ARCHAEOLOGY IN THE PPG16 ERA

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INVESTIGATIONS IN ENGLAND 1990–2010

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Back cover: Field evaluation in progress at the Bognor Regis Eco-Quarter, West Sussex, in September 2009.
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Summary

The Archaeological Investigations Project (AIP), funded by English Heritage, systematically collected information year-on-year about the nature and outcomes of more than 80,000 archaeological projects undertaken in England between 1990 and 2010. This report looks at the long-term trends in archaeological investigation and reporting, sets the work within its wider social, political, and professional contexts, and reviews its achievements.

The publication in November 1990 of *Planning Policy Guidance Note 16: Archaeology and Planning* (known as PPG16) saw the formal integration of archaeological considerations with the town and country planning system, and set out processes for informed decision-making and the implementation of post-determination mitigation strategies. Current for 20 years, PPG16 defined a formative era in archaeological practice and established principles that underpin today's planning policy framework. British and European archaeological traditions contributed to the approaches espoused in PPG16, while changing political philosophies such as monetarism, instrumentalism, and localism coloured its implementation.

During the PPG16 Era 90 per cent of recorded archaeological investigations related to the planning process or the determination of consents for works in protected places. Overall, 54 per cent related to pre-determination studies to inform decision-making and 32 per cent to post-determination mitigation works. Just under 10 per cent of recorded investigations were for work outside the planning system, including university research, investigations by local societies, and community archaeology projects. About 50 per cent of recorded investigations were in urban areas, 49 per cent in rural areas, and 1 per cent in maritime environments. The distribution of work across the country was fairly even, with hot-spots in areas of intensive development, for example along the M4 corridor, and areas of quietude in protected landscapes, such as National Parks. The scale of activity represented – more than a thousand excavations per year for most of the PPG16 Era – is more than double the level of work undertaken at peak periods during the previous three decades.

Desk-based assessments were used in relation to strategic planning and development control. Around 12,000 reports were recorded, an average of 600 per year, but amounting to less than 0.15 per cent of all planning applications. The greatest proportion related to urban residential development (22 per cent) followed by urban commercial development (16 per cent), and large scale mixed development (15 per cent). Some 22,800 field evaluations, second-stage pre-determination works involving destructive sampling of archaeological deposits, were recorded for a wide range of development types including urban residential (20 per cent), urban commercial (8 per cent), large-scale housing (8 per cent), mineral extraction (4 per cent), and road schemes (4 per cent). About 57 per cent of field evaluations were undertaken in urban areas. Around 33 per cent of Environmental Impact Assessments recorded by AIP included archaeological contributions, a total of about 740 from the PPG16 Era.

Approximately 16,300 post-determination events were recorded, of which just over half took place in urban areas and around 80 per cent comprised or included watching briefs. The frequency of excavations per year more than doubled from around 70 in 1990 to 140 in 2010. Recording standing buildings expanded during the PPG16 Era, but was geographically patchy.

Approximately 7100 non planning-related investigations were recorded, peaking in 1999 and 2007. Around 70 investigations per year by amenity groups and an average of 23 a year by university departments contribute to the picture. Projects linked to television programmes or funded through special initiatives such as the Aggregates Levy Sustainability Fund, the Heritage Lottery Fund, the Portable Antiquities Scheme, and Treasure investigations also contributed. Some 1600 estate management plans were recorded, especially in southern and southwestern England.

Investigations were carried out within a wide range of protected places across England, including Areas of

Outstanding Natural Beauty (170 recorded investigations), Conservation Areas (1100), Environmentally Sensitive Areas (31), Heritage Coasts (16), local authority designated archaeological areas (1600), National Parks (450), National Trust land (460), and World Heritage Sites (411). These included pre-determination and post-determination works as well as non planning-related investigations. Similarly, many investigations took place at protected sites, including Historic Battlefields (34), Historic Parks and Gardens (180), Guardianship Monuments (15), Listed Buildings (4200), National Nature Reserves (56), Protected Wrecks (9), Scheduled Monuments (3200), and Sites of Special Scientific Interest (126).

The nature of reporting and publishing archaeological investigations changed considerably over the PPG16 Era. Reports became more closely linked to their uses with clear distinctions between those communicating strategic knowledge for use in determining planning applications and those communicating narrative knowledge about a site and its past. Reporting work that appears to produce no archaeological results is declining as the importance of such data is not widely recognised. The rise of so-called grey literature caused concerns in some quarters with around 97 per cent of reports documented by the AIP being unpublished in the conventional sense. Access to these is changing as on-line libraries and repositories allow easy delivery of digital reports. The production of final reports remains a problem, although projects initiated since 2000 appear to be reported more promptly than earlier work.

Sixteen case studies illustrate the archaeological contributions to a range of development schemes. They show the many ways in which projects develop and how archaeology is integrated with their planning and execution. The range of outputs documenting the process is described; in some cases more than twenty grey-literature reports arise from a single project. Bringing the results of these and other investigations together provides new ways of understanding England's past. A list of 100 influential discoveries is presented. Compelling stories emerge from these investigations and contribute to England's growing knowledge economy.

The PPG16 Era was a transitional period for archaeology in England. Ten key lessons emerge from the analysis of archaeological investigations carried out between 1990 and 2010:

- The growing appreciation of planning-related archaeology, its approaches, and its outputs.
- Planning-related archaeology can be modelled as punctuated equilibrium wherein a steady flow of work is periodically enhanced by increased levels of activity.
- Archaeological work-loads are intimately tied to levels of activity in the construction industry.
- Only a small proportion of development activity is subject to archaeological investigation.
- Pre-determination investigations are much easier to track than post-determination activity.
- Much research is undertaken outside of the planning system, but is often unreported.
- Environmental assessment is a growth area that archaeology has been slow to embrace.
- Project-based practices mean that documentation often gets lost or put aside.
- The volume of archaeological endeavour is so great that synthesis requires particular sets of intellectual skills that are not widely available.
- Archaeology is a fast-moving and dynamic discipline that is no longer a singular endeavour directed only towards the creation of narrative knowledge.

Looking into the post-PPG16 Era, consideration is given to anticipated developments in the changing worlds of planning, property development, and archaeological practice. Evidence for recovery in the construction and industry and in archaeology following the economic recession of the late 2000s is presented. It is estimated that the market in archaeological contracting was worth over £150m per annum in 2017. Future challenges including recruitment, changes to patterns of publication and archiving, and the ongoing need for monitoring archaeological work at a national level are discussed.

Résumé

Le programme d'investigations archéologiques (PPG16) financé par English Heritage, a systématiquement rassemblé année après année des renseignements sur la nature et les résultats de plus de 80 000 projets archéologiques entrepris en Angleterre entre 1990 et 2010. Ce rapport considère les évolutions dans l'investigation et l'enregistrement archéologiques sur le long terme, situe les travaux dans leur contexte social, politique et professionnel et réexamine leurs réussites.

La publication en novembre 1990 du *Guide de politique d'urbanisme note 16:* Archéologie et Planification (connu sous le sigle PPG16) a vu l'intégration officielle des considérations archéologiques dans le système de planification urbain et rural et a mis en place des procédés pour une prise de décision éclairée et l'application de stratégies de limitation post-détermination. En vigueur depuis 20 ans, PPG16 a défini une ère formative dans les pratiques archéologiques et a établi des principes qui consolident le cadre actuel de la politique d'urbanisme. Les traditions archéologiques britanniques et européennes ont contribué aux approches adoptées par PPG16 tandis que des philosophies politiques changeantes telles que le monétarisme, l'instrumentalisme et le localisme ont tinté leur application.

Pendant l'ère de PPG16 90 pour cent des investigations archéologiques enregistrées avaient un rapport avec le procédé de demande de permis de construire ou la détermination d'accords pour des travaux dans des lieux protégés. En tout, 54 pour cent concernaient des études de pré-détermination pour éclairer une prise de décision et 32 pour cent des travaux de limitation après détermination. Juste en dessous de 10 pour cent des investigations enregistrées le furent pour des travaux sans rapport avec le système de planification, y compris des recherches universitaires, des investigations par des associations locales et des projets archéologiques de collectivités. Environ 50 pour cent des investigations enregistrées se trouvaient dans des zones urbaines et 1 pour cent dans des milieux maritimes. La répartition des travaux à travers le pays était relativement équilibrée, avec des points chauds dans des zones d'aménagements intensifs, comme par exemple le long du tracé de l'autoroute M4, et des aires de quiétude dans des paysages protégés tels que des parcs nationaux. L'échelle de l'opération représentée –plus d'un millier de fouilles par an pour la plus grande partie de l'ère PPG16 – est plus du double du nombre de travaux entrepris pendant les périodes les plus actives des trois décennies précédentes.

Des évaluations documentaires furent utilisées en matière de planification stratégique et de contrôle de l'aménagement. Environ 1200 rapports furent enregistrés, une moyenne de 600 par an, mais représentant moins de 0,15 pour cent de toutes les demandes de permis de construire. La plus grande partie concernait l'aménagement de résidences urbaines (22 %) suivi de l'aménagement de propriétés commerciales (16 %) et d'aménagements mixtes, à grande échelle (15 %). Quelques 22 800 évaluations sur le terrain, seconde étape des travaux de pré-détermination impliquant un échantillonage destructif de dépôts archéologiques furent enregistrées pour un large éventail de types d'aménagements incluant des résidences urbaines (20 %), des locaux commerciaux urbains (8 %), des logements sur une grande échelle (8 %), l'extraction de minerai (4 %) et des projets routiers (4 %). Environ 57 pour cent des évaluations de terrains furent entreprises dans des zones urbaines. Environ 33 pour cent des évaluations d'impact environnemental enregistrées par AIP comprenaient des contributions archéologiques, un total d'environ 740 de l'ère PPG16.

Approximativement 16 300 événements post-détermination furent enregistrés dont juste un peu plus de la moitié dans des zones urbaines et environ 80 pour cent comprenaient ou incluaient un mandat de surveillance. La fréquence des excavations par an a plus que doublé d'environ 70 en 1990 à 140 en 2010. L'enregistrement des bâtiments debout a augmenté pendant l'ère PPG16 mais était géographiquement inégal.

Approximativement 7 100 investigations sans lien avec la planification furent enregistrées, atteignant leur maximum en 1999 et 2007. Environ 70 investigations par an par des

groupes de l'équipement et une moyenne de 23 par an par des unités de recherche de l'université contribuent à ce tableau. Des projets en lien avec des émissions de télévision ou financés grâce à des initiatives particulières telles que le Fond de Prélèvement sur la Durabilité des Agrégats, le Fond de la loterie du Patrimoine, le Projet des Antiquités mobiles ainsi que des investigations du Trésor ont aussi contribué. Quelques 1 600 plans de gestion du patrimoine furent enregistrés, en particulier dans le sud et le sud-ouest de l'Angleterre.

Des investigations furent entreprises sur un important éventail de sites protégés à travers l'Angleterre y compris des Aires de Beauté Naturelle (170 investigations enregistrées), des zones de conservation (1100), des aires environnementalement sensibles (31), le patrimoine côtier (16), des zones archéologiques désignées pardes collectivités locales (1600), des parcs nationaux (450), des terres du National Trust (460), et des sites inscrits au patrimoine de l'humanité (411). Ceux-ci comprenaient des travaux de pré-détermination et post-détermination ainsi que des investigations sans lien avec l'aménagement du territoir. De même se sont déroulées de nombreuses investigations sur des champs de bataille historiques (34), dans des parcs et jardins historiques (180), des monuments sous tutelle (15), des bâtiments classés (4 200), des réserves naturelles nationales (56), des épaves protégées (9), des monuments classés (3200) et des sites d'intérêt scientifique particulier (126).

La nature du compte-rendu et de la publication des investigations archéologiques a considérablement changé au cours de l'ère PPG16. Les rapports sont devenus plus intimement liés à leur usage avec des distinctions claires entre ceux qui communiquent une connaissance stratégique qui sera utilisée pour déterminer des demandes de permis de construire et ceux qui communiquent une connaissance narrative d'un site et de son passé. Rendre compte de travaux qui semblent n'apporter aucun résultat archéologique décline car l'importance de telles données n'est généralement pas reconnue. L'augmentation de la soit-disant littérarure grise a causé des soucis dans certains domaines avec environ 97 pour cent des rapports documentés par l' AIP n'étant pas publiés dans le sens conventionnel du terme L'accès à ceux-ci change car les bibliothèques en ligne et les dépôts facilitent la production de rapports numériques. La production de rapports définitifs reste un problème bien que les comptes-rendus de projets commencés depuis 2000 semblent être parus plus promptement que des travaux antérieurs.

Seize études de cas illustrent la contributions archéologique à une gamme de projets de d'aménagement. Elles montrent les nombreuses façons dont les projets se développent et comment l'archéologie s'intègre à leur planification et leur exécution. La gamme de résultats qui documente le procédé est décrite, dans certains cas plus de 20 rapports de littérature grise découlent d'un seul projet. Réunir les résultats de ces investigations et d'autres offre de nouvelles manières de comprendre le passé de l'Angleterre. Nous présentons une liste de cent découvertes déterminantes. De fascinantes histoires émergent de ces investigations et contribuent à l'économie de la connaissance croissante de l'Angleterre.

L'ère de PPG16 fut une période de transition pour l'archéologie en Angleterre. Dix leçons clé émergent de l'analyse des investigations archéologiques menées entre 1990 et 2010:

- L'appréciation croissante de l'archéologie liée à des projets d'aménagement, ses approches et ses résultats
- L'archéologie liée à l'aménagement peut être modelée comme un équilibre ponctué dans lequel un débit stable de travaux est périodiquement renforçé par des hausses du niveau d'activité
- La charge de travail archéologique est intimement liée au niveau d'activité de l'industrie de la construction. Seule une petite proportion de l'activité d'aménagment est sujette à des investigations archéologiques. Les investigations de pré-détermination sont beaucoup plus faciles à suivre que l'activité post-détermination. De nombreuses recherches sont entreprises en dehors du système de planification , mais souvent elles ne sont pas rapportées.
- L'évaluation environnementale est une aire qui se développe ,mais que l'archéologie a été lente à saisir.
- Des pratiques basées sur un projet signifient que la documentation se trouve souvent perdue ou mise de côté.
- Le volume d'entreprises archéologiques est si élevé que sa synthèse nécessite des types de groupes de compétences intellectuelles qui ne sont pas largement disponibles.
- L'archéologie est une discipline en rapide évolution dynamique qui n'est plus une entreprise unique seulement tournée vers la production d'une connaissance narrative.

En considérant l'ère post PPG16, nous concentrons notre attention sur des changements anticipés dans les univers en mutation de l'aménagement,,la construction, la propriété et les pratiques archélogiques.Des témoignages de progrès dans la construction, l'industrie et dans l'archéologie suite à la crise économique de la fin des années 2000 sont présentés. On estime que le marché en contrats archéologiques représentait une valeur de plus de £150 m par an en 2017. Les défis de l'avenir concernant le recrutement, les changements dans les modes de publication et d'archivage et le besoin constant de surveiller les travaux archéologiques au niveau national sont discutés.

Zusammenfassung

Im Rahmen des von English Heritage finanzierten Archaeological Investigations Project (AIP) wurden Jahr für Jahr systematisch Informationen über den Charakter und die Ergebnisse von mehr als 80.000 archäologischen Projekten gesammelt, die zwischen 1990 und 2010 in England durchgeführt wurden. Dieser Bericht untersucht die langfristigen Trends in der archäologischen Forschung und Berichterstattung, stellt die Arbeit in ihren breiteren sozialen, politischen und beruflichen Zusammenhängen dar und bewertet ihre Errungenschaften.

Mit der Veröffentlichung der Ausführungsanweisung Nr. 16 zur Planungsrichtlinie: Archäologie und Planung (*Planning Policy Guidance Note 16* = PPG16) wurde im November 1990 die formelle Berücksichtigung archäologischer Belange in der Raumordnungs- und Bauleitplanung eingeführt und Verfahren für eine fundierte Entscheidungsfindung und Umsetzung von Strategien zur nachträglichen Folgenminderung definiert. Die über einen Zeitraum von 20 Jahren angewandte PPG16 definierte eine prägende Ära in der bodendenkmalpflegerischen Praxis und etablierte Prinzipien, die die Grundlagen des heutigen planungspolitischen Rahmens bilden. Britische und europäische archäologische Traditionen trugen zu den in PPG16 vertretenen Ansätzen bei, wobei politische Philosophien wie Monetarismus, Instrumentalismus und Lokalismus ihre Umsetzung prägten.

Von den während der PPG16-Ära durchgeführten archäologischen Untersuchungen standen 90 Prozent in Zusammenhang mit dem Planungsprozess oder den Genehmigungsentscheiden für Arbeiten an denkmalgeschützten Orten. Insgesamt bezogen sich 54 Prozent auf vorbereitende Studien zur Faktenermittlung der Entscheidungsfindung und 32 Prozent auf Arbeiten zur Folgenminderung nach erfolgter Entscheidung. Etwas weniger als 10 Prozent der erfassten Untersuchungen betrafen außerhalb des Planungssystems durchgeführte Arbeiten, einschließlich universitärer Forschung, Untersuchungen durch lokale Vereine und kommunale Archäologieprojekte. Etwa 50 Prozent der erfassten Untersuchungen betrafen städtische Flächen, 49 Prozent fanden in ländlichen und 1 Prozent in maritimen Gebieten statt. Die Konzentration der Untersuchungen war landesweit recht gleichmäßig, es gab jedoch Schwerpunkte in Gebieten mit intensiver Entwicklung, wie zum Beispiel entlang der M4-Autobahntrasse, und weniger betroffene Bereiche in geschützten Landschaften wie Nationalparks. Das Ausmaß der erfassten Maßnahmen – mehr als tausend Ausgrabungen pro Jahr über den größten Teil der PPG16-Ära – ist mehr als doppelt so hoch wie das Niveau der Arbeiten in den Spitzenzeiten der vorangegangenen drei Jahrzehnte.

Archäologische Stellungnahmen wurden im Zusammenhang mit der strategischen Planung und der Bauleitplanung eingesetzt. Rund 12.000 Meldungen wurden erfasst, durchschnittlich 600 pro Jahr, was aber weniger als 0,15 Prozent aller Bauanträge ausmachte. Der größte Anteil entfiel auf den städtischen Wohnungsbau (22%), gefolgt von der städtischen Gewerbeentwicklung (16%) und großmaßstäbigen Mischgebieten (15%). Rund 22.800 Prospektionen, „harte Prospektionen“ zweiten Grades mit zerstörerischer Beprobung archäologischer Befunde, wurden für eine Vielzahl von Entwicklungstypen erfasst, darunter städtische Wohngebiete (20%), städtische Gewerbegebiete (8%), großmaßstäbige Wohnbebauung (8%), Mineralien- und Aggregateabbau (4%) und Straßenbauvorhaben (4%). Etwa 57 Prozent der Felduntersuchungen wurden in städtischen Gebieten durchgeführt. Von insgesamt ca. 740 der im Rahmen des AIP erfassten Umweltverträglichkeitsprüfungen aus der PPG16-Ära enthielten rund 33 Prozent archäologische Beiträge.

Es wurden ungefähr 16,300 nach Bescheiderstellung durchgeführte Maßnahmen erfasst, von denen etwas mehr als die Hälfte in städtischen Gebieten stattfanden, wovon ca. 80 Prozent baubegleitende Maßnahmen waren oder diese einschlossen. Die Häufigkeit von Ausgrabungen pro Jahr hat sich von rund 70 im Jahr 1990 auf 140 in 2010 mehr als verdoppelt. Die Baudokumentation stehender Gebäude wurde während der PPG16-Ära ausgeweitet, blieb aber geografisch lückenhaft.

Ungefähr 7100 nicht planungsrelevante Untersuchungen wurden erfasst, mit Höchstständen in den Jahren 1999 und 2007. Dazu kommen jährlich rund 70 von periodenspezifischen Interessengruppen und durchschnittlich etwa 23 von Universitätsinstituten durchgeführte Untersuchungen. Im Zuge von Fernsehsendungen durchgeführte, oder durch spezielle Initiativen wie den Aggregates Levy Sustainability Fund (Nachhaltigkeitsfond der Mineralbaustoffwirtschaft), den Heritage Lottery Fund (mit Lotteriemitteln finanzierte Kulturerbestiftung), das Portable Antiquities Scheme (Programm zur Erfassung mobiler Altertumsfunde) sowie im Rahmen des Schatzrechts geförderte Projekte, sind hier ebenfalls enthalten. Außerdem wurden rund 1600 Bewirtschaftungspläne von Landgütern erfasst, insbesondere in Süd- und Südwestengland.

Die Untersuchungen fanden in einer großen Bandbreite denkmalgeschützter Orte in ganz England statt, u. a. AONBs (Areas of Outstanding Natural Beauty = Landschaftsschutzgebiete; 170 erfasste Untersuchungen), Denkmalschutzgebiete (1100), Biotopschutzgebiete (31), kulturgeschichtlich schützenswerte Küsten (16), von lokalen Behörden ausgewiesene archäologische Schutzgebiete (1600), Nationalparks (450), National Trust Land (460) und Weltkulturerbegebiete (411). Es wurden sowohl vor als auch nach Bescheiderteilung durchgeführte Arbeiten sowie nicht planungsbezogene Untersuchungen berücksichtigt. Des Weiteren fanden viele Untersuchungen an denkmalgeschützten Orten statt, z. B. in historischen Schlachtfeldern (34), historischen Parks und Gärten (180), in öffentlicher Pflege befindlichen Denkmälern (15), denkmalgeschützten Gebäuden (4200), nationalen Biosphärenreservaten (56), geschützten Wracks (9), in die Denkmalliste eingetragenen Denkmälern (3200) und Gebieten von besonderem wissenschaftlichen Interesse (126).

Die Art und Weise der Berichterstattung und Veröffentlichung archäologischer Daten hat sich im Laufe der PPG16-Ära erheblich verändert. Die Berichte wurden enger mit ihrer Nutzung verknüpft, wobei klar zwischen solchen unterschieden wurde, die strategisches Wissen zur Entscheidungsfindung von Bau- und Erschließungsanträgen vermitteln, und denen, die der Berichterstattung über einen Fundplatz und seine Vergangenheit dienen. Die Anzahl von Berichten, die anscheinend keine archäologischen Ergebnisse liefern, ist rückläufig, da die Bedeutung solcher Daten oftmals nicht erkannt wird. Die Zunahme der sogenannten grauen Literatur erregte in einigen Bereichen Besorgnis: Rund 97 Prozent der vom AIP dokumentierten Berichte blieben im herkömmlichen Sinne unveröffentlicht. Jedoch ändert sich der Zugriff auf diese Daten, da Online-Bibliotheken und Archive eine unkomplizierte Bereitstellung digitaler Berichte ermöglichen. Die Anfertigung von Abschlussberichten ist nach wie vor ein Problem, allerdings erfolgt die Publikation von Projekten, die seit 2000 initiiert wurden, offenbar schneller als bei früheren Untersuchungen.

Sechzehn Fallstudien veranschaulichen die archäologischen Beiträge zu einer Reihe von Bauprojekten. Sie zeigen, wie unterschiedlich Projekte ablaufen und wie archäologische Belange in ihre Planung und Durchführung integriert werden. Es wird zudem der Umfang der den Projektablauf dokumentierenden Ergebnisse beschrieben; in einigen Fällen werden mehr als 20 grey-literature Berichte im Laufe eines einzigen Projekts angefertigt. Die Zusammenführung der Ergebnisse dieser und anderer Untersuchungen bietet neue Möglichkeiten, Englands Vergangenheit zu verstehen. Eine Liste von 100 herausragenden Entdeckungen wird vorgestellt. Diese Untersuchungen haben spannende Geschichten hervorgebracht und so zur wachsenden Wissensgesellschaft Englands beigetragen.

Die PPG16-Ära war für die Archäologie in England eine Übergangszeit. Die Analyse archäologischer Untersuchungen, die zwischen 1990 und 2010 durchgeführt wurden, liefert zehn wichtige Erkenntnisse:

- Die wachsende Wertschätzung der im Rahmen der Bauleitplaung veranlassten archäologischen Untersuchungen, ihrer Ansätze und Ergebnisse.
- Die planungsbezogene Archäologie kann modellhaft als unterbrochenes Gleichgewicht verstanden werden, in dem sich ein stetiger Arbeitsfluss periodisch mit Phasen erhöhter Aktivität abwechselt.
- Die archäologische Arbeitsdichte ist eng mit der Aktivität in der Bauindustrie verbunden.
- Nur ein kleiner Teil der Bautätigkeit wird archäologisch begleitet.
- Untersuchungen, die vor einem Entscheid durchgeführt werden, sind viel leichter zu verfolgen als Aktivitäten nach ergangenem Bescheid.
- Eine Vielzahl an Forschungsaktivitäten findet außerhalb des Planungssystems statt, bleibt aber häufig unveröffentlicht.
- Umweltverträglichkeitsprüfungen sind ein Wachstumsareal, das die Archäologie nur langsam in Angriff nimmt.
- Projektbasierte Praktiken führen häufig dazu, dass Grabungsdokumentationen verloren gehen oder beiseite gelegt werden.
- Das Volumen archäologischer Unternehmungen ist so groß, dass eine Synthese besondere intellektuelle Fähigkeiten erfordert, die nicht überall verfügbar sind.
- Archäologie ist eine sich rasant entwickelnde und dynamische Disziplin, die nicht länger nur ein singuläres Unterfangen darstellt, das lediglich auf die Schaffung von narrativem Wissen ausgerichtet ist.

Mit Hinblick auf die Zeit nach PPG16 wird den zu erwartenden Entwicklungen in den sich wandelnden Welten der Bauleitplanung, der Bauträger und der archäologischen Praxis Rechnung getragen. Des Weiteren werden Belege für

eine Erholung in der Bauwirtschaft und Archäologie nach der wirtschaftlichen Rezession Ende der 2000er Jahre vorgelegt. Im Jahr 2017 umfasste der Markt für archäologische Vertragsarbeiten schätzungsweise ein Volumen von über 150 Millionen Pfund pro Jahr. Künftige Herausforderungen wie Personalbeschaffung, Veränderungen der Veröffentlichungs- und Archivierungsstrukturen sowie die anhaltende Notwendigkeit der Überwachung der archäologischen Arbeit auf nationaler Ebene werden diskutiert.

Übersetzung: Jörn Schuster
(ARCHÆOLOGICALsmallFINDS)

Preface and acknowledgements

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During the course of the Project, and through into the time when this report was in production, a number of key organisations changed their names or underwent fundamental re-structuring of various kinds. For ease of reference, and to preserve historical authenticity, all organisations are referred to by the names associated with them in respect of the particular pieces of work, publications, or structure under discussion. Three sets of changes especially relevant to the PPG16 Era may be noted to avoid confusion. First, The Royal Commission on the Historical Monuments of England (RCHME) was merged with English Heritage in 1999. Second, the Historic Buildings and Monuments Commission for England, created by the *National Heritage Act 1983* and popularly known as English Heritage, restructured into two parts in May 2015. That concerned with the National Collection of properties and monuments in care retained the name English Heritage, while the part attending to the work of facilitating and administering statutory duties and related activities was named Historic England. And third, the Institute of Field Archaeologists, established in 1982, was renamed the Institute for Archaeologists in 2008, and became the Chartered Institute for Archaeologists in December 2014 following the granting of a Royal Charter.

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Abbreviations and acronyms

AAHRG	Avebury Archaeological and Historical Research Group
AAMP	Archaeological Activity Monitoring Programme
ACAO	Association of County Archaeological Officers (*see* ALGAO)
ADAO	Association of District Archaeological Officers (*see* ALGAO)
ADAS	Agricultural Development Advisory Service
ADS	Archaeology Data Service
AIP	Archaeological Investigations Project
ALGAO	Association of Local Government Archaeological Officers (formerly ACAO and ADAO)
AONB	Area of Outstanding Natural Beauty
APPAG	All Party Parliamentary Archaeology Group
Art.	Article
BAB	British Archaeological Bibliography (1992–96; BIAB from 1997)
BADLG	British Archaeologists and Developers Liaison Group
BCC	Birmingham City Council
BIAB	British and Irish Archaeological Bibliography (formerly BAB)
BIM	Building Information Modelling
CBA	Council for British Archaeology
CBI	Council for British Industry
CC	Countryside Commission
CDCPP	Steering Committee on Culture, Heritage and Landscape (of the Council of Europe)
CEU	Council of the European Union
CIA	Council for Independent Archaeologists
CIFA	Chartered Institute for Archaeologists
CLG	Communities and Local Government
CoE	Council of Europe
CPD	Continuing Professional Development
DA	Digital Archives
DBA	Desk-based Assessment
DCLG	Department of Communities and Local Government
DCMS	Department of Culture, Media and Sport
DETR	Department of the Environment, Transport and the Regions
DFI	Department for Industry
DINAA	Digital Index of North American Archaeology
DoE	Department of the Environment (UK Government Department 1970–97)
DoENI	Department of the Environment (Northern Ireland)
DOI	Digital Object Identifier
DPAT	Department of Portable Antiquities and Treasure (British Museum)
DTp	Department of Transport
EA	Environmental Assessment
EC	European Commission
EEC	European Economic Community
EH	English Heritage (since May 2015 split into *Historic England* and *English Heritage*)
EHTF	English Historic Towns Forum
EI	Excavations Index
EIA	Environmental impact assessment
EM	Event-Monument
EN	English Nature
ES	Environmental statement
ESA	Environmentally Sensitive Area
ETB	English Tourist Board
EU	European Union
FISH	Forum on Information Standards in Heritage (previously FISHEN)
FTE	Full time equivalent
GHK	GH Kint Holdings (= ICF International)
GIS	Geographical Information System
GLADE	Grey Literature Access, Dissemination and Enhancement Project
GLSMR	Greater London Sites and Monuments Record
HA	Highways Agency
HBMCE	Historic Buildings and Monuments Commission for England (= *English Heritage* and from May 2015 *English Heritage* and *Historic England*)
HCCLGC	House of Commons Communities and Local Government Committee
HE	Historic England (from May 2015)
HEF	Heritage Environment Forum
HER	Historic Environment Record
HERALD	Historic Environment Research Archives, Links and Data
HEREIN	European Heritage Network (of the Council of Europe)
HIAS	Heritage Information Access Strategy
HMG	Her Majesty's Government
HMSO	Her Majesty's Stationery Office
HPR	Heritage Protection Review

IEA	Institute of Environmental Assessment
IEMA	Institute of Environmental Management and Assessment
IFA	Institute of Field Archaeologists (from 2008 the *Institute for Archaeologists* and from December 2014 the *Chartered Institute for Archaeologists*)
IHBC	Institute of Historic Building Conservation
KAT	Kent Archaeological Trust
LBC	Listed Building Consent
LPA	Local planning authority
LUAU	Lancaster University Archaeology Unit
LUC	Land Use Consultants
LUSAG	Land Use Survey Advisory Group
MARS	Monuments at Risk Survey
MID	Mean Intervention Distance
MoLAS	Museum of London Archaeology Service
MOW	Ministry of Works (UK Government Department 1943–62)
MPBW	Ministry of Public Building and Works (UK Government Department 1962–70)
MPG	Minerals Planning Guidance
NE	Natural England
NGR	National Grid Reference
NHPP	National Heritage Protection Plan
NHLE	National Heritage List for England
NIC	National Infrastructure Commission
NMR	National Monuments Record
NPPF	National Planning Policy Framework
NRHE	National Record of the Historic Environment
NS	New Series
NSIP	Nationally Significant Infrastructure Projects
OASIS	Online Access to the Index of Archaeological Investigations
ODPM	Office of the Deputy Prime Minister
ONS	Office of National Statistics
PAS	Portable Antiquities Scheme
PBC	Public Bill Committee
PPG	Planning Policy Guidance
PPS	Planning Policy Statement
QAA	Quality Assurance Agency
RAO	Registered Archaeological Organisation (of CIFA)
RCHME	Royal Commission on the Historical Monuments of England (to 1999)
REF	Research Excellence Framework
RPG	Regional Planning Guidance
RSA	Royal Society for the Encouragement of Arts, Manufactures and Commerce
RTPI	Royal Town Planning Institute
SDC	Salisbury District Council
SEA	Strategic environmental assessment
SHAPE	Strategic Framework for Historic Environment Activities and Programmes in English Heritage
SI	Statutory Instrument
SM	Scheduled Monument
SMC	Scheduled Monument Consent
SMR	Sites and Monuments Record
SSSI	Site of Special Scientific Interest
UA	Unitary Authority
UK	United Kingdom
UN	United Nations
URL	Uniform Resource Locator
USA	United States of America
WA	Wessex Archaeology
WCC	Wiltshire Council Council

Chapter 1

Introduction: The PPG16 Era

The two decades between 1990 and 2010 were boom years for archaeological research across Britain. In England alone nearly 82,000 investigations have been recorded from this period, variously revealing structures and deposits ranging from campsites occupied by the earliest human inhabitants of northwest Europe over half a million years ago to settlements and workplaces of the modern industrial age. Many things conspired to promote this level of activity, but the most significant was the publication in November 1990 of *Planning Policy Guidance Note 16: Archaeology and Planning* (DoE 1990), popularly known as PPG16. It was a document that changed the face of public archaeology and triggered what might fairly be called the PPG16 Era as a distinct phase in the history of archaeological endeavour in Britain.

This report summarises and contextualises the achievements of archaeology in England during the PPG16 Era based on the results of the Archaeological Investigations Project (AIP), and considers the ongoing implications. Established at Bournemouth University in 1995 with funding from English Heritage (now Historic England) the AIP recorded the nature, extent, and distribution of completed investigations, especially those connected with planning-related archaeology carried out by archaeological contractors. Using the robust data-set created by recording individual investigations year-on-year over the PPG16 Era it is possible to chart an original picture of the progress of archaeological research that, in looking back over a period of profound change, is internationally significant for what it says about the transformation of practice while also providing guidance for the development of an agenda for archaeology over the next decade or more.

The aim of the report is to identify and document long-term trends and patterns within a range of fieldwork traditions during the PPG16 Era, illustrating some of the achievements and impacts that such an approach brought, and putting it all into its wider academic, social, political, economic, legal, and professional context down to the present day. Although planning-related investigations dominated archaeological activity between 1990 and 2010, accounting for about 90 per cent of recorded events, much else happened over the same period and attention is directed towards these activities as well. Thus, after a consideration of the background, context, and development of archaeology before, during, and after the PPG16 Era in this introduction, the following six chapters examine trends in planning-related and non planning-related archaeological work in England between 1990 and 2010. Chapter 8 then looks at archaeological outputs, and Chapter 9 assesses through case studies some of the achievements and impacts of the work. In conclusion, Chapter 10 looks forward to the way archaeological endeavour is moving towards the thirtieth anniversary of PPG16 in 2020, and beyond.

By way of preface three fundamental points must be made. First, is that while archaeological resource management in England shares many common underpinning principles with approaches taken elsewhere in Europe, and other parts of the western world, the legal, professional, and academic frameworks within which it is done are peculiar to England (*see* CIFA 2015; Hunter & Ralston 2006; Thomas 2007). The practices discussed in this report therefore represent one way of doing things; other countries do things differently according to specific local circumstances (Ashworth & Howard 1999; Carman 2015: xi) as the case studies from more than a dozen areas of Europe brought together by Katalin Bozóki-Ernyey (2007a) so clearly illustrate. Second, and following on from the first point, is that a key principle of archaeological resource management that came to the fore in England during the PPG16 Era was the need for informed decision-making. This is discussed further below,

but one implication of such an emphasis was the very clear separation of archaeological investigations into 'pre-determination' and 'post-determination' works, regardless of whether the 'determination' in question related to the planning system, the control of works through protective legislation (*e.g.* Scheduled Monument Consent), or simply making formal requests for funding and permissions. Third, is that post-determination investigations (also known as mitigation works), especially those in relation to planning permissions and Scheduled Monument Consents that were undertaken as a result of imposed conditions or agreements, must be seen in the context of a failure to achieve the primary objective of the legislation, which is to protect and conserve archaeological remains and the historic environment more generally. Thus, alongside the impacts and achievements reported here it is important to emphasise the widespread success of what can be called 'PARIS Policies' that represent the other side of the coin and focus on the preservation of archaeological remains *in situ* (Corfield *et al.* 1998; Davis *et al.* 2004; Saunders 1978; Wainwright 1993; Williams *et al.* 2016).

Figure 1.1 Representation of the twin pillars of archaeological research that support and give rise to archaeological investigations.

Twin pillars of archaeological research

Archaeology was a well-established discipline long before PPG16, and continued to develop and change during the PPG16 Era and beyond. By 2010 the archaeological process had become well-established in terms of its theoretical underpinnings and the necessary technical skills and intellectual competence to investigate, analyse, interpret, report, and present to wide interested audiences the remains of all periods whether standing, buried, or below the water (Carver 2009; Hodder 1999). The integration of archaeology with property development became well understood from the mid-1980s (Barber *et al.* 2008; McGill 1995), not only in Britain but also elsewhere in Europe (Bozóki-Ernyey 2007a; Webley *et al.* 2012) and in North America (Roberts *et al.* 2002). There were plenty of interesting questions to be asked of archaeological remains in order to facilitate piecing together a nuanced and detailed understanding of the past relevant to the interests of contemporary post-modern society (Olivier 1996). The quantity, quality, and wide distribution of archaeological remains were appreciated even though there were concerns over the rate of loss (Darvill & Fulton 1998). And, cementing it all together, legal frameworks and professional practice fell into place to encourage and support the management of archaeological remains through protection, conservation, and, where appropriate, investigation through survey and excavation (Fitzpatrick 2012; Last 2012; Wainwright 1993).

Grossly simplified, archaeological investigation in the late twentieth and early twenty-first centuries can be visualised as resting on two main foundations: the twin pillars of archaeological research (Figure 1.1). One pillar comprises research prompted by the long-standing traditions of problem-oriented and curiosity-driven research carried out mainly by government agencies, staff in university departments, and members of national, regional, and local amenity societies and community groups. Problem-orientated research, also known as agenda-driven research, emphasises the investigation of pre-defined questions: societal, academic, or professional issues or problems recognised as worth exploring in order to improve understanding or fill gaps in knowledge. By contrast, curiosity-driven research, sometimes also known as 'blue-sky' research, emphasises the potential of unanticipated or unexpected lines of inquiry prompted simply by being curious about perceived relationships, patterns, and juxtapositions of things or ideas in the real world.

The second pillar comprises what is sometimes referred to as development-led research, or planning-related research, prompted by various forms of property development and land-use change carried out within a complicated and diverse framework of legislation and associated guidance. By 1990 this included: the *Ancient Monuments Acts* controlling works at Scheduled Monuments, Guardianship Monuments, Areas of Archaeological Importance, and other protected places; the *Town and Country Planning Acts* providing strategic development frameworks and spatial planning, development control in relation to specific proposals, environmental assessment, and control over works to Listed Buildings and Conservation Areas; and a raft of other legislation dealing with works at specific resources (*e.g.* wrecks; military remains; churches etc.) and protected areas (*e.g.*

National Parks; Areas of Outstanding Natural Beauty; Environmentally Sensitive Areas; World Heritage Sites etc.). Here the choice of what to investigate is inevitably directed and constrained by the nature, location, and extent of the proposed development.

In practice, overlaps and links abound between the endeavours represented by the two pillars. As Richard Bradley found when researching a new account of British prehistory, what he initially characterised as Two Cultures turned out to be closely related and in places bridged by common sense and a shared interest in the past (Bradley 2006a). Indeed, a whole spectrum of archaeological research is increasingly mediated and unified by the negotiation, construction, and implementation of robust Research Frameworks that straddle the twin pillars (A Cooper 2008; Miles 2013; Olivier 1996; Thomas 1997). In this sense, Research Frameworks encourage the use of development-led and planning-related research opportunities to address problem-orientated agendas and follow-up insights and propositions arising from curiosity-driven research.

Especially important in the sphere of planning-related research in England was the publication in November 1990 of PPG16 (DoE 1990). Already referred to as revolutionising approaches to archaeological practice over a period of 20 years, its impact can still be felt. This relatively short document of just 24 pages significantly raised the profile of archaeology within the town and country planning system by clarifying the way that archaeological remains should be considered in decision-making and the weight that should be given to their protection and management. It highlighted the need for reliable information to inform decision-making, it emphasised the need to consider the preservation of remains wherever possible, and reiterated the powers that local planning authorities had to include conditions on development approvals that required developers to facilitate and finance an agreed programme of investigation and reporting for archaeological remains that could not be preserved. As such it transformed the rather negatively charged idea of development-led archaeology as something reactive into the positive forward-looking practice of planning-related archaeology that was proactive, in the sense that spatial planning in Britain is based upon a plan-led approach. Building on the principles set out in PPG16, similar policy guidance was subsequently published for other parts of the United Kingdom: Scotland (Scottish Office 1994a; 1994b), Wales (Welsh Office 1991; 1997), and Northern Ireland (DoENI 1999).

Prelude to PPG16

The influence of PPG16 is such that some consideration of its origins and context is appropriate, for it did not simply appear out of the blue. Like most legislation and related guidance, it represented the consolidation and formal articulation of ideas and principles circulating at the time, and which were already being tried and tested. Much of the back-story has been told in gentle narrative fashion by Geoffrey Wainwright (2000), Chief Archaeologist at English Heritage when PPG16 was launched and one of the document's principal architects. Reflective comments celebrating 25 years of PPG16 and its successors in a special edition of *The Archaeologist* also provide useful sidelights (Thomas 2016a; Bryant & Wills 2016; Brown 2016; Carroll 2016; Darvill 2016; Lennox 2016). What becomes clear is that two main strands of thinking came together in structuring PPG16: one representing the evolving indigenous tradition of British archaeology, the other a broader European perspective.

Archaeology in England before 1990

The twin pillars of archaeological research are clearly visible through most of the twentieth century, but their relative importance changed over time as the wider academic, social, political, and economic landscape gradually mutated. Until the late 1970s, problem-orientated and curiosity-driven research formed the dominant pillar, although development-led work (in contradistinction to 'planning-led' work) latterly under the banner of 'Rescue Archaeology' increased its influence and often captured the headlines (Evans 2016; Everill & Irving 2015; Jones 1984; Rahtz 1974). Indeed, it is surprising just how many ostensibly 'research' excavations were undertaken as a result of opportunities opened up when new developments threatened familiar sites with destruction or brought new sites to light during the course of groundworks and clearance operations. Some early examples even attracted 'developer funding', as in the case of E. C. Curwen's investigations at Whitehawk Camp, Brighton, in 1932–33 (Thomas 2016b).

By the late 1970s it was clear that the idea of reactive intervention and 'preservation by record' was becoming impracticable, not least because of the vast scale of the work needed in relation to the meagre resources available (Saunders 1978; Thomas 1976; Wainwright 1984). Philosophies and approaches shifted towards the conservation of sites and the planned management of change both in towns and the countryside. Conferences in Southampton (Darvill *et al.* 1978) and York (Mytum & Waugh 1987) debated many of the key issues in a fast-changing world.

One important change was the enactment of the *Ancient Monuments and Archaeological Areas Act 1979* that fundamentally altered the way works to Schedule Monuments were dealt with, replacing a simple passive notification process with an active consent procedure (Biddle 1994a: 2–4; Champion 1996: 53–55). Much the same happened in relation to other dimensions of the historic environment covered by legislation, for example Listed Buildings, while active management through

careful stewardship was promoted right across the heritage sector (Baker 1983; Darvill 1987a; 1993). Following the adoption in Europe of the principles of cultural resource management (CRM) and environmental impact assessment (EIA) first established in the United States of America (Cleere & Fowler 1976; McGimsey 1972; Schiffer & Gumerman 1977), attention switched from responding to decisions already taken to an approach that involved directly influencing the decision-making process. Key to this was providing a broad and accessible knowledge-base of recorded archaeological sites. National records were available as the Ordnance Survey Index of Archaeological Sites, established on a systematic basis in 1951 (Darvill & Fulton 1998: 59–61), and the National Monuments Record established by the Royal Commission on the Historical Monuments of England in 1963 (Aberg & Leech 1992; Fowler 1981: 107; RCHME 1993). Staffordshire County Council appointed an archaeologist to the county planning department in 1959 (Barratt 1966), while the first county-based sites and monuments record was established in Oxfordshire in 1965 (Benson 1972). Together these initiatives provided a model for future development across the country. The Walsh Report of 1969 encouraged county councils to appoint archaeological officers and establish local records (Walsh 1969: 26–7), so that by 1975 nearly half the counties in England had direct access to a local Sites and Monuments Record (Baker 1983; Burrow 1985). The early development of these new approaches to what, by 1975, was already being referred to as the 'historic environment', and its relationship to town and country planning, is well documented by the papers presented at two seminars held in Oxford organised by Trevor Rowley and Mike Breakell (Rowley & Breakell 1975; 1977). Over the following decade, and with the support of successive government agencies, the remaining counties followed suit with the last piece in the jigsaw tapped into place in Kent in 1989.

In theory all should have been well. Section 17 of the *Town and Country Planning Act 1932* established that planning authorities (at that time Urban and Rural District Councils) could, subject to the approval of the Minister of Health, include in their schemes protection for buildings and other monuments of archaeological interest and importance. It was a principle included in later iterations of the planning acts down to the *Town and Country Planning Act 1990*, but rarely used. The presence of county archaeologists to advise the members of their authority's planning committee, and the availability of archaeological records and published surveys and development studies to underpin their arguments, helped set the stage for change. But it was three problematic high-profile large-scale development sites with rich archaeological remains that revealed the inherent weaknesses of the system and prompted action. First was the palatial Roman building discovered on the Queen's Hotel site in York in 1988 with little time and inadequate funding for its full investigation and recording (Cleere & Marchant 1989). Next was the case of Huggin Hill, London, where the remains of a well-preserved and extensive Roman bath block came to light in January 1989. Partial excavation, modifications to the piling layout to reduce the impact of the development, and burial of the site under a protective layer of sand became the agreed solution after much debate (Anon 1989; Shelbourn 1989). And finally there was the site of the Rose Theatre in Southwark, London, first revealed in December 1988. By May the following year the structures found there had engendered widespread public debate about whether the remains should be preserved out of sight under the proposed development, fully or partially excavated, or protected in a way that would allow further investigation and display in future (Biddle 1989; Wainwright 1989). In response to these cases, Virginia Bottomley, then the Heritage Minister, announced in May 1989 the Government's intention to introduce guidance on archaeology in planning. A consultation draft of what became PPG16 was issued in February 1990 with the final document published nine months later in November 1990 (DoE 1990).

The European dimension

Archaeological policy and approaches in Britain are, to a greater or lesser extent, influenced by international agreements, especially those developed and approved by European bodies. At a meeting in London on 6 June 1969 the Council of Europe, at that time a body representing 18 European states, opened for signature the *European Convention on the Protection of the Archaeological Heritage* (CoE 1969). The convention was later revised and again opened for signature in Valletta, Malta, in January 1992 (CoE 1992). It is now generally known as the Malta Convention and by the end of 2010 had been adopted by 41 out of the 47 member states of the Council of Europe at that time. The UK government ratified it in September 2000 and it came into force in the UK in March 2001. This convention, and its implications for individual states, has been widely discussed (Dries 2011; Haas & Schut 2014; O'Keefe 1993; Trotzig 1993; Willems 2007). It is complemented by a series of other agreements and recommendations resulting from the work of various committees and groups of experts convened by the Council of Europe, including the *Convention for the protection of the architectural heritage of Europe,* adopted in 1985 (CoE 1985), the *Recommendation on the integrated conservation of cultural landscape areas as part of landscape policies* adopted in 1995 (CoE 1995), and the *European Landscape Convention* opened for signature in Florence in October 2000 (CoE 2000). Together with others, these documents provide a robust framework, at a European scale, within which to situate approaches to archaeological resource management. Although daunting in

their presentation and proliferation, these conventions and recommendations are important in the way they harmonise and communicate core ideals.

The doctrinal setting of much of what is contained in recent Council of Europe conventions and recommendations is contained in the *Charter for the Protection and Management of the Archaeological Heritage,* prepared by the International Committee on Archaeological Heritage Management and ratified by the General Assembly of its parent body, ICOMOS, in Lausanne in 1990 (ICAHM 1990; Biörnstad 1989; Cleere 1993). This document also had a strong influence on the content of PPG16.

To date the European Union has not issued a Directive dealing explicitly with archaeological matters, but certain aspects of what is contained in PPG16 derive from the principles underpinning *Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment* adopted in Brussels on 27 June 1985 and first implemented in the UK by the *Town and County Planning (Assessment of Environmental Effects) Regulations 1988 (SI 1199)*. As will be discussed in Chapter 4, environmental assessment regulations expanded considerably during the PPG16 Era with archaeological and heritage considerations included within environmental impact assessment applied to particular projects and, since 2004, to strategic environmental assessment.

Planning is a matter that the European Union is peripherally involved with, although something that might become of more central concern is linking heritage to the idea of sustainable development and well-being (CEU 2014). Previous work in this area though is patchy. The provisional identification of seven inter-state planning areas within the European Union (Darvill 1997) to provide a wide perspective on strategic planning did not make the impact initially imagined, although at regional level there is a fair degree of convergence in thinking and practice. Regionally this is well illustrated by the PLANARCH Project established in 1999 under the European Union's Interreg IIC programme for the North West Metropolitan Area that included Kent and Essex as one of five comparative regions around the southern North Sea Basin. The results show both similarities and differences in arrangements for the integration of archaeology and planning between the four adjoining EU member states (Cuming *et al.* 2001). Similarly, on a broader scale, the Discovering the Archaeologists of Europe project backed by the European Commission through the Leonardo da Vinci II fund provides a snap-shot of the professional arrangements and labour market for archaeology in *c*.2007–08 for 12 out of the 27 member states of the European Union at that time. Collectively, these studies show very different articulations in the way planning, development, and the protection of archaeological sites come together (Aitchison 2008).

November 1990: A new dawn

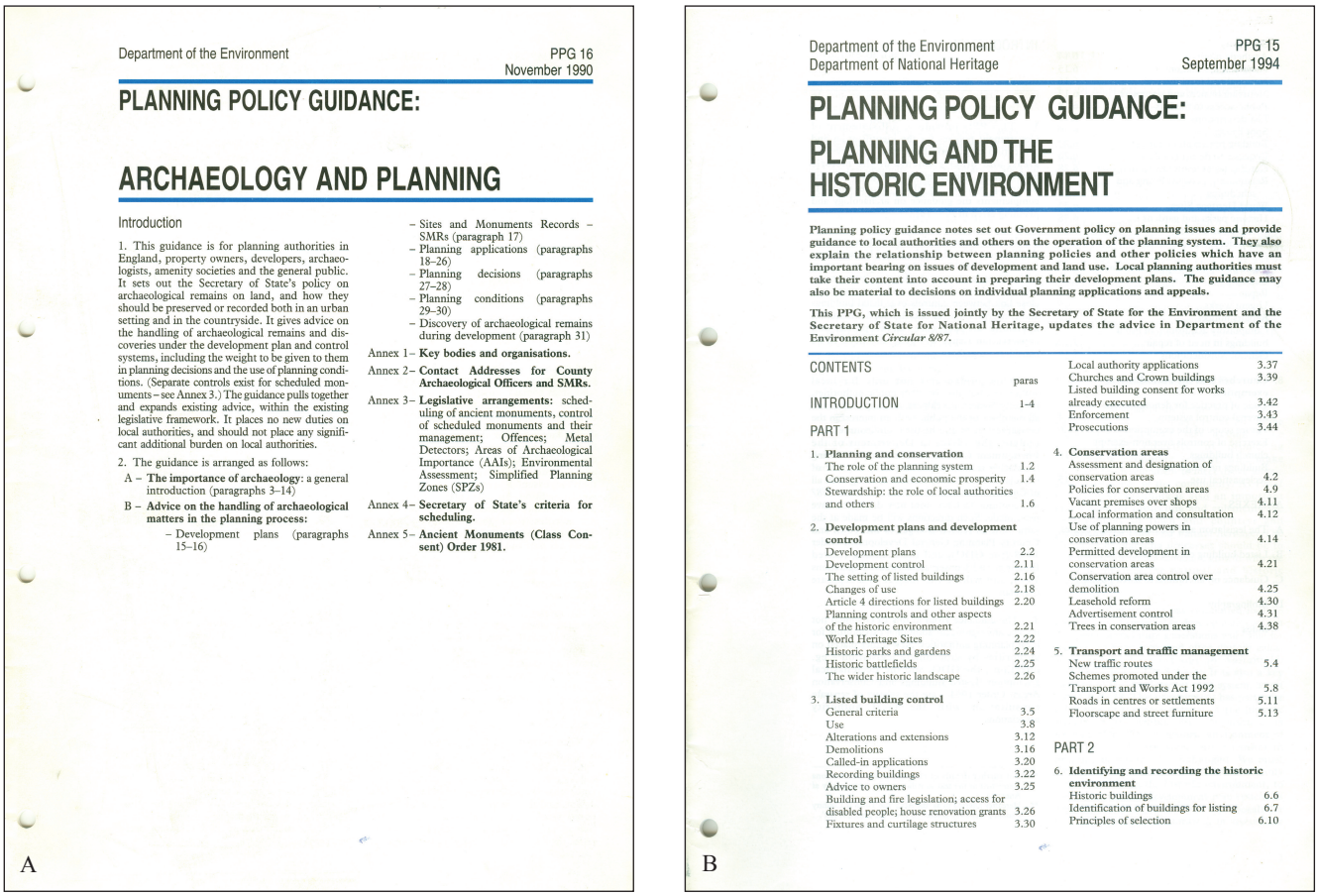
For many archaeologists Wednesday 21 November 1990 has become a red-letter day in the history of the discipline. This was not because of the heated debates in London about Margaret Thatcher's premiership after 11 years in office that led to her resignation the following morning, but rather because 250 km to the north, in Lincoln, the Heritage Minister, Baroness Blatch, formally launched PPG16 at the annual conference of the English Historic Towns Forum (EHTF 1990; Wainwright 2000: 926). As noted above, this relatively short document (Figure 1.2A) gave new impetus to archaeological work across England by formalising its place in strategic planning and by creating a system within which archaeological data contributed to informed decision-making for development control (later known as 'development management').

The implications of PPG16 quickly spread far and wide, its main messages being trumpeted in the archaeological trade press and beyond (*e.g.* Redman 1990; Scarse 1991). Early reviews of its impact and effectiveness were carried out in 1991 (Pagoda Projects 1992) and 1994 (Roger Tym & Partners 1995), quantifying for the first time the extent to which archaeological considerations impinged on the planning process (Wainwright 1995: 21). Subsequent reviews illustrate a wider range of perspectives on the longer-term value and impact of PPG16 (*e.g.* Manley 1993; Pugh-Smith 2000; Roe 1995) most of which are generally positive. But not everyone was happy with the way that PPG16 began restructuring the archaeological process, and some argued fervently that it would reduce the value of archaeological research (Bishop 1994; Carrington 1993; Carver 1994; Graham 1992; Hinton 1992; Morris 1993; 1994a; 1995; 1998a; 1998b).

For developers, the great value of PPG16 lay in providing a set of approaches that reduced risk in bringing projects to fruition on time and within budget. But its impact can also be seen in the rapid evolution of professional practice through the early 1990s (Aitchison 1999; 2012; Darvill 1999; 2006; 2012; Pickering 2002). Across the discipline there was a much greater focus on role definition, with the consolidation of three roles in particular:

- Curators: managers of the historic environment at local, regional, and national levels
- Contractors: investigators of the historic environment
- Consultants: facilitators of resource management, investigation, and development

Within local planning authorities the role of curator was generally split between the authority's archaeological officer and the sites and monuments record officer/ historic environment records officer. The arrangement and jurisdiction of local planning authorities across England changed a little over the period between 1990 and 2010



Department of the Environment PPG 16 November 1990

PLANNING POLICY GUIDANCE:

ARCHAEOLOGY AND PLANNING

Introduction

1. This guidance is for planning authorities in England, property owners, developers, archaeologists, amenity societies and the general public. It sets out the Secretary of State's policy on archaeological remains on land, and how they should be preserved or recorded both in an urban setting and in the countryside. It gives advice on the handling of archaeological remains and discoveries under the development plan and control systems, including the weight to be given to them in planning decisions and the use of planning conditions. (Separate controls exist for scheduled monuments – see Annex 3.) The guidance pulls together and expands existing advice, within the existing legislative framework. It places no new duties on local authorities, and should not place any significant additional burden on local authorities.

2. The guidance is arranged as follows:

A – **The importance of archaeology**: a general introduction (paragraphs 3–14)

B – **Advice on the handling of archaeological matters in the planning process:**
- Development plans (paragraphs 15–16)
- Sites and Monuments Records – SMRs (paragraph 17)
- Planning applications (paragraphs 18–26)
- Planning decisions (paragraphs 27–28)
- Planning conditions (paragraphs 29–30)
- Discovery of archaeological remains during development (paragraph 31)

Annex 1 – **Key bodies and organisations.**

Annex 2 – **Contact Addresses for County Archaeological Officers and SMRs.**

Annex 3 – **Legislative arrangements:** scheduling of ancient monuments, control of scheduled monuments and their management; Offences; Metal Detectors; Areas of Archaeological Importance (AAIs); Environmental Assessment; Simplified Planning Zones (SPZs)

Annex 4 – **Secretary of State's criteria for scheduling.**

Annex 5 – **Ancient Monuments (Class Consent) Order 1981.**

A

Department of the Environment
Department of National Heritage
PPG 15
September 1994

PLANNING POLICY GUIDANCE:

PLANNING AND THE HISTORIC ENVIRONMENT

Planning policy guidance notes set out Government policy on planning issues and provide guidance to local authorities and others on the operation of the planning system. They also explain the relationship between planning policies and other policies which have an important bearing on issues of development and land use. Local planning authorities must take their content into account in preparing their development plans. The guidance may also be material to decisions on individual planning applications and appeals.

This PPG, which is issued jointly by the Secretary of State for the Environment and the Secretary of State for National Heritage, updates the advice in Department of the Environment *Circular 8/87*.

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Figure 1.2 Planning Policy Guidance Notes. ***A****. PPG16 published in November 1990.* ***B****. PPG15 published in September 1994.*

(*see* Chapter 2), while the number of posts working in this sector of the discipline expanded from an estimated 605 FTE in 1998 to 724 in 2008 when local authority curatorial staff represented about 18 per cent of the archaeological workforce (Aitchison & Edwards 2008: 19 and 39). Of these about 407 FTE were directly involved in giving archaeological advice to local authorities in England in 2006 (HE *et al.* 2017: 1).

Giving developers responsibility for providing background archaeological materials as part of a planning application, and for facilitating and funding agreed mitigation measures, inevitably led to a steady expansion of commercial archaeology. It has been estimated that in 1998 there were around 93 private-sector archaeological contractors and consultancies employing around 1341 staff, but by 2008 this had risen to an estimated 620 organisations with more than 3504 staff representing nearly 60 per cent of the archaeological workforce (Aitchison & Edwards 2008: 19, 35, 39 and 121).

PPG16 formed part of a broad panoply of documentation to support, expand, explain, and operationalise the *Town and Country Planning Act 1990* that provided the enabling legislation for a tightly structured multi-tier approach to spatial planning and development control. When it was published there were already guidance notes covering such matters as Green Belts (PPG2), telecommunications (PPG8), and unstable land (PPG14). PPG16 on archaeology and planning was the first to deal explicitly with the conservation of particular resources but was followed in September 1994 by *PPG15: Planning and the Historic Environment* (DoE 1994a – the illogical numbering in relation to the date of issue is because document numbers were re-used after a piece of guidance was withdrawn). This dealt with Listed Buildings, Conservation Areas, and World Heritage Sites, and gave local planning authorities the powers to treat historic buildings in much the same way as archaeological sites (Figure 1.2B). Strangely, although developers can be required to provide surveys of buildings with their applications, and carry out mitigation works as a condition of planning consent, relatively few such investigations actually happened between 1990 and 2010 (*see* Chapter 3).

Despite amendments to the primary town and country planning legislation set out in 1990, and numerous policy and practice reviews over the period 1990 to 2010 (*see* Figure 1.3 for summary), PPGs 15 and 16 remained current until March 2010 when, as part of a rationalisation of planning guidance, they were combined and shortened to form *Planning Policy Statement 5: Planning for the*

*Figure 1.3 Timeline showing selected key legislation, reviews and policy documents in relation to organisational changes and AIP activities. **A**: 1990–2004. **B**: 2005-2015.*

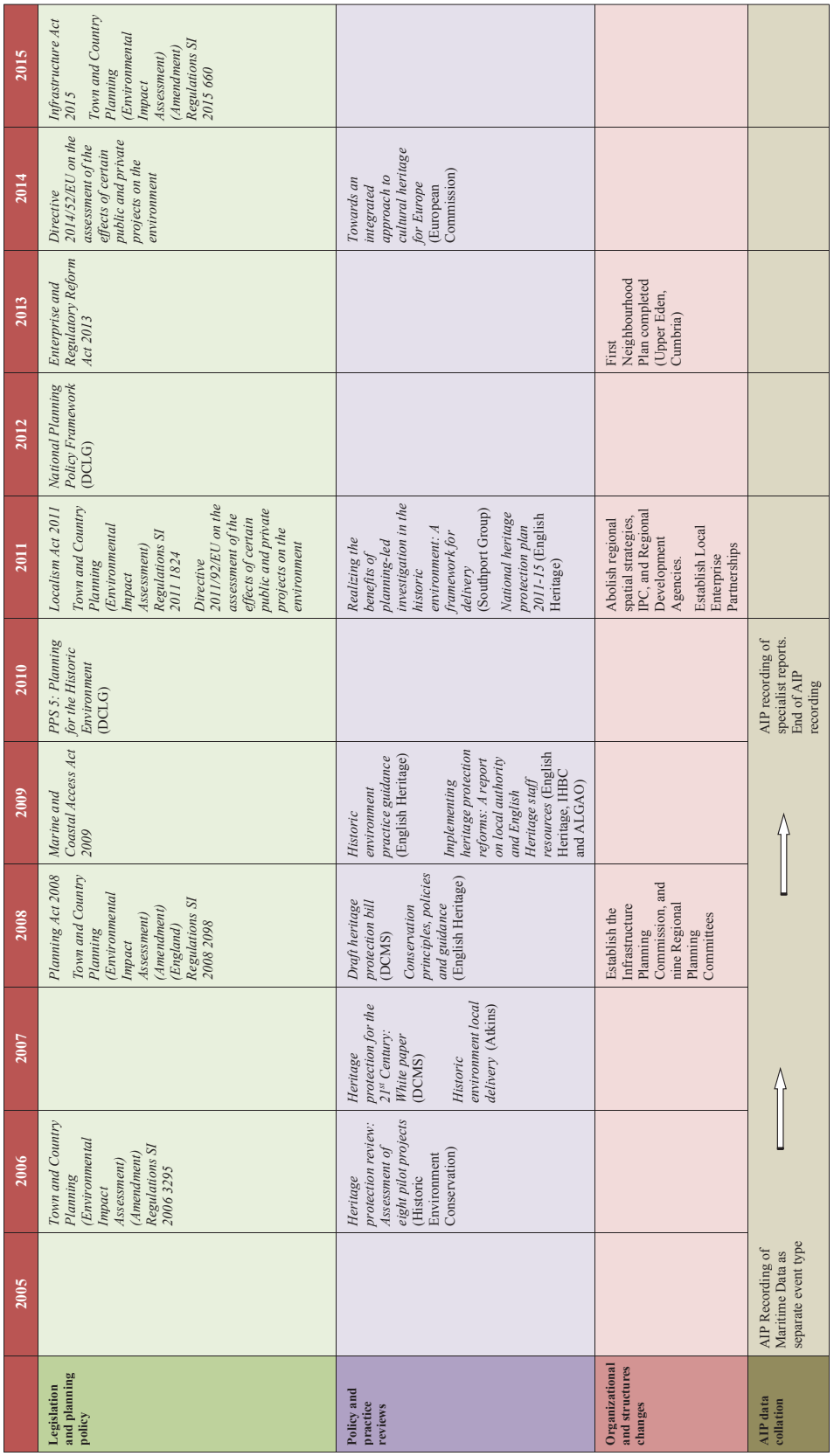

Figure 1.3 Timeline showing selected key legislation, reviews and policy documents in relation to organisational changes and AIP activities. ***A****: 1990–2004.* ***B****: 2005-2015.*

Historic Environment (DCLG 2010). The main document was accompanied by a planning practice guide (EH 2010). Two years later, on 27 March 2012, most of the individual subject-specific policy guidance statements were swept away and replaced by a comprehensive unified *National Planning Policy Framework* (DCLG 2012a) as part of a review aimed at simplifying the planning system and stimulating sustainable development (*see* Chapter 10). Six years on, and following a review by Government officers, it is anticipated that a revised framework will be issued for consultation in spring 2018 (Dewar 2018: 19).

Changing political philosophies

Archaeology and politics have always been closely connected. During the PPG16 Era there were significant shifts in political philosophy and public policy that, controversially, changed perspectives on the nature and value of archaeological remains. In turn this changed the purpose of endeavours to investigate and manage them, the way investigations were funded and carried out, and the status and roles of the individuals and organisations involved in all aspects of the profession (Aitchison 2012; Darvill & Holbrook 2008; Edgeworth 2003; Everill 2007; 2009; Everill & Irving 2015; Kristiansen 2009). It is an inexorable process that continues today, is often hard to keep pace with, and as a dynamic, contested, and negotiated set of relationships can really only fully be understood in retrospect.

During the 1980s archaeological resource management embraced and developed responses to two main politically charged ways of thinking. First was 'cultural relativism' and the recognition that the Western Gaze gave a distorted view of the past by perpetuating an essentially imperialist view of heritage in which there was just one view on how it should be looked after and what it all meant (Smith 2006: 29). David Lowenthal memorably referred to the 'past as a foreign country' in his book of the same name, arguing forcefully that the past had ceased to be a sanction for inherited power or privilege, but rather had become a focus for personal and national identity and a bulwark against distressing change (Lowenthal 1985). Second was the idea of 'sustainability': the reconciliation of the desire to achieve economic development in order to secure higher standards of living now and for future generations with the need to protect and enhance the environment both now and in the longer term (Brundtland Commission 1987). Such perspectives were comprehensively endorsed at the UN Conference on Environment and Development held in Rio de Janeiro, Brazil, in June 1992, the so-called Earth Summit (UN 1992). By that time the UK government had already outlined its strategic aims (HMG 1990) and was working towards the practical realisation of key ideas such as the 'precautionary principle', 'environmental capital', and the 'polluter pays principle' (HMG 1994: 32–34), the latter now reframed as the 'agent of change principle'. Working out the application of sustainability within the heritage sector involved forging a close link to the so-called Green Debate (Coles 1990; Greeves 1989; Pryor 1990; Macinnes & Wickham-Jones 1992). In a specifically archaeological context sustainability was taken to mean making good and appropriate use of heritage resources for the needs of today without compromising the ability of future generations to do the same.

Responding to these challenging new ways of thinking had a big impact on archaeology in general (Carver 1984; Hodder 1984) and archaeological resource management in particular (Cleere 1984). But both cultural relativism and sustainability were, in a sense, middle-range theories that provided the tools to mediated high-level political philosophy with day-to-day solutions in order to actually deal with the heritage in terms of land-use planning, investigation, interpretation, visitor management, education programmes, and public access. Looking across the PPG16 Era three successive overarching high-level political philosophies can be discerned and are considered briefly in the following sub-sections.

Monetarism

In its purest form, monetarism is an economic policy that emphasises the central role of governments in controlling the amount of money in circulation, a position advocated strongly by Milton Friedman (Friedman 1970). It was eagerly applied by Margaret Thatcher's centre-right Conservative administration from 1979 through to 1990, and beyond to 1997 under John Major. Such thinking cascaded out into wider policy initiatives to encourage, for example, a belief in the efficiency of free market forces and from there to the creation of 'markets' in services and facilities that were previously considered the preserve of the state. Thus, many state monopolies were privatised during this period, and government agencies externalised with a semi-commercial remit. The organisation of state support for archaeology was swept up in these changes, first articulated in a paper by Michael Heseltine when he was Secretary of State for the Environment (DoE 1982). As a result, English Heritage was created in 1983–84 to take over the government's responsibilities for archaeology in England, one of the many new bodies branded as quasi-autonomous governmental organisations or QUANGOs. Competition was seen as beneficial, and individual achievement the goal. Under such conditions the remains of the past were branded resources – 'archaeological resources' – while what was more broadly termed 'heritage' became something that could be quantified, commodified, and commercialised (Fowler 1992; Hewison 1987). It was within the social and political environment created by monetarism that PPG16 was born, articulating a Conservative agenda and providing a new vocabulary. As

Flatman and Perring (2012: 4) have suggested, it allowed the objectives of rescue archaeology to be achieved while decreasing dependence on state funding to do it.

Instrumentalism

From the late 1990s, at least within the centre-left political systems widespread across Europe and North America at the time (including Tony Blair's and then Gordon Brown's Labour administration in Britain between 1997 and 2010), the idea of monetarism was overtaken by an approach known as 'instrumentalism'. Based on the American philosopher John Dewey's ideas of pragmatism (Dewey 1927), this perspective promoted actions or activities not because they are useful or interesting in their own right but because they are tools or instruments of the state in the attainment of wider ambitions in the realm of human experience (Belfiore 2012; White 1943). Such experiences are not simply a sensory state of 'happiness' but an aesthetic dimension of life in which the individual citizen optimises their potential as a member of a global society in an environment that is stable, just, secure, and sustainable. In such a light the remains of the past were seen as dimensions of the wider environment as a whole – the 'historic environment'.

At the European level such thinking harmonised with deeply embedded principles of democratisation, subsidiarity of decision-making, and heritage as collective cultural identity enunciated in the *Treaty on European Union* signed in Maastricht in 1992 (EU 1992: Art. 128) and later strengthened slightly by revisions and amendments passed in Amsterdam in 1997, Nice in 2001, and Lisbon in 2007 (EU 2012: Arts. 3, 107, and 167). It can also be seen in the hugely influential 'Power of Place' debate initiated by English Heritage in 2000 that focused interest on the future of the historic environment, its role in people's lives, and its contribution to the cultural and economic well-being of the nation (Clark 2006a; DCMS 2001; English Heritage 2000a; 2000b). Instrumentalism was also core to the idea of informed conservation (Clark 2001), culturally-led regeneration, and the promotion of sustainability connected to well-being (Jowell 2005).

Localism

By the end of the PPG16 Era, and partly hastening its end, a third philosophy was gestating and gaining ground: 'localism'. Although localism is sometimes seen as the antithesis of globalism, it is in fact simply an approach that prioritises local interests as a counterbalance to regional and centralised governance; the opposite of a unitary state. It was a way of thinking promoted by the Conservative/Liberal Democrat Coalition led by David Cameron and Nick Clegg following the 2010 general election and became central to their policies (DCLG 2011). Key for archaeology is the way that localism promotes local history, local culture, and local identity through community control over some aspects of governance and the neighbourhood production and consumption of goods and services. Closely allied to it is the idea of the 'Big Society' which is about putting power into people's hands, transferring power from Whitehall to local communities, and encouraging and enabling people to play an active role in society. In this way of thinking the remains of the past are seen as assets – 'heritage assets' – that should be treasured and valued, and used to meet social commitments. Fragmentation and diversity can be a consequence of localism, and analysis by Anthony Sinclair (2016) has revealed a segmentation of archaeological knowledge and practice during the period 2004 to 2013, with multiple repeated forms of engagement in archaeological enquiry.

The culmination of policy development on these matters was the *Localism Act 2011* that made a number of changes to the town and country planning system, including: the abolition of Regional Strategies and the Infrastructure Planning Commission; the encouragement of Neighbourhood Development Plans and community rights to build communal facilities; reforms to the Community Infrastructure Levy and the way Local Plans are constructed; and new powers of representation for the determination of planning applications. By March 2017 some 300 Neighbourhood Plans had been passed at referendum and 280 were in force in England (DCLG 2017a: 9). The *Housing and Planning Act 2016* and the *Neighbourhood Planning Act 2017* aimed to speed up and simplify the process of making and approving Neighbourhood Plans so a further acceleration of completed plans is expected through to the end of the decade.

It is these approaches that led to the simplification of planning guidance, including the consolidation of PPGs 15 and 16 as PPS5, the subsequent withdrawal of PPS5, and the consolidation of policy statements about the historic environment within Section 12 of the *National Planning Policy Framework* (DCLG 2012a: 30–32). At the time of writing it seems likely that localism will steer approaches to archaeological investigations for some time to come (*see* Chapter 10).

The need for a systematic record of archaeological endeavour

Whether seen as a resource, a dimension of the environment, or an asset, archaeological remains variously preserved in the form of above-ground, below-ground, or submerged objects, works, structures, and deposits have been systematically investigated and recorded for centuries. The publication of annual listings of the archaeological investigations undertaken in Britain is nearly as old. In 1846 the Archaeological Institute of Great Britain and Ireland (now the Royal Archaeological Institute) started a section entitled 'Archaeological intelligence' in the third volume of their journal. Based on submissions from regional

correspondents, it continued through to volume 51 published in 1894, although sporadically and with rather thin content in later years. In the early twentieth century the Earthworks Committee of the Congress of Archaeological Societies included within its annual report sections devoted to 'Record and Discovery' and 'Excavation' events. These reports were published from 1903 down to 1939 (from 1931 to 1939 as the report of the Research Committee), and contain much valuable information.

Nothing similar was produced in the years immediately following the Second World War, but from the late 1940s the Council for British Archaeology (CBA) produced an annual listing of publications known as the *Archaeological Bulletin for the British Isles* that in 1950 morphed into the *Archaeological Bibliography for Britain and Ireland*. Later still, *Archaeology in Britain* published between 1967 and 1992 became an established source of information about recent and ongoing work, although its coverage focused on, and was structured around, the work of the CBA's member organisations and institutions rather than particular sites and projects.

In 1961 the then Ministry of Public Building and Works began publication of *Excavations: Annual Report*, an annual round-up that was continued by its successor the Department of the Environment down to 1976. Although coverage was limited to projects funded by central government, in practice this meant that a high proportion of archaeological work undertaken at the time was listed and the results summarised.

Some of the major learned societies also publish annual listings of work falling within their particular academic areas of interest. The *Journal of Roman Studies* was one of the first in the field with listings from 1921 through to 1969 when the section, that still continues, was moved to the newly created journal *Britannia*. The journal *Medieval Archaeology* has carried a section dealing with recent work annually since 1957; *Post-Medieval Archaeology* has done the same since its first publication in 1967. Nothing so comprehensive emerged for prehistoric archaeology, although the *Proceedings of the Prehistoric Society* carried a section entitled 'Notes on excavations in England, the Irish Free State, Northern Ireland, Scotland and Wales' from 1935 through to 1939, and more recently a section containing summary excavation reports for most years between 1977 and 1985. The *Archaeological Journal*, published by the Royal Archaeological Institute, attempted a more synthetic approach between 1974 and 1978 with an annual overview of 'British Antiquity' based on new discoveries and publications.

Many county and local archaeological journals carry listings of discoveries and summaries of projects within their geographical areas of interest, some of which started well before the PPG16 Era. The Woolhope Naturalists Field Club, for example, began recording archaeological work in a dedicated section within its *Transactions* in 1914; Leicester Archaeological and Historical Society started its listing of archaeological investigations in 1952; *Wiltshire Archaeological and Natural History Magazine* started its 'Register' in 1956; and the *Transactions of the Bristol and Gloucestershire Archaeological Society* started its 'Review' in 1977. At a broader scale, many regional groups of the Council for British Archaeology publish lists of recent work in their newsletters or annual reviews. Nationally, however, coverage is patchy as the provisional listing in Table 1.1 reveals.

All of these summaries and reviews provide invaluable sources of information about projects and discoveries, and in general serve defined readerships very well. They are important both for the time at which they are published and retrospectively as reference works and indicators of the historical context within which work took place. Indeed, for a variety of reasons, some of these summaries are all that is known about investigations that were never adequately published. The reality, however, is that for the period since 1939 there has never been a comprehensive, one-stop, easily accessible, published summary of completed and ongoing archaeological work in England. Trying to stitch together what does exist in piecemeal summary listings is not easy, and in any case does not provide a complete picture.

Approached from another direction, information about recent investigations is contained in publicly accessible archaeological records of various kinds. At one geographical scale these are represented by local-authority based sites and monuments records (SMRs) also known as historic environment records (HERs), whose development since the early 1970s has been one of the great achievements of British archaeology (Benson 1972; Burrow 1985; RCHME 1995; RCHME *et al.* 1998; Robinson 1999). Some are up to date and easily accessible, but it is widely recognised that there is much regional variation in what is recorded, a significant lag-time in the addition of new information to the records (Baker & Baker 1999: 25), and great variety in the ease with which they can be searched and accessed (DCMS 2008). At a national scale, the Royal Commission on the Historical Monuments of England (RCHME) began the creation of an Excavations Index to form part of the National Monuments Record in 1978, and this continued when RCHME was merged with English Heritage in 1999. Several years in the making, this incorporated records created and held by the Ordnance Survey and became an important source because of the historical depth that could be achieved by drawing on archaeological records stretching back several centuries. Its coverage, however, relies heavily upon the completeness of earlier records and the availability of information submitted for inclusion.

The need for easily accessible summary accounts of archaeological work in England became all the more necessary as the pace and scale of archaeological activity increased through the later part of the twentieth century. There is a common need, shared by archaeologists in all sectors of

Table 1.1 Summary of county and regional archaeological journals with annual listings of archaeological investigations within their collecting area during all or part of the PPG16 Era.

County / Unitary Authority	Journal	Investigations Listing
London	Transactions of the London and Middlesex Archaeological Society	X
	The London Archaeologist	X
Metropolitan counties (6)		
Greater Manchester	Transactions of the Lancashire and Cheshire Antiquarian Society	X
Merseyside	Merseyside Archaeological Society Journal	X
South Yorkshire	Yorkshire Archaeological Journal	X
Tyne & Wear	Archaeologia Aeliana	X
West Midlands	Transactions of the Birmingham & Warwickshire Archaeological Society	X
	West Midlands Archaeology	✓
West Yorkshire	Yorkshire Archaeological Journal	X
Non-Metropolitan counties (27)		
Buckinghamshire	Records of Buckinghamshire	X
	South Midlands Archaeology	✓
Cambridgeshire	Proceedings of the Cambridge Antiquarian Society	✓
Cumbria	Transactions of the Cumberland and Westmoreland Antiquarian and Archaeological Society	X
Derbyshire	Derbyshire Archaeological Journal	X
Devon	Proceedings of the Devon Archaeological Society	X
Dorset	Proceedings of the Dorset Natural History and Archaeological Society	✓
East Sussex	Sussex Archaeological Collections	X
Essex	Transactions of the Essex Archaeological Society	?
Gloucestershire	Transactions of the Bristol and Gloucestershire Archaeological Society	✓
Hampshire	Proceedings of the Hampshire Field Club and Archaeological Society	X
Hertfordshire	Hertfordshire Archaeology	✓
Kent	Archaeologia Cantiana	✓
Lancashire	Transactions of the Lancashire and Cheshire Antiquarian Society	X
Leicestershire	Transactions of the Leicestershire Archaeological and Historical Society	✓
Lincolnshire	Lincolnshire History and Archaeology	X
Norfolk	Norfolk Archaeology	X
North Yorkshire	Yorkshire Archaeological Journal	X
Northamptonshire	Northampton Archaeology	✓
	South Midlands Archaeology	✓
Nottinghamshire	Transactions of the Thoroton Society Nottinghamshire	✓
Oxfordshire	Oxoniensia	X
	South Midlands Archaeology	✓
Somerset	Proceedings of the Somerset Archaeological and Natural History Society	✓
Staffordshire	Transactions of the South Staffordshire Archaeological and Historical Society	X
	West Midlands Archaeology	✓
Suffolk	Proceedings of the Suffolk Institute of Archaeology and History	✓
Surrey	Surrey Archaeological Collections	✓

Table 1.1

County / Unitary Authority	Journal	Investigations Listing
Warwickshire	Transactions of the Birmingham & Warwickshire Archaeological Society	X
	West Midlands Archaeology	✓
West Sussex	Sussex Archaeological Collections	X
Worcestershire	Transactions of the Worcestershire Archaeological Society	X
	West Midlands Archaeology	✓
Unitary Authorities		
Bath and NE Somerset	Proceedings of the Somerset Archaeological and Natural History Society	✓
Bedford	Bedfordshire Archaeology	X
	South Midlands Archaeology	✓
Blackburn with Darwen	Transactions of the Lancashire and Cheshire Antiquarian Society	X
Blackpool	Transactions of the Lancashire and Cheshire Antiquarian Society	X
Bournemouth	Proceedings of the Dorset Natural History and Archaeological Society	✓
Bracknell Forest	Berkshire Archaeological Journal	X
Brighton and Hove	Sussex Archaeological Collections	X
Bristol	Transactions of the Bristol and Gloucestershire Archaeological Society	✓
	Bristol and Avon Archaeology	X
Central Bedford	Bedfordshire Archaeology	X
	South Midlands Archaeology	✓
Cheshire East	Journal of the Chester Archaeological Society	X
Cheshire West & Chester	Journal of the Chester Archaeological Society	X
Cornwall	Cornish Archaeology	✓
Darlington	Transactions of the Architectural and Archaeological Society of Durham and Northumberland	X
Derby	Derbyshire Archaeological Journal	X
Durham	Transactions of the Architectural and Archaeological Society of Durham and Northumberland	X
East Riding of Yorkshire	Yorkshire Archaeological Journal	X
Halton	Journal of the Chester Archaeological Society	X
Hartlepool	Transactions of the Architectural and Archaeological Society of Durham and Northumberland	X
Herefordshire	Transactions of the Woolhope Club	✓
	West Midlands Archaeology	✓
Kingston upon Hull	Yorkshire Archaeological Journal	X
Leicester	Transactions of the Leicestershire Archaeological and Historical Society	✓
Luton	Bedfordshire Archaeology	X
	South Midlands Archaeology	✓
Medway	Archaeologia Cantiana	✓
Middlesborough	Yorkshire Archaeological Journal	X
Milton Keynes	Records of Buckinghamshire	X
	South Midlands Archaeology	✓
NE Lincolnshire	Lincolnshire History and Archaeology	X

Table 1.1 Summary of county and regional archaeological journals with annual listings of archaeological investigations within their collecting area during all or part of the PPG16 Era. (Continued)

County / Unitary Authority	Journal	Investigations Listing
North Lincolnshire	Lincolnshire History and Archaeology	X
North Somerset	Proceedings of the Somerset Archaeological and Natural History Society	✓
Northumberland	Archaeologia Aeliana	X
Nottingham	Transactions of the Thoroton Society of Nottinghamshire	✓
Peterborough	Proceedings of the Cambridge Antiquarian Society	✓
Plymouth	Proceedings of the Devon Archaeological Society	X
Poole	Proceedings of the Dorset Natural History and Archaeological Society	✓
Portsmouth	Proceedings of the Hampshire Field Club	X
Reading	Berkshire Archaeological Journal	✍
Redcar and Cleveland	Yorkshire Archaeological Journal	X
Rutland	Transactions of the Leicestershire Archaeological and Historical Society	✓
Shropshire	Proceedings of the Shropshire Archaeological Society (to 1993); Shropshire History and Archaeology (1993 onwards)	X
	West Midlands Archaeology	✓
South Gloucestershire	Transactions of the Bristol and Gloucestershire Archaeological Society	✓
Southampton	Proceedings of the Hampshire Field Club	X
Stockton-on-Tees	Transactions of the Architectural and Archaeological Society of Durham and Northumberland	X
Stoke-on-Trent	Transactions of the South Staffordshire Archaeological and Historical Society	X
Swindon	Wiltshire Archaeological Natural History Magazine	✓
Telford	Proceedings of the Shropshire Archaeological Society (to 1993); Shropshire History and Archaeology (1993 onwards)	X
Thurrock	Transactions of the Essex Archaeological Society	X
Torbay	Proceedings of the Devon Archaeological Society	X
Warrington	Transactions of the Lancashire and Cheshire Antiquarian Society	X
West Berkshire	Berkshire Archaeological Journal	X
Wiltshire	Wiltshire Archaeological Natural History Magazine	✓
Windsor and Maidenhead	Berkshire Archaeological Journal	X
Wokingham	Berkshire Archaeological Journal	X
York	Yorkshire Archaeological Journal	X
Sui generis (1)		
Isle of Scilly	Cornish Archaeology	✓

the discipline, of wishing to know what has happened when and where so as better to inform their work and become alert to the implications of new findings. Not all investigations demand extensive publication, and in the case of minor works with negative or limited positive results, a statement in an annual summary, together with an appropriate report to the relevant SMR/HER, may satisfy professional obligations to publish and make available the results of such work.

Following the increase in developer-funded archaeology through the late 1980s, a project – known as the Assessment of Assessments was commissioned by English Heritage in 1992. Its remit focused on investigations prompted by the town and country planning regulations, namely desk-based assessments, field evaluations, and archaeological components of environmental assessments, carried out between 1982 and 1991 with particular reference to the approaches used (Champion *et al.* 1995), the changing pattern of activity (Darvill *et al.* 1995), and the implications for government policy (Trow 1995). The research raised important questions about methodologies, quality, and standards. It also identified

the growing body of reports and documents that could be considered as 'grey-literature' because distribution was limited to relatively few copies circulated mainly to stakeholder organisations and individuals. One of the conclusions of the Assessment of Assessments project was that:

> *...the circulation and availability of such reports, or of summaries of the results of assessment programmes, are very poor. ... Improving retrieval and accessibility will require a consolidated effort and may be most easily brought about by professionally accepted good practice and peer pressure. ... In the longer term thought might be given to the creation of some kind of national agency to compile an annual gazetteer of desk-based archaeological assessments, field evaluation reports, and archaeological components of environmental statements.* (Darvill *et al.* 1995: 45–46)

Broadly similar conclusions were also reached elsewhere within the discipline. In 1992, for example, a paper on archaeological publication prepared on behalf of the Society of Antiquaries and the Museums Association noted that:

> *...the number of archaeological interventions undertaken each year runs into many hundreds and no complete and consolidated record is kept of them. This is a situation which archaeology as a mature discipline should no longer be prepared to accept.* (Carver *et al.* 1992: 2.3.4)

And from a slightly different perspective, reviews of the first few years of the operation of PPG16 revealed that while the way it was being implemented was generally acceptable to developers it would be appropriate to collect statistical information about its operation to allow periodic review (Roger Tym & Partners 1995: ii and iii; Pagoda Projects 1992).

In response, the English Heritage document *Frameworks for our Past* recognised that 'the creation of comprehensive lists and indices of work in progress should be a priority' not least to underpin the development of national, regional and thematic research frameworks (Olivier 1996: 36). It was a call developed and expanded in a number of subsequent reports and inquiries (APPAG 2003: 34; Bradley & Philips 2004; DCMS 2001: 15; 2004; EH 2000b: 36–38).

What took slightly longer to recognise was the fact that there were three connected dimensions to the problem (*see* Chapter 8). First, the requirement for detailed up-to-date information about individual investigations that had been completed. Second, the need for a more strategic view of the pattern of archaeological activity both diachronically and geographically in England. And third, the need for a central, indexed, and easily accessible archive of unpublished 'grey-literature' reports. In 1994 English Heritage felt that the time was right to rectify the first two dimensions, both for its own information and to document ongoing archaeological practice and achievement within England. The third dimension was added with the creation in 2002 of the Library of Unpublished Fieldwork (popularly known as the Grey Literature Library) in connection with the development of OASIS (Online Access to the Index of Archaeological Investigations), both hosted by the Archaeology Data Service in York (Hardman 2002; 2006; 2009; Richards 2002).

The Archaeological Investigations Project

The Archaeological Investigations Project (AIP) was commissioned by English Heritage from Bournemouth University in 1995, with a series of reviews and revisions taking the project through to 2012. The first task was to back-fill records for the period 1990 to 1995 by supplementing material already collected for the Assessment of Assessments Project (Darvill *et al.* 1994; 1995). Initially the focus was on 'grey literature' reports, but as reporting patterns have changed and the pace of development-led archaeology quickened so the emphasis shifted towards documenting investigations and events using an ever-greater range of sources (Darvill & Hunt 1999a; 1999b). Subsequently, AIP collected data for the years 1996 to 2010 when it was put on pause in order to review the achievements of the previous two decades and take stock of what might be needed in the post PPG16 Era.

Successive iterations of AIP have taken account of the changing landscape of archaeological endeavour and the changing policy context of research commissioned by English Heritage as set out in periodically revised research framework papers. Initially the project was formulated within the objectives of *Exploring our past: strategies for the archaeology of England* (EH 1991a) that continued through to 2005 (EH 1997). From 2005 to 2010 it related explicitly to the realisation of Theme A (Discovering, studying and defining historic assets and their significance) and Theme G (Studying and devising ways of making English Heritage and the sector more effective) in the revised research agenda (EH 2005a: 7; 2005b: 12–13). The final phase of data collection and the preparation of this review related to the *National Heritage Protection Plan 2011–15*, Measure 1: Foresight, Activity Topic 1A: 'Impacts of wider long-term changes (economic, social, environmental); identifying threats to, and opportunities for the historic environment and assets; gathering, collating, and interpreting sector intelligence and agreeing priorities' (EH 2011). Most recently, the preparation of this report contributes to three themes within the Research Strategy set out by Historic England in 2016: Discovering and understanding our heritage and assessing its significance; Understanding risks, change, and opportunities; and Improving and developing heritage information management (HE 2016: 8–9).

Initially, the results of the AIP were published as annual gazetteers covering archaeological work in England from the period 1990 to 1999: nine printed supplements to the *British and Irish Archaeological Bibliography* (AIP Supplements 1–9. ISSN 1462–4052). Copies were distributed free of charge to subscribers of the bibliography, and to others at conferences and meetings. From 2000, the annual gazetteers

were produced only in pdf format available for review or download on-line at http://csweb.bournemouth.ac.uk/aip/aipintro.htm (AIP Supplements 10–21. ISSN 2042–860X). In addition, a web-based searchable database was available between 2000 and 2017 at http://194.66.65.187/index.htm, updated annually to 2010 with new entries and revisions/corrections to existing entries.

Records of investigations and events created by AIP have been incorporated, indexed, and cross-referenced within a range of on-line resources including: the English Heritage Excavations Index (formerly the RCHME Excavation Index) now archived at the ADS (http://archaeologydataservice.ac.uk/archives/view/304/) which itself shared data with other on-line resources such as PastScape, Archsearch, and the Heritage Gateway; the British and Irish Archaeological Bibliography (http://www.biab.ac.uk); and the OASIS record maintained by the Archaeology Data Service (http://oasis.ac.uk/pages/wiki/Main) discussed further below.

In addition to contributions, displays, and papers at conferences and seminars, an overview of archaeological activity in England between 1990 and 1999 based on AIP data was published in 2002 (Darvill & Russell 2002). This report updates the tables and charts in the 2002 publication with additional data and corrections to earlier counts as a result of data editing, correction, and the deletion of occasional duplicate records arising from changes to site-names or the extension of existing projects.

Specifically excluded from the AIP database are events relating to metal detecting and the opportunistic discovery of stray finds (including material defined as Treasure). Discoveries made through such events have been reported to the DCMS since 1997, with greater coverage since 2003 through the Portable Antiquities Scheme (PAS 2004). In the case of Treasure, this is mandated by a recording system set out in the guidelines associated with the implementation of the *Treasure Act 1996* (as revised for England, DCMS 2002). A web-based searchable database is available for the Portable Antiquities Scheme at http://finds.org.uk/.

The AIP has never attempted to collect, archive, or disseminate original documentation in the form of paper-based or digital reports, although it consults both, and where appropriate provides bibliographic sources and links to published and unpublished printed or on-line reports. Maintaining a library of reports is the domain of the Archaeology Data Service (Library of Unpublished Fieldwork Reports) and the network of HERs across England.

AIP and a model of archaeological process

Archaeological research is undertaken by many individuals and organisations for a variety of purposes. There is no single agreed archaeological methodology, although many practitioners share the pursuit of an interpretative archaeology (Andrews *et al*. 2000) whose aim is the creation of 'knowledge'. It is increasingly recognised that several different kinds of knowledge exist, each relevant to different situations and contexts (Darvill 2014; Hodder 1999; *see also* Chapter 8). Central to much archaeological research and knowledge creation is some kind of fieldwork variously involving survey, excavation, and/or the collection of materials and samples for analysis in the workshop or laboratory. How this is done, and what is considered relevant, changes over time as new theoretical perspectives, sharper questions, innovative field practices, and improved equipment and techniques come into play. The majority of archaeological fieldwork carried out in recent decades follows, more or less closely, a simple cyclical process (Figure 1.4) that has become familiar to archaeologists as the 'management cycle' (Andrews & Thomas 1995; Darvill & Gerrard 1990; 1994: 171; EH 1991b). Similar approaches can be detected in planning-related work and in non planning-related situations, although the emphasis given to different stages, the terminology used, and the expected outputs from each stage, vary according to the particular circumstances of individual programmes (Figure 1.5). The main phases in this process applied in either situation accord with the four-fold scheme proposed by English Heritage for the management of archaeological projects (EH 1991b: Figs. 1 and 2) which puts special emphasis on the decision-making and review stages. As explored in Chapter 10, one of the weaknesses of the cycle has also been the final stage, when reporting and reviewing should also lead to the definition of new ideas and new questions. The idea of conflating or even doing away with the stages in archaeological work altogether has been floated by Ottonello (2014), but this misconceives investigation as a monolithic pursuit thereby ignoring both the changing purpose of each stage (*see* Chapter 8) and the reflexivity arising from project reviews.

Building on the main stages of the management cycle it is helpful, for the purposes of trying to understanding what is going on, to recognise three very general and broadly defined **investigation groups** within which most archaeological research can be classified: pre-determination; post-determination; and non development or non planning-related. These groups embrace a series of connected, sometimes sequential, but non-discrete **investigation types** (Table 1.2). Within each investigation type there are one or more discrete i**nvestigatory events**: categorical space-time delimited methodologically defined episodes that provide suitable creator-defined units of record for the purpose of documenting what has happened when, where, by whom, and with what result (Table 1.3). These two last-mentioned categories – investigation types and investigatory events – form the basis of data recording and analysis within the AIP and deserve further consideration.

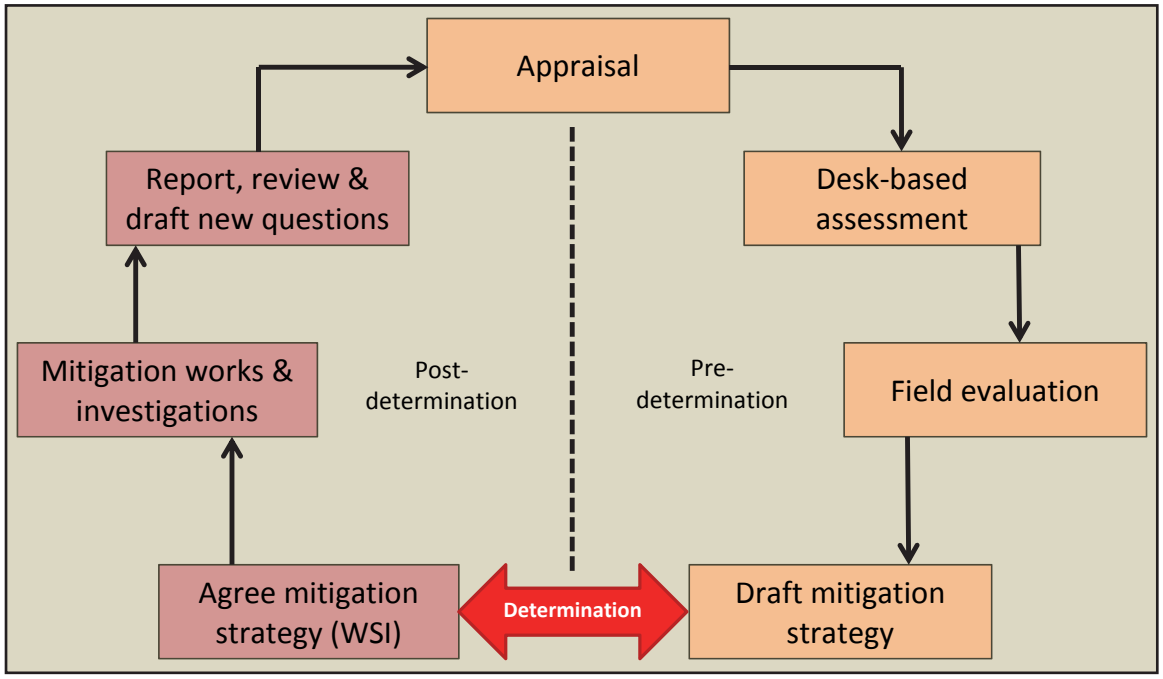

Figure 1.4 Diagram showing an idealised archaeological management cycle. (After Darvill 2004: Fig. 22.1)

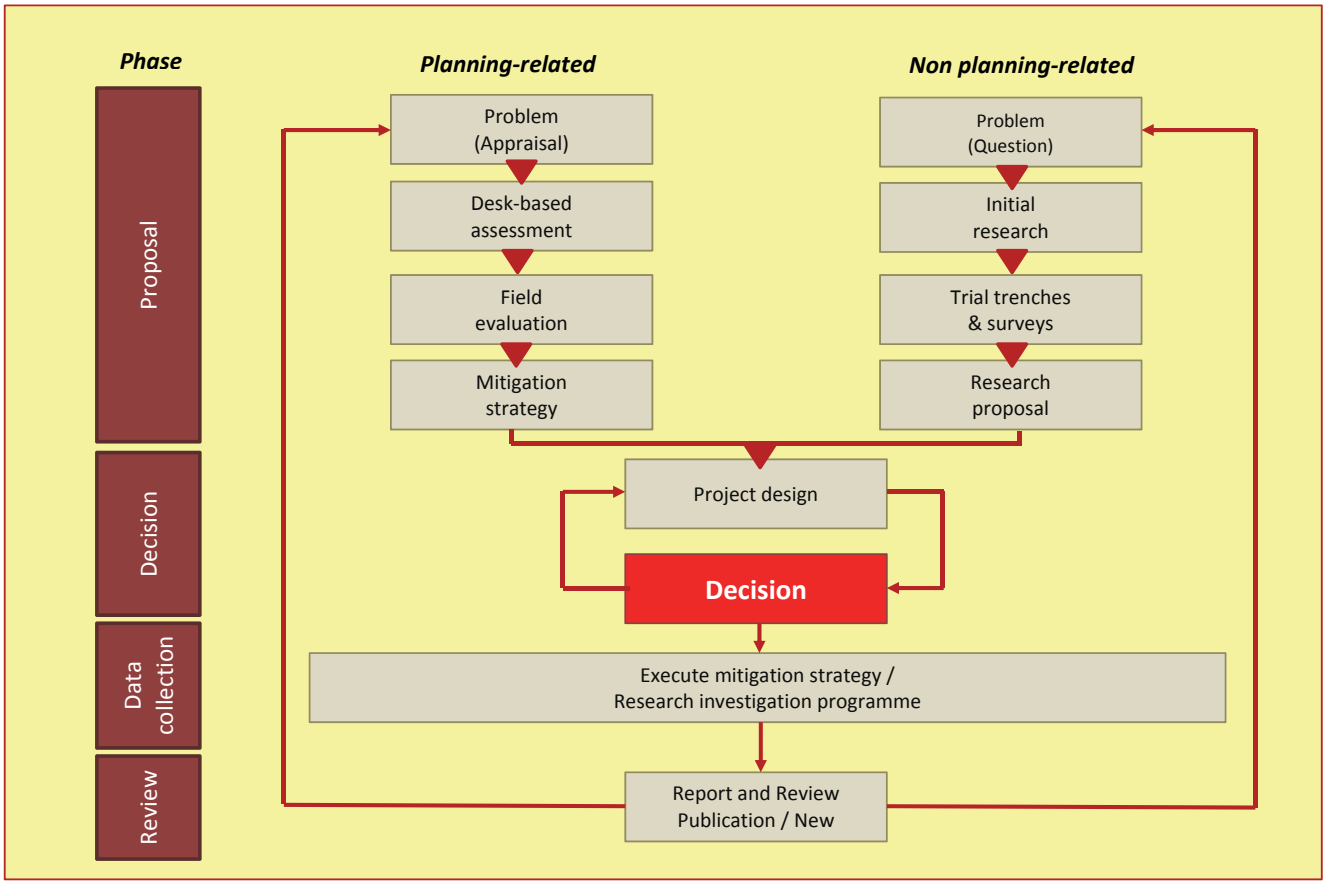

Figure 1.5 Flow diagram showing the idealised progress of archaeological investigations in development-led (planning-related) and non development-led (non planning-related) environments in relation to the key phases in project management set out in the Management of archaeological projects (EH 1991b).

Table 1.2 Summary of defined investigation groups in relation to investigation types.

Investigation Group	Investigation Type
Pre-determination	Appraisal [AIP Listing 1990–99]
	Desk-based Assessment [AIP Listing 1990–2010]
	Field Evaluation [AIP Listing 1990–2010]
	Environmental Impact Assessment [AIP listing 1990–2010]
	Geophysical Survey [AIP listing 2001–2010]
	Estate Management Survey [AIP listing 1995–2010]
	Marine Investigation [AIP listing 2005–2010]
Post-determination	Post-determination Mitigation Investigation [AIP Listing 1990–2010]
	Building Recording Survey [AIP listing 1997–2010]
	Post-Excavation Assessment [AIP listing from 2010]
	Post-Excavation Analysis & Reporting Programme [Not subject to AIP listing]
	Marine Investigation [AIP listing 2005–2010]
Non Planning-related Investigation	Non-development Investigation / Research Investigation [AIP Listing 1990–2010]
	Post-Excavation Assessment [AIP listing from 2010]
	Post-Excavation analysis & Reporting Programme [Not subject to AIP listing]
	Geophysical Survey [AIP listing 2001–2010]
	Marine Investigation [AIP listing 2005–2010]
	Estate Management Survey [AIP listing 1995–2010]

Table 1.3 Summary of the defined investigation types in relation to investigatory events. See Appendix A for definitions of investigation types and investigation events recorded by the AIP.

Investigation Type	Investigatory Event
Appraisal [AIP Listing 1990-99]	Initial Appraisal (Scanning); Detailed Appraisal (Checking); Private Appraisal
Desk-based Assessment [AIP Listing 1990-2010]	Cartographic check; Geotechnical check; Historical document review; Pictorial source check; Plot aerial photography; Record searches (SMR/NER/NMR); Secondary source review; Statutory designations check; Walk-over survey
Field Evaluation [AIP Listing 1990–2010]	Auger survey / auger transect; Bowsing survey; Ditch-side survey; Fieldwalking(non-systematic surface collection programme; Fieldwalking (systematic surface collection programme); Geochemical survey (heavy metals); Geochemical survey(organic carbon / loss on ignition); Geochemical survey(phosphates); Geophysical survey (electromagnetic); Geophysical survey (magnetic susceptibility); Geophysical survey(magnetometry / gradiometry); Geophysical survey (resistivity); Ground penetrating radar; Metal detector survey (non-systematic collection); Metal detector survey (systematic collection); Sample trenches (hand excavated); Sample trenches (machine excavated); Targeted evaluation trenches(hand excavated); Targeted evaluation trenches (machine excavated); Test-pit programme; Topographic survey
Post-determination Mitigation Investigation [AIP Listing 1990–2010]	Aerial photographic survey (including plotting and analysis programmes); Auger survey / auger transect; Bowsing survey; Ditch-side survey; Fieldwalking - non-systematic surface collection programme; Fieldwalking (systematic surface collection programme); Geochemical survey (heavy metals); Geochemical survey(organic carbon / loss on ignition); Geochemical survey(phosphates); Geophysical survey (electromagnetic); Geophysical survey (magnetic susceptibility); Geophysical survey(magnetometry / gradiometry); Geophysical survey (resistivity); Ground penetrating radar; Metal detector survey (non-systematic collection); Metal detector survey (systematic collection); Open-area excavation (partial); Open-area excavation (full); Recorded observation; Salvage excavation; Sample trenches (hand excavated); Sample trenches (machine excavated); Targeted evaluation trenches(hand excavated); Targeted evaluation trenches (machine excavated); Test-pit programme; Topographic survey; Watching brief / salvage recording

Table 1.3

Investigation Type	Investigatory Event
Non Planning-related Investigation / Research Investigation [AIP Listing 1990-2010]	Aerial photographic survey (including plotting and analysis programmes); Auger survey / auger transect; Bowsing survey; Ditch-side survey; Fieldwalking - non-systematic surface collection programme; Fieldwalking (systematic surface collection programme); Geochemical survey (heavy metals); Geochemical survey(organic carbon / loss on ignition); Geochemical survey(phosphates); Geophysical survey (electromagnetic); Geophysical survey (magnetic susceptibility); Geophysical survey(magnetometry / gradiometry); Geophysical survey (resistivity); Ground penetrating radar; Metal detector survey (non-systematic collection); Metal detector survey (systematic collection); Open-area excavation (partial); Open-area excavation (full); Recorded observation; Salvage excavation; Sample trenches (hand excavated); Sample trenches (machine excavated); Targeted evaluation trenches(hand excavated); Targeted evaluation trenches (machine excavated); Test-pit programme; Topographic survey; Watching brief / salvage recording
Estate Management Survey [AIP Listing 1995-2010]	Aerial photographic survey (including plotting and analysis programmes); Cartographic check; earthwork survey; Geotechnical check; Historical document review; Measured building survey; Pictorial source check; Plot aerial photography; Record searches (SMR/NER/NMR); Secondary source review; Statutory designations check; Visual survey
Building Recording Survey [AIP Listing 1997-2010]	
Geophysical Survey [AIP Listing 2001-2010]	Electromagnetic survey); Ground penetrating radar; Magnetic susceptibility; Magnetometry / gradiometry); Microgravity; Resistivity; Resistivity depth sounding; Resistivity profile; Seismic Refraction
Marine Investigation [AIP listing 2005–2010]	
Environmental Impact Assessment [AIP Listing 1990-2010]	Auger survey / auger transect; Bowsing survey; Cartographic depiction; Cartographic source check; Ditch-side survey; Documentary reference; Ditch-side survey; Fieldwalking - non-systematic surface collection programme; Fieldwalking (systematic surface collection programme); Geochemical survey (heavy metals); Geochemical survey(organic carbon / loss on ignition); Geochemical survey(phosphates); Geophysical survey (electromagnetic); Geophysical survey (magnetic susceptibility); Geophysical survey(magnetometry / gradiometry); Geophysical survey (resistivity); Ground penetrating radar; Metal detector survey (non-systematic collection); Metal detector survey (systematic collection); Pictorial representation; Pictorial source survey; Place-name survey; Plot aerial photographs; Record searches (SMR/HER/NMR); Recorded stray find search; Sample trenches (hand excavated); Sample trenches (machine excavated); Secondary sources; Statutary designation records; Targeted evaluation trenches (hand excavated); Targeted evaluation trenches (machine excavated); Test-pit programme; Topographic survey; Unrecorded stray find; Visual observation
Post-Excavation Assessment [AIP Listing from 2010]	
Post-Excavation Analysis & Reporting Programme [Not subject to AIP listing]	

Investigatory events as primary units of record

The idea that archaeological activity can be considered as a series of 'events' – for example: an open-area excavation; a magnetometer survey; or a watching brief – has long been recognised as potentially relevant to the construction of local SMRs/HERs (Foard 1997). At much the same time research into the assessment of archaeological remains for the Monuments Protection Programme began to explore the definition and constitution of archaeological entities that for more than a century have been known as 'monuments' (Darvill 1988; Darvill *et al.* 1987; Startin 1993). The two elements were brought together in a powerful and highly structured way during work connected with the development of urban archaeological databases, especially

the experimental work based on Cirencester (Darvill & Gerrard 1994).

This was not a pragmatic development; rather it was theoretically driven by the explicit recognition that positivist philosophies underpinned much work on the development of archaeological records. Accordingly, it was considered appropriate to utilise distinctions inherent to positivist science and to allow the separation of observation from interpretation. Quite simply, archaeological operations such as excavations and surveys were conceptualised as the observation of archaeological phenomena (*i.e.* empirical experiences), from which interpretations and understandings could be made using either inductive (inferring a generality from a particular instance) or deductive (inferring the nature of a particular instance from a generality) logic. The importance and implications of these distinctions are only now beginning to be recognised and understood within this branch of archaeology, and find expression in the so-called Event-Monument (EM) models. There are also major practical implications. For example, systematically recorded events may, in legal terms, be regarded as matters of 'fact' which could be acceptable by all parties in cases of dispute; an instance might be that an excavation happened in a particular place at a specified time. What exactly was discovered in the course of that archaeological event, and what its significance might be, is a matter of judgement and may be susceptible to challenge, reinterpretation, and critical review. In an adversarial legal system such as exists in England today, and which includes planning and development control processes, such distinctions are potentially very important and provide a framework within which to structure the collection and analysis of data.

It was against this background, and with the clear understanding that such work would perpetuate an essentially positivist approach to data recording, that the use of events was adopted for the AIP. As the Project developed and expanded, and as the EM model became more widely applied, definitions and understandings of what an event comprises, and how one might be defined, became clearer and sharper. Catney (1999; Bourn 1999) provides a useful and widely accepted working definition of an event as:

> *A single episode of primary data collection over a discrete area of land. This single recording event can only consist of one investigative technique and is therefore a unique entity in time and space.* (Catney 1999: 1)

With certain minor differences, this accords with the broad perception of an investigatory event as applied within the AIP since its inception. It is also well represented in the development and negotiation of data standards for compiling historic environment data. The first edition of *MIDAS: A manual and data standard for monument inventories* defined an event as:

> *Any event, or activity which has enabled information to be gathered or a judgement to be made about a monument in a particular locality, whether surviving or destroyed.* (RCHME 1998: 14)

This was perpetuated in the second iteration of MIDAS (FISH 2007), and promoted in notes aimed at helping compile historic environment data (Gilman & Newman 2007: C6). In the third edition of MIDAS published in 2012, the term event has been re-named 'investigative activity' and defined as:

> *Any activity undertaken with the explicit intention of gathering information about, and understanding of, a Heritage Asset, and the creation of an information source to record that information and understanding.* (FISH 2012: 38)

During the course of AIP the list of investigatory event types has developed and grown as new methods have come on stream and preferences for particular approaches have shifted. A critical element of this has been the incorporation of practical issues revealed through conversations with teams involved in the execution of different kinds of event and the scrutiny of briefs and specifications issued by archaeology offices. In this sense there is a strong element of practice-capture embedded in the terminology used, and the definitions that lie behind them. A review of archaeological investigatory events by ALGAO in 1999 led to the publication of a wordlist comprising 56 terms (ALGAO 2001; 2002a) later expanded and superseded by the National Monuments Record (NMR) *Event Type Thesaurus* (Adams 2009). A survey of ALGAO members in December 2011 revealed that all of the 52 respondents recorded events in their HERs, and the same number saw it is a primary function of HERs to record event information (Falkingham 2012).

From events to investigations

Within AIP, events are fine-grained categories reflecting how archaeological work is undertaken. At a slightly more general level, sets of events come together in various combinations to form what can be defined as 'investigations'. A dozen main investigation types have been defined within the AIP over the last 20 years. Appendix A summarises and defines the scope of the main investigation types, while Table 1.3 lists the principal investigatory events that might form part of particular investigation types. Definitions of those recorded by AIP are given in Appendix A. As will be seen, events are not unique to a particular type of investigation. Events are methodologically defined, while investigation types are defined in terms of their purpose and context. As Table 1.3 shows, not all investigation types have been documented across the two decades of the PPG16 Era because during that time professional practice has been developing, maturing, and changing the emphasis given to particular strands of endeavour. Of the 12 now recognised, nine have been logged

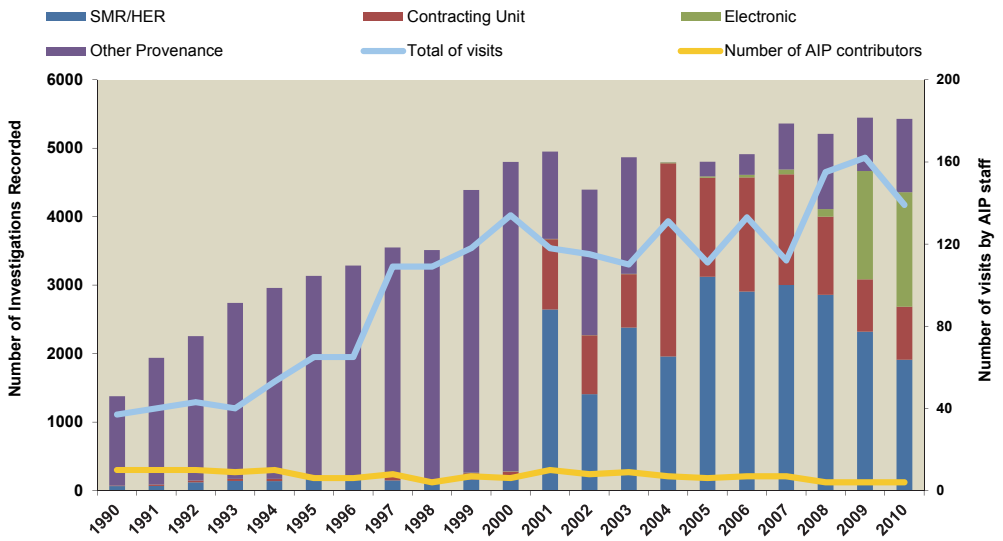

Figure 1.6 The practicalities of the data collection by the AIP showing the number of investigations recorded from key sources in relation to the number of visits and the size of the research team. (Data: AIP. Sample = 84,086 records)

for the whole period (1990–2010); appraisals were logged between 1990 and 1999; post-excavation assessment was only recorded in 2010; and post-excavation analysis and reporting was not systematically recorded at all in the years covered by this report.

In the main, investigation types are recognisable through distinct outputs or products, often in the form of a report and/or archive. There are two main exceptions. Geophysical survey sometimes occurs as an investigation type in its own right (sometimes with multiple techniques (events) being used) with its own research objectives, undertaken by specialist contractors, and with particular reporting outcomes. On other occasions it comprises one or more event(s) within another investigation type (*e.g.* field evaluation). Likewise, marine investigations, which are here defined by the environment in which they take place, can involve a wide range of events directed towards objectives that overlap with a range of investigation types (*e.g.* environmental impact assessment).

Separate, but parallel, with the work of the AIP there has been increasing attention directed towards the development, negotiation, and agreement of standards and guidance for archaeological activity. This was led by the Institute for Archaeologists (Institute of Field Archaeologists until November 2008; since December 2014 the Chartered Institute for Archaeologists) whose approach to the scoping of standards and guidance fits fairly neatly with the concepts behind the main investigation types used by AIP (Appendix A for concordance).

Recording archaeological endeavour

The concept of 'archaeological' implicit in the title of the project is very broadly defined. It includes all forms of cultural, environmental, or heritage information that can be gathered through field investigations and surveys, material evidence recovered through such investigations, the results of laboratory analyses of samples and materials from investigations and surveys, and the records related to identifiable investigatory events.

Sources and collection methodology

Throughout the research carried out by the AIP, data for the construction of the annual gazetteers were collected from a wide variety of sources through personal visits by members of the research team, and by questionnaires distributed by post or electronically. In general, the number of visits made each year increased in response to the growing number of organisations involved in archaeological investigations (Figure 1.6). During personal visits researchers examined available reports and documents, completing data entry forms on laptop computers at the host organisation. Since 2002, in partnership with OASIS, increasing use has been made of on-line submissions to OASIS while AIP records have been provided to OASIS in return. Thus, overall, the AIP data-set comprises textual material plus a combination of counts, sampled populations, and quantifications. Data collection for 2010, the last year AIP surveyed was collected in 2011 and early 2012. Inevitably, some investigations were recorded more than once so the data-set represented in Figure 1.6 is greater than the eventual number of records once duplicates had been removed or their content combined.

In its final iteration, the AIP database comprises nine separate entry forms within a relational database. These main tables record investigation types as defined above: A – Appraisals (initial and detailed); B – Desk-based assessments; C – Field evaluations; D – Environmental impact assessments; E – Post-determination and non

Table 1.4 Number of records identified with each defined AIP investigation type by year 1990–2010. NR indicates those years for which data was not recorded as a separate investigation type, although it may have been recorded as an investigatory event and thus appear in later analyses.

Year	Building Recording	Desk-based Assessment	Environmental Impact Assessment	Estate Management	Field Evaluation	Geophysical Survey	Maritime Investigation	Post-determination / Research	Specialist/ Post-excavation	Totals
1990	NR	106	68	NR	519	1	NR	683	NR	1377
1991	1	210	95	NR	797	1	NR	832	NR	1936
1992	NR	287	62	NR	833	NR	NR	1073	NR	2255
1993	NR	359	78	NR	968	2	NR	1333	NR	2740
1994	NR	430	68	NR	977	4	1	1483	NR	2963
1995	NR	506	31	66	1036	8	1	1491	NR	3139
1996	NR	567	31	75	1051	1	NR	1563	NR	3288
1997	196	572	34	49	1075	13	NR	1614	NR	3553
1998	227	551	59	58	1072	9	NR	1549	NR	3525
1999	282	690	196	71	1220	18	NR	1926	NR	4403
2000	319	781	256	52	1430	10	NR	1964	NR	4812
2001	360	814	125	132	1370	235	NR	1916	NR	4952
2002	382	568	164	125	1136	185	NR	1842	NR	4402
2003	487	699	146	134	1295	270	NR	1842	NR	4873
2004	557	667	141	151	1218	249	NR	1818	NR	4801
2005	607	632	172	162	1069	258	6	1898	NR	4804
2006	634	692	132	104	1212	308	8	1824	NR	4914
2007	629	803	140	99	1340	276	16	2059	NR	5362
2008	637	745	79	86	1080	262	19	1858	NR	4766
2009	619	673	56	59	1088	310	15	1869	NR	4689
2010	510	644	108	90	1000	336	16	1588	76	4368
Totals	6447	11996	2241	1513	22786	2756	82	34025	76	81922

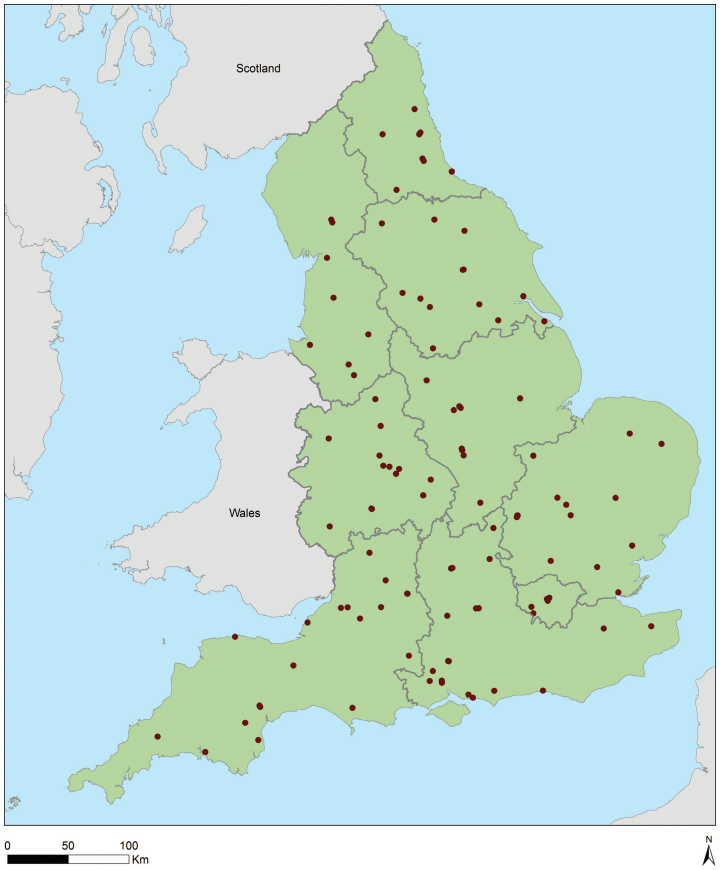

Figure 1.7 Map showing the distribution of main sources visited by AIP researchers between 1990 and 2010. Regional boundaries shown. See Appendix B for a list.

development-related events; F – Marine investigations; G – Building recording; H – Geophysical surveys; and P – Specialist and post-excavation projects (2010 only). Table 1.4 summarises the overall number of investigation event records for each investigation type, by year. As indicated on Table 1.3, however, not all investigation types were recorded throughout the PPG16 Era so the total of 81,922 should be regarded as a minimum number of recorded events. As will be seen in later analyses, data relating to some investigation types can be reconstructed from investigatory event records for years before it was recorded in a separate table. This brings the total of recorded events to *c*.86,000.

The main sources contributing to the assembly of the AIP databases are listed in Appendix B and their distribution mapped on Figure 1.7. The main source-types can be summarised as follows:

- *Sites and Monuments Records/Historic Environment Records*. Compiled and maintained by local authorities and widely recognised as the principal source of information about archaeological work within a geographically defined administrative area. However, because of the nature of the work carried out by these records, there was generally a backlog in the entry of new data and in establishing cross-references to project files and archives. In practical terms it was often 1–2 years before a report was fully accessed into the relevant system.
- *Contractors and consultants*. These are the organisations that undertake or co-ordinate archaeological fieldwork and therefore provided the main source of information on recent projects. About 120 contractors and consultants scattered across the country were contacted and visited on an annual basis. Most maintained a consolidated archive of client reports and were happy for members of the research team to work through them systematically to complete the relevant database entries. In the early years of AIP printed record forms were made available to contractors for each year (colour coded) to complete themselves. Some contractors kindly completed the forms retrospectively and saved the need for a visit. Most contractors seemed happy to encourage the indexing of investigations at the level established by the AIP as it was considered to be in everyone's interest to know what is happening and to be able to access an up-to-date listing of recent activity in areas where a contractor might be working or competing for new work. Because AIP researchers visited the headquarters of the contractors and

consultants surveyed in order to complete the database this material has been assembled at no significant cost to the originators and in a consistent and systematic way. From 2002 OASIS records created on-line by contractors and consultants who regularly used this reporting system, and who often uploaded reports to the Library of Unpublished Fieldwork Reports, were used instead of personal visits.

- *Statutory undertakers with archaeological capacity.* Printed questionnaires and email inquiries were used to collect information about on-going and completed projects.
- *Museums with archaeological staff.* Printed questionnaires and email inquiries were used to collect information about on-going and completed projects.
- *University archaeology departments*. Printed questionnaires and email inquiries were used to collect information about on-going and completed projects in England.
- *Voluntary/independent sector organisations*. Printed questionnaires and email inquiries were used to collect information about on-going and completed projects. A mailing list of approximately 350 contacts was used to circulate the questionnaire; the response rate varied between 17.2 per cent in 1999 and 26 per cent in 1997.
- *Published listings and secondary sources*. Annual reports, 'round-ups', and other periodic summaries of work done were checked and used where available. They provide a useful cross-check on what has been done.
- *English Heritage Geophysical Survey Database*. English Heritage and its forerunner started compiling a central record of geophysical and geochemical surveys carried out in England in 1972. Initially the majority of these surveys were undertaken by staff from the Ancient Monuments Laboratory, but from the early 1980s the number of organisations involved increased. From 1980 such surveys on protected sites were deemed to require a license under S42 of the *Ancient Monuments and Archaeological Areas Act 1979* and these surveys were thereafter listed in the Geophysical Survey Database. Since 2001 AIP has systematically collected information on geophysical surveys whether part of a pre-determination evaluation or a stand-alone non-invasive survey. Data was collected from those commissioning geophysical surveys and contractors specialising in such work.

Inevitably, for all these sources, the quality of the records created by AIP researchers depended on the skills of the researchers and the quality of the information made available in reports and other documentation. Changes in the way investigations were understood and classified had an impact on the accumulating data-sets collected over the 20 years of the project. There are no doubt variations in the way researchers understood the archaeological process, and this too can be seen in some of the analysis presented in later chapters. It may be noted, however, that over the duration of the AIP, researchers reported a general increase in the quality and usability of reports, a subject discussed further in Chapter 8.

One of the most difficult areas of data collection was in relation to environmental impact assessments, not least because these are sometimes brought together after the archaeological work has been completed and thus are not recognised in the issued reports. To supplement information available from contractors and consultants, the *Digest of Environmental Statements* (IEA 1993a; 1993b; 1994) was trawled for archaeological components. However, it is an illustration of the difficulty of systematically collecting data on environmental impact assessment that Sweet and Maxwell discontinued production of the *Digest* in 1995. Raw data on the number of environment impact assessments carried out have been obtained from the Department of Environment, Transport and the Regions (DETR), while copies of submitted statements relating to the period 1990–2008 were surveyed in the DETR library. Since 2008 submitted statements were no longer kept by DETR and there is no consolidated source available for subsequent years. The AIP therefore had to rely on contractors and consultants responsible for compiling environmental statements.

National statistics relating to Scheduled Monuments and government expenditure on archaeology were provided from English Heritage records and published sources such as their *Annual Report and Accounts*. National statistics relating to the number of planning applications, their distribution, and the extent of their determination were obtained from government statistics published by the Office of National Statistics (ONS) and individual government departments and agencies. These are mostly based on statutory returns made quarterly by local planning authorities. Inevitably, the scope of those returns, and the matters covered in published accounts, changed over the course of the PPG16 Era making the construction of long-term comparative data far from easy. As a result, data plotted on some later graphs and charts is incomplete across the twenty years of the PPG16 Era.

Data on the archaeological monitoring of planning applications is also tricky. There is no statutory requirement to keep records of this work, or the recommendations made, although some individual authorities do in fact do this as part of their own quality assurance systems (*e.g.* Johnson 1997). The AIP developed and circulated a questionnaire about the through-put of applications and their archaeological monitoring, but many curators were unable to complete them for a variety of reasons. The AIP statistics on archaeological appraisals are thus a 'grab sample' based on those authorities able and willing to complete the survey forms. Still more difficult is the matter of the decision record, especially as individual studies will relate only to one part of the process, and the life-cycle of many applications will cross more than one year (the later ones may not have completed their cycle at the time of survey).

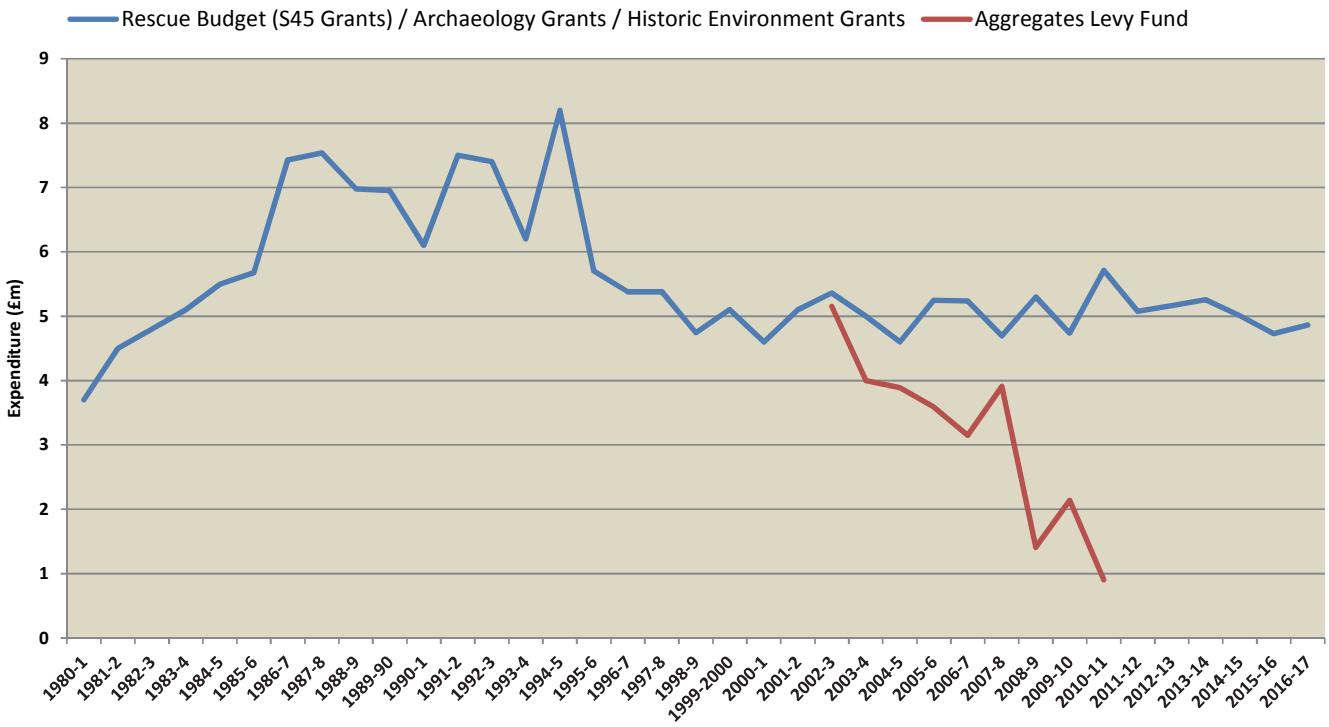

Figure 1.8 Graph showing funding for archaeology administered by English Heritage between 1989 and 2014. (Data: EH 1986a; Historic Buildings and Monuments Commission for England Annual Report and Accounts 1983–2015; Historic England Annual Report and Accounts 2016–2017)

Over the course of the PPG16 Era, archaeological fieldwork has variously been supported by a range of initiatives and funding streams that have stimulated work in particular spheres (Aitchison 2001 for a review of the first decade of the PPG16 Era). Research organisations and charities such as the Arts and Humanities Research Council (AHRC), the British Academy, the Society of Antiquaries, and numerous local societies have funded archaeological investigations across the country (*see* Chapter 6) while Community Archaeology has benefitted greatly from the Heritage Lottery Fund (HLF) set up in 1994. In some cases it has been possible to track and monitor some of these projects, but full systematic coverage proved difficult.

Government funding of archaeological research, especially that channelled through English Heritage, also changed dramatically over the PPG16 Era and is fairly well-documented: a series of published analyses for the period 1982 to 1988 reveal the situation immediately preceding the PPG16 Era (Wainwright 1985a; 1985b; 1986; 1987); English Heritage's annual *Archaeological Review* edited by Geoff Wainwright between 1988 and 1994 and Adrian Olivier between 1995 and 1998 show what was happening as PPG16 came into force; and spanning the whole period are the published *Annual Report and Accounts of the Historic Buildings and Monuments Commission for England*, which offer breakdowns and analysis well beyond the statutory minimum. The so-called 'Rescue Budget' established in the late 1950s and from 1984 administered by English Heritage as Archaeology Grants/Historic Environment Grants decreased in value from £6.95m in 1990 to £4.7m in 2010 (Figure 1.8) while also being directed towards a much wider range of research initiatives. Since 2010 the level of support through Historic Environment Grants administered by English Heritage, and more recently Historic England, has remained fairly stable at around £5m per year; taking inflation into account this represents a slow decline in real terms.

Funding for archaeology through the Manpower Services Commission for the Community Programme and the Youth Training Scheme set up as a means of reducing unemployment while re-skilling the workforce in 1982 had largely come to an end by 1990 (Ashford 1989; Crump 1987; Drake & Fahy 1987), although its legacy was felt into the early years of the PPG16 Era. The Aggregates Levy Sustainability Fund (ALSF) created by the Department for Environment, Food and Rural Affairs in order to reduce environmental impacts arising from the extraction of aggregates, and to deliver benefits to areas subject to these impacts, directed more than £17m into archaeological projects between 2002 and 2011 (Figure 1.8; *see also* Chapter 6).

The biggest change to patterns of funding lies with the reapportionment of costs for archaeological work from the public purse to the developer in line with a principle of sustainable development in which the 'polluter pays'. In

retrospect, a key step in the process was the Department of the Environment's termination in 1980 of a funding system that had supported virtually indefinite annual subsidies for some 80 organisations across England (Wainwright 1985a: 1). The reasons given were that the wording of Section 45 of the new *Ancient Monuments and Archaeological Areas Act 1979* was aimed at targeted funding for specific initiatives and that too much funding was going on recurrent establishment costs. It was not a popular move in some quarters (Anon 1980), but opened the way for wider debates about the process, ethics, and professional practices of competitive tendering (Chadwick 1991; Cooper-Reade 1998; Cranstone 1995; Lambrick 1991; Swain 1991). By 1990 it was widely accepted within the development industry that the costs of pre-determination information-gathering investigations as well as post-determination mitigation works would fall to the developer, with a variety of industry-based agreements, codes of conduct, and guidance in place (*e.g.* ALGAO 1999; BADLG 1989; CIFA 2015; Darvill & Atkins 1991; IFA 2013). An ambitious programme of road-building was announced by the UK Government in 1990 (DTp 1990), and in April 1993 the Department of Transport (DTp) accepted direct responsibility for funding all connected archaeological work: over £2.2m on 12 schemes in 1993–94 (DTp 1994: 2) and £7.9m on 15 schemes in 1994–95 (DTp 1995: 14–15). It was an important precedent that emphasised the fact that 'developers' come from many backgrounds, both public and private; the DTp and its successors have continued to be major contributors to archaeological investigation (Alexander 2011; *see also* Chapter 9).

Terminology and classifications

Few rigid parameters were placed on the definition of individual items of data collected. The completion date of a project is taken to be the date (usually the year) printed on documents and reports as the date of issue. The area covered by the investigation had to be wholly or substantially within England as territorially defined at the time the work took place. It should be remembered, however, that between 1990 and 1999 there were numerous changes to local government areas and administrative responsibilities, some with archaeological implications (Baker 1994; Morris 1994b), although this has been less marked through the period from 1999 to 2010. During the PPG16 Era various new archaeological organisations came into existence while others went out of business or were closed down for various reasons. Many changed their name between 1990 and 2010, and some archaeological investigations in England were carried out by organisations whose operating base or registered address lies outside England.

Inevitably, the data-set is limited by what individual sources were prepared to reveal. In a few cases confidentiality clauses were properly applied, although most of these investigations were later recorded and included on the system. The number of events per year should therefore be regarded as 'the number of events completed to the report stage and made available to the survey for a particular year'. As previously noted, the AIP database was a dynamic resource during the project, and retrospective additions and deletions were made as new information became available. The archive copy of the database preserved by the Archaeology Data Service is, however, a closed resource; its content is that reflected in the analysis presented in this report.

Wherever possible, use was made of existing word-lists and classifications, although like the AIP itself these evolved and changed over the PPG16 Era. Throughout, MIDAS Heritage and INSCRIPTION co-ordinated through the Forum on Information Standards in Heritage (FISH) provided the standard wordlists used. Use was made of the LUSAG classification of land-use that allows groupings to be built up at several different levels (Darvill & Fulton 1998: 146).

In bringing together the results of data collected over a period of twenty years in this report some concatenation of data categories has been necessary. These are discussed with reference to the interpretation of patterns and trends where relevant. The availability of a geographic information system (GIS) during later phases of the project meant that locational data could be checked against Ordnance Survey mapping, and positional characteristics such as rural or urban setting could be determined against layers showing settlement density.

Regional analysis in this report is based on the nine operating areas established by English Heritage in 1999 (Alexander 1999). These correspond very closely with the thirteen Government Office Regions in use at the same time (DETR 1997a). For the purposes of analysis and comparison these regions are back-projected onto the early part of the 1990s and forward-projected into the late 2000s. Figure 1.9 provides a geographical key to the regions and the names given to them. Some maps show the boundaries of England's counties as current at a mid-point in the PPG16 Era, around 2000. The regions are essentially administrative areas and accordingly it is recognised that they have little relevance to the distribution of activity in the ancient past. Most analyses are presented year-by-year, but in some cases the years are grouped together into four 'quarters' covering the PPG16 Era.

AIP outreach and connections with other projects

The existence of the AIP was widely promoted at archaeological meetings and conferences, and research staff attended numerous seminars and workshops to explain their work and outline preliminary results. A project website was established in 1996 to explain the background and invite unsolicited contributions and corrections, and in 2004 an on-line searchable database was created and maintained. Between 2004 and 2010 more than 10,000

Figure 1.9 Regions used in mapping AIP data. (Source: English Heritage and AIP)

'hits' were recorded from a range of domains that accessed the site directly (Figure 1.10). Nothing is known about the behaviour of users or the purpose of visits. Much higher usage would have come indirectly through various portals with links into the site and the database. A summary report on investigations between 1990 and 1999 was published (Darvill & Russell 2002).

Data-sets have been provided to numerous other projects and organisations. Geographically delimited data-sets have been provided on an ad hoc basis to more than a dozen SMRs/HERs, and substantial data-sets have been supplied to more than 20 research inquiries from individuals working in a variety of fields. These have included: an overview of aggregate-related archaeology (Brown 2009); the study of archaeology in relation to road construction (Alexander 2011); decision-making in local planning authorities (Waller 2011); the Roman Grey Literature Project (Fulford & Holbrook 2011a; 2014; Hodgson 2011; 2012; Holbrook 2010a; 2010b); an overview of commercial work in Roman towns (Fulford & Holbrook 2015); studies of prehistoric Britain (Bradley 2006a; 2007; Phillips & Bradley 2004); Anglo-Saxon England (Blair 2014); archaeological activity

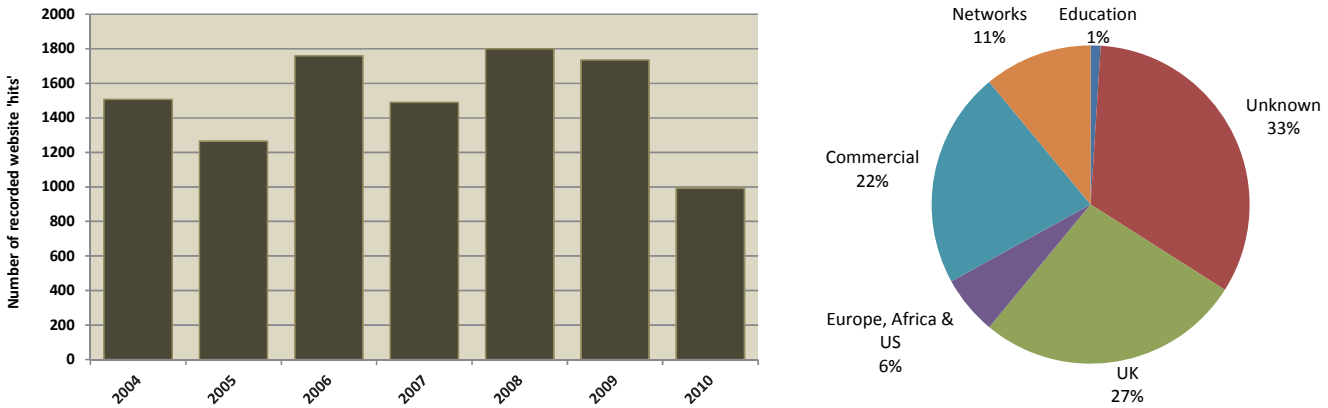

Figure 1.10 Analysis of the AIP website usage 2004–10. ***A.*** *Annual usage.* ***B.*** *Breakdown of the main domains accessing the website. (Data: AIP. Sample = 10,548 'hits')*

and professional practice (Aitchison 2010a; 2012); changing patterns in the investigation of British prehistory (Cooper 2012; 2013); EU-funded English Landscape and Identity Project based in Oxford (Cooper & Green 2017; Gosden 2014; Green *et al.* 2017); and a review of how multiple investigations can be combined to develop overviews of changing landscapes (Morrison *et al.* 2014; Thomas *et al.* 2015). Some of these are discussed further in Chapter 9. In 2000–01 AIP data contributed to *Heritage Monitor* and from 2002 to *Heritage Counts*. Regular exchanges took place with English Heritage (Archives and Monuments Information England (AMIE) database used to hold the National Record of the Historic Environment that supports, for example, the Excavations Index, and PastScape), the British and Irish Archaeological Bibliography, and OASIS hosted by the Archaeology Data Service.

The revitalised *British and Irish Archaeological Bibliography* (BIAB), started to included 'examples of grey literature which are rarely taken by academic or public libraries' from the first issue in April 1992 (Heyworth & Holroyd 1992a; 1992b: 7) and expanded coverage in later years. From spring 2005 it has been an on-line only resource giving bibliographic details and short abstracts for documents and reports recorded by its bibliographers or supplied to it.

OASIS opened for the submission of information about archaeological investigations on 1 April 2004 after two years of development and testing (Hardman 2002; 2006; 2009; Smith *et al.* 2012). The aim of OASIS was to provide an on-line index to the mass of archaeological grey literature that has been produced as a result of large-scale developer funded fieldwork, and a similar increase in fieldwork undertaken by volunteers. This later expanded through the creation of a library of grey-literature (the Library of Unpublished Fieldwork Reports). On-line data capture used a form designed to help in the flow of information from data producers, such as contracting units and community groups, through to local and national data managers, such as HERs and the NMRs. A relatively complicated data-validation system involving local and national curators formed part of the data-path, although it is uncertain exactly what was being validated: the documentation itself, or its content and conclusions. Methodologically, OASIS was quite different from the AIP. OASIS relied on the self-creation of records by individuals or organisations, starting when fieldwork commences and then completed when the work is finished and the report attached and submitted for 'sign-off'. By contrast, the AIP actively sought out data using a small team of dedicated researchers who visited or made contact with contractors and others involved with carrying out or recording archaeological work.

The range of investigations logged by the AIP was broad, and the project made its suite of forms available to individuals and groups involved in archaeological investigations. The AIP overcame some copyright exclusions relating to the reports themselves by summarising the data they contained, especially important for pre-determination investigations where client confidentiality was sometimes an issue. Thus, while OASIS focused on assembling a metadata flow line that could have reports attached (and archived in the Library of Unpublished Fieldwork Reports), the AIP focused on documenting the nature, scale, and extent of archaeological investigations and the circumstances under which they were undertaken. Figure 1.11 shows in map-form a snap-shot of the spatial pattern of investigations recorded by the two projects in 2010, and serves to emphasise the strengths and weaknesses of the two different approaches. However, both projects were linked together in terms of data-flow as summarised in an idealised form on Figure 1.12; as already noted, the AIP also connected with other relevant databases such as the BIAB and the Excavations Index.

AIP data compared

Some of the projects that have drawn on AIP data have also examined specific sectors of the record and compared it with other available information. This is helpful in assessing the coverage and completeness of the AIP record. Tim Evans

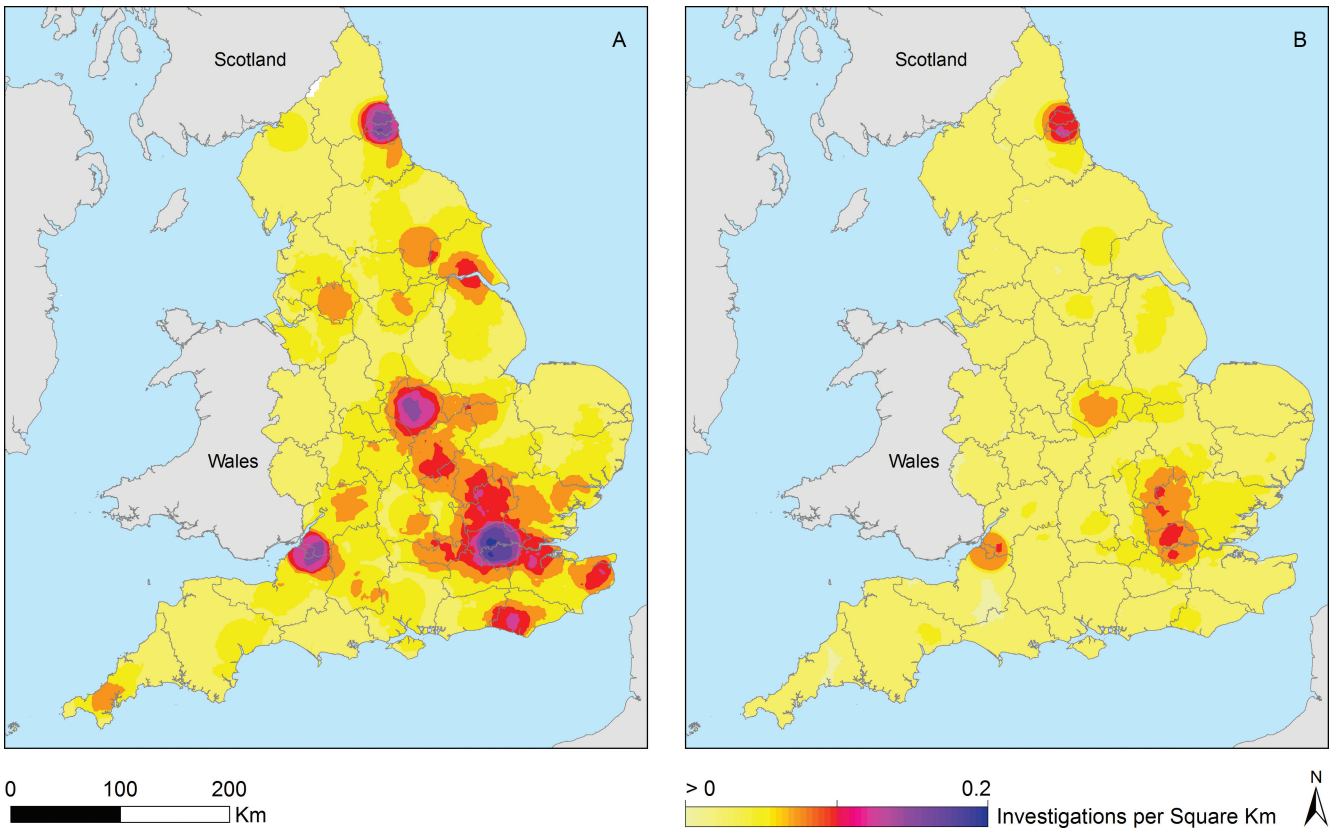

*Figure 1.11 Recording archaeological investigations carried out in England in 2010. **A.** Distribution of events recorded by the AIP. **B.** Distribution of OASIS records. County boundaries shown. (Data: AIP (Sample = 5129 investigation type records) and OASIS (Sample = 2459 records))*

(2013) compared three principal sources for recording archaeological fieldwork in England between 1990 and 2007 – the National Monuments Record (NMR), Archaeological Investigations Project (AIP), and the Online Access to the Index of Archaeological Investigations (OASIS) showing that all had lacunae. Although the study failed to recognise both the degree of inter-relationship between the records as a result of data-transfers and the different sources feeding into the records, it did acknowledge the strength of the AIP in tracking down records of field evaluations and pre-determination events through hands-on research. Developing a case-study based on records for Staffordshire, Evans revealed the well-known difficulty of logging events undertaken by very small commercial organisations and individuals that might well be recorded in local HERs through personal contacts but are otherwise very hard to identify (Evans 2013: 30).

The same problems arising from how events are evidenced can be seen in several other studies. Referencing the specific needs of research into the Roman period in England, Mike Fulford and Neil Holbrook examined the relationships between the AIP records, the AMIE database maintained by English Heritage, information from the annual round-ups published in *Britannia*, and information contained in HERs. This found that the main gaps in the AIP's coverage were in relation to 'work by universities and local groups outside the planning system' (Fulford & Holbrook 2011a: 328). Careful cleaning of the data-sets and cross-referencing to other local sources in four case-study areas showed the AIP was consistently recording around 70 per cent of events yielding archaeology classified by the study as 'Roman' (Fulford & Holbrook 2011a: Table 4); the remaining 30 per cent mostly seem to have been events documented only by brief statements in annual round-ups and casual references rather than formal reports that were the focus of the AIP recording.

AIP in relation to other parts of the UK and beyond

The systematic recording of archaeological investigations on a year-by-year basis is fairly common in many parts of the world. Because there is no formal licensing of archaeological work in Britain such records have to be compiled retrospectively. Complementing the AIP, note may be made of the annual listings for Scotland in *Discovery and Excavation in Scotland* published between 1955 and 1999 by CBA Scotland (formerly CBA Group 1) and since 2000 by Archaeology Scotland, and for Wales as *Archaeology in Wales* published since 1961 by CBA Wales (formerly CBA

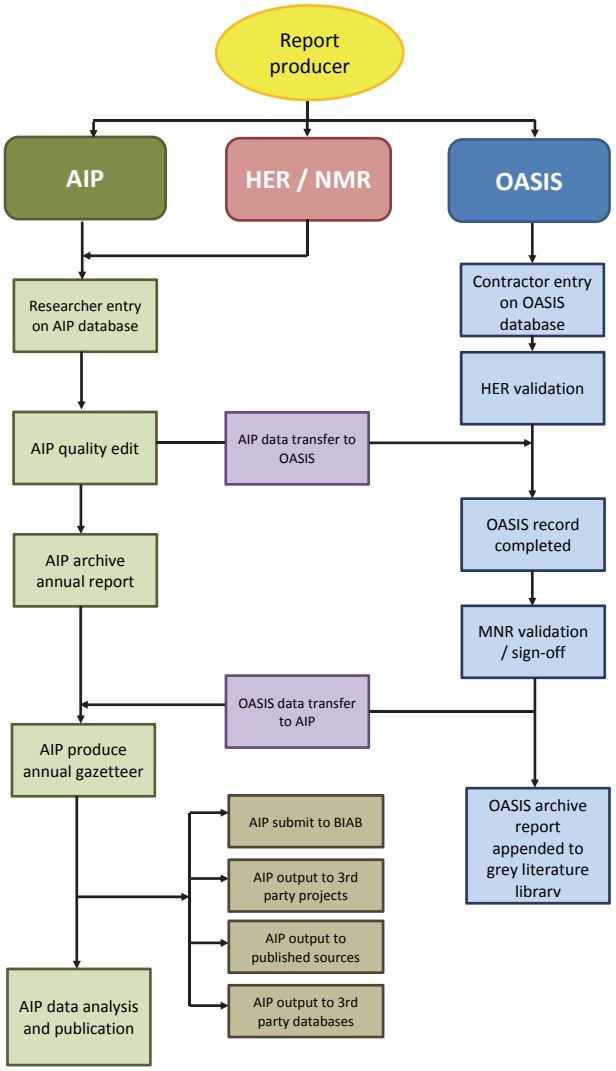

Figure 1.12 Idealised data-flow model showing the relationship between AIP and OASIS, and the transfers between, for the period 2002 to 2010.

Group 2). Ireland and Northern Ireland both have licensing systems for archaeological work, activities being summarised annually between 1986 and 2003 as the *Excavations Bulletin: Summary accounts of archaeological excavations in Ireland* and more recently as the on-line resource https://excavations.ie/. Across the Channel in France detailed summaries of archaeological investigations were published in *Gallia Préhistoire* and *Gallia* up until the mid-1980s, after which summary volumes of work by region have been issued periodically, and, more recently, investigations are reported through the on-line source *Archéozoom* (Inrap 2018). Further afield in Europe annual summaries include, for example, Археологические Открытия published annually by the Russian Academy of Sciences (Institute of Archaeology) in Moscow, the annual 'Fundbericht' listings in *Jahrbuch Archäologie, Schweiz* published by the member-association Archäologie Schweiz, and *Arkæologiske udgravninger I Danmark* published by the National Museum in Copenhagen. In north America the Digital Index of North American Archaeology (DINAA) compiles, cleans, and publishes on-line site file data aggregated from state and other agencies that enforce US historical protection laws; by 2018 it had data from nearly 500,000 sites from more than a dozen states (Kansa *et al.* 2018: 493).

Data analysis and presentation

In the following chapters a detailed analysis of data from the AIP is presented in a way that reflects current archaeological practice for each of the main investigation groups, types, and investigatory events noted above. This is a retrospective analysis of records created under changing circumstances, although some recasting has been done over the years to make the database as consistent as possible. Most of these analyses are based on simple counts, in some cases standardised as percentages or densities. Throughout, the AIP database has been used in the assembly of the statistics, tables, and graphs set out below. As already noted, this has developed over a period of 20 years. During that time the archaeological process has altered, terminology has shifted, and a range of researchers have contributed to the record. The database itself was migrated from Paradox (V5) to Access in 1997 with consequential changes to record structure, and new tables and fields added. The fact that there is no simple correlation between investigatory events and investigation types means that quantifications vary slightly according to how queries of the tables in the AIP master database were constructed and which parameters are selected when constructing queries. Sample sizes in terms of the number of records revealed by a particular search pattern are noted on the maps, charts, and graphs where appropriate. The number of records used in a particular analysis may be higher or lower than the overall number of investigations recorded by investigation type (*see* Table 1.4. 81,922 records). Lower numbers generally result from that fact that the source documents (*i.e.* reports) consulted and interrogated during the survey did not all contain the same range of information and meaning that the database inevitably contains gaps caused by 'missing data'. Thus, the total number of instances identified (records in the sample = s) will usually be less than the total number of records (n) relating to a defined investigation group or investigation type, so $s \leq n$. Higher sample numbers arise for a number of reasons, but principally where multiple investigatory events have been identified with a single investigation type record, as for example where several methods each constituting discrete investigatory events are tied together within a record for discrete investigation type such as a field evaluation. Investigatory event records can also be used to provide data

for years before an investigation type was recorded within its own table (*e.g.* Building Recording before 1997; Estate Management before 1995; Geophysical Surveys before 2001; and Maritime Investigations before 2005). Thus, the total number of instances identified (records in the sample = s) will be greater than the total number of records (n) relating to a defined investigation group or investigation type, so $s \geq n$.

Overall, although the AIP data-set discussed in the following chapters may not be perfect in every detail, and certainly has a number of recognisable shortcomings and hard-to-explain lacuna, it is nonetheless a substantial body of classified and categorised information that fairly reflects the main trends in archaeological activity over the twenty years of the PPG16 Era.

Chapter 2

Trends in archaeological investigation 1990–2010

Throughout the PPG16 Era archaeology in England was in very a healthy state. Figure 2.1 shows the total number of archaeological investigations recorded by AIP year-on-year from all sources, with a three-order polynomial trend-line added to pick out the long-term trends. There is clearly a significant expansion in the number of investigations undertaken during the period 1990 to 2001 which can mostly be explained in terms of the up-take of the principles set out in PPG16. After an apparent dip in 2002, there is a slight plateau in activity from 2003 to 2006, representing a period of consolidation. Although spiking in 2007, there is a decline in the level of activity in the last three years. This decline may reasonably be connected to a well-recorded global economic downturn prompted by a credit crisis in the US, a stock-market collapse, and a banking crisis in the UK. By the end of 2008 the down-turn was officially recognised in the UK as an economic recession and considered the deepest since the Second World War (Vaitilingam 2010). It set alarm bells ringing within the heritage sector and beyond (Aitchison 2009a; 2009b; 2010b; Lovering 2009; Schlanger & Aitchison 2010). The downward trend in the level of archaeological activity continued in 2009 and 2010 when the number of recorded investigations for the year dipped below 4400, the lowest level for over a decade. Thus at the end of the PPG16 Era archaeological activity was at about the same volume as in the late 1990s.

Regionally, variations in the pattern of growth and decline in archaeological activity are fairly marked as can be seen from the series of snap-shot images presented as raw numbers of investigations in Figure 2.2. At the end of the first quarter of the PPG16 Era in 1994, the South East saw the highest levels of investigation. As economic prosperity spread during the later 1990s, all areas saw an increase in activity except the East Midlands, Greater London and the North West, which

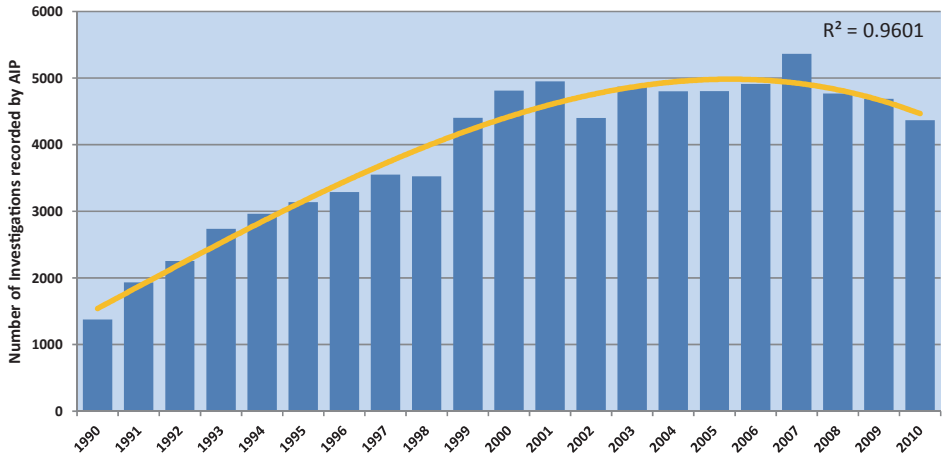

Figure 2.1 Archaeological investigations in England recorded by AIP year-on-year for the period 1990 to 2010. A three-order polynomial trend-line added. (Data: AIP. Sample = 81,922 records)

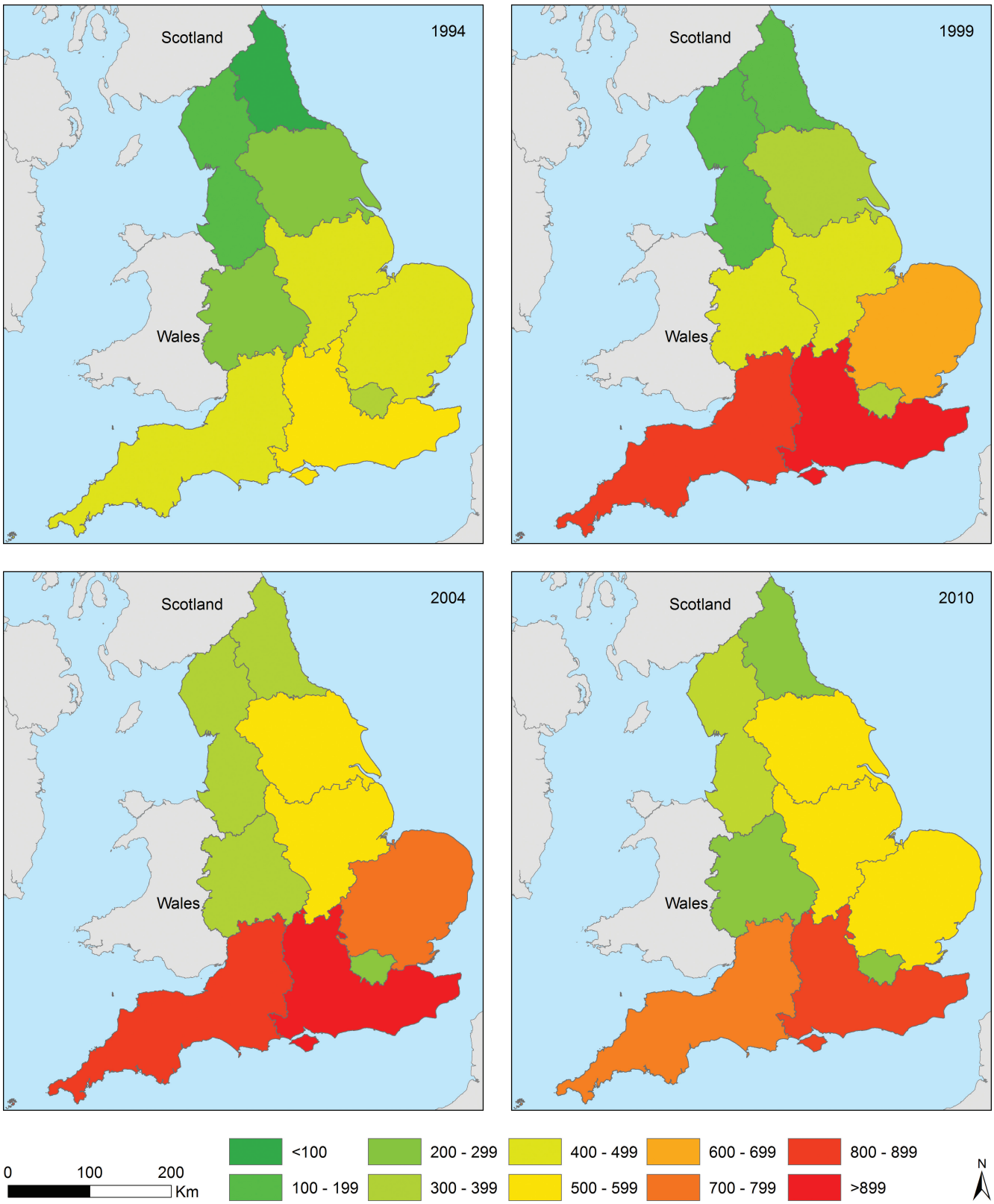

Figure 2.2 Snap-shot distributions of the number of archaeological investigations by region. (Data: AIP. Samples: 1994 = 2964; 1999 = 4394; 2004 = 4802; 2010 = 4361 records)

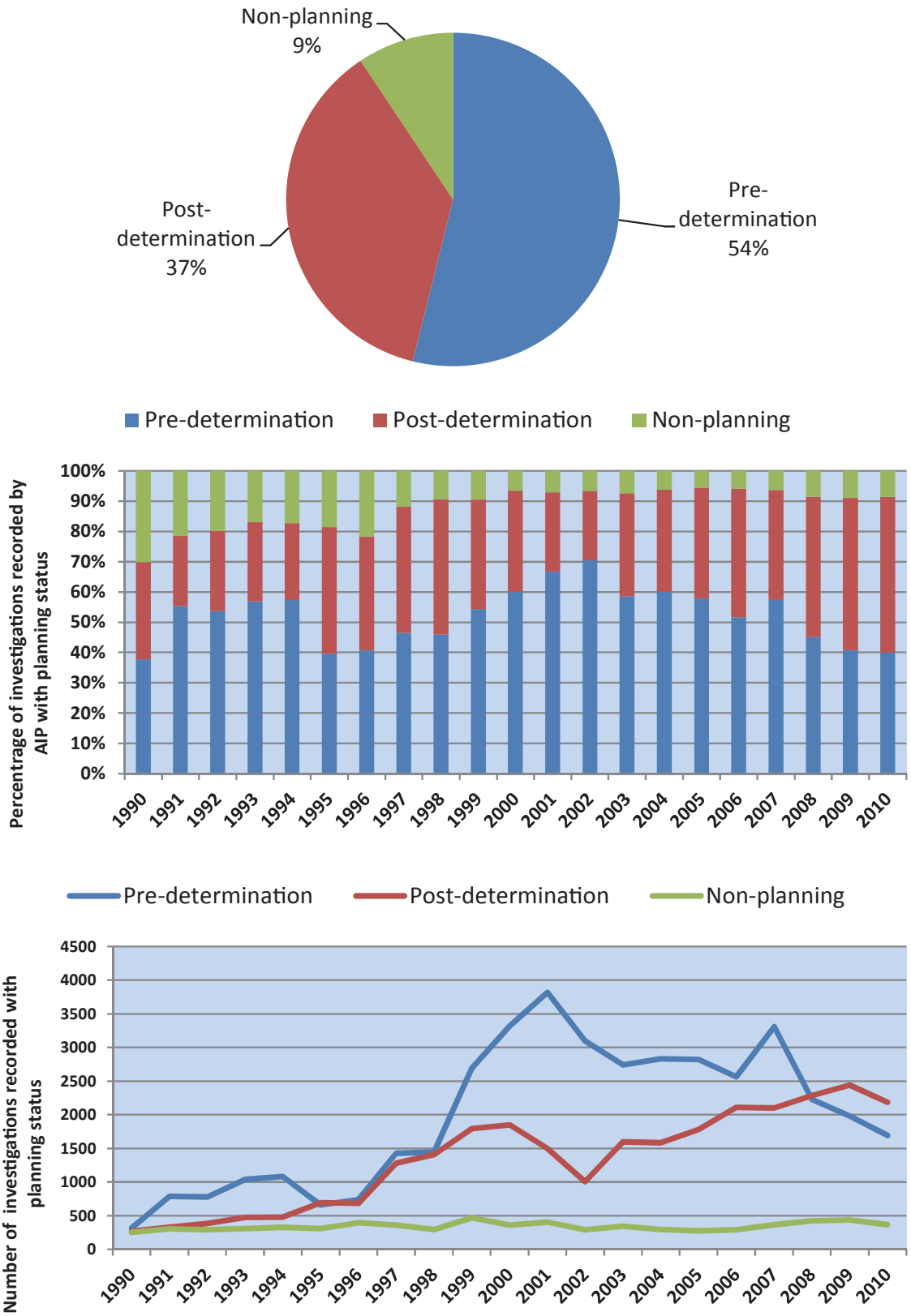

*Figure 2.3 Analysis of recorded archaeological activity in relation to the main defined investigation groups. **A**. Analysis for the PPG16 Era 1990–2010. **B**. Percentage of recorded investigations annually 1990–2010. **C**. Number of recorded investigations annually 1990–2010. (Data: AIP. Sample = 76,787 records)*

remained stable. By 2004 and the end of the third quarter, further increases had been recorded in the East Midlands, East Anglia, North East, North West and Yorkshire and Humberside. The South East and South West remained stable at the high volumes. However, investigations decreased in Greater London and the West Midlands. By 2010, there was evidence of a downturn during the recession. Activity in the East Midlands, Greater London, North West and Yorkshire and Humberside remained stable, whilst there were decreases in the number of reported investigations in East Anglia, the North East, the South East and the South West. However, the South East and South West remained at relatively high volumes compared to other regions. Whilst the number of investigations in the North East remained relatively low throughout the four snapshot years, activity in 2010 was around three times that of 1994. London, much smaller than the other regions but the powerhouse of investment and development throughout the PPG16 Era, was steady between 1990 and 1994, but fell back slightly in 2004 and 2010.

Changing research orientations

Over the two decades of the PPG16 Era about 90 per cent of recorded investigations were related to the planning process or connected with obtaining permissions and consents; around 54 per cent were related to pre-determination investigations, 32 per cent to post-determination works (Figure 2.3A). About 9 per cent of recorded investigations were non planning-related.

Although the overall balance between pre-determination and post-determination works is about right, the proportion of non planning-related investigations is probably an underestimation because it became increasingly difficult to track-down and record details of non planning-related investigations (*e.g.* university research projects, investigations by local societies, and Community Archaeology projects), especially when such work did not produce visible reports or publications of any kind whether in printed or digital formats. Notwithstanding these issues of representation, AIP records suggest that the proportion of archaeological investigations prompted directly by the planning system or property development process increased considerably over the PPG16 Era from around 70 per cent in 1990 to over 90 per cent in 2010 (Figure 2.3B).

Looking in more detail at the changing pattern of investigation groups over time it is noticeable that the number of pre-determination investigations exceeds the number of post-determination investigations for most of the period – the only exceptions being between 2009 and 2010 when it looks as if development projects that had been planned and granted permissions over the preceding five years were under construction with fewer new schemes being initiated (Figure 2.3C). There appear to be stalls or dips in the number of pre-determination investigations in some years following the general elections. There is a plateau in 1997–8, with significant drops in 2001–2 and 2005–6. There is slight growth in the number of post-determination investigations in 1997–8 and 2005–6 (but not 2001), as inevitable uncertainties in the development industry before a new government is elected, are calmed once a result is known. It is also notable that the recession starting in 2008 hit both pre-determination and post-determination investigations fairly hard as new-builds stalled and preparation studies slowed. Details of planning-related investigations are explored further in Chapters 3–5, and non planning-related investigations are explored in Chapter 6.

Geography of investigations

Figure 2.4 shows a series of heat-maps reflecting the density of investigations per square kilometre across England, measured cumulatively for the PPG16 Era. As might be expected, the patterns for pre-determination (A) and post-determination (B) planning-related investigations are very similar. Hidden from view here is that through the PPG16 Era, a few areas, including Kent, decreased the number of pre-determination investigations and opted instead for more extensive post-determination sampling and recording. Regionally, the greatest density of planning-related investigations is in London, where more than 5 per square kilometre have been recorded in some areas. But there are numerous other hot-spots too. Several major cities, including Southampton, Bristol, and York, are also clearly visible, as well as parts of the M4 corridor west of London, and the HS1 corridor in northern Kent. By contrast, the distribution of non planning-related investigations (C) is geographically more evenly spread, albeit at a lower overall density, across much of southern and central England with a concentration within and around London. Indeed, in these mainly rural areas it is just as likely that an archaeological investigation will be the result of curiosity-driven research as from a relationship to planning or development.

Environment and investigations

The general environmental context of investigations changed little over the PPG16 Era (Figure 2.5). Although marine archaeology accounts for only a small proportion of investigations overall (less than 1 per cent; Figure 2.5A), and has only been recorded in detail by AIP since 2005, it is an expanding field of endeavour. Work connected with opportunities for the exploitation of off-shore aggregates, mineral reserves, and renewable energy are developing alongside more traditional activities connected with shipping, port facilities, and coastal defence and are likely to grow. Between 1990 and 2010, however, the number of investigations in the marine environments remained relatively low. It is also a field of work complicated by the fact that it only partly falls within the town and country

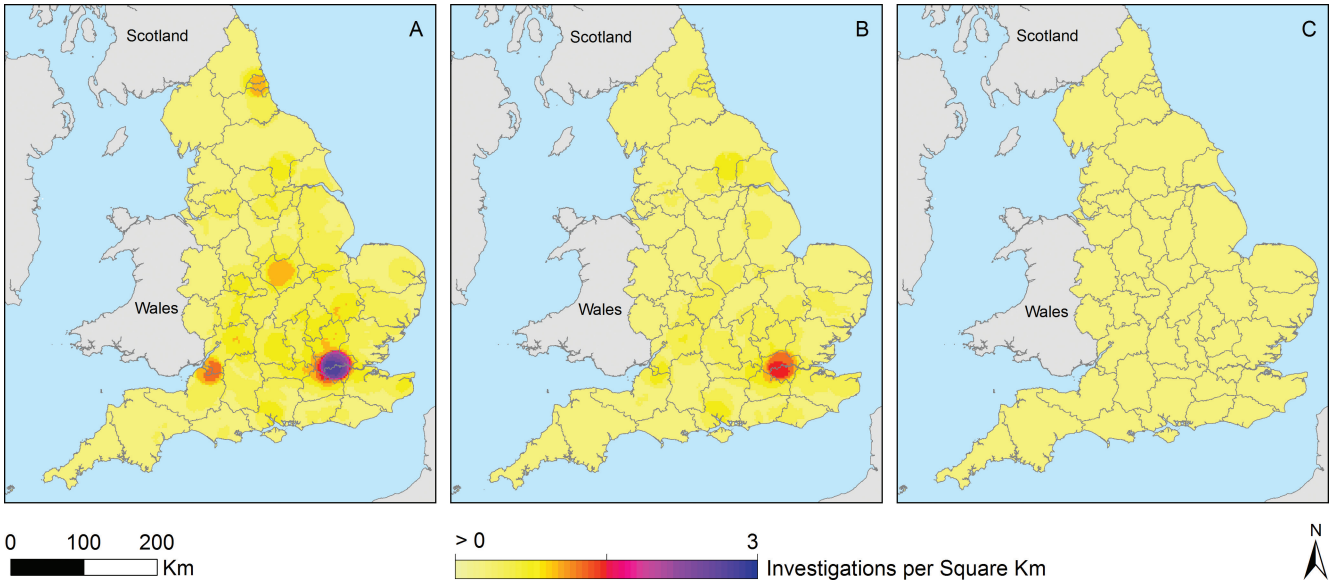

Figure 2.4 Heat maps showing the intensity of archaeological investigations by main investigation group in England 1990–2010. ***A.*** *Pre-determination planning-related investigations.* ***B.*** *Post-determination planning-related investigations.* ***C.*** *Non planning-related investigations. County boundaries shown. (Data: AIP. Sample = 80,799 records)*

planning system, so classifying such investigations for the purposes of AIP is far from easy (*see* Chapter 6).

For terrestrial archaeology the overall balance between urban and rural investigations has remained fairly constant with only slight fluctuations (Figure 2.5 B and C). The sharp reversal of activity recorded for 2008 is unexplained, but might be connected with the economic collapse at that time (see above). In looking at these figures it should be remembered that only about 10 per cent of the land area of England can be considered urban or built-up land, while the other 90 per cent falls within what is here categorised as rural land. Contextualised in this way, the environmental disparity in the focus of planning-related investigations is obvious.

The distribution of investigations across the country in relation to the main environmental situations is shown on Figure 2.6 using recorded data for investigation types and investigatory events. Rural investigations of all kinds are widely scattered, but concentrate slightly in central England. Naturally enough, urban investigations focus both on big cities such as London, Birmingham, and Liverpool as well as on historic cities such as York, Southampton, Cirencester, Canterbury, and Bath amongst others. Marine investigations are mainly coastal but the category includes work in estuaries and the tidal parts of major river systems as well as off-shore studies out to the 12-mile limit and are fairly well distributed around England's coastal fringe.

Investigation types

In terrestrial landscapes (urban and rural) the representation of the seven of the nine main investigation types monitored by AIP (*for definitions see* Chapter 1 and Appendix A) changes slightly over the course of the PPG16 Era (Figure 2.7). The overall trend is towards diversification, with building-recording work becoming a recognisable slice of the portfolio of activity from 1997 after PPG15 was launched. The proportion of desk-based assessments at around 10–15 per cent of all archaeological investigations remained fairly constant, as did the proportion of post-determination and research-based investigations that have been combined on this chart. The proportion of field evaluations has decreased over the 20-year period, even though the absolute number of such investigations has increased.

Excavations

One of the traditional long-term measures of archaeological activity is that of 'excavations' as a particular kind of archaeological event that in the public imagination at least has come to characterise the practice of archaeology. Defined rather broadly here to include all kinds of work that involves digging trenches larger than a test-pit in order to reflect the changing character of this work, the number of excavations undertaken each year can be fairly reliably tracked back before the PPG16 Era, some periods being the subject of study in their own right (Evans 2016). The Excavation Index was started in 1978 by the RCHME who worked across the country on a county by county basis recording retrospectively earlier excavations reported in books, journals, and annual reviews. By the start of the PPG16 Era they had created records for about 25,000 excavations undertaken before 1990 (RCHME 1991). The Index was transferred to English Heritage in

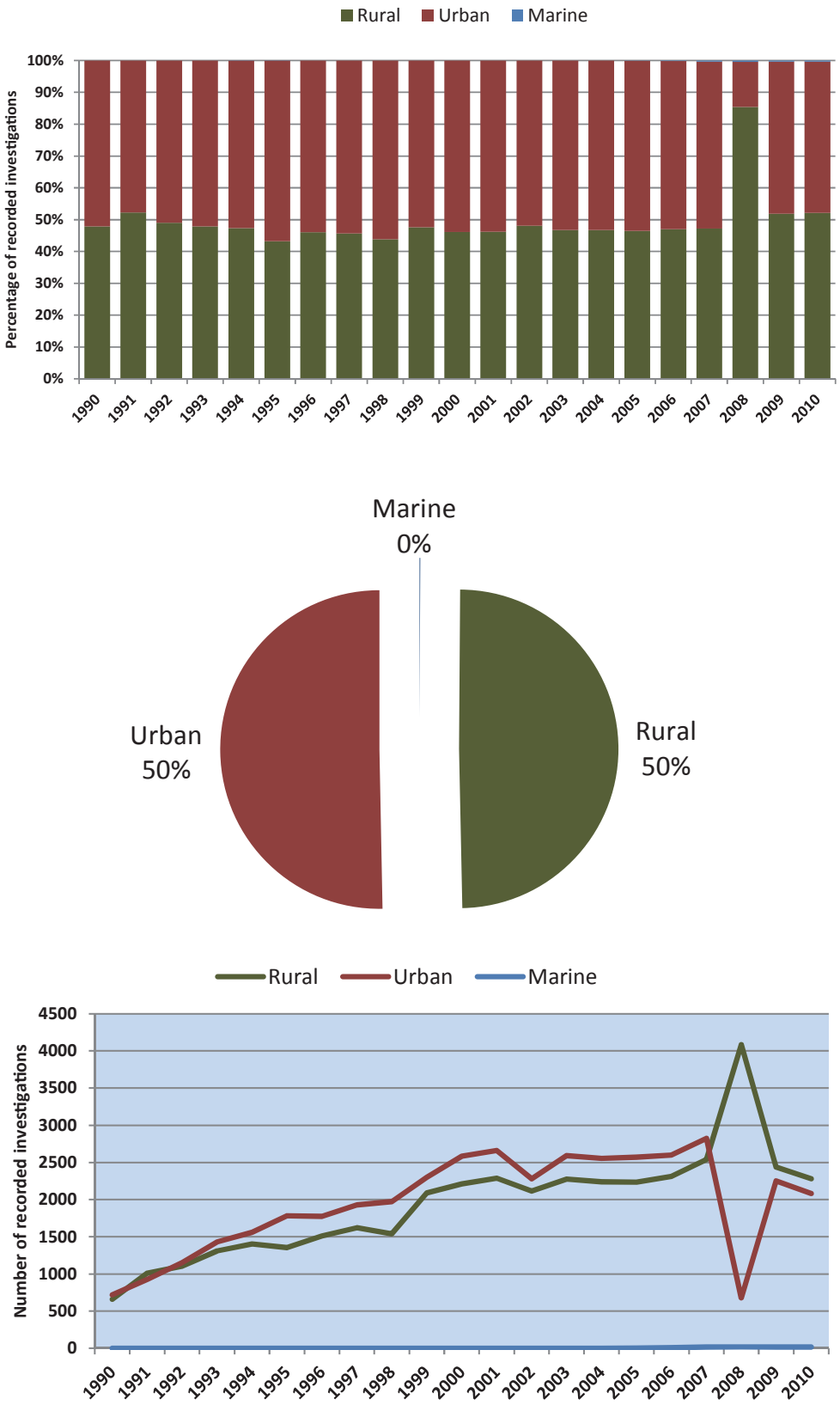

Figure 2.5 Broad environment of the recorded archaeological investigations in England. ***A.*** *Overall breakdown for the PPG16 Era 1990–2010.* ***B.*** *Percentage of recorded investigations by main environment annually 1990–2010.* ***C****. Number of recorded investigations by main environment annually 1990–2010. (Data: AIP. Sample= 81,924 records)*

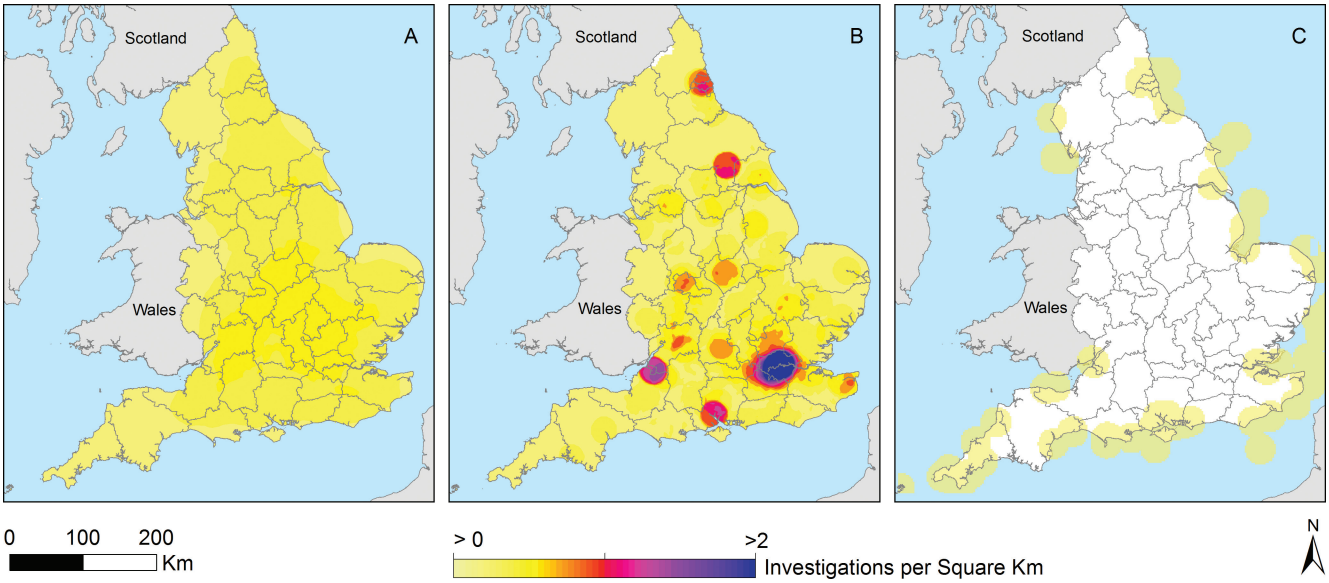

Figure 2.6 Distribution of archaeological investigations by broad environment 1990–2010. ***A.*** *Investigations in rural environments.* ***B.*** *Investigations in urban environments.* ***C.*** *Marine investigations. County boundaries shown. (Data: AIP. Sample = 86,481 records)*

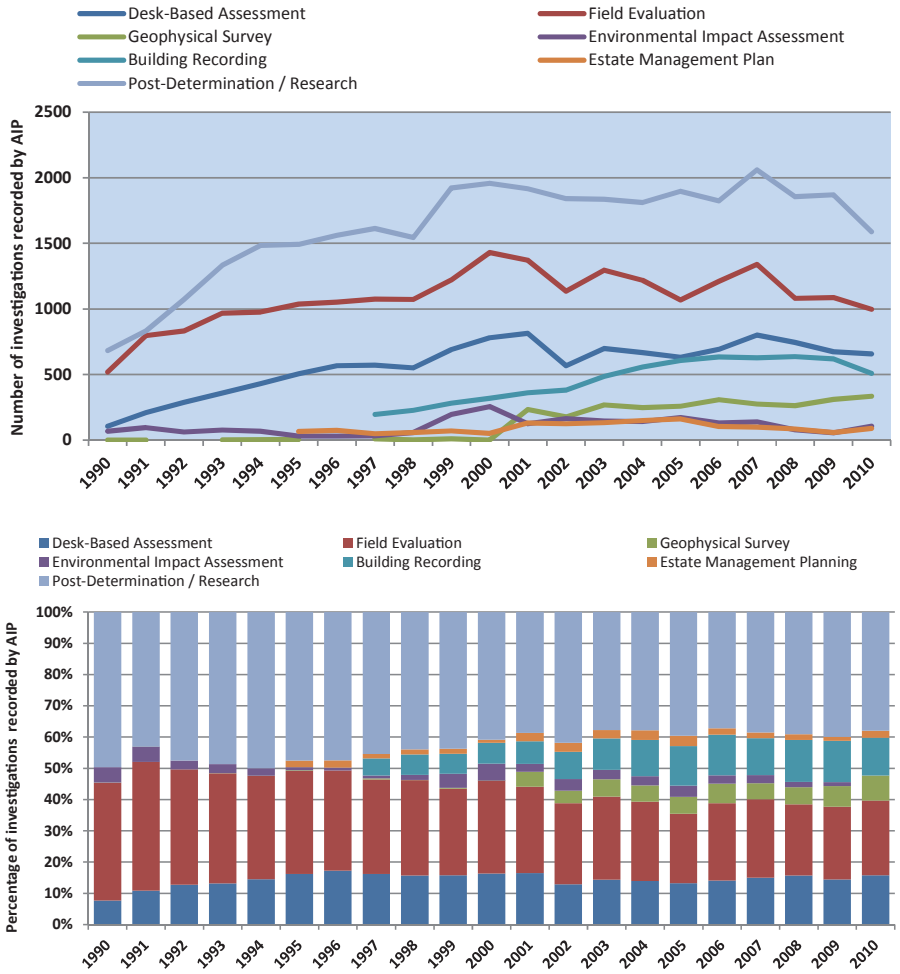

Figure 2.7 Main archaeological investigation types undertaken in terrestrial environments 1990–2010. ***A.*** *Number of investigations.* ***B.*** *Cumulative contributions of recorded investigation types by year. (Data: AIP. Sample = 81,924 records)*

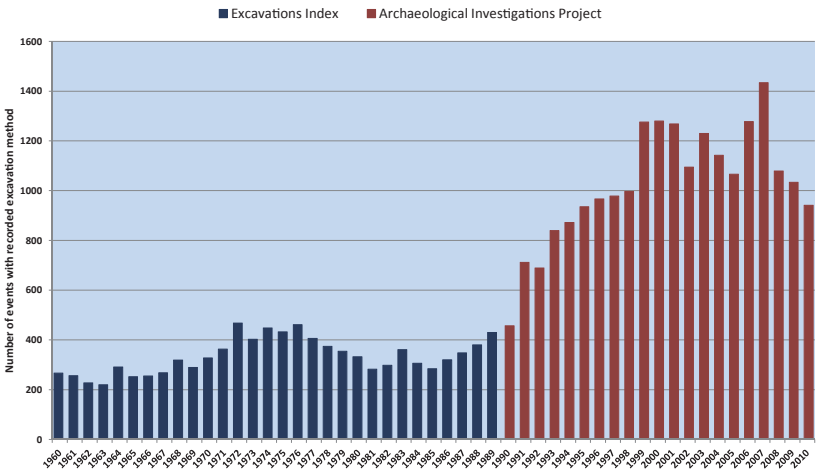

Figure 2.8 The number of excavations carried out in England by year for the period 1960–2010. (Data: RCHME/English Heritage Excavation Index and AIP. Samples: 1960–89 = 10,020; 1990–2010 = 21,569 records)

1999 where it formed part of the National Monuments Record, now incorporated into the National Record of the Historic Environment (NRHE), where its remit was expanded to include a range of investigations in addition to excavations *per se*.

As Figure 2.8 shows, there has been a steady rise in the number of excavations between 1960 and 2010, but the greatest scalar-lift in activity came in the mid-1990s. In part these changes reflect an expanding view of excavation itself from a formal system of trenching through to the array of approaches now used including open-area excavation, sample trenches, targeted trenches, full-excavation, part-excavation, and various permutations of the theme of 'strip-map-sample-record'. Small-scale changes following an almost rhythmic pattern can be seen with slight increases in the level of activity evident in the mid-1960s and mid-1970s associated with periods of expansion in the development world. The small spike in the mid-1980s can be accounted for by the inclusion of archaeological work within the Community Programme established by the Manpower Services Commission to reduce levels of unemployment and provide training/re-training opportunities for recent graduates and long-term unemployed (Crump 1987). A fair number of individuals who became professional archaeologists at that time are still part of the work-force and the long-term value of the scheme should not be underestimated. By the mid-1990s the effects of PPG16 were visible as the number of pre-determination and post-determination investigations built around excavations of various sorts became recognisable. This plateaued between 1999 and 2001, with a more uneven pattern through to 2006, followed by a singular peak in 2007 ahead of a down-turn through the last three years of the PPG16 Era.

Figure 2.9 shows the cumulative distribution of events that included excavation across England during the PPG16 Era – more than 22,500 in all. The concentration of such work in southeast England is very clear, the larger gaps here representing the New Forest, the Wield, and parts of Wessex Downs, with smaller gaps representing the Cotswolds, Chilterns, and parts of East Anglia. In northern and western England, the pattern of work is more clustered, mainly around areas of development. The line of Hadrian's Wall is clearly visible, as are the new road and railway lines through Kent. This distribution of archaeological activity will be important in reviewing and contextualising maps of archaeological discoveries and more conventional distribution maps of other categories of data.

Geophysical and geochemical surveys

Geophysical surveys proved to be one of the trickiest types of investigation to record as they can appear as a distinct investigation type (within which there can be a variety of survey events), or as discrete investigatory events within a range of investigation types (*e.g.* field evaluations, which again might include more than one survey event). In 1984 English Heritage created a Geophysical Survey Database to provide an on-line index of geophysical surveys undertaken by the Archaeometry Branch of the Ancient Monuments Laboratory since 1972, and, from 1979, all surveys undertaken on Scheduled Monuments and other protected places such as Guardianship Monuments and Areas of Archaeological Importance (Linford & Cottrell 1994a; 1994b). The database was transferred to the Archaeology Data Service in 2011 and subsequently included within OASIS.

Table 1.4 reports the number of geophysical investigation events logged by the AIP as 2756 for the period 1990 to 2010. This recording code was introduced to the system in 2001 with only a handful of records entered retrospectively for previous years. Thus, taken in isolation, Table 1.4 under-represents activity in this important field. The AIP database

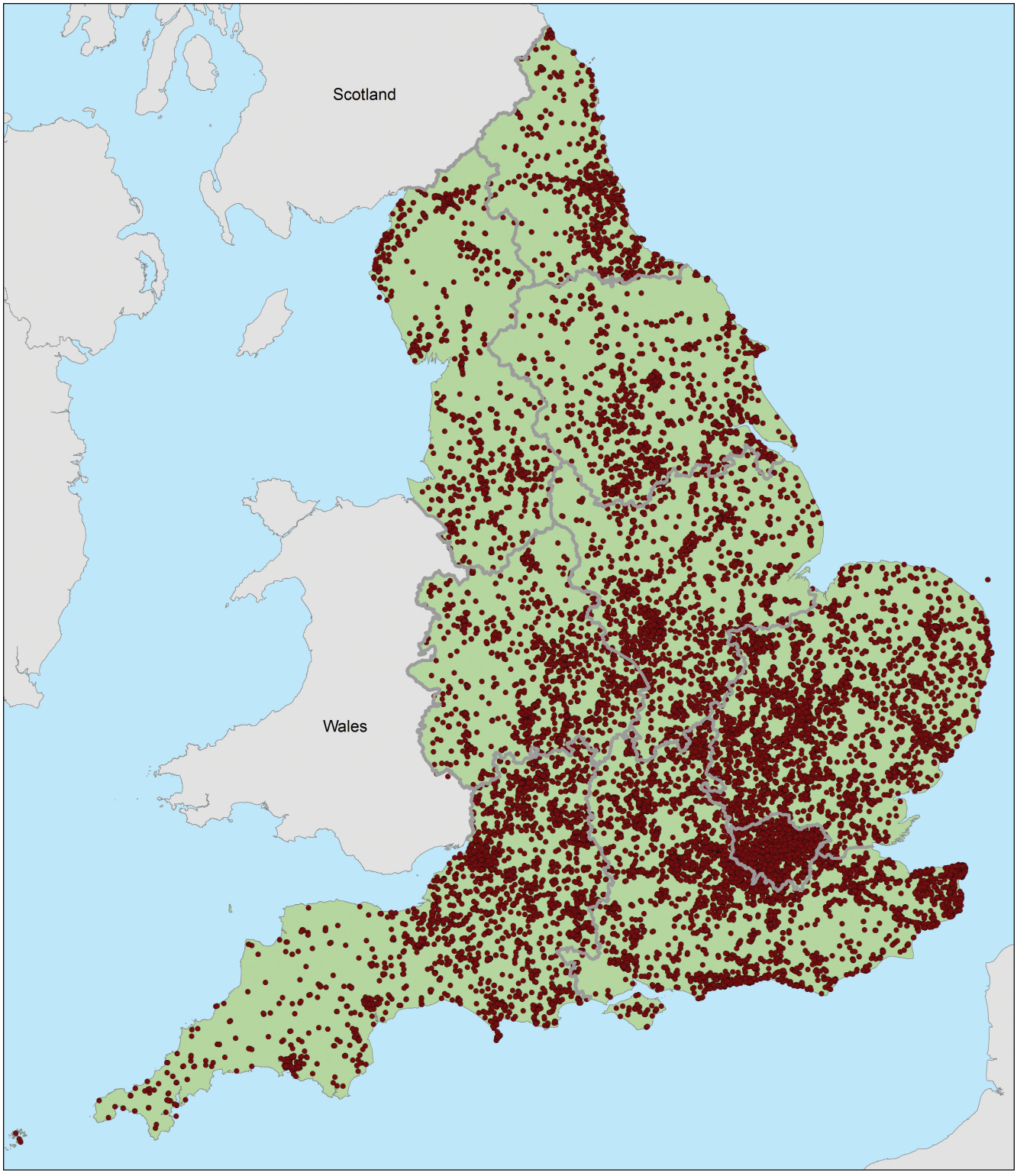

Figure 2.9 Distribution of excavations (all investigation types) in England 1990–2010. Regional boundaries shown. (Data: AIP. Sample = 21,569 records)

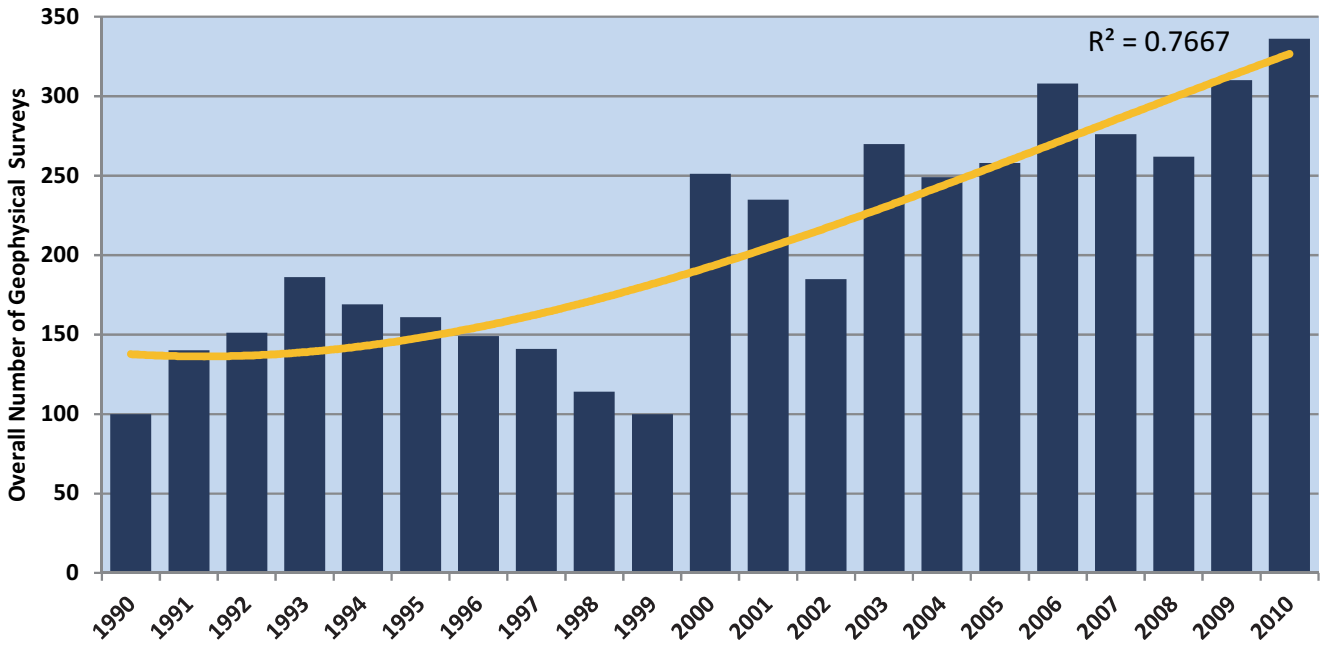

Figure 2.10 Geophysical surveys in England recorded by AIP year-by-year for the period 1990–2010. A three-order binomial trend-line added. (Data: AIP. Sample = 4351 records)

records 2207 geophysical investigations when queried as an investigatory method for the period 1990 to 2010. However, as detailed records of geophysical methods cover mainly 1990–2000, this is also likely to be an under-representation. When investigatory method records for geophysics 1990–2000 are concatenated with geophysical investigation events from 2001–2010 (Table 1.4) the overall total is 4351 recorded geophysical surveys during the PPG16 era. This compares with 2662 records on the English Heritage Geophysical Survey Database for the same period, when data is extracted from that system by individual year (Figure 2.10).

Figure 2.10 shows the overall distribution of geophysical surveys recorded by AIP between 1990 and 2010, with a trend-line and R-value. The dip in the late 1990s is in part at least an artefact of changing recording systems; the three-order polynomial trend-line provides a good representation of the overall pattern with a relatively high R-value. Table 2.1 shows the spread of geophysical surveys by region, with 4329 of the 4351 geophysical records being allocated an English Heritage region. The South West region had the highest number of surveys, followed by the East Midlands, Yorkshire and Humberside, and the East of England; Greater London had the lowest, as might be expected given its heavily urban character.

Figure 2.11 shows an analysis of the specific geophysical techniques used, a level of detail principally recorded during the period 1990–2000, which has resulted in years after this being under-represented. Overall, magnetometry has been the most widely applied geophysical survey method accounting for about 54 per cent of recorded events, with resistivity survey representing about 19 per cent of recorded events. Geochemical surveys involving the area mapping of magnetic susceptibility levels account for 8 per cent of recorded geophysical survey events, sometimes carried out in conjunction with magnetometry.

Metal-detector surveys were recorded where they took place as part of a structured archaeological investigation; no attempt has been made to record the casual or hobbyist use of metal-detectors, which is probably better reflected by data collected by the Portable Antiquities Scheme who report around 87,000 recorded finds in England for 2010 alone (PAS 2011: 25).

More than 30 organisations were involved in carrying out geophysical surveys during the PPG16 Era, although in many cases their reports are embedded in larger documents created and credited to other organisations in a way that is sometimes difficult to disentangle. Table 2.2 shows the top-20 contractors involved with geophysical survey based on the number of survey reports recorded from each, accepting that some work will have been sub-contracted and that the listing is based on records of geophysical methods for the period 1990–2001, and geophysical events recorded thereafter. GSB Prospection and Stratascan stand out as the leaders in the field in terms of the number of reports completed and both have been active for many years. Figure 2.12 shows the location of the headquarters of the top-20 contractors undertaking geophysical surveys at the centre of circles scaled to reflect the mean travel

Table 2.1 Number of recorded geophysical surveys by region 1990–2010.

Region	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
South West	18	18	21	15	16	24	12	15	15	22	44	60	35	54	65	45	64	48	64	95	88	838	19.4
East Midlands	26	13	45	33	51	36	58	38	26	18	75	36	29	44	27	48	47	45	24	47	67	833	19.2
Yorkshire & Humberside	9	45	19	31	25	22	24	26	18	8	47	33	48	59	50	46	68	53	41	60	71	803	18.5
Eastern Region	15	11	21	42	37	32	13	35	28	13	19	29	11	33	28	29	32	28	39	25	22	542	12.5
South East	9	13	17	37	13	16	28	13	12	8	23	23	20	28	22	31	40	42	33	33	39	500	11.6
North East	0	4	3	2	9	5	8	4	3	14	5	19	22	25	23	14	19	28	33	24	19	283	6.5
West Midlands	16	19	10	10	13	18	4	4	9	9	16	20	4	14	10	23	15	13	13	8	9	257	5.9
North West	5	16	10	13	2	8	2	3	2	0	9	10	10	10	17	18	20	18	10	15	20	218	5.0
Greater London	2	1	5	3	3	0	0	3	1	0	0	3	4	3	7	5	5	1	6	3	0	55	1.3
Totals	100	140	151	186	169	161	149	141	114	92	238	233	183	270	249	259	310	276	263	310	335	4329	

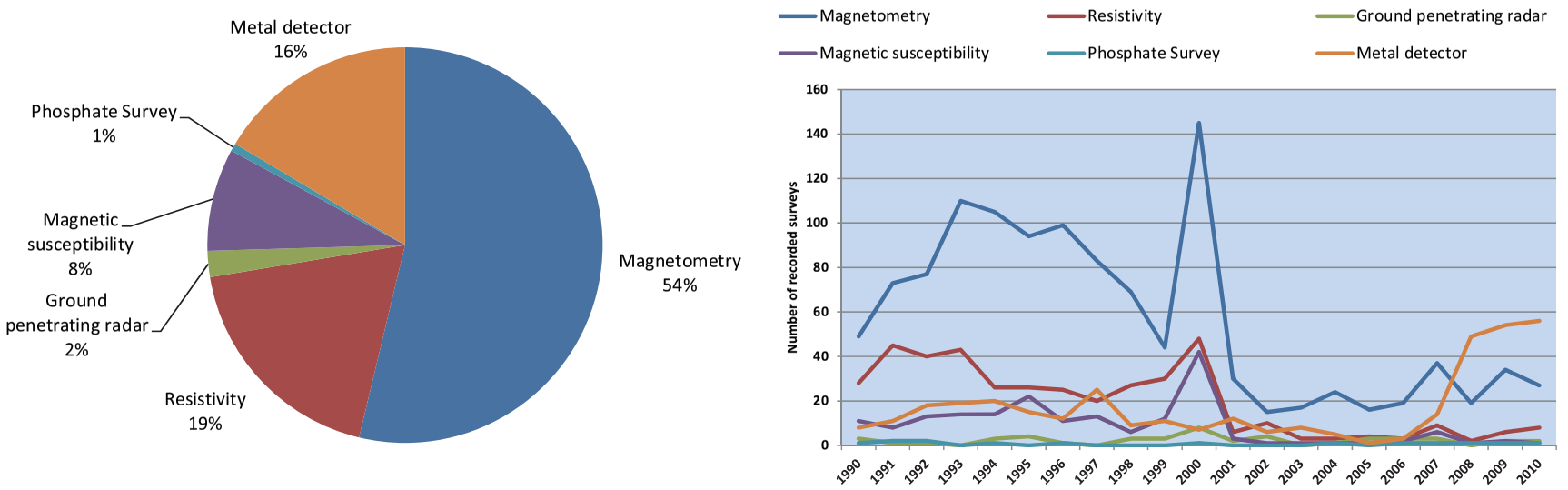

Figure 2.11 Analysis of geophysical and geochemical methods used in recorded Investigations. ***A.*** *Combined for the period 1990–2010.* ***B.*** *Year-by-year 1990–2010. (Data: AIP. Sample = 2207 records)*

Table 2.2 Top-20 contractors undertaking recorded geophysical surveys in England 2001–2010.

Consultant/Contractor	Number of recorded geophysical survey reports 1990-2010
GSB Prospection Ltd/Geophysical Surveys of Bradford	910
Stratascan Ltd	473
WYAS Archaeological Services	378
Northamptonshire Archaeology/Northamptonshire County Council	269
Archaeological Services/The Archaeological Practice, Durham University	175
GeoQuest Associates	147
Pre-Construct Archaeology/Geophysics	132
Birmingham Archaeology/University of Birmingham Field Archaeology Unit	83
Archaeological Surveys Ltd	72
Bartlett Clark Consultancy	66
Oxford Archaeotechnics	64
NAU Archaeology/Norfolk Archaeological Unit	58
Wessex Archaeology/Trust for Wessex Archaeology	58
University of Leicester Archaeological Services/Leicestershire Archaeological Unit	56
Albion Archaeology/Bedfordshire County Council	54
Cotswold Archaeology/Cotswold Archaeological Trust	45
English Heritage	45
Oxford Archaeology North/Lancaster University Archaeological Unit	42
Archaeology South-East/South Eastern Archaeological Services, University College London	42
Trent & Peak Archaeological Unit/Trust	41

distance to recorded investigations they have undertaken. The large size of many of the circles shows that companies and organisations engaged in geophysical survey generally travel considerable distances to do their work, several having national coverage given that circles show the mean distances covered. Because of the technical specialty, and the capital costs of the equipment, geophysical contractors often produce reports as sub-contractors to other companies, working as part of a larger investigation team.

Who did the work?

More than 2000 organisations undertook archaeological investigations in England during the PPG16 Era. These include archaeological contractors (mainly not-for-profit organisations, some of which are attached to university departments or local authorities), government agencies and national bodies, university departments carrying out teaching and research projects, and voluntary sector organisations. Figure 2.13 shows a series of heat maps reflecting the distribution of recorded investigations (investigation types and some investigatory events) undertaken by organisations in these main sectors across England during the period 1990–2010. The greatest density of activity is that undertaken by commercial contracting units (A). Significant contributions are also represented by university-based contractors (B) and small independent contractors (C) who mainly comprise sole-traders operating with small teams of associates. Local and county-based amenity societies concentrate in discrete areas (D), as do the range of projects undertaken by university departments, national organisations, and government bodies (E, F, and G). Further details of what these various kinds of organisation did and what they found will be discussed in later chapters.

Figure 2.12 Map showing headquarters of the top-20 contractors undertaking geophysical surveys (see Table 2.2) at the centre of circles scaled to reflect the mean travel distance to recorded investigations. Regional boundaries shown. (Data: AIP)

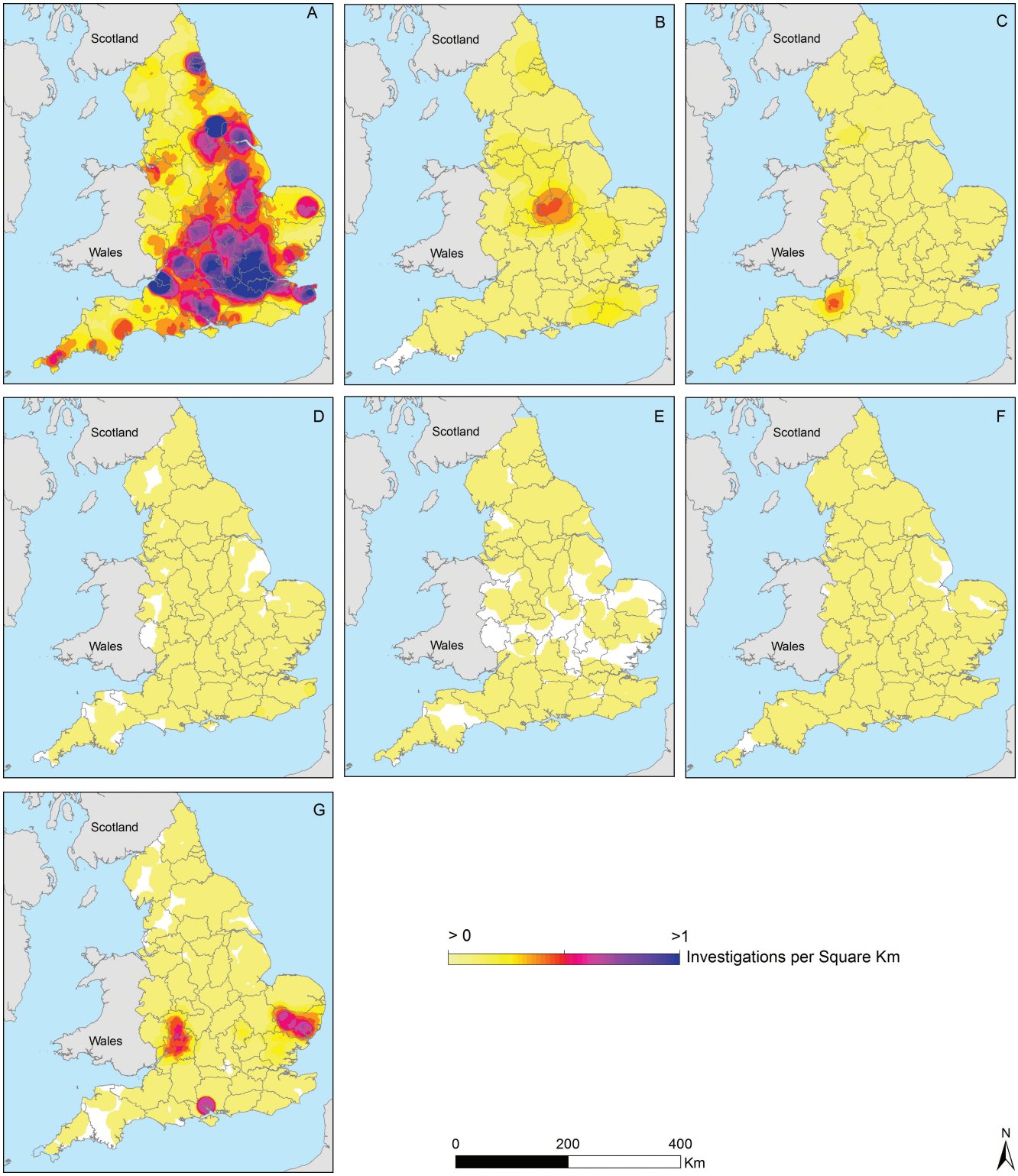

Figure 2.13 The heat maps based on the recorded number of investigations carried out between 1990 and 2010 per square kilometre for seven main types of organisation. ***A.*** *Archaeological contracting units.* ***B.*** *University contracting units.* ***C.*** *Independent contractors.* ***D.*** *Voluntary sector organisations.* ***E.*** *University departments.* ***F.*** *National organisations.* ***G.*** *Government bodies. Some recorded investigations including contributions from more than one type of organisation. County boundaries shown. (Data: AIP. Sample = 89,951 Investigatory events)*

Chapter 3

Investigations for strategic planning and development control

Throughout the PPG16 Era spatial planning in England was based upon a two-stage 'plan-led' system. High-level long-term plans ('strategic plans') were prepared for each relevant administrative area so that specific development proposals could be determined in relation to their conformity with the plan and adherence to national policy guidance ('development control' also known as 'development management'). At the start of the PPG16 Era the underpinning enabling legislation was the *Town and Country Planning Act 1990* with 15 parts, 337 sections, and 17 schedules, complemented by three further substantial but separate acts: the *Town and Country Planning (Listed Buildings and Conservation Areas) Act 1990*, the *Town and Country Planning (Hazardous Substances) Act 1990*, and the *Town and Country Planning (Consequential Provisions) Act 1990*. These were subsequently amended by the *Planning and Compensation Act 1991*, expanded by the *Planning and Compulsory Purchase Act 2004*, and, later still, consolidated by the *Planning Act 2008*. Since 2010 further changes have been prompted by the *Localism Act 2011*, the *Enterprise and Regulatory Reform Act* 2013, and various other pieces of legislation (*see* Chapter 10). Within the context of changing political philosophies discussed in Chapter 1 these acts progressively modified the remit of local planning authorities, the nature and content of the plans they had to prepare, and the basis of decision-making within the development control process. The enabling legislation also provided the framework for environmental assessment, discussed in Chapter 4. Figure 3.1 shows in simplified diagrammatic form the main workings of the planning system in England during the PPG16 Era. Top-down inputs include government policies and local needs-assessments providing context and guidance. Bottom-up inputs comprise proposals for particular development schemes put forward by public and private bodies and individuals. And providing checks and balances in the system are the dual strands of environmental assessment.

Over the 20 years between 1990 and 2010 the volume of documentation published in support of the planning system increased considerably. The number of PPGs, for example, rose from 14 in 1990 to 25 by 2009. They stood alongside Minerals Planning Guidance Notes, Regional Planning Guidance, Development Control Policy Notes, and scores of circulars that altogether covered an estimated 7000 pages of printed text (*see* Elvin & Lockhart-Mummery 2014 and earlier iterations for a record of changing legislation and guidance). It was a situation that many observers and government advisors felt was getting out of hand, and starting as early as 1998 there were attempts to modernise and simplify the system (DETR 1998; 1999b; 1999c).

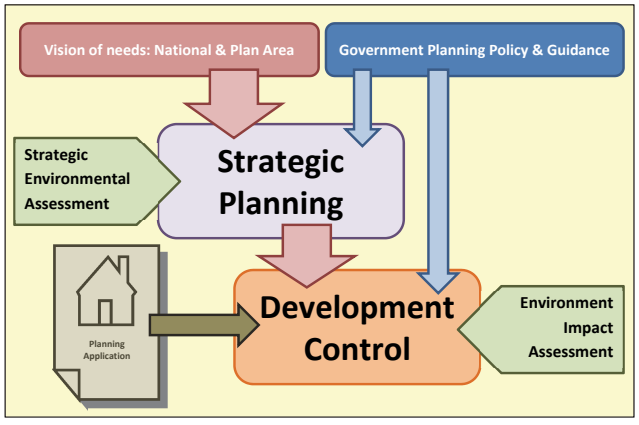

Figure 3.1 Diagram illustrating in simplified form the main components of the town and country planning system in England during the PPG16 Era and their principal relationships.

By 2004 the desire for planning reform was very strong indeed, clearly articulated, and placed high on the political agenda (ODPM 2004). Many of the principles set out at that time were subsequently followed through with increasing vigour by successive Governments of different political complexions.

In relation to guidance on the historic environment, reform initially meant the conflation of PPGs 15 and 16 into PPS5 in 2010 (Aitchison 2010c; DCLG 2010; *and see* Southport Group 2011 for a broad sectorial response to the changes). Then, in March 2012, the guidance was further consolidated as Section 12 of the *National Planning Policy Framework* (DCLG 2012a). Longer-term, these changes mark the start of a radical overhaul of the documentation amid calls for the simplification and realignment of the system itself (DCLG 2012b; Geoghegan 2013a). Regulations that the DCLG is looking at altering in future include those associated with planning procedures, major infrastructure, and local plan-making (Geoghegan 2013b; Smith 2014), as further discussed in Chapter 10.

Here the focus is on the PPG16 Era, looking first, rather briefly, at archaeology in relation to strategic planning before turning attention to the much larger and more varied field of archaeology within the development control process.

Strategic planning

Spatial planning is the process of place-shaping. It aims to produce a vision for the future of places or territories that responds to local challenges and opportunities, and is based on evidence, a sense of local distinctiveness, and community-derived objectives within the overall framework of national policy. Operationally, strategic planning takes place at a regional and local level through the construction, debate, negotiation, and agreement of development plans for specific administrative areas. Conservation issues, including archaeological provisions, have long been a component of strategic plans (CC *et al.* 1993; EH 1992). The confirmed plans identify how positive social, economic, and environmental contributions to the overall vision will be delivered, and provide frameworks for decision-making and development control. Amongst the topics covered by strategic plans are the expected constraints on development in relation to the conservation of archaeological remains and heritage assets, and how any impacts can be minimised. Since 2001 most extensive spatial plans have been subject to strategic environmental assessment (SEA) in order to better inform decision-makers about the sustainability of the strategies and the plan, and to ensure that the full impact of delivery schemes on all aspects of the environment are understood (*see* Chapter 4).

Over the PPG16 Era and through to 2012 there have been three main articulations to the format of strategic plans, a situation made more complicated by the parallel evolution of local government administrative organisation. The overall pattern is summarised in much simplified form on Figure 3.2. Three changes are worth highlighting. First, at national level, Government regions continued after 2010, but have no role in strategic planning. Second, although National Parks had important roles in relation to town and country planning from their first creation under the *National Parks and Access to the Countryside Act 1949* this was given effect through Joint Planning Boards (expanded by the *Town and Country Planning Act 1971*). It was not until the *Environment Act 1995* that they were given a full range of powers as independent local planning authorities. Third, Unitary Authorities were first created as part of a move towards single-tier local government through the *Local Government Act 1992*. Most were established in the mid-1990s, with a further tranche in 2009. Unitary authorities have the combined powers and functions that are elsewhere separately administered by councils of non-metropolitan counties and the non-metropolitan districts within them.

Considerations of archaeology and the historic environment can be found as a component of all three articulations of strategic planning, following the general guidance set out in PPG16 that:

> *Development plans should reconcile the need for development with the interests of conservation including archaeology. Detailed development plans ... should include policies for the protection, enhancement and preservation of sites of archaeological interest and their settings.* (DoE 1990: para 15).

Between 1990 and 2004 policies relating to the historic environment were present in all county structure plans, and most unitary development plans and local plans. Some shire counties, including for example Wiltshire, also had a subject plan for landscape which included archaeology and heritage (WCC 1986). In 2004 overhauls to the planning system created a more distinctively two-tier approach with a series of nine Regional Spatial Strategies that were coincident with the Government Regions of the time setting the framework for Local Development Frameworks created mainly at the level of Unitary Authorities, Districts, and National Parks. The Regional Spatial Strategies generally included a policy to protect and enhance the natural and historic environment of the region (*e.g.* SWRA 2006: 144 Policy ENV1). The Local Development Frameworks could include Supplemental Planning Documents, of which a few authorities, including for example Dudley and Wandsworth, created documents outlining their approaches to archaeology and the historic environment. Nationally, however, there was a clear steer to discourage the production of documents at a local level that repeated or duplicated national planning guidance.

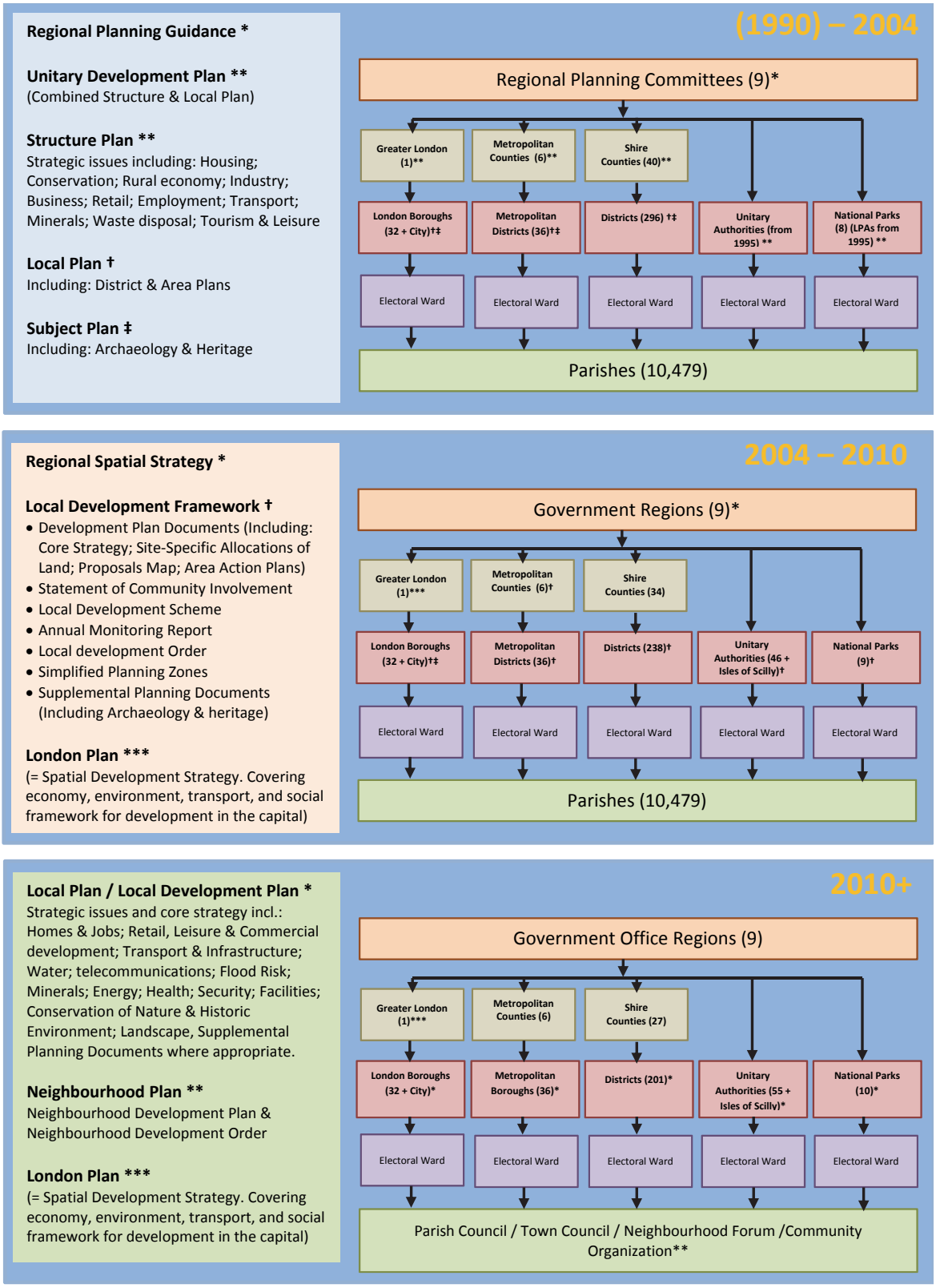

Figure 3.2 Summary of the main tiers of local government administration during the PPG16 Era in relation to the kinds of strategic plans each authority was expected to produce. The number of authorities in each category relates to the situation obtaining in 1990, 2004, and 2010 respectively. The Norfolk Broads are included in the count of National Parks since designation in 1998. (Data on local authorities from Municipal Yearbook and Whitaker's Almanack)

Since 2010, when the strategic planning arrangements changed again, slow progress was initially made in bringing plans into line. Revocation of the Regional Spatial Strategies proved far harder than first imagined, and many remained in place until 2012 (Cook 2012). The production and adoption of revised local plans by the 336 councils and National Park authorities in England has been patchy. A snap-shot of progress to January 2013 showed that 46 per cent had completed the process, 23 per cent had published plans that were under review, and 31 per cent of authorities had yet to publish their plans (Carpenter 2013). Neighbourhood planning has been fairly slow to start, but by March 2013 some 433 applications had been made from local groups wishing to draw up neighbourhood plans (Geoghegan 2013c). The first plan to be fully approved through a local referendum was that for Upper Eden, Cumbria, completed in March 2013 (Pinder 2013), quickly followed by Thame in Oxfordshire and Exeter St James in Devon (Cook 2013). Many more followed and by March 2017 some 380 plans were in force in England (DCLG 2017a: 9); very few plans failed at referendum, the first being Swanwick, Derbyshire, in October 2016 (Gardiner 2016). Environmental issues of various kinds form a key feature of many neighbourhood plans (Kirk 2014), some with archaeological and heritage issues (Anon 2017; *and see* Chapter 10) and some associated with local heritage lists (Geoghegan 2017a).

Amongst the most contentious and hard-fought aspects of strategic planning through the PPG16 Era has been the matter of target numbers for housing and site-specific allocations of land for development (Dimitriov & Thompson 2007). The former is essentially a numbers game that starts at the national and regional level but which rapidly cascades down into real-politic at the county, district, national park, and neighbourhood level as targets have to be converted into reality through the designation of land suitable for housing as part of the overall designation of land for future development. The local planning authority has to balance the many conflicting demands and interests in allocating land but pushing in the opposite direction are the interests of land-owners and developers whose interests may be best served by promoting their own land-holdings for future development. This is especially the case with business interests whose land-holdings were accumulated as long-term investments, as for example in the case of pension companies, when the company seeks to capitalise its potential profits. The debates are often played out at public hearings set up to test draft strategic plans, and in some cases through formal appeals to the Secretary of State and judicial review.

Archaeology and historic environment issues are sometimes part of the debate in relation to land allocations for two reasons. First, landowners seeking to promote their holdings in the allocation process sometimes commission desk-based assessments (DBAs) and field evaluations to emphasise their understanding of the conservation issues and, hopefully, to demonstrate the minimal impact that development on their land will have. Second, because sometimes there is competition for allocations, one party might commission a DBA for several areas to show that theirs is the best option in terms of having the minimum impact on heritage assets.

No national figures are available for the extent of investigations specifically carried out for strategic planning debates, but there are some celebrated cases. At Tewkesbury, Gloucestershire, for example, the Borough Local Plan for the period 1991–2011 included housing allocations to the south and southwest of the town. These areas, which included the site of the Battle of Tewkesbury fought in 1471 during the Wars of the Roses, had been fieldwalked and subjected to DBA in order to document their archaeological content and potential before representations were made to the public inquiries held into the draft plans (Anon 1994; Miles 1993; Morris 1999).

Development control

Development control, also known as development management, relates to the decision-making process for determining planning permission, which is required for all forms of development defined in the 1990 Act as:

> *the carrying out of building, engineering, mining or other operations in, on, over or under land, or the making of any material change in the use of any buildings or other land.* (Town and Country Planning Act 1990: 55.(1))

Although superficially wide-ranging it by no means covers all operations that are potentially damaging to archaeological deposits. Under English law there has long been a general presumption in favour of development, clarified in 2012 to mean 'sustainable development' (DCLG 2012a: 3). A periodically revised *Town and Country Planning (General Permitted Development) Order* (popularly known as the GDO) provides exceptions for many minor works. Questions of land-use change are made in relation to a series of defined land-use classes that are set out in *Town and Country Planning* (*Use Classes) Order 1987* (as amended). This excludes changes to agricultural land, for example ploughing-up pasture to be used as arable land. Exemptions and a general relaxing of the requirements exist for certain defined special areas identified for growth, regeneration, and enterprise. Equally, planning controls are generally tighter in certain specially designated areas or where specific features or resources have been identified; such cases are identified through approved strategic plans and, since 2012, the *National Planning Policy Framework*.

Applications for planning permission are made to the relevant local planning authority (LPA) which may be a

county council, district council (here including city councils and borough councils), unitary authority, or National Park authority, depending on the situation of the development site and the nature of the proposed development. Under current arrangements, any LPA is at liberty to obtain specialist advice in relation to matters such as archaeology from another source if it so chooses either on an ad hoc basis or through formal agreement. This allows the possibility for the development of joint or lead services, and the opportunity for private companies to supply data or information (Baker & Baker 1999: 36–37).

It is important to recognise, however, that most planning decisions are ultimately in the hands of elected representatives sitting on planning committees rather than local government officers (although many authorities give officers delegated powers in defined areas). Exceptions include: cases where an application is 'called-in' for determination by the Secretary of State (often in the light of the findings of a Local Inquiry of some kind); where a development is the subject of an act of parliament (as for example the High-Speed Rail link from London to the Channel Tunnel known as HS1); and, between 2008 and 2012, large-scale nationally important projects which were considered by the Infrastructure Planning Commission (now disbanded and responsibility handed to the Planning Inspectorate).

In determining planning applications, the relevant authority must take into account a wide range of considerations (so-called 'material considerations'), and, since 1985, the results of an environmental impact assessment (EIA) in the case of large and potentially damaging schemes (*see* Chapter 4). Overall, it is better to see the determination of planning applications as a staged decision-making process rather than a single event. Using her experience as a county archaeologist working in two local planning authorities Ruth Waller reviewed the way the system works, and the role of the specialist archaeologist in contributing to the process, through the perspective of decision-theory (2011). On a wider front the PLANARCH Project covering five regions around the Southern North Sea has emphasised the need for systematic data collection as the basis for making sound and sustainable decisions through the planning process (Cuming *et al.* 2001).

Because the granting of planning permission is subject to the full process of English law with its implicit rights of appeal and judicial review, attention has increasingly focused on the process of determining applications within both the planning system and in the development industry. Appeals in relation to archaeological matters are relatively rare, but they do crop up from time to time (Kidd 2012). It has become common to speak of pre- and post-determination activity and

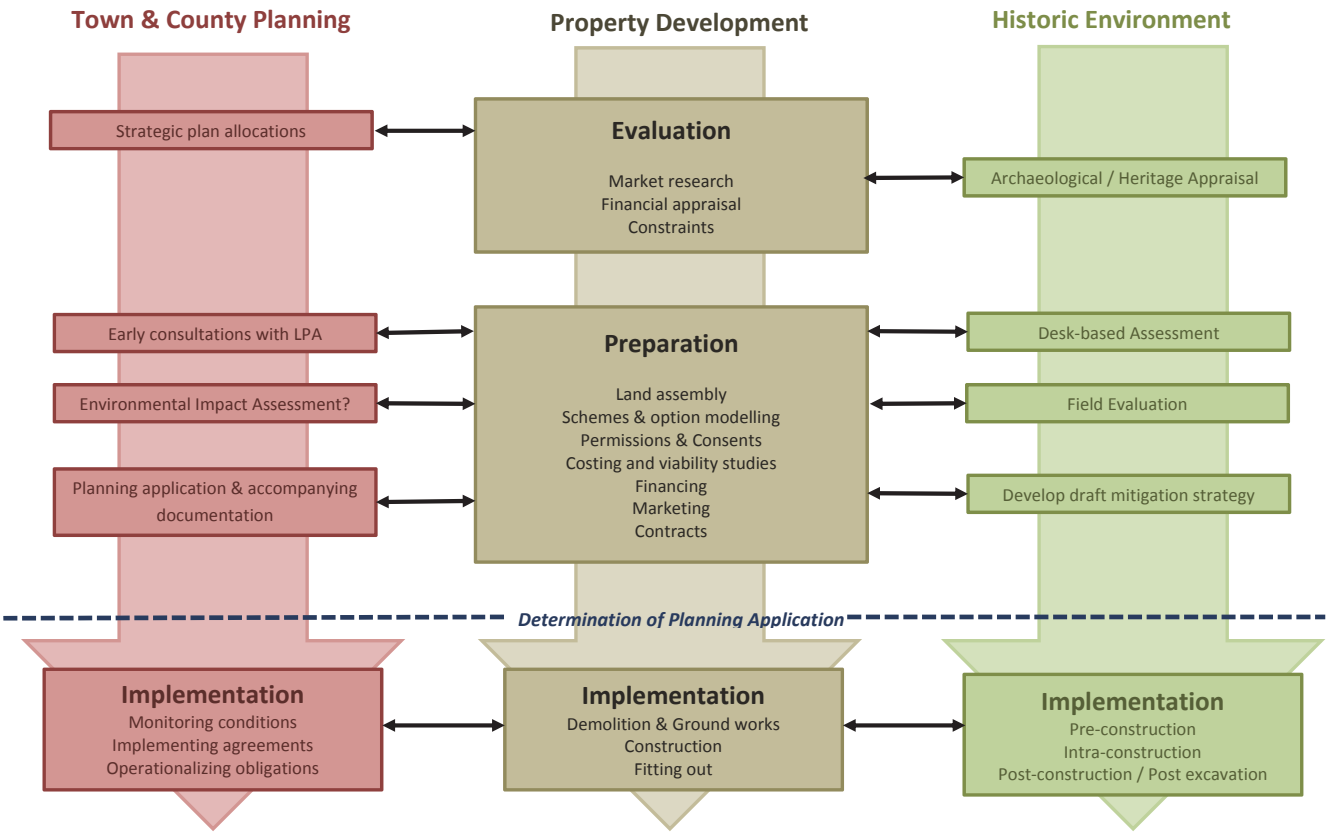

Figure 3.3 Simplified work-flow models for the parallel processes of planning, development, and historic environment studies.

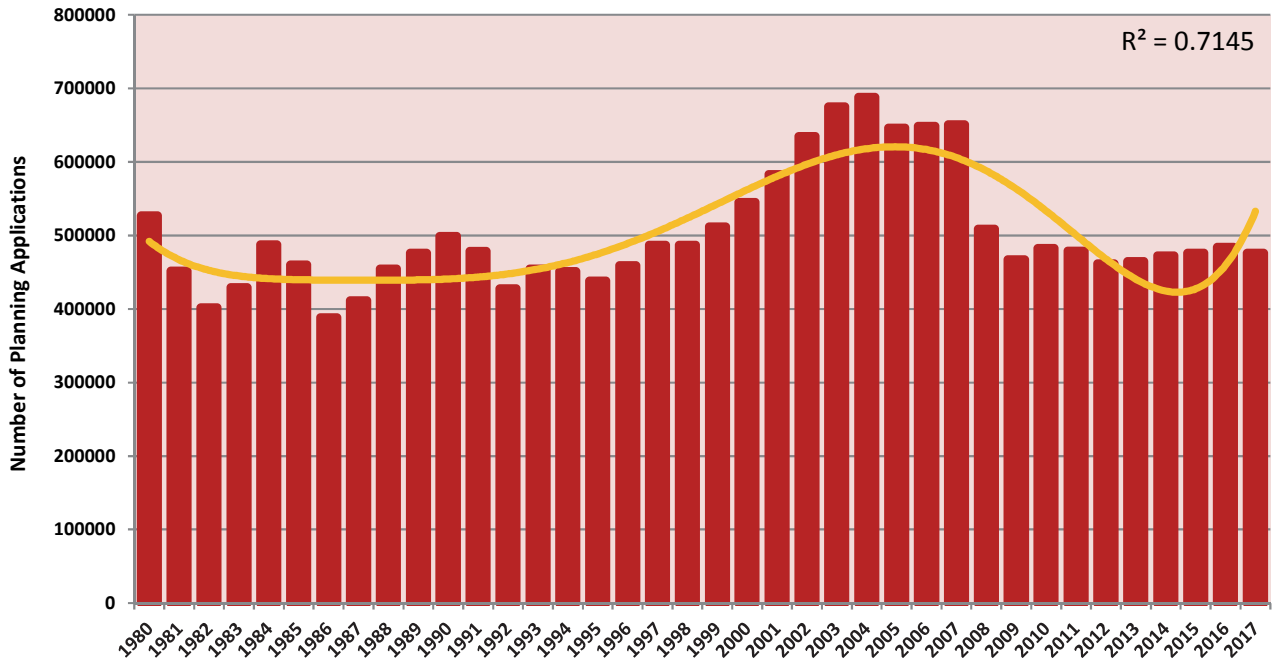

Figure 3.4 Number of planning applications made in England year-by-year for the period 1980 to 2017 with a six-order polynomial trend-line superimposed to represent the long-term pattern of change. (Data: DoE, DETR, and DCLG. Sample = 18,065,328 recorded applications)

Figure 3.3 shows in schematic form how, in an ideal situation, the various components of the system mesh together and how the archaeological management cycle discussed in Chapter 1 engages with the town and country planning processes and key stages in the development process. From the development perspective, and regardless of the scale of the proposal or the status of the developer (who may be a commercial company, a private individual, or a public body), the costs of all pre-determination operations must be considered as speculative investment for the creation of a viable scheme that will be lost if the proposals fail for any reason, including not being given planning consent. Overall, the success rate of planning applications is fairly high and fairly consistent – 85 per cent in 2010 – but averages can be misleading as it tends to be the larger and more contentious proposals that are sometimes rejected while the vast majority of small-scale non-contentious schemes sail through. It is also worth remembering at this point that planning permission does not confer consent in respect to any specific designations that apply to buildings or land (for example designation as a Scheduled Monument), and vice versa. Applying for these additional consents is a parallel process and these too involve operations that can be characterised as pre- and post-determination investigations (*see* Chapter 7).

PPG16 promoted the idea of pre-determination discussions between the specialists working for prospective developers (contractors and consultants in standard archaeological terminology) and their counterparts working in local planning authorities or government agencies (curators in archaeological terminology). This seems to happen widely although there are no direct quantifications of the level of activity, not least because discussions may be informal and, by their very nature, both speculative and confidential.

More than 17 million planning applications were made across England during the PPG16 Era; Figure 3.4 shows a breakdown of planning applications made in England annually between 1980 and 2017. Superimposed is a six-order polynomial trend-line that clearly shows the long-term equilibrium punctuated by periods of increased development activity. In more detail, there is a relatively high-point in 1980 with numbers of applications dropping back slightly before another peak in the mid-1980s and again around 1990 coincident with the appearance of PPG16. Numbers then fall back through the mid-1990s after which there is another wave of sustained growth that peaks in 2004 followed by a fall through to 2009. Initial indications suggest a slight rise in numbers in 2015, which may mark the start of the next wave of activity. These peaks and troughs broadly match economic cycles and the associated alternating periods of prosperity and austerity. Looked at from short-term perspectives it is easy to get carried along on the swelling waves of growth and despondent as each wave breaks. But viewed over the long term it may be noted that the scale of activity represented by the number of planning applications in 2010 was about the same as in 1991 and 1998 and this can be taken as a sustainable baseline.

Looked at regionally from 1980 through to 2010 (Figure 3.5) it is notable that broadly similar wave-like patterns apply in all nine areas, but that the absolute numbers vary considerably. In the South East there is far more marked

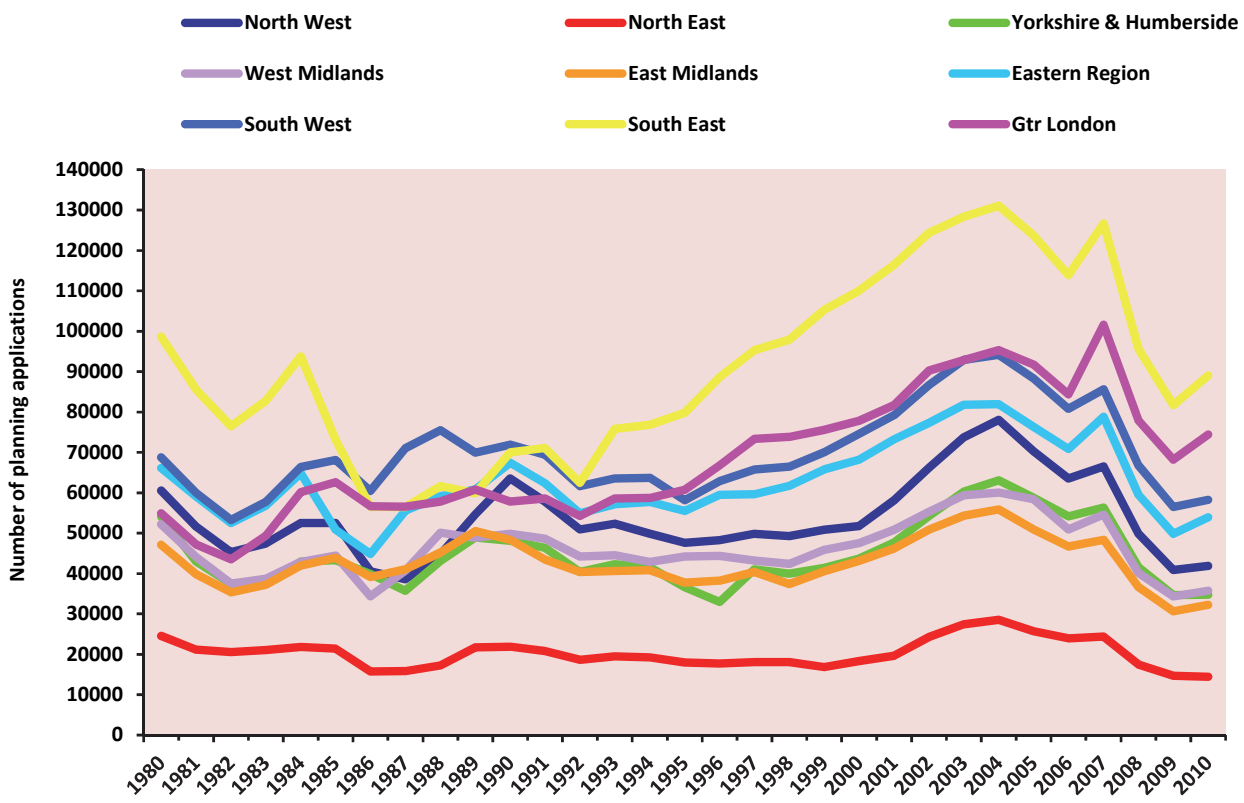

Figure 3.5 Number of planning applications made in England year-by-year for the period 1980 to 2010 by region. (Data: DoE, DETR, and DCLG. Sample = 15,497,410 recorded applications)

contrast between the top and bottom of each wave, with commensurately steeper rises and falls. It is a pattern that stands in marked contrast to the situation in the North West, for example, where the overall number of applications is low but the oscillations in the level activity are relatively slight.

As already noted, planning applications must include supporting documentation, including, where appropriate, statements about the nature, extent and significance of archaeological remains and other heritage assets. Article 4 of the *Town and Country Planning (Applications) Regulations 1998* (SI 1988 No. 1812) allows LPAs to seek additional technical information relating to a planning application that has already been submitted before it is determined. Two widely used pre-determination investigation types – DBAs and field evaluations – were recommended in PPG16 and have become well-recognised standard procedures leading to the production of formal reports that can be used to accompany a planning application (*see* Appendix 1 for definitions). It may be noted, however, that although there is a clear and well-trodden path through the planning system this represents the ideal. Not every development proposal follows exactly the same route, and one of the virtues of the planning system as a whole is its flexibility to accommodate variation. Accordingly, it is recognised that in a small percentage of cases these assessments and evaluations actually take place after a planning decision has been made. The case-studies summarised in Chapter 9 illustrate something of the variety in approach.

Desk-based assessment

The idea of a desk-based assessment (DBA) is not unique to archaeology, it is a widely used approach for providing detailed information at minimal cost where there is already available a substantial amount of data in public and private records. In archaeological situations the aim of the DBA is to validate and check existing records, supplementing them where possible with additional information from non-invasive techniques and the scrutiny of sources such as historical documentation and aerial photographs.

For the AIP, data relating to the incidence of DBAs were mainly derived from archaeological contractors and curators. Since most DBAs involve the production of a report of some kind as part of the contract, the quantification of this investigation type is fairly secure and is based on counts for all available sources. The reports produced tend to be limited circulation papers included alongside a range of other documents in planning applications. Few include original fieldwork and very few indeed include the results of direct interventions. A search of Archsearch (ADS 2018) at the beginning of January 2018 using the key-word 'desk-based assessment' returned 5885 items for England. Many

DBAs are nowadays available as on-line reports accessible from the websites of major archaeological contractors or through conventional web-searches.

The earliest DBAs revealed by the Assessment of Assessments Project were compiled around 1982, although it was only from about 1988 that substantial numbers were produced (Darvill *et al.* 1995: 19). In 1990, PPG16 endorsed the use of DBAs in support of planning applications (DoE 1990: para 20). DBAs are also relevant to environmental impact assessments (*see* Chapter 4) and to a number of other kinds of application for consents to carry out works in protected areas, at designated sites, and in applying for grants and exemptions.

Number and distribution

Around 12,000 DBAs were recorded by the AIP for the PPG16 Era, an average of nearly 600 per year. Figure 3.6A shows an analysis of the recorded number of DBAs by year. The popularity of these reports, which are relatively quick and cheap to produce, increased year-on-year through the first two quarters of the PPG16 Era, from 1990 through to about 2001, after which numbers fell back to between 550 and 700 per year, before rising again to a peak of about 800 reports in 2007. In the last three years surveyed by AIP the number of DBAs declined slightly year-on-year (Figure 3.6A). After 2001, local fluctuations in the number of DBAs produced correlates fairly closely with the number of planning applications submitted (Figure 3.6B); the roughly flat level of planning applications since 2010 suggests that the number of DBAs commissioned over the past seven years has probably remained at around 600 per year. Overall, between 0.10 and 0.15 per cent of all planning applications were subject to DBA during the PPG16 Era (Figure 3.6C), but inevitably it tends to be the larger and more extensive development sites that require such studies. The tiny percentage of planning applications subject to DBA should allay any fears that archaeological requirements represent an undue burden on developers and applicants seeking planning permission.

Table 3.1 provides a breakdown of the number of recorded DBAs per year across the nine regions, a picture shown graphically on Figure 3.7. The greater number of DBA regional records compared to the total in Table 1.4, can be explained by occasional individual investigations covering more than one region. It is clear that the largest numbers occur in the South West, South East, East Midlands, and Greater London, each with more than 1500 recorded DBAs over the PPG16 Era, all areas where development has been strong in recent decades. But the spread is wide, and looked at over the broader time-frame shows a more even distribution than was evident from early patterns based on data for 1990 and 1999 (Darvill & Russell 2002: illust. 9). In some regions, for example Greater London, the East Midlands, the South West and Yorkshire and Humberside, the number of DBAs shows marked peaks and troughs. The South East shows a steady increase from very low numbers in the early years, to the higher volumes which are maintained until 2010. Other regions such as the East Midlands and Greater London also show this early increase. Many areas show a decline in the completion of DBAs towards the end of the monitoring period, reflecting the effects of the economic downturn.

Land-use

The relationship between land-use and archaeological survival has been explored fairly extensively (Darvill 1987a; Darvill & Fulton 1998: 146–90), and since the planning process is explicitly concerned with land-use change it is an important consideration. In recording details of DBAs use was made of the LUSAG classification which allows other groupings to be built up (Darvill & Fulton 1998: 146). Since most assessments involve land under more than one land-use class the following quantifications are based on the reported incidence of a particular class; thus, a single assessment may be counted under more than one land-use class.

Over the PPG16 Era, about 55 per cent of DBAs relate to urban situations, 45 per cent to rural landscapes, but the balance has not been constant over time as preferences and incentives for development have moved around (Figure 3.8). In the early 1990s more than 50 per cent of DBAs were in rural areas but with the strange inexplicable exception of 2008 the overall balance has shifted towards a prevalence of DBAs for urban areas. Looked at in greater detail (Figure 3.9) there are slight variations in the prominent land-uses subject to DBA. Work on agricultural land, represented as arable or arable with short-term rotational grassland, declined from 22 per cent of assessments in 1990–94 to 13 per cent in 1995–99, after which it has continued at between 10 and 17 per cent. Work in grassland/heathland areas also declined steadily from around 20 per cent in 1990–94 to just 2 per cent in 2005–10. The same applies to works in woodland which decrease from 6 per cent in 1990–94 to 4 per cent in 2005–2010. Looked at nationally (Figure 3.10) for the whole duration of the PPG16 Era there is an obvious bias in all regions favouring DBA assessment of land already classed as being in industrial use or built up. This reflects a national planning preference for development on existing or brownfield sites. More interestingly, the presence of DBAs relating to relatively specialist land-use sectors such as cemeteries and churches shows sensitivity to properly assessing impacts in areas likely to have significant heritage assets. The incidence of DBAs in relation to protected areas and designated sites is discussed in Chapter 7.

Development type

Many different kinds of development have prompted the need for a DBA, something that has changed slightly over time. Figure 3.11 summarises the changing picture for the

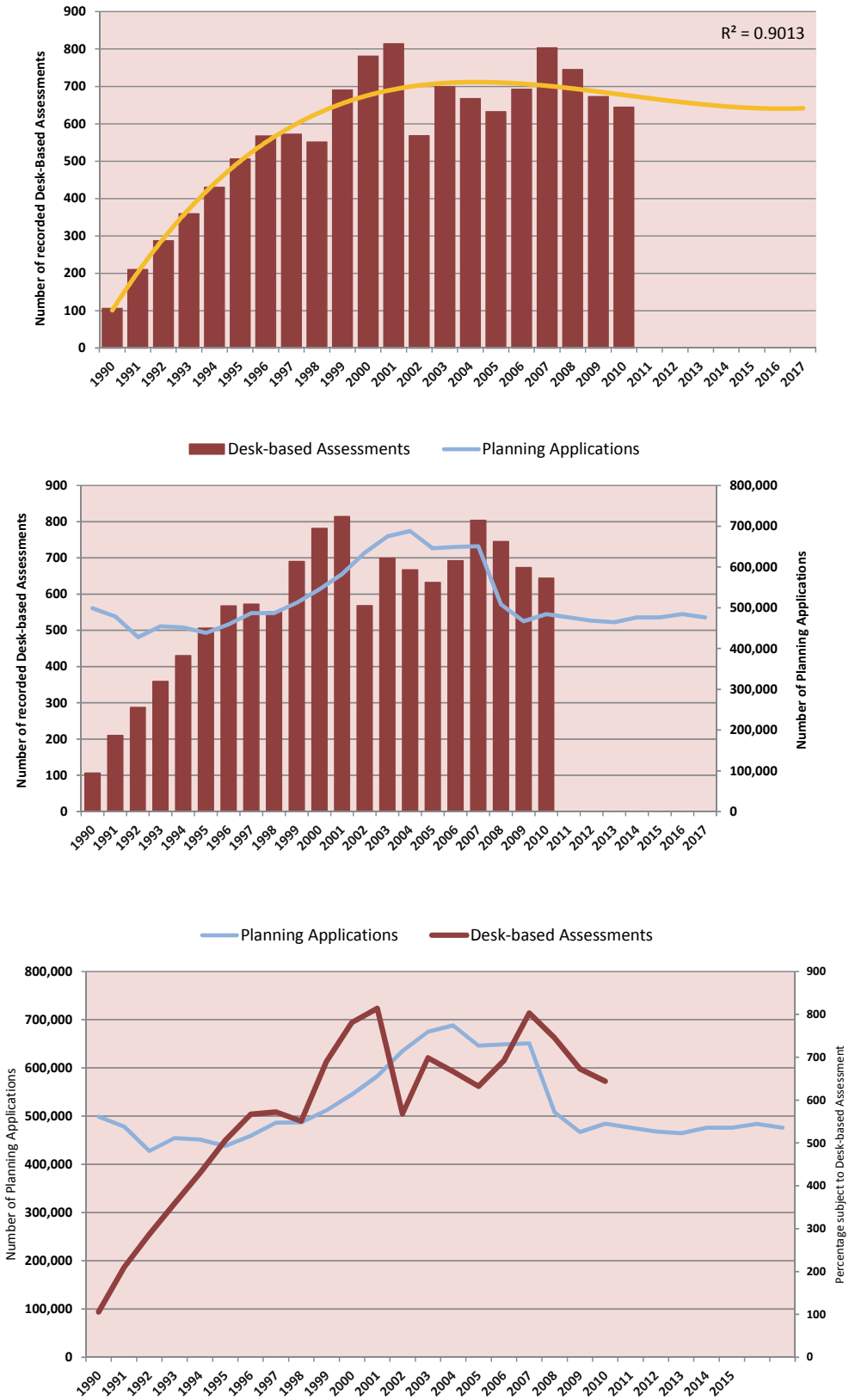

Figure 3.6 Recorded desk-based assessments undertaken between 1990 and 2010. ***A.*** *Overall number of desk-based assessments with a three-order polynomial trend-line superimposed to represent the long-term pattern of change.* ***B.*** *Comparison of recorded desk-based assessments year-by-year in relation to the number of planning applications 1990–2017.* ***C.*** *Comparison of the number of planning applications in relation to the proportion subject to desk-based assessment. (Data: AIP. Sample = 11,996 records)*

Table 3.1 Number of recorded desk-based assessments in England by region 1990–2010.

Region	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
East Midlands	12	16	39	63	76	79	105	80	71	65	86	89	64	101	90	113	94	78	66	74	73	1534	12.8
Eastern Region	19	20	27	24	38	31	33	53	49	78	67	84	36	57	55	53	53	66	57	54	37	991	8.3
Greater London	7	6	30	48	74	110	85	105	83	100	142	148	61	76	85	60	45	84	78	103	92	1622	13.5
North East	9	12	9	29	16	15	18	29	17	27	36	48	38	41	59	41	68	93	77	59	56	797	6.6
North West	12	40	40	41	32	44	34	30	41	39	46	36	42	58	49	51	70	78	82	72	65	1002	8.3
South East	9	17	35	34	51	75	103	122	114	127	120	116	99	129	114	104	127	135	134	131	120	2016	16.8
South West	22	75	68	84	104	104	122	88	106	150	169	197	118	115	128	120	115	134	128	101	116	2364	19.7
West Midlands	14	6	20	11	16	32	36	26	24	39	46	34	33	27	28	38	38	55	32	29	35	619	5.2
Yorkshire & Humberside	2	18	19	25	23	16	31	39	46	66	70	63	77	95	59	53	84	83	91	50	53	1063	8.9
Grand Total	106	210	287	359	430	506	567	572	551	691	782	815	568	699	667	633	694	806	745	673	647	12008	

ten most reported development types. Quantified in terms of the number of reports recorded, the highest number (22 per cent overall) related to urban residential developments, which became progressively more significant in the second two quarters of the PPG16 Era; it is a sector that is likely to continue growing as urban expansion increases (Darvill & Fulton 1998: 132) and pressure grows to re-use previously developed land (brownfield sites). In 1999 the government set a target of 60 per cent of new housing to be built on brownfield land (Johnston 1999: 1–3) but progress in achieving this was regionally inconsistent and only met nationally as a result of decreasing use of other types of land (Wung & Bäing 2010: 4).

DBAs for urban commercial development at 16 per cent overall is strong in all quarters. The completion of reports relating to road buildings and road improvements (8 per cent overall) peaked in the first quarter at the height of a government programme of road construction that has tailed off over the last decade but is set to rise again after 2014 (*see* Chapter 10). Other trends can be detected in development types that are less well represented overall. The development of greenfield sites for commercial use rose steadily to a peak in 2004, falling back in 2005–2010. Figures are still consistently lower throughout, than those for brownfield commercial development.

Prompts, briefs, and funding

PPG16 encouraged prospective developers, whether private or public bodies, to commission a DBA from a professionally qualified archaeologist or archaeological organisation (DoE 1990: paragraph 20). Table 3.2 shows an analysis of the prompts that were cited in DBA reports studied by AIP researchers. The greatest number (71 per cent overall) for all years after the introduction of PPG16, result from PPG16 directions given by the LPA, archaeology office, or advisers. When taken together with the directions relating to PPG15 and its successor document PPS5 introduced at the very end of the PPG Era, more than 75 per cent of DBAs arise from planning guidance. A small proportion of studies (around 1 per cent) are connected with environmental impact assessment procedures (*see* Chapter 4), and less than 1 per cent related to applications for Scheduled Monument Consent (SMC) (*see* Chapter 7).

Three types of prompt noted in DBAs give some cause for concern in light of the intention that assessments should be prepared prior to the submission of planning permission. Those prompted by Article 4 directions (less than 1 per cent) must relate to the need to acquire additional information after the application to which they relate had been submitted. The small number here suggests a very proper use of the direction as a fail-safe device. Rather different are the 8 per cent of cases prompted by a planning condition. These studies were effectively undertaken after planning permission had been granted, and cannot therefore have been used to inform

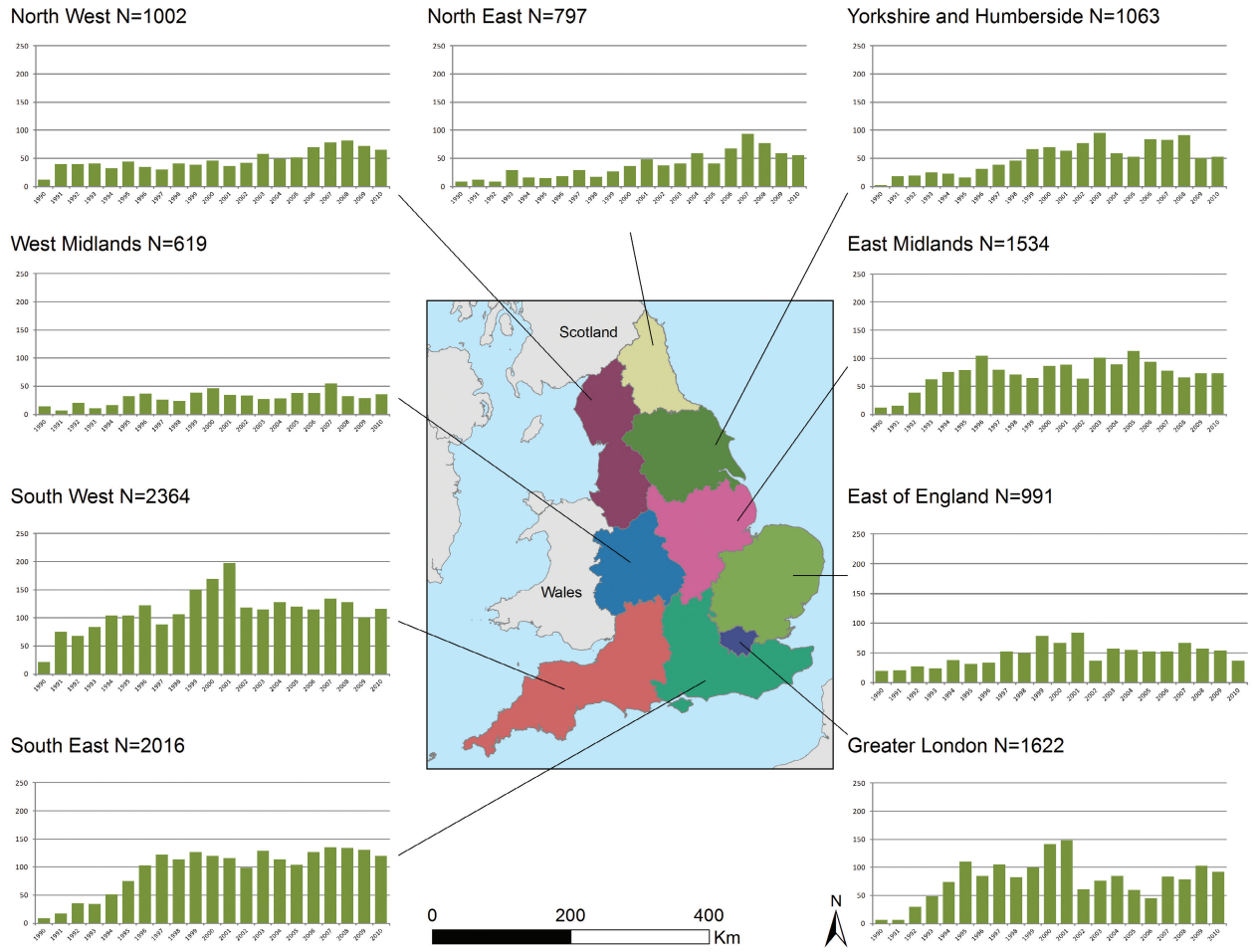

Figure 3.7 Analysis by region of recorded desk-based assessments year-by-year 1990–2010. (Data: AIP. Sample = 12,008 records)

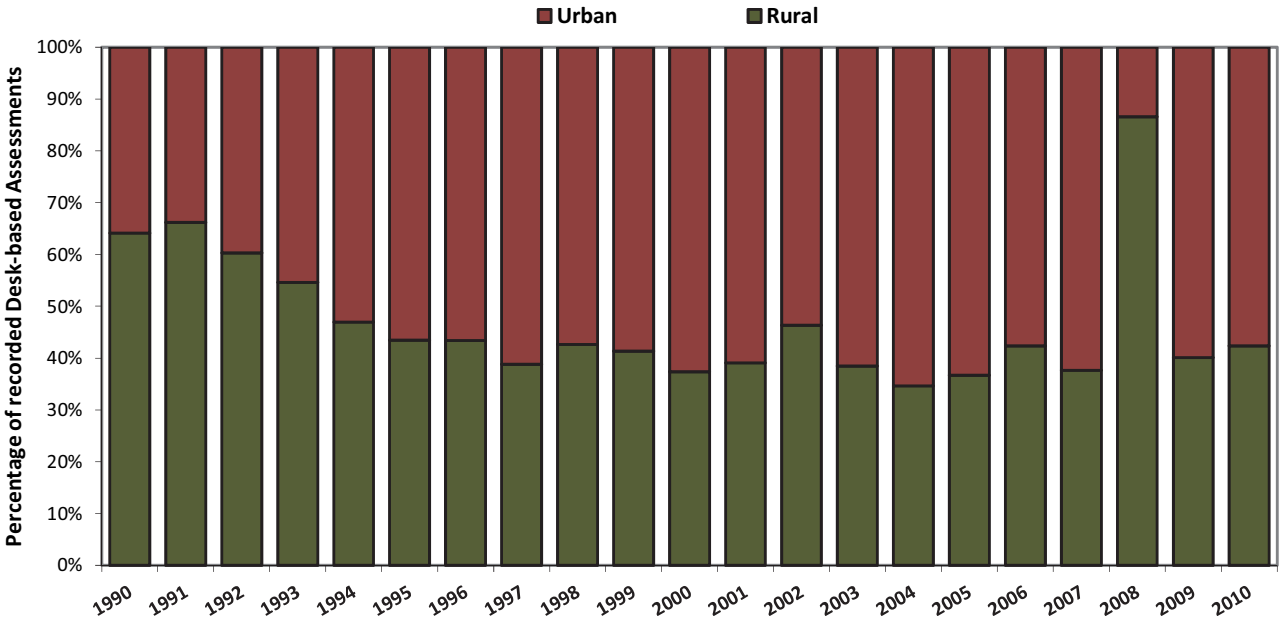

Figure 3.8 Analysis of the distribution of desk-based assessments recorded in urban and rural environments year-by-year. (Data: AIP. Sample = 11,996 records)

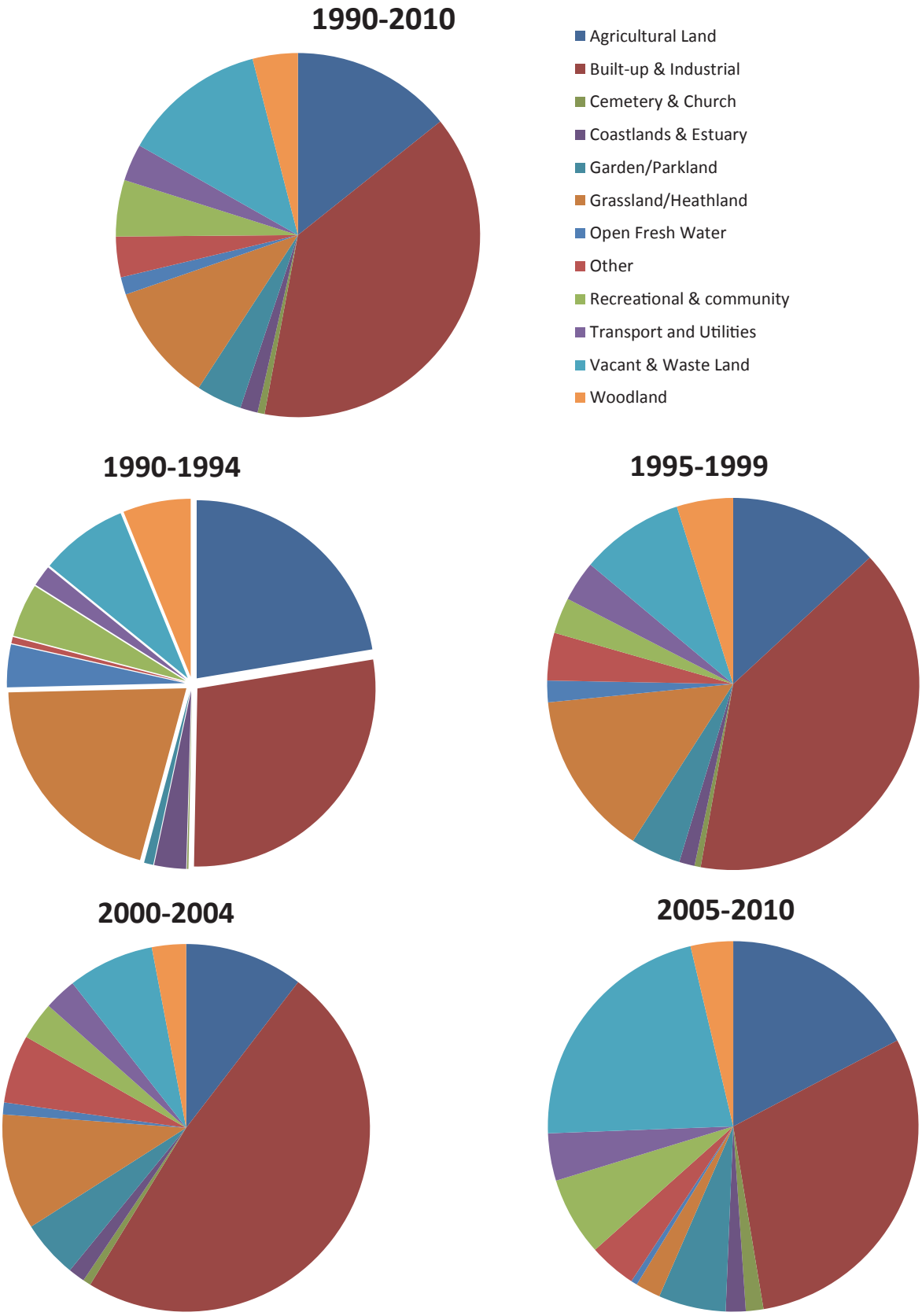

Figure 3.9 Analysis of desk-based assessments in relation to reported land-use types. (Data: AIP. Sample = 16,536 observations)

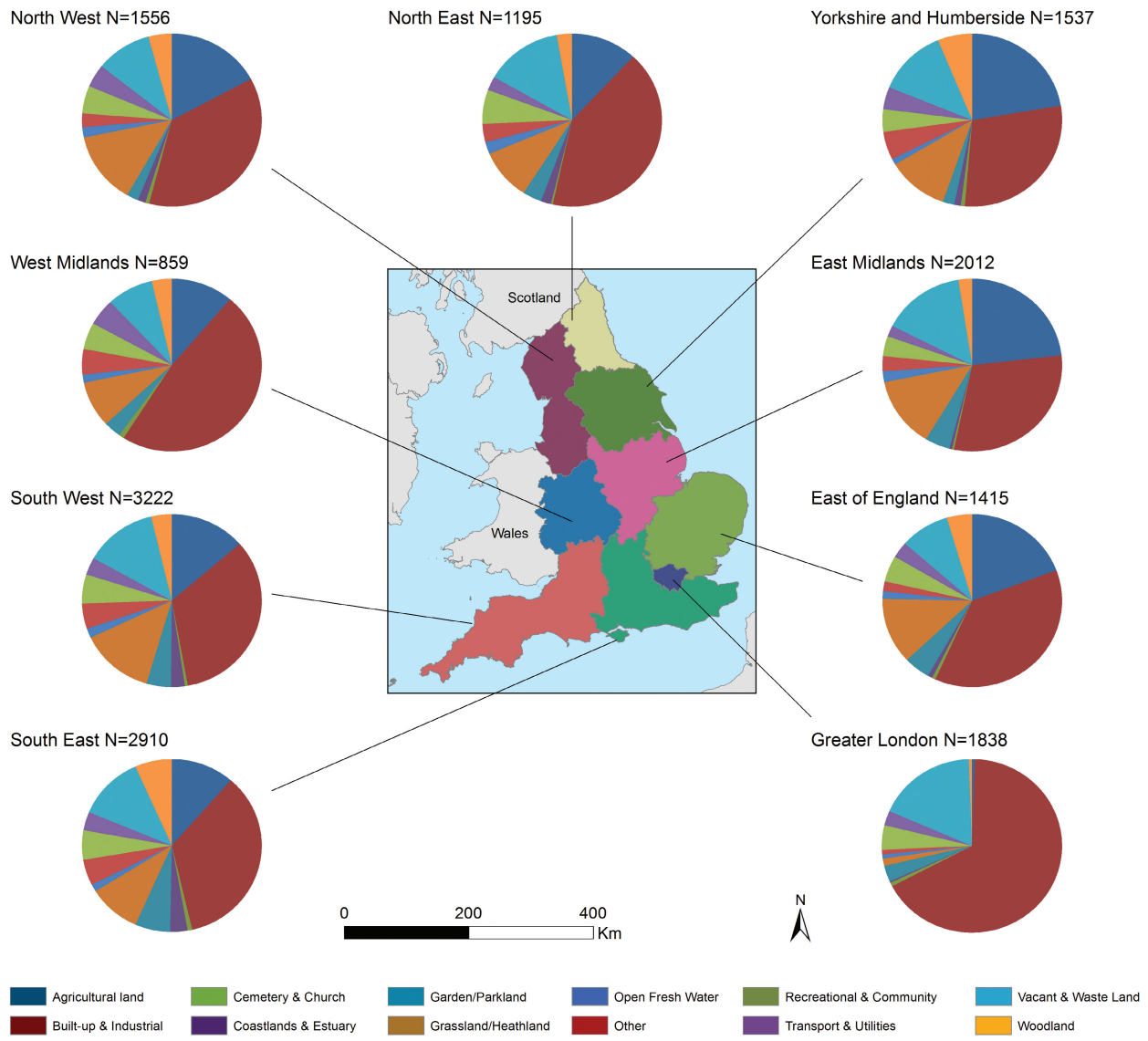

Figure 3.10 Regional summary of desk-based assessments undertaken between 1990 and 2010 in relation to the main reported land-use types. (Data: AIP)

the decision-making process. It is rather worrying that the incidence of post-decision calls for archaeological DBAs has risen steadily from just two recorded cases in 1990 to 39 cases in 1996 to 103 in 2000, before falling back again to half that number (52) in 2010. This should, however, be seen within the broader context of decision-making by curators and the complicated arrangements that surround the determination of some applications.

DBAs are generally carried out to a brief or specification. Model briefs and specifications have been published (ACAO 1993) and standards and guidance issued (CIFA 2014b). Where it is intended that the results of a DBA will be used as part of a planning application, environmental statement, or some other kind of application for special permission to carry out works in a protected or designated place, it is appropriate that the brief/specification is agreed with the authority concerned before work on the assessment commences. Table 3.3 shows an analysis of assessment reports that record who set or agreed the brief that was followed. In about 43 per cent of cases this was done by county archaeological officers, and in a further 14 per cent by curators within or connected to other LPAs. Contractors, consultants, and land-owners together set most of the remaining briefs.

Table 3.4 provides an analysis of the funding bodies that commissioned DBAs. By far the greatest majority are private developers (68 per cent overall), although many of the other organisations and institutions listed were acting

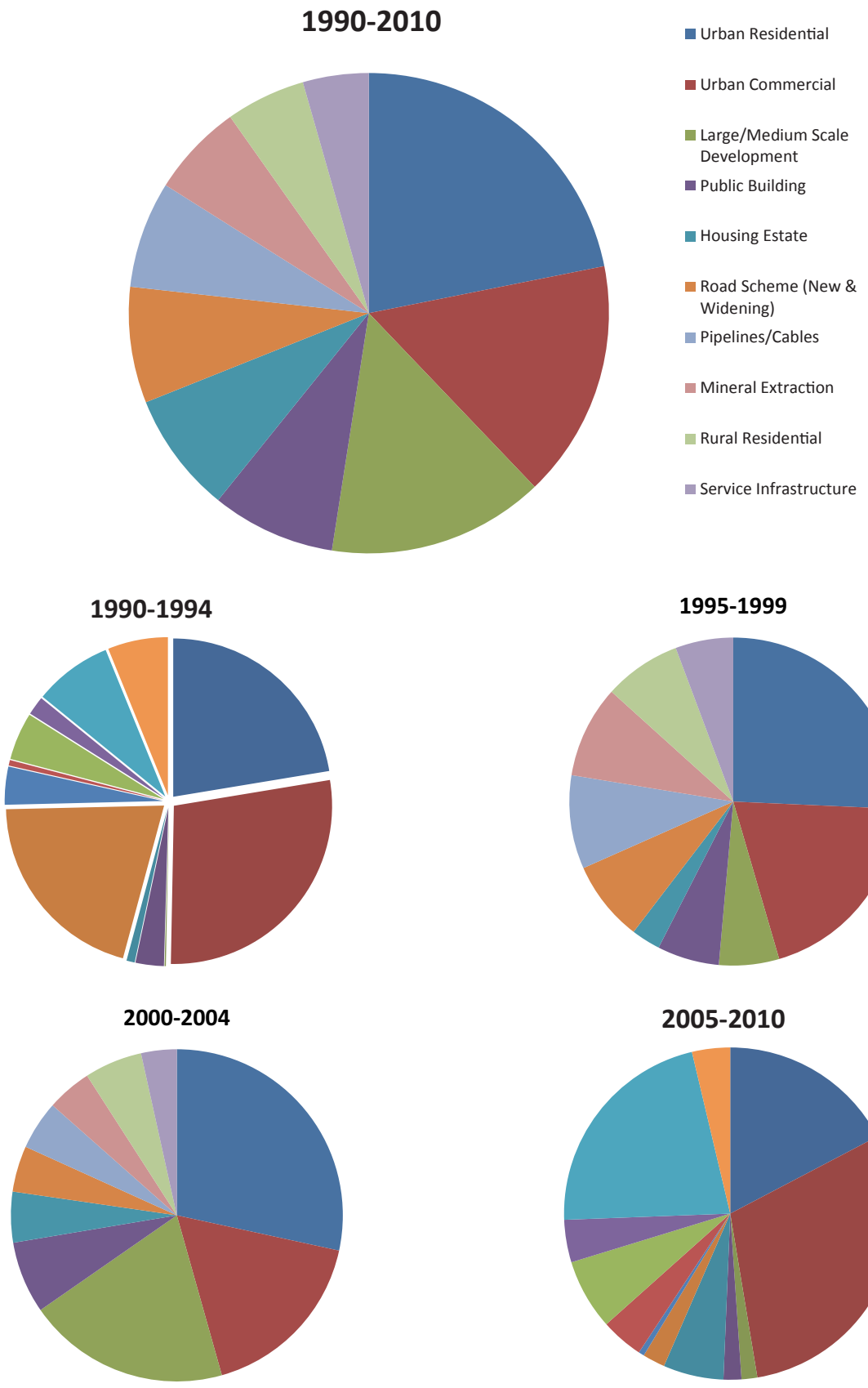

Figure 3.11 Analysis of desk-based assessments in relation to the main recorded development types. (Data: AIP. Sample = 8150 observations)

Table 3.2 Summary of the main prompts identified for recorded desk-based assessments 1990–2010.

Prompt	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
Direction from Local Planning Authority - PPG16	43	126	125	155	178	121	165	312	285	461	471	590	471	566	578	539	582	670	557	497	97	7589	70.8
Planning Condition	2	2	2	9	14	30	47	52	77	102	103	51	29	39	28	26	35	65	70	69	52	904	8.4
Direction from Local Planning Authority - PPS 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	411	411	3.8
Water Act 1989, 1991 and subsequent codes of practice	0	2	3	3	2	2	23	23	12	30	4	13	16	15	10	24	20	21	24	14	3	264	2.5
Voluntary/Self-interest	10	17	12	19	17	7	8	21	20	39	21	16	5	13	13	4	0	1	4	2	1	250	2.3
Direction from Local Planning Authority - PPG15	0	0	0	0	0	5	13	6	7	7	13	10	3	4	13	29	7	41	41	36	11	246	2.3
Research	0	4	2	3	1	12	8	7	6	21	15	23	11	9	1	6	21	23	8	31	21	233	2.2
Environmental (unspecified schedule)	0	7	7	7	12	17	18	18	17	27	25	23	2	11	8	2	6	8	6	3	7	231	2.2
Conservation/Restoration	0	2	1	3	4	5	1	7	4	3	7	23	15	2	4	2	7	14	12	11	19	146	1.4
Listed Building Consent	1	1	3	0	2	5	6	5	4	5	9	20	5	7	6	6	3	5	2	4	10	109	1.0
Scheduled Monument Consent	1	4	0	4	1	15	6	4	5	9	6	3	3	2	2	6	4	2	3	1	2	83	0.8
Environmental Assessment regulations Schedule 1 projects (Obligatory)	0	5	7	10	4	3	0	0	0	1	7	6	4	7	1	0	0	0	2	3	2	62	0.6
Direction from Local Planning Authority - Direction 4	9	8	0	1	0	0	0	0	2	0	1	1	5	0	1	6	6	0	0	1	0	41	0.4
Electricity Act 1989 and subsequent code of practice	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	3	1	17	4	5	33	0.3
Conservation Area Consent	0	0	0	0	1	0	3	4	2	1	3	0	2	0	1	0	0	1	5	3	1	27	0.3
Grant application (e.g. management plan)	0	0	0	1	0	4	2	3	5	0	0	1	1	1	0	0	0	0	2	0	0	20	0.2
SMR Enhancement	0	0	0	0	0	0	1	0	2	2	2	2	2	1	2	0	0	0	2	2	2	20	0.2
Planning Agreement - Section 106/Section 52	0	0	0	3	0	1	1	0	1	1	0	4	0	1	0	0	0	0	4	1	0	17	0.2
Environmental Assessment regulations Schedule 2 projects (Discretionary)	0	3	0	1	0	2	0	0	0	0	2	0	0	0	0	0	1	0	0	2	0	11	0.1
Part II AMAA Act 1979	0	0	0	0	0	7	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	10	0.1
Faculty Jurisdiction	0	0	0	0	0	1	1	0	0	2	0	1	0	1	0	0	0	0	1	0	0	7	0.1

Table 3.2

Prompt	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
New designation (i.e. ESA, NP, SSSI)	0	0	0	0	0	3	0	0	0	0	0	0	1	2	0	1	0	0	0	0	0	7	0.1
Highways Act 1980	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	4	0.0
Protection of Wrecks Act (1973)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.0
Totals	66	181	162	220	236	240	304	462	451	711	690	787	575	681	668	653	696	852	761	686	644	10726	

Table 3.3 Summary of main parties who set the briefs/specifications for recorded desk-based assessments 1990–2010.

Brief set by	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
County Archaeologist and/or Planning Authority/advisory body	10	66	114	122	138	89	147	264	283	183	357	378	290	345	286	83	41	151	200	209	199	3955	43.0
Contractor (design & execute)	1	5	22	32	32	16	15	34	26	52	13	35	129	189	214	439	554	462	204	226	92	2792	30.3
City/National Park/District/ Borough archaeologist	1	6	10	6	13	27	34	20	27	91	85	143	70	66	47	21	16	60	148	60	149	1100	12.0
Consultant	1	1	5	8	6	11	2	7	3	64	8	3	11	21	64	65	48	92	116	123	132	791	8.6
English Heritage/DEFRA	0	0	0	0	0	0	0	0	0	0	0	0	25	32	12	5	3	22	5	14	34	152	1.7
Local Planning Authority	0	2	2	1	1	6	4	7	5	0	3	1	10	21	8	5	7	8	24	8	2	125	1.4
Unitary Authority Archaeologist	0	0	0	0	0	0	0	0	0	23	23	0	1	5	4	1	4	5	5	3	8	82	0.9
Self (i.e. landowner, developer, etc)	0	1	6	10	3	2	2	3	4	4	0	1	4	7	1	1	4	0	7	5	3	68	0.7
English Heritage/DoE	0	1	7	13	10	9	10	12	0	0	0	0	0	0	0	0	0	0	0	0	0	62	0.7
National Trust	0	0	0	0	0	2	0	0	1	4	2	9	2	1	0	0	2	2	2	2	6	35	0.4
English Heritage/DETR	0	0	0	0	0	0	0	0	15	1	1	3	0	0	0	0	0	0	0	0	0	20	0.2
Diocesian Archaeologist/ Archaeological Advisor	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	0	1	1	2	3	2	13	0.1
AAI Investigating Authority/ Committee	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	5	0.1
Natural England	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.0
Royal Commission on the Historical Monuments of England	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Totals	13	82	166	192	203	165	215	348	364	422	492	574	543	688	636	621	680	803	714	654	627	9202	

as developers when carrying out this work. The presence of various government ministries and agencies on the list serves to highlight the impact that PPG16 and its provisions had.

In general, DBAs relate to fairly large areas. Figure 3.12A shows that across the PPG16 Era it is small (<1ha, 1.0–5.0ha), medium sized areas (5.1–10ha) and large areas (>20ha) that are most commonly covered by a DBA, but the pattern changes over time (Figure 3.12B) with large areas featuring more strongly in the 2000s and a commensurate decrease in the percentage of smaller schemes investigated. This in part related to the need for focus in undertaking DBAs; there is no point listing archaeological discoveries from some distance all around a development site when it is the immediate vicinity and the site itself that is the centre of attention.

Sources and methods

The sources and methods used for assembling DBAs are fairly straightforward and for the most part defined in the professional standard and guidance (CIFA 2014b). There are two main components to the construction of useful DBAs: searches through existing records and sources, and field checking. Table 3.5 shows a breakdown of the recorded incidence of various key sources being checked. Most DBAs use more than one source, the average being between four and five sources. The quantifications in the main table are therefore based on the incidence of sources as identified in the reports examined by AIP researchers. Out of the assessments where sources were recorded, cartographic sources and the local SMR/HER were used in nearly 40 per cent of cases where the sources were identified. The percentage of DBAs not acknowledging use of the SMR/HER, seems surprising. One explanation, based on anecdotal information received by AIP researchers, is the matter of confidentiality. Some developers believe that asking an SMR/HER in a local authority about particular pieces of land may compromise their position in other negotiations. In other cases, the local SMR/HER was not recorded as a source because of perceived difficulties in obtaining the results of searches quickly enough to be included. Over the last two decades there have also been instances where SMRs/HERs have been unavailable, and much of the PPG16 Era has been a difficult time for local authority services (ALGAO 2002b). By contrast, surprisingly little use of the Register of Parks and Gardens of Special Interest and the National Monuments Record is recorded, although it may be that these are only acknowledged where they are used rather than where they are checked.

Table 3.6 provides an insight into the approaches to checking sites and areas subject to DBAs over and above archaeological records and lists. Most use one or two additional checks, of which the most (61 per cent) involves documentary searches. About 39 per cent of recorded assessments acknowledge the use of field-checking in some form or other, mainly as simple visual inspection or walk-over survey. Fieldwalking is reported in over 1.5 per cent of cases where relevant information is given. Essentially non-destructive techniques such as geophysical surveys of various kinds and augering are generally uncommon. A very small percentage employ more destructive techniques such as test-pitting and trenching of various kinds, but these are believed to be mainly the assessments carried out after planning permission has been granted and thus represent atypical programmes in this regard too.

Who did the work?

Over 600 separate consultants and contractors are credited with the production of the recorded DBAs issued between 1990 and 2010. This represents a marked increase in the scale and spread of activity from the 1980s, where it was found that just 35 organisations were in this market.

Table 3.7 lists the top-20 producers of DBAs in terms of recorded output. Together, these contractors account for 54 per cent of all DBAs produced during the PPG16 Era. It can be seen that these comprise a mix of different organisations, including specialist archaeological and environmental consultants, archaeological contractors, and a few local authority based archaeology offices who, over the period, operated contracting services at various degrees of detachment from their curatorial work. Figure 3.13 shows the location of the headquarters of the top-20 contractors undertaking DBAs at the centre of circles scaled to reflect the mean travel distance to recorded investigations they have undertaken. The large size of many of the circles shows that companies and organisations undertake DBAs considerable distances away from their headquarters, no doubt a reflection of the fact that little or no fieldwork is involved and that key sources are easily available on-line. It is notable, however, that some of the largest producers of DBAs do so within fairly limited operating areas.

Results and coverage

DBAs are mainly works of synthesis and summary which inevitably rely on a number of factors if they are to reflect adequately the true archaeological potential of an area of land. The main factors involved are the quantity, quality, and reliability of existing sources, the quality of the interpretations made, and the abilities and experience of those carrying out the work to relate what they find to bigger pictures of relevant archaeological realities.

All the DBAs examined revealed some kind of archaeological material, although these studies are not commissioned to determine whether or not archaeology is present because that would be very difficult to establish with any degree of certainty through the use of existing sources. Figure 3.14 shows an analysis by broad cultural-historical period of the main features and deposits

Table 3.4 Summary of the main funding sources for recorded desk-based assessments 1990–2010.

Funding body	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
Developer	65	129	134	186	252	226	293	327	330	475	633	1	406	421	417	406	462	590	435	3	393	6584	68.221
Local government	7	35	51	46	44	47	49	36	45	43	67	0	39	49	49	55	37	45	47	0	60	851	8.818
Landowner	0	5	8	23	25	10	18	29	18	33	16	0	20	50	39	39	42	53	63	0	79	570	5.906
Contractor	0	0	0	0	0	0	0	0	0	0	0	0	29	72	77	72	52	33	81	0	45	461	4.777
Water authority/company	0	9	19	16	6	10	43	41	32	33	18	0	19	52	24	21	41	22	31	0	10	447	4.632
Electricity authority/company	0	1	0	5	1	5	4	4	2	4	2	0	2	8	9	7	9	8	28	0	15	114	1.181
Department of Transport	10	12	32	33	16	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112	1.161
English Heritage	1	7	1	9	3	1	0	1	2	3	3	0	0	4	1	1	4	2	2	0	13	58	0.601
Gas company	0	1	4	2	0	1	4	2	7	7	4	0	5	2	1	3	4	3	2	0	3	55	0.570
Other charitable trust	0	1	1	2	4	3	1	1	1	4	1	0	3	5	6	2	5	4	4	0	6	54	0.560
Ecclesiastical	0	0	1	0	2	4	2	1	3	6	1	0	4	5	2	1	3	2	4	0	9	50	0.518
National Trust	0	1	0	6	0	2	0	1	0	6	7	0	4	1	0	1	3	2	3	0	5	42	0.435
Environment Agency	0	0	0	0	0	0	0	0	0	6	2	0	4	6	6	6	5	2	2	0	2	41	0.425
Development corporation	0	0	4	2	3	2	2	2	6	0	0	0	0	0	0	1	2	1	0	0	1	26	0.269
Ministry of Defence	0	0	0	1	1	3	3	5	0	0	2	0	2	1	1	4	0	1	0	0	1	25	0.259
Heritage Lottery Fund	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	6	5	4	0	5	24	0.249
National Rivers Authority	0	2	4	1	3	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0.197
Highways Agency	0	0	0	0	0	0	0	0	0	0	0	0	4	1	1	0	4	1	3	0	1	15	0.155
Other research trust	0	0	0	0	0	1	0	3	0	0	2	0	1	0	1	1	3	1	1	0	0	14	0.145
Department of the Environment, Transport and the Regions	0	0	0	0	0	0	0	6	1	2	4	0	0	0	0	0	0	0	0	0	0	13	0.135
Oil company	0	0	0	0	2		4	1	0	1	1	0	0	1	1	0	0	0	0	0	0	11	0.114
National Park Authority	0	1	0	1	0	0	0	0	0	0	0	0	2	1	1	0	2	1	0	0	1	10	0.104
Countryside Commission	0	0	0	0	0	0	1	0	2	2	1	0	0	0	0	0	1	0	1	0	1	9	0.093
Local archaeological society/ Amateur archaeologists	0	0	0	0	0	0	0	1	0	1	0	0	2	1	0	0	0	1	2	0	0	8	0.083
Department for Transport, Local Government and the Regions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	7	0.073
Department of the Environment	0	1	1	0	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0.073
Telecommunications company	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	5	0.052
Department for Communities and Local Government	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	4	0.041
National Health Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0.041

Table 3.4 Summary of the main funding sources for recorded desk-based assessments 1990–2010. (Continued)

Funding body	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
The Churches Conservation Trust	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	3	0.031
Department for Environment, Food and Rural Affairs	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2	0.021
Royal Commission on the Historical Monuments of England	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.021
Department for Transport	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.010
Home Office	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.010
Natural England	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.010
The Oil and Pipelines Agency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.010
Grand Total	83	205	261	334	363	328	434	464	449	626	767	1	548	681	645	622	686	779	716	3	656	9651	

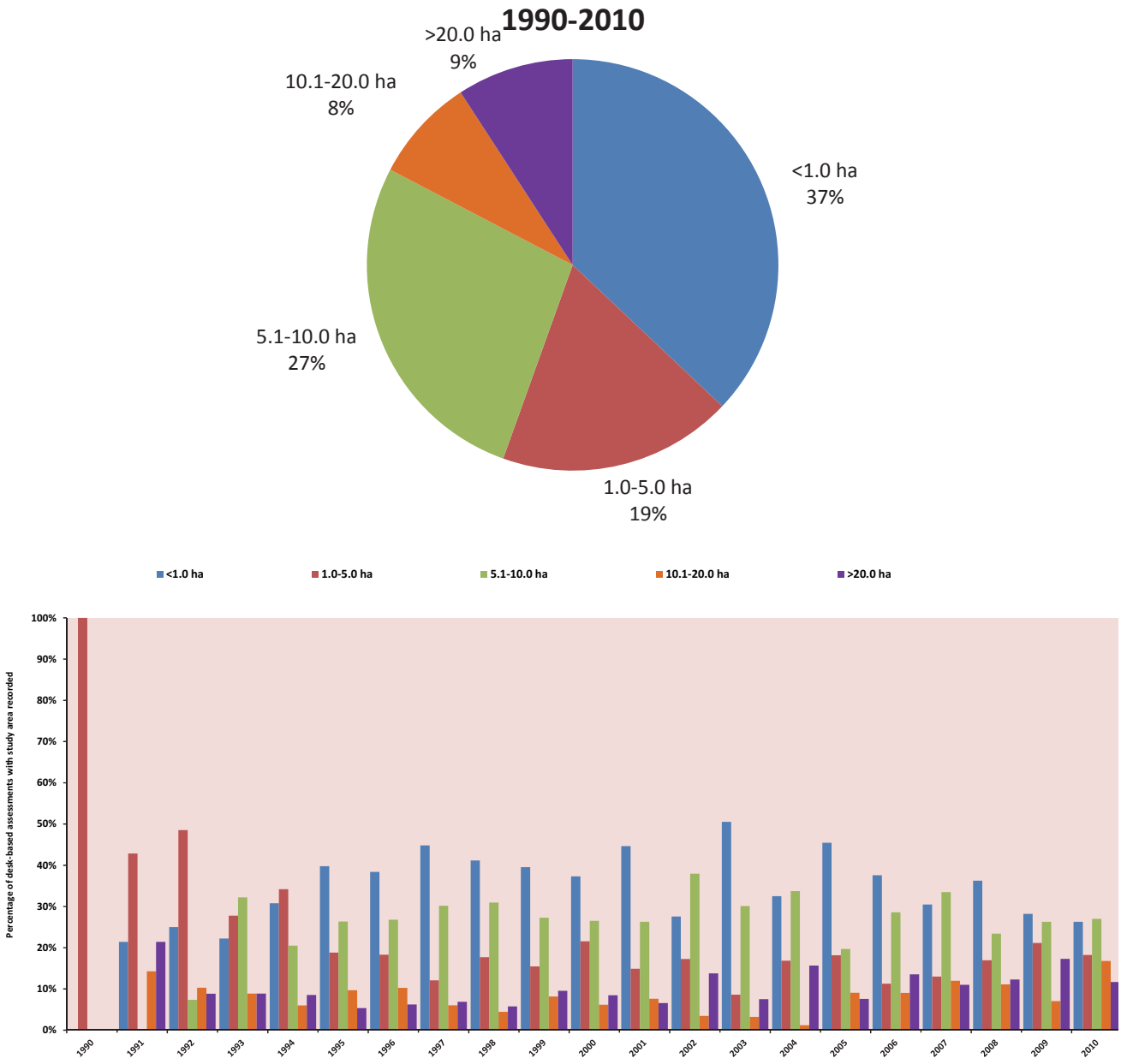

Figure 3.12 Summary of the area covered by recorded desk-based assessments. ***A.*** *All undertaken between 1990 and 2010.* ***B.*** *Size range year-on-year 1990–2010. (Data: AIP. Sample = 2999 observations)*

represented in DBAs. Since most assessments involve more than one period the quantification is by the number of cases recorded; no attempt is made here to judge whether an assessment revealed a little or a lot of any one period. The medieval and post-medieval periods are very strongly represented, not least perhaps because the use of historical documents and cartographic sources in compiling assessments as these tend to favour more recent periods. Undated remains, including material broadly classified as 'prehistoric', were widely reported with about 16 per cent of period attributions of material falling into this category. Table 3.8 shows an analysis of the chronological data time-sliced at intervals through the PPG16 Era and in relation to the period-based classification of records forming the national sample of Monuments at Risk Survey (MARS) Monuments (Darvill & Fulton 1998: 93) and the items recorded by the Portable Antiquities Scheme in 2009–10 (PAS 2011: 36). Here it can be seen that, in chronological terms, the distribution of evidence revealed by DBAs matches fairly closely the national period-distribution of recorded archaeological monuments. This is not unexpected, but equally it suggests that there is little or no significant chronological basis to the work being carried out in connection with DBAs. Compared to finds

Table 3.5 Summary of the principal sources used in compiling recorded desk-based assessments 1990–2010.

Sources*	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	% recorded DBAs
Sites & Monuments Records/ Historic Environment Records	69	163	219	277	316	306	409	499	471	583	702	738	525	623	611	580	556	680	620	546	574	10067	19.6
Cartographic sources	55	122	201	268	322	325	421	515	493	657	753	742	442	470	449	461	617	743	629	561	623	9869	19.2
Literature search	45	128	195	241	285	277	353	426	407	570	730	616	200	362	350	376	436	430	277	255	317	7276	14.2
Historic documents	43	103	116	171	183	116	152	193	188	505	597	652	370	306	87	73	92	144	80	106	141	4418	8.6
Record Office or other documentary archive	5	7	33	52	92	197	279	268	293	369	524	557	261	245	122	38	261	171	95	137	215	4221	8.2
Previous assessments/ evaluations/EA programmes	4	27	44	60	78	109	138	142	126	375	592	606	152	251	111	81	52	186	149	119	142	3544	6.9
Aerial photographs	45	99	125	144	147	157	210	158	156	182	244	213	271	213	106	136	160	154	163	168	150	3401	6.6
Previous excavation/survey reports	21	44	68	80	87	170	225	274	268	457	612	511	43	27	3	17	13	25	15	53	96	3109	6.1
Local archaeological records	9	30	51	66	81	58	67	122	107	44	57	85	28	24	28	36	113	53	118	136	250	1563	3.0
National Monuments Record	5	13	22	26	37	30	53	52	55	44	65	55	151	87	36	26	145	110	67	86	208	1373	2.7
Structure/Local plans, legislation etc	0	9	22	39	74	32	30	57	58	52	145	181	25	34	3	58	72	39	84	73	128	1215	2.4
List of Buildings of Special Interest	1	5	14	15	17	21	24	29	30	21	57	35	28	40	33	58	52	78	57	60	55	730	1.4
English Heritage Scheduling Record	7	15	14	8	10	6	6	22	27	39	30	16	37	14	9	12	24	21	7	13	11	348	0.7
National Archaeological Record	4	11	19	29	18	10	13	3	8	1	13	5	27	10	2	6	17	0	0	0	0	196	0.4
Register of Parks and Gardens of Special Historic Interest	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.0
UK Hydrographic Office	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0		1	4	0.0
Totals	313	776	1143	1479	1749	1814	2380	2760	2687	3899	5121	5012	2560	2706	1950	1958	2612	2835	2361	2313	2911	51339	
Number of DBAs per year with recorded sources	86	186	257	318	362	367	458	555	520	688	777	809	556	666	638	600	658	767	655	583	644	11150	
Average number of sources used per DBA	3.64	4.17	4.45	4.65	4.83	4.94	5.20	4.97	5.17	5.67	6.59	6.20	4.60	4.06	3.06	3.26	3.97	3.70	3.60	3.97	4.52	4.60	

*An individual DBA is likely to have multiple sources; the table above counts the sources and not the DBAs

Table 3.6 Summary of the principal investigation events used in compiling recorded desk-based assessments 1990–2010.

Methods*	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	% recorded DBAs
Documentary Search	105	205	284	354	424	495	565	566	546	690	773	804	556	672	654	604	680	791	725	660	627	11780	61.2
Visual Inspection	54	124	137	175	189	218	325	266	298	292	560	387	142	231	307	222	315	540	517	489	479	6267	32.5
Fieldwalking	4	2	19	21	17	34	18	9	9	12	7	17	22	28	22	13	22	34	11	5	6	332	1.7
Recording of Fabric/ Structure	0	3	5	4	2	15	16	6	7	9	9	25	7	6	11	2	21	14	11	11	12	196	1.0
Sample Trenches	0	1	0	1	4	2	3	4	14	36	4	6	12	11	6	16	8	10	13	4	9	164	0.9
Geophysical - Magnetometer/ Gradiometer	0	2	5	10	13	15	12	14	8	11	4	8	5	4	7	0	1	2	0	3	3	127	0.7
Aerial Photography	5	8	0	0	3	1	0	5	5	2	8	14	5	3	0	7	2	11	5	8	2	94	0.5
Topographic Survey	4	7	10	7	2	4	1	4	10	4	2	1	4	8	4	3	3	1	0	2	2	83	0.4
Augering	0	2	4	3	13	5	6	2	2	0	1	2	1	3	4	0	2	1	0	1	0	52	0.3
Test Pits	0	2	2	3	4	2	5	3	4	2	2	6	2	3	1	1	1	2	0	0	0	45	0.2
Targeted Trenches	0	0	1	1	0	1	0	0	7	28	1	0	1	1	0	0	1	0	0	1	0	43	0.2
Geophysical - Resistivity	0	1	4	4	3	3	2	1	4	4	0	1	0	0	0	0	0	0	0	1	1	29	0.2
Geophysical - Magnetic Susceptibility	0	0	1	2	1	1	1	0	0	3	1	1	1	0	0	0	0	2	0	0	0	14	0.1
Environmental Sampling	0	0	0	0	0	1	4	1	2	0	0	1	1	0	1	0	0	0	0	0	0	11	0.1
Metal Detecting	0	0	0	0	1	2	1	0	0	2	0	0	1	1	0	0	0	1	0	1	0	10	0.1
Detailed Site Survey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5	0.0
Ground Penetrating Radar	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3	0.0
Laser Scanning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0.0
Phosphate Survey	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Totals	172	357	472	585	677	800	959	881	917	1095	1373	1273	760	971	1017	873	1056	1409	1282	1186	1143	19258	
DBAs records with methods recorded	106	210	287	359	430	506	567	572	551	690	781	814	568	699	667	632	692	803	745	673	644	11996	
Average number of investigation methods per DBA	1.62	1.70	1.64	1.63	1.57	1.58	1.69	1.54	1.66	1.59	1.76	1.56	1.34	1.39	1.52	1.38	1.53	1.75	1.72	1.76	1.77	1.61	

*An individual DBA may involve multiple investigations; the table above counts the investigation methods and not the DBAs

Table 3.7 Top-20 archaeological contractors and consultants preparing recorded desk-based assessments between 1990 and 2010 ranked by the number of recorded reports.

Consultant/Contractor	Number of recorded Desk-based Assessments 1990-2010
CgMs	702
University of Leicester Archaeological Services/Leicestershire Archaeological Unit	593
Museum of London Archaeological Service	570
Northern Archaeological Associates	362
AOC Archaeology	352
Bristol & Region Archaeological Services	349
Wessex Archaeology/Trust for Wessex Archaeology	461
Surrey County Council/Surrey County Archaeological Unit	320
Thames Valley Archaeological Services	311
Exeter Archaeology/Exeter Museums Archaeology Field Unit	328
Cornwall County Council	318
John Samuels Archaeological Consultants	205
Cotswold Archaeology/Cotswold Archaeological Trust	390
Pre-Construct Archaeology/Geophysics	201
Archaeological Services/The Archaeological Practice, Durham University	183
AC Archaeology	181
Tyne & Wear Museums	181
WYAS Archaeological Services	179
University of Manchester Archaeological Unit/Greater Manchester Archaeological Unit	259
Oxford Archaeology North/Lancaster University Archaeological Unit	310

recorded by the PAS, the Romano-British period is under-represented in DBAs (not surprising given the quantity of metal finds contributing to the PAS data-set), while the other main periods are broadly similar.

Field evaluation

Field evaluation is the big success story of the PPG16 Era, for the practice has become one of the most widely used and powerful tools available to those seeking to determine the presence/absence, nature, extent, and significance of archaeological deposits. The background to field evaluation, and its origins in the idea of 'trial trenching', has been presented elsewhere (Darvill *et al.* 1995: 6), along with an analysis of early approaches to the issues of sampling and the range of techniques deployed (Champion *et al.* 1995). The basic idea of field evaluation is articulated in PPG16 (DoE 1990: paragraph 21) and is widely recognised as the linchpin of the archaeological management cycle (Darvill & Gerrard 1990; 1994: 171) and an integral part of the assessment process (ACAO 1993: 4). As the approach has developed, so too has interest in the application of specific methodologies and techniques, for example geophysical survey (David 1995; Gaffney *et al.* 1991), aerial photography (Palmer & Cox 1993), and the use of metal detectors (Newman 1996). Attention has also begun to focus on the application of field evaluation to different kinds of development such as road schemes (Lawson 1993) and pipelines (Pearson & Brinklow 1997). Comparisons between evaluation strategies used in England with those applied in Belgium, France, and the Netherlands was undertaken as part of the PLANARCH project (Evans & Williams 2001). This showed how variations in approach, especially in the range of methodologies deployed, were in large measure conditioned by the physical environments in which the work took place. Some field evaluations are extensive as the pattern of trenching at the Bognor Regis Eco-Quarter, West Sussex, shown on the back cover clearly demonstrates. Here 410 trenches with a total length of over 20 km were excavated within a development area of 128 ha in August to October 2009 by Cotswold Archaeology (Hart 2009).

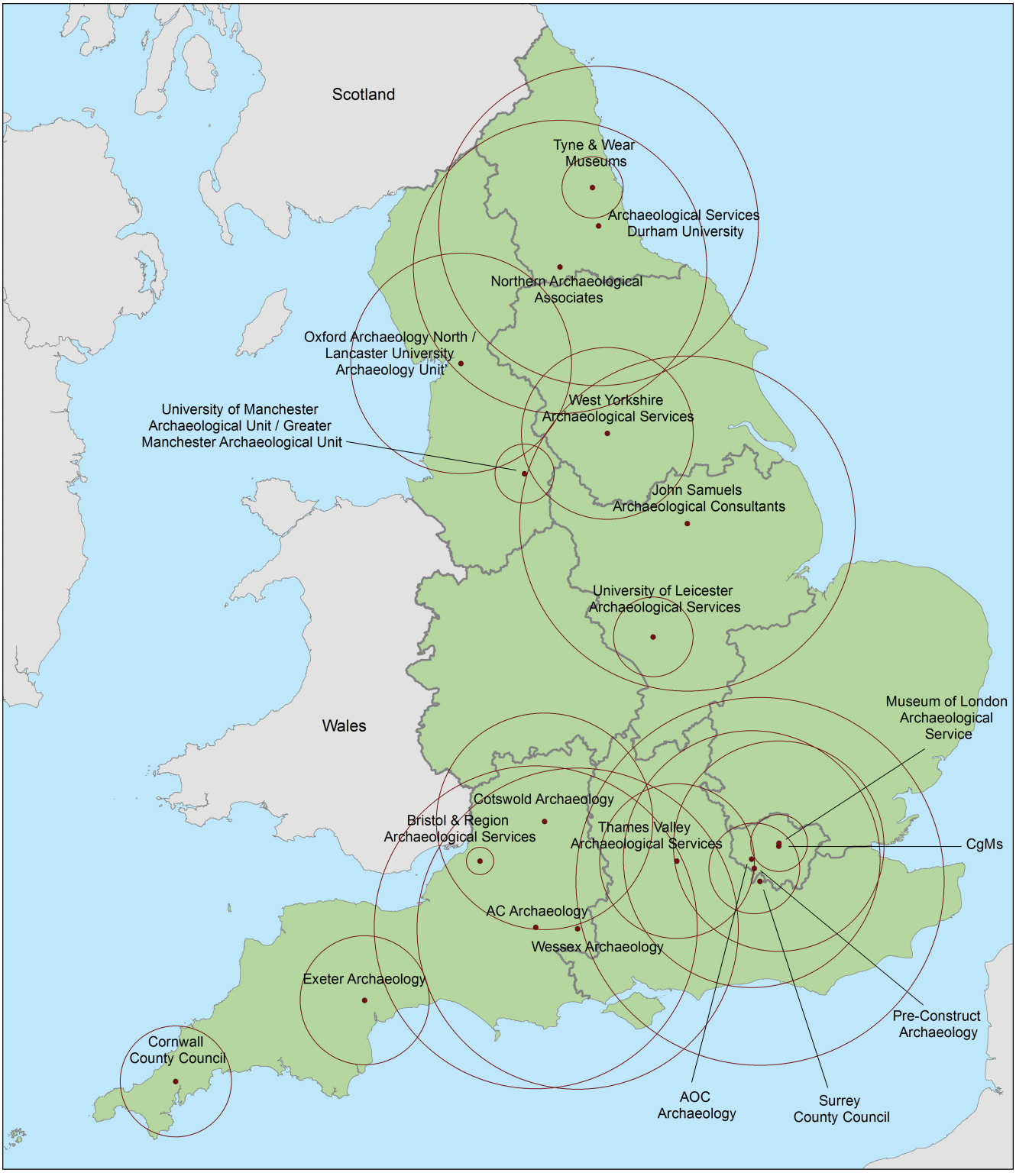

Figure 3.13 Map showing headquarters of the top-20 contractors undertaking desk-based assessments at the centre of circles scaled to reflect the mean travel distance to recorded investigations. Regional boundaries shown. (Data: AIP)

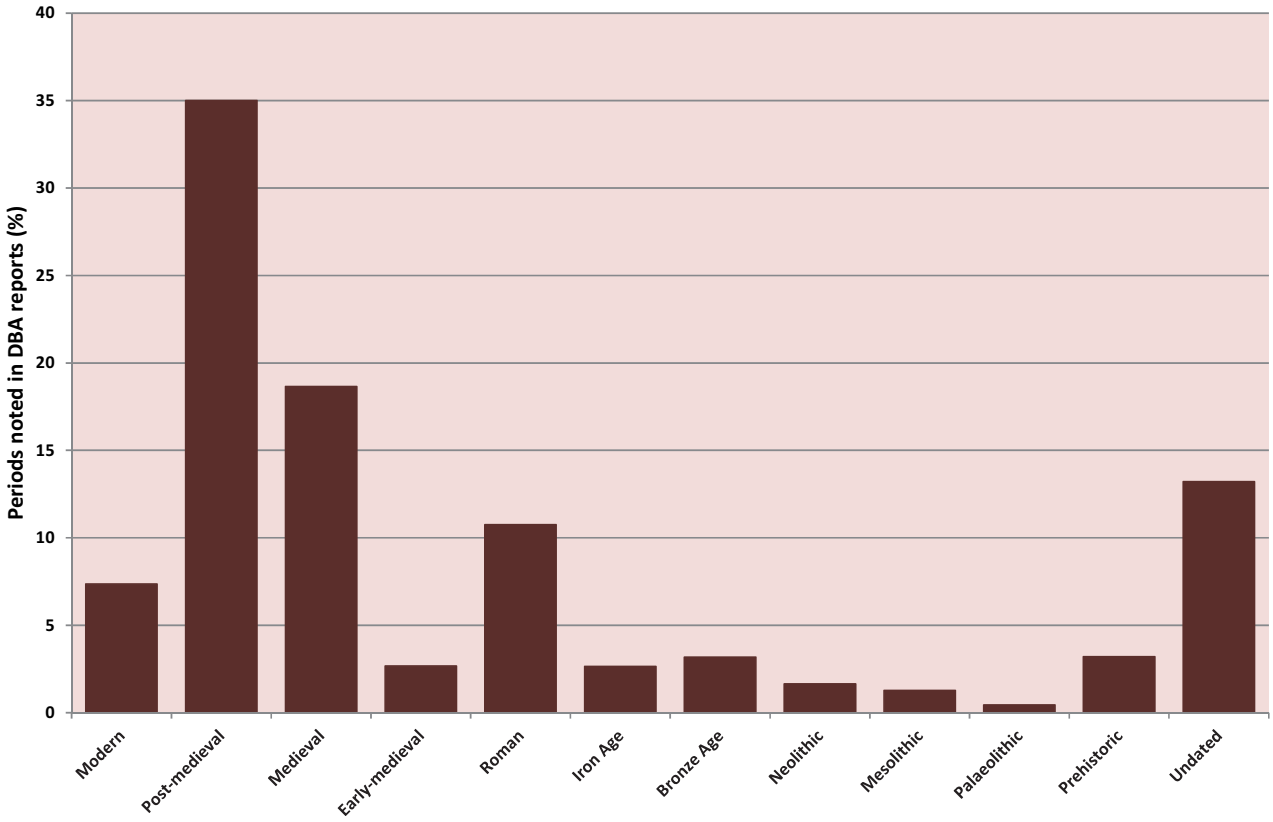

Figure 3.14 Analysis of the periods represented by archaeological remains reported in desk-based assessments undertaken between 1990 and 2010. (Data: AIP. Sample = 20,235 observations)

Table 3.8 Period representation in recorded desk-based assessments 1990–2010 in relation to the period representation of monuments and finds reported by MARS and the PAS. (MARS data from Darvill & Fulton 1998: 93; PAS data from PAS 2011: 26)

Period	MARS monuments	PAS finds	Desk-based assessments				
		2009-10	1990-1994	1995-1999	2000-2004	2005-2010	All years
Prehistoric	12%	9%	15%	13%	12%	7%	12%
Roman	7%	52%	15%	12%	10%	6%	11%
Early medieval	1%	3%	4%	3%	2%	2%	3%
Medieval	21%	17%	22%	21%	18%	13%	19%
Post-medieval	34%	19%	23%	34%	39%	41%	35%
Modern	3%		3%	4%	6%	19%	7%
Unknown	22%		17%	12%	12%	12%	13%

Number and distribution

Approximately 22,800 field evaluations completed between 1990 and 2010 were recorded by the AIP, an average of over one thousand per year or around three completions per working day. Most of these were initially documented as client reports submitted as part of planning applications or in seeking permission for development or land-use change within protected areas. Many field evaluation reports are available on-line; at the start of January 2018 a search of Archsearch (ADS 2018) using the key-word 'field evaluation' returned 3314 reports for sites in England.

Figure 3.15A shows the recorded pattern of field evaluations year-on-year between 1990 and 2010, with a four-order polynomial trend-line added to provide a possible forward projection. However whilst this shows a decline, anecdotal evidence suggests that the pattern stabilised rather than continuing the downward trend after 2010. Between 1990 and 2000 there was a sustained

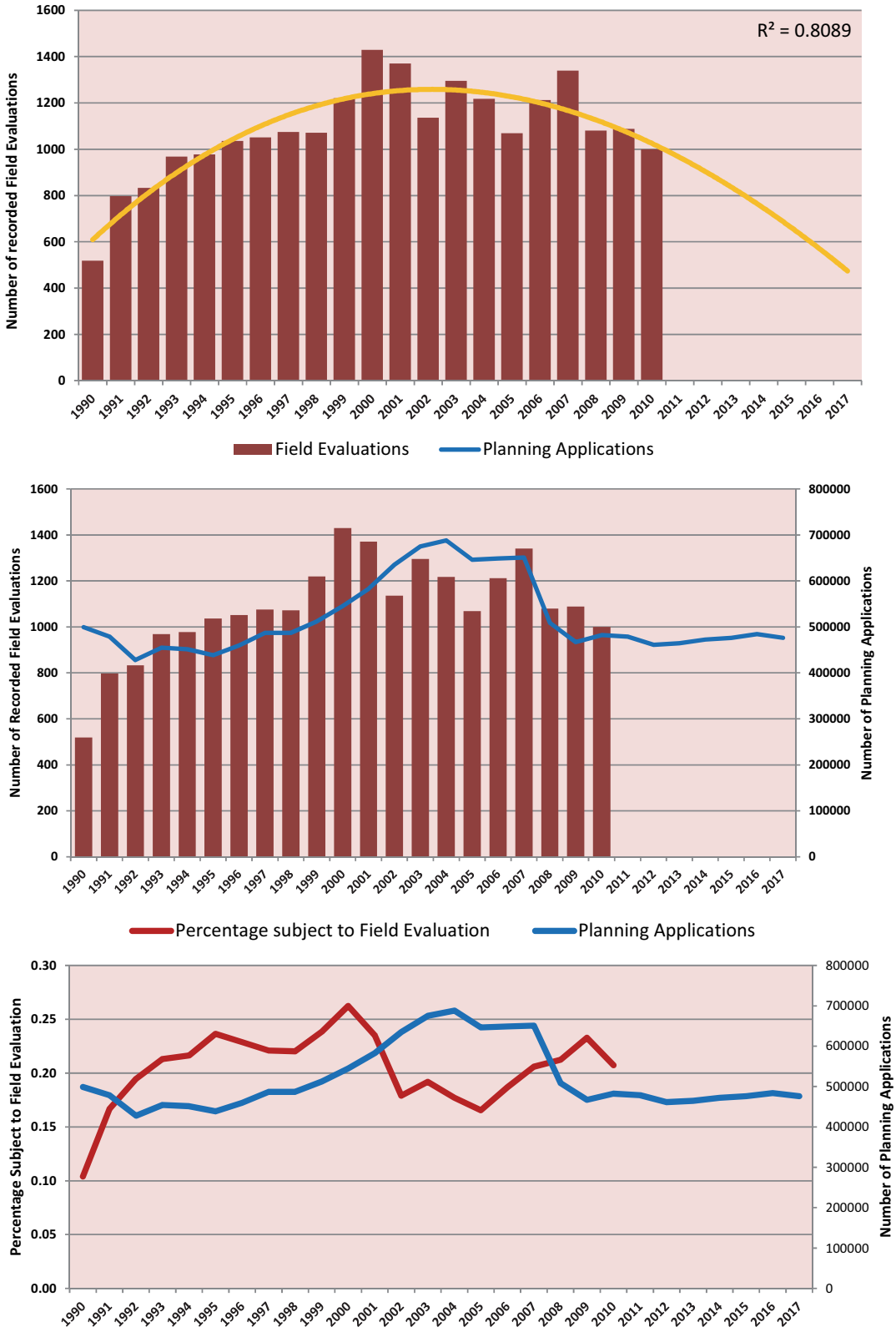

Figure 3.15 Recorded field evaluations undertaken between 1990 and 2010. ***A.*** *Overall number of field evaluations with a five-order polynomial trend-line superimposed to represent the long-term pattern of change.* ***B.*** *Comparison of recorded field evaluations year-by-year in relation to the number of planning applications.* ***C.*** *Comparison of the number of planning applications in relation to the proportion subject to field evaluation. (Data: AIP. Sample = 22,786 records)*

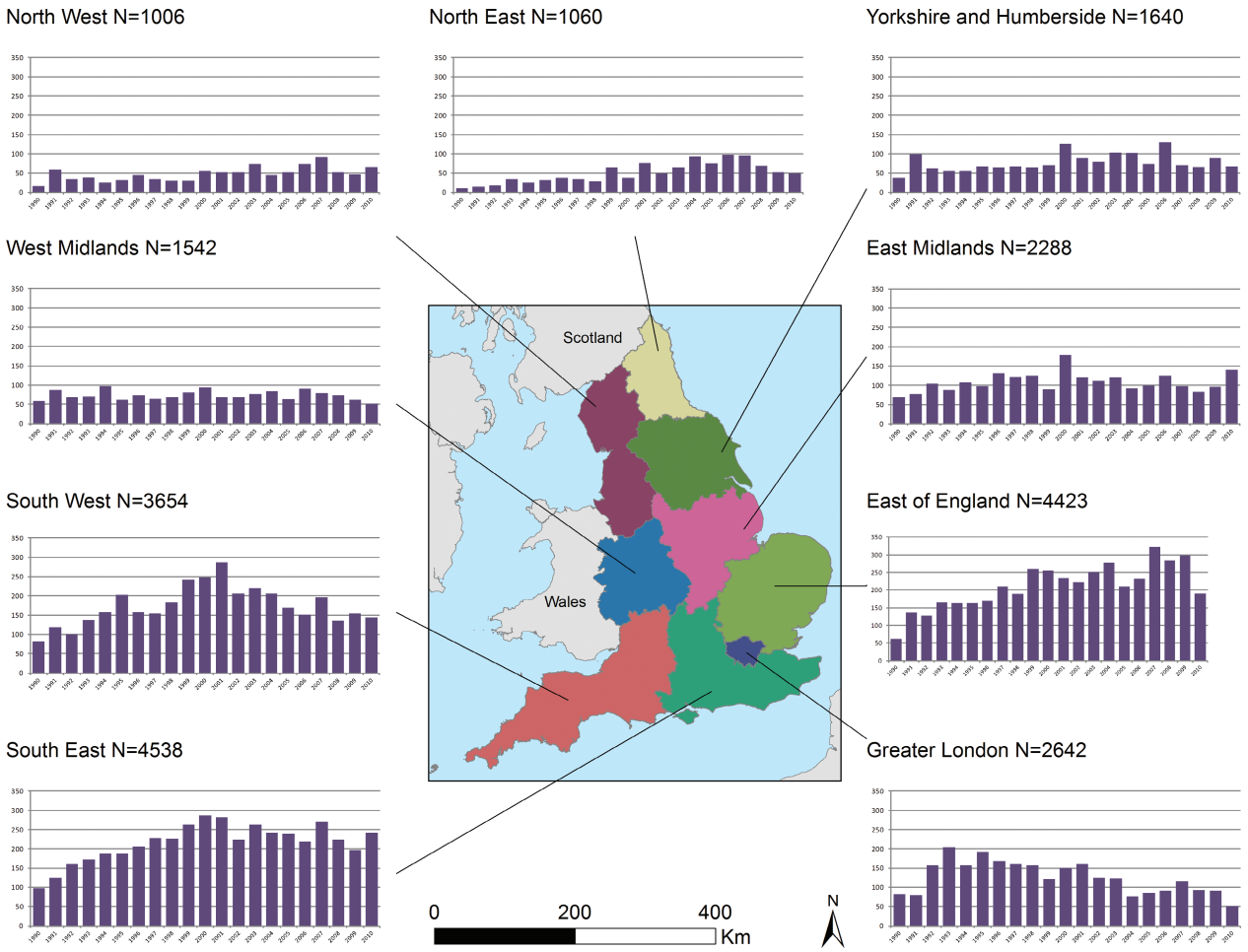

Figure 3.16 Analysis by region of recorded field evaluations year-by-year 1990 to 2010. (Data: AIP. Sample = 22,793)

year-on-year increase in the number of field evaluations carried out, although the rate of increase lessened greatly between 1995 and 1998. Despite year-on-year variations the period 1999 to 2004 was the period of peak output with an overall if slightly spikey decline from 2004 to 2010. The number of field evaluations carried out in 2010 was about the same as in 1994.

Figure 3.15B shows the increasing number of field evaluations in relation to the number of planning applications through the PPG16 Era. Some correspondence between the annual rate of growth in field evaluations and the general health of the development industry represented by the number of planning applications made can be seen in the way that the number of field evaluations rises slightly ahead of the trend in planning applications. This is not unexpected since field evaluation typically takes place six-months to a year ahead of a formal planning application being lodged.

Figure 3.15C shows the number of field evaluations per year as a proportion of the number of planning applications made in the same period. Over the whole PPG16 Era just 0.2 per cent of planning applications were subject to field evaluation, but this has fluctuated slightly over the years. As with DBAs, field evaluation can hardly be regarded as an undue burden on potential applicants, although it is recognised that, by their nature, some types of development are more likely to require field evaluation than others. This is especially the case for large development proposals and those that break new ground or lie within areas known to be archaeologically sensitive. The fairly consistent level of planning applications since 2010 suggests that around a thousand field evaluations per year are now being carried out across England, although the trend-line shown on Figure 3.15A predicts a decline in the number undertaken.

The sheer number of field evaluations undertaken suggests that not all come through the conventional route of having a prior DBA (*see* Figure 1.4). In many cases it seems that developers opt to bypass the DBA and move straight to a more powerful, and inevitably more expensive, means of providing archaeological information.

Figure 3.16 shows the year-on-year incidence of all field evaluation projects carried out between 1990 and

Table 3.9 Number of recorded field evaluations in England by region 1990–2010.

Region	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
East Midlands	70	78	105	88	107	99	131	122	126	89	180	121	112	121	93	100	125	99	84	97	141	2288	10.0
Eastern Region	62	137	127	165	163	163	169	210	189	260	255	234	222	251	277	210	233	323	284	299	190	4423	19.4
Greater London	83	80	157	204	157	192	168	160	157	122	150	160	124	123	76	86	92	116	93	91	51	2642	11.6
North East	10	15	18	34	26	32	37	35	28	65	37	77	49	64	93	75	98	96	69	53	49	1060	4.7
North West	17	58	35	39	26	32	45	35	30	30	55	52	52	74	45	53	73	91	52	46	66	1006	4.4
South East	98	125	160	173	187	187	205	228	226	263	286	282	223	263	242	239	219	270	224	196	242	4538	19.9
South West	83	118	101	138	158	202	158	154	183	242	247	287	206	221	206	169	151	196	135	155	144	3654	16.0
West Midlands	58	87	69	71	97	61	73	64	69	81	94	69	69	77	84	63	90	80	73	62	51	1542	6.8
Yorkshire & Humberside	38	99	61	56	56	68	65	67	64	70	126	89	79	104	102	74	130	70	66	89	67	1640	7.2
Totals	519	797	833	968	977	1036	1051	1075	1072	1222	1430	1371	1136	1298	1218	1069	1211	1341	1080	1088	1001	22793	

2010 for each region (*see* Table 3.9). Most obvious are the disparities in the number of field evaluations undertaken across the regions, with the South East, South West, and East of England being an order of magnitude greater than the level of activity in the North West and North East for example. The 'ripple effect' of development concentrated in the south east of England is clear to see. There are also regional differences apparent in the way that field evaluation has developed as a practice and been applied. In the South East there is a steady and fairly even year-on-year increase in the number of field evaluations undertaken between 1990 and 2000, after which the profile is spikey. In many areas, there is a peak in activity in the period 1999–2001, although the patterns before and after this period are more varied. Despite the general decline in the number of field investigations towards the end of the reporting period, there are more in 2010 than in 1990 for the majority of regions. Only Greater London saw a marked decrease in this respect. In retrospect, the first decade of the twenty-first century may have to be seen as being an exceptional period with levels of development at a twenty or thirty year high.

The overall distribution of recorded field evaluations is shown on Figure 3.17 as point-data, although at this scale there is inevitably much overlap and superimposition of points in areas of high development pressure. It is clear, however, that most parts of the country have experienced significant levels of field evaluation, with 'hot-spots' in many historic towns and urban areas where development has been strong. Major infrastructure projects such as the High-Speed Railway line (HS1) from London to the Channel Tunnel can be seen, as well as some road-schemes such as those along the A1 corridor. Also visible is the line of Hadrian's Wall, a World Heritage Site in northern England with abundant rich archaeological deposits. The main voids in the pattern are heavily protected landscapes, especially National Parks, where development of the kind requiring field evaluation is rare: for example, Bodmin Moor, Dartmoor, and Exmoor in southwestern England, the New Forest in central southern England, and the Lake District and North York Moors in northern England.

Prompts, briefs, and funding patterns

The spirit and intention of PPG16 is to encourage pre-determination field evaluation in order to promote informed decision-making, as discussed in Chapter 1. However, early interpretations of the exact wording did prompt some alternative readings (Biddle 1994b) and an appeal decision in the case of Stanborough Developments Ltd v Test Valley Borough Council (T/APP/C1760/A/99/1024452/P7 by B M Linscott) brought the whole matter into sharper focus. Here the Inspector determined that:

> *...there is no good reason to conclude that remains of national importance would be found for justifying a*

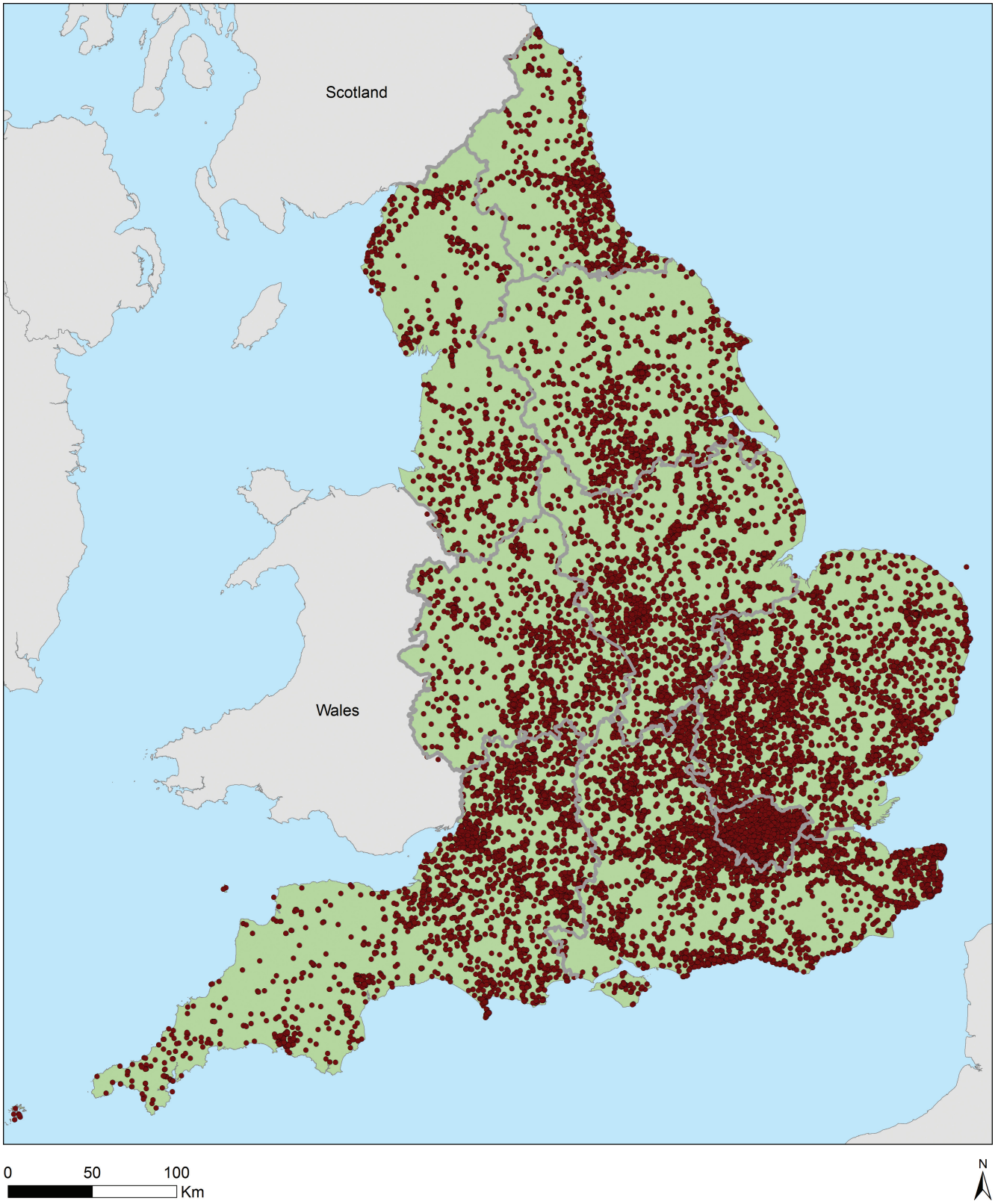

Figure 3.17 Distribution of recorded field evaluations 1990–2010. Regional boundaries shown. (Data: AIP. Sample = 23,968 records)

> *presumption in favour of preservation in situ. Having particularly in mind the advice in paragraph 21 of PPG, this is the only ground in national and local policy which would justify requiring an evaluation to be undertaken prior to the determination of the application.* (Decision letter paragraph 29)

The implication of this seemed to be that the only reason for insisting on pre-determination evaluation was for situations where there was a likelihood that nationally important remains would be present that would lead to refusal of the application on archaeological grounds. If it was a case of confirming that deposits were present, and that these could be excavated prior to the start of the development, then this could be dealt with through the use of a planning condition. Where pre-determination evaluation was considered by an LPA to be essential, they had powers under Article 4 of the *Town and Country Planning (Applications) Regulations 1988* to request specified information in support of a planning application, and this is sometimes cited as a reason for carrying out a field evaluation.

As Table 3.10 shows, looked at over the whole PPG16 Era both the spirit and intention of PPG16 has been upheld in the way field evaluation has been applied. About 65 per cent of prompts for field evaluation were the provisions in PPG16 brought to the attention of developers either through the LPA or their own internal or external advisors. As might be expected, the proportion prompted by this source has increased through time as the contents of PPG16 become widely known and understood. Less than 1 per cent of field evaluations were prompted by an Article 4 direction. A major concern of any developer is quantifying and reducing risk; obtaining high quality information about the presence/absence and significance of any archaeological remains within a development area is an obvious course of action.

Instances where field evaluation is carried out after the determination of a planning application are not uncommon: 23 per cent of recorded field evaluations were prompted by a planning condition, the number rising steadily through the PPG16 Era. Less than 1 per cent was prompted through a planning agreement or obligation.

Most of the other prompts reflect relatively minor contributions to the overall use of field evaluation, but the wide range and variety is interesting. About 2.5 per cent of field evaluations between 1990 and 1999 were prompted by the need for further information in connection with an application for SMC rather than planning permission, although the same report could potentially have been used for both, where both were required (*see* Chapter 7). No field evaluations appear to have been prompted by the need to inform policies being developed for strategic plans (*see* above).

Field evaluations almost always impact upon the primary archaeological resource. While it is accepted that the 'testing' of the deposits involves some loss in order to gain better insights, a number of ethical issues

Table 3.10 Summary of the main prompts identified for recorded field evaluations 1990–2010.

Prompts	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
Direction from Local Planning Authority - PPG16	215	472	386	497	478	298	317	638	642	942	1149	1242	919	879	891	744	659	889	577	480	105	13419	64.3
Planning Condition	23	37	29	53	57	69	81	177	205	309	284	205	191	312	238	246	494	410	450	548	477	4895	23.5
Scheduled Monument Consent	25	38	21	26	19	35	21	17	23	18	36	29	17	24	28	21	24	37	19	30	17	525	2.5
Research	4	5	5	3	3	0	5	5	9	15	22	25	13	33	14	16	24	27	18	35	29	310	1.5
Voluntary/Self-interest	70	53	19	11	13	13	16	13	13	16	12	11	5	13	13	1	0	3	4	2	6	307	1.5
Direction from Local Planning Authority - PPS 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	277	277	1.3
Conservation/Restoration	0	3	6	6	4	8	7	9	5	6	12	16	15	9	7	5	3	11	15	17	31	195	0.9
Environmental (unspecified schedule)	1	6	6	14	9	10	5	19	11	16	8	2	6	7	5	5	9	5	5	3	3	155	0.7
Water Act 1989, 1991 and subsequent codes of practice	3	6	10	4	3	5	5	11	8	5	2	4	5	8	4	1	6	9	11	8	2	120	0.6
Direction from Local Planning Authority - PPG15	0	0	2	0	2	3	2	4	4	2	6	2	1	5	1	24	8	19	20	11	2	118	0.6
Listed Building Consent	2	2	2	6	3	14	11	2	2	5	6	16	2	3	2	3	4	3	0	5	7	100	0.5
Planning Agreement - Section 106/Section 52	0	7	4	3	6	1	7	3	6	2	2	9	1	5	3	4	6	3	10	6	6	94	0.5
Faculty Jurisdiction	0	2	7	1	2	10	5	4	4	14	10	8	4	2	8	4	1	2	1	1	2	92	0.4

Table 3.10 Summary of the main prompts identified for recorded field evaluations 1990–2010. (Continued)

Prompts	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
Direction from Local Planning Authority - Direction 4	19	8	1	3	1	0	2	1	3	0	0	1	2	1	6	18	1	0	0	0	0	67	0.3
Environmental Assessment regulations Schedule 1 projects (Obligatory)	1	2	5	10	7	3	0	0	1	0	0	2	3	1	0	2	2	0	2	3	2	46	0.2
SMR Enhancement	0	3	0	0	0	0	0	0	1	0	5	2	3	1	1	2	0	1	8	6	4	37	0.2
Conservation Area Consent	0	0	0	0	1	4	1	3	2	1	0	1	5	5	0	1	2	1	1	0	0	28	0.1
Part II AMAA Act 1979	0	0	1	0	2	12	5	1	4	0	0	0	0	1	0	0	0	0	0	0	0	28	0.1
Electricity Act 1989 and subsequent code of practice	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	4	0	2	1	5	0	15	0.1
Grant application (e.g. management plan)	0	0	0	2	0	2	1	2	2	0	0	2	0	1	0	0	0	0	0	0	1	13	0.1
Environmental Assessment regulations Schedule 2 projects (Discretionary)	0	2	1	1	3	0	0	2	0	0	1	2	0	0	0	0	0	0	0	0	0	12	0.1
Highways Act 1980	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	6	0.0
New designation (i.e. ESA, NP, SSSI)	0	0	0	0	0	3	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0.0
Higher Level Stewardship Scheme Agreement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0.0
Pipelines Act 1962	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.0
Grand Total	363	646	505	641	615	491	492	911	945	1354	1556	1580	1193	1310	1221	1101	1243	1422	1144	1163	971	20867	

Table 3.11 Summary of main parties who set the briefs/specifications for recorded field evaluations 1990–2010.

Source	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
County/Unitary Authority Archaeologist	206	398	315	382	402	377	444	605	626	498	918	949	625	813	779	247	331	594	608	642	643	11402	59.8
Contractor	113	125	47	54	50	34	39	70	48	50	12	77	291	186	173	600	657	340	51	105	17	3139	16.5
LPA (County/District/City/ Park etc.)	54	97	58	62	59	68	69	54	92	148	258	212	106	193	147	69	82	146	165	219	225	2583	13.5
Consultant	20	35	13	19	26	32	35	23	18	57	8	25	21	34	50	62	71	81	188	65	64	947	5.0
English Heritage	9	14	16	29	32	9	6	46	43	16	20	14	68	103	44	80	51	53	15	26	31	725	3.8
Self (Landowner/ Developer)	5	10	10	7	19	0	4	9	5	1	1	6	0	14	2	0	2	1	4	6	4	110	0.6
National Trust	0	0	0	1	0	0	1	0	2	1	1	9	3	3	3	0	0	2	16	10	12	64	0.3
Diocesan Archaeological Advisor	0	0	0	0	0	3	3	0	0	6	11	8	8	4	5	3	2	1	4	2	2	62	0.3
AAI Investigating Authority	8	15	0	0	0	2	0	0	1	1	0	1	0	0	1	0	0	0	1	0	1	31	0.2
Natural England	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	2	7	0.0
RCHME	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Totals	415	694	459	554	588	525	601	807	836	778	1229	1301	1122	1350	1204	1061	1196	1218	1053	1079	1001	19071	

Table 3.12 Summary of the main funding sources for recorded field evaluations 1990–2010.

Funding Body	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
Developer	287	487	408	515	526	528	545	707	684	964	1210	1	840	762	760	649	799	816	644	6	559	12697	68.8
Landowner	22	47	47	55	68	41	44	74	86	78	49	0	95	211	157	140	168	103	146	1	206	1838	10.0
Local government	71	111	99	103	103	100	98	84	76	72	110	0	73	100	91	83	57	61	75	1	62	1630	8.8
Contractor	0	0	1	0	0	0	0	0	0	0	0	0	39	120	94	91	92	68	72	0	48	625	3.4
Water authority/company	9	21	20	22	12	14	23	26	27	8	14	0	7	11	12	15	15	22	17	0	6	301	1.6
Ecclesiastical	2	8	14	9	7	22	14	22	14	24	17	0	17	21	30	17	13	7	12	0	12	282	1.5
Department of Transport	11	18	27	53	39	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	155	0.8
English Heritage	11	15	5	10	10	8	1	8	4	6	6	0	9	8	10	3	4	3	6	0	16	143	0.8
Other charitable trust	0	2	5	8	8	4	1	5	6	7	3	0	10	8	11	14	5	6	12	0	8	123	0.7
Electricity authority/ company	0	1	4	3	2	4	6	4	6	4	2	0	4	4	7	9	5	15	10	0	21	111	0.6
Ministry of Defence	1	0	7	12	8	12	6	3	4	7	2	0	1	7	5	2	3	5	5	0	4	94	0.5
National Trust	1	5	0	2	2	5	3	1	2	3	2	0	4	3	5	0	1	4	14	0	12	69	0.4
Development corporation	8	5	2	3	4	8	5	6	0	0	0	0	0	0	0	1	4	1	1	0	0	48	0.3
Environment Agency	0	0	0	0	0	0	0	0	0	2	4	0	4	5	5	3	5	4	6	0	7	45	0.2
Telecommunications company	0	0	1	0	0	2	2	4	2	3	1	0	0	2	0	2	1	14	5	2	0	41	0.2
Gas company	0	0	2	3	0	1	1	4	2	5	3	0	2	2	0	2	3	0	2	0	2	34	0.2
Oil company	2	2	0	2	2	2	2	0	0	13	4	0	1	0	1	0	2	0	0	0	0	33	0.2
Local archaeological society/Amateur archaeologists	0	0	0	0	0	0	2	0	2	2	4	0	1	4	1	1	1	1	3	0	8	30	0.2
Highways Agency	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	4	3	4	0	0	3	23	0.1
Other research trust	2	0	0	0	0	0	0	1	1	4	1	0	2	0	3	2	2	0	2	0	3	23	0.1
National Rivers Authority	1	2	2	5	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0.1
National Park Authority	1	0	0	0	1	0	2	1	0	0	2	0	3	1	0	0	1	0	1	0	4	17	0.1
Heritage Lottery Fund	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	1	1	3	0	0	6	15	0.1
Countryside Commission	0	0	0	0	0	0	0	0	0	3	2	0	3	0	0	0	2	1	1	0	2	14	0.1
Department of the Environment, Transport and the Regions	0	0	0	0	0	0	0	6	3	2	0	0	0	0	0	0	0	0	0	0	0	11	0.1
Department for Transport, Local Government and the Regions	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0	0	0	0	0	0	5	0.0
Department of the Environment	0	1	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.0
National Health Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0.0

Table 3.12 Summary of the main funding sources for recorded field evaluations 1990–2010. (Continued)

Funding Body	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
Aggregate Levy Sustainability Fund (ALSF, MALSF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	1	0	0	4	0.0
Department for Transport	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	1	0	0	4	0.0
Forestry Commission	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0.0
Ministry of Agriculture, Fisheries and Food	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.0
Department for Communities and Local Government	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0.0
Network Rail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0.0
The Woodland Trust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0.0
Department for Environment, Food and Rural Affairs	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.0
European funding	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.0
Natural England	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0
Royal Commission on the Historical Monuments of England	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Totals	429	726	645	807	796	762	759	956	919	1207	1437	1	1121	1280	1194	1041	1191	1139	1038	10	1001	18459	

Table 3.13 Summary of the main development types in relation to recorded field evaluations 1990–2010.

Development Type	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
Urban Residential	48	96	92	129	127	119	138	207	174	331	286	382	301	306	333	219	192	211	133	177	145	4146	20.3
Urban Commercial	67	102	62	70	68	45	49	108	119	127	100	123	117	105	111	87	100	66	55	58	68	1807	8.9
Large/Medium Scale Development	0	0	0	0	0	0	0	0	0	148	354	321	68	7	19	48	151	182	126	109	101	1634	8.0
Small-scale Development	13	24	37	33	27	62	53	65	88	90	61	94	29	56	97	100	109	129	113	112	98	1490	7.3
Housing Estate	20	60	54	51	71	32	31	39	20	15	6	4	70	135	57	84	132	149	170	106	149	1455	7.1
Rural Residential	3	15	26	42	53	64	57	108	94	82	72	132	106	95	111	79	57	55	18	25	33	1327	6.5
Public Building	9	9	29	44	46	54	58	69	62	52	47	78	78	101	88	80	59	53	68	89	76	1249	6.1
Mineral Extraction	50	68	64	58	45	53	64	65	37	45	64	65	42	45	39	31	30	35	44	31	19	994	4.9
Road Scheme (New & Widening)	42	70	86	110	100	62	61	28	23	39	41	39	20	37	27	21	27	37	27	24	23	944	4.6
Small-scale Extension	25	28	21	32	24	36	26	29	37	58	25	58	39	59	51	16	31	50	34	40	22	741	3.6

Table 3.13

Development Type	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
Car Park	16	6	10	25	16	18	21	34	25	33	25	13	17	31	15	10	33	41	40	34	24	487	2.4
Large/Medium Scale Extension	3	4	13	21	9	27	21	32	33	17	34	38	12	27	29	12	18	29	38	37	22	476	2.3
Service Infrastructure	16	27	22	16	20	22	28	31	30	20	10	13	14	19	14	23	26	33	26	42	22	474	2.3
Building Refurbishment	14	23	4	12	15	37	43	20	8	30	31	44	9	18	15	8	6	15	28	16	18	414	2.0
Rural Commercial	1	3	8	10	13	10	17	19	15	34	21	37	32	36	30	32	26	25	15	16	11	411	2.0
Pipelines/Cables	20	32	23	25	9	14	16	18	19	31	25	11	11	12	18	12	13	27	21	18	9	384	1.9
Amenity Area	6	18	15	18	17	13	11	23	20	17	1	13	13	25	15	7	13	25	30	18	26	344	1.7
Estate Management	3	8	4	1	5	2	1	6	4	11	4	7	17	22	11	19	22	22	26	46	61	302	1.5
Leisure Facility	30	71	21	12	9	17	7	5	9	3	7	2	1	3	1	6	4	6	4	5	2	225	1.1
Farm Infrastructure	2	1	5	4	11	2	13	17	14	7	7	3	17	10	9	12	1	10	6	24	26	201	1.0
Rail Links/Railway-related Infrastructure	1	6	8	8	7	7	3	22	8	16	2	1	1	3	0	4	5	5	2	4	0	113	0.6
Mixed Use Urban (Residential & Commercial)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	27	30	19	33	110	0.5
Afforestation	3	3	3	8	3	5	7	4	2	4	5	12	6	4	1	2	1	5	9	4	6	97	0.5
Landfill	2	8	7	8	11	7	7	7	2	3	0	1	0	4	3	1	2	3	2	4	3	85	0.4
Graveyard/Cemetery	0	0	0	0	0	0	0	0	0	4	11	7	14	2	15	7	2	4	6	5	6	83	0.4
Extensive Green Field Commercial Development	7	13	10	8	13	5	5	2	0	1	0	0	1	2	0	3	1	1	0	0	0	72	0.4
Subterranean	0	0	0	0	0	0	0	0	0	6	27	19	5	1	0	1	2	5	2	0	0	68	0.3
Flood Alleviation Scheme	0	0	0	0	0	0	0	0	0	0	0	0	2	2	11	5	10	8	3	16	6	63	0.3
Landowner Pre-sale Planning Application	7	11	3	4	2	3	2	4	5	2	1	1	3	2	0	1	1	2	0	0	0	54	0.3
Shoreline Development	0	0	0	0	0	7	2	7	4	2	0	3	2	3	1	3	1	3	0	2	2	42	0.2
Mixed Use Rural (Residential & Commercial)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	7	11	6	32	0.2
Land Reclamation	0	0	1	3	1	0	3	2	2	0	1	3	1	1	1	1	1	3	2	0	2	28	0.1
Renewable Energy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	12	15	0.1
Telecommunications	0	0	0	0	0	0	0	0	0	3	2	2	0	0	0	0	1	1	0	0	1	10	0.0
Grand Total	408	706	628	752	722	723	744	971	854	1231	1270	1526	1048	1173	1122	935	1077	1278	1085	1092	1032	20377	

are involved, including the likely impact of such schemes on the integrity of what remains, the size of the sample taken, and to what extent the evaluation itself would be destructive of *in situ* remains. Not surprisingly, therefore, it is widely recognised as important that the briefs and specifications defining the work programme for a field evaluation are produced by, or agreed with, the curator who will eventually use the results of the evaluation to make informed comments on detailed development proposals (ACAO 1993: 14; CIFA 2014c: 3.1.10). About 73 per cent of briefs/specifications for field evaluations are prepared or approved by county archaeologists or the relevant local planning authority (Table 3.11). Many of those prepared by developers, contractors, and consultants (together about 22 per cent) will have been approved by an appropriate archaeological curator. The remainder, from English Heritage, Diocesan Archaeological Advisers, and the National Trust, represent curators with specific jurisdiction which in some cases relates to matters outside the town and countries planning system but which nonetheless follow similar practices.

Funding for field evaluations derives from a wide range of sources (Table 3.12), but more than 68 per cent are funded by commercial developers themselves, and many of the other funding bodies cited are acting as developers in relation to their own estates or schemes when commissioning a field evaluation. A rather different approach was pioneered in Norwich during the very late 1990s when a Single Regeneration Budget project in the city was used for evaluations in the King Street area. Working with land-owners and the City Council, this work enabled the identification of land with development potential in a highly structured way, brought forward one stage of the archaeological process, and reduced the risk for prospective developers (Ayers & Shelly 2000). Less formal versions of such schemes in which a local authority prepares a detailed assessment or evaluation of an area identified for development have taken place in other towns, for example in the Blackfriars area of Gloucester in the early 1990s, but such schemes are not common.

Little information on the cost of work is available as many of the contractors surveyed were reluctant to reveal, even in broad terms, the cost of particular projects. It is known, however, that the cost of field evaluations varies widely according to the scale of scheme of works and the nature of the anticipated archaeology. On the limited evidence available most modest field evaluations cost less than £20,000, but there are numerous exceptions for large scale schemes. Discussions with contract managers at major archaeological contractors reveals that pricing field evaluations is a risky business because of the uncertainties surrounding what will be found. Many developers naturally prefer fixed-price contracts for field evaluations, but these are the most difficult to work out, given the conflicting needs of remaining commercial while minimising the risk of substantial losses as a result of underestimating the amount of work required. The point was also made that in carrying out a field evaluation it is important from the contractor's point of view to consider how to collect information relevant to costing accurately any further work that may be connected with a subsequent mitigation strategy should the development go ahead.

Development type

Field evaluation is most commonly applied to urban residential development (20.3 per cent of all field evaluations), urban commercial development (8.9 per cent), large/medium sized housing projects (8.0 per cent), small-scale housing projects (7.3 per cent), housing estates (7.1 per cent), rural residential schemes (6.5 per cent), public and community buildings (6.1 per cent), mineral extraction programmes (4.9 per cent), and road schemes (4.6 per cent) with many other types of development represented at a lower level (Table 3.13). These show slight variations compared with the period 1991–99 where the three most common development types requiring field evaluation were urban commercial developments (16 per cent), urban residential developments (7 per cent), and road schemes (6 per cent) (Darvill & Russell 2002: 30). These shifts reflect changing economic circumstances and government policy on development.

Where the extent of a study area was recorded more than half of all field evaluations undertaken between 1990 and 2010 related to investigation areas of less than 1 ha (Figure 3.18A). Over the same period the size of the study areas subject to field evaluation generally decreased (Figure 3.18B) with the percentage of field evaluations relating to small sites (less than 1 ha) rising while the percentage covering large sites (over 20 ha) has fallen. In the last two quarters of the PPG16 Era work at large sites accounted for less than 8 per cent of all field evaluations.

Land-use

Over the PPG16 Era 57 per cent of field evaluations were in urban situations and 43 percent in rural landscapes. This is very similar to the split for DBAs (*see* Figure 3.8). As Figure 3.19 shows, the split between these two key environments has fluctuated a little from year to year, with only 2008 visible as an unexplainable exceptional year when more than two-thirds of recorded field evaluations were reported as being in rural areas. The overall pattern is not surprising as the risks associated with development in urban areas are considerably higher than in rural landscapes.

Figure 3.20 shows a general analysis of the land-use represented at field evaluation sites at the time of the evaluation based on the categories established by the LUSAG scheme (Darvill & Fulton 1998: 146). Over the PPG16 Era

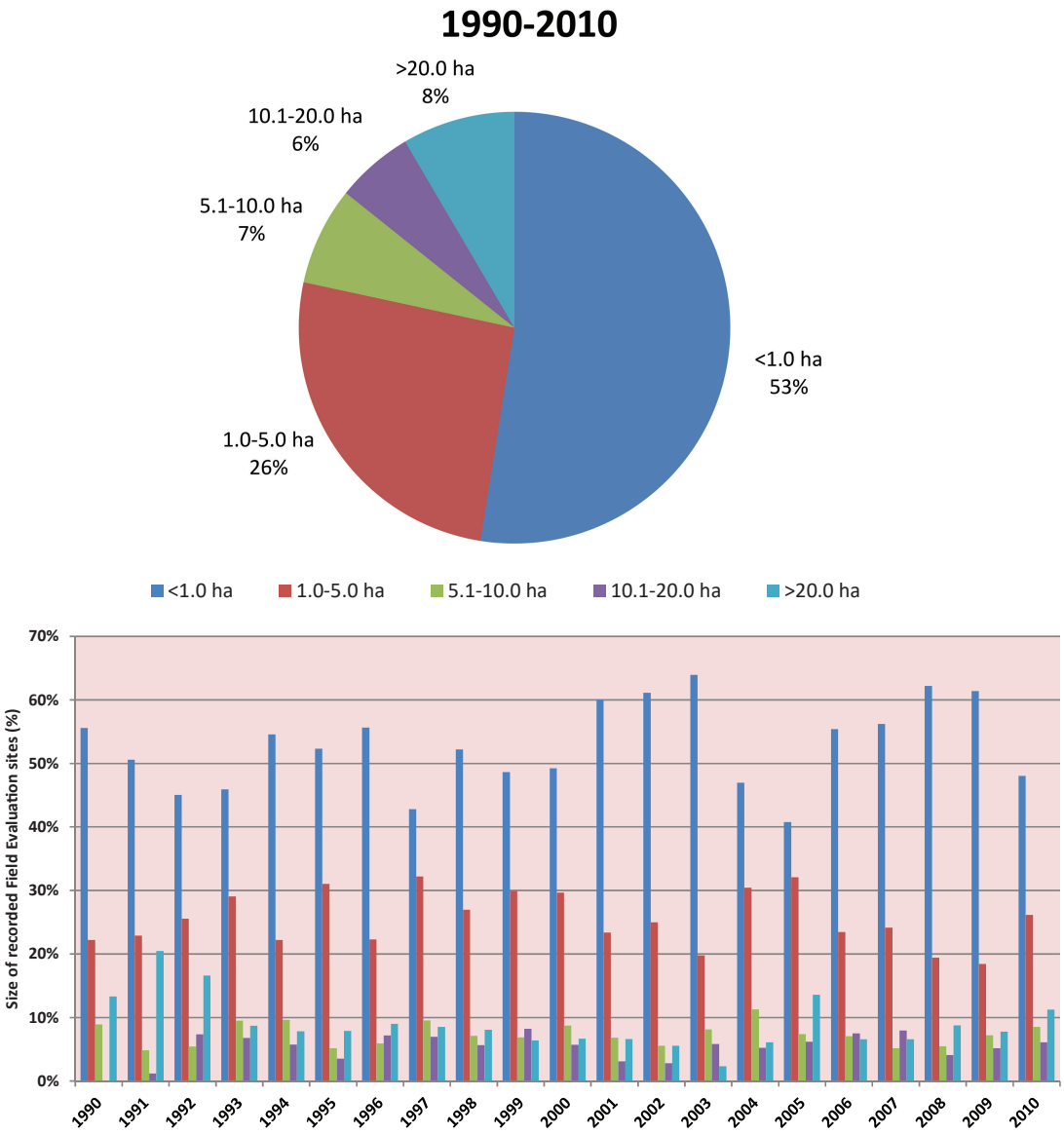

Figure 3.18 Summary of the land area covered by recorded field evaluations. ***A.*** *All undertaken between 1990 and 2010.* ***B.*** *Size range year-on-year 1990–2010. (Data: AIP. Sample = 6060 observations)*

as a whole, built-up and industrial land is the single most common area to be subject to field evaluation (30 per cent), but over the period it has fairly steadily declined from around 31 per cent in 1990–94 to 14 per cent 2005–10. Field evaluations on agricultural land dropped from 20 per cent in 1990–1994 to 12 per cent in 2000–2004, but rose again in 2005–2010 to 22 per cent. Woodland is under-represented at 3 per cent overall, perhaps because of the generally long-term stability of this land-use and the fact that relatively little is under threat of development. Field evaluation of vacant and wasteland increased considerably over the PPG16 Era, up from around 9 per cent in 1990–94 to 22 per cent in 2005–10.

Figure 3.21 shows a slightly different analysis of field evaluation in relation to land-use, here focused on regional differences. Field evaluations take place in many different situations and landscapes, some of which are protected sites or areas designated in various ways for their archaeological and heritage interests (*see* Chapter 7 for further discussion).

Contractors

About 600 archaeological contractors were involved in carrying out field evaluations in England between 1990 and 2010, more or less the same group that undertook DBAs. This represents a massive increase in endeavour since the late 1980s (Darvill *et al.* 1995: Fig. 30). The top-20 archaeological contractors involved with carrying out field evaluations ranked in terms of the number

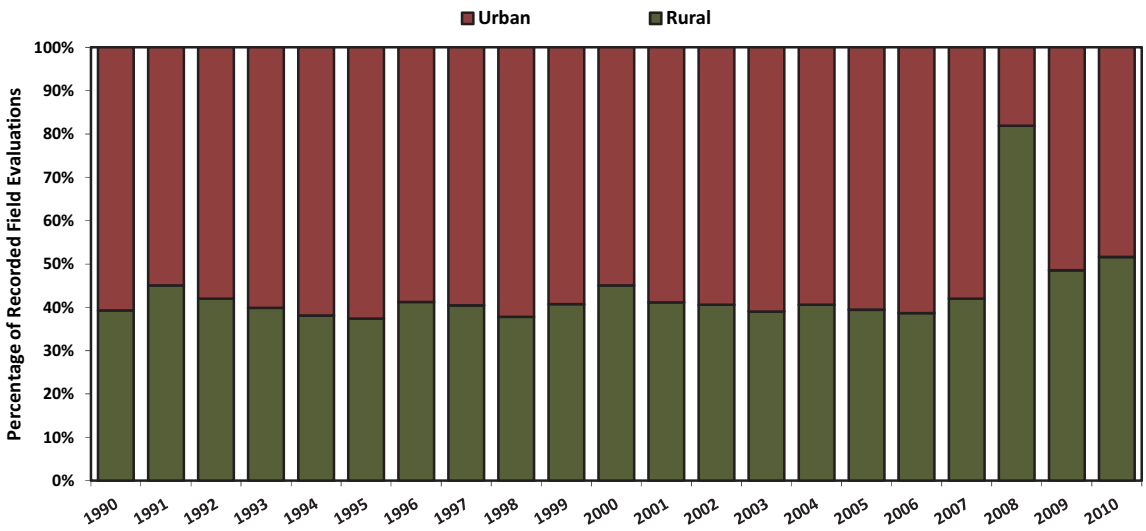

Figure 3.19 Analysis of the distribution of field evaluations recorded in urban and rural environments year-by-year. (Data: AIP. Sample = 22,785 records)

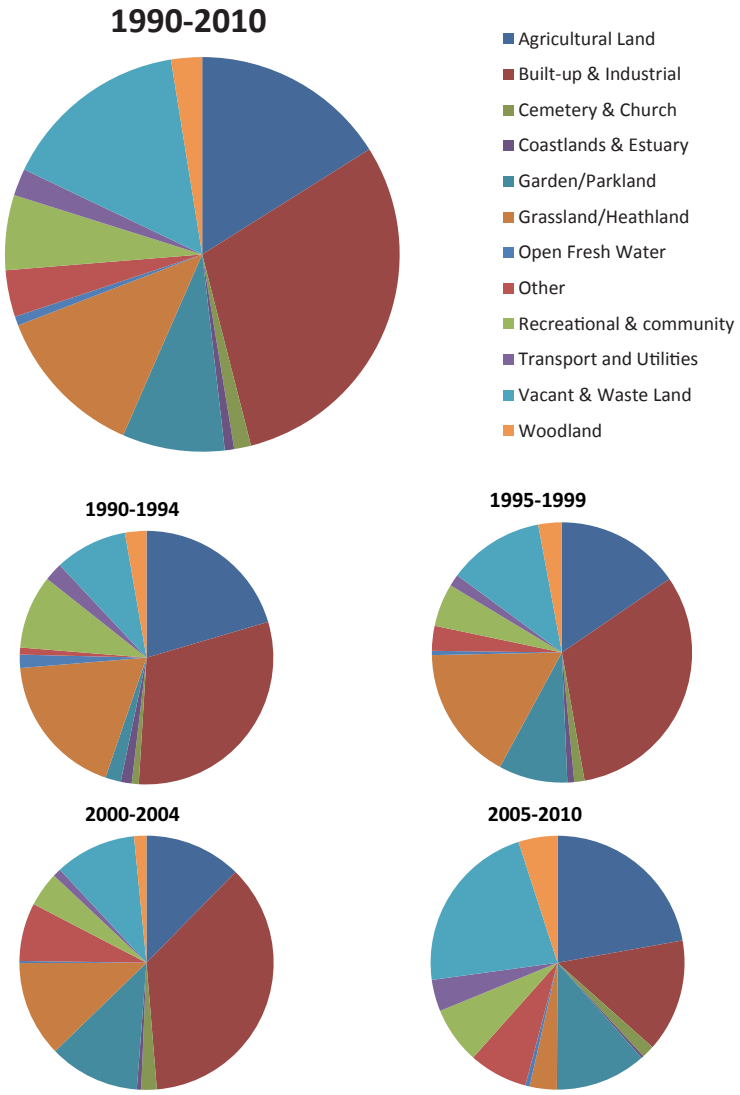

Figure 3.20 Analysis of field evaluations in relation to the main reported land-use types. (Data: AIP. Sample = 27,019 observations)

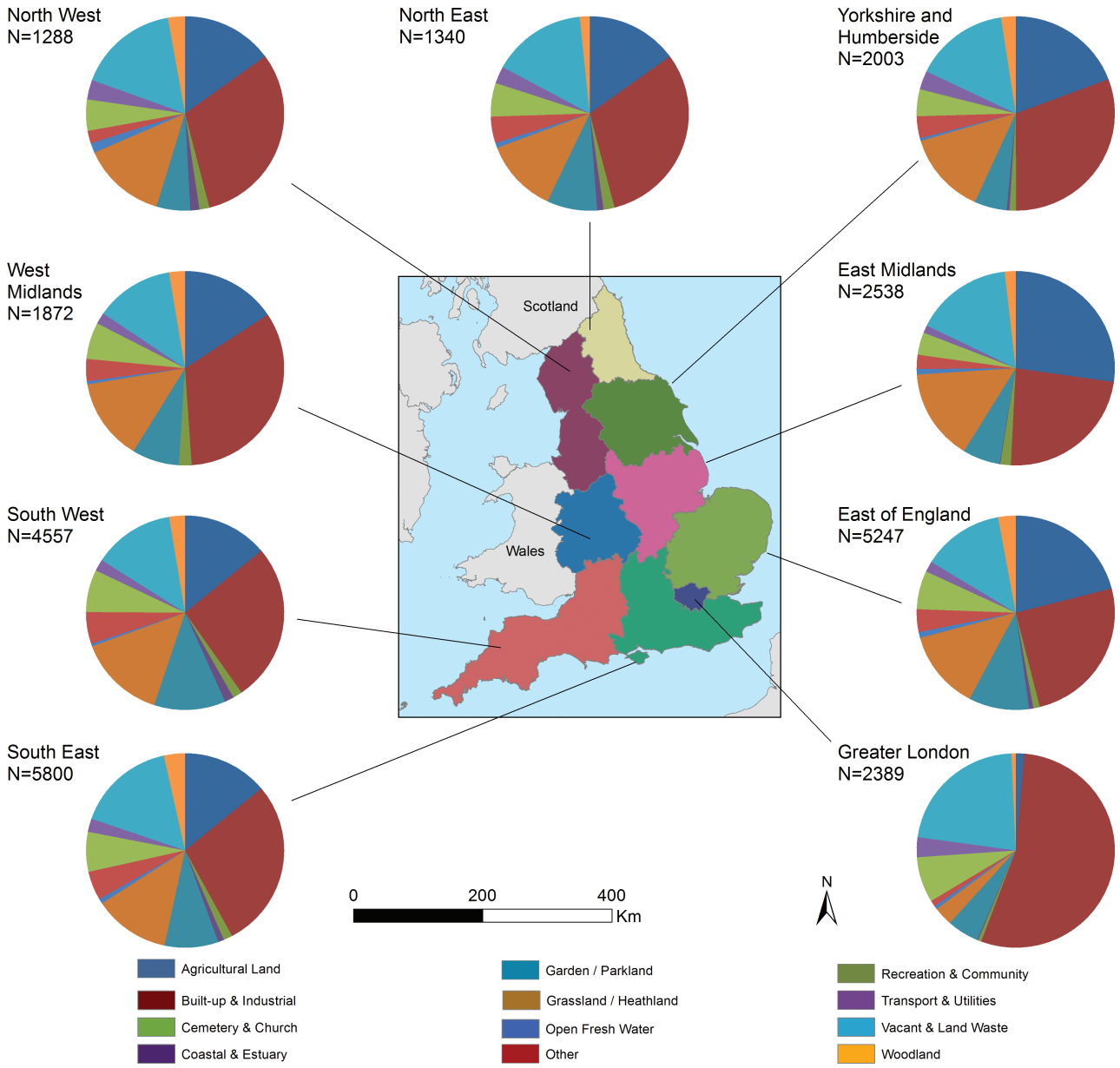

Figure 3.21 Regional summary of field evaluations undertaken between 1990 and 2010 in relation to the main reported land-use types. (Data: AIP)

of evaluations completed between 1990 and 2010 as recorded by the AIP researchers show a mix of different kinds of organisations (Table 3.14). Local authority-based contractors rank alongside independent contractors. There is a considerable difference (a factor of 3.5) in the number of field evaluations carried out by the highest placed and lowest placed contractor within the top-20. Overall, the top-20 contractors carried out about 54 per cent of all the recorded field evaluations that took place between 1990 and 2010.

Figure 3.22 shows the location of the headquarters of the top-20 contractors undertaking field evaluations at the centre of circles scaled to reflect the mean travel distance to recorded investigations they have undertaken. The concentration of contractors undertaking high volumes of this work in the south and east of England is striking. The relatively modest size of most circles shows that companies and organisations mainly undertake field evaluations fairly close to their headquarters, no doubt a reflection of the travel costs and inconvenience of working too far away. The regional offices opened by some large contractors during the PPG16 Era were no doubt a response to the desire to provide multi-regional coverage; several more regional offices have appeared since 2010.

The involvement of amenity societies and local communities in field evaluation programmes has been widely discussed (CIA 1993) although remains relatively rare. An interesting example is provided by a case at Osbaldwick in York. Here York Archaeological Trust

Table 3.14 Top-20 archaeological contractors and consultants preparing recorded field evaluations between 1990 and 2010 ranked by the number of recorded reports.

Consultant/Contractor	Number of recorded Field Evaluations 1990-2010
Museum of London Archaeological Service	1314
Wessex Archaeology/Trust for Wessex Archaeology	982
Cotswold Archaeology/Cotswold Archaeological Trust	887
Thames Valley Archaeological Services	880
Archaeological Solutions/Hertfordshire Archaeological Trust	817
Oxford Archaeology/Oxford Archaeological Unit	801
Northamptonshire Archaeology/Northamptonshire County Council	664
Suffolk Archaeological Unit/Suffolk County Council	647
Archaeology South-East/South Eastern Archaeological Services, University College London	613
University of Leicester Archaeological Services/Leicestershire Archaeological Unit	609
Pre-Construct Archaeology/Geophysics	583
AC Archaeology	535
NAU Archaeology/Norfolk Archaeological Unit	522
Canterbury Archaeological Trust	512
Essex County Council/Field Archaeology Unit	424
Cambridgeshire Archaeology/Cambridgeshire Archaeological Field Unit, Cambridgeshire County Council	412
Oxford Archaeology North/Lancaster University Archaeological Unit	387
Birmingham Archaeology/University of Birmingham Field Archaeology Unit	385
Archaeological Project Services	379
Cambridge Archaeological Unit, University of Cambridge/Cambridge Archaeology	372

undertook a field evaluation on a greenfield site for which a planning application was being prepared for residential housing. In addition to the 19 linear evaluation trenches and 15 test-pits excavated by York Archaeological Trust, members of the York and District Metal-Detecting Club and residents of the area undertook a series of systematic surveys across six fields, recording finds with reference to a local 20 m by 20 m grid, hand-held GPS, and Total Station surveys. Over four days of detecting around 900 items were recovered although no obvious concentrations were found (Macnab 2004).

Methodologies

Although the published standards and guidance on field evaluations (CIFA 2014c) specify the range of sources and methods typically used in compiling these reports, in reality they vary considerably. Most use a combination of desk-based sources and fieldwork interventions. Table 3.15 lists the main methods used in field evaluations. Since most individual programmes within the investigation type involve the use of more than one defined method (investigation event), the quantification relates to the incidence of specific investigatory events reported within the investigations for which data on the methods used was reported. In general, field evaluations use an average of 1.4 techniques, but this has declined slightly from an average of 1.5 in 1990 to 1.3 in 2010.

Sample trenching is far and away the most commonly applied technique, being used in about 56 per cent of investigations. Targeted trenches are used rather less often (11 per cent of evaluations), and test-pits at about half this rate (4 per cent). This contrasts with the pattern of method deployment in the 1980s and very early 1990s, when targeted trenches were the most widely used technique (54 per cent of evaluations) followed by random trenching/sample trenching (32 per cent) (Darvill et al. 1995: Tab. 5).

Documentary searches represent the highest-ranking non-destructive methodology applied (9 per cent of field evaluations). Geophysical surveys are probably under-represented in these figures as many were undertaken or recorded as separate events.

Results and outcomes

Field evaluations reveal all sorts of archaeological remains from the mundane to the spectacular; the anticipated to the unexpected. The process itself has sometimes been criticised because archaeologists are not selecting where

Figure 3.22 Map showing headquarters of the top-20 contractors undertaking field evaluations at the centre of circles scaled to reflect the mean travel distance to recorded investigations. Regional boundaries shown. (Data: AIP)

Table 3.15 Summary of the principal investigation events used in compiling recorded field evaluations 1990–2010.

Methods*	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	% recorded field evaluations
Sample Trenches	292	463	562	733	755	802	829	760	752	812	972	1016	1045	1171	1089	988	875	1032	913	820	763	17444	56.6
Targeted Trenches	159	245	122	100	108	124	129	203	209	334	265	236	33	43	38	15	369	313	105	173	123	3446	11.2
Documentary Search	57	106	133	195	164	222	230	170	157	129	171	117	48	44	59	24	248	311	98	71	57	2811	9.1
Test Pits	68	86	68	93	91	75	51	90	111	64	102	102	31	55	65	30	40	53	31	57	48	1411	4.6
Geophysical - Magnetometer/Gradiometer	46	71	72	99	91	78	86	68	61	26	136	22	8	12	17	12	15	26	13	25	24	1008	3.3
Fieldwalking	58	93	103	116	70	50	64	59	40	44	51	37	19	34	16	11	11	22	22	36	42	998	3.2
Visual Inspection	9	31	28	36	25	62	42	45	67	72	99	87	23	25	84	21	21	75	26	31	19	928	3.0
Environmental Sampling	0	0	0	0	1	34	31	68	41	1	8	5	3	14	39	6	9	33	85	79	82	539	1.8
Topographic Survey	29	46	37	28	26	24	21	22	21	18	30	7	12	7	12	5	10	8	22	24	34	443	1.4
Recording of Fabric/ Structure	8	5	12	15	15	43	46	9	22	18	16	48	11	21	16	16	12	31	17	18	31	430	1.4
Geophysical - Resistivity	26	44	36	37	22	21	23	19	22	19	42	4	5	3	2	1	3	8	2	5	6	350	1.1
Metal Detecting	8	11	18	19	19	13	10	25	9	8	7	12	5	7	5	1	2	10	49	52	55	345	1.1
Augering	9	14	25	33	30	18	21	20	17	8	16	15	11	12	20	3	11	15	8	19	14	339	1.1
Geophysical - Magnetic Susceptibility	9	8	12	12	13	21	10	13	6	9	40	2	0	1	0	1	2	2	1	2	1	165	0.5
Aerial Photography	2	14	0	0	1	5	3	7	8	8	3	2	0	0	3	1	4	8	2	1	1	73	0.2
Ground Penetrating Radar	3	1	1	0	3	3	1	0	2	1	2	1	1	0	1	2	3	3	0	2	2	32	0.1
Phosphate Survey	1	2	2	0	0	0	1	0	0	0	1	0	0	0	1	0	0	1	1	1	0	11	0.0
Measured Survey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	9	0.0
Photographic Survey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7		0	0	7	0.0
Laser Scanning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3	0.0
Maritime Survey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.0
Grand Total	784	1240	1231	1516	1434	1595	1598	1578	1545	1571	1961	1713	1255	1449	1467	1137	1635	1967	1397	1417	1303	30793	
Field evaluation records with methods recorded	519	797	831	966	976	1032	1050	1075	1072	1219	1430	1371	1136	1293	1217	1057	1206	1330	1072	1080	1000	22729	
Average number of investigation methods per field evaluation	1.5	1.6	1.5	1.6	1.5	1.5	1.5	1.5	1.4	1.3	1.4	1.2	1.1	1.1	1.2	1.1	1.4	1.5	1.3	1.3	1.3	1.4	

*A single field evaluation may involve multiple methods

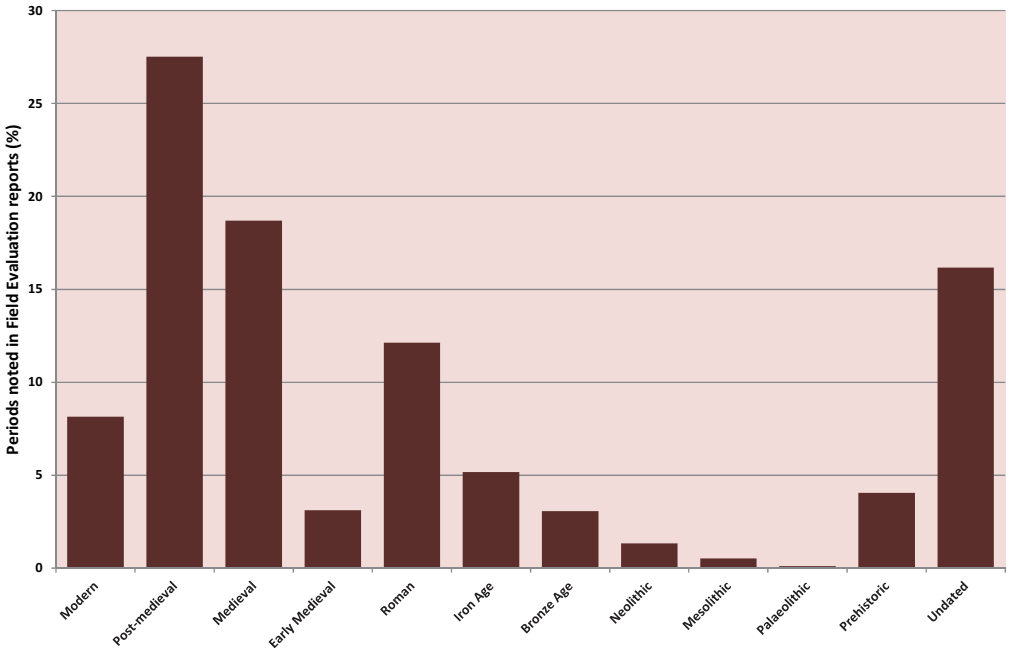

Figure 3.23 Analysis of the periods represented by archaeological remains reported in field evaluations. ***A.*** *All field evaluations undertaken between 1990 and 2010.* ***B.*** *Breakdown year-by-year 1990–2010. (Data: AIP. Sample = 72,205 observations)*

Table 3.16 Period representation in recorded field evaluations 1990–2010 in relation to the period representation of monuments and finds reported by MARS and the PAS. (MARS data from Darvill & Fulton 1998: 93; PAS data from PAS 2011: 26)

Period	MARS Monuments	PAS Finds	DBAs	Field Evaluations				
		2009-10	1990-2010	1990-1994	1995-1999	2000-2004	2005-2010	All years
Prehistoric	12%	9%	12%	13%	16%	13%	14%	14%
Roman	7%	52%	11%	15%	12%	11%	12%	12%
Early medieval	1%	3%	3%	4%	3%	3%	3%	3%
Medieval	21%	17%	19%	21%	19%	19%	17%	19%
Post-medieval	34%	19%	35%	22%	27%	30%	28%	28%
Modern	3%	-	7%	5%	7%	8%	11%	8%
Unknown	22%	-	13%	20%	15%	16%	16%	16%

the work is carried out. Rather they go where development pressures take them. In fact, this randomising element is no bad thing, and compares with the way that motorway archaeology in the 1960s and 1970s took archaeological work into sectors of the countryside that had previously been ignored, sometimes with very interesting and unexpected results (Fowler 1979).

A crude measure of the nature of what field evaluation is revealing, and how representative it is, can be gauged from the periods represented by the finds, deposits, and monuments revealed. Figure 3.23 shows an analysis of the main periods represented in field evaluation reports recorded from the period 1990–2010 (most evaluations have evidence for more than one period so quantification is by the incidence of cases reported). Compared to the spread of evidence from DBAs, field evaluations show a higher proportion of Iron Age material, but otherwise a fairly comparable profile (*see* Figure 3.14). A pilot study of field evaluations in southeast England (Hey & Lacey 2001) found that conventional approaches were generally successful in locating Roman, medieval, and, to a lesser extent, Iron Age remains, but less effective for other periods.

Comparison of what has been found through field evaluation during the PPG16 Era in relation to a broad estimate of the known chronological distribution of England's recorded archaeological resource based on the period-classification of MARS Monuments reveals a fairly consistent pattern (Table 3.16). The distribution by period is fairly close to that of the overall distribution of monuments in England as represented by the MARS sample. In relation to the chronological spread of stray finds recorded

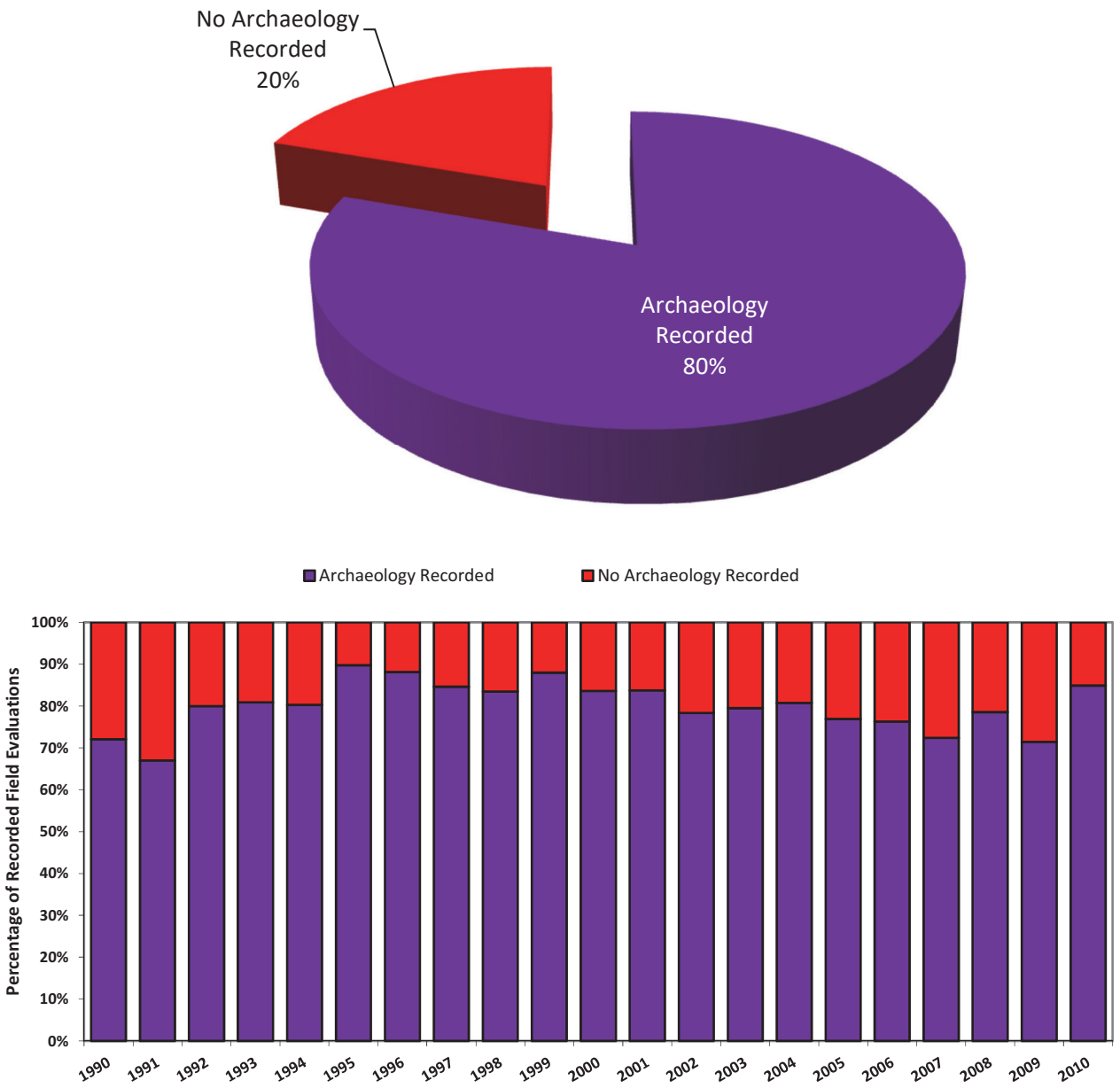

Figure 3.24 Located archaeology. ***A.*** *Overall pattern 1990–2010.* ***B.*** *Breakdown year-by-year 1990–2010. (Data: AIP. Sample = 22,785 records)*

by the Portable Antiquities Scheme in 2009–10 there is broad similarity for the medieval and later periods, but a disjunction for Romano-British representation as stray finds for this period are intrinsically easier to identify because of a greater abundance of distinctive material.

Figure 3.24A shows an analysis of the proportion of recorded field evaluations that found archaeology in relation to those that did not; overall, 20 per cent of recorded field evaluations did not report any archaeological features or finds. Looked at annually between 1990 and 2010 (Figure 3.24B), the proportion of those that did not report archaeological remains fluctuated slightly through time, falling from about 30 per cent in 1990 to about 10 per cent in 1995 before increasing again to between 15 and 28 per cent in the last decade of the project. This suggests that the cues that prompt the need for evaluation are being fairly consistently applied. But finding archaeology in a field evaluation is not necessarily a good measure of success (Darvill *et al.* 1995: 7); the intention of the evaluation is to make a successful diagnosis, a process that allows four possible outcomes (Darvill *et al.* 1995: 37–38; Orton 2000: 118–19). From a developer's perspective being certain that archaeology is absent is just as important as being certain of its presence; being wrong in either direction is a real problem. Table 3.17 summarises the results of field evaluations year-on-year according to these categories.

Looking at the question of success in a different way, Figure 3.25 provides an outcome analysis of the relationship between prior expectation (data from SMRs/HERs and/or DBAs) and the results obtained from a field evaluation

Table 3.17 Summary of field evaluation outcomes 1990–2010.

Known Archaeology	Archaeology in Field Evaluation	Outcome	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
No	Negative	True Negative	84	157	115	130	135	79	95	129	138	129	132	143	164	74	11	115	249	250	195	277	69	2870	12.7
No	Positive	False Negative	263	368	326	401	437	599	618	620	610	795	617	569	367	221	25	249	697	557	698	594	349	9980	44.1
Yes	Negative	False Positive	13	20	46	54	58	25	28	30	29	18	101	78	82	189	223	131	36	120	37	34	82	1434	6.3
Yes	Positive	True Positive	110	165	340	382	347	330	308	290	283	277	579	577	523	809	958	573	228	413	150	183	500	8325	36.8

programme. The most important relationships are true positives and true negatives, which for the period as a whole account for 50 per cent of cases. Compared with earlier results where true positives and true negatives were estimated at *c*.51 per cent of cases (Darvill *et al.* 1995: Tab. 8) the quality of judgements appears to be holding steady in the long term. The presence of false positives and false negatives is not unexpected as this is a consequence of making professional judgements using what is inevitably a finite and limited range of information. False positives occur where archaeological remains were recorded or recognised through preliminary desk-based studies, for example crop-marks visible on aerial photographs, but were not found through field evaluation perhaps because the crop-marks turned out to represent natural features. False negatives are more significant. These are situations where no archaeological remains were recorded through desk-based assessment but were brought to light through field evaluation. Overall, 44 per cent of field evaluations fall into this category and are important because without such an evaluation these deposits might have been lost to development, or at the very least not recognised until the development process was underway. It is a result that emphasises the great power and value of field evaluation in determining the nature and extent of archaeological deposits, reducing risk for developers, and allowing the formulation of meaningful archaeological questions in advance of any mitigation works.

The results of field evaluations are primarily used in the decision-making process in terms of whether or not permission is granted for a particular development or land-use change and, if so, whether preservation *in situ* is desirable or possible. Essentially that is a binary decision based on weight of argument, although a positive outcome for the prospective developer in which permission is granted can be subject to conditions. In such cases the results of a field evaluation will be relevant to the determination of what those conditions comprise and how they should be applied: a mitigation strategy that as a first option should include preservation *in situ* but may also include investigation and recording. This is again a professional judgement that needs to be fair and reasonable, and grounded in the information provided by the field evaluation report. How well the results of field evaluation relate to the decision-making process and to what, in archaeological terms, is actually present in an area has been explored in a number of recent studies.

A pilot study of 12 investigations at major infrastructure sites in southeast England compared the outcomes of field evaluations with the results of large-scale open area excavations (Hey & Lacey 2001). It was found that although all approaches had their merits it was only machine-trenching that effectively predicted the character of sites. Even with samples of between 0.8 per cent and 5.6 per cent (average 2.4 per cent), simulations suggested that the proportion of sites seen in evaluations was too small to predict with confidence the full range of archaeological material actually present. Whether using different trenching arrays and sampling strategies could improve the situation is a matter for further

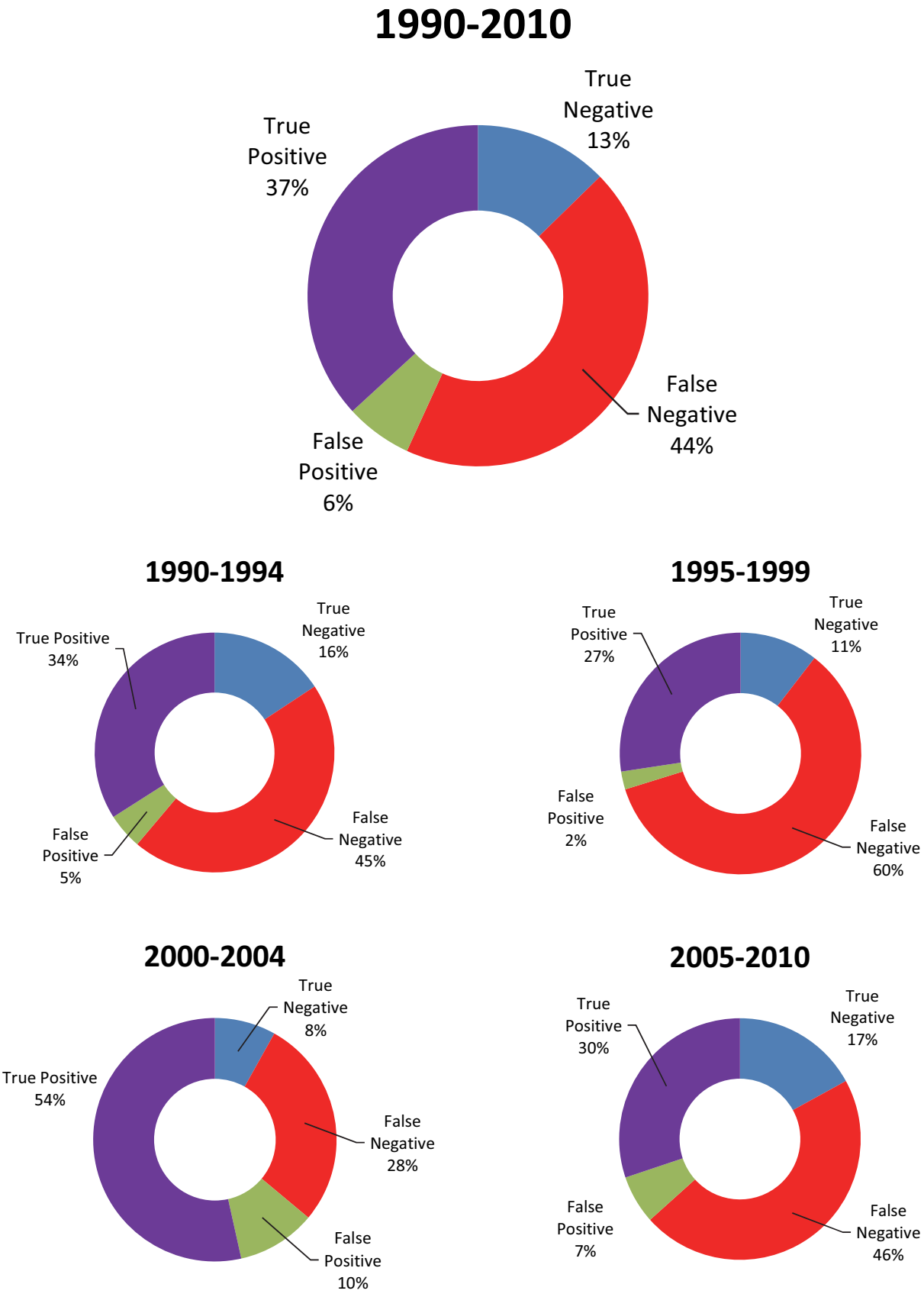

Figure 3.25 Evaluation outcomes in relation to predicted presence/absence of archaeological deposits based on SMR/HER records and/or desk-based assessment results. (Data: AIP. Sample = 22,609 records)

research. In a more recent study that considered the whole decision-making process based on case studies from across England, Ruth Waller concluded that current approaches were less effective than often hoped and that the decline in the use of staged field evaluation programmes was having a detrimental effect on the quality of results available for use by curatorial teams. She suggested that a 10 per cent sample needed to be excavated during field evaluations in order for the results to be treated with a high degree of confidence but noted that developing a sampling strategy in relation to past and present land-use was critical (Waller 2011: 139). From the standpoint of academic interests in macrofossil plant and animal remains, Allan Hall and Harry Kenward conclude that evaluations 'have serious shortcomings from the point of view of bioarchaeology' (Hall & Kenward 2006: 220). They suggest peer review of evaluation reports and greater support for specialists in the relevant fields might help the situation, although their discussion is rather confused in places and lacks a clear understanding of the role, purpose, and scope of field evaluations as against post-determination investigations that are often undertaken on rather different financial and operational footings (*see* Chapter 5).

Chapter 4

Archaeology in environmental assessment

Environmental assessment is essentially an audit of environmental resources and attributes within a specified area, the results of which are then related to anticipated positive and negative impacts of particular schemes and proposals. The idea of environmental assessment has a long history in the United States of America (Fortledge & Catharine 1990; Wathern 1988; *and see* Cleere & Fowler 1976) and over the past 50 years or so has developed and expanded considerably across the world (Morgan 2012). In general, environmental assessment comprises an integrated set of multi-disciplinary, and to some extent inter-disciplinary, studies, the results from which are presented as the basis for discussions between interested parties and to inform the decision-making process within local or national spatial planning systems. In Europe there are two streams to environmental assessment that are explored in detail in the following sections.

The first to be introduced was environmental impact assessment (EIA) which deals with the potential impact of particular development proposals. It therefore relates closely to the process of development management within the UK's spatial planning scheme (Bond 1997). The framework structuring these investigations was initially set out by the European Commission in June 1985 through Council Directive 85/337/EEC on *The Assessment of the Effects of Certain Public and Private Projects on the Environment* (EC 1985), generally known as the 'EIA Directive'. This was revised in March 1997 (EC 1997) and again in 2003 (EC 2003) and 2009 (EC 2009). Since the PPG16 Era the whole package was codified in Directive 2011/92/EU published on the 13 December 2011 (EC 2011) following a detailed review of existing practice and performance (GHK 2010; IEMA 2011), and amended again as Directive 2014/52/EU published on the 16 April 2014 (EC 2014b) with a view to simplifying the rules in line with a drive for smarter regulation. The results of an environmental impact assessment are presented in a document generally known as an 'environmental statement' that usually comprises three parts: a non-technical summary; the main statement; and supporting technical appendices.

In 2001, six years after publication of the EIA Directive, the scope of investigations was expanded considerably by the introduction of strategic environmental assessment (SEA) set out in Directive 2001/42/EC on *The assessment of the effects of certain plans and programmes on the environment* (EC 2001), generally known as the 'SEA Directive'. This deals with evaluating the potential impacts of policies set out in plans, programmes, and strategies of various kinds that are prepared or adopted by public authorities, or required by legislative, regulatory or administrative provisions, at international, national, regional, and local level (Fischer 2007); such plans often relate closely to the process of strategic planning (Jones *et al.* 2005). The results of a strategic environmental assessment are presented in an 'environmental report'.

The principles behind environmental assessment have far wider implications than the implementation of the regulations themselves. Key amongst these is the idea that in order to make informed decisions it is necessary to carry out appropriate verifiable tests and studies; this is also one of the principles that underpins the guidance offered in PPG16 and that was carried through into PPS5 and the NPPF (*see* Chapter 1). The imposition of a common set of assessment principles across all European states provides the benchmark against which local procedures at all scales should be measured, although there has been relatively little detailed research on the approaches used in respect to cultural heritage issues across different states, and their comparability.

Recording environmental assessments over the PPG16 Era proved particularly problematic as most seem to be rather transitory documents despite the huge effort expended on their compilation. No consolidated national index of environmental statements submitted to LPAs or DoE/DETR has ever been compiled. Attempts to publish consolidated lists (*e.g.* IEA 1993a; 1993b; 1994) floundered after only a few years, with the result that figures up to 1991–92 are probably better than those for much of the mid-1990s for which no digests are available. It is a surprising situation given the widespread research interest in environmental assessment within the UK (Fischer *et al.* 2015).

A more particularly archaeological problem is that because archaeological desk-based assessments and field evaluations are often carried out early in the preparation of an application these programmes are sometimes finished and the reports issued before it is decided to incorporate the results in an environmental statement. Where there is no information in the issued reports about the use of a piece of work within the broader context of an EIA it is almost impossible to link the investigations with the wider programme. To overcome the first of these, members of the AIP research team examined the collections of environmental statements held by the DCLG Library and Information Centre in London which may be considered the best available sample of such documents providing almost complete coverage. However, the DCLG stopped collecting and curating environmental statements early in 2010.

Strategic environmental assessments

For England the framework for SEAs relevant to the PPG16 Era was transposed from European Directive as *The Environmental Assessment of Plans and Programmes Regulations 2004* (SI 2004 No.1633) supported by a practical guide to implementation (ODPM 2005; DCLG 2006) which emphasised the integration of SEA with a sustainability appraisal that includes social and economic factors as well as environmental issues (Smith & Sheate 2001). However, a review of SEAs and sustainability appraisals by Bond & Marrison-Saunders (2011) revealed that most studies suffered from a high degree of reductionism in which complex processes and relationships were broken down into simplistically defined parts rather than taken together in more holistic ways.

Archaeology is listed in the original SEA Directive as part of the more generally constituted 'cultural heritage including architectural and archaeological heritage' (EC 2001: Annex 1 (f)) and is therefore one of the required components of baseline information for investigation. This is followed in the UK's regulations (SI 2004 No.1633: Schedule 2, 6 (k)). The Historic Buildings and Monuments Commission for England (English Heritage) is listed as a statutory consultee, and a paper summarising the legislation in relation to the historic environment was published in 2013 (EH 2013).

Environmental reports were not recorded as a separate investigation type by the AIP as few if any involve original fieldwork. A search of Archsearch in January 2018 using the keywords 'strategic environment assessment' revealed one report for England. However, for the period 2004 to 2010 approximately 50 SEAs are known to have been undertaken for parts of England and its adjacent territorial waters. Of these, five were undertaken in relation to the granting of licenses for oil and gas exploration on the UK Continental Shelf (Areas SEA2, SEA3, SEA6, SEA 7, SEA8) SEA3, SEA6 and SEA7 having substantial contributions on maritime/marine archaeology (Fleming 2002; WA 2006). Other strategic environmental assessments relate to a range of local plans, transport plans, minerals plans, tourism strategies, and management plans for protected areas. In 2012–13 eight SEAs were undertaken to assess the effects of revoking the Regional Spatial Strategies. It is likely that in future SEAs will need to be undertaken for at least some neighbourhood plans (*see* Chapter 3).

Environmental impact assessments

In April 1986 the UK Government published a preliminary consultation paper on the implementation of the EIA Directive and in July 1988 regulations were introduced as the *Town and Country Planning (Assessment of Environmental Effects) Regulations 1988* (SI 1988 No.1199). Full details of procedures were set out in a circular (DoE 1988a) and an accompanying advisory booklet (DoE 1989a). Production of EIAs was monitored during the early years of operating the regulations (*e.g.* DoE 1992; 1994b; Wood & Jones 1991) and in relation to subsequent revisions (DETR 1997b). Guidance and reviews of procedures relating to many of the subjects covered by the regulations have also appeared, including archaeology (Ralston & Thomas 1993), road traffic (IEA no date), and landscape issues (Stiles *et al.* 1991). EIA is the only fully statutory component of pre-determination investigation.

Revised EIA regulations were issued in April 1999 as the *Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999* (SI 1999 No.293), with amendments in 2000 (SI 2000 No.2867), 2006 (SI 2006 No.3295), and 2008 (SI 2008 No.2098) to reflect changes brought about by modifications to the original EIA Directive. A raft of specialist accompanying regulations were also issued for: offshore petroleum production (SI 1999 No.360); fish farming in marine waters (SI 1999 No.367); highways (SI 1999 No.367); gas pipelines (SI 1999 No.1672); land drainage improvements works (SI 1999 No.1783; SI 2005

No.1399); forestry (SI 1999 No.2228); nuclear reactors (SI 1999 No.2892); harbour works (SI 1999 No.3445 and SI 2000 No.2391); electricity supply works (SI 2000 No.1928); pipelines (SI 2000 No.1928); transport and related works (SI 2000 No.3199); uncultivated land and semi-natural areas (SI 2001 No.3966; SI 2005 No.1430); water resources (SI 2003 No.164); agriculture (SI 2006 No.2362; SI 2006 No.2522); mineral permission (SI 2008 No.1556; 2009 No.3342); and general guidance (DETR 1999a). Throughout the PPG16 Era the essential features of the scope and implementation of EIA in England have been progressive in two key areas.

First, the procedures apply to two groups of projects: major projects listed in Schedule 1 to the regulations for which assessment is mandatory; and other projects as listed in Schedule 2 for which assessment is discretionary and within the powers of LPAs or the Secretary of State for the Environment to request, where the project in question is judged likely to give rise to significant environmental effects. In general, EIAs are carried out prior to the submission of a planning application, the resulting environmental statement forming part of the application documentation. Screening arrangements are therefore in place for the determination by an LPA as to whether an EIA is required in a particular case. Special regulations also have to be issued for types of project that fall outside the planning system (*see* p. 50), and EIAs may also be undertaken voluntarily.

Second, the regulations specify the range of topics that potentially need investigation although only relevant topics are covered for particular developments. Over time the exact definition and scoping of the topics to be considered has shifted a little, and archaeology in particular has been bounced about in the process. The original EIA Directive explicitly included archaeology as a matter that should be considered under the heading 'material assets' (EC 1985: Annex III.3) but when the list was translated into the context of UK legislation in 1988 archaeological remains were included within the rather more broadly defined subject of 'cultural heritage' (SI 1988 No.1199: Schedule 3, 2.(c); *and see* DoE 1989a: 38–39). Archaeology was explicitly cited in the revised European Directive of 1997 (EC 1997: Annex IV.3) and was itemised in the revised UK legislation where the list of topics to be considered now included 'material assets, including the architectural and archaeological heritage' (SI 1999 No.293: Schedule 4, I.3). In the consolidated EU Directive issued in December 2011 it is noted that the information to be collected and presented in the environmental statement includes:

> *a description of the aspects of the environment likely to be significantly affected by the proposed project, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape, and the interrelationships between the above factors* (EC 2011: Annex IV.3)

The most recent iteration of the regulations for England is contained in the *Town and Country Planning (Environmental Impact Assessment) Regulations 2017* (SI 2017 No.571). These introduced requirements for local authorities to provide reasons for decisions made through the EIA process, that developers should ensure competent experts advise them on EIA matters, and that mitigation measures can be secured at the screening stage. Archaeological matters remain embedded in the idea of 'cultural heritage' (SI 2017 No.571: 4 (d) and Schedule 4.4).

Environmental statements contain a lot of detailed information about the range of topics they are required to cover. How that detailed evidence is used and how it is assessed is more problematic. A survey of British planning authorities suggests that planners regularly use 'statutory consultees' to review the content of environment statements for such qualities as veracity, completeness, and understandability (Kreuser & Hammersley 1999).

How many, when, and where?

The first environment impact assessment with archaeological considerations undertaken in England was for the Channel Tunnel land-fall sites in Kent (Darvill 1986; KAT 1985). Others followed during the late 1980s so that by 1991 some 600 environmental statements had been completed, of which an estimated 42 per cent included archaeological components (Darvill *et al.* 1995: 40). For the period 1990 to 2010 a total of 5627 environmental statements were recorded for England by the Office for National Statistics and other government sources. Figure 4.1 shows the year-on-year pattern for Britain and its component parts as far as available data allow. As might be expected, the number of EIAs in England is greater than for other parts of Britain, but as Figure 4.1 shows the pattern of completions is slightly different between regions. Overall, the production of environmental statements averages out at around 260 per year over the PPG16 Era, just over one completion per working day. How many have been produced in the period since 2010 is not known as no records have been kept at national level. In January 2018 a search of the records available through Archsearch using the key-word 'environmental statement' relating to England revealed 149 archived reports while 'environmental assessment' revealed 368 results.

The AIP recorded details for a total of 2241 EIAs from the period 1990 to 2010, about 40 per cent of the total number known. Figure 4.2A shows the year-on-year relationship between the national picture and the grab-sample recorded by AIP. The addition of three-order polynomial trend-lines to the two patterns shows a fair correspondence with both

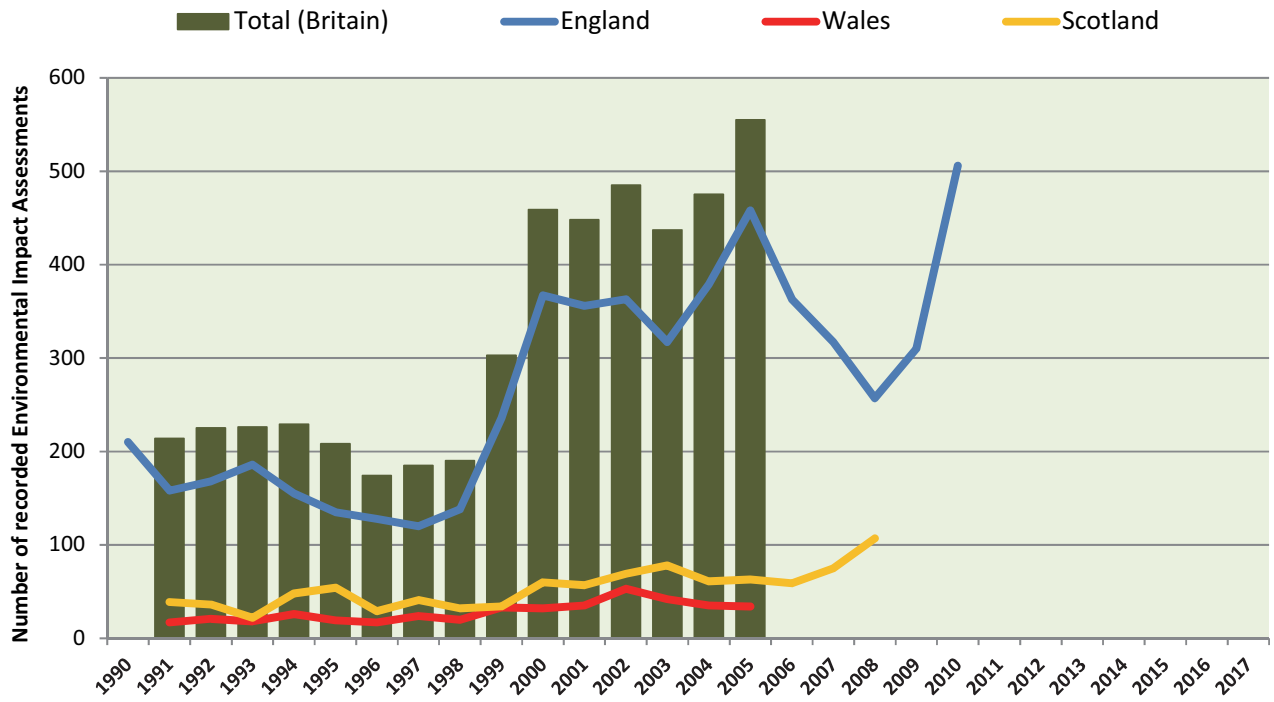

Figure 4.1 Comparison of the year-on-year pattern of producing EIAs in England, Wales, and Scotland 1990–2010. (Data: AIP and ONS. Sample = 5627 records)

distributions reflecting similar patterns although neither gives very high R-values. The overall number of recorded environmental statements rises steadily between 1990 and 2010 despite dips in the number produced through the late 1990s and again in the late 2000s.

The pattern of EIA as a whole shows some resemblance to the cyclical pattern of planning applications (Figure 4.2B), but again it is important to emphasise that only a very small percentage of applications are subject to these requirements, although the level has been rising slightly in the second half of the PPG16 Era (Figure 4.2C).

Of the 2241 EIA reports examined by AIP a total of 739 (*c*.33 per cent) were prompted by archaeological conditions (Table 4.1). When compared with the overall number of recorded environmental statements, this averages 13 per cent, but there are wide fluctuations between years (Table 4.1) from around 40 per cent in 1991 down to less than 3 per cent in 2002 and 2004 (discounting an unexplained anomaly where environmental statement prompt data is missing for 2001). These proportions are generally lower than the 48 per cent of EIAs found to have an archaeological component within a sample of 100 environmental statements produced in 1988–89 (Jones 1993: 31), and lower than the 42 per cent previously noted for the period 1990–99 (Darvill & Russell 2002: 39).

Nearly 400 environmental statements with archaeological components recorded the kind of project to which they related: 71 per cent related to Schedule 1 (mandatory) projects, 29 per cent to Schedule 2 (discretionary) projects (Table 4.2). This broadly accords with the prompts for desk-based assessments and field evaluations where Schedule 1 prompts exceed those relating to Schedule 2 (*see* Table 3.2 and Table 3.10).

Looking at what must be regarded as the grab sample of 1679 environmental statements from the period 1990–2010 where full analysis of the contents has been possible some indication can be gained of the range of topics covered (Table 4.3). On average between six and seven topics are covered in the environmental statements examined. Key areas such as ecology, highways and traffic, human beings, landscape, and water are present alongside archaeology in more than 65 per cent of reports.

Figure 4.3 shows the geographical distribution of EIAs across the country for four time-slices over the PPG16 Era. The overall distribution is wide, with slight concentrations in the midlands and southeast in the second quarter of the PPG16 Era, and in the southeast and northwest during the third quarter. Some EIAs are carried out off-shore or within the inter-tidal zone, especially in connection with seabed aggregate extraction and mineral prospection.

Development type

Nearly 30 main kinds of development are represented amongst environment statements studied in detail by AIP researchers. The incidence of each is shown year-by-year on Table 4.4. Figure 4.4A shows an analysis of the ten most common development types with mineral extraction

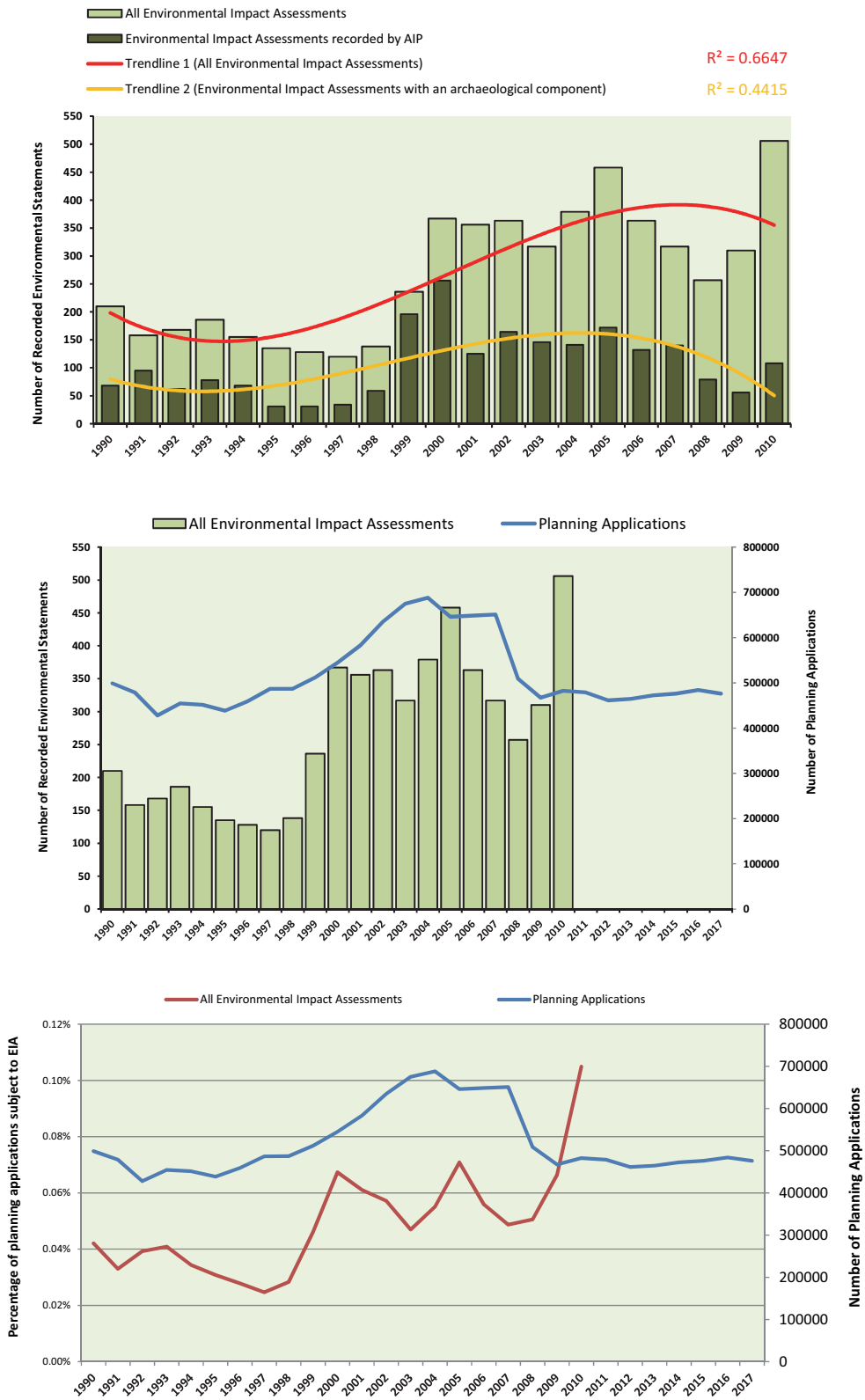

Figure 4.2 Number of EIAs in England. ***A.*** *All recorded EIAs 1990–2010 in relation to those recorded by AIP. Three-order polynomial trend-lines superimposed.* ***B.*** *All recorded EIAs 1990–2010 in relation to the number of planning applications submitted 1990–2017.* ***C.*** *All recorded EIAs as a percentage of all planning applications 1990–2017. (Data: AIP and ONS. Samples = 5627 EIAs; 2241 EIAs recorded by AIP)*

Table 4.1 Number of recorded environmental statements recorded by AIP containing sections dealing with archaeological in relation to the overall number of environmental impact assessments carried out in England annually 1990–2010.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals
EIAs recorded by AIP	68	95	62	78	68	31	31	34	59	196	256	125	164	146	141	172	132	140	79	56	108	2241
EIAs with an archaeological component recorded by AIP	33	63	22	17	18	13	13	17	15	25	19	0	5	15	9	138	68	64	61	37	87	739
Percentage with archaeological component in AIP sample	48.5	66.3	35.5	21.8	26.5	41.9	41.9	50.0	25.4	12.8	7.4	0.0	3.0	10.3	6.4	80.2	51.5	45.7	77.2	66.1	80.6	33.0
Overall number of EIAs	210	158	168	186	155	135	128	120	138	236	367	356	363	317	379	458	363	317	257	310	506	5627
Percentage of all EIA with archaeological components	15.7	39.9	13.1	9.1	11.6	9.6	10.2	14.2	10.9	10.6	5.2	0.0	1.4	4.7	2.4	30.1	18.7	20.2	23.7	11.9	17.2	13.1

Table 4.2 Summary of the recorded environmental statements prepared between 1990 and 2010 in relation to the Schedule prompting their construction.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
Schedule 1 (Mandatory)	7	5	7	9	1	3	0	0	0	1	2	0	4	5	1	64	32	38	36	27	37	279	70.8
Schedule 2 (Discretionary)	23	51	5	2	3	1	0	0	0	0	1	0	0	0	0	9	4	1	4	4	7	115	29.2
Totals	30	56	12	11	4	4	0	0	0	1	3	0	4	5	1	73	36	39	40	31	44	394	

Table 4.3 Summary of the recorded incidence of the main subject areas covered by environmental statements recorded by AIP.

Subject	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	% of Environmental Statements
Agriculture	11	13	12	24	22	7	6	3	3	51	66	53	1	28	12	40	50	31	21	8	11	473	4.6
Air quality	0	2	0	1	2	2	2	0	0	0	0	0	0	0	0	0	0	0	3	29	58	99	1.0
Archaeology	54	77	45	55	43	15	16	9	6	135	191	123	28	123	46	127	99	98	55	39	82	1466	14.3
Coastal processes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0
Cultural heritage	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Dust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0
Ecology	52	72	38	51	41	15	16	9	7	153	201	119	26	113	40	121	88	102	54	34	81	1433	14.0
Highways and traffic	30	49	20	32	29	12	12	9	5	130	187	97	18	88	40	117	91	87	47	30	67	1197	11.7
Historic buildings and structures	18	14	9	15	19	3	10	1	1	99	151	71	5	63	30	56	41	65	27	11	46	755	7.4
Human beings	43	42	26	40	33	14	10	8	5	42	223	95	17	39	38	104	92	98	48	23	61	1101	10.8
Landscape	51	67	39	47	38	15	13	8	7	131	220	120	20	111	52	126	99	101	53	35	81	1434	14.0
Marine ecology	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0
Nature conservation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0
Noise	0	2	0	1	2	2	2	0	0	0	0	0	0	0	0	0	0	0	2	29	76	116	1.1
Shipping and navigation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0
Soils	22	15	15	14	15	3	4	6	5	69	104	109	24	63	31	87	86	76	33	18	49	848	8.3
Vibration	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	13	30	49	0.5
Water	37	47	27	36	37	12	14	8	7	110	192	104	20	101	37	108	95	90	52	31	80	1245	12.2
Wind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	4	7	0.1
Totals	318	402	231	316	282	101	106	61	46	920	1535	891	159	729	326	886	741	748	398	302	731	10229	
Total Environmental Statements sampled	63	85	49	58	46	16	17	9	7	168	237	124	30	129	60	139	116	120	64	44	98	1679	
Average number of subjects per Environmental Statement	5.0	4.7	4.7	5.4	6.1	6.3	6.2	6.8	6.6	5.5	6.5	7.2	5.3	5.7	5.4	6.4	6.4	6.2	6.2	6.9	7.5	6.1	

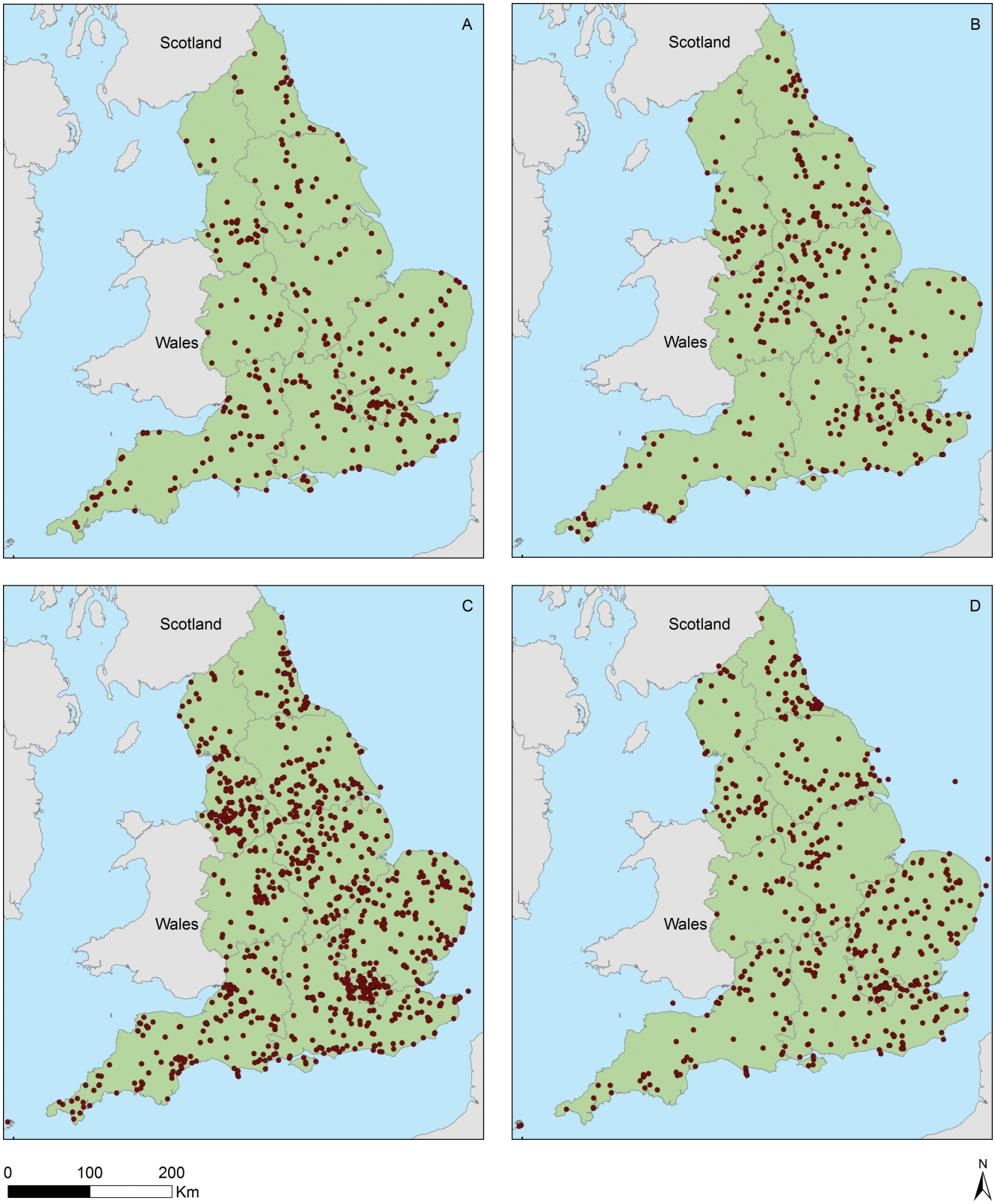

Figure 4.3 Distribution of recorded EIAs in England. ***A****. 1990–94.* ***B****. 1995–99.* ***C****. 2000–04.* ***D****. 2005–10. Regional boundaries shown. (Data: AIP. Sample = 2311 records)*

Table 4.4 Summary of recorded EIAs year-by-year 1990–2010 in relation to development type.

Development type	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	% of Environmental Statements
Afforestation	1	0	2	2	0	0	0	0	0	2	1	1	0	0	0	0	0	1	1	0	0	11	0.5
Amenity Area	7	11	1	0	1	3	0	0	0	10	0	12	0	2	1	1	4	9	1	0	4	67	3.0
Building Refurbishment	0	0	0	0	0	0	0	0	0	0	5	0	0	2	2	0	0	2	0	0	1	12	0.5
Car Park	1	3	0	0	1	0	0	0	1	5	18	3	0	0	0	0	2	5	1	1	5	46	2.1
Estate Management	0	0	0	0	0	0	0	0	0	4	1	0	1	1	0	0	0	0	0	1	4	12	0.5
Extensive Green Field Commercial Development	10	11	0	4	4	0	2	0	2	1	0	1	0	0	2	0	2	0	0	0	0	39	1.8
Farm Infrastructure	1	0	1	1	0	0	0	0	0	0	4	0	0	0	1	1	1	1	1	1	2	15	0.7
Flood Alleviation Scheme	0	0	0	0	0	0	1	0	0	0	0	0	0	5	0	6	4	1	1	1	1	20	0.9
Graveyard/Cemetery	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.0
Housing Estate	5	12	1	0	0	2	0	0	0	0	0	3	0	2	12	14	8	4	5	7	7	82	3.7
Land Reclamation	0	0	0	0	1	0	1	0	1	5	4	2	0	1	2	0	0	6	1	1	0	25	1.1
Landfill	5	0	7	0	3	1	0	0	2	19	12	3	0	5	0	4	4	3	1	2	3	74	3.3
Large/Medium Scale Development	0	0	0	0	0	0	0	0	0	1	2	0	0	0	22	37	15	33	13	4	7	134	6.0
Large/Medium Scale Extension	0	0	0	0	0	1	1	0	1	20	22	0	0	0	1	3	1	6	1	0	4	61	2.7
Leisure Facility	9	17	1	1	0	0	0	0	0	6	3	1	0	4	0	3	1	2	1	1	0	50	2.3
Mineral Extraction	9	9	8	11	7	5	6	4	1	34	61	30	1	20	8	19	22	21	10	1	6	293	13.2
Mixed Use Rural (Residential & Commercial)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	2	0	0	8	0.4
Mixed Use Urban (Residential & Commercial)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	8	2	8	31	1.4
Pipelines/Cables	6	4	9	2	4	0	2	1	2	8	1	1	1	2	1	5	1	7	2	3	6	68	3.1
Public Building	1	2	0	0	0	2	1	1	0	2	4	1	0	9	4	7	6	1	4	2	1	48	2.2
Rail Links/Railway-related Infrastructure	1	0	0	1	3	0	0	4	2	1	4	1	0	1	3	1	0	4	0	3	4	33	1.5
Renewable Energy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	35	36	1.6
Road Scheme (New & Widening)	17	30	23	34	37	11	5	4	2	11	29	9	0	15	12	5	6	12	10	8	6	286	12.9
Rural Commercial	1	1	2	0	0	6	3	1	1	13	16	9	2	4	7	11	9	5	3	3	1	98	4.4
Rural Residential	1	2	0	0	0	2	0	0	0	1	7	5	0	2	0	7	6	2	0	0	1	36	1.6
Service Infrastructure	12	16	12	16	1	2	5	4	4	6	6	13	1	12	9	13	10	18	15	9	9	193	8.7
Shoreline Development	7	7	0	1	0	2	1	1	0	0	0	3	0	3	0	1	5	5	1	1	3	41	1.8
Small-scale Development	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0.1
Subterranean	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0	2	6	0.3
Urban Commercial	3	10	1	1	1	1	2	5	3	29	67	28	1	29	12	30	24	11	0	6	10	274	12.3

Table 4.4

Development type	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	% of Environmental Statements
Urban Residential	2	0	0	1	0	1	0	0	1	8	31	16	0	23	1	12	15	3	2	1	2	119	5.4
Totals	99	136	68	75	63	39	30	25	23	186	299	142	7	142	101	181	146	185	84	58	132	2221	
Total EIAs sampled	64	92	60	72	62	29	29	24	21	137	201	119	7	114	98	164	130	132	72	48	107	1782	
Average No of Development Types per EIA	1.5	1.5	1.1	1.0	1.0	1.3	1.0	1.0	1.1	1.4	1.5	1.2	1.0	1.2	1.0	1.1	1.1	1.4	1.2	1.2	1.2	1.2	

(18 per cent), road building and improvements (18 per cent), urban commercial development (17 per cent), and service infrastructure works (12 per cent) heading the list. All these kinds of development represent high-profile schemes in which the industries concerned have developed strong and positive approaches to meeting environmental concerns, which are articulated through codes of practice and operating statements (CBI 1991; DoE 1989b; HA 1993). The remaining schemes in the top-10, collectively accounting for over 70 per cent of the studies logged, embrace an extremely wide range of development types.

There are fluctuations year-on-year in the top-10 developments subjected to EIA as Figure 4.4B shows. In part this may result from changes to the EIA regulations over time, as for example in 1999 when the thresholds were changed for the mandatory assessment of works undertaken by statutory undertakers, such as oil and gas pipelines and overhead power lines. There are also differences by region (Figure 4.5) with mineral extraction strongest in the North East regions, urban development strongest in London, and road schemes strongest in the South East region.

Little information is available regarding the general land-use situation of schemes subject to EIA with an archaeological component, but a review of all projects carried out to 1989 revealed an urban : rural split of 32:68 per cent (Wood & Jones 1991, Tab. 9).

Commissioning bodies

EIAs are relatively expensive and time-consuming undertakings. Most relate to large-scale projects whose development budgets can absorb such expense more easily than smaller-scale projects. However, as the revised regulations shift the emphasis a little from general perceptions of the scale and possible impact of the project to a case-by-case scrutiny of the sensitivity of the environment in which it will take place it is likely that in future there will be more rather smaller schemes involved.

The majority of EIAs were commissioned by developers through consultants and contractors, but other bodies such as government agencies, water companies, and county councils were also major commissioning agencies (Table 4.5). Changing contributions from each over the course of time reflect the shifting socio-political importance accorded to various kinds of public work. This is especially marked in the case of road schemes, which peaked in 1993 and 1994, or the high level of urban commercial development seen through the environmental assessment process in the early 2000s.

Methodologies and approaches

Because of the nature of EIA, and the requirements set out in the regulations, the archaeological methods deployed within desk-based assessment and field evaluation should be present also in EIAs. The LPAs receiving an environmental

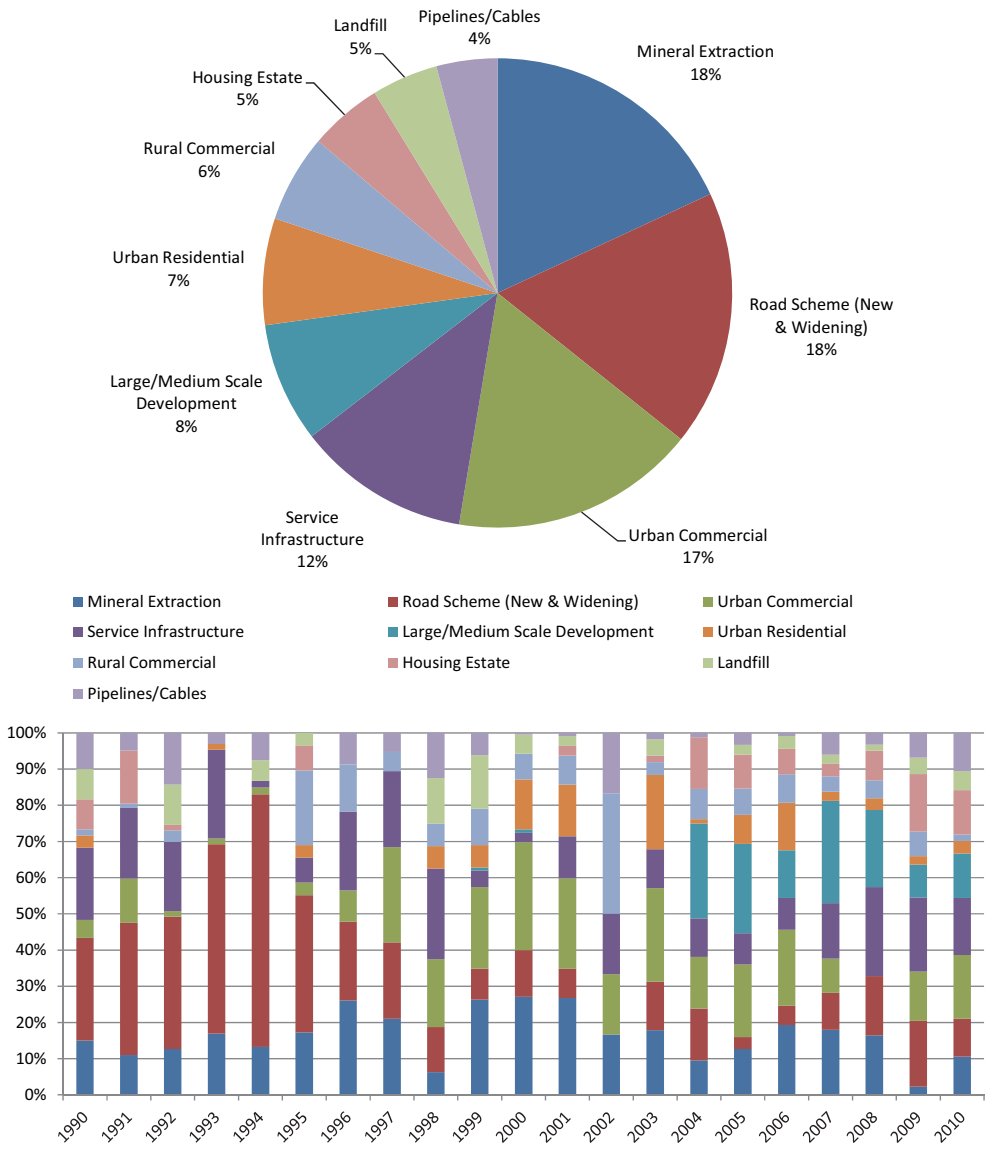

Figure 4.4 Analysis of the ten most common development types giving rise to recorded EIAs. ***A.*** *Summary 1990–2010.* ***B.*** *Year-by-year breakdown. (Data: AIP. Sample = 2221 records)*

statement have specific roles under the regulations, and developers and receiving authorities must agree the scope of the work before it is undertaken. Ultimately, however, it is the developer who is responsible for the content of the statement that is finally submitted (DoE 1989a: 10).

The content of environmental statements varies widely according to the techniques and approaches used. Table 4.6 shows an analysis of the main investigation events undertaken as part of EIA programmes between 1990 and 2010. Surprisingly, the number of methods used for any particular EIA is rather limited, averaging between one and two methods. It shows that the basis of most environment impact assessments was documentary research which in this case means existing records and documentation such as that available through HERs and national records. Visual inspection was relatively common, but not universal, with small contributions from geophysical surveys (mainly magnetometry) and fieldwalking. Sample trenches and targeted trenches were sometimes used, but cases are relatively rare. From a methodological point of view these investigations are more like desk-based assessments than field evaluations.

Who undertook environmental impact assessments?

The preparation of EIAs is typically carried out by planning consultants and environmental consultants, although many commission reports on certain aspects of the project

Figure 4.5 Regional analysis of ten selected development types giving rise to recorded EIAs 1990–2010. (Data: AIP)

from sub-contractors who specialise in particular fields. Archaeology is one such matter which is sometimes tackled in-house by multi-disciplinary consultants, while on other occasions the work is contracted out to archaeological contractors and consultants. Approximately 700 consultants and contractors were recorded as being involved in the preparation of the archaeological components of EIAs, up from 180 in the period 1990–99 (Darvill & Russell 2002: 41). Table 4.7 lists the top-20 contractors involved in the production of archaeological contributions to the environmental statements recorded by AIP researchers between 1990 and 2010. These twenty contractors/consultants undertook *c.*30 per cent of all recorded EIAs with an archaeological, heritage or historic building content where the originator could be identified. However, many reports were found in which the source of the archaeological elements were not recorded; these no doubt represent the results of work by a number of other contractors not otherwise represented on the list, as well as additional reports generated by those who are. Sometimes, the archaeological components of an environmental statement look to be summaries of other pieces of work

Table 4.5 Summary of the main bodies commissioning EIAs that include archaeological elements in England 1990–2010.

Commissioning Body	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*Totals*	*%*
Consultant	16	23	1	4	4	1	2	0	0	0	1	0	1	0	2	87	77	37	19	22	78	375	30.2
County Council	8	4	6	14	10	1	0	8	6	16	39	88	0	0	0	0	0	0	0	0	0	200	16.1
Contractor (design & execute)	2	0	2	2	0	0	0	0	0	0	0	0	0	0	1	51	38	69	5	0	3	173	13.9
District Council	3	4	6	9	3	1	1	0	0	38	65	18	0	0	0	0	0	0	0	0	0	148	11.9
Local Planning Authority	0	2	0	0	2	0	0	0	0	0	0	0	23	0	0	4	8	2	27	10	1	79	6.4
County Archaeologist and/or Planning Authority/advisory body	2	1	7	4	3	2	0	0	0	0	0	0	2	0	1	6	0	18	4	14	10	74	6.0
Self (i.e. landowner, developer, etc)	11	6	4	0	0	0	0	0	0	0	0	0	0	0	0	15	5	2	0	1	3	47	3.8
Department for Environment, Food and Rural Affairs	0	0	0	0	0	0	0	0	0	0	0	36	0	0	0	0	0	0	0	0	0	36	2.9
Department of Transport	3	4	4	12	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	2.9
City/National Park/District/ Borough archaeologist	1	0	1	0	0	0	0	0	0	0	0	0	13	0	0	1	0	2	1	1	2	22	1.8
National Park Authority	0	0	1	1	0	0	0	0	0	4	4	1	0	0	0	0	0	0	0	0	0	11	0.9
Department for the Environment, Transport and the Regions	0	0	0	0	0	0	0	0	1	0	0	8	0	0	0	0	0	0	0	0	0	9	0.7
Department of the Environment	1	2	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0.6
English Heritage/Department for Environment, Food and Rural Affairs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	2	6	0.5
Department of Trade and Industry	1	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.4
London Borough Council	0	0	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	0.3
Ministry of Agriculture, Fisheries and Food	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0.3
Developer	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0.2
Department for Communities and Local Government	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.1
Development Corporation	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.1
English Heritage/Department of the Environment	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.1
Unitary Authority Archaeologist	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.1
Totals	49	47	35	53	38	5	3	9	7	58	111	153	40	0	4	167	129	130	56	49	99	1242	

Table 4.6 Analysis of the main investigation methods contributing to EIA programmes 1990–2010 recorded by AIP.

Methods	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	% of Environmental Statements
Documentary Search	68	95	62	78	68	31	31	34	59	196	256	125	163	146	141	165	128	137	77	54	108	2222	90.3
Visual Inspection	0	1	2	2	5	0	0	0	0	0	0	0	0	0	1	15	18	27	39	19	26	155	6.3
Sample Trenches	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	4	7	0	2	0	30	1.2
Geophysical - Magnetometer/ Gradiometer	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	4	0	3	0	15	0.6
Fieldwalking	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	5	1	3	0	12	0.5
Aerial Photography	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	1	1	8	0.3
Geophysical - Resistivity	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	5	0.2
Geophysical - Magnetic Susceptibility	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0.1
Recording of Fabric/ Structure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	3	0.1
Augering	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0.1
Detailed Site Survey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0.1
Environmental Sampling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0.1
Targeted Trenches	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0.1
Topographic Survey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.0
Totals	80	96	64	81	73	31	31	34	59	196	256	125	163	146	142	208	154	186	119	82	136	2462	
Total Environmental Statements sampled	68	95	62	78	68	31	31	34	59	196	256	125	163	146	141	172	132	140	79	56	108	2240	
Average number of methods per Environmental Statement	1.2	1.0	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.3	1.5	1.5	1.3	1.1	

Table 4.7 Summary of the top-20 contractors carrying out the archaeological components of EIAs in England between 1990 and 2010, ordered in terms of the number of reports recorded by the AIP.

Contractor / Consultant	Total Recorded Contributions
RPS Group	68
Wessex Archaeology/Trust for Wessex Archaeology	52
John Samuels Archaeological Consultants	43
Museum of London Archaeological Service	39
Oxford Archaeology/Oxford Archaeological Unit	38
CgMs	33
Wardell Armstrong	31
Entec UK Ltd	30
Atkins	28
Oxford Archaeology North/Lancaster University Archaeological Unit	28
Exeter Archaeology/Exeter Museums Archaeology Field Unit	27
Highways Agency	25
Northern Archaeological Associates	25
Halcrow Group	24
AC Archaeology	20
Gifford and Partners/Consulting Engineers/Archaeology Service	20
Cornwall County Council	20
University of Manchester Archaeological Unit/Greater Manchester Archaeological Unit	20
Mott MacDonald	19
WSP Environmental Ltd	19

(for example desk-based assessments) that were probably reported separately. In general, however, the number of EIAs carried out by individual contractors and consultants is relatively low compared with other areas of activity, even accepting that some additional hidden projects lie amongst those for which full details are not available.

Chapter 5

Post-determination planning-related investigations

The appraisal, desk-based assessment, field evaluation and, where appropriate, environmental impact assessment of proposed developments is a critical prelude to determining the need for further archaeological works. Such post-determination mitigative works are generally specified in a mitigation strategy (also known as a 'written scheme of works') because it may involve operations dealing with protection and conservation as well as investigation and recording; only these last two were recorded by AIP. The cumulative effect of what is proposed in such a strategy is to mitigate, or moderate in some way, the impact of a specific proposal on the known or anticipated archaeological resource. The results of all the previous investigations, especially desk-based assessments and field evaluations, provide the background and rationale to what may range from limited and straightforward events, such as watching briefs, through to complex multi-option strategies involving excavations, surveys, watching briefs, conservation works, and the setting in place of monitoring arrangements.

The legal basis for implementing an agreed mitigation strategy at the developer's expense became increasingly complicated during the PPG16 Era. By 2010 three avenues were open:

- **Planning Conditions**: under Sections 70, 72–73a and Schedule 5 of the *Town and Country Planning Act 1990* a local planning authority can impose a condition on the grant of a planning permission in order to enhance the quality of development and enable development proposals to proceed where it would otherwise have been necessary to refuse planning permission by mitigating the adverse effects of the development (DoE 1995). For archaeological works conditions are often formulated as a negative or 'Grampian Condition': a stipulation relating to specific works or actions, the fulfilment of which allows the activation of planning permission for the substantive development. A model archaeological planning condition was set out in PPG16 (DoE 1990: paragraph 30):

  No development shall take place within the area indicated (this would be the area of archaeological interest) until the applicant has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted by the applicant and approved by the Planning Authority.

This wording, and variants of it, were widely used during the PPG16 Era and remain relevant to the implementation of the NPPF (DCLG 2012a).

- **Planning Agreements**: under Section 106 of the *Town and Country Planning Act 1990* a prospective developer could enter into a contract or bilateral agreement of some kind with a third party in order to make something happen as part of a development programme.
- **Planning Obligations**: under Section 12 of the *Planning and Compensation Act 1991* operations that relate to a development, but which might have wider benefits, can be carried out as part of a development programme thereby helping to mitigate the impact of unacceptable development in order to make it acceptable in planning terms in a way that is fair and reasonable in relation to the scale and kind of development. Planning Obligations may be implemented through a Section 106 Agreement under the *Town and Country Planning Act 1990* or a Section 278 Agreement under the *Highways Act 1980*.

On a wider front, Part 11 of the *Planning Act 2008* introduced the idea of a Community Infrastructure Levy

(CIL) as a way of funding works of community benefit. Effective from 6 April 2010, the levy is a local tax on development at an agreed rate per square metre of development area, the proceeds from which can be applied to a very broad range of facilities such as play areas, parks and green spaces, cultural and sports facilities, academies and free schools, district heating schemes and police stations and other community safety facilities (*see Community Infrastructure Levy Regulations 2010* for further details) but not archaeological works as such.

Within the AIP, data for the study of post-determination investigations was collected mainly from archaeological contractors and consultants. Within the investigation type of post-determination mitigative investigation (*see* Appendix 1), attention focused on fieldwork events that formed components of the mitigation strategy. Over the PPG16 Era methodological changes prompted some reclassification of events broadly seen as excavations, and the details of this are explored below. The closely related investigation type of Post-excavation Assessment was only recorded by AIP for 2010, while Post-excavation Analysis and Reporting was not recorded by AIP for the years covered by the PPG16 Era. In general, finding information on post-determination events was one of the most difficult areas for data collection. Many took place some time after planning permission was given, were spread over several years, and were rarely summarised in a formal report or document that would provide the evidential basis for creating a record. In some cases there was a rather blurred boundary between what might be regarded as a planning-related post-determination event and non planning-related research work based on the opportunity that a proposed development presented.

Post-determination investigations and recording

Approximately 16,300 planning-related post-determination investigations of all kinds were recorded by the AIP for the period 1990–2010. Figure 5.1A shows an analysis of this year-by-year with a superimposed three-order polynomial trend-line. There is a steady increase in the number of post-determination investigations in the early 1990s with a sudden rise from 1997. A decline in investigations between 2001 and 2004, was followed by another period of increase to a peak in 2009. As Figure 5.1B shows, the flow of planning applications demonstrates a time lag, when a peak period in planning activity between 2003 and 2007 becomes visible in post-determination investigations between 2005 and 2009. Figure 5.1C shows the percentage of planning applications subject to recorded post-determination investigation which even at its greatest was less than 0.3 per cent.

Post-determination investigations have been undertaken widely across England. Figure 5.2 shows time-sliced distributions of recorded investigations. This shows that during the early years of the PPG16 Era post-determination work tended to focus in the east of England, with marked increases in the East and West Midlands during the second quarter. This is continued into the third quarter as post-determination activity continued to rise, with Yorkshire and Humberside also seeing a particular increase at this time. In the final quarter the pattern is more even with the major apparent voids mostly explicable as areas of protected landscape where development takes place at an altogether lower level.

During the PPG16 Era about 52 per cent of post-determination investigations took place in urban areas, the remainder (48 per cent) in rural landscapes. Regionally, patterns vary year-on-year with marked swings in the distribution of investigations that reflect changing economic circumstances and measures to stimulate growth in particular sectors (Figure 5.3). Variations caused by the character of some regions, for example Greater London, are also clear, although there is an unexplained anomaly in the 2008 London data.

Prompts

The use of planning conditions, agreements, and obligations has varied over the PPG16 Era as Figure 5.4 shows, and is very much in line with the changing legal framework. Overall, the use of planning conditions increased over the PPG16 Era as confidence in their use grew. They provide robust underpinnings for archaeological work although monitoring them and 'signing-off' their completion remains a problem. Planning agreements and obligations have always been less widely used (note the order of magnitude difference between the scales on Figure 5.4). They declined in popularity through the late 1990s but interest in them expanded again in the last quarter of the PPG16 Era, especially the use of planning obligations that by 2010 represented the main alternative to the use of conditions, although the ratio in 2010 was nearly 10 to 1 in favour of conditions.

Development types

Many different types of development have given rise to post-determination investigations over the PPG16 Era, as Table 5.1 shows. Numerically, small-scale house building where just one or two buildings are erected, often as in-fill or brown-field development within the historic core of towns and villages, are the most common types of development where investigations have been required by a planning permission (16 per cent), followed by house extensions such as the construction of garages, porches or extra rooms (14 per cent). Again, it is mostly such developments within historic settlements that attract conditions requiring these post-determination works.

Figure 5.1 Recorded post-determination investigations in England 1990–2010. ***A****. All recorded post-determination investigations with superimposed six-order polynomial trend-line.* ***B.*** *Number of recorded post-determination investigations in relation to the number of planning applications.* ***C****. Percentage of planning applications subject to post-determination investigations. (Data: AIP and ONS. Sample = 16,349 records)*

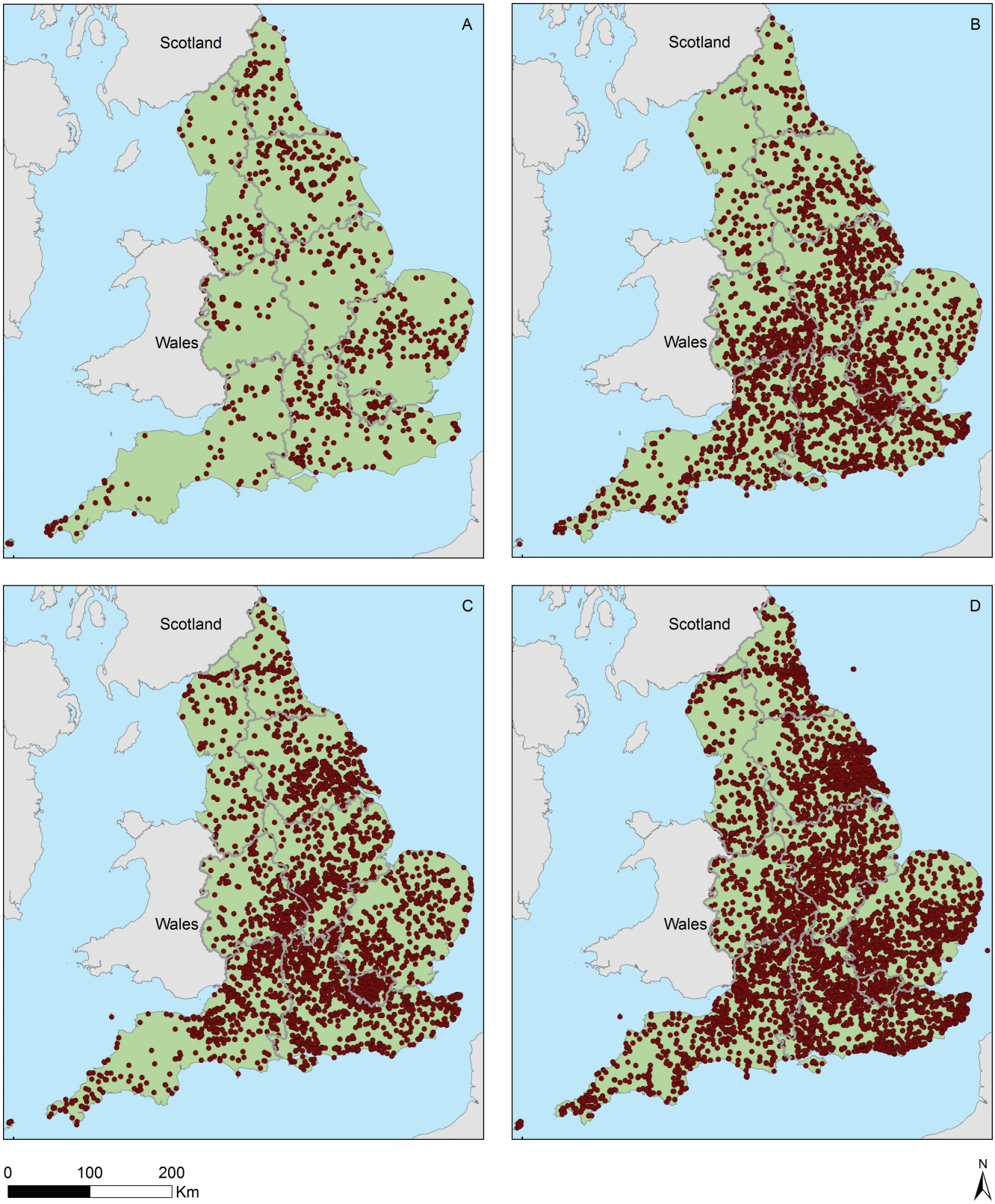

Figure 5.2 Distribution of post-determination mitigative investigations carried out in England ***A****. 1990–94.* ***B****. 1995–99.* ***C****. 2000–04.* ***D****. 2005–10. Regional boundaries shown. (Data: AIP. Sample = 16,349 records)*

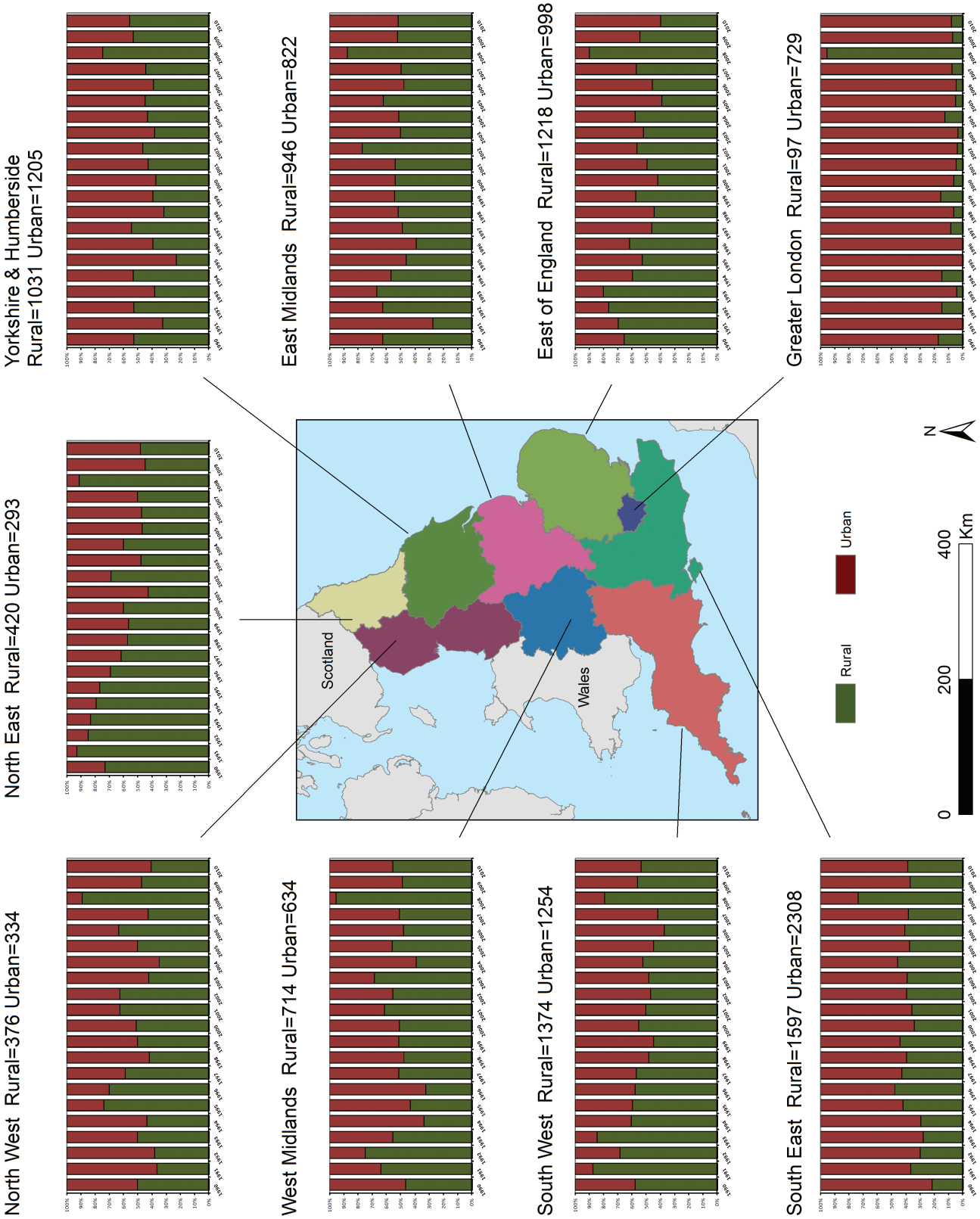

Figure 5.3 Percentage of urban and rural post-determination mitigative investigations undertaken by region 1990–2010. (Data: AIP)

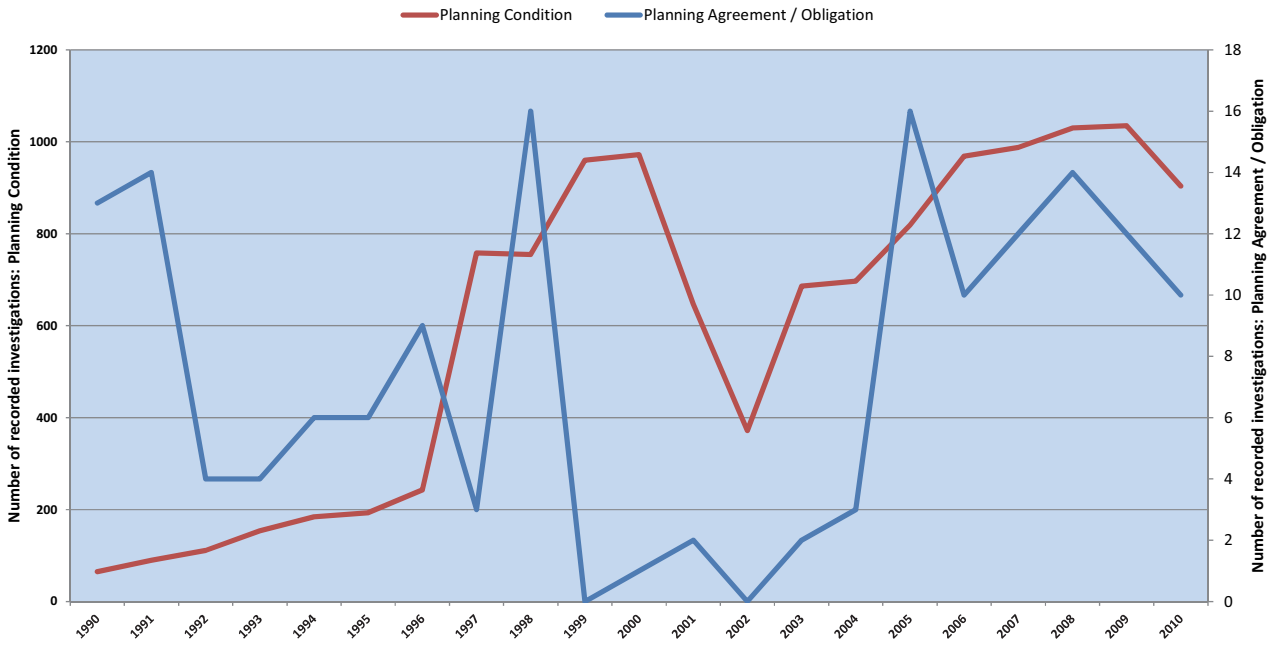

Figure 5.4 Analysis of the legal arrangements underpinning the execution of post-determination mitigative investigations in England 1990–2010. (Data: AIP. Sample = 12,789 records)

There have been changes over time in the spread of post-determination works to particular development types as Figure 5.5 shows in relation to the seventeen most frequent development types prompting post-determination investigations for the 1990s and the 2000s. During the 1990s it was rural residential, urban residential and pipelines and cable-laying, that were most commonly subject to post-determination investigation. Together these made up over 50 per cent of projects, although the sample is rather small. During the 2000s the emphasis shifted towards small-scale development, small-scale extensions, and urban residential forming over 40 per cent of projects.

This change can also be seen in the size of the site subject to post-determination investigation. Figure 5.6A provides an analysis of the proportion of sites investigated. It shows that throughout the PPG16 Era the majority of investigations focused on part of the available site or selected areas. Whole sites were investigated in less than a quarter of cases, although these no doubt feature more highly in public and archaeological consciousness because of the scale of the associated finds. Investigations of whole sites seem to be more common at times of economic boom (Figure 5.6B), for example the mid-2000s, reducing considerably at times of austerity and economic down-turn such as the period 1999 to 2001 and 2008 to 2010.

Investigation types and investigatory events

The range of investigations included in agreed post-determination mitigation strategies is not especially large, but includes extensive as well as intensive programmes. Table 5.2 summarises the incidence of recorded investigatory events year-by-year. Some agreed strategies include more than one type of investigatory event, although most use just one or two types of investigation. As Figure 5.7 shows, there are regional differences in the balance of techniques and approaches used, some of which draw on approaches also used in field evaluations (*see* Chapter 3) perhaps as a means of creating a detailed record or to better target excavation or detailed recording within extensive sites. The following sections discuss three main investigatory event types in greater detail.

Watching briefs

A total of 13,873 watching briefs were recorded by AIP for the period 1990–2010, represented in 80 per cent of all post-determination investigations, an increase of nearly 10 per cent on the situation for the 1990s alone (Darvill & Russell 2002: 43). Numerically, they increased year-on-year from less than 100 in the early 1990s to just over 1000 in 2000 before dipping back and then rising again to peak at around 1150 in 2009 (Figure 5.8). More importantly, over the same period, there has been a marked increase in the use of watching briefs as a percentage of events carried out either individually or in combination as part of defined mitigation strategies. In 1990 watching briefs represented 39 per cent of post-determination events but by 2010 this had doubled to 81 per cent.

Watching briefs are relatively cheap and easy. Their use is widespread, but there are notable gaps, with rather fewer being used in London and the North West and North East regions (Figure 5.9). The greatest number of watching briefs took place in the South East, as might be expected from the high number of planning applications

Table 5.1 Analysis of the main development types giving rise to post-determination mitigative investigations in England annually 1990–2010.

Development type	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
Small-scale Development	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	8	183	214	208	164	783	15.5
Small-scale Extension	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2	6	146	213	190	159	718	14.2
Urban Residential	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	4	8	75	98	91	93	372	7.4
Estate Management	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	2	42	81	101	99	329	6.5
Building Refurbishment	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	1	6	29	75	95	92	301	6.0
Large/Medium Scale Development	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	2	7	55	68	57	75	267	5.3
Housing Estate	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	7	4	67	73	41	71	265	5.3
Pipelines/Cables	1	0	2	0	1	1	0	0	0	0	0	0	0	0	1	1	3	49	88	65	45	257	5.1
Public Building	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	33	46	71	77	231	4.6
Urban Commercial	0	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	2	43	47	52	41	189	3.7
Rural Residential	0	0	0	0	0	0	0	1	9	4	0	1	0	0	1	2	1	22	22	67	55	185	3.7
Large/Medium Scale Extension	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	20	43	62	38	165	3.3
Service Infrastructure	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	2	0	25	43	39	29	141	2.8
Farm Infrastructure	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	3	4	18	48	44	119	2.4
Car Park	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3	29	24	37	22	117	2.3
Road Scheme (New & Widening)	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	1	27	28	30	27	116	2.3
Amenity Area	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	1	0	15	25	24	23	91	1.8
Mineral Extraction	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	28	24	20	10	86	1.7
Rural Commercial	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	12	22	20	15	72	1.4
Mixed Use Urban (Residential & Commercial)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	18	16	8	12	56	1.1
Flood Alleviation Scheme	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9	17	14	41	0.8
Rail Links/Railway-related Infrastructure	0	0	0	0	0	0	0	0	0	2	2	1	0	0	0	0	0	6	3	6	4	24	0.5
Afforestation	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	2	1	5	8	2	20	0.4
Subterranean	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	14	1	0	20	0.4
Shoreline Development	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	6	4	17	0.3
Land Reclamation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	5	5	16	0.3
Graveyard/Cemetery	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	6	4	12	0.2

Table 5.1 Analysis of the main development types giving rise to post-determination mitigative investigations in England annually 1990–2010. (Continued)

Development type	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
Mixed Use Rural (Residential & Commercial)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	5	11	0.2
Renewable Energy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	0.2
Landfill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5	0	7	0.1
Leisure Facility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	2	0	6	0.1
Extensive Green Field Commercial Development	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0.0
Telecommunications	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0.0
Totals	1	0	2	0	3	6	3	6	10	12	2	7	3	4	8	37	61	945	1313	1385	1239	5047	

made and approved in this region. Verbal reports from AIP researchers suggest some reluctance to use watching briefs within mitigation strategies in some parts of the country because it is believed that local weather conditions, especially in winter, militate against archaeological deposits being identified. Others see them rather disparagingly as being a source of negative evidence, but in fact such data is critical for archaeological reconstruction and modelling (*see* Chapter 8).

Excavations

A total of 2103 post-determination excavations were recorded for the period 1990 to 2010. Their absolute frequency doubled from around 70 in 1990 to 140 in 2010. However, the increase was not even (Figure 5.10A): there were peaks in 1997 and 1999, then a sudden drop in 2000 followed by an increase to another peak in 2009. The six point polynomial trend-line is a relatively close match at R=0.69, shows overall growth to 1999, a dip, further growth to 2009, and a decline at the end of the PPG16 Era. However, in proportional terms, the contribution of open-area excavations to the overall distribution pattern of post-determination investigations has decreased since 1990, when such projects accounted for about 35 per cent of post-determination events compared to 11 per cent in 2010. At first sight these figures suggest relatively few major excavations over the PPG16 Era, although they represent an average of around 100 per year. Many are major events lasting months, and they can be costly. Such excavations tend to be what people remember and so loom large in thinking about archaeological activity. It may also be reiterated that recording such work is dependent on the availability and access to reports and documentation, and it is important to remember that the overarching policy of preservation in situ has generally been very successful in recent decades.

Over the PPG16 Era there were changes in the way AIP recorded post-determination excavations in order to reflect changing approaches. In 1995 it was decided to subdivide the event type ‘open-area excavation’ into ‘full excavation’ where work was carried out over all or most of the area available (usually that part of a development site that would be destroyed) and ‘part excavation’ where only selected areas of what would be destroyed within a development site were investigated. A category defined as ‘salvage excavation’ was also introduced to reflect situations where constraints of time or resources meant that the excavation was highly selective in the way it approached different deposits. These three subdivisions replace the former general category of ‘open-area excavation’, although the general category has been retained to record cases for which detailed information about the scope and scale of work is not available.

Figure 5.10B shows an analysis of defined excavation events for the PPG16 Era but with greater resolution to the patterns after 1995. Most marked is the apparent substitution

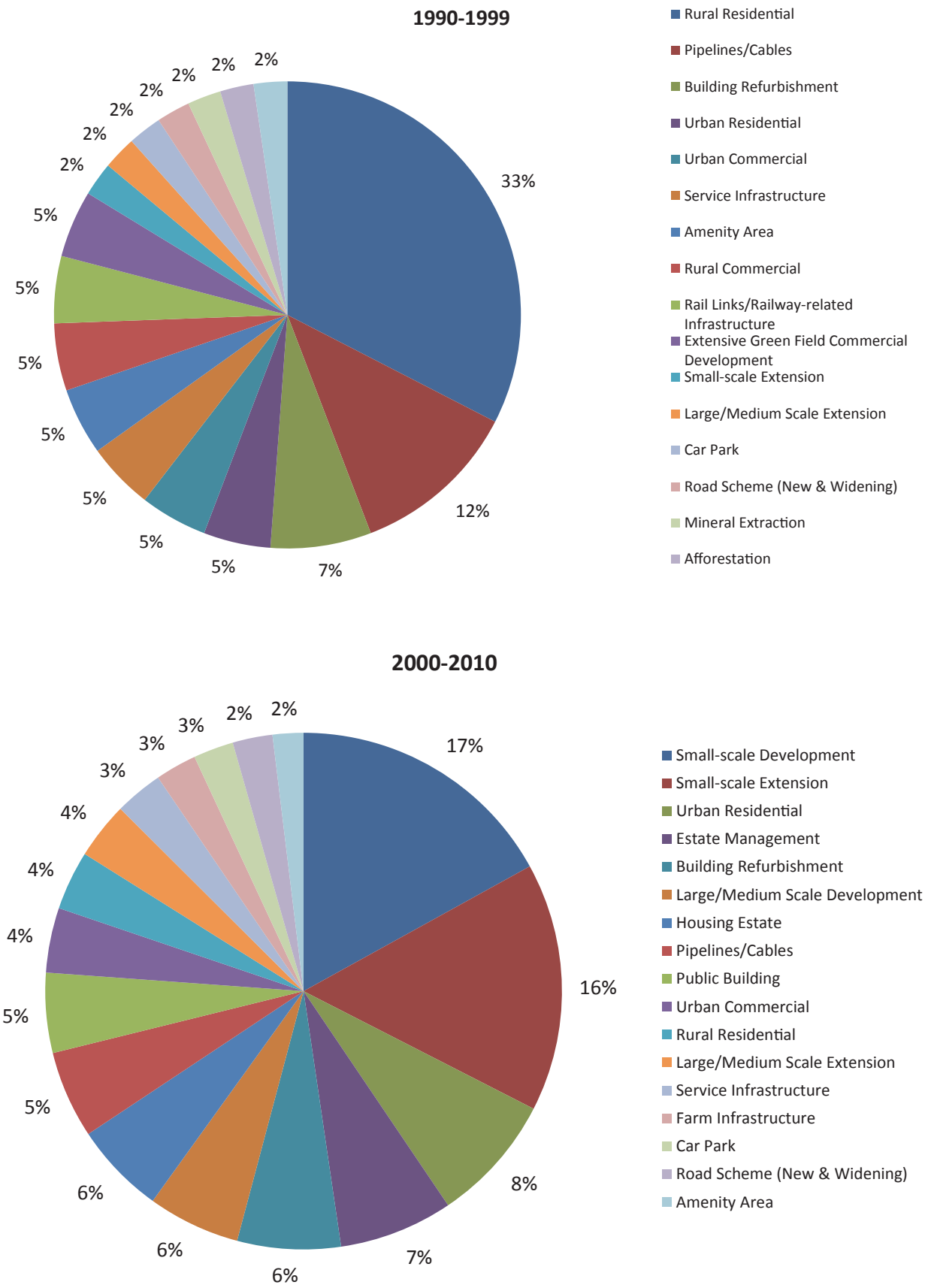

Figure 5.5 Analysis of the top-12 development types subject to post-determination mitigative investigations in England 1990–99 and 2000–2010. (Data: AIP. Sample = 5047 records)

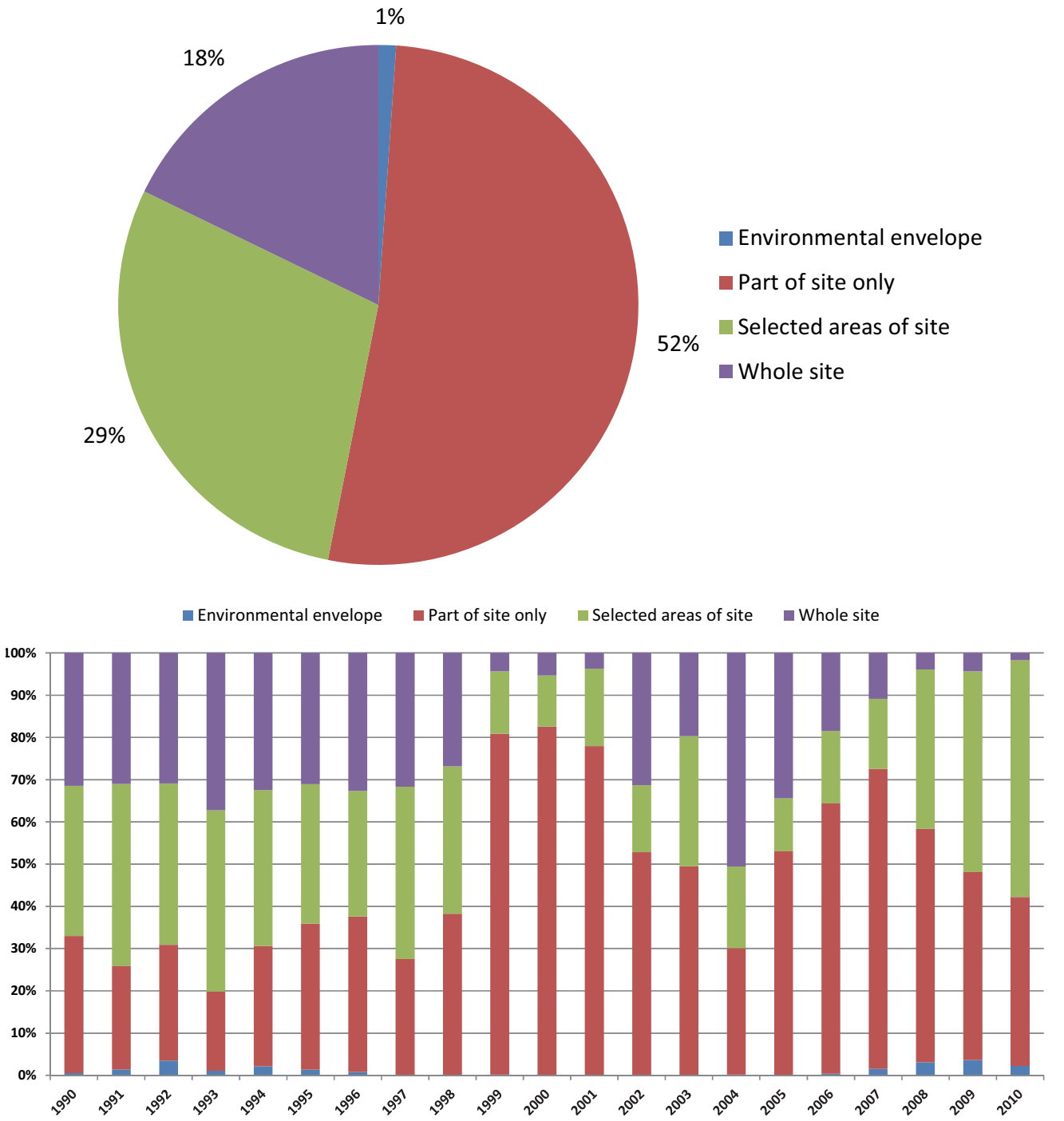

Figure 5.6 Analysis of the scale of post-determination mitigative investigations in England 1990–2010. (Data: AIP. Sample = 14,637 records)

of full excavation by part excavation in the early 2000s, although set against this must be the recorded presence of numerous open-area excavations whose scale could not be determined. Also notable is the constantly low level of salvage excavation.

Figure 5.11 shows the distribution of post-determination excavations carried out between 1990 and 2010 as a series of time-sliced maps. In all periods there are relative concentrations in the South East region, although it is notable that more other regions experience an upturn in activity during at least two of the four quarters.

The distribution of excavations according to broad environment, urban and rural, shows an overall fairly even split 49 per cent in rural areas, 51 per cent in urban areas. Over time, however, this balance has shifted from a predominance of work in rural areas in the first quarter, urban areas in the second and third quarters, and a renewed focus on rural areas in the final quarter (Figure 5.12).

Table 5.2 Analysis of the main event types recorded as components of post-determination mitigative investigations undertaken in England annually 1990–2010.

Investigation	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	% of post-deterination investigations
Aerial Photography	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.0
Archaeological recording of a standing building	12	23	35	28	40	52	51	0	2	1	26	34	12	36	22	26	23	28	40	39	56	586	3.3
Augering	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.0
Conservation	5	3	6	7	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0.1
Documentary Search	0	0	0	0	0	0	1	0	0	6	9	3	1	0	1	2	2	13	4	3	5	50	0.3
Environmental Sampling	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	5	0.0
Estate Management Survey	6	3	5	7	4	0	0	0	0	0	2	1	0	0	0	1	0	0	0	1	1	31	0.2
Field Observation	9	22	20	14	10	8	6	5	15	36	16	7	8	18	18	8	0	46	13	9	6	294	1.7
Field Walking	3	0	1	2	0	1	0	2	0	3	1	0	0	0	2	0	4	6	2	2	1	30	0.2
Full/Open-Area Excavation	66	43	77	67	49	11	17	89	72	106	89	100	28	27	21	26	23	36	42	35	38	1062	6.1
Survey	10	16	18	28	29	14	11	13	9	8	13	6	5	4	7	0	3	6	18	17	3	238	1.4
Geophysical Survey	0	0	0	0	0	1	0	0	0	0	2	1	0	0	0	1	0	3	3	4	0	15	0.1
Maritime Survey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.0
Metal Detecting	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	2	4	5	4	4	1	23	0.1
Part Survey	0	0	0	0	0	10	3	4	4	2	4	6	1	3	2	2	1	10	10	4	0	66	0.4
Recording of Fabric/ Structure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	2	5	11	25	0.1
Salvage Excavation	0	0	0	0	1	13	3	9	1	0	1	2	1	1	1	0	0	0	2	1	3	39	0.2
Salvage Record	0	0	0	0	0	23	22	46	34	33	32	10	1	4	5	2	3	4	4	3	2	228	1.3
Partial Excavation	1	0	3	2	4	38	27	24	30	46	25	21	13	38	54	50	70	78	81	112	96	813	4.6
Test-pitting	2	0	2	6	6	5	2	3	4	6	13	4	4	4	6	8	6	9	6	14	17	127	0.7
Topographic Survey	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	3	0.0
Watching Brief	74	103	139	194	216	293	332	710	758	972	1080	758	455	750	740	931	1026	1012	1133	1161	1036	13873	79.1
Totals	189	213	306	355	363	469	475	905	930	1222	1313	953	529	885	879	1060	1165	1264	1365	1418	1278	17536	
Number of recorded post-determination investigations	169	192	289	331	337	436	448	884	894	1128	1145	830	490	817	805	994	1082	1119	1179	1227	1079	15875	
Average number of investigatory events per investigation	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.1	

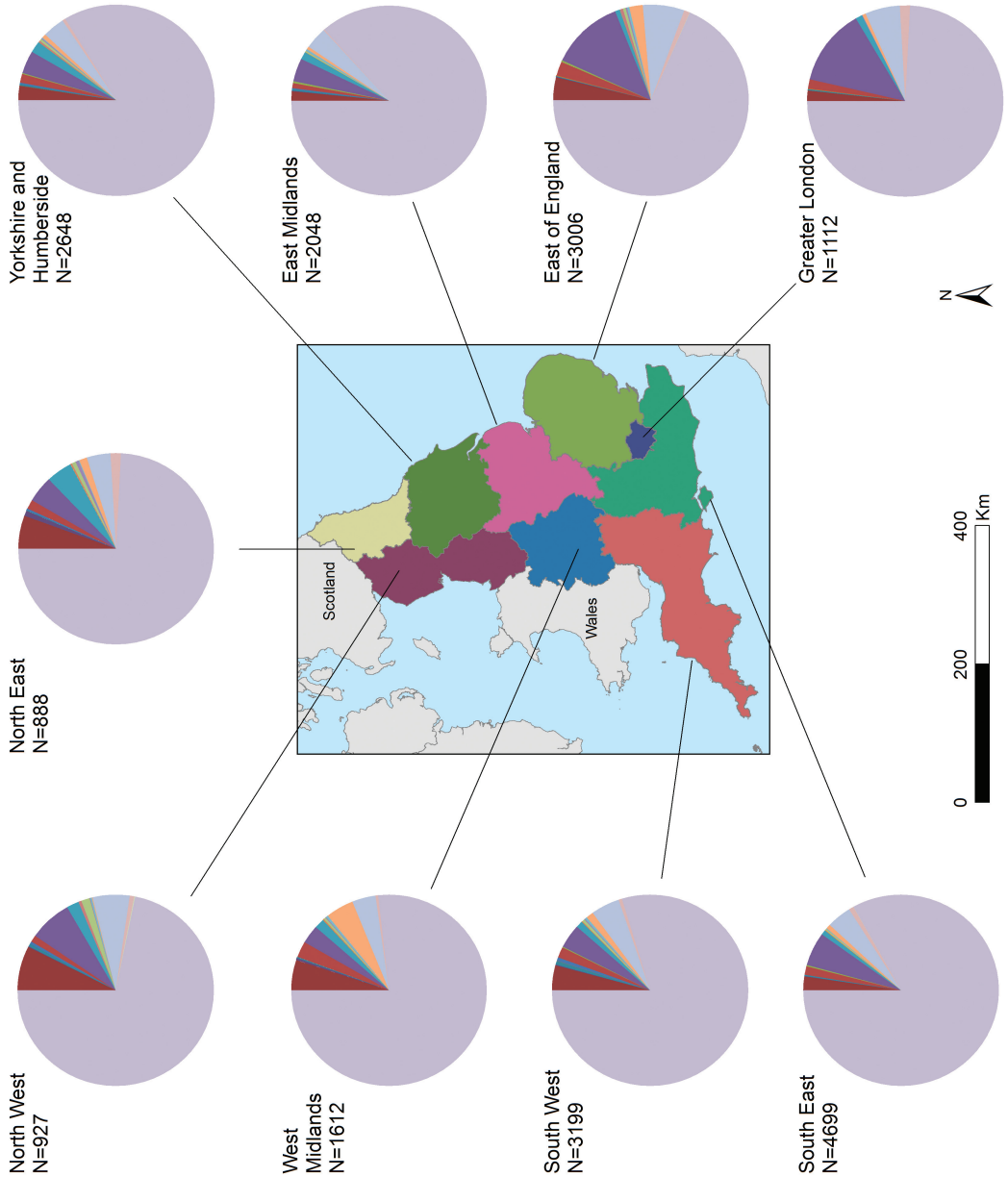

Figure 5.7 Distribution by region of the main event types represented in recorded post-determination mitigative investigations in England 1990–2010. (Data: AIP)

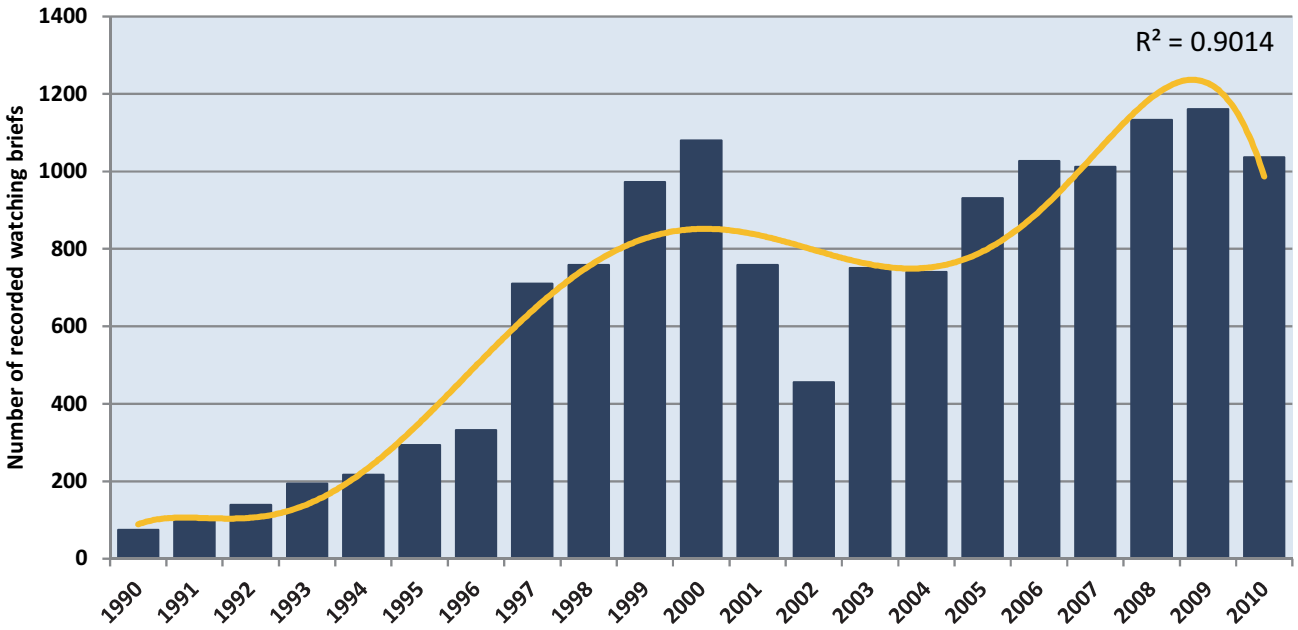

Figure 5.8 Recorded watching briefs undertaken in England 1990–2010 with a superimposed six-order polynomial trend-line. (Data: AIP. Sample = 13,873 records)

Building recording surveys

The archaeological recording of the fabric and structure of standing buildings has been an expanding field of investigation through the PPG16 Era. Even before the introduction of PPG15 in 1994 such works were regularly carried out, but since 1994 the number of such events has grown considerably. More than 6400 building recording events were recorded by AIP in two ways. Surveys of the fabric and structure of buildings was noted as an event type within the investigation type of post-determination mitigative investigations, but work carried out at historic buildings as a distinct investigation type – building recording survey – was separately recorded.

Survey and fabric/structure recording events have generally formed a small proportion of work carried out within post-determination mitigative investigations (Table 5.2) amounting to about 3 per cent of all projects. As Figure 5.13A shows, there was rapid growth in this work during the early 1990s, after which it became rather patchy before rising again through the late 2000s. The imposed trend-line shows the oscillating pattern but with R=0.56 it is not an especially good match to the recorded year-on-year changes.

As a distinct investigation type, almost always undertaken post-determination although not always recorded as such, building recording surveys have increased dramatically, especially after 1996 as might be expected (Figure 5.13B). The close-fitting trend-line with a high R=0.97 value shows the overall pattern very clearly, with only slight traces of a downturn in activity in the period after 2008.

Geographically, the distribution of building recording investigations shows an interesting pattern of development (Figure 5.14). Highly scattered through the 1990s, it is clear that from 2000 onwards there are hot-spots where many investigations have been carried out, probably because in these areas local planning authorities have really embraced the opportunities offered by PPG15 in putting this work on an equal footing with investigation through excavation.

Table 5.3 lists the top-20 contractors and consultants involved with archaeological building recording work based on the number of completed reports recorded by the AIP. The disparity in the scale of outputs between the highest and lowest on the list is especially notable. Overall, the top-20 listed here account for 45 per cent of all recorded building recording surveys. Figure 5.15 shows the location of the headquarters of the top-20 contractors undertaking building recording surveys at the centre of circles scaled to reflect the mean travel distance to recorded investigations they have undertaken. Notably, the majority of the circles are fairly modest in size indicating that most contractors working in this field tend to work locally. This is possibly a reflection of the highly varied nature of vernacular architecture in particular.

Other investigatory events

Event types less commonly applied during post-determination mitigative investigation programmes include field observation and fieldwalking, the latter usually as systematic surface collection programmes, and test-pit programmes (Table 5.2).

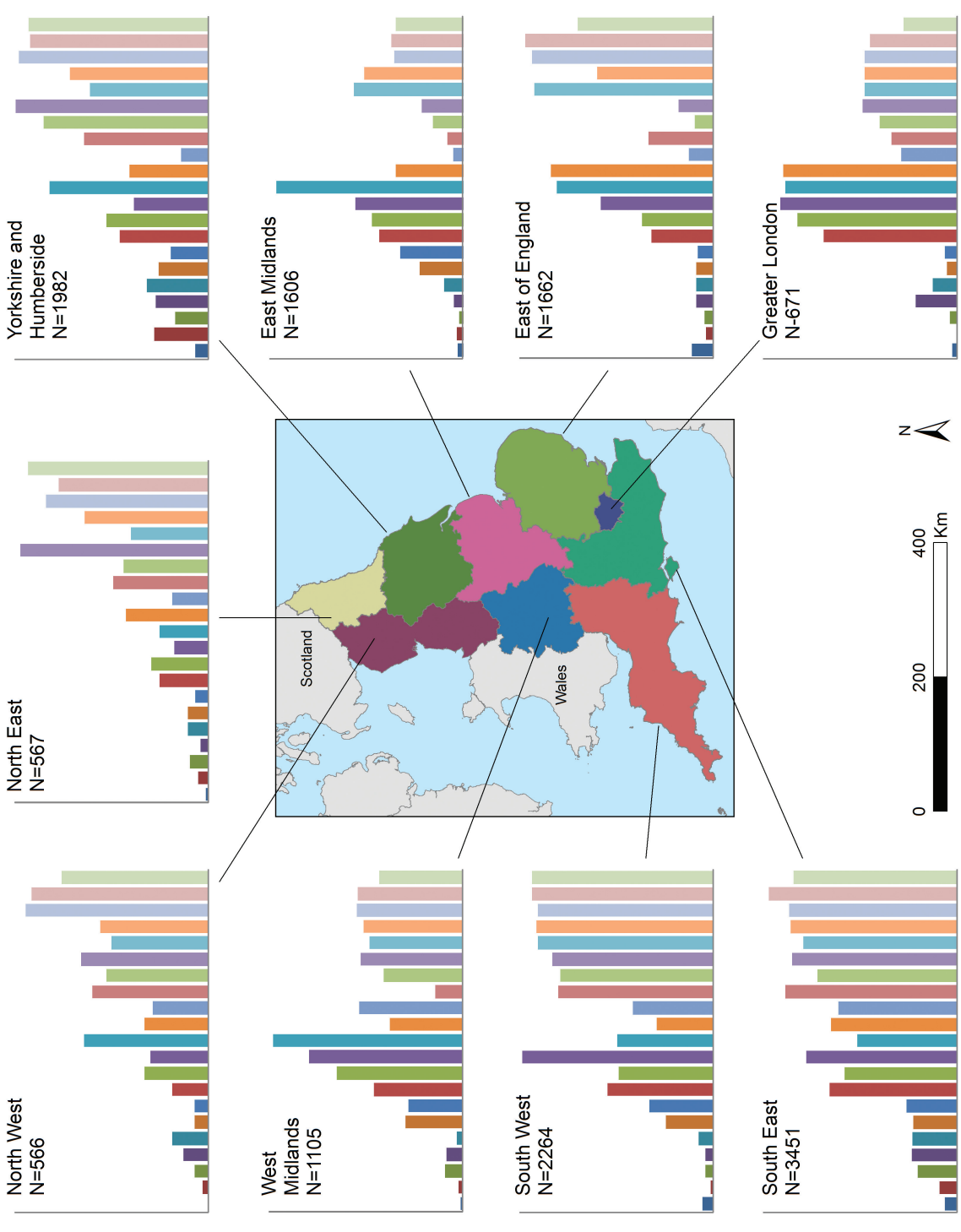

Figure 5.9 Trends in the application of watching briefs as event types within post-determination mitigative investigations carried out in England 1990–2010 by region. (Data: AIP)

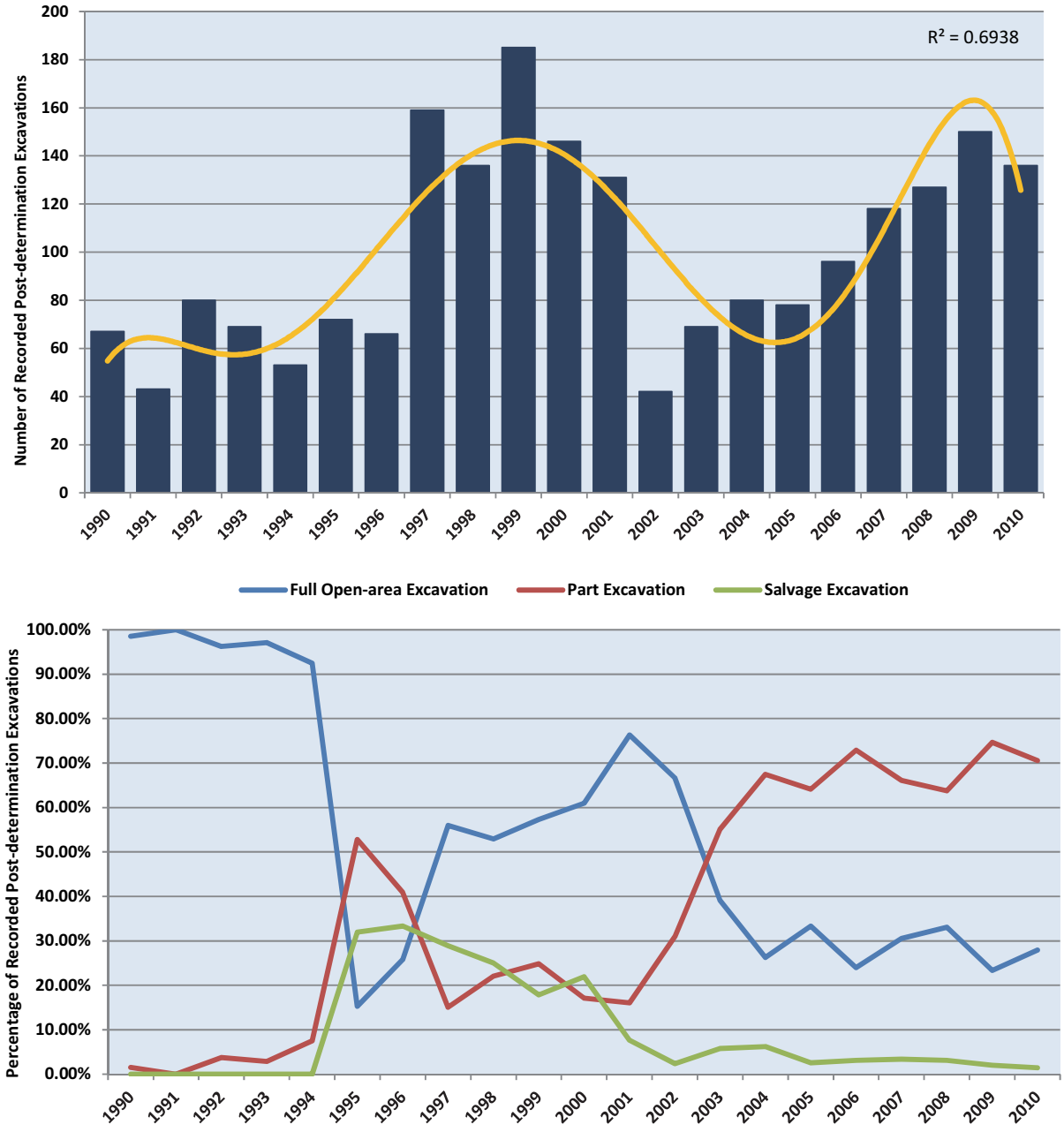

*Figure 5.10 Recorded excavations as event types within post-determination mitigative investigations carried out in England 1990–2010. **A.** All excavation event types with superimposed three-order polynomial trend-line. **B.** Analysis of defined excavation event types (note changes to recording scheme in 1995). (Data: AIP. Sample = 2103 records)*

Outcomes from post-determination investigations

In terms of outcome, post-determination investigations provide a lot of high-quality information. They are only being undertaken because archaeological remains of demonstrable interest or importance are present, or very strongly suspected, so negative results are relatively rare and mainly confined to watching briefs which are sometimes imposed as 'safety nets' in cases where deposits are strongly suspected but of uncertain importance. Figure 5.16 shows an analysis of the chronological range of deposits, structures, and artefacts found during post-determination mitigative investigations as recorded in the available reports. It can be seen that medieval and post-medieval deposits account for the highest percentages of deposits recorded, but prehistoric and Roman deposits are strongly represented too. Compared to the evidence recorded

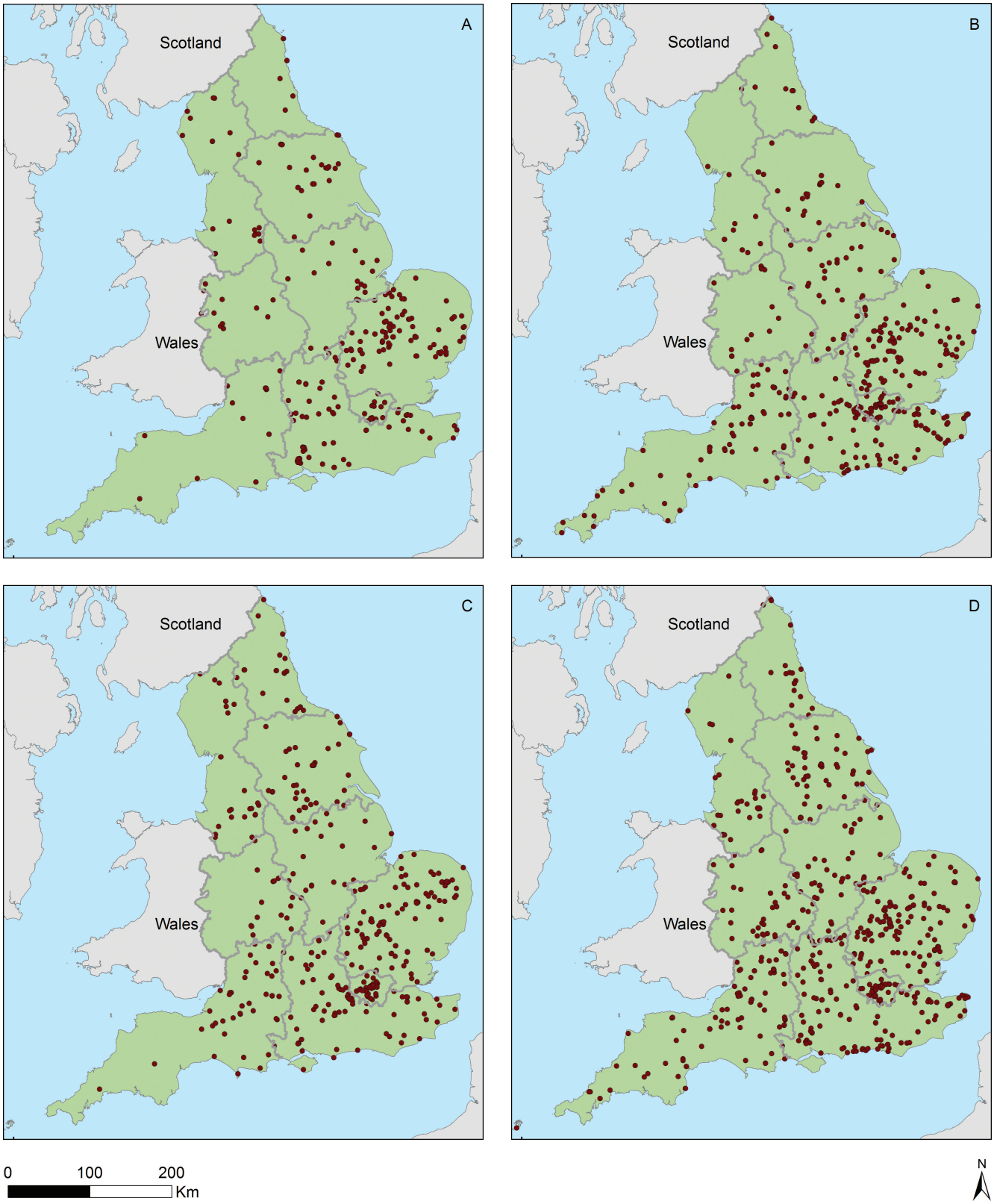

*Figure 5.11 Distribution of recorded excavation event types forming part of post-determination mitigative investigations carried out in England. **A**. 1990–94. **B**. 1995–99. **C**. 2000–04. **D**. 2005–10. Regional boundaries shown. (Data: AIP. Sample = 1760 records)*

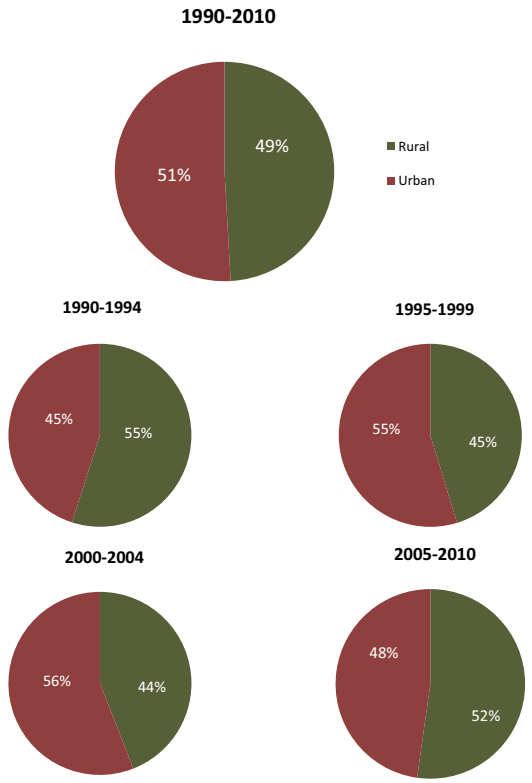

Figure 5.12 Proportion urban and rural situated recorded excavations forming part of post-determination mitigative investigations carried out in England 1990–2010. (Data: AIP. Sample = 1914 records)

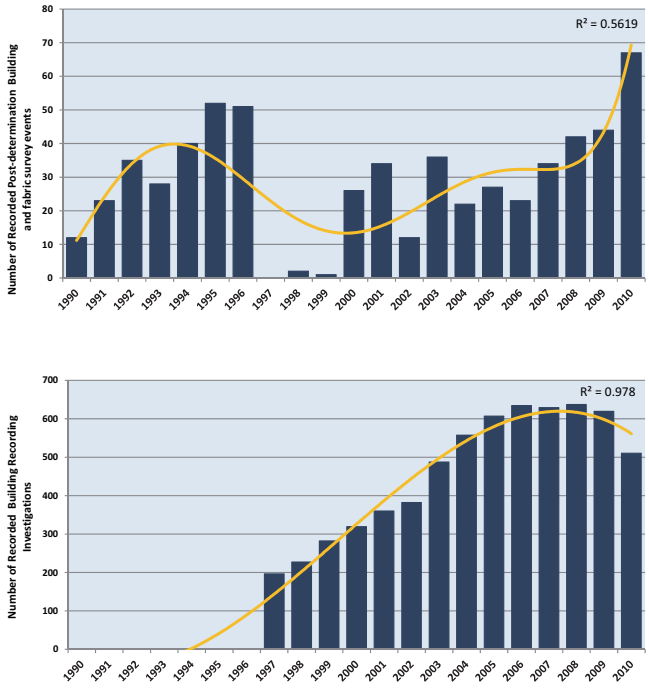

*Figure 5.13 Recorded building survey work in England 1990–2010. **A.** Building and fabric survey events forming part of post-determination mitigative investigations with superimposed six-order polynomial trend-line. **B**. Building recording investigations with superimposed three-order polynomial trend-line. (Data: AIP. Samples: A = 611; B = 6447 records)*

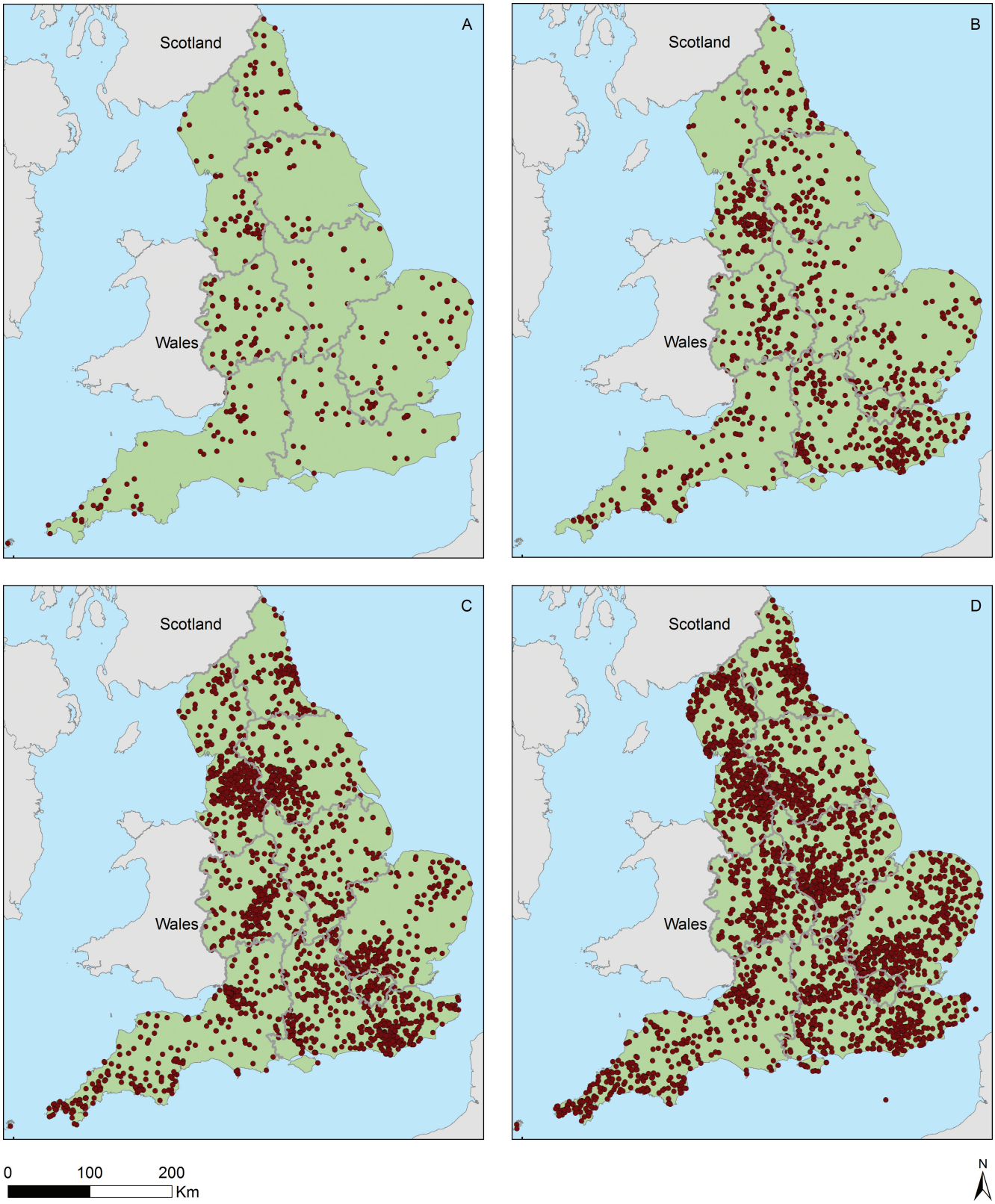

Figure 5.14 Distribution of recorded building recording investigations carried out in England. ***A.*** *1990–94.* ***B.*** *1995–99.* ***C.*** *2000–05.* ***D.*** *2006–10. Regional boundaries shown. (Data: AIP: Sample = 6546 records)*

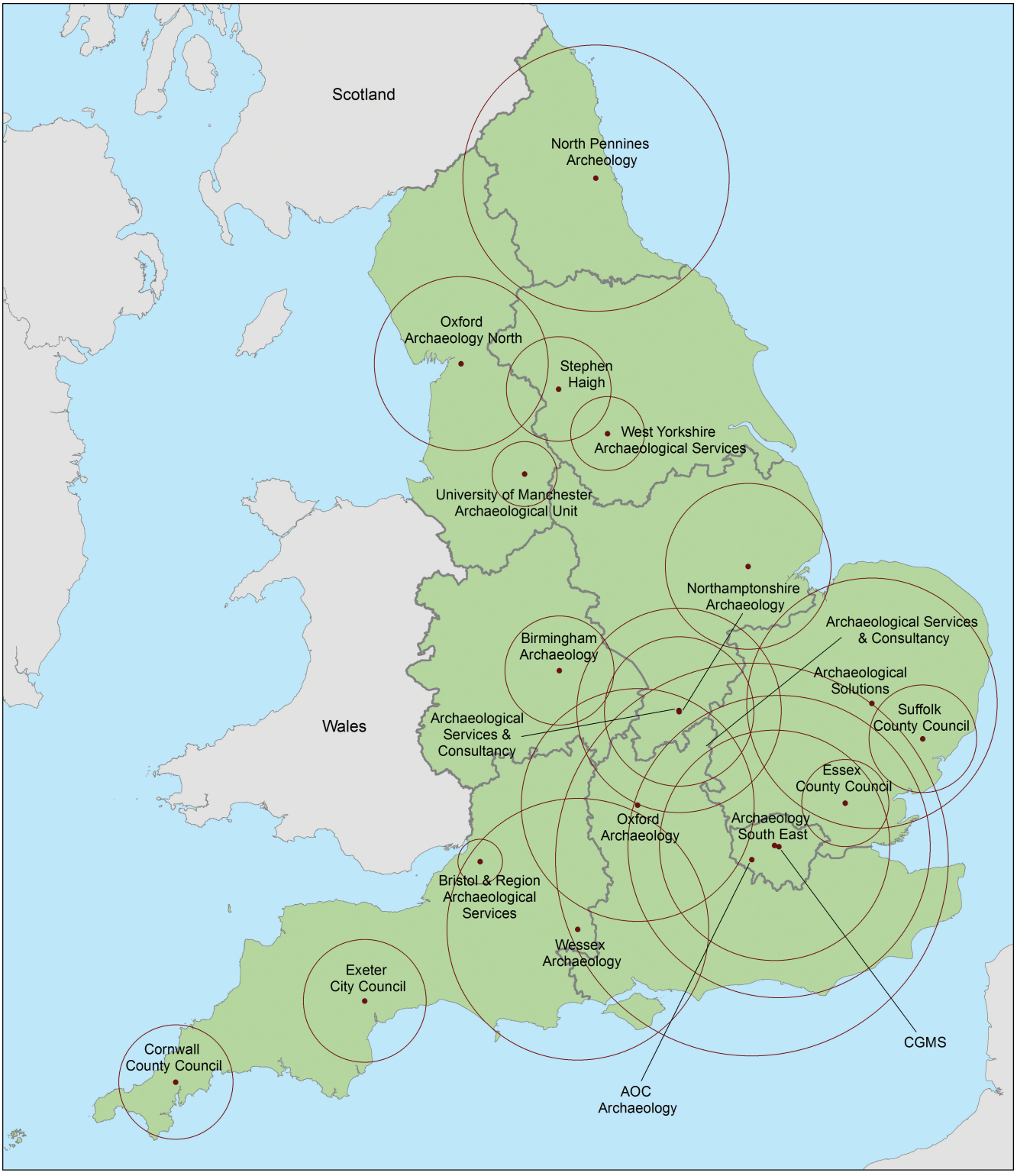

Figure 5.15 Map showing headquarters of the top-20 contractors undertaking building recording surveys at the centre of circles scaled to reflect the mean travel distance to recorded investigations. Regional boundaries shown. (Data: AIP)

Table 5.3 Top-20 archaeological contractors undertaking building recording investigations recorded by AIP in England 1990–2010.

Consultant/contractor	Totals
Archaeology South-East/South Eastern Archaeological Services, University College London	438
University of Manchester Archaeological Unit/Greater Manchester Archaeological Unit	352
Stephen Haigh Buildings Archaeologist	217
Oxford Archaeology North/Lancaster University Archaeological Unit	182
Archaeological Solutions/Hertfordshire Archaeological Trust	155
Oxford Archaeology/Oxford Archaeological Unit	153
Cornwall County Council	149
WYAS Archaeological Services	148
Exeter Archaeology/Exeter Museums Archaeology Field Unit	142
Birmingham Archaeology/University of Birmingham Field Archaeology Unit	121
Wessex Archaeology/Trust for Wessex Archaeology	120
Archaeological Services & Consultancy Ltd	111
CgMs	101
Essex County Council/Field Archaeology Unit	101
Surrey County Council/Surrey County Archaeological Unit	95
Bristol & Region Archaeological Services	89
Northamptonshire Archaeology/Northamptonshire County Council	87
AOC Archaeology	80
North Pennines Archaeology Ltd	77
Archaeological Project Services	75

Table 5.4 Top-20 archaeological contractors undertaking postdetermination mitigative investigations recorded by AIP in England 1990–2010.

Consultant/Contractor	Totals
Suffolk Archaeological Unit/Suffolk County Council	624
Thames Valley Archaeological Services	542
Humber Field Archaeology/Humberside Archaeology Unit	529
Warwickshire Museum	508
Oxford Archaeology/Oxford Archaeological Unit	495
Wessex Archaeology/Trust for Wessex Archaeology	483
Archaeological Project Services	476
York Archaeological Trust	475
Archaeology South-East/South Eastern Archaeological Services, University College London	455
Cotswold Archaeology/Cotswold Archaeological Trust	450
Canterbury Archaeological Trust	411
Museum of London Archaeological Service	365
University of Leicester Archaeological Services/ Leicestershire Archaeological Unit	364
Archaeological Solutions/Hertfordshire Archaeological Trust	344
Gloucestershire County Council	321
Pre-Construct Archaeology/Geophysics	303
Oxford Archaeology North/Lancaster University Archaeological Unit	279
NAU Archaeology/Norfolk Archaeological Unit	274
Cornwall County Council	271
Southampton City Council	267

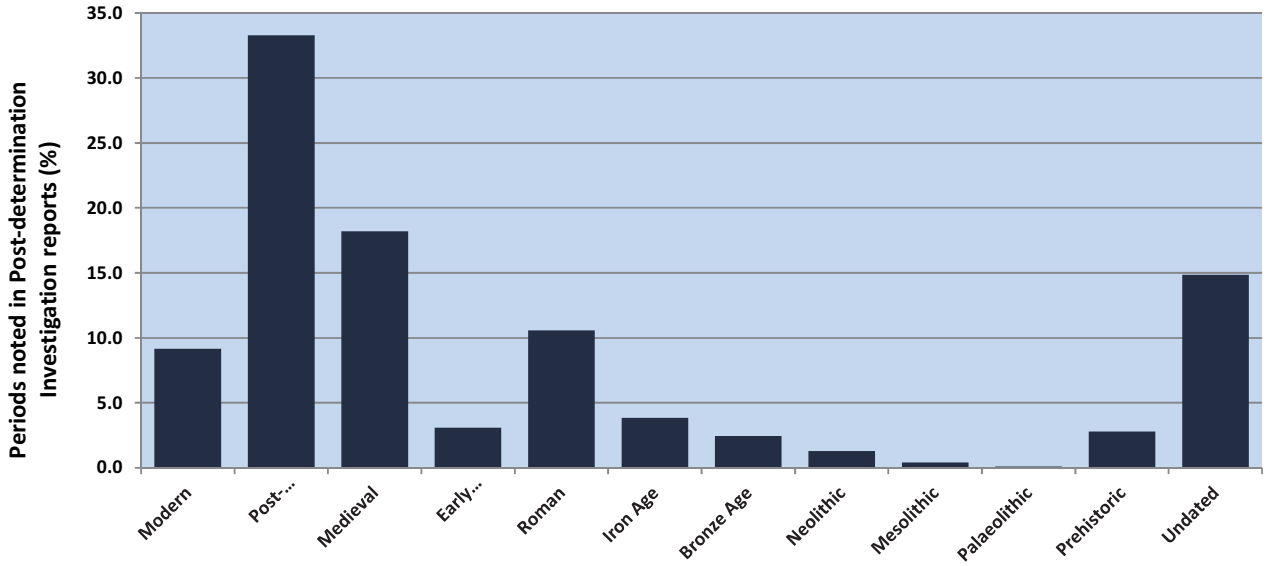

Figure 5.16 Summary of the main cultural-historical periods represented in recorded events forming components of post-determination mitigative investigations carried out in England 1990–2010. (Data: AIP: Sample = 37,377 observations)

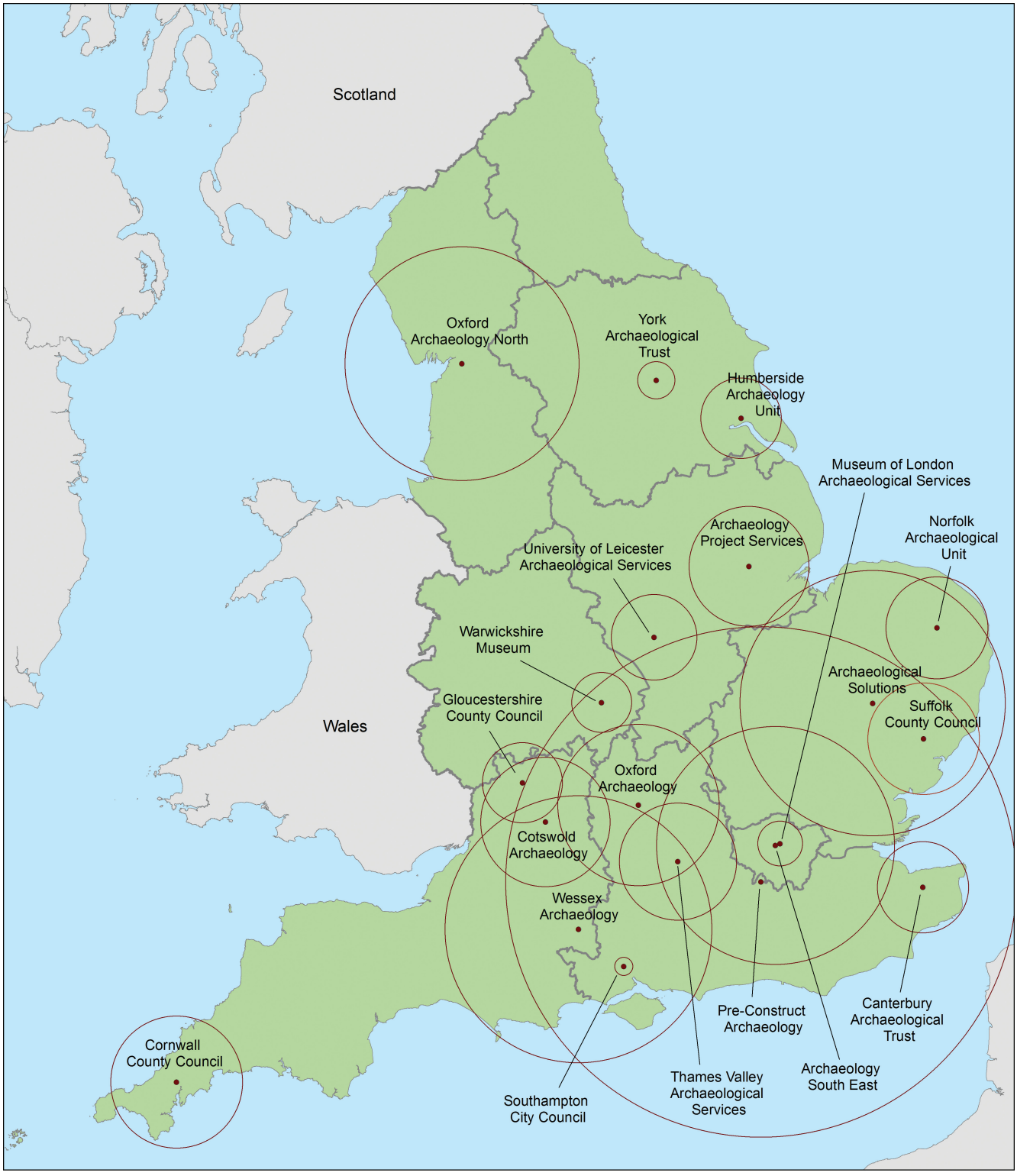

Figure 5.17 Map showing headquarters of the top-20 contractors undertaking planning related post-determination investigations at the centre of circles scaled to reflect the mean travel distance to recorded investigations. Regional boundaries shown. (Data: AIP)

in DBAs and field evaluations (Figures 3.14 and 3.23 respectively) it is clear that detailed investigation provides greater focus on the earlier periods, as might be expected.

Who did the work?

Over 600 archaeological contractors were involved in post-determination mitigative investigations during the PPG16 Era. Table 5.4 shows a listing of the top-20 ranked according to the overall number of post-determination mitigative investigations recorded by the AIP for the period 1990–2010. There is of course much variation in the scale of events carried out and it is the case that some contractors tended to undertake numerous small jobs while others are involved in rather fewer large investigations. The highest-ranked contractor has a work throughput more than twice that of the lowest-ranked. Overall, the top-20 contractors carried out some 48 per cent of all recorded post-determination mitigative investigations. Overall, the top-20 contractors carried out some 48 per cent of all recorded post-determination mitigative investigations. Figure 5.17 shows the location of the headquarters of the top-20 contractors undertaking planning-related post-determination investigations at the centre of circles scaled to reflect the mean travel distance to recorded investigations they have undertaken. Most of the circles are all relatively small, and except in the case of a few large players, fairly discrete with minimal overlaps. It suggests that at this end of the contracting market most companies prefer to work near to home and that there is a still a high degree of territoriality among archaeological contractors despite two decades of competitive tendering and an unregulated market.

Chapter 6

Non planning-related investigations

One of the great strengths of archaeology in England over recent centuries has been the diverse range of research, investigation, and inquiry carried out. Except within designated protected areas such as those defined in the *Ancient Monuments and Archaeological Areas Act 1979* requiring specified consents (*see* Chapter 7), archaeological work can be undertaken in England without any express permissions except those of the landowner and/or tenant. This is a long and valued freedom that allows individuals, groups, societies, and academic institutions to carry out research investigations whether involving destructive interventions or not. Since the middle of the nineteenth century local groups and amenity societies have carried out fieldwork and monument conservation of various sorts (Piggott 1976). A survey carried out in 1986–87 estimated that membership of these societies at the time totalled about 100,000 individuals (CBA 1987), some of whom were engaged in excavations, landscape surveys, fieldwalking, documentary research, building recording, geophysical surveys, and maritime investigations. At the start of the PPG16 Era it was estimated that there were 875 amenity societies of various kinds in England, 159 of them archaeological societies (ETB 1990: Tab. 8).

Traditionally, amateur groups have been the seed-beds in which many professional archaeologists developed an interest in the subject. Some societies have evolved around the investigation and interpretation of a particular site, or sites, whilst others have a thematic bent. There are celebrated cases of farmers and landowners becoming interested in the archaeology of their own land-holdings, from the work of General Pitt Rivers on the Rushmore Estate in the heart of Cranborne Chase, Dorset, in the nineteenth century (Bowden 1991: 103–40) through to Eddie Price at Frocester Court, Gloucestershire (Price 2010 with earlier references) and Martin Green at Down Farm, Dorset (Green 2000) in the twentieth and twenty-first centuries. In recent years the development of 'community archaeology' has rekindled and encouraged the participation of residents in investigating their local historic environment (Drake & Fahy 1987; Faulkner 2000; Levin & Hasted 2007; Marshall 2002; Simpson & Williams 2008; Thomas 2010; 2011). Mention may also be made of the widespread hobby of metal detecting, which frequently leads to the discovery and recording of archaeological sites through the analysis of patterns of stray finds. Such work can have a place in development programmes (Macnab 2005), although it is a hobby whose reputation has been tarnished by cases of unauthorised work in protected places and looting for personal gain by supplying material to the international antiquities trade (Dobinson & Denison 1995).

During the decades before 1990 a lot of archaeological investigation was closely connected with property development, although outside the town and country planning system as it was structured at that time. Some work, mainly surveys, was strategic and intended to inform responses to large-scale development proposals, as for example the RCHME studies of impacts from ongoing gravel extraction (RCHME 1960) and the development of Peterborough New Town (RCHME 1969), as well as the numerous urban surveys and resource assessments (*see* Darvill & Fulton 1998: App. A for a list). Many investigations, variously undertaken by professional archaeological bodies, universities, and amenity groups, were reactive to ongoing or immediate threats to sites and are therefore seen as 'rescue' or 'salvage' operations intended to provide 'preservation by record' (EH 1986b). Between 1938 and 1972 more than 1100 archaeological sites threatened with destruction through development, land-use change, or

harmful land-use of some kind were excavated with varying degrees of financial support from central government (Butcher & Garwood 1994; Evans 2016). During the late 1970s and early 1980s a great deal of attention was given to the investigation of sites threatened by on-going cultivation (Hinchliffe & Schadla-Hall 1980) which also falls outside of England's planning system. Throughout the Rescue Era it was convenient, and ethically appropriate, to focus research efforts on sites or deposits threatened with short- or medium-term destruction but, in consequence, the boundaries between development-related, planning-related, and other kinds of curiosity-driven investigation were blurred. Despite increasing focus on specific outputs, and closer articulations with the planning system, ambiguities in the purpose and execution of investigations persisted through the PPG16 Era, and for the AIP this made identifying and recording non-planning related investigations difficult and sometimes highly subjective. There was also a whole raft of situations where archaeological deposits were eroding through natural processes, human impacts, or ongoing cultivation that fell outside the planning system and therefore beyond the reach of developer funding. These tended to be dealt with through conservation and management programmes or through one-off special funding packages.

Logging non planning-related investigations

Collecting consistent and reliable information on non-planning related investigations proved far from easy. Amenity groups, societies, community groups, and university departments were contacted by AIP researchers and encouraged to provide information about recent and ongoing projects. However, since much of the fieldwork they undertook was long-term and did not usually produce formal reports other than notes in county journals, round-ups, or newsletters, and websites, it was hard to track down and evidence these investigations. Accordingly, copies of a paper questionnaire were sent to the heads of amenity societies and academic departments that had registered their upcoming excavations with the annual briefing brochures produced by the CBA and Current Archaeology. But committees, chairs of amenity societies, and heads of department change frequently and at a national level can be hard to track, with the result that many questionnaires went astray. Prior to the public release of OASIS, AIP had a simple online submission form for non-planning investigations, which posted an e-mail containing key meta-data for easy importing. In 2003 this form was removed and a link to OASIS created in its place in order to encourage these groups to enter directly onto the OASIS system. To further encourage the uptake of OASIS, paper forms were no longer sent to groups and university departments known to engage in field investigations. The result was a reduction in the AIP's coverage of work by the independent sector. Up until the end of 2010 the AIP team only maintained direct contact with groups who indicated that they would rather send copies of their reports instead of entering information into an on-line database; of the 148 amenity societies originally surveyed as part of the AIP programme only 9 (6 per cent) returned a completed questionnaire in 2010. It is possible, of course, that all or some of those that did not return a questionnaire had done nothing to report by way of investigations carried out.

Non-planning investigations

Approximately 7169 non planning-related investigations undertaken between 1990 and 2010 were recorded by AIP. This accounts for about 9 per cent of all recorded investigations (*see* Chapter 2: Figure 2.3), although it is accepted that definitional boundaries with pre-determination and post-determination planning-related investigations are blurred with some pieces of work misattributed and others counted differently according to which attributes were selected during searches and quantifications. Equally, the loose use of established nomenclature in the titles of projects and reports means that products which superficially look like planning documents were in fact compiled for other non-planning purposes. Overall, the total number of non planning-related investigations is probably an underestimate of what went on during the PPG16 Era.

Figure 6.1 shows the number of non planning-related investigations undertaken year-on-year between 1990 and 2010. Some of these were multi-year investigations and have been counted in each year for their duration. Some are investigations undertaken by commercial companies that were not attributed to planning-related projects. Volumes are relatively stable from 1991–1995 with a peak in 1996. Two further peaks occur in 1999 and 2009. Between are troughs representing lower levels of activity. In part this pattern results from changes in the pattern of recording the work undertaken by universities and amenity societies discussed above. But even allowing for this, there does seem to be an underlying oscillating trend in the scale of activity outside the planning system – each successive peak reaching a higher level in the number of investigations undertaken. The sudden drop in 2010 suggests a delayed expression of the post-2008 downturn noted elsewhere (Selkirk 2010).

One oft-cited explanation for a perceived decline in the volume of fieldwork undertaken by amenity groups, not wholly supported by Figure 6.1, is that independent archaeologists are excluded from the system by the 'professionals', especially the archaeological contractors (Selkirk 1987). It was argued that in the years following the Rescue Era there has been a reluctance to use volunteers and students on commercial planning-related investigations. As part of the move to become more professional and

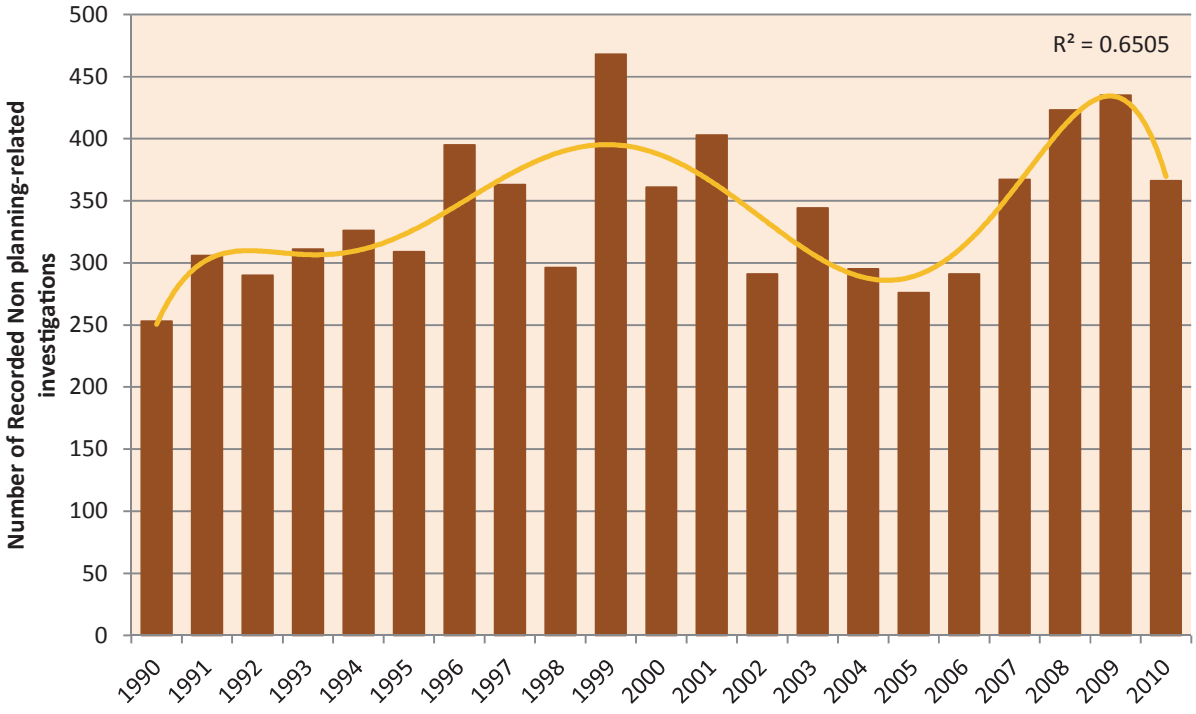

Figure 6.1 Number of recorded non planning-related investigations undertaken in England 1990–2010 with six-order polynomial trend-line. (Data: AIP. Sample = 7169 records)

better regulated, operational constraints connected with health and safety measures, insurance, difficult working environments, and strict controls on staffing were often mentioned. Some contractors did not wish to be seen to be exploiting their workforce or undercutting their competitors by using cheaper/unpaid labour. In fact, opportunities did arise for amenity groups to be involved in planning-related investigations as earlier chapters show and as the community itself recognised (CIA 1993). Moreover, since the mid-2000s there has been increased awareness of the need to provide public benefit and opportunities for volunteers to work on projects within the commercial sector, something championed by the Southport Report into realising the benefits of planning-led investigations (Southport Group 2011: 10–13). Such investigations are of course counted where they belong in the planning-related statistics discussed in earlier chapters regardless of who undertakes them or who contributes to the workforce. What Figure 6.1 shows is quite different and relates to apparent cycles in the frequency of investigations outside the planning system, mainly research work or community-driven inquiries.

Looked at geographically there are a number of variations to be observed. Figure 6.2 shows the distribution of recorded non planning-related investigations throughout the PPG Era. Notable is the extremely widespread distribution of investigations across the country, even in areas such as protected landscapes. This contrasts with the concentration of archaeological activity related to commercial development, which tends to be very low-level in protected areas. Figure 6.3 looks at the pattern from a slightly different perspective. A series of snapshots represent individual years ending the four quarters of the PPG16 Era, showing the number of investigations undertaken by voluntary organisations and university departments (as opposed to commercial units attached to universities) recorded as active in each of the regions. They show that the South East region was busy throughout, whilst Yorkshire & Humberside experienced a peak of activity in 1999. The northern regions experienced lower activity throughout, apart from an increase in the North West at the end of the recording period. This type of archaeological work appears to have generally concentrated in the south, although Greater London was quiet throughout. There appears to be a relative poverty of this work in the West Midlands which is hard to explain, whilst the East Midlands sees an extreme fluctuation between 1999 and 2004. The lack of voluntary organisation and university work in the Greater London region may reflect the fact that archaeology in an urban setting is largely driven by development, which is more geared towards the commercial archaeological sector.

Investigations by amenity groups

Figure 6.4 shows the pattern of recorded investigations by voluntary, amenity, and community groups year-on-year through the PPG16 Era. The pattern is extremely variable, but the six-order trend-line models a similar pattern of

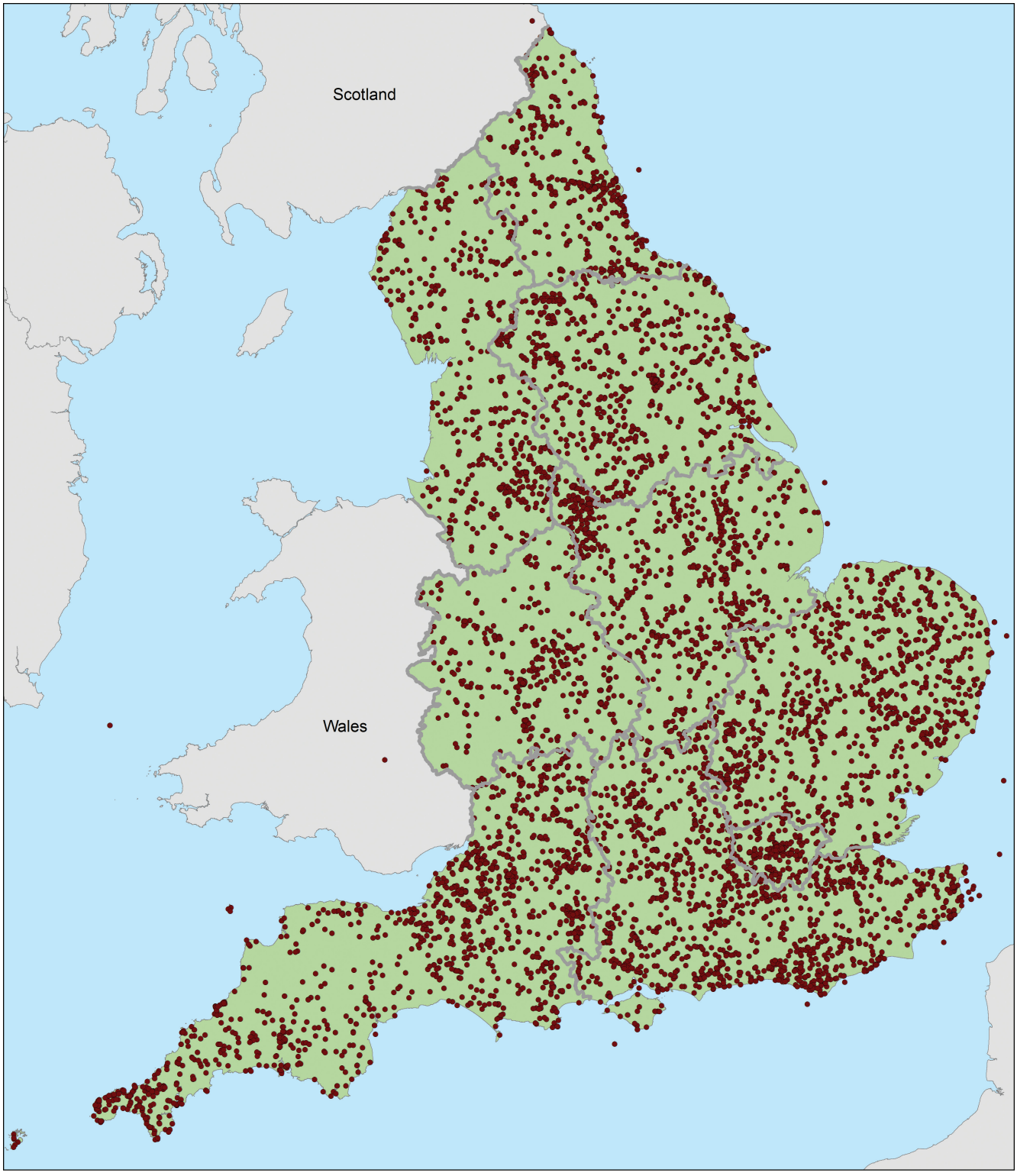

Figure 6.2 Distribution of non planning-related investigations in England 1990–2010. Regional boundaries shown. (Data: AIP. Sample = 8031 records)

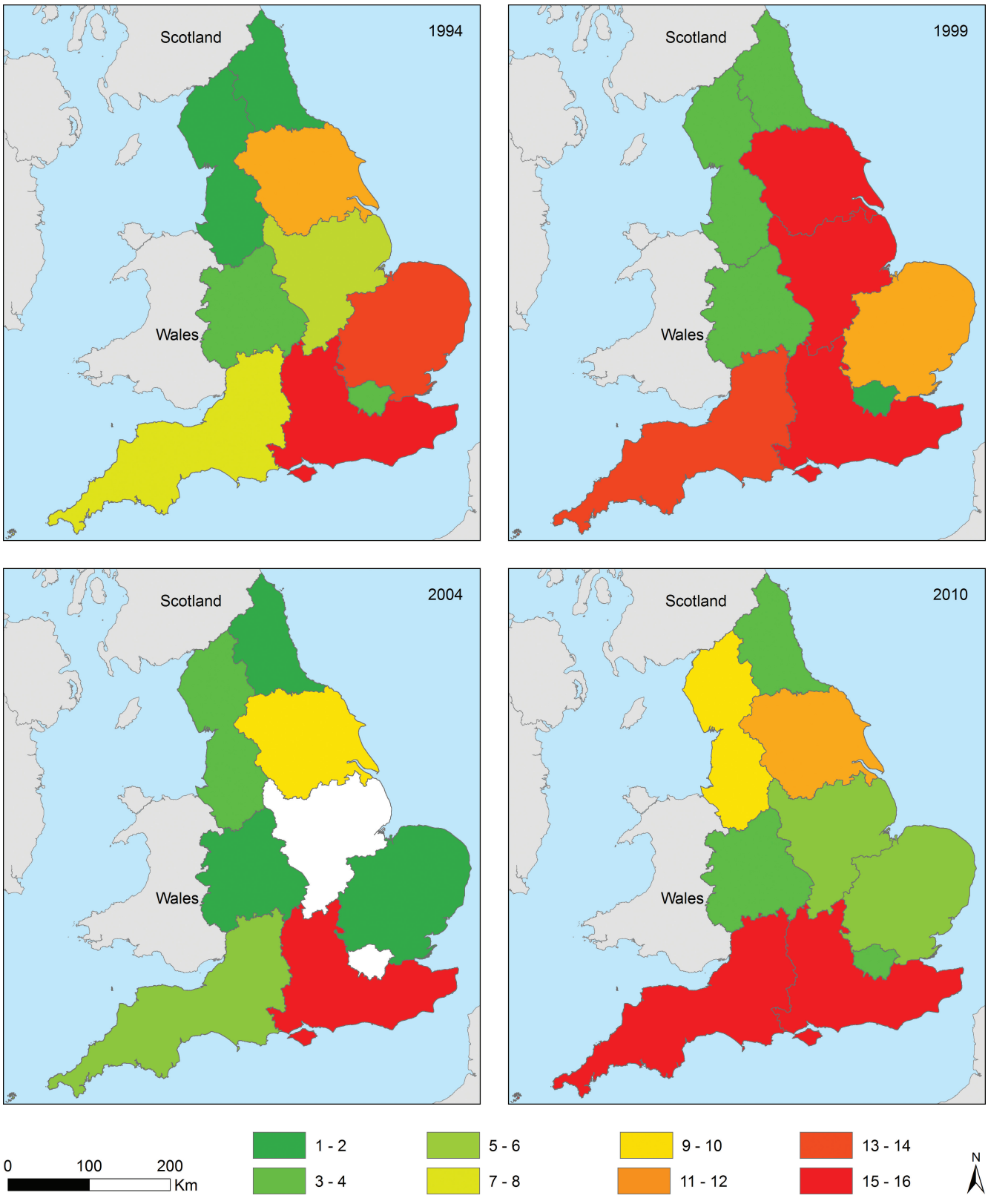

Figure 6.3 Snap-shots of the number of independent sector groups and university departments recorded as active in each region in 1994, 1999, 2004, and 2010. (Data: AIP. Sample = 370 records)

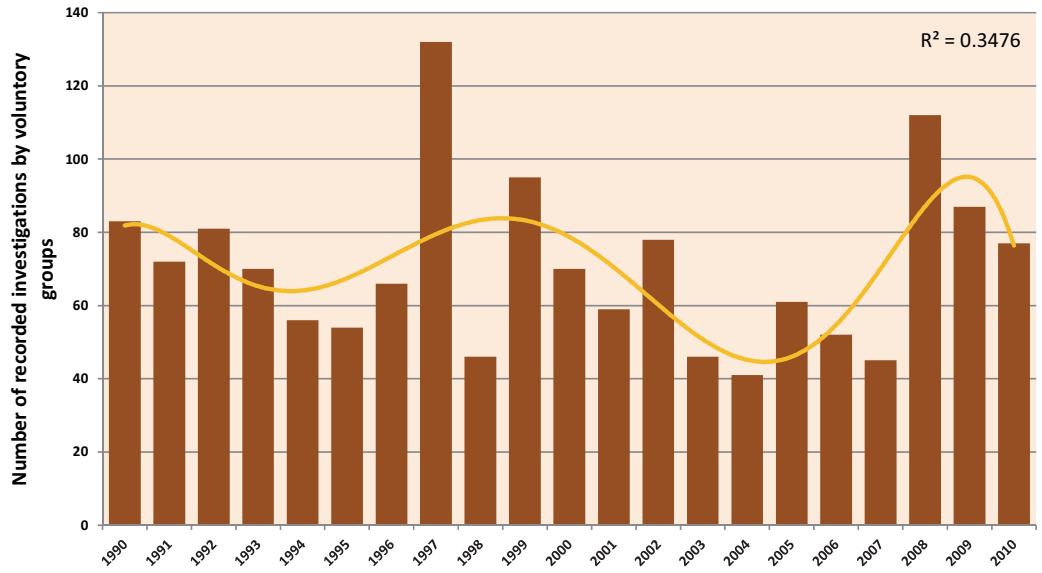

Figure 6.4 Number of recorded non planning-related investigations undertaken by amenity societies and voluntary groups with six-order polynomial trend-line. (Data: AIP. Sample = 1483 records)

peaks and troughs seen in the broader non planning-related picture (*see* Figure 6.1). The AIP record suggests an average of about 70 recorded investigations a year, and while this is undoubtedly an under-representation it shows a healthy state of affairs. A study of activity by local history and archaeological societies and their members during the period 2010 to 2015 recorded 3357 projects within their sample of responses, leading to a headline estimate of 12,000 projects nationally – around 2400 per annum (Hedge & Nash 2016: 10; Nash *et al.* 2017). However, broken down, a little less than 30 per cent of responses came from archaeological groups and less than 50 per cent of the projects undertaken could be considered archaeological investigations (Hedge & Nash 2016: Tab. 4 and Fig. 6). Figure 6.5 shows the distribution of such investigations recorded by the AIP, emphasising the wide overall spread but the rather clustered nature of the hot-spots. There is a pattern of dispersed investigations, although there are clusters around heavily populated areas such as Brighton and Maidstone.

Table 6.1 provides a breakdown of the investigatory events undertaken during the investigations carried out by voluntary groups. It shows that most were documentary searches (25 per cent) and the excavation of sample trenches (23 per cent), with visual inspection (14 per cent) and the recording of building fabric/structure (14 per cent) also featuring strongly. Fieldwalking was a popular technique (6 per cent) as were various types of geophysical survey (totalling 6 per cent). These investigations were undertaken in urban and rural areas in approximately equal proportions during the 1990s, whilst the 2000s saw a shift towards rural areas. A small number of marine investigations featured at the end of the PPG16 era (Figure 6.6).

The communal and social benefits of participating in these projects have to be recognised, as well as the knowledge created as a result (Hedge & Nash 2016; Miles *et al.* 2016). The development in 2011 of an innovative project known as DigVentures provided a new way of promoting community involvement but its impact fell outside the period covered by the AIP. The idea is to host a series of archaeological research projects supported by crowdsourcing or crowdfunding that are accessible to the public and provide opportunities for people to join in. Flag Fen, Peterborough, was their first project, and work is also underway at Leiston Abbey, Essex (Wilkins *et al.* 2012).

Archaeological investigations on television

As Paul Jordon emphasised (1981), archaeology has been a popular theme for television since the early days of broadcasting. During the PPG16 Era the longest running and most popular series was undoubtedly *Time Team* from Channel 4, one of many commercial television companies in a highly competitive market and dependent on advertising revenue. The series started with a pilot episode in 1993 and then ran for 20 series and assorted 'specials' from 1994 to 2014. Figure 6.7 shows the annual output of programmes between 1993 and 2014. Produced by Tim Taylor and fronted by Tony Robinson and Mick Aston, a changing cast of helpers, assistants, and specialists added variety and authority to the presentations. The format involved defining a locally interesting question or problem that could be addressed through the investigation of a target site and/or landscape. The work was ostensibly carried out under the gaze of the cameras over a period of three days, and typically involved landscape surveys, geophysical surveys,

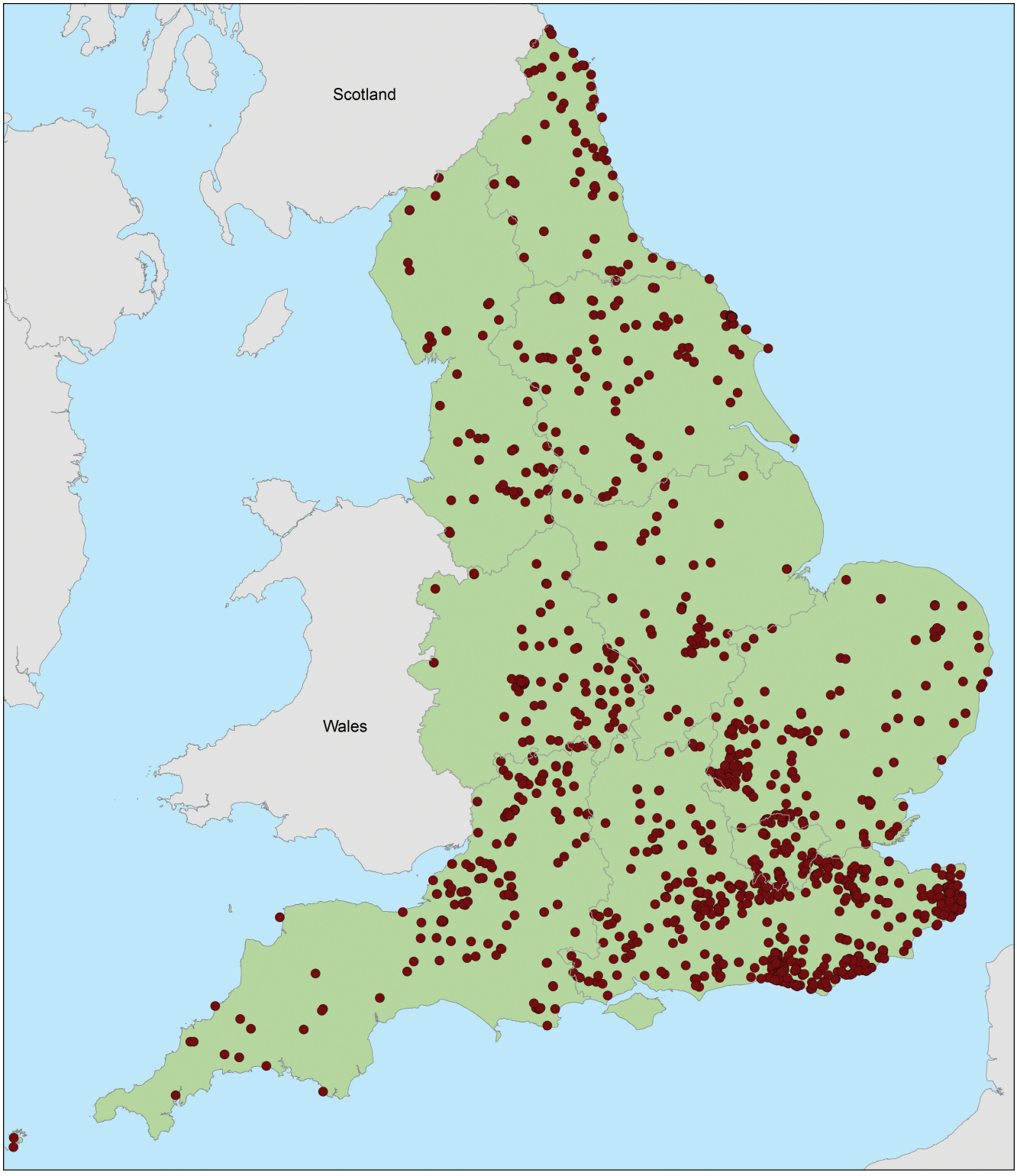

Figure 6.5 Distribution of non planning-related investigations in England undertaken by amenity societies and voluntary groups. Regional boundaries shown. (Data: AIP. Sample = 1535 records)

Table 6.1 Number of recorded non planning-related archaeological events carried out annually in England by amenity societies and voluntary groups.

Methods	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	% of recorded events
Documentary Search	6	4	3	6	3	1	4	2	2	6	3	2	8	2	5	5	7	2	56	17	3	147	24.8
Sample Trenches	8	6	6	9	9	7	8	18	2	5	11	7	5	6	2	6	5	3	4	7	2	136	23.0
Visual Inspection	2	3	1	2	2	0	1	0	0	1	1	1	2	0	0	0	0	1	44	21	3	85	14.4
Recording of Fabric/ Structure	0	1	1	0	1	1	1	1	1	3	8	13	4	3	4	9	5	3	5	10	9	83	14.0
Fieldwalking	3	5	0	1	2	0	0	1	0	1	1	6	4	1	0	0	0	1	1	3	8	38	6.4
Targeted Trenches	1	4	1	1	2	1	3	0	1	3	1	1	0	1	0	0	1	2	2	0	1	26	4.4
Test Pits	0	2	0	1	1	0	0	0	0	1	0	1	0	3	2	0	2	0	0	3	3	19	3.2
Geophysical - Magnetometer/ Gradiometer	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	1	0	0	3	1	3	12	2.0
Metal Detecting	0	2	0	0	1	0	0	0	0	0	0	0	2	1	0	0	0	0	1	0	4	11	1.9
Topographic Survey	0	0	0	0	1	1	0	0	0	0	0	0	1	0	1	0	0	1	3	1	2	11	1.9
Geophysical - Resistivity	0	1	0	0	0	0	0	0	0	0	2	0	0	1	1	0	0	0	0	0	4	9	1.5
Environmental Sampling	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	2	0	5	0.8
Geophysical - Magnetic Susceptibility	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	3	0.5
Aerial Photography	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.3
Maritime Survey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0.3
Ground Penetrating Radar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.2
Laser Scanning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.2
Phosphate Survey	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.2
Totals	20	30	12	21	24	11	19	22	6	20	27	33	28	18	15	21	20	15	120	68	42	592	

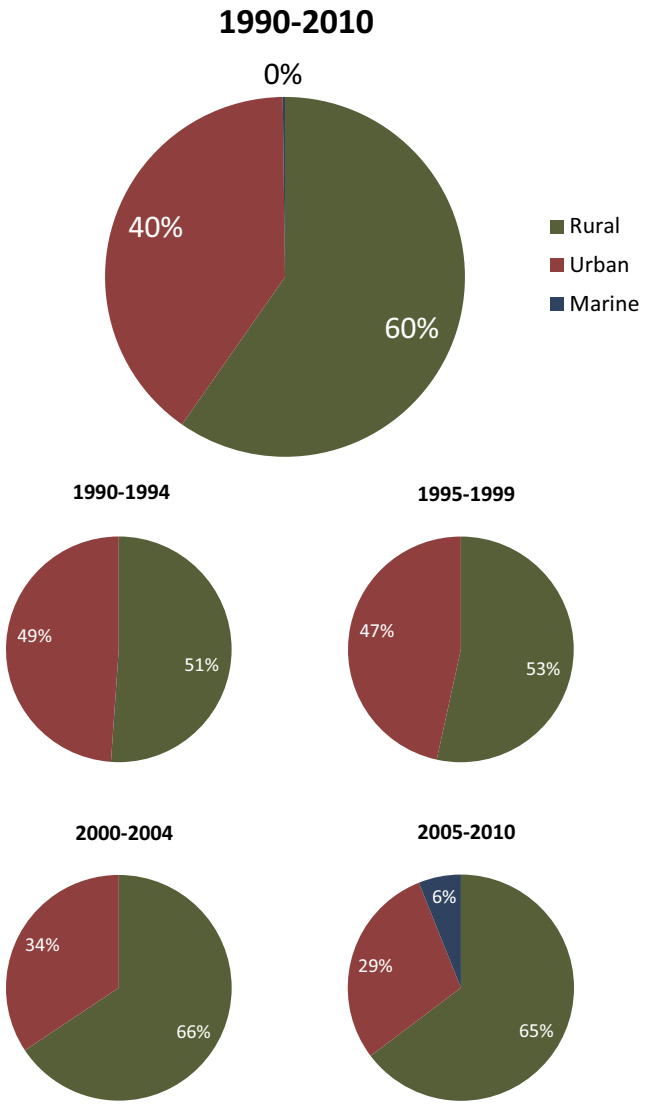

Figure 6.6 Analysis of the urban and rural location of non planning-related investigations in England undertaken by amenity societies and voluntary groups between 1990 and 2010. (Data: AIP. Sample = 1486 records)

documentary research, and small-scale excavation. A number of popular books were published (Taylor 1999; 2001) and some sites have been the subject of detailed final reports of a more conventional kind, including for example Withington, Gloucestershire (Thompson & Armour Chelu 2009), Codnor Castle, Derbyshire (Birbeck 2009) and Wayneflete's Tower, Surrey (Thompson & Birbeck 2010). Much of the post-excavation work was carried out by Wessex Archaeology who host a listing of available reports on their website. Figure 6.8 shows the distribution of sites that featured in *Time Team* programmes, its main characteristic being the extremely wide geographical spread of targets.

The BBC screened a parallel series, *Meet the Ancestors*, hosted by Julian Richards between 1998 and 2004. Rather than initiate their own projects this series dipped into work taking place for other reasons (Richards 1999). BBC's *Timewatch* series also included archaeological programmes featuring English sites, and National Geographic created a number of documentaries focused on archaeological research programmes.

Investigations by university departments

At the end of the PPG16 Era there were about 32 departments of archaeology or the equivalent within UK universities, 23 of them in England (Anon 2010). Many carried out fieldwork projects in connection with wider remits on student training (field-schools) and research. The Archaeology Benchmark Statement developed in 2000 and subsequently revised in 2007 and 2014 for the Quality Assurance Agency notes that 'all archaeology teaching is research-led' and requires an

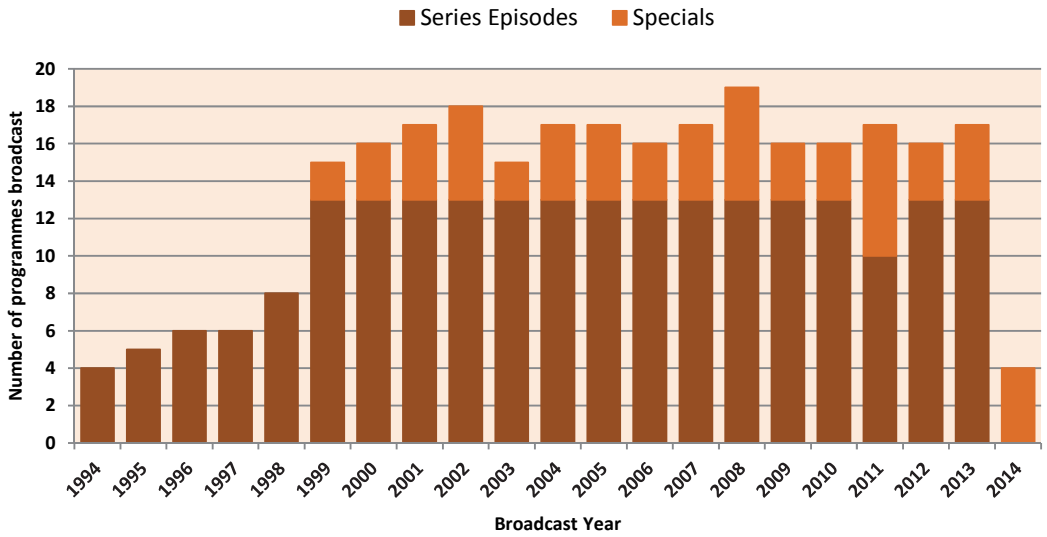

Figure 6.7 Number of Time Team episodes broadcast by year 1994–2014. (Data: Wessex Archaeology website http://www.wessexarch.co.uk/our-work/time-team. Accessed 04 March 2018)

'appreciation of the importance of the recovery of primary data and new information through practical experience in the field or through collections-based, records-based, or artefact-based study' as part of an undergraduate programme in archaeology (QAA 2014: 10 and 14). In many cases, however, fieldwork training is provided through overseas research programmes reflecting the truly global nature of archaeological interests among British-based scholars. Often such work is undertaken collaboratively with staff from partner institutions local to the areas of interest. By contrast, relatively few overseas institutions collaborate with UK institutions for fieldwork in Britain; exceptions include the Deutsches Archäologisches Institut in Frankfurt and Berlin working with staff from Bournemouth University at several sites in southern England and the Ludwig Boltzmann Institute for Archaeological Prospection and Virtual Archaeology in Vienna working with Birmingham and Bradford university staff in the Stonehenge landscape.

AIP recorded a total of 491 investigations undertaken by UK universities in England between 1990 and 2010, an average of about 23 per year. The overall trend (Figure 6.9) is slightly downward to a low in 2004, followed by a sharp rise to a record number in 2010. Indeed, this sector is the only one that shows a rise in the level of activity during the period of economic downturn after 2007–08. As already noted, many universities also run fieldwork projects abroad, but to what extent the rise in work in England over the later 2000s is in compensation for difficult or turbulent political conditions overseas remains to be seen.

Figure 6.10 shows the wide distribution of university-based investigations across the country, although there is a clear preference for projects in northeast England and central southern England. The majority of university investigations were undertaken in rural landscapes (Figure 6.11).

Most university investigations involved the application of multiple investigatory event types including surveys and excavations. The size and scale of the work also varies considerably. One of the largest and longest-running was the study led by Reading University of Insula IX in the Roman town of Silchester between 1997 and 2014 (Fulford & Clarke 2011). Mention may also be made of Leicester University's work at Burrough Hill, Leicestershire, from 2010 onwards (Thomas & Taylor 2013), Bournemouth University's work in the Knowlton area of Dorset between 2002 and 2009 (Gale 2009), and Oxford University's work between 1994 and 2000 on the Iron Age hillforts of the Ridgeway (Gosden & Lock 2013).

Heritage Lottery Fund projects

Since its creation in 1994, the Heritage Lottery Fund has become the largest dedicated funder of heritage-related work in the UK. Its awards cover a broad spectrum of initiatives within the heritage sector, including support for museums, historic buildings, conservation areas, heritage displays, and community initiatives (Clark 2006b; Dennison 1996; Miles *et al.* 2016). Between 1995 and 2017 it provided about £7.6b in funding for approximately 41,799 projects (HE 2017b: 10). A small proportion of HLF-funded programmes comprise or include archaeological interventions or recording programmes: estimated at about 960 projects with grants, totalling £180m between 1995 and 2010. Further work is needed to document and understand the pattern of activity, but about 170 events falling within the purview of the AIP were recorded between 2000 and 2010. Figure 6.12 shows the year-on-year pattern of recorded investigations plotted against the broader pattern of HLF awards to

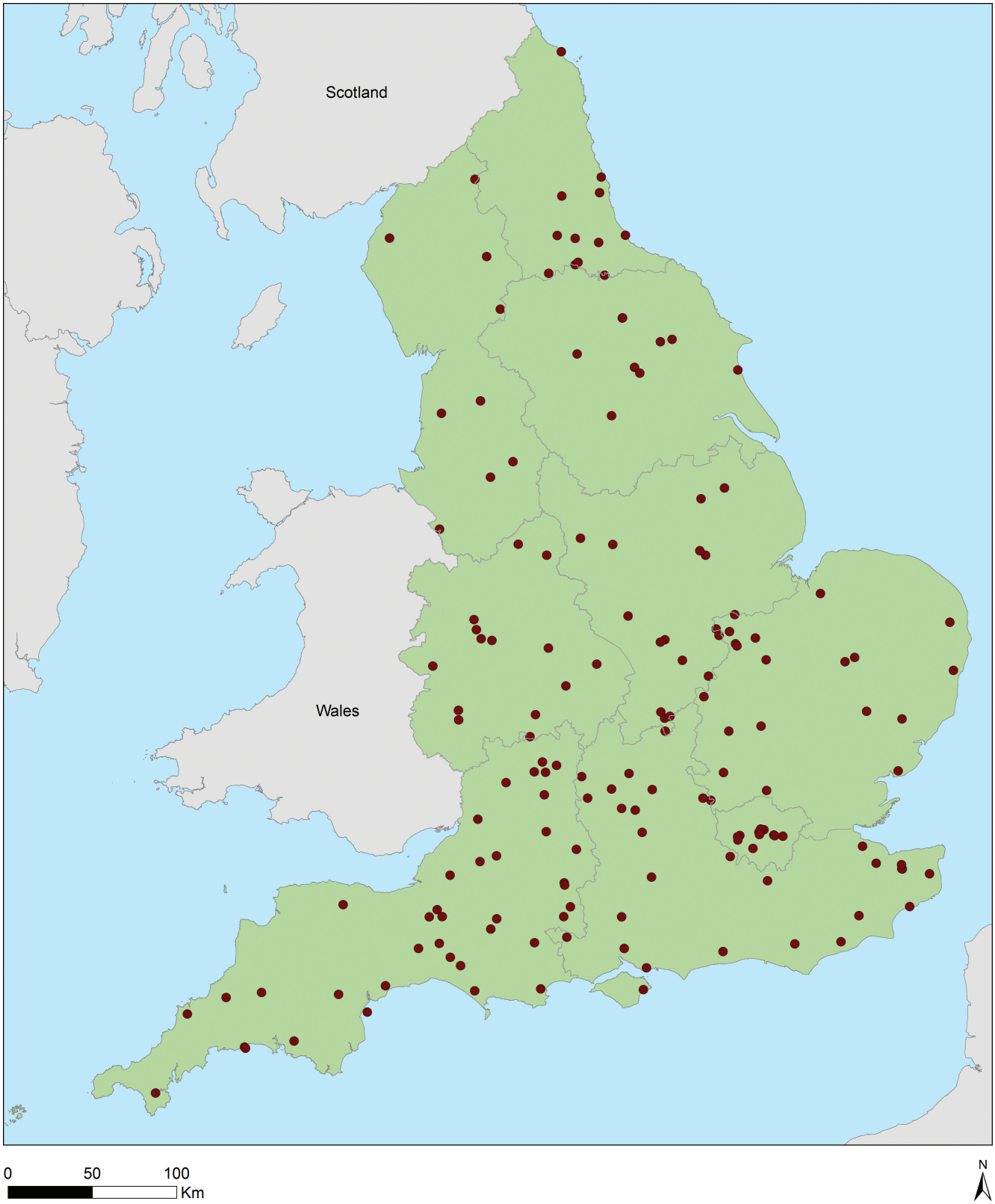

Figure 6.8 Distribution of sites investigated by Time Team 1994–2014. Regional boundaries shown. (Data: Wessex Archaeology website http://www.wessexarch.co.uk/our-work/time-team. Accessed 04 March 2018)

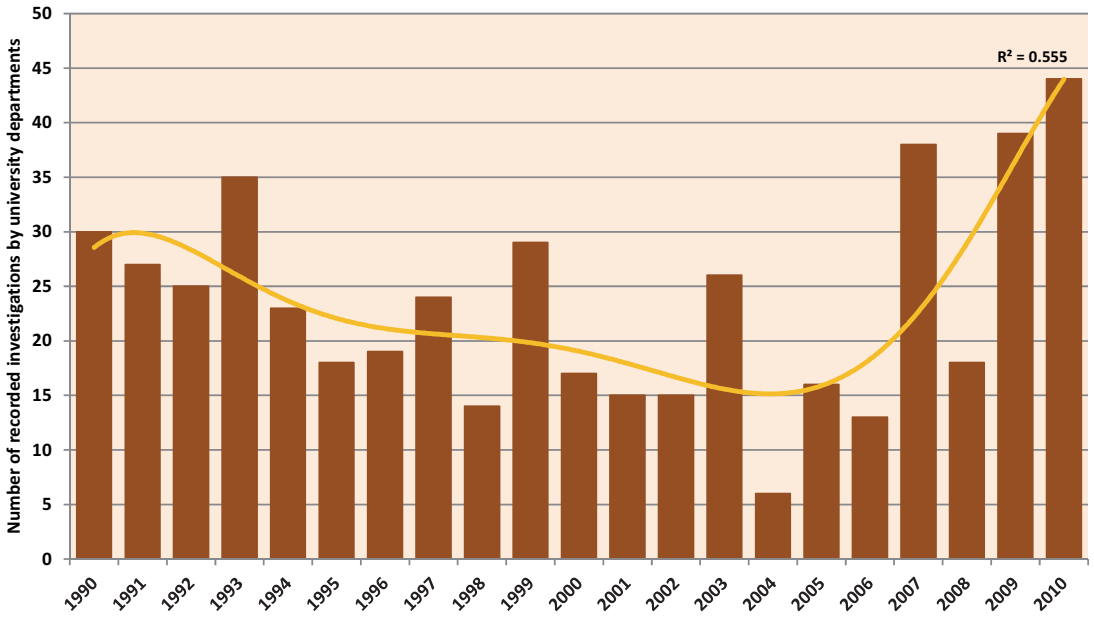

Figure 6.9 Number of recorded non planning-related investigations undertaken by university departments, with six-order polynomial trend-line. (Data: AIP. Sample = 491 records)

archaeological and related projects. The AIP data relates to project completions so the overall profile is off-set slightly from the HLF figures, which relate to awards. Figure 6.13 shows the distribution of recorded HLF funded archaeology projects involving a degree of field-based investigation within England. Table 6.2 shows a breakdown of the organisations carrying out the investigations (not necessarily the organisation to whom the award was made). Commercial companies and university commercial units represent the largest participants. Many of the participants were either engaged by the project to carry out specific pieces of work as part of a larger programme or were partners in the overall project. Examples include the excavations at Fin Cop Iron Age hillfort in Derbyshire in 2009–10 which revealed details of the construction and violent end to the use of the site (Waddington 2012), and, more recently, the work by DigVentures discussed above. The Portable Antiquities Scheme discussed below has been funded by HLF since 1999.

Aggregates Levy Sustainability Fund projects

The Aggregates Levy Sustainability Fund (ALSF) created by the Department for Environment, Food and Rural Affairs in order to reduce the environmental impacts of the extraction of aggregates and to deliver benefits to areas subject to these impacts, directed more than £17m into archaeological projects between 2002 and 2011. The main objective of the ALSF Programme in England, co-ordinated by English Heritage, was to reduce the impact on the historic environment of aggregate extraction, both terrestrial and marine. A total of 194 grants, worth £10.97m were awarded and successfully completed (an archive has been established at the Archaeology Data Service: http://archaeologydataservice.ac.uk/archives/view/alsf/search_list.cfm). Many of the projects were desk-based and aimed either at resource assessments, the synthesis and interpretation of results from investigations prompted by aggregate extraction, or modelling deposits and likely archaeological implications. Figure 6.14 shows the profile of spending and the number of projects supported. A few involved the publication of back-log projects arising from earlier aggregate extraction, and a few involved new investigations. Figure 6.15 shows the distribution of recorded ALSF-funded investigatory events (many of the funded projects did not include new fieldwork). One example is the air mapping project in the environs of Thornborough Henges, North Yorkshire, which revealed a previously unrecorded Neolithic cursus amongst a range of other features from prehistory to the twentieth century. This resulted in the creation of 153 new monument or monument group records, with amendments to 41 existing records (Deegan 2005).

Estate management surveys

The creation of estate management plans mainly falls outside the planning system; most are prepared either as an adjunct to a grant application, in relation to consents relating to protected area legislation (*see* Chapter 7), or as best practice

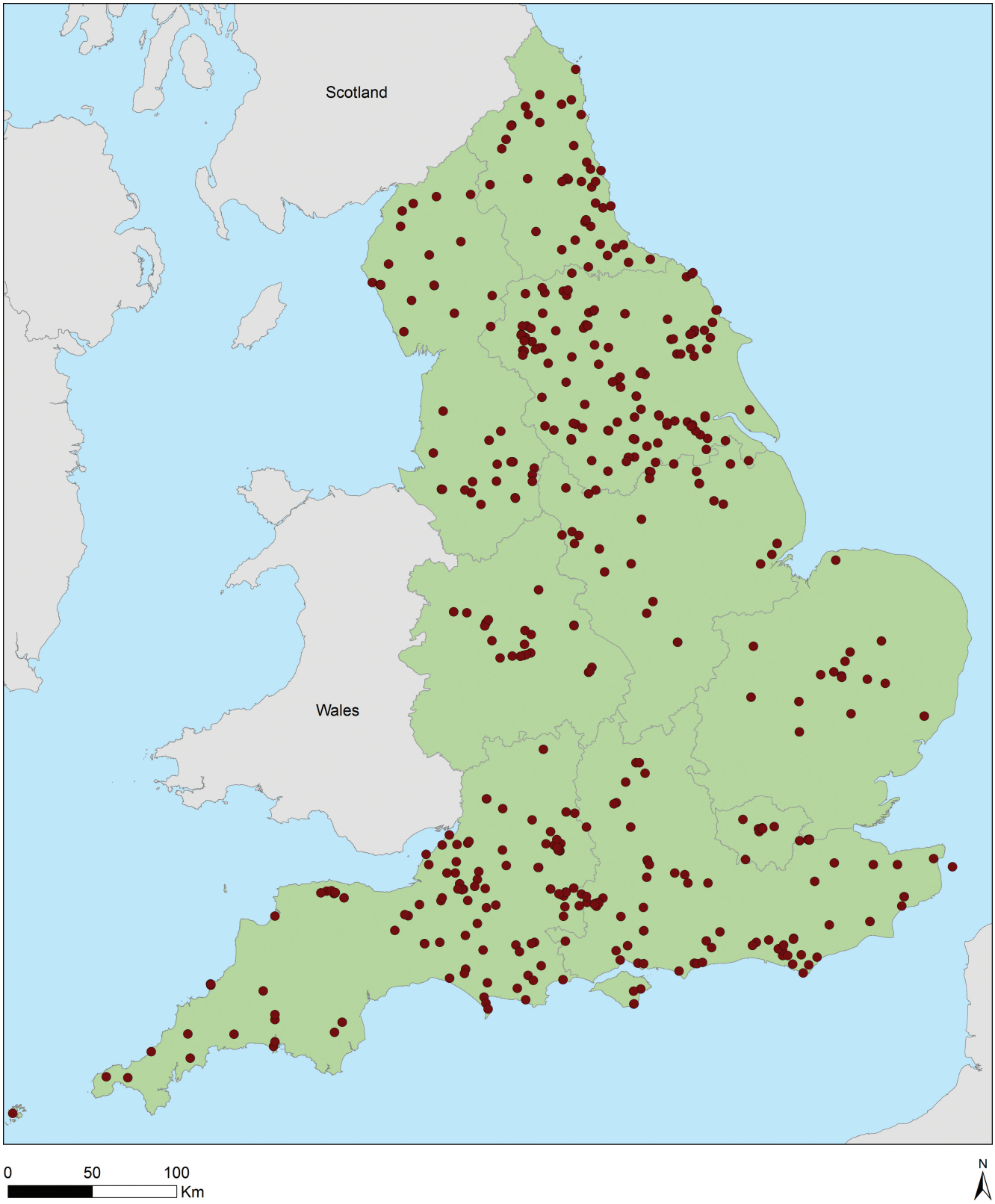

Figure 6.10 Distribution of recorded non planning-related investigations in England undertaken by university departments 1990–2010. Regional boundaries shown. (Data: AIP. Sample = 514 records)

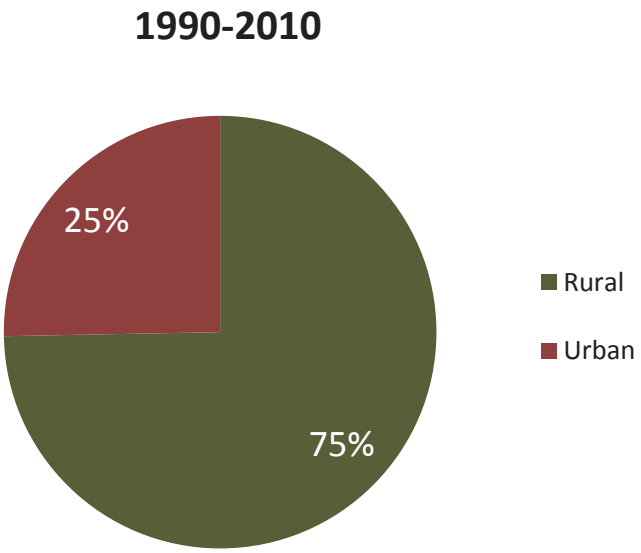

Figure 6.11 Analysis of the location of non planning-related investigations in England undertaken by university departments 1990–2010. (Data: AIP. Sample = 490 records)

in accordance with landscape management. Such plans were recorded where identified between 1990 and 1994 and then as distinct investigation types from 1995 to 2010; and a total of about 1600 were identified. Figure 6.16 shows the overall pattern for the PPG16 Era with peaks in the mid-1990s and mid-2000s. Table 6.3 provides an analysis of the regional breakdown of recorded plans with the highest overall number being recorded from the South West, followed by the East Midlands. The South West region accounts for over a quarter of all estate management plans, one of the reasons being the application in 2004–05 for the inscription of the Cornish Mining sites on the World Heritage List. This involved the creation of cultural baseline reports for recent acquisitions by the National Trust and preservation statements for coastal towns.

Most estate management plans rely on non-destructive events such as aerial photography, map-regression, walk-over surveys, and reviews of existing records held in HERs and the National Monuments Record (now the National Record of the Historic Environment, accessed on-line through PastScape (HE 2018c)). The range of coverage is wide: from documents covering estates owned by water companies, National Parks, local authorities, and heritage bodies, such as The National Trust, through to underpinning studies for published plans relating to World Heritage Sites, such as Stonehenge (EH 2000c) and Avebury (EH 1998a), which have recently been combined into a single document covering both estates (Simmonds & Thomas 2015).

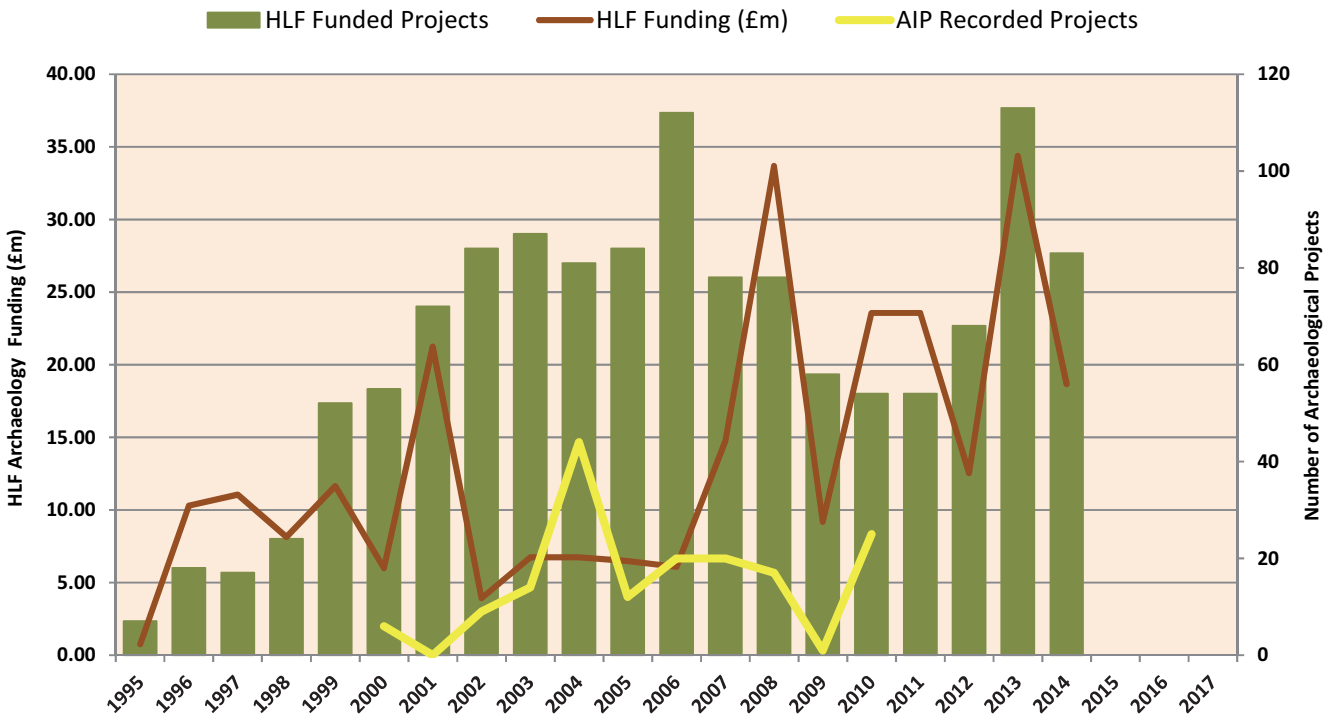

Figure 6.12 Analysis of Heritage Lottery Funding and recorded investigations forming part of Heritage Lottery Funded projects. (Data: Heritage Lottery Fund Annual Reports. AIP Sample = 168 records)

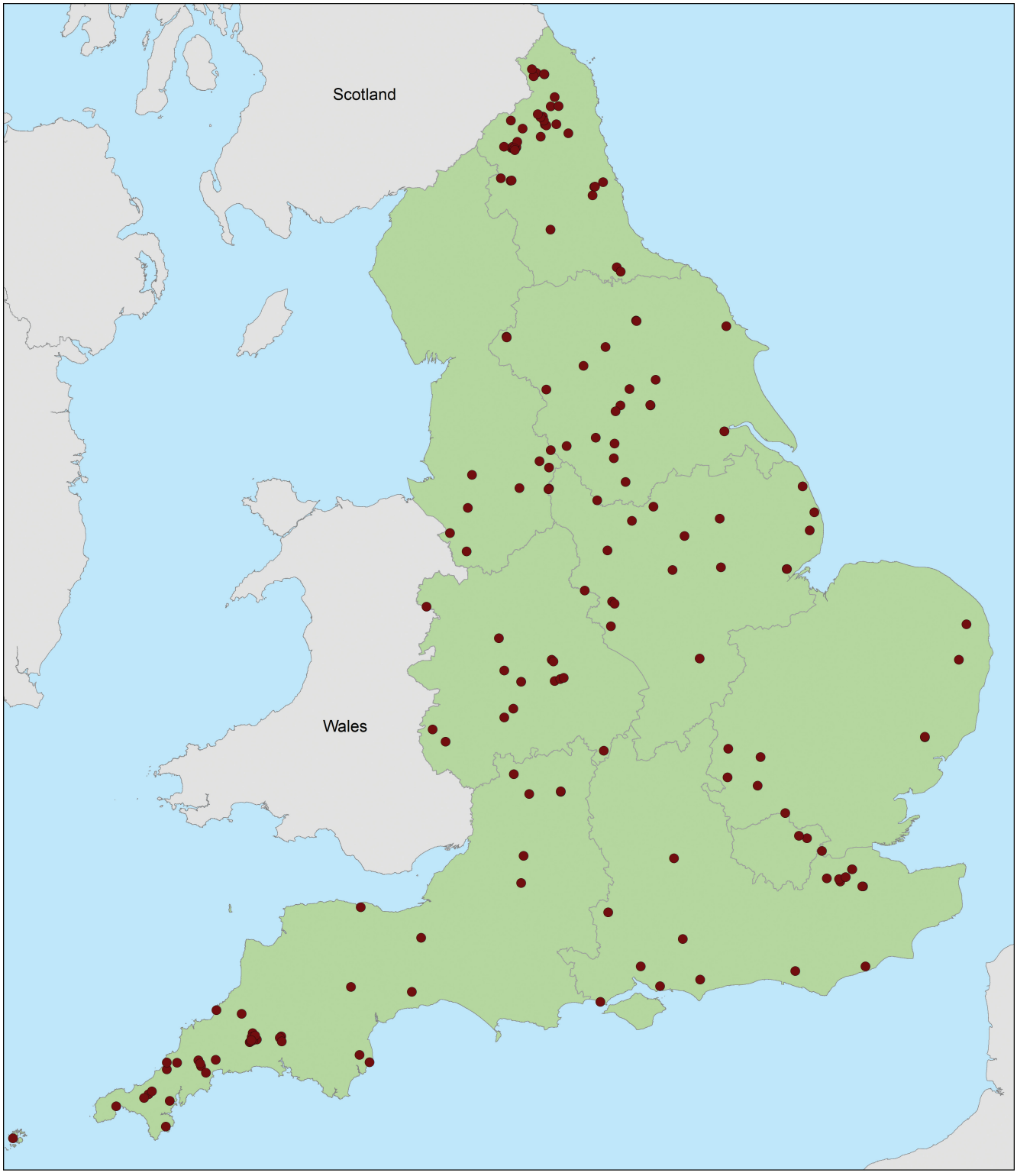

Figure 6.13 Distribution of recorded non planning-related investigations in England forming part of HLF funded projects. Regional boundaries shown. (Data: AIP. Sample = 178 records)

Table 6.2 Number of recorded archaeological investigations supported by HLF awards.

Organisational Type	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
Commercial Unit	2	0	1	9	22	6	6	12	7	0	15	80	44.7
University Unit	3	0	4	2	19	1	13	4	0	0	2	48	26.8
Independent	0	0	1	3	1	2	1	1	1	1	8	19	10.6
Voluntary	1	0	3	0	2	3	0	1	6	0	2	18	10.1
Local Government	2	0	0	0	0	1	0	1	3	0	2	9	5.0
National Body	0	0	0	0	0	0	0	0	0	0	3	3	1.7
University	0	0	0	0	0	0	0	2	0	0	0	2	1.1
Totals	8	0	9	14	44	13	20	21	17	1	32	179	

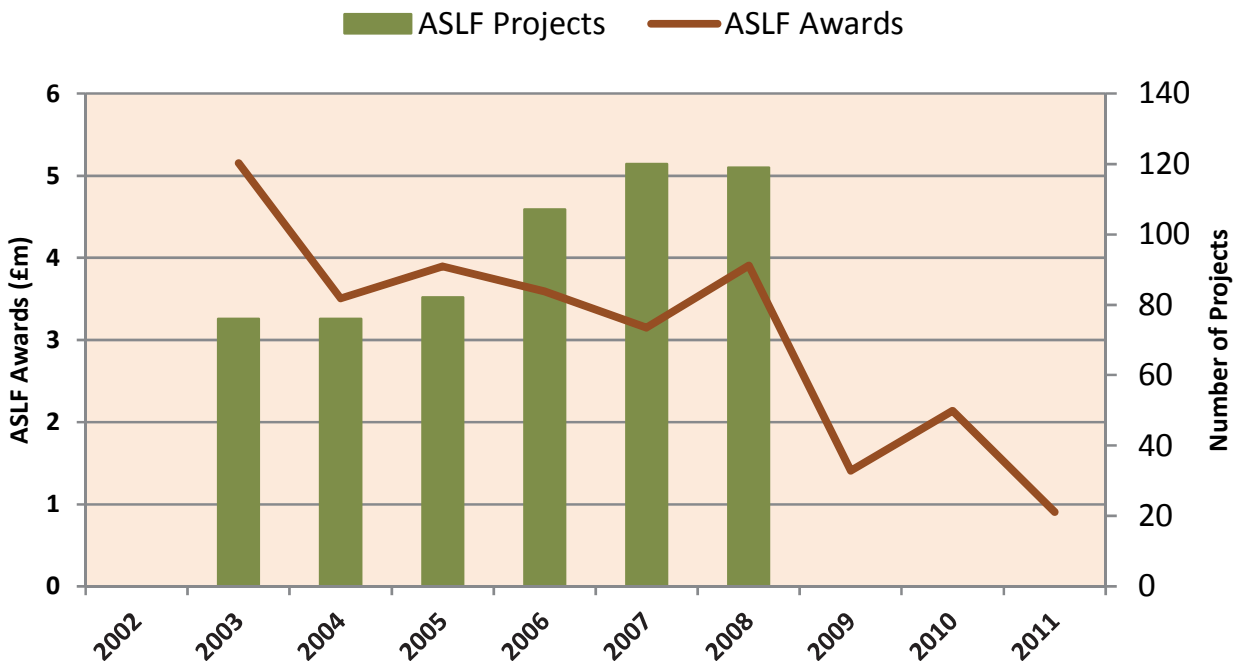

Figure 6.14 Analysis of ALSF funding and recorded investigations funded by ALSF. (Data: English Heritage Annual Reports and Accounts)

Marine and riverine investigations

Most marine and riverine investigations fall outside of the town and country planning system and so were classified as non planning-related for the purposes of the AIP, although many were related to off-shore development in connection with protective designations (*see* Chapter 7). Between 1990 and 2004, marine and riverine investigations were recorded as investigatory events linked to particular land-use conditions, but from 2005 marine investigations were recorded as an investigation type. In all, about 1000 marine and riverine investigations were recorded by the AIP between 1990 and 2010. Figure 6.17 shows the year-on-year trends with peaks in the early 1990s and in the late 2000s, and a significant dip in the level of work undertaken in the period from about 1999 to 2002. Figure 6.18 shows the distribution of maritime and riverine investigations with very clear concentrations of activity along the south coast and the River Thames. Table 6.4 shows the distribution of marine investigations by region with a clear focus in the East, South East and South West. The range of work represented is considerable and includes rapid coast zone assessments, diver assessments of seabed anomalies, seascape surveys, wreck condition surveys, and geophysical surveys of areas of seabed and inter-tidal zone. The location of these studies within the marine environment is also variable (Table 6.5) with strong contributions relating to the inter-tidal zone and investigations in permanently submerged areas below low

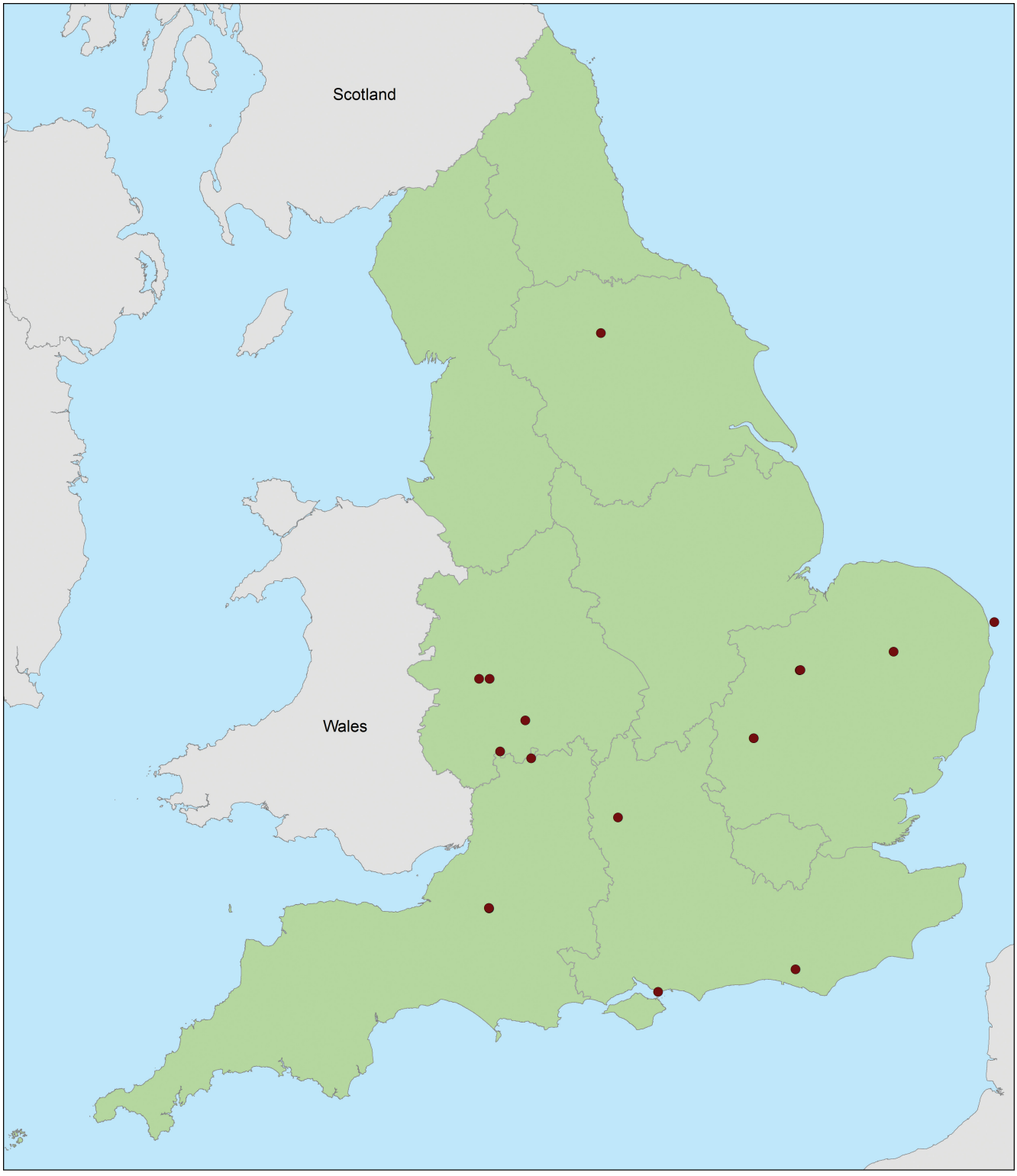

Figure 6.15 Distribution of recorded non planning-related investigations in England forming part of ALSF projects. Regional boundaries shown. (Data: AIP. Sample = 17 records)

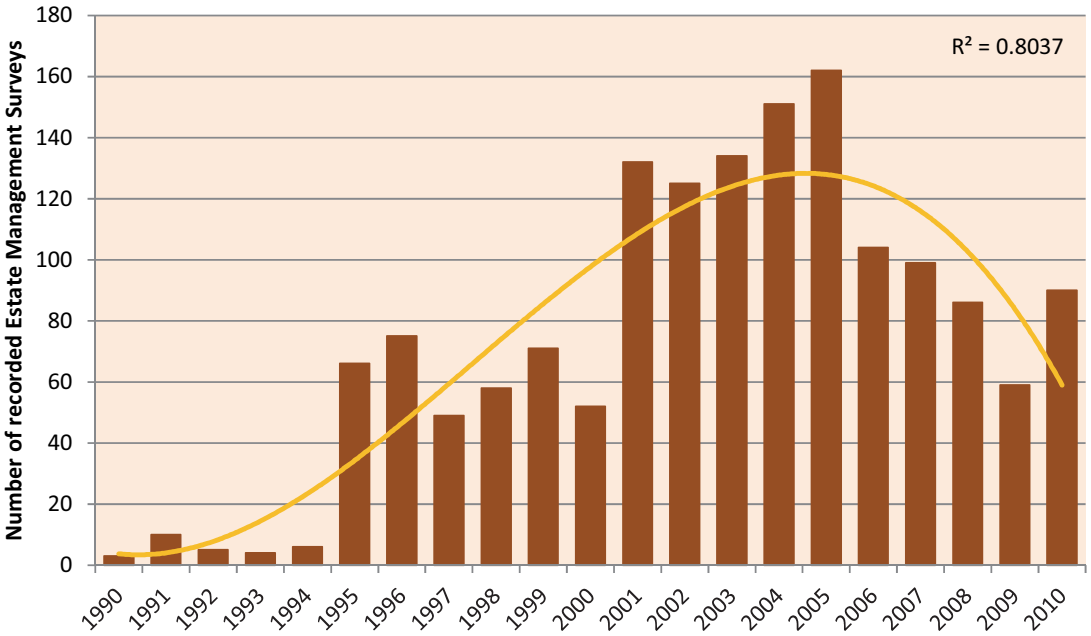

Figure 6.16 Number of recorded estate management plan investigations in England 1990–2010 with three-order polynomial trend-line. (Data: AIP. Sample = 1541 records)

water. Just over 200 contractors were involved in marine investigations during the PPG16 Era; Table 6.6 lists the top-20 contractors based on the number of recorded reports. Between them, these contractors undertook 60 per cent of all recorded maritime investigations.

Treasure and Portable Antiquities Scheme investigations

Two important interconnected initiatives that took place during the PPG16 Era have general implications for the kinds of investigation recorded by the AIP. The first, the Portable Antiquities Scheme (PAS), aims to record archaeological objects found by members of the public in order to advance our understanding of the past (PAS 2011; Worrell *et al.* 2010; Bland 2009). A pilot scheme in six counties in 1997 expanded rapidly, and with funding from the Heritage Lottery Fund, complete coverage of England and Wales through a network of 36 Finds Liaison Officers was achieved in 2003. A freely accessible on-line database was created (https://finds.org.uk/), illustrators and specialist advisors engaged, and links made with museums and other organisations around the country. The milestone of recording half a million objects was reached in March 2010; by the end of 2016 more than 1.1m items have been catalogued in more than 691,000 records. This impressive total now rivals the overall number of sites and monuments records held by HERs that have built up over nearly a century of study and research (Darvill & Fulton 1998: 64–71). The year-on-year recording of finds by the PAS, especially since achieving national coverage in 2003, is impressive (Figure 6.19) and the data has allowed some interesting national-scale modelling (Cooper & Green 2017). Mapped against the level of non planning-related archaeological investigations recorded by the AIP, two trends can be clearly seen – the increase in reported finds and the lack of coincidence between non planning-related investigations and the number of finds reported to PAS.

Parallel to the developing strength of the PAS has been the reporting of Treasure in England and Wales. The law relating to Treasure Trove was revised in 1996 and from 24 September 1997 the reporting of Treasure is subject to the *Treasure Act 1996*, later revised by the *Treasure (Designation) Order 2002* (SI 2002 No.2666). Under this legislation 'Treasure' is fairly broadly defined and includes: objects over 300 years old containing more than 10 per cent by weight of gold and/or silver; prehistoric base-metal objects, where two or more are represented as the same find; prehistoric objects – any part of which is gold or silver; all coins more than 300 years old containing at least 10 per cent gold or silver, where two or more are represented as the same find; all coins at least 300 years old containing less than 10 per cent gold or silver, where ten or more such coins are represented as the same find; any object, of whatever composition, found in the same place or together with an object that is treasure; any objects that would have been Treasure Trove under the pre-1996 common law principles (DCMS

Table 6.3 Number of recorded estate management plans by region 1990–2010.

Region	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
East Midlands	1	3	1	0	1	27	10	20	11	28	33	46	38	29	9	12	14	3	6	1	3	296	19.2
Eastern Region	0	1	0	0	0	0	0	1	2	1	1	25	4	2	5	10	8	8	5	4	2	79	5.1
Greater London	0	0	0	0	0	0	0	1	0	0	0	1	1	0	1	2	3	0	1	0	0	10	0.6
North East	0	0	0	3	0	1	1	1	0	0	1	1	6	4	25	18	7	5	7	3	6	89	5.8
North West	1	1	1	1	0	3	1	2	5	4	3	11	8	9	7	12	9	8	6	4	8	104	6.7
South East	1	0	1	0	4	9	12	6	5	10	2	11	7	10	22	29	22	16	15	17	11	210	13.6
South West	0	0	1	0	0	18	15	18	31	16	8	25	32	38	57	44	28	29	19	11	45	435	28.2
West Midlands	0	3	0	0	0	3	4	0	1	1	3	3	26	25	11	12	10	12	18	9	4	145	9.4
Yorkshire & Humberside	0	2	1	0	1	5	32	0	3	11	1	10	3	19	14	23	3	17	9	10	11	175	11.3
Totals	3	10	5	4	6	66	75	49	58	71	52	133	125	136	151	162	104	98	86	59	90	1543	

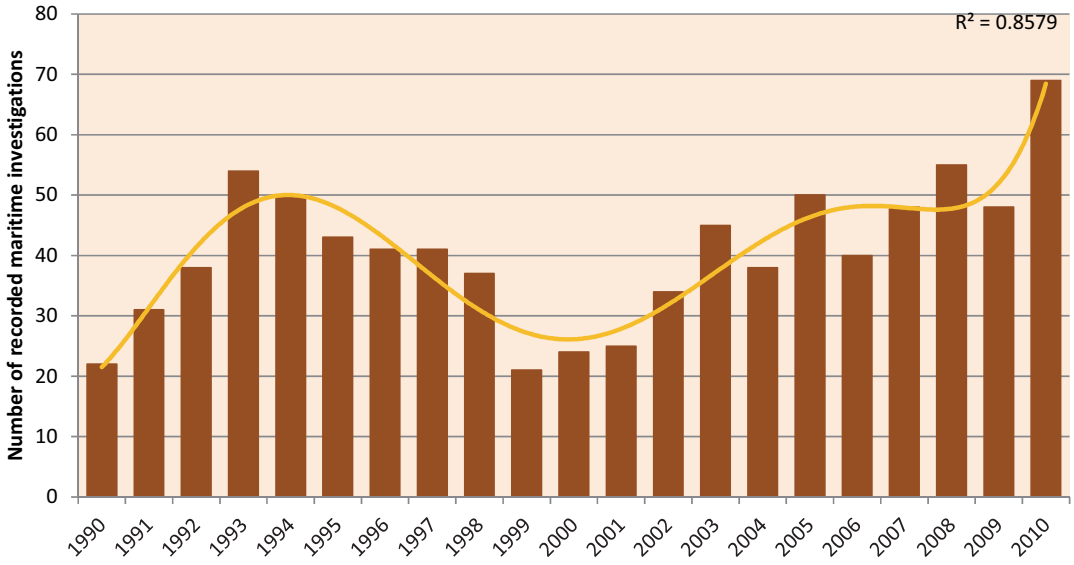

Figure 6.17 Number of recorded maritime investigations in England 1990–2010 with six-order polynomial trend-line. (Data: AIP. Sample = 854 records)

2002: 7–9). Between 1997 and 2010 some 6589 Treasure Cases were recorded by coroners across England and Wales. Since that time, the pattern saw slight increases year on year from 2011 to 2015, with a sharp increase in 2016. (Figure 6.20). Most such declarations are easily dealt with as stray finds. Some, however, arise through the process of archaeological investigation; in 2010 this amounted to 29 cases – 3.37 per cent of the total for the year (DPAT 2012: Tab. D). Examples from the PPG16 Era include Lockington (Leicestershire) and Bath (North East Somerset). At Lockington, two gold armlets dated to about 2000 BC were found in a pit adjacent to a round barrow being excavated by the Birmingham University Field Archaeology Unit in 1994, ahead of the construction of the A564(T) Derby Southern Bypass (Hughes 2000). At Bath a hoard of 17,577 coins from the period 32 BC to AD 274 was found in November 2007 by a team from Cotswold Archaeology while excavating in advance of the construction of the new Gainsborough Hotel in Beau Street (Ghey 2013).

Archaeological investigations of various sorts may also be triggered by the declaration process. Sometimes this relates to the need for evidence to be used during the Treasure Inquest (DCMS 2002: 34–37) or to follow up the significance and interest of the find. Such work was not separately identified within the AIP recording of investigatory events, but three cases illustrate broader traditions. The Staffordshire Hoard is a collection of more than 3940 pieces of metalwork, mostly gold and silver alloy, representing a selection of martial battle goods of the late sixth through to early eighth century AD found by metal detectorist Terry Herbert on arable land adjacent to the A5 (here following the Roman Watling Street) at Ogley, Staffordshire, in July 2009 (Dean *et al.* 2010; Westcott 2010). In order to provide an archaeological context for the collection, Birmingham Archaeology co-ordinated a series of targeted test-pits over the known findspot, an open area excavation totalling 152 square metres, systematic metal detector surveys, geophysical surveys (resistivity and magnetometry), and six linear evaluation trenches. Archaeological features were found, but none seemed to provide a secure context for the deposition and preservation of the metalwork.

Smaller in scale, the Winchester Hoard is an unusual collection comprising two gold necklace torcs, two pairs of gold brooches, a gold chain linking two of the brooches, and a pair of gold bracelets dated to the first century BC, found by metal detectorist Kevan Halls in September 2000 near Winchester, Hampshire (Anon 2001; Hill *et al.* 2004). Subsequent fieldwork by the British Museum and Winchester Museums Service included systematic metal-detector surveys, field surveys, and a small-scale excavation. No features or additional contemporary finds were revealed to provide a wider context.

Different again is the case of the Ringlemere Cup, a rare early Bronze Age gold object found by metal-detectorist Cliff Bradshaw at Ringlemere Farm, near Woodnesborough, Kent, in 2001. Fieldwork including geophysical surveys and excavations showed that the cup had come from within a late Neolithic Class I henge monument that had subsequently been covered by a round barrow, one of a series of at least ten monuments overlooking the headwaters of the Durlock Stream (Needham *et al.* 2006).

Treasure finds are by definition later prehistoric, Roman, medieval, post-medieval, or later in date, but the PAS records finds of all periods. Table 6.7 provides a summary

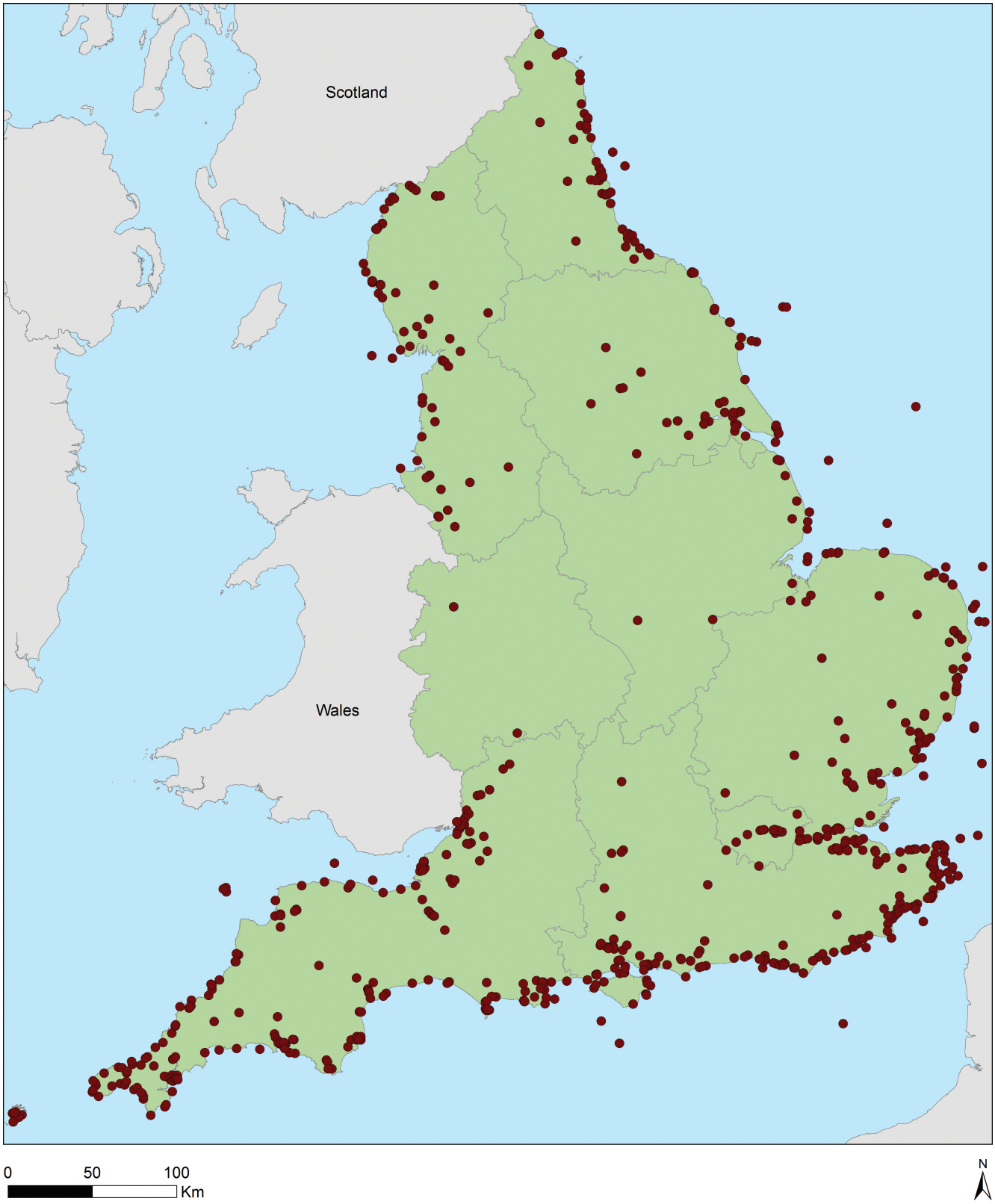

Figure 6.18 Distribution of recorded maritime and riverine investigations in England. Regional boundaries shown. (Data: AIP. Sample = 962 records)

Table 6.4 Number of recorded marine investigations by region 1990–2010.

Region	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
East Midlands	0	0	1	2	1	6	1	2	4	4	0	2	0	3	1	0	11	5	6	0	2	51	6.5
Eastern Region	2	2	2	0	0	0	4	2	6	4	0	3	3	8	1	1	11	9	10	7	8	83	10.6
Greater London	0	0	0	2	4	1	0	6	2	1	1	1	0	2	2	3	2	5	2	5	2	41	5.2
North East	0	0	0	0	0	1	1	6	2	3	1	0	4	2	1	2	3	2	8	9	6	51	6.5
North West	0	0	0	0	0	4	5	7	5	4	0	0	2	6	3	1	4	9	5	7	9	71	9.1
South East	0	0	2	4	1	9	2	13	11	12	0	8	5	10	6	28	9	15	16	12	16	179	22.9
South West	2	5	0	3	3	19	13	11	7	2	5	29	9	3	13	2	14	16	12	18	11	197	25.2
West Midlands	0	0	2	0	0	5	3	0	1	2	0	0	0	1	0	1	3	6	3	2	0	29	3.7
Yorkshire & Humberside	0	0	0	1	0	4	7	5	0	6	2	2	18	0	2	4	7	6	7	3	7	81	10.3
Totals	4	7	7	12	9	49	36	52	38	38	9	45	41	35	29	42	64	73	69	63	61	783	

Table 6.5 Analysis of the location of recorded investigations within the marine environment.

Marine environment type	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals	%
Coastland 6 - Other	19	23	32	45	45	10	10	9	8	6	7	6	18	15	9	11	5	10	8	9	6	311	36.4
Coastland 1 - Marine	0	2	2	2	2	7	7	8	7	3	3	5	5	10	13	15	17	16	17	15	35	191	22.4
Coastland 2 - Inter-tidal	3	5	2	4	3	8	9	16	10	5	5	6	3	5	3	12	9	7	10	12	12	149	17.4
Coastland 5 - Cliff and related feature	0	0	1	0	0	13	10	6	4	4	5	5	5	5	4	6	5	3	7	3	4	90	10.5
Coastland 3 - Above high water	0	1	1	2	0	4	4	1	7	3	4	2	2	2	3	6	1	6	4	2	8	63	7.4
Coastland 4 - Saltmarsh	0	0	0	1	0	1	1	1	1	0	0	1	1	8	6	0	3	6	9	7	4	50	5.9
Totals	22	31	38	54	50	43	41	41	37	21	24	25	34	45	38	50	40	48	55	48	69	854	

Table 6.6 Top-20 contractors working on marine investigations based on the number of recorded reports.

Consultant/Contractor	Totals
Wessex Archaeology/Trust for Wessex Archaeology	162
Cornwall County Council	77
Exeter Archaeology/Exeter Museums Archaeology Field Unit	45
Archaeology South-East/South Eastern Archaeological Services, University College London	40
Oxford Archaeology North/Lancaster University Archaeological Unit	23
Suffolk Archaeological Unit/Suffolk County Council	21
Canterbury Archaeological Trust	17
RPS Clouston/Consultants/Planning, Transport and Environment	16
Humber Field Archaeology/Humberside Archaeology Unit	15
Essex County Council/Field Archaeology Unit	15
RCHME	13
AC Archaeology	12
Archaeological Services/The Archaeological Practice, Durham University	12
NAU Archaeology/Norfolk Archaeological Unit	12
Oxford Archaeology/Oxford Archaeological Unit	12
English Heritage	11
Museum of London Archaeological Service	11
University of Edinburgh	11
Maritime Archaeology Ltd/Hampshire & Wight Trust for Maritime Archaeology	11
Trust for Thanet Archaeology	10

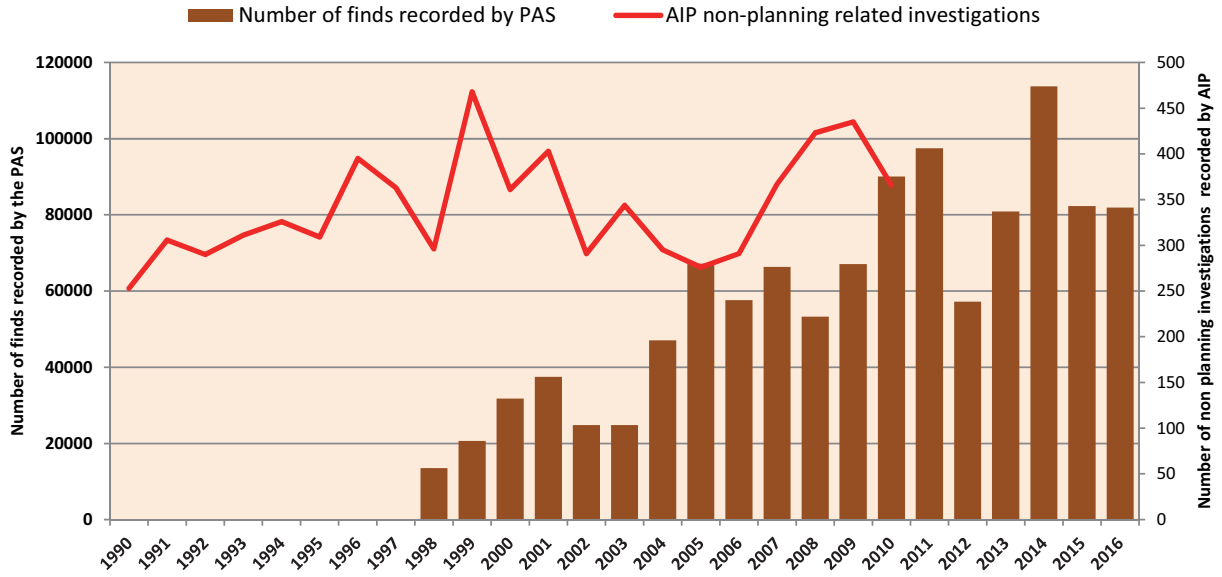

Figure 6.19 Comparison of finds reported to the Portable Antiquities Scheme 1998–2016 in relation to the number of recorded non planning-related archaeological investigations 1990–2010. (Data: PAS annual reports and AIP. PAS Finds: Sample = 1,115,351; AIP: Sample = 7169 records)

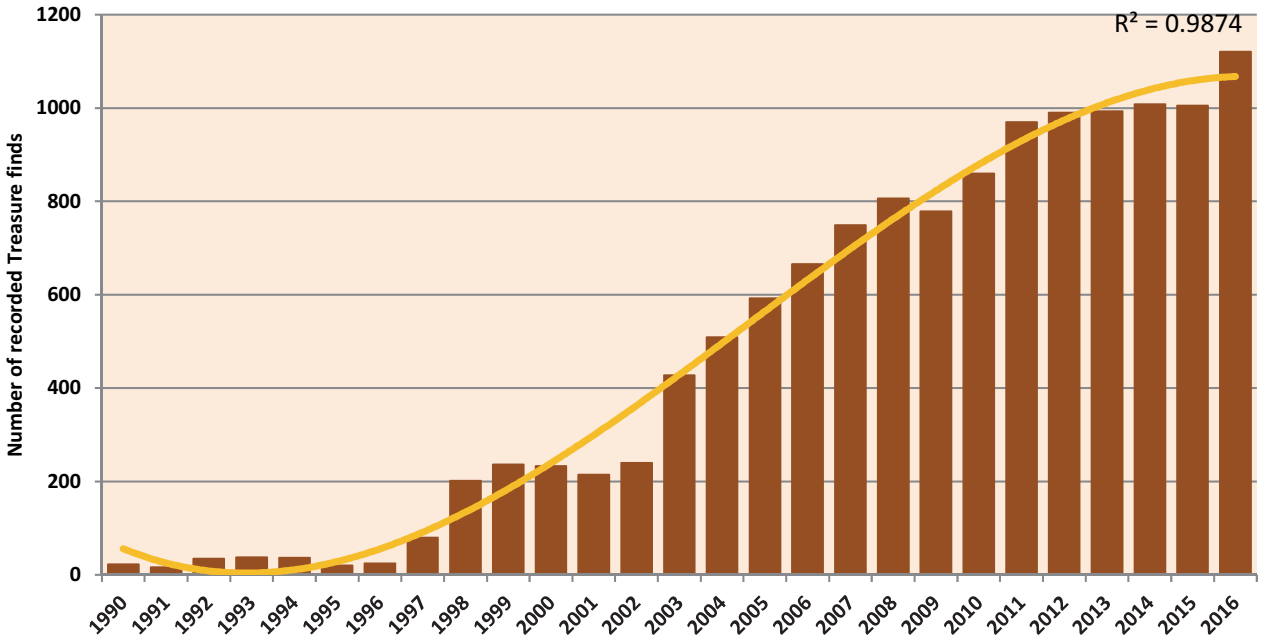

Figure 6.20 Number of Treasure Cases in England 1990–2016. (Data: Treasure Act Annual Reports. Sample = 12,864 cases)

Table 6.7 Period representation in non planning-related investigations compared with finds recorded by the Portable Antiquities Scheme and monuments recorded during the MARS project. (MARS data from Darvill & Fulton 1998: 93; PAS data from PAS 2011: 26)

Period	MARS Monuments	PAS Finds 2009-10	AIP Non planning-related investigations
Prehistoric	12%	11%	15%
Roman	7%	52%	11%
Early medieval	1%	4%	3%
Medieval	21%	19%	18%
Post medieval	34%	14%	27%
Modern	3%	0%	6%
Unknown	22%		20%

analysis of the periods represented in non planning-related investigations recorded by AIP, the finds recorded by the PAS, and the range of monuments recorded in HERs. The main difference is the high level of Roman finds reported to the PAS, something not wholly unexpected given the ease with which Roman metalwork especially is recognised, and the level of Roman identifications in non planning-related investigations. Comparison with Table 3.16 is instructive, as here the incidence of Roman finds in field evaluations is comparable at about 12 per cent of recorded cases, suggesting that amongst non planning-related investigations the Roman period is not selectively privileged.

Chapter 7

Investigations in protected places

During the PPG16 Era investigations took place at heritage assets across England that were variously protected through being subject to, or included within, a wide range of site-specific and area-based designations. These variously placed controls on works, encouraged conservation and management, or promoted environmental enhancement and public access. The rich palette of designations and measures for heritage protection developed piecemeal through the twentieth century and came to represent one of the pillars of archaeological resource management (*see* Chapter 1). But the multiplication of measures created a complicated and confusing system and through the second half of the PPG16 Era there was widespread recognition that the system needed to be simplified, and a great deal of discussion and debate took place about exactly how this should be achieved.

A review of policies relating to the historic environment was initiated in 1999 as a 'once in a generation opportunity to create an entirely new, integrated approach to managing our historic surrounds for the next century' (EH 2000a: 4). That work led to the production of the highly influential report entitled *Power of Place: the future of the historic environment* (EH 2000b) which included a series of 18 recommendations that essentially broadened the way the historic environment was understood, valued, cared for, and enjoyed. The Government responded with an equally forceful paper (DCMS 2001) that gave a commitment to review legislation on heritage protection. Accordingly, a public consultation was launched in July 2003 (DCMS 2003), focused on what was most valued in the historic environment, and reported the following year outlining a way forward that involved streamlining heritage protection by consolidating designations (DCMS 2004). Following further discussions and the evaluation of results from a series of pilot projects, the Government responded in October 2006 (DCMS 2006) by accepting the need for change and endorsing the main principles and recommendations of the earlier studies. A useful summary of three years of consultation and testing is provided in the Summer 2006 issue of the *Conservation Bulletin* (Beacham 2006) while Rachael McMillan later updated the story through into 2008 (McMillan 2008).

In March 2007 a White Paper, *Heritage Protection for the 21st Century*, was published (DCMS 2007) setting out a challenging agenda for a simpler and potentially more efficient approach based on a single national designation system to be known as the Register of Historic Assets. Following further discussion and consultation the government published a draft *Heritage Protection Bill* in April 2008 (HMG 2008); the key changes to the heritage protection system included:

- Creating a single list of designated sites.
- Making available details of all designated sites online.
- Introducing a clear separation of roles between English Heritage and government.
- Requiring English Heritage to consult owners when a site is being considered for designation and creating a new right of appeal to the Secretary of State for Culture, Media and Sport against decisions.
- Introducing interim legal protection for historic places being considered for designation to prevent demolition or damage.
- Giving local authorities powers to grant all new Historic Asset Consents, abolishing the role of central government in granting Scheduled Monument Consent.
- Giving powers for the creation of Heritage Partnership Agreements between owners, councils and English Heritage for large or complex sites thereby cutting the need for repetitive consent applications.
- Creating a single Historic Asset Consent to replace existing separate forms of consent. Conservation Area Consent would be merged with planning permission.

The Bill was included in the Government's draft legislative programme for 2008–09, but new legislation relating to the turbulent financial situation took priority and the Bill was not included in the Queen's Speech on 3 December 2008 and was never brought before parliament, much to the disappointment of the profession (Beacham 2008). The Government published a general holding statement on the historic environment in England in March 2010 reaffirming its commitment to 'understanding, conserving, and where appropriate, enhancing the markers of our past' (HMG 2010: 1) but giving little hope of changes to primary legislation in the foreseeable future. In April 2011 English Heritage brought together a single consolidated listing of all heritage assets subject to heritage designations as the National Heritage List for England (NHLE), which is available on-line as a web-based resource (McMillan 2011). Soon after, in May 2011, the *National Heritage Protection Plan* (EH 2011) was launched by a consortium of archaeological bodies led by English Heritage. This plan, covering the period 2011–15, was conceived as the 'business plan for the historic environment' and was a means of delivering some of the ideas contained in the draft *Heritage Protection Bill*. The plan was divided into eight measures to help integrate research and practical management and conservation, each with a number of prioritised activities. Periodic reviews of progress mapped achievements against ambitions and much was achieved. Overall, the Plan was widely felt to be overly complicated and at the end of its currency in 2015 it was replaced by *Heritage 2020,* constructed under the auspices of the Heritage Environment Forum (HEF 2014).

Alongside these reviews of the designations themselves there was considerable interest in the question of what level of 'risk' various key groups of the designated assets faced. Broadly defined, 'risk' was considered to be the probability of particular hazards having a detrimental effect in relation to the impact of such effects (Darvill & Fulton 1998: 216). The first study to be launched, in 1989, was the Buildings at Risk Survey which developed a novel methodology and tested it across the county (Embree 1995). As a result, a register of Listed Buildings at risk in London was published in 1991 (EH 1991c), and the first national register and accompanying strategy appeared in 1998 (EH 1998b; 1998c). This found that around 3.8 per cent of England's highest-graded (I and II*) Listed Buildings were considered at risk (EH 1998b: ii). Side by side with these developments a national survey of all surviving archaeological sites recorded on local SMRs at the census date of 1995 was commissioned by English Heritage. The Monuments at Risk Survey (MARS) found that 2 per cent of surviving monuments were at 'high' risk and a further 28 per cent were at 'medium' risk (Darvill & Fulton 1998: 216–29). Surprisingly, 3 per cent of Scheduled Monuments were recorded as being at 'high' risk, slightly higher than the overall average (Darvill & Fulton 1998: 228). Between 2001 and 2007 regional studies of Scheduled Monuments at risk were undertaken by English Heritage and the results published as nine separate reports (EH 2008c) that broadly confirm the MARS results but add detail to the picture at a local level.

Comparable studies were initiated in relation to other protected assets, and in July 2008 all the available data on 'at risk' sites and monuments was brought together as a single unified register and a quantified overview (EH 2008d; 2008e). Since then, annual heritage at risk registers have been published and their content used to target resources and encourage conservation initiatives. Slight changes to the way risk is defined and measured have occurred over the years, but as Figure 7.1 shows, the general trend in the proportion of all designated heritage assets at risk is downwards.

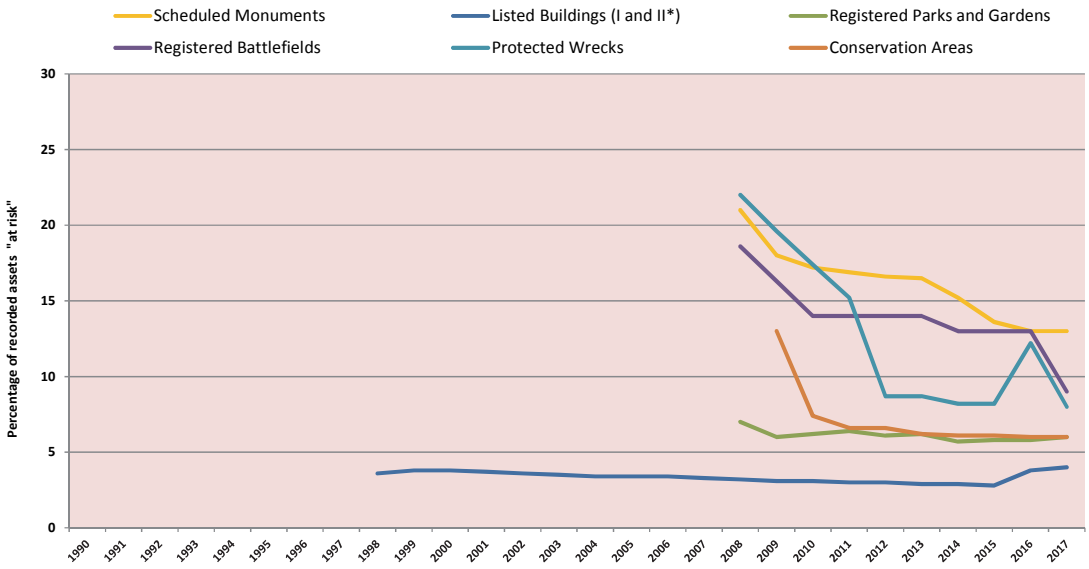

Figure 7.1 Long-term trends in the recorded patterns of designated heritage assets at risk 1990–2015. (Data: Darvill & Fulton 1998; EH 1998b; 2008e; Heritage Counts 2008–17)

Table 7.1 Number of investigations recorded by AIP between 1990 and 2010 within the main kinds of heritage-related Designated Areas.

Designated area type	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals
Area of Archaeological Importance (AAI)	0	0	0	2	0	77	66	22	31	22	8	6	22	4	41	32	32	52	51	70	46	584
Area of Outstanding Natural Beauty (AONB)	0	1	0	1	2	10	7	2	8	19	8	7	0	4	3	4	7	21	10	34	29	177
Conservation Area	0	0	0	0	0	39	35	55	52	58	60	79	31	40	72	88	93	129	98	126	126	1181
Environmentally Sensitive Area (ESA)	0	0	0	0	0	6	3	0	4	2	0	0	0	0	0	0	3	1	3	1	8	31
Heritage Coast	0	0	0	0	0	2	3	0	2	1	0	0	0	0	1	1	1	2	0	2	1	16
Local Authority Designated Archaeological Area	0	0	1	1	0	106	109	219	165	136	198	189	36	106	42	21	18	41	44	80	73	1585
National Park	0	0	0	0	0	19	55	41	32	32	8	49	47	37	14	22	17	23	26	32	23	477
National Trust Land	0	0	0	0	0	35	17	11	27	7	25	5	13	33	11	17	12	17	103	55	72	460
World Heritage Site	0	0	0	0	0	27	20	26	19	10	14	13	11	39	15	40	30	21	33	57	28	403
Totals	0	1	1	4	2	321	315	376	340	287	321	348	160	263	199	225	213	307	368	457	406	4914

Thus, while heritage designation was under the spotlight during much of the PPG16 Era, and much discussed in briefing documents and policy papers, the basic building blocks of the system in terms of the statutorily defined categories of protected places remained fairly constant throughout, and still provide the foundations for heritage protection today. In the following sections a selection of the main protective measures relevant to the historic environment are briefly described in relation to the pattern of recorded investigations under two main headings: protected areas, and protected sites. AIP systematically recorded information on 32 recognised area and site designations where these were mentioned in the reports used as the basis for creating the AIP records. Additional, mainly local, designations were noted where they were mentioned in the reports examined. Some recorded investigations may relate to more than one designation as these are not mutually exclusive, and in many cases overlap at various levels. Equally, it is likely that in some cases authors were unaware of designations or failed to mention them in their reports. It is also noteworthy that interest in recording designations within investigation reports seems to grow through the PPG16 Era with relatively few reports from the period 1990–95 routinely including this information. It is a pattern that needs to be kept in mind when reviewing some of the tables and graphs presented in the following sections.

Protected areas

These designations refer to substantial tracts of land, variously urban and/or rural, which often share general characteristics based in their landscape/landform, built environment, historic environment, and shared characteristics. Typically, they embrace a number of individual sites and monuments, and are usually in multiple ownership. Table 7.1 provides a breakdown of the number of recorded investigations within each of nine main classes of protected area for which data was collected. A total of 4914 investigations were recorded as having taken place within these protected areas, about 6 per cent of all recorded investigations. But the percentages are higher for some investigation types and lower for others. About 9 per cent of desk-based assessments, for example, were recorded as being within one or more designated area (Figure 7.2A). Of these the majority were within Conservation Areas or local authority designated areas, although 8 per cent included areas of World Heritage Site (Figure 7.2B). By contrast, just 5 per cent of recorded field evaluations were reported to lie within one or more designated areas (Figure 7.3A), again with the majority in Conservation Areas and local authority designated areas most common, and again 5 per cent of recorded cases being within World Heritage Sites (Figure 7.3B).

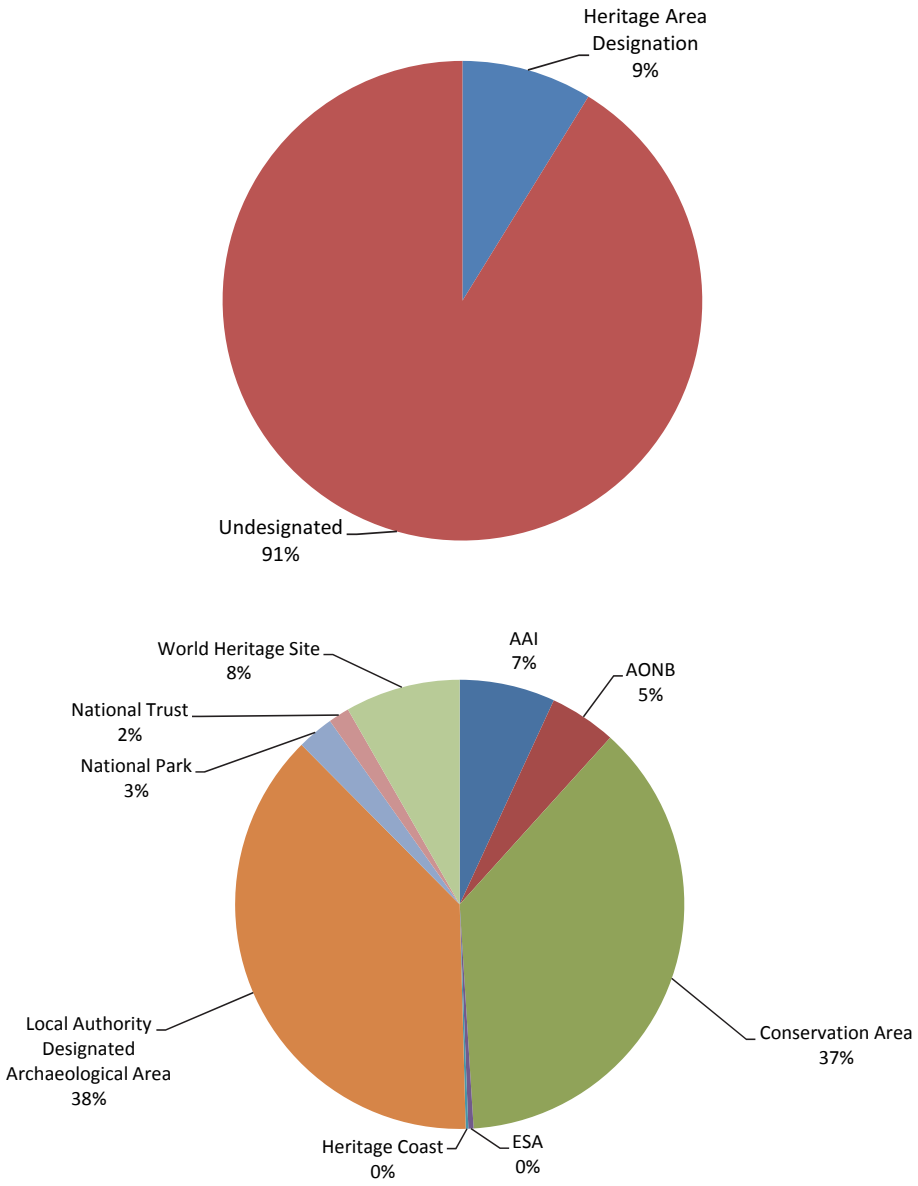

Figure 7.2 Desk-based assessments at area-based designations. ***A.*** *Investigations in designated and undesignated areas.* ***B.*** *Analysis of investigations in relation to the main kinds of area-based designations. (Data: AIP. Sample = 11,996 records)*

Areas of Archaeological Importance

These were established by Part II of the *Ancient Monuments and Archaeological Act 1979*, although only five were ever designated: the historic city centres of Canterbury, Chester, Exeter, Hereford, and York. Designation has the general effect of helping to prevent archaeological deposits being damaged or destroyed without prior investigation and recording. The regime applies to all works that disturb the ground therefore allowing investigation of sites threatened by utility services, such as water and gas pipes, which otherwise do not need planning permission. In general, however, planning powers provide a more comprehensive response to proposed development within these historic towns and there are no plans to create additional AAIs. Nearly 600 investigations were recorded within AAIs, most of them from the late 1990s and late 2000s (Figure 7.4).

Areas of Outstanding Natural Beauty

First established under Sections 86–87 of the *National Parks and Access to the Countryside Act 1949,* amended in the *Environment Act 1995*, and later expanded by Part IV of the *Countryside and Rights of Way Act 2000* which clarifies the procedure and purpose of designating AONBs. The primary purpose of the AONB designation is to conserve and enhance 'natural beauty'. By statute this includes wildlife, physiographic features, and cultural heritage as

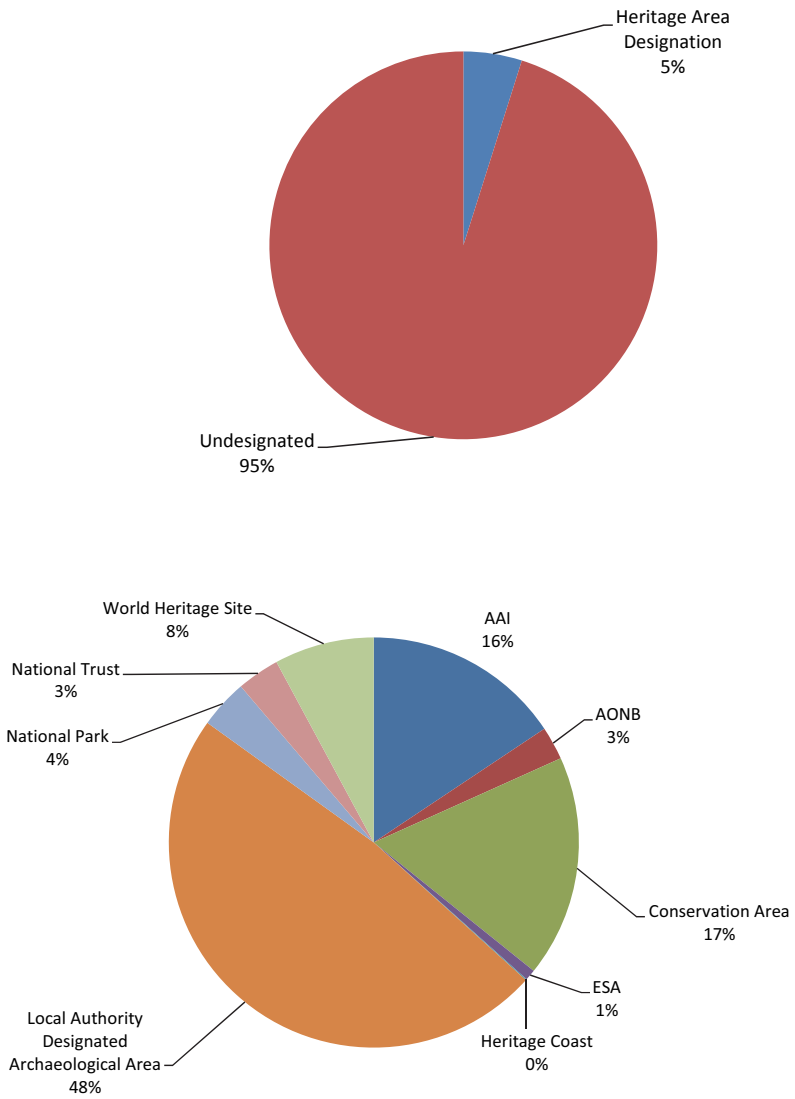

*Figure 7.3 Field evaluations at area-based designations. **A**. Investigations in designated and undesignated areas. **B**. Analysis of investigations in relation to the main kinds of area-based designations. (Data: AIP. Sample = 22,786 records)*

well as the more conventional concepts of landscape and scenery (NE 2008: 17–19). Account is taken of the need to safeguard agriculture, forestry, rural industries, and the economic and social needs of local communities. For the most part these designated landscapes comprise privately owned open country that is scenically attractive (CC 1990a; 1990b).

The first AONBs were designated in 1956 with 34 in place by 1990. Three were added during the PPG16 Era (Blackdown Hills; Nidderdale; and the Tamar Valley) creating a total of 37 AONBs totalling 19,772 ha wholly or partly within England (one, the Wye Valley, straddles the border between England and Wales) by 2010. Collectively they cover about 15.2 per cent of England's land area. Since 2010 the number of AONBs has remained steady, although some have been subject to boundary reviews. Around 170 investigations were recorded within AONBs during the PPG16 Era, unevenly distributed with peaks in 1995, 1999, 2007, and 2009 (Figure 7.5).

Conservation Areas

Established under Part I of the *Civic Amenities Act 1967* and expanded by Part II of the *Planning (Listed Buildings and Conservation Areas) Act 1990*, these are areas of special architectural or historic interest, the character or appearance of which it is deemed desirable to preserve or enhance. They are discussed from a number of different perspectives looking backwards and forwards in an issue of *Conservation Bulletin* celebrating the fortieth anniversary of the designation (Davies 2009) and again in 2017 to celebrate the fiftieth anniversary, by which time over 10,000 had been designated in England with 12.5 percent

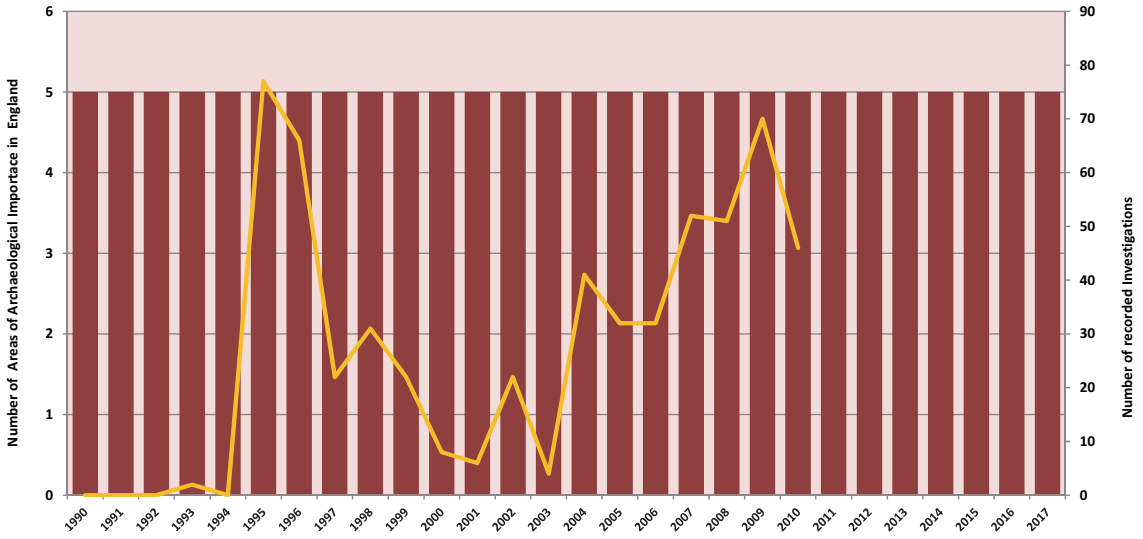

Figure 7.4 Number of Areas of Archaeological Importance 1990–2017 (left axis) in relation to the number of investigations in these areas recorded by AIP (right axis). (Data: Heritage Monitor 1990–2002 and Heritage Counts 2003–17 for baseline data. AIP for investigation data. Sample = 584 records)

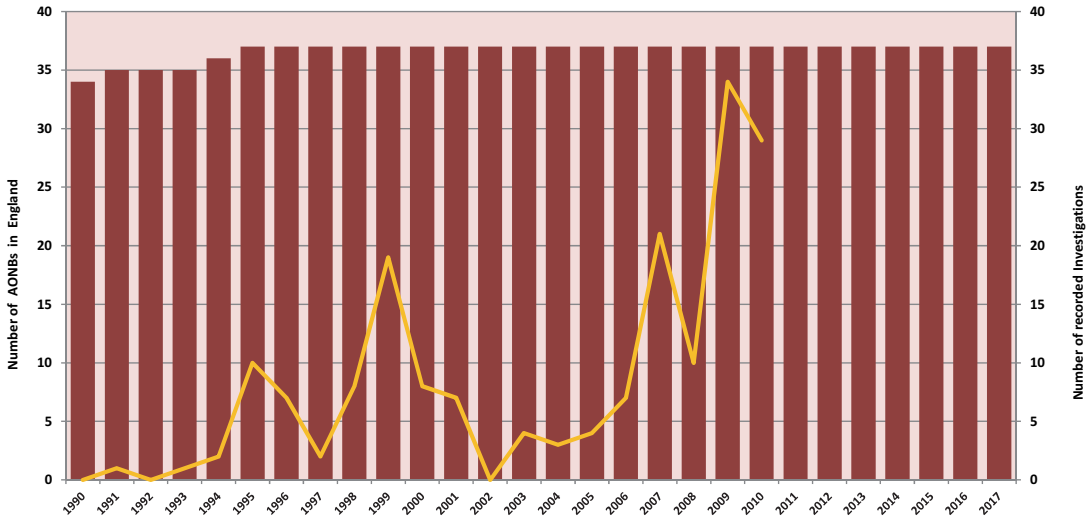

Figure 7.5 Number of Areas of Outstanding Natural Beauty in England 1990–2017 (left axis) in relation to the number of investigations in these areas recorded by AIP (right axis). (Data: CC 1990b and NE 2008 for baseline data. AIP for investigation data. Sample = 177 records)

of the population living within a Conservation Area (HE 2017b).

Conservation Areas are created by local planning authorities, mainly in villages, towns, and cities. Just four Conservation Areas were defined in 1967 but, with growing public interest and widespread support for this designation, by the start of the PPG16 Era there were 6300 across England (Pearce *et al.* 1990; Smith 2009). The number rose steadily over the following two decades to about 9800 in 2010. In excess of 1100 investigations were recorded as having taken place within Conservation Areas through the PPG16 Era (Figure 7.6) with little obvious relationship between growth in the number of designated areas and the number of investigations undertaken. The lack of recorded examples between 1990 and 1994 is more likely to be because report authors did not mention the association than because no work took place in these places.

Environmentally Sensitive Areas

This designation was introduced by Section 18 of the *Agriculture Act 1986* and implemented in 1987 to help safeguard areas where the landscape, wildlife, or historic interest was considered to be of national importance.

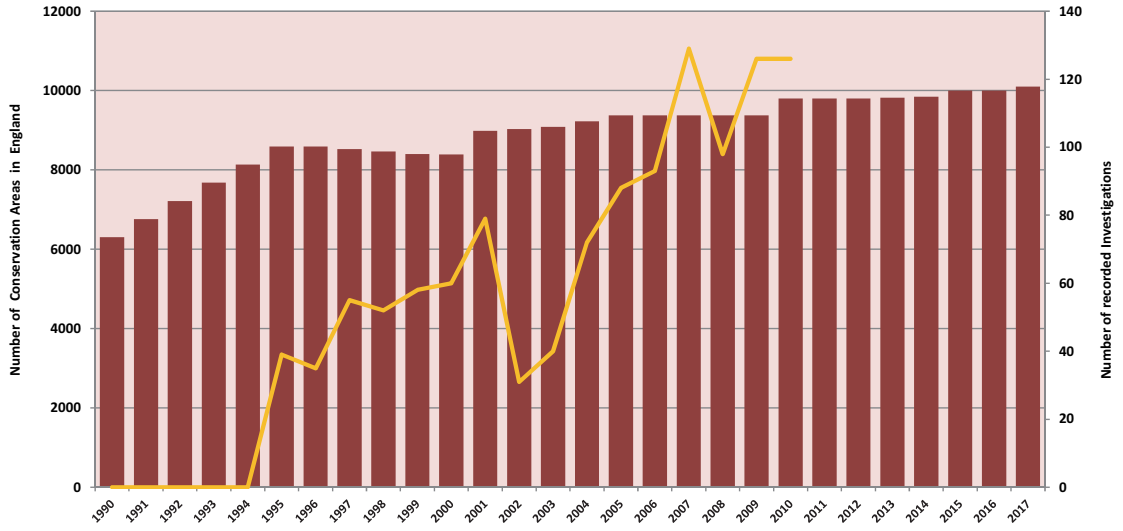

Figure 7.6 Number of Conservation Areas in England 1990–2017 (left axis) in relation to the number of investigations in these areas recorded by AIP (right axis). (Data: Heritage Monitor 1990–2002 and Heritage Counts 2003–10 for baseline data. AIP for investigation data. Sample = 1181 records)

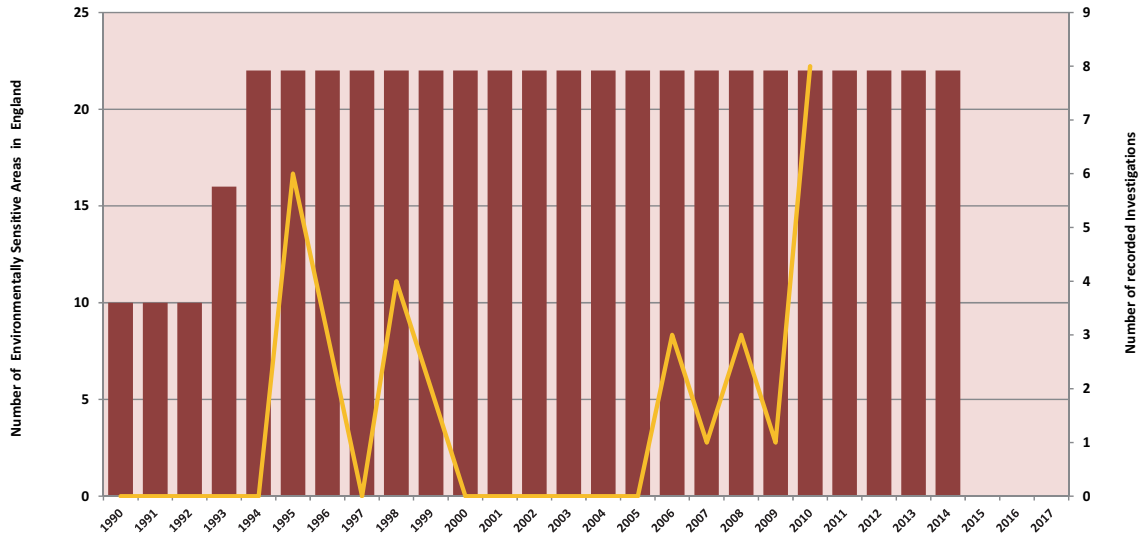

Figure 7.7 Number of Environmentally Sensitive Areas in England 1990–2017 (left axis) in relation to the number of investigations in these areas recorded by AIP (right axis). (Data: McCrone 1999 with additions for baseline data. AIP for investigation data. Sample = 31 records)

Farmers within designated ESAs voluntarily entered into 10-year contracts with the government in return for annual payments for land that was part of the scheme, and were expected to adopt environmentally friendly agricultural practices (MAFF 1989). ESAs had no planning status and therefore could not be used as a reason for refusing planning applications. In 2005 the scheme was superseded by the more broadly-based Environmental Stewardship, and was closed to new entrants; existing agreements remained active until they expired, the last coming to an end in 2014.

In 1990 there were 10 ESAs widely scattered across England, a number that increased to 16 in 1993 and to 22 in 1994 since when it remained steady through the rest of the PPG16 Era (McCrone 1999). Only 31 investigations within ESAs were recorded by the AIP (Figure 7.7), with none recorded from 2001 to 2004, and a peak in the final year of the project.

Heritage Coasts

The idea of Heritage Coasts was put forward by the Countryside Commission in 1970 and endorsed by the Department of the Environment in 1972 (DoE 1972) who encouraged local authorities with undeveloped coastline

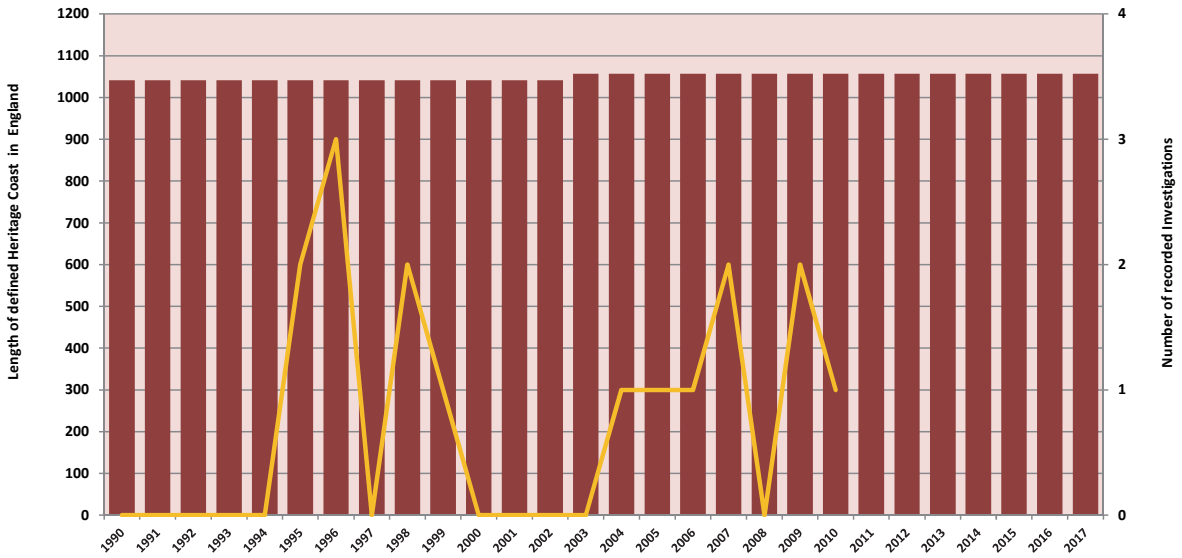

Figure 7.8 Length of defined Heritage Coast in England 1990–2017 (left axis) in relation to the number of investigations in these areas recorded by AIP (right axis). (Data: Heritage Monitor 1990–2002 and Heritage Counts 2003–17 for baseline data. AIP for investigation data. Sample = 16 records)

within their area of jurisdiction to define heritage coasts on development plans with associated strong planning controls, to adopt positive management policies for them, and to prepare management plans for them. Defined Heritage Coasts are generally sections of coast exceeding 1.5 km in length that are exceptional in terms of their fine scenic qualities, substantially undeveloped, and containing features of special significance and interest (LUS 2006; NE 2008: 20). Heritage Coast designation frequently overlaps with other designations including National Parks, AONBs, and land owned by the National Trust.

By 1990 there were 30 defined Heritage Coasts in England and at that time it was thought that the number and length of these would remain fixed (CC 1990c). In fact, over the next two decades there has been a slight increase in both number and scale so that by 2010 there were 31 designated areas of Heritage Coast in England totalling approximately 1057 km. This amounts to about one-third of the total coastline. This has remained fairly constant since 2010. A total of just 16 investigations within Heritage Coasts were recorded over the PPG16 Era (Figure 7.8), mainly in the late 1990s and mid-late 2000s.

Local authority designated archaeological areas

As part of the process of producing and agreeing strategic plans (*see* Chapter 3), local authorities are able to define areas of archaeological interest. These may be based on the density of recorded heritage assets or the potential of an area in terms of its archaeological value. At the start of the PPG16 Era such areas could be defined within Structure Plans, Unitary Development Plans, Local Plans, or Subject Plans (*see* Figure 3.2). In Wiltshire, for example, the *Landscape Local Plan* approved in 1986 at county level included provision for the designation of 'Areas of Special Archaeological Significance', of which 39 were identified on the proposals map (WCC 1986: 49, 55–60 and map). Four years later Salisbury District Council cascaded the policy down into revisions of its *Northern Parishes Local Plan* with a large ASAS that included the area around Stonehenge linked to a policy requiring developers to undertake archaeological investigations before a planning application is determined (SDC 1990: 39, CN20). Similar definitions were also possible within later articulations of the strategic planning systems, but there is no consolidated national list of such areas and it is impossible to chart the development and progress of such areas over the PPG16 Era. The names of such areas also differ between authorities, variously emphasising different dimensions of the designation they adopt. Just under 1600 investigations whose reports indicated that they had been undertaken within a local authority designated archaeological area were recorded (Figure 7.9), the majority between 1995 and 2001 with a more consistent albeit lower level of activity in these areas through the mid-late 2000s.

National Parks

National Parks were first created under the *National Parks and Access to the Countryside Act 1949*, later amended by Section 61 of the *Environment Act 1995*. Under this legislation the purpose of a National Park is defined as being to conserve and enhance the natural beauty, wildlife, and cultural heritage of the area whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within it (CC 1989; 1991). Since April 1997

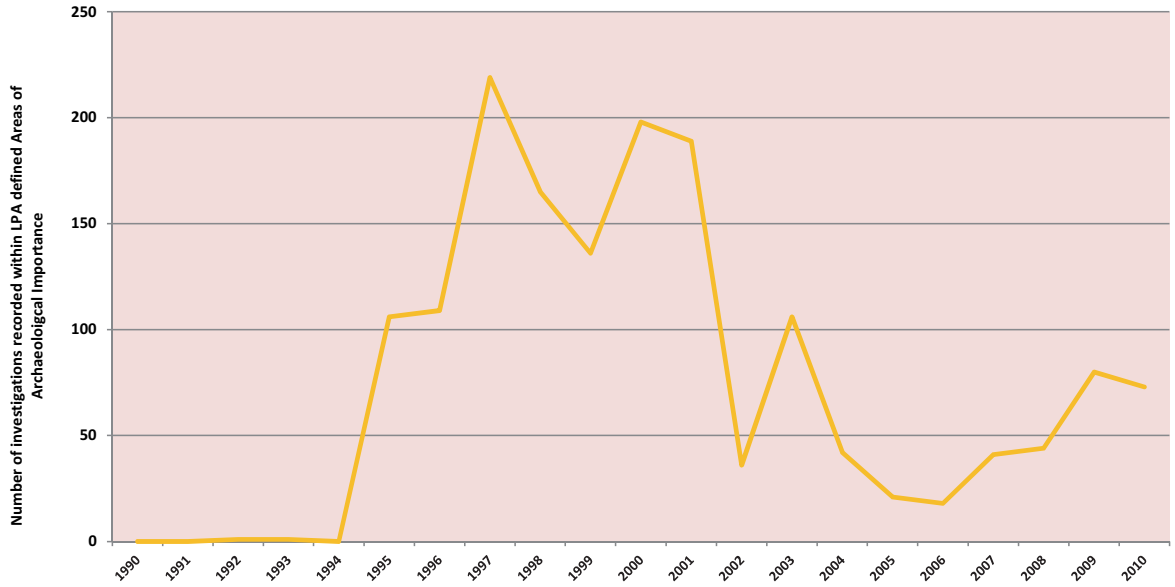

Figure 7.9 Number of archaeological investigations within Local planning authority defined areas of archaeological importance areas recorded by AIP. (Data: AIP. Sample = 1585 records)

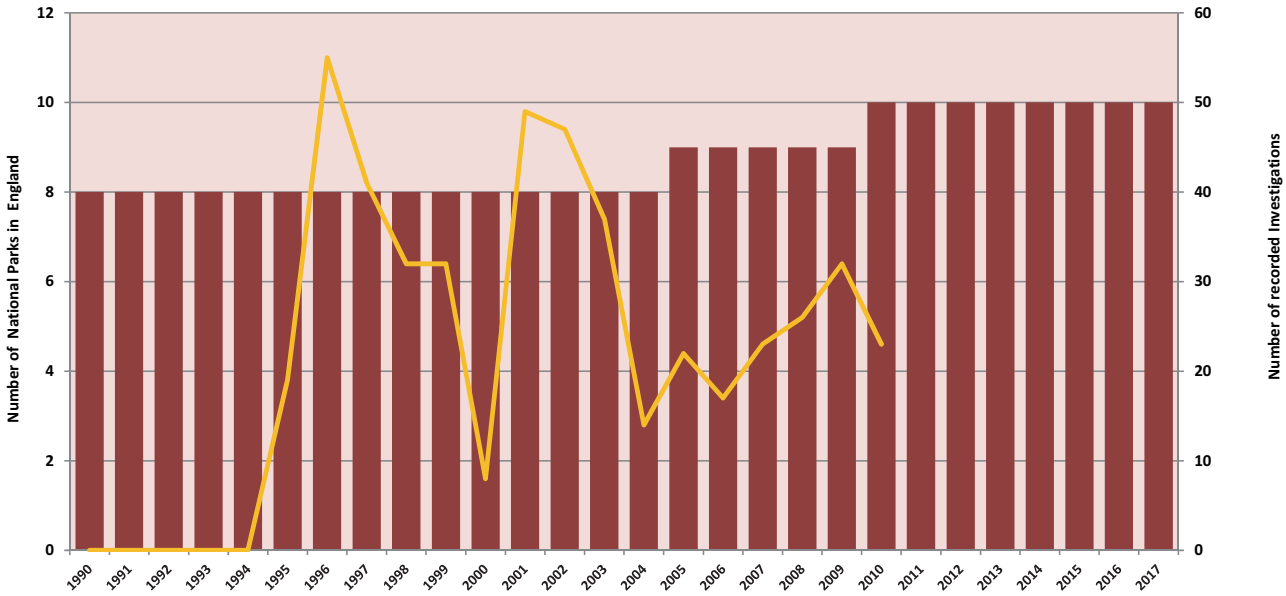

Figure 7.10 Number of National Parks in England 1990–2017 (left axis) in relation to the number of investigations in these areas recorded by AIP (right axis). (Data: NE 2008 with additions for baseline data. AIP for investigation data. Sample = 477 records)

each National Park has been managed by its own National Park Authority which acts as the strategic and local planning authority for their respective area.

The first seven National Parks in England were designated as such in the 1950s, mainly on poor-quality agricultural upland in western and northern England. They covered about 9633 square kilometres or 7.5 per cent of England's land area. The Norfolk Broads was added to the general cadre of National Parks in 1988 albeit slightly differently constituted. In 1990 there were essentially eight National Parks in England, two more being added during the PPG16 Era: the New Forest in 2005 and the South Downs in 2010. By the end of 2010 the combined area of National Parks in England amounted to 12,157 square kilometres or 9.3 per cent of the land area. Since 2010 this has remained static.

Over 450 investigations within National Parks were recorded (Figure 7.10). The year-on-year pattern shows a lot of work in the mid-1990s and irregularly through to 2005, with a more stable pattern of between 20 and 30 investigations per year since 2007.

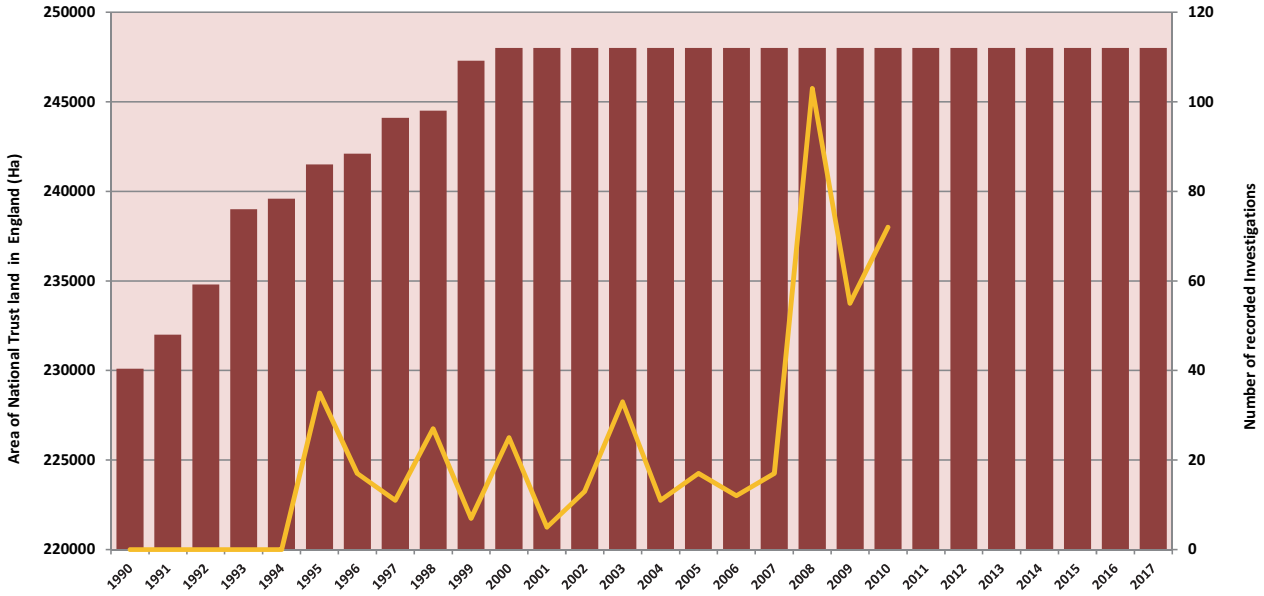

Figure 7.11 Areas of land owned by the National Trust in England, Wales and Northern Ireland 1990–2017 (left axis) in relation to the number of investigations in these areas recorded by AIP in England (right axis). (Data: National Trust Annual Report and Accounts 1990–2017 for baseline data. AIP for investigation data. Sample = 460 records)

National Trust land

The National Trust for Places of Historic Interest or Natural Beauty, usually known as the National Trust, is a charity founded in 1895 to preserve and protect historic places and spaces 'for ever, for everyone' (Jenkins & James 1995). Since the *National Trust Act 1907* it has enjoyed special statutory powers to pass by-laws relating to its properties and to declare land and property 'inalienable'. Inalienability prevents land being sold or mortgaged against the Trust's wishes without special parliamentary procedure. Subsequent acts of Parliament between 1919 and 1978 amended and extended the Trust's powers and remit. It works in England, Wales, and Northern Ireland and has become one of the largest membership organisations in Britain with two million members in 1990, rising to over 3 million by 2010 and exceeding 5 million by the end of 2017. The Trust owns many heritage properties, including historic houses and gardens, industrial monuments, and archaeological sites. All its properties are managed in a way that encourages sustainable use, conservation, and effective management of its heritage values.

The National Trust has become a major landowner and continues to grow its estate. In 1990 it owned approximately 230,000 ha in England, Wales, and Northern Ireland. This increased to about 248,000 ha by 2010 but has remained fairly static since. A total of 460 investigations were recorded as having taken place on National Trust land, many of them connected with the preparation of estate management plans (Figure 7.11).

World Heritage Sites

World Heritage Sites are places of outstanding universal value inscribed under the UNESCO *Convention Concerning the Protection of the World Cultural and Natural Heritage* that was opened for signature in Paris on 16 November 1972 (D Rodwell 2012; Wijesuriya *et al.* 2013). The UK Government ratified the convention on the 29 May 1984 and the first four English cultural sites were inscribed in 1986 (Durham Castle and Cathedral; Ironbridge Gorge; Stonehenge, Avebury and Associated Sites; and Studley Royal Park and the ruins of Fountains Abbey). Further inscriptions of cultural sites were approved in 1987, 1988, 1997, 2001, 2003, 2004 and 2006 so that by the end of the PPG Era there were 16 cultural World Heritage Sites in England. One more, the English Lake District was added in 2017. In Britain, World Heritage Site status is recognised through the planning system as well as through the separate designation of individual elements (DCLG 2009). Just over 400 investigations were recorded within World Heritage Sites (Figure 7.12) with the year-on-year pattern broadly reflecting the increasing size of the WHS population.

Protected sites

These designations refer to specific sites or structures, variously in urban or rural landscapes, that have an integrity and significance that allows definition as a single entity (Bowdler 2011). They are not always small in size, but do have a coherence to their form and content. Many are in

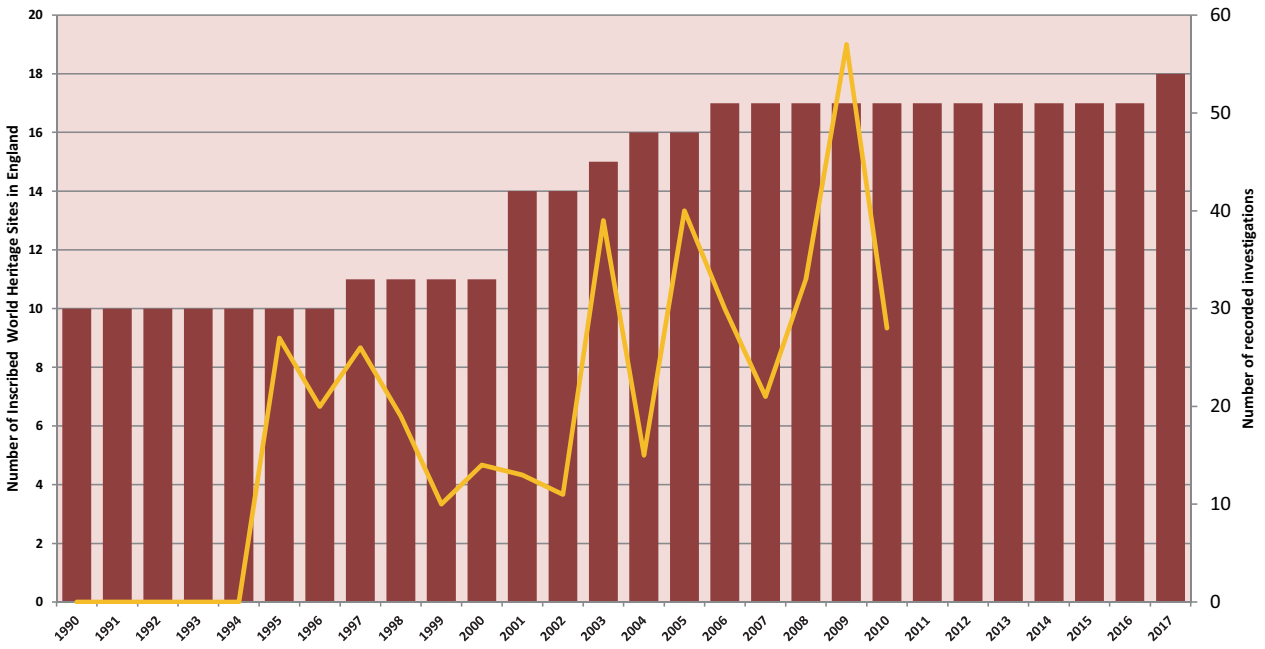

Figure 7.12 Number of World Heritage Sites in England 1990–2017 (left axis) in relation to the number of investigations in these areas recorded by AIP (right axis). (Data: Heritage Monitor 1990–2002 and Heritage Counts 2003–17 for baseline data. AIP for investigation data. Sample = 403 records)

single ownership, although that is by no means universal. Historic England maintains a register of heritage at risk, including buildings and archaeological monuments (*see above*). Table 7.2 provides a breakdown of the number of recorded investigations within each of the protected site types for which data was collected. Overall, 7800 investigations were recorded as having been undertaken within protected sites, about 9.6 per cent of all recorded investigations. But, as with protected areas, there are variations by investigation type. About 11 per cent of desk-based assessments, for example, were recorded as being within one or more designated site (Figure 13.A), the majority related to Listed Buildings and Scheduled Monuments (Figure 7.13A). By contrast, just 4 per cent of recorded field evaluations related to designated sites (Figure 7.14A), again with the majority at Scheduled Monuments and Listed Buildings, although the balance between the two reverses as the level and scale of investigation increases (Figure 7.14B).

Register of Historic Battlefields

The Register of Historic Battlefields was established by English Heritage in 1995 following extensive public consultation. It is a non-statutory list but in identifying important English battlefields it aims to offer them protection through the planning system, and to promote a better understanding of their significance and public enjoyment as a cultural resource (Brown 1994; Carman 2005; Foard 2004). In drawing up definitions of each entry careful studies are made of the battlefield, its topography, structures, history, and archaeology. The National Planning Policy Framework (DCLG 2012a: 31, para 132) notes that registered battlefields are designated heritage assets of the highest significance.

The Register of Historic Battlefields contained 43 entries at its launch in 1995 and this level was maintained through the remainder of the PPG16 Era; three more were added in 2014 giving a total of 46 at the end of 2017. They range in date from the Battle of Malden in AD 991 to the Battle of Sedgemore in AD 1685. Between 1995 and 2010 there were 34 recorded investigations at Historic Battlefield sites (Figure 7.15), a fair number soon after the designation was introduced and a second spike in interest in the mid-2000s. At least some of these pieces of work are probably connected with the better definition of the site and research into its arrangement.

Register of Parks and Gardens of Special Historic Interest

The Register of Historic Parks and Gardens of Special Historic Interest in England was established by English Heritage in 1983 following the inclusion of gardens in the definition of ancient monuments given in Section 33(8) of the *National Heritage Act 1983*. The emphasis of the Register is on gardens, grounds, and other planned open spaces, such as town squares. The majority of registered sites are, or started life as, the grounds of private houses, but

Table 7.2 Number of investigations recorded by AIP between 1990 and 2010 within the main kinds of heritage-related Designated Sites.

Site Designation Type	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals
Historic Battlefields Register	0	0	0	0	0	0	3	5	2	1	2	1	0	0	4	5	2	4	1	3	1	34
Register of Parks and Gardens of Special Historic Interest	0	0	0	0	0	4	3	3	16	4	3	7	2	7	17	9	18	22	12	23	15	165
Guardianship Monument	0	0	0	0	0	3	1	1	4	0	1	0	0	0	1	2	0	1	1	0	0	15
Listed Building	0	0	0	1	1	139	159	145	219	227	243	276	241	315	335	299	314	352	310	361	280	4217
National Nature Reserve (NNR)	0	0	0	0	0	3	1	1	1	1	1	0	2	5	1	4	1	12	6	7	1	47
Protected Wreck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	1	2	9
Scheduled Monument (SM)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	18
Scheduled Ancient Monument (SAM)	1		1	1	2	223	160	177	190	150	220	224	165	227	193	237	223	205	219	268	177	3263
Site of Special Scientific Importance (SSSI)	0	0	0	0	1	19	6	8	8	10	6	5	3	4	3	5	3	14	8	12	11	126
Totals	1	0	1	2	4	391	333	340	440	393	476	513	413	558	554	561	561	631	560	675	487	7894

public parks and cemeteries form important categories too and a few post World War II landscapes have been included as well (Dunterloo-Morgan 2002). The main purpose of the Register is to celebrate designed landscapes of note, and encourage appropriate protection and management (McLeod 2001). Although not a statutory designation, since 1995 the *General Development* Order requires local authorities to consult English Heritage on applications for development effecting registered gardens (McRobie 1996), and registration is a material consideration in the planning process as discussed in the NPPF (DCLG 2012a: 31, Para 132). Parks and gardens on the register are ranked on the same scale as Listed Buildings: Grades I, II*, and II.

By 1990 there were 1028 entries on the Register with a steady increase through the PPG16 Era to stand at about 1600 by 2010. Further entries have been added since 2010 so that by the end of 2017 the Register contained 1652 parks and gardens.

Between 1990 and 2010 some 180 investigations were recorded in relation to Registered Parks and Gardens (Figure 7.16) with spikes of activity in 1998, 2004, 2007, and 2009. At least some of these investigations relate to research into the history of the site either for estate management plans or for restoration works.

Guardianship Monuments

Guardianship is a special power for the control and maintenance of monuments conferred by Sections 12–15 of the *Ancient Monuments and Archaeological Areas Act 1979*, as amended for England by the *National Heritage Act 1983*; sites in Guardianship are sometimes referred to as 'Properties in Care' or the 'National Collection'. Most are open to the public and include such well-known places as Stonehenge (Wiltshire), Dover Castle (Kent), and Housesteads on Hadrian's Wall (Northumberland). In 1990 there were about 400 such monuments in England and this number did not change much through to 2010 and has remained fairly static since. Over the PPG16 Era some 15 investigations were recorded within Guardianship Monuments, mainly in relation to maintenance works and research.

Listed Buildings

A Listed Building is a building or structure that has been placed on the Statutory List of Buildings of Special Architectural or Historic Interest. The designation was first established in the 1950s and has been supported by a range of legislation, most recently Part I of the *Planning (Listed Buildings and Conservation Areas) Act 1990* (*see* Wood 1999 for wider context). A Listed Building may not be demolished, extended, or altered without special permission from the local planning authority. The older a building is, the more likely it is to be Listed. All buildings built before 1700 which survive in anything like their original condition are

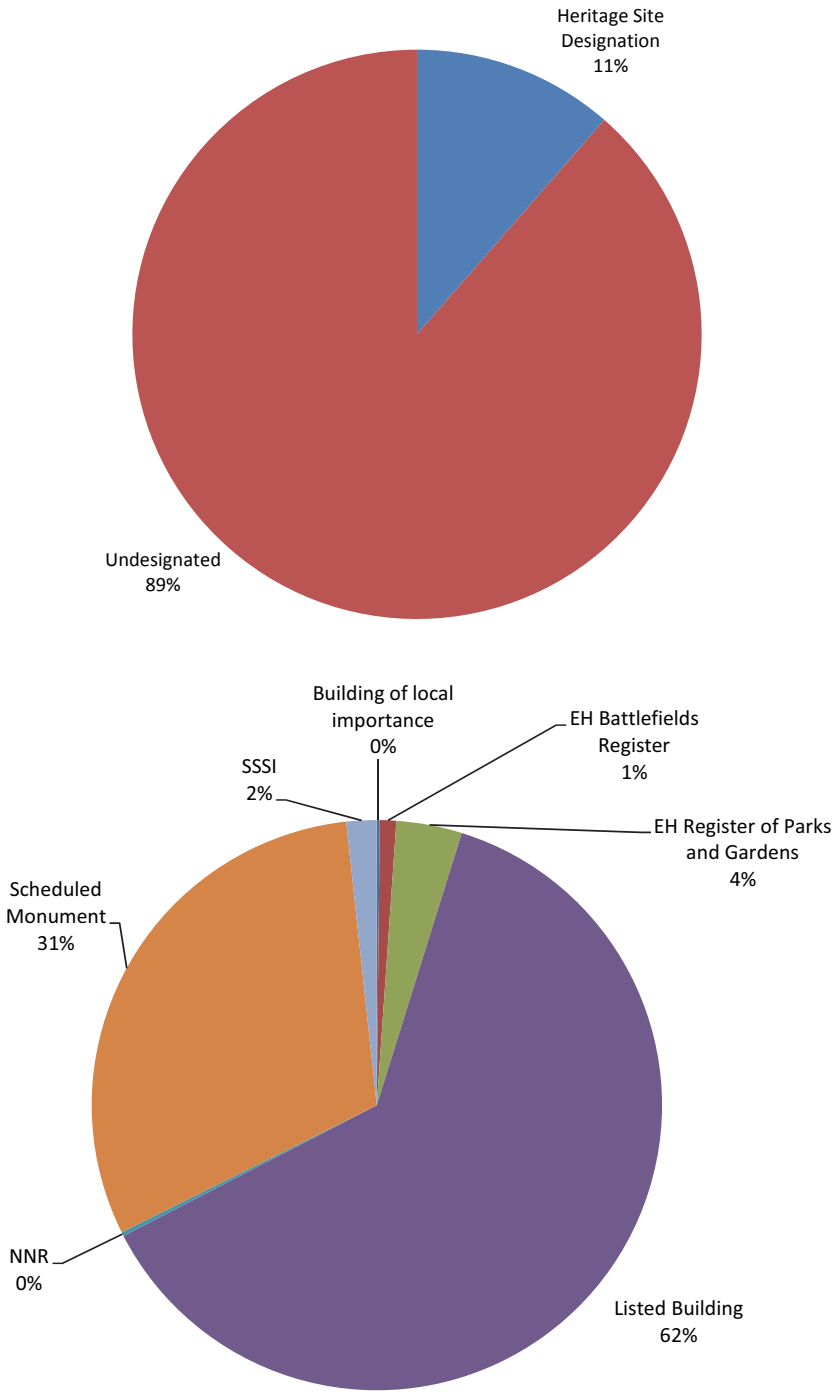

*Figure 7.13 Desk-based assessments at site-based designations. **A**. Investigations in designated and undesignated areas. **B**. Analysis of investigations in relation to the main kinds of area-based designations. (Data: AIP. Sample = 11,996 records)*

Listed, as are most of those built between 1700 and 1840. Particularly careful selection is required for buildings from the period after 1945. A building has normally to be over 30 years old to be eligible for Listing. There are three grades of Listing. Grade I applies to buildings of exceptional interest (about 2.5 per cent of Listed Buildings are Grade I); Grade II* refers to buildings of more than special interest (about 5.5 per cent of Listed Buildings are Grade II*); while Grade II buildings are of special interest (92 per cent of all Listed Buildings are in this class).

In 1990 there were approximately 347,700 Listed Buildings of all three grades in England, a total that gradually increased to reach 374,759 by 2010, an increase of nearly 8 per cent, with further additions that brought the

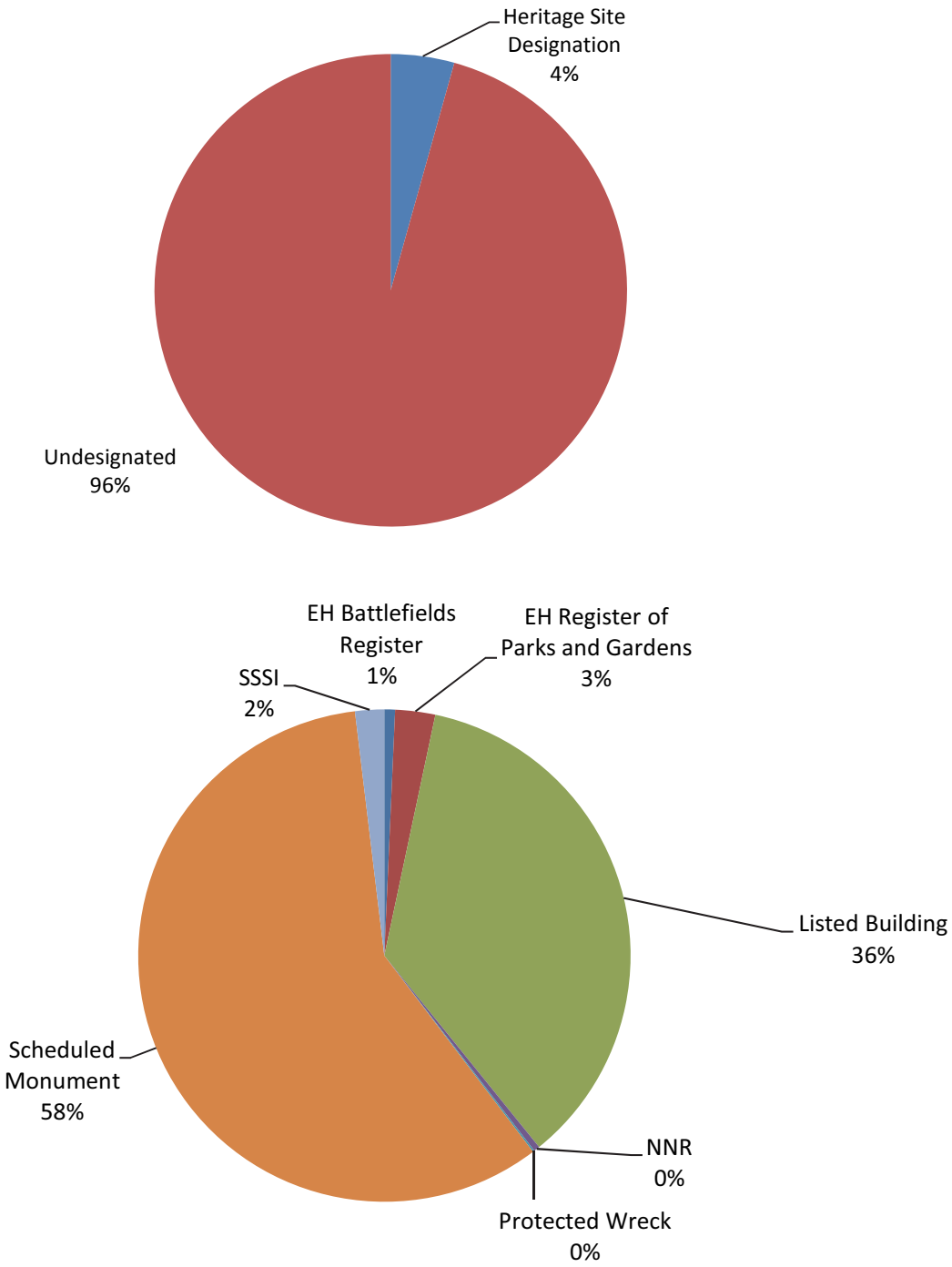

*Figure 7.14 Field evaluations at site-based designations. **A**. Investigations in designated and undesignated areas. **B**. Analysis of investigations in relation to the main kinds of area-based designations. (Data: AIP. Sample = 22,786 records)*

total to 377,388 by the end of 2017. Applications for Listed Building Consent (LBC) remained fairly steady over the PPG16 Era at about 9 per cent of the population of Listed Buildings per year. About 4200 investigations linked to Listed Buildings were recorded by AIP (Figure 7.17) with a steady rise in interest over the period, reaching a peak in 2009 followed by a drop off which may be evidence for the effect of the recession on property development.

National Nature Reserves

National Nature Reserves (NNRs) were established under Part III of the *National Parks and Access to the Countryside*

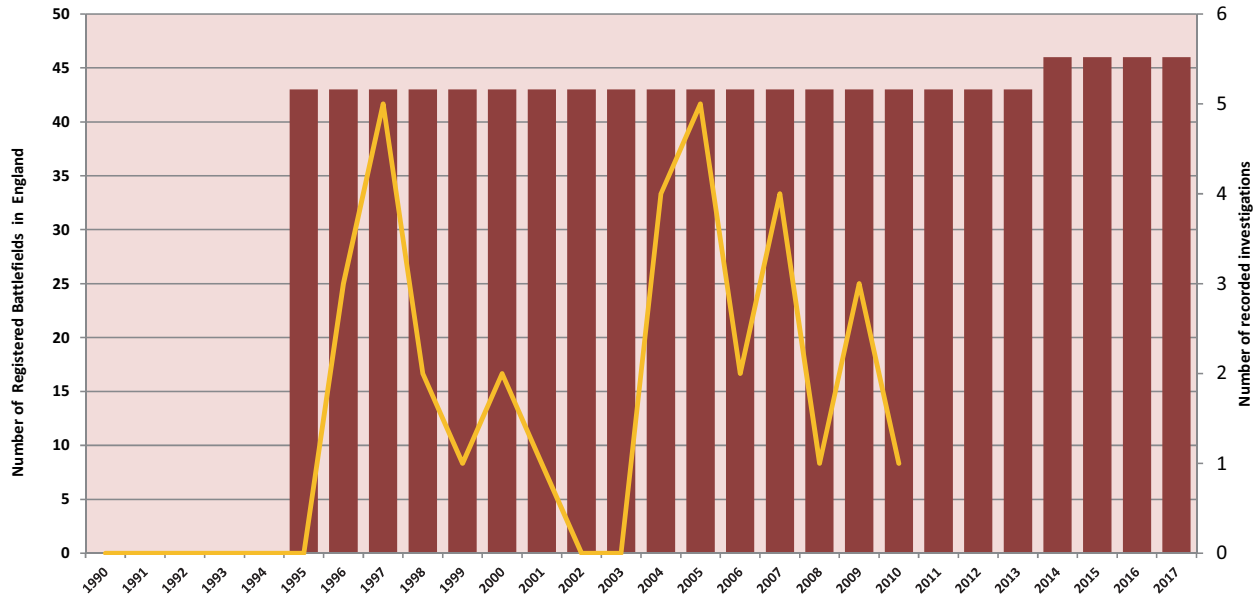

Figure 7.15 Number of Registered Battlefields in England 1995–2017 (left axis) in relation to the number of investigations at these sites recorded by AIP (right axis). (Data: Heritage Monitor 1995–2002 and Heritage Counts 2003–17 for baseline data. AIP for investigation data. Sample = 34 records)

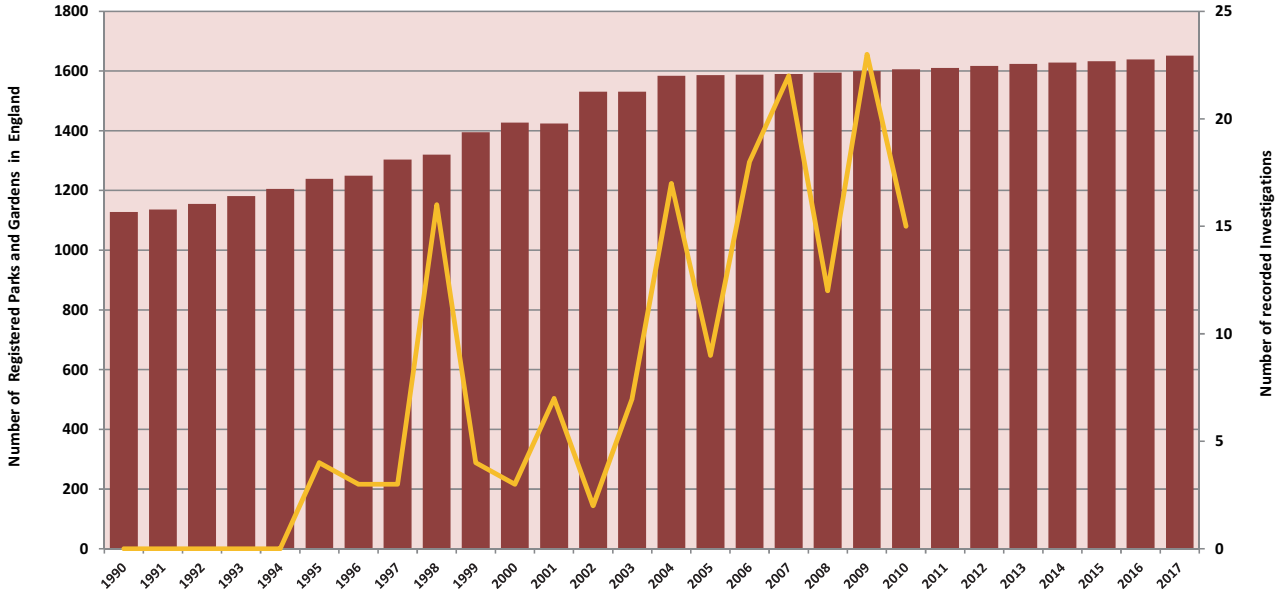

Figure 7.16 Number of Registered Parks and Gardens of Historic Interest in England 1990–2017 (left axis) in relation to the number of investigations at these sites recorded by AIP (right axis). (Data: Heritage Monitor 1990–2002 and Heritage Counts 2003–17 for baseline data. AIP for investigation data. Sample = 165 records)

Act 1949 and Section 35(1) of the *Wildlife and Countryside Act 1981* to protect some of our most important habitats, species, and geology, and to provide 'outdoor laboratories' for research. Natural England manages about two thirds of England's NNRs. The remaining reserves are managed by organisations approved by Natural England, for example, the National Trust, Forestry Commission, RSPB, Wildlife Trusts, and local authorities.

By the end of the PPG16 Era there were 224 NNRs in England with a total area of over 94,400 ha, or approximately 0.7 per cent of the country's land area. The largest is The Wash covering almost 8800 ha, while Dorset's Horn Park Quarry is

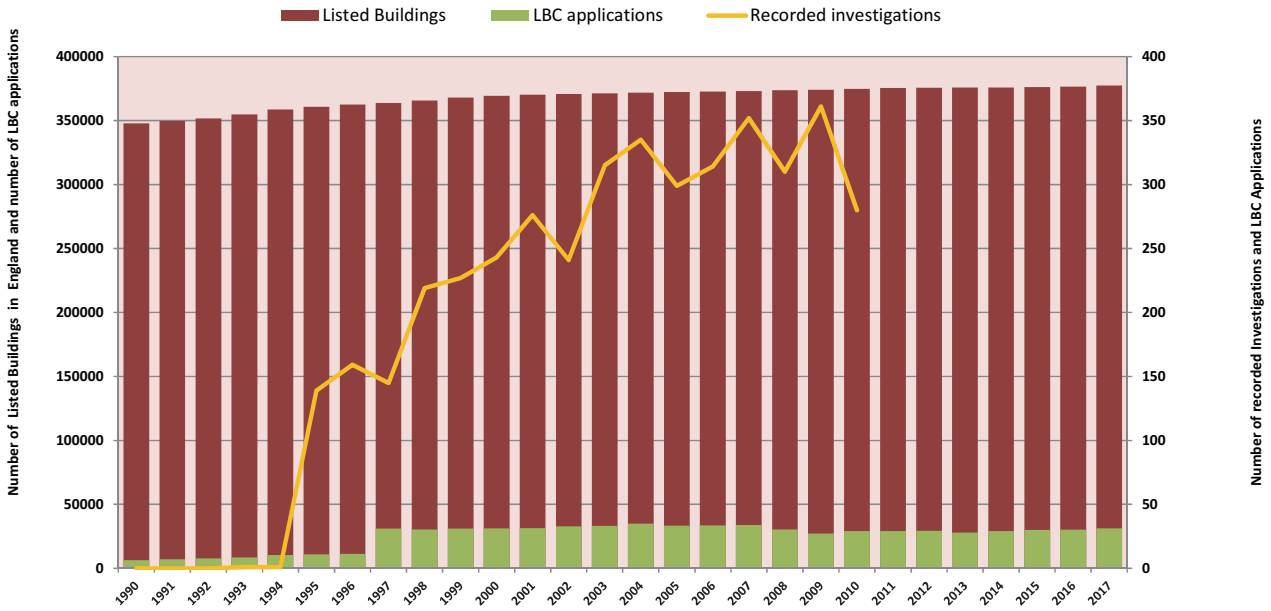

Figure 7.17 Number of Listed Buildings and applications for Listed Building Consent in England 1990–2017 (left axis) in relation to the number of investigations at these sites recorded by AIP (right axis). (Data: Heritage Monitor 1990–2002 and Heritage Counts 2003–17 for baseline data. AIP for investigation data. Sample = 4217)

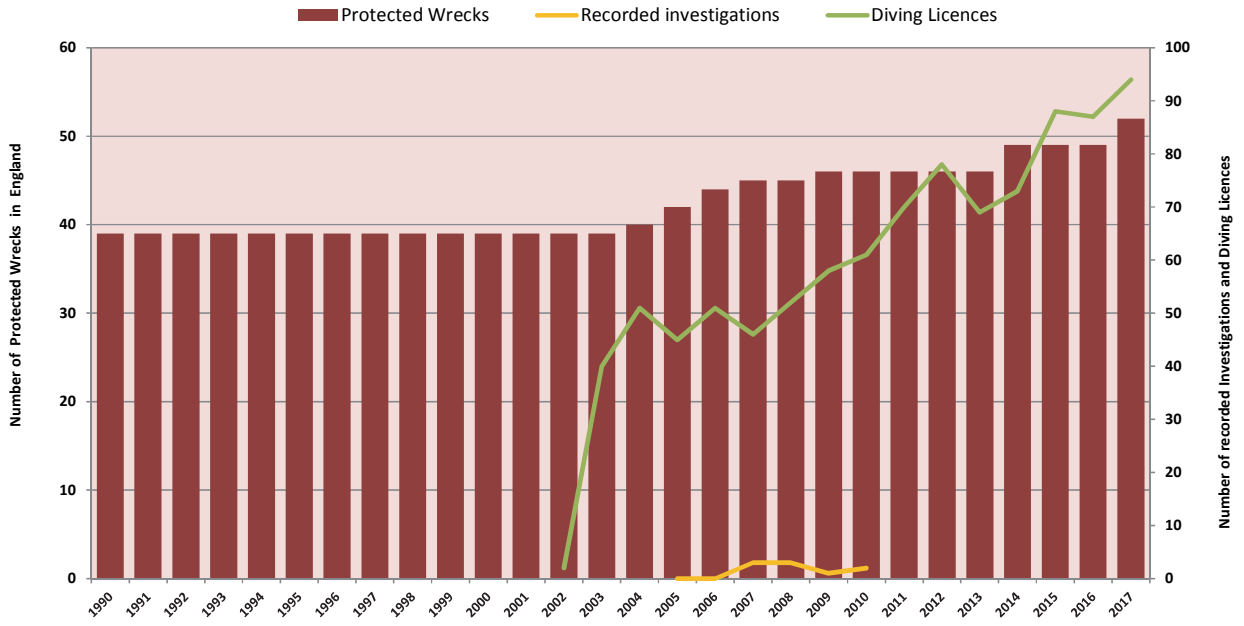

Figure 7.18 Number of Protected Wrecks in England 1990–2017 (left axis) in relation to the number of investigations in these areas recorded by AIP 2005–10 (right axis). (Data: Heritage Monitor 1990–2002 and Heritage Counts 2003–17 for baseline data. AIP for investigation data. Sample = 9 records)

the smallest at 0.32 ha. Some 47 investigations were recorded as having taken place within an NNR within the PPG16 Era.

Protected Wrecks

The *Protection of Wrecks Act 1973* enables the protection of wrecked vessels of historical, archaeological or artistic importance. It provides controls on visiting and working on protected wrecks through a licencing system. In 1990 there were 39 designated shipwreck sites in waters off the English coast, a number that rose to 46 by 2010. Further subsequent designations mean that there were 52 protected wrecks by the end of 2017. Most lie off the southwestern and southeastern coasts.

AIP only began recording Maritime Investigations as a separate investigation type in 2005 after English Heritage were given new powers in relation to the

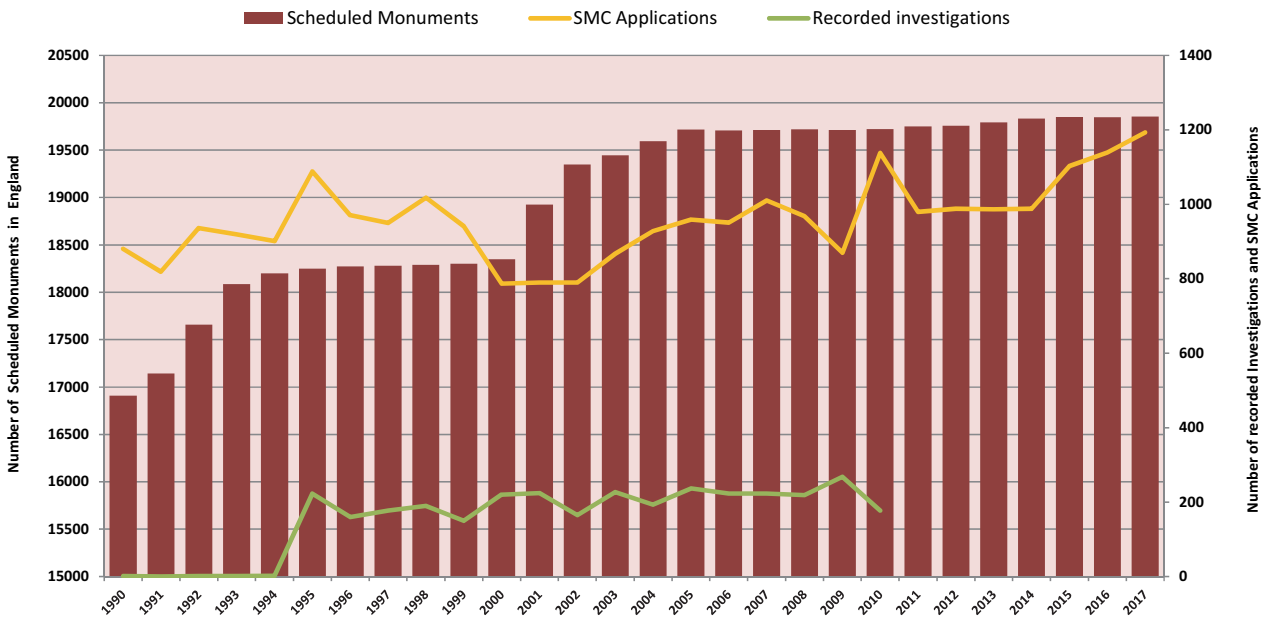

Figure 7.19 Number of Scheduled Monuments in England 1990–2017 (left axis) in relation to the number of applications for Scheduled Monument Consent (right axis upper) and the number of investigations at these sites recorded by AIP (right axis lower). (Data: Heritage Monitor 1990–2002 and Heritage Counts 2003–17 for baseline data. AIP for investigation data. Sample = 2893 records)

Table 7.3 Number of applications for licences to dive on designated wreck sites by region. (Data: English Heritage)

Region	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Totals
Eastern Region	0	1	1	1	1	1	1	1	1	1	1	10
North East	0	0	1	1	2	0	1	1	1	1	1	9
South East	0	13	19	18	17	13	22	22	23	26	26	199
South West	2	23	28	23	29	30	27	33	33	37	42	307
Yorkshire and Humberside	0	3	2	2	2	2	1	1	1	1	1	16
Totals	2	40	51	45	51	46	52	58	59	66	71	541

maritime environment in the *National Heritage Act 2002* so data on this work is limited (Figure 7.18). Just nine investigations relating to Protected Wrecks were recorded between 2005 and 2010. This may be compared with the number of licences issued for permission to dive on designated wrecks which has risen sharply since 2002 (Figure 7.18), especially in southern areas (Table 7.3), although not all licenced visits involved investigations beyond looking at the wreck and/or monitoring its condition. The *Heritage Protection Bill* would have repealed a number of designations in the marine zone, replacing them with a category of Marine Heritage Sites, but this never came about (Dunkley 2008).

Scheduled Monuments

Defined under Sections 1–9 of the *Ancient Monuments and Archaeological Areas Act 1979*, as amended for England by the *National Heritage Act 1983*, this is the main protective designation for archaeological remains and is one of the oldest conservation measures on the Statute Book as it dates back to 1882. Scheduling provides protection for designated monuments through the control of works by Scheduled Monument Consent (SMC) procedures as well as conservation through management agreements. Scheduled Monuments range in age from early prehistoric sites through to post-war remains, and in size from small single round barrows or tumuli only a few metres across up to extensive fieldsystems and settlements of 10 ha or more. Some designations embrace more than one component.

In 1990 there were 16,909 Scheduled Monuments in England. which through the PPG16 Era rose to 23,916, in part as a result of the systematic review of the designation through the Monuments Protection Programme (Fairclough & Chitty 1996). Since 2010 the number has remained fairly static with additions and removals giving a total of 19,855 at the end of 2017.

Table 7.4 Number of investigations at Scheduled Monuments recorded by AIP between 1990 and 2010 by region.

Region	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Totals
East Midlands	0	0	0	0	0	25	24	15	20	12	16	15	13	14	4	10	11	10	17	28	16	250
Eastern Region	1	0	1	0	0	20	10	20	24	11	22	18	6	22	5	15	23	30	17	25	12	282
Greater London	0	0	0	0	0	5	2	4	9	7	5	6	8	5	3	3	5	8	7	1	1	79
North East	0	0	0	0	1	10	12	16	17	11	14	27	17	28	24	32	21	30	29	18	11	318
North West	0	0	0	1	0	14	2	10	18	19	24	15	10	23	12	15	27	20	19	23	9	261
South East	0	0	0	0	0	26	31	36	22	16	27	34	23	30	46	28	32	42	37	46	29	505
South West	0	0	0	0	1	71	45	38	43	31	69	64	50	61	56	80	65	50	44	65	49	882
West Midlands	0	0	0	0	0	31	18	21	21	18	23	21	25	18	20	24	19	25	29	22	21	356
Yorkshire & Humberside	0	0	0	0	0	21	16	17	16	25	20	24	13	26	23	30	20	8	20	40	29	348
Totals	1	0	1	1	2	223	160	177	190	150	220	224	165	227	193	237	223	223	219	268	177	3281

Figure 7.19 shows that the number of recorded investigations at Scheduled Monuments was fairly consistent over the PPG16 Era. This work forms the largest single element of recorded field evaluations undertaken within protected sites (*see* Figure 7.14B). The number of applications for Scheduled Monument Consent rose over the PPG16 Era, although there was a significant dip during the late 1990s and early 2000s. As Table 7.4 shows, the number of recorded investigations at Scheduled Monuments is not evenly distributed, with the South East and South West having by far the greatest number of investigations, not unexpected as these regions also contain the largest numbers of Scheduled Monuments.

Sites of Special Scientific Interest

Sites of special scientific interest (SSSIs) in their current configuration are based on Part II of the *Wildlife and Countryside Act 1981* (with later amendments) and Sections 75–76 of the *Countryside and Rights of Way Act 2000*. The purpose of the designation is to conserve and protect the best wildlife habitats and geological and physiographical heritage for the benefit of present and future generations (NE 2008: 2.19–30). Local planning authorities are required to have policies in their Strategic Plans to protect SSSIs. By 2010 there were over 4000 SSSIs in England, covering around 8 per cent of the country. AIP recorded 126 investigations as being within SSSIs during the PPG16 Era.

Chapter 8

Reporting, publication, and bibliometrics

In archaeology, as in any discipline with an empirical epistemology, it has long been recognised that an investigation is not complete until the results are reported; that discoveries do not date from the time they emerge from the trenches or the work-bench but rather from the time that they are published. In this context 'publication' is usually taken in a broad sense to mean that the findings are easily available to those who want or need to see them, whether working inside or outside the discipline. Through the late nineteenth and most of the twentieth century this usually meant dissemination in a printed monograph or academic journal, although the number and variety of such outlets in archaeology is astonishing and sometimes bewildering to those approaching the literature from outside the discipline. Since the 1970s other media have been brought into play and, progressively, the communication of results digitally through the internet has become the most common method of delivery although printed reports remain widespread.

This chapter explores the way in which archaeological investigations were reported and published through the PPG16 Era. After a brief review of the background to publishing archaeological excavations and the effects of changing patterns of investigation, a model focused on outputs rather than inputs is suggested. The way that the AIP recorded outputs is described in relation to other databases, and the nature of so-called 'grey literature' is examined. The changing scope and content of reports examined by the AIP is considered, as too the changing means by which such reports are circulated. The nature and extent of summaries and indexes to completed and on-going investigations is reviewed, and the issue of reporting negative evidence is assessed. Finally, the question of publication as an extended process linked to archaeological practice is touched on as a prelude to the longitudinal case studies examined in Chapter 9.

Debating publication

The 1970s and 1980s were challenging decades for publishing archaeological investigations. The increasing scale of archaeological work through the late 1960s and 1970s, the ever-expanding and time-consuming multi-disciplinary nature of post-excavation analysis and reporting procedures, and pressure to spend time in the field recording rather than in the office reporting meant that a substantial backlog of unpublished investigations built-up. In the case of work funded by government agencies (MoW, MPBW, DoE etc.) much of this burden was cleared by means of a back-log publication programme undertaken between 1974 and 1986. During this time about 950 investigations carried out within the period 1938 and 1972 were brought to publication (Butcher & Garwood 1994). But it also created a set of perceptions and assumptions that have proved hard to shift, and, coupled with changing technologies for the creation and distribution of reports, an evolving set of challenges that led to a succession of reviews and consultations.

One of the earliest such reviews was a working party on the principles of publication in rescue archaeology established by the Ancient Monuments Board for England under the chairmanship of Sheppard Frere to address what they described as 'a crisis in publication' (Frere *et al.* 1975: 1). Their starting position was familiar enough: 'that archaeologists should publish their work in full in a permanent form, available to anyone who wishes to read it in a good library or to purchase it'; that publication is essential for a variety of reasons; that publication must cater for various aspects of scholarship; and that archaeology is

an international discipline so the results must be available to an international community (Frere *et al.* 1975: 1–2). To achieve these principles in a timely and cost-effective way they proposed that the results of an excavation or fieldwork programme could be seen as four successively elaborated levels of record:

- Level I: The site itself, general notes, old letters, previous accounts, etc. Loose material: the excavated finds;
- Level II: Site note-books, recording forms, drawings, sound-recorded tapes. Loose material: finds records, x-rays, photographs, negatives, colour transparencies.
- Level III: Full illustration and description of all structural and stratigraphic relationships. Loose material including classified finds lists and finds drawings, and all specialist analyses.
- Level IV: The synthesised descriptions with supporting documentation. Loose material: selected finds and specialist reports relevant to synthesis.

They recommended that:

> *excavation reports should provide a synthesised description of the results (Level IV) comprising a full presentation of the history and significance of the site, with full documentation and evidence for all statements made, and inclusion of all necessarily relevant material such as selected pottery and small finds in their contexts. Secondary material, where appropriate, should be published separately or should be available on request. All original records of the field-work and post-excavation studies and data should be preserved for future reference in a permanent archive*. (Frere *et al.* 1975: 15)

Although not universally accepted (Alcock 1978), it was a model that set the standard for a generation and provided a common language to describe the main components of an excavation record. Yet it did not entirely solve the problem. Continued expansion of excavations and an increasing lag-time between fieldwork and reporting prompted a second review by a joint working party of the Council for British Archaeology and the Department of the Environment in 1982, chaired by Barry Cunliffe. This group argued for greater selectivity in what was done at the post-excavation stage, and advocated a two-tier publication model comprising a report digest (a printed account) and the extensive use of microfiche as an economical means of publishing detailed data-sets and specialist reports (Cunliffe *et al.* 1982). For a decade this provided a useful guide, but as the diversification of archaeological endeavour inherent to the greater integration of archaeology and the planning process started to take effect from the late 1980s, and into the early years of the PPG16 Era, new considerations appeared over the horizon.

In May 1991 the Society of Antiquaries, with the support of the Museums Association, organised a one-day seminar to discuss the 'problems arising from the rapidly increasing intensity of archaeological activity throughout the country' and in particular questions of publication, the storage of archives, and the retention of collections deriving from fieldwork and excavation. As a result a series of working parties were established to investigate the problem further (Carver *et al.* 1992). Their recommendations on publication built upon the original Frere Committee model, endorsing the need for selectivity, elaborating the idea that a published summary should lead back to an accessible archive, and suggesting the publication of an annual compendium of archaeological investigations to provide an immediate awareness of all work in progress (Carver *et al.* 1992: iv).

Responses to these proposals were practical and straightforward. The production of high-quality reports on fieldwork as monographs, monograph series, and in national, regional and local journals continued with encouragement from English Heritage and others (EH 1991b: 18; Olivier 1996: 52–53). Contractors and museums took very seriously the proper creation of archaeological archives for deposition in public collections (Brown 2011; Owen 1995; Perrin 2002). And, as explained in Chapter 1, a number of initiatives, including the AIP, were developed with the aim of creating rapid listings of completed archaeological investigations. But buried in the discussion there is the first outing of a new spectre, conjured up by the comment that 'there is a growing suspicion that many archaeological projects carried out by professional units will never be properly disseminated' (Carver *et al.* 1992: ii). These weasel words probably refer at least in part to what later become known as the problem of the 'grey literature': limited-circulation unpublished client reports, discussed further below, the production of which has provoked concern (Ford 2010), frustration (Lock 2008), outrage (Anon 2007; Francis 2006), and, in a more positive vein, the recognition of new opportunities for research (Aitchison 2010a; Bradley 2005; Fulford & Holbrook 2011a; Hardman 2010; Thomas 2013a; Thomas *et al.* 2015).

Making the most of the grey literature requires familiarity with it. A report to the All-Party Parliamentary Archaeology Group on the *Dissemination of Information in English Field Archaeology* prepared by Richard Bradley and Tim Phillips helpfully recognised two kinds of document represented in the grey literature they examined in an attempt to create a new synthesis of British prehistory. One kind they argued was intended for those who commissioned a piece of work and for planning authorities who use it in the decision-making process; the other kind was intended for public consumption that includes popular summaries as well as for more academic publications providing detailed accounts of projects and their significance (Bradley 2005; Bradley & Phillips 2004: 3). In making such a distinction they usefully

redirect attention away from concerns about inputs to publication – the process of producing reports and the means of delivering them that lay at the heart of deliberations by earlier working parties – and instead focus on the outputs in terms of the various contexts in which reports were received and the variety of intended uses and users.

From process to product: making and communicating knowledge

Taking one step back from the recognition that there are different kinds of report arising from different kinds of project each intended for different kinds of user, it is possible to glimpse one of the stumbling blocks to so much thinking about archaeological reports: the very idea of a monolithic entity that we call an archaeological report with supposed universal appeal. Richard Bradley (2006b) has revealed how the traditional excavation report itself became a genre with its own literary and scientific conventions that, he argues, provided a way of maintaining disciplinary norms. In the relatively small academic discipline of archaeology, as it was in the nineteenth and early twentieth centuries, the creation and transmission of a kind of narrative knowledge about the past was sufficient. But as archaeology became an applied discipline capable of making contributions to wider fields of interest – for example, environmental conservation, heritage, tourism, forensic science, and spatial planning – and contributing to broader societal questions such as sustainability, human adaptation, well-being, and climate change, the challenges have shifted. Such expansion requires an acceptance that the archaeological process is no longer creating knowledge just to feed itself. On the one hand it is creating and contributing various kinds of knowledge to a range of academic and professional communities for a variety of different purposes (Darvill 2007; 2014), while on the other it is creating wider social benefits to society in general and local communities in particular (Dries 2011). Such thinking lies behind the distinctions between the different kinds of report identified by Bradley and Phillips (2004: 3) and it provides a useful perspective through which to relate the archaeological processes embedded within planning-led archaeology, as discussed in Chapter 1, with the publications and reports that are under consideration here.

Figure 8.1 provides a schematic representation of how knowledge-building and the archaeological process fit together. First is the recognition that rather than directing efforts towards the creation of a single monolithic body of archaeological knowledge, there are in fact many different kinds of knowledge within the discipline, some of which are indicated in the cellular network at Figure 8.1A. They will be variants of the three broad categories of knowledge recognised in professional and academic environments (Eraut 1994: 100–22): personal knowledge (*e.g.* native knowledge and contemplative knowledge); procedural or ability knowledge (*e.g.* connective knowledge and operational knowledge); and propositional knowledge (*e.g.* narrative knowledge and strategic knowledge). It is the last two that are of special interest here, and while both are systems of thinking based on justified true beliefs, strategic knowledge is created in order to inform decision-making while narrative knowledge is created to satisfy curiosity about the past, how things were, and what happened. Translated across into the archaeological processes discussed in Chapter 1 that characterise archaeology in the PPG16 Era there is a straightforward two-stage correspondence. First, there is the creation of strategic knowledge through desk-based assessment, field evaluation, and environmental assessment as the raw materials that inform decision-making and the careful specification of post-determination investigations. Second, is undertaking the agreed mitigation strategy – the aim of which is the creation of narrative knowledge relevant to the wide range of communities with an interest in such matters (Figure 8.1B).

The reports and publications relating to these two stages and their corresponding knowledge sets are also fundamentally different. Strategic knowledge is communicated through rather standardised documents with a well-established formal content and structure from which basic information can easily be extracted by advisors and decision-makers. Codes of practice and 'standards documents' such as those promoted by the Chartered Institute for Archaeologists provide the templates (CIFA 2014b–m). Narrative knowledge is conventionally communicated by the kinds of report in journals and monographs that Bradley (2006b) analysed, although during the later part of the PPG16 Era there was considerable criticism of traditional reports alongside experimentation and the development of innovative approaches to content and presentation (Andrews *et al.* 2000; Hodder 1989; Roskams 1999). The two are not mutually exclusive. Reports communicating strategic knowledge can certainly be quarried for useful research information if approached in the right way, as David Yates's work on Bronze Age fieldsystems in central southern England clearly illustrates (Yates 1999). And reports communicating narrative knowledge play an important part in setting the context for new strategic thinking as can be seen in the success of the programme of developing Research Frameworks for all regions of England as well as high profile places such as World Heritage Sites (*see* Chapter 9). What is important to recognise, however, is that within the structure of a single archaeological programme undertaken within the framework of the planning process and property development world, different kinds of knowledge are generated at different stages. All of it is important and all of it is valuable, but for different reasons.

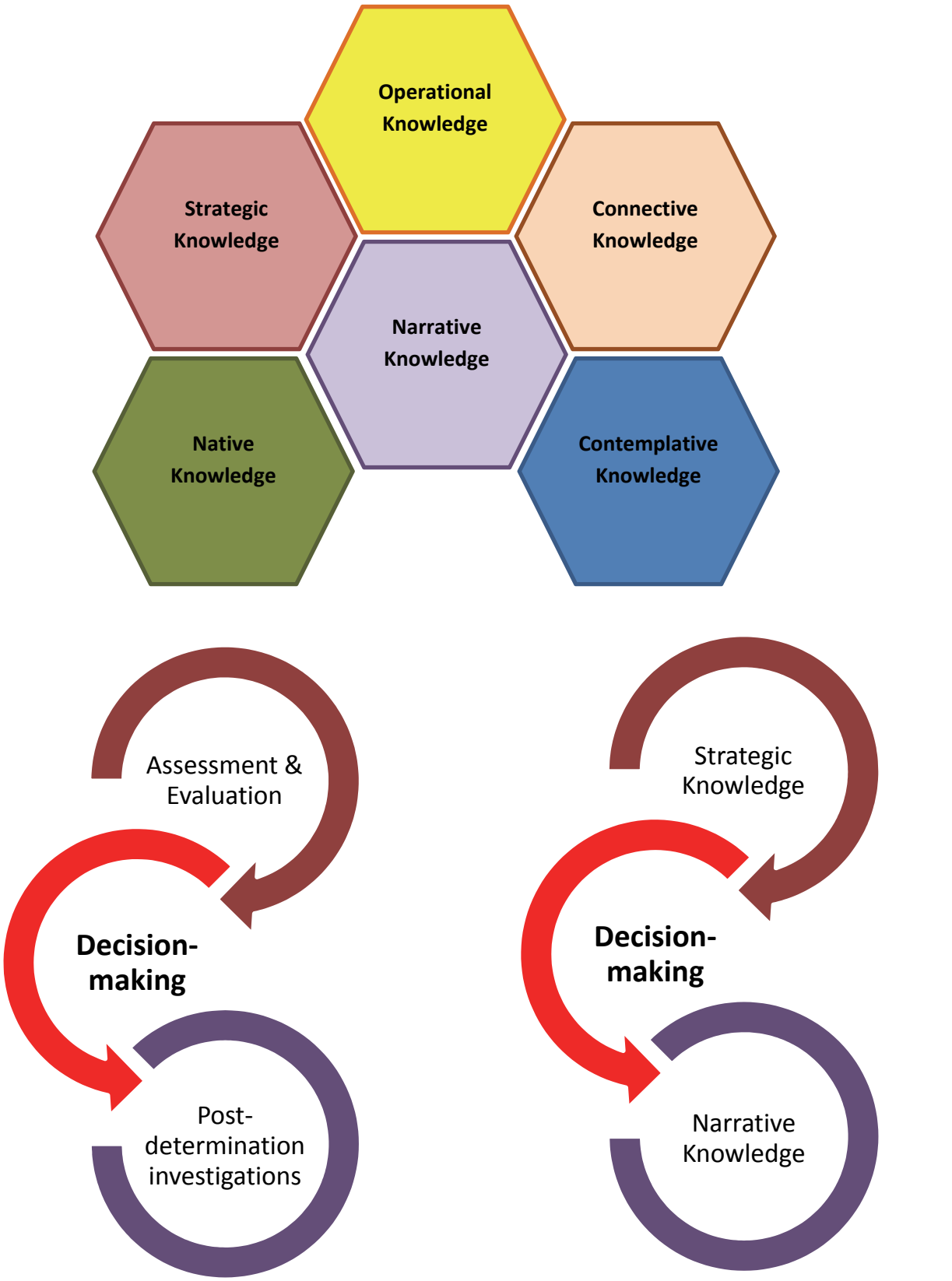

*Figure 8.1 Diagrammatic representation of connected knowledge sets. **A**. Related knowledge sets. **B**. Strategic and narrative knowledge in relation to key components of the planning process.*

As the case studies set out in Chapter 9 very clearly show, projects can be very lengthy and produce a lot of reports relating to the creation and documentation of strategic knowledge to inform decision-making, before there is a change of gear towards the production of narrative knowledge about the site itself and particular aspects of its past. Behind some of the criticisms that are voiced about the grey literature there seems to be a sense of frustration that things are being uncovered that interested parties do not know about and do not have the time or resources to discover. It is a similar emotion to the charge made back in the 1970s that part of the crisis in publication was because 'archaeological reports require greater effort from the reader' (Frere *et al.* 1975: 1). A user-needs survey of publications in archaeology carried out by the Council for British Archaeology in 2002–03 revealed that half of the respondents polled felt that grey literature constitutes a problem for the discipline, although curiously the survey also revealed a widespread ignorance of what grey literature was and a very poor awareness of the extent of the genre (Dennison *et al.* 2003: 18). So what exactly is the grey literature?

Fifty shades of grey

Taken in the general sense of being reports and communications that are not formally published, grey literature is nothing new. A wander through the basement stacks of the Society of Antiquaries in London will reveal bulging shelves devoted to 'Tracts and Pamphlets' spilling out a plethora of interim reports, guides, annual reports, and glossy souvenir publications that have accumulated over the last two or three centuries from a wide range of public and private sources. Nor is the problem of grey literature confined to the UK or to archaeology. Much the same problem has been identified in north America (Gilsen 2001), and on a wider front there is an international journal, *The Grey Journal*, that since 2005 has encouraged debate within communities that produce, curate, or consume grey literature. In summer 2009 the journal did a special issue on archaeology and grey literature edited by Deni Seymour (Seymour 2009) which revealed something of the widespread international interest in the matter.

Looking specifically at grey literature produced within archaeology and for related activities within the PPG16 Era there are three relatively clear groups:

- **Ephemera and practice papers.** Pamphlets and tracts of many kinds and levels of authority; annual reports and accounts; guidebooks (sites, areas, trails etc.); interim reports about on-going research; promotional material and 'give-aways'; professional guidance notes and briefing papers; policy statements; directives; codes of practice; opinion surveys, questionnaires and impact study results; texts of lectures; consultation papers; working papers; discussion documents; committee reports; newsletters; bulletins; strategic plans (regional, local, neighbourhood, subject etc.); strategic environmental assessments; and so on. These are usually produced in limited quantities (typically less than 100), copies of which are rarely deposited with copyright libraries. Although important when produced they often have limited shelf-lives because they are superseded or replaced. Unless systematically collected, archived, and actively curated these documents often disappear from view and become forgotten very easily.
- **Project management documents** (other than primary records): Briefs; specifications; project designs; mitigation strategies; costings; risk assessments; health and safety reports; progress reviews; post-excavation assessments; grant applications; grant appraisals and reviews; end of project reports; planning applications; decision letters; appeal documents; depositions to public inquiries; statements of case; and so on. These are usually produced in very limited quantities (typically less than 10) and copies are only circulated to those directly involved in the project and with its management and oversight. Some or all of the material is confidential to the parties involved, may be protected and commercially sensitive, and some may become attachments to legal agreements and contracts. Together with related correspondence such documents form part of the project archive (Levels I–III following the Frere Committee report) and would normally be stored with the primary records, finds, and retained samples. Some may be retained in the registry of public authorities. There may be legal requirements to retain some of this documentation for a set period, after which disposal or deposition in a public archive is common.
- **Event/Investigation/Intervention reports**: Desk-based assessments; field evaluation reports; environmental statements; geophysical survey reports; building surveys; estate management plans; and so on. These are essentially client reports prepared by commercial archaeological companies and other organisations on behalf of a client or consultant to communicate the results of particular pieces of funded research. In the early years of the PPG16 Era they were generally typescript or word-processed documents that were then printed or photocopied. Latterly they are mainly digital reports drawing on word-processed and graphical material that is desk-top published and distributed electronically as pdf files. Initially at least such reports generally have a limited circulation, when printed they are produced in relatively small numbers (typically less than 20). They are not formally published in the sense of being assigned ISBN or ISSN numbers which would prompt the deposition of copies in each of the five copyright libraries in the UK. In the case of digital reports very few have Digital Object Identifier (DOI) numbers.

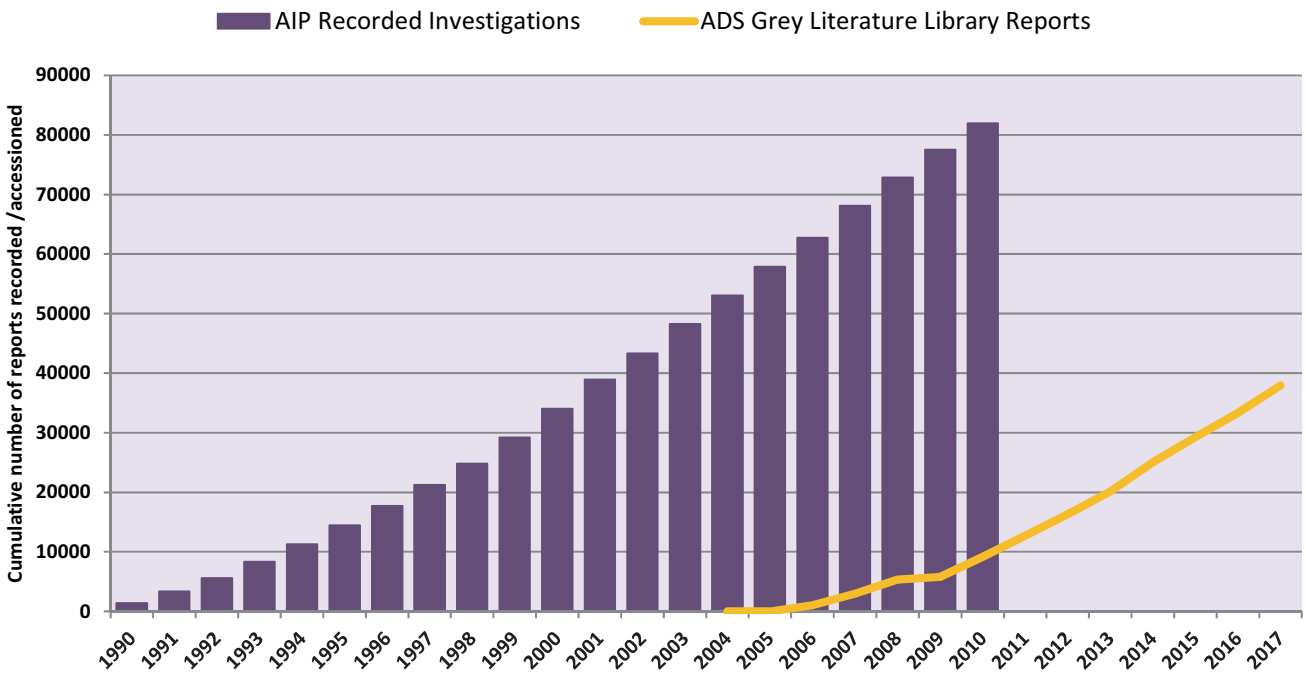

Figure 8.2 Cumulative frequency of reports recorded by the AIP for the period 1990–2010 compared with the accumulating content of the Grey Literature Library maintained by the Archaeology Data Service 2005–17. (Data: AIP and ADS Annual reports)

It is the last of these three types of grey literature that has proved of most concern in recent years, and which also provided the main source of information about completed projects for the AIP. As already noted, these are usually audience-specific and task-specific documents because they are linked closely with the creation and communication of strategic knowledge, mostly connected with pre-determination planning-related investigations. Many become public documents by virtue of being part of a planning application and can thus be viewed during the public consultation period (typically eight weeks). Some local authorities keep such documents available for longer; this is especially the case since *c*.2000 as by this time most planning applications were submitted and handled digitally and could be viewed via the Planning Portal and on-line planning registers maintained by local planning authorities. However, documents are rarely maintained over the medium- and long-term, and some authorities strip-back their on-line archives during periodic house-keeping exercises. There is also a significant transitional period between about 1995 and 2005 when dual currency prevailed and both hard-copy and on-line submissions ran in parallel. It now represents a period for which reports can be especially hard to find. It was at this time, for example, that central government stopped keeping a central archive of environmental statements.

In September 2005 a grey literature library containing digital copies of unpublished fieldwork reports was established by the Archaeology Data Service and connected to OASIS in a way that individuals and organisations could self-deposit reports and make them available in an easily retrievable fashion (Hardman 2006). DOIs are assigned to archived reports thereby giving them permanence in the digital world that is broadly equivalent to an ISBN or ISSN number in the hard-copy world of printed literature. Take-up has generally been good; by the end of 2010 about 10,000 reports were available on-line through the grey-literature library and by December 2017 this had risen to about 38,000 (Figure 8.2). In 2009–10 ADS initiated the GLADE Project (Grey Literature – Access, Dissemination and Enhancement) to explore the potential options and possibilities for accessing the backlog of archaeological grey literature reports produced since the introduction of PPG16 (Hardman & Evans 2010).

Other changes can also be seen over the PPG16 Era, not least the completion of events that produce no report at all in the conventional sense but which are dealt with by archaeological contractors through correspondence. This applies especially to investigations such as watching briefs with a negative result in the sense that no archaeological features, finds, or deposits were identified or recorded (*but see below*).

The use of IT to create digital archives and reports that are not published in the conventional sense but are maintained on-line with encoded electronic text that can be manipulated and displayed in different ways alongside data that can be extracted from the text for input into other systems adds further dimensions to the genre and interesting opportunities

(Falkingham 2004). However, within the PPG16 Era most reports were produced to fairly conventional standards with content that was mainly based on the guidance issued by what was then the Institute for Archaeologists (CIFA 2014b–m).

Report structure and content

Current records and the means of accessing reports make it impossible to create an information lineage for the *c.* 80,000 known grey literature reports and thereby create a citation analysis based on which publications are cited in other publications. This will perhaps be possible in due course as reports are digitised, but that is some way off. It is however possible to look at the rate of production of reports and who produced them (Table 8.1). On the basis of AIP data, only four of the top-20 archaeological contractors produced 300 or more reports between 1990 and 1994, averaging some 90 reports a year. But the number of contractors with such a prolific output tripled between 1995 and 1999, and by 2000 to 2004 all of the top-20 contractors were producing over 60 reports a year. Table 8.2 lists the top-20 contractors ranked by recorded reports accumulated over the whole PPG16 Era. Predictably, it is the large long-established contractors who are responsible for the highest level of output; the raw numbers of course say nothing about the size or complexity of the projects that give rise to these reports.

Although this may be just an indication of the number of reports that had to be produced as a reflection of market demand, it also suggests that at least some of these organisations grew more quickly than the rate at which smaller companies could acquire new business. Significantly, the overall pattern of production closely follows a trend described by the American statistician A J Lotka (1926) as a law of publication frequency. This law is an inverse square relationship which describes the distribution of publications by author in any given field by suggesting that the number of authors publishing a certain number of reports is a fixed ratio related to the number of authors publishing a single report. Thus, in the time it takes four originators to produce one report, one of them (1/4) will have produced two reports, 1/9 will produce 3 reports, 1/16 four reports, and so on.

During the PPG16 Era there were at least 3100 contractors (individuals and organisations) responsible for the production of one or more reports on an investigation of some kind. But, overall, the top-20 contractors account for over 35 per cent of the reports over that same period. The frequency of publication for this period of the top 0.4 per cent therefore broadly follows Lotka's Law where the majority of research is shaped by just a few entities (Figure 8.3). It must not be forgotten that these prolific institutions all contain many individuals and most likely employ a majority of practicing professional archaeologists. The reporting formats that these organisations choose, and where they choose to publish their work, has shaped over 35 per cent of the archaeological output in the PPG16 Era.

Measuring the quality of reporting was not one of the intended uses of the AIP database, which focused on recording details about what was found and the methodologies employed. However, one measure available to chart something of the character of the grey literature rather than the events that lie behind it is the number of pages in the report, and use of references, figures, and plates. Table 8.3 summarises the situation for the main investigation types examined by the AIP. Desk-based assessments and field evaluations have slowly increased in size from an average of 22 to 37 pages (68 per cent increase) and 19 to 27 pages (35 per cent increase) respectively. In part this is because of a greater participation by specialists in the production of these reports. In some cases, small sub-sections relating to specialised areas, such as finds reporting, have been added to the pre-determination documents to inform mitigation works. In other cases, detailed sections on the finds may be included in an evaluation if it is thought that there may be no scope for the preparation of further reports on the work. In the world of competitive tendering there is at least some pressure to provide full reporting wherever possible as it is not always the case that the company carrying out a field evaluation will be the same one that undertakes post-determination mitigation works. Other relevant factors bearing on the question of report length may be the requirements set out in briefs and written schemes of investigation that in some cases may, for example, require the inclusion of all digital photographs as a mixture of report/archive, and/or the inclusion of a full set of OASIS forms. As the majority of reports produced since the late 1990s were created digitally the trend for documents to include more information is probably in part because of the relative ease of doing that.

The situation for environmental statements is slightly different. While there has been a slight overall increase in the average size of the archaeology reports (98 pages to 123 pages; 20 per cent increase) over the years, the late 1990s saw a period when generally much shorter reports were produced. This may be attributed to the growing confidence in the use of environmental impact assessment before the regulations were revised and the practice reinvigorated in 1997 and again in 2003 (*see* Chapter 4).

Some aspects of specialist and post-determination reporting have also increased in size, but in all cases they seem to show a period of variability through to about 2000. After 2000 each of these four investigation types for which data has been recorded seem to settle down as, on average, fairly consistently sized documents year-on-year (Figure 8.4), although within each year-group there is of course considerable variation.

Table 8.1 Top-20 archaeological contractors and consultants ranked by the number of reports recorded by the AIP for 1990–94, 1995–99, 2000–04, and 2005–10.

1990–1994	Total	1995–1999	Total	2000–2004	Total	2005–2010	Total
Contractor / Consultant		Contractor / Consultant		Contractor / Consultant		Contractor / Consultant	
Museum of London Archaeology Service	683	Museum of London Archaeology Service	818	University of Leicester Archaeological Services/ Leicestershire Archaeological Unit	692	Suffolk Archaeological Unit/ Suffolk County Council	941
Wessex Archaeology/Trust for Wessex Archaeology	428	Wessex Archaeology/Trust for Wessex Archaeology	590	Oxford Archaeology/Oxford Archaeological Unit	674	Wessex Archaeology/Trust for Wessex Archaeology	915
Oxford Archaeology/Oxford Archaeological Unit	355	Oxford Archaeology/Oxford Archaeological Unit	498	Archaeological Project Services	667	University of Leicester Archaeological Services/ Leicestershire Archaeological Unit	837
Suffolk Archaeological Unit/ Suffolk County Council	349	Thames Valley Archaeological Services	437	Museum of London Archaeology Service	606	Thames Valley Archaeological Services	812
York Archaeological Trust	251	Surrey County Council/Surrey County Archaeological Unit	416	Cotswold Archaeology/Cotswold Archaeological Trust	604	Archaeology South-East/South Eastern Archaeological Services, University College London	694
Cotswold Archaeology/Cotswold Archaeological Trust	196	Archaeology South-East/South Eastern Archaeological Services, University College London	404	Archaeology South-East/South Eastern Archaeological Services, University College London	593	Northamptonshire Archaeology/ Northamptonshire County Council	639
Southampton City Council	193	Archaeological Solutions/ Hertfordshire Archaeological Trust	389	Archaeological Solutions/ Hertfordshire Archaeological Trust	585	Cotswold Archaeology/Cotswold Archaeological Trust	631
Herefordshire Archaeology/ Hereford & Worcester County Council	190	University of Leicester Archaeological Services/ Leicestershire Archaeological Unit	364	Wessex Archaeology/Trust for Wessex Archaeology	583	Archaeological Services/The Archaeological Practice, Durham University	609
Birmingham Archaeology/ University of Birmingham Field Archaeology Unit	182	Oxford Archaeology North/ Lancaster University Archaeological Unit	362	Pre-Construct Archaeology/ Geophysics	567	WYAS Archaeological Services	586
Gloucestershire County Council	181	Archaeological Project Services	361	Thames Valley Archaeological Services	559	Archaeological Project Services	575
Trent & Peak Archaeological Unit/Trust	175	NAU Archaeology/Norfolk Archaeological Unit	346	Suffolk Archaeological Unit/Suffolk County Council	549	Archaeological Solutions/ Hertfordshire Archaeological Trust	558
University of Manchester Archaeological Unit/Greater Manchester Archaeological Unit	175	Exeter Archaeology/Exeter Museums Archaeology Field Unit	345	NAU Archaeology/Norfolk Archaeological Unit	453	Pre-Construct Archaeology/ Geophysics	517
Surrey County Council/Surrey County Archaeological Unit	167	Canterbury Archaeological Trust	323	Canterbury Archaeological Trust	439	Humber Field Archaeology/ Humberside Archaeology Unit	496
Cambridgeshire Archaeology/ Cambridgeshire Archaeological Field Unit, Cambridgeshire County Council	164	Cotswold Archaeology/Cotswold Archaeological Trust	313	Oxford Archaeology North/ Lancaster University Archaeological Unit	414	Canterbury Archaeological Trust	493

Table 8.1

1990–1994	Total	1995–1999	Total	2000–2004	Total	2005–2010	Total
Contractor / Consultant		Contractor / Consultant		Contractor / Consultant		Contractor / Consultant	
Humber Field Archaeology/ Humberside Archaeology Unit	159	Cornwall County Council	299	Gloucestershire County Council	409	CgMs	488
NAU Archaeology/Norfolk Archaeological Unit	155	Northamptonshire Archaeology/ Northamptonshire County Council	294	WYAS Archaeological Services	395	Oxford Archaeology North/ Lancaster University Archaeological Unit	485
Cornwall County Council	154	York Archaeological Trust	281	AOC Archaeology	376	Oxford Archaeology/Oxford Archaeological Unit	483
Essex County Council/Field Archaeology Unit	147	Northern Archaeological Associates	275	Cornwall County Council	372	Museum of London Archaeology Service	480
Thames Valley Archaeological Services	137	AC Archaeology	269	Humber Field Archaeology/ Humberside Archaeology Unit	371	AOC Archaeology	469
Warwickshire Museum	137	Birmingham Archaeology/ University of Birmingham Field Archaeology Unit	261	Exeter Archaeology/Exeter Museums Archaeology Field Unit	341	Archaeological Services & Consultancy Ltd	444

In the case of desk-based assessments and field evaluations there are, as might be expected, differences in the size of reports according to whether archaeology is represented or not (Figure 8.5A). Where archaeology is present there is a general upward trend in the scale of these reports, as already noted. For desk-based assessments, both positive and negative archaeology generate similar sized reports. For investigations where no archaeology was found the field evaluation reports are generally shorter documents and both types increase in size over time (Figure 8.5B). Such reports focus on what was expected, what the outcome was, and what methods were used.

By quantifying the academic apparatus associated with the grey literature reports examined it is possible to glimpse other general quality issues. Turning first to reports on pre-determination investigations it is apparent that most desk-based assessment and field evaluation reports contain one or more figures (Figure 8.6A), although they are used less in environmental statements up to the mid 2000s and are more variable. These are usually location maps and summary maps showing archaeological sites and monuments in the case of desk-based assessments and environmental statements. Excavation trenches and survey areas are usually included in reports on field evaluations. In contrast, the use of photographs has increased over the course of the PPG16 Era in reports on all three investigation types (Figure 8.6B). This is probably a reflection of the increased availability of digital photography and the relative ease of incorporating photographs within word-processed texts. Curiously, and with no obvious explanation, the inclusion of references or bibliographies has increased during the PPG16 Era but even at its close was not as widespread as might be imagined in environmental statements (Figure 8.6C).

Turning to reports on other kinds of investigations the picture is not so very different (Figure 8.7). The use of figures in the form of maps and plans is at a high level for building recording reports, estate management plans, and geophysical survey reports, although it increases through the PPG16 Era for post-determination investigations and other kinds of research report. The use of photographs increases for all kinds of report for the reasons touched on above. And again, provision of references or a bibliography increases. Stark year-on-year variations seen in the mid-1990s and early 2000s for estate management survey reports and geophysical survey reports are mainly because of small samples.

Overall, the quality of archaeological reports varies widely. Although individual contractors have not been singled out here for their reporting standards, there is a clear need for adherence to nationally recognised standards. One area in special need of attention is the summary or abstract. Most reports include one, but they vary considerably in size and coverage. To be useful, bearing in mind that it is the summary that is most commonly read, they need to include relevant details in four main areas:

Table 8.2 Top-20 archaeological contractors and consultants ranked by total number of completed reports recorded by the AIP for the period 1990–2010

Consultant/Contractor	Number of recorded reports 1990-2010
Museum of London Archaeology Service	2587
Wessex Archaeology/Trust for Wessex Archaeology	2516
Oxford Archaeology/Oxford Archaeological Unit	2010
Thames Valley Archaeological Services	1945
University of Leicester Archaeological Services/Leicestershire Archaeological Unit	1893
Suffolk Archaeological Unit/Suffolk County Council	1839
Cotswold Archaeology/Cotswold Archaeological Trust	1744
Archaeology South-East/South Eastern Archaeological Services, University College London	1691
Archaeological Project Services	1603
Archaeological Solutions/Hertfordshire Archaeological Trust	1532
Oxford Archaeology North/Lancaster University Archaeological Unit	1261
Canterbury Archaeological Trust	1255
Pre-Construct Archaeology/Geophysics	1084
Humber Field Archaeology/Humberside Archaeology Unit	1026
WYAS Archaeological Services	981
NAU Archaeology/Norfolk Archaeological Unit	954
Northamptonshire Archaeology/Northamptonshire County Council	933
AOC Archaeology	845
Cornwall County Council	825
Exeter Archaeology/Exeter Museums Archaeology Field Unit	686

1. Location and context: Address of the site including parish, district/unitary authority, county and country; central national grid reference; overall area under study in hectares; relationships with area-designations (*e.g.* National Park, AONB etc.); presence of any designated heritage assets (Scheduled Monuments, Listed Buildings etc.); purpose of the work (pre-determination; post-determination; non planning-related research) and broad investigation type; brief history of previous archaeological work and, if relevant, the planning process; details of who did the work and any sub-contract arrangements; details of the content and location of any archive arising from the work.
2. Archaeological investigations: A brief methods statement outlining the investigatory events forming the core of the work with information on timings, coverage, and sampling policy.
3. Archaeological results: summary of the key features and deposits revealed, where possible linked to interpretative statements about recognisable monuments types and chronological horizons. Clear statement of negative evidence if relevant.
4. Archaeological finds: Key-word list of the main artefact types recovered; notes on any environmental samples taken and assemblages studied; summary of dating programme and details of resulting dates.

The need for carefully recording all investigation types can hardly be underestimated. Even investigatory events that apparently yield no archaeological remains, negative evidence, deserve to be recorded for sound epistemological reasons.

Negative evidence

Negative evidence is a special and rather neglected form of archaeological data. At a simplistic level negative evidence may be seen as gaps in the picture generated by cumulative archaeological research – what are usually referred to as 'blank areas'. But, in a way, the very notion of a 'blank area' encapsulates the problem: is an area really 'blank' (*i.e.* truly devoid of archaeological remains of a particular type) or is it simply that there has been no archaeological work with suitable observations in the area in question? Or, perhaps, that there has been relevant archaeological work but it has failed to locate evidence that is in fact present. Negative evidence must not be confused with an absence of evidence; negative evidence is 'evidence of absence' and

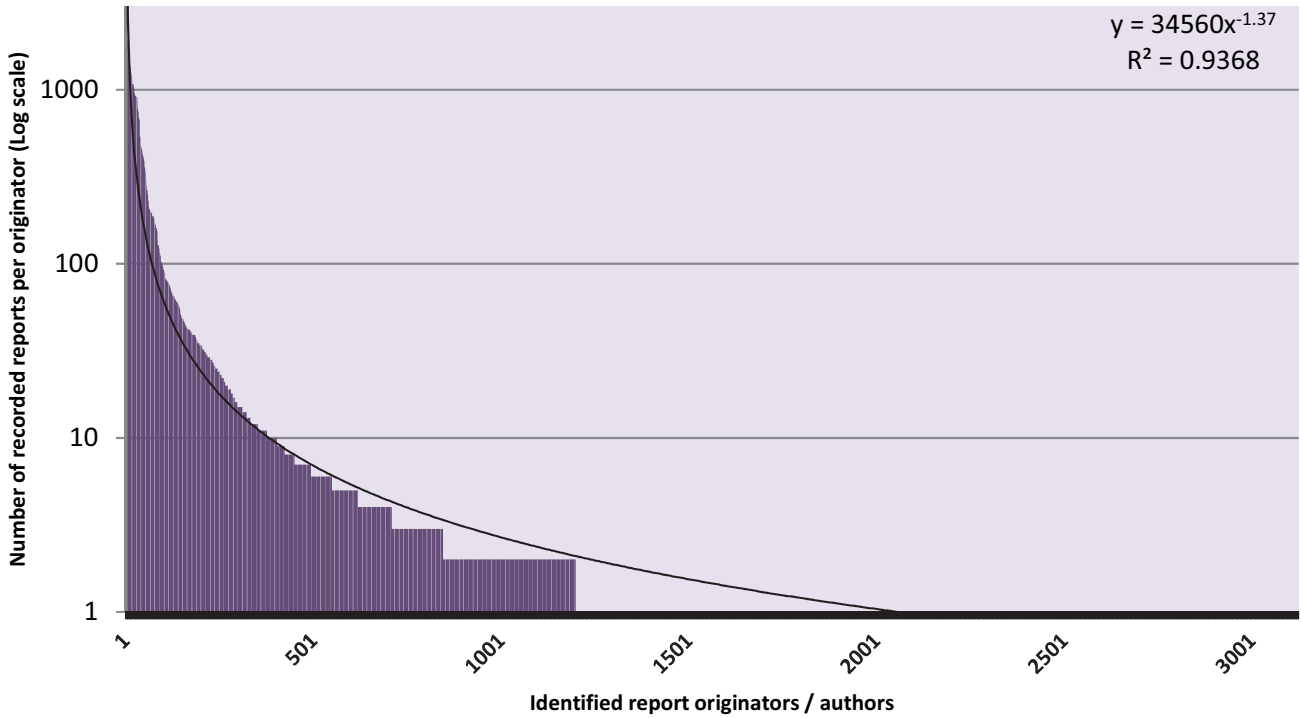

Figure 8.3 Frequency distribution of the number of recorded reports (vertical axis with log scale) produced by each of the identified 3126 originators (horizontal axis). A power regression line added with R-value indicating good fit and broad conformity to Lotka's Law. (Data: AIP)

thus contributes the chain of arguments relating to defining and delimiting the distribution and extent of categories of evidence. In practice that means the structured examination of an area or place and the confirmation through normal archaeological practices that no evidence for a range of possibilities is present. Large-scale development-led investigations, including geophysical surveys and field evaluations, can provide such evidence and contribute to the archaeological interpretation of sites and landscapes at many different levels (Thomas 2013b).

Complicating the issue is that the positive recognition and recording of one kind of archaeology may divert attention from recording evidence for the absence of other categories of archaeology. Thus, the discovery of a well-preserved Roman villa and an associated cemetery set within a contemporary agricultural landscape of fieldsystems and enclosures may obscure the recognition that there was no evidence for later prehistoric, Anglo-Saxon, or medieval use of the site, for example.

Negative evidence is important for three main reasons connected to the construction and validation of secure knowledge or understandings. First, as long recognised, spatial analysis such as the creation of meaningful distribution maps requires the plotting of places where finds of the kind under study might have occurred, but were not present (Hodder & Orton 1976: 20–29). Second, the increasing use of deposit modelling, whether in urban situations such as York (Ove Arup *et al.* 1991: 17–21; Richards 1991) or in rural landscapes such as the Trent Valley (Howard *et al.* 2008), requires both positive and negative evidence combined to create a series of gradients or scales of intensity rather than simple binary categories. The same applies to the emerging field of predictive modelling which uses observed data to anticipate the nature and distribution of wider data-sets in terms of site locations, site densities, former land-use, and archaeological sensitivity and is therefore highly reliant on using representative data rather than data skewed by the pre-selection of positive outcomes (Brandt 1992; Herzog 2010; Hill *et al.* 2011; Leusen & Kamermans 2005). And third, as a contribution to strategic knowledge, negative evidence as well as positive evidence feeds back into decision-making, improves the specification of future investigations (*see* Chapter 3), and informs the test of 'reasonableness' that must be applied to any request for further works specified in a mitigation strategy (Gilman & Newman 2007: C.20)

Figure 8.8 shows the number of reports recorded by the AIP which describe investigations that revealed no archaeological remains, for three investigation types. In the case of desk-based assessments and watching briefs the absolute number of investigations revealing negative evidence shows an increase over time. However, in the

Table 8.3 Average size in page-length of recorded reports from the period 1990–2010 by investigation type.

Investigation Type	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average
EIA	98.4	107.8	88.2	68.8	56.6	37.5	37.6	40.8	33.5	33.7	35.3	1.0	146.1	110.8	134.2	124.3	60.4	125.8	105.7	76.3	123.3	100.4
Estate Management						84.2	126.4	62.3	64.3	54.6	41.4	45.1	54.3	53.9	63.5	57.9	55.1	61.6	55.3	61.1	58.2	60.8
Maritime investigation					116.0											14.4	54.0	47.3	71.7	52.2	65.9	57.2
Building Recording		32.0						27.3	36.0	30.6	31.8	30.5	36.1	37.6	33.8	34.1	39.2	43.3	32.0	33.8	37.0	35.2
Desk-based Assessment	21.7	21.0	28.0	28.0	29.4	30.5	27.0	28.6	27.2	29.7	31.2	31.2	33.0	29.7	30.7	29.9	33.9	36.7	34.7	37.7	37.3	31.5
Post-excavation assessment																					23.8	23.8
Field Evaluation	19.0	17.3	19.6	21.1	21.9	22.0	23.0	23.1	20.9	22.6	24.2	24.5	22.4	23.2	24.4	24.3	26.5	27.0	25.9	26.6	27.5	23.6
Geophysical Survey	29.0	12.0		12.5	32.3	17.4	19.0	20.9	18.7	20.4	13.4	20.6	19.9	20.2	22.9	21.6	23.8	19.8	17.5	19.2	19.0	20.4
Post-determination investigation	15.8	16.1	15.9	19.3	17.6	17.4	16.3	15.8	14.5	15.1	15.8	17.0	16.2	15.6	16.1	16.1	15.3	18.6	19.1	20.0	21.7	17.0

case of field evaluations the overall proportion recorded as yielding a negative result is generally lower and the overall trend is relatively stable over time. Anecdotal evidence gathered by AIP researchers suggests that many investigations that fail to reveal any archaeological remains go unreported in the sense that what has been done where and when, and what methods were applied is not written up. Increasingly it seems that the results of investigations where 'no archaeology was present' are communicated to the client and/or planning authority by letter or email rather than through a formal report. Even some published listings in county journals skate over the issue of investigations that reveal little or nothing.

Publication: the final frontier

Making the results of archaeological investigations available through publication with reasonable dispatch is Principle 4 in the Code of Conduct set out by the Chartered Institute for Archaeologists and its predecessors (CIFA 2014a: 6). While most archaeologists agree that this is the right thing to do, in practice there are plenty of obstacles along the way to achieving it. These include practical issues and financial problems such as the funder of a project going out of business. The 'final report' on a piece of research is in many ways the synthesis or coming together of strategic and narrative knowledge. As the case studies described in Chapter 9 clearly show, reports on planning-related investigations increasingly include full consideration of the planning context, the unfolding of the planning process, and include summaries of the results of the various events undertaken along the way that are linked to the key investigation types or stages. On some large projects, literally dozens of pieces of grey literature of various kinds are produced at milestones along the way and thus may contribute to, and be summarised within, the final report.

Lessons have undoubtedly been learnt from the pressures of having a substantial backlog of investigations requiring publication, such as built up during the 1970s and 1980s, and the need to make good use of the large volume of data that results from planning-related investigations (Cunliffe 1990; Thomas 1991). Large commercial archaeological contractors established post-investigation facilities for processing, analysing, and reporting records, finds, and samples in order to achieve higher throughput and reduce the waiting time for publications. Improved IT and especially the opportunities presented by digital recording and mapping have helped enormously, but have required considerable capital investment and new working patterns. There is still a long way to go before all the records associated with an archaeological project are born digitally. But the preparation of reports, whether pre-determination or post-determination, has become much faster and more streamlined over the last two decades. Production of grey literature reports for modest

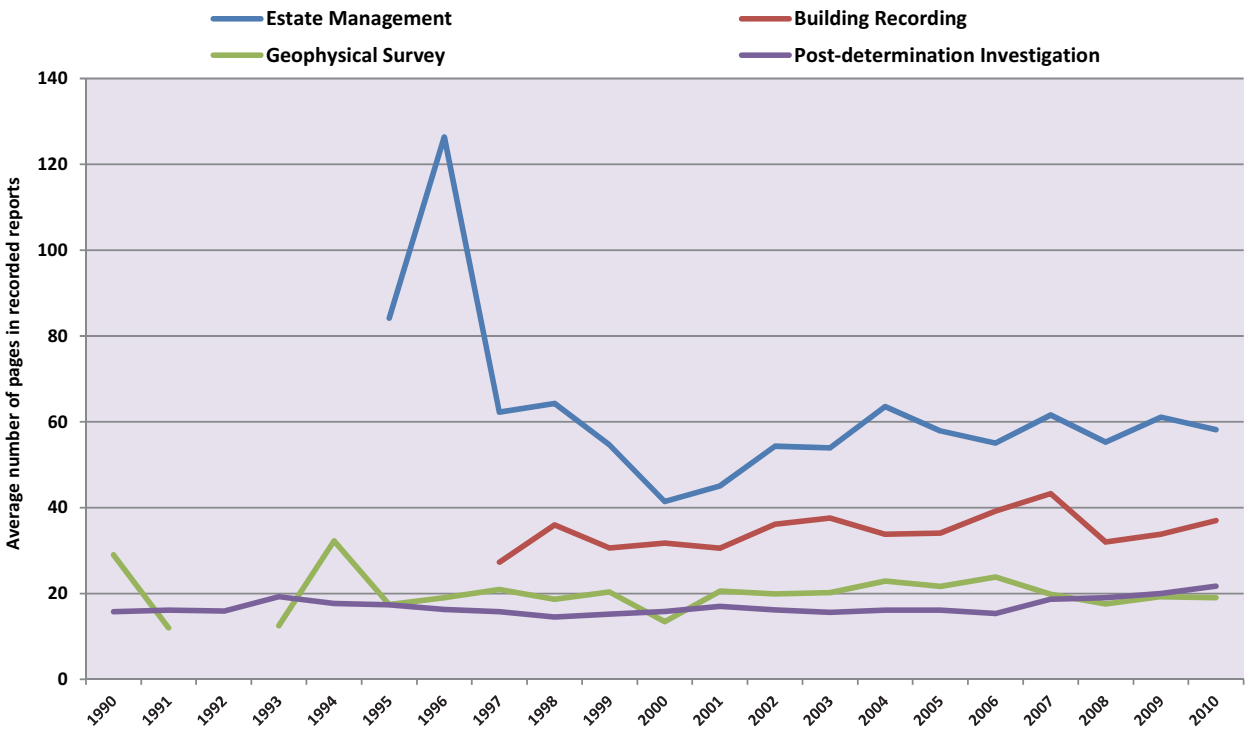

Figure 8.4 Average size (page-length) of recorded grey literature reports for selected Investigation types 1990–2010. (Data: AIP)

pieces of work can be very rapid; an average of around 1100 field evaluations per year over the last two decades means that an average of 5 per working day must be appearing across the country. The dissemination/publication of a grey literature report alone is also increasingly the case for a large number of post-determination excavations, especially small-scale work.

Pulling in the opposite direction to the advances made in streamlining report production, is that archaeological involvement in development programmes has become longer, more episodic, and more spread-out through the different stages of planning and executing a project. This is especially the case for large and controversial schemes. Several different archaeological contractors may be involved either in sequence or in parallel, and with large infrastructure schemes there are many advantages to joint venturing (Fitzpatrick 2011). Partnerships in recent years include Oxford Archaeology and Wessex Archaeology operating as Framework Archaeology for British Airports Authority projects at Heathrow, Stansted, Gatwick, Southampton and Edinburgh; Cotswold Archaeology and Wessex Archaeology working as CWA for the A46 road improvement scheme in Nottinghamshire; and Cotswold and Pre-Construct Archaeology working together as CAPCA at Broadmead in Bristol.

Figure 8.9 shows an analysis of the projects reviewed as case studies in Chapter 9 in terms of the duration of each project from first archaeological involvement through to final publication. Admittedly these represent a tiny fraction of the work carried out in recent decades and were selected to illustrate approaches to a range of different kinds of project, but they do allow some useful observations. One is that large projects initiated in the late 1980s, for example the new-town development at Cambourne, Cambridgeshire, or Terminal 5 at Heathrow, Greater London, typically run for more than two decades, and that even smaller programmes initiated in the early 1990s, for example the water treatment plant at Sutton Poyntz, Dorset, can span more than a decade. However, projects that start after 2000 seem to reach publication within a decade or so and even very large projects such as the Channel Tunnel High Speed Rail-Link (HS1) were delivered inside two decades.

Notwithstanding the changes noted, and the qualitative impressions gained from a grab sample of case studies, the overall rate of production of final reports remains a matter of concern (Fulford 2011: 44). Tracking the progress of projects and their eventual publication is not easy, especially where the names of sites change along the way as part of the development process. Figure 8.10 shows a snap-shot of the known state of publication for the *c*.80,000 reports recorded by the AIP between 1990 and 2010. Accepting that the additional publication of some work went unrecorded, that some has probably been published since, and that some is no doubt still in the pipeline, it can be suggested that less than 5 per cent currently reaches final publication through monographs or journals. Such a low percentage might be expected given the number of recorded investigations that produce negative results, but that is only part of the problem

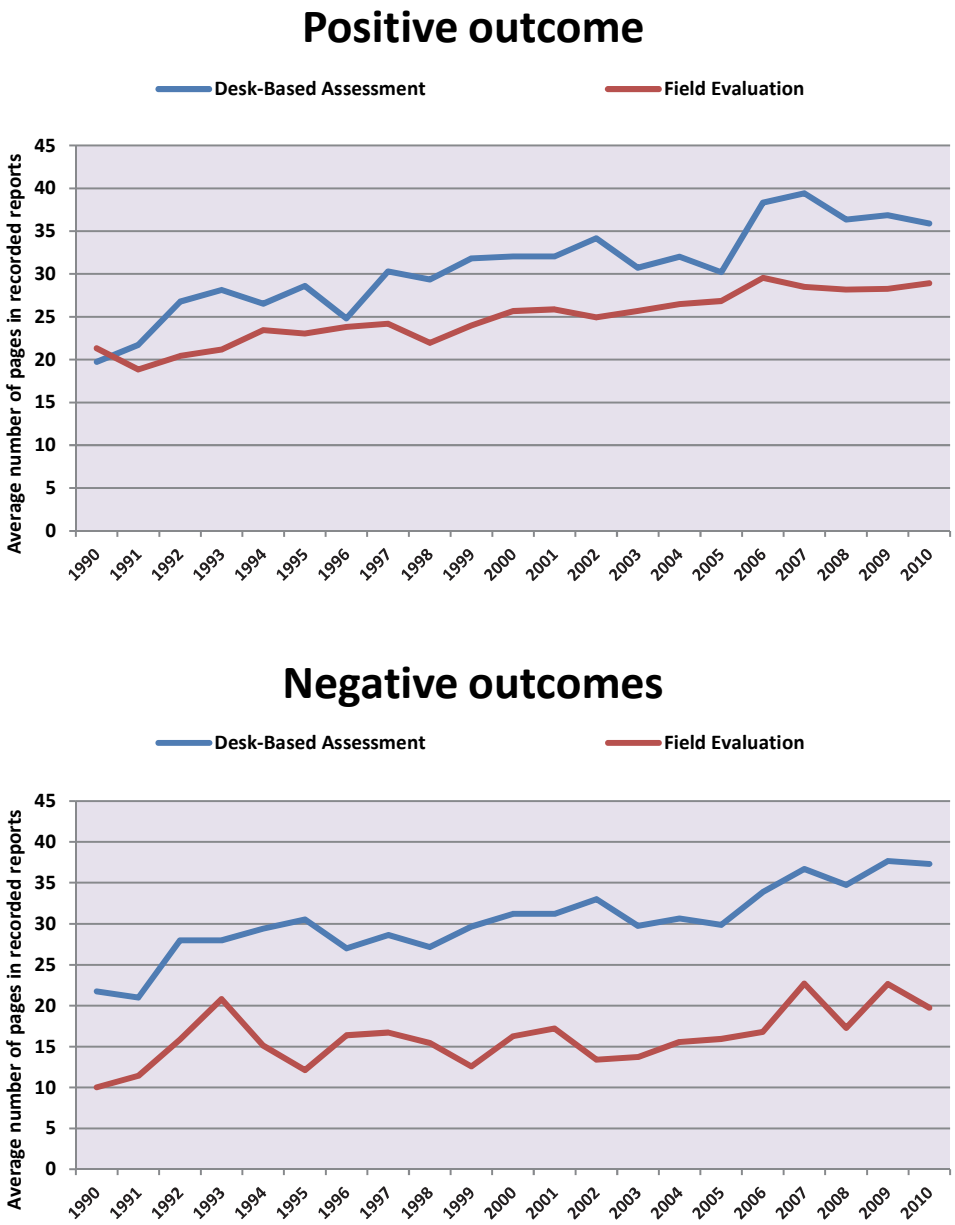

Figure 8.5 Average size (page-length) of recorded grey literature reports for desk-based assessments and field evaluations. ***A.*** *Investigations that yielded archaeological evidence.* ***B.*** *Investigations with negative results. (Data: AIP)*

and the poor overall record is supported by other analysis. Fulford and Holbrook (2011a: 333) show that in the four pilot studies undertaken for their work on Roman grey literature only 86 out of 228 recorded excavations (38 per cent) had been published by the end of 2008. Much the same picture is provided by Neil Holbrook's analysis of reporting of significant excavations within Roman towns in southwestern England between 1990 and 2013, which revealed that only 18 out of 43 (42 per cent) had been fully published (Holbrook 2015: 109–12) and his study referred only to the major sites.

Making grey literature reports widely available is being addressed through various initiatives using web-based technologies. As noted above, the Grey Literature Library established in 2005 by the Archaeology Data Service and connected to OASIS already holds a substantial collection of reports that are easily accessible on-line. Some major archaeological contractors host searchable collections of their own reports: Cotswold Archaeology, for example, has its Archaeology Reports On-Line that contained more than 3300 entries by the end of 2017 accessible through maps or word-searches (http://reports.cotswoldarchaeology.co.uk/). Similar facilities are provided by Wessex Archaeology, which includes downloadable Reports in the 'Our Work' section of its website (https://www.wessexarch.co.uk/our-work). These same organisations, mainly large companies that collectively account for a large proportion of the work done, also publish their own monographs and contribute widely to established journals.

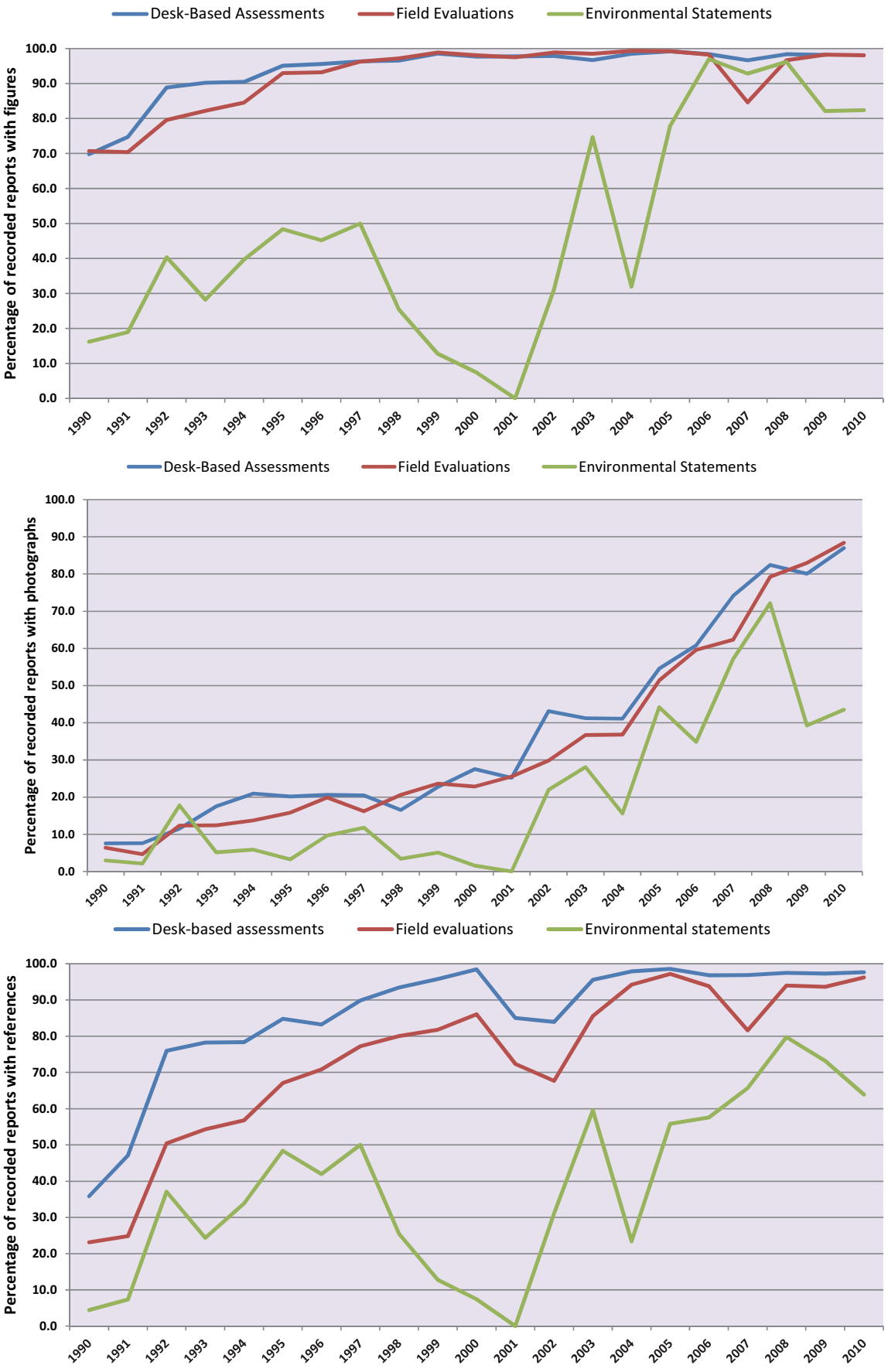

*Figure 8.6 Presence of key apparatus associated with recorded grey-literature reports for pre-determination investigation types averaged by year for the period 1990–2010. **A**. Figures (plans and maps). **B**. Photographs. **C**. References or bibliography. (Data: AIP. Sample = 37,022 reports)*

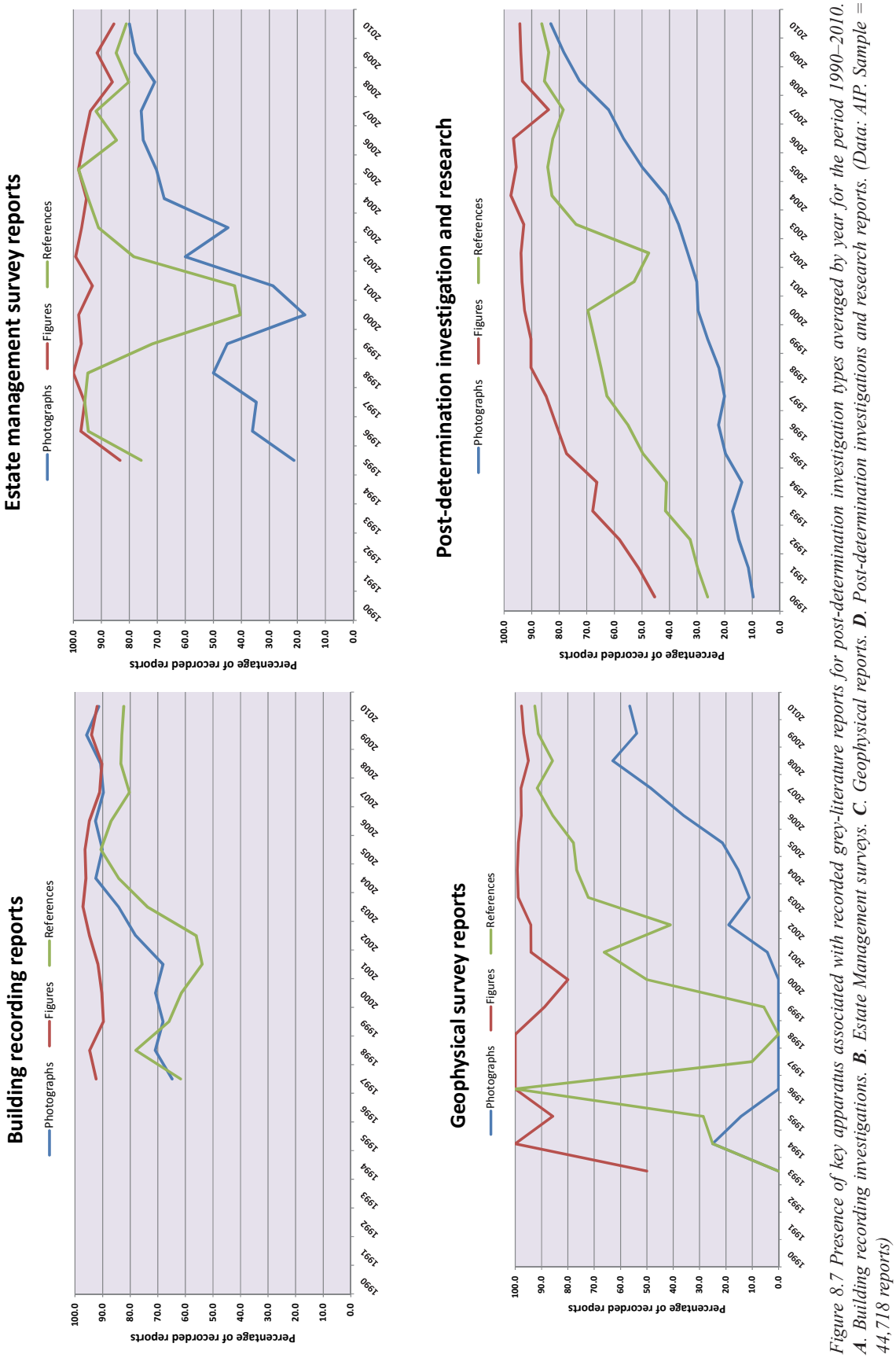

*Figure 8.7 Presence of key apparatus associated with recorded grey-literature reports for post-determination investigation types averaged by year for the period 1990–2010. **A**. Building recording investigations. **B**. Estate Management surveys. **C**. Geophysical reports. **D**. Post-determination investigations and research reports. (Data: AIP. Sample = 44,718 reports)*

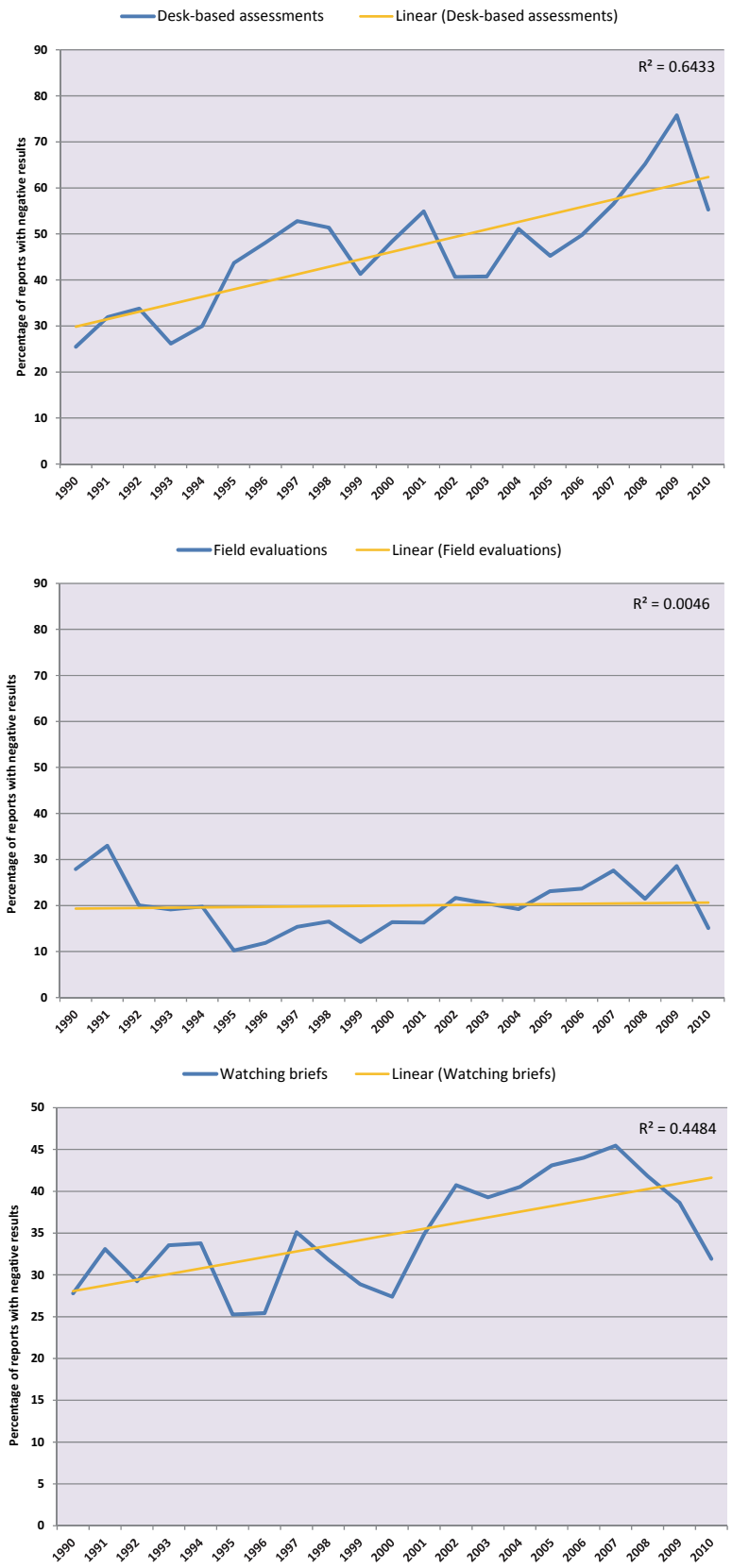

Figure 8.8 Percentage of reported investigations revealing no recorded archaeology 1990–2010. ***A.*** *Desk-based assessments.* ***B.*** *Field evaluations.* ***C****. Watching briefs. (Data: AIP. Sample = 62,086 reports)*

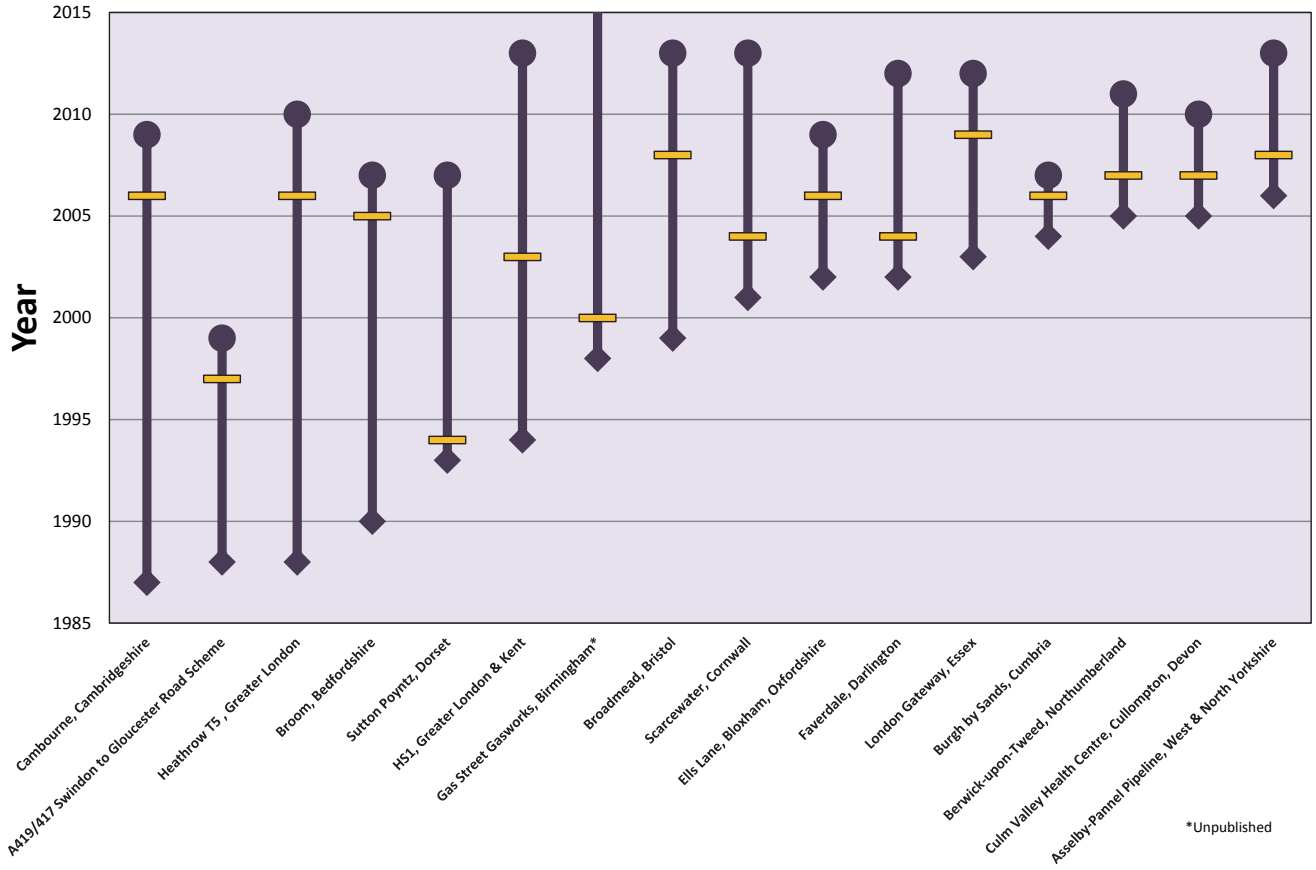

Figure 8.9 Project progression for the case studies reviewed in Chapter 9. The lozenge at the lower end of each bar represents the initiation of the project by the first archaeological contribution, the dot at the top marks the completion of the work through final publication. The cross-bar shows the end of the fieldwork on-site. (Data: AIP and published reports cited in Chapter 9)

Monographs are widely recognised as the principal vehicle for publishing large reports on extensive and significant investigations; their use was commended by the Committee on publication set up by the Society of Antiquaries and the Museums Association (Carver *et al.* 1992: ii), and the costs of origination and production are usually included in the project budget with the result that these volumes are heavily subsidised and mainly sold at a cover price that relates to handling and distribution. It is hard to quantify the number of such publications and who produced them through the PPG16 Era, not least because there is no central index, some are joint publications, some are part of wider series that blur the boundaries with journals and periodicals, some contractors have more than one monograph series, and of course some contractors changed their name during the survey period. However, Table 8.4 provides a rough quantification of monographs published by the twenty most prolific archaeological contractors in terms of total reporting (*see* Table 8.2) based on the registration of publications in library catalogues and listings on their own websites. The number of monographs recorded by the project is comparatively low, with only five of the top twenty contractors reported as producing 5 or more monographs. Many do not appear to have produced any monograph-style reports at all during the survey period, perhaps preferring other vehicles for the publication of their work. It may also be noted that the monographs in question vary considerably in size and scope. Some cover just a single project, although combining results from a succession of investigation types and numerous events. Others bring together the results from a range of linked projects: *Cirencester Excavations VI*, for example, includes reports on excavations and watching briefs at 14 substantial sites and a handful of smaller investigations (Holbrook 2008), while Wessex Archaeology's *Kentish Sites and Sites in Kent* is a miscellany of four excavations funded by different organisations united only, as the title suggests, by being in Kent (Andrews *et al.* 2010). Some archaeological contractors used the BAR British Series published by Archaeopress as a vehicle for excavation and fieldwork reports, which published 33 investigations between 1990 and 2010; the Council for British Archaeology's Research Reports series included 30 reports on field investigations between 1990 and 2010; while Oxbow Books published more than 50 reports on

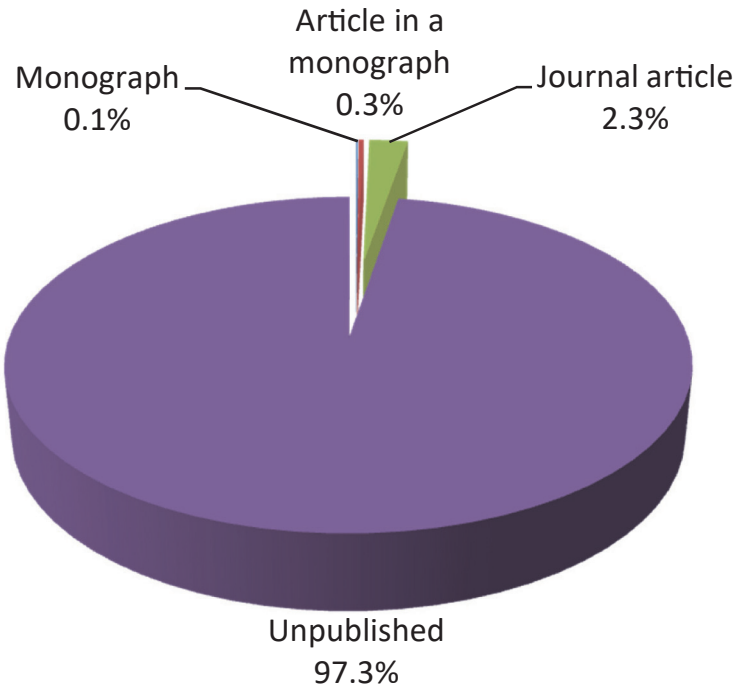

Figure 8.10 Analysis of recorded publication outlets for literature and reports reviewed by the AIP for the period 1990–2010. (Data: AIP. Sample = 79,645 records).

Table 8.4 Estimated number of monographs published by the top-20 archaeological contractors determined by overall recorded report outputs (see Table 8.2) between 1990 and 2010. (Data: company websites and library catalogues)

Contractor/Consultant	Monographs published 1990-2010
MoLAS	0
Wessex Archaeology/Trust for Wessex Archaeology	4
York Archaeological Trust	5
Oxford Archaeology/Oxford Archaeological Unit	1
University of Leicester Archaeological Services/Leicestershire Archaeological Unit	0
Cotswold Archaeology/Cotswold Archaeological Trust	20
Thames Valley Archaeological Services	0
Pre-Construct Archaeology	0
Archaeological Project Services	0
Canterbury Archaeological Trust	8
Cornwall County Council	0
WYAS ArchaeologIcal Services	0
NAU Archaeology/Norfolk Archaeological Unit	0
Oxford Archaeology North/Lancaster University Archaeological Unit	5
Suffolk Archaeological Unit/Suffolk County Council	0
Archaeology South-East/South Eastern Archaeological Services, UCL	0
Northamptonshire Archaeology/Northamptonshire County Council	0
Exeter Archaeology/Exeter Museums Archaeological Field Unit	0
Archaeological Solutions/Hertfordshire Archaeological Trust	1
Gloucestershire County Council	0

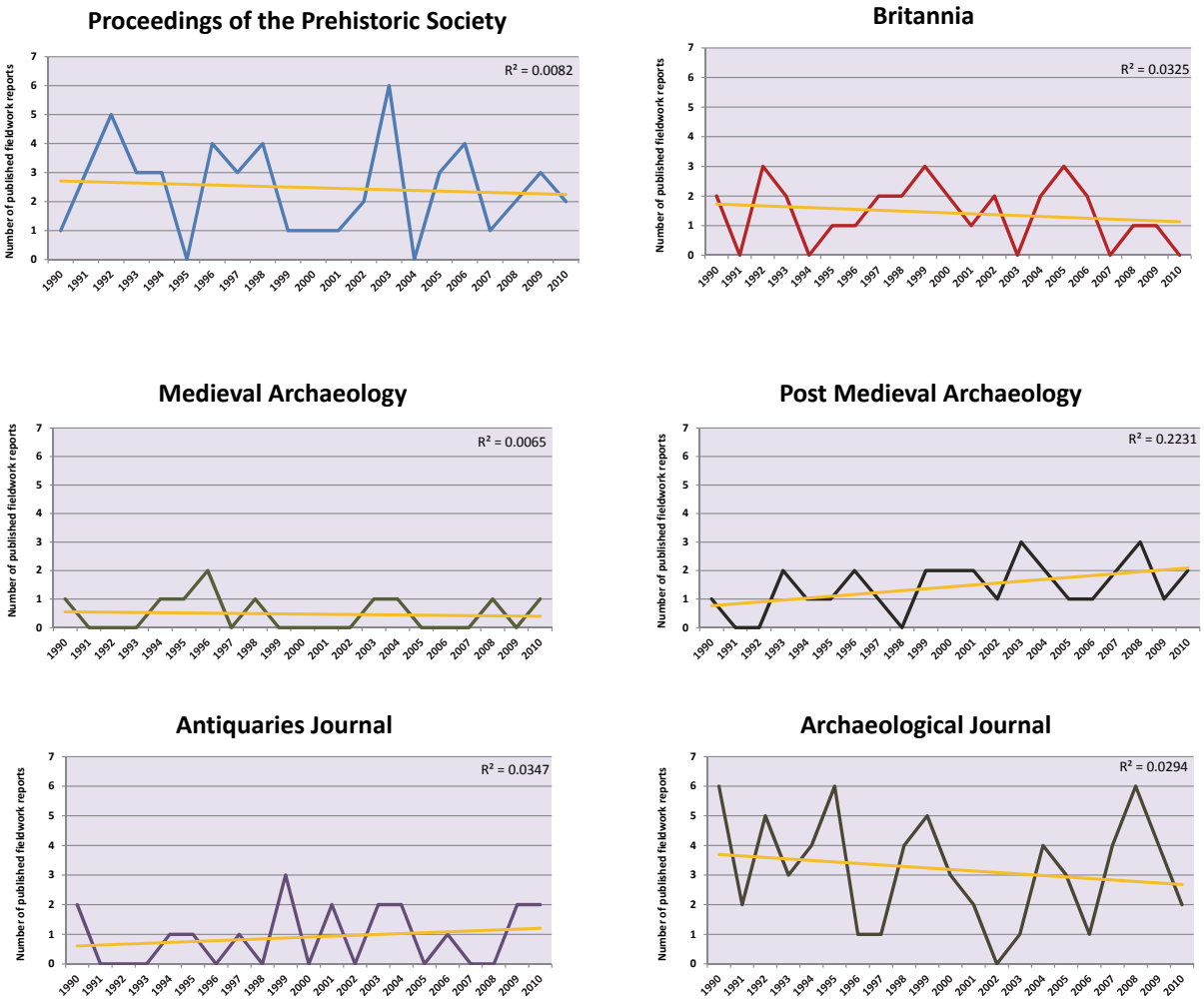

Figure 8.11 Review of 'final' investigation reports published in a selection of international UK journals for the period 1990–2010. (Data: Periodicals as cited)

investigations on behalf of various organisations and acted as distributors for others.

Final reports were also regularly published in national and county journals through the PPG16 Era. Figure 8.11 shows the frequency of final reports covering the various investigation types of interest to the AIP year-on-year for the period 1990–2010. The profiles are rather jagged; in part that is because only reports on projects in England were counted, with the result that for years when reports from other parts of the UK or from overseas projects are included there is little space left to report work from England. There are two important points that come through. First is that the overall number of reports is fairly low. The multi-period *Archaeological Journal* carried the highest number (59), *Medieval Archaeology* the lowest (9). In any given year the capacity of the national journals is limited; the maximum achieved was 14 reports in 1999, the average was 10 per year. Secondly, with the exception of *Post-Medieval Archaeology*, the clear trend for publishing reports on investigations of this kind is downwards. In some cases this might be attributed to editorial policy in balancing content between data-rich primary accounts of significant investigations with the results of other kinds of research. There may also be limits on the size of individual journals and the costs of publication (although the costs of origination and production are usually off-set by grants from those producing the reports). Two of the national period societies, the Roman Society and the Society for Medieval Archaeology also had active monograph series during the PPG16 Era; the *Britannia Monograph Series* includes five volumes published between 1990 and 2010 that comprise final reports on excavations in England, while eight volumes of final reports were published in the same period in the *Society for Medieval Archaeology Monograph Series*.

Regional and county journals have much the same constraints as the nationals, and in all cases there is considerable pressure from their membership to produce journals that comprise papers that are 'interesting'. For some

that means synthesis rather than primary fieldwork reports, and there is considerable pressure to include only summary reports or banish them all together.

Some regional and county societies cover history and natural history as well as archaeology, and therefore have to strike a balance between the various themes covered that in practice limits the number of reports that can be included; multi-disciplinary county journals rarely carry more than two or three archaeological reports a year. A few have found innovative solutions. The Bristol and Gloucestershire Archaeological Society, for example, include a supplemental volume of archaeological reports produced by Cotswold Archaeology for investigations in the region, which is bundled with their *Transactions* and distributed free to members. On the other side of the country, East Anglian Archaeology was established in 1975 as a vehicle for the publication of results from fieldwork and excavations in Suffolk, Norfolk, Essex, Cambridgeshire, Hertfordshire and Bedfordshire, and between 1990 and 2010 issued 72 reports on a range of investigations across the region. The *Dorset Natural History and Archaeological Society* publish a monograph series for longer reports that cannot be accommodated within their journal: between 1990 and 2010 some 12 substantial investigations were published in this way. Other county societies and a number of university archaeology departments also publish monograph series, but there is no simple national listing of what is available.

The volume of archaeological reports produced each year far exceeds the capacity of conventional publishing to cope with the load. Excluding fieldwork reports from mainstream publications only exacerbates the problem and inevitably means greater resort to the grey literature as a vehicle for disseminating primary data. Overall, as the longitudinal case studies presented in the next chapter show very clearly, the reporting and publication of archaeological investigations involves a very varied mix of document types delivered through an equally varied range of platforms and media.

Chapter 9

Adding value and impact: Case studies of archaeological endeavour

More than 80,000 recorded investigations were reported over a period of twenty years through the PPG16 Era, an average of over 4000 per year, and have yielded a huge volume of new information about the historic environment. Making sense of it all is recognised as a challenge, but one in which good progress is being made. Developing the model of professional practice briefly outlined in Chapter 8, archaeology is all about knowledge-building. During the formulation of plans for development, management, and conservation, such knowledge is essentially a 'strategic knowledge' useful in identifying, balancing, and prioritising possibilities, and informing decision-making. Later work, post-determination investigations for example, are more concerned with maximising the yield of information from sites and deposits destroyed or damaged by the implementation of approved development proposals contributing to what might be called 'narrative knowledge'. This chapter looks at how these long-term processes of knowledge-building play out in practice.

First attention is given to a series of case studies. These were selected to reflect the archaeological process at a variety of sites representing responses to the most common types of development and the post-determination investigations that follow. Each is discussed in terms of their progression as projects, their achievements, and their results. Accompanying tables provide a time-line for each project and a list of the main outputs produced along the way. The second section discusses how use is being made of the results of investigations over the past 20 years to construct wider narratives of England's historic environment. Finally, attention is directed towards assessing the impact of this work in wider societal terms.

Building the historic environment: Case studies from the PPG16 Era

Many different kinds of development or management initiatives prompted by a great variety of needs and desires have given rise to archaeological investigations over the PPG16 Era. These were explored in Chapter 3 in relation to the range of projects coming through the planning system (*see* Table 3.13); in Chapter 5 in relation to post-determination mitigation programmes (*see* Table 5.1); and in Chapter 6 in relation to non planning-related streams. The case studies summarised here reflect the main, in the sense of most numerous, kinds of project. They range in size from small-scale short-duration private development programmes of the sort that almost any house-holder or property owner might get involved with, through to large and complicated public projects that can take decades to negotiate and construct.

All share a common four-stage pattern to the way they unfold – inception, planning, decision, implementation – but the nature of the process, the studies that are carried out along the way, and the degree of influence that decision-making has varies greatly. It is also recognised that the costs, and thus the budgets, relating to these projects varies greatly from a few thousand pounds up to many millions of pounds. Also, the expectations of those commissioning or funding the work vary. Table 9.1 summarises the key investigation types represented in each of the case studies; Figure 9.1 shows their distribution across England. As will be clear, the duration and complexity of each programme influences the documentation of the process and the nature of the outputs along the way. As discussed in Chapter 8, more documentation is often created during the pre-determination stages of a project (documents communicating strategic

Table 9.1 Summary of the archaeological investigation types represented by the case studies discussed in Chapter 9.

	Site	Pre-determination			Post-determination	
		Desk-Based Assessment	Field Evaluation	Environmental Impact Assessment	Mitigation works	Final Report
1	The Croft, Burgh by Sands, Cumbria	×	×	×	Watching brief	Walker 2007
2	Ells Lane, Bloxham, Banbury, Oxfordshire	×	✓	×	Open area excavation	Ford 2009
3	Broadmead Expansion Project, Cabot Circus, Bristol	✓	✓	✓	Open area excavation	Ridgeway & Watts 2013
5	Gas Street Gasworks, Birmingham	×	✓	✓	Architectural recording, open area excavations and watching briefs	Halstead & Breedon 1999; Linnane 1998; Litherland 2001
6	119-125 Marygate, Berwick-on Tweed, Northumberland	✓	✓	✓	Open area excavation & watching briefs	Hindmarch 2011
7	NHS Culm Valley Integrated Centre for Health, Willard Road, Cullompton, Devon	✓	✓	✓	Open area excavation	Hood 2010
8	Cambourne New Settlement, Cambridgeshire	✓	✓	✓	Open area excavation	Wright *et al.* 2009
9	Faverdale East Business Park, Darlington	✓	✓	✓	Open area excavation	Proctor 2012
10	Asselby to Pannal Natural Gas Pipeline, West and North Yorkshire	✓	✓	✓	Open area excavations	Gregory *et al.* 2013
11	Sutton Poyntz Water Treatment Works, Weymouth and Portland, Dorset	✓	✓	✓	Open area excavation & watching brief	Rawlings 2007
12	A419/417 road improvement scheme, Gloucestershire and Wiltshire	✓	✓	✓	Open area excavations & watching briefs	Mudd *et al.* 1999
13	Broom, Bedfordshire	✓	✓	✓	Open area excavations & watching briefs	Cooper & Edmonds 2007
14	Scarsewater Tip, Pennance, St Stephen-in-Brannel, Cornwall	✓	✓	✓	Open area excavations & watching briefs	Jones & Taylor 2010
15	Heathrow Terminal 5, Greater London	✓	✓	✓	Open area excavations & watching briefs	Framework Archaeology 2006; 2010
15	HS1 (High Speed Rail link from Pancras Station to the Channel Tunnel), Greater London and Kent	✓	✓	✓	Open area excavations & watching briefs	Andrews *et al.* 2011a; Andrews *et al.* 2011b; Barnett *et al.* 2011; Biddulph *et al.* 2011; Booth *et al.* 2011; Bates & Stafford 2013; Weban-Smith 2013
16	Stanford Wharf Nature Reserve, London Gateway, Essex	✓	✓	✓	Open area excavations & watching briefs	Biddulph *et al.* 2012

Figure 9.1 Location of sites and projects used as case-studies in Chapter 9. Regional boundaries shown.

knowledge) than is produced at the end by way of a final report (communicating narrative knowledge).

House-holder works and small-scale development

These are the most numerous kinds of development encountered by AIP, with approximately 2000 investigations relating to such work recorded. Figure 9.2 shows the distribution of investigations at developments classified as small-scale building operations across England with slight concentrations through the midlands and in areas of known archaeological interest, such as along Hadrian's Wall. Figure 9.3 shows the recorded incidence of these investigations over time. The change in identifying these investigations in 2007 makes a considerable difference to the scale of the picture, but apart from the decline in the last quarter of the PPG16 Era that can probably be attributed to the economic down-turn, the level of activity is fairly consistent. Such works include house extensions and the addition of porches, garages, and outbuildings. There are often associated small-scale ground works involving pipe-trenches, terracing, or the construction of new drives and better access. Such works are on the lower limit of what is covered through the planning process and in many areas may not be given much attention. It is a kind of archaeological work that has not been discussed to any great extent although it is the mainstay of many smaller contractors and consultants. But where developments lie within or close to designated areas or designated sites they are often identified for investigation. They are usually short-term projects, and may not involve a high degree of intervention; watching briefs are common for this kind of development.

Case study 1: The Croft, Burgh by Sands, Cumbria

A private residential house in the heart of a small village on the Solway Firth within the Hadrian's Wall Military Zone World Heritage Site, an AONB, and a Conservation Area. Maps show the south vallum ditch associated with Hadrian's Wall running through the rear of the property. Table 9.2 summarises the progress of the development and its archaeological components.

The householder submitted a planning application to Carlisle City Council in December 2004, for the erection of a two-storey extension to their residential property and the construction of a new drive. This was approved in March 2005 with conditions including an archaeological investigation that was suggested after consultation with English Heritage and the County Archaeologist.

Independent archaeologist J Walker performed the watching brief during groundworks for the extension in February and March 2006, with a further watching brief in July 2006 during the digging of a trench for a new gas-pipe into the property (Figure 9.4). This confirmed the position of the south vallum ditch which was visible as soil marks after topsoil stripping. Importantly, the watching briefs demonstrated that the ditch ran 10 m north of the line shown on contemporary Ordnance Survey maps, allowing the correction of an erroneous bend in the way the vallum was mapped. The bank of the vallum (to the south of it elsewhere along its length) was not revealed during this investigation. However, its position in the rear garden of the property was thought to be indicated by a change in the soil in the foundation trenches for the extension and a kink in the property boundary.

The findings of these watching briefs were published together as a note in the county archaeological journal (Walker 2007). This case study demonstrates that even minor development work can result in the recovery of valuable archaeological information that contributes to knowledge about monuments of national or international significance, and provides strategic knowledge to inform future developments in the area.

Small-scale house-building

Government policy over the past two decades or so to provide additional housing relied on schemes of all sizes (DoE 1988b). Small-scale developments of less than 30 houses make considerable contributions to the targets whether on greenfield sites, brownfield sites (*and see* p. 208), or as in-fill within existing settlements by building on large former gardens or open spaces left during previous development of an area. Often controversial amongst local communities, on a national scale such schemes are numerous; more than 3200 investigations recorded by AIP, about 4 per cent of all investigations, relate to this kind of development. Figure 9.5 shows the distribution of recorded investigations relating to these kinds of development with a very wide spread across England, especially in the midlands, along the M4 corridor, and in coastal parts of the South East region. Figure 9.6 shows the pattern of recorded investigations through time with an interesting slump in 2002; the data for 2007 and later were collected from a wider range of sources than the previous period so show an order of magnitude of difference. Most involve the acquisition of relatively small plots of land by house-builders who may develop the site in stages, completing a few houses, which are then sold before the next group are built. It is a kind of archaeological work that is not widely discussed but is an important line of operations especially amongst small and medium-sized contractors.

Case study 2: Ells Lane, Bloxham, Banbury, Oxfordshire

An area of former farmland at Hobb Hill on the northern outskirts of a large village on the edge of the Cotswolds in north Oxfordshire. It lies outside the historic core of the village and its Conservation Area. Table 9.3 summarises the progress of the development and its archaeological

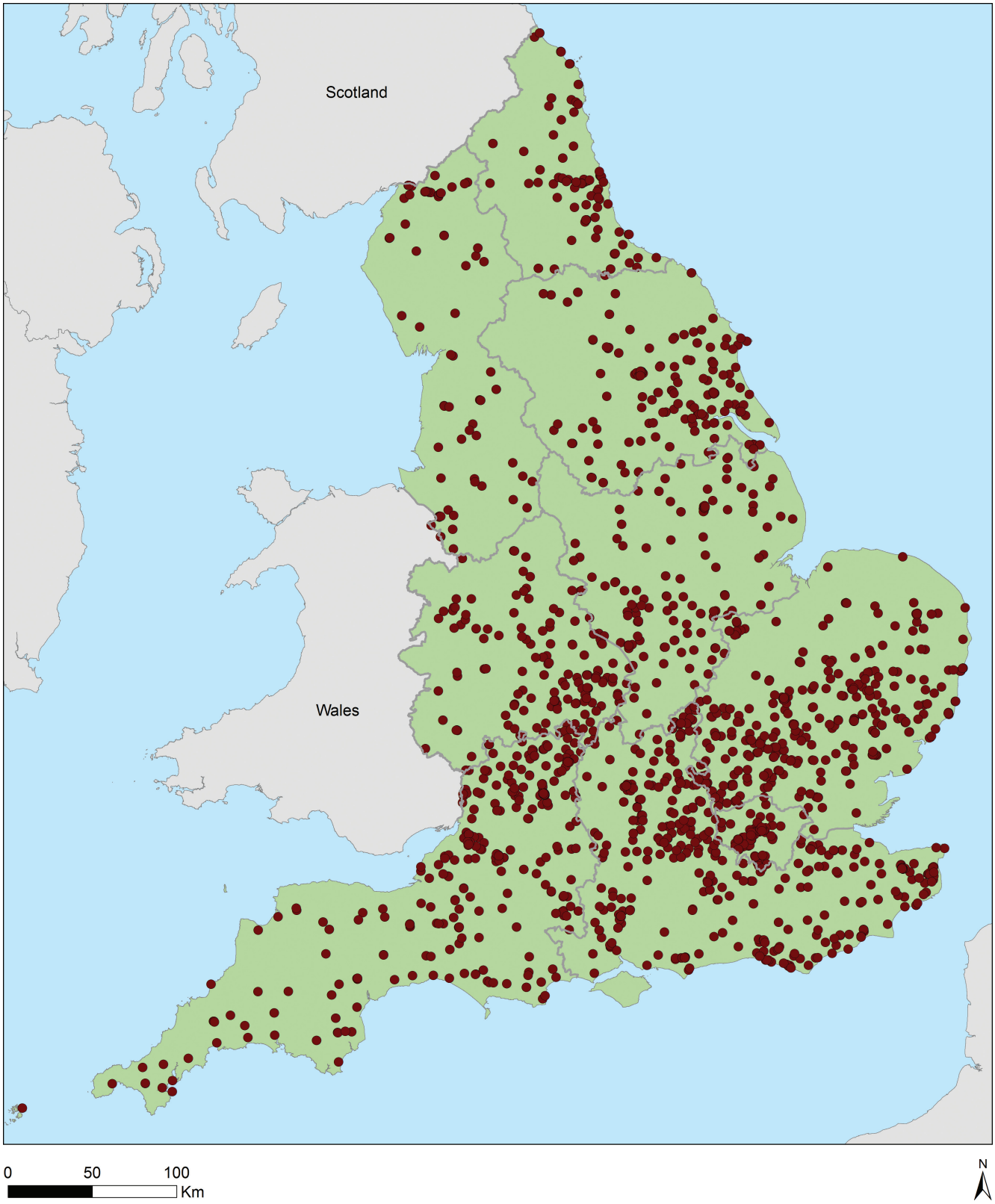

Figure 9.2 Map showing the distribution of recorded investigations related to householder development projects. Regional boundaries shown. (Data: AIP. Sample = 1793 records)

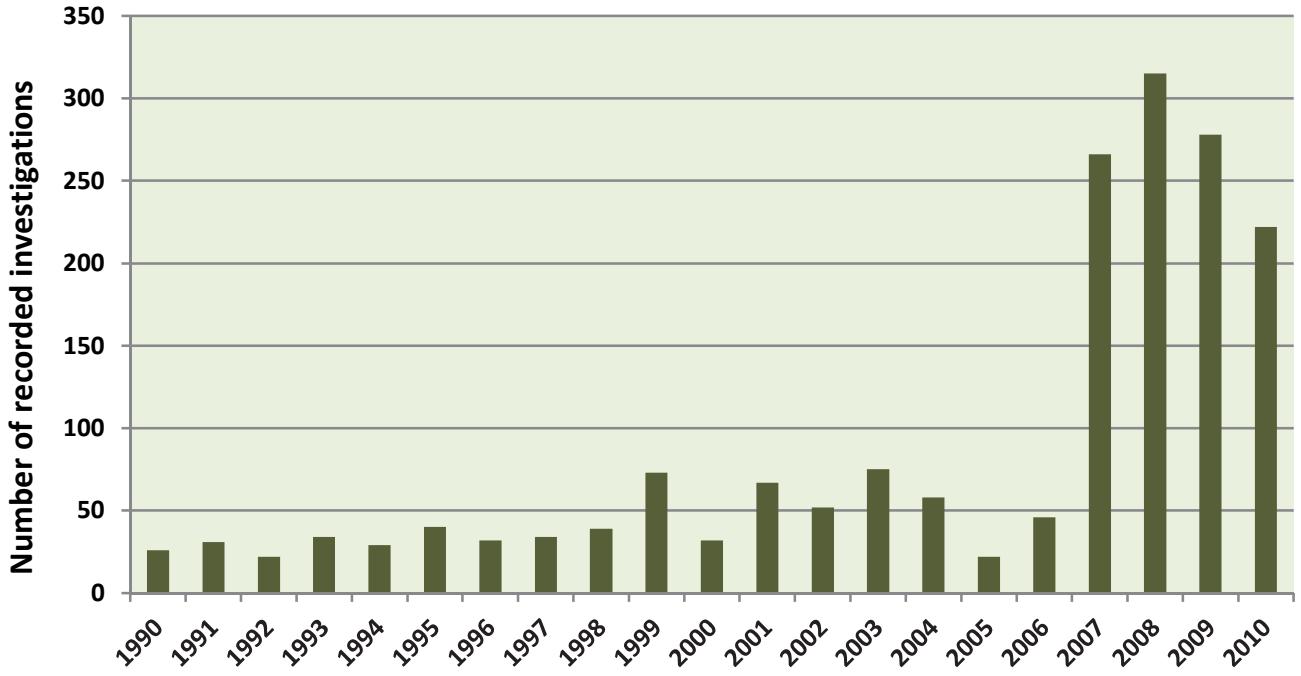

Figure 9.3 Pattern of recorded investigations 1990–2010 for house-holder development projects. (Data: AIP. Sample = 1793 records)

Table 9.2 Summary of the key stages, archaeological investigations and outputs for the householder development at The Croft, Burgh by Sands, Cumbria.

Date	Events and investigations	Products / Outputs
22 December 2004	Planning application ref 04/1658 submitted to Carlisle City Council, for the erection of an extension to domestic property 1 The Croft, Burgh by Sands, Carlisle, Cumbria, and to construct a new access drive to the property.	Submission
	Carlisle City Council consult English Heritage and the County Archaeologist, to comment on the potential impact to the Hadrian's Wall Military Zone World Heritage Site.	Recommendations
3 March 2005	Carlisle City Council approve planning application ref 04/1658 with a number of conditions including archaeological investigation as recommended by English Heritage and the County Archaeologist.	Approval Carlisle City Council 2005
February to March 2006	Archaeological watching brief performed by J. Walker (independent archaeologist) during work to erect the property extension.	Walker 2006
July 2006	Additional archaeological watching brief performed by J. Walker for the excavation of a gas pipe trench at the same property.	
2007	Publication of findings (journal note, 4pp; 2 figs) encompassing both watching briefs. The position of the Hadrian's Wall vallum ditch was corrected by 10m as a result of this work.	Walker 2007

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Walker, J, 2006. *1 The Croft, Burgh by Sands, Carlisle, Cumbria – Report on an Archaeological Watching Brief*. Wigton: Jan Walker Archaeology. [Limited circulation printed report]

Walker, J, 2007. Watching brief at 1 The Croft, Burgh by Sands, Cumbria. *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society* (Third Series), 7: 216–19.

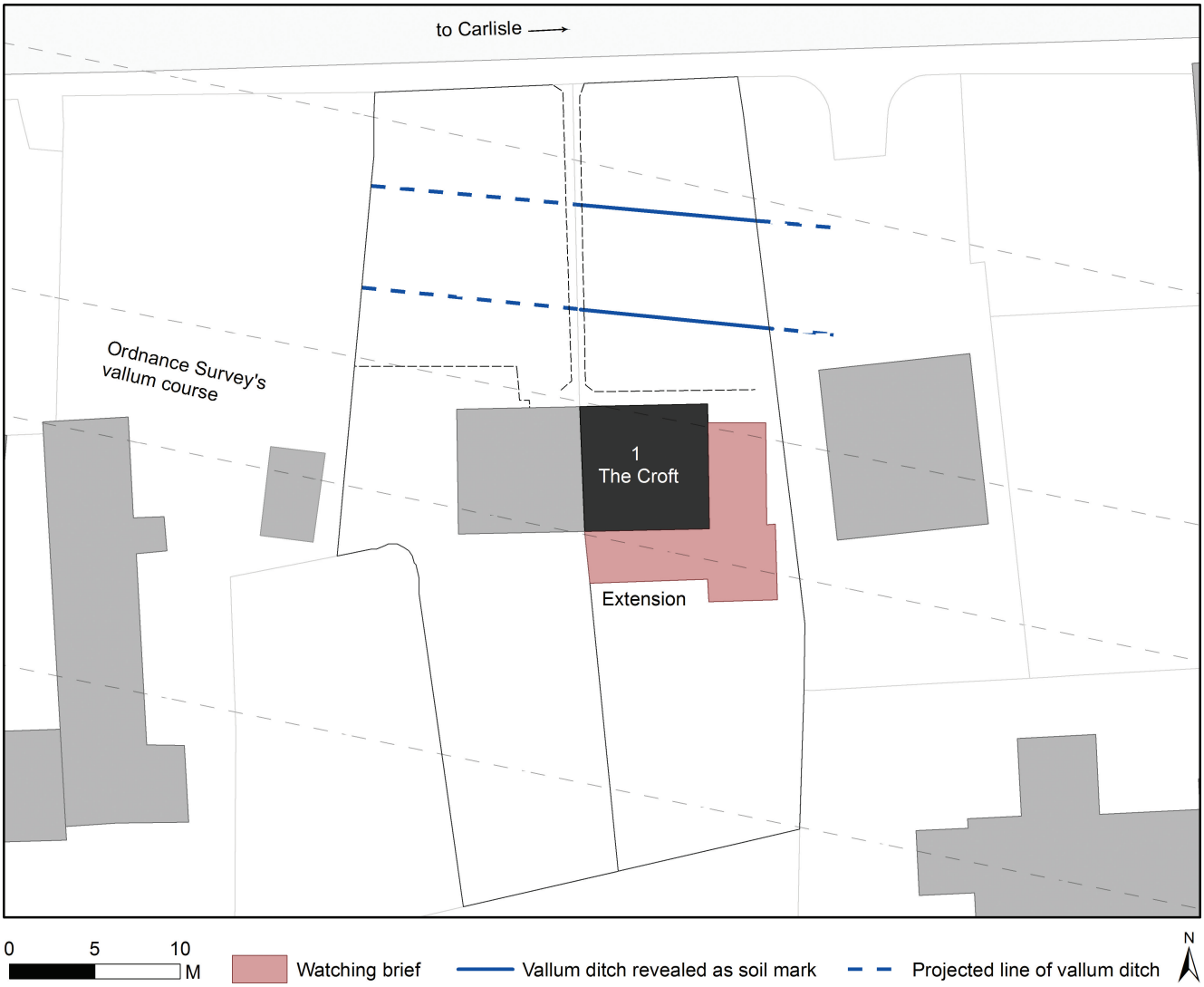

Figure 9.4 Plan showing the position and extent of archaeological investigations at The Croft, Burgh by Sands, Cumbria. (After Walker 2007: Fig. 1)

components. Figure 9.7 shows the extent of the main investigation types.

George Wimpey (West Midlands) Ltd first submitted plans for a housing development on land adjacent to Ells Lane and Banbury Road to Cherwell District Council, North Oxfordshire, in December 2002. This application was refused in February 2003 with no reference to archaeological considerations. A subsequent application for the same site in May 2005 triggered a request for a field evaluation that was carried out in July 2005. The application was approved in September 2005 subject to conditions. The application was called in by the Secretary of State in September 2005, after which it was withdrawn by the developer in February 2006. An amended application for a slightly more dense development was immediately submitted in February 2006. This was approved by Cherwell District Council in May 2006, with requirements for archaeological investigation specified as point 17 in the Schedule of Conditions.

The pre-determination field evaluation was undertaken by Thames Valley Archaeological Services Ltd on 21–28 July 2005 to establish the archaeological potential of the proposed development site. This phase of fieldwork was commissioned by J Marais (Environmental Engineer) on behalf of RAW Consulting from Maidstone, Kent, and carried out in accordance with the archaeological field evaluation design brief compiled by H Fluck, Planning Archaeologist with Oxfordshire County Archaeological Service. Eleven 19–22 m long by 1.6 m wide evaluation trenches were machine-dug across the proposed development area. Previous development-related fieldwork around Bloxham had recovered archaeological evidence focused on the Iron Age and Roman periods, together with an Anglo-Saxon settlement. The proposed development site was a sloping

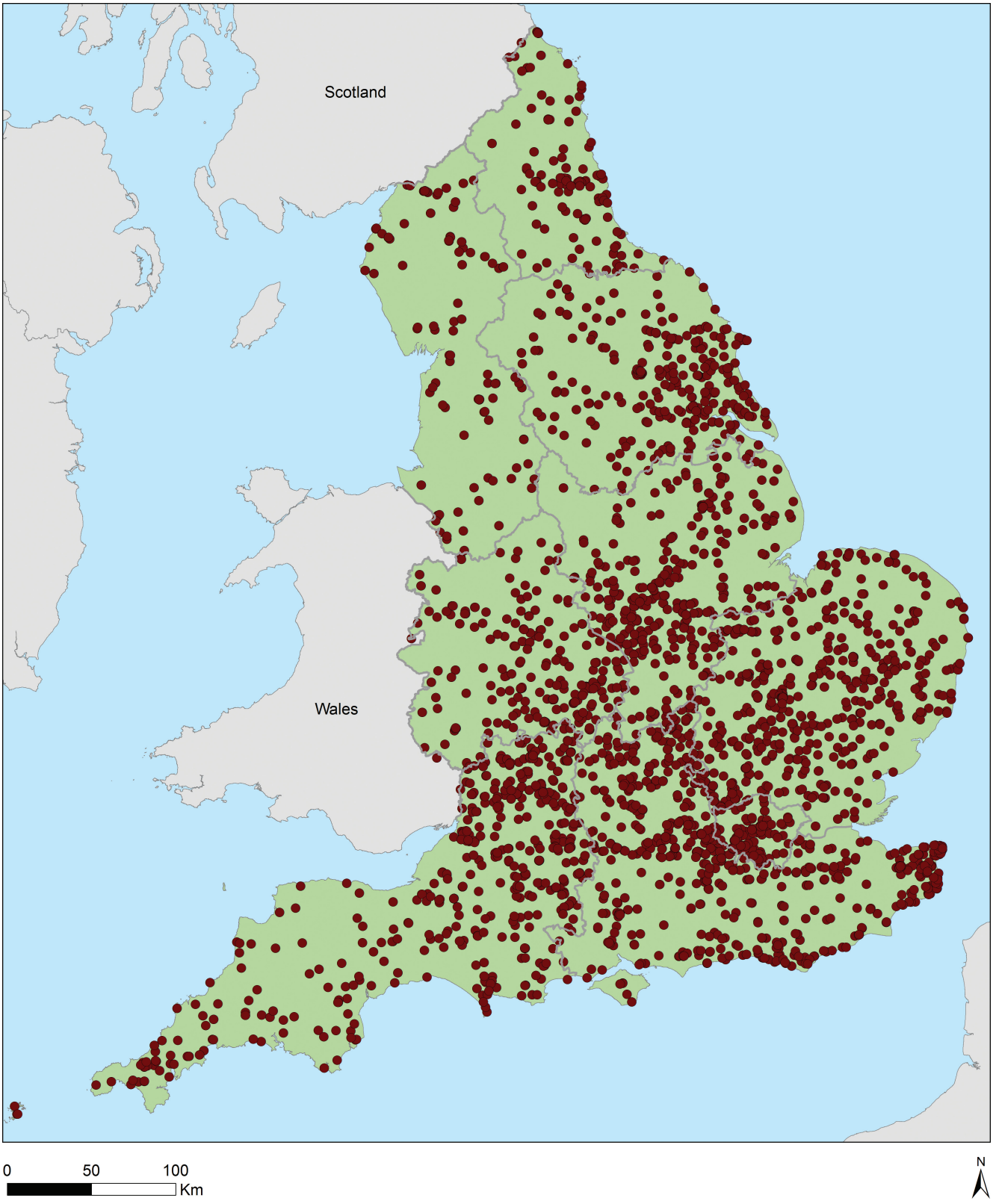

Figure 9.5 Map showing the distribution of recorded investigations related to small-scale house-building projects. Regional boundaries shown. (Data: AIP. Sample = 2854 records)

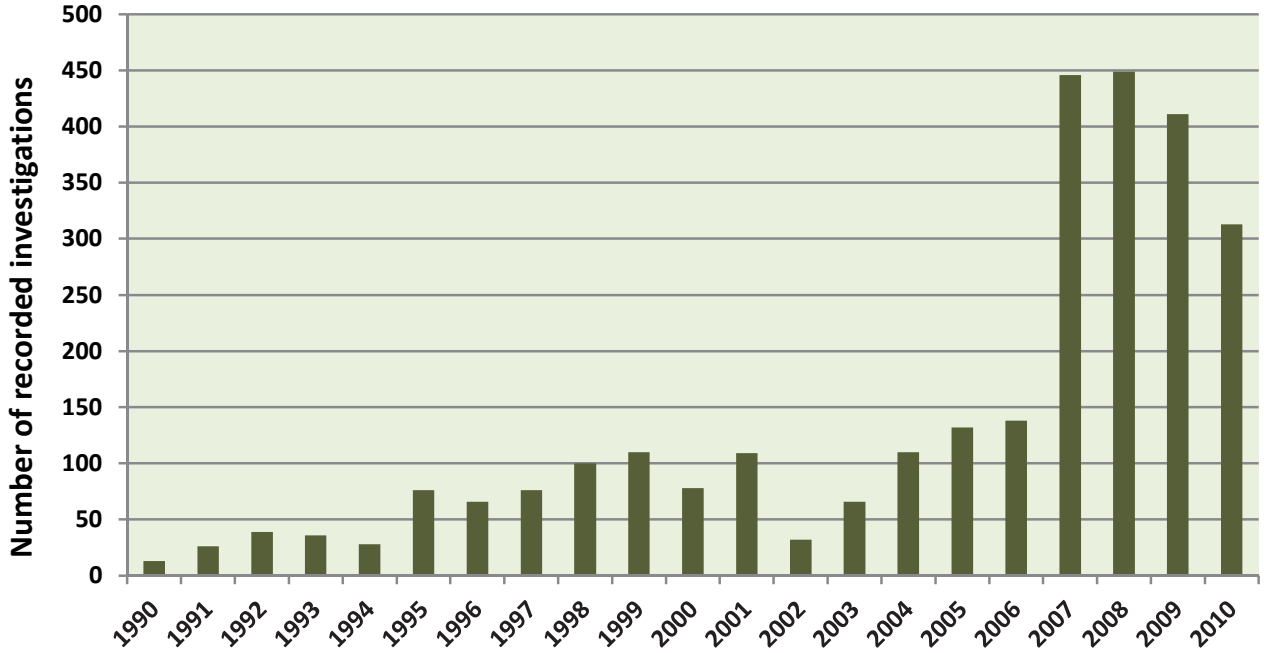

Figure 9.6 Pattern of recorded investigations 1990–2010 for small-scale house-building projects. (Data: AIP. Sample = 2854 records)

area of pasture on Hobb Hill, on Marlstone geology in the northernmost evaluation trenches and Upper Lias clay in the trenches to the south.

Extensive post-determination investigations were carried out during July 2006 in accordance with a specification approved by R Oram of Oxfordshire County Archaeological Service following a brief prepared by him. The fieldwork involved the excavation of an open area of 1.26 ha in the south of the proposed development area, targeting the five earlier evaluation trenches that had yielded archaeological evidence.

The post-determination excavations revealed a multi-phase site. The earliest phases were identified as Mesolithic, Neolithic, and early Bronze Age, evidenced by unstratified and residual lithics. Middle and late Bronze Age phases were identified from charcoal radiocarbon dated to 1410–1285 BC and 790–536 BC. The middle Iron Age constituted the period of most significant activity, with features including a recut ring gully, four linear gullies, potential shallow pits (which may also be interpreted as tree throws or natural hollows), and possible postholes. Pottery from the ring gully principally comprised vessels from six identifiable fabric groups tentatively dated to the late Iron Age. These elements were interpreted as the remains of a small middle to late Iron Age farmstead. Three Roman pottery sherds and two post-medieval sherds represented later periods, together with rubble which may have been residual traces of post-medieval drains or wall footings.

A final report covering all the investigations was published in the county archaeological journal (Ford 2009). Whilst necessarily limited in extent, the site shows activity during periods for which there was little archaeological evidence in the area at the time of excavation. It contributes to the overall understanding of social and agricultural organisation in the wider region and may also represent part of a larger site, thus informing future strategy and planning decisions for this area.

Urban commercial

These are very visible types of development that take place in towns and cities across the country. More than 3500 investigations related to this kind of development were recorded by AIP, with about 3 per cent of post-determination investigations falling under this heading, mainly within the central areas of historic towns. Figure 9.8 shows the distribution of recorded investigations connected with this kind of development, with marked bunching in areas of England with extensive urban areas, such as around London, Bristol, and Newcastle-upon-Tyne. Figure 9.9 shows the incidence of these investigations over time, with a quite different profile to the smaller types of development. Peaks are present in the late 1990s and early 2000s, with a slump towards 2006 followed by a gradual recovery. Typically these projects focus on the redevelopment of sites, some of which may have been last developed in the 1960s or 1970s, for offices, shops, banks, and other commercial

Table 9.3 Summary of the key stages, archaeological investigations and outputs for the rural housing development at Ells Lane, Bloxham, Banbury, Oxfordshire.

Date	Events and investigations	Products / Outputs
23 December 2002	Planning application submitted to Cherwell District Council, North Oxfordshire, by George Wimpey (West Midlands) Ltd for housing development of 16 dwellings to the north of Bloxham on land adjacent to Ells Lane and Banbury Road (Planning ref 02/02710/F).	Planning application Cherwell District Council 2002
8 January 2003	Cherwell District Council refuse permission (no archaeological considerations).	Decision letter
12 May 2005	Planning application submitted to Cherwell District Council, North Oxfordshire, by George Wimpey (West Midlands) Ltd for housing development of 21 dwellings to the north of Bloxham on land adjacent to Ells Lane and Banbury Road (Planning ref 05/00993/F).	Planning application Cherwell District Council 2005
	Archaeological field evaluation design brief issued by H Fluck of Oxfordshire County Archaeological Service.	Field evaluation brief
	Archaeological fieldwork commissioned from Thames Valley Archaeological Services, by RAW Consulting, Maidstone.	Fieldwork commission
21-28 July 2005	Evaluation excavation of eleven trenches across the proposed development site, resulting in an unpublished client report.	Evaluation report Wallis 2005
1 September 2005	Cherwell District Council recommends approval subject to conditions, including comments from the County Archaeologist and the notification of the Secretary of State to consider calling in the application.	Recommendation report
September 2005	Planning application called in by the Secretary of State.	
20 February 2006	Planning Inspectorate confirms that the applicant has withdrawn application 05/00993/F.	File closure confirmation
20 February 2006	Amended planning application submitted to Cherwell District Council, North Oxfordshire, by George Wimpey (West Midlands) Ltd for housing development of 27 dwellings to the north of Bloxham on land adjacent to Ells Lane and Banbury Road (Planning ref 06/00312/F).	Planning application Cherwell District Council 2006
28 February 2006	Application 05/00993/F recorded as withdrawn by Cherwell District Council.	Application closure
2 March 2006	Resubmission of report arising from evaluation excavation in 2005.	
26 May 2006	Planning application approved for ref 06/00312/F by Cherwell District Council, subject to conditions including further archaeological investigation.	Approval Decision letter
	Fieldwork specification and brief issued by Oxfordshire County Archaeological Service.	Field evaluation specification and brief
July 2006	Open area excavation of 1.26 ha, resulting in an unpublished client excavation report.	Excavation report
22 May 2007	Cherwell District Council confirm to the applicant that the archaeological conditions have been met.	Confirmation letter
2009	Publication of final report (Journal paper: 13pp, 5 figures, 2 tables).	Ford 2009

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Cherwell District Council, 2002. *Public Access: Planning Applications: 02/02710/F: Erection of 16 No. dwellings and associated road works* [online]. Banbury: Cherwell District Council. [Available from: http://www.publicaccess.cherwell.gov.uk/online-applications/ Accessed 29:11:2017]

Cherwell District Council, 2005. *Public Access: Planning Applications: 05/00993/F: Residential development of 21 No. dwellings (as amended by Drawing Nos 30050-14A, 15A, 08C, 09B, 07A and 06A received on 25 July 2005 and Drawing Nos 30050-02D, 10B, 11B and 30050-E/01C received on 1 September 2005)* [online]. Banbury: Cherwell District Council. [Available from: http://www.publicaccess.cherwell.gov.uk/online-applications/ Accessed 29:11: 2017]

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Ford, S, 2009. Middle Iron Age occupation at Ells Lane, Bloxham, Banbury, Oxfordshire. *Oxoniensia*, 74, 113–25.

Wallis, S, 2005. *Ells Lane, Bloxham, Oxfordshire: An Archaeological Excavation (Report No 05/74)*. Reading: Thames Valley Archaeological Service. (Limited circulation printed report)

Figure 9.7 Plan showing the position and extent of archaeological investigations at Ells Lane, Bloxham, Banbury, Oxfordshire. (After Ford 2009: Fig. 1 and 2)

uses, although it is increasingly common to include some residential accommodation with large schemes. In the nature of things, deep and complicated archaeological deposits may be present, especially where there were no basements and minimal underground facilities in previous developments. The use of deep piling to create secure foundations is widespread; recent studies suggest that it is less destructive than once thought and major discoveries have been made on sites previously piled (Williams & Sidell 2015). Waterlogging of deep deposits is not unusual

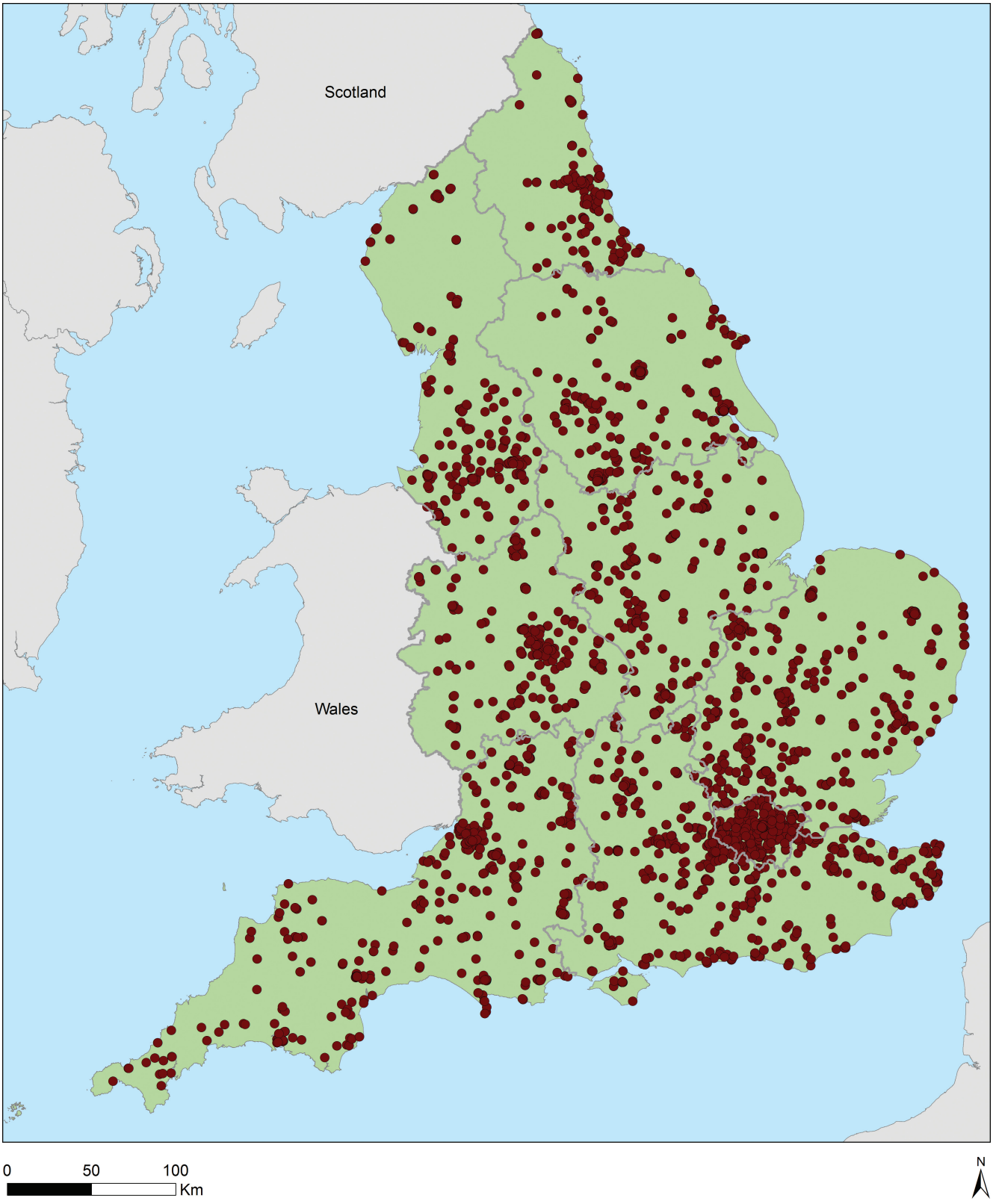

Figure 9.8 Map showing the distribution of recorded investigations related to urban commercial development projects. Regional boundaries shown. (Data: AIP. Sample = 3765 records)

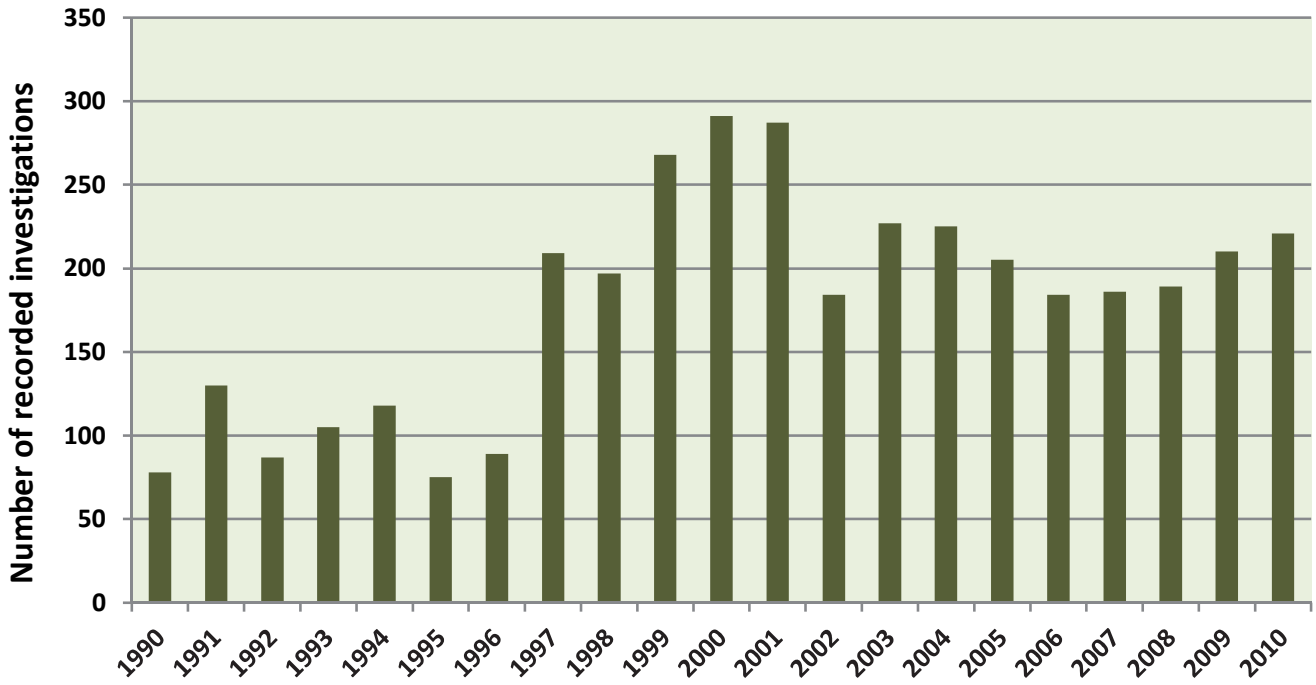

Figure 9.9 Pattern of recorded investigations 1990–2010 for urban commercial development projects. (Data: AIP. Sample = 3765 records)

and several studies have been made of the characteristics and challenges of investigating archaeological remains in urban areas. Urban archaeology is a well-established sub-discipline area and a number of studies have been published that focus on the nature of urban deposits (Carver 1987; 1993; Ottaway 1992), the practicalities of working in urban areas (Macnab 2006), and the parameters of urban regeneration (Wilson 2001). Dozens of resource assessments and urban evaluations for towns and cities carried out in the 1970s and early 1980s provided strategic direction for planning work at the start of the PPG16 Era (*see* Darvill & Fulton 1998: 249–52). A second wave of studies comprising Urban Archaeological Databases and Extensive Urban Surveys through the 1990s and early 2000s brought those documents up to date (Anon 2004: 6–7; Croft *et al.* 1996).

One particular problem is the difficulty of carrying out pre-determination assessments and evaluations when there are standing buildings on the site, some of which may still be in use when redevelopment is being planned. Timetabling post-determination investigations between demolition and site clearance and piling and foundation works for the new development can be a real problem.

Case study 4: Broadmead Expansion Project, Cabot Circus, Bristol

Broadmead is a shopping street in the central part of Bristol, north of the Floating Harbour and immediately outside the historic walled area, that was extensively occupied by monastic communities during the medieval period. Heavily damaged by bombing during the Second World War the area has been subject to sporadic redevelopment since the 1950s. Although outside the City and Queen's Square Conservation Area the streets in this part of Bristol are dotted with Listed Buildings. Table 9.4 summarises the progress of the development and its archaeological components.

In the late 1990s, Broadmead was proposed as an area for major redevelopment. This presented an important opportunity for archaeological investigation of this little-known area as an integrated element of the planning and development processes. Archaeological desk-based assessments were assembled in 1999 and 2000, followed by field evaluations using trial trenches and an environmental impact assessment issued in 2002. These initial investigations were carried out by several archaeological contractors: Cotswold Archaeological Trust (now Cotswold Archaeology); Bristol and Region Archaeological Services; and the Oxford Archaeological Unit (now Oxford Archaeology). The subsequent development was given outline planning permission by Bristol City Council in June 2003, with archaeological conditions. These conditions included a range of archaeological work including evaluation, investigation, recording, and publication. Fieldwork was undertaken between December 2005 and February 2008 by a consortium known as CAPCA, comprising Cotswold Archaeology and Pre-Construct Archaeology. The work involved a range of techniques from watching briefs and boreholes, to full open area excavations (Figure 9.10). Planning conditions for the development's archaeology were formally approved as complete by Bristol City Council in March 2013, when

Table 9.4 Summary of the key stages, archaeological investigations and outputs for the urban commercial development at Broadmead Expansion Project, Cabot Circus, Bristol.

Date	Events and investigations	Products / Outputs
1999	Cotswold Archaeological Trust issue an archaeological desk-based assessment of the Penn Street/Bond Street area of the planned Broadmead expansion site for the new Cabot Circus shopping centre.	Morton 1999
2000	Bristol and Region Archaeological Services ("BaRaS") issue an archaeological desk-based assessment of the proposed Broadmead expansion site.	Bryant & Leech 2000
2002	BaRaS carry out a trial trench archaeological evaluation of the Quakers Friars are of the proposed expansion site.	BaRaS 2002
2002	Environmental Impact Assessment performed by the Oxford Archaeological Unit (now Oxford Archaeology)	Environmental Impact Assessment
8 August 2002	Outline planning application ref 02/02929/P is submitted to Bristol City Council by the Bristol Alliance Limited Partnership, to redevelop land at Cabot Circus, Bristol and expand the Broadmead Shopping Centre.	Submission Bristol City Council 2003
30 June 2003	Outline planning application ref 02/02929/P is approved by Bristol City Council with conditions including archaeological investigation as numbers 25, 27 and 28.	Approval
2004	ARCA Geoarchaeology issue the strategy document for geoarchaeological analysis of borehole stratigraphy	Wilkinson 2004
2005	A consortium comprised of Cotswold Archaeology and Pre-Construct Archaeology, known as "CAPCA", issue a Written Scheme of Investigation for the Broadmead expansion site	CAPCA 2005
2005	Oxford Archaeology issue an archaeological evaluation report for the Main Scheme and Quakers Friars areas of the Broadmead expansion site.	Oxford Archaeology 2005
2005	Keystone Historic Building Consultants issue a conservation plan for Quakers Friars	Keystone Historic Building Consultants 2005
December 2005 to February 2008	CAPCA perform archaeological fieldwork on behalf of the Bristol Alliance Limited Partnership.	
2006	Oxford Archaeology issue an archaeological evaluation report for the Quakers Friars North area of the Broadmead expansion site	Oxford Archaeology 2006a
2006	Oxford Archaeology issue a post-excavation assessment and updated project design for the Merchant's Quarter area of the Broadmead expansion site	Oxford Archaeology 2006b
2007	ARCA Geooarchaeology issue a borehole assessment report	Wilkinson & Head 2007
2007	CAPCA issue an archaeological evaluation and building recording report	CAPCA 2007a
2007	CAPCA issue a report for the Main Scheme East area	CAPCA 2007b.
February 2007	C Philpotts issues a documentary research assessment for the CAPCA consortium, for the Broadmead area.	Philpotts 2007
21 December 2007	CAPCA issue an archaeological investigation and building recording report for the Quakers Friars area of the Broadmead expansion site.	Havard 2007
22 April 2008	CAPCA issue an overall post-excavation assessment and updated project design.	Meddens *et al.* 2008
September 2008	The new Cabot Circus shopping centre opens.	
September 2008 to May 2009	An exhibition organised by PJO Archaeology is held at Bristol Museum, on the archaeology of Cabot Circus arising from the development project.	
17 August 2012	Planning application ref 12/03698/COND submitted by Turley Associates to confirm that archaeological conditions have been met.	
25 February 2013	Planning application ref 13/00843/COND submitted by Turley Associates to confirm that archaeological conditions have been met.	

Table 9.4 Summary of the key stages, archaeological investigations and outputs for the urban commercial development at Broadmead Expansion Project, Cabot Circus, Bristol.

Date	Events and investigations	Products / Outputs
8 March 2013	Bristol City Council confirm that archaeological conditions have been discharged and approve planning applications ref 12/03698/COND and 13/00843/COND.	Approval
September 2013	Publication of final report (Monograph: 485pp; 223 figures; 43 tables; index)	Ridgeway & Watts 2013

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CAPCA, 2007b. *Broadmead Expansion, Bristol: Assessment Area Main Scheme East (Report No 07072)*. Kemble and London: Cotswold Archaeology & PCA. (Limited circulation printed report)

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Morton, R, 1999. *Archaeological Desktop Study of Penn Street/Broad Street, Bristol (Report No 991018)*. Kemble: Cotswold Archaeology. (Limited circulation printed report)

Oxford Archaeology, 2005. *Main Scheme and Quakers Friars, Broadmead Expansion, Bristol: Archaeological Evaluation Report (Jobs 2489 & 2473, issue 2)*. Oxford: Oxford Archaeology. (Limited circulation printed report)

Oxford Archaeology, 2006a. *Quakers Friars North, Bristol Broadmead: Archaeological Evaluation Report (Job 2869, issue 2)*. Oxford: Oxford Archaeology. (Limited circulation printed report)

Oxford Archaeology, 2006b. *Merchants Quarter Block 7 BRBMSG2006/15. Oxford Archaeology Post-Excavation and Updated Project Design*. Oxford: Oxford Archaeology. (Limited circulation printed report)

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Wilkinson, K, 2004. *Broadmead Development: A Stategy for Geoarchaeological Examination of Borehole Stratigraphy*. London: ARCA Geoarchaeology. (Limited circulation printed report)

Wilkinson, K & Head, K, 2007. *Broadmead Development, Bristol: Borehole Survey, Assessment Report (No 0708-3*). London: ARCA Geoarchaeology. (Limited circulation printed report)

funding for publication had been confirmed. The new Cabot Circus shopping centre opened at Broadmead in September 2008.

Evidence from the prehistoric period derived entirely from geoarchaeological borehole work performed by ARCA Geoarchaeology. The Broadmead area was shown to be a mix of floodplain and tidal channels in the south with woodland upslope to the north. Woodland clearance began in the Neolithic, with occupation evidence from the early Bronze Age until the medieval period. The lower area became tidal mudflats with the higher northern land being farmed. A Dominican friary was founded in the area in 1227, with excavations revealing detail of the friary church, great cloister and other associated buildings. The remains of three other historical buildings were also investigated and recorded. Evidence of industry and trade from the medieval period were found to the south and west of the site, including tanning, leatherworking and metalworking. This continued into the nineteenth century.

Development in the area grew to include domestic dwellings, public houses, schools, and more industries. Guild and non-conformist religious buildings followed the Dissolution, with standing remains of the Quakers (or Friends) Meeting House being recorded and excavation of the eighteenth-century Methodist Tabernacle. Development of both domestic and industrial buildings spread during the eighteenth and nineteenth centuries. The area was widely affected by slum clearance, Second World War destruction,

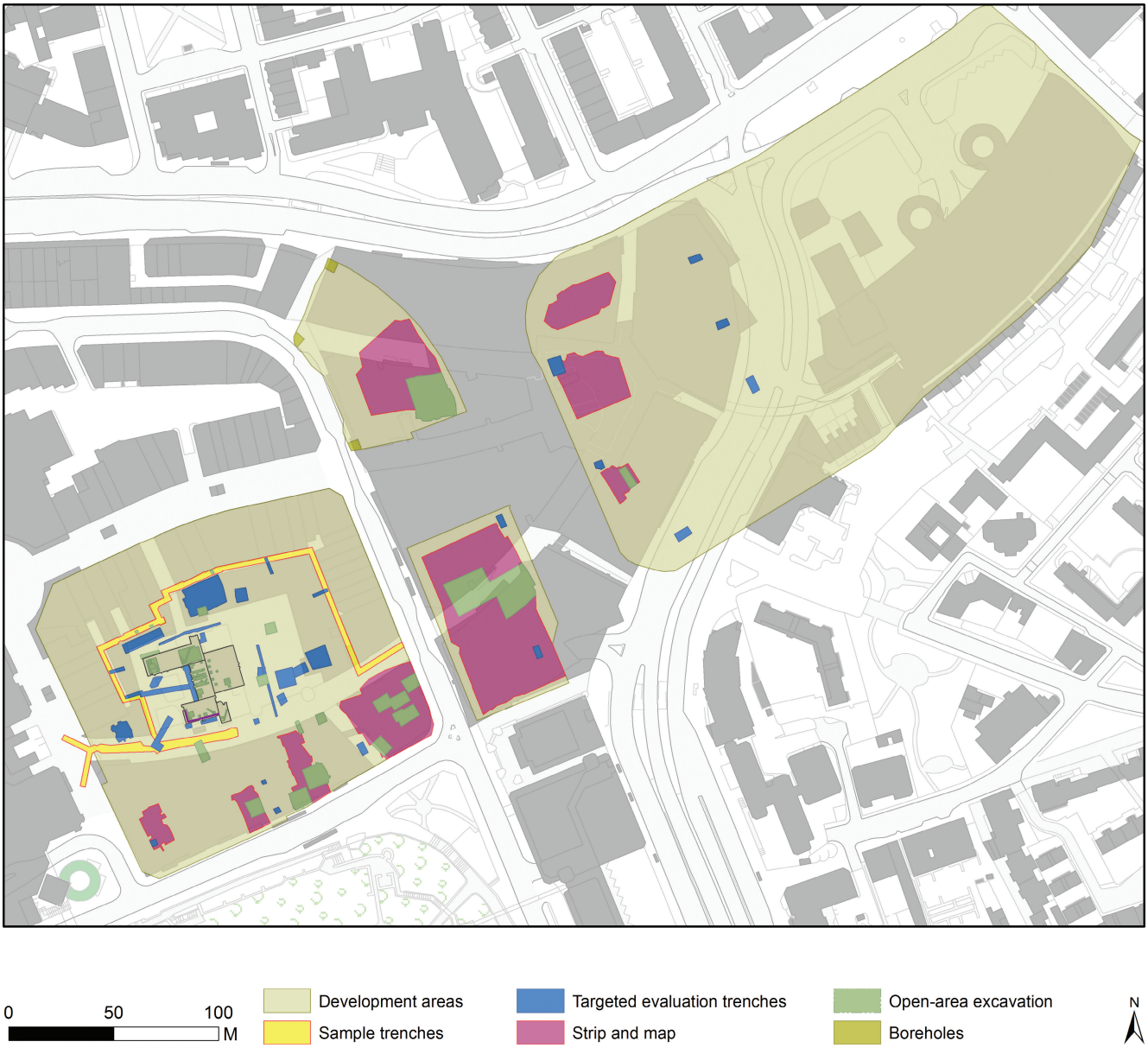

Figure 9.10 Plan showing the position and extent of archaeological investigations at Broadmead Expansion Project, Cabot Circus, Bristol. (From Ridgeway & Watts 2013: Fig. 1.5 and 1.6)

and finally the development of the Broadmead Shopping Centre in the 1950s.

The final report on all the work was produced as a monograph and jointly published by the two partner contractors numbered within their own respective monograph series (Ridgeway & Watts 2013). The Broadmead expansion project offered a rare opportunity to investigate the archaeology of an extensive and densely-used central urban area. The planning process emphasised publication of the archaeological findings, only signing off the related planning condition once funding for publication had been secured, five years after the development was opened. The archaeological investigations gave significant insight into the origins and development of Bristol's city centre and the ways in which the land was used prior to its occupation. It also provides a model of good practice and co-operation between all parties.

Urban residential

The same archaeological opportunities and constraints that apply to urban commercial schemes also apply in the case of urban residential development; indeed, many individual projects combine commercial and residential elements, as

in the case of Newport Street, Worcester, which is featured on the cover of this volume (Davenport 2015). More than 6800 investigations in this environment were recorded by AIP. Some 1.7 per cent of recorded post-determination planning-related investigations happened in relation to urban residential projects during the PPG16 Era. Figure 9.11 shows the distribution of all recorded projects relating to urban residential development, which are by no means confined to large or historic urban areas. Indeed, many of these projects happen within built-up suburbs, sometimes on former industrial land. Sites vary in size from a few houses or flats on the site of a former dwelling, through to large-scale housing estates on former industrial areas. Figure 9.12 shows the spread of such projects across the PPG16 Era, rising rapidly in 1999 to a peak in 2001, with further peaks in a general downward trend in 2004 and 2007.

Most urban residential development happens on brownfield land. The redevelopment of such land is sometimes seen as lagging behind work in other environments, although it is recognised within the development industry as problematic because of possible contamination, stability, and the effects of previous foundation systems. Building new housing on brownfield sites has long been a priority, and in 1999 the government set a target of 60 per cent of new housing to be built on brownfield land (Johnston 1999: 1–3). Progress in achieving this was regionally inconsistent, and national targets were only met through decreasing the use of other types of land (Wung & Bäing 2010: 4). In April 2017 regulations came into effect requiring all English planning authorities to prepare a brownfield register by the end of 2017, but a fifth of councils missed the deadline (Geoghegan 2018).

Case-study 3: Gas Street Gasworks, Birmingham, West Midlands

The site between Gas Street and Berkley Street in Birmingham city centre was the location of what is considered to be Birmingham's first gasworks, founded in 1818. At the centre of the site, the Gas Retort House was a large brick building housing the retorts that produced gas and formed a core part of this industrial complex from its construction in 1822. This building, with its three annexes/extensions, was recognised and given Listed Building (Grade II*) status in 1993, having previously been modified in various ways during a range of commercial and industrial uses. The site as a whole represented a significant part of Birmingham's industrial heritage, but had been gradually abandoned through the twentieth century. Figure 9.13 shows the distribution and extent of the main investigations. Table 9.5 summarises the development process and archaeological events.

Two preliminary studies of the site were undertaken to help inform development proposals. Lancaster University undertook a study of the buildings on the site in 1995 in order to determine their state of survival, concluding that they had been greatly altered during the twentieth century. In 1998, Birmingham University Field Archaeology Unit (BUFAU) was commissioned to undertake further detailed studies of the four standing buildings on the site, centred on the Gas Retort House, to inform a planning application. Their analysis demonstrated that, contrary to initial impressions, much of the original fabric and original features of the buildings remained and that these had merely been obscured by later additions. Their report concluded that all four of the buildings could be successfully restored to their original forms, making a series of recommendations to be considered during redevelopment work.

Crosby Homes (Midland) Ltd submitted planning applications to Birmingham City Council in October 1998, proposing the redevelopment of the site for a mixture of commercial units and domestic dwellings. The Gas Retort House and associated buildings would be refurbished for commercial use, whilst 47 new domestic dwellings would be constructed elsewhere on the site. In response to this application, the Council specified a further study of the Gas Retort House, in order to ascertain the state of preservation of its Gas Street frontage. BUFAU undertook this work, finding no evidence of an original entrance to the building or the site, and no trace of original wall surface treatments. Brickwork style indicated that at least part of the structure had been rebuilt after the initial construction. The resulting report was issued in February 1999.

The Council issued a detailed Condition Notice in April 1999, centring on archaeological and historic considerations, which acknowledged the significance of the site as a whole. In June 1999 the planning application was approved subject to conditions and the Council issued a series of archaeological briefs specifying the required work. BUFAU undertook this work between April and October 2000, recording walls in the Gas Retort House and its extension, which had to be rebuilt during development, and a watching brief as the dwellings were constructed. The watching brief provided new information about the layout of the original gasworks, notably the locations of three former gas holders that, unexpectedly, were found to be well preserved as buried archaeology as a result of dumping of waste material on the site. The final detailed report was issued by BUFAU in February 2001 as a piece of grey literature. At the time of writing no detailed report appears to be have been published as a journal paper or monograph contribution.

In 2004, Birmingham's Archaeology Strategy made specific reference to the building recording and excavations at the Gas Street gasworks site (BCC 2004: 9; 2004: 25), emphasising the significance of the gasworks to Birmingham's industrial heritage, and also the contribution made to the City's history

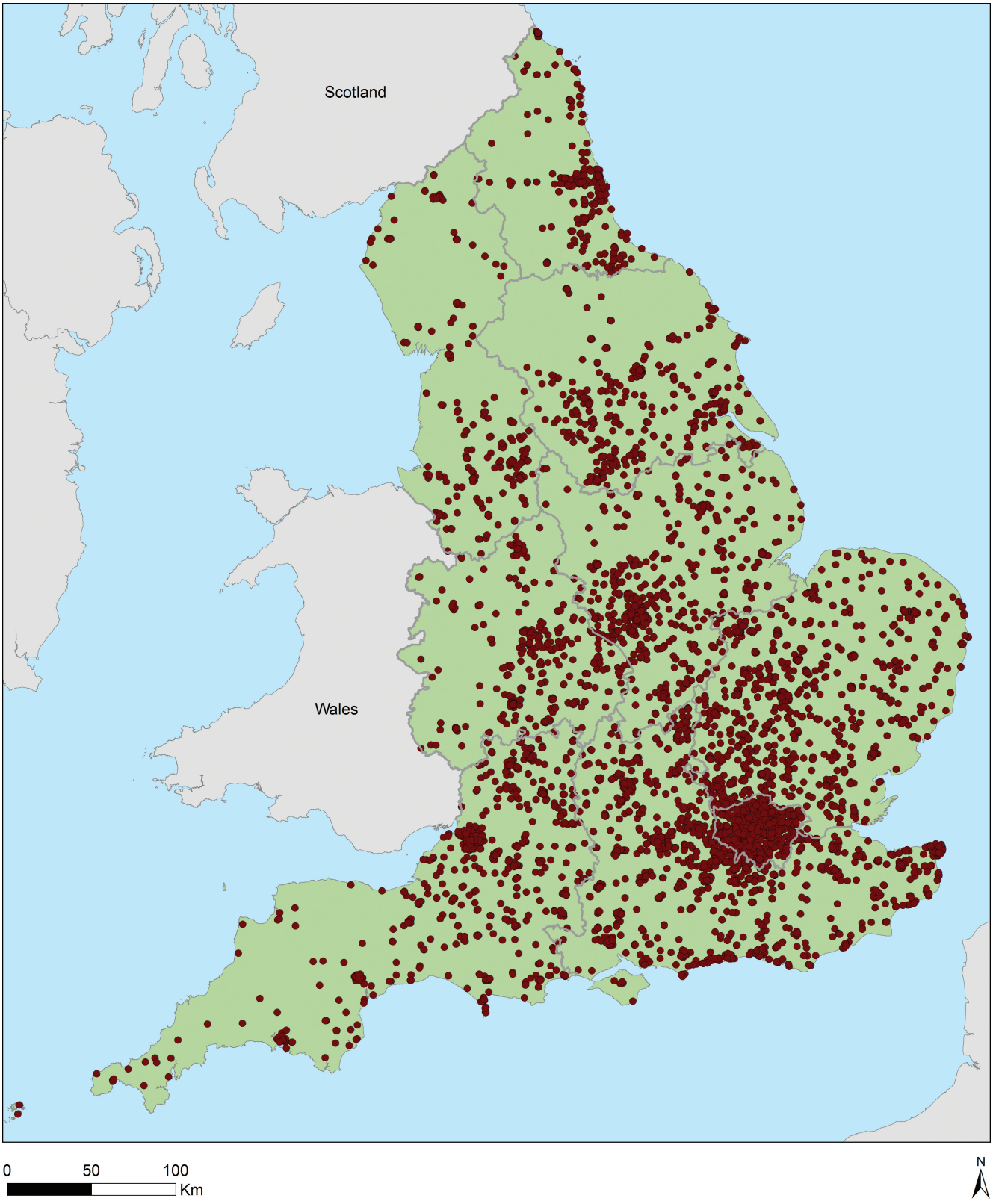

Figure 9.11 Map showing the distribution of recorded investigations related to urban residential development projects. Regional boundaries shown. (Data: AIP. Sample = 6856 records)

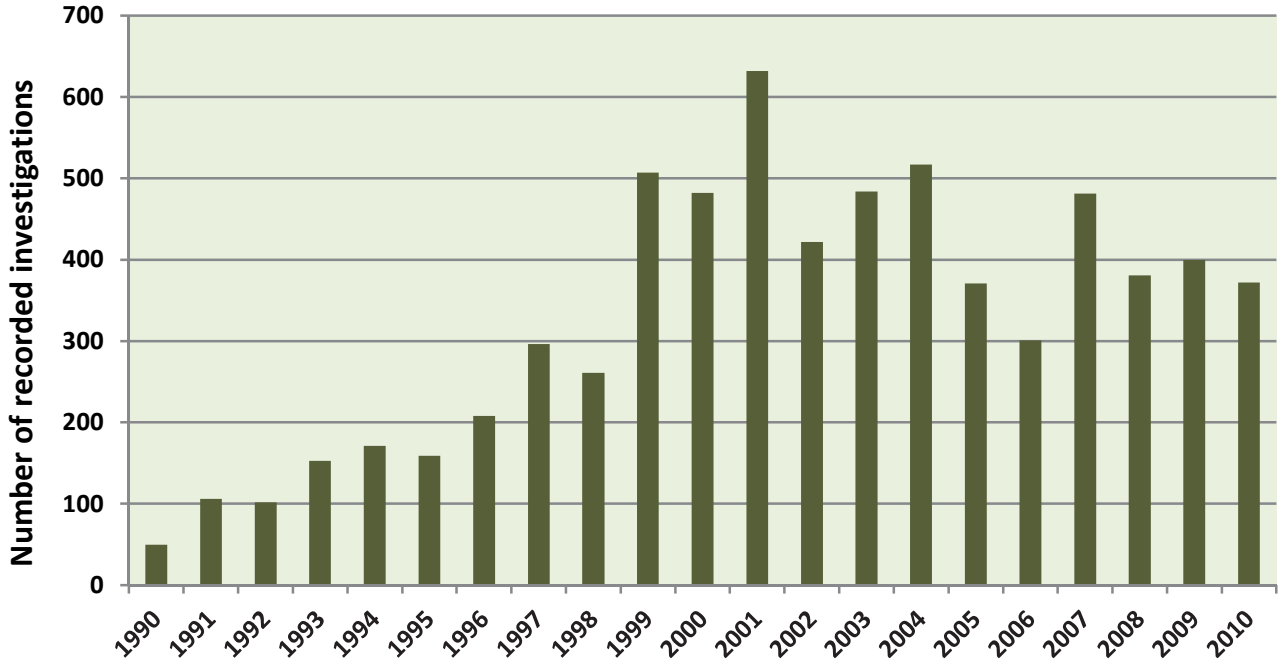

Figure 9.12 Pattern of recorded investigations 1990–2010 for urban residential projects. (Data: AIP. Sample = 6856 records)

by the archaeological works carried out in response to the Crosby Homes development. The West Midlands Regional Research Framework highlighted the need to integrate standing building recording and 'below ground' archaeology (Belford 2011: 226) in order to fully understand a site; work on the Gas Street development clearly demonstrated the value of this approach as part of the planning process.

Building refurbishment

The re-use of existing buildings has long been a major challenge but has been one of the successes of conservation practice through the later twentieth century (Brennan & Tomback 2013; Strike 1994). Publication of PPG15 in September 1994 (DoE 1994a) put the investigation and recording of buildings and structures through the planning system on an equal footing with that of archaeological remains more generally than covered by PPG16 some five years earlier. But PPG15 has never been as systematically or as widely applied as PPG16, perhaps because the culture of inquiry in relation to historic buildings has never been as strong as that for below-ground, 'hidden', archaeological remains (Heaton 2012). Nonetheless, buildings archaeology has emerged as a strong sub-discipline area with supporting policies, guidance, and detailed discussions (Morriss 2000). Specialisms have developed in such areas as church archaeology (W Rodwell 2012), the refurbishment for new uses of farm buildings (Ball *et al.* 2006), and inherited infrastructure (Smith 2010). As seen in Chapter 7, the number of building recording exercises has increased steadily through the PPG16 Era, often combining below-ground and above-ground work such as in connection with the refurbishment of the Vicars' Hall, St George's Chapel, Windsor in 1997–98 (Blockley 2000). The AIP recorded more than 2100 investigations related to building refurbishment, many of them in the historic cores of villages, town, and cities, although not exclusively so. Figure 9.14 shows the distribution of recorded examples, with a few hot-spots in areas where building recording is more commonly sought through the planning process. Figure 9.15 shows the pattern of recording over time, with an uneven increase to 2001 followed by a drop-off; the values for 2007 onwards being the result of improved recording of these investigations.

One major problem often facing investigations and recording work in these projects is the need for pre-determination studies within and around buildings that are in everyday use. This is especially tricky with shops and offices that might also be full of stock and equipment, and with public access as well as private use. With post-determination there are always pressures to work quickly as the cost of keeping buildings vacant in town and city centres can be very high. Cramped working conditions coupled with restricted access and tight health and safety regulations make these projects especially challenging.

Case study 5: 119–125 Marygate, Berwick-on-Tweed, Northumberland

Marygate is the main street through the centre of this small compact historic town, and hosts an open market twice a week. It is within the historic Citadel and city walls, and is

Figure 9.13 Plan showing the position and extent of archaeological investigations at Gas Street, Birmingham, West Midlands. (After Litherland 2001: Fig. 1)

now within the Berwick-on-Tweed Conservation Area. The street is dotted with Listed Buildings. Table 9.6 summarises the progress of the development and its archaeological components.

In May 2005, a planning application was submitted for the refurbishment and redevelopment of 119–125 Marygate, Berwick-upon-Tweed, Northumberland. The building was to remain standing whilst significant construction work took place within the structure. Northumberland County Council approved the application in August 2005, with archaeological conditions specified by the Northumberland County Council Conservation Team. The Bamburgh Project produced a written scheme of investigation for the proposed work, together with an evaluation report. From these, Bowcliffe LLP commissioned archaeological investigation.

The fieldwork was carried out by AOC Archaeology Group in April 2007 and June 2007 (Figure 9.16). This consisted of three phases of work; a watching brief as post-medieval to twentieth century deposits were machine excavated, archaeological excavation of medieval deposits uncovered by this work, and a watching brief as standing walls were underpinned and pile cap footings were hand dug.

Evidence of building and land-use was recovered from the thirteenth/fourteenth centuries to the nineteenth century. Post-medieval deposits were removed with a mini-digger and every tenth bucket-load was passed through a 10 mm sieve to recover archaeological evidence. Medieval

Table 9.5 Summary of the key stages, archaeological investigations and outputs for the urban housing development at Gas Street, Birmingham, West Midlands.

Date	Events and investigations	Products / Outputs
1998	Birmingham University Field Archaeology Unit ("BUFAU") carry out initial fieldwork, including the detailed architectural recording and analysis of the Grade II* listed Gas Retort House and its extensions.	
September 1998	BUFAU issue an interim report, giving recommendations for the Gas Retort House and associated buildings, to inform the planning application.	Linnane 1998
1 October 1998	Planning applications refs 1998/04287/PA and 1998/04288/PA submitted to Birmingham City Council by Crosby Homes (Midlands) Ltd, for the refurbishment and reuse of the Gas Retort House and redevelopment of land between Gas Street and Berkley Street, where Birmingham's first gasworks had been sited.	Planning Application Birmingham City Council 1998a; 1998b
	Birmingham City Council specify further archaeological study of the Gas Retort House Gas Street frontage prior to a decision.	
February 1999	BUFAU issue an addition to the earlier interim report, presenting the requested additional findings.	Halstead and Breedon 1999
April 1999	Birmingham City Council issue a Condition Notice, which primarily lists architectural, historic and archaeological investigation and recording conditions.	Birmingham City Council 1999
14 June 1999	Birmingham City Council approve planning refs 1998/04287/PA and 1998/04288/PA subject to conditions including archaeological investigation and salvage recording.	Approval
	Birmingham City Council Department of Planning and Architecture prepare a series of briefs for the required archaeological work. This includes two elements; architectural recording of the Gas Retort House and associated buildings during refurbishment, and a watching brief during development of housing on the site.	Archaeological Briefs
April-October 2000	BUFAU carry out the specified fieldwork.	
February 2001	BUFAU issue the final salvage recording report.	Litherland 2001

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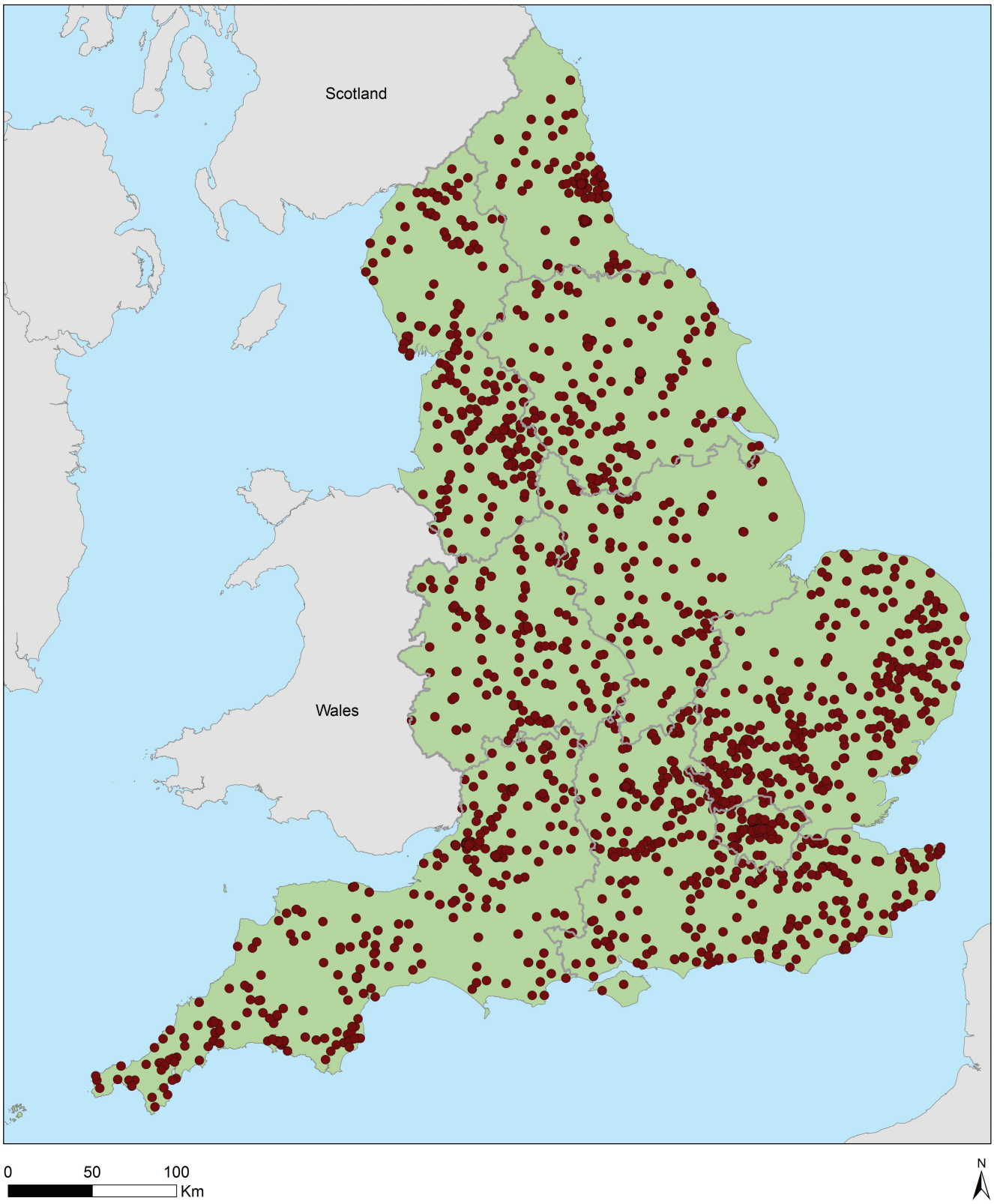

Figure 9.14 Map showing the distribution of recorded investigations related to building refurbishment projects. Regional boundaries shown. (Data: AIP. Sample = 1903 records)

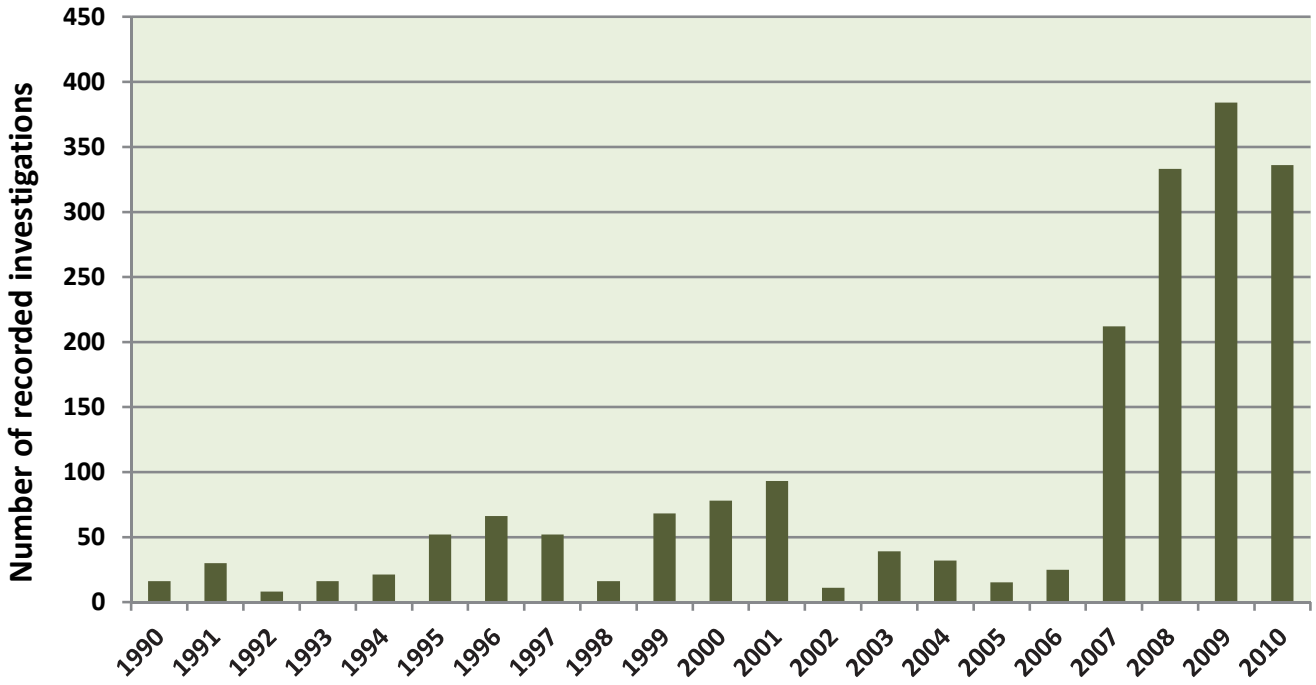

Figure 9.15 Pattern of recorded investigations 1990–2010 for building refurbishment projects. (Data: AIP. Sample = 1903 records)

and earlier deposits were hand excavated. Oven-like structures were amongst the earliest evidence; interpreted as corn dryers, they demonstrated the relative prosperity of Berwick-upon-Tweed up to the mid-fourteenth century, when their abandonment may reflect the decline of the town during the Border conflicts. The ground at the rear of the site was apparently only used for agriculture until the expansion of buildings during the sixteenth and seventeenth centuries, which matched the revival of Berwick's fortunes. Development increased at the site through the eighteenth and nineteenth centuries. A nineteenth century septic tank was found, providing evidence that organised sewage management had been implemented in Berwick at an early stage in the development of such civic systems.

A final report was published in the county archaeological journal (Hindmarch 2011). The excavation at 119–125 Marygate demonstrated that valuable archaeological evidence could be recovered from a site with severe limitations, including working within standing building walls and performing watching briefs from a safe distance when building works required this. Archaeological work at the site showed that the history of the plot under investigation reflected in microcosm the development of Berwick-upon-Tweed as a whole.

Public buildings and community facilities

Through the second half of the PPG16 Era especially there has been a surge in development programmes for public buildings and community facilities, such as schools, colleges, universities, sports centres, hospitals, and medical centres. In part this is because of changing financial models and the privatisation of public services so that many now involve public-private partnerships. Around 2700 recorded investigations relate to such projects and Figure 9.17 shows their distribution, with a concentration around London and in other major cities such as Bristol and Newcastle-upon-Tyne. Figure 9.18 shows the spread of recorded investigations through the PPG16 Era with peaks in 1996–7, the mid-2000s, and 2009 when private development is generally declining. Most occur within or around built-up areas in villages, towns, and cities. They are of greatly varying scale, and while sometimes involve the re-use of existing sites many are built in new locations with the sale of previous facilities part of the overall financial package; selling prime sites to fund new-build in a more peripheral but more accessible location is a common pattern. Such work is not itself a particularly distinctive kind of archaeological inquiry and may include or combine urban investigation with rural work and building recording. Interest in the heritage of public buildings of various periods, and in their protection and conservation, is however an expanding area of study.

Case study 6: NHS Culm Valley Integrated Centre for Health, Willand Road, Cullompton, Devon

The Willand Road site lies on an area of farmland on the north side of Cullompton, a small historic town in mid Devon, west of the River Culm. The site is on the edge of the settlement outside the Cullompton Conservation Area.

Table 9.6 Summary of the key stages, archaeological investigations and outputs for the building refurbishment project at 119–125 Marygate, Berwick-on-Tweed, Northumberland.

Date	Events and investigations	Products / Outputs
5 May 2005	Planning application ref N/05/B/0336 is submitted by Sense of Space on behalf of the Moorgarth Group Ltd to Northumberland County Council, to refurbish and redevelop 119-125 Marygate, Berwick-upon-Tweed.	Submission
2005	An Evaluation Report is produced by the Bamburgh Research Project.	Bamburgh Research Project 2005
2005	A Written Scheme of Investigation for the archaeological work is produced by The Bamburgh Research Project.	Gethin and Young 2005.
25 August 2005	Northumberland County Council approve planning application ref N/05/B/0336, with conditions including archaeological work as their point 4.	Approval Northumberland County Council 2005
April and June 2007	AOC Archaeology Group carry out the archaeological fieldwork as specified.	
2007	AOC Archaeology Group issue a watching brief and excavation report to the client.	AOC Archaeology Group 2007
2011	AOC Archaeology provide a summary for the Northumberland County Council annual archaeological report.	Hindmarch 2011a
2011	Publication of the main report (Journal paper: 23pp; figures; tables)	Hindmarch 2011b

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The need for enhanced health-care facilities at Cullompton was recognised in 2004 and designed as an innovative integrated facility by Haven Health. Table 9.7 summarises the development of the project and the main outputs.

The archaeological work was spread over five years and was overseen by CgMS Consulting Ltd on behalf of the owners and developers of the site. A desk-based assessment of the area was undertaken in 2005, highlighting the presence of prehistoric, Roman and Saxon sites in the vicinity, including two successive Roman forts on St Andrew's Hill, both Scheduled Monuments, about 500 m to the southwest (Figure 9.19). A planning application for a medical centre, pharmacy, café, associated access, car-parking planting, and landscaping was made in September 2005. It was approved in November 2005, conditional on an agreed programme of archaeological recording. A field evaluation by Foundations Archaeology confirmed the presence of significant deposits and led to the development and agreement of a strip and record strategy. Two areas totalling 3150 square metres were subject to detailed examination in accordance with the agreed specification.

The work revealed a pit dating to the early Neolithic and containing pottery and worked flint. A number of penannular ditches were recorded, probably related to Iron Age settlement. Roman activity comprised at least three agricultural enclosures associated with material of the first and second centuries AD. It is possible that these enclosures were contemporary with the military occupation at the nearby St Andrew's Hill. A single pit datable to the early-mid Saxon period constitutes limited evidence for Saxon settlement in the area.

Following a post-excavation assessment, the final report on the work was published in the county archaeological journal (Hood 2010). The health centre was opened by HRH the Prince of Wales in May 2008 and in 2011 was shortlisted for a College of Medicine award.

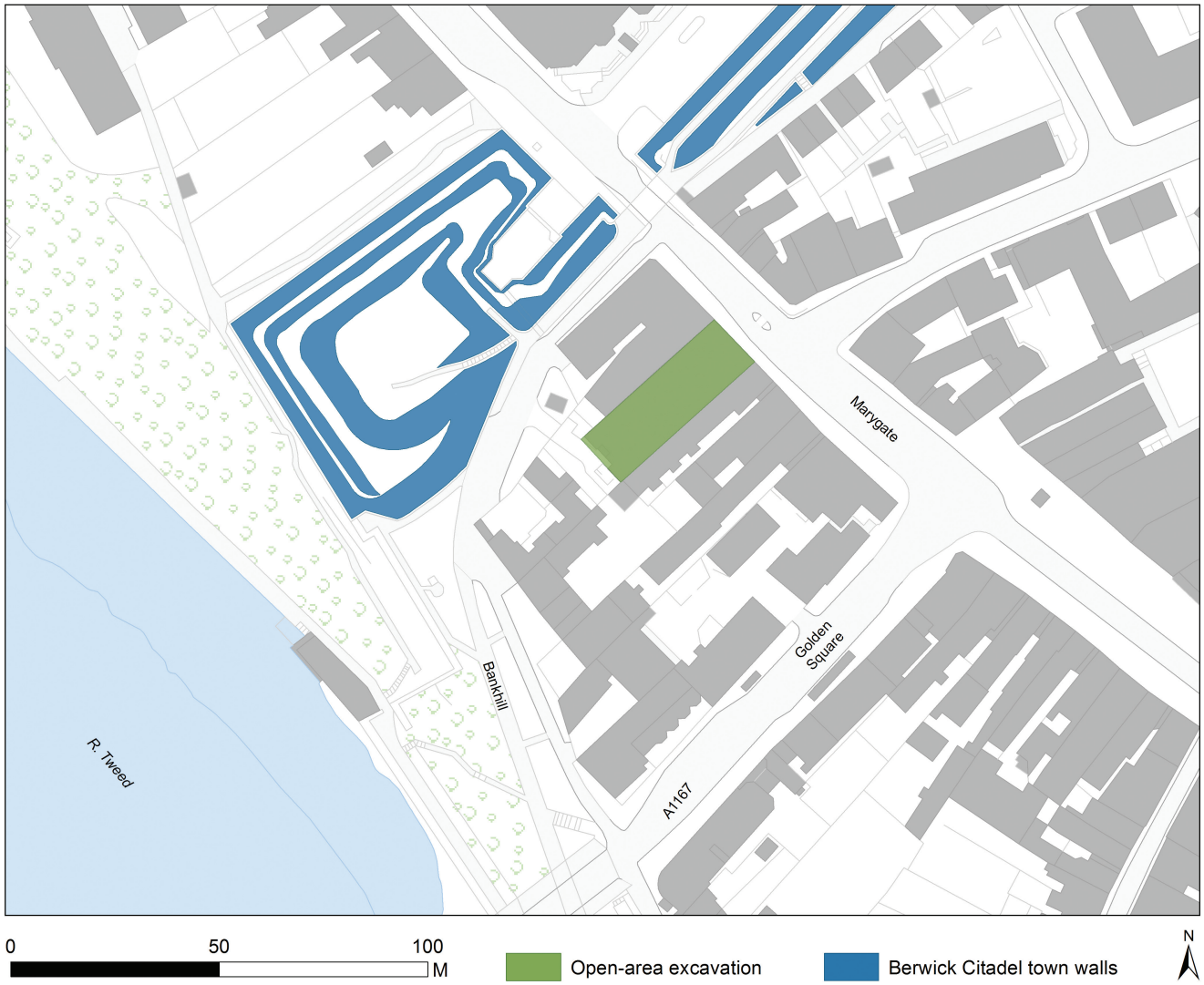

Figure 9.16 Plan showing the position and extent of archaeological investigations at 119–125 Marygate, Berwick-on-Tweed, Northumberland. (After Hindmarch 2011: Fig. 1)

Rural residential/New settlement

The idea of constructing new settlements more or less from scratch in greenfield land has been a central plank of town and country planning since the end of the Second World War. The first tranche of 18 New Towns in England, including Basildon, Milton Keynes, Peterlee, Runcorn, and Welwyn Garden City, were brought about through the New Towns Act 1946. Most were given a development corporation of some kind with special planning powers for a limited duration that in some cases included an integral archaeological unit. Many came to an end in the late 1980s at around the same time that the *New Towns Act 1981* renewed powers to create further new towns. In fact, further new-town development came in and out of political favour through the 1980s and into the PPG16 Era as one of the obvious solutions to the housing shortage, although it was never pursued as vigorously as in the 1940s. PPG3, published in 1988, set out government policies on the provision of housing land and emphasised the key role of the planning system in meeting the demand for housing (DoE 1988b). The AIP recorded more than 2600 events related to large-scale rural development involving more than 30 houses within a single scheme, some of which related to new settlements whether these were planned as a unity, provided in-fill between existing centres, or arose because of land availability around small existing settlements. Figure 9.20 shows the distribution of recorded examples with some areas showing the effects of road corridors. Figure 9.21 shows the incidence of these developments through time with peaks in 1997, 2001, and 2007, and evidence of a fairly rapid recovery in 2009 and 2010 after the recession of 2008.

Many new settlements involve the use of greenfield land between an existing settlement and a major arterial route, such as a bypass or motorway, and include infrastructure

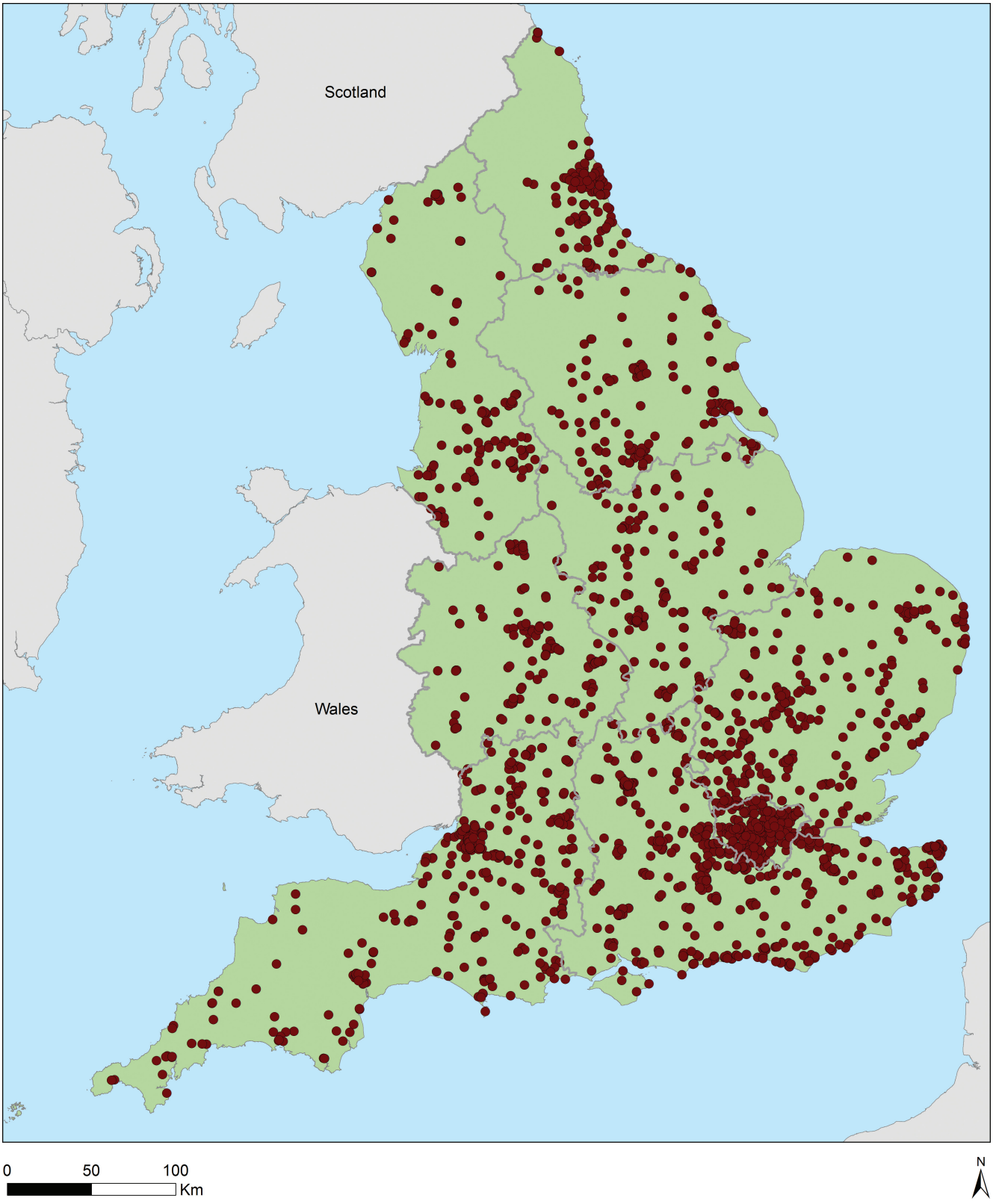

Figure 9.17 Map showing the distribution of recorded investigations related to the construction of public buildings and community facilities. Regional boundaries shown. (Data: AIP. Sample = 2468 records)

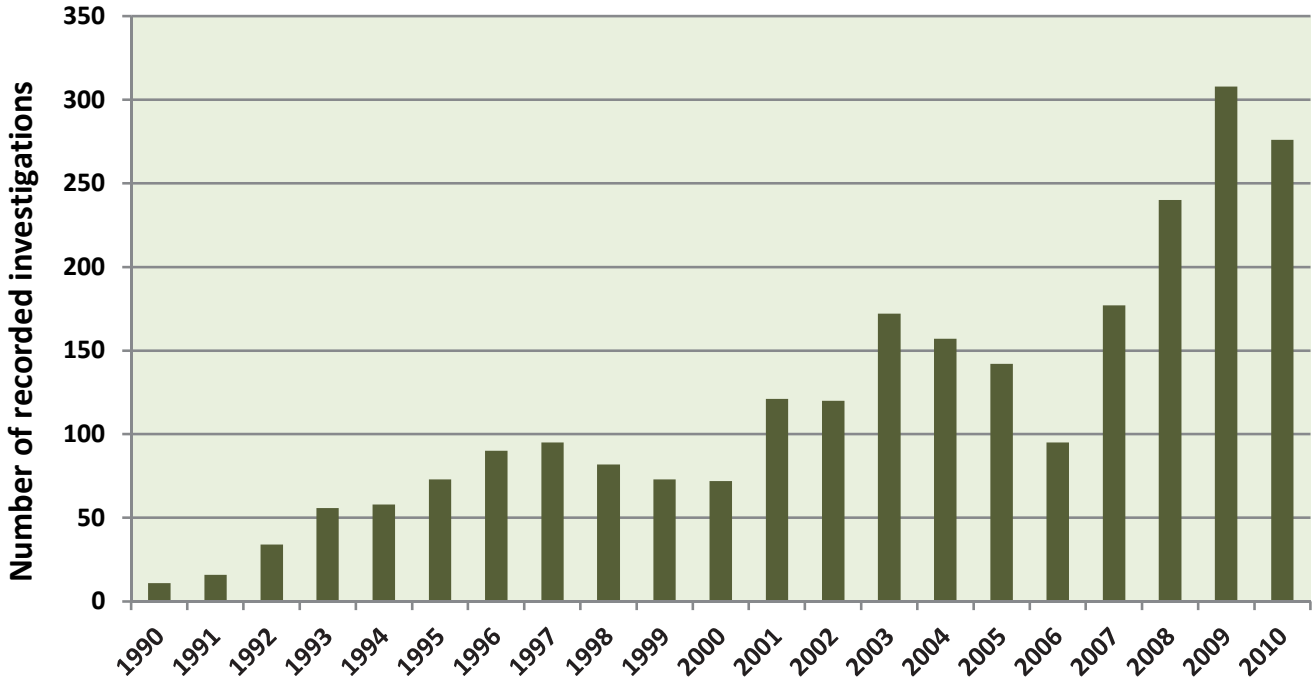

Figure 9.18 Pattern of recorded investigations 1990–2010 for the construction of public buildings and community facilities. (Data: AIP. Sample = 2468 records)

Table 9.7 Summary of the key stages, archaeological investigations and outputs for the community facilities development at the NHS Culm Valley Integrated Centre for Health, Willand Road, Cullompton, Devon.

Date	Events and investigations	Products / Outputs
2004	Need for scheme, site identified and design developed by Haven Health	
2005	Desk-based assessment (CgMS)	CgMS 2005
01 Sept 2005	Planning application submitted	
24 Nov 2005	Planning application approved	
2006	Field Evaluation (Foundations Archaeology)	Foundations Archaeology 2006
2006	Specification for archaeological mitigation strategy (CgMS)	CgMS 2006
2006-2007	Archaeological investigations (Foundations Archaeology)	
May 2008	Centre opened by HRH The Prince of Wales and the Duchess of Cornwall.	
2007-2010	Post-excavation analysis and reporting	Foundations Archaeology 2007
2010	Publication of the final report (County journal article: 23pp; 11 figures; 5 tables)	Hood 2010

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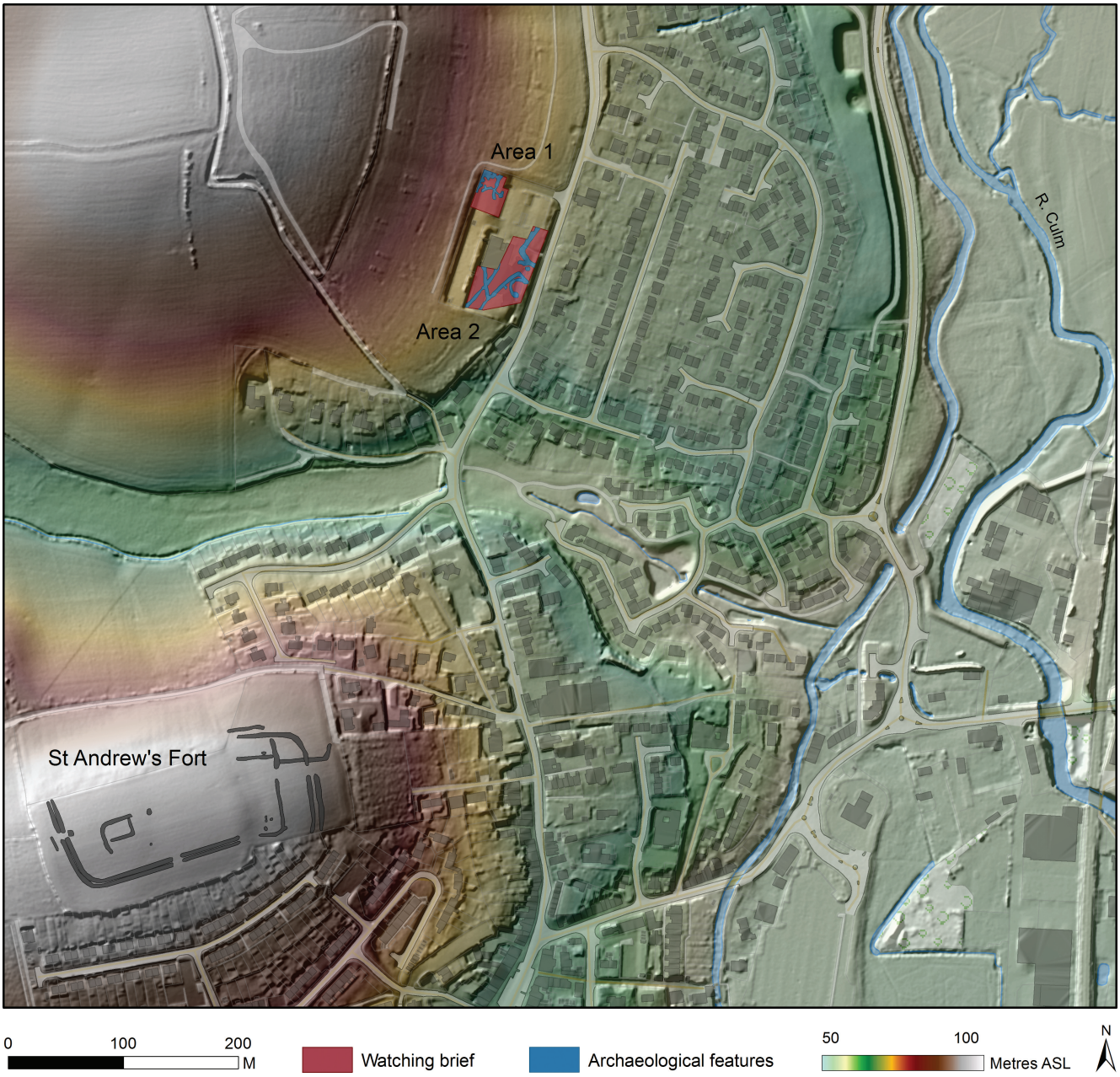

Figure 9.19 Plan showing the position and extent of archaeological investigations at Willand Road, Cullompton, Devon. (After Hood 2010: Fig. 1)

works for communications (road and rail) as well as community facilities (schools, churches, shops etc.). Various models for the planning of such settlements have been used, one of the most debated being the 'New Urbanist' approach at Poundbury on the west side of Dorchester where the Duchy of Cornwall has built a new settlement on its own land under the strong guidance of HRH Prince Charles (Prince of Wales 1989) and with considerable archaeological input (Dinwiddy & Bradley 2011 with earlier references).

Large-scale residential developments do not involve an especially distinctive pattern of archaeological investigation, although because of their size and the fact that many proposals are brought forward for areas about which very little is known, they typically trigger the full range of pre-determination investigations while spreading post-determination investigations over several stages that match the incremental unfolding of the project as a whole. What they provide is a rare chance to look at a substantial area of landscape and the way it has been used and exploited over time.

Such is the complexity of planning whole new settlements that their location and content is a major matter for strategic

planning and the allocation of development opportunities long before the detail of individual schemes is brought forward. Thus, in the case of Cambourne discussed here as a case study, it was one of more than a dozen proposals for a new settlement under consideration in the fenlands north and west of Cambridge through the 1980s, all of which were subject to a range of desk-based assessments and most also saw at least some field evaluation.

Case study 7: Cambourne New Settlement, Cambridgeshire

The Cambourne New Settlement covers approximately 600 ha of former farmland beside the A428, about 12 km west of Cambridge and 12 km east of St Neots. It is an area that is not within or adjacent to any major heritage-related designations and until recently was relatively remote. Being largely on clay-land above the valley of the Great Ouse which flows through St Ives to the north it was also an area that was little-known in terms of its archaeological heritage.

The wider area was identified as the potential site for a new settlement when the Cambridgeshire County Structure Plan was amended in 1987. There followed a lengthy planning process involving multiple developers, consultants, planning applications, appeals and consideration of alternative sites. The decision on the final site, plan and development consortium was reached after public inquiry and decisions by the Secretary of State. Outline planning permission was finally granted in April 1994. Table 9.8 summarises the main stages in the development programme.

The new settlement site was moved to its final position after initially being planned nearer the A1198 (Ermin Street, a route with significant Roman origins). The development was large, involving 3300 new houses and associated infrastructure, such as roads, services, a business park, amenities, a school, and leisure areas. The scale of work required Taylor-Wimpey and Bovis Homes to form the Cambourne Consortium which undertook the development. Wessex Archaeology was contracted by the consortium to undertake and manage archaeological investigations, mitigation, excavation, analysis, and publication for the development area (Figure 9.22).

Wessex Archaeology commissioned aerial photography and analysis of cropmarks in the area and fieldwork commenced in February 1996. Twelve excavation areas were investigated within the Cambourne Development Area. Limited fieldwalking and geophysical survey (with Fluxgate Gradiometer) was undertaken, although the contemporary land-use and geology proved unsympathetic to these methods. The principal investigation technique was to machine strip evaluation trenches. These were typically 50 m by 2 m and laid out on a north-south and east-west grid pattern. These eventually constituted 2–3 per cent of each development sub-area within the new settlement. The work was performed in phases between February 1996 and August 2006, in accordance with the developers' schedule. Wessex Archaeology issued a range of unpublished client reports during the work.

Six phases were identified, from the middle Bronze Age to the post-medieval period. All of the twelve sites produced archaeological evidence from at least three of these phases, with Lower Cambourne covering all six phases. Short-lived Bronze Age occupation was followed in the middle Iron Age by small farming communities with an economy based on stock-raising and some arable cultivation. The late Iron Age seems to have seen a recession, perhaps partly due to increased waterlogging making farming less viable. From the mid-first century AD new settlements began to emerge, possibly partly stimulated by the presence of Ermin Street, and within a century the area was relatively densely occupied. Several farmsteads were remodelled in the later Romano-British period, though none seem to have been very prosperous. Dispersed occupation may have continued into the early fifth century at least, followed by a hiatus until the twelfth and thirteenth centuries when the entire area was taken into arable cultivation, leaving the ubiquitous traces of medieval ridge and furrow agriculture.

The final report on the project was published as a monograph in the contractor's own series (Wright *et al.* 2009). More than anything else the investigations showed how well-used these clay-lands in eastern England had been during prehistoric and later times. Until the latter half of the twentieth century, it had been assumed that the local heavy clay geology of the Cambridgeshire uplands was unsuitable for prehistoric arable farming methods. It was accepted that only with the introduction of Roman agricultural tools, had the land been rendered cultivatable. The excavations at Cambourne New Settlement helped to disprove this assumption, demonstrating that the lack of evidence was due to a lack of appropriate archaeological investigation. The Cambourne New Settlement excavations confirmed that this area had been a well-used, inhabited and evolving agricultural landscape, long before the arrival of Roman technology and influence.

Rural industrial

Developments for new industrial estates, factories, and processing facilities of various sorts in rural areas are similar in their archaeological responses to those discussed previously in relation to rural residential development: what goes on the site after the archaeological heritage is dealt with makes little overall difference, although there is probably more scope for the conservation of sites through including them in open areas within a residential development than there is in an industrial development. About 1300 investigations related to rural industrial developments

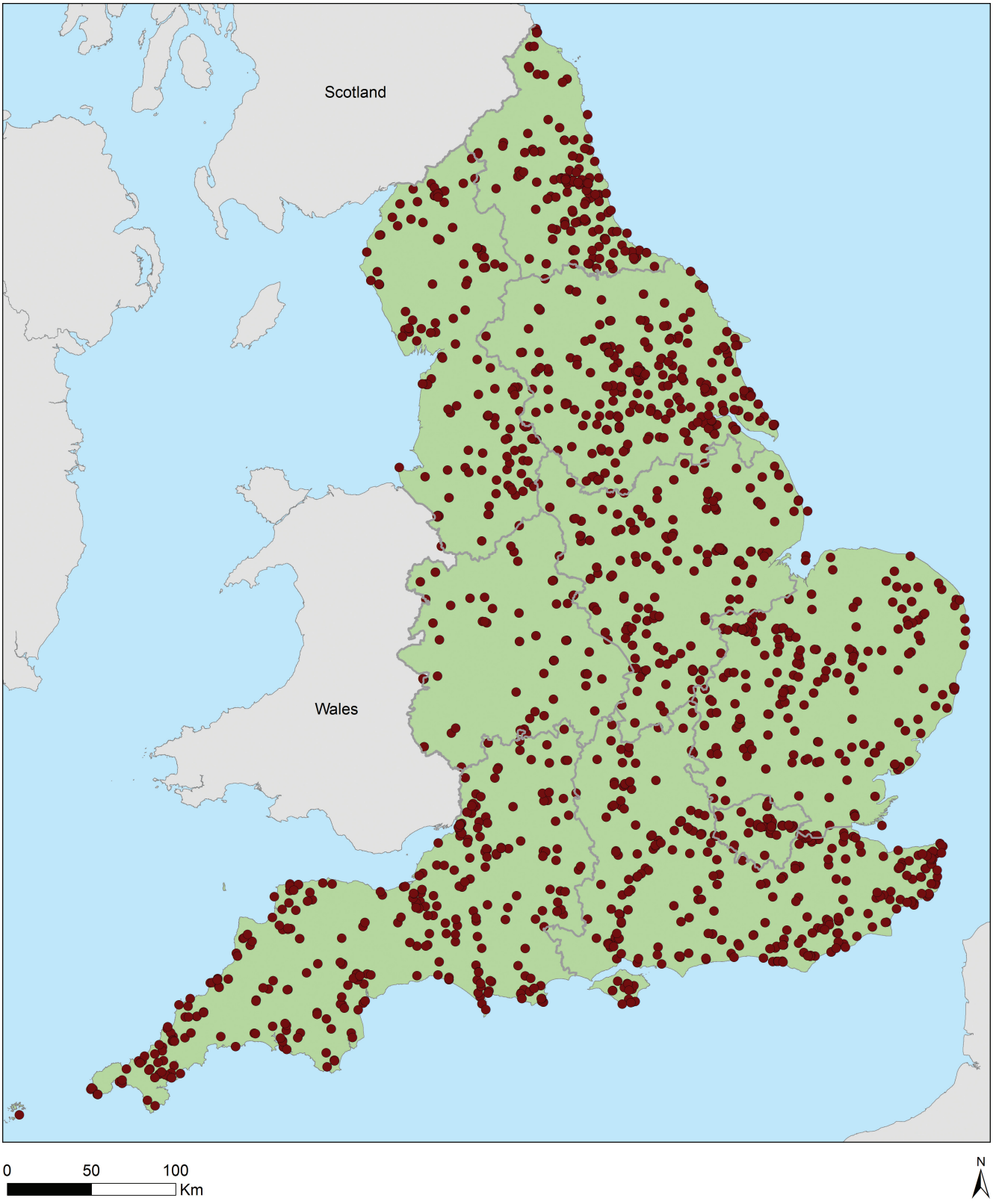

Figure 9.20 Map showing the distribution of recorded investigations related to rural residential development and new settlement projects. Regional boundaries shown. (Data: AIP. Sample = 2374 records)

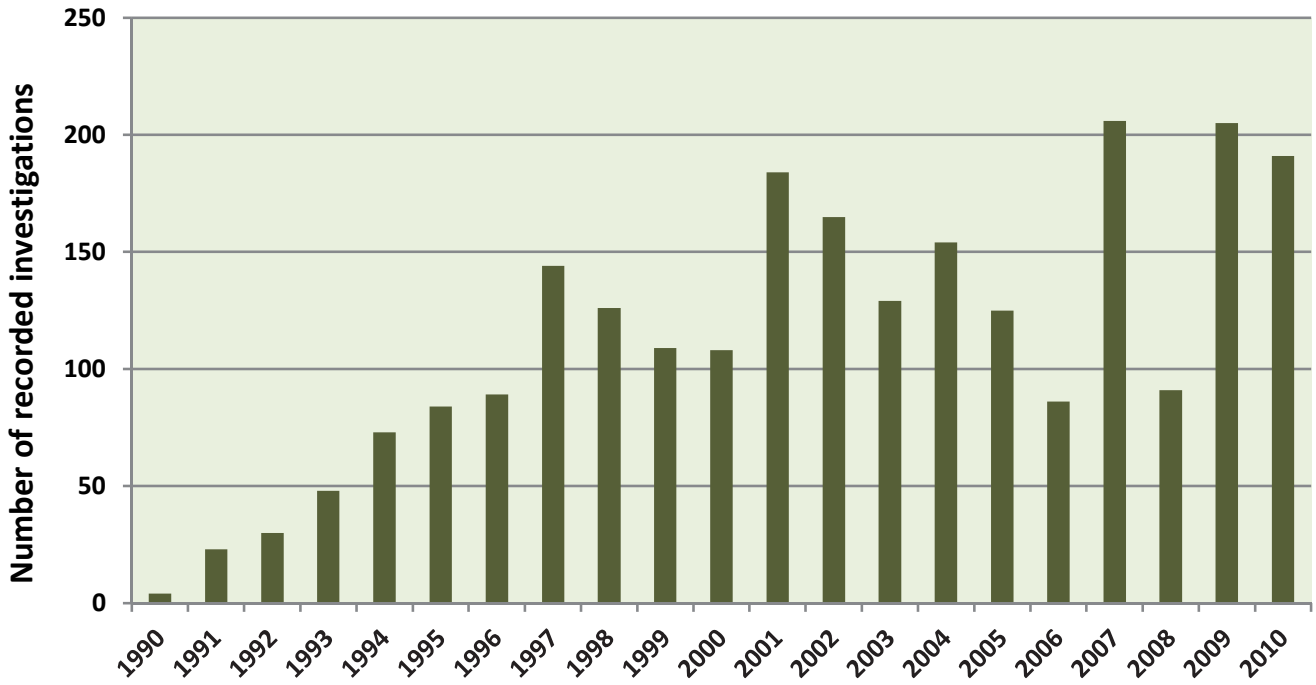

Figure 9.21 Pattern of recorded investigations 1990–2010 related to rural residential development and new settlement projects. (Data: AIP. Sample = 2374 records)

Table 9.8 Summary of the key stages, archaeological investigations and outputs for the rural residential development at Cambourne New Settlement, Cambridgeshire.

Date	Events and investigations	Products / Outputs
1986-87	The 1980 County Structure Plan is amended and to include the recommendation that a new settlement be developed to the west of Cambridge. The "Swanley Wood" new settlement development is initially proposed between the A1198 (Ermine Street) and A428 in south Cambridgeshire.	Recommendation Cambridgeshire County Council 1980 South Cambridgeshire District Council 2015
25 March 1987	Planning application S/0664/87/O is registered by AC Bateman on behalf of Bryant Homes, to build a new settlement on land between Knapwell Road and the A45.	Application
24 April 1987	Planning application S/0890/87/O is registered by MWT Development Consultants on behalf of Hillson & Twigden Ltd, to build a new settlement adjacent to Denny Abbey east.	Application
18 May 1987	Planning application S/1074/87/O is registered by Phillips Planning Services on behalf of Taylor Bros, to build a new settlement on land adjacent to Bourn Airfield.	Application
19 June 1987	Planning application S/1356/87/O is registered by Bidwells on behalf of Dry Drayton Estates Ltd., Churchill College and Trinity College, to build a new settlement on Scotland Farm.	Application
October 1987	Public Inquiry is held to review amendments to the County Structure Plan which recommends the development of a new settlement.	Public Inquiry report
1 January 1988	Planning application S/3119/88/O is registered to build a new settlement at Hardwick, Caldecote.	Application

Table 9.8

Date	Events and investigations	Products / Outputs
January 1988	The report arising from the October 1987 public Inquiry is presented to the Secretary of State for Approval	
18 March 1988	Appeal lodged with the Department of the Environment by Phillips Planning Services on behalf of Taylor Bros regarding the length of time taken by South Cambridgeshire to consider planning application S/1074/87/O, which has exceeded the statutory time period.	Appeal
25 March 1988	Planning application S/0775/88/O is registered by Phillips Planning Services on behalf of Taylor Bros, to build a new settlement on land adjacent to Bourn Airfield.	Application
22 April 1988	Department of the Environment withdraws the appeal regarding application S/1074/87/O, due to it being out of time.	Appeal withdrawn
March-October 1988	A Public Inquiry is held to examine the six potential development sites which have been proposed.	Public Inquiry recommendations
1 July 1988	Planning application S/3119/88/O is refused	Refusal
July 1988	The Secretary of State announces proposed modifications to the County Structure Plan amendments	Announcement
July-October 1988	Consultations on the Secretary of State's proposed modifications	Revised County Structure Plan
8 December 1988	Planning application S/3099/88/O is registered by Woods Hardwick Ltd on behalf of Twigden Homes Ltd, to build a new settlement at Denny Abbey, Waterbeach.	Application
	Randall Thorp (environmental planners) are retained by Stanhope to assist Arup in establishing a preliminary master plan for the Swanley Wood development at the Great Common Farm site.	Master plan
1989	Preliminary archaeological investigations of the Swanley Wood development area are carried out by Wessex Archaeology on behalf of The Richard Wood Partnership.	Wessex Archaeology 1989
1 January 1989	Planning application S/0812/89/ is registered by the University of Manchester to build a new settlement at Great Common Farm.	Application
March 1989	The Secretary of State approves a modified Structure Plan to include the proposed new settlement.	Approval
13 March 1989	Planning application S/0670/89/O is registered by The Richard Woods Partnership on behalf of Alfred McAlpine Homes East Ltd, to build a new settlement on land to the south-east Caxton Gibbet.	Application
21 April 1989	Planning application S/0664/87/O is withdrawn	Application withdrawn
9 May 1989	Planning application S/1109/89/O is registered by Phillips Planning Services on behalf of the Bourn Airfield Consortium, to build a new settlement at Bourn Airfield.	Application
29 August 1989	Planning application S/0890/87/O is withdrawn	Application withdrawn
30 November 1989	Planning application S/0775/88/O is withdrawn.	Application withdrawn
1990	Public Inquiry recommends moving the development further from the A1198	Public Inquiry recommendation
March 1991	The Inspector recommends the Great Common Farm site	Recommendation
12 December 1991	Planning application S/3099/88/O is refused by South Cambridgeshire District Council after an appeal and on direction of the Secretary of State	Refusal
1 January 1992	Planning application S/1371/92/O is registered by Wood Frampton on behalf of Alfred McAlpine Projects Ltd, to build a new settlement on land south of the A45 on part of Great Common Farm and adjacent to Bourn Airfield	Application

Table 9.8 Summary of the key stages, archaeological investigations and outputs for the rural residential development at Cambourne New Settlement, Cambridgeshire. (Continued)

Date	Events and investigations	Products / Outputs
5 March 1992	The Secretary of State refuses six current applications and does not accept the Inspector's recommendation	Multiple Refusals
	South Cambridgeshire District Council refuses applications as directed by the Secretary of State.	Multiple Refusals
	A new development site for the Cambourne New Settlement is proposed in the Caxton and Bourn parishes, including half of the previous Great Common Farm site and land adjacent to Bourn Airfield.	Proposal
2 November 1992	Planning applications S/1635/92/O and S/1636/92/O are submitted by Stanhope (Cambridge) Ltd via Phillips Planning Services, to build a new settlement at Great Common Farm and Bourn Airfield.	Applications
1993	South Cambridgeshire District Council approves the revised Cambourne New Settlement site, incorporating part of Great Common Farm and land adjacent to Bourn Airfield	Approval
3 February 1993	Planning application S/0144/94/O is submitted by Taylor Bros and John Martin & Associates, to build a new settlement at Bourn Airfield and Great Common Farm	Application
20 April 1994	South Cambridgeshire District Council grants outline planning permission for the Cambourne New Settlement development application S/1371/92/O, subject to conditions including archaeological mitigation under a Written Scheme of Investigation as point 12 of their document.	Outline planning permission approval South Cambridgeshire District Council 1994
14 June 1994	Planning applications S/0144/94/O, S/1635/92/O and S/1636/92/O are formally refused by South Cambridgeshire District Council	Multiple refusals
1995	Terry Farrell & Co commission an historical review of the affected parishes of Caxton and Bourn as part of the development of initial master plan concepts.	van Sickle 1995
May 1995	Masterplan for the new development issued by the design team (including Randall Thorp) which develops the Terry Farrell & co initial concept.	*Masterplan* Structural Landscape Plan
February 1996-August 2006	Wessex Archaeology fieldwork (excavation and watching briefs) proceeds in phases agreed with the developer, in accordance with the Written Scheme of Investigation, producing client reports for each.	Wessex Archaeology 1998a-f, Wessex Archaeology 1999a-d Wessex Archaeology 2001a-b Wessex Archaeology 2003a-b Wessex Archaeology 2004a-c Wessex Archaeology 2006
	Wessex Archaeology commission aerial photography, mapping and interpretation of cropmarks from Air Photo Services Ltd	Cox & Deegan 1996
1997	Randall Thorp submit "The Cambourne Design Guide", establishing environmental principles and detailed plans	*The Cambourne Design Guide*
1998	Development of Cambourne New Settlement by The Cambourne Consortium (Taylor Wimpey and Bovis Homes) begins	
	Masterplan updated by Randall Thorp in line with central government guideline changes and demand for the new homes	Updated *Masterplan*
2000	Wessex Archaeology produce a summary research design including the research aims and methodology for the client	Wessex Archaeology 2000
2003	Wessex Archaeology produce excavation reports for nine sites within the development area for the client	Wessex Archaeology 2003c

Table 9.8

Date	Events and investigations	Products / Outputs
2004	Wessex Archaeology produce a mitigation plan for an additional site for the client	Wessex Archaeology 2004d
2004	Wessex Archaeology produce an interim statement of results for two sites within the area for the client	Wessex Archaeology 2004e
2005	Wessex Archaeology produce a plan for post-excavation analysis and publication for the client	Wessex Archaeology 2005
2008	Wessex Archaeology publish an online summary of the project	Wessex Archaeology 2008
2009	Publication of the main report (Monograph: 136pp; 49 figures (some colour); 26 plates (some colour); 88 tables; index; CD-ROM)	Wright *et al.* 2009

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Table 9.8 Summary of the key stages, archaeological investigations and outputs for the rural residential development at Cambourne New Settlement, Cambridgeshire. (Continued)

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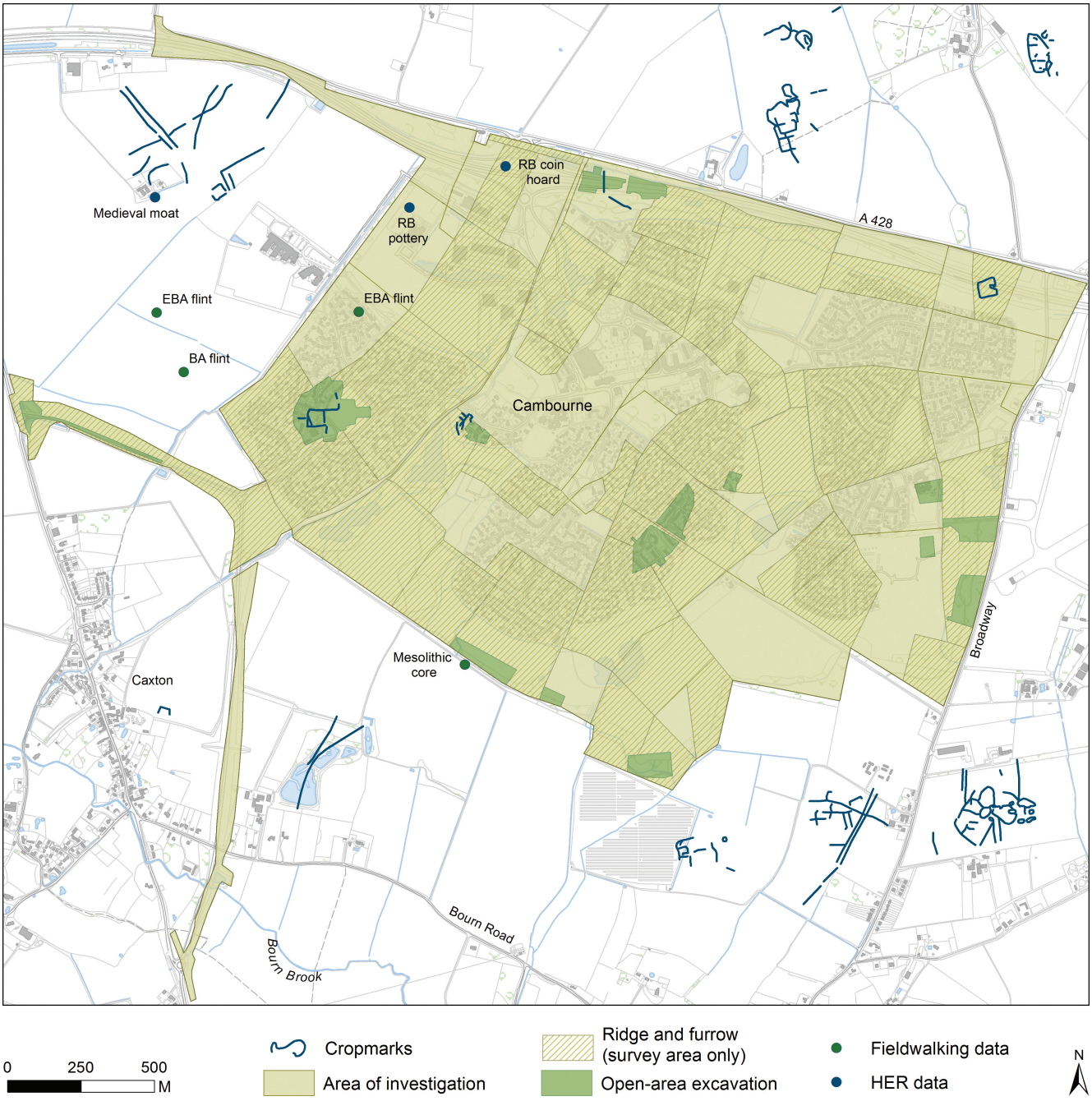

Figure 9.22 Plan showing the position and extent of archaeological investigations at Cambourne New Settlement, Cambridgeshire. (After Wright et al. 2009: Fig. 2)

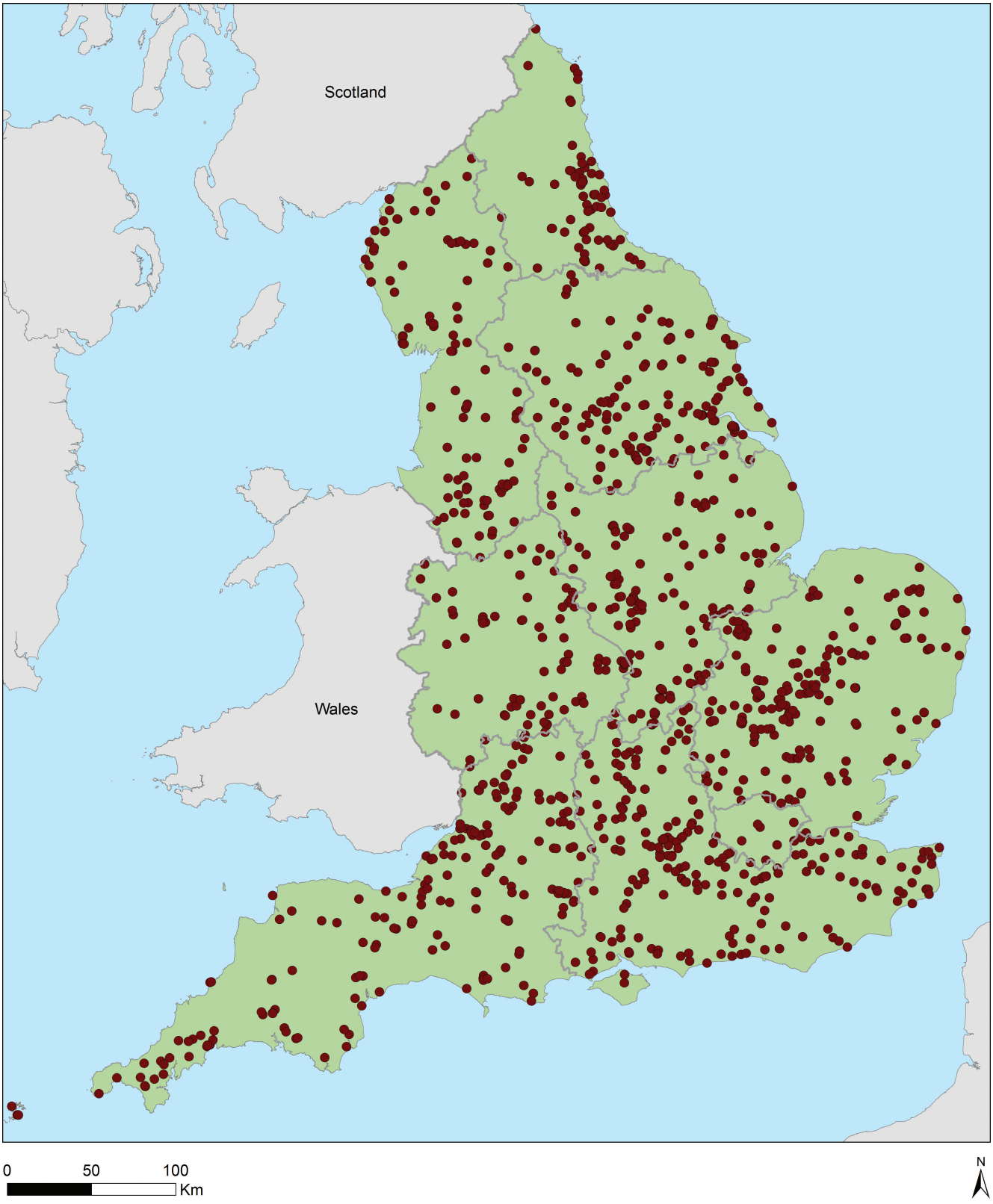

Figure 9.23 Map showing the distribution of recorded investigations related to rural industrial development projects. Regional boundaries shown. (Data: AIP. Sample = 1002 records)

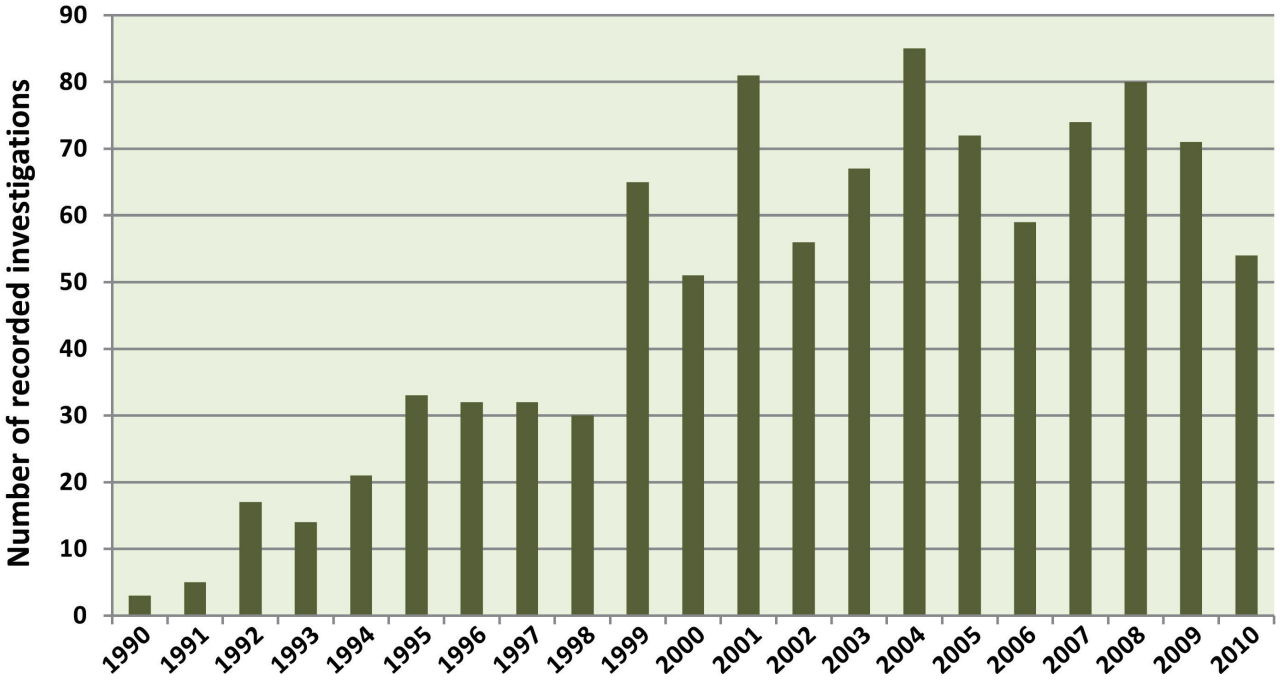

Figure 9.24 Pattern of recorded investigations 1990–2010 for rural industrial development projects. (Data: AIP. Sample = 1002 records)

were recorded by the AIP, most of them on the edges of small towns and cities where they were handy for the recruitment of a workforce. Figure 9.23 shows the distribution of recorded investigations prompted by rural industrial developments, with the majority distributed in areas with higher population densities and notably avoiding protected areas, such as National Parks. Figure 9.24 shows the incidence of recorded investigations over time, with peaks in 1995, 1999, 2001, 2004, and 2008, after which there is a fairly steep decline. Typically, a range of pre-determination investigations provide the background for decision-making and the specification of post-determination investigations and preservation strategies. Larger schemes especially are a matter for strategic planning, and some desk-based assessments are carried out to support a case for the designation of land for future industrial development. PPG4 issued in 1988 set the scene for arrangements at the start of the PPG16 Era by emphasising the importance of positive and prompt approaches towards application, which contribute to national and local economic activity (DoE 1988c). PPG7, issued at the same time, included advice on non-agricultural development in rural areas (DoE 1988d).

Case study 8: Faverdale East Business Park, Darlington

Faverdale lies to the north of Darlington beside the A68 near to its junction with the A1(M). Formerly farmland on limestone on the interfluve between the Rivers Skerne and Tees this was an area outside of the Conservation Areas around Darlington and just to the east of the North Pennines AONB. In March 2003, an outline planning application was submitted to develop a substantial block of land as the Faverdale East Business Park by Cundall Johnston & Partners LLB on behalf of John Buxton; Table 9.9 summarises the main subsequent stages to the project.

Darlington Borough Council referred the application to the Archaeology Section of Durham County Council (DCAS) as there were known archaeological features in the area, assumed to be traces of the deserted medieval village of Whessoe. Based on geophysical survey and non-invasive archaeological investigation, DCAS recommended trial trenching in advance of a planning decision. This was carried out by Pre-Construct Archaeology Ltd (PCA) in June to July 2003, as a result of which archaeological conditions were imposed when Darlington Borough Council approved the planning application in November 2003. A related planning application was submitted in April 2004, for development work specific to the construction of facilities for Argos Ltd at the Faverdale East Business Park. PCA undertook a second phase of trial trenching in this area. This planning application was approved in July 2004, with a note that the archaeological conditions specified in the outline planning permission also apply to this work. PCA carried out open area excavations in three areas of the Faverdale East Business Park development site between July and October 2004 (Figure 9.25).

The excavations revealed that extant earthworks assumed to be a deserted medieval village actually dated to the

Table 9.9 Summary of the key stages, archaeological investigations and outputs for the rural industrial development at Faverdale East Business Park, Darlington.

Date	Events and investigations	Products / Outputs
2002	A Desk-Based Assessment is performed by Bullen Consultants Ltd.	Unpublished client report
27 March 2003	Outline planning application ref 03/00340/OUTE submitted to Darlington Borough Council by Cundall Johnston & Partners LLP, for outline permission to develop a new business park, Faverdale East Business Park.	Submission Darlington Borough Council 2003
	As part of the consideration of the planning application, it is referred to Durham County Council's Archaeology Section ("DCAS"), for advice on the potential archaeological considerations. DCAS issue archaeological specifications document "Specification for Archaeological Evaluation Darlington Gateway, Faverdale East Business Park" (unpublished).	Unpublished report
April 2003	Pre-Construct Archaeology ("PCA") Ltd carry out a field visit and visual inspection of the proposed site.	Geophysical survey commissioned
April 2003	GeoQuest Associates on behalf of PCA carry out a geophysical survey of c.10% of the proposed site and issues a client report "Geophysical Survey of Areas within the Proposed Darlington gateway, Faverdale East Business Park, Darlington" (unpublished).	Unpublished client report
	Based on the results of initial investigations, DCAS specify a schedule of trial trenching prior to a planning decision	Specification of archaeological works
June to July 2003	PCA undertakes Phase 1 of trial trenching and issues a client report "An Archaeological Evaluation (Phase 1) at Faverdale East Business Park, Darlington, County Durham" (unpublished) and the Environmental Impact Assessment is submitted	Unpublished client report Environmental Impact Assessment
19 November 2003	Darlington Borough Council approve planning application ref 03/00340/OUTE with conditions including archaeological investigation as their point 21.	Approval Darlington Borough Council 2003
2004	PCA issue a client report "Geophysical Survey at Faverdale" (unpublished)	Unpublished client report
23 April 2004	Planning application ref 03/00340/RM1 submitted to Darlington Borough Council by Burksgreen for Argos Limited, for access, landscaping of a new distribution centre, associated office and maintenance facilities.	Submission Darlington Borough Council 2003
18 May 2004	Amendment to planning application ref 03/00340/OUTE submitted to Darlington Borough Council.	Amendment Darlington Borough Council 2003
June to July 2004	PCA undertakes Phase 2 of trial trenching.	
	DCAS recommend open area excavation in parts of the proposed development sites.	
	PCA issue client reports; a project design and supplement for the proposed development sites and adjacent areas; "Project Design for Archaeological Excavation at Faverdale East Business Park, Darlington" and Project Design (with Supplementary Desk-based Research) for Preliminary Archaeological Evaluation at High Faverdale Farm and Whessoe Grange Farm" (unpublished).	Unpublished client reports
18 June 2004	Amendment to planning application ref 03/00340/OUTE submitted to Darlington Borough Council.	Amendment Darlington Borough Council 2003
27 July 2004	Darlington Borough Council approve planning application ref 03/00340/RM1 with notes that conditions not yet discharged under the outline planning permission, will be applied to this application. These include archaeological conditions.	Approval Darlington Borough Council 2004

Table 9.9 Summary of the key stages, archaeological investigations and outputs for the rural industrial development at Faverdale East Business Park, Darlington.

Date	Events and investigations	Products / Outputs
July to October 2004	PCA carry out open area excavations in three areas of the proposed development site.	
February 2007	PCA issue an unpublished post-excavation assessment report for Darlington Borough Council.	Glover et al 2007
2010	University of Durham Archaeological Services issue an unpublished plant macrofossil, invertebrate and pollen analysis report	Unpublished report
2012	Publication of the main report (Monograph: 245pp; 108 figures; 57 tables; index)	Proctor 2012

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Roman-British period. An unenclosed farmstead had been established at the site at some time in the late first century AD. The high proportion of imported Samian pottery, when compared to indigenous pottery, indicated that the settlement was of significant status from its beginnings. A small two-roomed stone building dated to the second century AD had a hypocaust system, painted plastered walls and was sited within a large rectilinear enclosure, all in the Roman style. It was abandoned during the third century AD but a large stone structure was erected in the late fourth century AD at the site, as Roman cultural influence waned throughout Britain.

The final report was published as a monograph in the contractor's own series in 2012 (Proctor 2012). The excavations demonstrated the value of exploring the area as it clearly had unrecognised archaeological potential. Evidence thought to represent a deserted medieval village, was revealed to be the remains of an indigenous Roman-style farmstead, rare for this region, showing that Roman cultural influence in the region was more nuanced than had previously been thought. The prevailing view had been one of cultural separation; of discrete Roman military posts and indigenous settlements that had little contact. However, the Faverdale excavation suggests that Roman-style buildings and habits were being adopted by the local population, which interacted with the Roman world through trade. They adopted a range of Roman cultural traits which augmented their existing British identities and traditions. The Faverdale excavations both corrected an existing incorrect assumption about archaeology on the development site, and permitted a new insight into Roman influence and interaction in the area.

Long-distance pipelines and cables

Large-scale long-distance pipelines for water, gas, and oil, together with cables for telecommunications and the undergrounding of electric cables on the national grid represent an interesting opportunity for archaeological investigations as they typically cross-cut a wide range of landscapes and provide a glimpse of activities in each. In this sense they provide complementary perspectives to set alongside the single-landscape views provided by other kinds of large-scale development such as that related to the development of new settlements. Pipeline archaeology has developed its own approaches and methodologies, although it utilises conventional investigation types and events (Daniel 2011; Pearson & Brinklow 1997). More than 2800 individual investigations were recorded by the AIP relating to this kind of development, and their distribution is shown on Figure 9.26, although in some cases a single spot represents a considerable number of related events in a long line across the landscape. Figure 9.27 shows the distribution of these investigations over time, the change in recording systems in 2007 altering the order of magnitude but with clear spikes in activity in 1999 and 2008–9.

Pipeline and cable schemes involve creating a linear easement along which the trench for the pipe or cable

Figure 9.25 Plan showing the site and the areas of geophysical survey and excavation at Faverdale, Darlington. (After Proctor 2012: Fig. 2)

will be dug and which also provides the access route for construction. Such easements are typically 100 m wide and will usually be stripped of topsoil to facilitate other groundworks. Cutting across the landscape there are often opportunities to cut sections through roads and tracks and explore the nature of land boundaries and associated walls and banks. In planning the route there is usually scope to avoid known major sites, and a lot of time is spent defining appropriate routes from an engineering as well as a conservation viewpoint. As well as the pipeline or cable itself, there is typically associated infrastructure by way of pumping stations or booster stations, as well as connections to existing infrastructure, some of which may be off-shore.

By their nature, long-distance pipelines and cables cross land in a number of local authority jurisdictions and in many different ownerships; negotiating access can be very time-consuming. Not all owners along the line of a proposed scheme allow early access to hand for assessment and evaluation. Most large-scale schemes fall within the category of national infrastructure projects and are undertaken on behalf of utility companies or government agencies, some of whom may be Statutory Undertakers. Accordingly, special planning arrangements have been in place throughout the

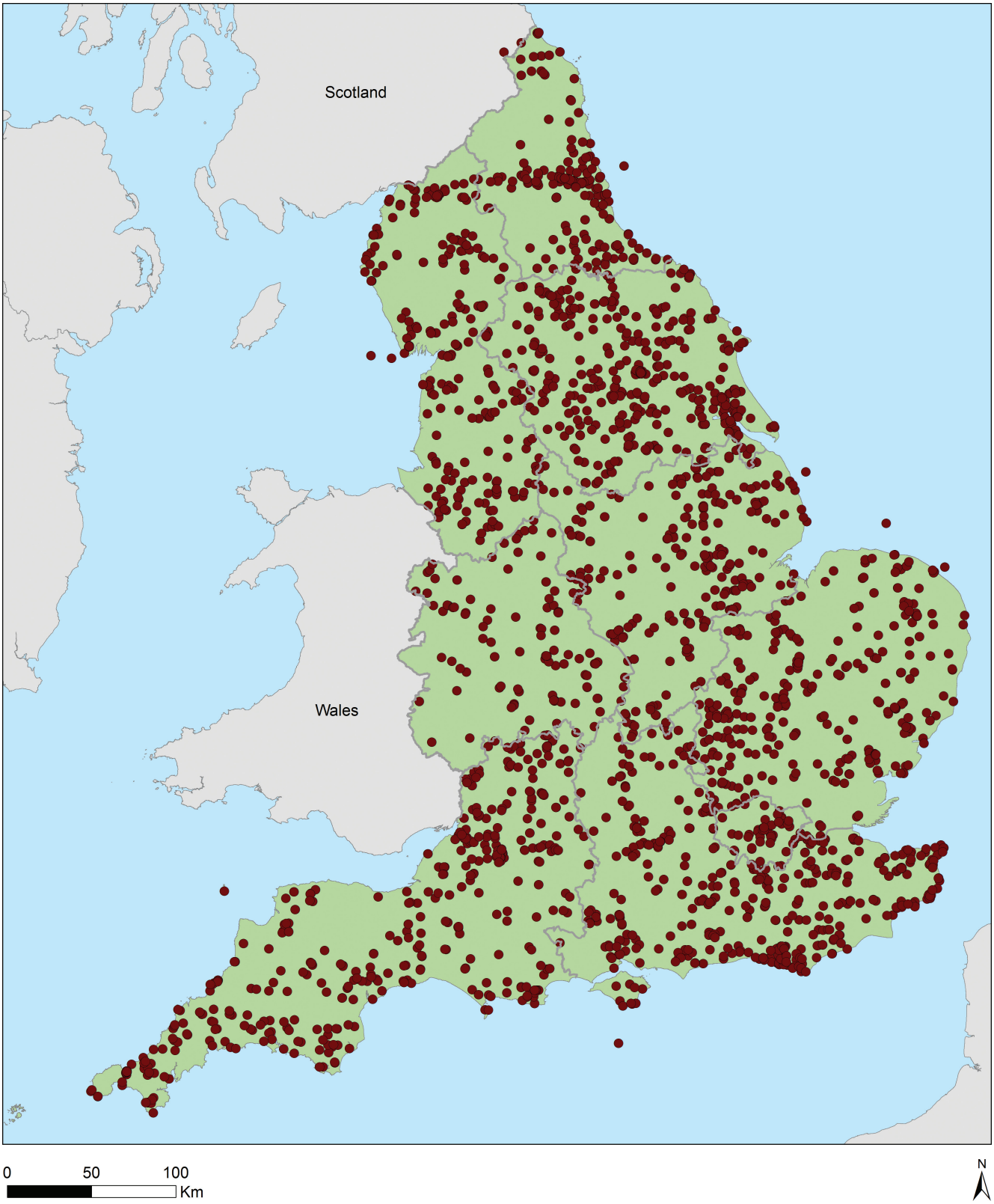

Figure 9.26 Map showing the distribution of recorded investigations related to pipeline and cable-laying projects. Regional boundaries shown. (Data: AIP. Sample = 1907 records)

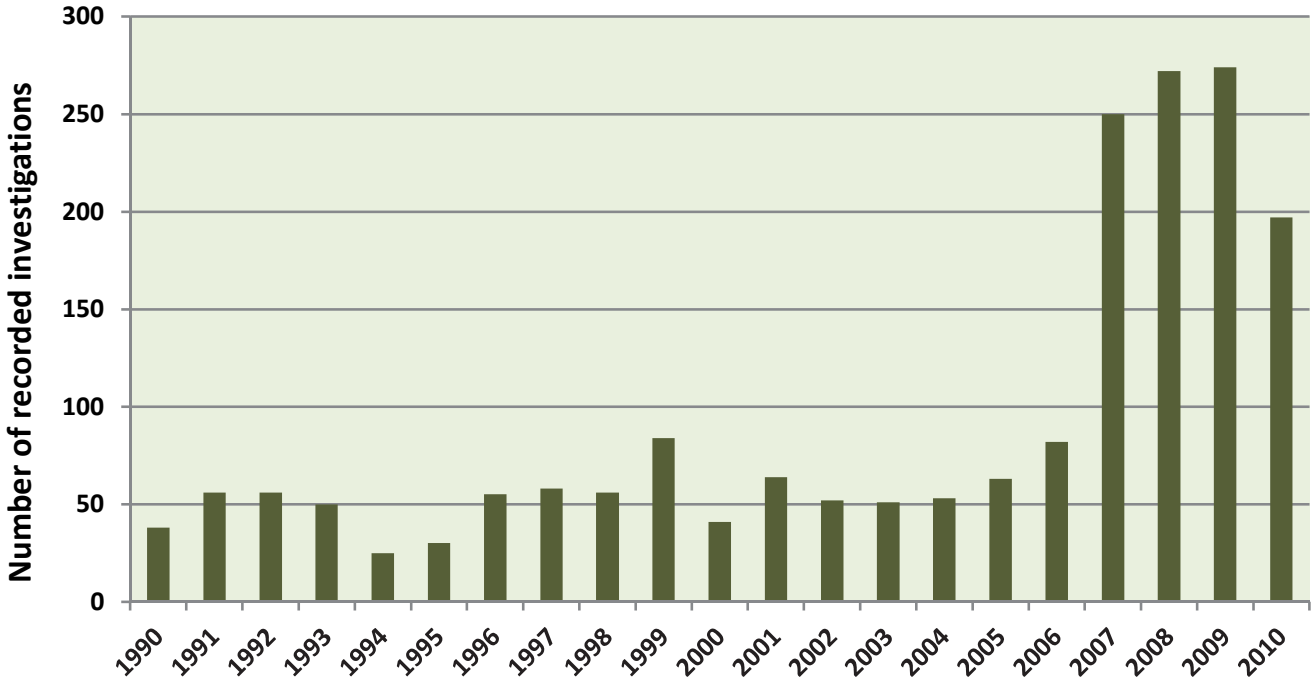

Figure 9.27 Pattern of recorded investigations 1990–2010 for pipeline and cable-laying projects. (Data: AIP. Sample = 1907 records)

PPG16 Era, based on the *Pipelines Act 1976* with various subsequent revisions and special provisions within the environmental impact assessment legislation.

Case study 9: Asselby to Pannal Natural Gas Pipeline, West and North Yorkshire

The Asselby to Pannal pipeline runs for a distance of 62 km along the south side of the River Wharfe in North Yorkshire before crossing the river near Collingham and rising up onto the high ground of Knaresborough Forest. The pipeline crossed three distinct landscape types: the low-lying Asselby to Sherburn in Elmet area; the higher ridge in the Sherburn in Elmet to Collingham Beck section on Magnesium Limestone bedrock; and the rising Millstone Grit geology of the Collingham Beck to Briscoerigg section.

A scoping planning application for the construction of the pipeline was submitted to Harrogate Borough Council by British Gas in October 2006. The planned route passed through both North and West Yorkshire, including two Scheduled Monuments at Aberford Dykes. Preliminary archaeological work was undertaken before National Grid applied to the Secretary of State for Trade and Industry in December 2006, for consent to construct the pipeline under the *Public Gas Transporter Pipe-line Works (Environmental Impact Assessment) Regulations 1999*.

The construction work was carried out in two parts; Asselby to Aberford by Laing O'Rourke and Aberford to Pannal by Murphy Pipelines Ltd. The West Yorkshire Archaeology Advisory Service, North Yorkshire Heritage Unit, and English Heritage worked with National Grid's archaeologists to ensure that all significant archaeology was recorded and investigated before and during construction of the pipeline. Each working on one section of the pipeline, Oxford Archaeology North and Network Archaeology Ltd were commissioned to undertake a full archaeological investigation, which took place over five years from 2007. This involved a range of non-intrusive investigations together with 14 open area excavations and 136 evaluation trenches (Figure 9.28). As both archaeological and construction work were carried out in phases, this permitted the occasional re-routing of the pipeline at particularly important sites. Table 9.10 summarises the project stages with particular attention to the archaeological investigations.

Fifteen areas of archaeological significance were identified and investigated as a result of this work, with the core periods of evidence covering the Iron Age and Romano-British periods. Boundaries and trackways were the most common feature across all three landscape types, indicating the field boundaries and land divisions of these periods. Many of these were long-lived and some appeared to attract selected deposits of human remains, animals and artefacts. Earlier Iron Age enclosures were found at two sites, with later Iron Age/Romano-British settlements dispersed along the proposed pipeline route. Six sites revealed possible evidence of domestic buildings from

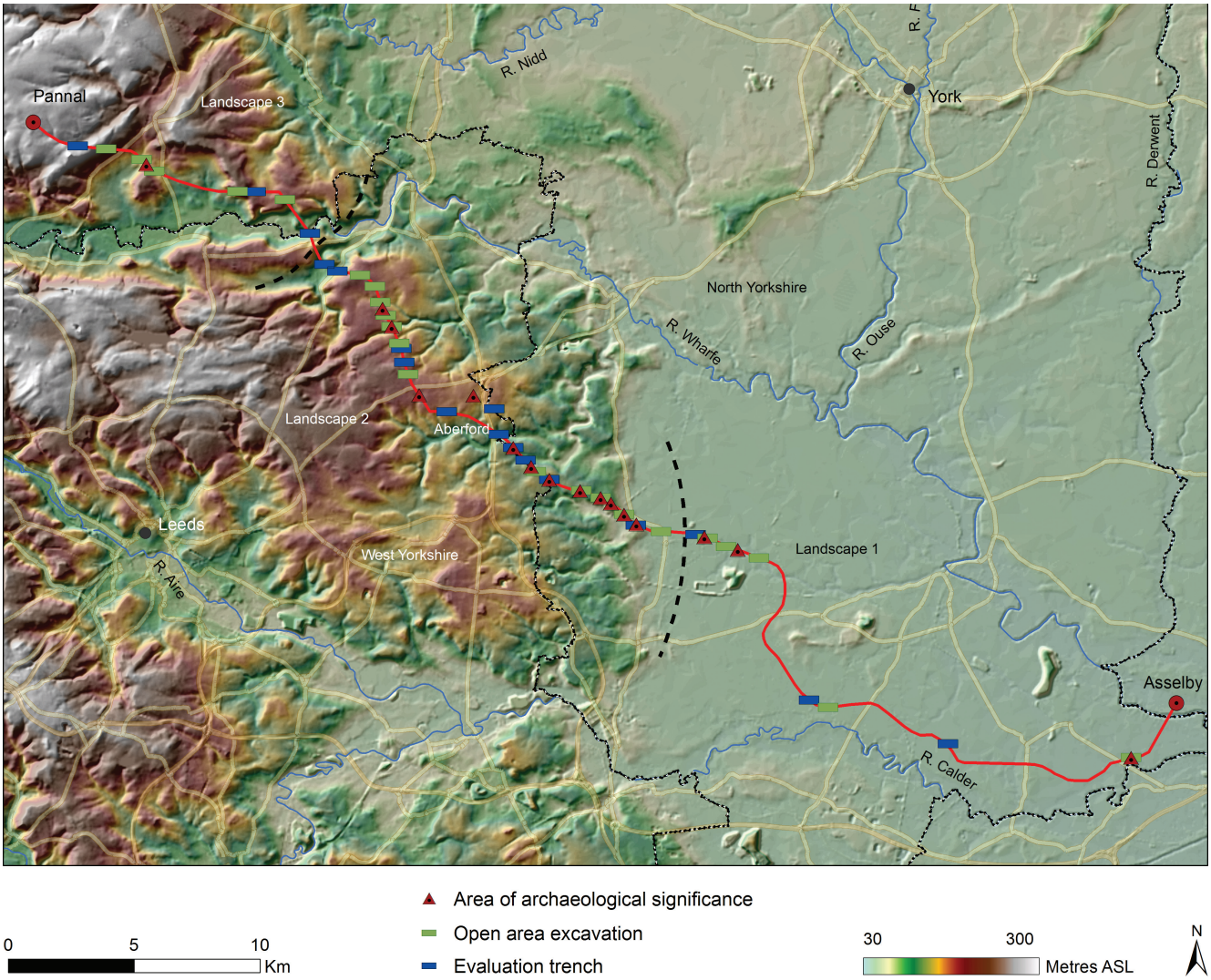

Figure 9.28 Map showing the position of archaeological investigations along the line of the Asselby to Pannal Natural Gas Pipeline, West and North Yorkshire. (After Gregory et al. 2013: Fig. 7 and 8)

this period. Another site contained a rare early medieval enclosure and evidence for activity in and around this. However, the number of artefacts recovered from the entire project was relatively low.

The proposed course of the pipeline impacted the Aberford Dykes earthworks complex. This resulted in the detailed investigation of the Scheduled Monuments at South Dyke and Becca Banks, elements of Aberford Dykes. South Dyke was shown to have been preceded by a series of early Iron Age pits, which may have formed the boundary that the Dyke was erected to represent in the later Iron Age. Becca Banks was constructed later, in the late pre-Roman Iron Age (*c*.100 BC to AD 100), and may have been a boundary marker in response to population movements caused by Roman incursions to the south. Becca Banks also showed some evidence of early medieval activity.

The archaeological investigations arising from the construction of the Asselby to Pannal gas pipeline were the result of a carefully managed multi-disciplinary approach, involving two main commercial archaeology units and a range of other specialist organisations and individuals. The final report was published as a monograph in the contractor's own series (Gregory *et al.* 2013) and synthesises work from the many archaeological experts involved. The project benefitted from a high level of professional co-operation. Whilst necessarily limited in general to a narrow strip of land, the extensive nature of the pipeline construction permitted the investigation of a 62 km stretch of land through North and West Yorkshire. Low-lying and wetter areas not amenable to aerial photographic analysis or geophysical survey were explored through excavation and other techniques. The project demonstrated the establishment and continuity of land division and use across a wide area.

Table 9.10 Summary of the key stages, archaeological investigations and outputs for the Asselby to Pannal Natural Gas Pipeline, West and North Yorkshire.

Date	Events and investigations	Products / Outputs
October 2006	Preliminary document to scope opinion ref 06/05083/SCOPE is submitted to Harrogate Borough Council by British Gas, for the installation of a gas pipeline from Asselby to Pannal. The Council responds with a requirement for an Environmental Impact Assessment.	Harrogate Borough Council 2006
2006	MWH prepare and issue the Environmental Statement for the proposed pipeline route.	MWH 2006
2006	Preliminary client geophysical survey report for the pipeline is issued	Bartlett 2006
August and September 2006	Network Archaeology Ltd perform and issue the client archaeological desk-based assessment and field reconnaissance survey.	Network Archaeology Ltd 2006a;2006b
October 2006	Network Archaeology Ltd. carry out fieldwalking.	
2006	The Alan Vince Archaeological Consultancy ("AVAC") issue a client report on the finds recovered during preliminary fieldwalking	Vince and Steane 2006
28 December 2006	National Grid applies to the Secretary of State for Trade and Industry for consent to construct a 62km pipeline between Asselby, West Yorkshire and Pannal in North Yorkshire, under the Public Gas Transporter Pipe-line Works (Environmental Impact Assessment) Regulations 1999.	
February 2007	Network Archaeology Ltd. perform further field reconnaissance and fieldwalking.	
2007	Network Archaeology Ltd. produce a Written Scheme of Investigation and recommendations, which are approved by the West Yorkshire Archaeology Advisory Service, the North Yorkshire Historic Environment Team and English Heritage.	Cater 2007; Network Archaeology Ltd. 2007a; 2007b; 2007c; 2007c; 2007d; 2007e; 2007f; 2007g
2007 to 2008	Network Archaeology Ltd. undertake fieldwork.	2007 to 2008
2007	Oxford Archaeology North ("OA North") issue a generic Written Scheme of Investigation for open area excavation on the Asselby to Aberford section of the pipeline.	Oxford Archaeology North 2007a
2007	OA North issue a client archaeological evaluation of the pipeline route	Oxford Archaeology North, 2007b
2007	TLS Archaeology perform an archaeological assessment of the Towton battlefield and issue a report	TLS Archaeology 2007
2007	Client geophysical reports are issued.	Bartlett 2007a; 2007b; 2007c; 207d
2007	AVAC issue assessments of selected find types	Vince 2007a; 2007b
2007	A client report on the palaeoenvironment of the pipeline, is issued.	Lancaster 2007
2007	A client assessment report on the human bone along the pipeline, is issued.	Griffiths 2007
2007 to 2008	The pipeline is constructed.	
March 2007	Entrepose Industrial Services perform an earthwork survey at Becca Banks, after which English Heritage specify additional work.	
Summer 2007	OA North perform Phase 1 evaluation trenching of the Asselby to Aberford section.	Recommendations for targeted archaeological study
Summer 2007 to Spring 2008	Network Archaeology Ltd carry out excavations at South Dyke and Becca Banks.	

Table 9.10 Summary of the key stages, archaeological investigations and outputs for the Asselby to Pannal Natural Gas Pipeline, West and North Yorkshire. (Continued)

Date	Events and investigations	Products / Outputs
October to November 2007	OA North perform Phase 2 evaluation trenching of the Asselby to Aberford section.	
September 2007 to June 2008	OA North perform a watching brief on the Asselby to Aberford section as construction work progresses.	
December 2007	Ed Dennison Archaeological Services Ltd ("EDAS") commissioned to undertake an archaeological earthwork survey of a section of Becca Banks by Murphy Pipelines Ltd on behalf of the National Grid.	
January 2008	EDAS perform the survey of the section of Becca Banks which will be affected by the pipeline construction.	
	Geophysical survey client reports are issued for the Aberford Dykes and River Wharfe areas of the pipeline route.	Bartlett 2008a; 2008b
February to June 2008	OA North carry out open area excavation of targets identified during evaluation trenching of the Asselby to Aberford section.	
April 2008	EDAS issue the topographic survey of Becca Banks incorporating preceding work by Entrepose Industries, to the client.	Dennison and Richardson 2008
2010	Network Archaeology Ltd. issue a client assessment report on the archaeology of the South Dyke and Becca Banks	Network Archaeology Ltd 2010
2010	A client report on the Becca Banks micromorphology is issued.	Morrison and Simpson 2010
2010	OA North issue the combined client report, "Asselby to Aberford and Aberford to Pannal Pipeline, North and West Yorkshire, Archaeological Excavation, Evaluation and Watching Brief Post-Excavation Assessment"	Oxford Archaeology North 2010; Robinson 2010
2013	Publication of the main report (Monograph: 306pp; 162 figures; 35 tables; 43 plates; index).	Gregory *et al* 2013

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Service infrastructure

Works such as the construction of electricity sub-stations, pumping stations, small-scale pipelines, and sewerage schemes account for about 2.5 per cent of the investigations recorded by the AIP. Figure 9.29 shows the distribution of such recorded events, and shows a light scatter across the country, including facilities developed within protected landscapes as these are often considered 'essential works'. Figure 9.30 shows the distribution through time with clear short-lived waves of activity peaking in 1991, 1997, 2001, and 2003, with a steep rise from 2007 to 2009 followed by a sharp drop as the delayed effects of the recession took hold. By their nature, and the fact they are usually commissioned and project-managed by statutory undertakers such as water companies, these projects typically happen fairly quickly. Some are prompted by strategic provision for additional projected capacity; some by urgent needs triggered as a result of breakdowns, the failure of existing facilities, and health and safety concerns. The sites are often owned by the developer and in some cases these are heritage assets in their own right as pieces of industrial archaeology. Technical complexities sometimes arise from the need to maintain services while critical infrastructure is replaced.

Case study 10: Sutton Poyntz Water Treatment Works, Dorset

Sutton Poyntz lies at the head of a small valley carrying the River Jordon from springs issuing from the chalklands to the north, beneath a local landmark known as the Osmington White Horse (a Georgian hill figure). There has been a pumping house on the site since Victorian times.

The need for a new water treatment works and associated facilities on land already in their ownership was identified by Wessex Water Services in 1992. The archaeological aspects of the project were spread over a period of 14 years and resulted in a handful of outputs (Table 9.11). The area was known to be archaeologically sensitive as Roman burials had been found during the construction of a house to the east of the site, and other burials and Romano-British finds had been recorded to the northwest and on the site of the existing pumping station in the village. A watching brief on the construction of a water pipe through the proposed site in 1991 recorded Iron Age and Roman features, some sealed by alluvium, and showed that the archaeological remains were on gravel overlying Kimmeridge clay.

In July 1993 a field evaluation of the site was undertaken by Wessex Archaeology in advance of submitting a planning application. The site covered 4200 square metres and was evaluated using seven machine-cut evaluation trenches totalling 194 square metres, a 4.6 per cent sample of the area (Figure 9.31). The trenches revealed three kinds of archaeology: (1) gullies, postholes and ditches of the early first millennium BC in the southern part of the area together with stray finds of early Neolithic and Romano-British date; (2) large hollows with Iron Age and Romano-British finds on the eastern side of the sites; and (3) undated spreads of limestone rubble on the south side. In August 1993 a

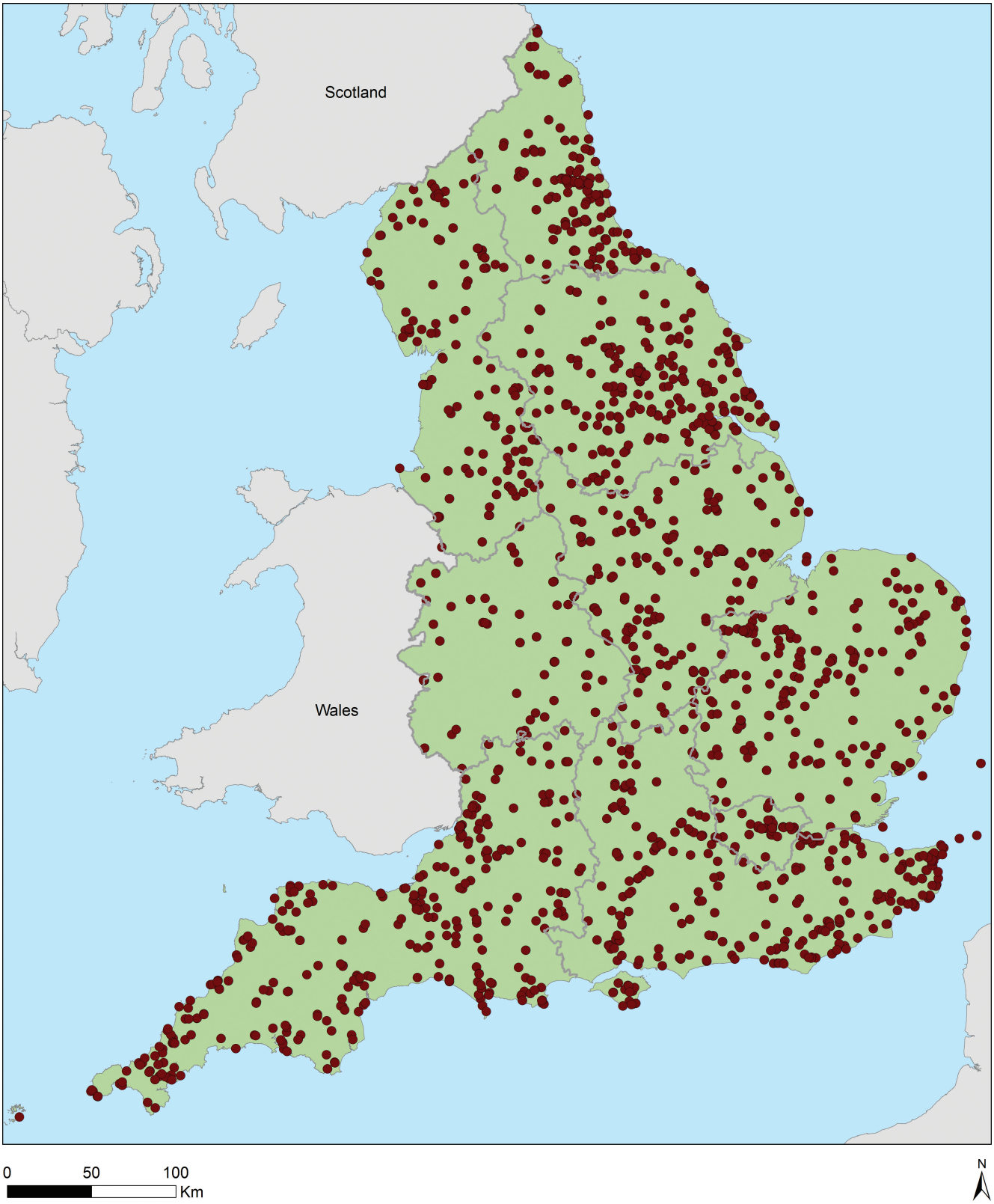

Figure 9.29 Map showing the distribution of recorded investigations related to service infrastructure projects. Regional boundaries shown. (Data: AIP. Sample = 1544 records)

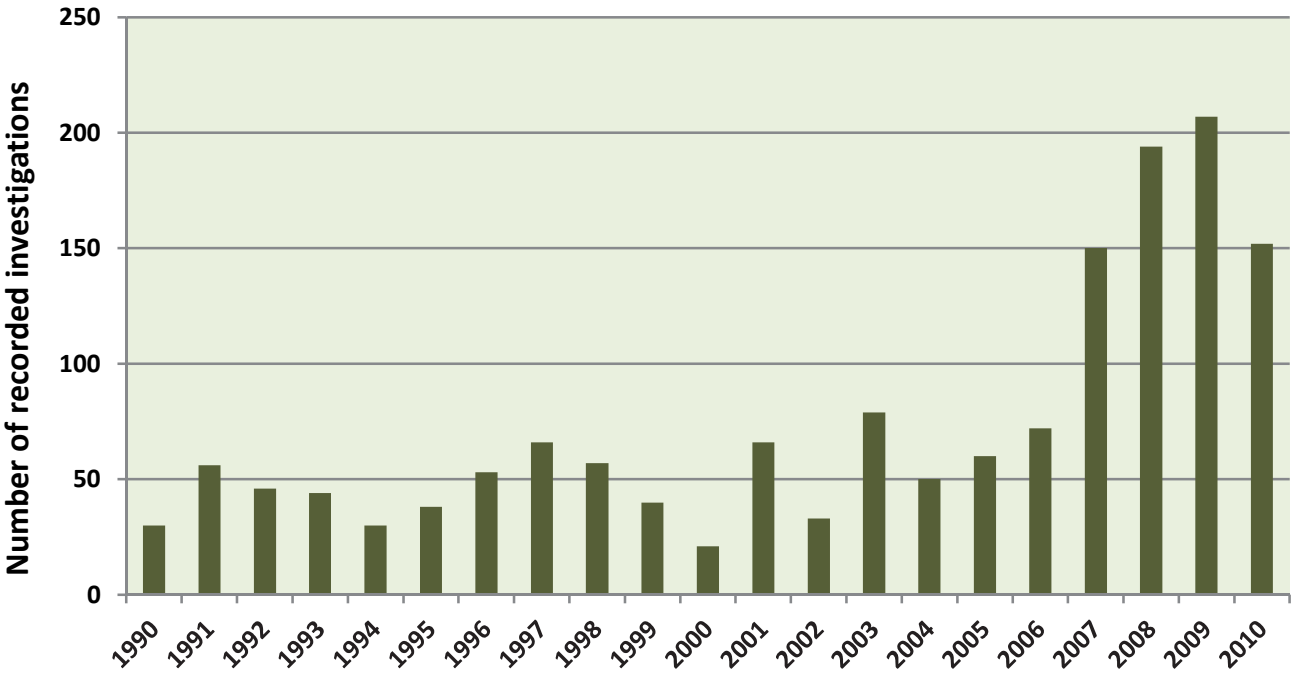

Figure 9.30 Pattern of recorded investigations 1990–2010 for service infrastructure projects. (Data: AIP. Sample = 1544 records)

watching brief was carried out during the digging of a series of test-pits for engineering and design purposes. One of the test-pits revealed the presence of human remains.

A planning application was submitted to Weymouth and Portland District Council in September 1993 and approved the following month with conditions including archaeological investigations and recording. Accordingly, a written scheme of works prepared by Wessex Archaeology was agreed with the local planning authority. Part of the site was preserved, with two post-determination investigations: an open area excavation covering 1500 square metres with machine removal of the topsoil and overburden carried out between October 1993 and February 1994, and a watching brief on groundworks for the construction of an access road to link with an existing car-park carried out in 1994 (Figure 9.31).

Six key phases to the development and occupation of the site were identified through the various investigations. Period 1, pre-first millennium BC, included Palaeolithic flakes, a small assemblage of Mesolithic worked flints and a possible pit, and a collection of Neolithic and early Bronze Age flints and pottery. Period 2, the eighth to fifth centuries BC, saw a settlement across the excavated area with a roundhouse, pits, postholes, ditches, and an unusual burial of a cow; associated with plain post-Deverel-Rimbury pottery. Period 3, the first to fourth centuries AD, included Romano-British ditches and banks associated with two burials forming part of a settlement nearby. Period 4, the early medieval period, saw colluviation across the northern part of the site. Period 5, the thirteenth and fourteenth centuries AD, was represented by the complete footprint of a rectangular building and part of a second, probably a chapel and part of a manorial settlement. Finally, Period 6, from the fourteenth century down into modern times, included robbing of the Period 5 buildings when the area was open ground, and the construction of a pumping station and associated stone surfaces in Victorian times; the predecessor of the pumping station whose construction prompted the investigations. Modest assemblages of artefacts and environmental evidence are reported in the publication as well as a discussion of the regional context of the site.

The final report summarising the results from the pre-determination and post-determination works as well as some further small-scale subsequent investigations unconnected with the original work was published as a monograph in the contractor's own series in January 2007 (Rawlings 2007). Importantly, the work revealed an uncommon late Bronze Age site and a major addition to the list of chapels associated with an important springhead at the source of the River Jordon.

Road building and improvement

Like pipelines and cable trenches, road-schemes provide a transect across the landscape, although in these cases often following existing lines of communication that in some cases are of considerable antiquity. These are

Table 9.11 Summary of the key stages, archaeological investigations and outputs for the infrastructure development project at Sutton Poyntz Water Treatment Works, Dorset.

Date	Events and investigations	Products / Outputs
1992	Need for pumping station identified	
19 to 20 July 1993	Field Evaluation by Wessex Archaeology	Lancley 1993; Watson 1994
September 1993	Outline planning application ref 93/00256/OUT submitted by Wessex Water Services Ltd to Weymouth and Portland Borough Council.	Application
5 October 1993	Outline planning application ref 93/00256/OUT is approved by Weymouth and Portland Borough Council, with conditions including archaeological investigation.	Decision Weymouth & Portland Borough Council 1993
October 1993	Prepare and get approval for a Written Scheme of Works / Project Design	Project Design
Oct 1993 to February 1994	Open area excavation of 1500 sq m	Rawlings and Watson 1994
1994	Watching Brief for construction of access road	Watson 1994
2001	Wessex Archaeology perform an archaeological field evaluation and issue a client report	Wessex Archaeology 2001a
2001	Small-scale excavation of an Iron Age burial and issue client assessment and evaluation reports	Wessex Archaeology 2001b
1994 to 2007	Post-excavation analysis and reporting	
Jan 2007	Publication of final report (Monograph: 102+viii pages; 32 figures; 21 tables; 8 plates; Index)	Rawlings 2007

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some of the largest, most complicated, and most visible development projects carried out during the PPG16 Era, especially where existing roads are being upgraded and traffic flow needs to be maintained during the works. More than 2800 investigations recorded by the AIP related to road building and improvement works; approximately 3 per cent of recorded post-determination investigations relate to this work. Figure 9.32 shows the distribution of recorded investigations connected to road-building and improvement schemes although it should be noted that some dots represent many individual investigations. Many well-known road corridors can be seen, including the A1/M1 and the A30. Figure 9.33 shows the pattern of road-building and road-improvement works over time with clear peaks in activity in the early 1990s, the early 2000s, and again in the later 2000s.

Since the motorway construction boom of the 1960s and 1970s, roadline archaeology has been recognised as important and interesting (Fowler 1974; 1979), and methods to improve recovery of evidence under such conditions have been tried (Ellison & Pearson 1978). The corridors that can be examined during roadbuilding are fairly wide, often 200 m or so. The areas through which they run are often relatively heavily occupied now as in the past. And because roads join places together they often cross territories and landscapes showing not only the core occupied areas but also the peripheries (Davies 2006; *but see also* Bevan 1996).

Some road-schemes are county schemes, but trunk-roads and motorways are national infrastructure schemes run in the early part of the PPG16 Era by the Department of Transport (renamed the Department for Transport *c*.1995) and since then by its executive arm the Highways Agency, established in 1994 to secure the delivery and smooth running of the road network in Britain. In April 1993 the Department took direct responsibility for funding archaeology projects related

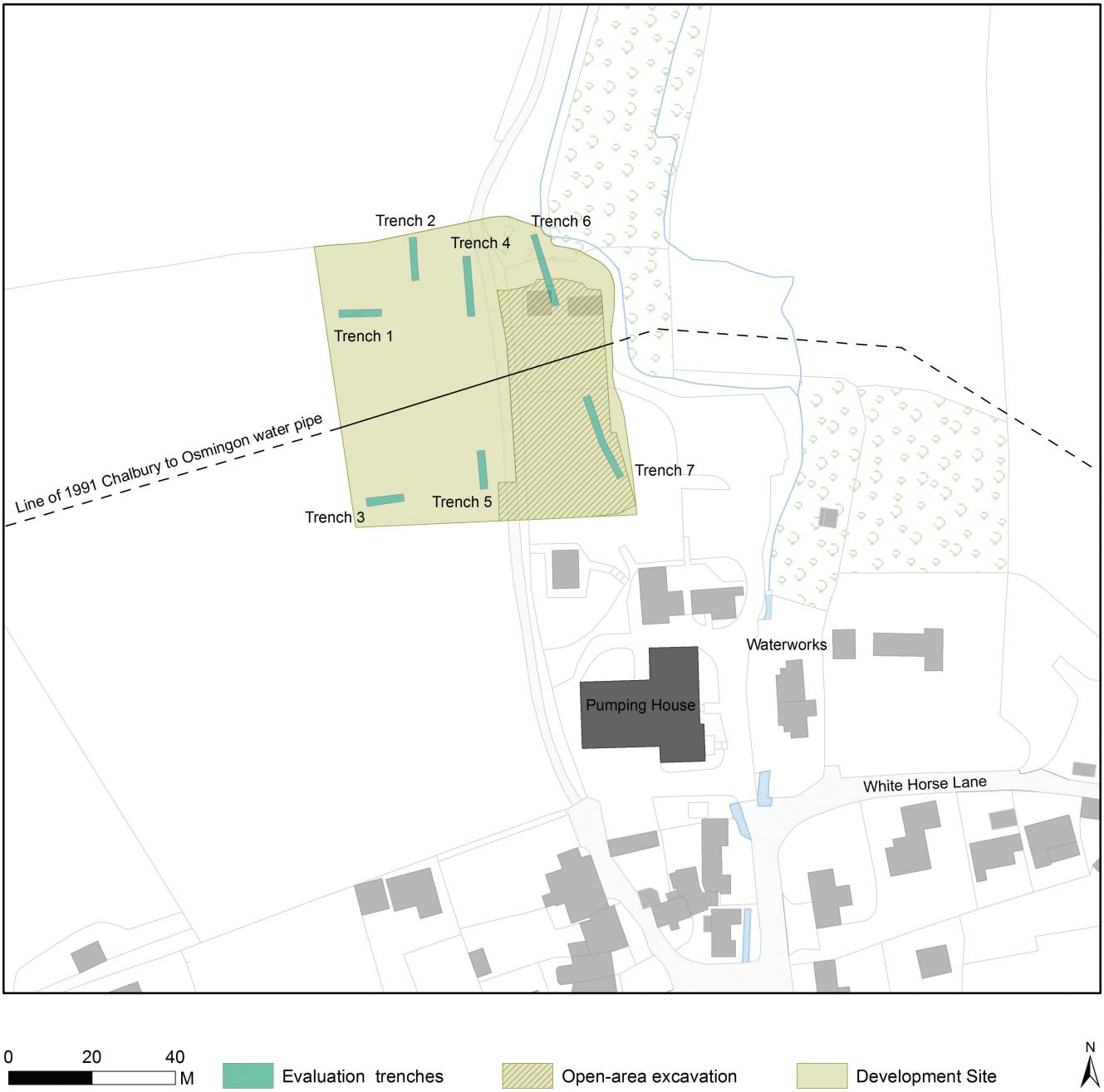

Figure 9.31 Plan showing the position and extent of archaeological investigations at Sutton Poyntz Water Treatment Works, Dorset. (After Rawlings 2007: Fig. 2)

to road building and improvement schemes (DTp 1994). As it happened, the late 1980s and early 1990s saw a great deal of investment in road-building across the country following the recommendations of several reviews (*e.g.* DTp 1987) that culminated in the document *Roads for Prosperity* (DTp 1989). Further schemes were announced at intervals through the PPG16 Era (Aitchison 2000; Friell 1991) and English Heritage played an active role in promoting full consideration of the historic environment in relation to transport schemes (EH 2004).

As well as special arrangements for the consideration and approval of road-schemes under the *Highways Act 1980*, assessing the environmental impact of road building was subject to its own procedures under *The Highways (Environmental Impact Assessment) Regulations 2007* (SI 2007 No.1061; *and see* DTp 1993; Lawson 1993). A study by English Heritage of twentieth century road building traditions shows that between 1990 and 2010 approximately 350 km of motorway was constructed and around 40 separate government-funded schemes were opened (Alexander 2011:

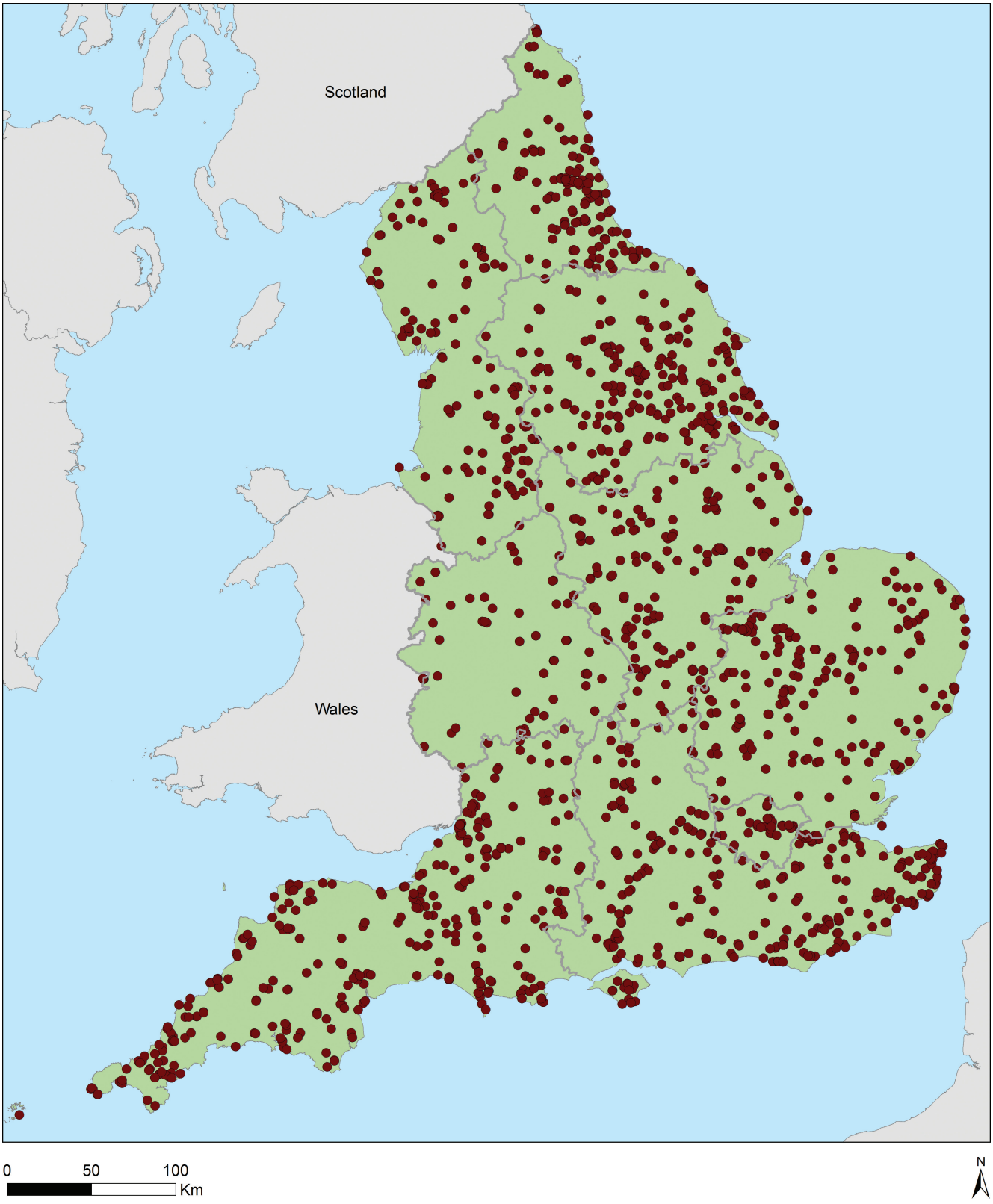

Figure 9.32 Map showing the distribution of recorded investigations related to road-building and improvement projects. Regional boundaries shown. (Data: AIP. Sample = 2248 records)

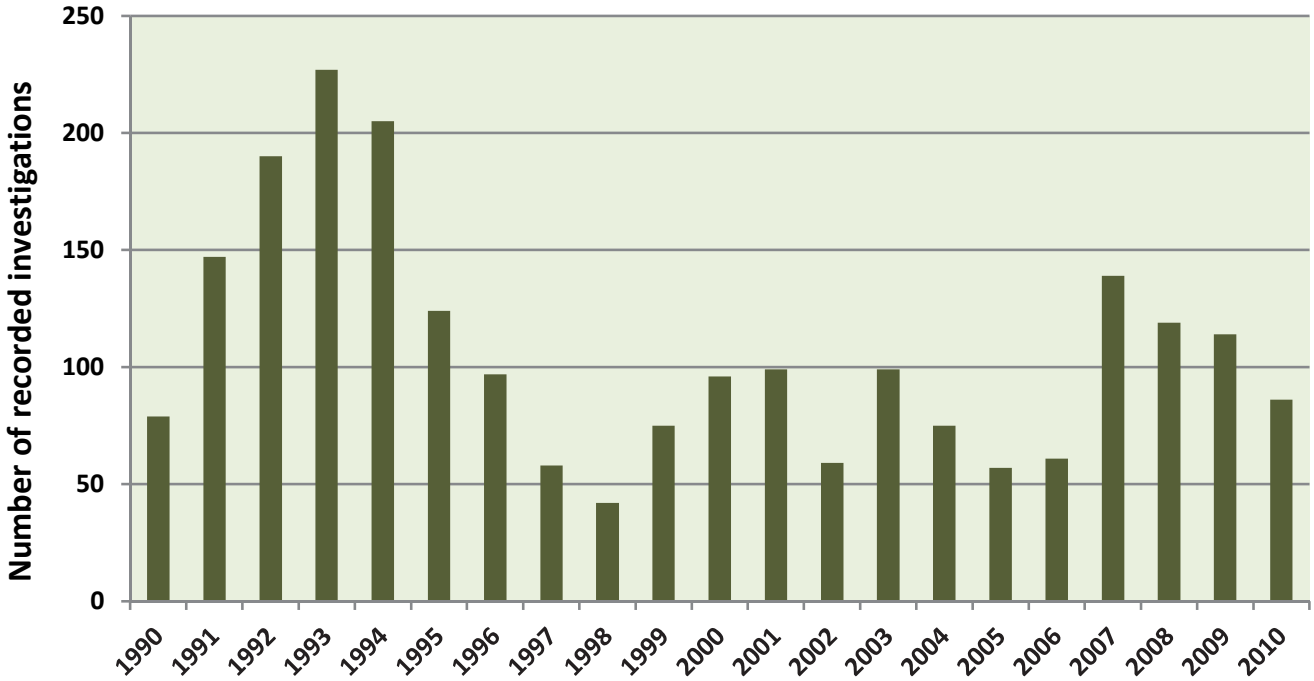

Figure 9.33 Pattern of recorded investigations 1990–2010 relating to road-building and improvement projects. (Data: AIP. Sample = 2248 records)

19, Fig. 8 and App. 3). Some elements of the road network, especially the related infrastructure, have recently started attracting attention as heritage assets in their own right (Bradley & Walter 2007; Brown 1997; EH 2004).

Case study 11: A419/417 road improvement scheme, Gloucestershire and Wiltshire

Together, the section of the A419 leading north from the M4 at Swindon through to Cirencester and the section of the A417 from Cirencester through to the M5 at Brockworth, provide a strategic connection between two of Britain's busiest motorways. Broadly following the Roman Ermin Street for most of the course it cuts the edge of the Roman small town at Wanborough to the east of Swindon and skirts the Roman *civitas* capital at Cirencester. Several Scheduled Monuments and Listed Buildings lie along the route whose northern section passes through the Cotswold Hills AONB. The need to upgrade the A419/417 between Swindon and Gloucester had been recognised since the 1970s with three separate but connected schemes under development in the 1980s. All three were included on the list of proposed trunk road developments published in 1987 (DTp 1987). Further development of government policy was published in 1989 as the 'Roads for Prosperity' initiative (DTp 1989: Tab. 1) with the A419/417 schemes expanded further in *Trunk Roads, England* (DTp 1990: Tab. 4). Together these schemes became a flagship project as one of the first four Design, Build, Finance and Operate (DBFO) contracts introduced by the UK government as a means of involving private companies in public schemes. From the first anticipatory archaeological studies in 1988 through to the completion of the final report in 1999, this project spanned eleven years and involved five different archaeological contractors in addition to the consultants and engineering contractors. Table 9.12 summarises the main stages of the programme and key events along the way.

The final scheme provided a 25 km stretch of dual-carriageway between Cricklade (Wiltshire) in the south and Nettleton (Gloucestershire) in the north, closely following the line of Roman Ermin Street but bypassing the village of Latton and the town of Cirencester (Figure 9.34). Initially the scheme was broken into three sections with stage 1 desk-based assessments and stage 2 field evaluations carried out for each separately. A range of approaches including consolidating HER records, geophysical surveys, plotting aerial photographs, fieldwalking, test-pitting, and targeted evaluation trenches were used during these early stages, in some cases pioneering approaches that were emerging within the PPG16 philosophy. By December 1991 when the paperwork for the public inquiry was being assembled there were nine substantial archaeological reports to take into account, as well as a more wide-ranging environmental statement. Further desk-based assessments and field evaluations were undertaken in connection with

Table 9.12 Summary of the key stages, archaeological investigations and outputs for the A419/417 road improvement scheme in Gloucestershire and Wiltshire.

Date	Events and investigations	Products / Outputs
April 1987	Three connected schemes proposed in 'Policy for Roads in England: 1987' (DTp 1987)	
1988	Desk-based Assessment (Stage 1) – Stratton to Nettleton (Gloucestershire County Council Archaeology Service)	Russett 1989a
1988	Desk-based Assessment / Field Evaluation (Stage 1) – Latton Bypass (Thamesdown Archaeological Unit)	Digby 1988
May 1989	Revised schemes included in 'Roads for prosperity' (DTp 1989: Table 1; DTp 1990: Table 4)	
1989-90	Desk-based Assessment (Stage 1) – Cirencester and Stratton bypass (Gloucestershire County Council Archaeology Service and Cotswold Archaeological Trust)	Russett 1989b; Walker 1990
1990	Desk-based Assessment – Latton Bypass (Cotswold Archaeological Trust)	Johnson 1990
1990	Field Evaluation (Stage 2) – Stratton to Nettleton (Gloucestershire County Council Archaeology Service)	GCC 1990
1990-91	Field Evaluation (Stage 2) – Cirencester and Stratton bypass (Cotswold Archaeological Trust)	Walker 1991
1991	Field Evaluation (Stage 2) – Latton Bypass (Cotswold Archaeological Trust)	Johnson 1991a; 1991b
Dec 1991	Environmental Statement for Cirencester and Stratton Bypass Published (Frank Graham Associates)	Frank Graham 1991
1992	Public Inquiry into the preferred route	
1993-94	Investigation of alternative routes and additional evaluations	Walker 1993a; Walker 1993b; Bateman 1993; 1994
1994	Inspector's Report and announcement of the preferred route	
29 September 1994	Publication of draft orders	Statutory Instrument 1994 No 2418
1995	Project Design for mitigation works on Stratton to Nettleton (Gloucestershire County Council Archaeology Service)	GCC 1995
1995	Project Design for mitigation works on the Latton to Stratton sections (Cotswold Archaeological Trust)	Walker 1995; Holbrook 1995
1995	Additional Field Evaluations in relation to the relocation of services and implications of the announced preferred route	GeoQuest Associated 1995; Bateman 1995; Barber 1995
1995	Tender documents prepared. Consolidation of the separate outline project designs (WSP)	WPS 1995
1995	Contractor and sub-contractors confirmed	
1995-96	Written Scheme of Investigation for archaeological works agreed (Oxford Archaeological Unit)	OAU 1996
Feb 1996 - Feb 1997	Main post-determination conservation and investigation programme carried out (Oxford Archaeological Unit)	
April 1996	DBFO Contract signed between the Highways Agency and Carillion	
July 1997	Final watching briefs and investigations for associated works (Oxford Archaeological Unit)	
Dec 1997	Road opened to traffic	
1997-1999	Post-excavation analysis and reporting programme (Oxford Archaeological Unit)	

Table 9.12

Date	Events and investigations	Products / Outputs
1998	Publication of popular summary (Road Management Services: 32 pages with numerous colour illustrations)	Anon. 1998
1999	Publication of the final report (Monograph: 611+xxxvi pages in two volumes; 272 figures; 131 tables; 53 plates; index)	Mudd *et al.* 1999

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Walker, G T, 1993b. *A419/417 Cirencester and Stratton Bypass Stage 2: Archaeological evaluation - addendum*. Cirencester: Cotswold Archaeological Trust. (Limited circulation printed report 93112)

Walker, G T, 1995. *A419/417. Cirencester and Stratton Bypass, Gloucestershire. Project design*. Cirencester: Cotswold Archaeological Trust. (Limited circulation printed report 95324)

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the public inquiry in order to review alternative routes, and following publication of the draft orders for the road in September 1994 some additional field evaluation was carried out in connection with the re-routing of major services and on land that had been inaccessible until that time. A full written scheme of investigation and associated methodology was prepared in 1995–96, and the main conservation and investigations works carried out as part of the construction programme between February 1996 and February 1997 with a few final pieces of work in July 1997 ahead of the road itself opening in December 1997. Post-excavation analysis and reporting was carried out between July 1997 and December 1999 when the final publication was released (Mudd *et al.* 1999). Overall, around a third of the programme was devoted to pre-determination preparations, a third to the decision-making process and the specification of works, and a third to the fieldwork and post-excavation works.

The desk-based assessments and field evaluations were successful in identifying and characterising the

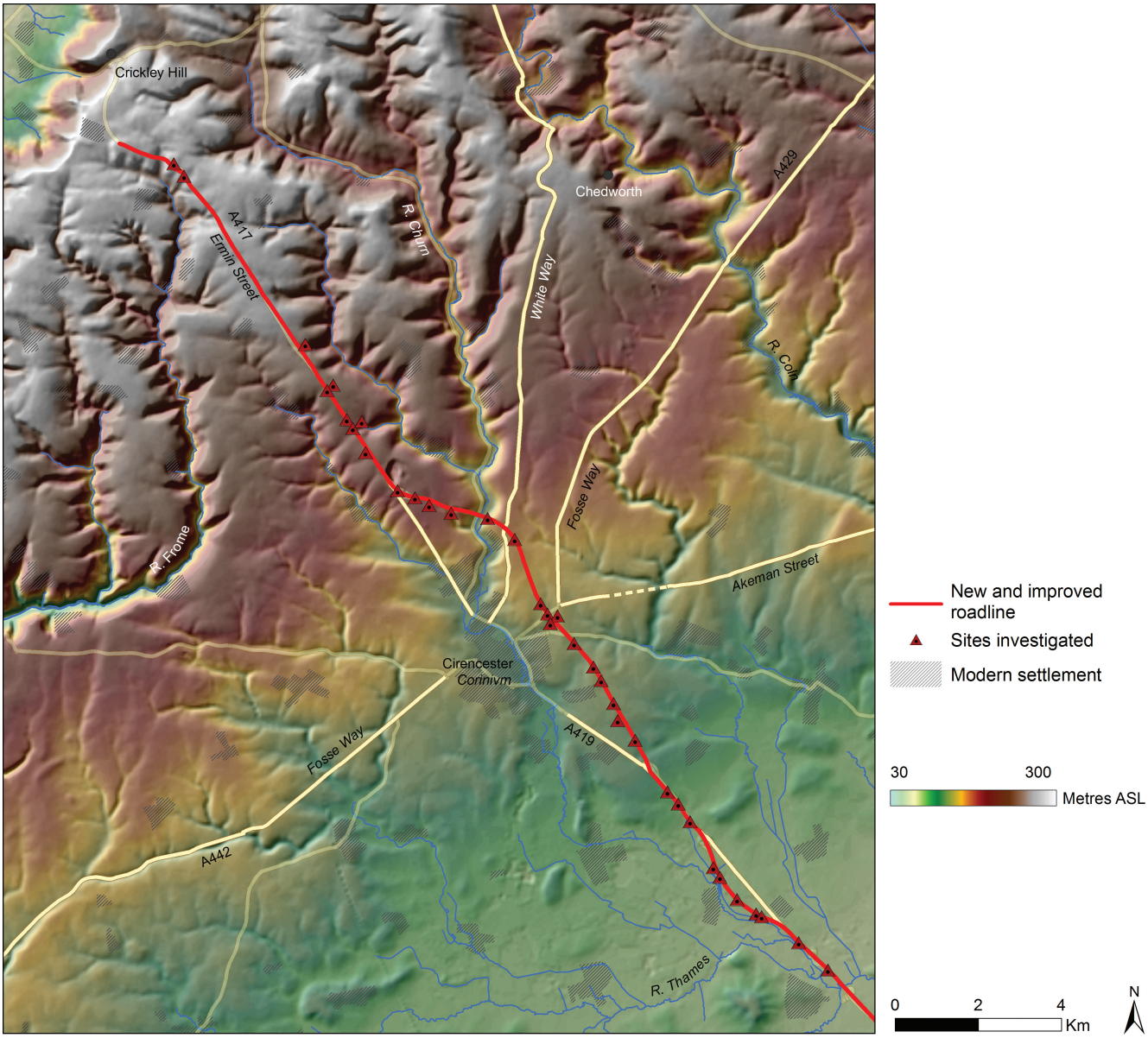

Figure 9.34 Map of the A419/417 DBFO improvement scheme (Wiltshire & Gloucestershire) showing the position of investigated archaeological sites. (After Mudd et al. 1999: Fig. 1.2)

archaeology of the road-building corridor. Thirty-five sites or parts of sites (an average of one site every 700 m along the route) were subject to mitigation measures, of which only three came to light during the construction works. Two sites involved preservation of some remains *in situ*. One Scheduled Monument, a Roman pond at Latton, lay adjacent to the roadline but sampling in edge showed it was probably Iron Age in date. In all, seventeen excavations were carried out, ten areas were subject to strip and record, seven areas were subject to sample excavations, and as well as general watching briefs during ground works two areas were identified for special attention through watching briefs. Remains from early prehistoric times through to the post-medieval period were identified. Key discoveries included: Neolithic pits, two adjoining Bronze Age ring-ditches, three middle Iron Age settlements, two late Iron Age enclosures, a Roman settlement, sections through Roman and later roads and quarries, and a medieval kitchen block. Important environmental evidence was obtained from a late Iron Age pond at Latton and in the Churn Valley. Radiocarbon dating provided an important contribution to the chronology of these sites in their regional context.

The final report was published as a two-volume monograph in the main contractor's own series (Mudd *et al.*

1999). It includes descriptions and documentation of the pre-determination fieldwork such as the geophysical surveys and field evaluations and represents an excellent example of a consolidated account of the multiple investigations that contribute to a project of this complexity. A popular account useful to local residents was published during the post-excavation programme.

Mineral extraction

Mineral working, especially gravel quarrying, is one of the most archaeologically damaging development activities recorded by the AIP because of the extensive areas of sensitive land swallowed up. Aggregates, it may be argued, is perhaps the quintessential industry of the twentieth century, quite literally shaping the world we live in, with an interesting social and economic history (T Cooper 2008). Gravel terraces tend to be well-drained fertile environments that have attracted occupation since at least the end of the last Ice Age. Moreover, they are responsible to various forms of remote sensing (especially aerial photography and geophysical survey) so tend to be well-known in terms of the position and extent of preserved archaeological sites and monuments. About 2400 investigations connected with mineral extraction have been recorded by the AIP; about 1.7 per cent of recorded post-determination investigations are linked to mineral extraction. Figure 9.35 shows the distribution of recorded investigations connected with mineral extraction, which for obvious reasons concentrate along the main river corridors of southern, midland and eastern England, especially the Thames, Severn and Trent and their tributaries. But these investigations are not only related to gravel extraction: a wide range of other rock and minerals are exploited outside the river valleys. Off-shore aggregate extraction is also represented. Figure 9.36 shows the distribution of these investigations over time with a generally high level of activity but clear waves of archaeological input peaking around 1993, 1996, 2000, 2003, and again in 2008.

Concerns over the impact of gravel extraction on archaeological resources can be traced back into the early post-war period (CBA 1949), but it was the ground-breaking report entitled *A Matter of Time* published by the RCHME in 1960 that raised awareness of the extent and scale of losses as a result of post-war redevelopment programmes (RCHME 1960). Since then detailed surveys have been undertaken in many major river valleys, often using aerial photography such as with the three volumes documenting the situation in the Thames Valley (Benson & Miles 1974; Gates 1975; Leech 1977). Because of the way that long-term extraction licences were issued from the 1960s the control of quarry sites and the integration of archaeological work depended largely on negotiations with quarry operators. However, from 1988 new applications followed the conventional planning process with, where appropriate, pre-determination assessments, evaluations, and environmental statements. Archaeological conditions are routinely added to consents for mineral extraction and carried out on an incremental basis as quarries expand into new areas. The Department of the Environment issued a series of Minerals Planning Guidance (MPGs) outlining the general principles and policy considerations for minerals planning with specific advice on the development plan system (MPG1) and planning applications for minerals development (MPG2), since March 2012 replaced by section 13 of the *National Planning Policy Framework* (DCLG 2012a: 32–36). But by the start of the PPG16 Era so much work concentrated in areas of heavy gravel extraction that a review of the results of work in 'gravelscapes' across England raised the question of whether 'the balance of archaeological input has not now become too heavily weighted against other types of landscape' (Cunliffe 1992: ix).

Archaeologically the very large areas that can be involved with gravel extraction pose an interesting logistical problem that led to the development of strip, map and sample strategies. Earthmoving with appropriate machines to remove the topsoil on such sites developed through the early 1970s (Pryor 1974; 1986), although recent studies suggest that much information lies within the topsoil and can be lost through rapid mechanical removal (Evans *et al.* 2014). The balance that has to be struck is between speed/cost and retrieval of meaningful data-sets. Sampling strategies are therefore important.

In April 2002 an Aggregates Levy of £1.60 per tonne was introduced to help promote sustainable approaches to conservation. English Heritage distributed funds relating to the historic environment between 2002 and 2011 (*see* Chapter 6 for further details). A total of 194 grants were dispersed, many of them to assist the synthesis of results from previous investigations and others to take a more strategic view of how archaeology may be recorded and studied in future. Recognising areas of different archaeological potential and focusing evidence-based evaluation and mitigation strategies in these areas is especially important (Jackson *et al.* 2012).

Using ALSF funding, English Heritage commissioned a series of regional strategic reviews of minerals extraction between 2003 and 2007, and in 2008 issued *Minerals and the Historic Environment* (EH 2008a) and *Mineral Extraction and Archaeology: A Practical Guide* (EH 2008b). A national overview of aggregate-related archaeology by Tony Brown brought together the results from investigations at quarries for sand, gravel and rock for aggregates emphasising the variety of discoveries and their implications for understanding the relationships between human populations and their changing environment (Brown 2009). It has been estimated that at the end of the PPG16 Era about 0.35 per cent of the land area of the

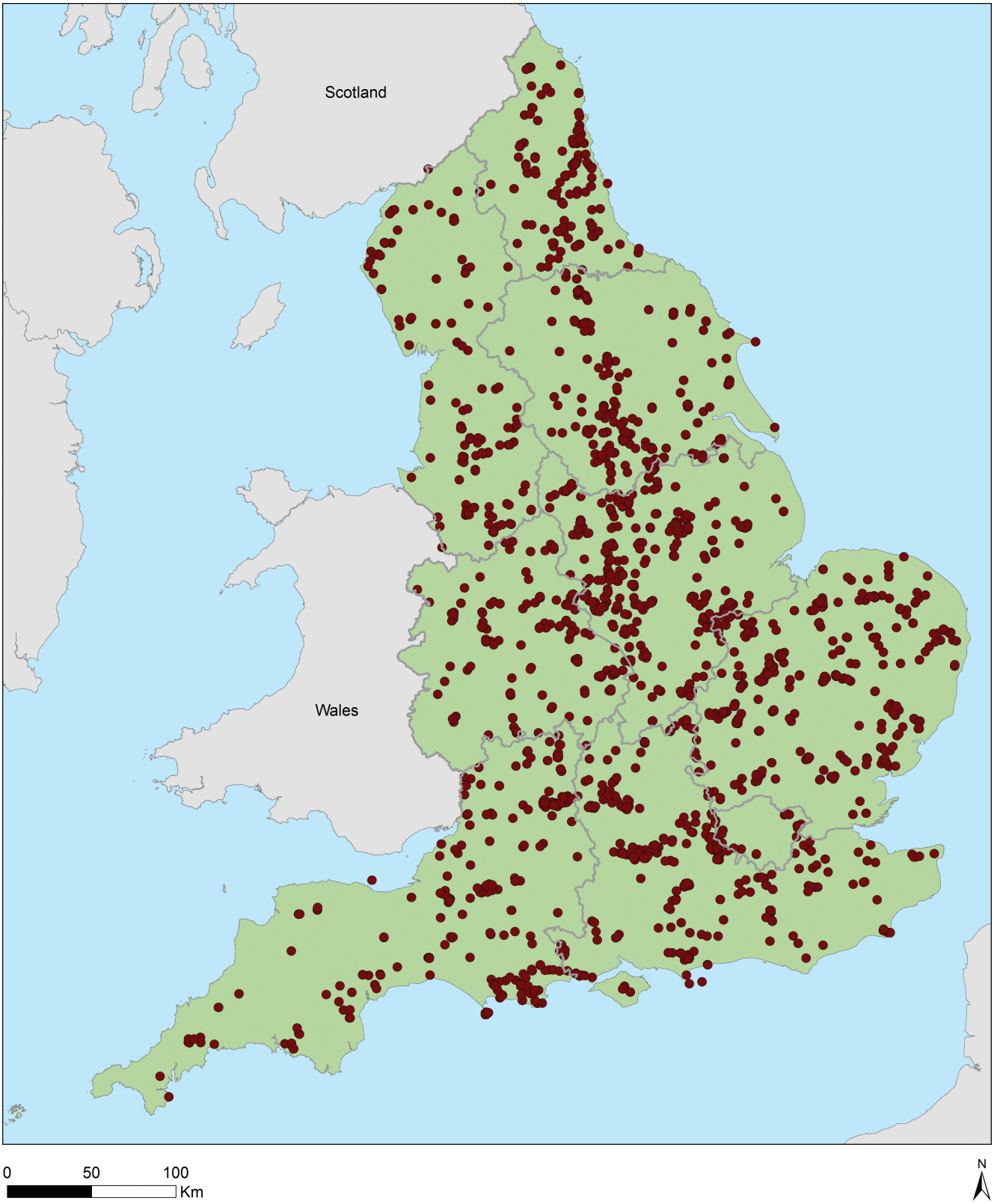

Figure 9.35 Map showing the distribution of recorded investigations related to minerals extraction projects. Regional boundaries shown. (Data: AIP. Sample = 2094 records)

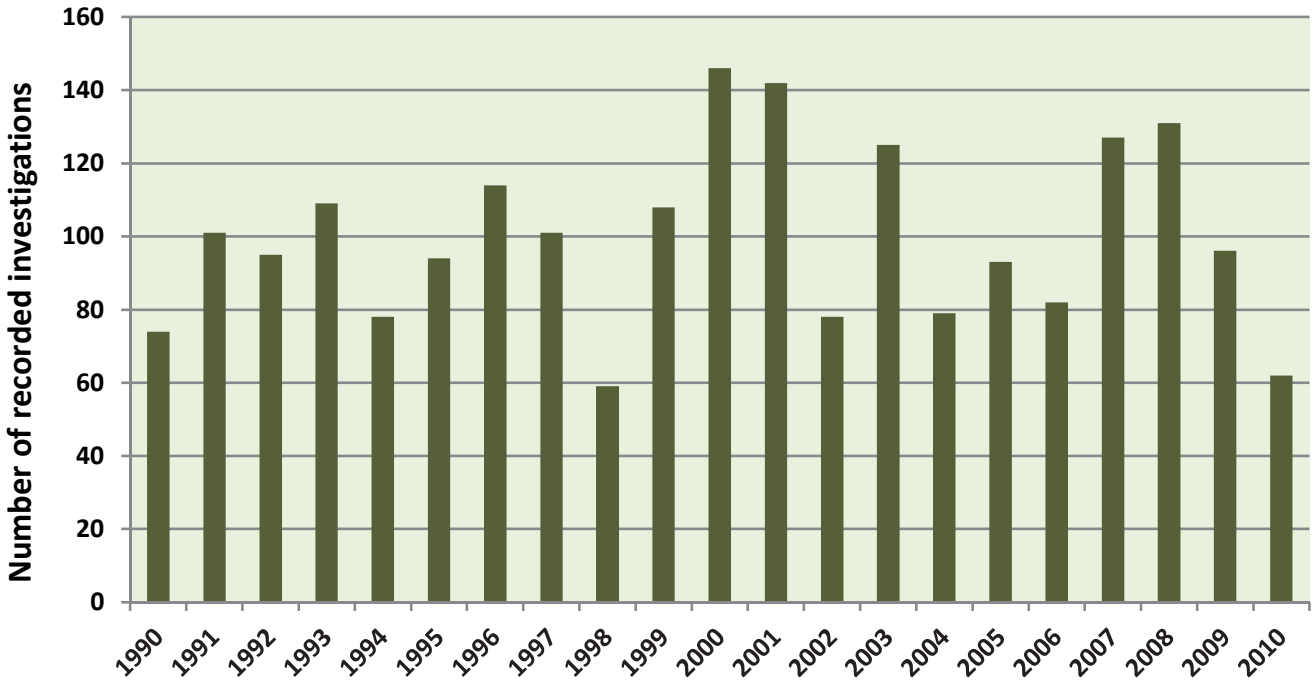

Figure 9.36 Pattern of recorded investigations 1990–2010 for mineral extraction projects. (Data: AIP. Sample = 2094 records)

UK had planning permission for minerals development including extraction sites, processing plants, mine waste tips, and landscaping schemes. Of this, 0.12 per cent was specifically associated with aggregates production (EH 2008a: 1).

Case study 12: Broom, Bedfordshire

The Broom gravel pits lie in open countryside on a flat gravel terrace of the River Ivel to the west of Biggleswade. There are no significant designations in the area, although the area is relatively rich in visible medieval remains. Sand and gravel extraction from land to the north of Broom, Bedfordshire, was proposed in the first planning application submitted by Tarmac Roadstone Ltd to Mid Bedfordshire District Council in January 1991. This was then referred to Bedfordshire County Council as a 'County Matter'; a prescribed list of development types including mineral extraction, requiring consideration at county level. In March 1991, Mid Bedfordshire District Council raised concerns about the application, recommending that Bedfordshire County Council investigate five potential impacts (not including archaeology) in more detail. Two years later, Mid Bedfordshire District Council confirmed that their concerns had been addressed and that they no longer had objections to the planning application. It was approved by Bedfordshire County Council in June 1995, with three archaeological conditions specified. A second alternative planning application for the quarry was submitted by Tarmac Roadstone Ltd in December 1991 but it was withdrawn in July 1995 following the approval of the first application. Table 9.13 summarises the main phases in the site's development especially in relation to archaeological investigations.

Archaeological investigation began in 1995, informed by the environmental impact assessment and archaeological statement prepared by the Fenland Archaeological Trust in 1990. An aerial photographic assessment was completed in 1995 by Air Photographic Services, with additional work in 1996. Archaeological fieldwork by the Cambridge Archaeological Unit (CAU) commenced in 1996 and continued in ten annual phases ahead of quarrying until 2005, in accordance with the quarrying schedule. The fieldwork covered a total area of 240 ha north of Broom and west of Biggleswade. Work included fieldwalking, trial trenches, metal detecting, and open-area excavation (Figure 9.37). Archaeological investigation enabled some archaeology to be preserved *in situ* by amending quarrying plans as gravel extraction progressed. In later phases, archaeologists adapted their techniques, working with the client to take advantage of their topsoil machine stripping. This increased both the speed of archaeological work and also the areas which could be investigated during the agreed timeframes. Interim archaeological client reports were issued to Tarmac Ltd by CAU annually and the final monograph was published in 2007.

The site was found to have provided a range of environments, including lower marshy ground and woodland

Table 9.13 Summary of the key stages, archaeological investigations and outputs for the mineral extraction works at Broom, Bedfordshire.

Date	Events and investigations	Products / Outputs
1990	Fenland Archaeological Trust produce the Environmental Impact Assessment and Archaeological Statement for Tarmac Quarry Products Ltd., for the proposed gravel extraction site.	Fenland Archaeological Trust 1990; French 1990
January 1991	Planning application ref MB/90/01769/MW is submitted for the extraction of sand and gravel from land north of Broom to Mid Bedfordshire District Council, by Tarmac Roadstone Ltd on behalf of Tarmac Quarry Products. Referred to Bedfordshire County Council as a County Matter.	Submission/Referral. Central Bedfordshire Council 1991a
March 1991	Mid Bedfordshire District Council outlines concerns regarding application MB/90/01769/MW and recommends that Bedfordshire County Council investigate five points of concern (not including archaeology) before making a decision.	Recommendation Central Bedfordshire Council 1991a
December 1991	Planning application ref MB/91/01693/CM is submitted for the extraction of sand and gravel from land north of Broom to Mid Bedfordshire District Council, by Tarmac Roadstone Ltd on behalf of Tarmac Quarry Products. Referred to Bedfordshire County Council as a County Matter	Submission/Referral Central Bedfordshire Council 1991b
April 1992	Mid Bedfordshire District Council recommend rejection of planning application ref MB/91/01693/CM, with no mention of archaeological considerations.	Recommendation Central Bedfordshire Council 1991b
March 1993	Mid Bedfordshire District Council confirms that it has no objection to application MB/90/01769/MW	Central Bedfordshire Council 1991a
April 1992	Bedfordshire County Council object to planning application ref MB/91/01693/CM	Objection Central Bedfordshire Council 1991b
1995	Air Photographic Services issue an aerial photographic assessment	Cox 1995
June 1995	Planning application ref MB/90/01769/MW is granted planning permission (ref 7/1995) by Bedfordshire County Council with conditions including archaeological considerations as points 27-28.	Approval Central Bedfordshire Council 1991a
July 1995	Tarmac Roadstone (Central) withdraw planning application ref MB/91/01693/CM.	Withdrawal Central Bedfordshire Council 1991b
1996-2005	Fieldwork by the Cambridge Archaeological Unit ("CAU"), University of Cambridge	
1996	Air Photographic Services issue a supplementary aerial photographic assessment	Cox 1996
December 1996	Planning application ref MB/96/01641/CM is submitted to Mid Bedfordshire District Council, by for the rephasing of sand and gravel extraction work at Broom Quarry. Referred to Bedfordshire County Council as a County Matter.	Submission Central Bedfordshire Council 1996
January 1997	Mid Bedfordshire District Council confirms that it has no objection to application MB/96/01641/CM	Central Bedfordshire Council 1996
January 1997	Bedfordshire County Council approve planning application ref MB/01641/CM.	Approval Central Bedfordshire Council 1996
1997	CUA issue the assessment and evaluation report for the plant site, Phase 1 and Phase 2	Mortimer 1997a
1997	CUA issue the Phase 3 assessment and evaluation report	Mortimer 1997b
1999	CUA issue the Phase 4 assessment and evaluation report	Mortimer & McFadyen 1999
2000	CUA issue the Phase 5 assessment and evaluation report	Garrow 2000

Table 9.13

Date	Events and investigations	Products / Outputs
2001	CUA issue the Phase 6 assessment and evaluation report	Hatherley 2001
2002	CUA issue the Phase 7 assessment and evaluation report	Mortimer 2002
2004	CUA issue the Phase 8 assessment and evaluation report	Cooper 2004a
2004	CUA issue the Phase 9a assessment and evaluation report	Cooper 2004b
2005	CUA issue the Phase 10 assessment and evaluation report	Cooper 2005
2007	Publication of the main report (Monograph: 282pp; 130 figures; 30 tables; CD-ROM; index)	Cooper & Edmonds 2007

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Central Bedfordshire Council, 1991b. *Planning Applications and Appeals: MB/91/01693/CM: County Matters: The Extraction and Processing of Sand and Gravel, The Construction and Operation of a Concrete/Mortar Plant and Progressive Restoration* [online]. Bedford: Central Bedfordshire Council. [Available from: http://www.centralbedfordshire.gov.uk/ PLANTECH/DCWebPages/AcolNetCGI.gov Accessed 29:11:2017]

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Mortimer, R, 2002. *Investigations of the Archaeological Landscape at Broom Quarry*. Cambridge: Cambridge Archaeological Unit. (Limited circulation printed report)

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providing resources such as firewood and hunting grounds, with drier upper gravel terraces suited to settlement and agriculture. Pit and ditch digging, together with pottery, which provided valuable dating evidence, were features of all prehistoric periods. Boundary ditches were a relatively common feature from the Bronze Age onwards.

The earliest finds were dated to the Upper Palaeolithic; two handaxes, one from the gravels as might be expected, and the other a base deposit from an Iron Age pit which raised interesting questions around the recognition and appropriation of earlier artefacts. Late Mesolithic activity and occasional transitory use was suggested by such evidence as surface scatters. Occupation appears to have started during the open woodland of the Neolithic, although this was sparse and not sustained. Early Neolithic flint scatters (some residual in later features), pits and pottery were found. Late Neolithic/Early Bronze Age pits contained pottery dating evidence, whilst a semi-circular pit-cut ditch was dug in an area of early Neolithic occupation.

Early Bronze Age barrows with ring ditches were a feature of the higher land, with one attracting five later Anglo-Saxon inhumations. A cremation cemetery containing more than forty Deverel-Rimbury urns added to this funerary aspect of the landscape. Bronze Age ditches formed enclosures and boundaries, and with the remains of both aurochs and domesticated cows, demonstrated that farming

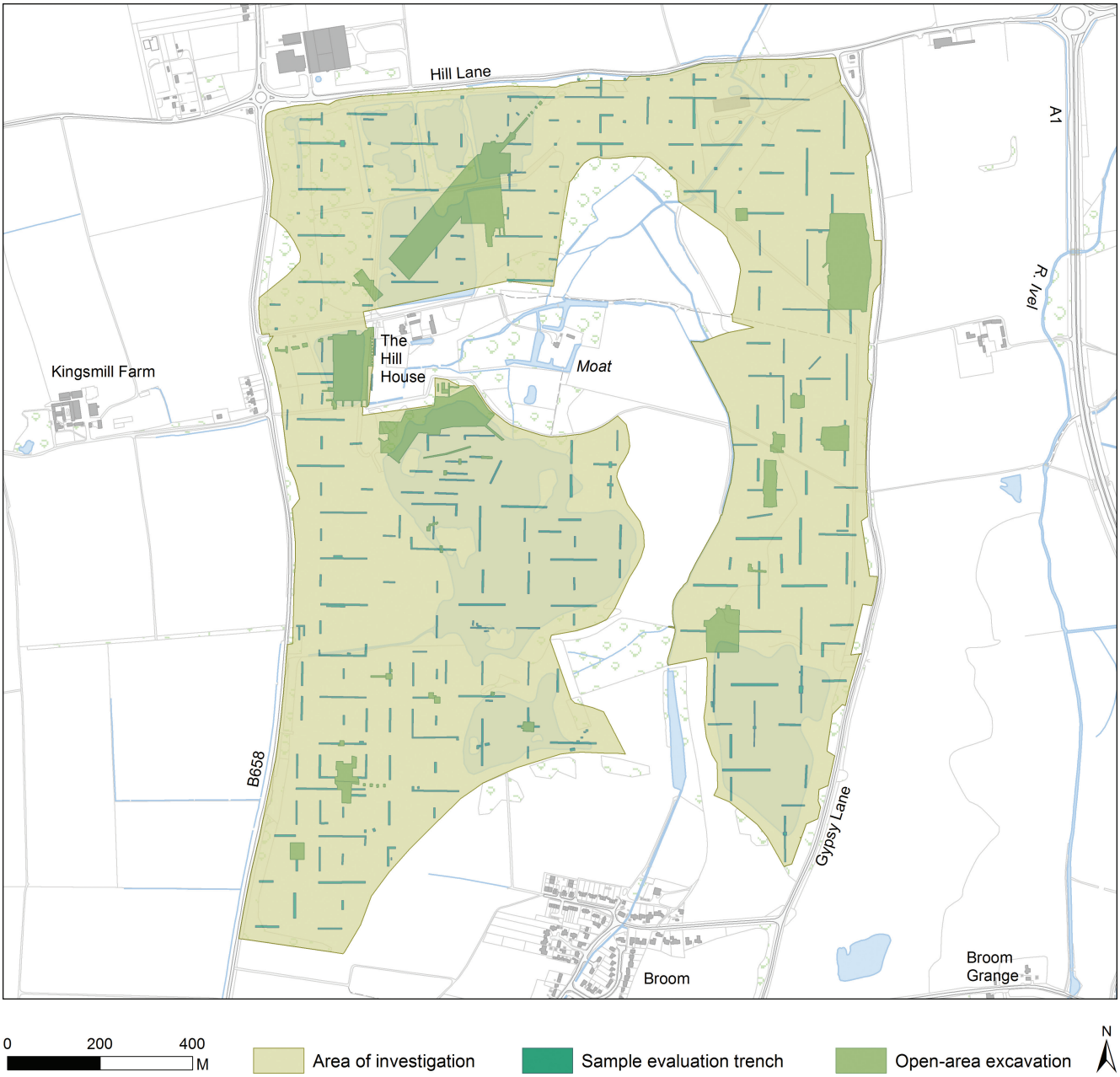

Figure 9.37 Plan showing the position of evaluation trenches and excavation areas at Broom, Bedfordshire. (After Cooper & Edmonds 2007: Fig. 2.9)

co-existed with hunting in the area. The earliest evidence for continued settlement came from the late Bronze Age/early Iron Age. A probable middle Bronze Age settlement was preserved *in situ*, whilst small and probably short-lived late Bronze Age, early and middle Iron Age settlements were investigated. Some Iron Age pits contained selected base deposits, including articulated animal parts and saddle querns. The late Iron Age/early Romano-British period showed a significant change in the way that the land was divided and organised, with Romano-British droveways and field boundaries.

Evidence of an Anglo-Saxon presence was provided by the five burials and a small post-built structure near an earlier barrow and a pit dated to the tenth century. A twelfth/thirteenth century enclosure was investigated and a medieval headland road was extant as a ridge. A dense area of medieval activity associated with Hill House at the edge of the quarrying site, was excluded from quarrying plans and preserved *in situ* as a result of archaeological work. There was some evidence for later medieval or post-medieval quarrying, together with post-medieval enclosures, boundaries and drainage ditches. One of these

was reputed to be the remains of an Anglo-Saxon boundary, but archaeological work demonstrated that it was more likely to be post-medieval.

The final report was published as a monograph in the contractor's own series (Cooper & Edmonds 2007). Limited archaeological investigation had taken place in the area before the quarry development was planned; a single site (a motte and bailey complex) had been explored with evaluation excavations. In addition, lowland studies of this scale were rare at the time of this work. The planned quarry at Broom offered the opportunity to explore a significant area in detail, over a number of years and with substantial developer funding. The significance of the results was not in their remarkable nature or quantity, but in their combined ability to give a clearer understanding of the way in which humans behaved in that area through several millennia. Interestingly, the final published report took an unusual approach to the archaeological evidence, presenting it as the basis for a thematic analysis and interpretation of the site in its landscape and cultural contexts through time. By taking this approach the investigations have greatly expanded the understanding of changing occupation, cultures and land-use around Broom from the late Mesolithic.

Waste disposal facilities

Waste disposal facilities and landfill are among the most controversial kinds of development. More than 210 associated archaeological investigations were recorded by the AIP. Figure 9.38 shows the rather scattered distribution of recorded investigations associated with this kind of development. Figure 9.39 shows the trend through time with peaks of activity at about the same intervals as noted for gravel extraction. Typically, the construction of these facilities involves the re-use of quarries or natural hollows for burying waste or the creation of tipping surfaces for piling-up waste. Access routes and infrastructure are needed. Archaeologically they are generally investigated in ways that are rather similar to minerals extraction sites (*see above*), although where gravel quarries are usually returned to agricultural use or turned into water-parks, waste disposal facilities continue their role as long-term storage places long into the future.

Case study 13: Scarcewater Tip, Pennance, St Stephen-in-Brannel, Cornwall

St Stephen-in-Brannel lies to the west of the extensive china-clay workings around St Austell, surrounded by farmland but in the shadow of established waste-tips and quarries. The development proposals by Imerys Minerals Ltd involved establishing a new tip for waste from nearby china-clay workings. The proposal related to a 30 ha site and involved a staged programme of assessment and evaluation before investigating a large area in a controlled manner (Jones & Taylor 2010). A single archaeological contractor was involved in all the work, with fieldwork undertaken in the period 2000 to 2004. Table 9.14 summarises the key stages in the development process and the related outputs and documentation.

Following the identification of a suitable site, a desk-based assessment was carried out. It identified the land as being within 'anciently enclosed land' and of high archaeological potential, with occupation from the Bronze Age though to the present day. Geophysical surveys identified a probable enclosure, ring ditch, and a range of linear and curvilinear features. A follow-up field evaluation in 2002 used 18 trenches targeted on geophysical anomalies, revealing a series of well-preserved prehistoric and medieval features. These reports were used in the construction of an environmental statement. An initial planning application was rejected in September 2002 (for reasons not including archaeological consideration). Planning approval for a second application was granted in February 2003, although some of the sites investigated during the earlier evaluation were removed from the development area and preserved *in situ*. The remaining area of 30 ha was subject to controlled soil stripping and the investigation of features revealed within three defined areas (Figure 9.40).

Open area excavations in these areas in 2004 revealed three round houses associated with various other structures and pits, and a ploughed-down barrow all dating to the middle Bronze Age; an enclosure with a round house and pits of the late Bronze Age, an unusual Iron Age cairn, and a Romano-British settlement associated with funerary activity. The excavations, published in an extended form as a monograph (Jones & Taylor 2010) and a shorter paper in the county archaeological journal (Jones & Taylor 2013), demonstrated shifting settlement and changes to the character of the settlement and ceremony spanning the period from *c*.1500 BC through to AD 400.

Whilst necessarily limited in extent, the site showed activity during periods for which there was little archaeological evidence in the area at the time of excavation. Archaeological investigation allowed long-term changes to be traced over a large area of land. One drawback, highlighted by the excavators, was the decision not to investigate field ditches which did not appear to pre-date modern field boundaries. Whilst necessitated by time and cost constraints, this limitation meant that there was an unexplored opportunity to trace field systems potentially originating in the pre-Roman and Romano-British periods, into and beyond the medieval period. The initial assumption as to the dating of the ditches could not be confirmed or refuted. This illustrates a significant drawback of some commercially-led archaeology. However, this was still a valuable piece of work, contributing to the overall understanding of social and agricultural organisation in the wider region. The excavated

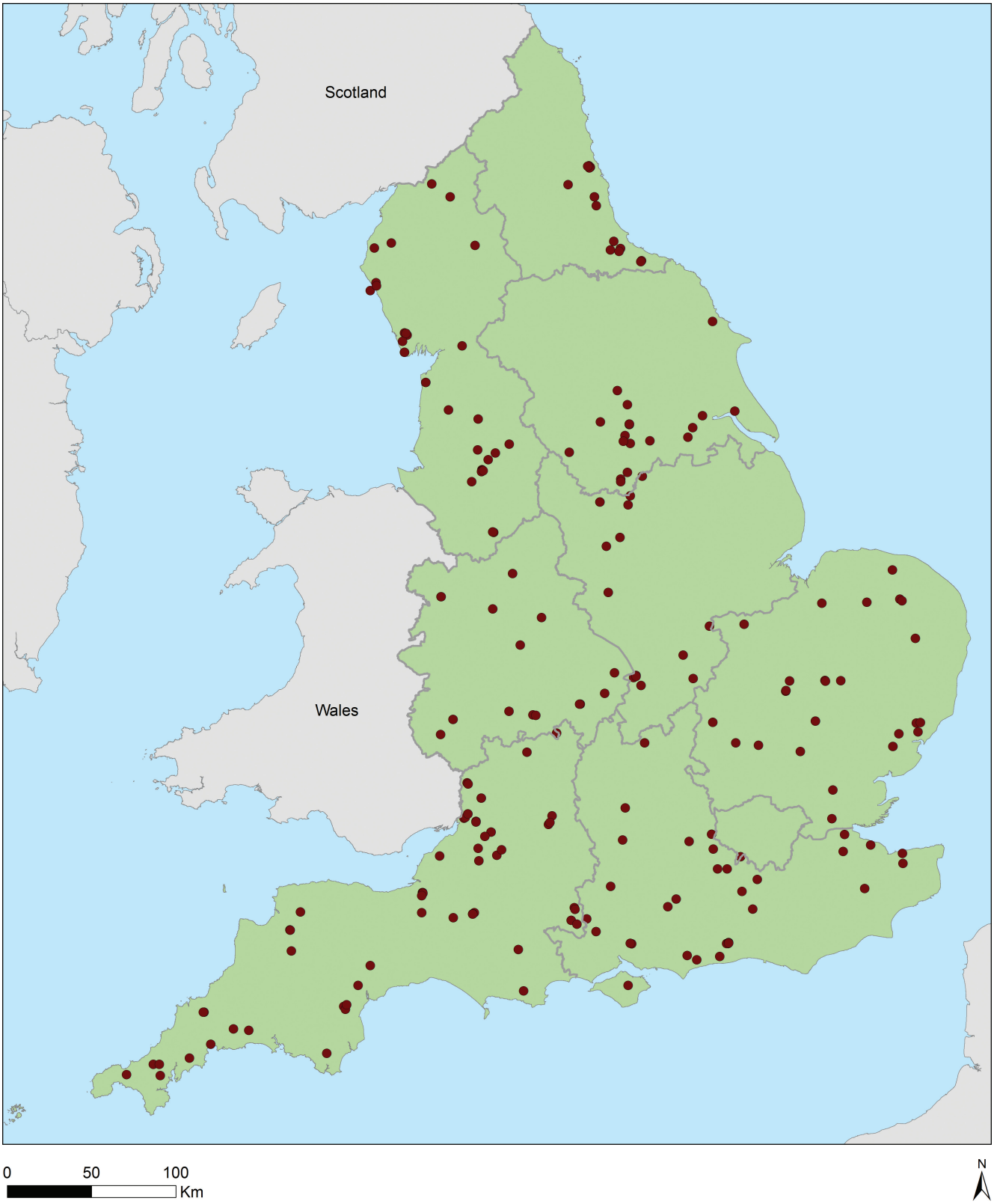

Figure 9.38 Map showing the distribution of recorded investigations related to waste disposal and landfill projects. Regional boundaries shown. (Data: AIP. Sample = 219 records)

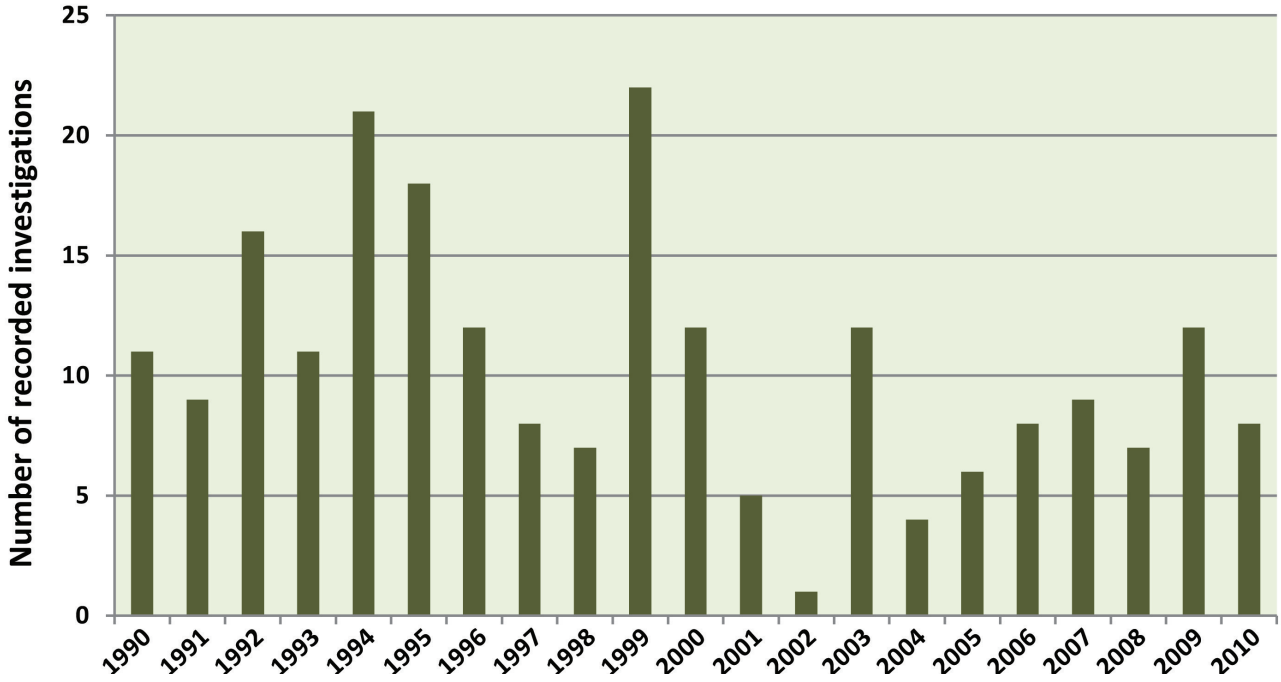

Figure 9.39 Pattern of recorded investigations 1990–2010 for waste disposal and landfill projects. (Data: AIP. Sample = 219 records)

area may also represent part of a larger site, thus informing future planning decisions and conditions.

Large-scale national infrastructure

Large-scale infrastructure projects are relatively few and far between, often very visible, and almost invariably controversial. A number of investigations of this type recorded by the AIP can be associated with such projects, all of them connected with airports, power stations, water-management, and railway lines. The last-mentioned is most numerous, with over 250 investigations recorded. Their distribution is shown on Figure 9.41, with Figure 9.42 showing their pattern through time. In some cases these were a succession of investigations connected with a single large project spread over several years. There are major peaks in 1997, 1999, 2007, and 2009. Most large-scale infrastructure projects recorded by the AIP have been included in other categories e.g. Heathrow Terminal 5 which is included in statistics for urban commercial development. Such projects are spread over a long period and necessitate complicated management structures, as discussed in a recent review by Rob Whytehead (2013); the challenges as well as the opportunities are considerable (Carver 2013).

Large-scale infrastructure projects are subject to mandatory environmental impact assessment, with special procedures applying to some kinds of development summarised in a series of Statutory Instruments. The *Planning Act 2008* provided a means for speedier decision-making for nationally important infrastructure projects, placing the evaluation of such schemes in the hands of the Planning Inspectorate who then make recommendations to ministers. National interests inevitably trump local concerns and these projects are normally promoted through the relevant government ministry and approved through acts of parliament backed up by orders released as Statutory Instruments. What makes such developments special is their scale: the actual archaeology is a scaler increase on what might be expected in comparable landscapes subject to study as a result of other development types.

Case Study 14: Heathrow Terminal 5, Greater London

Heathrow Airport to the west of London is one of the largest and busiest airports in the world. It grew from a small airfield to an operational military airport in 1944 but was still under construction at the end of the Second World War when handed over for civil aviation. Situated on flat ground formed from the eastern terrace of the River Colne, the Heathrow area is known to be exceptionally rich in archaeological remains. A Romano-Celtic temple was found within the earthwork known as Caesar's Camp during the construction of the northern runway in 1944.

The need for an additional terminal at a London airport was first raised in the early 1980s. A fifth terminal at Heathrow Airport, Greater London, was identified as the preferred option in 1988 and planning studies commenced.

Table 9.14 Summary of the key stages, archaeological investigations and outputs for the waste disposal facility at Scarcewater Tip, Pennance, St Stephen-in-Brannel, Cornwall.

Date	Events and investigations	Products / Outputs
2000	Scheme conceived.	
2001	Desk-based Assessment of the site by the Cornwall Archaeological Unit.	Sturgess 2001
2001	Geophysical survey of the site by the Cornwall Archaeological Unit.	
2002	Field evaluation of the site by the Cornwall Archaeological Unit.	Taylor and Jones 2002
	Environmental Statement compiled by the Cornwall Archaeological Unit.	Cornwall Archaeological Unit 2002
8 February 2002	Planning application ref C2/02/00299 submitted to Cornwall County Council by Imerys Minerals Ltd., for the construction of a tip for the disposal of china clay waste at Scarcewater.	Application Cornwall County Council 2002
11 September 2002	Planning application ref C2/02/00299 is rejected by Cornwall County Council after objections by Restormel Borough Council (not on archaeological grounds).	Rejection
24 February 2003	Planning application ref C2/03/00808 is submitted to Cornwall County Council for the construction of a tip for the disposal of china clay wastes at Scarcewater.	Application Cornwall County Council 2003
17 July 2003	Planning application ref C2/03/00808 is approved subject to conditions, including archaeological work.	Approval
2004	Cornwall Archaeological Unit completes Area 1-3 investigations in the form of open area excavation.	
	Cornwall Archaeological Unit completes post-excavation analysis and reporting.	Jones and Taylor 2010; Taylor 2012
2013	Publication of the main report (Monograph: 207pp; 74 figures; 63 tables / County journal: 34pp; 19 figures).	Jones and Taylor 2010; 2013

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Taylor, S R & Jones, A, 2002. *A Report to Imerys: Scarcewater, Cornwall. An archaeological evaluation*. Truro: Cornwall Archaeological Unit. (Limited circulation printed report)

The British Airports Authority (BAA) publicly announced the Heathrow Terminal 5 proposal in 1992 and an outline planning application was submitted to the Department for Transport, Local Government and the Regions (DTLR) in February 1993. The proposal was called in the following month by the Secretaries of State for Transport and the Environment. This resulted in the longest public inquiry in British history at that time, running from May 1995 to March 1999. The Inspector's report was submitted to the DTLR in December 2000. The Secretary of State announced the approval of the Terminal 5 development in Parliament in November 2001 and the DTLR formally approved the submission for planning permission that had been submitted nearly nine years previously. The construction of Terminal 5 began in 2002 and it was opened in 2008. Table 9.15 summarises the main stages in the

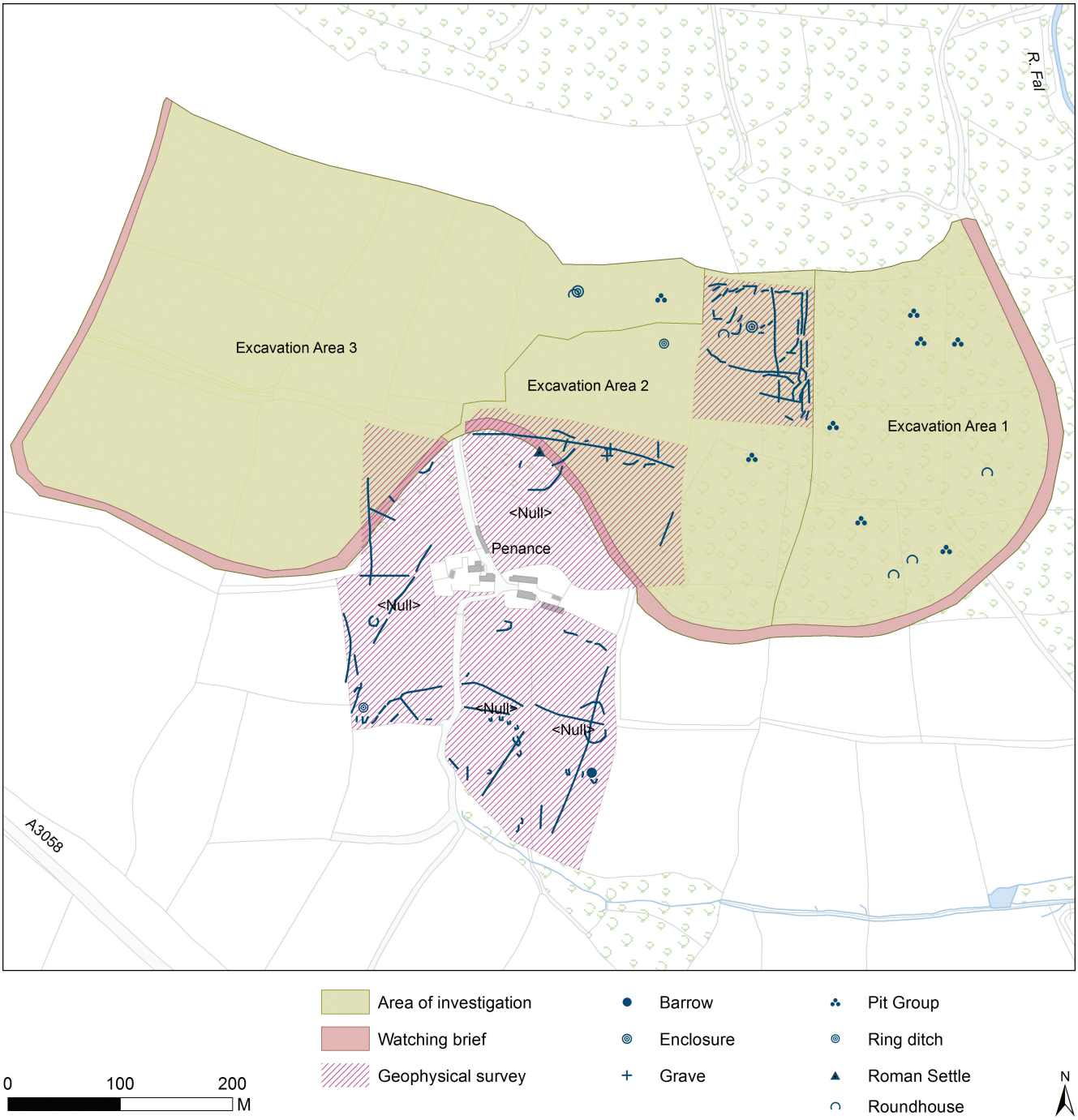

Figure 9.40 Plan showing the position and extent of archaeological investigations at Scarcewater Tip, Pennance, Cornwall (After Jones & Taylor 2013: Fig. 2)

programme while Figure 9.43 shows the distribution and extent of the main archaeological investigations.

The Museum of London Archaeology Service (MoLAS) undertook the archaeological evaluations and investigation during the preliminary phase of the planning process between 1997 and 1999, with a particular focus on supporting the public inquiry. Work included desk-based assessment, field evaluation, aerial photogrammetry, and the issuing of several client reports including an environmental statement.

The archaeological investigation specified in the development process required excavations across 100 ha. This major project was undertaken by Framework Archaeology, a partnership of Oxford Archaeology and Wessex Archaeology. This work took place in two phases.

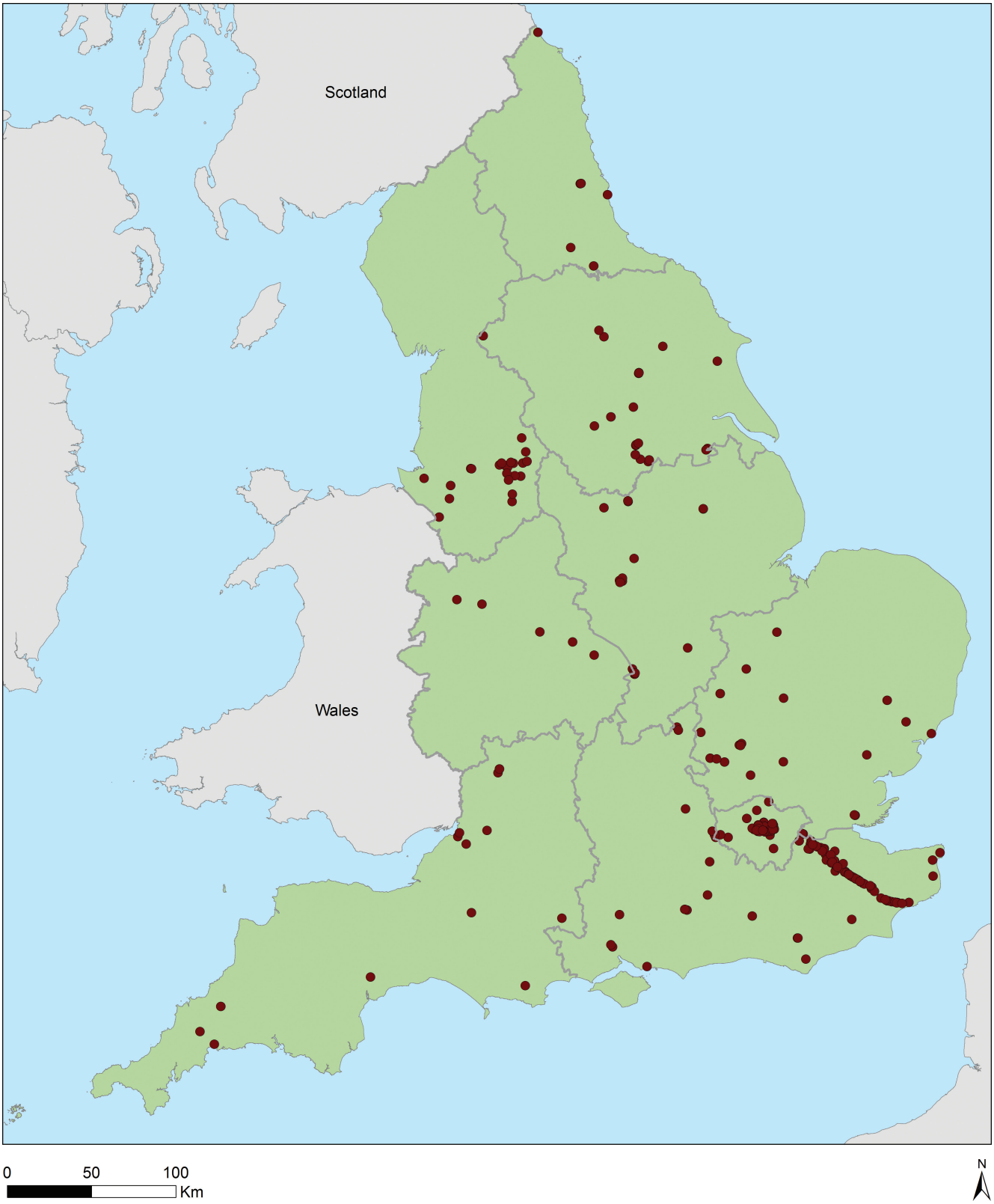

Figure 9.41 Map showing the distribution of recorded investigations related to railway and railway-related infrastructure projects. Regional boundaries shown. (Data: AIP. Sample = 256 records)

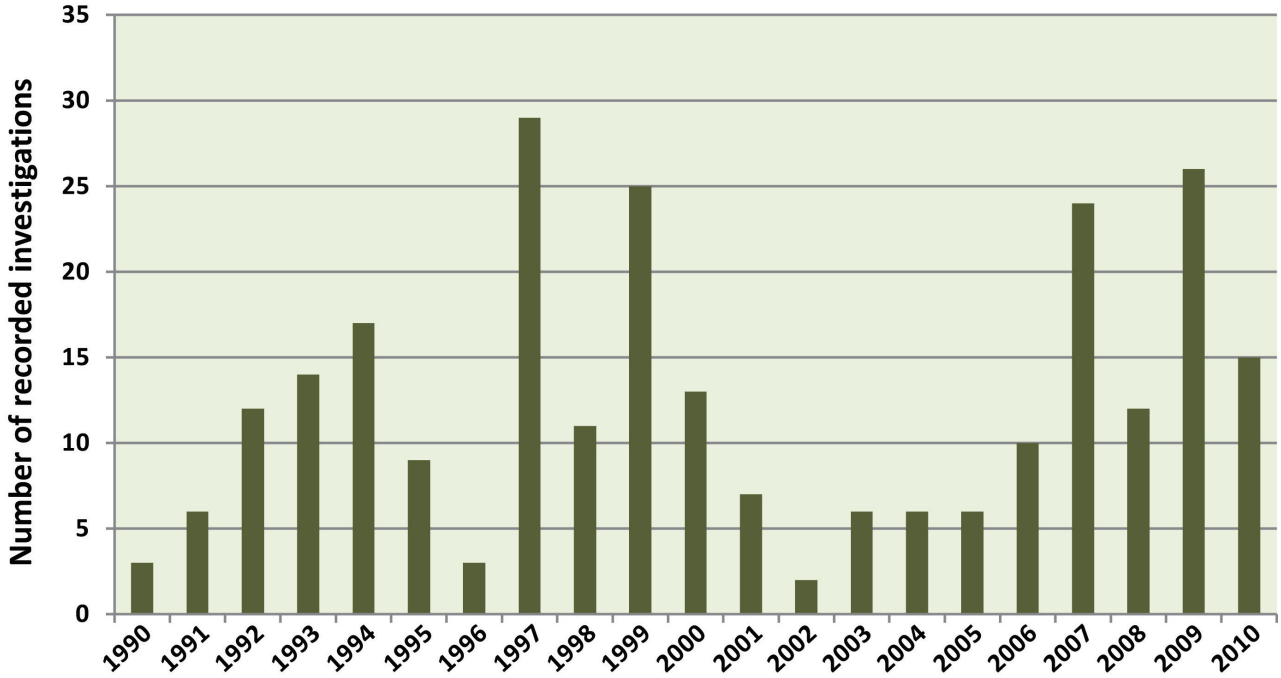

Figure 9.42 Pattern of recorded investigations 1990–2010 for major infrastructure projects (Railway works). (Data: AIP. Sample = 256 records)

The first phase ran from 1998 to 2000 at the Perry Oaks site for Thames Water Utilities Ltd and the BAA. The second phase took place between 2002 and 2006 and was carried out by Framework Archaeology for BAA. The Perry Oaks phase was initially instigated to mitigate the archaeological impact of a sludge works, at that time consisting mainly of a series of variably sized, shallow man-made pools used as drying beds with a total area of over 29 ha. However, once planning permission for Terminal 5 was granted, the work formed part of the mitigation for the terminal. At one point, 21 ha of the Perry Oaks site constituted one of the largest open area excavations at that time. The second phase of excavation starting in 2002 was designed from the outset to mitigate the effects of Terminal 5 construction and covered the remaining development area. Earlier work by other organisations and individuals including MoLAS and the Surrey Archaeological Unit, was incorporated into the project. The archaeological work formed part of the total 16 major projects and more than 140 sub-projects which comprised the overall Terminal 5 development.

The archaeological research design sought to exceed the usual developer-led requirement of merely recording archaeology prior to its destruction, by prioritising interpretation and the understanding of past societies, from excavator level up. It also incorporated academic advice and expertise during the project, which was unusual for commercial archaeology at that time. This factor influenced the archaeological methods used as well as the site interpretation. One of the key objectives was 'the production of a narrative of the human history of the site' (Framework Archaeology 2006: ix) and to this end, BAA funded a review of archaeological working practices and a redesign of the archaeological process.

The total area yielded archaeological evidence from the Mesolithic to medieval periods. The earliest archaeological evidence recovered were shallow pits and stakeholes dated to around the seventh millennium BC, when the area was wooded. Around 3700 BC the elm trees of the forest fell into decline and many were felled or died (possibly a combination of human clearance and Dutch Elm Disease) producing small cleared areas. Use of this land for small-scale farming activities began. Neolithic cursus monuments were investigated, including the Stanwell Cursus (partially excavated by Surrey Archaeological Unit in the early 1980s and actually a long mound rather than a cursus) dating to the late fourth millennium BC and three slightly later more typical cursus monuments. A horseshoe-shaped enclosure with an entrance which faced the sunset at the mid-winter solstice, banks and ditches followed. These features were interpreted as methods of ceremonial land division. Neolithic Peterborough Ware and Grooved Ware were found.

By 1700 BC these were being replaced by physical land divisions with the development of field systems, tracks, ditches and small settlements. The economy was based

Table 9.15 Summary of the key stages, archaeological investigations and outputs for the large-scale national infrastructure project at Heathrow Terminal 5, Greater London.

Date	Events and investigations	Products / Outputs
Early 1980s	The need for a new terminal is identified at either Stansted or Heathrow.	
February 1988	Planning studies for the proposed Heathrow Terminal 5 commence.	
May 1992	The British Airports Authority ("BAA") publicly announce the Heathrow Terminal 5 proposal.	
17 February 1993	Outline planning application ref 47853/93/0246 submitted by BAA plc and Heathrow Airport Ltd to the Department for Transport, Local Government and the Regions ("DTLR") for the development of an additional terminal (Terminal 5) at Heathrow Airport.	Submission
March 1993	Planning application ref 47853/93/0246 and multiple related applications are called in by the Secretaries of State for the Environment and Transport, for Public Inquiry.	Public Inquiry
1993	The Museum of London Archaeology Service ("MoLAS") was appointed to provide archaeological assessment and evaluation services to support the Public Inquiry.	
1993	MoLAS compile the Environmental Impact Assessment for the proposed Terminal 5 development.	Unpublished client report
September 1994 to July 2008	Multiple planning applications to the DTLR and The London Borough of Hillingdon for individual elements of the Terminal 5 development.	Multiple submissions/decisions
1994	MoLAS carry out a desk-based assessment of the potential archaeological impacts of the proposed Terminal 5	Hoad & Elsden 1994a
1994	MoLAS carry out archaeological evaluations at seven sites potentially affected by Terminal 5 and issue an archaeological evaluation report.	Hoad & Elsden 1994b
1994	MoLAS compile the Environmental Impact Assessment for the Piccadilly Line to Terminal 5 development.	Unpublished client report
1995	MoLAS carry out an archaeological evaluation at a site potentially affected by a silt trap associated with the Terminal 5 development and issue an archaeological evaluation report.	Hoad 1995
14 February to 6 April 1995	An aerial photogrammetric survey of the development area is carried out by RCHME Aerial Survey for MoLAS.	RCHME 1995
16 May 1995	Public Inquiry regarding the construction of Terminal 5, commences.	DLTR 2001
1996	MoLAS issue a preliminary archaeological evaluation report for the proposed site of Terminal 5.	MoLAS 1996
1997	An aerial photogrammetric survey of the development area is carried out by RCHME Aerial Survey for MoLAS.	RCHME 1997
1998	The "Framework Archaeology" partnership of Oxford Archaeology and Wessex Archaeology, is appointed by BAA Ltd (and Thames Water Utilities Ltd for the Perry Oaks site) to carry out all aspects of the archaeological work related to the development of Terminal 5.	
1999	Framework Archaeology issue the Perry Oaks project design and related update note	Framework Archaeology 1999a; 1999b
17 March 1999	Public Inquiry regarding the construction of Terminal 5, concludes.	DLTR 2001 Report and Recommendations
October 1999 to May 2000	Framework Archaeology excavations at Perry Oaks.	

Table 9.15

Date	Events and investigations	Products / Outputs
2000	Framework Archaeology issue a project design update for Perry Oaks archaeological work.	Framework Archaeology 2000
20 December 2000	The Planning Inspector submits the final Public Inquiry report to DLTR.	
20 November 2001	The Secretary of State announces approval of the Terminal 5 development in Parliament;	Approval
	DLTR approve planning application ref 47853/93/0246.	
2002	Terminal 5 construction begins.	
2002	Framework Archaeology issue a general project design for the Terminal 5 investigation.	Framework Archaeology 2002
2002	The detailed archaeological strategy for Terminal 5 is formulated.	BAA 2002
18 February 2002	Submission to the London Borough of Hillingdon, of document ref 47853/APP/2002/379 detailing planned archaeological work to comply with planning conditions for principal and subsidiary sites.	Submission
March 2002 to 2006	Framework Archaeology carry out archaeological work at the development site.	
28 May 2002	Archaeological work ref 47853/APP/2002/379 approved by The London Borough of Hillingdon.	Approval
13 July 2004	Submission to the London Borough of Hillingdon, of document ref 47853/APP/2004/1893 giving details of archaeological investigations prior to development of rail links to Terminal 5.	Submission
21 July 2004	Submission ref 47853/APP/2004/1893 approved by The London Borough of Hillingdon.	
2008	Terminal 5 opens.	
2006; 2010	Publication of the main reports: 2 Monographs, 2006 and 2010: xi, 250pp; xiv, 394pp figures; plates; tables; index; CD-ROM.	Framework Archaeology 2006; 2010

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Figure 9.43 Plan showing the position and extent of investigations at Heathrow Terminal 5, Greater London. (After Framework Archaeology 2010: Fig. 1.2)

on agriculture, with a mix of animal husbandry (including sheep and cattle) and cereal production. Selected objects were placed in the base of waterholes. From the late second millennium BC the settlement pattern changed, with larger settlements replacing the previous more distributed pattern. Earlier agricultural organisation appears to have continued into the Iron Age, for which there is little specific evidence. Existing trackways and hedgerows were maintained and waterholes continued to attract deposited artefacts. By the Middle Iron Age, settlement had further

nucleated into a group of roundhouses and a large ditched enclosure, with more emphasis on animal husbandry. This location continued to be a focus for habitation through the Iron Age and into the Roman period. This changed in the later Roman period, when land divisions and settlement evidence showed a shift away from this location into a 'ladder' enclosure development centred on a large trackway. Medieval ridge and furrow demonstrate the continued use of the area for agriculture, with the alignments of these and a post-medieval trackway respecting both the alignment of the late Roman reorganisation and earlier Bronze Age boundaries. Following the decline of Roman influence, settlement reverted to a changing dispersed pattern during the Saxon period with the following Norman and medieval phases continuing this trend with wooden buildings and ditches.

The final report was published as a pair of monographs in the main contractor's own series. The archaeological project arising from the construction of Heathrow's Terminal 5 had an innovative design and enabled collaborative working at both corporate and individual levels. It empowered individual excavators to bring forward their interpretation of the archaeology with which they were working and brought a novel academic approach to the research; both of these factors were unusual for commercial projects at that time. The project was committed to providing full publication of, and public access to, its findings. The two printed volumes (Framework Archaeology 2006; 2010) both included rich data-sets on CD-ROMs while a dedicated website was established: *Archaeology at Heathrow Terminal 5* (http://www.framearch.co.uk/t5/). The digital archive from the project was deposited with the Archaeology Data Service (http://dx.doi.org/10.5284/1011888). Overall, it provides an example of best practice for future large-scale infrastructure projects.

Case study 15: HS1 (High Speed Rail link from St Pancras Station to the Channel Tunnel)

The 109 km route of the first High-Speed rail-link from St Pancras Station in London to the Channel Tunnel, initially known as the Channel Tunnel Rail Link (CTRL) but retrospectively dubbed High Speed 1 or HS1, runs through east London suburbs before crossing the Thames in a tunnel and continuing eastwards through Kent crossing the Medway on a viaduct (Figure 9.44). At a cost of £5.8 billion it was one of the most costly engineering works projects undertaken during the PPG16 Era. HS1 was undertaken by a public-private partnership between the government and the London and Continental Railways Ltd consortium (LCR). LCR consortium members comprised Arup, Bechtel, French Railways, Halcrow, London Electricity, the National Express Group, S.G. Warburg & Co, Systra and the Virgin Group. Subsidiaries of LCR, Union Railways (South) Ltd (later CTRL UK Ltd) and Union Railways (North) Ltd, were responsible for construction of Sections 1 and 2 of HS1 respectively. Rail Link Engineering (RLE; a consortium of Bechtel, Arup, Halcrow and Systra) undertook design, procurement and project management.

Constructing HS1 involved more than 50 pieces of government legislation between 1973 and its completion in November 2006. Whilst core permissions were handled centrally through Acts of Parliament, local planning authorities dealt with individual works relating to aspects of construction affecting their area of responsibility. The archaeological conditions for the project were laid out in the *Channel Tunnel Rail Link Act in 1996* as part of the environmental minimum requirements and an archaeological research strategy was issued in November 1997. A process known as 'The Heritage Deeds' was implemented to cover planning consents specifically for HS1 impacts on Listed Buildings, buildings in Conservation Areas, and Scheduled Monuments. This was controlled centrally and allowed statutory authorities to respond to individual plans within a time limit. Unlike the existing Scheduled Monument and Listed Building consent procedures, The Heritage Deeds carried an assumption that development work would be carried out. There was no overarching public inquiry for HS1, as the need for this had been superseded by the legislation and associated parliamentary procedures. Archaeological work was supervised and co-ordinated from 1996 by RLE, with oversight by English Heritage and Kent County Council amongst others. Table 9.16 summarises the main stages in the programme while Figure 9.44 shows the distribution and extent of the archaeological investigations. HS1 was opened on 14 November 2007.

The construction proceeded in two phases, with the related archaeology following suit. Oxford Archaeology carried out desk-based assessment and other evaluation work for the 74 km long Phase 1 (Channel Tunnel at Cheriton to Fawkeham Junction south of Gravesend) and Written Schemes of Investigation were developed. Fieldwork was performed by a range of organisations, including Canterbury Archaeological Trust, Museum of London Archaeological Services, Oxford Archaeology, and Wessex Archaeology. 122 evaluations took place comprising over 1000 evaluation trenches. This began in 1995, with the majority of work completed in 1997–98 and some carried out in spring 1999. Results were used to plan the subsequent work which ranged from open area excavation to a general watching brief. This section of HS1 passed through Kent and produced evidence from the Mesolithic to the twentieth century AD, from a large number of sites. The most significant find from this section was evidence for a rare Early Neolithic timber building, possibly a post-built hall, at White Horse Stone.

HS1 Phase 2 fieldwork took place between 2000 and 2003 usually involving a combination of open-areas and watching briefs within the construction corridor (Figure 9.45). One of the most notable discoveries was the Ebbsfleet Elephant;

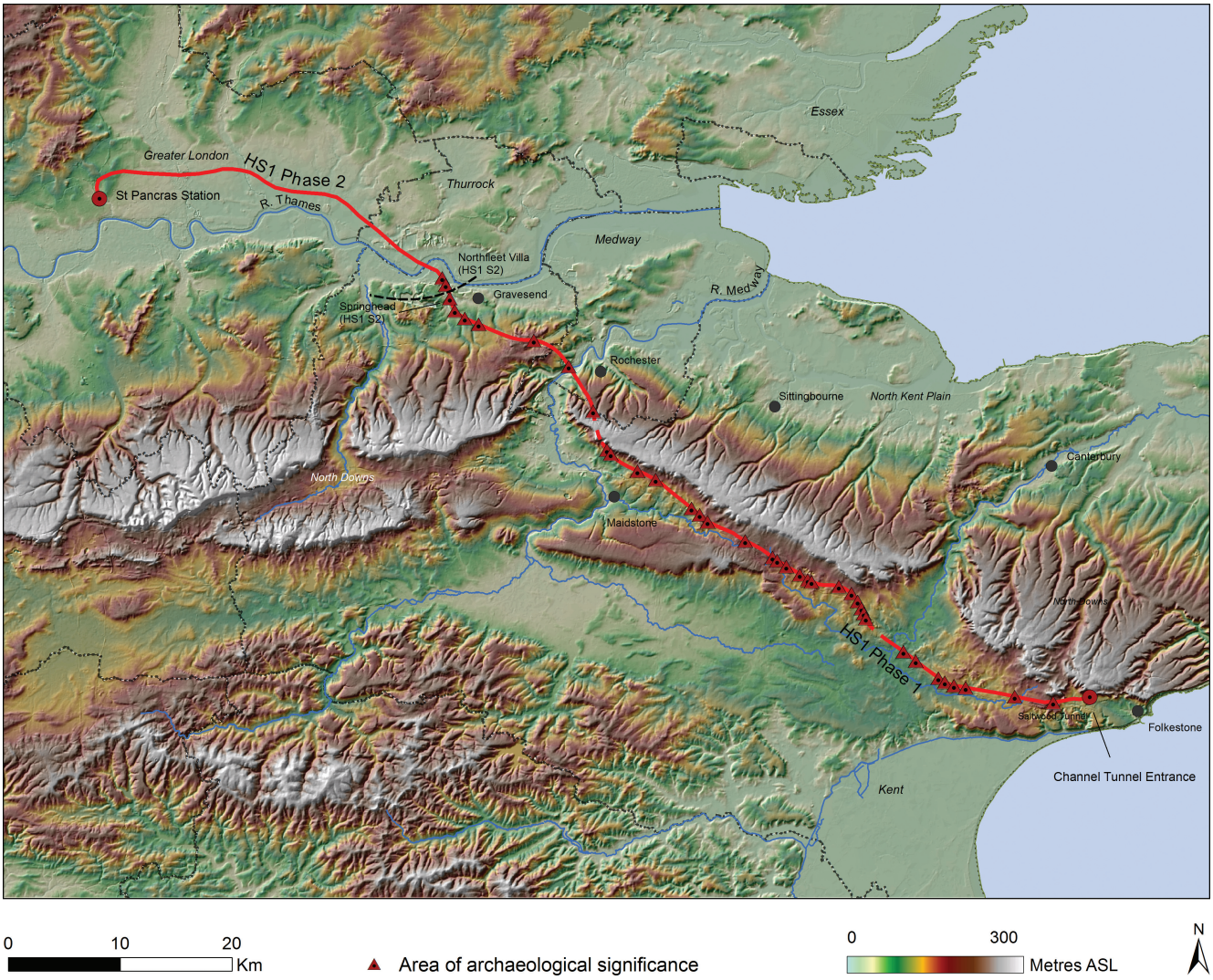

Figure 9.44 Map showing the position of archaeological investigations along the line of HS1 (Section 1) in Kent. (After Booth et al. 2011: Fig. 2.1)

the remains of an elephant (*Palaeoloxodon antiquus*) surrounded by the flint tools used to butcher it by early hominins. This was dated to the Hoxnian interglacial period, 425,000 to 375,000 BC, demonstrating that Britain had been resettled following the Anglian glaciation. Publication of the Phase 2 fieldwork centred on the Ebbsfleet Valley, a 2.5 km area of the total 35 km length of Phase 2. Evidence from the early Palaeolithic onwards was recovered, with Mesolithic and Bronze Age remains. An apparently ceremonial Iron Age landscape was absorbed into a Romanised area, which included a high-status villa, temples, settlement, agriculture, commerce and cemeteries. Saxon sunken feature buildings and cemeteries indicated continued settlement from the late fifth to early eighth centuries. The remains of a rare late seventh century tidal mill were discovered, with waterlogged conditions leading to excellent preservation of the wooden infrastructure.

Final reports in the form of seven monographs, collectively containing nearly 2500 pages, published by the main contractors have already appeared to cover sections 1 and 2 (Andrews *et al.* 2011a; 2011b; Barnett 2011; Bates & Stafford 2013; Biddulph *et al.* 2011; Booth *et al.* 2011; Wenban-Smith 2013); further reports are expected over the next few years. The HS1 Channel Tunnel Link project was significant in several respects. It was regulated using new processes; principally by government legislation, with some local planning control and general public consultation. New project management techniques and evaluation strategies were used during the archaeological work and these have been carried forward into subsequent large-scale projects. During Section 1 of the project, importance was placed on the public accessibility of resulting archaeological information. This phase of work generated a comprehensive online archaeological project archive including several hundred evaluation, excavation,

Table 9.16 Summary of the key stages, archaeological investigations and outputs for the large-scale national infrastructure project construction HS1 (High Speed Rail link from Pancras Station to the Channel Tunnel), Greater London and Kent.

Date	Events and investigations	Products / Outputs
1987	The Channel Tunnel Act is passed. This causes a delay in planning and construction as it renders government funding for the project, unlawful.	Legislation
1989	Six routes for the Channel Tunnel Rail Link ("CTRL", now known as "HS1") are considered by the Government.	
1991	The easterly approach route is selected as the Government's preferred option	
1991 to 1993	Consultation, planning and community relations work proceeds in support of the HS1 route.	Decision
	The easterly approach route is refined after consideration of factors such as the environment appraisals and discussion with affected local authorities.	Amendment
March 1993	The proposed route is confirmed in detail.	Decision
1994	Desk-based assessment performed by Oxford Archaeology for URL, resulting in unpublished client report "Assessment of Historic and Cultural Effects 1994" in four volumes with two supplements.	Oxford Archaeology 1994
January 1994	The route is confirmed after public consultation and amendment.	Confirmation
	Oxford Archaeology perform a range of evaluations including fieldwalking, geophysical survey, and aerial photography analysis.	
17 November 1994	The Channel Tunnel Rail Link Bill is read a second time in Parliament.	
17 November 1994	Environmental statements relating to HS1 are published and circulated.	
1995 to 1999	Section 1 archaeological evaluation by Canterbury Archaeological Trust, Museum of London Archaeological Services, Oxford Archaeology and Wessex Archaeology.	Publications
	Geophysical survey undertaken by Bartlett-Clarke Consultancy.	
21 May 1996	The Channel Tunnel Rail Link Bill is read a second time in the House of Lords.	
18 December 1996	The Channel Tunnel Rail Link is given Royal Assent and the Channel Tunnel Rail Link Act[3] is passed, effectively approving the planned work. The Act includes environmental undertakings including archaeological and heritage conditions.	Approval
November 1997	The Archaeological Research Strategy for Section 1 of the rail link is prepared for Rail Link Engineering ("RLE") by P Drewett.	Drewett 1997
1997	Archaeology Programme issued by Thames Valley Archaeology ("TVAS").	TVAS 1997
1998 to 2001	Section 1 archaeological fieldwork by Canterbury Archaeological Trust, Museum of London Archaeological Services, Oxford Archaeology and Wessex Archaeology.	
2 February 1998	Strategic Archaeological Plan issued by TVAS.	TVAS 1998b
22 June 1998	Written Scheme of Investigations issued by TVAS.	TVAS 1998a
4 September 1998	Written Scheme of Investigation issued by Rail Link Engineering ("RLE").	RLE 1998a
22 September 1998	Written Scheme of Investigation issued by RLE.	RLE 1998b
7 October 1998	Written Scheme of Investigation issued by RLE.	RLE 1998c
14 October 1998	Strategic Archaeological Plan issued by RLE.	RLE 1998d
September 2000 to March 2003	Section 2 archaeological fieldwork by Canterbury Archaeological Trust, Museum of London Archaeological Services, Oxford Archaeology and Wessex Archaeology.	
July 2003	Updated Project Design for Archaeological Analysis and Publication issued in two volumes by RLE.	RLE 2003a; 2003b
28 September 2003	Section 1 of HS1 (Fawkham Junction, Gravesham, to Folkestone) opens.	

Table 9.16 Summary of the key stages, archaeological investigations and outputs for the large-scale national infrastructure project construction HS1 (High Speed Rail link from Pancras Station to the Channel Tunnel), Greater London and Kent. (Continued)

Date	Events and investigations	Products / Outputs
2004	The "Channel Tunnel Rail Link 1" web pages on the Archaeological Data Service, make many of the archaeological documents publicly available.	Foreman 2004
14 November 2006	"High Speed 1" is adopted as the brand name for the rail link.	
14 November 2006	Section 2 and the full route of HS1 is completed.	
6 November 2007	The Queen officially opens HS1.	
2011	Publication of the four volume detailed excavation results and findings.	Andrews at al 2011 a; 2011b Barnett et al 2011 Biddulph et al 2011
2013	Publication of the synthesis monograph.	Wenban-Smith 2013

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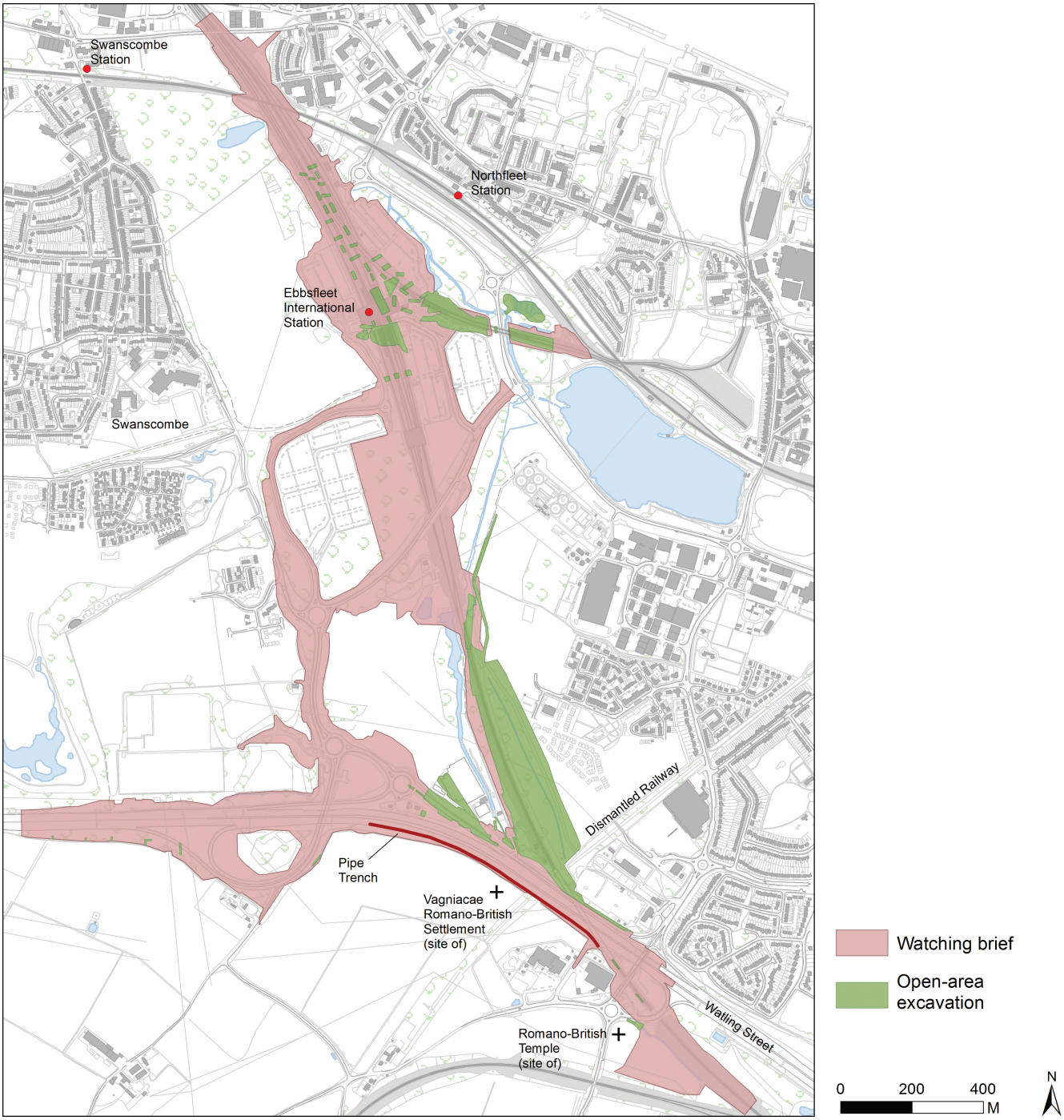

Figure 9.45 Plan showing the position and extent of investigations on the HS1 railway line route near Swanscombe, Kent. (After Booth et al. 2011: Fig. 1.3)

post-excavation and specialist reports, freely available on the Archaeology Data Service website; the first time that ADS had worked with a commercial venture on such a scale. The HS1 project resulted in extensive archaeological work and recovered evidence from over 400,000 years, some of which was of international importance. The substantial data-set is still undergoing analysis.

Coastal, estuary, shoreline, and riverine works

The archaeology of coastal, estuary, shoreline and riverine works has long been of interest and yielded important discoveries. Maritime archaeology, sometimes known as nautical archaeology, has emerged as a strong sub-discipline area with its own policies and guidance (Andrews 2004: Bowens 2009; CIFA 2014i; Cossons 2005; Green

2004). In recent years increasing concern with sea-level change, coastline erosion, renewable energy, and coastal conservation has given new focus to work in coastlands, the intertidal zone, and inshore waters including rivers and lake. More than 200 investigations recorded by the AIP could be associated with such developments and Figure 9.46 shows their distribution very widely around the English coast, in some of the main estuaries, and inland locations related to rivers and lake. Figure 9.47 shows the pattern of activity through time with major clusters of work in the late 1990s and late 2000s.

A survey of England coastal heritage undertaken in 1994–95 sets the scene for the early years of the PPG16 Era (Fulford *et al.* 1997). It examined the character of the recorded coastal archaeological resource, identified future themes for survey and investigation, and summarised the main survey methods and techniques appropriate to work in these environments. A follow-up survey examined progress from 1997 through to 2013 (Murphy 2014) and was able to draw on the results of Rapid Coastal Zone Assessments, funded by English Heritage, for much of the English coastline, as well as advances in nautical archaeology on the foreshore, such as that developed for recording hulks on the Medway (Milne *et al.* 1998).

By the end of the PPG16 Era coastal planning legislation was supplemented by the *Marine and Coastal Access Act 2009*. As a result of changes introduced in 2002, English Heritage is involved in the whole process of advising on marine and coastal development projects from sand and aggregate extraction to major port construction (Cossons 2005). As in terrestrial development projects, initial site assessment is very important to document marine archaeological interests, such as historic shipwrecks and areas of submerged landscape.

Case study 16: Stanford Wharf Nature Reserve, Thames Gateway, Essex

The Thames Gateway Project was a Millennium initiative to encourage urban regeneration within a large tract of land from Westferry in Tower Hamlets 70 km along both banks of the Thames, on the south side as far as the Isle of Sheppy (Kent) and along the north side to Southend-on-Sea (Essex).

In January 2002, an outline planning application was submitted to Thurrock Council by P&O, for the redevelopment of the former Shellhaven oil refinery site in Stanford-le-Hope, Essex. The proposed development would provide a new commercial centre. P&O, in partnership with Shell, applied to the Secretary of State for Transport, Environment and the Regions in February 2002, for permission to carry out railway and related works associated with the redevelopment. As Thurrock Council did not respond to the initial planning application within the statutory time limit, P&O lodged an appeal and both applications were called in by the Secretary of State in June 2002. In the following month, P&O applied to the Department for Transport for a Harbour Empowerment Order, which would permit the establishment of a new harbour authority at the development site. The Secretary of State convened a public inquiry, which sat between February and September 2003 and considered all three applications. In July 2005, the public inquiry report was published with the recommendation that the applications be approved, with conditions including archaeological considerations for the area of the Stanford Wharf Nature Reserve (initially referred to as Compensation Site A). The applications were approved by the Secretary of State in May 2007. Archaeological project designs and fieldwork were completed by Oxford Archaeology in 2009 in accordance with the London Gateway Archaeological Mitigation Framework and with the approval and advice of Essex County Council Historic Environment Branch and English Heritage. Table 9.17 summarises the main stages of the project and associated archaeological outputs.

The Stanford Wharf Nature Reserve area lies to the west of the main development, in an area of land apparently reclaimed in the seventeenth century. The formation of the nature reserve involved reversing this work, lowering the land surface by *c*.0.5–1.0 m and returning it to tidal mudflats. Oxford Archaeology completed fieldwork in advance of this, to preserve or investigate archaeological remains. Two areas (7.35 ha total) were excavated in detail, with controlled archaeological stripping and sampling of two further areas (8.4 ha total). Watching briefs were undertaken in the remaining areas (13 ha total) and also as the sea wall was breached to begin the flooding process (Figure 9.48).

Sampling recovered a sedimentary sequence from the late Glacial period (*c*.15,000 BC) to the post-medieval period, recording the rise in sea level, which eventually cut Britain off from the Continent and made the area an evolving tidal environment. Mesolithic and Neolithic tools were recovered from the area, but the first archaeological evidence for intense human activity comprised salt making debris (so-called red hills), and features including hearths, gullies, pits, briquetage and ditches, dated to the middle Iron Age (*c*.400–100 BC). In Essex, this activity had previously been recorded as late Iron Age or Roman, making Stanford Wharf evidence the earliest example. No late Iron Age evidence was found, but salt making appeared to resume during the early Roman period (*c*.AD 43–120) in a different area of the site. The waterlogged remains of a 13 m long U-shaped Roman building was also found, and interpreted as a boathouse and evidence for trade or fishing. A third century enclosure contained a pit which was at one point used as a cesspit, preserving much waterlogged organic evidence. A large deposit of fish bones in a ditch potentially indicated the production of fish sauce in the area. Salt making continued into the late third century. Artefacts traced

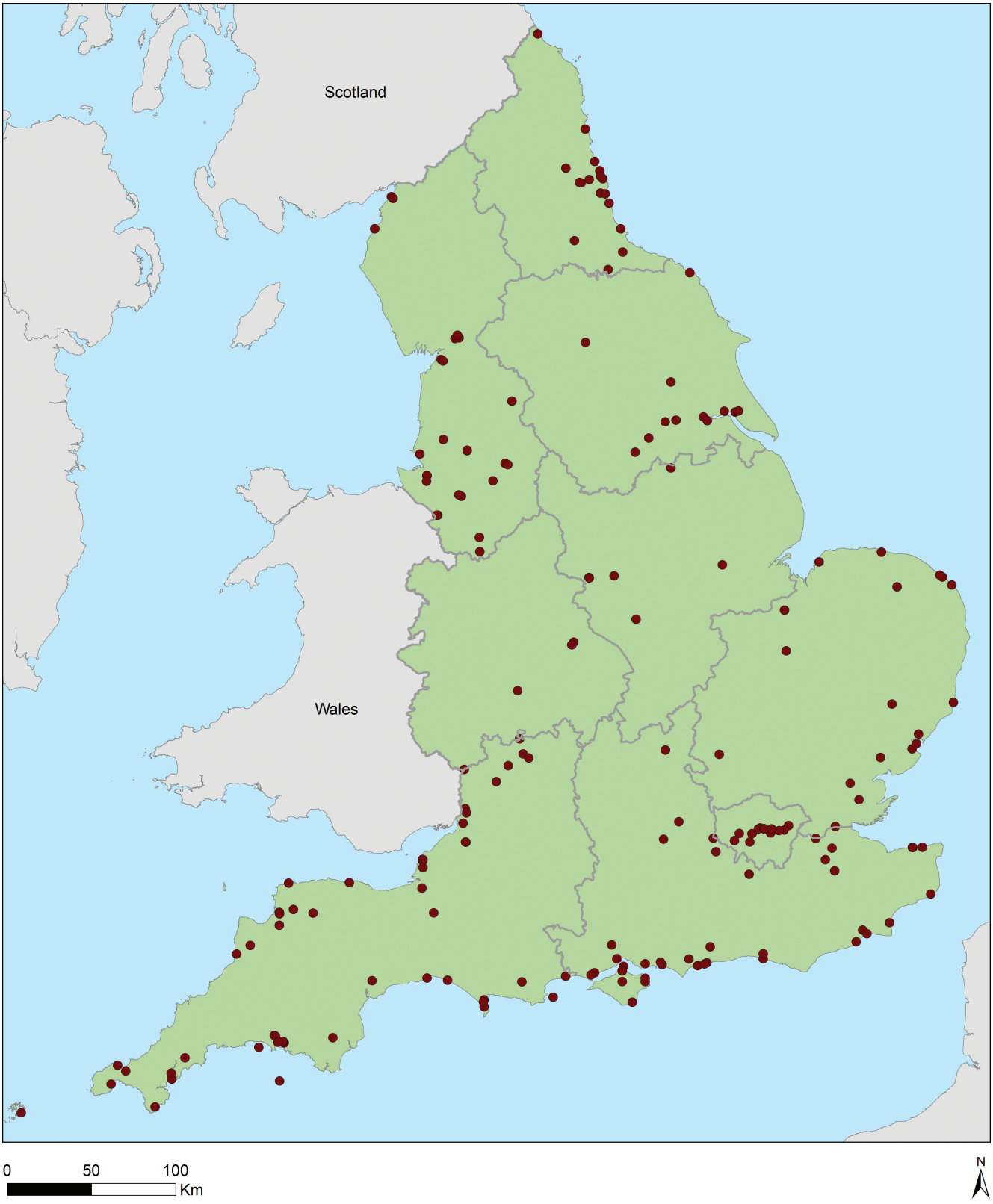

Figure 9.46 Map showing the distribution of recorded investigations related to coastal, estuary, shoreline and riverine development. Regional boundaries shown. (Data: AIP. Sample = 188 records)

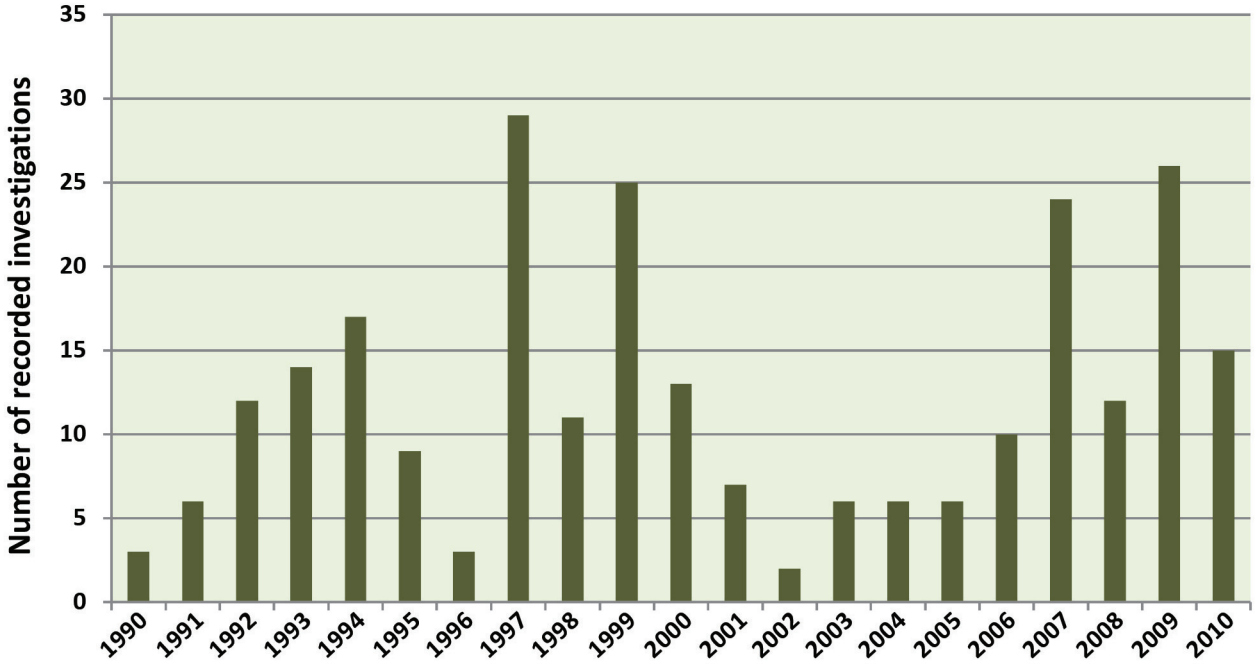

Figure 9.47 Patterns of recorded investigations 1990–2010 relating to coastal, estuary, shoreline and riverine development. (Data: AIP. Sample = 188 records)

activity into the second half of the fourth century, with two oak piles dated to the middle Saxon period (*c*.AD 650–850). Farming appeared to take precedence in the eleventh century, continuing through the area's incorporation into Cabborns Manor (later Manor Farm) and into the post-medieval period, with a seventeenth century sheepfold supporting this. Concrete and brick remains may represent a Second World War bomb decoy.

The final report was published as a monograph in the main contractor's own series (Biddulph *et al*. 2012) together with a set of specialist post-excavation reports available. Innovative in many ways, the London Gateway development at Stanford-le-Hope allowed the detailed examination of a coastal environment on a scale rarely available for archaeological study. A range of investigations was undertaken, recovering not only archaeological features and artefacts, but also palaeoecological and geoarchaeological evidence. These provided the earliest evidence of salt making in Essex but more broadly give an in-depth view of how an area affected by changing sea levels was exploited and managed by local populations who constantly adapted to change over several millennia.

Gathering time: making sense of the past

The case studies discussed here show how archaeological investigations of various kinds fit into a wide range of projects from simple small-scale householder developments through to the truly enormous complicated major infrastructure schemes. Many other examples could have been chosen.

From a methodological perspective it is clear from the case studies that approaches that maximise the archaeological benefits from particular kinds of development are emerging, balancing, for example, linear transects across a landscape with substantial blocks of land around a single focus. Much the same pattern can be seen in the round-up of archaeological work on development sites usefully brought together at the end of the PPG16 Era (Taylor 2011), and a survey of 15 'Great Excavations' of the twentieth century includes five from the PPG16 Era (Schofield 2011). From inception to conclusion the archaeological process follows a well-trodden route and delivers nuggets of knowledge in sometimes quite unexpected ways from unexpected places. Flip through any popular magazine, such as *Current Archaeology* or *British Archaeology*, and it is astonishing just how much new information these investigations are bringing to light. Table 9.18 provides an overview of what has been achieved by seeing the PPG16 Era through a hundred influential discoveries. Arranged by year it is clear that there is a steady pace to the work and considerable variety in where these discoveries are made, geographically, chronologically, by the kind of investigation and its prompt, and by who is undertaking the work. One great strength of the discipline is its enormous diversity.

Joining discoveries together provides another measure of the success of archaeology over the PPG16 Era. Do

Table 9.17 Summary of the key stages, archaeological investigations and outputs for the coastal conservation works at Stanford Wharf Nature Reserve, London Gateway, Essex.

Date	Events and investigations	Products / Outputs
28 January 2002	Outline planning application ref 02/00084/OUT is submitted to Thurrock Council by The Development Planning Partnership on behalf of Peninsular and Oriental Steam Navigation Company ("P&O") for the redevelopment of the former Shellhaven oil refinery site at Stanford-le-Hope into a commercial centre. The application included Environmental Statements.	Submission
15 February 2002	A partnership of P&O and Shell apply to the Secretary of State for Transport, Environment and the Regions, for an order under Section 1 of the Transport and Works Act 1992, for railway and related works at the Shellhaven site.	Application
27 May 2002	An appeal is lodged to the effect that Thurrock Council have failed to reach a decision on planning application 02/00084/OUT within the statutory time limit.	Referral
20 June 2002	The First Secretary of State calls in the planning application and Transport and Works Act order.	
26 July 2002	P&O apply to the Department for Transport for a Harbour Empowerment Order to establish a new harbour authority. The application included Environmental Statements.	Application
2003	Oxford Archaeology issue the cultural heritage assessment refinement report in respect of the outline planning application, to P&O.	Bates et al 2003
25 February 2003 to 5 September 2003	Public Inquiry into the proposed London Gateway.	Report
20 July 2005	The report arising from the Public Inquiry is published, recommending approval with conditions.	Approval with conditions
21 July 2005	Government issues "minded to approve" conditional approval for the development of the London Gateway.	Decision
30 May 2007	Outline planning application ref TH/02/00084/OUT is approved by the Secretary of State.	Decision
16 May 2008	The London Gateway Port Harbour Empowerment Order comes into force.	
5 July 2008	Planning permission granted to waive certain conditions of the outline planning permission.	Approval
6 December 2008	Planning permission granted to waive certain conditions of the outline planning permission.	Approval
2008	Oxford Archaeology issue the archaeological investigation report to the client, DB World.	Oxford Archaeology 2008
27 April 2009	Oxford Archaeology issue the trenching investigation report to DB World.	Carey and Donnelly 2009
2009	Oxford Archaeology issue the project design for archaeological mitigation to DB World.	Oxford Archaeology 2009a
2009	Oxford Archaeology carry out the fieldwork.	
2009	Oxford Archaeology issue the post-excavation assessment scoping report to DB World.	Oxford Archaeology 2009b
27 May 2009	Oxford Archaeology issue the geoarchaeological resources assessment to DB World.	Carey and Dean 2009
2009	Oxford Archaeology issue the preliminary assessment report for geoarchaeology and the palaeoenvironment to DB World.	Carey *et al* 2009
26 October 2010	Oxford Archaeology issue Volume 1 of the post-excavation assessment to the client.	Carey and Anker 2010
26 October 2010	Oxford Archaeology issue Volume 2 of the post-excavation assessment to the client.	Biddulph 2010
2012	Oxford Archaeology issue the final deposit model update for investigation of the sediments to the client.	Bates *et al* 2012

Table 9.17 Summary of the key stages, archaeological investigations and outputs for the coastal conservation works at Stanford Wharf Nature Reserve, London Gateway, Essex. (Continued)

Date	Events and investigations	Products / Outputs
2012	Oxford Archaeology post the unpublished final client report and full specialist post-excavation reports, online	Oxford Archaeology 2012
2012	Publication of the main report both on paper(Monograph:205pp; figures; tables; index) and online.	Biddulph *et al* 2012a; 2012b

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Bates, M, Bates, C, Cameron, N, Huckerby, E, Nicholson, R & Whittaker, J, 2012. *A Multidisciplinary Investigation of the Sediments at the London Gateway Site, Essex: Geophysics, Palaeo-environment and Dating. Final Deposit Model Update*. Oxford: Oxford Archaeology (Limited circulation printed report)

Biddulph, E (ed), 2010. *Stanford Wharf Nature Reserve, London Gateway, Stanford-le-Hope, Essex. Volume 2: Artefactual, Geoarchaeological and Palaeoenvironmental Appendices* [online]. Oxford: Oxford Archaeology. [Available from http://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-1352-1/dissemination/pdf/ Essex_grey_lit_reports/GL1044_COMPAPA_Vol02.pdf Accessed 29:11:2017]

Biddulph, E, Foreman, S, Stafford, E, Stansbie, D & Nicholson, R, 2012a. *London Gateway. Iron Age and Roman Salt Making in the Thames Estuary. Excavation at Stanford Wharf Nature Reserve, Essex. Oxford Archaeology Monograph No. 18*. Oxford: Oxford Archaeology.

Biddulph, E, Foreman, S, Stafford, E, Stansbie, D & Nicholson, R, 2012b. *London Gateway. Iron Age and Roman Salt Making in the Thames Estuary. Excavation at Stanford Wharf Nature Reserve, Essex. Oxford Archaeology Monograph No. 18* [online]. Oxford: Oxford Archaeology. [Available from: https://library.thehumanjourney.net/909/ Accessed 29:11:2017]

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Carey, C & Dean, R, 2009. *London Gateway, Compensation Site A. Geoarchaeological assessment of cultural and palaeoenvironmental resources* [online]. Oxford: Oxford Archaeology. [Available from: https://library.thehumanjourney.net/1652/1/COSAGE09.pdfA..pdf Accessed 29:11:2017]

Carey, C & Donnelly, M, 2009. *London Gateway Compensation Site A: Archaeological Trenching Investigation Report* [online] Oxford: Oxford Archaeology. [Available from: https://library.thehumanjourney.net/1652/2/COSAGE09_archived%20report_PdfA.pdf Accessed 29:11:2017]

Carey, C, Nicholson, R & Stafford, E, 2009. *London Gateway, Stanford-le-Hope, Essex, Compensation Site A Archaeological Investigation: Preliminary Post-excavation Assessment of Geoarchaeological and Palaeoenvironmental Samples (Microfossils, Soils and Sediments)*. Oxford: Oxford Archaeology (Limited circulation printed report)

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Oxford Archaeology, 2009a. *London Gateway Compensation Site A: Project Design for Archaeological Mitigation*. Oxford: Oxford Archaeology (Limited circulation printed report)

Oxford Archaeology, 2009b. *London Gateway, Stanford-le-Hope, Essex. Compensation Site A: Archaeological Investigation. Post-excavation Assessment Scoping Report*. Oxford: Oxford Archaeology (Limited circulation printed report)

Oxford Archaeology, 2012. *London Gateway: Iron Age and Roman salt making in the Thames Estuary. Excavation at Stanford Wharf Nature Reserve, Essex* [online]. Oxford: Oxford Archaeology. [Available from: https://library.thehumanjourney.net/909/ Accessed 29:11:2017]

Pinsent Masons, 2013. *Draft Agreement* [online]. London: Pinsent Masons. [Available from: https://www.thurrock.gov.uk/sites/default/files/assets/documents/ldo_report_making_20131023_app3.pdf Accessed 29:11:2017]

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these new insights gathered on a site-by-site, investigation-by-investigation basis change and enhance the big picture of England's past? Major achievements can certainly be seen already, and the process of stitching things together has only just begun. Mention may be made of just a few: palaeo-landscapes with long-vanished ancient river-systems, lakes, and coastlines hosting hunting camps and settlements before the last Ice Age; early post-glacial settlements with houses and lakeside platforms; long barrows and enclosures built by the first farmers in river valleys and lowland areas when they were generally assumed to be on hills and ridges; Neolithic houses across the landscape; the first copper and bronze objects circulating before 2000 BC with examples of familiar items found in secure archaeological contexts; close connections between Britain and the continental mainland, southwards to France, southeastwards into the Rhine Valley, and eastwards across the North Sea through the Neolithic and Bronze Age; the density of occupation across the landscape from about 1600 BC onwards; the scale of fieldsystems and agricultural production through the first millennium BC; the quality of the craft working; the nature of prehistoric boats; the impact of economic and political changes during the early first millennium AD; the emergence of village life; the scale of monastic settlement and influence on the landscape; the scale of early industrial production; and coming into the recent past the influence of the Enclosure Movement and the rapid development of towns and cities from the eighteenth century.

At a national level these advances are being recognised and woven into new accounts of the past (Thomas 2013a). Richard Bradley made extensive use of the results from commercial investigations in preparing his *The Prehistory*

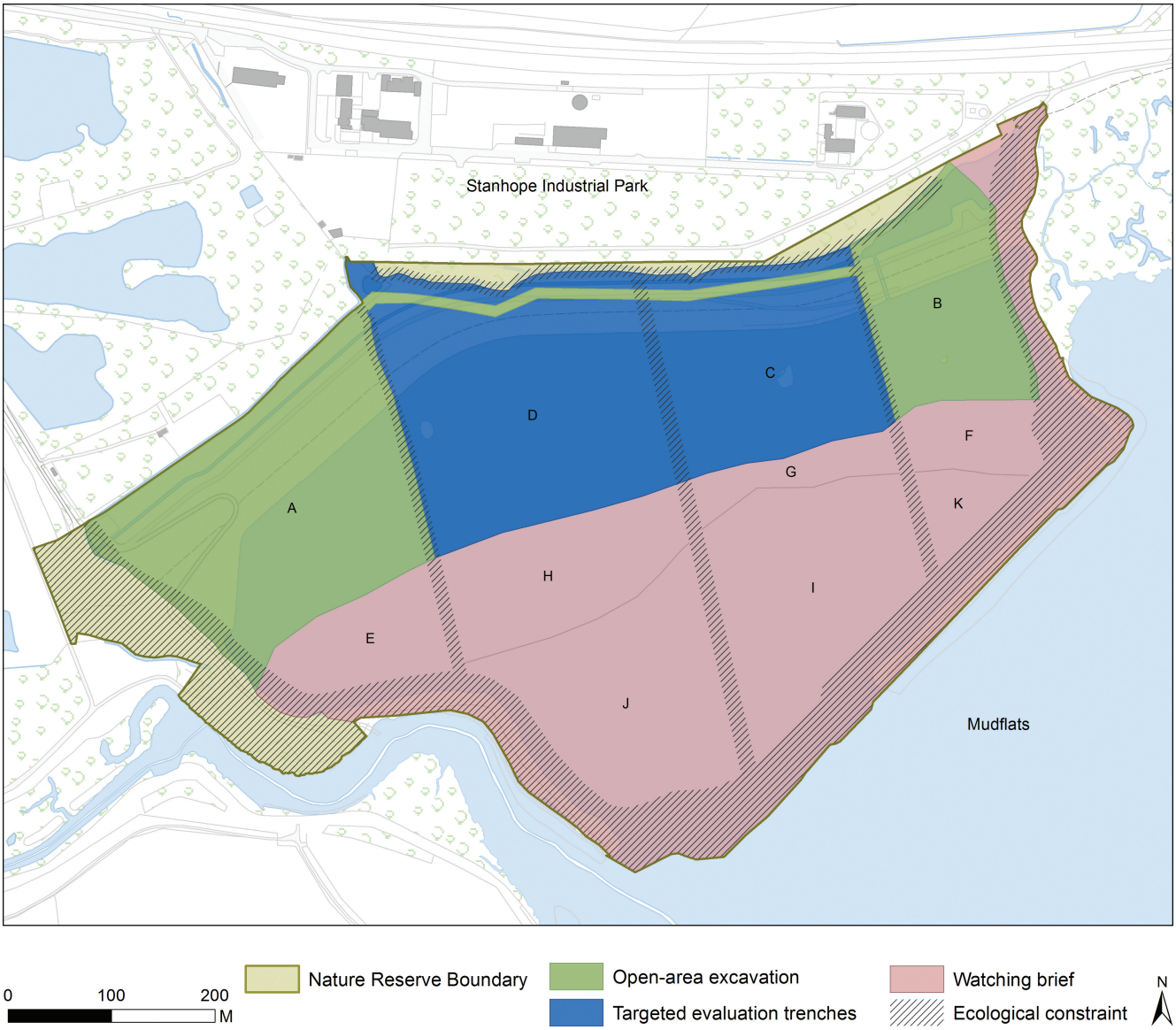

Figure 9.48 Plan showing the position and extent of archaeological investigations at Stanford Wharf Nature Reserve, London Gateway, Essex. (After Biddulph et al. 2012: Fig. 1.2)

of Britain and Ireland (2007), as did Timothy Darvill in preparing the second edition of *Prehistoric Britain* published at the end of the PPG16 Era (Darvill 2010). In both cases it is instructive to compare these works with earlier accounts by the same authors to see the difference (Bradley 1984; Darvill 1987b). One of the biggest successes has been in relation to the Roman period, where meticulous research draws on the results of around 6600 investigations that sampled Roman deposits between 1990 and 2004 (Fulford & Holbrook 2011a; 2011b; 2014). A series of regional pilot studies (Hodgson 2011; 2012; Holbrook 2010a; 2010b) established the methodology for looking at the national picture of Roman rural settlement, showing the importance and widespread distribution of non-villa settlements that range in size from single farmsteads through to nucleated villages and would have been home to more than 95 per cent of the population at the times (Bryant *et al.* 2017; Smith *et al.* 2016). Attention has also been given to the contribution of commercial archaeology to understanding Roman towns where work since 1990 has changed understandings of their origins, intramural structure, extramural associations, urban cemeteries, and the nature of urban life (Fulford 2015). For the Saxon and early medieval period John Blair has found deep roots to today's rural settlement patterns (Blair 2014). And on a very broad multi-period canvass the EU-funded English Landscape and Identity Project based in Oxford is working towards a new view of how the rural landscape developed (Gosden 2014).

At a regional level a great deal that has been learnt from over the past 20 years has fed into the resource

Table 9.18 The PPG16 Era through a hundred influential discoveries.

	Site	Date of investigation	Development Type	Discovery	Contractor
1	Wood Hall Moat, Womersley, Yorkshire	1988-2001	Extension of waste ash disposal site	Medieval moated manor house	North Yorkshire Archaeological Service, Wood Hall Moated Manor Project
2	Shapwick, Somerset	1989-1999	Research	History of a rural medieval settlement and a significant advance in community archaeology	University of Durham
3	Rose Theatre, London	1989-2001	Urban redevelopment	Foundations of the first Elizabethan theatre on London's Bankside and more than 700 objects and finds from Elizabethan audiences.	Museum of London, Rose Theatre Trust
4	Deal, Kent	1991	Housing development	Unusual Iron Age warrior burial – an adult male with a 'crown'	Canterbury Archaeological Trust
5	Sutton Hoo, Suffolk	1991	Research	Inhumation of a young man accompanied by his horse with fine harness fittings, c.AD600	University of York
6	Dover Boat, Dover, Kent	1992	Roadbuilding	Large plank-built wooden boat dated to 1575-1520 BC .	Canterbury Archaeological Trust
7	Arrington, Cambridgeshire	1992	Pipeline	Roman child burial with eight pipe clay figurines of deities and animals.	Cambridgeshire County Council Archaeology Section
8	Folly Lane, St Albans, Hertfordshire	1992	Housing development	Iron Age enclosure with princely burial and early Roman temple	St Albans Museums Field Dept
9	Guildhall Yard, London	1992	Urban redevelopment	London's Roman amphitheatre	Museum of London Archaeology Service
10	Coleorton, Leicestershire	1992	Extension of coal mines	Medieval coal mines dated to 1450-1463 using pillar and stall working	John Crocker and Robert Hartley, Leicestershire Museums Service
11	Bestwell Quarry, Wareham, Dorset	1992-2005	Gravel extraction	Roman pottery workshops with prehistoric settlements.	Wareham and District Archaeology and Local History Society, AC Archaeology
12	Canterbury, Kent	1993	Building repairs	Anglo-Saxon church below Canterbury Cathedral, possibly original church of St Augustine	Canterbury Archaeological Trust
13	Tetney, East Lindsey, Lincolnshire	1993	Infrastructure	Bronze Age salt works c.800 BC	Lindsey Archaeological Services
14	Boxgrove, West Sussex	1993-1996	Gravel extraction	Lower Palaeolithic flint working debris and human remains dated to c.500,000 BC	Institute of Archaeology, University College London

Table 9.18

	Site	Date of investigation	Development Type	Discovery	Contractor
15	Elms Farm, Heybridge, Essex	1994	Housing development	Roman temple and small town	Essex County Council Field Archaeology Unit
16	Lockington, Leicestershire	1994	Roadbuilding	Bronze Age round barrow cemetery with hoard of Early Bronze Age objects	Birmingham University Field Archaeology Unit
17	Down Farm, Dorset	1994	Research	Natural doline 25m+ deep with deposits and use from the Mesolithic to the late Neolithic.	Martin Green
18	Hampton Court, London Borough of Richmond upon Thames	1994	Restoration and monument management	Excavation of the Tudor Privy gardens.	Oxford Archaeology
19	Thornborough, North Yorkshire	1994-2003	Gravel extraction	Extensive Neolithic monument complex with double pit alignment	University of Newcastle Upon Tyne
20	Buckland, Dover, Kent	1995	Housing development	Anglo-Saxon cemetery of 250 graves dated AD 475-750	Canterbury Archaeological Trust
21	Eton Rowing Lake, Dorney, Hertfordshire	1995	Sport facilities	Bridges across the River Thames, the earliest from c.1300 BC with nearby barrows, settlements and fieldsystems.	Oxford Archaeological unit
22	Catterick Racecourse, North Yorkshire	1995	Gravel extraction	Roman amphitheatre	North Yorkshire Archaeology Service
23	Wollaston, Wellingborough, Northamptonshire	1995	Gravel extraction	Roman vineyard	Northamptonshire Archaeology; University of Exeter; & University of Leicester
24	Monkton, Kent	1995	Roadbuilding A253	A Roman 'grubenhaus' village, dated to second century AD but similar to the fourth century Anglo Saxon style	Canterbury Archaeological Trust
25	Mellor, Greater Manchester	1995-2004	Research	Previously unknown Iron Age hillfort discovered.	University of Manchester
26	Stanway, Colchester	1996	Gravel extraction	Roman doctor's grave	Colchester Archaeological Trust
27	Regis House, London	1996	Urban redevelopment	Roman quay dated AD 63-4	Museum of London Archaeology Service
28	Towton, North Yorkshire	1996	Housing development	War grave from battle in 1461	West Yorkshire Archaeology Service
29	Heathrow Terminal 5, London	1996-2000	National infrastructure improvement	Neolithic long mound (Stanwell Cursus) sampled, part of a monument originally more than 3.6km long.	Framework Archaeology
30	Silchester, Hampshire	1997	Research	Excavation of insula IX revealing the development from the later Iron Age through to the late Roman period.	University of Reading

Table 9.18 The PPG16 Era through a hundred influential discoveries.(Continued)

	Site	Date of investigation	Development Type	Discovery	Contractor
31	Lakenheath, Suffolk	1997	Redevelopment of airfield	Cemetery of 261 inhumations and 17 cremations, including an Anglo-Saxon warrior and his horse.	Suffolk County Council Archaeological Service
32	Ramsgate Harbour, Kent	1997	Roadbuilding	Neolithic causewayed enclosure	Canterbury Archaeological Trust
33	Gayhurst, Northamptonshire	1997-2002	Gravel extraction	Bronze Age Barrow cemetery with seven mounds, the largest was double-ditchedwith the mound covered with the bones of more than 600 cattle about 2000 BC.	Northampton Archaeology
34	Little Quoit Farm, St Columb Major, Cornwall	1998	Pipeline construction	Third-fourth century round occupied by a metalworker	Cornwall Archaeological Unit
35	Bayston Hill, Shropshire	1998	Gravel extraction	Iron Age road reused by the Romans	SLR Consulting
36	Testwood, Hampshire	1998	Reservoir construction	Middle Bronze Age bridge, 26m long.	Wessex Archaeology
37	Bouldnor Cliff, Solent	1998-2010	Erosion	Submerged land surface dated to c. 6000 BC	Hampshire and Wight Trust for Maritime Archaeology
38	Seahenge, Norfolk	1999	Coastal erosion	Timber circle with central up-turned root-plate. Dated to 2049 BC	Norfolk Archaeological Unit
39	Beckhampton, Avebury, Wiltshire	1999	Research	Rediscovery of prehistoric stone avenue.	University of Southampton
40	Wanborough, Guildford, Surrey	1999	Looting & Monument management	Circular temple of the 1st century AD with priest's head-dress, remains of a coin hoard	Surrey Archaeological Society
41	Royal Hospital, Greenwich, London	1999-2001	Redevelopment	Cemetery of the Royal hospital providing a snap-shot of the lives of ordinary seamen who formed Nelson's navy.	Oxford Archaeology
42	Whitefriars, Canterbury, Kent	1999-2004	Urban development	Medieval town and Augustinian Friary	Canterbury Archaeological Trust
43	White Horse Stone, Kent	2000	Channel Tunnel Rail Link	Early Neolithic timber long house dated to c.3900BC	Oxford Archaeology
44	Hallaton, Leicestershire	2000	Treasure report	Late Iron Age shrine with evidence of feasting and deposition of a fine Roman cavalry parade helmet	University of Leicester Archaeological Services
45	Byker, Newcastle-upon-Tyne	2000	Urban redevelopment	Three lines of pits believed to represent the remains of planting holes for bushes or thickets on the berm immediately north of Hadrian's Wall.	Tyne and Wear Museum Archaeology Department

Table 9.18

	Site	Date of investigation	Development Type	Discovery	Contractor
46	Howick, Northumberland	2000-2002	Coastal erosion	Mesolithic house dated to c.7800 BC, with evidence for possible permanent habitation	University of Newcastle Upon Tyne, University of York
47	Wetwang, East Yorkshire	2001	Housing development	Iron Age grave of a woman and her chariot	The Guildhouse Consultancy, British Museum
48	Gresham Street, London	2001	Urban development	Roman waterworks	Museum of London Archaeology Service
49	Milk Street, London	2001	Urban redevelopment	A mikveh, a Jewish ritual bath, built in the mid thirteenth century	Museum of London Archaeology Service
50	Poole Harbour, Dorset	2002	Research	Iron Age jetty	Bournemouth University & Poole Bay Archaeological Research Group
51	Lynford Quarry, Munford, Norfolk	2002	Gravel extraction	Neanderthal butchery site	Norfolk Archaeological Unit
52	Amesbury, Wiltshire	2002	Housing development	'Amesbury Archer' – a Beaker grave with large collection of archery equipment and copper and gold objects dated to c.2300 BC.	Wessex Archaeology
53	Foster's Field, Sherborne, Dorset	2002	Housing development	Bronze Age pottery manufacture	Exeter Archaeology
54	Tabard Square, Southwark, London	2002-2003	Urban redevelopment	Roman occupation with two temples; a pot of cosmetic cream and an inscription containing the place name 'Londiniensi' placed in the bottom of a shaft in the fourth century AD.	Pre-Construct Archaeology
55	The Highway, Shadwell, London	2002-2003	Urban redevelopment	Large Roman bath-house	Pre-Construct Archaeology
56	Hartshill Quarry, Berkshire	2002-2003	Gravel extraction	A small round house settlement dated to c.1000 BC, one with evidence of ironwork within it: the earliest ironworking known in Britain.	Cotswold Archaeology
57	Creswell Crags, Derbyshire	2002-2003	Research	Palaeolithic cave art of animals	Paul Bahn
58	Ringlemere, Sandwich, Kent	2002-2006	Treasure report	Neolithic henge in which a gold cup was deposited, succeeded by a Bronze Age Barrow Cemetery with nine barrows.	British Museum and Canterbury Archaeological Trust
59	Syon Park, Isleworth, Middlesex	2003	Research	England's only Bridgettine monastery	Time Team
60	Prittlewell Chamber Tomb, Southend, Essex	2003	Road widening	Intact Anglo Saxon walled grave containing high status objects of gold, silver, copper and iron, including a lyre.	Museum of London Archaeology Service

Table 9.18 The PPG16 Era through a hundred influential discoveries.(Continued)

	Site	Date of investigation	Development Type	Discovery	Contractor
61	A1(M) and M62 junction at Ferry Fryston, West Yorkshire	2003	Roadbuilding	Rare Iron Age complete chariot burial within a square barrow	Oxford Archaeology
62	Boscombe, Wiltshire	2003	Pipeline	Mass grave of seven Beaker-using adult males dated to c. 2300 BC	Wessex Archaeology
63	Conesby, Lincolnshire	2003	Industrial reclamation	Medieval moated manor built by the d'Arcy family in the late thirteenth century. Recovered from underneath a slag heap.	Humber Field Archaeology
64	Fylingdales Moor, North Yorkshire	2003	Natural erosion	Extensive fires prompted extensive erosion of peaty soils leading to the discovered of rock art and numerous later features including hunting stands.	English Heritage and Blaise Vyner
65	Silbury Hill, Wiltshire	2003-2007	Monument management	Large Neolithic mound built around 2400 BC over an earlier circular ditched enclosure.	English Heritage
66	Lanton Quarry, Northumberland	2003-2009	Gravel extraction	Anglo-Saxon village with four timber halls and seven sunken floor buildings.	Archaeological Research Services
67	Catterick Racecourse, North Yorkshire	2004	Rural commercial	Neolithic enclosure with two rings of timber palisade, the outmost 200m across with an estimated 1160 posts.	Durham University Archaeological Services
68	Princes Channel, Thames Estuary	2004	Dredging	Part of an armed Elizabethan merchant ship carrying iron bars	Wessex Archaeology
69	Ebbsfleet, Kent	2004	HS1 Construction	Remains of an elephant and other large animals surrounded by flint tools indicative of butchery. Dated to 400,000 BC.	Oxford Archaeology
70	Boscombe, Wiltshire	2004	Housing development	Pit circle 50m in diameter comprising well-spaced postholes, stone sockets and pits. Late Neolithic.	Wessex Archaeology
71	Colchester, Essex	2004	Housing development	Roman circus, 448m long and 74m wide.	Colchester Archaeological Trust
72	Corbridge, Northumberland	2004	Research	Stone bridge abutment on the south side of the River Tyne, part of the Roman bridge that carried Dere Street across the river.	Tyne and Wear Museum Archaeology Department

Table 9.18

	Site	Date of investigation	Development Type	Discovery	Contractor
73	Happisburgh-Pakefield, Norfolk	2004	Coastal erosion	Palaeolithic land surfaces with evidence of early humans	AHOB Project, University College London
74	London Road, Gloucester, Gloucestershire	2004	Housing development	Roman cemetery with 91 burials dated to the late second century AD in a large pit - a plague pit? - with two broken tombstones.	Oxford Archaeology
75	Must Farm, Cambridgeshire	2004	Quarrying (Clay)	A Beaker period house from c.2200 BC with later Bronze Age riverside platforms and six boats from the late Bronze Age.	Cambridge Archaeological Unit
76	Rudgeway Lane, Walton Cardiff, Tewkesbury, Gloucestershire	2004-2005	Houseing development	Levelled low-lying long barrow with later deposits in an area of later prehistoric and Roman settlement,	Cotswold Archaeology
77	Chester Roman Amphitheatre, Chester, Cheshire	2004-06	Roadbuilding	Largest Roman amphitheatre in Britain dated to the first to third century AD	English Heritage, Chester City Council
78	Swash Channel, Poole Harbour, Dorset	2004-2010	Dredging 2004-10	Seventeenth century vessel with elaborately carved rudder.	Wessex Archaeology & Bournemouth University
79	Grand Union Canal, Paddington, London	2005	Road improvements	Salvage of iron bridge built by Brunel in 1838	Hochteif PLC, Westminster City Council, English Heritage
80	Burlescombe, Devon	2005	Sand quarrying	Iron Age well with a preserved leather shoe, the earliest so far known in Britain	Exeter Archaeology
81	Shoreditch Park, London	2005	Research	Twentieth century housing levelled after the Second World War.	Community Archaeology Group
82	Girton Quarry,	2005	Gravel extraction	Burnt mound complex with surviving wooden water tank dated to c.900 BC	Trent and Peak Archaeological Unit
83	M25/A2 Junction, Kent	2006-2008	Road improvements	Buried Pleistocene land surface with traces of occupation dated to 115,000-90,000BC culturally Neanderthal technologies.	Oxford Archaeology
84	Hungate, York	2006-2011	Urban redevelopment	Roman cemetery with richly furnished graves	York Archaeological Trust
85	Minton Factory, Stoke-on-Trent, Staffordshire	2007	Urban redevelopment	Early kiln from the Minton china factory and three from a later earthenware factory.	Stoke-on-Trent Archaeology Service
86	Silbury Hill, Wiltshire	2007	Monument management	Extensive Roman settlement south and east of the prehistoric mound.	English Heritage

Table 9.18 The PPG16 Era through a hundred influential discoveries.(Continued)

	Site	Date of investigation	Development Type	Discovery	Contractor
87	Kent Street, York	2007-2008	Urban redevelopment	Church of All Saint's rediscovered along with a mass grave containing soldiers of Cromwell's Army from the Civil War.	On Site Archaeology
88	Radial 64, Washington, Tyne and Wear	2008-2012	Industrial redevelopment	Post-medieval waggon-ways and colliary infrastructure	Pre-Construct Archaeology
89	Vindolanda, Bardon Mill, Northumberland	2008	Research & monument management	Roman fort on Hadrian's Wall with exceptional preservation of wooden tablets and part of an anaphoric water clock or peg-calendar.	Vindolanda Trust
90	Cheviot Quarry, Northumberland	2008	Gravel extraction	Three dark-age timber halls on a site with Neolithic and Bronze age use	Archaeological Research Services
91	Stonehenge Riverside Project, Wiltshire	2008	Research	Dating monuments in the Stonehenge landscape with discovery of a settlement are at Durrington Walls and a henge at West Amesbury	Universities of Sheffield, Bristol, Manchester, Bournemouth, UCL
92	Stonehenge, Wiltshire	2008	Research	Sampling the out Bluestone Circle and Sarsen Circle within Stonehenge.	Bournemouth University
93	Stainton West, Carlisle, Cumbria	2008	Road improvement scheme	Palaeochannel of the River Eden preserving waterlogged deposits from the later Mesolithic to the early Bronze Age including a range of wooden artefacts.	Oxford Archaeology North
94	Kingsmead Quarry, Horton, Berkshire	2008-2010	Gravel extraction	Two early Neolithic long houses	Wessex Archaeology
95	Farndon Fields, Newark on Trent, Nottinghamshire	2009	Road improvement	Upper Palaeolithic Creswellian flint kanpping area, c.13,000-10,700 BC	Cotswold-Wessex Archaeology
96	Weymouth, Dorset	2009	Roadbuilding	Mass grave dated to AD 890-1034, resulting from the mass execution of 51 adult males, possibly Viking war captives.	Oxford Archaeology
97	Belmarsh Prison, London	2009	Urban redevelopment	Timber trackway dated to c. 4000 BC	Archaeology South east
98	Staffordshire Hoard, Hammerwich, nr Lichfield	2009-2010	Treasure report	Collection of 1346 items of gold and silver from the late sixth to eighth centuries AD.	Staffordshire County Archaeology, Birmingham Archaeology
99	Rochester Cathedral, Kent	2010	Conservation work	Late eleventh century door	Keevill Heritage Ltd
100	All Saint's Academy, Cheltenham, Gloucestershire	2010	Construction of new school buildings	Anglo-Saxon timber hall 11m long, the most westerly of its kind so far known	Cotswold Archaeology

assessment sections of the regional Research Frameworks commissioned by English Heritage between 2000 and 2005. Research Frameworks for two World Heritage Sites in England have also drawn heavily on the results of commercial archaeology and recent research projects within and around the designated areas: Stonehenge and Avebury (AAHRG 2001; Darvill 2005; 2017) and Hadrian's Wall (Symonds & Mason 2009). Some regional and county-level studies have been published that, like their national counterparts, demonstrate the changing picture of the past in each area as a result of commercial activities, for example in Gloucestershire (Holbrook & Juřica 2006) and Cornwall (Rose 2011).

Thematic studies, some of which are diachronic, also depict revised understandings. One of the most successful is the series of volumes summarising the *Thames Through Time* (Lambrick *et al.* 2009; Morigi *et al.* 2011). Taking a fairly broad definition of the landscapes through which England's longest river flows, these well-illustrated accounts focus especially on results from investigations connected with mineral extraction and rural development for industry and housing all the way from the edge of the Cotswolds in Gloucestershire in the west to the river estuary and Thames Gateway in the east. Other kinds of thematic study drawing on results from particular development types, for example aggregates (Brown 2009) and road schemes (Alexander 2011) have been discussed above.

Common to all these studies is the making of connections between individual data-sets to create pictures that are greater than the sum of their parts. There has been criticism that commercial archaeology is overly site-based and that it cannot itself determine which sites are studied and which are not (*see* Fulford & Holbrook 2011a: 340). This is partly true, although results from large-scale infrastructure projects, pipelines, and roadbuilding work do tend to leaven the necessarily more geographically restricted results from small-scale investigations. The key perhaps lies in seeing investigations as a series of one or more data-collecting 'events' that take place within infinitely scalable geographical units or 'sites'. GIS technologies allow 'sites' of all shapes and sizes to be stitched together in space and populated with data from any number of different 'events'. As Thomas has argued (2013b), large development-led investigations can help bridge the gaps in scales between point-data and landscape-scale surveys, confirming or revising the existence of 'blank' areas which contain few archaeological remains but which would have been important elements in the landscape as experienced by those living in it. Such analyses are already proving instructive in landscapes where numerous events have taken place, often by different organisations and at different times, such as in the upper Thames Valley where gravel extraction in particular provides detailed pictures of changing landscapes (Morrison *et al.* 2014; Thomas *et al.* 2015).

Impact: making the most of the past

In the early years of the PPG16 Era much attention was focused on the way that the new approaches consolidated in the planning guidance impacted on the planning system and on the development process. Impact in this sense was seen as the actions of archaeology coming forcibly into contact with these other two traditions. A study prepared by Pagoda Projects for English Heritage in 1992 based on interviews and written submissions looked at the impact of PPG16 on archaeology and planning (Pagoda Projects 1992). It concluded that a positive impact had been achieved in two key areas: that local planning authorities across England had embraced the ideas set out in PPG16 and that the archaeological significance of virtually all planning applications in England was properly considered; and that larger developers accepted the importance of early consultations and assessments in advance of determining planning applications. Negative impacts were also noted, including: increased workloads for county archaeologists; the need for improved briefs and specifications to ensure fair competition between contractors bidding for work; poor feedback from local planning authorities to county archaeologists; and a poor knowledge of the system amongst smaller developers.

Ten years later a study of the impact of archaeology in property development in the City of London found that some or all of these issues had been overcome, or at least were by that time less problematic, with developers believing the elements of risk associated with the need for archaeological investigations were containable within acceptable limits with suitable forward planning (Corporation of London 2001: 1). The greatest concern by developers was in regard to delays on their projects and the effects of the possible loss of floorspace as a result of preservation strategies. Interestingly, no developers included in the study believed that archaeology added any direct financial value to their developments, but several admitted using archaeological associations in their marketing material and drawing attention to the way in which archaeology enhanced the general working environment (Corporation of London 2001: 24–25).

Valuing archaeological resources to society in general, and specific elements of them in relation to conservation and preservation strategies was the subject of considerable interest through the early years of the PPG16 Era (Briuer & Mathers 1996; Carver 1996; Darvill 1995; Darvill *et al.* 1987; Deeben *et al.* 1999; Lipe 1984). Adding value in economic and social terms became the focus of impact studies through the later 2000s. The public value of archaeological work measured in terms of what the public cares about was one approach that had wide appeal (Clark 2006a). By creating value 'upstream' for those who provide the resources and 'downsteam' for the people interested in what was found, archaeology could be involved in making heritage in its most general sense a highly desirable practice

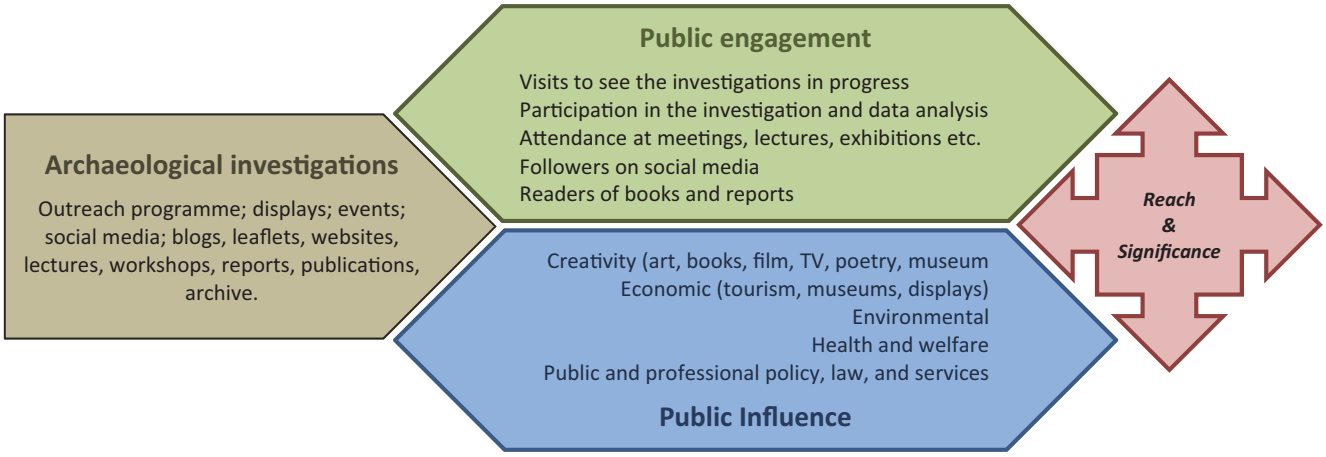

Figure 9.49 Model of archaeological impact through engagement and influence resulting from outreach programmes associated with archaeological investigations.

that can bring specialists and communities together. Intrinsic values and instrumental values underpin the negotiation of benefits and along with institutional values provide a framework for analysing the benefits of heritage (Hewison & Holden 2006). The Southport Group's review of delivering benefits from planning-led investigations in the historic environment focused on the matter of partnership, and took an instrumentalist approach in which the process of archaeological research becomes the vehicle for achieving public benefit. They created a vision in which managing the historic environment should be a partnership between communities and local authorities, and that investigations of all kinds should include appropriate provision for public participation (Southport Group 2011: 29).

Trying to measure the success of such approaches is far from easy. In looking fairly widely at the values and benefit of heritage, the HLF considered a range of quantitative indicators including 'willingness to pay' models visible, for example, through property prices, donating money to heritage causes, and taking part through trips, visits and participation (Maeer *et al.* 2012: 3–12). They also looked at more qualitative indicators in relation to social and economic benefits, all of which showed high levels of commitment and interest in heritage matters.

Econometric approaches are one approach to thinking about impact. But in the last few years impact has also come to have a different and more general meaning that sits more comfortably with both planning-led and non planning-led archaeological endeavours: the effect or influence of the results from archaeological investigations on the archaeological community and, more importantly, on other communities. A session at the Institute for Archaeologists Annual Conference in Birmingham in spring 2013 opened up some of these areas for discussion, especially making the most of the results obtained from developer-funded excavations, improving project management to help measure impact, using images to generate visual impact, links to the idea of the 'Big Society', and creating social value amongst local communities (Powers 2013). Similar themes were explored in a special feature on impact in the 2014 edition of *Heritage Counts* (Clayton *et al.* 2014: 2–19), which includes a useful selection of facts and figures on public engagement. And clarification of the arm's-length relationship between the production of knowledge and its consumption in ways that indicate impact can be found in the documentation for the 2014 Research Excellence Framework survey of impact relating to research carried out in UK universities. Here impact was defined as 'an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life' (REF 2012: 26). Axiomatic to such thinking is that impact may not be direct or linear, that it can be seen at many different levels – local, regional, national, international – and that beneficiaries may include individuals, communities, organisations, or the environment. Impact may be assessed in terms of its 'reach' (the extent and diversity of the beneficiaries affected) and its 'significance' (the degree to which work has enriched, influenced, informed, or changed policies, opportunities, perspectives or practices).

Applied to archaeology, and the impact of archaeological investigations, such an approach can best be visualised as a binary system in which a range of outputs, products, and opportunities are afforded from within the project but then picked up and used by beneficiaries in communities outside the project. Figure 9.49 provides a diagrammatic representation of such a model, with reach and significance being the scales along which impact is measured. Looking at the achievements of archaeology beyond the immediate workings of the profession and the internal consumption of outputs within the PPG16 Era six potential dimensions of impact can be proposed:

Figure 9.50 Sculpture of an early Bronze Age axe by artists Angela Cockayne and Robert Fearns set up at Old Sarum, Wiltshire, in 2010. (Photograph by Timothy Darvill. Copyright reserved)

- Public engagement
- Creativity, culture and society
- Economic, commercial, and organisational
- Environmental
- Health and welfare
- Public and professional policy, law and services

Engagements with all of these can be seen across England during the PPG16 Era. Public engagement is by far the most visible (Binks *et al.* 1988). Direct public engagement through visiting sites, viewing excavations, and participating in the work of data recovery and analysis is strong but as the Southport Group review emphasises, could be improved. Indirect public engagement through social media, project websites, exhibitions, displays at the development site itself, and contributions to long-term displays in museums and heritage centres have a long history of successful deployment in archaeology. HLF funding has contributed much to support the refurbishment of museums, galleries, and heritage centres while the growth of community archaeology provides new opportunities for participation.

Creativity in the use of archaeological images, themes, theories, and ideas abound. From the numerous television and radio programmes across public and commercial broadcasters to the many accounts in newspapers and magazine, archaeology has never been better represented in the media than over the last 20 years and it is extraordinary how many discoveries and new theories go global in their reach as the excavations at Sharpstone Hill, Shropshire, in 2009 showed (Malin 2012). Books picking up archaeological subjects are common, from Francis Pryor's *The Lifer's Club* (2014) based on his experiences digging in the Fens through the whole genre of novels based on Stonehenge and theories about its use, well exemplified by Sam Christer's *The Stonehenge Legacy* (Christer 2011). And works of art based on excavated remains are surprisingly well distributed, especially on roundabouts and beside roads where they can easily be seen: the huge replica of an early Bronze Age metal axe at Old Sarum, for example, was designed and made by artists Angela Cockayne and Robert Fearns to set beside an adjacent housing estate development by Persimmon Homes in 2010 (Figure 9.50). The documentary drama entitled 'Unearthed' performed at the New Vic Theatre in Newcastle-under-Lyme in July 2015 was based on the discovery and analysis of the Staffordshire Hoard. All these works, and many other besides, stimulate or encourage new ways of thinking about the past.

Economic, commercial and organisational impacts can be seen through tourism, the popularity of paid-for guided tours and themed holidays, crowd-sourced funding for investigations that also offer the chance to participate, and the replica and souvenir industry. According to an HLF survey at the end of the PPG16 Era in 2010, heritage tourism contributed £4.3b to the UK economy and engaged 113,000 employees (Oxford Economics 2010: 3–4).

Environmental beneficiaries include much of the work around the coast and in National Parks where archaeological insights help development conservation programmes and inform management plans. Health and well-being are emerging fields where the impact of archaeological work could be considerable in relation to therapeutic landscapes (Williams 2007). Public and professional policy, law, and services may be represented as the contributions to

environmental impact assessments, strategic environmental assessments, and multi-disciplinary management plans. The inclusion of cultural heritage in the redrafting of the legislation on National Parks and AONBs during the 1990s has enriched the scope of both designations.

Archaeology and the discoveries and insights arising from a wide range of investigations is exciting and interesting: it is a creative science that stimulates the imagination. Communicating results to the wider public as well as professional audiences is central, and in this the revolution in information technology that accompanied archaeological changes through the PPG16 Era has been, and continues to be, absolutely critical.

Chapter 10

Beyond PPG16: Towards 2020

Between 1990 and 2010 the overall number and scale of archaeological investigations in England increased considerably, reaching a peak in 2007 of around 5300 recorded events across the country. However, differences can be recognised in the profiles achieved by particular kinds of investigation. Traditional areas of activity focused around research investigations, and surveys and excavations by private individuals and amenity societies, remained fairly stable throughout the PPG16 Era, and at a relatively low level. Likewise, investigations directly connected with work in designated areas and at protected sites. The major change was in relation to planning-related, development-led, work. The shift from re-active rescue archaeology based on preservation by record to pro-active conservation archaeology based on informed decision-making and the selection of management options from a menu that included preservation, protection, and investigation alone or in combination changed the philosophy and practice of archaeology. The long-held aim of embedding archaeology into the town and country planning system, which can be traced back into the 1960s, if not earlier, was fully realised with the publication of PPG16 in 1990 and strengthened by PPG15 in 1995. A staged archaeological process leading from the inception of a development proposal through to the completion of a final report on the results of the investigations sat comfortably alongside the incremental progression of property development, and also mirrored the way that archaeological projects traditionally unfolded from survey and trial-trenching to analysis and publication.

The Archaeological Investigations Project provides a record of the changing pattern of archaeological investigation from this transitional period and on through the PPG16 Era, details of which have been discussed and contextualised in earlier chapters. Exciting new discoveries allow original compelling stories to emerge from these investigations and contribute to the growing knowledge economy. But what have we leant? Ten key themes can be recognised:

1. There is growing appreciation of the value of planning-related archaeology, and we have become more comfortable dealing with the approaches used in such work and the nature of the results and outputs. There is, however, still some way to go when it comes to achieving a wide understanding across the profession of how commercial archaeology works within the planning system, the breadth and scale of its operations, and the constraints and opportunities that exist.
2. The best model of planning-related archaeology is that of punctuated equilibrium whereby the basic flow of work is fairly steady but there are periods, sometimes hard to see coming, of increased activity. These are closely related to social, economic, and political drivers, with marked variations in the magnitude and impact of swings in the level of activity in different parts of the county. London and the southeast of England see relatively few dips in the level of activity, but parts of the north and west are highly sensitive to periods of recession and low levels of investment. There is work to do developing long-term foresight strategies that better anticipate periods of growth and contraction.
3. Archaeological work-loads in the commercial sector are intimately tied to the processes and systems used by the property development and construction industries, especially their articulation with broader economic trends and market forces. At periods when construction work declines it can be expected that preparation studies take over as the main area of activity.

4. Only a small proportion of development activity as defined by the town and country system is subject to detailed archaeological investigation, the focus of attention being not only the scale of the project but also the sensitivity of the areas in which proposed works will take place and the impact of proposed works on recorded archaeological deposits. There is more to do here in relation to deposit modelling and predicting sensitivity and potential, work that will require close attention to negative evidence as well as positive evidence (see Carey *et al.* 2018).
5. Efforts directed towards recording archaeological activity have done well in tracking and monitoring pre-determination investigations. The reason is that completed outputs are required fast and to conventional standards for submission as part of planning applications or applications for consent to carry out works in protected areas or at designated sites. No such imperative applies to post-determination work unless it is self-imposed or defined by contractual obligations. The planning system is weak in relation to signing-off the final reports produced as a result of conditions or obligations. When visited by AIP researchers between 1990 and 2010, no systematic record of completed and outstanding projects appeared to exist in any local planning authority, although that might have improved in some places over the past decade. The longitudinal tracking of projects needs to be encouraged so that all the separate elements from preliminary studies through to the final report (in whatever format is deemed appropriate) and the deposition of the project archive can be identified and linked together.
6. There is a lot of research undertaken outside of the planning system that is poorly documented or simply unreported. This is mainly undertaken by amenity societies, amateur groups, community groups, as student projects, and by university departments and colleges as training exercises and/or research activity. Some of it is experimental or developmental. Self-reporting is the only way such projects currently come to wider attention. Some counties are well served by annual round-ups published in journals and newsletters, but coverage is patchy and there is little consistency of approach. Nationally, the long tradition of summary reporting in *Britannia* means that Romano-British archaeology is probably the best documented period in terms of basic knowledge about what is being found where, although the coverage in *Medieval Archaeology* and *Post Medieval Archaeology* is also excellent. Nothing comparable exists for prehistoric archaeology.
7. Environmental assessment is a growth area that archaeology has been slow to adapt to. Traditional methods, mainly flat descriptions of recorded heritage assets, are the norm, with little new work to develop appropriate comparative valuation techniques, whether for strategic environmental assessment or for environmental impact assessment. Some of the work done by English Heritage in connection with the identification and analysis of monument importance for the Monuments Protection Programme may be relevant to the development of stronger inputs to environmental assessment (Darvill *et al.* 1987; Fairclough & Chitty 1996; Startin 1993).
8. Project-based funding schemes and management systems mean that documentation relating to particular programmes gets lost or put aside at the end of the work. If it is not recorded and archived immediately it is often hard to track down later. This has been a particular problem during the PPG16 Era as conventional hard-copy records and outputs have been superseded by digital documentation. It is not only a problem in the archaeological world; finding planning reports, environmental statements, and documentation that records the progress of projects through the system is less than easy as some of the case studies discussed in Chapter 9 clearly demonstrate. Increased use of digital technology may help, but regular house-keeping of websites means that attachments and referenced documents disappear all too easily as they are deemed obsolete. Commensurately, a lack of regular house-keeping means that some websites are out of date and incomplete. Capturing endeavours as they unfold and archiving work at each step of the way remains the only sure way of creating a secure record of work undertaken. Further guidance on the creation, long-term curation, security, and accessibility of incrementally accumulating digital archives is needed. Attention also needs to be given to finding the resources to curate robust and resilient digital archives for long-term accessibility.
9. The volume of archaeological endeavour in England is now so great, and the outputs so diverse, that even with good indexing and easy access to reports, attempts at large-scale synthesis are truly Herculean, requiring time, resources, and particular sets of intellectual skills. There is widespread recognition of the need for synthesis and overviews. But training in such work is as important for the future of the discipline as training in field-skills; providing opportunities for worthwhile extensive synthesis is also an issue that needs addressing.
10. Archaeology is a fast-moving and dynamic discipline that has changed a lot over less than a quarter of a century. Recognising that it is no longer a singular endeavour directed only towards the creation of narrative accounts of the past is not always easy. Embracing the variety of contributions that can now be made both to the expansion of new kinds of knowledge and to the realisation of social value from the heritage is an exciting and invigorating prospect for those prepared to try.

In the remainder of this chapter attention focuses on building out from some of these themes, looking forward towards 2020 and the thirtieth anniversary of PPG16. In doing so it has to be recognised that over the period covered by this study the UK was a member of the European Union, and that what has happened here was intimately bound up with social, political, and economic policy across Europe. First then, a brief consideration of the broader international context of investigations in England is appropriate, although what might happen in the light of the ongoing Brexit negotiations is currently an open question. The changing nature of the various environments that archaeology in England interacts with is then reviewed before the focus shifts to the way that projects and publications fit together. In a final section the case is made for building on the success of the AIP to capture snap-shots of changing patterns investigation in England in years to come.

International perspectives

During the PPG16 Era the European Union expanded from 15 member states in 1990 to 28 in 2010. Over the same period the Treaty documents at the heart of its governance were revised and amended four times from the Schengen Treaty, in force from 1985 through Maastrict (1992), Amsterdam (1997), Nice (2001), and finally the Lisbon Treaty adopted in 2007 and brought into force in 2009. Cultural heritage has been a visible integrative element throughout; the most recent amendment ratified in the Lisbon Treaty states that the Union 'shall respect its rich cultural and linguistic diversity, and shall ensure that Europe's cultural heritage is safeguarded and enhanced' (EC 2007: Article 2). It is a principle endorsed by the more recently published conclusions on cultural heritage as a strategic resource for a sustainable Europe (EC 2014a). In practice it is the Council of Europe, a regional intergovernmental organisation founded in 1949 and now comprising 47 member states, that co-ordinates action at the European level on archaeology and cultural heritage through its Department of Culture, Heritage and Diversity. That, in turn, is advised by the Steering Committee on Culture, Heritage, and Landscape (CDCPP) and, since 1999, its actions and conventions are monitored by the European Cultural Heritage Information Network (HEREIN). The principal convention on the archaeological heritage is currently the Valletta Convention, formally the *European Convention on the Protection of the Archaeological Heritage*, that was opened for signature on the 16 January 1992 in Valletta, Malta (CoE 1992). It was ratified by the UK under Tony Blair's Labour administration in September 2000 and its implications for archaeology in England were discussed in Chapter 1. But its real significance is as a European instrument, albeit interpreted by different countries in different ways and with a range of objectives and benefits (Haas & Schut 2014).

Similar changes to those experienced in England and elsewhere in the UK can also be seen elsewhere in Europe. Development-led or planning-led work, sometimes loosely referred to as preventative archaeology, is widespread (Bozóki-Ernyey 2007a), especially in north-western Europe (Webley *et al.* 2012). Variations in practice based on different philosophical or political underpinnings have been noticed. Some countries see development-led archaeology as a public task, while others regard it as a service to be provided by competing contractors, what Kristiansen (2009: 643; *see also* Dries 2011) describes as the socialist and capitalist models. Almost all European countries have a licensing system for archaeological activity, thereby conforming with Clause 3 of the Valletta Convention, but in England, Wales, and Scotland procedures for the authorisation and supervision of excavation and other archaeological activities only apply to protected monuments and applying it more widely has opened up a wide range of concerns (CIA 2001; Young 2001: 52).

Figure 10.1 compares the number of archaeological investigations recorded in England with the pattern of work in three other European countries. Data for Ireland derives from the annual volumes of the *Excavations XXXX: Summary Account of Archaeological Excavations in Ireland* and the on-line resource e*xcavations.ie*. Data for Germany is restricted to work in the Rhineland (Kunow 2013) while the limited data-set for Hungary relates to all types of archaeological work (Bozóki-Ernyey 2007b: 112). Interestingly, despite different scales of activity, all four countries show similar growth profiles for the period 1990 to *c*.2000 with a general flattening-off of activity and a widespread fall in activity after the 2007 peak. Drilling down into a sample of data it is clear that the range of projects and the archaeological responses have been similar in many areas. Reports on small and medium-sized projects abound in monographs and journals. And large infrastructure projects comparable to those in Britain represent responses to developments at the other end of the scale. The A20 road scheme across Mecklenburg-Vorpommern in northern Germany, for example, involved the examination of around 600 sites along its 280 km course between 1994 and 2004, 138 of them involving open area excavation (Jöns & Lüth 2005). In the Netherlands the Betuweroute double-track freight railway running for 159 km from Rotterdam to the German border took shape in the late 1980s and was constructed between 1998 and 2007 at a cost of around 4.7b euros. Archaeological investigations were undertaken at 15 sites, many of them deeply stratified occupation areas, the final reports being published in eleven volumes of the *Rapportage Archeologische Monumentenzorg* series (Carmiggelt 2001).

On a European scale the ARIADNE project aims to bring together and integrate existing archaeological research data infrastructures so that researchers can use the various distributed data-sets and accompanying new

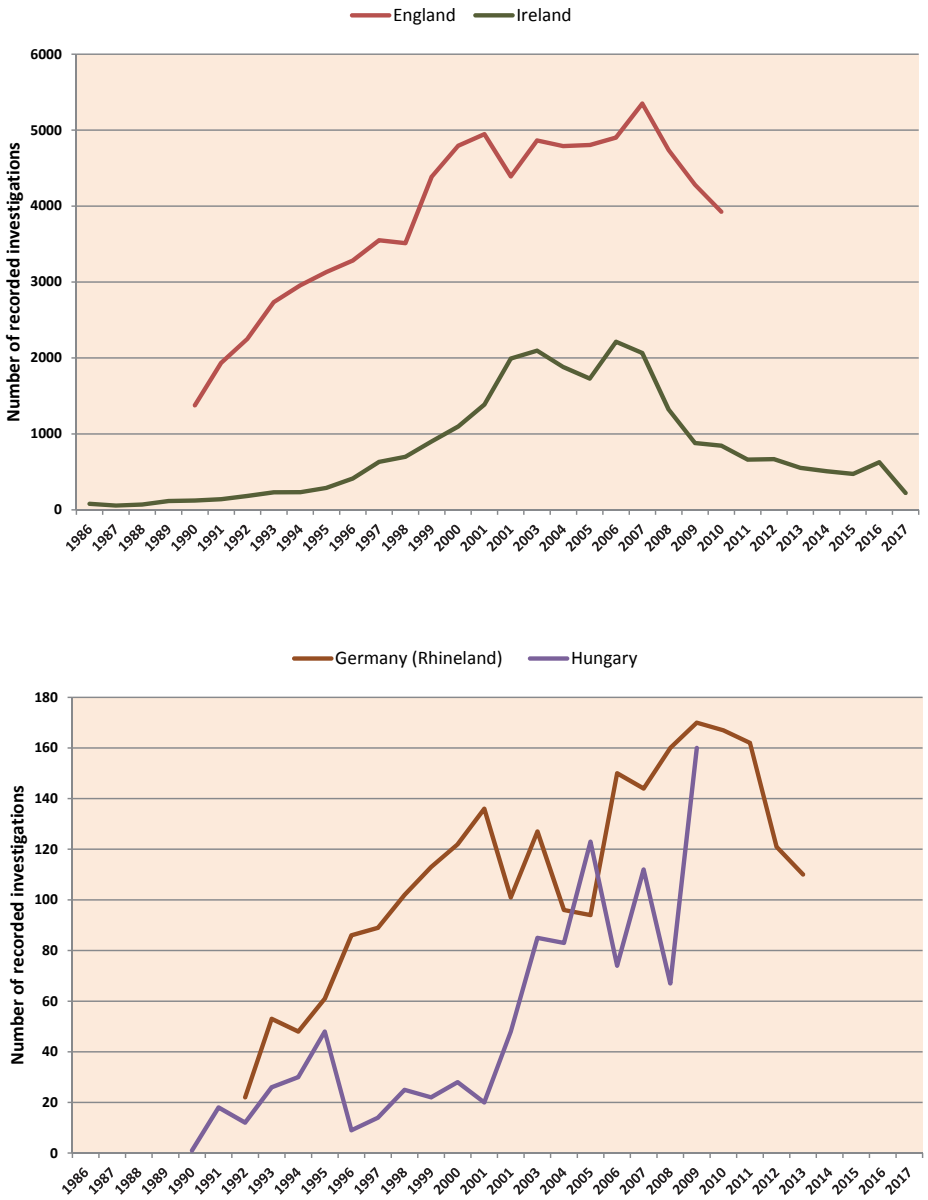

Figure 10.1 Patterns of recorded investigations 1990–2010. ***A.*** *England and Ireland.* ***B.*** *Rhineland, Germany and Hungary. (Data: AIP; Annual volumes of Archaeological excavations in Ireland and excavations.ie Ireland; Kunow 2013; Raczky 2007; Bozóki-Ernyey 2007b: 112)*

and powerful technologies as an integral component of archaeological research methodology. Funded by the European Commission under the Community's Seventh Framework Programme, the project started on 1 February 2013 and ran through to the end of 2017 (Fernie *et al.* 2016). The DINAA will provide a similar record for North America (Kansa *et al.* 2018).

Public opinion about archaeology and heritage more generally was surveyed in 2014–15 by the NEARCH project (Kajda *et al.* 2018; Marx *et al.* 2017). Based on responses from a sample of 4516 adults aged 18 or older across nine European countries, archaeology was seen as having great value to society (91 per cent) while being useful (90 per cent), enthralling (87 per cent), moving (81 per cent), and relevant to modern life (76 per cent) (Kajda *et al.* 2018: 103). Although archaeology was widely recognised as being closely connected to development, few respondents were familiar with the technical and professional language used; only 10 per cent knew what the expression 'developer led archaeology/preventive archaeology' meant (Marx *et al.* 2017: 55). However, most respondents stated that construction work should be postponed when archaeological remains are found (Kajda *et al.* 2018: 103), while 92 per cent were in favour of preventive archaeology and 31 per cent in favour of avoiding irreversible destruction/damage (Marx *et al.* 2017: 56). In political terms, these results

show solid endorsement for continuing the preservation and investigation of archaeological sites and deposits.

Changing worlds

In retrospect, the PPG16 Era was a period of rapid growth in archaeology but a relatively stable period in social and political terms. The small incremental changes in legislation and practice, and the almost seamless drift in underlying political philosophy described in Chapter 1 were mainly progressive and provided both opportunities and challenges. Although there was a widespread desire for change, especially in regard to the simplification of legislation, it was not until after 2010 and the need to respond to financial turbulence that things looked noticeably different. Since 2010 the number of planning applications per year has remained remarkably stable.

How things might change again in the light of Brexit negotiations remains to be seen, although both within the UK and in Europe there are calls for the sector to adopt a positive approach, be optimistic, and use the opportunity to improve the way archaeology works (Lennox & Shepherd 2017: 179; Schlanger 2017). Importantly, the Brexit vote served to reveal a series of underlying fractures in British society that appear to cut across traditional political and social divisions. Sociologist David Goodhart has discussed the implications of this against the wider background of world politics and the widespread idea of a populist revolt (Goodhart 2017). He suggests that greater economic and cultural openness has not benefitted all citizens equally with the result that a new division can be seen between the mobile achieved-identities of people from 'Anywhere' and the marginalised roots-based identity of people from 'Somewhere'. Such conflicting world-views will naturally lead to further shifts in prevailing political philosophies (*see* Chapter 1), perhaps through further adaptations to the idea of 'localism', and these will in turn bear on the matter of heritage and attitudes to the historic environment. Notwithstanding these uncertainties, three key environments central to understanding the results of the AIP and the forward tracking of patterns of investigation are relevant and considered further in the following sections: planning, development, and archaeology.

Planning

The rather rapid shift from the familiar wording of PPGs 15 and 16 to PPS5 as a consolidated and more community-focused set of guidance in 2010 was rather unexpected. Even more surprising was that just over a year later, in March 2012, PPS5 was swept away in favour of the *National Planning Policy Framework* that further distilled the government's advice by focusing on the promotion of sustainable development. It built upon the foundations laid in the *Localism Act 2011* and was followed through with the *Growth and Infrastructure Act 2013*, the *Enterprise and Regulatory Reform Act 2013*, and the *Infrastructure Act 2015*. For archaeology the NPPF marked a coming of age in the sense that it put the historic environment on an equal footing with all the other economic, social, and environmental considerations relevant to forward planning and development management; it put the future of the historic environment firmly in the hands of practitioners (Forster 2012).

New designations have been rare through the early years of the twenty-first century, but in March 2016 the DCMS announced plans for Heritage Action Zones to drive economic growth in England's historic places. Ten such zones were defined in 2016 (Geoghegan 2017b), with a total of nineteen established by the end of 2018 (HE 2018a). Since 2010, one further World Heritage Site has been inscribed, The English Lake District, lifting the total wholly or partly in England to 18.

A review of the working of the NPPF after two and a half years noted that the simplification it brought was welcome, but that a number of issues needed to be addressed. These included: not preventing unsustainable development in some areas; that inappropriate housing was being imposed on some communities; and that town centres were not being protected from the threat of out of town development (HCCLGC 2014). There is a general consensus that the NPPF is likely to stay more or less untouched for the foreseeable future but that further guidance and legislation aimed at simplifying the planning system is likely (Smith 2014) and a light-touch review in early 2018 is ongoing (Dewar 2018: 19). The Government's productivity plan *Fixing the Foundations: creating a more prosperous nation* (HMG 2015) contained a number of proposals including speeding up the production of local plans, zoning brownfield land to create areas with automatic permission for housing development, faster processing of applications, and new legislation to fast-track major infrastructure projects that include an element of housing as part of the *Planning Act 2008* development consent regime.

Changes to the planning system since 2010 gave a platform for debate about the place, role, and cost of archaeology in the development process. In June 2011 Alan Melton, leader of Fenland District Council denounced the cost of archaeological investigation and associated delays to development and attracted considerable attention and press coverage (Kennedy 2011; Pitts 2011). And just over a year later, in November 2012, Mr Nick Boles MP, Under-secretary of State for Communities and Local Government, criticised the process of obtaining pre-determination reports and information, suggesting to the House of Commons Public Bill Committee that 'a single archaeological report can cost £4000 to produce, and there are often requests for multiple reports to be prepared, the cost of which taken together can make it unviable to progress a development

at all' during its debate on the *Growth and Infrastructure Bill* (PBC 2013). However, the cost and burden of preparing reports to inform the planning process were not raised as issues at a subsequent review of the operation of the NPPF (HCCLGC 2014). Reports of unexpected discoveries and high costs continue to fuel disgruntled comment in the media, as for example work at an Anglo-Saxon cemetery in Norfolk said to have cost £250,000 (Sanderson 2017), but these are exceptions rather than the rule.

In the field of strategic planning, progress with the development and approval of local plans and neighbourhood plans has been steady. Having such plans in place gives local authorities much more power to determine where development takes places in its area, and affords communities much greater protection against the threat of speculative development. The NPPF is clear that local plans should be the starting point for decision-making (DCLG 2012a: para. 12). By the end of 2014 only 40 per cent of local planning authorities had adopted local plans, only 21 per cent had plans adopted after the introduction of the NPPF, and only 37 neighbourhood plans had been approved by referendum (HCCLGC 2014: 18 and 28). Measures to help speed up the preparation and approval of plans at both levels were introduced (Smith 2014: 16–17), culminating in the *Housing and Planning Act 2016* and the *Neighbourhood Planning Act 2017* that helped engage local planning authorities and community groups. As a result, 280 Neighbourhood Plans were in force in England by March 2017 (DCLG 2017a: 7) and by the end of 2017 all but 15 local authorities had an adopted Local Plan in place or in an advanced stage of preparation (Wilding 2018). Input on the historic environment and heritage assets is important to both kinds of plan (Anon 2017). Giving planning back to the community seems to be important, and with increasing use of e-planning and the on-line Planning Portal it becomes more of a reality (Bryant 2006). Joint strategic plans covering more than a single local authority are increasingly common, and generally well supported (Agbonlahor 2016).

Streamlining development management has become the focus of attention, not least in relation to the promotion of house-building that is widely regarded as a major priority as demand for new housing outstrips supply (Sell 2013). Progress towards the proposed targets of around 200,000 new houses per year by 2020 has consistently fallen short over the last decade with resulting bolsters put in place in the *Housing and Planning Act 2016*. One area of concern has been the use of brownfield sites. Local authorities are required to maintain statutory registers of brownfield land in order to help achieve a target of getting *Local Development Orders* in place on 90 per cent of brownfield land suitable for housing by 2020 (Smith 2014: 4). Pre-registration archaeological assessment and/or evaluation could form a component of such work. Likewise, the re-use of traditional housing and historic building conversions will continue to play a major part on addressing the shortfall (Brennan 2014). A survey of 2000 adults questioned for research into the public perceptions of heritage commissioned by the Heritage Alliance to inform a debate held in November 2015 found that less than one in five British adults (18 per cent) agree that heritage is obstructive to future housing developments (ComRes 2015: Q7).

Environmental impact assessment (EIA) has been part of the development management process since the 1980s. The most recent European Directive on EIA, 2014/52/EU (EC 2014b), was widely consulted on (DCLG 2017b) and transposed into UK legislation as the *Town and Country Planning (Environmental Impact Assessment) Regulations 2017* (SI 2017 No.571). This includes a simplification of procedures and closer definition of the competencies of those undertaking EIAs (*see* Chapter 4). At the time of writing it is not known what the effect of Brexit might be on the future of EIA and SEA in the UK (Carpenter 2017).

Nationally significant infrastructure projects (NSIPs) remain an issue. These are usually large-scale developments relating to energy, transport, water, waste water, or waste disposal. Since 2008 they require a type of consent known as a *Development Consent Order* (the *Planning Act 2008* sets out thresholds above which certain types of infrastructure development are considered to be nationally significant). Applications are considered by the Planning Inspectorate who make recommendations to the relevant Secretary of State who in turn decides whether to grant or refuse development consent. The process is expected to take 15 months, but some consider this too long and there is increasing pressure to extend and streamline the NSIP regime (Smith 2014: 10–11). Further details are contained in the *Infrastructure Act 2015* and in October 2017 the National Infrastructure Commission published a consultation on their 30-year strategic vision (NIC 2017).

Small-scale developments over and above things covered by the *General Development Order* are also recognised as a sticking point. Plans have been put forward to introduce a 'fast-track certificate process' for establishing the principle of development for minor development proposals (Smith 2014: 12). How exactly these plans will be put into operation remains to be seen, but given the archaeological implications of small-scale and house-holder development, especially in historic towns (*see* Chapter 9), this is an area of change that needs careful monitoring.

Archaeological input to the planning system at all levels for strategic planning and development management relies upon the presence of local planning authority archaeology teams (variously within county, district, unitary, or National Park authorities) and the network of Historic Environment Records with staff to run them. All local authorities are under financial pressures and many have been making cuts in services, including archaeological services (Carroll

2016; Hinton *et al.* 2012; Lennox 2016). One of the biggest disappointments within the archaeological profession following the abandonment of the *Heritage Protection Bill 2008* was the missed opportunity to put Historic Environment Records on a statutory footing (Beacham 2008: 26). This may be rectified through later legislation, and remains a key item to progress over the next five years. A review of the future of local government archaeological services commissioned by Ed Vaizey in Autumn 2013 and led by Lord Redesdale and John Howell MP has been collecting evidence but has not yet (January 2018) reported its findings (*see* Chadburn 2014). The ninth annual report on local authority staff resources published in 2017 documented a decline in staff providing archaeological advice from 407 FTE in 2006 down to 262 FTE in 2017 (HE *et al.* 2017: 1). As things currently stand, the single biggest threat to the continued smooth operation of archaeology within the planning system is a breakdown in the cover of advice to local authority planning systems.

Development

The general economic down-turn at the end of the PPG16 Era had a marked effect on the construction industry that experienced turbulent times over the following five years (Figure 10.2). After a period of sustained growth, the down-turn created a trough in 2009 when construction output was down by 13 per cent on the previous year. It bounced back in 2010 and 2011 but dipped again in 2012 when output was down 7.9 per cent on the previous year. Growth returned in 2013 and 2014, and continued through 2015–17 slightly ahead of the predicted growth forecast of 5.2 per cent for 2015 and only slightly less in 2016 and 2017 (Construction Index 2014; Leading Edge 2012).

The nature of development also continues to change. Large-scale infrastructure works have been prominent over the last decade, many with roots deep in the PPG16 Era, and with familiar names: Thameslink, Crossrail, Thames Tideway, and Kings Cross Railhead (Whythead 2013). A spate of developments relating to renewable energy, especially wind-farms and solar-farms, between 2010 and 2015 was prompted by subsidies and government policy, but the high level of activity in these areas looks unlikely to continue as the subsidies are reduced. Private housing has expanded in recent years with housing starts growing year-on-year (Construction Index 2014). A garden-settlements programme was launched in 2014 with 24 settlements across England identified for expansion (Smith 2017). Between 2015 and 2020 demand for prime office and retail space in London and the southeast is expected to be strong; private housing repair and improvement is expected to grow by up to 4 per cent from 2017; public housing schemes show marginal growth after 2015 as government efforts focus on affordable rather than social housing provision; retail developments are expected to rise by 5 per cent per year; factory growth achieved 5 per cent per year until 2017; and warehouse development is forecast to continue rising (Construction Index 2014).

The biggest area of growth in the next five years is expected to be in large-scale infrastructure. Preliminary work on Phase 1 of the HS2 train-line from London to Birmingham has already begun; field evaluation and mitigation work is being planned and is anticipated to involve the mobilisation of massive archaeological resources (Glass 2015). Discussions are already underway about Phase 2 from Birmingham to Leeds and Manchester. Archaeological works associated with the construction of a third nuclear power station at Hinckley Point (Hinckley Point C), Somerset, are well advanced with the plant due to open in 2023. New projects expected to take shape over the next five years include the proposed nuclear power station at Sizewell, Essex, and 112 road improvements across England listed in Highways England's delivery plan in August 2017 (Johnston 2017: 16), including a tunnel on the A303 south of Stonehenge, announced by the Government on 1 December 2014 (*Hansard Commons* 01.12.14: col. 25–26). More speculatively, and probably with a longer lead-in, the expansion of airport facilities in southern England, probably at Heathrow, and an HS3 trans-Pennine rail-line from Liverpool to Hull are on the horizon. Growing concerns about coast-line erosion may lead to greater activity in maritime archaeology.

Archaeology

The direct effects of the economic down-turn and the knock-on effects of a retraction in the construction industry on archaeology were less severe, and of shorter duration, than some commentators thought at the time (Smith 2009). The peak of archaeological activity within the PPG16 Era was in 2007, after which there was a decline in the number of project completions down to 2010. Working patterns had, however, stabilised by the end of 2009 and it can be predicted that the number of outputs in 2011 and 2012 will have returned to the sort of levels seen in 2004. What has been happening over the years since 2010 has been a matter of speculation and debate (Hinton *et al.* 2015) even though the achievement is substantial (Pitts & Thomas 2015; Thomas 2016b).

Archaeological investigations tend to be at the front-end of development programmes and because of this archaeological contracting was taken into the down-turn of the late 2000s rather quickly. But, by the same token, recovery also came early as the economy started to lift out of recession and construction projects were brought back on stream. Moreover, while many construction projects were delayed, halted, or put on a slow-track during the recession, many were simply re-scheduled to be increment rather than undertaken as a totality. Preparation studies also continued with the assembly of documentation for planning

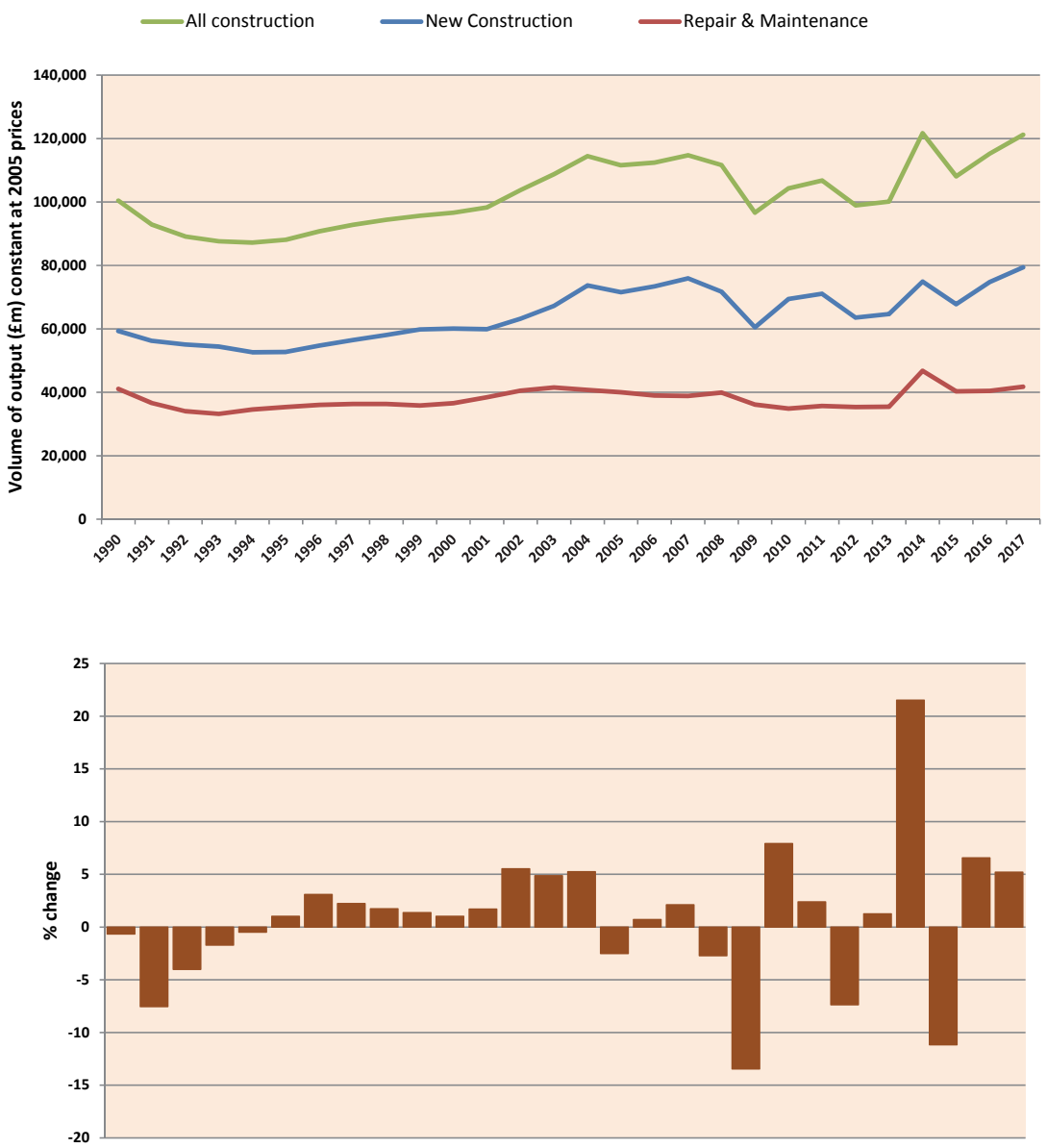

*Figure 10.2 Construction outputs 1990–2017. **A**. Volume of outputs in £m (Constant to 2005 prices); **B**. Year-on-year changes for 1990–2014 and projected for 2015–17. (Data: ONS and Construction Index 2014)*

applications and environmental statements, albeit at a lower level than in previous years. The scale of activity in 2010 measured in terms of the number of recorded investigations was 18 per cent down on the peak year of 2007 but was the same as the level of activity in 2002. Reductions in the workforce were significant, but less marked than expected, being about 7.2 per cent down on the 2007 peak in 2010 (Figure 10.3A) and also back at 2002 levels. Since 2010, employment levels have increased, with the expansion of the construction industry promising more work in prospect. Recruitment has become an issue, with all major archaeological contractors seeking additional qualified and experienced staff. A major challenge now facing the industry is how to deal with under-capacity in relation to anticipated work-flow. Recruitment from non-traditional sources, the realignment of expectations, and new skills-based training programmes will be important in overcoming the present short-fall, and innovative approaches are already being trialled (Aitchison 2004; Cobb *et al.* 2014; Geary 2014); it is a problem by no means confined to archaeology. Closely allied, is the need for closer integration of commercial archaeology with construction management practices (Heaton 2014) and attention to quality assurance (Willems & Dries 2007).

Organisationally, the archaeological profession remained fairly stable through the PPG16 Era with slightly porous but

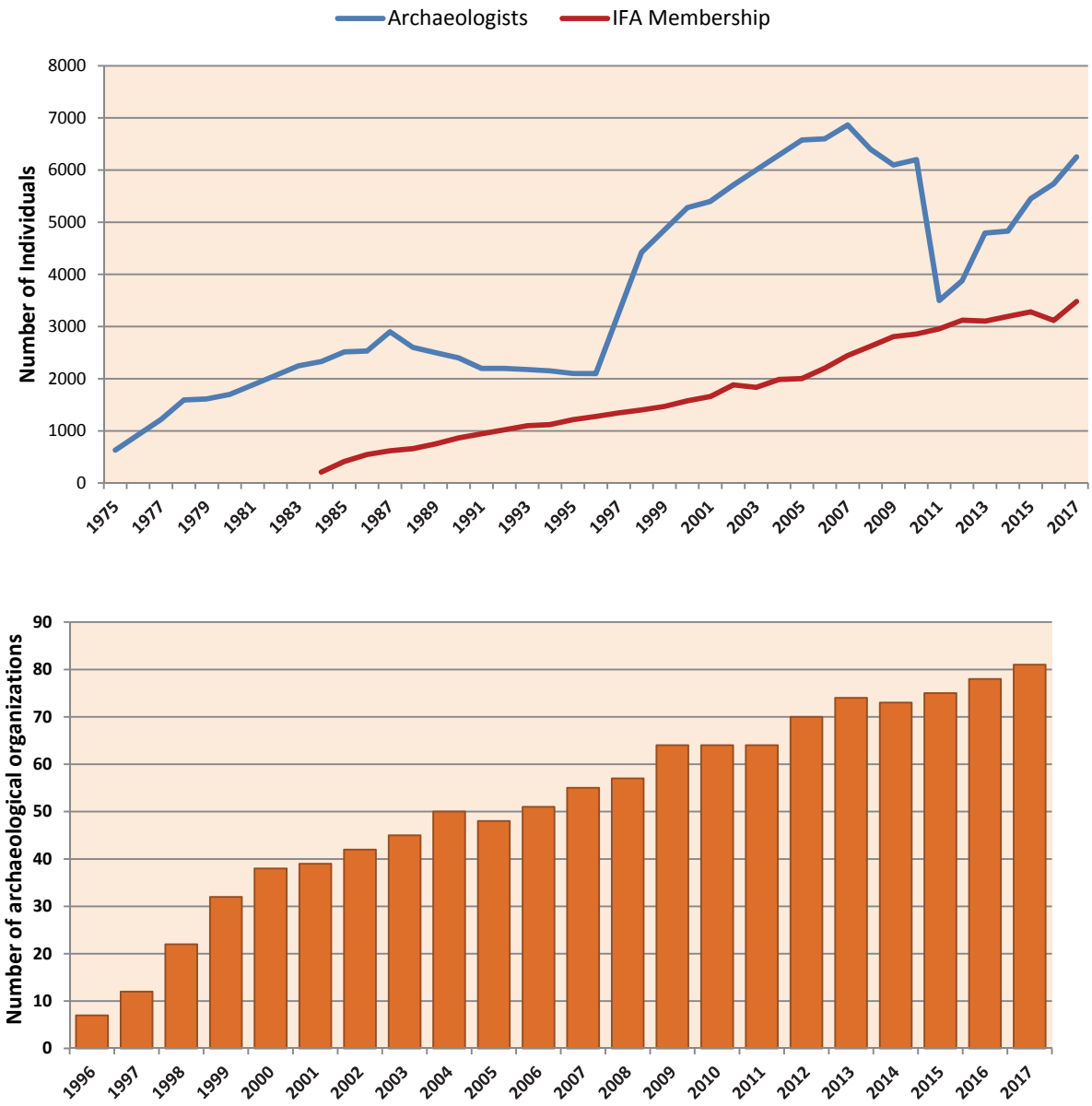

Figure 10.3 The changing size of the archaeological profession. ***A.*** *Estimated overall workforce and IFA/CIFA membership.* ***B.*** *Number of Registered Archaeological Organisations. (Data: Aitchison & Edwards 2008: Tab. 1; IFA/CIFA Annual Reports and Accounts; IFA/CIFA Yearbooks)*

nonetheless recognisable groupings of contractors, curators, consultants, museum-based archaeologists, academics, and avocational archaeologists (Figure 10.4). The PPG16 Era and the years beyond saw the consolidation of contract archaeology into the hands of half a dozen large contractors who have become market leaders. Figure 10.5A shows the annual turn-over of four leading contractors, as reported in their published accounts for the period from 2000 through to 2017. Collectively, the turn-over of these four companies amounted to £31m in 2014, a rise of 94 per cent from turn-over in 2001, and is estimated to hit £50m in 2017. Although their market share is about 15 per cent of reported projects they account for a far greater share of large high-value projects so that overall they probably represent about 30 per cent of market share in terms of project value. Each has a slightly different overall trajectory of development, but together they reflect a fair average of fortunes across the industry. Figure 10.5B shows the estimated overall value of archaeological work in England calculated by multiplying-up the value of work carried out by the four main companies shown on Figure 10.5A by their suggested market share. Although rather crude, on this model the overall value of

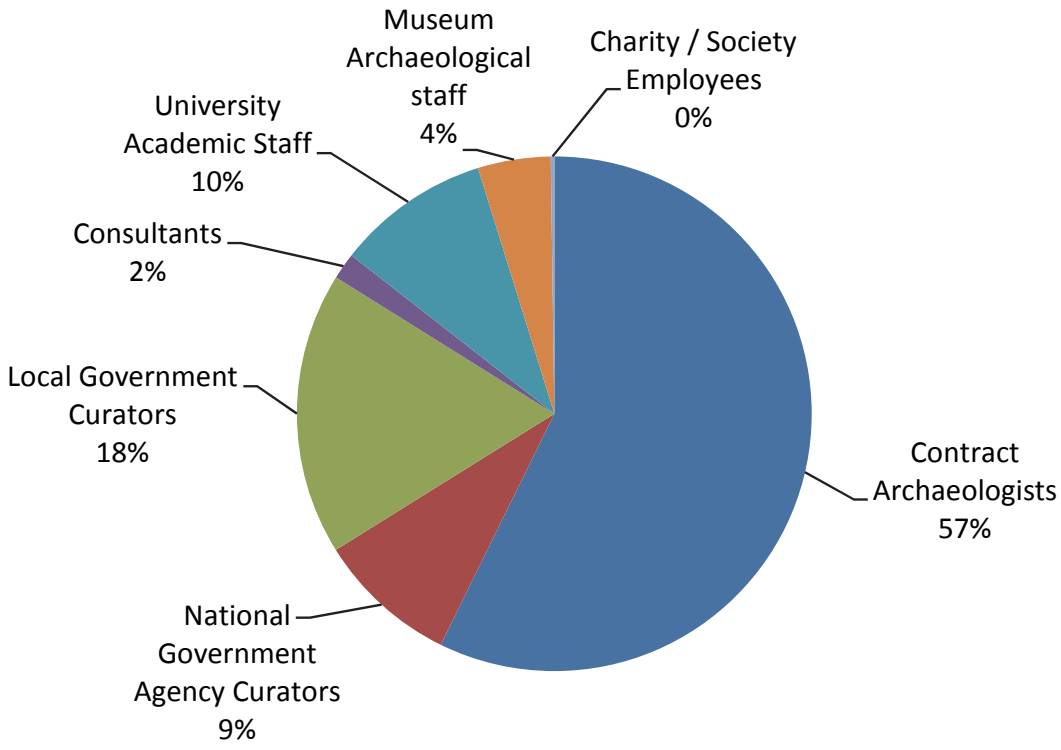

Figure 10.4 Estimated distribution of archaeological workforce by role 2007–08. (Data: extrapolated from Aitchison & Edwards 2008: Tab. 18)

archaeological contracting between 2001 and 2008 rose from about £45m to over £100m. After 2008 there was a dip, followed by a period of renewed growth that suggests an industry worth more than £150m per annum in 2017–18.

The geography of archaeological contracting changed through the PPG16 Era, and looks set to change further as regional trajectories of growth and development pressures mould archaeological responses. Figure 10.6 shows the overall number of archaeological contractors recorded as having worked in each ceremonial county between 1990 and 2010, broken down into four quarters. In the first quarter, 1990–94, there were fourteen counties in which more than 30 archaeological contractors undertook investigations. Between 1995 and 1999 this increased to nineteen counties, with a marked growth in London and Kent. A more radical shift can be seen in the 2000 to 2004 quarter, when there was a general rise in the number of contractors operating within counties. By the final quarter, 2005–10, eight counties had more than 100 contractors working there. Only Warwickshire and Rutland had fewer than 31 contractors working within the county boundaries at this time, although the latter is probably due to the small size of the county. Looked at slightly differently, Figure 10.7 shows the number of contractors who carried out 25 or more investigations within each ceremonial county per quarter. A handful of counties including Cornwall and Northamptonshire remain stable throughout. However, incremental growth in the number of contractors carrying out this higher volume of work, can generally be seen in each quarter of the PPG16 Era.

Mention has already been made of the difficulties facing archaeologists working as curators in local authorities across England (*see above*). At a national level cuts in funding for government agencies mean that English Heritage saw support through its grant-in-aid reduce from 2008 through to the organisational split that created Historic England as the lead body for heritage conservation in 2014–15 (special financial arrangements were in place to facilitate the split so the figures for 2015 are exceptional). English Heritage did however manage to ameliorate the impact of the decline in grant-in-aid by increasing revenue from other income streams (Figure 10.8). Universities were in a state of transition through the last quarter of the PPG16 Era and beyond (Sinclair 2012). Most have maintained a strong involvement in archaeological research in England (*see* Chapter 6), a fair proportion of university staff are involved in professional practice related to commercial archaeology, and a handful of universities including Bournemouth, Durham, Leicester, London (UCL), Reading, and Winchester host commercial field-units or archaeological consultancies. The archaeological element of museum provision decreased over the PPG16 Era and beyond, especially in local authority controlled museums that is having a serious knock-on effect in terms of depositing archives and finds from investigations.

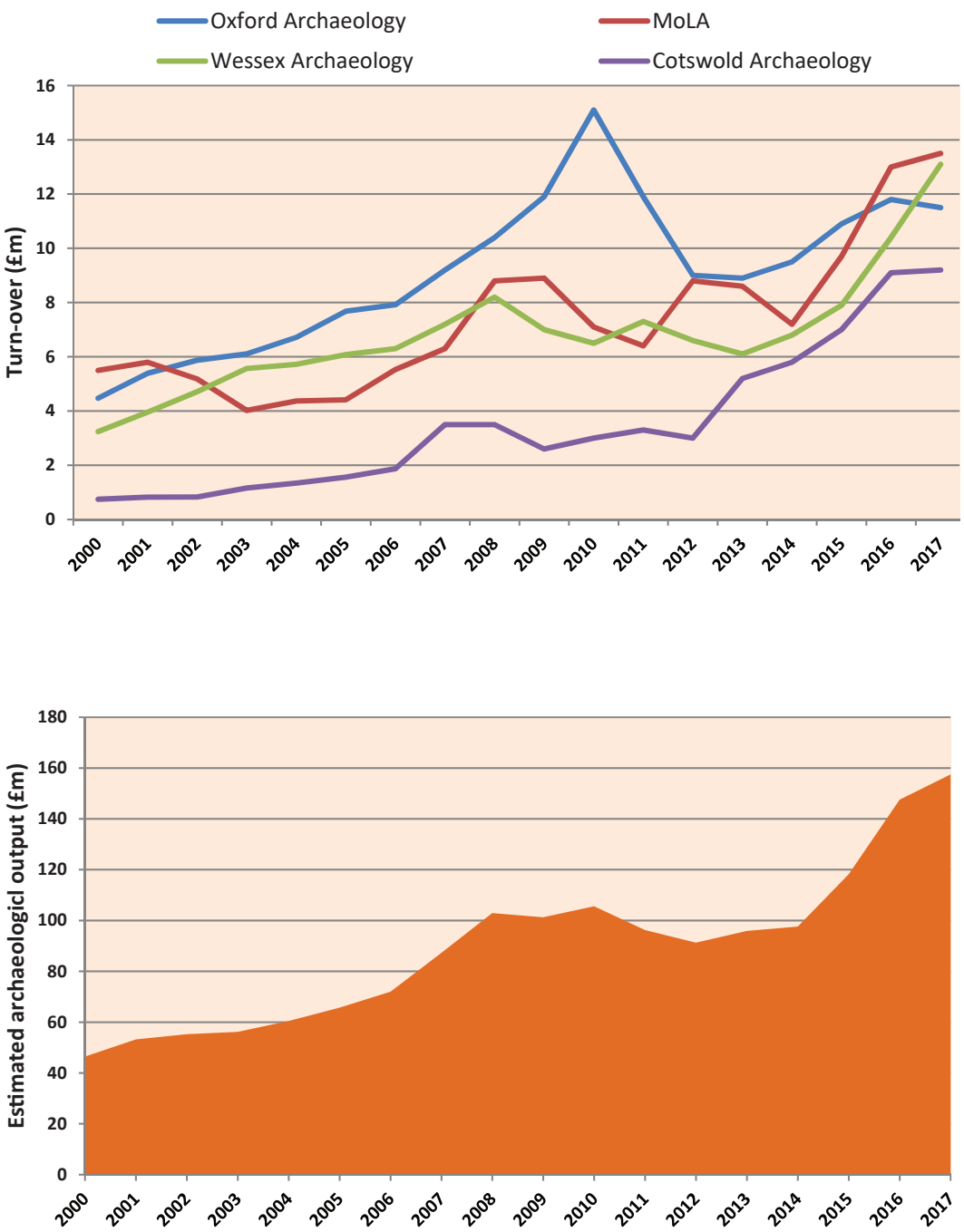

*Figure 10.5 Archaeological outputs 2000–17. **A.** Turn-over in £m for four leading archaeological contractors; **B.** Estimated output value of archaeological work in England in £m. (Data: Annual Accounts deposited in Companies House with additions)*

Some museums are already full to capacity (Pitts 2013) and the problem of what to do next has become a major area of debate within the profession (Forster 2013). HLF funding has breathed new life into many museums, including for example the Stonehenge and Wessex Bronze Age galleries at Devizes Heritage Museum that opened in October 2013, and the Wessex Gallery at Salisbury and District Museum that opened in July 2014. Both included displays of material from commercial investigations carried out in the PPG16 Era. As noted in Chapter 6, HLF funding is the single largest source of support for archaeology outside the commercial sector, and is greatly assisting in the expansion of avocational archaeology, especially the growing field of community archaeology that appeals to all ages and provides a social dimension along the professional and academic interest (Hedge & Nash 2016; Nash *et al.* 2017; Thomas

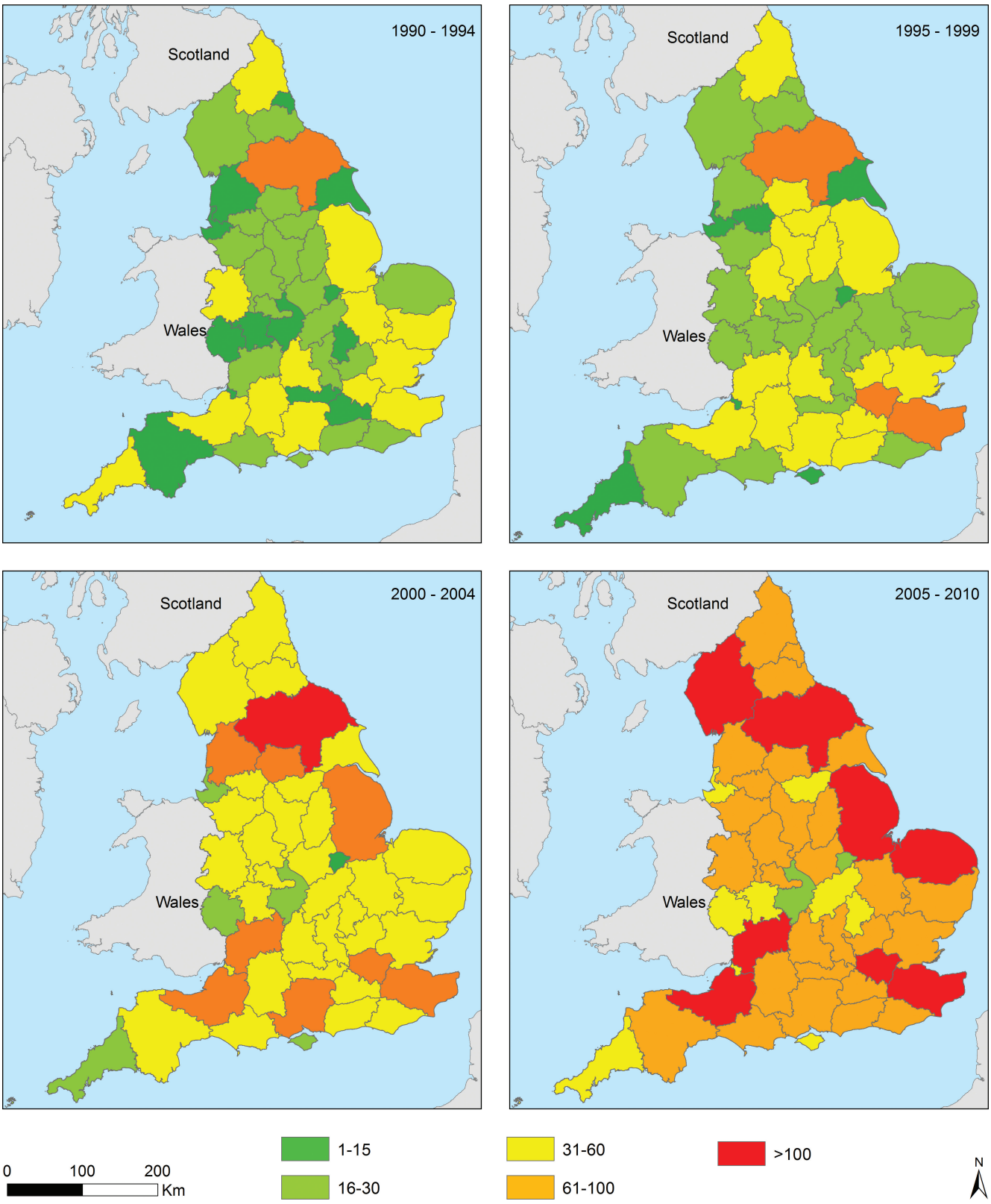

Figure 10.6 Recorded number of archaeological contractors working on investigations in ceremonial counties in England 1990–2010. (Data: AIP)

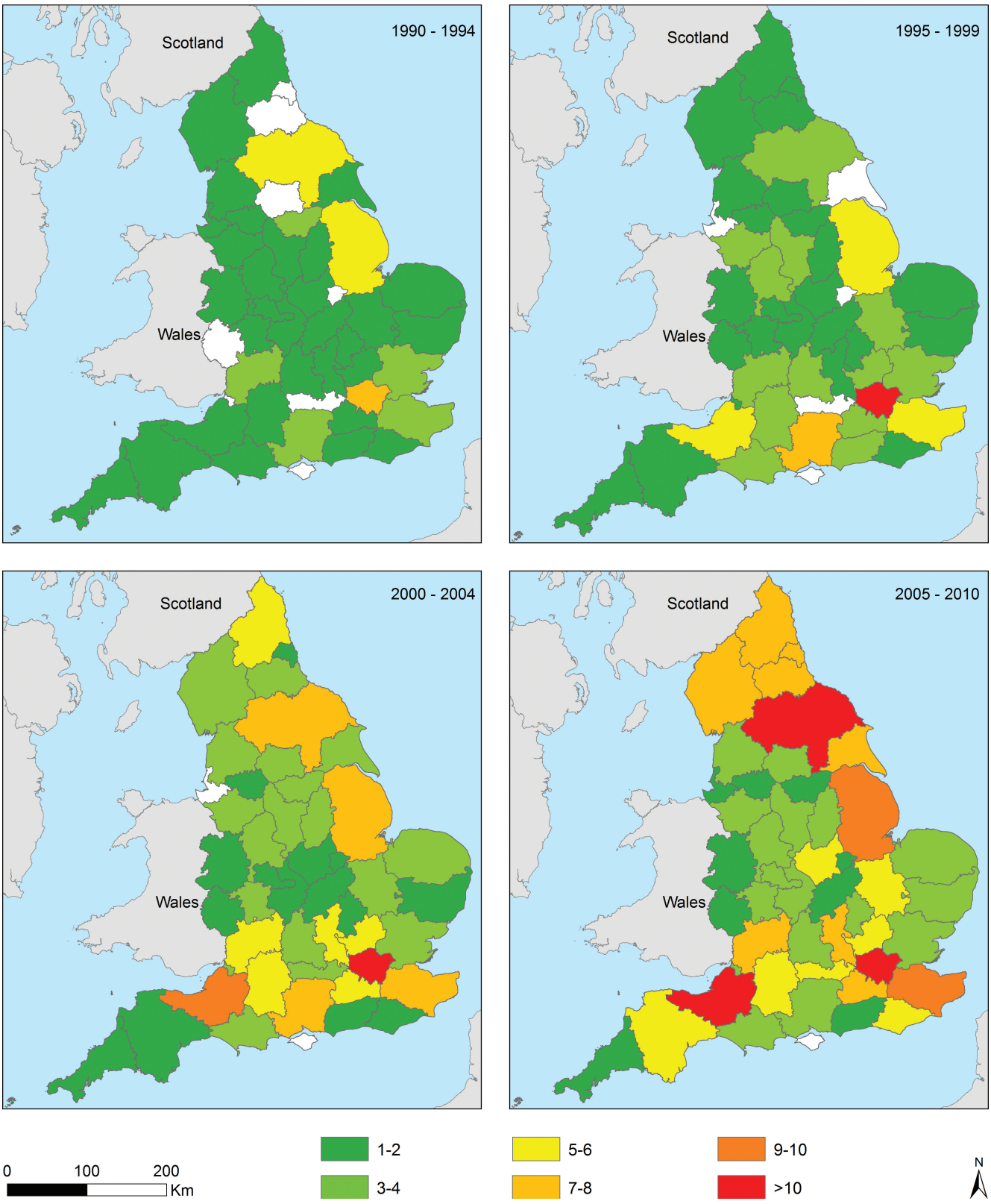

Figure 10.7 Number of contractors who have carried out 25 or more investigations within a ceremonial county in England 1990–2010. (Data: AIP)

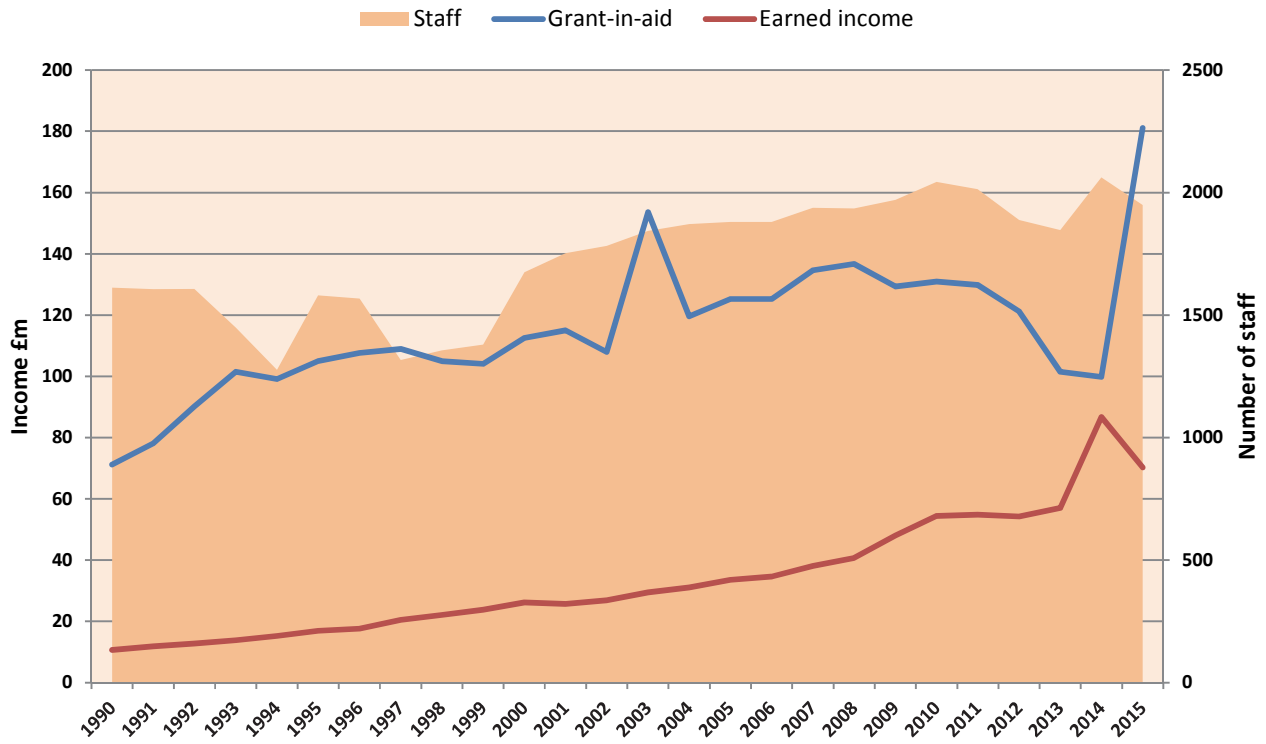

Figure 10.8 English Heritage funding 1990–2015 plotted against the number of staff employed. (Data: English Heritage Annual Reports and Accounts)

2010; 2011). How long it can continue in this way remains to be seen.

Throughout the PPG16 Era the Institute for Archaeologists did a great deal of work to enhance standards of performance in archaeology and to promote best practice in quality assurance (Hinton & Jennings 2007). The success of this and other initiatives is evidenced by the granting of a Royal Charter in December 2014, thereby creating the Chartered Institute for Archaeologists. This lifts professional archaeology into the middle tier of professional recognition on a European scale: professions regulated by professional bodies incorporated by Royal Charter (Darvill 1999; 2012; DFI 1992: 25). A critical element for delivering quality in archaeological services has been the registration of archaeological organisations (RAOs). Figure 10.3B shows the pattern of growth in registration since the scheme was introduced in 1996, with more than 80 organisations across the UK now formally registered. The growth profiles of individual and corporate membership of the Chartered Institute for Archaeologists and its predecessors broadly reflects the profile of employment in the profession, and all are directly related to the growth of the industry as a whole.

Outputs, archives, and publishing

It was a concern about the end-products of archaeological investigations, the outputs, that prompted the creation of the AIP in the first place (*see* Chapter 1). Documenting and recording those outputs was the focus of efforts down to 2007 when the project was widened to include a broader range of evidence to support the recording of on-going and completed investigations. Grey literature, discussed in detail in Chapter 8, was the real focus of attention, and the AIP was part of the response to suggestions that it was invisible and inaccessible. In retrospect this turned out to be important not only in its own right but also as a means of documenting outputs during a critical period in archaeological publishing when printed-copy was replaced by digital delivery. For anyone with access to the internet (and it is recognised that this does not yet include everyone with a potential interest in archaeological reports) finding and accessing publicly available reports is no longer much of a problem. The AIP website provides a means of finding out what has been done over the PPG16 Era. The Grey Literature Library maintained by the ADS as well as the wealth of reports available through the websites of the main archaeological contractors means that a high proportion of what is produced is easily available. And as document indexing techniques improve through the application of natural language processing it will become even easier (Vlachidis *et al.* 2010). As Ed Lee has pointed out (2012), everything we know informs everything we do and in consequence it is important to continue the debate about information management within the historic environment sector. Together, the websites, indexes, and

reports already available constitute what might be described as the 'known-knowns', to use part of a phrase made famous by US Defense Secretary Donald Rumsfeld during a Defense Department press briefing on the Iraq War in February 2002. But while the issues of access to the existing reports are being solved in innovatory ways by advances in information technology, three new issues come into focus.

First, who maintains the archive of digital literature? And should this be a centralised facility or a dispersed responsibility? And, if it is dispersed, at what level: local, regional, supra-regional? Current arrangements are complicated, hard to map at any one point in time, and fluid. In the early 1990s the government's Joint Information Systems Committee (JISC: a non-departmental public body) favoured centralised repositories and funded a series of initiatives to curate digital archives for research data. One such initiative was the Arts and Humanities Data Service (AHDS) that in turn supported six discipline-based digital archives, including the Archaeology Data Service (ADS) established in October 1996 at the University of York (Condron *et al.* 1999; Richards 1997). JISC interest in central repositories declined during the 2000s, and AHDS closed in April 2008 leaving its satellite archives to fend for themselves. JISC meanwhile focused on supporting the development of tools and approaches to data archiving rather than the archives themselves. ADS, and some of the other discipline-based archives, developed new business models for long term sustainability through the support of their user communities. But at the same time JISC and others were encouraging universities to establish their own institutional repositories for publications and archived data-sets, and all now have such systems in place albeit on a variety of platforms running a range of programmes. Nationally, Historic England (formerly English Heritage) maintain two key records: the National Heritage List for England (NHLE) which is the only official up-to-date database of all nationally designated heritage assets; and the more broadly-based National Record of the Historic Environment (NRHE) that was originally created by RCHME through the amalgamation of a series of earlier data-sets and indexes. The NRHE is now accessible through Archsearch, Heritage Gateway, or PastScape. The Archsearch and Heritage Gateway portals also offer access to a range of other digital archives and records from across the UK, including links to many Historic Environment Records created and maintained by local authorities. Individual archaeological contractors responsible for the creation of reports on investigations of various kinds also host archives of their own products, some linked to highly user-friendly search tools. Some contractors have also digitised reports that at the time of their production were circulated as printed documents. Overall, what exists is best seen as a hybrid system, partly centralised and partly distributed, that has developed over a period of more than 50 years. Over that time data-sets have variously been combined and split, re-badged and re-modelled, changed hands, and given birth to new configurations of old data. The web of relationships past and present is so complicated that before long someone needs to document the pedigree of what can be found on-line with a family tree of England's historic heritage data-sets.

Second, wherever they are maintained, digital archives are vulnerable to cyber-attack. It is a problem that is likely to increase, and has only recently begun to be openly discussed. Most organisations already have back-up arrangements and security systems with off-site storage and mirrored access, but most were designed to combat system failure or catastrophic disruptions such as fire or flooding. Archaeological data is usually stored within much bigger systems and while the archaeological data itself is unlikely to be the target of cyber-attacks, some of these larger systems may well be vulnerable. Consideration may be given to the storage of data on centralised systems at national or regional level, each system having detailed plans, capabilities, and contingencies that would allow them to be resilient in the face of such disasters.

Third, outputs are only part of the problem. Projects whose data are born digital, as well as hybrids that use a combination of digital and paper recording systems, create extensive digital archives. Levels of content rather similar to the levels suggested by the Frere Committee for paper archives back in 1975 can be recognised, and the outputs and associated data-sets are increasingly integrated as an almost seamless whole (ADS & DA 2013; Richards 2002;). Projects such as HS2 are expected to be BIM (Building Information Modelling) compliant, but like all archaeological projects will also produce finds and samples that require physical storage in quite different environments to those needed for digital data. Museums are not well equipped to deal with the issues of digital storage, but providing access to remotely stored digital data alongside the finds at the research bench is not a particular problem. Sorting out the issues connected with storing the physical archive is a priority for the profession (*see* Southport Group 2011: 17–21 and Brown 2011 and Forster 2013 for work already started), but only peripherally related to the future implications raised by the AIP in terms of the wish to link collections with the associated digital archive and event records (*see below*).

How long the idea of a 'final report' on archaeological investigations remains relevant only time will tell, although currently there is strong support for retaining the principle even if its structure and content is the subject of on-going discussions (*see* Chapter 8 and CIFA 2017). What might change more quickly are the delivery mechanisms as 'E-books' replace 'P-books', open access of one sort or another becomes the norm (Carver 2007), and the range of expected outputs expands in a way that demands communication with wider and more diverse audiences (Ames *et al.* 2014; Harding 2007; Holtorf 2007). Most

major publishers are currently in hybrid mode with both printed and digital versions of books and journals available. Libraries as we know them are unlikely to disappear in the near future, but the day is already in sight when the content of a library will be held in virtual data-clouds rather than stacked on real shelves. The digitisation of existing resources is well underway, with the content of most national periodicals and many regional journals already available digitally on-line. A fair amount of grey-literature is being scanned and given a new lease of life electronically so it can be set alongside that which is now created digitally. However, there is still a long way to go, and considerable resources will be needed to achieve full coverage. As already noted, the listings created by the AIP give a clear record of what remains to be done if the full panoply of reports are to become easily available. What needs to be addressed next is what to do about those investigations now and in the future that fall into the category of what, following Rumsfeld's phrasing already referred to, might be called the 'known-unknowns', projects that have happened but have not yet been reported.

Monitoring archaeological activity into the twenty-first century

Investment in storing and indexing archives and outputs from archaeological investigations through the application of digital technology and the use of the internet is moving forward rapidly. There is good reason to believe that technology will resolve many of the issues relating to accessing data from investigations at all levels, although for reasons discussed in Chapter 8 it may not always speed-up the delivery of the final results. Still missing is something that was noted in earlier reviews of publishing policies (Carver *et al.* 1992: ii), and was a key strand of the rationale behind the AIP: monitoring archaeological activity to create a rapid record of what is being done where, by whom, and with what result. The historic environment is highly dynamic in terms of its visibility and relationship to modern life, so adapting to change while driving it forward at the same time is critical. With the decline in traditional reporting and the rise of investigations carried out in non planning-related contexts new approaches to what the AIP accomplished are needed. Building on the achievements of the project during the PPG16 Era makes it possible to address the unreported and under-appreciated dimensions of heritage and secure maximum value from private-sector and community-wide investment in finding out about the past (HEF 2014: 6).

Knowing what has been found is fundamental to the advancement of knowledge in so many ways (Lee 2012). People in England value and appreciate their historic environment to a degree that is sometimes hard to appreciate (ComRes 2015) so balancing needs, opportunities, and resources is important. This was recognised in *The Culture White Paper* published by DCMS in March 2016 when Historic England were invited 'to work with local authorities to enhance and rationalise national and local heritage records over the next ten years, so that communities and developers have easy access to historic environment records' (DCMS 2016: 41). The Heritage Information Access Strategy (HIAS) developed in response (HE 2018b) includes amongst its core principles the idea that local authority HERs should be the first point of call and primary trusted source of investigative research data and knowledge, and that Historic England should be the first point of call for and primary trusted source of national data-sets such as the National Heritage List for England and national maritime heritage database. Looking forward, a number of key themes emerge from this review of the AIP research that might help guide the development of the next generation of such records by:

- drawing on the broadest possible range of sources to identify investigations, especially in the field of non planning-related work, including greater attention to work undertaken by university departments, local societies, community groups, and private individuals. Not all investigations are now evidenced by traditional documentation such as published reports, papers, and books. Email exchanges, websites, blogs, wikis, and on-line posts of other kinds may be the sole trace of an investigatory event so ways need to be found to identify and capture these, and classify the activity represented, so they can be included in the consolidated record;
- expanding the use of GIS technology to map not only the locations but also the extents of investigations and the various events they comprise, opening up further exciting possibilities to correlate archaeological work with data-layers such as designations, planning zones, Historic Land-Use Change Statistics (DCLG 2015), and the RSA Heritage Index (RSA 2015). Such mapping will not only provide better quantifications of the work done, and its achievements (cf. FISH 2012: 18 requiring georeferenced spatial recording of investigatory activity), but also allow the easy recognition of contiguous investigations whose results could usefully be brought together in innovative ways that make the whole more valuable than simply the sum of the parts;
- adopting a longitudinal perspective that links together the staged events within larger programmes of investigation, and ties the activities to outputs of all kinds and to the archives that are generated along the way;
- promoting easy access to large-scale national data-sets through searchable on-line resources similar to that used by the Portable Antiquities Scheme in Britain and other monitoring programmes such as *excavation.ie* for Ireland, *Archéozoom* for France, ARCHIS for the Netherlands,

and, wider afield, the Index of Texas Archaeology or the DINAA in the US (Seldon & Bousman 2017; Kansa *et al.* 2018).

Achieving a coherent, accessible, trusted, up-to-date national database of archaeological investigations is a widely held ambition, but the elephant in the room represents the long-standing and essentially unresolved tensions between the perceived merits of centralised and dispersed systems and who will maintain them (*see* HE 2018b). Grounded in the principles set out in the Heritage Information Access Strategy (HE 2018b) plans are in motion to build an upgrade to the OASIS system under the project known as HERALD: the Historic Environment Research Archives, Links and Data (Hardman 2014). The aims and objectives of the new system suggest that it will: complement existing systems such as HERs, the ADS, and the Heritage Gateway; develop the OASIS brand and identity; create a more efficient and inclusive system that complements current information flows within HERs; engage societies, community groups, museums and academics; encompass a wide range of event types and historic environment disciplines and asset types; integrate with HER workflows thereby removing barriers to participation; and build a new system that will extend use by researchers, local history groups, and museums (ADS 2016: 5–6). Development work on this upgrade is still in progress at the time of writing.

AIP stopped collecting data in 2010, coincident with changes in planning guidance. Apart from OASIS there has been no systematic collection of data relating to archaeological investigations in England since that time with the result that the picture is widely perceived to be incomplete (Fulford 2011: 44). It may be hoped that when the time comes to provide an overview of activity for the decades following those reported here HERALD will be in full voice and that gaps relating to intervening years can be plugged. Any such overview would need to gather information from a wider range of sources than previously used by the AIP or OASIS, and accordingly be more representative of the big picture. As well as comparisons with information on planning matters, designations, and economic patterns, it would be helpful to examine project histories and monitor changing trends in publication and the communication of results. Such snapshots fit snugly into current research agendas (*e.g.* HE 2017a: 37–39) aiming to inform a range of communities about investigative practices, the nature and extent of archaeological activity across the country, and the potential uses of the rapidly accumulating Big Data resource that is surely the single most significant ongoing legacy of the PPG16 Era.

Appendix A

Archaeological investigations

Investigation groups

Pre-determination

Investigations carried out in order to provide detailed information to accompany an application for some kind of permission or license, for example, planning permission or Scheduled Monument Consent. Such documentation (usually in the form of client reports) allows informed and transparent decision-making.

Post-determination

Investigations carried out as a result of conditions applied permission or license, or through obligations of uni-lateral or bi-lateral agreements. Such investigations are sometimes referred to as mitigation works and are usually executed according to a written scheme of investigation.

Non planning-related/non development-related investigations

Investigations undertaken with the agreement of the land-owner but without the need for explicit permissions or licenses.

Investigation types

Appraisal

This is the first stage in many projects and in the assessment of planning applications either by a prospective developer or a curatorial archaeologist. In essence it is asking whether there are likely to be any archaeological implications to the development of a particular piece of land, or whether a defined place has the potential to answer defined archaeological questions. Much of the work embraced within this investigation type is covered by the *Standard and guidance for archaeological advice by historic environment services* adopted in October 2012 (CFA 2014l) and the *Standard and guidance for stewardship of the historic environment* adopted in October 2008 and subsequently updated (CIFA 2014h).

Building recording survey

This investigation type involves the investigation and recording of a building, structure, or complex and its setting, including buried components, on land or in the inter-tidal zone. The work is intended to establish the character, history, dating, form, and archaeological development of the site. Most of the work embraced within this investigation type are covered by the *Standard and guidance for archaeological investigation and recording of standing buildings and structures* adopted in September 1996 and subsequently revised (CIFA 2014f).

Desk-based assessment

More detailed than an appraisal, assessments are concerned with the documentation and validation of previously recorded archaeological deposits. A desk-based assessment covers a specified area or site on land or the inter-tidal zone and addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of heritage assets and, in England, the nature, extent and quality of the known or potential archaeological, historic, architectural and artistic interest. Significance is judged in a local, regional, national or international context as appropriate. The work embraced within this investigation type is covered by the *Standard*

and guidance for archaeological desk-based assessments adopted in October 1994 and subsequently revised (CIFA 2014b).

Environmental impact assessment

Tiered, multi-disciplinary programmes of investigation carried out under the terms of European Directive 85/337/EEC and, since March 1997 Directive 91/11/EC, which were first implemented in the UK as *Town and Country Planning (Assessment of Environmental Effects) Regulations 1988* (SI 1988 No.1199) before being revised in March 1999 as *Town and Country Planning (Assessment of Environmental Effects) (England and Wales) Regulations 1999* (SI 1999 No. 293). These provide for the assembly and analysis of data relating to a defined resource followed by an assessment of the likely positive and negative effects of a proposed development programme on the resource. The product of an environmental impact assessment (EIA) programme is known as an environmental statement (ES). The regulations define a range of project types for which an environmental impact assessment is mandatory, and others for which an assessment is at the discretion of the relevant local planning authority. The environmental impact assessment regulations over-ride all other assessment requirements, and for their archaeological sections may draw on a wide range of interventional and non-interventional event-types such as those defined in earlier sections.

Estate management survey

This investigation type comprises landscape-based surveys relating to the production of reports for use in the development of multi-purpose land-use management plans or to support applications for grant-aid for management proposals. Aspects of the work embraced within this investigation type are covered by the *Standard and guidance for stewardship of the historic environment* adopted in October 2007 and subsequently updated (CIFA 2014h) and the *Standard and guidance for archaeological desk-based assessments* adopted in October 1994 and subsequently revised (CIFA 2014b).

Field evaluation

This involves a structured programme of site investigation through a selection of non-intrusive and/or intrusive fieldwork programmes, each of which may be recognised as a distinctive investigation event in its own right. Archaeological field evaluation aims to determine the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land, inter-tidal zone. If such archaeological remains are present, field evaluation defines their character, extent, quality and preservation, and enables an assessment of their worth in a local, regional, national or international context as appropriate. The work embraced within this investigation type is covered by the *Standard and guidance for archaeological field evaluations* adopted in October 1994 and subsequently revised (CIFA 2014c).

Geophysical survey

Although often used as one part of a field evaluation or non-planning investigation, non-invasive geophysical surveys are increasingly being used as the core of investigation programmes in their own right. The English Heritage Geophysics Team (and their predecessors in the Department of the Environment) compiled a central record of geophysical and geochemical surveys carried out in England since 1972. Most were internal pieces of work, but increasingly including all those surveys undertaken as a result of consent under section 42 of the *Ancient Monuments and Archaeological Areas Act 1979*. Since 2001 AIP had collected data on this investigation type. The work embraced within this investigation type is covered by the *Standard and guidance for archaeological geophysical survey* adopted in October 2011 (CIFA 2014k).

Marine investigation

Increasingly marine investigations are being undertaken and the number of contractors offering specialist services to undertake such work continues to increase. Archaeological projects in inland waters, by the coast and further out to sea have become more frequent due to a shift in development types, technological advances and greater archaeological/heritage protection. Archaeological marine investigations for the most part, use broadly similar land-based archaeological techniques that have been adapted for use underwater. As well as intrusive archaeological techniques and visual surveys, geophysical and other remote techniques have also developed for use in an underwater environment. The work embraced within this investigation type is covered by the *Standard and guidance for nautical archaeological recording and reconstruction* adopted in October 2008 (CIFA 2014i).

Non-development investigation/Research investigation

This broad type comprises excavations and surveys of various sorts that are undertaken with the requirements of the Town and Country Planning or Ancient Monuments legislation; investigations that are sometimes referred to as ‘research projects’ (this is a misnomer since all archaeological investigations are pieces of research). Because post-excavation work can sometimes take place after the fieldwork representing the core of this investigation type (and sometimes by a different organisation) the post-excavation assessment and post-excavation analysis and reporting are seen as separate investigation types. Aspects

of the work embraced within this investigation type are covered by the *Standard and guidance for archaeological excavations* adopted in September 1995 and subsequently revised (CIFA 2014e) and also the *Standard and guidance for archaeological watching briefs* adopted in October 1994 and subsequently revised (CIFA 2014d).

Post-determination mitigation investigation

This broad type embraces a wide range of archaeological investigations that are 'post-determination' in the sense that they form an agreed scheme of works as part of a mitigation strategy consequent upon the granting of planning permission and/or Scheduled Monument Consent. This kind of work is sometimes referred to as Rescue Archaeology or Salvage Archaeology; although both terms are increasingly obsolete as more proactive approaches inform archaeological resource management in England. As with non-development investigation/research investigation above, post-excavation work can sometimes take place after the fieldwork associated with this type of investigation. Again, post-excavation assessment and post-excavation analysis and reporting are viewed as separate investigation types. Aspects of the work embraced within this investigation type are covered by the *Standard and guidance for archaeological excavations* adopted in September 1995 and subsequently revised (CIFA 2014e) and also the *Standard and guidance for archaeological watching briefs* adopted in October 1994 and subsequently revised (CIFA 2014d).

Post-excavation analysis and reporting programme

A programme of analysis expanding the basic site narrative into a study of the whole or part of the stratigraphic sequence using the excavation records and studies of artefactual and ecofactual materials that is written up for reporting through publication or some other suitable means of dissemination. Such a programme also involves the deposition of the archives, finds and other related materials in a suitable repository. The work embraced within this investigation type is covered by the *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* adopted in September 2001 and subsequently revised (CIFA 2014g) and the *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* adopted in September 2008 (CIFA 2014j).

Post-excavation assessment

A review of the documentation, samples and finds from an excavation and/or survey programmes that seeks to summarise the archaeological background of the site and the archaeological excavation methodology; create a site narrative; assess the preliminary results of the archaeological work together with the potential of the finds and environmental samples to enhance interpretation and understanding; consider the significance and potential of the findings and outline the research aims and resource requirements for any proposed post-excavation analysis and reporting programme leading to publication and archiving proposals. The work embraced within this investigation type is covered by the *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* adopted in September 2001 and subsequently revised (CIFA 2014g).

Investigatory events

The following investigatory events were recorded by the AIP:

Aerial photographic survey

The principal event here is the plotting and analysis of aerial photographs and images relevant to a defined piece of land. The extent of such a survey is defined as the Interpretation and Mapping Unit as described by Whimster (1989: 7–9).

Archaeological recording of a standing building/ Measured building survey

This involves the analytical recording, through essentially archaeological means, of buildings and structures through plans, elevations, photographs and other means, usually when they are undergoing structural modification or in advance of demolition. The IFA adopted a standard relating to the investigation and recording of standing buildings and structures in 1996 (CIFA 2014f).

Auger survey/Borehole survey

Transect or area-based arrangements of drilled auger-holes or bore-holes used for the recovery or logging of deposit samples. Each hole would normally be individually numbered and recorded by means of an auger-hole log sheet. The extent of the survey is defined as the area sampled with sample points individually identified where possible.

Ditch-side survey

Visual examination of the cut sides of drainage ditches, dykes, or machine-cuts searching for in-section signs of archaeological features and layers. Some searching of spoil-heaps produced by the cutting of the ditches may also be possible. Recorded as a linear search zone.

Fieldwalking – non-systematic surface collection programme

The collection or *in-situ* recording of archaeological material visible on the ground surface in a non-systematic fashion, usually through random or unstructured walking patterns and the bulk logging of finds. The extent of such a survey is the land-parcel within which the fieldwalking took place.

Fieldwalking – systematic surface collection programme

The systematic study of ground surfaces and the collection or *in-situ* recording of visible archaeological material. This includes fieldwalking when carried out as line-walking or grid-collection. Other kinds of surface collection strategies are also included, for example transect or quadrat sampling. Any material recovered will be logged and stored by sample unit. The extent of such a survey is the land-parcel within which the survey took place, where possible recording the sample-units used within it (*e.g.* grid squares; survey lines and stints).

Geochemical survey – organic carbon

The systematic sampling of a tract of land to determine areal variations in the concentration of organic carbon (typically established by loss on ignition tests) within a defined horizon of the soil profile. The extent of the event type is taken to be the area covered by the sampling scheme adopted.

Geochemical survey – phosphates

The systematic sampling of a tract of land to determine areal variations in the concentration of phosphates within a defined horizon of the soil profile. The extent of the event type is taken to be the area covered by the sampling scheme adopted.

Geophysical survey – electromagnetic

The systematic examination, recording and plotting of variations in the magnetic susceptibility and/or conductivity of exposed ground surfaces to locate and delimit anomalies. The extent of this event type is defined by the limits of the survey grid within which data was collected.

Geophysical survey – magnetic susceptibility

The systematic examination, recording and plotting of variations in the ability of defined components or horizons within a soil profile or deposit to become magnetised and thus reveal characteristics of which can be related to the nature and intensity of certain land-use practices. The survey may be carried out with a field-coil or a probe for direct measurement, or through soil sampling and laboratory processing. The extent of this event type is defined by the limits of the survey grid within which data was collected.

Geophysical survey – magnetometry

The systematic examination, recording and plotting of variations in the magnetic properties of the ground to locate and delimit buried features and deposits as anomalies. Such surveys are typically carried out using a fluxgate gradiometer, although other magnetometers are sometimes employed, and, increasingly, caesium gradiometers. The extent of this event type is defined by the limits of the survey grid within which data was collected.

Geophysical survey – resistivity

The systematic examination, recording and plotting of variations in soil resistivity to locate and delimit buried features and deposits. The extent of this event type is defined by the limits of the survey grid within which data was collected.

Ground penetrating radar survey

The systematic examination, using blocks or transects, of the ground using continuous waves or short pulses of electromagnetic radiation to investigate the position, size, and nature of buried deposits and objects. The spatial extent of the event type is determined by the extent of the area surveyed.

Metal detector survey – non-systematic collection

Unstructured and incomplete scanning of the ground surface with an electronic device that produces a distinctive signal when ferrous and/or non-ferrous metal is in the vicinity of the detection coil. Metal objects located in this way are typically recovered from their context of preservation by hand with little precise information on the position of the find spot within a recognised land-parcel. The spatial extent of this event type is usually determined as the land-parcel within which such a survey has been carried out.

Metal detector survey – systematic collection

Structured scanning, usually on a grid or transect pattern, of the ground surface with an electronic device that produces a distinctive signal when ferrous and/or non-ferrous metal is in the vicinity of the detection coil. Metal objects located in this way are typically recovered from their context of preservation by hand with appropriate records kept of the sample unit in which the find spot lies. The spatial extent of this event type is determined by the limit of the survey area. Where transects and stints are used these can be mapped within the sample area.

Open-area excavation

This involves the complete systematic investigation, recording, and removal of archaeological deposits according to the normal principles of stratigraphic excavation. The size of an open-area excavation may vary from the examination of holes to take piles or foundations, through slit-trenches to clarify particular archaeological problems, to extensive trenches in excess of 100 square metres in extent. Open area excavations do not always involve the complete removal of deposits, their size and depth are usually determined by the extent of expected destruction or the archaeological questions being investigated. The IFA adopted a standard and guidance note relating to archaeological excavations and their conduct in 1995 (CIFA 2014e). Within AIP open-area excavations are recorded as ‘full’ (where all or most of the

available area has been excavated) or 'partial' (where only a selected area or areas have been examined).

Recorded observation

This involves periodic visits to a development site by a qualified archaeologist for the purpose of recording archaeological deposits and recovering finds that have come to light since the previous visit. This work differs from a watching brief in that an archaeological presence is not maintained during groundwork and there are no powers to suspend work.

Salvage excavation

The rapid excavation of defined areas during the course of on-site construction works. The excavation trenches are usually defined in terms of the holes needing to be dug for the development itself. Excavation is frequently partial or selective in the sense that parts of the stratigraphic sequence are often targeted for recording with the consequent loss of minimal treatment of others.

Sample trenches – hand excavated

Archaeologically excavated trenches organised within a pre-determined and statistically constituted sampling programme in which the topsoil and any underlying deposits are examined manually. The distribution of sample units (*i.e.* the trenches) will be arranged to provide a defined sample fraction of the whole area under study (*e.g.* 2 per cent, 5 per cent, 10 per cent *etc.*) and according to a recognised sampling system (*e.g.* random, stratified; systematic *etc.*). The trenches are excavated for the purposes of determining the presence/absence, form, nature, preservation, age, construction, purpose, association and/or relationships of any buried archaeological features. The extent of the event type is defined by the limits of the area subject to the sampling scheme.

Sample trenches – machine excavated

Archaeologically excavated trenches organised within a pre-determined and statistically constituted sampling programme in which the topsoil and some or all of any underlying deposits are examined mechanically. The distribution and size of sample units (*i.e.* the trenches) will be arranged to provide a defined sample fraction of the whole area under study (*e.g.* 2 per cent, 5 per cent, 10 per cent *etc.*) and according to a recognised sampling system (*e.g.* random; stratified; systematic *etc.*). The trenches are excavated for the purposes of determining the presence/absence, form, nature, preservation, age, construction, purpose, association and/or relationships of any buried archaeological features. The extent of the event type is defined by the limits of the area subject to the sampling scheme.

Targeted evaluation trenches – hand excavated

Archaeologically excavated trench in which the topsoil and any underlying deposits are examined manually, the area of investigation being placed over or across one or more known or suspected archaeological features (whether upstanding or not) for the purpose of determining their form, nature, preservation, age, construction, purpose, association and/or relationships. The extent of the event type is defined by the limits of the areas excavated.

Targeted evaluation trenches – machine excavated

Archaeologically excavated trench in which some or all of the topsoil and any underlying deposits are removed mechanically, the area of investigation being placed over or across one or more known or suspected archaeological features (whether upstanding or not) for the purpose of determining their form, nature, preservation, age, construction, purpose, association and/or relationships. The extent of the event type is defined by the limits of the areas excavated.

Test-pit programme

This includes all studies that aim to sample the content of the topsoil and the nature of sub-surface deposits through systematically positioned holes. Usually, the test-pits provide quantified volumetric samples of artefact density or environmental data. The extent of such a survey is defined by the limits of the block of land subject to the imposed systematic sampling grid or transect.

Topographic survey

The creation of a measured plan or map of visible archaeological features that may be depicted by symbolically or conventionally using hachures, symbols, or contour lines. The physical extent of the event will be defined as the area mapped.

Watching brief/salvage record

This involves a qualified archaeologist monitoring the excavation of a hole by a building contractor or some other non-archaeologically trained person. During the work the archaeologist records any archaeological evidence that comes to light. The watching brief is maintained throughout the groundwork, and there may be provision to suspend digging temporarily while records are made or finds recovered. The IFA adopted a standard and guidance note relating to archaeological watching briefs and their conduct in 1994 (CIFA 2014d).

Appendix B

Sources consulted

Albion Archaeology (Bedfordshire County Archaeological Services)
AOC (Archaeology) Ltd.
Archaeology South East
Bath and North East Somerset Council
Bedfordshire County Council
Bedford Borough Council
Central Bedfordshire Council
Birmingham City Council
Birmingham Archaeology (Birmingham University Field Archaeology Unit)
Black Country SMR, includes Dudley, Walsall and Wolverhampton
Bristol City Council
Buckinghamshire County Council
Cambridge Archaeological Unit
Oxford Archaeology East (Cambridgeshire County Council Archaeological Field Unit)
Cambridgeshire County Council
Canterbury Archaeological Trust
Cheshire East (Cheshire County Council, includes Warrington)
Cheshire West & Chester (Chester City Council)
Colchester Archaeological Trust
Cornwall Council (Cornwall County Council)
Cotswold Archaeology
Coventry City Council
Cumbria County Council
Dartmoor National Park
Derbyshire County Council
Devon County Council
Dorset County Council
Dudley Borough Council
Durham County Council
Durham University Archaeological Services
English Heritage
Essex County Council, includes Thurrock
Exeter City Council
Exmoor National Park Authority
Ramboll (Gifford and Partners)
Gloucestershire County Council
Greater London Archaeology Advisory Service
Greater Manchester Archaeological Unit
GSB Prospection
Hampshire County Council
Herefordshire County Council
Hertfordshire County Council
Humber Archaeology Partnership, includes East Riding of Yorkshire
Ironbridge Institute
Kent County Council, includes Medway
Lake District National Park Authority
Lancashire County Council, includes Blackpool
Leicester City Council
Leicester University Archaeological Services
Leicestershire County Council, includes Rutland
Lincolnshire County Council
Milton Keynes Borough Council
National Monuments Record
National Museums Liverpool, includes Sefton, St. Helens & Wirral
National Trust
Norfolk Archaeological Unit
Norfolk Landscape Archaeology
North East Lincolnshire Archaeology Service
North Lincolnshire Council
North Somerset District Council
North York Moors National Park

North Yorkshire County Council
Northamptonshire HER and Northampton UAD
Northern Archaeological Associates
Northumberland County Council
Northumberland National Park
Nottingham City UAD
Nottinghamshire County Council
DCLG (Office of the Deputy Prime Minister)
Oxford Archaeology
Oxford Archaeology North
Oxford City Council
Oxfordshire County Council
Peterborough City Council
Plymouth City Council
Portsmouth City Council
Reading Museum Archives & Library Service
Sandwell Borough Council
Sheffield City Council/South Yorkshire
Shropshire County Council
Society of Antiquaries of London
Solihull SMR
Somerset County Council
South Gloucestershire Council
Southampton City Council
Southend-on-Sea Borough Council
Southern Archaeological Services
Staffordshire County Council
Stoke-on-Trent City Council
Suffolk County Council
Surrey History Centre
Tees SMR
Test Valley SMR
Thames Valley Archaeological Services
The Archaeological Practice
The East Riding of Yorkshire Council
Trent and Peak Archaeological Unit
Torbay Council
Tyne and Wear SMR
Warwickshire County Council
Wessex Archaeology
West Berkshire Council
West Sussex County Council
West Yorkshire Archaeological Advisory Service
West Yorkshire Archaeology Service
Wiltshire County Council
Winchester Museum Service
Worcester City Council
Worcestershire Archaeological Service
York Archaeological Trust
York City SMR
Yorkshire Dales National Park

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