

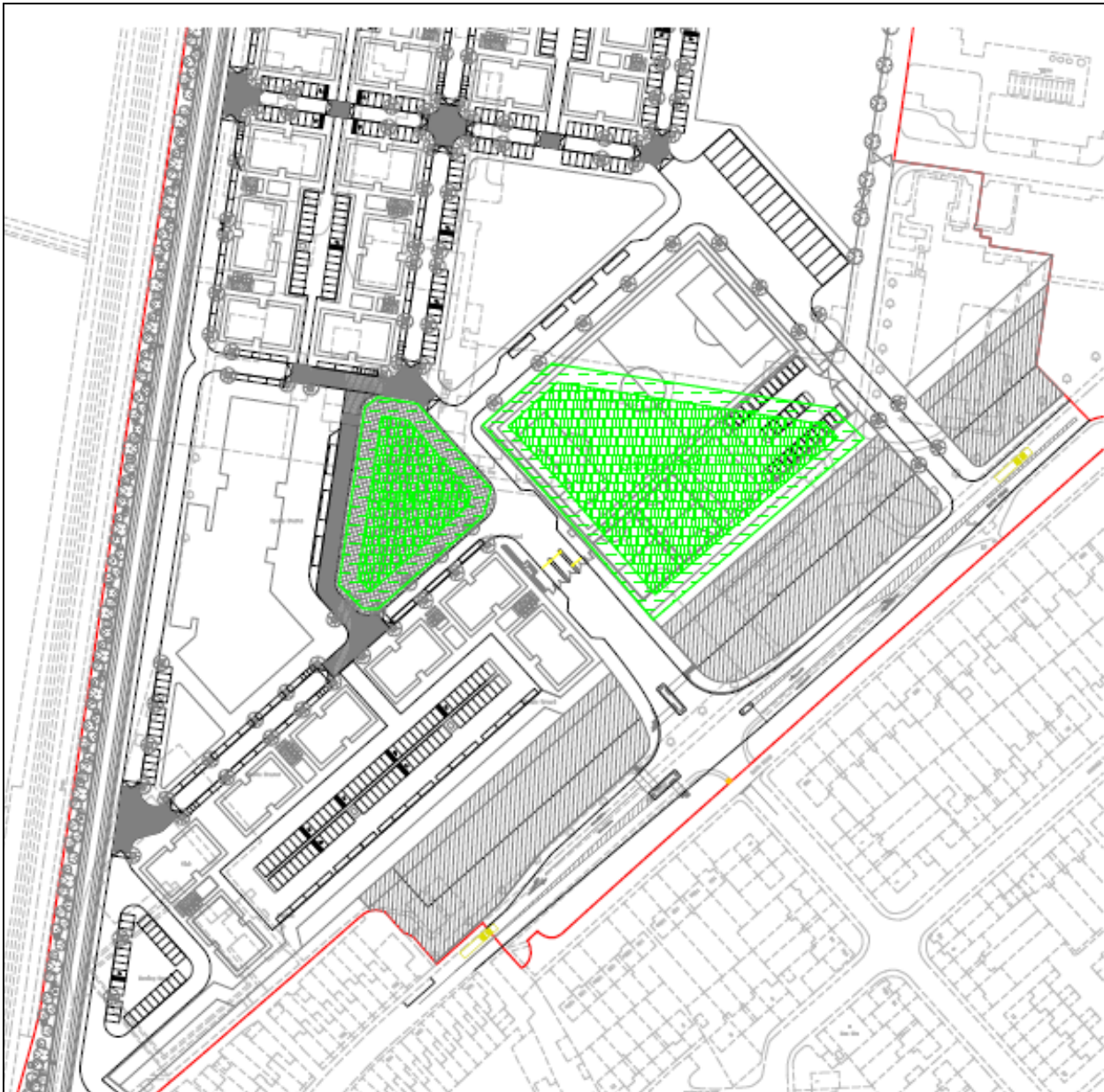
SUB-APPENDIX A1: SITE SPECIFIC INFORMATION AND DATA

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A1.1 Bridgwater A Information & Data

a) Bridgwater A Site Layout, Showing Soil Stockpiling Location



Proposed locations of topsoil stockpiling, Bridgwater A

b) Bridgewater A Indicative Soil Stripping and Stockpiling Calculations

Indicative areas for soil stripping:

- Bowling Green c. 1400m²
- Sports Ground c. 21000m²

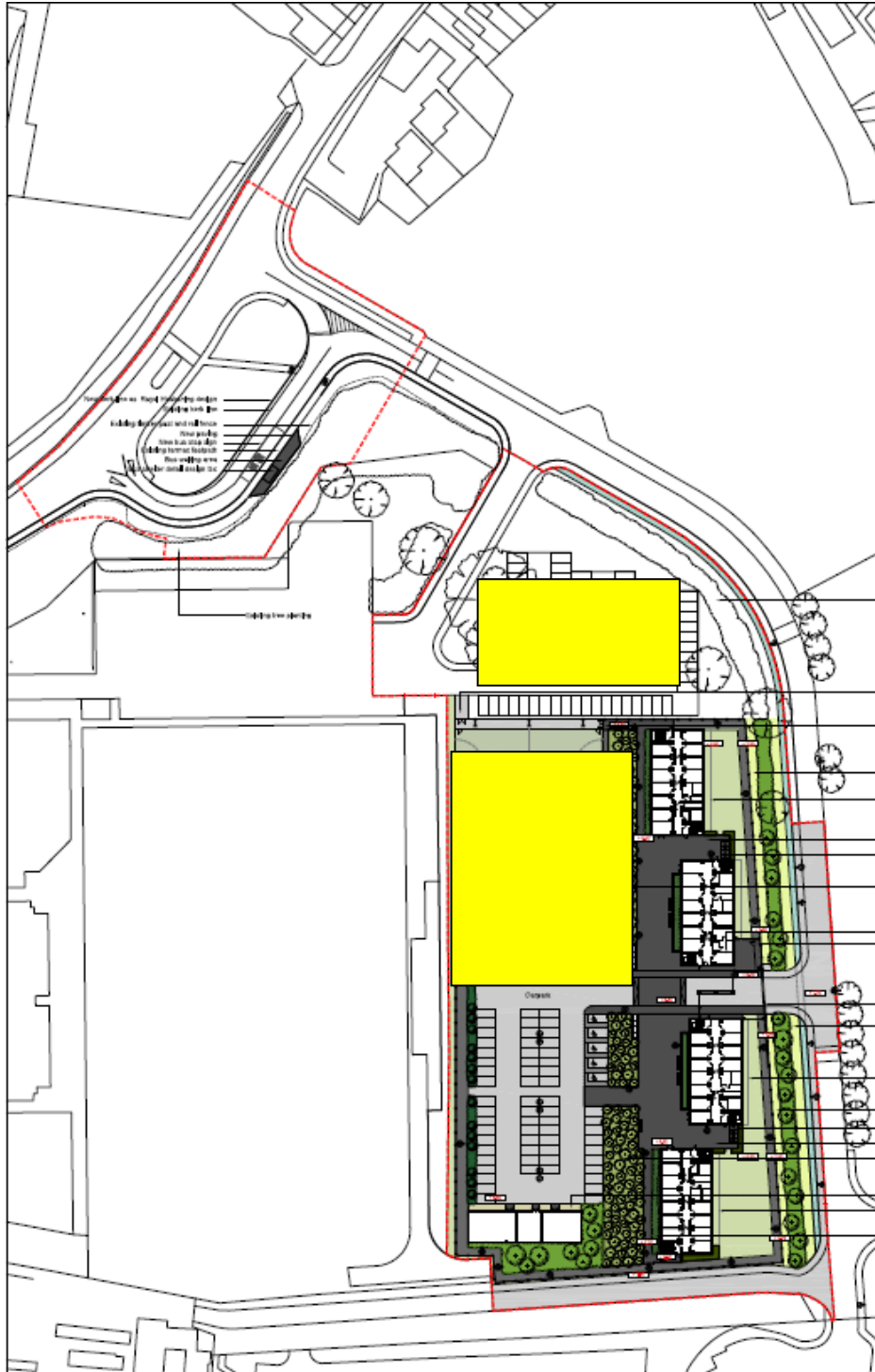
Area to northeast of main entrance from Bath Road c. 1,900m²


The quantity of topsoil suitable for reuse will be assessed once in situ soil conditions have been fully assessed prior to construction works commencing

A1.2 Bridgwater C Information & Data

a) Bridgwater C Showing Soil Stockpiling Location

Suitable topsoil will be temporary stockpiled within the greenspace of the development footprint and re-use in landscaping within the development.



 Indicative locations for soil stockpiling

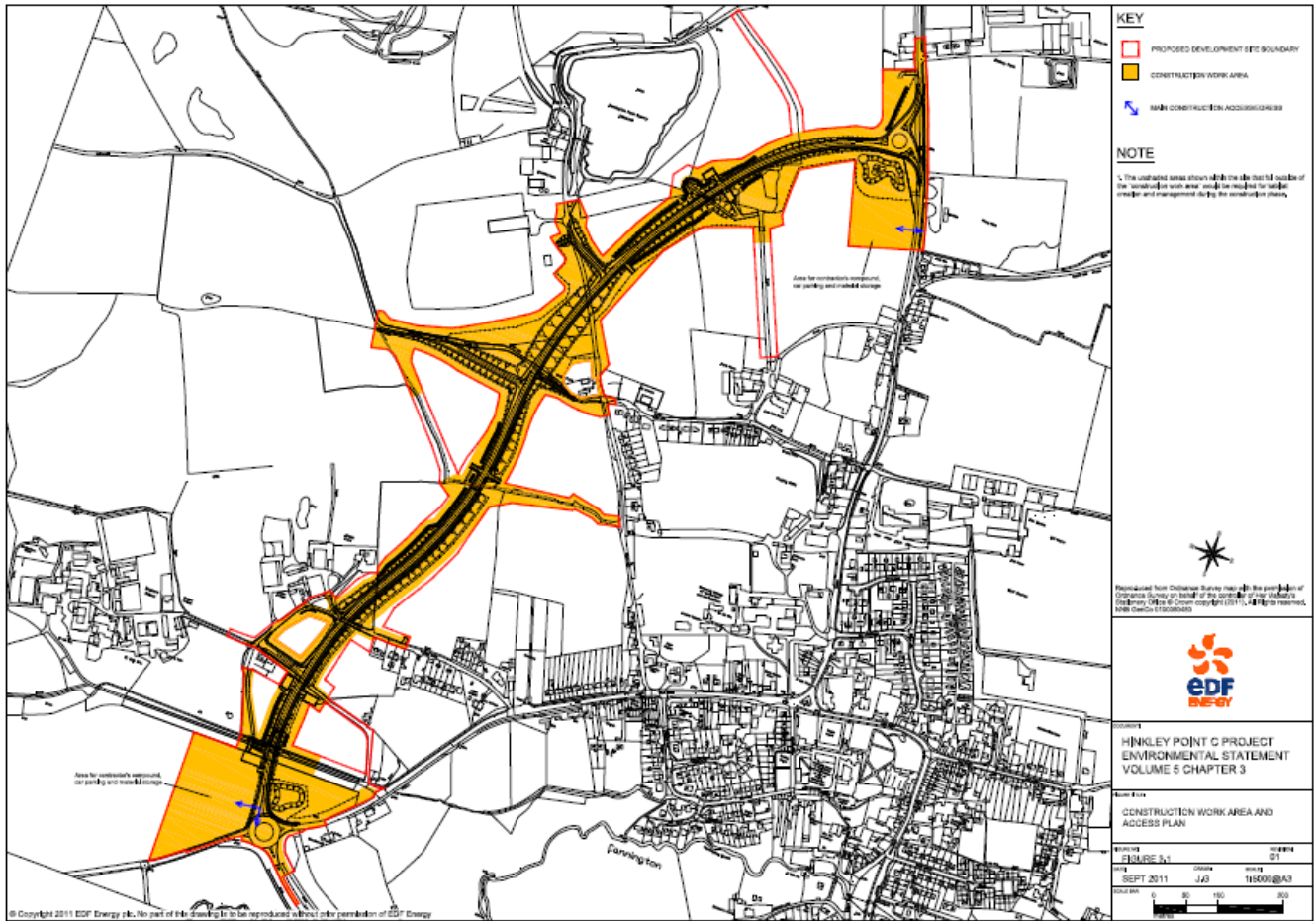
b) Bridgwater C Indicative Soil Stripping and Stockpiling Calculations

Indicative area of potential topsoil stripping is approximately 10,000m² (135m x 75m).
Depth of existing topsoil varies between c. 200mm and 250mm

Approximate volume of topsoil strip of 2,500m³

A1.3 Cannington Bypass Information & Data

a) Cannington Bypass Site Layout, Showing Soil Stockpiling Location



Areas at the north and south of the site are indicated for materials storage (Taken from Figure 3.1 of Volume 5 of the ES)

b) Cannington Bypass Indicative Soil Stripping and Stockpiling Calculations

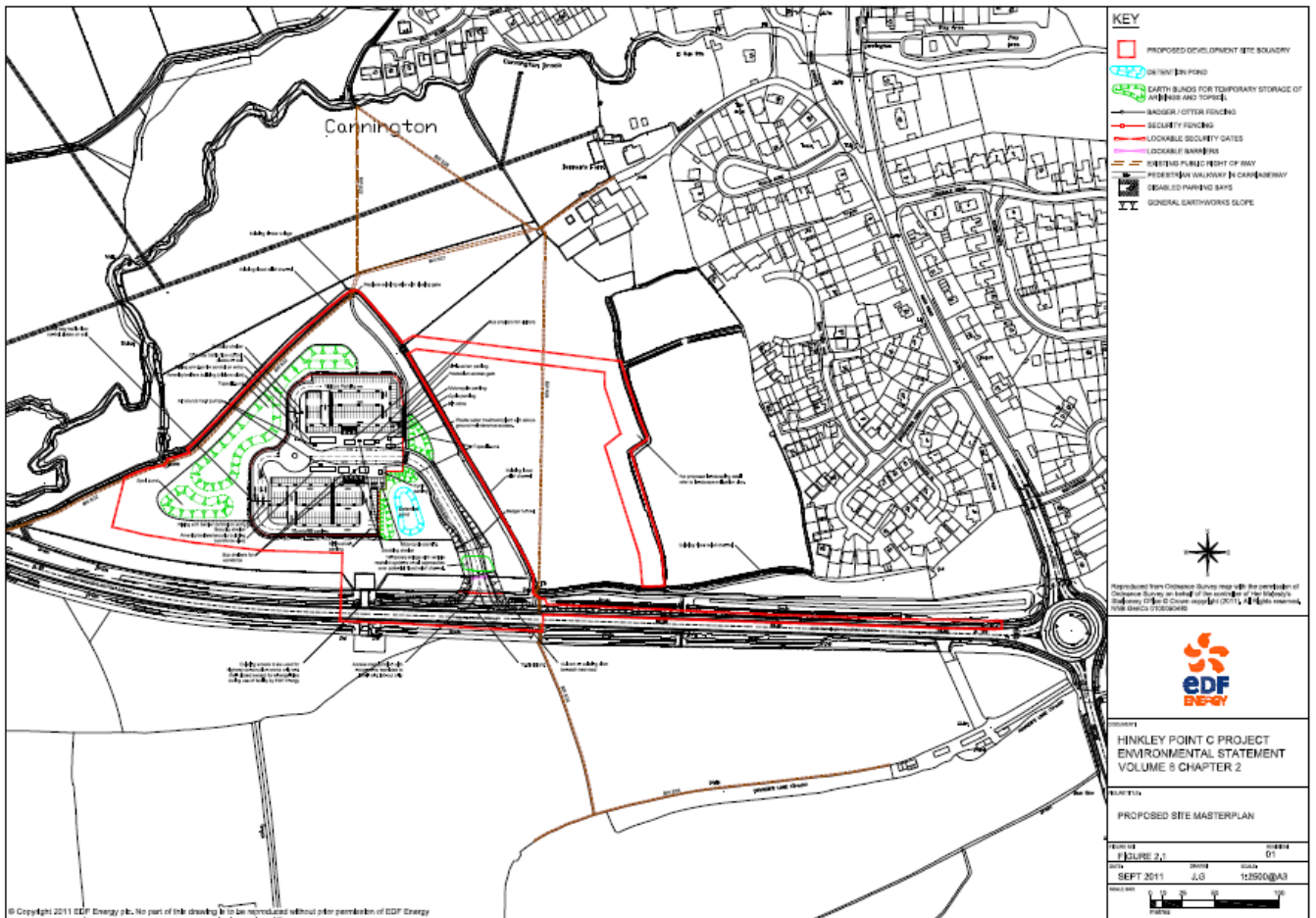
Item	Location	Volume (cume)	Totals (cume)	
Cut Volume	Main Road	50,250.00		
	Ponds	4,200.00		
	Ditches	2,550.00		
	Sandy Lane c'way / f'way	1,328.00		
	N Roundabout	1,600.00		
	Drainage arisings	4,728.00		
	Bat underpass	270.00		
	Total excavated volume =		64,926.00	
Fill Volume	Main Road	26,920.00		
	Fill between verge and acoustic bunds	1,118.00		
	Additional length of acoustic bund	1,806.00		
	Total acceptable fill volume =		29,844.00	
	Volume to be disposed off=		35,082.00	Difference
Top Soil Strip	Main Road	14,149.00		
	Ponds	784.00		
	N Roundabout	560.00		
	Site Compound	1,400.00		
	Beneath topsoil mound	1,204.00		
	Total excavated volume =		18,097.00	
Re-soiling	Main Road verges / earthworks slopes	6,185.00		
	Site Compound	1,400.00		
	N Roundabout	320.00		
	After removal of topsoil mound	1,204.00		
	Total volume for resoiling =		9,109.00	
	Volume to be disposed off=		8,988.00	Difference

Notes:

1. Cut fill analysis based on the drawings issued at 100% plus an allowance for site compounds.
2. Cut / Fill volumes includes allowing for pavement boxes 900mm thick in carriageway and 240mm thick in footway.
3. Carriageway pavement box assumes 500mm thick carriageway construction and 400mm thick capping layer.
4. The above pavement and capping thickness assumes a CBR of 5%.
5. The top soil strip assumes topsoil thickness of 280mm.
6. Re-soiling thickness is 150mm in verges and earthworks slopes, 280mm thick in reinstatement areas and 300mm thick in proposed planted areas where there is no existing topsoil. Assumes 300mm topsoil on back slope of acoustic bund.
7. This assessment makes no allowance for any temporary works beyond the limit of the works as shown on the 100% drawings other than the topsoil strip and resoiling required for the site compounds and after the removal of topsoil mounds.
8. It has been assumed that two site compounds will be required at the northern and southern areas of the site, total area of the two compounds is 5000 Sq.m.
9. The re-soiling volumes does not allow for thicker topsoil if required in planting beds to be designed by the Landscape Architect other than as stated in Note 6.
10. All volumes stated are bulk volumes

A1.4 Cannington Park and Ride Information & Data

a) Cannington Park and Ride Site Layout, Showing Soil Stockpiling Location



Stockpiling to west and north west of site (shown as pale green 'bund').
Taken from Figure 2.1 in Volume 6 of the ES)

b) Cannington Park and Ride Indicative Soil Stripping and Stockpiling Calculations

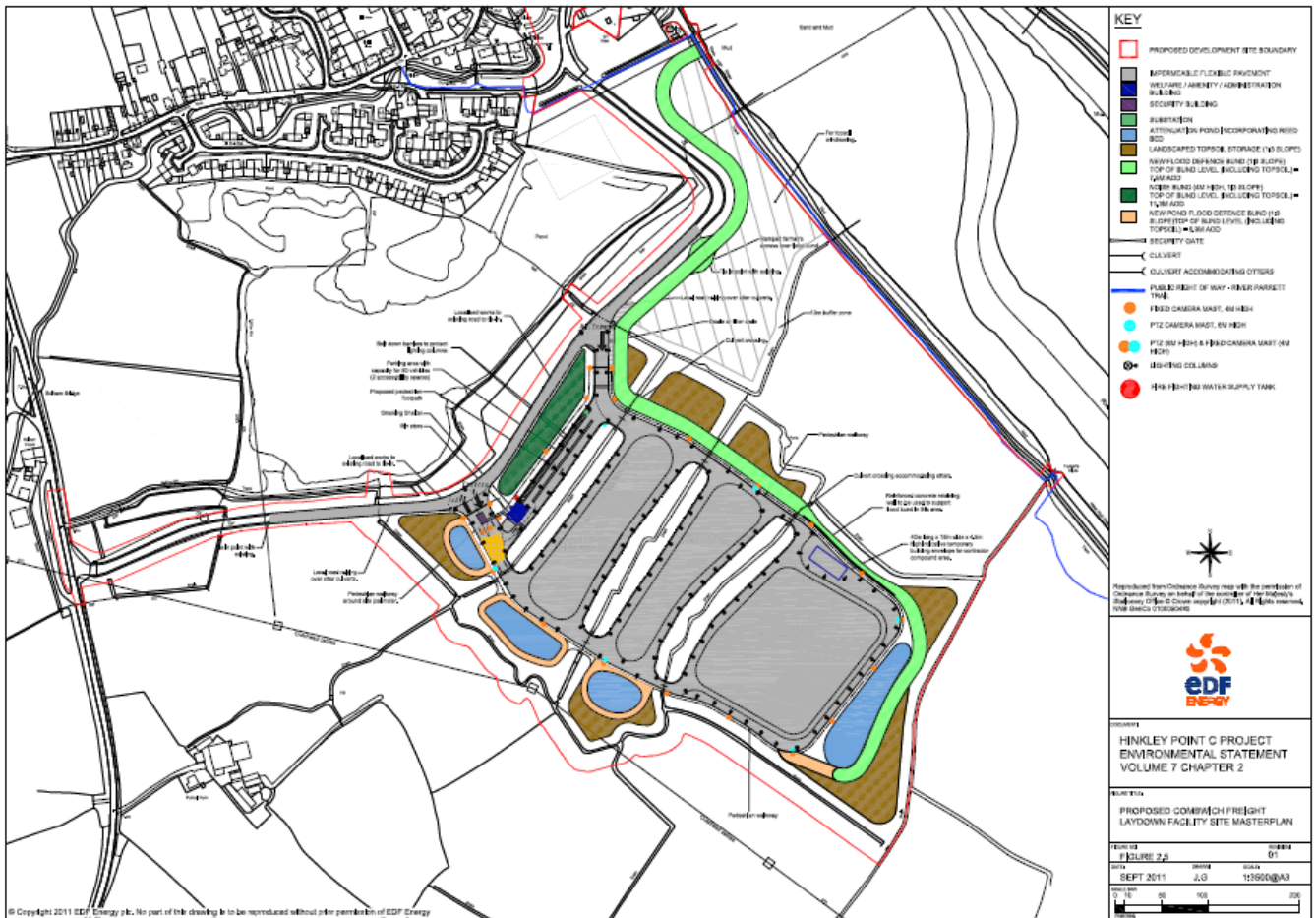
	Cannington Park and Ride	Volume (cum)
A	280mm thick topsoil strip for parking areas, ponds and roads (cum)	4,210
B	Topsoil strip for compounds (cum) (assumed 900m ²)	260
C	Topsoil strip beneath stockpiles (cum)	1,464
D	Total topsoil strip volumes (cum)	5,934
E	General excavation below topsoil for various areas based on MX calcs (including pond(s) and drainage (cum)	1,320
F	Total topsoil strip and general excavation volumes	7,254
G	Number of topsoil stockpiles	3
H	Number of other stockpiles	1
I	Stockpile 1 volumes (cum)	4,746
J	Stockpile 2 volumes (cum)	1,320
K	Stockpile 3 volumes (cum)	753
L	Stockpile 4 volumes (cum)	435
M	Total stockpile volumes (cum)	7,254
N	Stockpile 1 footprint (m ²)	2,936
O	Stockpile 2 footprint (m ²)	980
P	Stockpile 3 footprint (m ²)	795
Q	Stockpile 4 footprint (m ²)	516
R	Stockpile side slopes	1:3 gradient
S	Topsoil beneath stockpile locations included in calcs	Yes

Notes:

- 1 Cut fill analysis based on drawings issued latest masterplan with earth mounds on east side of parkin areas plus an allowance for site compounds.
- 2 Topsoil restoration thickness to be 250mm.
- 3 The top soil strip volumes assume an existing topsoil thickness of 250mm.
- 4 Assumes no resoiling on embankment slopes and non-topsoil mound.
- 5 This assessment makes no allowance for any temporary works beyond the limit of the works as shown on the 100% drawings other than the topsoil strip and resoiling required for the site compounds.
- 6 It has been assumed one compound is required.
- 7 All volumes stated are bulk volumes.
- 8 The detention pond and ditch would remain as a legacy and not backfilled hence surplus material generated by there excavation would be spread over areas to be restored.
- 9 Approximate maximum height of topsoil stockpile(s) in metres above existing ground is 2.0m for mounds on west and north side except at narrow point where it is 1.5m high.
- 10 Approximate maximum height of topsoil stockpile(s) in metres above existing ground is 2.0m for mounds on west and north side except at narrow point where it is 1.5m high.

A1.5 Combwich Freight Laydown Information & Data

a) Combwich Freight Laydown Facility Site Layout, Showing Soil Stockpiling Location



Combwich Freight Laydown Facility. Indicative soil stockpiling areas in two shades of green and in brown and peach around attenuation ponds.
(Taken from Figure 2.5 of Volume 7 of the ES)

b) Comwich Freight Laydown Facility Indicative Soil Stripping and Stockpiling Calculations

Noise bund shall be constructed from topsoil

Flood bunds shall be constructed from 0.3m wide clay core (with 0.3m deep key below existing ground level); other suitable material to form the bund shape; 150mm topsoil on top
Topsoil mounds shall be constructed from topsoil

It has been assumed that the subsoil excavated from the attenuation ponds can be used as "other suitable material" to form the flood bund.

1.2.1 Topsoil Strip Volume

The following areas are approximate values and have been taken from drawing B1454106/B01a/0030:

Soil storage areas (m ²)		Flood bund areas (m ²)		Pond areas (m ²)		Facility area (m ²)	
SM1	591	FB1	15569	P1	4511.5	F	87595
SM2	2917	FB2	799	P2	1997	(The total facility area 'F' includes the area of the noise bund)	
SM3	1976	FB3	198	P3	2433		
SM4	1942	FB4	1306	P4	1027		
SM5	4896	FB5	1497				
SM6	1962	FB6	924				
SM7	2214						
Σ	16498	Σ	20292	Σ	9968.5		

Volume assuming 250mm of topsoil strip

(bulking factor of 1.3 as advised by geotechnical department)

V_{ts} = 43665 (m³)

1.2.2 Flood Bund Volumes Required

Flood Bund	Floodbund Dimensions				Floodbund Core Dimensions			Bund Volume (Without Core) * (m ³)
	Length at centreline (m)	Width (without topsoil) (m)	Height (without topsoil) (m)	Overall Volume (m ³) *	Height (without topsoil) (m)	Thickness (m)	Core Volume +(m ³)	
FB1	1088.00	13.80	1.80	16450.56	2.10	0.30	685.44	15863.04
FB2	53.00	13.80	0.90	529.47	1.20	0.30	19.08	515.16
FB3	20.00	8.80	0.90	109.80	1.20	0.30	7.20	104.40
FB4	139.00	5.80	0.90	387.81	1.20	0.30	50.04	350.28
FB5	161.00	5.80	0.90	449.19	1.20	0.30	57.96	405.72
FB6	101.00	5.80	0.90	281.79	1.20	0.30	36.36	254.52
Total	1562.00	Total Bund Volume		18208.62	Total Core Volume		856.08	17493.12

* This excludes the volume of material excavated within the underlying material to key in the core

+ This includes the volume of material required to key the core into the underlying material

Volumes of Pond Excavation (m³)

(from section 2.0)

With no clay lining	10622
With 200mm clay lining	11920
With no lining and 1.4 bulking factor	14871
With 200mm clay lining and 1.4 bulking factor	16688

Volumes have been calculated to allow for use of either manmade or imported clay linings to the ponds and utilising a bulking factor of 1.4 for the subsoil.

Volumes Required for Flood Bund (m³)

Total volume of bunds *	18208.62
Total volume of bunds with cores removed *	17493.12
Total volume of cores +	856.08

* This excludes the volume of material excavated within the underlying material to key in the core

+ This includes the volume of material required to key the core into the underlying material

1.2.3 Noise Bund Volumes Required

Noise bund (considered as truncated pyramid)

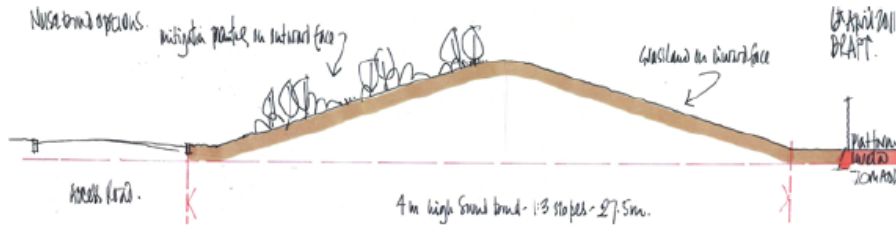


Figure 2 - Section through noise bund

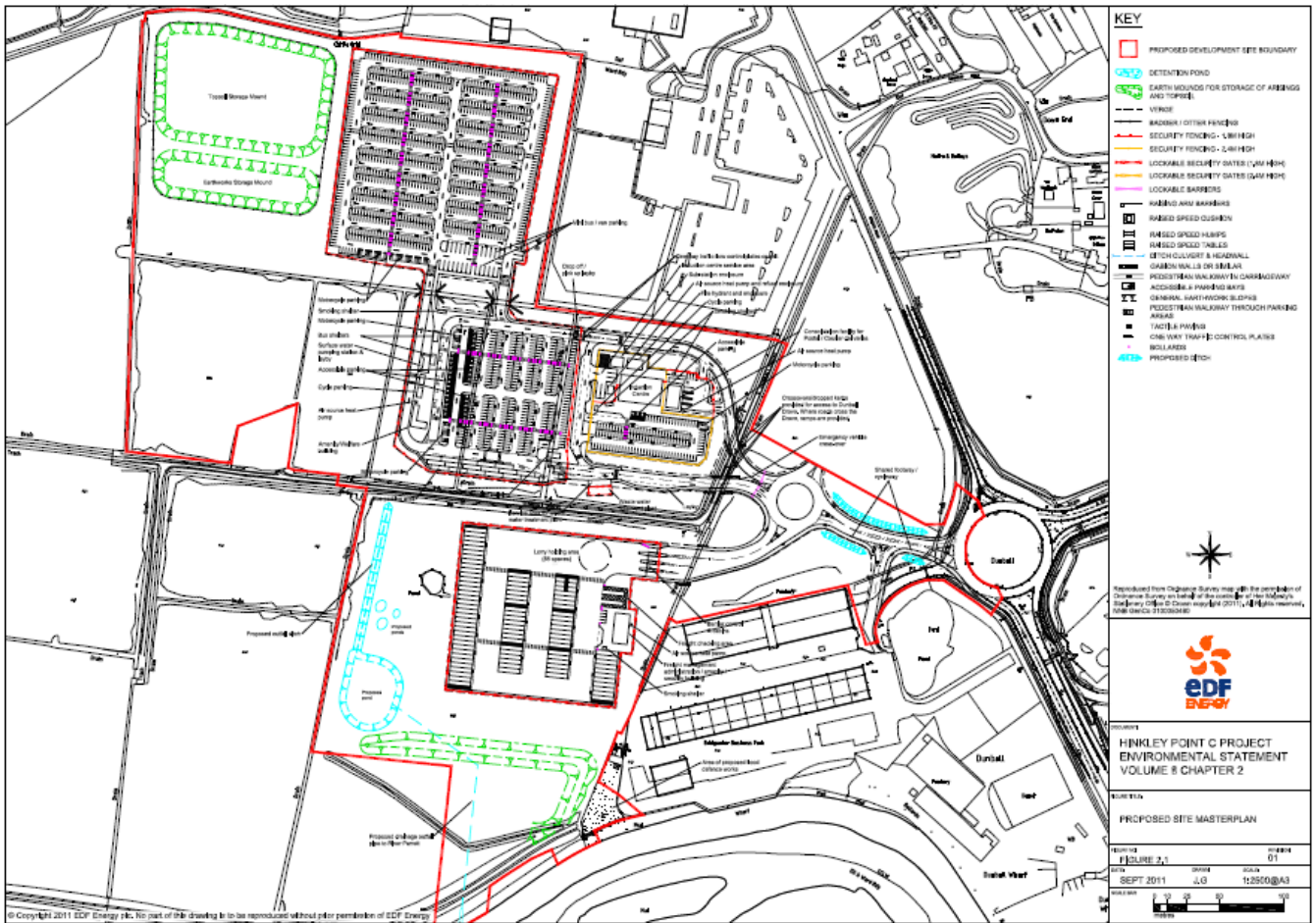
Height (H)	4 m
Width (bot) Wb	25 m
Width (top) Wt	1 m
Length (bot) Lb	186 m
Length (top) Lt	162 m

The topsoil mounds will have the following volumes:

Noise bund:	Top Level	11 m AOD	
	Topsoil Volume =	7573 m ³	
Flood bund FB1:	Top Level	7.7 m AOD	
	Topsoil Volume =	3114 m ³	
Flood bunds FB2, 3, 4, 5, 6	Top Level	6.8 m AOD	
	Total Topsoil Volume =	945 m ³	
Soil mounds:	Top Level	7.3 m AOD	(approximate only)
	Topsoil Volume =	33048 m ³	

A1.6 Junction 23 Park and Ride and Freight Management Information & Data

a) Junction 23 Park and Ride Facility Site Layout, Showing Soil Stockpiling Location



Indicative locations of soil stockpiling in north west corner of site (in pale green)
(Taken from Figure 2.1 of Volume 8 of the ES)

b) Junction 23 Park and Ride Facility Indicative Soil Stripping and Stockpiling Calculations

Item	Location	Volume (cum)	Totals (cum)
TOPSOIL MOUND FOR FUTURE RESTORATION			
Top Soil Strip excavated for future restoration (250mm)			
	Lorry parking area	5,140	
	Northern car park	6,950	
	Central car park	7,780	
	Roundabout and roads	2,260	
	Compound	650	
	Beneath topsoil storage mound	2,930	
	Beneath other soils storage mound	1,100	
	Total excavated volume =		26,810
OTHER SOIL MOUND INCLUDING TOPSOIL NOT REQUIRED FOR 250MM RESTORATION THICKNESS			
Excavation of topsoil (250mm) for work areas that not to be restored			
	Detention Pond	580	
	Ditch	180	
	Sub-total =		760
Excavation of other soils			
	Pond	3,080	
	Ditch	550	
	Roundabout and roads	4,840	
	Drainage	660	
	Sub-total =		9,130
	Total excavated volume =		9,890
Total volume of other soils to be spread after removal of hardstanding, foundations and raised platforms =			9,890
Volumes used for determining sizes of mounds above existing ground level			
	Topsoil mound	23,880	
	Other soil mound	8,790	

Notes:

- 1 Cut fill analysis based on drawings issued at 100% plus an allowance for site compounds.
- 2 Topsoil restoration thickness to be 250mm.
- 3 The top soil strip volumes assume an existing topsoil thickness of 250mm.
- 4 Assumes no resoiling on embankment slopes and non-topsoil mound.
- 5 This assessment makes no allowance for any temporary works beyond the limit of the works as shown on the 100% drawings other than the topsoil strip and resoiling required for the site compounds.
- 6 It has been assumed one compound is required.
- 7 All volumes stated are bulk volumes.
- 8 The detention pond and ditch would remain as a legacy and not backfilled hence surplus material generated by there excavation would be spread over areas to be restored.