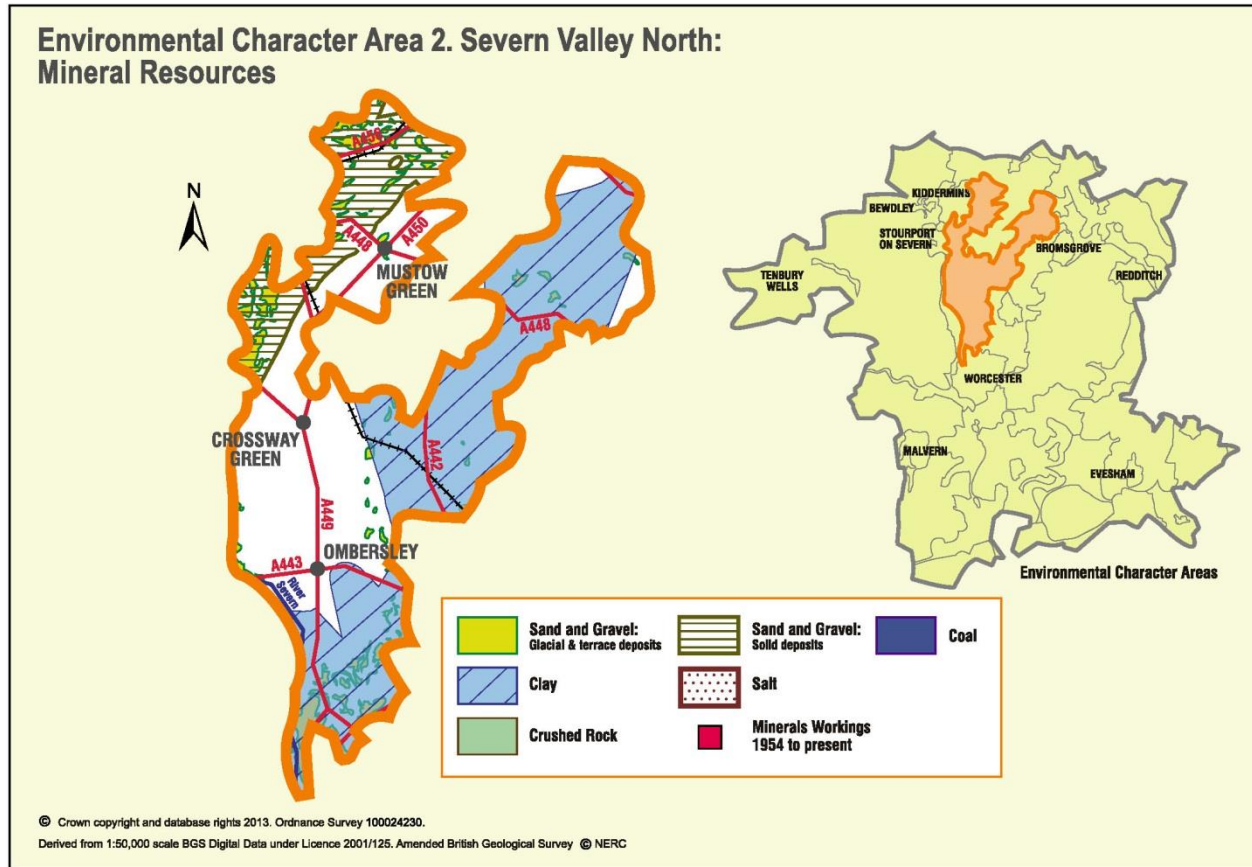


Appendix 2: Analysis of aggregate resources in ECA 2: Severn Valley North



ECA Summary for the Third Stage consultation on MLP (Spring 2015):

Sand and gravel

There are 31 resource areas identified for sand and gravel in Severn Valley North ECA:

- Key: 3
- Significant: 8
- Not significant: 11
- Compromised: 9

Crushed rock

There are no resource areas identified in Severn Valley North ECA for crushed rock.


Non-aggregates

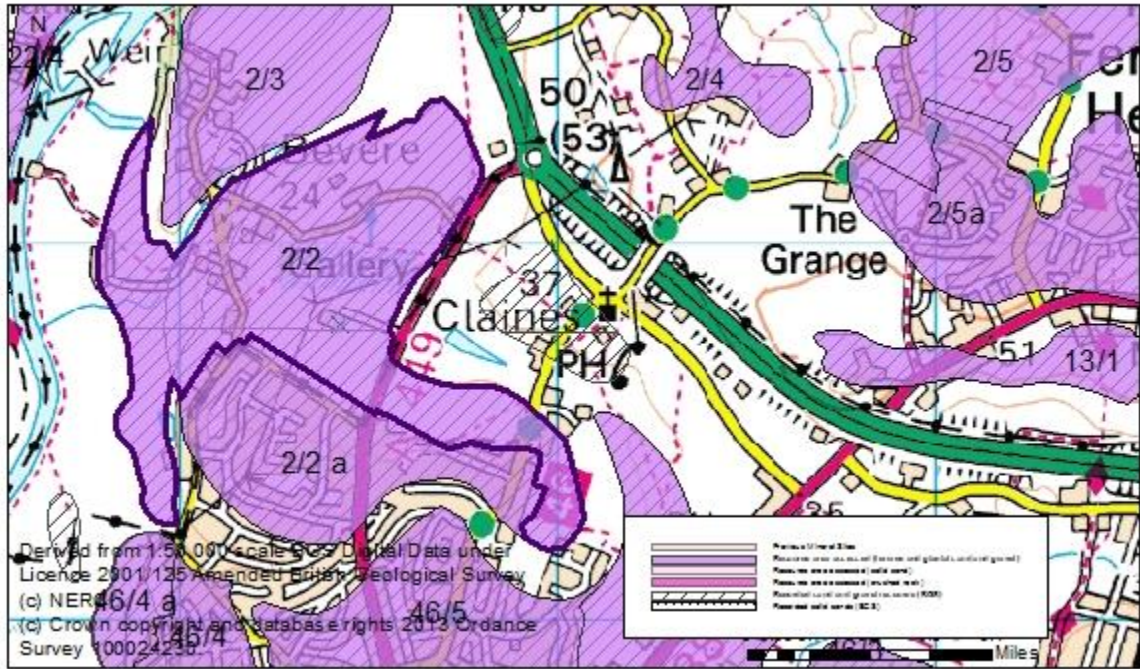
BGS data indicates that there are deposits of clay in this ECA.

Overview of resource assessment for ECA 1

Sand and gravel resource areas:

Resource number*	Second Stage Consultation		Third Stage Consultation	
	Original estimated resource tonnage (2 tonnes/m ³)	Significance	Revised estimate of resource tonnage (1.65 tonnes/m ³)	Significance
2/1	748,000	Key	617,100	Key
2/2	3,050,000	Compromised	2,516,250	Compromised
2/2 a	1,350,000	Significant	1,113,750	Significant
2/3	1,600,000	Significant	1,320,000	Significant
2/4	400,000	Significant	330,000	→ Not significant
2/5	775,000	Significant	639,375	Significant
2/5a	1,000,000	Compromised	825,000	Compromised
2/6	390,000	Not significant	321,750	Not significant
2/7	330,000	Not significant	272,250	Not significant
2/8	570,000	Not significant	470,250	Not significant
2/9	Depth not known	Not significant	Depth not known	Not significant
2/10	1,550,000	Significant	1,278,750	Significant
2/11	Depth not known	Not significant	Depth not known	Not significant
2/12	Depth not known	Significant	Depth not known	Significant
2/12 a	Depth not known	Compromised	Depth not known	Compromised
2/12 b	Depth not known	Compromised	Depth not known	Compromised
2/13	1,800,000	Significant	1,485,000	Significant
2/13 a	1,480,000	Compromised	1,221,000	Compromised
2/14	864,000	Significant	712,800	Significant
2/15	225,000	Not significant	185,625	Not significant
2/16	Depth not known	Not significant	Depth not known	Not significant
2/17	882,000	Significant	727,650	Significant
2/18	342,000	Not significant	282,150	Not significant
2/19	522,000	Not significant	430,650	Not significant
2/20	Depth not known	Not significant	Depth not known	Not significant
2/21	4,384,912,000	Key	3,617,552,400	Key
2/22	808,185,000	Key	666,752,625	Key
2/23	323,990,000	Compromised	267,291,750	Compromised
2/24	64,050,000	Compromised	52,841,250	Compromised
2/25	899,100,000	Compromised	741,757,500	Compromised
2/26	40,950,000	Compromised	33,783,750	Compromised

Overview	
Resource number:	2/1
Resource name:	Barnett Hill
Resource area:	11ha
Resource depth:	Estimated 6.8m
Location	
OS sheet reference:	SO 87 NE
National grid ref:	388764, 277139
	
Resource description:	
Resource description:	Glaciofluvial sand and gravel. A section on the west side of the road 700yds north east of Barnett Brook showed, in downward succession, false bedded sand with thin lenses of gravel 10' (3m), on false bedded sand 10'-15' (3m-4.6m). The eastern end of the deposit has previously been worked. (Total 6m to 7.6m) (Estimated resource depth based on midpoint of section at Barnett Brook: (6m to 7.6m = 6.8m))
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area intersected by a road. The eastern end of the deposit has previously been worked, this is not included as part of the resource area.
Crude estimate of resource:	Area: 11 ha x average depth: 6.8 m ÷ 2 Estimated resource volume: 374,000 m ³ Estimated resource tonnage (at 2 t/m³): 748,000 tonnes
Conclusion:	Significant. Consider in defining areas of search.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	Area: 11 ha x average depth: 6.8 m ÷ 2 Estimated resource volume: 374,000 m ³ Estimated resource tonnage (at 1.65 t/m³): 617,100 tonnes
Conclusion:	Significant.

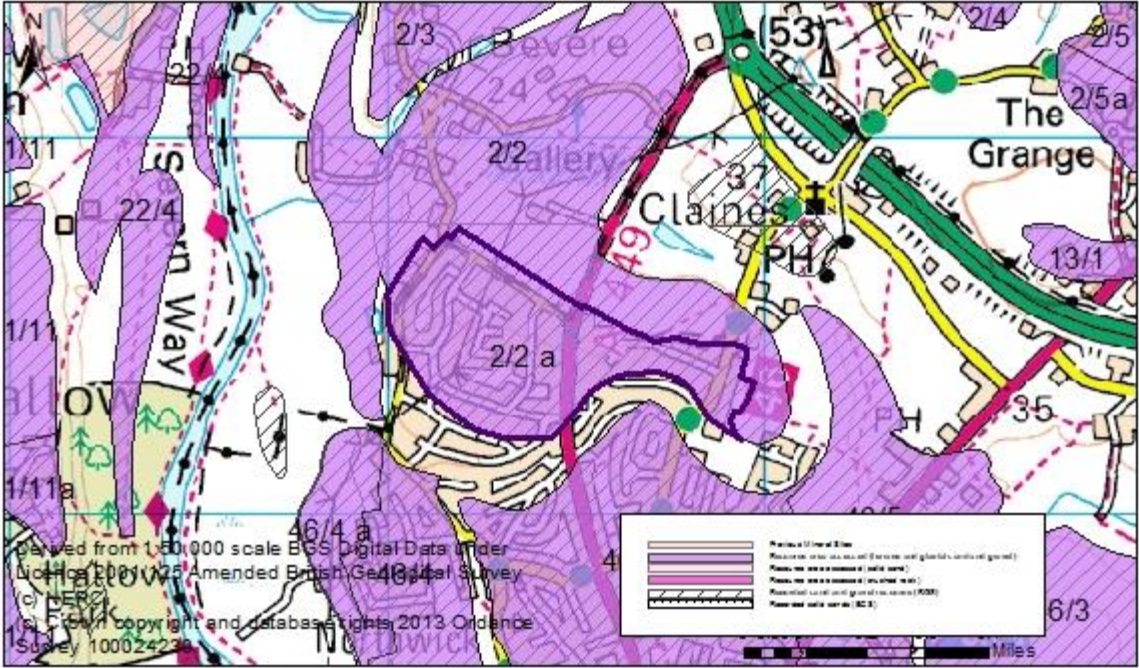
Overview	
Resource number:	2/2
Resource name:	Bevere
Resource area:	61ha
Resource depth:	Estimated 5m
Location	
OS sheet reference:	SO 85 NW
National grid ref:	384355, 258863
	
Resource description:	
Resource description:	<p>Some 1st terrace (Powerhouse) and 2nd terrace (Worcester), but mostly 3rd terrace (Holt Heath) sand and gravel.</p> <p>A complex series of river terrace remnants occur in the Bevere area. 3rd, 2nd and 1st terraces are present in a contiguous formation of terraces at varying levels which have an unclear relationship with the present course of the River Severn. There are no exposures or boreholes recorded in this resource area, although the memoir states that between Bevere Lane and the northern suburbs of Worcester, the 3rd terrace is 7-8m thick. Boreholes into the 2nd terrace in the west have recorded between 1.9m and 5.8m of sand and gravel with little overburden and between 1.4m+ and 5.8m+ in the 3rd terrace.</p> <p>Estimated resource depth based on mean average of a) Memoir record at Bevere Lane: (mid-point of 7 to 8m) 7.5m, b) Boreholes in the 2nd terrace (mid-point 1.9m to 5.8m): 3.85m and c) Boreholes in 3rd terrace (mid-point of 1.4m to 5.8m) 3.6m = 4.98m rounded to 5m.</p>
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A medium-sized resource area intersected by roads with some ribbon development. The deposit continues to the south under the Northwick/Claines area of Worcester, this is considered separately as resource area 2/2a.
Crude estimate of resource:	<p>Area: 61ha x average depth: 5m ÷ 2</p> <p>Estimated resource volume: 1,525,000 m³</p> <p>Estimated resource tonnage (at 2 t/m³): 3,050,000 tonnes</p>
Conclusion:	Significant – key resource.

Use to define areas of search.

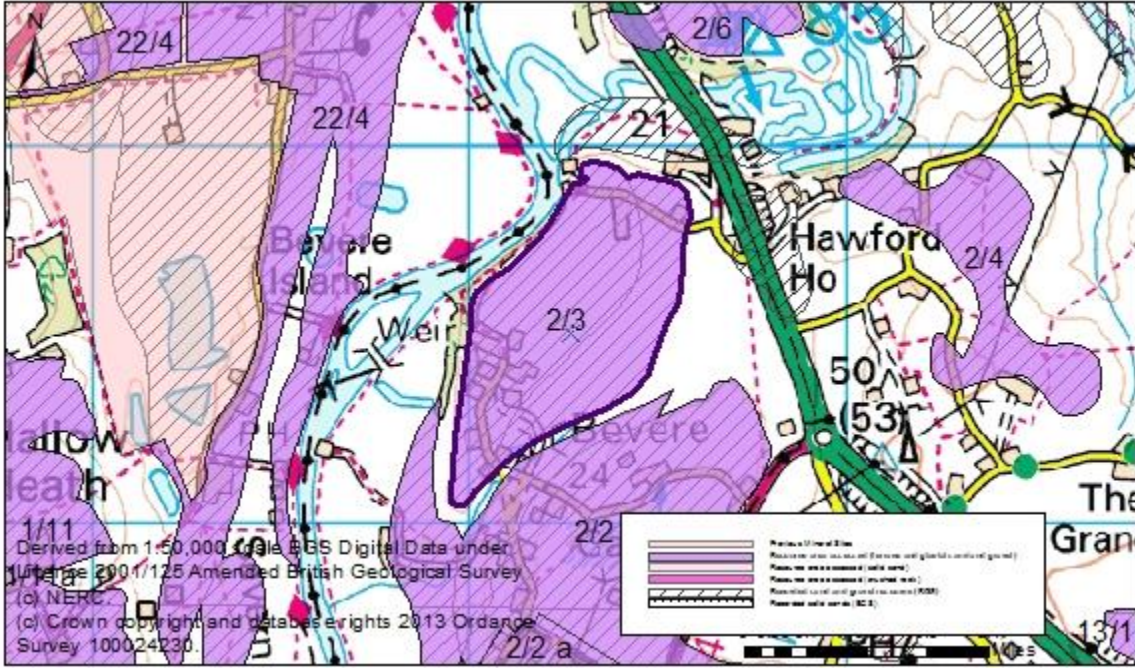
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)

Revised estimate of resource: Area: 61ha x average depth: 5m ÷ 2
Estimated resource volume: 1,525,000 m³
Estimated resource tonnage (at 1.65 t/m³): 2,516,250 tonnes

Conclusion: Significant – key resource.

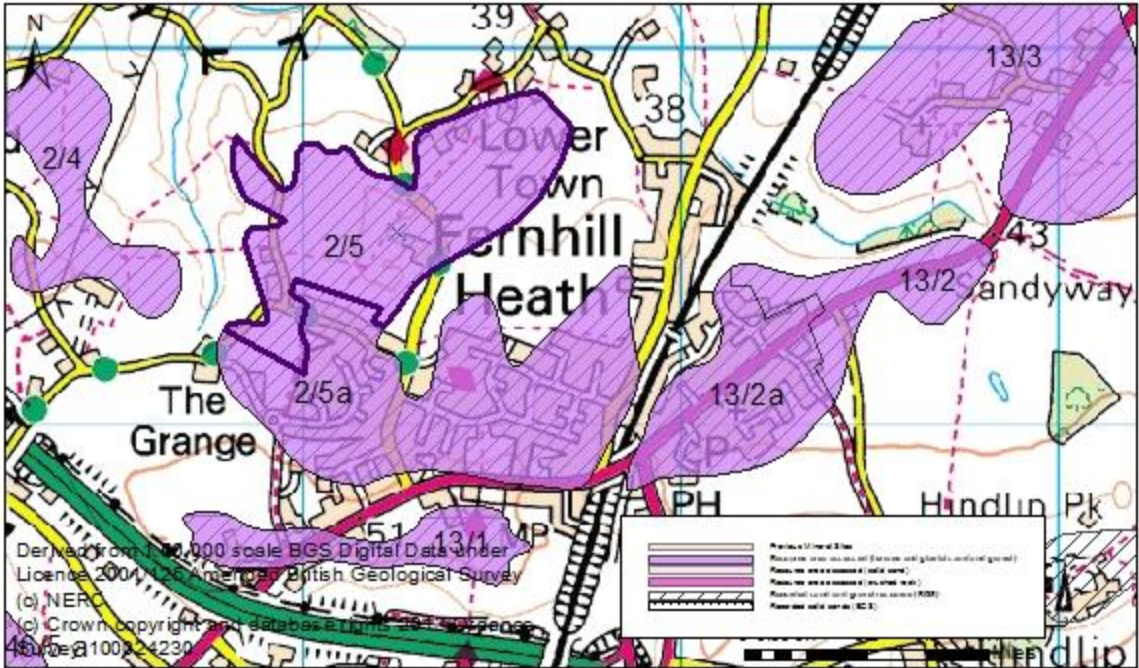
Overview	
Resource number:	2/2a
Resource name:	Bevere a)
Resource area:	27ha
Resource depth:	Estimated 5m
Location	
OS sheet reference:	SO 85 NW
National grid ref:	384355, 258863
	
Resource description:	
Resource description:	<p>Some 1st terrace (Powerhouse) and 2nd terrace (Worcester), but mostly 3rd terrace (Holt Heath) sand and gravel.</p> <p>A complex series of river terrace remnants occur in the Bevere area. 3rd, 2nd and 1st terraces are present in a contiguous formation of terraces at varying levels which have an unclear relationship with the present course of the River Severn. There are no exposures or boreholes recorded in this resource area, although the memoir states that between Bevere lane and the northern suburbs of Worcester, the 3rd terrace is 7-8m thick. Boreholes into the 2nd terrace in the west have recorded between 1.9m and 5.8m of sand and gravel with little overburden and between 1.4m+ and 5.8m+ in the 3rd terrace.</p> <p>Estimated resource depth based on mean average of: a) Memoir record at Bevere Lane (mid-point of 7 to 8m): 7.5m, b) Boreholes in the 2nd terrace (mid-point 1.9m to 5.8m): 3.85m and c) Boreholes in 3rd terrace (mid-point of 1.4m to 5.8m): 3.6m = 4.98m rounded to 5m.</p>
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area compromised by the settlement of Worcester.
Crude estimate of resource:	<p>Area: 27ha x average depth: 5m ÷ 2</p> <p>Estimated resource volume: 675,000 m³</p> <p>Estimated resource tonnage (at 2 t/m³): 1,350,000 tonnes</p>
Conclusion:	Compromised by development.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	

Revised estimate of resource:	Area: 27ha x average depth: 5m ÷ 2 Estimated resource volume: 675,000 m ³ Estimated resource tonnage (at 1.65 t/m³): 1,113,750 tonnes
Conclusion:	Compromised by development.

Overview	
Resource number:	2/3
Resource name:	Hawford South
Resource area:	32 ha
Resource depth:	Estimated 5m
Location	
OS sheet reference:	SO 85 NW
National grid ref:	384264, 259539
	
Resource description:	
Resource description:	<p>2nd terrace (Worcester) and 3rd terrace (Holt Heath) sand and gravel. A complex series of river terrace remnants occur in the Bevere area. 3rd and 2nd terraces are present in this resource area in a contiguous formation of terraces at varying levels which have an unclear relationship with the present course of the River Severn. There are no exposures or boreholes recorded in this resource area, but nearby between Bevere lane and the northern suburbs of Worcester, the 3rd terrace is 7-8m thick. Boreholes into the 2nd terrace in the west have recorded between 1.9m and 5.8m of sand and gravel with little overburden and between 1.4m+ and 5.8m+ in the 3rd terrace.</p> <p>Estimated resource depth based on mean average of a) Memoir record at Bevere Lane (mid-point of 7 to 8m): 7.5m, b) Boreholes in the 2nd terrace (mid-point 1.9m to 5.8m): 3.85m and c) Boreholes in 3rd terrace (mid-point of 1.4m to 5.8m) 3.6m = 4.98m rounded to 5m.</p>
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area with some development on the periphery.
Crude estimate of resource:	<p>Area: 32 ha x average depth: 5 m ÷ 2</p> <p>Estimated resource volume: 800,000 m³</p> <p>Estimated resource tonnage (at 2 t/m³): 1,600,000 tonnes</p>
Conclusion:	<p>Significant.</p> <p>Consider in defining areas of search.</p>
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of	Area: 32 ha x average depth: 5 m ÷ 2

resource:	Estimated resource volume: 800,000 m ³ Estimated resource tonnage (at 1.65 t/m³): 1,320,000 tonnes
Conclusion:	Significant.

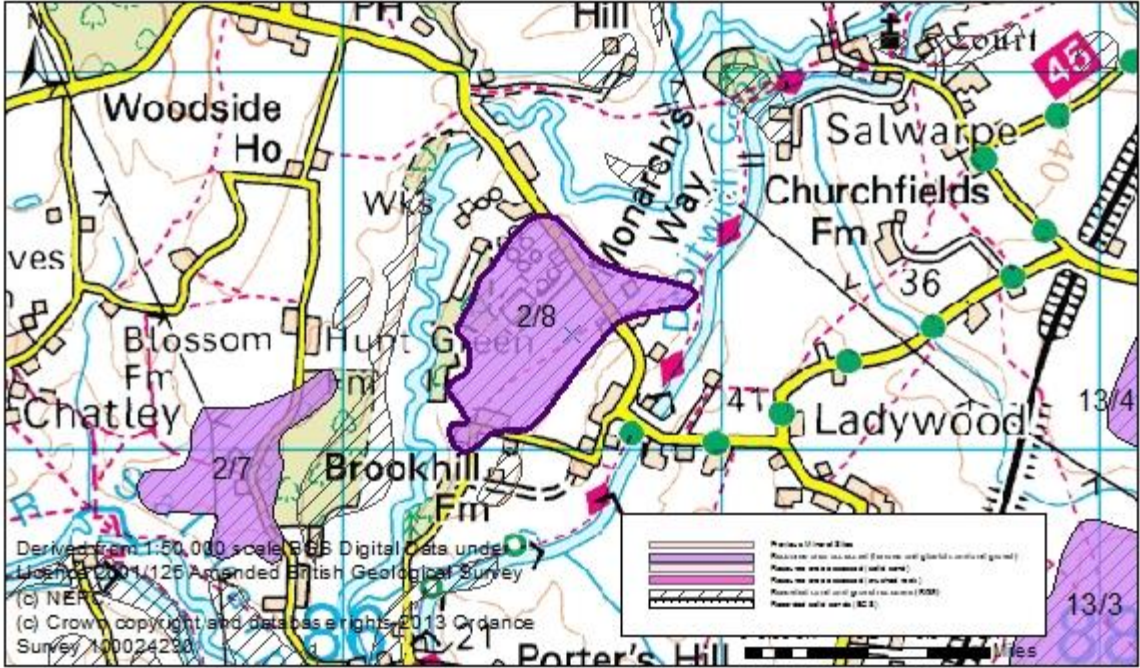
Overview	
Resource number:	2/4
Resource name:	Egg Lane
Resource area:	16ha
Resource depth:	Estimated 2.5m
Location	
OS sheet reference:	SO 85 NE
National grid ref:	383356, 259654
Resource description:	
Resource description:	4 th terrace (Kidderminster Station) sand and gravel. No exposures or boreholes, but soils indicate that the upper part of 4 th terrace deposits is pebbly sand, locally becoming more gravelly. The BGS memoirs estimate that the terrace is between 2m and 3m thick in this location.
	Estimated resource depth based on mid-point of BGS memoir estimates 2m to 3m: 2.5m
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area with some built development.
Crude estimate of resource:	Area: 16 ha x average depth: 2.5 m ÷ 2 Estimated resource volume: 200,000 m ³ Estimated resource tonnage (at 2 t/m³): 400,000 tonnes
Conclusion:	Significant. Consider in defining areas of search.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	Area: 16 ha x average depth: 2.5 m ÷ 2 Estimated resource volume: 200,000 m ³ Estimated resource tonnage (at 1.65 t/m³): 330,000 tonnes
Conclusion:	Change to conclusion: Not significant.

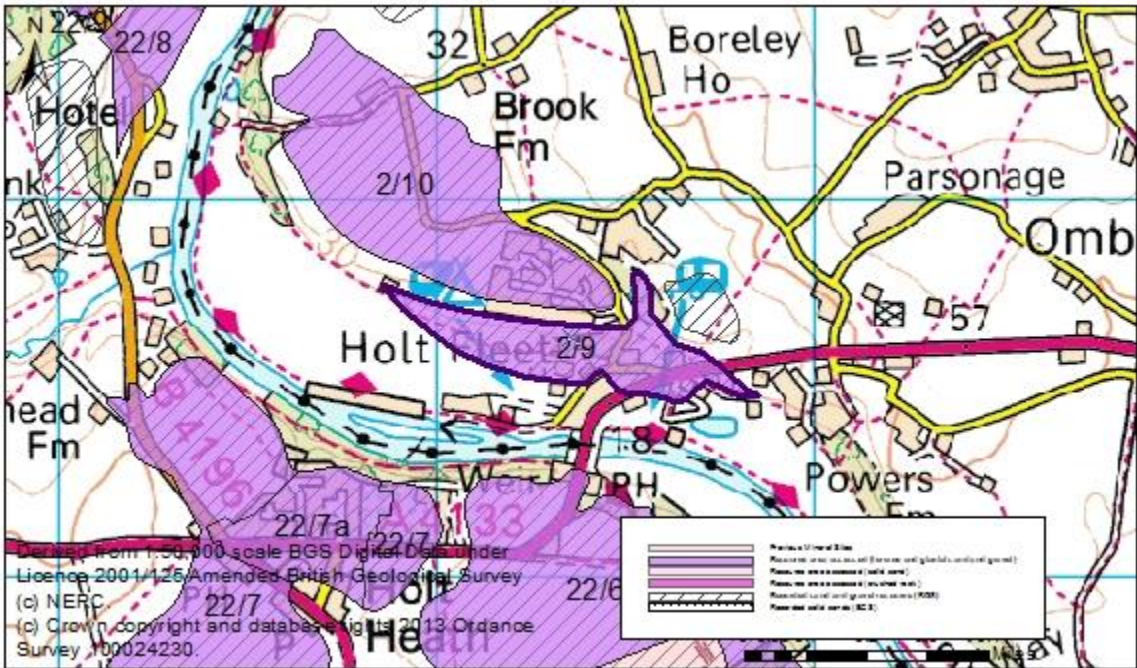
Overview	
Resource number:	2/5
Resource name:	Fernhill Heath North
Resource area:	31 ha
Resource depth:	Estimated 2.5m
Location	
OS sheet reference:	SO 85 NE
National grid ref:	386232, 259559
	
Resource description:	
Resource description:	4 th terrace (Kidderminster Station) sand and gravel. No exposures or boreholes, but soils indicate that the upper part of 4 th terrace deposits is pebbly sand, locally becoming more gravelly. The BGS memoirs estimate that the terrace is between 2m and 3m thick in this location. Estimated resource depth based on mid-point of BGS memoir estimates 2m to 3m: 2.5m
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small deposit with some dispersed built development. The deposit extends to the south under the settlement of Fernhill Heath, this is considered as resource area 2/5a.
Crude estimate of resource:	Area: 31 ha x average depth: 2.5 m ÷ 2 Estimated resource volume: 387,500 m ³ Estimated resource tonnage (at 2 t/m³): 775,000 tonnes
Conclusion:	Significant. Consider in defining areas of search.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	Area: 31 ha x average depth: 2.5 m ÷ 2 Estimated resource volume: 387,500 m ³ Estimated resource tonnage (at 1.65 t/m³): 639,375 tonnes
Conclusion:	Significant.

Overview	
Resource number:	2/5a
Resource name:	Fernhill Heath
Resource area:	40 ha
Resource depth:	Estimated 2.5m
Location	
OS sheet reference:	SO 85 NE
National grid ref:	386375, 259082
Resource description:	
Resource description:	4 th terrace (Kidderminster Station) sand and gravel. No exposures or boreholes, but soils indicate that the upper part of 4 th terrace deposits is pebbly sand, locally becoming more gravelly. The BGS memoirs estimate that the terrace is between 2m and 3m thick in this location. Estimated resource depth based on mid-point of BGS memoir estimates 2m to 3m: 2.5m
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area compromised by the settlement of Fernhill Heath. The deposit extends to the north, this section is considered as resource area 2/5.
Crude estimate of resource:	Area: 40 ha x average depth: 2.5 m ÷ 2 Estimated resource volume: 500,000 m ³ Estimated resource tonnage (at 2 t/m³): 1,000,000 tonnes
Conclusion:	Compromised by development.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	Area: 40 ha x average depth: 2.5 m ÷ 2 Estimated resource volume: 500,000 m ³ Estimated resource tonnage (at 1.65 t/m³): 825,000 tonnes
Conclusion:	Compromised by development.

Overview	
Resource number:	2/6
Resource name:	Hawford North
Resource area:	13ha
Resource depth:	Estimated 3m
Location	
OS sheet reference:	SO 86 SW
National grid ref:	384688, 260445
Resource description:	
Resource description:	3 rd terrace (Holt Heath) sand and gravel. The memoir states that to the south at Hawford Farm there is a disused gravel pit about 3m deep.
	Estimated resource depth based on pit at Hawford Farm: 3m
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area with some built development.
Crude estimate of resource:	Area: 13 ha x average depth: 3 m ÷ 2 Estimated resource volume: 195,000 m ³ Estimated resource tonnage (at 2 t/m³): 390,000 tonnes
Conclusion:	Not significant: Small deposit with less than 300,000m ³ . Not for consideration in defining areas of search.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	Area: 13 ha x average depth: 3 m ÷ 2 Estimated resource volume: 195,000 m ³ Estimated resource tonnage (at 1.65 t/m³): 321,750 tonnes
Conclusion:	Not significant.

Overview	
Resource number:	2/7
Resource name:	Lucy's Wood
Resource area:	11ha
Resource depth:	Estimated 3m
Location	
OS sheet reference:	SO 86 SE
National grid ref:	385715, 260947
Resource description:	
Resource description:	3 rd terrace (Holt Heath) sand and gravel. The memoir states that to the south west at Hawford Farm there is a disused gravel pit about 3m deep. Estimated resource depth based on pit at Hawford Farm: 3m
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area intersected by roads.
Crude estimate of resource:	Area: 11 ha x average depth: 3m ÷ 2 Estimated resource volume: 165,000 m ³ Estimated resource tonnage (at 2 t/m³): 330,000 tonnes
Conclusion:	Not significant: Small deposit with less than 300,000m ³ . Not for consideration in defining areas of search.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	Area: 11 ha x average depth: 3m ÷ 2 Estimated resource volume: 165,000 m ³ Estimated resource tonnage (at 1.65 t/m³): 272,250 tonnes
Conclusion:	Not significant.

Overview	
Resource number:	2/8
Resource name:	Porters Mill Lane
Resource area:	19ha
Resource depth:	Estimated 3m
Location	
OS sheet reference:	SO 86 SE
National grid ref:	386523, 261327
	
Resource description:	
Resource description:	3 rd terrace (Holt Heath) sand and gravel. The memoir states that at Hawford Farm (approx. 1.7km to the south west of this resource area) there is a disused gravel pit about 3m deep. Estimated resource depth based on pit at Hawford Farm: 3m
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area with some built development.
Crude estimate of resource:	Area: 19 ha x average depth: 3m ÷ 2 Estimated resource volume: 285,000 m ³ Estimated resource tonnage (at 2 t/m³): 570,000 tonnes
Conclusion:	Not significant: Small deposit with less than 300,000m ³ . Not for consideration in defining areas of search.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	Area: 19 ha x average depth: 3m ÷ 2 Estimated resource volume: 285,000 m ³ Estimated resource tonnage (at 1.65 t/m³): 470,250 tonnes
Conclusion:	Not significant.

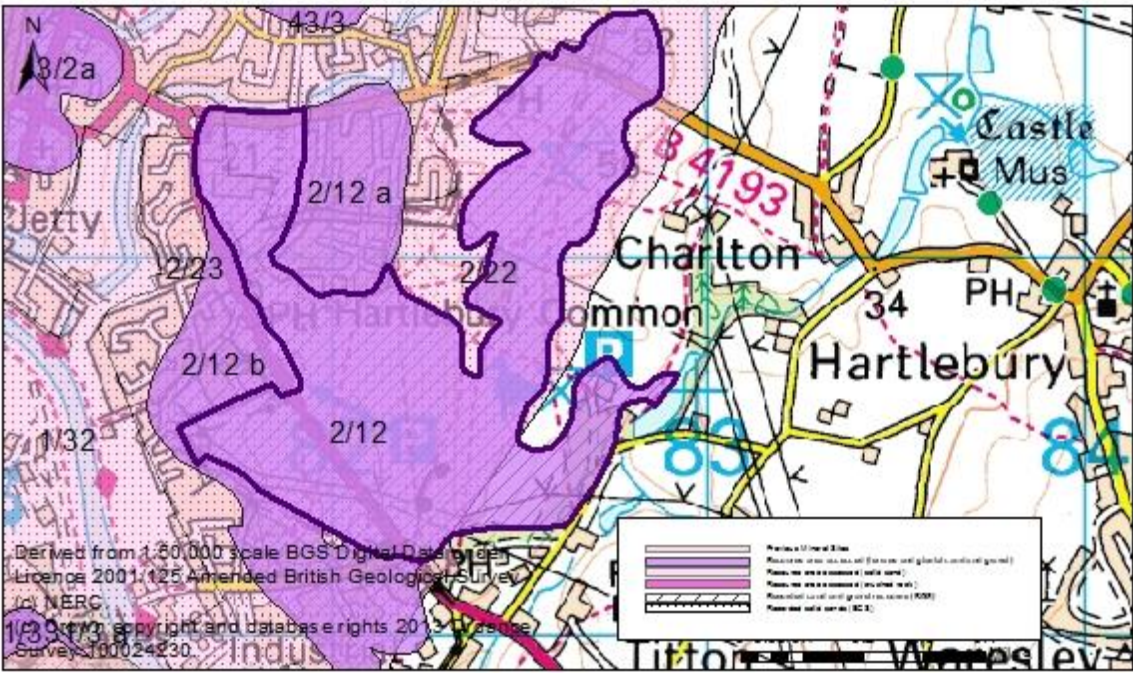
Overview	
Resource number:	2/9
Resource name:	Holt Fleet South
Resource area:	12 ha
Resource depth:	Not known
Location	
OS sheet reference:	SO 86 SW
National grid ref:	382372, 263605
	
Resource description:	
Resource description:	1 st terrace (Power House) sand and gravel. No information on thicknesses available in the BGS memoirs.
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area intersected by roads with some ribbon development.
Crude estimate of resource:	Depth not known.
Conclusion:	Not significant: Small deposit with no information to estimate the resource in this area. Not for consideration in defining areas of search.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	No change to the assessment.
Conclusion:	Not significant.

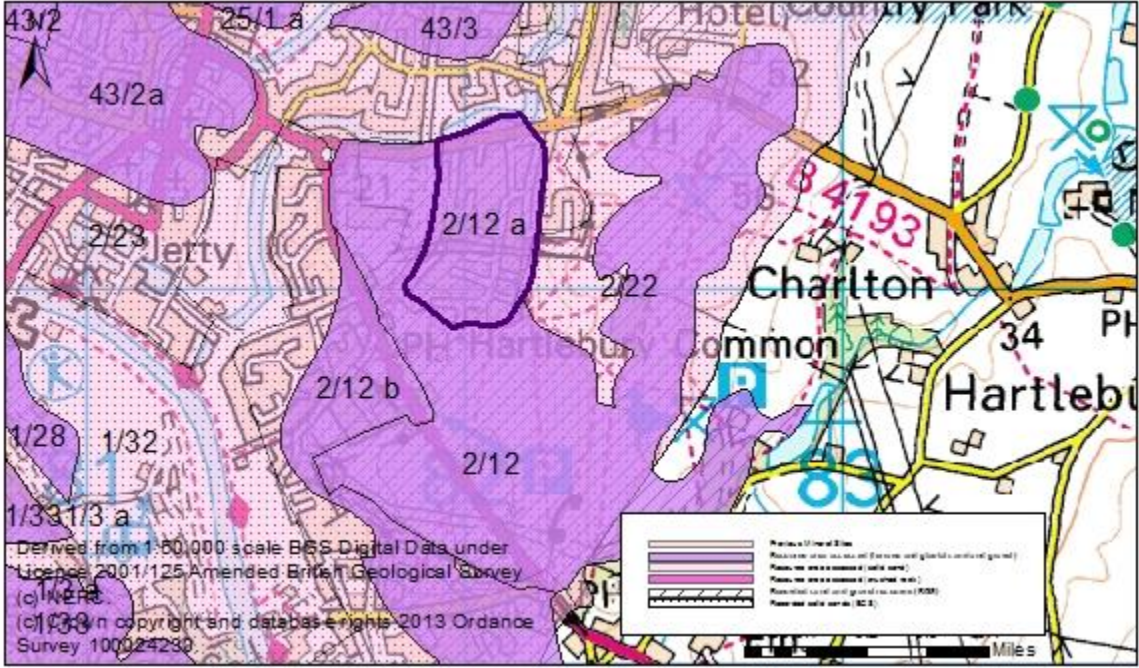
Overview	
Resource number:	2/10
Resource name:	Holt Fleet North
Resource area:	31ha
Resource depth:	Estimated 5m
Location	
OS sheet reference:	SO 86 SW
National grid ref:	381951, 264038
Resource description:	
Resource description:	3 rd terrace (Holt Heath) sand and gravel. Boreholes submitted with the planning application for Top Barn Farm (1979) to the south of this resource area showed a range between 2m and 8m of sand and gravel at the northern end of the site. The material averaged 80% sand and 20% gravel. Estimated resource depth based on borehole at Top Barn Farm: (mid-point 2m to 8m) 5m.
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area intersected by roads.
Crude estimate of resource:	Area: 31 ha x average depth: 5 m ÷ 2 Estimated resource volume: 775,000 m ³ Estimated resource tonnage (at 2 t/m³): 1,550,000 tonnes
Conclusion:	Significant. Consider in defining areas of search.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	Area: 31 ha x average depth: 5 m ÷ 2 Estimated resource volume: 775,000 m ³ Estimated resource tonnage (at 1.65 t/m³): 1,278,750 tonnes
Conclusion:	Significant.

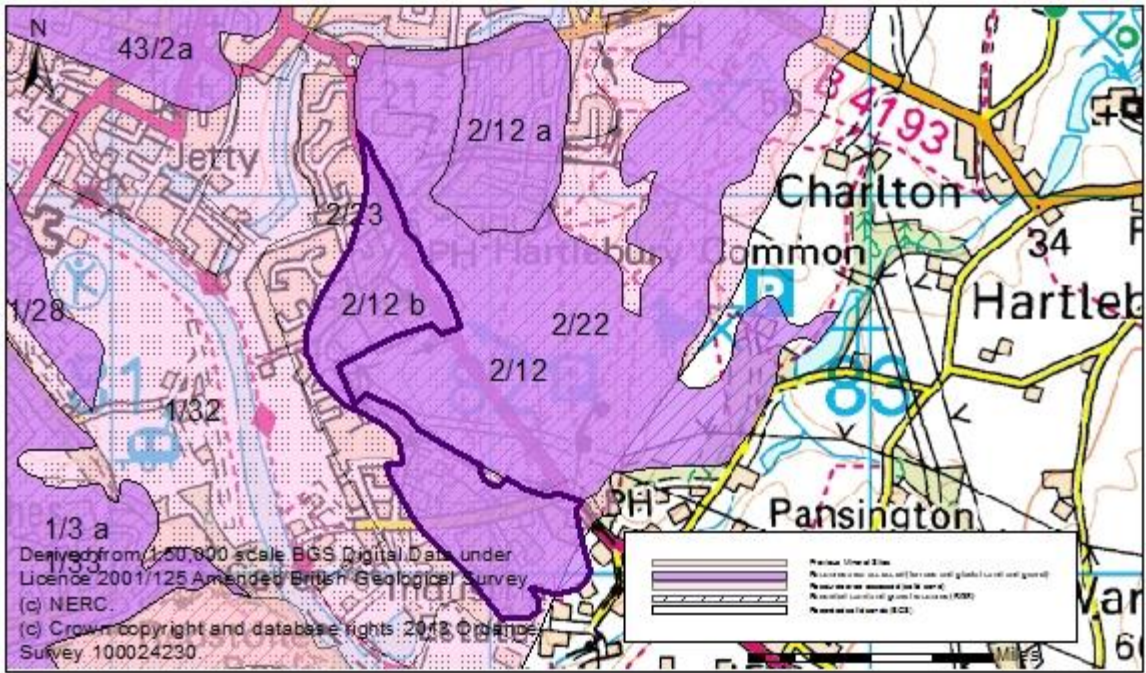
Overview	
Resource number:	2/11
Resource name:	Sneads Green
Resource area:	12ha
Resource depth:	Not known
Location	
OS sheet reference:	SO 86 NE
National grid ref:	386178, 267701

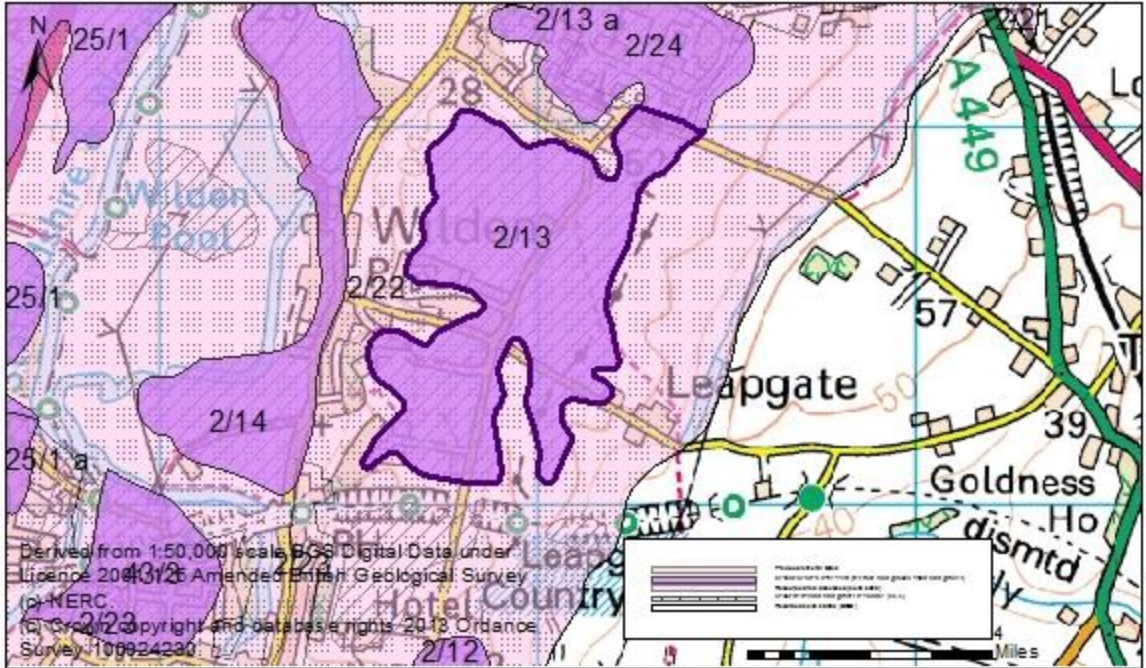
Derived from 1:50,000 scale BGS Digital Data under Licence 2001/125 Amended British Geological Survey (c) NERC.
(c) Crown copyright and database rights 2013 Ordnance Survey 100024230

Resource description:	
Resource description:	4 th terrace (Kidderminster Station) sand and gravel. No information on thicknesses available in BGS memoirs.
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area intersected by a road.
Crude estimate of resource:	Depth not known
Conclusion:	Not significant: Small deposit with no information to estimate the resource in this area. Not for consideration in defining areas of search.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	No change to the assessment.
Conclusion:	Not significant.

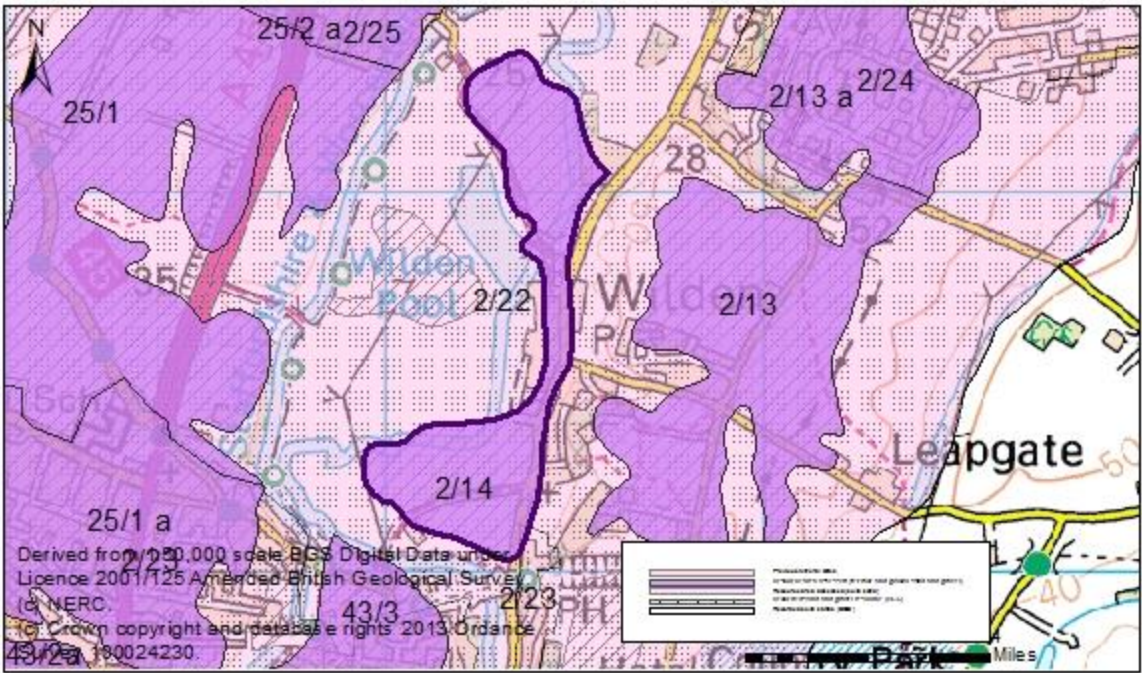
Overview	
Resource number:	2/12
Resource name:	Hartlebury Common
Resource area:	88ha
Resource depth:	Not known
Location	
OS sheet reference:	SO 87 SW
National grid ref:	382270, 270826
	
Resource description:	
Resource description:	Resource area 2/12 is 1 st terrace (Powerhouse), 2 nd terrace (Worcester) and 4 th terrace (Kidderminster Station) sand and gravel and Blown sand. Much of Hartlebury Common is covered by loose hummocky brown sand which appears to have been blown up by wind from the low terraces of the Severn and Stour. This Blown sand covers a considerable part of the 1 st and 2 nd terraces and extends up the escarpment of the lower keuper sandstone (Bromsgrove sandstone) on to the 4 th terrace. No information on thicknesses available.
	This resource area is underlain by solid sand deposits (assessed as resource areas 2/22 and 2/23).
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A large resource area intersected by roads with some built development. The resource area extends to the north and south west under the settlement of Stourport (assessed as resource areas 2/12a and 1/12b).
Crude estimate of resource:	Depth not known
Conclusion:	Significant. Consider in defining areas of search.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	No change to the assessment.
Conclusion:	Significant.

Overview	
Resource number:	2/12a
Resource name:	Hartlebury Common a
Resource area:	15ha
Resource depth:	Not known
Location	
OS sheet reference:	SO 87 SW
National grid ref:	382046, 271172
	
Resource description:	
Resource description:	<p>Resource area 2/12a is 1st terrace (Powerhouse), 2nd terrace (Worcester) and 4th terrace (Kidderminster Station) sand and gravel and Blown sand. Much of Hartlebury Common is covered by loose hummocky brown sand which appears to have been blown up by wind from the low terraces of the Severn and Stour. This Blown sand covers a considerable part of the 1st and 2nd terraces and extends up the escarpment of the lower keuper sandstone (Bromsgrove sandstone) on to the 4th terrace. No information on thicknesses available.</p> <p>This resource area is underlain by solid sand deposits (assessed as resource area 2/22 and 2/23).</p>
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area overlain by the settlement of Stourport. The deposit extends to the south and west, this is considered separately as resource areas 2/12 and 2/12b.
Crude estimate of resource:	Depth not known
Conclusion:	Compromised by development.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	No change to the assessment.
Conclusion:	Compromised by development.

Overview	
Resource number:	2/12b
Resource name:	Hartlebury Common b)
Resource area:	26ha
Resource depth:	Not known
Location	
OS sheet reference:	SO 87 SW
National grid ref:	381859, 270404
	
Resource description:	
Resource description:	<p>Resource areas 2/12b is 1st terrace (Powerhouse), 2nd terrace (Worcester) and 4th terrace (Kidderminster Station) sand and gravel and Blown sand. Much of Hartlebury Common is covered by loose hummocky brown sand which appears to have been blown up by wind from the low terraces of the Severn and Stour. This Blown sand covers a considerable part of the 1st and 2nd terraces and extends up the escarpment of the lower keuper sandstone (Bromsgrove sandstone) on to the 4th terrace. No information on thicknesses available.</p> <p>This resource area is underlain by solid sand deposits (assessed as resource area 2/23).</p>
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area sterilised by the overlain by the settlement of Stourport. The deposit extends to the north east, this section is considered as resource areas 2/12 and 2/12a.
Crude estimate of resource:	Depth not known
Conclusion:	Compromised by development.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	No change to the assessment.
Conclusion:	Compromised by development.

Overview	
Resource number:	2/13
Resource name:	Wilden
Resource area:	45ha
Resource depth:	Estimated 4m
Location	
OS sheet reference:	SO 87 SW
National grid ref:	382948, 272567
	
Resource description:	
Resource description:	<p>Resource area 2/13 is 4th terrace (Kidderminster Station) sand and gravel. The BGS memoirs state that the deposit has been worked in 2 pits off Wilden Lane, at Stourhill, west of Summerfield (Hoo Farm), and at Wilden Top. Up to 4m of sand and gravel was exposed in the Stourhill pit with a similar depth at Wilden Top.</p> <p>Estimated resource depth based on exposures at pits off Wilden Land and at Stourhill: 4m.</p> <p>This resource area is underlain by solid sand deposits (assessed as resource area 2/22 and 2/24).</p>
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area with some built development. The deposit extends to the north under the Summerfield urban area this is considered as resource area 2/13a.
Crude estimate of resource:	<p>Area: 45 ha x average depth: 4 m ÷ 2</p> <p>Estimated resource volume: 900,000 m³</p> <p>Estimated resource tonnage (at 2 t/m³): 1,800,000 tonnes</p>
Conclusion:	<p>Significant.</p> <p>Consider in defining areas of search.</p>
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	<p>Area: 45 ha x average depth: 4 m ÷ 2</p> <p>Estimated resource volume: 900,000 m³</p> <p>Estimated resource tonnage (at 1.65 t/m³): 1,485,000 tonnes</p>
Conclusion:	Significant.

Overview	
Resource number:	2/13 a
Resource name:	Wilden a)
Resource area:	37 ha
Resource depth:	Estimated 4m
Location	
OS sheet reference:	SO 87 SW
National grid ref:	382948, 272567
Resource description:	
Resource description:	<p>Resource area 2/13 a) is 4th terrace (Kidderminster Station) sand and gravel. The BGS memoirs state that the deposit has been worked in 2 pits off Wilden Lane, at Stourhill, west of Summerfield (Hoo Farm), and at Wilden Top. Up to 4m of sand and gravel was exposed in the Stourhill pit with a similar depth at Wilden Top.</p> <p>Estimated resource depth based on exposures at pits off Wilden Land and at Stourhill: 4m.</p> <p>This resource area is underlain by solid sand deposits (assessed as resource area 2/21, 2/22, 2/24 and 2/25).</p>
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area with some built development. The deposit has been previously worked, this section is not included as part of the resource area. The deposit also extends to the south, this section is considered as resource area 2/13.
Crude estimate of resource:	<p>Area: 37 ha x average depth: 4 m ÷ 2</p> <p>Estimated resource volume: 740,000 m³</p> <p>Estimated resource tonnage (at 2 t/m³): 1,480,000 tonnes</p>
Conclusion:	Compromised by development.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	<p>Area: 37 ha x average depth: 4 m ÷ 2</p> <p>Estimated resource volume: 740,000 m³</p> <p>Estimated resource tonnage (at 1.65 t/m³): 1,221,000 tonnes</p>
Conclusion:	Compromised by development.


Overview	
Resource number:	2/14
Resource name:	Wilden Pool
Resource area:	27ha
Resource depth:	Estimated 3.2m
Location	
OS sheet reference:	SO 87 SW
National grid ref:	382313, 272642
	
Resource description:	
Resource description:	<p>Resource area 2/14 is 1st terrace (Powerhouse) sand and gravel. A trial hole 550yds south of the bridge over the Stour adjacent to the Stourport to Crossway Green Road revealed 6 inches (15cm) of blue clay and 14'8" (4.5m) of sand and gravel on red sandstone.</p> <p>Further south at the powerstation (where the name Powerhouse member comes from), near the confluence of the Severn and Stour, 15 trial holes were sunk (in an area mapped as alluvium) which proved between 6' and 11' of alluvium resting on sands and gravels of the 1st terrace, with bedrock reached at depths varying from 12'-17'. The memoir does not state the thickness of the 1st terrace layer, but these measurements imply that the 1st terrace could range from 1' to 11' thick (0.3m to 3.4m, midpoint = 1.85m).</p> <p>Estimated resource depth based on mean average of a) trial hole south of the Stour: 4.5m and b) trial holes near confluence of Severn and Stour: 1.85m = 3.2m</p> <p>This resource area is underlain by solid sand deposits (assessed as resource area 2/22 and 2/24).</p>
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area with some dispersed development and a narrow centre overlain by Wilden Industrial Estate.
Crude estimate of resource:	<p>Area: 27 ha x average depth: 3.2m ÷ 2</p> <p>Estimated resource volume: 432,000 m³</p> <p>Estimated resource tonnage (at 2 t/m³): 864,000 tonnes</p>
Conclusion:	Significant.

Consider in defining areas of search.

Assessment of resource for the Third Stage consultation on MLP (Spring 2015)

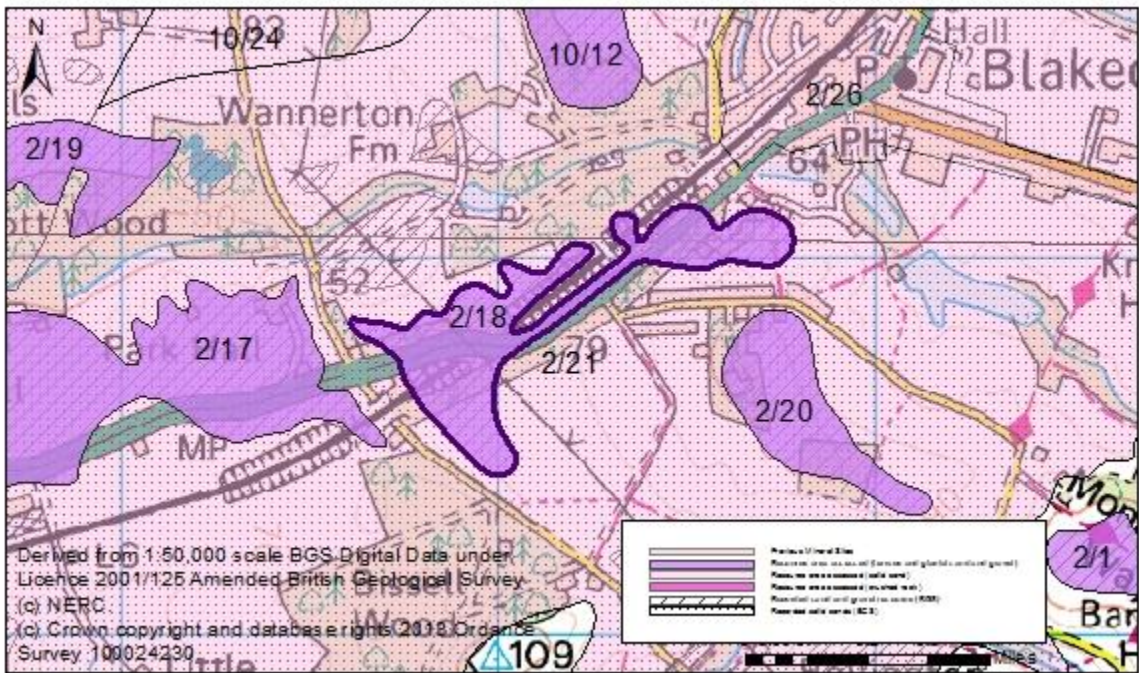
Revised estimate of resource: Area: 27 ha x average depth: 3.2m ÷ 2
Estimated resource volume: 432,000 m³
Estimated resource tonnage (at 1.65 t/m³): 712,800 tonnes

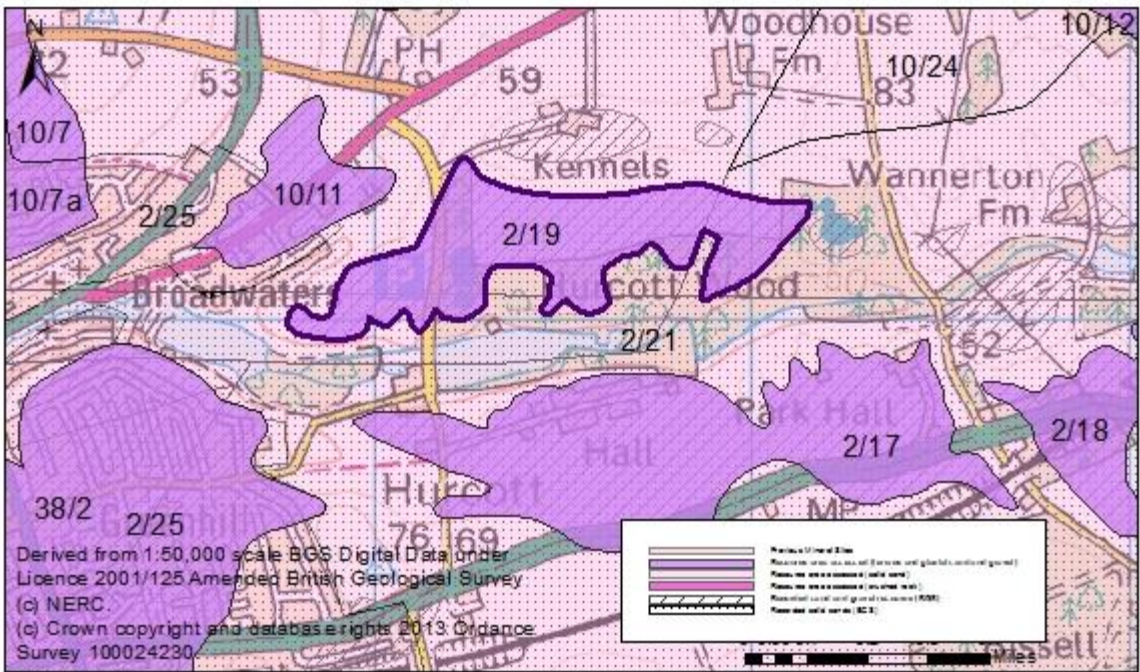
Conclusion: Significant.

Overview	
Resource number:	2/15
Resource name:	Mustow Green
Resource area:	15ha
Resource depth:	Estimated 1.5m
Location	
OS sheet reference:	SO 87 SE
National grid ref:	386587, 274385
	
Resource description:	
Resource description:	Glaciofluvial sand and gravel. The deposit is exposed in the banks of the road between Stone and Mustow Green. A borehole 450yds north west of the Mustow Green crossroads recorded a maximum thickness of 5' (1.5m) of sand and gravel.
	Estimated resource depth based on borehole north west of Mustow Green crossroads: 1.5m
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area intersected by roads.
Crude estimate of resource:	Area: 15 ha x average depth: 1.5m ÷ 2 Estimated resource volume: 112,500 m ³ Estimated resource tonnage (at 2 t/m³): 225,000 tonnes
Conclusion:	Not significant: Small deposit with less than 300,000m ³ . Not for consideration in defining areas of search.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	Area: 15 ha x average depth: 1.5m ÷ 2 Estimated resource volume: 112,500 m ³ Estimated resource tonnage (at 1.65 t/m³): 185,625 tonnes
Conclusion:	Not significant.

Overview	
Resource number:	2/16
Resource name:	North of Stone
Resource area:	17ha
Resource depth:	Not known
Location	
OS sheet reference:	SO 87 NE
National grid ref:	385133, 275583
Resource description:	
Resource description:	1 st terrace (Powerhouse) sand and gravel. No information on thicknesses available in BGS memoirs. This resource area is underlain by solid sand deposits (assessed as resource areas 2/21 and 2/25).
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area with little built development.
Crude estimate of resource:	Depth not known
Conclusion:	Not significant: Small deposit with no information to estimate the resource in this area. Not for consideration in defining areas of search.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	No change to the assessment.
Conclusion:	Not significant.

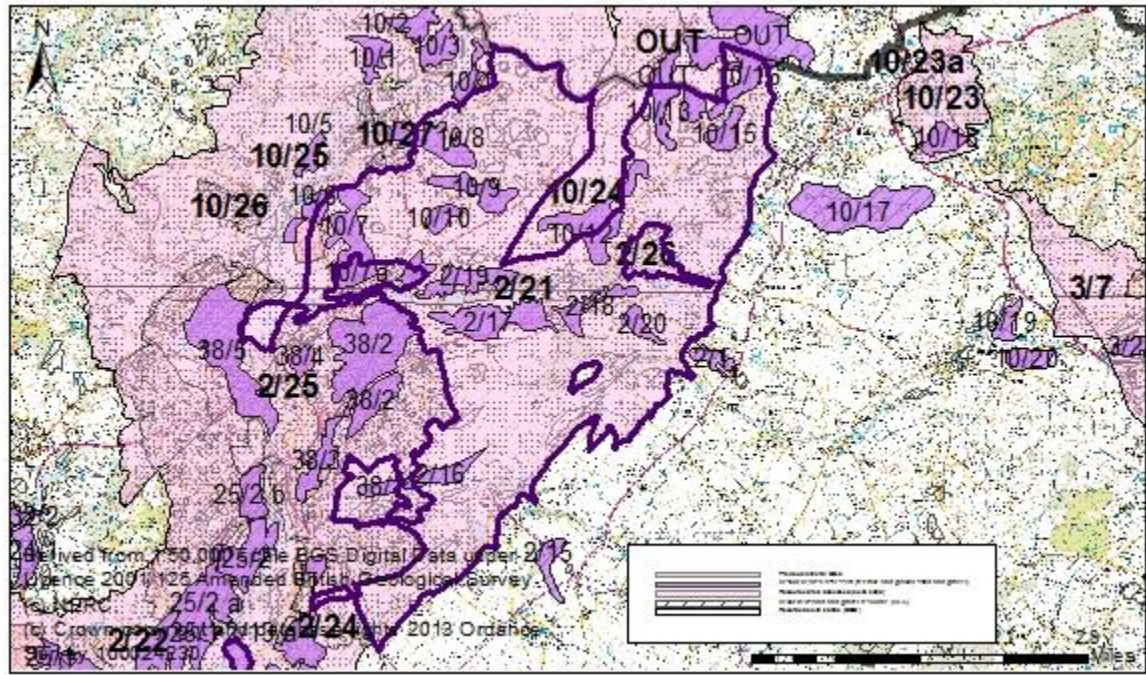
Overview	
Resource number:	2/17
Resource name:	Hurcott
Resource area:	49ha
Resource depth:	Estimated 1.8m
Location	
OS sheet reference:	SO 87 NE
National grid ref:	385772, 277687
Resource description:	
Resource description:	<p>Resource area 2/17 is 3rd terrace (Holt Heath) sand and gravel. An old pit 400yds west-north-west of the bridge at Hurcott shows 6' or so (1.8m) of coarse gravel with many of the pebbles vertical or steeply inclined in a manner suggestive of frost action.</p> <p>Estimated resource depth based on old pit west-north west of bridge at Hurcott: 1.8m.</p> <p>This resource area is underlain by solid sand deposits (assessed as resource area 2/21).</p>
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area intersected by roads and with some built development in the north.
Crude estimate of resource:	<p>Area: 49 ha x average depth: 1.8m ÷ 2</p> <p>Estimated resource volume: 441,000 m³</p> <p>Estimated resource tonnage (at 2 t/m³): 882,000 tonnes</p>
Conclusion:	<p>Significant.</p> <p>Consider in defining areas of search.</p>
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	<p>Area: 49 ha x average depth: 1.8m ÷ 2</p> <p>Estimated resource volume: 441,000 m³</p> <p>Estimated resource tonnage (at 1.65 t/m³): 727,650 tonnes</p>
Conclusion:	Significant.

Overview	
Resource number:	2/18
Resource name:	North of Bissell Wood
Resource area:	19ha
Resource depth:	Estimated 1.8m
Location	
OS sheet reference:	SO 87 NE
National grid ref:	< from GIS >
	
Resource description:	
Resource description:	Resource area 2/18 is 3 rd terrace (Holt Heath) sand and gravel. An old pit 400yds west-north-west of the bridge at Hurcott shows 6' or so (1.8m) of coarse gravel with many of the pebbles vertical or steeply inclined in a manner suggestive of frost action. Estimated resource depth based on old pit west-north west of bridge at Hurcott: 1.8m. This resource area is underlain by solid sand deposits (assessed as resource area 2/21).
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area which extends under the railway line and A456.
Crude estimate of resource:	Area: 19 ha x average depth: 1.8m ÷ 2 Estimated resource volume: 171,000 m ³ Estimated resource tonnage (at 2 t/m³): 342,000 tonnes
Conclusion:	Not significant: Small deposit with less than 300,000m ³ . Not for consideration in defining areas of search.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	Area: 19 ha x average depth: 1.8m ÷ 2 Estimated resource volume: 171,000 m ³ Estimated resource tonnage (at 1.65 t/m³): 282,150 tonnes
Conclusion:	Not significant.

Overview	
Resource number:	2/19
Resource name:	Hurcott Wood
Resource area:	29ha
Resource depth:	Estimated 1.8m
Location	
OS sheet reference:	SO 87 NE
National grid ref:	385463, 278187
	
Resource description:	
Resource description:	<p>Resource area 2/19 is a 3rd terrace (Holt Heath) sand and gravel. An old pit 400yds west-north-west of the bridge at Hurcott shows 6' or so (1.8m) of coarse gravel with many of the pebbles vertical or steeply inclined in a manner suggestive of frost action.</p> <p>Estimated resource depth based on old pit west-north west of bridge at Hurcott: 1.8m.</p> <p>This resource area is underlain by solid sand deposits (assessed as resource area 2/21).</p>
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area with little built development.
Crude estimate of resource:	<p>Area: 29 ha x average depth: 1.8 m ÷ 2</p> <p>Estimated resource volume: 261,000 m³</p> <p>Estimated resource tonnage (at 2 t/m³): 522,000 tonnes</p>
Conclusion:	<p>Not significant: Small deposit with less than 300,000m³.</p> <p>Not for consideration in defining areas of search.</p>
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	<p>Area: 29 ha x average depth: 1.8 m ÷ 2</p> <p>Estimated resource volume: 261,000 m³</p> <p>Estimated resource tonnage (at 1.65 t/m³): 430,650 tonnes</p>
Conclusion:	Not significant.

Overview	
Resource number:	2/20
Resource name:	Wild Acres
Resource area:	11ha
Resource depth:	Not known
Location	
OS sheet reference:	SO 87 NE
National grid ref:	387802, 277593
Resource description:	
Resource description:	Glaciofluvial sand and gravel. No information on thicknesses available in BGS memoirs. This resource area is underlain by solid sand deposits (assessed as resource area 2/21).
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A small resource area with little built development.
Crude estimate of resource:	Depth not known
Conclusion:	Not significant: Small deposit with no information to estimate the resource in this area. Not for consideration in defining areas of search.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	No change to the assessment.
Conclusion:	Not significant.

Overview	
Resource number:	2/21
Resource name:	North East of Kidderminster
Resource area:	2303ha
Resource depth:	Estimated 190.4m
Location	
OS sheet reference:	SO 87 NW, SO 87 NE, SO 87 SW, SO 87 SE, SO 88 SE
National grid ref:	386333, 278041



Resource description:

Resource description: This resource area is predominantly Wildmoor Formation. In this part of the county there are large areas of Wildmoor sandstone formation and Kidderminster formation solid sand of considerable geological complexity. The Kidderminster and Wildmoor sandstones are partially but extensively overlain by terrace and glacial sand and gravel deposits, which are recorded as separate resource areas.

This resource area is overlain by glacial or terrace sand and gravel deposits (assessed as resource area 10/6, 10/7, 10/8 10/9, 10/10, 10/12, 10/13, 10/14, 10/15, 10/16, 2/16, 2/17, 2/18 and 2/19, 2/20, 38/1).

The Wildmoor Formation is generally described as red-brown and orange, fine to medium grained, feldspathic sandstone with sparse, thin mudstone beds. Generally the formation is characterised by an absence of pebbles, in contrast to the Kidderminster Formation, although sparse pebbly stringers are recorded. The fine grain-size and soft, poorly cemented nature of the sandstone in some places made it ideal for exploitation as moulding sand for use in the foundry industry.

The memoir states that the Wildmoor Sandstone formation ranges in thickness from 90m-120m, although there is some more detailed information about some sections of the deposit:

- Near Hagley: a borehole (north of the county boundary at grid reference 389940 281690) proved 175m of red hard and soft sandstone. Some of this could be attributed to the underlying Kidderminster Formation since the lower boundary is indistinct.
- North west of Blakedown: The Stapenhill Fault brings Wildmoor Sandstone into contact with the

Kidderminster Formation. No details are recorded, but the presence of the fault and Wildmoor Sandstone contact means that the basement beds are unlikely to occur at the surface. No details of thickness or composition are recorded.

- The Churchill Trial Bore (north of the county boundary at grid reference 387070, 280160) found 1.1m of pebbly sand overlying 119m of red, soft, fine-grained, micaceous, cross-bedded sandstone (Wildmoor sandstone) and 122.2m of red-brown, medium-grained, cross-bedded sandstone with scattered pebbles and thin marl beds and beds of pebbly conglomerate in the lower part (Kidderminster formation) (total 242.3m).
- A 2nd borehole near to the Wagon and Horses Inn and Ismere Pumping Station (within this resource area at grid reference 387060, 280140) recorded 118.9m of red, soft sandstone cross-bedded with thin marl laminate (Wildmoor sandstone) overlying 18.8m of red-brown, medium- to coarse-grained sandstone with sparse pebbles (tentatively assigned to Kidderminster formation), 114.4m of red-brown, coarse-grained, pebbly sandstone with beds of pebble conglomerate up to 1.5m thick common in the lower part (Kidderminster formation), and 50.3m of red, soft, coarse-grained sandstone (Bridgnorth sandstone) (total 302.4m).
- A borehole at Sleepy Pool Mill (on the boundary between this resource area and 10/25 at grid reference 385480 280630) recorded 8m of sandy clay (alluvium) overlying 2m of red, soft sandstone (Wildmoor) and 40m of red sandstone (tentatively assigned to the Kidderminster formation) (total 42m).

Estimated depth calculated as mean average of: a) borehole near Hagley: 175m, b) Churchill Trial Bore: 242.3m, c) borehole near the Wagon and Horses Inn: 302.4m, d) borehole at Sleepy Pool Mill: 42m = 190.4m

Assessment of resource for the second consultation on MLP (Autumn 2013)

Commentary: A large resource area with some dispersed development. The Wildmoor and Kidderminster sandstone deposits are extensive and continue to the south and west of this resource area, beneath the settlements of Kidderminster, Stourport, Blakedown, Fairfield, Arley Kings, and between the northern sections of this resource area (these sections are considered as resource areas 1/32, 1/33, 2/22, 2/23, 2/24, 2/25, 2/26, 10/24, 10/25, 10/26 and 10/27) and to the north of the county boundary (shown as OUT on the image).

Crude estimate of resource: Area: 2303 ha x average depth: 190.4 m ÷ 2
 Estimated resource volume: 2,192,456,000m³
Estimated resource tonnage (at 2 t/m³): 4,384,912,000 tonnes

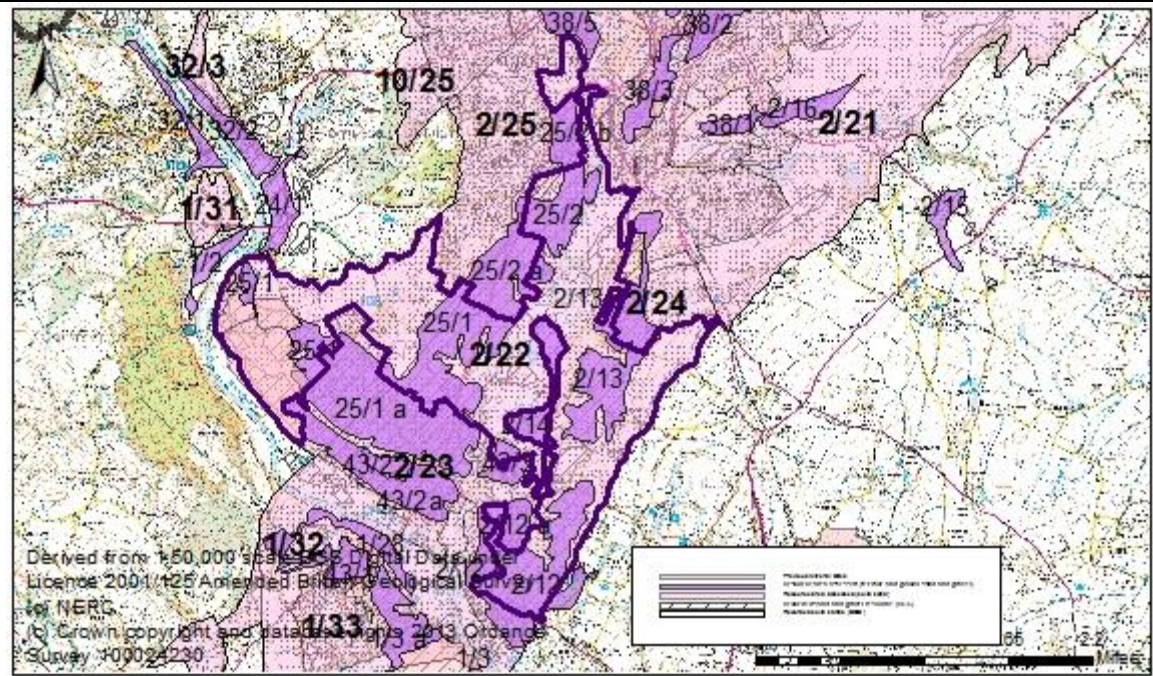
Conclusion: Significant – key resource.
 Use to define areas of search.

Assessment of resource for the Third Stage consultation on MLP (Spring 2015)

Additional information A 51ha site covering part of this resource area was submitted in response to the Second Stage Consultation. This stated that "The site consists of 4th River Terrace Deposits, Glacial sands and gravels and Upper Mottled Sandstone, as per the geological map based on detailed site investigation and laboratory gradings". No more detailed geological information was provided with the site submission. This site also covers the terrace sands of resource area 10/7 and a glacial deposit which was not assessed for the second consultation the MLP as it is less than 10ha and less than 200m wide.

	A further 80ha site covering part of this resource area was submitted in response to the "Call for Sites" in summer 2014. No geological information was submitted to support the site proposal but the landowner's agent estimated that the 80ha site contained 1,000,000 tonnes of Terrace deposit and Fluvioglacial deposit.
Revised estimate of resource:	Area: 2303 ha x average depth: 190.4 m ÷ 2 Estimated resource volume: 2,192,456,000m ³ Estimated resource tonnage (at 1.65 t/m³): 3,617,552,400 tonnes
Conclusion:	Significant – key resource.

Overview	
Resource number:	2/22
Resource name:	North of Stourport
Resource area:	903 ha
Resource depth:	Estimated 89.5m
Location	
OS sheet reference:	SO 77 SE, SO 87 NW, SO 87 SW
National grid ref:	381793, 273013



Resource description:

Resource description: Resource area 2/22 is Wildmoor Sandstone Formation and Kidderminster Formation solid sand. In this part of the county there are large areas of Wildmoor sandstone formation and Kidderminster formation solid sand of considerable geological complexity. The Kidderminster and Wildmoor sandstones are partially but extensively overlain by terrace and glacial sand and gravel deposits, which are recorded as separate resource areas (this resource area is overlain by resource areas 2/12, 2/13, 2/14 and 25/1, 25/2, 25/2a).

The western part of this resource area (the land north west of Lickhill and north east of Burlish Park and a small area north of Foley Park) is mapped as Kidderminster Formation and the remainder of the resource area is mapped as Wildmoor Sandstone.

Kidderminster Formation

The Kidderminster Formation is generally described as well-rounded pebble to cobble size conglomerate and red-brown, medium to coarse sandstone. The lower part of the formation predominantly consists of clast-supported conglomerate composed largely of pebbles and cobbles of red, red brown and grey fine-grained quartzite together with red sandstone, milky quartz and rare porphyritic igneous rocks and re-worked conglomerate. The formation rests uncomformably on Bridgnorth Sandstone. The maximum thickness of the conglomerate dominated facies is probably about 20m but this is gradational into the overlying sandstone dominated facies, which also contains beds and lenses of pebble conglomerate. The thickness of the formation varies, from 112m-133m in the north of the county near Hagley, to 155m at Wildmoor near

Bromsgrove, and 127-129m at Brockhill east of Bromsgrove. However, the upper boundary is difficult to recognise because of the lithological similarity of the Kidderminster sandstone to the predominantly non-pebbly Wildmoor Sandstone.

There is some information about exposures for some sections of the deposit in this area:

- At Burlish Park / Birchen Coppice: the Kidderminster Formation deposit runs north east to south west. An exposure in the railway cutting (Severn Valley Railway line, to the north of the resource area near Birchen Coppice) shows soft red sandstone with subordinate bands of pebbles and local lenses of marl (depth of sandstone not given).
- At Mount Pleasant (north west of Burlish Park): In the railway cutting south of the tunnel more than 50' (15.2m) of the Kidderminster formation deposit is exposed, including pebbly bands and beds of red sandstone with an occasional pebble and a few bands of marl up to 3" (0.08m) thick.
- The construction of a reservoir to the east of Mount Pleasant exposed 10' of coarse pebbly shingle and sand, 15' of soft red sandstone with thin marl bands, 2' of hard coarse sand with pebbles, 6' of red sandstone with few pebbles with some thin marl layers and 3' of coarse breccia with angular blocks of igneous rock (total 36', 11m).

Wildmoor Formation

The memoir describes the Wildmoor Formation as red-brown and orange, fine to medium grained, feldspathic sandstone with sparse, thin mudstone beds. Generally the formation is characterised by an absence of pebbles, in contrast to the Kidderminster Formation, although sparse pebbly stringers are recorded. The fine grain-size and soft, poorly cemented nature of the sandstone made it ideal for exploitation as moulding sand for use in the foundry industry. The memoir states that the Wildmoor Sandstone formation ranges in thickness from 90m-120m. The deposit is exposed in the road cutting 350yd SSE of Hoobrook and at intervals on the western edge of the gravel patch capping Stour Hill and Wilden. There is no more detailed information about depths for the Wildmoor deposit in this area.

Estimated depth

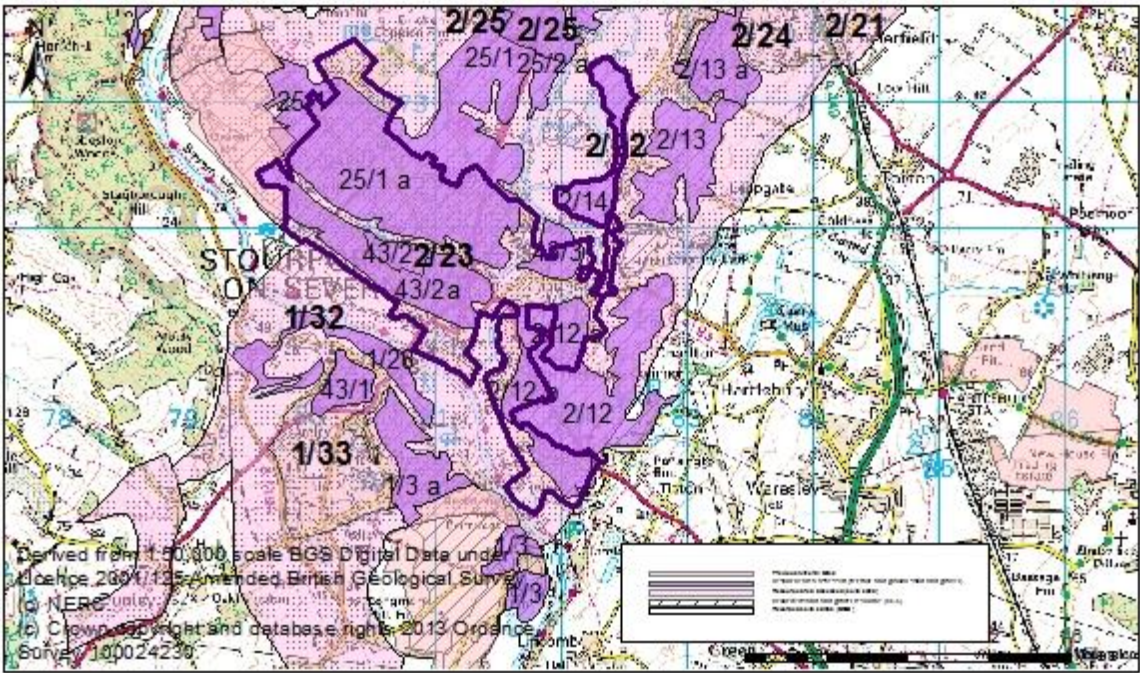
Estimated depth calculated as mean average of: a) depth of Kidderminster formation near Hagley (mid-point of 112m to 133m): 122.5m, b) depth of Kidderminster formation at Wildmoor: 155m, c) depth of Kidderminster formation at Brockhill (mid-point of 127m to 129m): 128m, d) Kidderminster formation at Mount Pleasant railway cutting: 15.2m, e) reservoir east of Mount Pleasant: 11m, f) BGS estimates of Wildmoor Sandstone formation (mid-point 90m to 120m): 105m = 89.5m

Assessment of resource for the second consultation on MLP (Autumn 2013)

Commentary:

A large resource area with some dispersed development. The Wildmoor and Kidderminster sandstone deposits are extensive and continue to the north and south of this resource area, beneath the settlements of Kidderminster, Stourport, Blakedown, Fairfield, Arley Kings (these sections are considered as resource areas 1/32, 1/33, 2/21, 2/23, 2/24, 2/25, 2/26, 10/24, 10/25, 10/26 and 10/27) and to the north of the county

	boundary.
Crude estimate of resource:	Area: 903 ha x average depth: 89.5 m ÷ 2 Estimated resource volume: 404,092,500 m ³ Estimated resource tonnage (at 2 t/m³): 808,185,000 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:	Area: 903 ha x average depth: 89.5 m ÷ 2 Estimated resource volume: 404,092,500 m ³ Estimated resource tonnage (at 1.65 t/m³): 666,752,625 tonnes
Conclusion:	Significant – key resource.

Overview		
Resource number:	2/23	
Resource name:	Stourport	
Resource area:	362 ha	
Resource depth:	Estimated 89.5m	
Location		
OS sheet reference:	SO 77 SE, SO 87 SW	
National grid ref:	381062, 271777	
Resource description:		
Resource description:	<p>Resource area 2/23 is Wildmoor Sandstone Formation and Kidderminster Formation solid sand. In this part of the county there are large areas of Wildmoor sandstone formation and Kidderminster formation solid sand of considerable geological complexity. The Kidderminster and Wildmoor sandstones are partially but extensively overlain by terrace and glacial sand and gravel deposits, which are recorded as separate resource areas.</p> <p>The western part of this resource area is mapped as Kidderminster Formation and the remainder of the resource area is mapped as Wildmoor Sandstone.</p> <p>This resource area is overlain by glacial or terrace sand and gravel deposits (assessed as resource area 2/12, 2/12a, 25/1a, 43/2 and 43/2a).</p> <p>Kidderminster Formation</p> <p>The Kidderminster Formation is generally described as well-rounded pebble to cobble size conglomerate and red-brown, medium to coarse sandstone. The lower part of the formation predominantly consists of clast-supported conglomerate composed largely of pebbles and cobbles of red, red brown and grey fine-grained quartzite together with red sandstone, milky quartz and rare porphyritic igneous rocks and re-worked conglomerate. The formation rests unconformably on Bridgnorth Sandstone. The maximum thickness of the conglomerate dominated facies is probably about 20m but this is gradational into the overlying sandstone</p>	

dominated facies, which also contains beds and lenses of pebble conglomerate. The thickness of the formation varies, from 112m-133m in the north of the county near Hagley, to 155m at Wildmoor near Bromsgrove, and 127-129m at Brockhill east of Bromsgrove. However, the upper boundary is difficult to recognise because of the lithological similarity of the Kidderminster sandstone to the predominantly non-pebbly Wildmoor Sandstone.

There is some information about exposures for some sections of the deposit in this area:

- At Burlish Park / Birchen Coppice: the Kidderminster Formation deposit runs north east to south west. An exposure in the railway cutting (Severn Valley Railway line, to the north of the resource area near Birchen Coppice) shows soft red sandstone (depth not given) with subordinate bands of pebbles and local lenses of marl.
- At Mount Pleasant (north west of Burlish Park): In the railway cutting south of the tunnel more than 50' (15.2m) of the Kidderminster formation deposit is exposed, including pebbly bands and beds of red sandstone with an occasional pebble and a few bands of marl up to 3" (0.08m) thick.
- The construction of a reservoir to the east of Mount Pleasant exposed 10' of coarse pebbly shingle and sand, 15' of soft red sandstone with thin marl bands, 2' of hard coarse sand with pebbles, 6' of red sandstone with few pebbles with some thin marl layers and 3' of coarse breccia with angular blocks of igneous rock (total 36', 11m).

Wildmoor Formation

The Wildmoor Formation is generally described as red-brown and orange, fine to medium grained, feldspathic sandstone with sparse, thin mudstone beds. Generally the formation is characterised by an absence of pebbles, in contrast to the Kidderminster Formation, although sparse pebbly stringers are recorded. The fine grain-size and soft, poorly cemented nature of the sandstone made it ideal for exploitation as moulding sand for use in the foundry industry. The memoir states that the Wildmoor Sandstone formation ranges in thickness from 90m-120m. The deposit is exposed in the road cutting 350yd SSE of Hoobrook and at intervals on the western edge of the gravel patch capping Stour Hill and Wilden. There is no more detailed information about depths for the Wildmoor deposit in this area.

Estimated depth

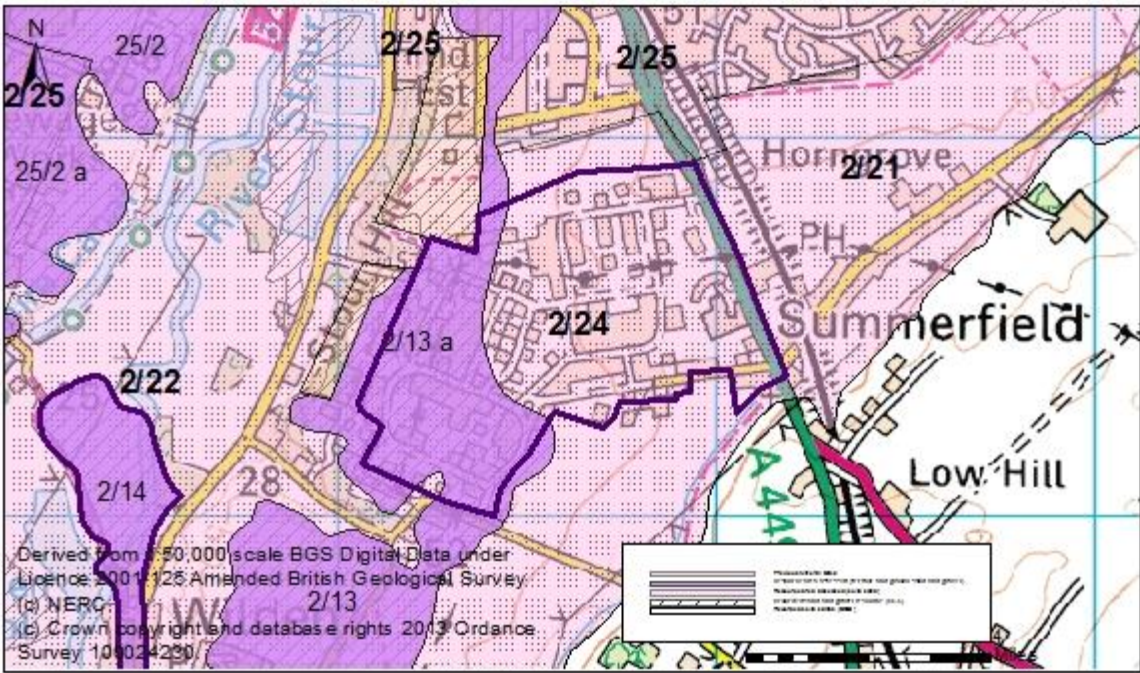
Estimated depth calculated as mean average of: a) depth of Kidderminster formation near Hagley (mid-point of 112m to 133m): 122.5m, b) depth of Kidderminster formation at Wildmoor: 155m, c) depth of Kidderminster formation at Brockhill (mid-point of 127m to 129m): 128m, d) Kidderminster formation at Mount Pleasant railway cutting: 15.2m, e) reservoir east of Mount Pleasant: 11m, f) BGS estimates of Wildmoor Sandstone formation (mid-point 90m to 120m): 105m = 89.5m

Assessment of resource for the second consultation on MLP (Autumn 2013)

Commentary:

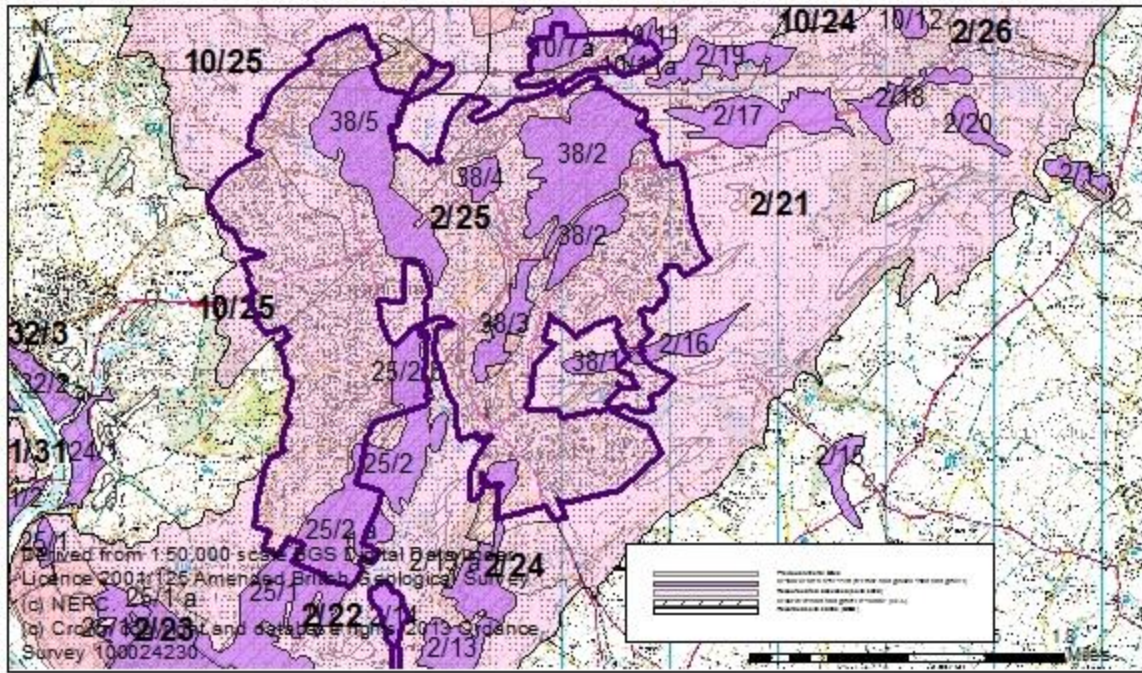
A large resource area overlain by the settlement of Stourport. The Wildmoor and Kidderminster sandstone deposits are extensive and extend in all directions beyond this resource area and beneath the settlements of

	Kidderminster, Blakedown, Fairfield, Arley Kings (these sections are considered as resource areas 1/32, 1/33, 2/21, 2/22, 2/24, 2/25, 2/26, 10/24, 10/25, 10/26 and 10/27) and to the north of the county boundary.
Crude estimate of resource:	Area: 362 ha x average depth: 89.5 m ÷ 2 Estimated resource volume: 161,995,000 m ³ Estimated resource tonnage (at 2 t/m³): 323,990,000 tonnes
Conclusion:	Compromised by development.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	Area: 362 ha x average depth: 89.5 m ÷ 2 Estimated resource volume: 161,995,000 m ³ Estimated resource tonnage (at 1.65 t/m³): 267,291,750 tonnes
Conclusion:	Compromised by development.

Overview	
Resource number:	2/24
Resource name:	Summerfield
Resource area:	61 ha
Resource depth:	Estimated 105m
Location	
OS sheet reference:	SO 87 SW
National grid ref:	381062, 271777
	
Resource description:	
Resource description:	<p>Resource area 2/24 is Wildmoor Sandstone Formation solid sand. In this part of the county there are large areas of Wildmoor sandstone formation and Kidderminster formation solid sand of considerable geological complexity. The Kidderminster and Wildmoor sandstones are partially but extensively overlain by terrace and glacial sand and gravel deposits, which are recorded as separate resource areas.</p> <p>This resource area is overlain by glacial or terrace sand and gravel deposits (assessed as resource area 2/13a).</p> <p>Wildmoor Formation</p> <p>The Wildmoor Formation is generally described as red-brown and orange, fine to medium grained, feldspathic sandstone with sparse, thin mudstone beds. Generally the formation is characterised by an absence of pebbles, in contrast to the Kidderminster Formation, although sparse pebbly stringers are recorded. The fine grain-size and soft, poorly cemented nature of the sandstone made it ideal for exploitation as moulding sand for use in the foundry industry. The memoir states that the Wildmoor Sandstone formation ranges in thickness from 90m-120m. The deposit is exposed in the road cutting 350yd SSE of Hoobrook and at intervals on the western edge of the gravel patch capping Stour Hill and Wilden. There is no more detailed information about depths for the Wildmoor deposit in this area.</p> <p>Estimated resource depth based on BGS estimates of Wildmoor Sandstone formation (mid-point 90m to</p>

	120m): 105m
Assessment of resource for the second consultation on MLP (Autumn 2013)	
Commentary:	A medium-sized resource area overlain by the urban area of Summerfield. The Wildmoor and Kidderminster sandstone deposits are extensive and extend in all directions beyond this resource area and beneath the settlements of Kidderminster, Stourport, Blakedown, Fairfield, Arley Kings (these sections are considered as resource areas 1/32, 1/33, 2/21, 2/22, 2/23, 2/25, 2/26, 10/24, 10/25, 10/26 and 10/27) and to the north of the county boundary.
Crude estimate of resource:	Area: 61 ha x average depth: 105 m ÷ 2 Estimated resource volume: 32,025,000 m ³ Estimated resource tonnage (at 2 t/m³): 64,050,000 tonnes
Conclusion:	Compromised by development.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	Area: 61 ha x average depth: 105 m ÷ 2 Estimated resource volume: 32,025,000 m ³ Estimated resource tonnage (at 1.65 t/m³): 52,841,250 tonnes
Conclusion:	Compromised by development.

Overview	
Resource number:	2/25
Resource name:	Kidderminster
Resource area:	1350 ha
Resource depth:	Estimated 66.6m
Location	
OS sheet reference:	SO 87 NW, SO 87 SW, SO 87 NE
National grid ref:	382981, 276202



Resource description: Resource area 2/25 is Wildmoor Sandstone Formation and Kidderminster Formation solid sand. In this part of the county there are large areas of Wildmoor sandstone formation and Kidderminster formation solid sand of considerable geological complexity. The Kidderminster and Wildmoor sandstones are partially but extensively overlain by terrace and glacial sand and gravel deposits. This resource area is overlain by glacial or terrace sand and gravel deposits (assessed as resource areas 2/16, 2/13a, 25/2a, 25/2b 38/1, 38/2, 38/3, 38/4, 38/5).

Kidderminster Formation

The Kidderminster Formation is generally described as well-rounded pebble to cobble size conglomerate and red-brown, medium to coarse sandstone. The lower part of the formation predominantly consists of clast-supported conglomerate composed largely of pebbles and cobbles of red, red brown and grey fine-grained quartzite together with red sandstone, milky quartz and rare porphyritic igneous rocks and re-worked conglomerate. The formation rests unconformably on Bridgnorth Sandstone. The maximum thickness of the conglomerate dominated facies is probably about 20m but this is gradational into the overlying sandstone dominated facies, which also contains beds and lenses of pebble conglomerate. The thickness of the formation varies, from 112m-133m in the north of the county near Hagley, to 155m at Wildmoor near Bromsgrove, and 127-129m at Brockhill east of Bromsgrove. However, the upper boundary is difficult to recognise because of the lithological similarity of the Kidderminster sandstone to the predominantly non-pebbly Wildmoor Sandstone.

There is some information about exposures for some sections of the deposit in this area:

- At Burlish Park / Birchen Coppice: the Kidderminster Formation deposit runs north east to south west. An exposure in the railway cutting (Severn Valley Railway line, to the north of the resource area near Birchen Coppice) shows soft red sandstone (depth not given) with subordinate bands of pebbles and local lenses of marl.
- At Mount Pleasant (north west of Burlish Park): In the railway cutting south of the tunnel more than 50' (15.2m) of the Kidderminster formation deposit is exposed, including pebbly bands and beds of red sandstone with an occasional pebble and a few bands of marl up to 3" (0.08m) thick.
- The construction of a reservoir to the east of Mount Pleasant exposed 10' of coarse pebbly shingle and sand, 15' of soft red sandstone with thin marl bands, 2' of hard coarse sand with pebbles, 6' of red sandstone with few pebbles with some thin marl layers and 3' of coarse breccia with angular blocks of igneous rock (total 36', 11m).
- Near Low Habberley and Franche: Along the east side of Habberley Valley a pronounced escarpment is formed by the Kidderminster Formation capping Wildmoor Sandstone and many exposures of the latter are visible in the lower part of the scarp. Craggs of brown, current bedded sandstone are abundant on the floor of the valley, conspicuously at the Peckett Rock, 250m north-north-west of the Habberley Valley Inn, where over 50' (15.2m) of sandstone is exposed.

Numerous exposures are reported to occur in the valleys to the north west of Franche in the escarpment which bounds the Habberley Valley. In a road section south east of High Habberley over 140' (42.7m) of sandstone beds with some pebbles are exposed. A northerly trending fault throws these beds against 5' (1.5m) of reddish brown sandstone without pebbles (Wildmoor Sandstone).

North west of this road cutting, in the grounds of High Habberley House, exposures near the base of the Kidderminster Formation show a conspicuous band of very coarse breccia containing large angular fragments up to 6" in diameter. A typical section in this location consists of: 6' of pebbly red sandstone overlying 8" of red sandstone with fewer pebbles, 4' of pebbly red sandstone, and 5' 6" of coarse breccia (total depth of 16'2", 4.9m).

The Kidderminster Formation, present as a calcareous grit, caps the Wildmoor Sandstone cliff at Ridgestone Rock and Jacob's Ladder at the northern end of Habberley Valley. Elsewhere, calcareous grit and conglomerate near the base of the Kidderminster Formation were formally exposed adjacent to the Kidderminster to Bridgenorth road about 650 yards north east of Lower Barns Farm, at the junction of Lower Lane and Honeybrook lane however, sandstone of Kidderminster type, with few or no pebbles is exposed.

Wildmoor Formation

The Wildmoor Formation is generally described as red-brown and orange, fine to medium grained, feldspathic sandstone with sparse, thin mudstone beds. Generally the formation is characterised by an absence of pebbles, in contrast to the Kidderminster Formation, although sparse pebbly stringers are recorded. The fine grain-size and soft, poorly cemented nature of the sandstone made it ideal for exploitation as moulding sand for use in the foundry industry. The memoir states that the Wildmoor Sandstone formation ranges in thickness

from 90m-120m. The deposit is exposed in the road cutting 350yd SSE of Hoobrook and at intervals on the western edge of the gravel patch capping Stour Hill and Wilden. There is no more detailed information about depths for the Wildmoor deposit in this area.

Estimated depth

Estimated depth calculated as mean average of: a) depth of Kidderminster formation near Hagley (mid-point of 112m to 133m): 122.5m, b) depth of Kidderminster formation at Wildmoor: 155m, c) depth of Kidderminster formation at Brockhill (mid-point of 127m to 129m): = 128m, d) Kidderminster formation at Mount Pleasant railway cutting: 15.2m, e) reservoir east of Mount Pleasant: 11m, f) Peckett Rock: 15.2m, g) road section south east of High Habberley: 42.7m, h) typical section at High Habberley House: 4.9m, i) BGS estimates of Wildmoor Sandstone formation (mid-point 90m to 120m): 105m = 66.6m.

Assessment of resource for the second consultation on MLP (Autumn 2013)

Commentary:	A large resource area overlain by the settlement of Kidderminster. The Wildmoor and Kidderminster sandstone deposits are extensive and extend in all directions beyond this resource area and beneath the settlements of Stourport, Blakedown, Fairfield, Arley Kings (these sections are considered as resource areas 1/32, 1/33, 2/21, 2/22, 2/23, 2/24, 2/26, 10/24, 10/25, 10/26 and 10/27) and to the north of the county boundary.
Crude estimate of resource:	Area: 1350 ha x average depth: 66.6 m ÷ 2 Estimated resource volume: 449,550,000 m ³ Estimated resource tonnage (at 2 t/m³): 899,100,000 tonnes
Conclusion:	Compromised by development.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	Area: 1350 ha x average depth: 66.6 m ÷ 2 Estimated resource volume: 449,550,000 m ³ Estimated resource tonnage (at 1.65 t/m³): 741,757,500 tonnes
Conclusion:	Compromised by development.

Overview		
Resource number:	2/26	
Resource name:	Blakedown	
Resource area:	39 ha	
Resource depth:	Estimated 105m	
Location		
OS sheet reference:	SO 87 NE	
National grid ref:	387975, 278517	
Resource description:		
Resource description:	<p>Resource area 2/26 is Wildmoor Sandstone Formation. In this part of the county there are large areas of Wildmoor sandstone formation and Kidderminster formation solid sand of considerable geological complexity. The Kidderminster and Wildmoor sandstones are partially but extensively overlain by terrace and glacial sand and gravel deposits which are recorded as separate resource areas, however this section is not overlain by any other resource areas.</p> <p>Wildmoor Formation</p> <p>The Wildmoor Formation is generally described as red-brown and orange, fine to medium grained, feldspathic sandstone with sparse, thin mudstone beds. Generally the formation is characterised by an absence of pebbles, in contrast to the Kidderminster Formation, although sparse pebbly stringers are recorded. The fine grain-size and soft, poorly cemented nature of the sandstone made it ideal for exploitation as moulding sand for use in the foundry industry. The memoir states that the Wildmoor Sandstone formation ranges in thickness from 90m-120m. There is no more detailed information about depths for the Wildmoor deposit in this area.</p> <p>Estimated resource depth based on BGS estimates of Wildmoor Sandstone formation (mid-point 90m to 120m): 105m</p>	
Assessment of resource for the second consultation on MLP (Autumn 2013)		
Commentary:	<p>A small resource area overlain by the settlement of Blakedown. The Wildmoor and Kidderminster sandstone deposits are extensive and extend in all directions beyond this resource area and beneath the settlements of</p>	

	Kidderminster, Stourport, Fairfield, Arley Kings (these sections are considered as resource areas 1/32, 1/33, 2/21, 2/22, 2/23, 2/24, 2/25, 10/24, 10/25, 10/26 and 10/27) and to the north of the county boundary.
Crude estimate of resource:	Area: 39 ha x average depth: 105 m ÷ 2 Estimated resource volume: 20,475,000 m ³ Estimated resource tonnage (at 2 t/m³): 40,950,000 tonnes
Conclusion:	Compromised by development.
Assessment of resource for the Third Stage consultation on MLP (Spring 2015)	
Revised estimate of resource:	Area: 39 ha x average depth: 105 m ÷ 2 Estimated resource volume: 20,475,000 m ³ Estimated resource tonnage (at 1.65 t/m³): 33,783,750 tonnes
Conclusion:	Compromised by development.