings will be reused.
- Temporary stockpiles will avoid areas on Site near artificial drainage channels(outside designated surface water buffer zones and will adhere to mitigation measures outline in **EIAR Chapter 9 Hydrology and Hydrogeology,** in particular in dealing with entrainment of soils in surface water runoff.

Example of Treatment Tank.
See EIAR Appendix 9.5 for further detail on Construction Water Management including treatment train and considerations for controlled release.

603679 Gortyrahilly WF RFI Response
Subject: Suitable Locations for Temporary Stockpiles – Management of Excavation Arisings
(SK 20/09/23) (File Ref. 603679 (00) RFI Response Graphics.ppt) (Print A3)



6 OFF SITE / WASTE / BI-PRODUCT – In the event of surplus material following the construction phase, no permanent stockpiles will remain on site, and the material will be removed as a waste / bi-product following appropriate waste handling procedures.

4 TEMPORARY STORAGE – DEDICATED AREA – Temporary storage of excess arisings which can not be deposited as back fill or similar and which must be moved from construction areas which it arises, will be stored in dedicated temporary storage areas.

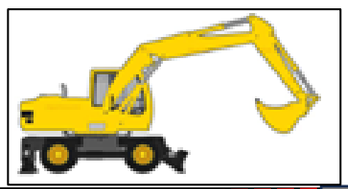
BACKFILL – Material will be reused on site to back fill around built infrastructure within excavations, and in landscaping, cut and fill features etc.

5 BACKFILL – Material arising on the site will be reused on site where possible. This includes backfilling of borrow pits.

3

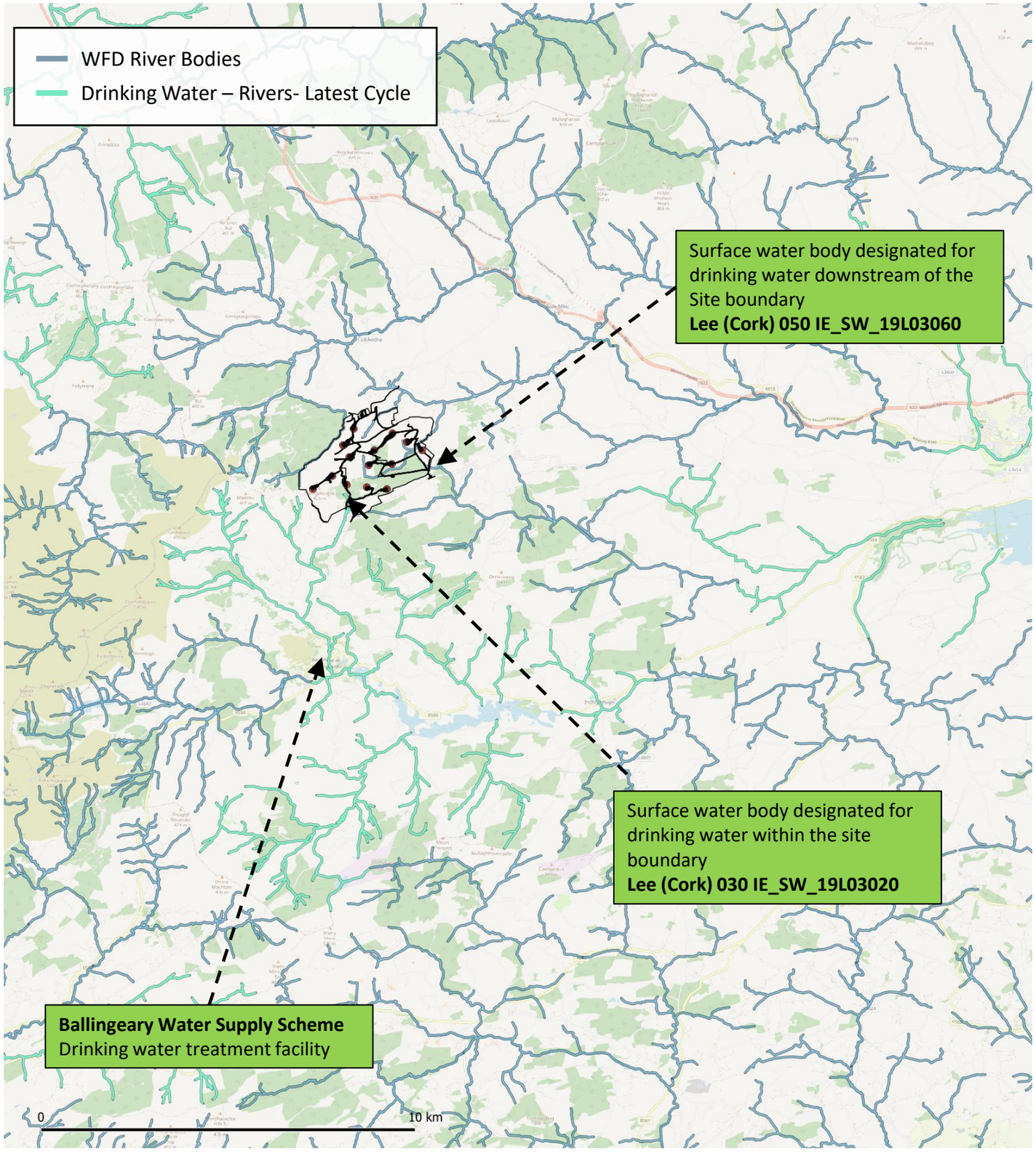
1 SOURCE – Excavation Arisings

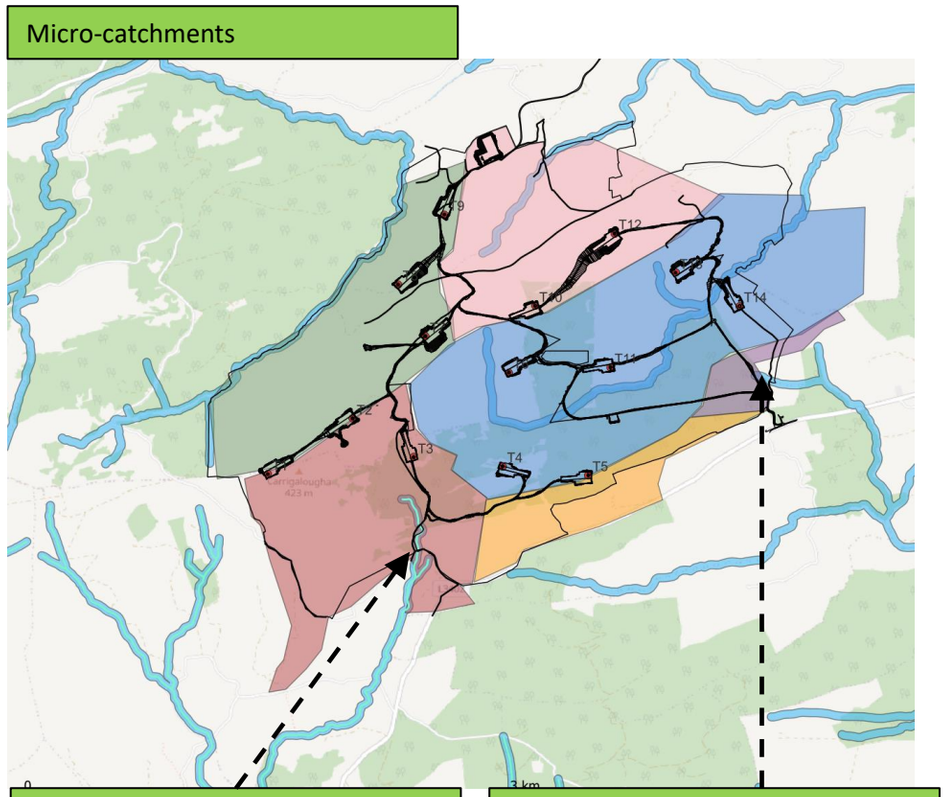
2 TEMPORARY STORAGE – Locally within infrastructure outline.



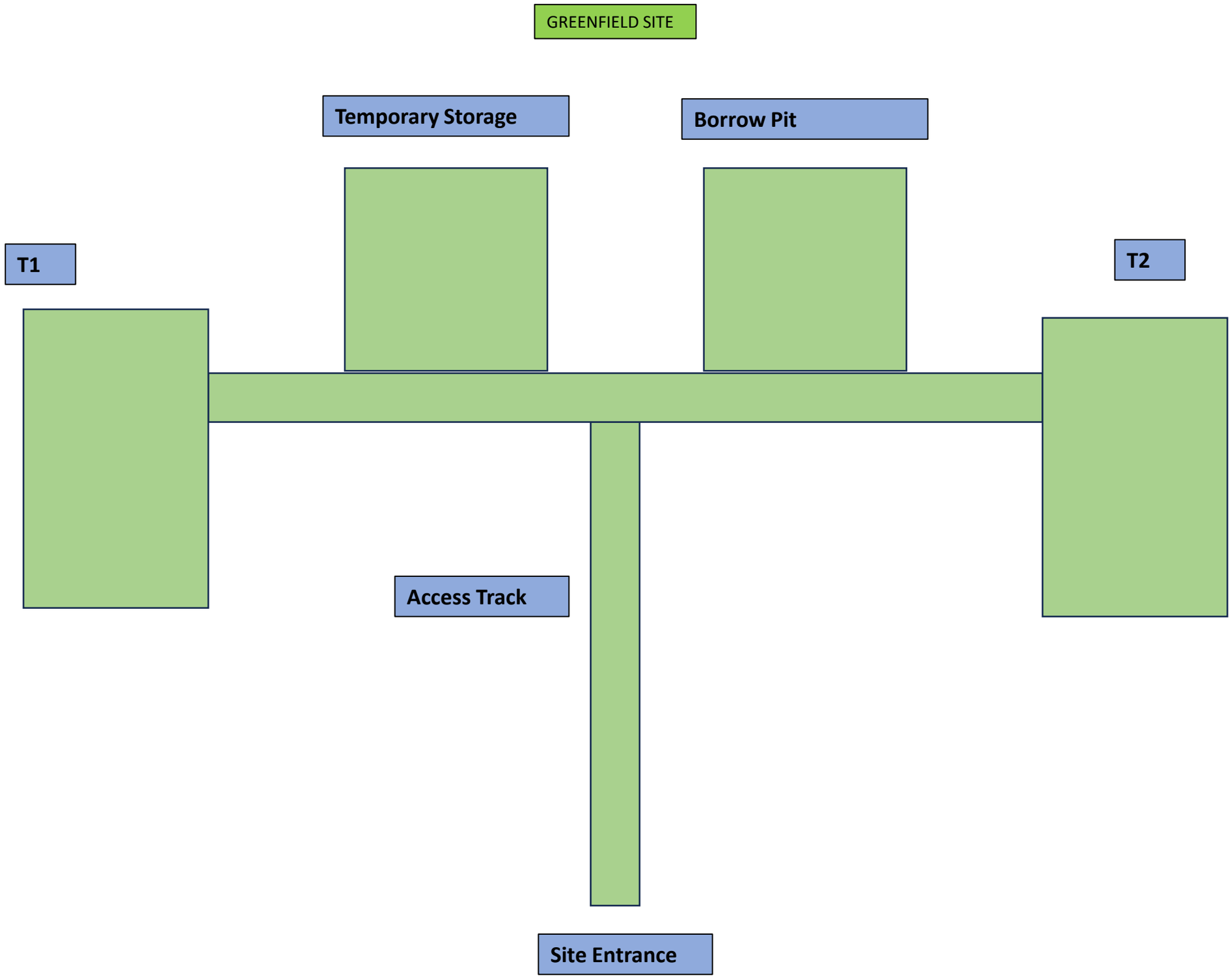
Horizon A
Horizon B
Horizon C
0.0
0.5
10.0
15.0
TOPSOIL / PEAT
SUBSOILS
BEDROCK

603679 Gortyrahilly WF RFI Response
Subject: Drinking water rivers on and downstream of Site
(SK 20/09/23) (File Ref. 603679 (00) RFI Response Graphics.ppt) (Print A3)

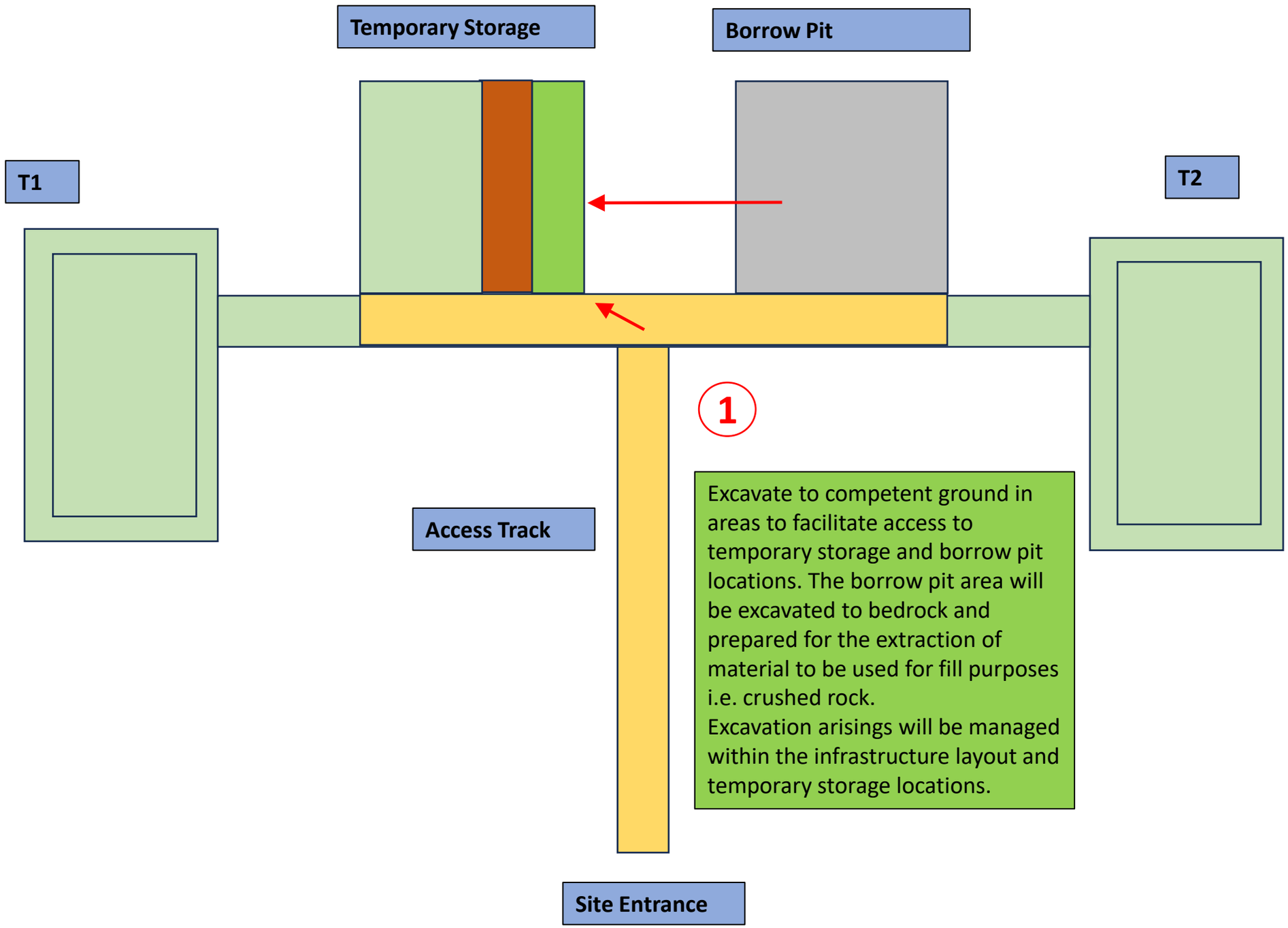




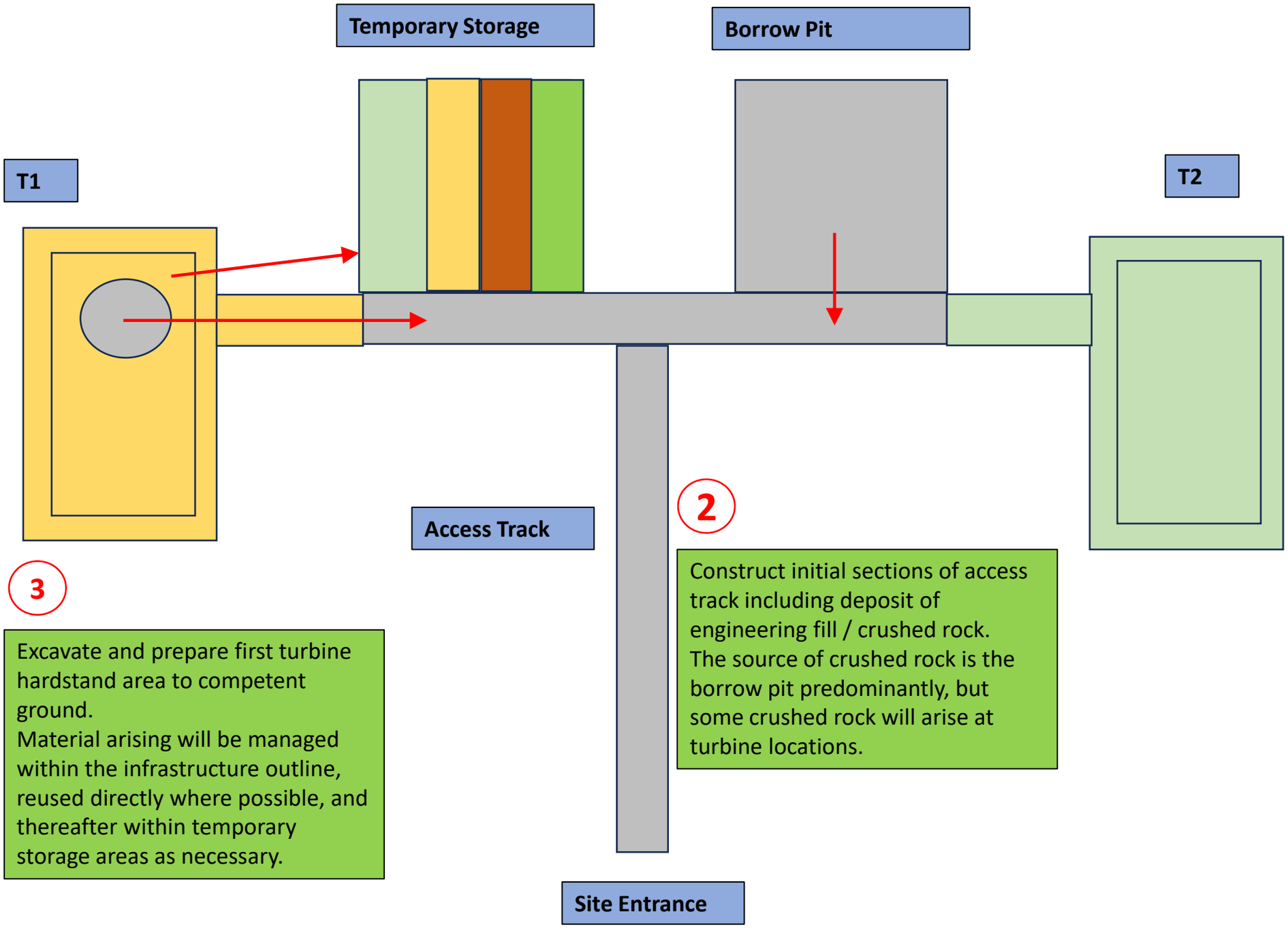
603679 Gortyrahilly WF RFI Response
Subject: Suitable Locations for Temporary Stockpiles – Management of Excavation Arisings – Phased Approach 1)
(SK 20/09/23) (File Ref. 603679 (00) RFI Response Graphics.ppt) (Print A3)



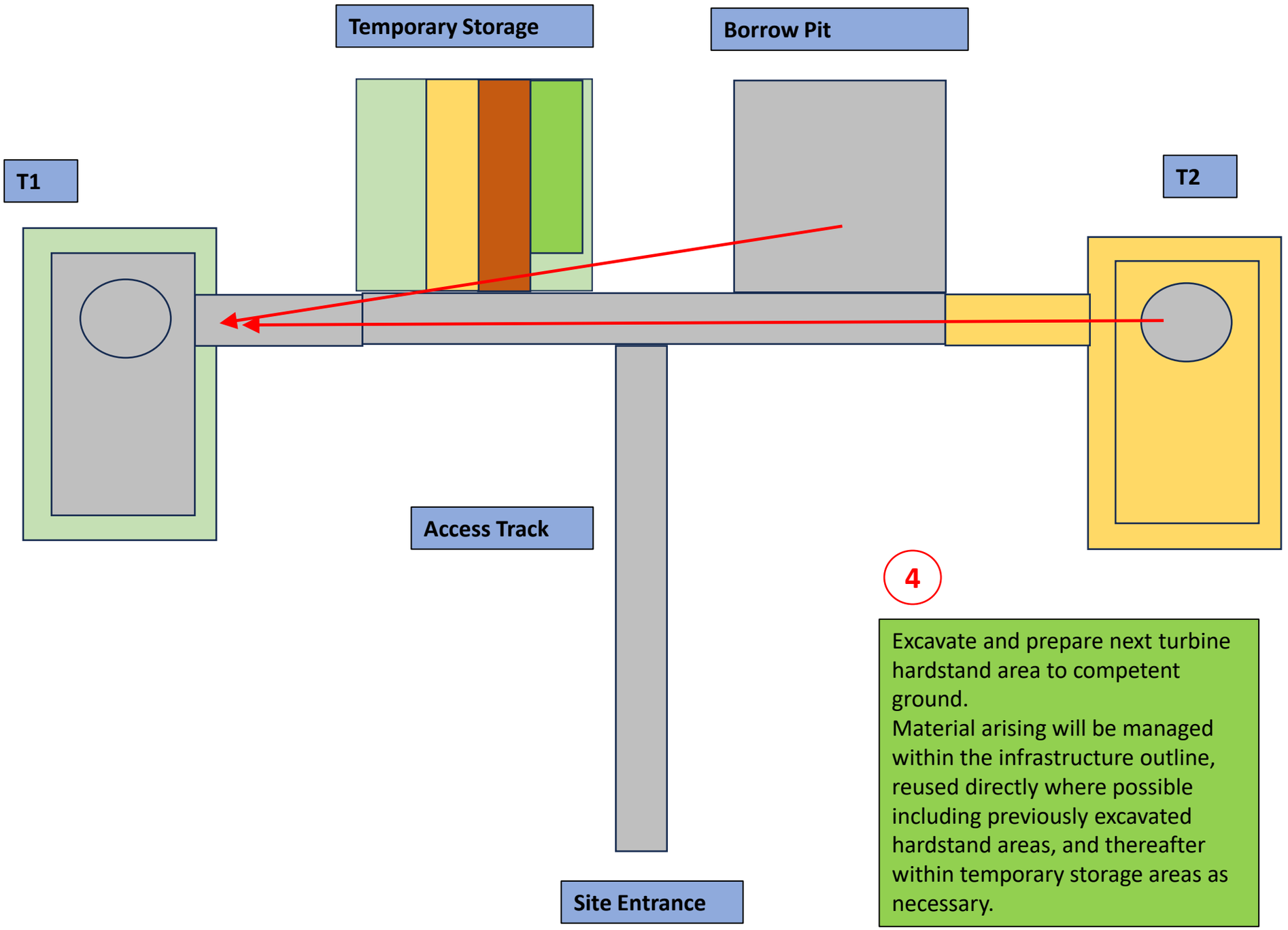
603679 Gortyrahilly WF RFI Response
Subject: Suitable Locations for Temporary Stockpiles – Management of Excavation Arisings – Phased Approach 2)
(SK 20/09/23) (File Ref. 603679 (00) RFI Response Graphics.ppt) (Print A3)



603679 Gortyrahilly WF RFI Response
Subject: Suitable Locations for Temporary Stockpiles – Management of Excavation Arisings – Phased Approach 3)
(SK 20/09/23) (File Ref. 603679 (00) RFI Response Graphics.ppt) (Print A3)

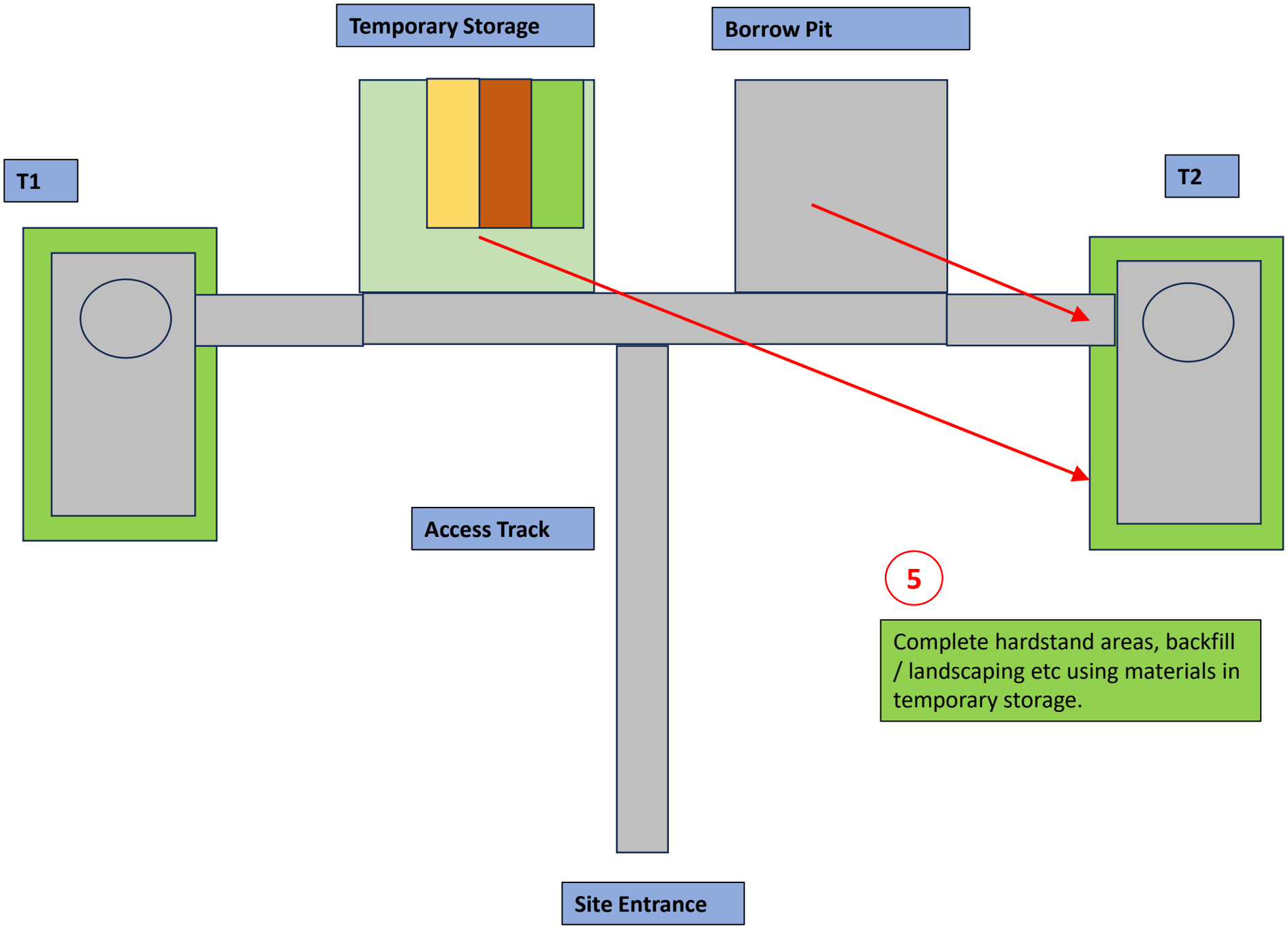


603679 Gortyrahilly WF RFI Response
Subject: Suitable Locations for Temporary Stockpiles – Management of Excavation Arisings – Phased Approach 4)
(SK 20/09/23) (File Ref. 603679 (00) RFI Response Graphics.ppt) (Print A3)



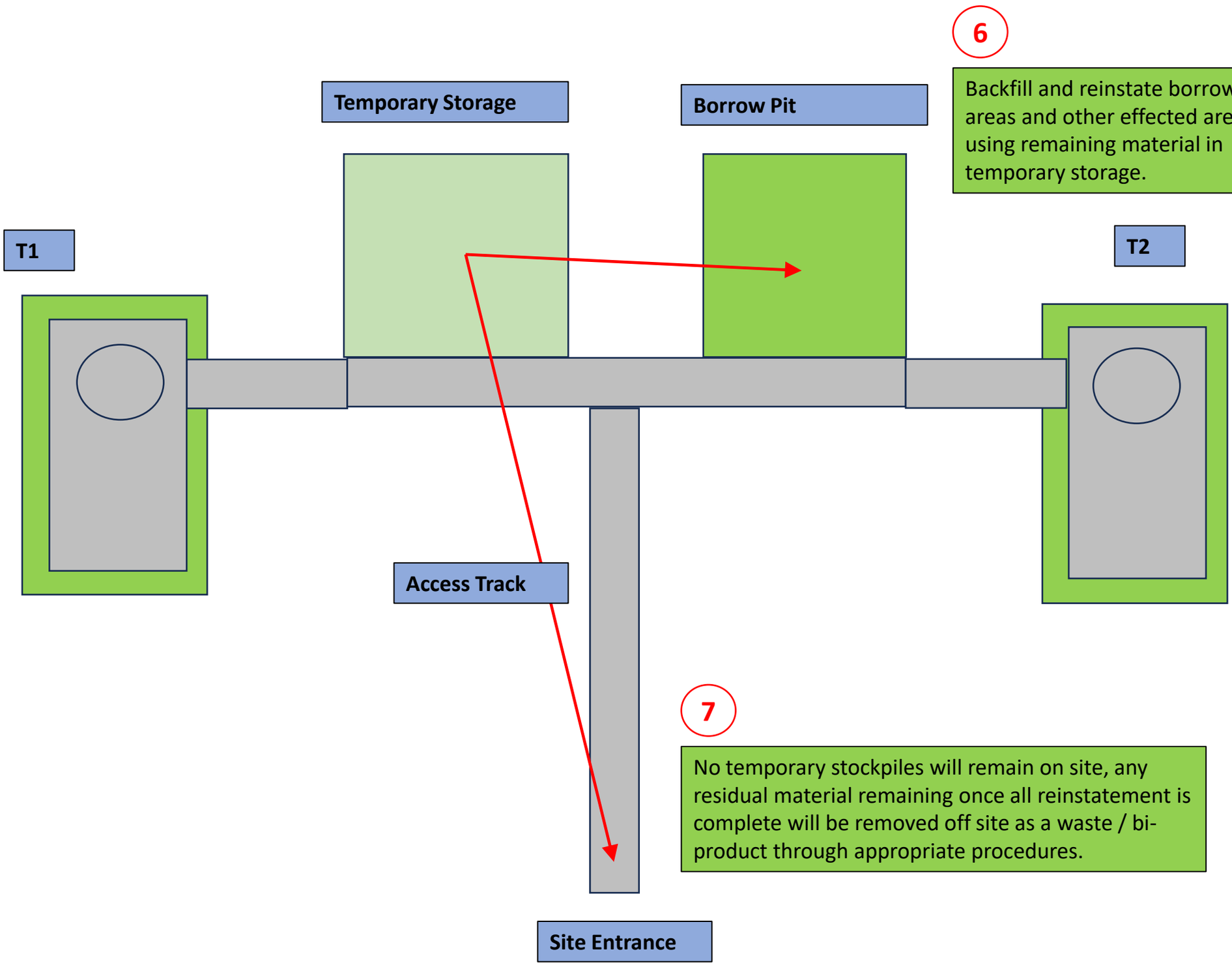
4

Excavate and prepare next turbine hardstand area to competent ground.
Material arising will be managed within the infrastructure outline, reused directly where possible including previously excavated hardstand areas, and thereafter within temporary storage areas as necessary.



5

Complete hardstand areas, backfill / landscaping etc using materials in temporary storage.



6

Backfill and reinstate borrow pit areas and other effected areas using remaining material in temporary storage.

7

No temporary stockpiles will remain on site, any residual material remaining once all reinstatement is complete will be removed off site as a waste / bi-product through appropriate procedures.