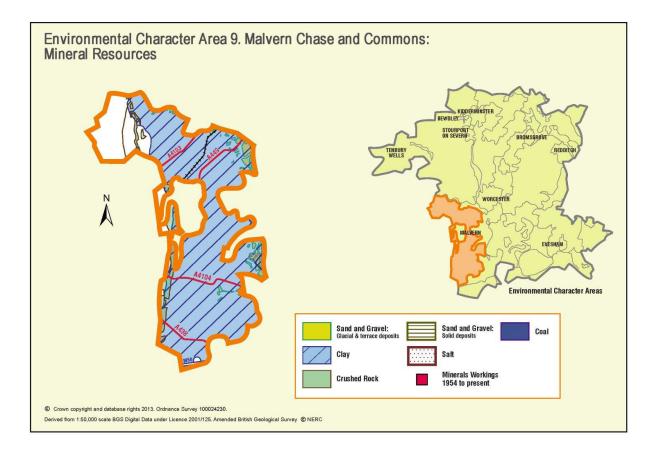
Appendix 9: Analysis of aggregate resources in ECA 9: Malvern Chase and Commons



ECA Summary for the Fourth Stage consultation on MLP (Winter 2018):

Sand and gravel

There are 15 resource areas identified for sand and gravel in Malvern Chase and Commons ECA:

- Key: 1
- Significant: 4
- Not significant: 3
- Compromised: 7

Crushed rock

There are 6 resource areas identified in Malvern Chase and Commons ECA for crushed rock:

- Significant: 1
- Compromised: 5

Non-aggregates

BGS data indicates that there are deposits of clay in this ECA.

Overview of resource assessment for ECA 9

Sand and gravel resource areas:

Resource	Second Stage C	onsultation	Third Stage Co	onsultation	Four	th Stage Consult	ation
number*	Original estimated resource tonnage (2 tonnes/m ³)	Significance	Revised estimate of resource tonnage (1.65 tonnes/m ³)	Significance	New resource number (where resource has been split)	Revised estimate of resource tonnage (1.65 tonnes/m ³)	Result
9/1	510,000	Not significant	420,750	Not significant	Not reassessed		
9/2	3,570,000	Key	2,945,250	Key	9/2	2,743,125	Key
5/2	3,370,000	Rey	2,943,230	Ney	9/2b		Compromised
9/3	1,800,000	Significant	1,485,000	Significant	9/3	1,485,000	Significant
9/3					9/3b		Compromised
9/4	290,000	Not significant	239,250	Not significant	Not reassessed		
9/5	385,000	Compromised	317,625	Compromised	NULTEASSESSEU		
9/6	1,435,000	Significant	1,183,875	Significant	9/6	1,115,000	Significant
9/0	1,435,000	Significant	1,103,075	Significant	9/6b		Compromised
9/7	2,484,000	Key	2,049,300	Кеу	9/7	1,745,700	Significant
9/7					9/7b		Compromised
9/7a	690,000	Compromised	569,250	Compromised	Not reassessed		
9/8	790.000	Significant 6	642 500	Significant	9/8	643,500	Significant
9/0	780,000		643,500		9/8b		Compromised
9/9	Depth not known	Not significant	Depth not known	Not significant	Not reassessed		

Crushed rock resource areas:

Resource	Second Stage C	onsultation	Third Stage Co	onsultation	Four	th Stage Consult	ation
number*	Original estimated resource tonnage (2.7 tonnes/m ³)	Significance	Revised estimate of resource tonnage (2.45 tonnes/m ³)	Significance	New resource number (where resource has been split)	Revised estimate of resource tonnage (2.45 tonnes/m ³)	Result
9/10	937,575,000	Key	850,762,500	Key			Compromised
9/11	129,600,000	Key	117,600,000	Key			Compromised
9/12	30,375,000	Key	27,562,500	Key			Compromised
9/13	2,025,000	Key	1,837,500	Key			Compromised
9/14	3,442,500	Key	3,123,750	Key 9/14 1,470,000 9/14b 9/14b 1,470,000	1,470,000	Significant	
	0,112,000	Noy	0,120,700		9/14b		Compromised

Overview		
Resource number:	9/1	Liffey
Resource name:	Northend Farm	b Cliffey Wood
Resource area:	34 ha	(Whod 12)
Resource depth:	Estimated 1.5m	iestfield
Location		
OS sheet reference:	SO 84 SW	Sink Fm Sev
National grid ref:	383811, 243751	State
5	,	
		Northfield
		A CAPEM
		Northend Fm ^{9/4b} 9/10
		ktrems t
		Derived from 1.50 000 scale BGS Digital Data 9/1
		Derived from 1.50 000 scale BCS Digital Data 9/1 under Licence 2001125 Americaed British Geological Survey CNCRC
		© Crown copyright and database rights 2018 Ordhance Survey 10002423 Nerevale
Resource description:	th	
Resource description:		er Station) sand and gravel. No boreholes or exposures are recorded but the 4 th
		tatively correlated with those in the Teme Valley at Lower Poswick Farm where up to
	1.5m of gravel are prese	
	(Estimated resource dep	oth based on exposure at Lower Poswick Farm of 1.5m) ation on MLP (Autumn 2013)
Commentary: Crude estimate of		all-scale dispersed development across the resource area.
	Area: 34ha x average de Estimated resource volu	
resource:		nnage (at 2 t/m³): 510,000 tonnes
Conclusion:		posit with less than $300,000 \text{ m}^3$.
		defining areas of search.
Assessment of resource		sultation on MLP (Spring 2015)
Revised estimate of	Area: 34ha x average de	
resource:	Estimated resource volu	
		nnage (at 1.65 t/m³): 420,750 tonnes
Conclusion:	Not significant.	
	3	nsultation on MLP (August 2018)
		as Key or Significant in the Third Stage Consultation
NULLEASESSED DUE TO LE		

Overview		9/16			
Resource number:	9/2	trems			
Resource name:	Hanley Castle	9/1 9/1			
Resource area:	102 ha				
Resource depth:	Estimated 3.5m				
Location		Merevale Em			
OS sheet reference: National grid ref:	SO 84 SW 384024, 242220	Gilbert's 17 9/2 e End Gilbert's 17 9/2 e PH-2 9/3 9/3 7/19 S PH-2 9/3 7/19 S PH-2 9/3 Schurc PH-2 9/3 Schurc Fm Perived from 1:50,000 scale BGS Digital Data Indel LPEACE'2003/925, Amended Cas Britishir@ae0logical Survey © NERC (site Ordnance Survey 199024230			
Resource description:					
Resource description:	3 rd terrace (Holt Heath)	sand and gravel. No boreholes or exposures are recorded but the 3 rd terrace generally			
		ly gravel and sand which may be clayey or cobbly and between 1m and 6m thick. The pth based on median depth of 3.5m)			
Assessment of resource		Itation on MLP (Autumn 2013)			
Commentary:		it partially compromised by the village of Hanley Castle and with small-scale dispersed			
Crude estimate of	Area: 102ha x average				
resource:	Estimated resource vol	ume: 1,785,000m ³ .			
	Estimated resource to	onnage (at 2 t/m ³): 3,570,000 tonnes			
Conclusion:	Significant – key resour				
	Use to define areas of s				
		onsultation on MLP (Spring 2015)			
Revised estimate of	Area: 102ha x average				
resource:	Estimated resource vol				
		onnage (at 1.65 t/m³): 2,945,250 tonnes			
Conclusion:	Significant – key resour				
Assessment of resource for the Fourth Stage consultation on MLP (August 2018)					
	This resource area has been split into areas 9/2 and 9/2b.				
Res	source area 9/2	Resource area 9/2b			

Resource area:	95 ha	Commentary:	Screened out due to the following appendix A criterion:
Resource depth:	Estimated 3.5m		- Conservation Area
Revised estimate of resource:	Estimated resource volume: 1,662,500 m ³ Estimated resource tonnage (at 1.65		 Listed Buildings Settlement boundary Scheduled Ancient Monument
Conclusion:	t/m ³): 2,743,125 tonnes Key resource	Conclusion:	Compromised

Overview		7/17 / 7/17
Resource number:	9/3	37 A Fm9/1b
Resource name:	East of Hanley Castle	Crew O/1
Resource area:	45ha	Seve 7/16
Resource depth:	4m	Menevale E Menevale
Location		Méddale Fm Fm Find Severn 7/196 7/196
OS sheet reference: National grid ref:	SO 84 SW 384494, 241434	Picken End Gilbert's End Green Brotheridge Green The The The The Cate 9/4t Green The Cate 9/4t Green The Cate 9/4t Green The Cate 9/4t Green The Cate 9/4t Green Cate 9/4t Green Compromised Key Not Significant Opper Compromised Significant
Resource description:		
Resource description:	is usually described as sa The deposit generally vari	sand and gravel. The pebble content is indistinguishable from that of the 3 rd terrace. It cand and gravel although some boreholes in the 2 nd terrace proved only silt and clay. Aries between 2m and 6m in thickness. Both based on median depth of 4m)
Assessment of resource		ation on MLP (Autumn 2013)
Commentary:		all-scale dispersed development across the resource area.
Crude estimate of	Area: 45ha x average dep	
resource:	Estimated resource volum	
		nnage (at 2 t/m ³): 1,800,000 tonnes
Conclusion:	Significant.	
	Consider in defining areas	as of search.
Assessment of resource		sultation on MLP (Spring 2015)
Revised estimate of	Area: 45ha x average dep	
resource:	Estimated resource volum	
	Estimated resource tonr	nnage (at 1.65 t/m ³): 1,485,000 tonnes
Conclusion:	Significant.	
Assessment of resource	for the Fourth Stage con	nsultation on MLP (August 2018)
	en split into areas 9/3 and 9	
	ource area 9/3	Resource area 9/3b

Resource area:	45 ha	Commentary:	Screened out due to the following appendix A criterion:
Resource depth:	Estimated 4m		- Listed Buildings
Revised estimate of resource:	Area: 45ha x average depth: 4m / 2 Estimated resource volume: 900,000m ³ . Estimated resource tonnage (at 1.65 t/m ³): 1,485,000 tonnes		- Settlement boundary
Conclusion:	Significant resource	Conclusion:	Compromised

Overview		
Resource number:	9/4	
Resource name:	Lodge Farm	
Resource area:	14ha	
Resource depth:	Estimated 3.5m	
Location		926
OS sheet reference:	SO 84 SW	PHA #
National grid ref:	383465, 241722	Sch 9'2 9'4 Fm 9'4 Churce Prived from 1:50,000 scale BGS Digita Prived from 1:50,000 scale
Resource description:	Ord (annual of (1) alt (1) a th)	
Resource description:	states that the 3 rd terrace	and and gravel. No boreholes or exposures are recorded but the memoir for this area generally comprises gravel, sandy gravel and sand which may be clayey or cobbly
	and between 1m and 6m	
	(Estimated resource dept	h based on median depth of 3.5m)
Assessment of resource		tion on MLP (Autumn 2013)
Commentary:	A small deposit with smal	Il-scale development on the north-western periphery of the resource area.
Crude estimate of	Area: 14ha x average dep	
resource:	Estimated resource volun	
		nage (at 2 t/m ³): 290,000 tonnes.
Conclusion:	Not significant: Small dep	posit with less than 300,000m ³ .
	Not for consideration in d	
		sultation on MLP (Spring 2015)
Revised estimate of	Area: 14ha x average de	
resource:	Estimated resource volur	,
	Estimated resource tor	nnage (at 1.65 t/m³): 239,250 tonnes
Conclusion:	Not significant.	
Assessment of resource	e for the Fourth Stage con	nsultation on MLP (August 2018)
Not reassessed due to re	source not being classified	as Key or Significant in the Third Stage Consultation

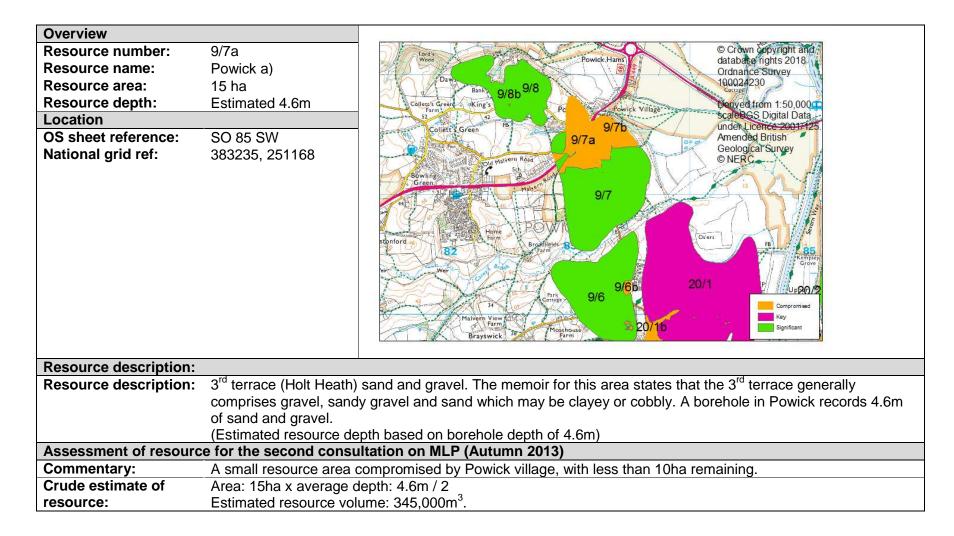
Overview	•	
Resource number:	9/5	9/6 9/6b 20/1b © Crown copyright and database rights 2018
Resource name:	Callow End	Contractor and the second se
Resource area:	11 ha	Bernets 100024230
Resource depth:	Estimated 3.5m	erick Lige Stanbook
Location		scaleBGS Digital Data/
OS sheet reference:	SO 84 NW	Amended British Geological Survey
National grid ref:	383594, 249383	Solutions in the set of the set o
Resource description:		
Resource description:	states that the 3 rd terrac and between 1m and 6	sand and gravel. No boreholes or exposures are recorded but the memoir for this area ce generally comprises gravel, sandy gravel and sand which may be clayey or cobbly m thick. appendix the provided and the sand which may be clayed by the same set of th
Assessment of resource		Itation on MLP (Autumn 2013)
Commentary:		entirely compromised by Callow End village.
Crude estimate of	Area: 11ha x average d	
resource:	Estimated resource vol	
	Estimated resource to	onnage (at 2 t/m³): 385,000 tonnes
Conclusion:	Compromised by devel	opment.
Assessment of resource	e for the Third Stage co	nsultation on MLP (Spring 2015)
Revised estimate of	Area: 11ha x average d	
resource:	Estimated resource volu	ume: 192,500m ³
	Estimated resource to	onnage (at 1.65 t/m³): 317,625 tonnes
Conclusion:	Compromised by develo	
Assessment of resource		consultation on MLP (August 2018)
		ed as Key or Significant in the Third Stage Consultation

Overview		
Resource number:	9/6	Crown copyright and
Resource name:	North of Callow End	9/7 Ordnance Survey
Resource area:	41ha	100024230
Resource depth:	3.5m	Derived from 1:50,000
Location	- 1 (5 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	scaleBGS Digital Data under Licence 2001/125
OS sheet reference:	SO 85 SW	Amended British Geological Survey
National grid ref:	383270, 250200	9/6b ¹ 20/1 1 ³ 20/1 1 ³ 20/1 1 ⁴ 20/1b 1 ⁴ 20/1b 1 ⁴ 20/1b 1 ⁴ 20/1b 1 ⁴ 20/1b 1 ⁴ 20/1b 1 ⁴ 20/1b
Resource description:	ard an an an an an	
Resource description:		gravel. No boreholes or exposures are recorded but the memoir for this
		erally comprises gravel, sandy gravel and sand which may be clayey or
	cobbly and between 1m and 6m th	
Assossment of resource	(Estimated resource depth based e for the second consultation on M	
		cale dispersed development across the resource area.
Commentary: Crude estimate of		
	Area: 41ha x average depth: 3.5m	
resource:	Estimated resource volume: 717,5 Estimated resource tonnage (at	
Conclusion:		2 (/11°). 1,455,000 tonnes
Conclusion.	Significant.	ah
Accorement of recourse	Consider in defining areas of sear	
Revised estimate of	e for the Third Stage consultation Area: 41ha x average depth: 3.5m	
	Estimated resource volume: 717,5	
resource:	Estimated resource tonnage (at	
Conclusion:	Significant.	
	e for the Fourth Stage consultation	n on MLP (August 2018)
	een split into areas 9/6 and 9/6b.	
	source area 9/6	Resource area 9/6b
Resource area: 40 h		Commentary: Screened out due to the following appendix A criterion:
		Controlled out due to the following appendix A chteholi.

Resource depth:	Estimated 3.5m		- Allocated site in South Worcestershire
Revised estimate of resource:	Area: 40ha x average depth: 3.5m / 2 Estimated resource volume: 700,000m ³		Development Plan - Listed Buildings
	Estimated resource tonnage (at 1.65 t/m ³): 1,155,000 tonnes		- Settlement boundary
Conclusion:	Significant resource	Conclusion:	Compromised

Resource number: 9/7 Resource name: Powick Resource depth: Estimated 4.6m Location Do S sheet reference: SO 85 SW National grid ref: 383235, 251168 Resource description: Resource description: Resource description: Resource description: S rd terrace (Holt Heath) sand and gravel. The memoir for this area states that the 3 rd terrace generally comprises gravel, sandy gravel and sand which may be clayey or cobbly. A borehole in Powick records 4.6m of sand and gravel. Estimated resource depth based on borehole depth of 4.6m) Assessment of resource for the second consultation on MLP (Autumn 2013) Commentary: A medium-sized resource area area intersected by a road with small-scale ribbon development and other small scale development on the periphery of the resource area. The deposit extends under Powick village, this is considered as resource to number (242,000m ³ . Estimated resource to number): 4.242,000m ³ . Estimated resource to number (242,000m ³ . Estimated resource to number): 4.242,000m ³ . Estimated resource to number (242,000m ³ . Estimated resource depth the second consultation on MLP (Spring 2015). Revised estimate of Area: 54h ax average depth: 4.6m / 2 Source State at a verage depth: 4.6m / 2 Source State at a verage depth: 4.6m / 2 Source State at a verage depth: 4.6m / 2 Source State at second consultation on MLP (Spring 2015). Revised estimate of Area: 54h ax average depth: 4.6m / 2	Overview	
Resource description: 3rd terrace (Holt Heath) sand and gravel. The memoir for this area states that the 3rd terrace generally comprises gravel, sandy gravel and sand which may be clayey or cobbly. A borehole in Powick records 4.6m of sand and gravel. (Estimated resource depth based on borehole depth of 4.6m) Assessment of resource for the second consultation on MLP (Autumn 2013) Commentary: A medium-sized resource area intersected by a road with small-scale ribbon development and other small scale development on the periphery of the resource area. The deposit extends under Powick village, this is considered as resource area 9/7a. Crude estimate of resource for the securce depth: 4.6m / 2 Estimated resource to nonage (at 2 t/m³): 2,484,000 tonnes Conclusion: Significant – key resource. Use to define areas of search. Assessment of resource for the Third Stage consultation on MLP (Spring 2015) Revised estimate of resource volume: 1,242,000m ³ . Estimated resource volume: 1,242,000m ³ . Estimated resource for the Third Stage consultation on MLP (Spring 2015) Revised estimate of resource for the Third Stage consultation on MLP (Spring 2015) Revised estimate of resource volume: 1,242,000m ³ . Estimated resourc	Resource number: Resource name: Resource area: Resource depth: Location OS sheet reference: National grid ref:	Powick 54 ha Estimated 4.6m SO 85 SW 383235, 251168
comprises gravel, sandy gravel and sand which may be clayey or cobbly. A borehole in Powick records 4.6m of sand and gravel. (Estimated resource depth based on borehole depth of 4.6m) Assessment of resource for the second consultation on MLP (Autumn 2013) Commentary: A medium-sized resource area intersected by a road with small-scale ribbon development and other small scale development on the periphery of the resource area. The deposit extends under Powick village, this is considered as resource area 9/7a. Crude estimate of resource tornage depth: 4.6m / 2 Estimated resource volume: 1,242,000m ³ . Estimated resource tornage (at 2 t/m ³): 2,484,000 tonnes Conclusion: Significant – key resource. Use to define areas of search. Area: 54ha x average depth: 4.6m / 2 Estimated resource tonnage (at 2 t/m ³): 2,484,000 tonnes Conclusion: Significant – key resource. Use to define areas of search. Area: 54ha x average depth: 4.6m / 2 Estimated resource volume: 1,242,000m ³ . Estimated resource tornage (at 2 t/m ³): 2,049,300 tonnes Conclusion: Significant – key resource. Use to define areas of search. Area: 54ha x average depth: 4.6m / 2 resource: Estimated resource volume: 1,242,000m ³ . Estimated resource volume: 1,242,000m ³ . Estimated resource	Resource description:	Tiosthouse State And
Assessment of resource for the second consultation on MLP (Autumn 2013) Commentary: A medium-sized resource area intersected by a road with small-scale ribbon development and other small scale development on the periphery of the resource area. The deposit extends under Powick village, this is considered as resource area 9/7a. Crude estimate of resource Area: 54ha x average depth: 4.6m / 2 Estimated resource volume: 1,242,000m ³ . Estimated resource tonnage (at 2 t/m ³): 2,484,000 tonnes Conclusion: Significant – key resource. Use to define areas of search. Area: 54ha x average depth: 4.6m / 2 Revised estimate of resource for the Third Stage consultation on MLP (Spring 2015) Area: 54ha x average depth: 4.6m / 2 Revised estimate of resource instant of resource volume: 1,242,000m ³ . Estimated resource volume: 1,242,000m ³ . Conclusion: Significant – key resource. Use to define areas of search. Assessment of resource for the Third Stage consultation on MLP (Spring 2015) Area: 54ha x average depth: 4.6m / 2 Estimated resource volume: 1,242,000m ³ . Estimated resource volume: 1,242,000m ³ . Estimated resource tonnage (at 1.65 t/m ³): 2,049,300 tonnes Significant – key resource.	Resource description:	comprises gravel, sandy gravel and sand which may be clayey or cobbly. A borehole in Powick records 4.6m of sand and gravel.
Commentary: A medium-sized resource area intersected by a road with small-scale ribbon development and other small scale development on the periphery of the resource area. The deposit extends under Powick village, this is considered as resource area 9/7a. Crude estimate of resource: Area: 54ha x average depth: 4.6m / 2 Estimated resource volume: 1,242,000m ³ . Estimated resource tonnage (at 2 t/m ³): 2,484,000 tonnes Conclusion: Significant – key resource. Use to define areas of search. Area: 54ha x average depth: 4.6m / 2 Assessment of resource for the Third Stage consultation on MLP (Spring 2015) Revised estimate of resource volume: 1,242,000m ³ . Estimated resource volume: 1,242,000m ³ . Estimated resource for the Third Stage consultation on MLP (Spring 2015) Revised estimate of resource for the Third Stage consultation on MLP (Spring 2015) Revised estimate of resource volume: 1,242,000m ³ . Estimated resource volume: 1,242,000m ³ . Estimated resource volume: 1,242,000m ³ . Estimated resource tonnage (at 1.65 t/m ³): 2,049,300 tonnes Conclusion: Significant – key resource.	Assessment of resource	
resource: Estimated resource volume: 1,242,000m ³ . Estimated resource tonnage (at 2 t/m ³): 2,484,000 tonnes Conclusion: Significant – key resource. Use to define areas of search. Assessment of resource for the Third Stage consultation on MLP (Spring 2015) Revised estimate of resource volume: 1,242,000m ³ . Estimated resource volume: 1,242,000m ³ . Estimated resource volume: 1,242,000m ³ . Estimated resource tonnage (at 1.65 t/m ³): 2,049,300 tonnes Conclusion: Significant – key resource.	Commentary:	A medium-sized resource area intersected by a road with small-scale ribbon development and other small scale development on the periphery of the resource area. The deposit extends under Powick village, this is
Conclusion: Significant – key resource. Use to define areas of search. Assessment of resource for the Third Stage consultation on MLP (Spring 2015) Revised estimate of resource: Area: 54ha x average depth: 4.6m / 2 Estimated resource volume: 1,242,000m ³ . Estimated resource tonnage (at 1.65 t/m ³): 2,049,300 tonnes Conclusion: Significant – key resource.	Crude estimate of resource:	Estimated resource volume: 1,242,000m ³ .
Revised estimate of resource: Area: 54ha x average depth: 4.6m / 2 Estimated resource volume: 1,242,000m ³ . Estimated resource tonnage (at 1.65 t/m ³): 2,049,300 tonnes Conclusion: Significant – key resource.	Conclusion:	Significant – key resource.
resource: Estimated resource volume: 1,242,000m ³ . Estimated resource tonnage (at 1.65 t/m³): 2,049,300 tonnes Conclusion: Significant – key resource.	Assessment of resource	e for the Third Stage consultation on MLP (Spring 2015)
Conclusion: Significant – key resource.	Revised estimate of resource:	Estimated resource volume: 1,242,000m ³ .
	Conclusion:	

This resource area has been split into areas 9/7 and 9/7b.			
Resource area 9/7		Resource area 9/7b	
Resource area:	46 ha	Commentary:	
Resource depth:	Estimated 4.6m		 Allocated site in South Worcestershire
Revised estimate	Area: 46ha x average depth: 4.6m / 2		Development Plan
of resource:	Estimated resource volume: 1,058,000m ³		- Conservation Area
	Estimated resource tonnage (at 1.65		- Listed Buildings
	t/m³): 1,745,700 tonnes		- Settlement boundary
Conclusion:	Significant resource	Conclusion:	Compromised



	Estimated resource tonnage (at 2 t/m ³): 690,000 tonnes
Conclusion:	Compromised by development with less than 10ha of the deposit remaining.
Assessment of resource	ce for the Third Stage consultation on MLP (Spring 2015)
Revised estimate of	Area: 15ha x average depth: 4.6m / 2
resource:	Estimated resource volume: 345,000m ³
	Estimated resource tonnage (at 1.65 t/m ³): 569,250 tonnes
Conclusion:	Compromised by development.
Assessment of resource	ce for the Fourth Stage consultation on MLP (August 2018)
Not reassessed due to re	esource not being classified as Key or Significant in the Third Stage Consultation

Overview		
Resource number: Resource name: Resource area: Resource depth: Location OS sheet reference: National grid ref:	9/8 King's End 26ha Estimated 3m SO 85 SW 382491, 251890	Collect's Green
Resource description:		
Resource description:	according to the BGS r point.	ter Station) sand and gravel. The deposit varies in grade from gravel to sand and nemoirs its thickness is believed to range from 1-5m, and may be up to 3m thick at this opth based on median depth of 3m)
Assessment of resourc	e for the second consu	Itation on MLP (Autumn 2013)
Commentary:	A small deposit with sn	nall-scale dispersed development across the resource area.
Crude estimate of resource:	Area: 26ha x average of Estimated resource vol	

	Estimated resource tonnage (at 2 t	./m ³): 780,000 tor	nnes
Conclusion:	Significant.		
	Consider in defining areas of search.		
Assessment of res	source for the Third Stage consultation o	n MLP (Spring 2	015)
Revised estimate			
resource:	Estimated resource volume: 390,000	m ³	
	Estimated resource tonnage (at 1.65 t/m ³): 643,500 tonnes		
Conclusion:	Significant.		
Assessment of res	source for the Fourth Stage consultation	on MLP (August	2018)
This resource area	has been split into areas 9/8 and 9/8b.	• -	
Resource area 9/8		Resource area 9/8b	
Resource area:	26 ha	Commentary:	Screened out due to the following appendix A criterion:
Resource depth:	Estimated 3m		- Listed Buildings
Revised estimate			- Settlement Boundary
of resource:	Estimated resource volume: 390,000m ³		
	Estimated resource tonnage (at 1.65		
	t/m ³): 643,500 tonnes		
Conclusion:	Significant resource	Conclusion:	Compromised

Overview		
Resource number: Resource name: Resource area: Resource depth: Location OS sheet reference: National grid ref:	9/9 Welland Lodge 21ha Not known. SO 73 NE 381148, 239525	S Crown cobyright and database rights 2018 Ordnance Survey 100924230 Derived from 1:50:000 scaleB GSIDigital Data WriteP Thene 2001/1/28 Amended British Geological Survey HRRC-
Resource description:		
Resource description:	2 nd terrace (Worcester) sa the lower and may give a area.	and and gravel. The upper part of the 2 nd terrace deposit is typically more sandy than misleading impression of the gravel content. There is no information on depth in this
Assessment of resource		tion on MLP (Autumn 2013)
Commentary:		I-scale dispersed development across the resource area.
Crude estimate of resource:	Depth not known.	
Conclusion:	Not significant: Small dep Not for consideration in de	osit with no information to estimate the resource in this area. efining areas of search.
Assessment of resource		sultation on MLP (Spring 2015)
Revised estimate of resource:	No change to the assess	
Conclusion:	Not significant.	
		nsultation on MLP (August 2018)
Not reassessed due to reasonable	source not being classified	as Key or Significant in the Third Stage Consultation

Resource number: 9/10 Resource name: North Hill to Hangman's Hill Hangman's Hill Resource area: 463 ha Resource depth: Estimated 1658m, maximum working depth estimated 150m Location SO 74 NE, SO 74 SE National grid ref: SO 74 NE, SO 74 SE 376863, 243606 376863, 243606	
Resource name: North Hill to Hangman's Hill Resource area: 463 ha Resource depth: Estimated 1658m, maximum working depth estimated 150m Location SO 74 NE, SO 74 SE	
Resource area: 463 ha Resource depth: Estimated 1658m, maximum working depth estimated 150m Location SO 74 NE, SO 74 SE	
Resource depth: Estimated 1658m, maximum working depth estimated 150m Location SO 74 NE, SO 74 SE	
maximum working depth estimated 150m OS sheet reference: SO 74 NE, SO 74 SE	
depth estimated 150m Location OS sheet reference: SO 74 NE, SO 74 SE	
Location OS sheet reference: SO 74 NE, SO 74 SE	
OS sheet reference: SO 74 NE, SO 74 SE	
wanter ground and grou	
and the second sec	
Dérived from 1/50,000 scale B/SS Digital Data	
under Licence 2001/125 Amended	
33 ³ Time Compromised	
© Crown copyright and database rights 2018 0/11 Out of County	
Resource description:	
Resource description: Malverns complex and Warren House formation (crushed rock). The Malverns Complex of Precam	brian age
rock forms the Malvern Hills which straddle the border between Worcestershire and Herefordshire.	
Complex comprises mainly intrusive igneous rocks. These include diorites and tonalities, with minc	
and ultrabasic rocks. Many of the rocks are extensively sheared and are cut by microdiorite dykes	and granite
pegmatites.	
The BGS geological map ¹ indicates that in some areas of the Malvern Hills, the pre-Cambrian rock	is an
estimated 3000m deep (at Worcestershire Beacon). However, the geological map indicates that, di	
faulting, the depth of pre-cambrian rock is likely to be much less than this at the southern end of the	
and indicates roughly 200m depth at Herefordshire Beacon. The memoir for Worcester reports that	
Collington Borehole (18km north-west of this resource area, in Herefordshire) did not reach the pre	-Cambrian
basement until 1710m but that seismic readings suggested this should have been 1800m.	
The intrusive Molvern reaks were widely used for readstone and building stone is and enough Make	iorn for
The intrusive Malvern rocks were widely used for roadstone and building stone in and around Malv much of the 19 th and 20 th centuries. The Malvern Hills Conservators (a locally elected body charged	
ownership and care of the Hills) have been granted a number of local Acts of Parliament which incl	
right to compulsory purchase quarries. As a result of these Acts and Appeal decisions by the Secret	
State the last quarry in Worcestershire, at Tank (Pyx) quarry, closed in 1969.	y -

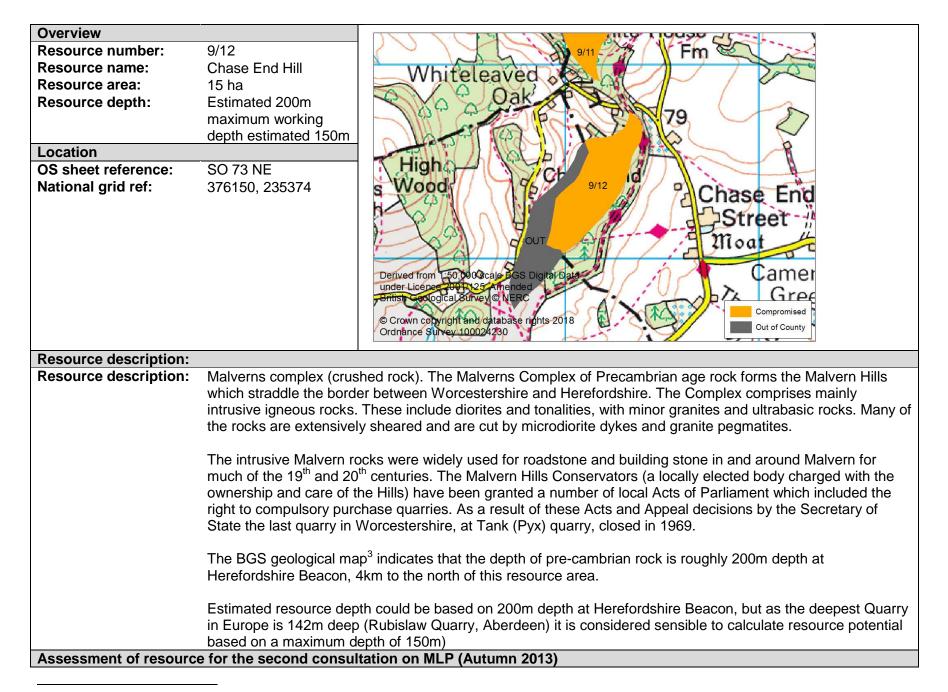
¹ Cross-sections shown on the 1:50000 Series England and Wales Sheet 199, Worcester, Solid and Drift Geology)

	Estimated resource depth could be based on the average of a) 3000m at Worcestershire Beacon b) 200m at Herefordshire Beacon and c) Borehole at Collington (median average 1710m to 1800m): 1775 = 1658m but as the deepest quarry in Europe is 142m deep (Rubislaw Quarry, Aberdeen) it is considered sensible to calculate resource potential based on a maximum depth of 150m.
Assessment of resour	rce for the second consultation on MLP (Autumn 2013)
Commentary:	A large resource area with little built development. This deposit extends beyond the county boundary into Herefordshire.
Crude estimate of	Area: 463 ha x average depth: 150 m ÷ 2
resource:	Estimated resource volume: 347,250,000 m ³
	Estimated resource tonnage (at 2.7 t/m ³): 937,575,000 tonnes
Conclusion:	Significant – key resource.
	Use to define areas of search.
Assessment of resour	ce for the Third Stage consultation on MLP (Spring 2015)
Revised estimate of	Area: 463 ha x average depth: 150 m ÷ 2
resource:	Estimated resource volume: 347,250,000 m ³
	Estimated resource tonnage (at 2.45 t/m ³): 850,762,500 tonnes
Conclusion:	Significant – key resource.
Assessment of resour	ce for the Fourth Stage consultation on MLP (August 2018)
Commentary:	Screened out due to the following appendix A criterion:
	- Ancient Semi-Natural Woodland
	 Area of Outstanding Natural Beauty
	- Conservation Area
	- Listed Building
	- Settlement Boundary
	- Site of Special Scientific Interest
	- Source Protection Zone
Conclusion:	Key resource

Overview	·	Common
Resource number: Resource name:	9/11 Hollybush,	News Wood
Resource name.	Midsummer and	Star Part of the star of the s
_	Swinyard Hills	A B A A A A A A A A A A A A A A A A A A
Resource area: Resource depth:	64 ha Estimated 200m	
	maximum working	Eastnor Park Obelisk
Location	depth estimated 150m	i Deer Park
OS sheet reference:	SO 73 NE	Bronsil fill Hollybed Common State
National grid ref:	376251, 237336	Golden == 48. Mill F
		Street (12)
		Ho oush a to combegreen 142 Bi
		Iobeliwed/from 1:50,000 scale BCS Bighar Data under Licence 2001/125. Amended Batist Geological Survey © NERC
		Brust Geological Survey © NERC
		Ordnance Survey 100024230 Oak
-		
Resource description: Resource description:	Mahyarna aomalay (arus	shed rock). The Malverns Complex of Precambrian age rock forms the Malvern Hills
Resource description.		er between Worcestershire and Herefordshire. The Complex comprises mainly intrusive
	igneous rocks. These in	nclude diorites and tonalities, with minor granites and ultrabasic rocks. Many of the
	rocks are extensively sh	neared and are cut by microdiorite dykes and granite pegmatites.
	The intrusive Malvern ro	ocks were widely used for roadstone and building stone in and around Malvern for
		th centuries. The Malvern Hills Conservators (a locally elected body charged with the
		the Hills) have been granted a number of local Acts of Parliament which included the chase quarries. As a result of these Acts and Appeal decisions by the Secretary of
		Worcestershire, at Tank (Pyx) quarry, closed in 1969.
	The BGS geological ma	ap ² indicates that the depth of pre-cambrian rock is roughly 200m depth at
	Herefordshire Beacon,	a little to the north of this resource area.
	(Estimated resource de	pth could be based on 200m depth at Herefordshire Beacon, but as the deepest Quarry
	in Europe is 142m deep	o (Rubislaw Quarry, Aberdeen it is considered sensible to calculate resource potential
	based on a maximum d	lepth of 150m)

² Cross-sections shown on the 1:50000 Series England and Wales Sheet 199, Worcester, Solid and Drift Geology)

Assessment of resour	ce for the second consultation on MLP (Autumn 2013)
Commentary:	A small resource area with little built development. This deposit extends beyond the county boundary into Herefordshire.
Crude estimate of	Area: 64 ha x average depth: 150m ÷ 2
resource:	Estimated resource volume: 48,000,000 m ³
	Estimated resource tonnage (at 2.7 t/m ³): 129,600,000 tonnes
Conclusion:	Significant – key resource.
	Use to define areas of search.
Assessment of resour	ce for the Third Stage consultation on MLP (Spring 2015)
Revised estimate of	Area: 64 ha x average depth: 150m ÷ 2
resource:	Estimated resource volume: 48,000,000 m ³
	Estimated resource tonnage (at 2.45 t/m ³): 117,600,000 tonnes
Conclusion:	Significant – key resource.
Assessment of resour	ce for the Fourth Stage consultation on MLP (August 2018)
Commentary:	Screened out due to the following appendix A criterion:
	- Ancient Semi-Natural Woodland
	- Area of Outstanding Natural Beauty
	- Listed Building
	- Site of Special Scientific Interest
Conclusion:	Key resource



³ Cross-sections shown on the 1:50000 Series England and Wales Sheet 199, Worcester, Solid and Drift Geology)

Commontony	A small resource area with little built development. This deposit extends beyond the source boundary into		
Commentary:	A small resource area with little built development. This deposit extends beyond the county boundary into		
	Herefordshire.		
Crude estimate of	Area: 15 ha x average depth: 150 m ÷ 2		
resource:	Estimated resource volume: 11,250,000 m ³		
	Estimated resource tonnage (at 2.7 t/m ³): 30,375,000 tonnes		
Conclusion:	Significant – key resource.		
	Use to define areas of search.		
Assessment of resour	ce for the Third Stage consultation on MLP (Spring 2015)		
Revised estimate of	Area: 15 ha x average depth: 150 m ÷ 2		
resource:	Estimated resource volume: 11,250,000 m ³		
	Estimated resource tonnage (at 2.45 t/m ³): 27,562,500 tonnes		
Conclusion:	Significant – key resource.		
Assessment of resour	ce for the Fourth Stage consultation on MLP (August 2018)		
Commentary:	Screened out due to the following appendix A criterion:		
	- Ancient Semi-Natural Woodland		
	- Area of Outstanding Natural Beauty		
	- Site of Special Scientific Interest		
Conclusion:	Key resource		

Overview	
Resource number: Resource name: Resource area: Resource depth: Location OS sheet reference: National grid ref:	9/13 Ravenshill Wood 10 ha Estimated 15m SO 75 SW 374117, 253519
Resource description:	Woolhope Limestone Formation (crushed rock). In this area, the formation ranges from about 6m to 18m in thickness, although the BGS memoirs state that over much of its outcrop it maintains a relatively uniform thickness of about 15m, perhaps thinning regionally northwards from 17m in the Colwall Tunnel. The minimum thickness of 6m was recorded in a disused quarry at Merryhill Common, Storridge. (Estimated depth based on the relatively uniform thickness of 15m)
Assessment of resource	e for the second consultation on MLP (Autumn 2013)
Commentary:	A small resource area with no built development.
Crude estimate of resource:	Area: 10 ha x average depth: 15 m ÷ 2 Estimated resource volume: 750,000 m ³ Estimated resource tonnage (at 2.7 t/m³): 2,025,000 tonnes
Conclusion:	Significant – key resource. Use to define areas of search.
	e for the Third Stage consultation on MLP (Spring 2015)
Revised estimate of resource:	Area: 10 ha x average depth: 15 m ÷ 2 Estimated resource volume: 750,000 m ³ Estimated resource tonnage (at 2.45 t/m ³): 1,837,500 tonnes
Conclusion:	Significant – key resource.
Assessment of resource	e for the Fourth Stage consultation on MLP (August 2018)

Commentary:	Screened out due to the following appendix A criterion: Ancient Semi-Natural Woodland Area of Outstanding Natural Beauty
Conclusion:	Key resource

Overview					
Resource number:	9/14				
Resource name:	Alfrick Pound				
Resource area:	17 ho				
Resource depth:	Estimated 15m				
Location					
OS sheet reference:	SO 75 SW 9/14				
National grid ref:	374525, 252183				
December la contration	Ordnance Survey 100024230				
Resource description:					
Resource description:	Woolhope Limestone Formation (crushed rock). In this area, the formation ranges from about 6m to 18m in thickness, although the BGS memoirs state that over much of its outcrop it maintains a relatively uniform thickness of about 15m, perhaps thinning regionally northwards from 17m in the Colwall Tunnel. The minimum thickness of 6m was recorded in a disused quarry at Merryhill Common, Storridge.				
	(Estimated depth based on the relatively uniform thickness of 15m)				
	e for the second consultation on MLP (Autumn 2013)				
Commentary:	A small resource area with no built development.				
Crude estimate of	Area: 17 ha x average depth: 15 m ÷ 2				
resource:	Estimated resource volume: 1,275,000 m ³				
	Estimated resource tonnage (at 2.7 t/m ³): 3,442,500 tonnes				
Conclusion:	Significant – key resource.				
	Use to define areas of search.				
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)					
Revised estimate of	Area: 17 ha x average depth: 15 m ÷ 2				
resource:	Estimated resource volume: 1,275,000 m ³ Estimated resource tonnage (at 2.45 t/m ³): 3,123,750 tonnes				
Conclusion:	Significant – key resource.				
Assessment of resource for the Fourth Stage consultation on MLP (August 2018)					

This resource area has been split into areas 9/14 and 9/14b.				
Resource area 9/14		Resource area 9/14b		
Resource area:	8 ha	Commentary:	Screened out due to the following appendix A criterion:	
Resource depth:	Estimated 15m		 Ancient Semi-Natural Woodland Area of Outstanding Natural Beauty Listed Buildings 	
Revised estimate	Area: 8 ha x average depth: 15m ÷ 2			
of resource:	Estimated resource volume: 600,000 m ³			
	Estimated resource tonnage (at 2.45		 Site of Special Scientific Interest 	
	t/m³): 1,470,000 tonnes			
Conclusion:	Significant resource	Conclusion:	Compromised	