



Battlefield Archaeology Group

The Archaeology of Operation COBRA Project

Phase 2 - Breakthrough sites
Season 2022

Prepared for the Direction Régionale des Affaires Culturelles
Caen, Normandy

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Contents

1.0	Introduction to the project and summary of previous work.....	7
2.0	Historical background to COBRA	10
3.0	Survey Site Locations for Phase 2 'The Breakout' an Historical account of military actions per site	16
3.1	B2 - Pont Brocard	19
3.2	B4 - La Pinetiere Crossroads.....	29
3.3	B6 - La Valtolaine Crossroads	34
3.4	B5- D610/D Crossroads.....	38
3.5	B7 - La Chapelle	42
3.6	B8- D49 Grimesnil Road.....	51
4.0	Archaeological Background.....	63
5.0	Summary of archaeological investigation.....	65
6.0	Aims and objectives	66
7.0	Methodology.....	66
8.0	Topography and Terrain.....	66
9.0	Geophysics Survey.....	67
10.0	Geophysics Results.....	69
10.1	B4 - La Pinetiere Crossroads	69
10.2	B6 - La Valtolaine Crossroads	73
10.3	B8 - D49 Grimesnil Road	76
11.0	Metal detector surveys	80
12.0	Metal Detecting Results	82
12.1	B2 - Pont Brocard	82
12.2	B2 - Survey evidence defining locations	84
12.3	B2 - Vehicle parts and associated artefacts.....	85
12.4	B2 - German ammunition.....	87
12.4	B2 - American ammunition	87
13.0	B4 - La Pinetiere Crossroads-Survey evidence defining locations	92
13.1	B4 - Vehicle parts and associated artefacts.....	95
13.2	B4 - Metal and Wood	98
13.3	B4 - German ammunition	100
13.4	B4 - American ammunition	103
13.5	B4 - Modern ammunition.....	107
13.6	B4 - Human Remains	107
14.0	B6 - La Valtolaine Crossroads-Survey evidence defining locations	110
14.1	B6 -Vehicle parts and associated artefacts	112
14.2	B6 - German ammunition	114
14.3	B6 - American ammunition	114
15.0	B5 - D610 Crossroads-Survey evidence defining locations	119
15.1	B6 - Vehicle parts and associated artefacts.....	122
15.2	B6 - American ammunition	122
15.3	B6 - German ammunition	125
16.0	B7 - La Chapelle-Survey evidence defining locations	128
16.1	B6 - Vehicle parts and associated artefacts.....	131
16.2	B6 - German ammunition	133
16.3	B6 - American ammunition	135
17.0	B8 - D49 Grimesnil Road-Survey evidence defining locations	140
17.1	B6 - Vehicle parts and associated artefacts.....	143
17.2	B6 - German ammunition	147
17.3	B6 - American ammunition	149
18.0	Conclusions and Recommendations	158
19.0	Working with the Community	161
20.0	Acknowledgements	164
21.0	Bibliography	167
21.1	Reference by book title specific to narrative and locations	167
21.2	Primary Source material	170
22.0	Appendix 1.....	171
22.1	Finds register.....	171

Table of Figures

Fig (1)	Area and Location of Sites under investigation in Normandy, France.	6	Fig (32)	67th Armour S-3 overlay-D610 crossroads	40
Fig (2)	Fig (2) Breakthrough 25-27 July 1944	7	Fig (33)	88mm SP knocked out at St-Denis-le-Gast	41
Fig (3)	Three main phases of the archaeology of operation cobra project.	8	Fig (34)	Photo montage of photo locations at La Chapelle	44
Fig (4)	8th Airforce bombing run survey from the attacks of the 24th-25th July, 1944.....	9	Fig (35)	Modern image of the 78th AFA postions at La Chapelle	45
Fig (5)	Map of the American Breakout in the Cobra zone of operations. July 1944.	11	Fig (36)	American troops on the D13 road at La Chapelle	45
Fig (6)	St Gilles covered in wrecked German tanks destroyed by the carpet bombing of the 25th July,	13	Fig (37)	Destroyed SP gun and other vehicles on the D13	46
Fig (7)	The same position at St-Gilles in 2022. (BAG)	13	Fig (38)	Close up of the German SP Gun at La Chapelle	46
Fig (8)	American 82nd Armoured reconnaissance vehicles take Canisy on the 27th July, 1944.....	14	Fig (39)	Colour photo of the 75mm SP gun at La Chapelle	47
Fig (9)	Operation Cobra zones of operation 25th-29th July, 1944	16	Fig (40)	Stug III SP 75mm tank destroyed on the D13.....	47
Fig (10)	Sites of interest along the D38-Dangy St-Denis-le-Gast road	18	Fig (41)	Stug IV 75mm SP gun on the D13	48
Fig (11)	Photo montage of Pont Brocard.....	20	Fig (42)	Hole cut in a hedgerow by American units along the D13, La Chapelle	48
Fig (12)	1947 image of positions at Pont Brocard.....	21	Fig (43)	Cpt Naubert O. Simmard.....	49
Fig (13)	American units spilling around the intersection at Pont Brocard w/ captured vehicles	21	Fig (44)	Cpt Simmards M3 Halftrack, La Chapelle	49
Fig (14)	American 155mm from the 183rd FA, Pont Brocard.....	22	Fig (45)	A/78th AFA M-7 which was engaged in the action At La Chapelle.....	50
Fig (15)	German prisoners, Pont Brocard	22	Fig (46)	C/702nd M-10 tank destroyer at La Chapelle.....	50
Fig (16)	American units picketing Pont Brocard	23	Fig (47)	1947 location image of German units down the D238	52
Fig (17)	US 41st AIR in defensive positions in Pont Brocard.....	23	Fig (48)	1947 Location Image of the German advance onto the D49 at La Coucourie	52
Fig (18)	US 41st AIR anti-tank position Pont Brocard	24	Fig (49)	Photo montage of photo locations at La Coucourie on the D49.....	53
Fig (19)	US 41st AIR 57mm anti-tank gun facing the D52..	24	Fig (50)	1947 image of the D49 at La Coucourie	54
Fig (20)	Sgt H.V.Robinson, Pont Brocard.....	25	Fig (51)	Head of the German column lead by a Panzer IV Stug 75mm	54
Fig (21)	US 41st AIR picketing the 57mm at Pont Brocard afer the action	26	Fig (52)	Gen Issac D. White commander of CCB, 2nd Armoured on the D49	55
Fig (22)	Pvt Joseph G. De Frietas 41st AIR anti-tank company, Pont Brocard.....	27	Fig (53)	Destroyed German vehicles down the D49 road	55
Fig (23)	Location of American pickets at La Pinetiere.....	30	Fig (54)	Destroyed German armour now pushed off the road at La Coucourie	56
Fig (24)	1947 photo of la Pinetiere depicting location of units	30	Fig (55)	Knocked out German armoured personnel vehicles	56
Fig (25)	Pvt Robert Lohr, C Company 82nd Armoured Reconnaissance	32	Fig (56)	Knocked out German armoured vehicles now pushed off the road at La Coucourie.....	57
Fig (26)	La Pinetiere Mark IV Panzer	33	Fig (57)	Image of destroyed tanks and armoured vehicles D49.....	57
Fig (27)	Lt Col Heydte commander of the German 6th Parachute regiment	35	Fig (58)	German vehicle blocking the road at La Coucourie.....	58
Fig (28)	1947 image of La Valtolaine	35	Fig (59)	41st AIR on the D49 at la Coucourie	59
Fig (29)	Area locations of wrecked German vehicle at La Valtolaine	36	Fig (60)	The wrecked German column looking south east at the bend before reaching La Coucourie	59
Fig (30)	Modern image of US positions at the D610 crossroads.....	39	Fig (61)	US halftrack knocked out on the D438 road	60
Fig (31)	1947 image of the location of the D610/D238 crossroads	39	Fig (62)	Cpt James R. McCartney, E/67th Armour.....	60
			Fig (63)	Sgt Hulon Whittington I/41st AIR	61
			Fig (64)	WW2 locally found material.....	63

Fig (65)	Collections of battlefield material on the Geuhebert Rd	64	Fig (110)	B6-La Valtolaine: German ammunition	115
Fig (66)	Modern re-enactor cartridges on battlefield sites	65	Fig (111)	B6-La Valtolaine: American ammunition	116
Fig (67)	Magnetometer survey working shot	68	Fig (112)	BAG Volunteer w/ German anti-personnel grenade.....	117
Fig (68)	Survey area site B4-La Pinetiere	69	Fig (113)	Gewehr-Sprenggranate-WW2	117
Fig (69)	Survey area site B4-La Pinetiere Cadastral map.....	69	Fig (114)	German gas mask (779)	118
Fig (70)	B4A-27 Features	70	Fig (115)	German gas mask WW2	118
Fig (71)	B4B-28 Features	71	Fig (116)	German prisoners collecting dead-B5	119
Fig (72)	B4C-28 Features	72	Fig (117)	B5 D610 crossroads survey zones	121
Fig (73)	Survey area site B6-La Valtolaine	73	Fig (118)	B5-D610 crossroads: Vehicle parts	123
Fig (74)	Survey area site B6-la Valtolaine Cadastral map.....	73	Fig (119)	B5-D610 crossroads: American ammunition	124
Fig (75)	B6A-29 Features	74	Fig (120)	B5-D610 crossroads: German ammunition	126
Fig (76)	B6B-29 Features	74	Fig (121)	B5-D610 crossroads: American M3 halftrack (1024)	127
Fig (77)	B6C-011 Features.....	75	Fig (122)	Artists impression of the action at la Chapelle.....	129
Fig (78)	Survey area site B8-D49 Grimesnil Rd	76	Fig (123)	B7-la Chapelle survey zones	130
Fig (79)	Survey area site B8-D49 Grimesnil Rd Cadastral map.....	76	Fig (124)	B7-La Chapelle : Vehicle parts.....	132
Fig (80)	B8A-021 Features	77	Fig (125)	B7-La Chapelle: German ammunition	134
Fig (81)	B8A-021 Possible mass grave	77	Fig (126)	B7-La Chapelle: American ammunition	136
Fig (82)	B8B-041 Features	78	Fig (127)	American bazooka (835)	137
Fig (83)	Survey Statistics	79	Fig (128)	WW2 American 60mm M6A3 Bazooka	137
Fig (84)	B2-Pont Brocard survey zones.....	82	Fig (129)	German gas mask (593)	138
Fig (85)	D52-Pont Brocard, July 1944	83	Fig (130)	German K98 rifle bolt (479)	139
Fig (86)	D52 looking west in 2022	83	Fig (131)	German SP Hummel at La Coucourie	141
Fig (87)	B2-Pont Brocard survey zones.....	86	Fig (132)	B8-D49 Grimesnil Rd Survey zones.....	142
Fig (88)	Artifact No: B2-010 German flare	87	Fig (133)	B8-D49 Grimesnil Rd: Vehicle parts.....	145
Fig (89)	B2-Pont Brocard: Distribution of German Ammunition	88	Fig (134)	B8-D49 Grimesnil Rd: Metal and Wood.....	146
Fig (90)	Modern re-enactor ammunition	89	Fig (135)	B8-D49 Grimesnil Rd: German ammunition	148
Fig (91)	B2-Pont Brocard: Distribution of American ammunition	90	Fig (136)	Abandoned E/67th Sherman on the D49	150
Fig (92)	B2-Pont Brocard: Modern re-enactor material	91	Fig (137)	B8-D49 Grimesnil Rd: American ammunition.....	151
Fig (93)	(BAG) Volunteers surveying B4-La Pinetiere	93	Fig (138)	BAG Volunteer holding 150mmm Shell (1107)	152
Fig (94)	Survey area B2-La Pinetiere.....	94	Fig (139)	German SP Hummel.....	153
Fig (95)	B4-la Pinetiere: Vehicle Parts.....	96	Fig (140)	Degraded 150mm shell (1107)	153
Fig (96)	(BAG) working shot- La Pinetiere.....	97	Fig (141)	Sdkfz halftrack vision block (1073).....	154
Fig (97)	B4-La Pinetiere: Metal and Wood.....	99	Fig (142)	Knocked out German Sdkfz halftrack along the D49.....	155
Fig (98)	Artifact No: 308a German Zunder 35 Pressure fuse	101	Fig (143)	Same location on the D49 in 2022	155
Fig (99)	Zunder 35 Pressure fuse diagram	101	Fig (144)	German water bottle and cap (965)	156
Fig (100)	B4-La Pinetiere: German ammunition.....	102	Fig (145)	Name scratched onto German water bottle cap (965).....	156
Fig (101)	B4-La Pinetiere: American ammunition.....	104	Fig (146)	Processing German water bottle showing date (965).....	157
Fig (102)	Artefact 1380: 30 Calibre MG rounds in belt	105	Fig (147)	BAG team leader lecturing schoolchildren at Notre-Dame-de-Cenilly	160
Fig (103)	American M1917 Browning MG	105	Fig (148)	Community day at Notre-Dame-de-Cenilly	161
Fig (104)	B4-La Pinetiere: Modern re-enactor material	106	Fig (150)	Local press coverage of the project. 2022	162
Fig (105)	Site B4-La Pinetiere: Human Remains	108	Fig (151)	Press coverage of the project.....	163
Fig (106)	US 30 calibre ammunition canister (063).....	109	Fig (152)	BAG season 2022 team photo.....	165
Fig (107)	WW2 American 30 calibre Ammunition box	109	Fig (153)	BAG Volunteers holding bags of 50 calibre cartridges-B7	165
Fig (108)	Site B6-La Valtolaine Survey Zones	111	Fig (154)	BAG Volunteer	166
Fig (109)	B6-La Valtolaine : Vehicle parts	113	Fig (155)	BAG finds and geophysics team	166

Area and Location of Operation Cobra project sites



Fig (1) Area and Location of Sites under investigation in Normandy, France.

As the target areas of research and survey are so large, the proposed research strategy is to break up the area of study into four separate parts, basically representing the four phases of the original operation's objectives in 1944.

Phase 1 (A) Opening battles - These sites would cover the initial movements of the advancing American units, as they moved onto the German main line of resistance after the massed carpet bombing events of July 24th and 25th. The nature of the German defence in this area and also the effects of the bombing, if any, on this defence and evidence of American short bombing of their own positions. One such episode of short bombing led to the death of America's highest ranking officer killed in WW2, General Lesley McNair.

Phase 2 (B) Breakthrough sites- Tracking the movement of the American 2nd Armoured Division as it dashed across the Cotentin, setting up defensive islands and road blocks behind German lines that initiated the final breakout of Allied forces in Normandy.

Phase 3 (C) American blocking positions in the west that held back German counter attacks so as to enable an American breakout.

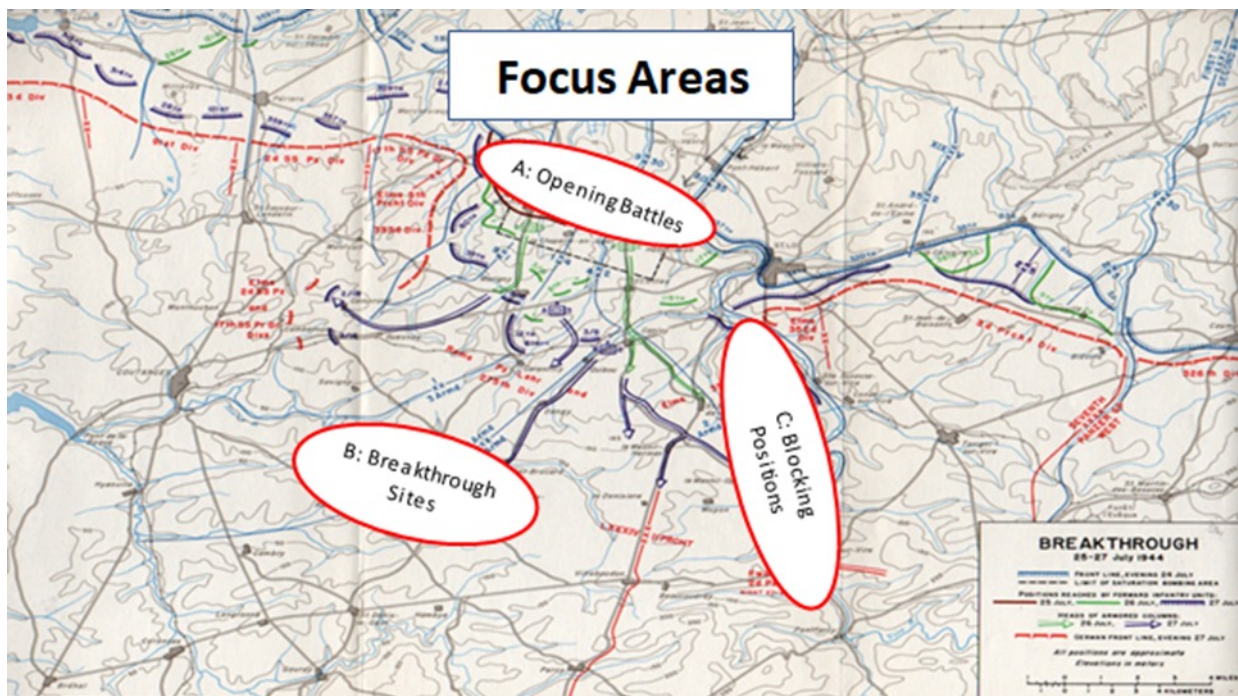


Fig (3) Three main phases of the archaeology of operation cobra project. (A) Phase 1-Opening Battles. (B) Phase 2-Breakthrough Sites. (C) Phase 3-American blocking positions in the west. (USNA)

The decision was also made that due to the size of the overall operation, that the areas of research would mainly focus on the movements of the American 30th Division situated on the extreme left flank of the American offensive, and then the movements of the American 2nd Armoured Division that moved through the 30th Infantry Division onto its objectives deep behind German lines. It was the 30th Infantry Division and the 2nd Armoured Division that would be the spearhead of the operation and participated in the key events relevant to the overall success of the COBRA operation.

Phase 1 of the survey began in 2018 and was primarily an intelligence gathering survey, with the deployment of Geophysics in the form of magnetometry, across two main locations identified as part of the German defence forward of the German main line of resistance. The results of the 2018 geophysics were inconclusive yet did show evidence of bombing and German occupation of key strategic areas, so it was decided that the geophysics results needed to be followed up by excavation of certain anomalies identified within the geophysical survey and further geophysics and metal detector surveys carried out over a wider area. This survey was undertaken in the summer of 2019 and the results of this survey were published in a report that same year.

The American 30th Divisions, 119th Infantry Regiment and 120th Infantry Regiments, with element of the 743rd Tank Battalion, line of attack was focused on taking the Town of Hebecrevon and securing the left flank on the river Vire. German strong-points were located at La Nouillerie Crossing (Site A8) just north of the small town of Hebecrevon and the area known as La Fontaine des Baines (Site A6) on the D446. Both these locations were situated just north of the main allied bombing target zone and relatively missed by any bombing runs and therefore assumed that evidence of the German defence would still be detectable by archaeological investigation.

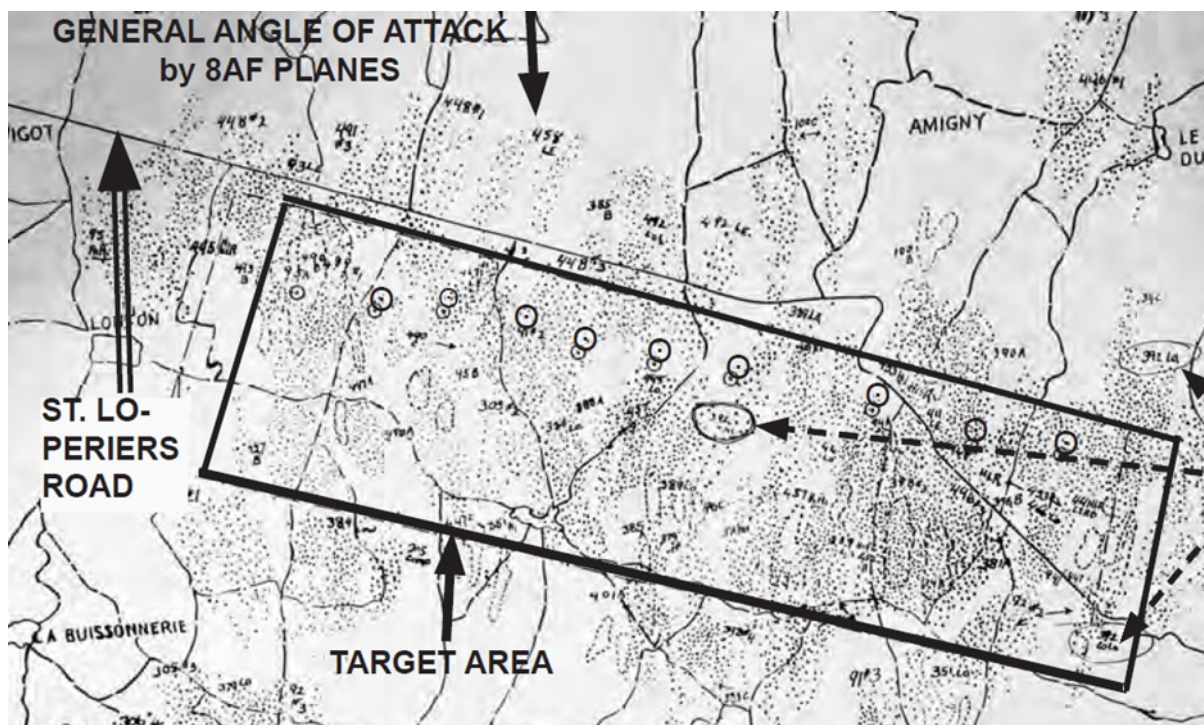


Fig (4) 8th Air Force bombing run survey from the attacks of the 24th-25th July, 1944. Note the positions of Site A6 and A8 on the top right. (USNA)

The overall results from the 2019 survey and excavations were positive, clearly showing an abundance of archaeological material contemporary with a WW2 context and indeed specific to the Cobra campaign. With these insights a licence from the Direction Régionale des Affaires Culturelles was then sought and given to continue the Archaeology of Operation Cobra project to Phase 2-The Breakthrough Sites, which forms the basis of this report. The initial license agreement to carry out this work was given for the summer of 2020, yet due to the Global Covid pandemic was cancelled and postponed for the September season of work carried out in 2022, which forms the basis of this report.

2.0 Historical background to Operation COBRA

With the American capture of St-Lo, by Lt General Omar N. Bradley's XIX and V Corps, the area was quickly consolidated for the next phase of operations. Bradley's planned Operation, code named COBRA, was a plan based on the carpet bombing of a specific location, preceded by an infantry frontal attack to a limited area, followed up by an armoured breakout.

"First we must pick a soft point in the enemy's line, next concentrated our forces against it. Then after smashing through with a blow that would crush his front line defences, we spill our mechanised columns through that gap before the enemy could recover his senses" (Bradley, *A Soldier's Story*, p.318)

Bradley was keen to keep the pressure on the Germans before they could properly consolidate the front. The Germans in fact viewed the British sector as the main offensive front, due to the amount of divisions present in this sector, Von Kluge ordered seventh army to consolidate and dig in while he ordered Heinrich Eberbach's Panzer Group West to prepare for a counter attack against the British and the Canadians in the Caen sector. Bradley put Major General Collins in charge of VII Corp who would act as the main spearhead of the attack. Major General J. Lawton 'Lightning Joe' Collins had already gained fame in his career fighting the Japanese in the Pacific and confirmed this again with his VII Corps achievements securing the Cotentin peninsular and the final capture of Cherbourg.

For Operation COBRA Collins was given six divisions. The break-in divisions first off the line were Major General Manton Eddy's 9th Division and Maj Gen Raymond O. Barton's 4th Infantry Division and the 30th Infantry Division 'Old Hickory' commanded by Maj Gen Leland S. Hobbs. Follow up break out divisions were the first infantry division 'the big red one' and the armoured spearhead divisions, 2nd armoured divisions 'Hell on wheels' and the 3rd armoured division, both armoured divisions as yet untested in Normandy.

Massive tactical precision aerial bombardment was key to the success of this operation. Overhead air support would be provided by the USAAF Ninth Air Force with B-25 and B-26 medium bombers and P-47 Thunderbolt fighter bombers and the USAAF Eight Air Force with 1,800 heavy bombers, B-17 Flying Fortresses and B-24 Liberators. Their target area would be an area 5-mile wide from Marigny to St-Gilles and just south parallel to the Periers-St Lo road.

For the break-in to be effective Bradley's plan was that the infantry frontal attack should move in directly after the massed aerial bombardment. Air commanders recommended that ground troops of the target zone and the short bombing locations outside the target zone be pulled back at least 3,000 yards from the target area, so as to limit friendly fire casualties. Bradley however insisted that 1,000 yards was adequate, any more would slow down the attack, a compromise was given with 1,450 yards. Allied planes were also told to fly parallel to the front line along a roughly east-west basis, this would also insure that even if the bombers drop their loads short or long, they would still be dropped on the enemy's front line. The attack would begin with heavy bombers targeting the box, 5 miles wide by 4 miles deep between the towns of Marigny and St-Gilles for an hour, followed up by 45 minutes of medium bombers.

COBRA was already in play by the 20th of July, a gap in optimum weather was all that was missing. The 24th of July looked like the right conditions to fly, and at 1 o'clock in the afternoon of the 24th was chosen, as this would allow plenty of time for the morning mist to clear and the target area to be visible.

General Field Marshal Von Kluge had succeeded Von Rundstedt as head of Oberbefehlshaber West who put SS General Paul Hausser in charge of the German seventh army, the key elements in front of the American divisions in the COBRA sector were LXXXIV Corps commanded by General Dietrich von Choltitz. German seventh army consisted of about 30,000 combat troops and around 117 tanks and 240 assault guns spread out across the entire front. Choltitz's LXXXIV corps faced the American VIII Corps and VII Corps. Facing VIII Corps, just out of the COBRA zone of attack, were two static divisions, 243rd Inf Div and the 91st Air Landing Div. In front of VII Corps were the 2nd SS Panzer Div and the 17th SS Panzer Grenadiers. 5th Paratrooper Division was located close to the Lozon river, straddling the boundary between the US VIII & VII Corps. The veteran Panzer Lehr Division under Gen Lt Bayerlein was the main defence in front of VII Corps, with attached forward battle groups Battle Group Heintz and battle group Brosow.

24th July

On the morning of the 24th of July, the first waves of bombers began to leave their bases in England, but by midday the ground fog was still thick over the target area so Air Chief Marshal Leigh-Mallory decided to abort the mission. IX Tactical Air Command medium bombers were still on the ground and most of the fighter bombers were recalled, however the heavy's were still on route and although most didn't drop their payloads due to cloud cover, those that did drop their bombs, dropped them north of the road, hitting the wrong targets, killing 25 and wounding 131 men from the American 30th Division, with VII Corps sustaining 350 friendly casualties in all. Some planes also dropped their bombing runs north-south instead of east-west, effectively flying over the heads of VII Corps. As the dust clouds rose and drifted north more waves of bombers just targeted the smoke that was now over VII Corps jumping off position. Confusion on the ground was paramount. Many units had started to move forward only to get caught in the confusion. German forward units realising they were under attack called in artillery fire also adding to the carnage. Bradley called off the advance creating more confusion to the leading elements of the US attack; the Germans thinking they had fought off a major attack began to infiltrate the American front line positions. The opening moves of COBRA were proving to be a disaster. The 24th ended in a mess, tactical surprise was lost and Panzer Lehr mobilised its defence by bringing more men and tanks to the area.

25th July

The decision to go ahead with the planned attack for the 25th was given, even though tactical surprise was lost. Bombers left their bases 2 hours earlier this time, cloud cover was still heavy and to mirror the tragedy of the previous day some pathfinder planes dropped their bombs short over US positions again, causing 601 casualties including 111 dead. The Reporter Ernie Pyle who witnessed the bombing wrote; "Those machines, high in the sky and completely detached from us, were aiming their bombs at the smoke line on the ground-and a gentle breeze was drifting the smoke line back over us! An indescribable panic came over us." (Ernie Pyle, *Brave Men*, p.462)

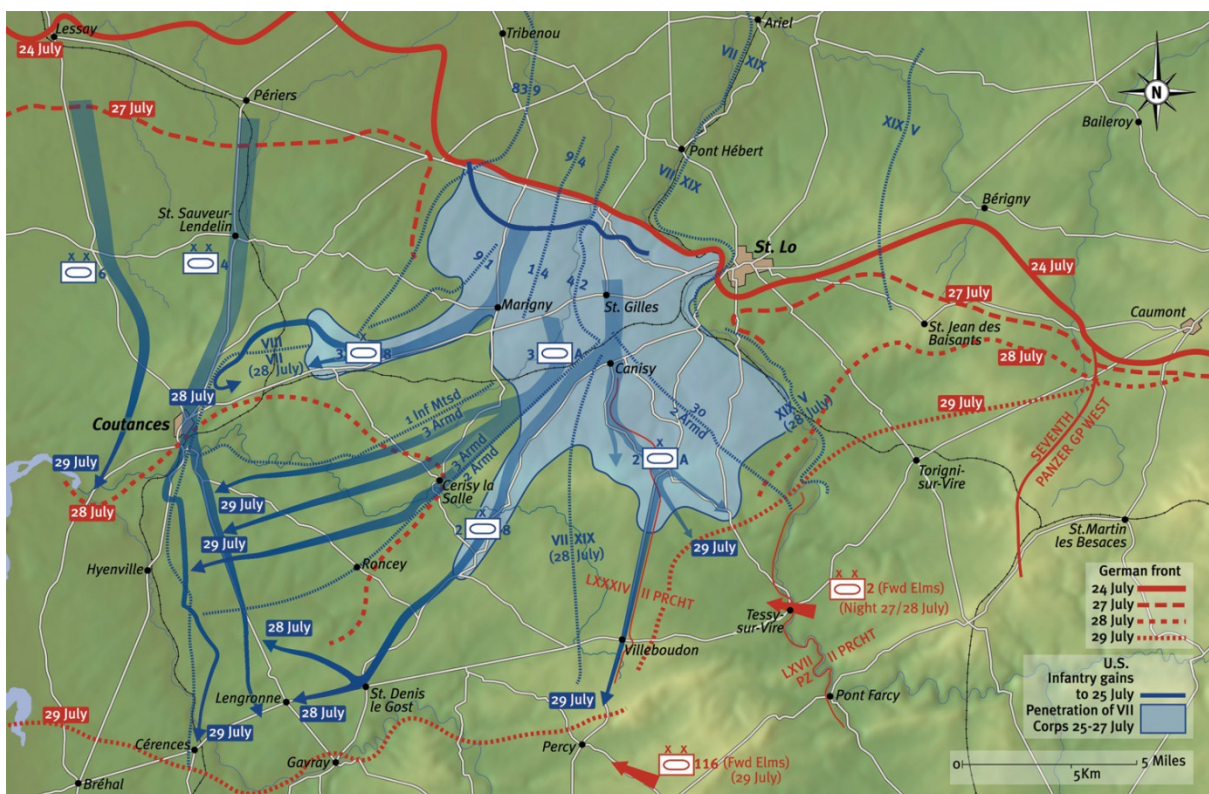


Fig (5) Map of the American Breakout in the Cobra zone of operations. July 1944 (MH)

Among the dead was Lt General Lesley McNair, former commander of US Army Ground Forces and the highest ranking US Army officer to be killed in WW2. However most of the bombers hit their target area and due to the Germans bringing reinforcements to the area the cost in casualties and equipment to the Germans was catastrophic, the Panzer Lehr Division virtually being wiped out.

The US VII Corps was quick to recover considering the horrific friendly fire casualties and the inevitable confusion. The 9th Infantry Division was assigned to take Marigny and the 30th was to secure St. Gilles two major road junction networks. Forward German battle groups were however still active and largely intact. 30th Infantry Division ran into dug-in tanks and machine gun strong points from Battle Group Heintz, close to the Vire river around La Nouillerie crossing and La Fontain des Baines, along the line of advance near Hebecrevon. German units were prepared and determined to throw back any allied advance, 9th Inf Div ran into dug-in positions mainly at the road intersections along the St-Lo/Periers road. It all just seemed too familiar to the attacking US Infantry, yet again it was not the hoped for breakthrough but a bocage slugging match. But by the days end, the forward German units began to realise that they were alone, outnumbered and outflanked, they began to fall back and by the end of the day the 30th and 9th Divisions had succeeded in breaking through these forward positions into the lunar landscape of the strategic bombing zone, a scene of twisted German tanks and shattered men, some German units having disappeared completely.

Collins was at first unsure if a breakthrough had been achieved, as maybe the enemy had pulled back completely and formed a second line further inland, in the end Collins chose to move and by the afternoon of the 25th it was looking possible that a yawning gap had been created in the enemy front line. He committed the armoured units 2nd and 3rd Armoured for attack the next day.

26th July

At dawn on the 26th of July, the 2nd and 3rd Armoured Division was unleashed, accompanied by the 1st Infantry Division. 3rd Armoured took Marigny, passing through 9th Division's zone of attack. 2nd Armoured pushed out towards St. Gilles while the 30th Division kept up the momentum, moving south securing the bridge crossings along the American left flank along the river Vire, aiming to stop any German counterattacks. By early afternoon 2nd Armoured had not only taken St. Gilles but pushed through the town. Marigny was a harder nut to crack, as elements of the 2nd SS Panzer were holding up the advance north of the town, yet their resistance was piecemeal and although German resistance was intense it seemed no counterattack was developing. The road through St. Gilles seemed wide open; this could offer the possibility of a total breakthrough.

27th July

Collins was hoping to have taken Marigny on the 26th, yet the town wasn't completely occupied until the morning of the 27th. As 3rd Armoured and the 1st Infantry Division were getting tangled up north of Marigny waiting for this crucial junction to be taken, Collins decided to split 3rd Armoured with Combat Command B (CCB) circling around by passing Marigny and pushing east towards Coutances, leaving 1st Infantry Division to mop up the town. 3rd Armoured Combat Command A (CCA) would then pass through Marigny and take a parallel route with 3rd Armoured CCB, their objective Hyenville a town about 5 miles south of Coutances. As the Combat Command B hit the road heading east to Coutances, German opposition was virtually none existent. Morning mist and fog had lifted early and the day was sunny and clear, the third day in a row of good weather. IX Tactical Air Command was in control of the sky and was making it extremely difficult for the Germans to bring in reinforcements to these critical areas. East of Marigny 2nd Armoured passing through St. Gilles was hitting no opposition, as it was sweeping down the highway through Canisy with their sites firmly fixed on Tessy-sur-Vire. By the afternoon 3rd Armoured CCB had advanced 4 miles in 4 hours and 2nd Armoured CCB had pushed way passed St. Gilles, firing on lone groups of surprised German units as they were caught in the open. American reconnaissance units sweeping through Dangy on the afternoon of the 27th catching Lt General Bayerlein of Panzer Lehr at his headquarters completely unaware that the Americans had penetrated so far south, he only managed to escape by fleeing cross-country on foot through fields and orchards. As previously 1 mile a day was an accomplishment this rapid movement was indeed looking like a breakthrough.



Fig (6) St Gilles covered in wrecked German tanks destroyed by the carpet bombing of the 25th July, now being liberated by rapidly advancing American units. July 1944 (USNA)



Fig (7) The same position at St-Gilles in 2022. (BAG)



Fig (8) American 82nd Armoured Reconnaissance vehicles attached to the 2nd Armoured Division take Canisy on the 27th July, 1944. (USNA)

28th July

On Friday morning 28th of July, the American breakthrough looked like it was opening out to a full sized breakout as the pressure was unrelenting. This pressure was being felt across the entire German front, as the front line German forces in the west facing VIII Corps began to give ground and pull back. The Lessy St.Lo Road was secured, Lessay fell to the allies as well as Periers. Hausser was beginning to realise that the front could not be held for long without reinforcements and this was looking less likely as the allied control of the air was targeting any movement on the ground. The American breakthrough was moving fast and if he didn't move against this threat his entire front may simply collapse. He ordered an immediate withdrawal of LXXXIV Corps east then south to counterattack the American forces on his flank. Yet confusion developed within the German chain of command, Choltitz in command of LXXXIV Corps rejecting this idea and moving his force south, only slightly shifting east as the likelihood of his force being completely cut-off looked imminent. As the Germans pulled back in front of the American VIII Corp front, the Americans began to follow them slowly at first then rapidly moving south, only coming into slight delays due to mines. VIII Corps 4th Armoured looked likely to crash into 3rd Armoured on their dual trajectories to capture Coutances. Bradley recognised the possibilities of a colossal friendly fire incident between the two American armoured divisions and called a halt to the advance of 3rd Armoured advance on Coutances, CCB stopping just as the city's church spires came into view. German resistance however had collapsed due to the confusing orders and unrelenting pressure from the enemy, large numbers of German units were flooding south. Unable to properly regroup the roads began to become entangled with retreating vehicles, hoses and men with no real objective except to move.

Bradley's VII Corps 2nd Armoured were still making rapid progress heading south, taking a major road intersection south east of Coutances and setting up road blocks and ambush positions along the road junctions to their right flank, in the hope of rapping up any German units heading south, reaching Notre-Dame-de-Cenilly by the afternoon. German retreating units, elements of the 17th SS Panzer Grenadiers and 2nd SS Panzer Division smashing into the American road blocks in the early hours of Saturday morning. The Germans were taken completely unaware in the gun battle that unfolded taking heavy casualties.

29th July

By Saturday morning on July 29th the German LXXXIV Corps was in complete disarray, nearly all of the territory north of Coutances had been captured by VIII Corps and the German left flank was crumbling quickly, due to the sweeping movements of 2nd Armoured 'Hell on Wheels' Division that was now heading south west through St-Denis-Le-Gast, with the ultimate hope of cutting across the front towards Lengronne, with the aim of catching the Germans in a giant bag before they broke out south towards Avranches. All through the night actions like that at Notre-Dame-de-Cenilly were repeated up and down 2nd Armoured road block positions. Massed German units stumbling into American crossroad held positions in the middle of the night. Heavy fire fights that resulted in whole columns of German infantry and vehicles being destroyed, in some cases great battles took place as the amount of retreating German columns were so large that they overwhelmed the Americans. As the next day dawned field and road junctions were littered with dead and wrecked vehicles. One such action took place on the D49 Grimesnil road. Elements of 2nd SS Panzer and 17th SS Panzer Grenadiers, amounting to some 2,500 men and a vast column of vehicles and tanks, hit an American roadblock in the early hours of Saturday morning, the size of the German attack nearly completely overwhelmed the American outpost held by the 41st Armoured Infantry of 2nd Armoured Division. If it wasn't for the actions of Sergeant Hulon Whittington, a 23 year old squad leader, who having lost his platoon leader took up the initiative to knock out the leading German tank, effectively blocking the road then organizing a bayonet and grenade charge, pushing back the German attack. Complete destruction of the German column was achieved as other American artillery units zeroed in. For his actions that night Whittington was awarded the congressional medal of honour.

As the day dawned, the sky was clear and was yet another day for allied airpower to be utilised to best effect. Due to the tangled amount of German machinery heading south it was like shooting fish in a barrel for the allied pilots. Near the village of Roncey, south of Coutances, hundreds of German vehicles were caught in a massive traffic jam. Known as the 'Roncey Pocket' the area was zoned in by tactical air support and divisional artillery. By the end of the day over 400 German vehicles and tanks were left burning.

30th July

By Sunday July 30th Operation COBRA was roundly seen as a success. In 5 days the American forces had taken more ground than in five weeks. In truth, Bradley had seen the success of COBRA 3 days ago, as the Germans began to pull back and move south due to the build-up of pressure from their flanks. It would be a natural conclusion to take a breather and consolidate before pushing on to Avranches, but Bradley insisted to keep up the pressure and send VIII Corps 4th Armoured and 6th Armoured Divisions to push on and take Avranches. 4th Armoured cutting inland and ran straight into the German seventh army's new defensive front line, in the form of several road blocks commanded by SS General Paul Hausser himself, the position being totally overrun, with Hausser fleeing to Mortain. 6th Armoured captured Granville with the Germans putting up a stiff resistance but by the afternoon Avranches was under American control. German troops continued to arrive in the town not knowing that it had been captured, some showed resistance yet most just putting their hands up. Montgomery launched Operation Bluecoat this same day effectively containing any German counterattack from the east. However the Cotentin peninsular had been taken.

The German counterattack at Mortain on the 7th August was not unexpected, yet its size and aggression stalled the allied advance, ultimately the German attack failed and in reality it only pushed valuable German units into the meat grinder for no real gain. Brittany lay wide open, it was now time for Patton's third army to be unleashed and drive the American success of COBRA to its final conclusion, the total collapse of the German Army in Normandy at Falaise.

3.0 Survey Site Locations

Phase 2 'The Breakout' an Historical account of military actions per site

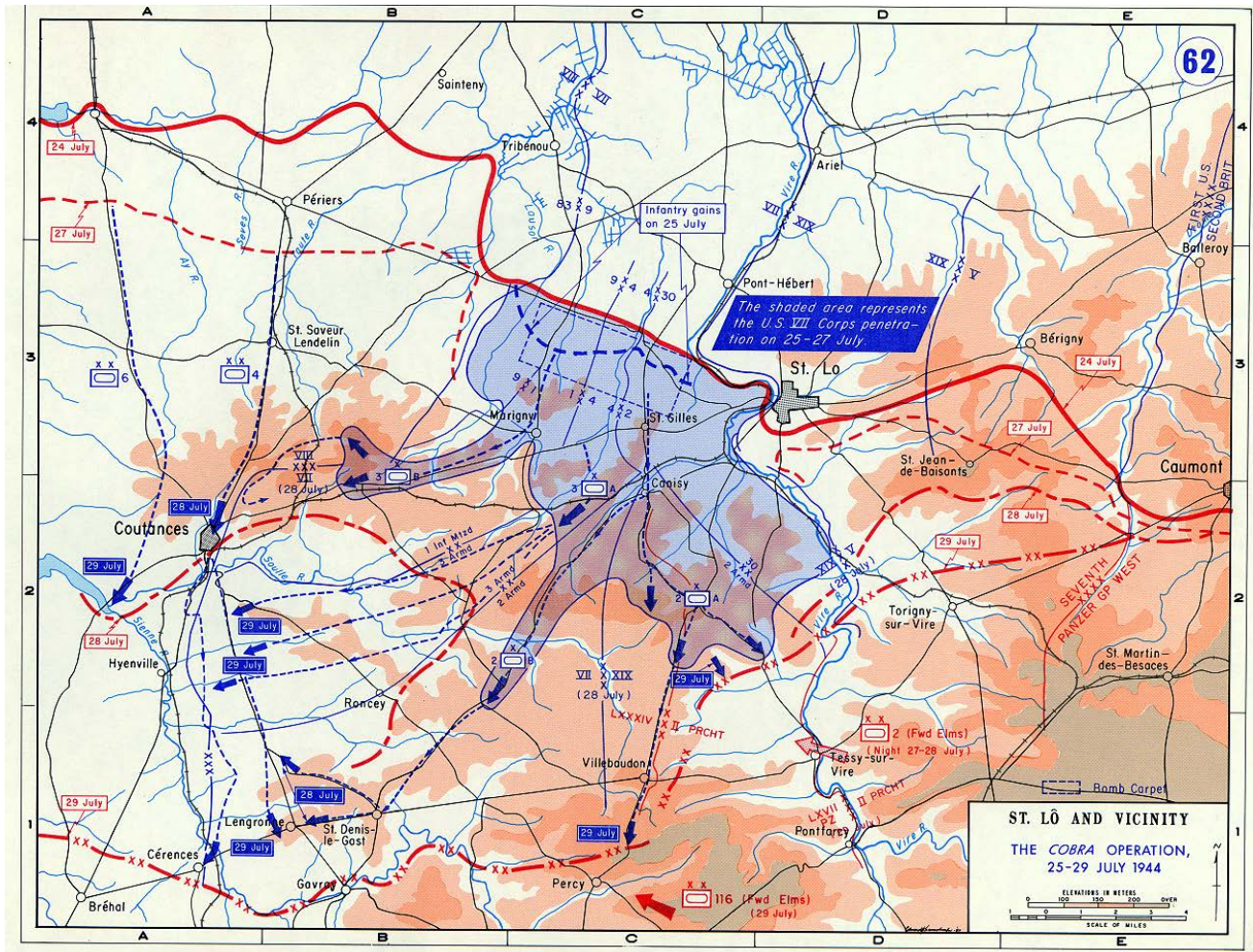


Fig (9) Operation Cobra zones of operation 25th-29th July, 1944 (USNA)

Survey Sites

German resistance in the bomb zone by the end of the 25th of July was virtually non-existent, with American Infantry units having now penetrated into the towns of Marigny and St Gilles by the 26th. The decision was made by Bradley to commit the armoured divisions to drive through the infantry divisions positions and push south. With 3rd Armoured Division driving towards Coutance, it was the 2nd Armoured Division that was now tasked with the objectives of driving south-west to Lengronne and south to Gavray, with the desired hope of cutting off the entire Cotentin Peninsular. Pushing on, facing little resistance, the 2nd Armoured Division after leaving St Gilles drove onto Canisy by the 27th and then down the D38 to Dangy and further south to St-Denis-le-Gast and Lengronne, shooting up random enemy units and vehicles. The spearhead of the attack was led by the fast moving vehicles of the 82nd Armoured Reconnaissance Division attached to the 2nd Armoured, traveling at speed and securing crossroads and strategic road intersections, knocking out lone enemy vehicles and collections of disorganised infantry and support units.

These intersections would be crucial in securing a fortified right flank, to enable an American break out, and so were immediately reinforced by armoured infantry units travelling with the armoured divisions. Supported by anti-tank guns and mobile artillery units, these road block positions took on the form of defensive islands deep in hostile territory. German resistance at first was scattered and disorganised but by the nights of the 28th and 29th of July, as it became increasingly obvious that the German front had been out-flanked and troops began to be aware that they were being caught in a giant bag, German attempts to get through the roads blocks took on the form of major counterattacks, and in at least two sites resembled large scale battles involving thousands of combatants.

The key sites picketed by the American armoured divisions form the target zones of interest for the second phase of survey for the Project. The combat reports written after the action by the 82nd Reconnaissance and other combat units don't mention these locations by name but do refer to each location with the use of a six figure map reference that can be tied into a 1943 contemporary 1:50,000 assault map.

Multiple events from the 27th to the 29th of July are registered to these locations and the wider area.

The locations of interest that form the focus of the 2022 season are based on these accounts. The map reference locations taken from contemporary 1944 after action reports from several combat units, mainly the 2nd Armoured Division Head Quarters S-3 report, 67th Armoured Regiment, 82nd Armoured Reconnaissance Battalion, 78th Armoured Field Artillery Battalion, 41st Armoured Infantry Regiment and also cross referenced with reports from the 4th Infantry Division, 62nd Armoured Field Artillery Battalion, 92nd and 188th Armoured Field Artillery Battalion. Situation locations were then aligned to a 1:50,000 map, reference 2nd edition 1943, France, Sheet 6F/3 Coutance. Several significant locations were located, indicating areas of intense combat action. Some of these areas were located in built-up areas, within towns and villages and so wouldn't offer any advancement of knowledge through archaeological investigation, however six sites were located at road intersections, crossroads and points of entry to major towns that were not in built up areas. These sites remaining virtually unchanged since 1944. These sites are listed as:

Pont Brocard: (T382525)

La Pinetiere crossroads: (T362494)

La Valtolaine crossroads: (T341475)

D610/D238 crossroads: (T312451)

La Chapelle (T291441)

D49 Grimesnil Road: (T272471)

These site locations were the focus of study for the Phase 2 of the project and listed as:

Site B2 - Le Pont Brocard

Site B4 - La Pinetiere crossroads

Site B5 - D610/D238 crossroads

Site B6 - La Valtolaine crossroads

Site B7 - La chapelle

Site B8 - D49 Grimesnil Road

2nd Armoured Division 26-31 July 1944

- B2** Pont Brocard
- B4** La Pinetiere
- B5** St Denis
- B6** La Vaitolaine
- B7** La Chapelle
- B8** La Lande de Mort
- CC A** ■
- CC B** ■
- German** ■

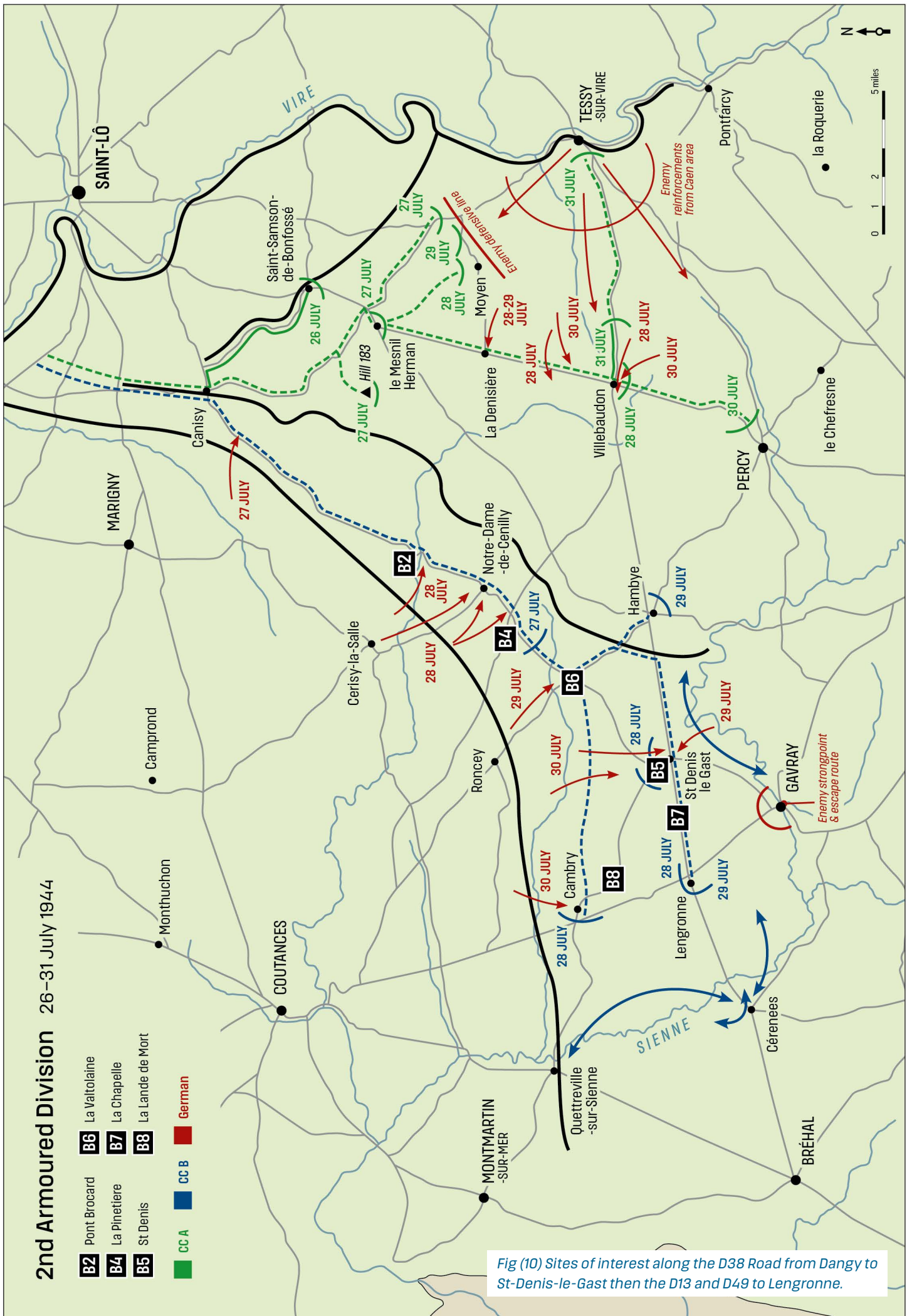


Fig (10) Sites of interest along the D38 Road from Dangy to St-Denis-le-Gast then the D13 and D49 to Langronne.

3.1 Pont Brocard - Site B2

Historical summary of events

Pont Brocard was a strategic position situated at the bridge crossing of the Soulles river and located at the key road junctions along the D38 heading south towards St-Denis-le-Gast and the D52 linking roads networks to Cerisy-la-Salle and Montpinchon. Any retreating German units travelling south from their main line of resistance in the north would need to pass through Pont Brocard. With the high ground above Pont Brocard an objective for the 2nd Armoured Division, the 82nd Armoured Reconnaissance secured the area on the 27th of July after pushing through Dangy at speed, overcoming a disorganised German resistance and putting to flight the commander of the Panzer Lehr Division Major General Fritz Bayerlein, who was caught unaware that the Americans had broken through. After securing the high ground, the 82nd AR then drove into Pont Brocard overcoming light resistance from anti-tank and small-arms fire. The town was secured in the afternoon by the advance guard, led by the right column of the 2nd Armoured Division Combat Command B, commanded by Col. Paul A. Disney. B/41st Armoured Infantry picketed the town taking up positions on the bridge facing south and the road network in the north. A 57mm anti-tank gun was deployed in the northern end of the town, positioned facing west covering the D52 and fought off an advance column of German armoured cars and motorcycles in the early hours of the morning on the 28th. Sergeant James J. Cermak, while in the process of reconnoitring the D52, spotted and exchanged fire with the advancing German column before getting back to the crossroads and manning the 57mm anti-tank gun. Cermak then engaged the column knocking out the advancing vehicles one at a time, putting up a fight that continued until dawn of the next day. The morning light revealed a road covered in burning vehicles and dead enemy infantry. Total German losses for this action were 2 half-tracks, 7 motorcycles and 14 bicycle mounted troops.

Also early on the 28th of July, a German Panther Battalion of 2nd SS Panzer, with elements of the 275th Infantry Division and other assorted units, also made an appearance near Pont Brocard and tried to get through the ever increasingly tight net of the advancing Americans, pushing through and over-running supporting artillery units near Pont Brocard, supporting the 2nd Armoured advance. The American 188th Field Artillery Group, supporting the Division, ordered its artillerymen to arm themselves with rifles to fight back the advancing enemy units, the 183rd Artillery Battalion almost disintegrating under the pressure. It wasn't until the arrival of the 67th Armoured Regiment's Reconnaissance Company that the situation was under control. Capturing over 400 prisoners and a German payroll (Donald E. Houston, *Hell on Wheels* p.220)

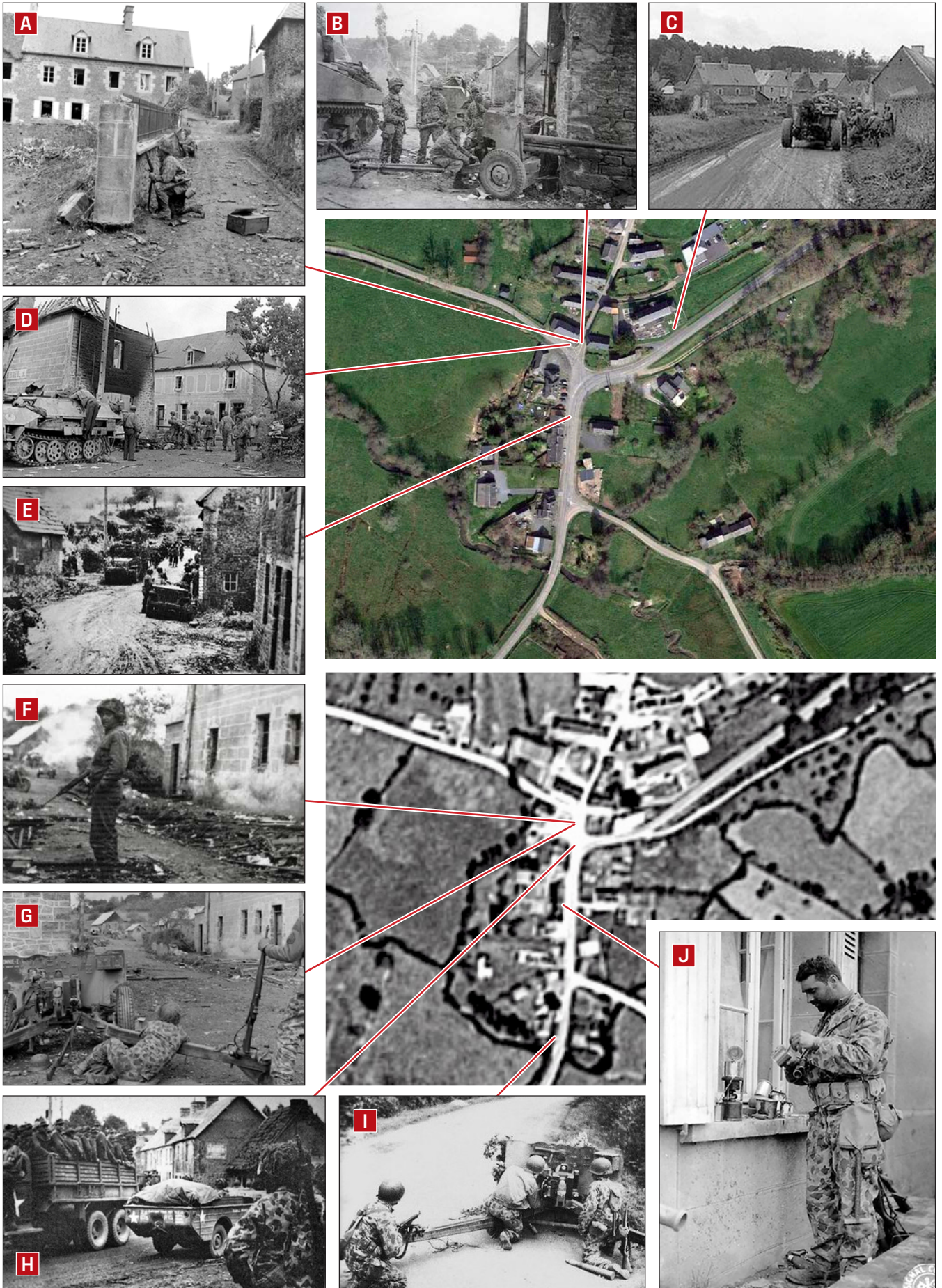


Fig (11) Photo montage of contemporary images and their location in relation to events on the 27th/ 28th July, 1944, at Pont Brocard. (BAG)



Fig (12) 1947 image of Pont Brocard showing the direction of German units ascending the D52 (Red) and the position of America units picketing the town (Blue)



Fig (13) American units spilling around the intersection at Pont Brocard w/ captured vehicles



Fig (14) American 155mm gun from the 183rd FA Bn moving through Pont Brocard. July 44 (Position C) (USNA)



Fig (15) German prisoners being trucked through Pont Brocard along the D38. July, 44 (Position H) (USNA)



Fig (16) American units picketing Pont Brocard along the D38. July ,44. (Position E) (USNA)



Fig (17) US 41st Armoured Infantry in defensive positions overlooking the D52 at Pont Brocard. July, 1944. (Position A) (USNA)



Fig (18) US 41st Armoured Infantry antitank gun position at the western end of the town covering the bridge over the Soulles River, Pont Brocard. July, 44. (Position I) (USNA)



Fig (19) 41st Armoured Infantry at Pont Brocard manning the 57mm antitank gun facing the D52 road and the direction of the German attack. July 1944 (Position B) (USNA)



Fig (20) Sargent H. V. Robinson from the 41st Armoured Infantry poses in front of burning German vehicles scattered along the D52 road at Pont Brocard on the morning of the 28th July 1944. (Position F) (Robinson/Bando)



Fig (21) US 41st Armoured Infantry picketing their 57mm anti-tank gun position at Pont Brocard after fighting off the German advance during the night, here seen on the morning of the 28th July. Note the shell in the breach ready for a quick response. (Position G) (USNA)



*Fig (22) Private Joseph G. De Freitas from the 41st Armoured Infantry, Anti-tank gun platoon. July, 1944
Pont Brocard. (Position J) (USNA)*

27th July, 1944

"On Departure from Dangy, 1st Bn 41st Armoured Infantry Regiment reinforced Company D, 67th Armoured Regiment and was moved to a position in the column directly in rear of the tank and infantry elements of the advance guard. The advance guard was placed under the control of Co 1st Bn 41st Armoured Infantry Regiment as force commander. Advance on PONT BROCARD (T382525), was continued in the face of the enemy delaying action by small arms fire, mobile anti-tank guns and tanks operating from the flanks. At approximately 1900B PONT BROCARD was secured after a sharp advance guard action with hostile armoured cars. The advance was continued rapidly on Norte-Dame-de-Cenilly."

Source: Headquarters Combat Command "B" 2nd Armoured Division. S-3 Report; 1st July-31st July, 1944.

"The advance was temporarily halted on the northern outskirts of Pont Brocard by hostile anti-tank and small arms fire which forced the deployment of the advance guard which attacked and secured the town, seizing defensive positions 2000 yards SW of the town. The town was secured at 2100B."

Source: Headquarters Combat Command "B" 2nd Armoured Division. S-3 Report; 1st July-31st July, 1944.

"Further advance was halted for the night infantry and tank elements were disposed to organise the defensive position secured by the advance guard 78th Field Artillery Battalion took up positions just north of PONT BROCARD (T385532).

The balance of the right column continued to march and develop in assembly areas south and north of NOTRE-DAME-DE-CENILLY"

Source: Headquarters Combat Command "B" 2nd Armoured Division. S-3 Report; 1st July-31st July, 1944.

"B Company 3rd Platoon. The platoon then moved down the main road which was the axis of march to join the 2nd platoon near DANGY. The town was out posted by the 1st Platoon. About one and a half miles North of PONT BROCARD the platoon received sniper fire from the left, and after spraying the area with MG fire, two prisoners, four wagons and eight horses were captured. At PONT BROCARD sniper fire was again received from some of the buildings. The scout section went in and took 9 prisoners including 2 officers."

Source: 82nd Reconnaissance Bn, June 44-May 45. Archive; 845-23-Narrative report.

28th July, 1944

"Movement of the main right column was delayed by a strong hostile counterattack, infantry and tanks from the general direction of CERISY-LA-SALLE, directed at PONT BROCARD and NOTRE-DAME-DE-CENILLY. The attack was stopped by artillery, tanks, infantry and tank destroyers of the right column, assisted by an attack by Division reserve elements as follows, Company F 41st Armoured Infantry Regiment attacked SW from PONT BROCARD, Company I 67th Armoured Regiment move to vie of NOTRE-DAME-DE-CENILLY and attacked north. Elements of the reconnaissance Bn were withdrawn to the NOTRE-DAME area. One platoon, Reconnaissance Company 67th AR at 1530B was sent to PONT BROCARD to assist 183rd Field Artillery Bn which had been over-run by the enemy."

Source: Headquarters Combat Command "B" 2nd Armoured Division. S-3 Report; 1st July-31st July, 1944.

"Division reserve given mission of clearing and securing PONT BROCARD area-advance guard crossed IP 1530, arrived present location 1700, assembled to launch coordinated attack. 2nd Bn. 41st Armoured Infantry Regiment initiated the attack (at)1730. 3rd Bn. 67th Armoured Regiment jumped off (at) 2115. Progress satisfactory 2230."

Source: 41st Armoured Infantry Regiment S-3 Periodic Report. #56, 28th July, 1944.

"B Company, 2nd Platoon. 28th July, moved up as advance guard and the column withdrew and moved around a different route. A horse drawn artillery bivouac was found and attacked at (T397531)-east of PONT BROCARD. Lt Frost and Private Morris were wounded in the action at this place. 20 prisoners were taken and these pieces of artillery destroyed."

Source: 82nd reconnaissance Bn, June 44-May 45. Archive; 845-23-Narrative report.

3.2 La Pinetiere Crossroads- Site B4

Historical summary of events

By the morning of the 28th of July, the 2nd Armoured Division Commander Maj Gen Edward H. Brooks recognising that a build-up of German men and material was increasing along 2nd Armoured right flank, and it was only a matter of time before the Germans would try and breakout of their increasing bottleneck across their northern front. It was assessed that a German breakout attempt was inevitable and most likely to be initiated by the night of the 28th. Brigadier General Isaac D. White, commander of the 2nd Armoured Combat Command B, called in the division reserve and an infantry battalion from the 4th Division, pulled in his dispersed reconnaissance units to concentrate his defence of the area built around the strategic north south crossroads positions along a 7 mile front from Pont Brocard to St-Denis-le-Gast.

A mile south-west of Notre-Dame-de-Cenilly is the crossroads of La Pinetiere, situated on a major north/south east/west Crossroads, intersecting the D38 and the D27 road networks was already a hub for the 82nd Armoured Reconnaissance Bn, and a trickle of German tanks, vehicles and horse drawn artillery units and men had already been destroyed and captured along this road up until the 28th. A reconnaissance in-force by the 82nd AR, on the 28th of July, pushed 2 miles west along the D27, with the objective of seizing a strategic crossroads north of Roncey, with the aim of cutting off the Roncey Montpinchon road, yet ran into concentrated and increasing resistance on reaching their objective. A German counterattack and the threat of being out flanked pushed the 82nd AR back along their route of advance, fighting a running retreat back to their jumping off area at la Pinetiere. The crossroads was picketed by Lt. Col. H.M Exton's 78th Armoured Field Artillery Battalion by the evening of the 28th. Equipped with M7 self-propelled 105mm howitzers and reinforced with L Company 8th Infantry Regiment, 4th Infantry Division. Exton's CP and B battery, accompanied by elements of the 195th Anti-Aircraft Battalion in two half-tracks firing quad-50's an M10 tank destroyer and C company, 82nd Reconnaissance Bn was located on the north west corner of the crossroads occupying positions in the orchard around the house 'La Pompe'. Across the D38 road opposite 'La Pompe' in fields forming the north east corner of the intersection was situated C battery, protected by a 37mm anti-tank gun pointing through the hedgerow looking west down the D27. 500m behind them further up the D27 heading east, on slightly higher ground was situated the 1/67th Armoured Regiments HQ. The 78th's A battery was situated in the town of Notre-Dame-de-Cenilly. 500m west down the D27 was the forward outpost manned by elements of the 8th Infantry, and 4 M10 Tank Destroyers from the 702nd Tank Destroyer Battalion, with 4th Divisions soft topped vehicles parked up amongst buildings and trees at the intersections south-west corner. The 78th FA had been firing missions all night on the 28/29th in actions to stop German attempts to breach and breakout of the 2nd Armoured Divisions defensive line up and down the D38, when at 0800B on the morning of the 29th the 8th Infantry outpost west down the D27 erupted in fire as German armour and infantry ran into the American positions. By 8.30B-9.00B the American forward outpost had been overrun, the company commander killed, forcing the Tank Destroyers to take up positions amongst B battery's positions in the orchard that were now facing a column of 15 German tanks and several hundred German Infantry. B Battery lowered their guns and engaged the enemy units in direct fire now backed up by the 702nd Tank Destroyers, aided by C battery firing directly down the D27. A battery throwing shells over B and C batteries in indirect fire. The onslaught of fire from Extons positions lasted at least 30 minutes, during which the Division artillery fired 3 'Stonks' 500 yards from the battalion front onto the D27. The results of which saw the main German force being destroyed or captured. The situation only fully stabilised by the arrival of armour and infantry from the 67th Armoured Regiment and the 41st Armoured Infantry by 10.20B. Strewn across the D27 was left the smoking remains of 7 German Mark IV tanks and 125 enemy dead.

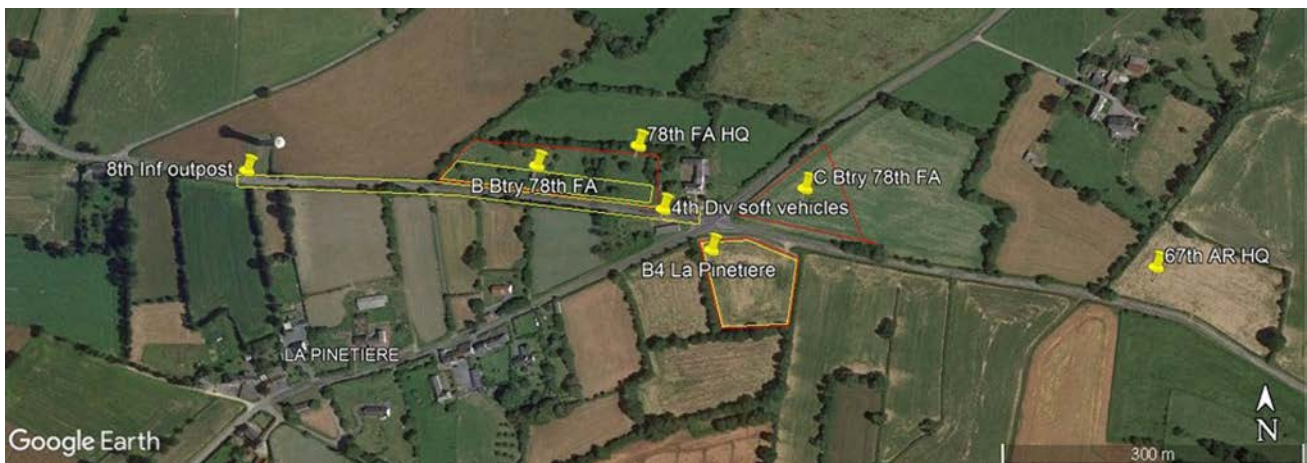


Fig (23) Locations of American units picketed at La Pinetiere crossroads. Survey areas in yellow and red. (Google Earth)



Fig (24) 1947 photo of la Pinetiere depicting location of units

"At 290430B July, an attack was begun against the advance guard positions and at the outposts at (T341475) LA VALTOLAINE and (T362494) LA PINETIERE by Germans caught in the pocket. It was a coordinated attack with infantry, armour and artillery. No ground was given and the situation was reported as being in hand at 290500B July."

Source: 67th Armoured Regiment, 2nd Armoured Division, Combat report. NO: 835

"29th July: At 0900B, tanks were reported at the crossroads near which the Bn was located from the Northwest, and the intensity of fire from small arms and automatic weapons, as well as sporadic large calibre bursts in the area increased. B and C Btry's were placed for direct fire on the route of the approaching tanks, while A Btry remained for indirect fire. The infantry outpost of the 4th Inf Div withdrew to the position of B Batry and tanks, TD guns and the quadruple mount of the 195th AA Bn all lined up along the hedge row with B Batry to meet the threat, which arrived shortly thereafter, penetrated as far as the hedgerow in which the M7's of B Btry were placed and one mark IV tank reached the crossroads before being knocked out by fire from the M10 of the 702nd Tank Destroyer Bn and an M7 of C Btry, 78th FA. The Bn CP on a small hill received all the overs fired by the Germans at B Btry. The attack was thrown back by 1020B after taking the direct fire mentioned before and indirect fire 'Stonks' fire by Divisional Artillery, and 374 rounds fired by A Btry indirectly. When the outpost was re-established by elements of the 41st Armored Infantry, 7 Mark IV tanks were found on fire or knocked out, and 126 German bodies counted, some of which were up to the hedgerow separating the enemy from our M7,s. The Bn displaced forward via HAMBYE and ST-DENIS to (T291441) LA CHAPELLE."

Source: 78th Armoured Field Artillery, Operations 1-31, July, 1944. Archive; 841-12

Operations A Company-27-31st July: 28th July 1st. "Platoon moved to LENGRONNE and then withdrew to LA PINETIERE for the night. The bivouac was attacked at 0930B forcing the platoon to move to the north east of NOTRE-DAME-DE-CENILLY."

[Source: 82nd Reconnaissance Bn, June 44-May 45. Archive; 845-23-Narrative report.](#)

A Company 2nd Platoon, 28th July "The platoon proceeded towards GAVRAY then returned to LA PINETIERE for the night. The platoon was attacked by a Mark IV tank early on the 29th. The assault gun was knocked out and Pvt 1st class Pilcher was wounded."

[Source: 82nd Reconnaissance Bn, June 44-May 45. Archive; 845-23-Narrative report.](#)

A Company, 3rd Platoon: " The platoon bivouacked southwest of NOTRE-DAME-DE-CENILLY for the night, caught in a counter attack the next morning at LA PINETIERE, the platoon withdrew back to NOTRE-DAME".

[Source: 82nd Reconnaissance Bn, June 44-May 45. Archive; 845-23-Narrative report.](#)

B Company, 2nd Platoon " Orders were received to continue reconnaissance to LA PINETIERE. The platoon pushed forward one mile to the crossroads 600 yards southwest of LA PINETIERE. There received orders to outpost that crossroads with the 1st platoon protecting the rear and left flank, the 3rd platoon protecting the right flank and the 2nd platoon covering the front and left flank. Mine fields were put out. The 2nd platoon was relieved in the morning at first light. On July 28th the 2nd platoon received a mission of pushing aggressive reconnaissance to a crossroads two miles west of LA PINETIERE. The platoon pushed steadily through two miles to the objective although receiving heavy fire from small arms, MG's and 37mm fire, killing over 15 enemy, a message was received to withdraw with caution as two enemy tanks had been observed to our rear. Just as they were attacked by 3 Mark V tanks and approximately 250 infantry from the front. The road was narrow so that turning around was impossible and the platoon had to back down the road for 800 yards before being able to turn around.

[Source: 82nd Reconnaissance Bn, June 44-May 45. Archive; 845-23-Narrative report.](#)

"The enemy had closed in to fifty yards when Sgt Johnston platoon Sgt, who had been to point vehicle in the advance immediately, at his own accord, took up position with his armoured car to delay the enemy and cover the platoons withdrawal. His car was receiving very heavy MG, small arms fire, but he engaged the enemy in a fire dual, killing over 35 enemy and held the (enemy) from advancing, thereby insuring the safe withdrawal of the platoon. The platoon made a hasty and orderly withdrawal back to the crossroads at LA PINETIERE, there it assembled and reorganised. During the mission the platoon captured three prisoners and killed over fifty enemy".

[Source: 82nd Reconnaissance Bn, June 44-May 45. Archive; 845-23-Narrative report.](#)

B Company, 3rd Platoon. At 0230 July 29th, "The platoon was alerted of the 17th Armoured Engineers and 41st Armoured Infantry from pending German counter attack. The platoon sector received little fire other than some close rounds of 88mm or mortar fire. At about 0830B, the platoon received an order to reconnoitre for any German resistance still remaining in the triangle formed by the crossroads at LA PINETIERE one mile SW of NOTRE-DAME, south down the ST-MARTIN-DE-CENILLY Hwy, two and one half miles to the road junction, then east along the secondary road leading to LA BOURG. A report was received that German tanks were proceeding up the road within this area about one mile south and east from the crossroads at LA PINETIERE."

[Source: 82nd Reconnaissance Bn, June 44-May 45. Archive; 845-23-Narrative report.](#)

D Company, 1st Platoon. "At 0005 29th July an enemy tank was seen approaching from the west. The 57mm crew fired six rounds at the tank forcing it to withdraw. At about 0300B, 29th July the enemy began to attack in strength from the south, their objective being the intersection (LA PINETIERE) the company withdrew to LENGRONNE."

[Source: 82nd Reconnaissance Bn, June 44-May 45. Archive; 845-23-Narrative report.](#)

28th July: "The column retired via St-Denis-Le-Gast and went into bivouac in an area just west of LA PINETIERE crossroads at about 2100B. On the morning of the 29th July the company was bivouacked 400 yards south of LA PINETIRE. During the early morning from 0400B to 0600B a German counter attack was in progress towards the crossroads from the NE. At about 1000B the counter attack was renewed with increased fury and soon elements of the defending infantry were withdrawn in haste from their defensive positions north of the crossroads. The company was informed by the withdrawing infantry that the American tank destroyers had withdrawn and that the enemy armour and infantry were advancing. The company was ordered to withdraw its vehicles and to defend the crossroads dismounted. The two medium tanks from the 67th Armoured Regiment attached to the company remained for anti-tank protection and to cover the withdrawal of C Btry 78th FA. The Company was organised for dismounted action and was fighting a delaying action when the counter attack was Brocken up due largely to a barrage of artillery on the crossroads and the destruction of the lead mark IV tank by one of the remaining M10 tank destroyers, the direct fire of the two tanks attached from the 67th AR also assisted. Pvt Robert Lohr a B.A.R man from 3rd platoon, accounted for 8 enemy known dead and was aslo wounded in the action."

Source: 82nd Reconnaissance Bn, June 44-May 45. Archive: 845-23-Narrative report.



Fig (25) Private Robert Lohr, C Company 82nd Armoured Reconnaissance Bn, won the silver star at La Pinetiere for his exploits on the morning of the 29th of July, 1944. (USNA)

"I was rudely awakened early in the morning. Daylight had begun to replace a damp clammy night. Our armoured cars were returning what appeared to be 20mm fire, along with small arms fire. The vehicles were soon ordered out and we were told to delay the German attack then pull back. After I had run up a slight hill for two hedgerows, I noticed a friendly tank across the highway, in the field facing the German advance. Being hot from the run, not the weather, and being tired of the backward movement, I had the idea to cross over and out post the tank, and try and catch a ride from them if they had to pull out. Since there were an ample number of targets, I couldn't understand why they weren't firing from the tank. However, I later found out that vehicle had been abandoned, and I was essentially all alone on the hedgerow. Call it lazy or what, but I had developed the technique of holding the BAR sideways to the right; the BAR climbs precipitously upward on firing small continuous bursts. Normally I fired in only groups of two or three. But, with many targets, I shifted to rapid fire and would

start at the left and go through a magazine and insert a new one and go back to the left again, or to the left of whatever target base I had. During one of the magazine changes I received a terrific blow to the chest and it knocked me back from the hedgerow. As I struggled to get back up and into firing position again, two small-sized medics showed up with a litter to take me out. I talked them into letting me field strip the BAR and threw the parts into the bushes, Then they ran up the hill with me to the company aid station."

Source: Robert Lohr, interview, 1996 by Mark Bando taken from 'Breakout At Normandy' Mark Bando , MBI Publishing 1999.

"Situation and disposition remained as previously reported until 02003 when Division, Reserve, was relieved by the 8th Infantry. Assembled for move to the south west attack by 2nd Bn 41st Arm Inf. Secured CERISY-LA-SALLE. Left area (T387536) at 0700B. Destroyed attacking enemy at NOTRA-DAME-DE-CENILLY 0913B, then at LA PINETIERE approximately 1200B and crossroads (T342476) 1800B (LA VOLTALIANE) Division Reserve CP, moved to (T375505) at 0840B, 328th Engineers attached. Div. Res. Secured sector NOTRE-DAME to crossroads at (T342476) VALTOLIANE. DES. RES. Given mission of securing GRIMESNIL including to crossroads (T341472) area secured and out posted at 2330B. Co B 41st Arm. Inf. Temporarily attached by CCB to provide reserve and secure St-DENIS-LE-GAST. Enemy thrust countered 2330B-0230B without loss of position.

Source: 41st Armoured Infantry Division Reserve. S-3 Periodic Report. 29th July. #58



Fig (26) A Mark IV Panzer who attempted to breakout of the American lines at la Pinetiere being used as a backdrop for local people sometime in 1944. (Lerooux)

3.3 La Valtolaine - Site B6

Historical summary of events

All along the 7 mile, 2nd armoured front, American outposts from Pont Brocard to St-Denis-Le-Gast were erupting in close quarter fighting by the end of the 29th of July, as German forces now caught in the Roncey pocket by the American offensive were desperately trying to find a way out and head south over the Sienne River.

It was just before dawn on the morning of the 29th at 0415B a message was received by elements of the 67th Armoured Regiment that a large German column was headed south from Roncey towards the crossroads 3 miles south-west of Notre-Dame-De-Cenilly at (T342475) La Valtolaine. The German column was part of a larger force lead by Lt Col Heydte, commander of what was left of the 6th Parachute Regiment. Heydte by this time had lost contact with his contemporary commanders and was effectively a lone fighting force that consisted of about 30 vehicles and infantry from the 2nd SS Panzer Division and the 17th SS Panzergrenadier Division and a mixed bag of stragglers from other units. Leading the column was an 88mm self-propelled gun followed by about 12 tanks, armoured vehicles and infantry. 3rd Bn 41st Armoured Infantry, in a forward outpost on making contact with the enemy column, quickly withdrew to the main American position occupied by the remainder of the 3rd Bn commanded by Lt Col Crawley and E company tanks from the 67th Armoured Regiment, at and around the crossroads.

Coming out of the early morning mist the German column that came into view was now climbing the slight rise to the crossroads being led by the 88mm SP and a squad of German infantry and bicycle troops, followed by an advanced party of Mark III tanks, towed 75mm Anti-tank guns, motor cycles and other vehicles followed up by at least a battalion of infantry. Due to the size of the approaching German column, the gunners of company E/67th AR tanks held their fire until the column was nearly 10 yards from the American positions at the crossroads, until opening fire from all directions completely eliminating the leading elements of the German force. Knocking out and destroying at least two tanks and two towed 75mm guns as well as motorcycles, armoured vehicles and the bicycles troops. The rest of Heydte's force dismounted and tried to directly assault the American position yet were pushed back by concentrated MG fire. Heydte then tried a wide outflanking movement to the right flank and then to the left flank of the US positions to try and get around the crossroads, yet this failed. It wasn't until the Germans deployed a double envelopment that the German force led by an 88mm SP gun and infantry broke into the American positions at the crossroads only for both the driver and the gunner of the 88mm SP to be shot and the German assault infantry to be dispersed by a grenade and bayonet attack and indirect fire from the 78th Armoured Field Artillery. By dawn the remainder of the German force had withdrawn and regrouped with a larger force 1,000 yards northwest, this force was now intent on finding another way out of the pocket along the southern routes out of Roncey.



Fig (27) Lt Col Heydte commander of the 6th Parachute Regiment.



Fig (28) The route of Heydte's column (RED) of vehicle and men trying to break out of the Roncey pocket down the D58 road, only to be ambushed by American units (Blue) at the D38 crossroads at la Valtoliane.



Fig (29) Area location of wrecked German vehicles at la Valtolaine.

29th July: "Situation and disposition remained as previously reported until 02003B when Div. Res. was relieved by the 8th Inf. Assembled to move southwest attack by 2nd Bn 41st Arm. Inf. Secured CERISY LA SALLE. Left area (T387536) at 0700B, destroyed attacking enemy at NOTRE-DAME-DE-CENILLY 0913B, then LA PINETIERE approximately 1200B and crossroads 1800B (T342476) LA VALTOLAINE."

Source: 41st Armoured Division Reserve, S-3, Periodic Report; 29th July, 1944. #58

"At 290430B July, an attack was begun against the advance guard positions and at the outposts at (T341475) LA VALTOLAINE and (T362494) LA PINETIERE by Germans caught in the pocket. It was a coordinated attack with infantry, armour and artillery. No ground was given and the situation was reported as being in hand at 290500B July."

Source: 67th Armoured Regiment, 2nd Armoured Division, Combat report. NO: 835.

"0415B a warning order was received from Co-67th AR of an enemy column proceeding south from RONCEY towards the BN's position. At 0430B the point of the enemy column reached an outpost at (T342475) LA VALTOLAINE this outpost of the 3rd Bn 41st AIR withdrew to our position. The enemy column consisted of a point of one squad of infantry and a squad of bicycle troops. This was followed by an advance party of Mark III Tanks; towed 75mm AT guns, motorcycles and small reconnaissance vehicles. The support was estimated to be a battalion of infantry. The hostile point was allowed to pass the forward position of the Bn so as to enable the Co "E" tanks to surprise the enemy tanks. The tank gunners of Co "E" held their fire until the lead enemy tank was less than 10 yards distance before opening fire. Two enemy tanks, two 75mm towed guns and several motorcycles and reconnaissance vehicles were destroyed almost instantly. At the same time the infantry and other tanks opened fire with MG guns; this fire completely wiping out the hostile foot and bicycle troops which had been allowed to pass our forward position. The hostile support tried to attack our left flank and rear. This attack was repulsed by combined tank and infantry fire. The infantry also used the grenade and bayonet. The enemy then launched an attack against our right flank, again the combined efforts of tanks and infantry stopped them. The enemy stopped and tried a double envelopment, this time he succeeded in breaking into our position. One SP 88mm actually went through our position supported by infantry. Our infantry knocked this gun out shortly after it had overrun the position. This attack by the enemy was finally repulsed by artillery fire of the 78th FA and by bayonet, and by grenade work of infantry within our position. During this fighting the assault gun and mortar platoons placed heavy fire on the enemy rear elements. At dawn the enemy withdrew.

Shortly after dawn one platoon with attached infantry pushed to the south and occupied the high ground about 1,000 yards from our position. Shortly thereafter an enemy column of unknown size was spotted moving north-northwest. The combined fires of tanks and infantry destroyed the enemy's lead vehicle and prevented this force from joining with those to our north. At 1000B an enemy force was sighted at (T329485) moving north west towards RONCEY."

Source: After Action Reports, 67th Armoured Regiment; 6th June 44-May 45. #835

3.4 D610/D238 Crossroads - Site B5

Historical summary of events

At 2300B, 29th July 1944, pressure from the movement of the 3rd Armoured Division and the 1st Infantry Division to the north, coupled with the southwest drive of 2nd Armoured Division's Combat Command B, and the general northwest southeast direction of the Sienne River barrier, was causing the enemy to retreat south into a dangerous funnel or bottle neck situation. The town of Gavray and its bridge across the Sienne river, still strongly held by the Germans, constituted the mouth of the funnel and the main escape gap for the Germans. The existence of this situation being increasingly confirmed by reports of enemy movements and by prisoner interrogations. At about 1400B, air reconnaissance reported secondary roads from Roncey (T315500) to St-Denis-Le-Gast chocked with vehicles. This information was immediately communicated to IX Tactical Air Command which resulted in a 'fighter bomber paradise' developing with German vehicles 'bumper to bumper' and 'triple banked' presenting to the attacking airmen an abundance of stationary targets which resulted in what became known as the 'Roncey Pocket,' which saw the destruction of hundreds of tanks, vehicles and men trapped on the congested road networks.

The 3rd Armoured Division's advance on Coutance had been slowed by the enemy to an extent that its operations could no longer be considered as the cutting force designed to close the trap on the enemy retreating. The whole success of the entrapment, therefore, depended on the 2nd Armoured Division's ability to hold the St-Denis-Le-Gast, Sienne River escape gap. In the face of this situation the division commander directed the 2nd Armoured Division CCB to place strong dispositions at Lengronne and St-Denis-Le-Gast, the latter being under control of the Division Reserve. Other elements of the command were situated at Camberton south of Cambry. The 82nd Armoured Reconnaissance Bn established positions at Trelly covering the river crossings in the Trelly-Cerences sectore and at St-Denis-Le-Gast covering the bridge crossing at Gavray. The Division Reserve established positions north of St-Denis along the network of roads leading out of Roncey, extending a line of 6 outposts from (T298457) near Grimesnil, to (T324462). An outpost, consisting of one company of armoured infantry with a platoon of light tanks and a reconnaissance platoon, was established immediately south of St-Denis-Le-Gast and a command post of the 3rd Bn, 67th Armoured Regiment was located at (T313454) and the Division Reserve command post established at (T313451). These locations sighted at the strategic crossroads of the D610 and D238 on the critical road network out of the Roncey Pocket.

Shortly before midnight on the 29th of July, a German diversionary counterattack across the bridgehead at Gavray was launched to distract the American defence of St-Denis. A column estimated to consist of a company of infantry with supporting elements drove from the south-east into the US outposts positions south of St-Denis-Le-Gast. The Germans opened the attack deploying flares and firing rockets to hold the defenders of St-Denis attention in their direction. Confused fighting had been going on in this sector for almost an hour, when two columns of the enemy attempted to breakthrough the American outpost line in the north of St-Denis along the US outpost line so as to initiate a breakout escape south.

The enemy force consisted of approximately 600 men of the 2nd SS Panzer Division and the 17th SS Panzer Grenadier Division with supporting vehicles and tanks, approximately 90 vehicles. The Germans broke through the outpost at (T313455) on the intersection of the D610/D238, at outpost No:5, this outpost fell back onto outpost No:6 which then engaged the enemies flanks. The Germans managing then to penetrate into the bivouac area and command post of the 3rd Bn, 67th Armoured Regiment and threatened to engulf the command post of Division Reserve 300 yards in their rear. A great deal of damage was caused by a German Mark V tank that managed to 'poke' its gun barrel through the hedge into the 67th AR command post area and destroy the command half-track as well as a number of other vehicles. The light from the burning command vehicle aiding the German attack on the outpost, which was abandoned by the 67th personnel falling back onto the division reserve command area, which was now being manned by a heterogeneous group of personnel including clerks, draftsmen, radio operators and orderlies, organising a defensive position around the divisional reserve command area. It was a scene of frantic hand to hand fighting in the dark. The confused action continued throughout the night, the result of which saw the Germans breakthrough and overrun the US outpost positions, even though these positions were still held by isolated elements of American resistance, the Germans not concerned with holding the ground but escaping south and into St-Denis-le-Gast to the immediate south.

St-Denis-le-Gast was defended by B Company 2n Bn 41st Armoured Infantry with support from two M10 tank destroyers from C Company 702nd TD Bn and light tanks from A Company 2nd BN 67th AR. The American positions in the town were fully alerted to the danger of a concentrated German attack and had been fighting small actions by isolated German groups all day. The Germans going through the cemetery north of the town and entering the town down the D38 lead by an 88mm SP gun and a collection of tanks, armoured vehicles and infantry. Confused fighting broke out around the church and crossroads with the D13, resulting in the American defenders being temporarily being pushed out of the town by the sheer size of the onslaught of the German attack. The town was later retaken the following morning. The area littered with German and American burnt out vehicles and dead. German losses were 26 vehicles, 7 of which were tanks and about 130 dead, 124 wounded and 534 captured. American losses amounted to around 13 vehicles destroyed and 77 officers and men. It was discovered later that a part of this German column which forced its way into St-Denis turned west towards Lengronne at about 0200B and proceeded towards the bivouac area of the 78th Armoured Field Artillery Bn at La Chapelle.



Fig (30) Modern map of assumed positions of the 67th Armour and 41st Armoured infantry at the D610 crossroads for the night of the 29th/30th July, 1944. Planned area of survey in yellow. (Google Earth)



Fig (31) 1947 image of the location of the D610/D238 crossroads north of St-Denis-le-Gast.

"At 281755B July, commanding general, Combat Command B ordered advance guard to halt an outpost present position (____) ordered to send 3rd Bn, 41st Armoured Infantry team to help repulse enemy counter attack from north of NOTRE-DAME-DE-CENILLY. This team worked (____ town)? and in an effort to take the enemy flank. Route of this force is found on overlay #59. Counter attack was beaten off before enemy entered the town."

Source: 67th Armoured Regiment, 2nd Armoured Division, Combat Report. No: 835

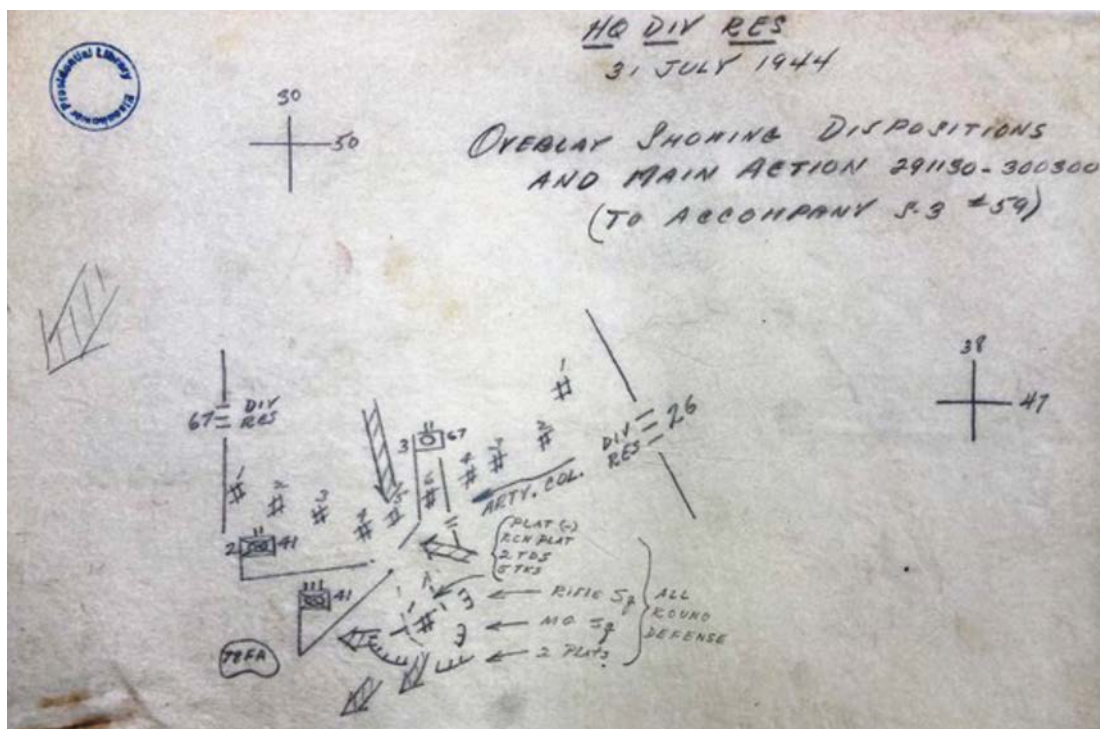


Fig (32) 67th Armoured Regiment, 2nd Armoured Division, Combat Report, S-3. No: 835.
HQ Division Reserve positions, July 29th-31st Overlay #59. 1:50 000 (USNA)

"Enemy thrust was initiated when Panzer troops engaged men organising post No:5 (2/41st AR) Enemy Inf. Supported by tanks, mortars, rocket dischargers, bazookas, armoured vehicles and machine guns forced outpost No:5 to fall back onto outpost No:6. These posts then engaged the enemy from the flank, taking toll at point blank range. Assault continued on through the line and overran portions of CP's of 2nd Bn 41st AIR; 3rd Bn AR and the CP of Division Reserve (Regiment HQ, 41st AIR). All personnel at fwd CP's engaged in close in and hand to hand combat in defence of the CP's. At St-DENIS-LE-GAST B Company, 41st AIR reinforced by R Recon Platoon Company, 82nd Reconnaissance Bn and 67th AR was driven from the town back onto road blocks on the outskirts from where they engaged enemy from flank during the sharp action which resulted; heavy losses were inflicted on the enemy. Here the enemy turned sharp right and continued to the west where they were stopped and destroyed by 78th Field Artillery."

Source: After Action Report-41st Armoured Infantry Regiment, July 1st-31st . # 21. HQ 41st AIR; APO # 252.

"Two armoured cars on patrol moved out at 2400B 29th July, first to locate the engineer squad in position at crossroads one mile northwest of ST-DENIS-LE-GAST (D610). At this point the patrol came under fire from heavy machine guns and tanks and could not proceed further so it fell back to LENGRONNE"

Source: 82nd Reconnaissance Bn, June 44-May 45. Archive; 845-23-Narrative report.

"Division Reserve, consisting of 41st AIR (Less 1st, 3rd Bn and Co's D and F) Company I 67th AR arrived in the vicinity of (T311452) establishing outposts at (T295458) (T299456) (T340040) (T316456) (T309455) and (T313455) at 2345B. It was necessary to fight a German force armed with rifles and MG to secure the left two named outpost positions. The action increased in intensity with mortar and artillery fire from German forces attempting to move south in two columns. The outpost at (T213455) was overrun by an estimated infantry company, two tanks and one SP gun. Platoon of medium tanks, Co, I, 67th AR counter attacked by fire from the hostile right flank, permitting outpost to re-secure their positions. A small German column had passed through in the interim, Lt. Col. W.D. Coleman, 41st AIR was killed in the action. Column had broken through secured and temporarily held ST-DENIS-LE-GAST turning west and moving towards LENGRONNE at 0200B 30th July."

Source: Headquarters Combat Command B, 2nd Armoured Division. S-3 Report; 1st July-31st July 1944.



Fig (33) The German Column managing to smash through the American positions on the D610 kept going through the cemetery north of St-Denis-le-Gast and entering the town, down the D38 lead by an 88mm SP gun and a collection of tanks, armoured vehicles and infantry. The 88mm SP gun coming to rest just as it entered the town from the north. (USNA)

3.5 La Chapelle - Site B7

Historical summary of events

On the night of the 29th/30th of July, 2nd Armoured Divisions, 78th Armoured Field Artillery Bn commanded by Lt. Col. Exton, consisting of M7 Priests mounting 3-inch Howitzers, had organised itself into bivouac at and around the small hamlet of La Chapelle, half way along the D13 from St-Denis-Le-Gast to Lengronne road at the D13/ D102 junction. HQ Battery was located in the triangle of buildings and orchard close to the road with B battery deployed in the fields directly opposite with A battery and C batteries located on the same side of the road as HQ Battery's position. 50 yards down a sunken lane and parallel to the D13 road within HQ batteries position was Exton's fire command CP.

Since 0030B B Battery had been holding its position against infiltrating German infantry trying to escape the fighting directly to the north. Fire fights had been erupting all night resulting in about 40 Germans killed and many captured. At 0215B an American M8 armoured car from the 67th Armoured Recon drove into the battalion area and declared to Exton at the CP that St-Denis-Le-Gast had been overrun. Shortly after the arrival of the M8 another American vehicle drove in followed by an M10 Tank Destroyer from C Company, 702nd TD Bn Commanded by Sgt Oxenrieder which had been damaged by the fighting in St-Denis and had pulled into the north of the road close to the D103/D13 junction alongside the Bn Medical station. At 0230B an armoured column was heard approaching the battalion area from the direction of St-Denis-Le-Gast, it passed the M10 on the side of the road and also bypassed the battalion anti-tank gun positioned around the junction. The column was assumed to be American in the dark, and pulled up alongside B Btry and HQ Btry's positions and so was not immediately engaged. Exton's Intelligence Officer Cpt Naubert O. Simmard was interrogating captured German prisoners from the previous evenings action alongside the road. Cpt Simmard spotted the column as it pulled in. One of the lead vehicles drivers was challenged. "Was ist?" came the reply, Simmard immediately realised they were Germans and yelling to Exton that the column was German, he leapt into his half-track and began firing the mounted 50 calibre machine gun into the columns leading vehicle a Panzer IV towing an 75mm gun. With the eruption of Simmards 50 cal, the rest of HQ Btrys MG's opened up. Exton directed B Btry to fire on the column from the flank, the closest M7 putting 6 rounds into the side of the column, until ordered to cease fire due to the close range of the action and the possibility of firing on HQ battery across the road. The Bn CP vehicles were firing on targets less than 50 yards distant and return fire from elements of the column set fire to the Bn S-2 halftrack and other CP vehicles fatally wounding Simmard. A Btry rolled two M7's onto the road in front of the column and along with the HQ battalion anti-tank gun, positioned at the entrance to the sunken lane, directed fire onto the columns front. Oxenrieders Tank Destroyer now fully alert to the danger in front of him quickly engaging the enemy from the rear pouring fire onto the column causing an armoured personnel carrier carrying infantry to explode lighting up the night sky and exposing the silhouettes of escaping German infantry that were quickly shot down by the Battalion MG's. By 0730B on the 30th all firing had stopped and the road was covered with the burning remains of at least 11 German vehicles towing a number of 20mm, 75mm, 47mm, 105mm guns and 90 German dead and a total of 205 prisoners from 2nd SS Panzer Division, 17th SS Panzer Grenadiers, the 5th Parachute Division and miscellaneous units. American losses were 6 vehicles, 3 killed and 6 wounded, one of these being Exton himself.

"At 0215B 5 POW's taken by B Btry were brought to the edge of the road for interrogation. This main Hwy separated the CP and HQ Btry's from B Btry; A and C Btry were (-----) to the west on the side of the road with HQ. At about the same time, an officer from Rcn Co/67th Arm. Stopped his M8 in front of the CP and reported that the outpost at ST-DENIS had been forced to withdraw; then an M10 from C/702nd TD and an armoured car from 67th Arm came into the Bn area, the M10 taking up a position beside the Bn Medical Station across the road east of the CP. CCB was given the report and Bn alerted for any emergency. At 0230B an armoured column was heard approaching from ST-DENIS but as it passed the Bn anti-tank gun without a challenge, it was thought to be friendly; officers went to ascertain its nature and German voices were heard on the road where the column was now passing. The halftrack of B Btry, parked beside the road where the 5 POW's were being interrogated first opened fire with its 50 calibre MG and this was followed immediately by the HQ 50's; the batteries had been alerted and told to move their M7's to the road for direct fire on the column as it was known to be German and B Btry fired 6 rounds plus heavy 50 calibre into it from the right, HQ Btry poured 50 calibre into it from the left and the M10 of 702nd TD then started to throw 20 rounds on it from the rear. It turned out a perfect ambush, though not intended. The Bn AT gunner seeing the TD gun plus the vehicles of the Recon Co/67th AR passing immediately before the column thought it was a friendly column and fearing it might in the darkness run over the gun, stepped to the road and waved the column by until the 50's showed him his mistake. The fire of A Btry blew the first vehicle, an SP artillery piece almost off the road and all firing was at ranges of less than 250 yards. The Bn Co was wounded by the returned fire from the German column and though in obvious pain was able to coordinate the fire of the Bn from the fire direction centre, which was luckily situated in a sunken lane parallel the main Hwy and 50 yards distant. The BN executive with the aid of other officers and non-coms directed the extinguishing of flames which threatened all CP vehicles, and though exposed to fire from less than 50 yards plus our own direct fire from A and B Btry's and the M10-TD gun, were able to save all the vehicles except the S-2 half track, 2 three quarter ton wire carriers, 1 one quarter ton truck and a motorcycle. The Bn S-2 was fatally wounded returning fire on a German SP gun less than 50 yards, distant with his 50 calibre mounted on the S-2 halftrack. The Germans trying to escape the burning exploding vehicles became silhouetted against the flames and were mowed down from all sides and those that managed to survive the fire were rounded up in the Bn area."

[Source: 78th Armoured Field Artillery, Operations; 1-31 July, 1944. Archive No: 841-12 \(NA\)](#)



Fig (34) Photo montage of contemporary images and their location in relation to events on the night of 29th/30th July, 1944 at La Chapelle on the D13. (BAG)



Fig (35) Possible location of Battery's and people from the 78th AFA as well as key US positions relative to the events of 29th/30th July, 1944. (Google Earth)



Fig (36) American troops on the D13 showing 78th AFA HQ Battery position in the field on the right. Note the wrecked vehicles of the German column along the side of the road. (Postion G) (Raymond Jones)



Fig (37) Destroyed German SP gun and other vehicles of the column wiped out on the D13 road. 78th AFA HQ battery on the right of the road. (Position A) (USNA)



Fig (38) Another close up image of the German SP Gun, with a clear view of HQ battery's field and the buildings of La Chapelle beyond. (USNA)



Fig (39) A colourised image of a 75mm SP gun 'Wesp' named Scharnhorst, alongside the D13 road. (Position B) (Raymond Jones)



Fig (40) Another Stug III SP 75mm destroyed as part of the column on the D13 road. (Position D) (Raymond Jones)



Fig (41) Stug IV, 75mm SP gun, one of the 11 German vehicles knocked out on the D13. (USNA)



Fig (42) Hole in the hedgerow cut through by American units to gain access to fields alongside the D13 at La Chapelle. Note the low profile German panzer IV 'Stug' on the opposite side of the road. It was one of the leading vehicles in the German column knocked out on the 29th/30th July.(Position E) (USNA)



Fig (43) Captain Naubert O. Simmard. (USNA)



Fig (44) Believed to be Cpt Simmards M3 halftrack, destroyed by German fire; parked up parallel to the sunken lane and 78th AFA CP position at La Chapelle. (Position F) (USNA)



Fig (45) An A/78th AFA M-7 which was engaged in the action at La Chapelle on the night of 29th/30th July. The gun turret displays two German kills taken from the fight. (Cornelius Sexton)



Fig (46) C/702nd M-10 Tank Destroyer parked up at the crossroads with the D102/D13 at La Chapelle on the night of 29th/30th July, 1944. (Position C) (Robert Hale)

3.6 D49 The Grimesnil Road (La Lande Des Morts) - Site B8

Historical summary of events

At approximately 0100B, 30th July, a combined force of German infantry, tanks, vehicles and towed artillery, consisting of elements of the 2nd SS Panzer Division (Das Reich), 17th SS Panzer Grenadiers, paratrooper and Wehrmacht troops were attempting an organised breakout from the Roncey Pocket down the D438 Guehebert road onto the intersection, at Cambry with the D49 road to Grimesnil. This force consisting of 2,000-2,500 troops and over 90 vehicles, its objective was to travel south out of the pocket to Gavray, overwhelming any opposition it may encounter. This attempted breakout was no doubt pre-arranged with the other major German breakout forces to the north of St-Denis-Le-Gast, as both attempts were launched virtually simultaneously. By the evening of the 29th, elements of the 67th Armoured Regiment and attached armoured infantry had moved into the area forming part of a string of outpost positions running from Pont Brocard to Lengronne. With the main body of the 67th AR Headquarters and attached 41st AIR HQ situated in positions north of St-Denis-Le-Gast. With 2nd Armoured Divisions task force 'Ring' (Major Ring) bivouacked at Cambry, on the high ground alongside the D49/D7 Coutance-Gavray road. Major Ring's small 67th AR task force, arrived on the 28th, was set up like an isolated circle of all-round defence, positioned on the far extremity of the American extended left flank. Unknown to Ring's force, now by the evening 29th, 67th AR Company E, 2nd Bn and 1st Platoon B Company with attached units of I Company, 41st Armoured Infantry and engineers from 1st Platoon C Company, 238th Combat Engineers, set up at sites in and around the Farm complex of la Coucourie and strategic outposts along the D49, from Gimesnil to just south of Cambry.

At position (T273465) a small forward outpost south of Cambry and Major Ring's force was picketed by elements of I company, 41st AIR under command of Lt Anderson. Situated at the D438 Guehebert road at the junction with the D49 alongside the Maison Neuve Farm consisted of three US halftracks astride the road. The 238th Combat Engineers were bivouacked slightly south of this position in fields associated with Morand Farm and the entrance to the Chemin de La Croix lane. Shortly after 0115 hrs 30th July, Cpt James R. McCartney, commander of E Company, 67th AR arrived at the junction in his jeep accompanied by three 67th AR Sherman tanks to inspect the outpost and add some additional armour to its defence, when the distinctive sound of tanks and infantry could be heard coming down the Guehebert road from Roncey. McCartney dismounted his jeep which was parked on the southern corner of the junction and along with the rest of the outpost straining to see through the dark night what was coming down the road. Immediately McCartney's jeep was hit by tank fire, followed by successive fire aimed at the remaining US halftracks, including the command halftrack 'Inferno' parked south of the road, killing their crews. McCartney manages to get back to the 3 Sherman's to organise a defence, yet ultimately decides to make a quick withdrawal back up the D49 to his main line of resistance at and around La Coucourie farm. Traveling in reverse back up the road, the Sherman's were firing their 75mm guns and MG's to the south east and the direction of the German advance that was being led by a German Stug IV, 75mm SP gun and a Hummel, 150mm SP gun followed by assault infantry and Sd.Kfz. 251 armoured cars. Lt Wong's C Company, 238th Combat Engineers were now being flanked in all directions yet managed to put up a resolute defence with the use of flanking fire directly onto the side of the advancing column, as it turned south onto the D49 road, yet had to eventually withdraw, piecemeal through the fields back up to the main CP on the hill at La Coucourie. McCartney on arriving at the main CP, his tank managing to get stuck then abandoned in a deep ditch alongside the road, immediately organised the position for defence along with Cpt Walter C. Johnson, commander of I company 41st AIR.

Later evacuating some soft skinned vehicles to the rear. Deploying armoured infantry along the D49 and supported by at least 20 tanks, with good fields of fire down the road and to the flanks. Due to the sheer size of the advancing German column, it took at least 45 minutes for the first vehicle to appear around the bend in the road in front of the CP, the lead German Stug IV and Hummel firing their guns as they approached the American position. Yet upon reaching the farm building of La Coucourie and being only 20 yards from the American MLR, both vehicles were knocked out by successive tank fire. Their wrecks now completely blocking the road and stalling the armoured vehicles now banked up behind them. Now static and unable to manoeuvre were subject to intense tank and mortar fire from the point blank American positions. The mortar fire was intense and precise at such close range with every third round fired containing white

phosphorous, illuminating the night with the light of the now burning vehicles. German infantry now debouched from their halftracks was trying to out flank the American position and due to their sheer weight of numbers was managing to get around the position to the north. Yet due to the chaotic and disorganised nature of the fighting and a counterattack by American forces lead by Sgt Hulon B. Whittington, 41st AIR, who manning a tank and throwing hand grenades and then leading a bayonet charge, managed to disperse any further German movement. Artillery support was also called in, yet delayed due to these artillery positions having to deal with their own German attacks at La Chapelle. Yet once the artillery bombardment arrived it sealed the columns fate. The fighting lasted all night, yet by morning the firing had stopped and the complete devastation of the German column was fully realised. Destroyed burning vehicles choked the D49 and over 450 German dead were scattered across the surrounding fields. 1,000 prisoners were also taken. That morning 82nd Armoured Reconnaissance combed the area and captured 250 more and killing a further 100. At 1145, 30th July, 100 further SS troops just walked in and gave themselves up.



Fig (47) The advance of German units (Red) trying to break out of the Roncey Pocket moving along the D438 road. American units (Blue) picketed at the intersection of the D238 and D49 road with Major Rings task force further up the D49 at Cambry. July 29th 1944

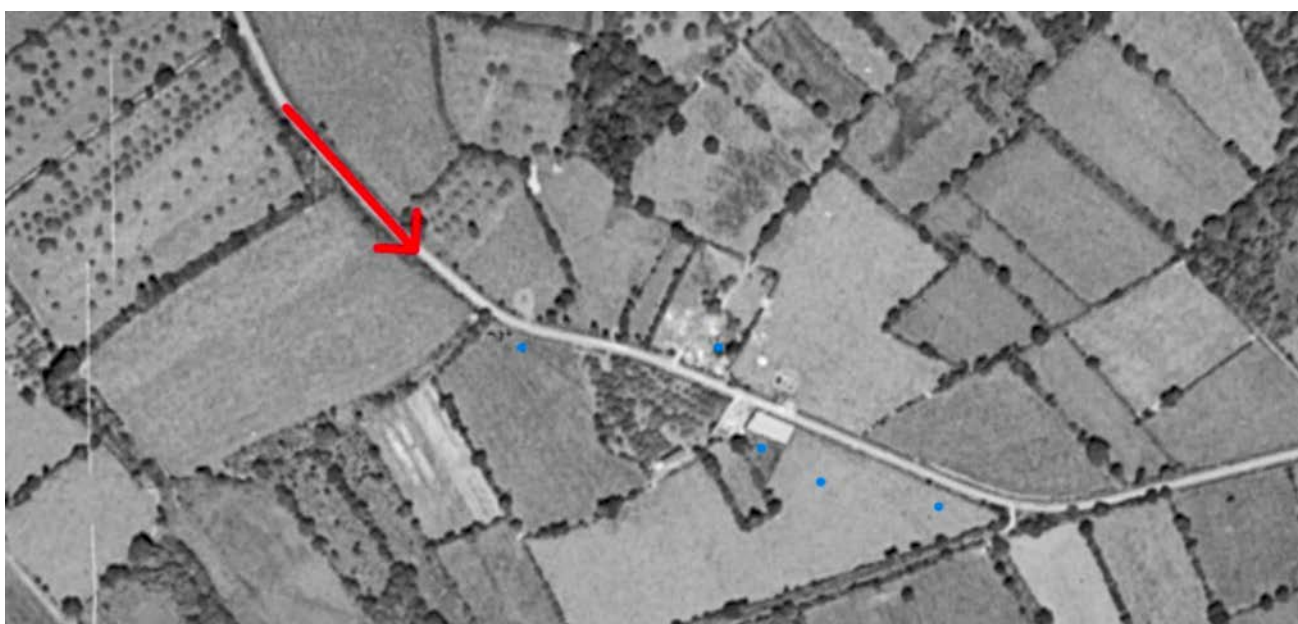


Fig (48) The German advance (Red) down the D49 Road towards La Coucourie. American pickets (Blue) around La Coucourie with the 41st/67th CP within the large triangle field to the south.



Fig (49) Photo montage of the destruction on the D49; depicting image locations in relation to la Coucourie at 'La Lande des Morts'. (BAG)



Fig (50) 1947 aerial photograph of the D49 road at La Coucourie. The German column was stopped at the farm alongside the orchard here seen in the centre right of the image.



Fig (51) The head of the German column lead by this Panzer IV 'Stug' IV, 75mm SP gun. Note the ripped open armoured panels due to an internal explosion. (Position I) USNA



Fig (52) Gen Isaac D. White Commander of CCB, 2nd Arm, surveys the destroyed German Hummel knocked out on the Grimesnil D49 road. (Position H) (USNA)



Fig (53) Destroyed German vehicles along the D49 road at La Coucourie (Position B) (USNA)



Fig (54) German destroyed armour now pushed off the road at La Coucourie. Note the German graves centre left. (Position E) (USNA)



Fig (55) Knocked out German armoured personnel vehicles SdKfz, alongside the orchard at La Coucourie. Note the Sherman from 1/67th Armour slipped into the ditch. (Position F) (USNA)



Fig (56) German tanks and armoured vehicles now pushed off the D49 road at la Coucourie. (Position C) (USNA)



Fig (57) Another image of the same tanks and armoured vehicle, perhaps a few day later as more vehicles have been added and some moved around. Photo taken from just off the D49. (USNA)



Fig (58) This image taken just after the action on the D49 with German armoured vehicles and towed artillery still on the road now surrounded by men from the 41st Armoured Infantry. Note that the vehicles literally block the road. (Postion G) (USNA)



Fig (59) 41st Armoured Infantry on the D49 at La Coucourie, just after the night action of 29th/30th July, 1944. (Position A) (USNA)



Fig (60) The German column looking southeast at the bend before reaching La Coucourie. The vehicles now all pushed to the side of the road. (Position D) (USNA)



Fig (61) US halftracks, including the command halftrack 'Inferno' all destroyed at the D438 crossroads all their crews killed.(USNA)



Fig (62) Cpt James R. McCartney, E/67th Armour. (USNA)



Fig (63) Sgt Hulon Whittington. I/41st Armoured Infantry. (USNA)

"30th July, at 0015B a heavily armoured enemy column moving west hit our outpost at (T273469) #1, before the outpost was organised. The outpost opened fire with all weapons, but because of the superior enemy forces the outpost was ordered to withdraw slowly to the Bn main position at (T278460) #HQ. At about 0200B the lead vehicle of the hostile column reached our main defensive position and was stopped by our tank fire. Because of difficult terrain the enemy was able to get only a few tanks off the road. Tanks and infantry weapons were used in an attempt to drive off the hostile attack. The mortar platoon made effective use of white phosphorous in setting fire to a large number of enemy vehicles. The infantry supported our tanks by keeping the enemy infantry away and allowed the tanks full use of their weapons against the enemy main body. A frontal attack and an attack against our right flank was driven back by our supporting infantry joining in at close range using grenades. An attack was launched against our left flank and met with some success until it was driven off by our supporting infantry. At this time, a 0300B artillery concentration without registration was requested on hostile main body. Communication difficulties prohibited earlier request. These concentrations mixed with WP mortar and reinforced by our tank and infantry fire had a devastating effect on the enemy. These fires were continued until dawn when the enemy attempted to retreat to the north east. The above reinforced fires was kept on the enemy and almost annihilated him. Shortly after dawn small enemy forces attempted to infiltrate into our position. Many of these were killed beneath and around our tanks. At about 0900B all enemy resistance ceased. The remainder of the day was spent in rounding up scattered enemy groups and reforming our forces."

"-We knocked out: 3 MK IV tanks, 4 MK III tanks, 29 trucks, 1 SP 88mm gun, 4 towed 75mm guns, 15 Volkswagens, 10 motorcycles, 4 towed 88mm guns, 3 ammo carriers, 1 150mm Hummel SP gun, 19 halftracks, 3 towed 50mm guns, 12 staff cars and 2 170mm towed guns.

-Our losses were 16 killed, 22 wounded, 4 medium tanks, 1 light tank, 4 halftracks, 1 half ton truck and 1 towed 57mm gun destroyed. "

Source: After action report, 67th Armoured Regiment, 6th June 44-May 45 #835 (NA)

"On the morning of 30th July, at 0100B, a force of about 2,500 enemy troops consisting of elements of the 2nd SS Panzer Division (Das Reich), Paratroops, Luftwaffe and Wehrmacht infantry and artillery attempted to breakthrough south of CAMBRY at (T271472). They were opposed by Company E, headquarters Company, 2nd Bn, and one platoon of B Company, 67th Armoured Regiment, Company I of the 41st Armoured Infantry Regiment, with heavy machine gun platoon of the 41st attached, and the 1st Platoon of C Company, 238th Engineer Bn, attached. These units had just moved into position and were preparing their defensive outposts at the time of the attack. The enemy drove in the tank outpost, but his column was stopped when an infantry squad leader ran through the enemy fire to reach an M5 tank, and then by riding on it and clearing his way through the enemy infantry by a judicious use of hand grenades, guided it to a position where the leading vehicle in the enemy column, a MK IV tank could be knocked out. The ensuing battle lasted for 6 hour was extremely bloody, and was replete with innumerable instances of individual heroism. Hand to hand fighting with grenades, bayonets and small arms around the tanks in spasmodic light of burning vehicles became a general breakthrough by the enemy. Each friendly vehicle became a strongpoint and each was defended bitterly in the face of a 4-1 enemy numerical superiority. At about 0330B, the situation was such as to cause the commanding officer of the armoured infantry company to call for artillery fire from 62nd and 78th Armoured Field Artillery BN. It took about an hour to receive the fire, which was no surprise to the officer who called for it, he having overheard the 78th order "Baker Battery Direct Fire" when he first called...indicating that they were fighting a war of their own at the time. At approximately 0430B, the two field artillery Bn's placed fire directly on enemy vehicles and decimated the column. Fire for effect was fired from map data without benefit of registration. In this night engagement, 450 of the enemy were killed; approximately 1,000 surrendered and 90 enemy vehicles were destroyed."

Source: 2nd Armoured Division Operational history-PHASE 1-Operation COBRA, 26th-31st July, 1944 #N11274.2

4.0 Archaeological background

Although the historical account of the 'Operation Cobra' offensive has been broadly documented, little interest in the campaign for further study and analysis by historians or WW2 enthusiasts has been undertaken in any detail, even though, arguably the Cobra operation was one of the key battles of WW2, breaking the back of German resistance in Northern France, of which German forces didn't really recover until their ultimate destruction in mid-1945. The events of D-Day, June 6th in comparison, have been written about intensely. The location of allied armies, their movements and actions even of individual units and their exploits made famous in literature and in film. French villages developed into tourist attractions for their associations to these events, countless memorials erected to commemorate specific actions and the individual soldiers involved. This focus of remembrance has inevitably brought about the attention of souvenir hunters looking for artefacts. History enthusiasts that were keen to record any trace of the historical events that took place and left their mark on buildings and the landscape in the form of bullet scatters across buildings or bomb craters in forests and fields, a special focus being on the vast concrete remains of Hitler's Atlantic Wall that litter the coastline with their iconic shapes and sombre reminders of German occupation and the true horror of what was faced by the allied invasion force on that cold misty early morning of June 6th, 1944. Popular history however seems to skip 'Operation Cobra' entirely. The popular narrative depicting the events from D-Day to fighting in the bocage then General Patton's sweeping drive into the French heartland and eventual slaughter of German forces in the 'Falaise pocket' in late 1944. Yet, the operation that instigated this pivotal breakthrough was, Cobra and General Patton wasn't even involved.

The first popular book to focus on events specifically related to Operation Cobra was written only in French by the author Albert Pipet "La trouée de Normandie" in 1966. Yet it was the American author Mark Bando who wrote a small, now out of print publication called 'Breakout in Normandy' in 1999, that specifically focused on the men and units involved with Operation Cobra, primarily the men of the American 2nd Armoured Division, that a more detailed interest was taken in the

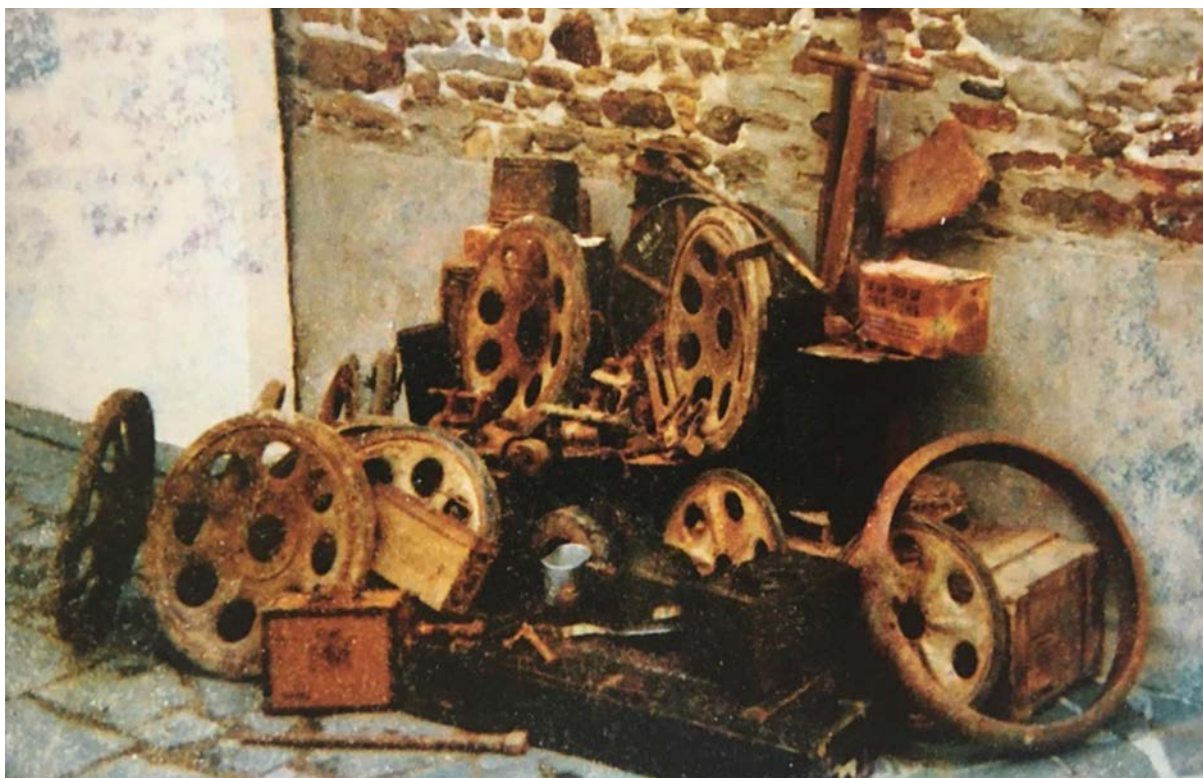


Fig (64) WW2 Military equipment, vehicle parts and personal items collected from various locations in Normandy. These artefacts are either collected by local farmers in the process of cleaning up their fields and then stored in barns or dug up by illicit metal detectorists. Later sold on through military fairs to museums or individual collections.

battles and actions by a more English speaking audience. Several broad historical accounts were already in existence namely 'Breakout and Pursuit' by Martin Blumenson and 'After D-day' by James Carafano, yet it was these two popular books that seemed to have ignited some local interest with metal detectorists looking for relics and amateur historians wanting to have more detail on specific events relevant to their local area.

Since the 1990s the area associated with the Cobra operation, like most sites associated with major action of WW2, have been picked over by metal detectorists looking for souvenirs, either for their own collections or later collected and culminated in local Museums. Sadly the context of these artefacts now lost to the historical record, their place of origin only present in the collector's memory and not a registered location. The evidence of which could inform the evidence of an historical event. Countless military fairs across Europe and the United Kingdom display these battlefield finds, some of which can fetch large sums of money.



Fig (65) Collections of battlefield artefacts found along the Geuhebert Road found with the use of metal detectors in the late 1990's. Note the vast amount of vehicle parts and cartridges that were often neglected in preference to items like the German M35 Helmet seen here. (Bando)

The results of this on-going interest in searching and collecting military artefacts has sadly depleted the archaeological record associated to these events. Much like a crime scene that has been pillaged and picked over, the very physical evidence of the events has been removed, and so very little information can be gained from direct archaeological survey. At least this is what was assumed, and to a large extent this is true, and this premise would still apply when it comes to such iconic actions as say D-Day or Arnhem bridge in Holland. The actions associated with Operation Cobra have had relatively little attention. It is true that for the past 20 years local metal detectorists have concentrated on searching sites attributed to Cobra, yet very little detailed research has been applied to the collection of artefacts on all the relevant sites. It is true that some sites that have featured in photographic publications of the operation have been targeted more heavily, but even then, most items that have been recovered are more high value items like helmets, badges, rifles and insignia, the more battlefield refuse is often neglected. The Cobra battles were mainly located at key intersections on major road networks, some of these locations have existed in local memory since the war, other sites not so much, and if they were known about, it was unsure of what really happened and were.

In researching for this project it was imperative that the local population was consulted when looking for locations. Local enthusiasts who have been familiar with certain sites since they were children have proven to be a positive resource, and sites that are undocumented have come to light. Archaeological research and documentation has never been attempted until this project. Photographic research over the last 10 years has increased with the popular Then and Now representation of historic images compared to the present day, this has been a growing phenomenon, and has been extremely helpful in locating places of interest, and has reignited interest in looking for lost locations.

5.0 Summary of archaeological investigations

Traditional archaeological techniques of excavation and recording are not always applicable to the recording of battlefields. The artefacts associated with the battle are usually all found in the upper horizon of the soil profile, commonly referred to as the 'plough horizon'. In accordance with the traditional archaeological mind-set, artefacts found in the plough soil are recorded as un-stratified finds, and not being associated to any one feature, yet can be indicators to a hidden deeper feature context, the context being the archaeological feature, such as a grave or the remains of historic occupation. The objects floating above this feature, having been moved around by agricultural disturbance, being more of an indication of what is in the area and not forming any context of their own. Objects associated with battlefields are all primarily found within this upper soil horizon, these objects representing an event in time rather than anyone feature. Yet this can still apply in relation to a buried position relevant to the battle such as a foxhole, trench or underground bunker. The individual objects such as bullets, cartridges, shrapnel, vehicle parts and soldiers equipment are all representative of a single event and so recorded in the larger context of 'the battle' and not necessarily relevant to any one feature. This makes battlefield research unique, as the surface landscape scatter of artefacts when recorded, opens out a picture of an historical event or series of events that happened in a single day or even a few hours. As the battlefield artefact scatters are so close to the topsoil, this makes the battlefield site also extremely vulnerable to amateur metal detectorists. There is a good chance once a site has been located that artefacts will be found and although the intentions of the detectorists are not criminal and usually informed by a keen interest in the historical event, they sadly have the capacity to remove any new information that can be gained by the removal of such found objects. Engagement of local communities and amateur metal detectorists within the areas of research was therefore a priority and seen as a primary resource for the archaeological investigations. This is an on-going situation, as more local people come forward, more sites are revealed and artefacts that have been previously found can then be placed back into the landscape if not



Fig (66) Modern 1963 're-enactor' cartridges scattered across the historic WW2 battle sites.

physically but 'virtually'. Areas not defined by historical narratives can, in this case, also be located and searched thus bringing to light a possible new narrative. There is also the modern phenomenon of the battlefield re-enactor, acting out the historical events in authentic period costumes, that can, especially in a Modern Conflict archaeological context, be using similar munitions in the forms of cartridges, fired and then scattered over the very same fields of conflict of the historical events. The cartridges themselves being almost identical to the WW2 equivalent. It can be perplexing to the archaeologist, yet it does form another layer of occupation and evidence of the longer lasting impact of the conflict, still being acted out today, perhaps even as a form of collective remembrance.

A thorough and detailed study is undertaken in all relevant national archives before any location or area has been investigated. All areas informed by primary source material, annotated in after action reports, S-2 and S-3 intelligence reports, some such reports pertaining map reference overlays, divisional diaries and unit diaries. Understanding the historical account of the battle is key to directing any archaeological approach. This defines where, if possible, we can deploy geophysics. In regards to this project we settled on magnetometry, as we were keen to not only locate possible fox hole positions still showing evidence of the battle but also pick up large consecrations of buried metal material in the forms of vehicles, tanks and equipment that may have been deposited after or during the battle. Geophysics also reveals the agricultural history of the landscape, highlighting hedgerows and ditches, now removed yet at the time of the conflict formed a significant feature.

A metal detector survey is the primary method to locate the physical evidence relevant to the conflict. A systematic approach is undertaken specific to the individual site. For this project, as most of the historic conflict happened along the verges of road networks, a detectorist team was deployed on either side of the road. A lead detectorist locating and flagging finds with a yellow or red flag then is accompanied by diggers, who then dig and bag the find to then be surveyed and collected by the mobile surveyor, using a Garmin handheld GPS, who is also accompanied by a team member who can identify the item to its use then label the find. All artefacts then uploaded onto a database and site map.

6.0 Aims and objectives

The general aims of the archaeological investigation for this season were, to identify the historical locations relevant to the contemporary WW2 combat reports. To deploy a concentrated geophysical survey using a magnetometer to highlight below ground features and concentrations of metal objects possibly relevant to the historical time frame of interest. Deploy a systematic metal detector survey over these specific locations as well as road-side verges and rougher ground to record physical evidence relevant to the historical events of Operation Cobra, 28th-30th July 1944.

The specific objectives were:

- Locate possible remains of below ground features relevant to the conflict, such as foxholes, trenches and material dumps which may include munitions, vehicle parts and soldier's personal items.
- Deploy a systematic metal detector survey of the area and record all physical evidence of the conflict
- To generate interest in the local community to the archaeological investigations into the battle sites and invite community input and collaboration in the project.

7.0 Methodology

All locations of archaeological investigation were directed entirely by contemporary WW2 combat reports following map referenced material from the relevant units involved in the various actions at each site. The geophysics protocol and practise can be referenced in the following section: (9.0) Geophysical Survey. Suffice to say that not all sites were subject to a geophysics survey. Understanding the historic placement of men and material was undefined across most of the areas researched and further research and landowner permission would need to be pursued to complete the overall survey objectives. Yet what areas were surveyed are believed to be directly involved in the individual actions that took place within the time frame of interest; 28th-30th July 1944. For this 2022 season, the geophysical survey was undertaken to primarily try and reconstruct the historical landscape and identify below ground features that would form a targeted strategy for excavation in further seasons work. In combination with the geophysical survey, a systematic field walking a metal detector survey was also deployed. All areas surveyed were directed by the historical narrative.

8.0 Topography, geology and terrain

Normandy is not a homogeneous geographical unit but consists two large areas with different geological structures, becoming progressively younger from west to east. The sandstones, granites and primary schist of the Armorican Massif in the west give way to the Secondary and Tertiary Era strata's of clays, limestone and chalks which belong to the geological formation of the Paris Bassin. The Armorican Massif is composed of metamorphic and igneous rocks that were metamorphosed and/or deformed during the Hercynian or Variscan orogeny (400 to 280 million years ago) and the earlier Cadomian orogeny (650 to 550 million years ago). The region was uplifted when the Bay of Biscay opened during the Cretaceous period (145 to 65 million years ago).

9.0 Geophysics survey

9.1 Introduction summary

The strategy for the designation of target areas for geophysical survey per site was built entirely around the American strategic deployment of units in these locations for the 28th-30th July, 1944 as described in specific American Divisional after action reports for the period. These locations were pivotal positions in regards to the American strategy of defence and were assumed to display a high probability of American ground features that would still be present and relevant to the period. Bocage field systems present in 1944 have, in most locations, changed, hedges removed, and fields widened. Hedgerow defence was a particular feature of both the American and German armies; present field systems can in some cases have no resemblance to the landscape of the period. The geophysics survey would reveal this historic landscape and help rebuild a correct view of the 1944 terrain. German deployment was limited to road networks, these road ways now overlaid with road base and alongside metal fencing was deemed not suitable for a magnetic survey.

9.2 Introduction to techniques

A series of eight magnetometer surveys were conducted using a Bartington Dual Sensor Grad 601-2 fluxgate gradiometer (One 'detailed' and 7 'standard' survey – see para. 5.2.2 & 5.2.3). This equipment consisting of two high stability fluxgate gradiometers suspended on a single frame. Readings relate to the different localised magnetic anomalies compared with the local soils magnetic background. Each gradiometer has a 1m separation between the sensing elements so enhancing the response to weak anomalies.

The survey areas were set out using 100m tapes and recorded using GPS. This method has small 'margin of error' and this should be taken into consideration along with the fact that these are two dimensional surveys conducted over a three-dimensional landscape when reading this report.

Consideration needs to be given to metal structures such as metal gates, fencing and fruit tree protection wire, as these can distort the magnetometer readings (Gaffney & Gater 2011, 81). Exclusion zones were maintained around these types of objects as the saturation level responses from these objects add interference to the data and do not aid the interpretation of the results. Numerous dipolar responses are scattered throughout the survey areas. Such dipolar responses, consisting of strong positive and negative responses/spikes, are suggestive of near-surface ferrous or highly-fired material (Clarke 1996). However, it was evident throughout the survey that most of the responses were probably caused by metal fragments, as many were seen on the surface.

A balance station was set up on site in a 'metal free area' and the magnetometer was prepared for use at this point in accordance with the manufacturers guidelines with regular re-zeroing at this point to prevent distortion of results.

All survey work was conducted in accordance with the guidelines laid down by The British Chartered Institute for Archaeologists (CIfA), Institute of Field Archaeologists Code of Conduct (CIfA December 2014a), Standards and Guidance for Archaeological Geophysical Survey (CIfA December 2014b) and EAC Guidelines for the use of Geophysics in Archaeology – Questions to Ask and Points to Consider, EAC Guidelines 2 (Schmidt et al 2016).

As part of the data processing using Geoplot version 4.01, to minimise interference from surface scatters of modern ferrous materials and ceramics, the data was 'de-spiked' and 'clipped' to remove any large 'spikes' or 'peaks'. This was followed by the 'step correction', 'zero mean grid' and 'zero mean traverse' applications. Finally, the 'low pass filters' and 'interpolate processes' were used to produce an interpretable image.

The results are presented as a series of magnetometry grids matched and superimposed onto Google Earth terrain maps and French IGN and Cadastral maps, plus stand-alone black and white versions. The latter have been annotated with letters to identify features and to be referred to in the text.

9.3 Detailed Magnetometer Survey (D49 Grimesnil Road - B8A – 021022)

The magnetometer was set to record at 8 readings per 0.5 metre transverse, surveying in a zig-zag pattern with the magnetometer set to a 'full scale range of $\pm 100\text{nT/m}$ (resolution 0.03nT/m (max effective))' (Bartington Instruments 2022). This Level 2 investigation (Delineation) method is recommended by Schmidt et al (2016).

Bartington 601-2 Magnetometer equipment settings:

Grid size	30m	Power supply current.....	60mA
Sample Intervals.....	0.125m	Drift	<1nT in 24 hours
Traverse Intervals.....	0.5m	Gradient range	$\pm 100\text{nT/m}$ or $\pm 1000\text{nT/m}$ full-scale
Traverse Mode	Zig-Zag	Bandwidth	DC to 14Hz with -40dB 5-Hz/600Hz rejection
Resolution.....	0.01nT	Sensitivity	0.03nT/m (max effective)
Frequency	50Hz	Calibration error.....	$\pm 2\%$
Operating Temperature	-20oC to +70oC	Maximum ambient field	$\pm 100\mu\text{T}$
Rating	IP65		
Sensor element spacing.....	1m		

9.4 Standard Magnetometer Surveys (all other survey areas)

The magnetometer was set to record at 4 readings per 1 metre transverse, surveying in a zig-zag pattern with the magnetometer set to a 'full scale range of $\pm 100\text{nT/m}$ (resolution 0.03nT/m (max effective))' (Bartington Instruments 2022).

Bartington 601-2 Magnetometer equipment settings:

Grid size	40m	Power supply current.....	60mA
Sample Intervals.....	0.25m	Drift	<1nT in 24 hours
Traverse Intervals.....	1.0m	Gradient range	$\pm 100\text{nT/m}$ or $\pm 1000\text{nT/m}$ full-scale
Traverse Mode	Zig-Zag	Bandwidth	DC to 14Hz with -40dB 5-Hz/600Hz rejection
Resolution.....	0.01nT	Sensitivity	0.03nT/m (max effective)
Frequency	50Hz	Calibration error.....	$\pm 2\%$
Operating Temperature	-20oC to +70oC	Maximum ambient field	$\pm 100\mu\text{T}$
Rating	IP65		
Sensor element spacing.....	1m		



Fig (67) Magnetometer surveys being undertaken at one of the projects sites in Normandy by the project geophysicist using a Bartington Dual Sensor Grad 601-2 fluxgate gradiometer. (BAG)

10.0 Geophysics results

10.1 Survey Area - B4 – La Pinetiere



Fig (68) Survey Area-Site B4-La Pinetiere. Showing the areas allocated for the magnetometer survey. B4A-270922, south of the crossroads; B4B-270922, east of the crossroads; B4C-280922 area west of the crossroads situated in the orchards and gardens associated with la maison 'La Pompe'.

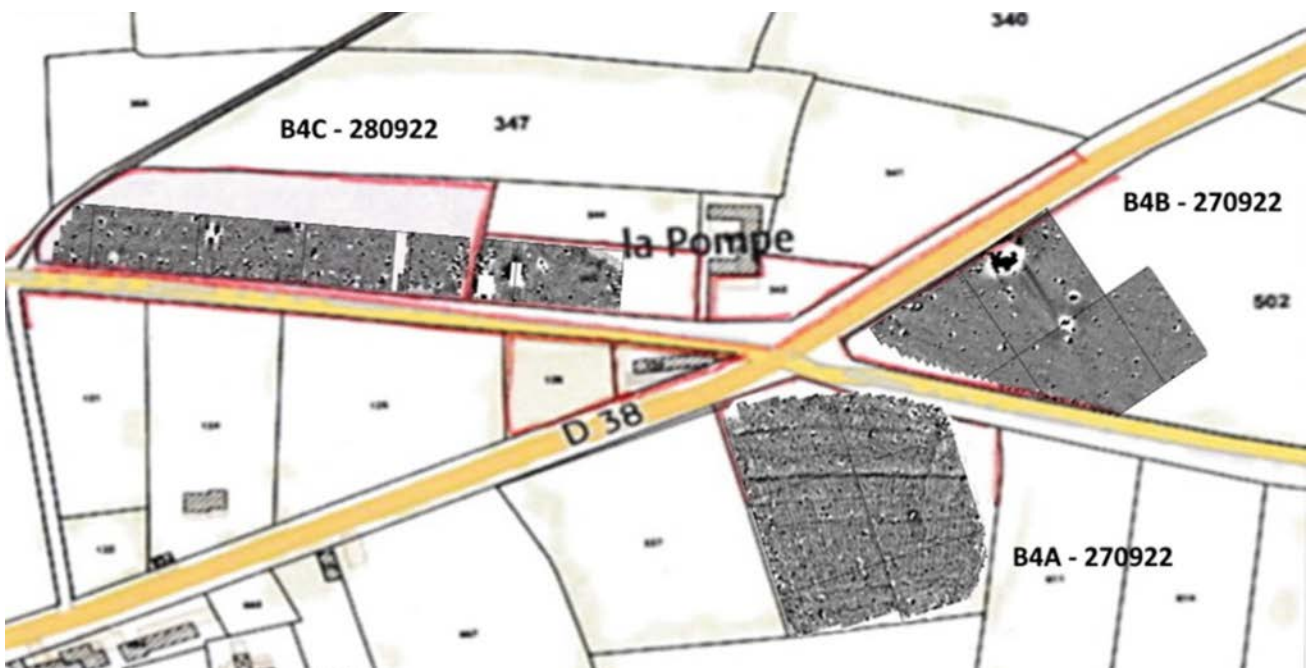
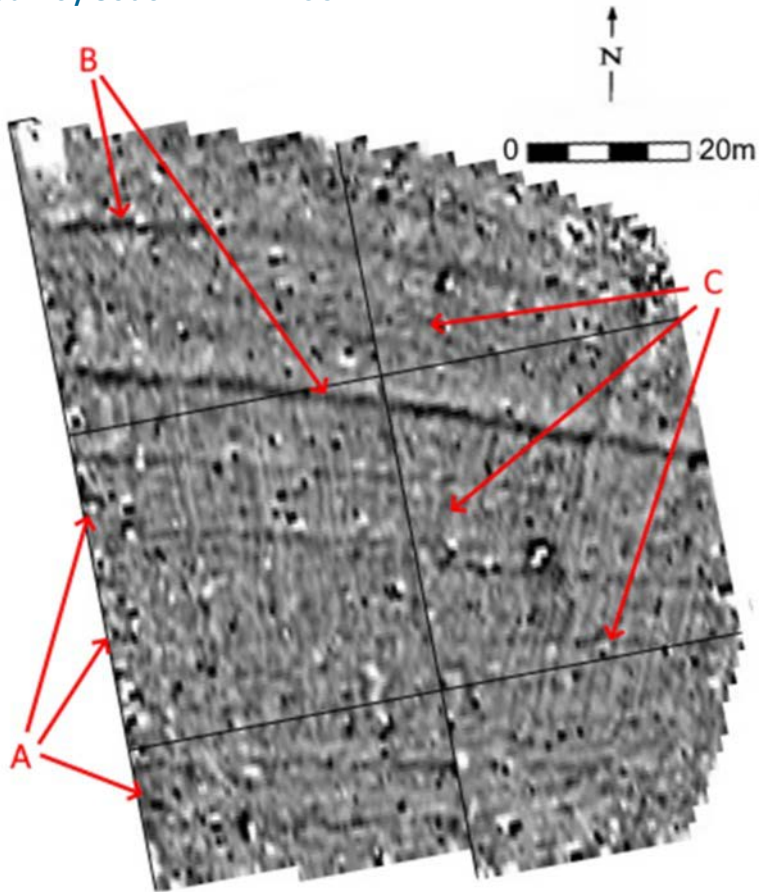


Fig (69) Survey Area-Site B4-La Pinetiere. Showing the areas allocated for the magnetometer survey overlaid onto cadastral mapping depicting individual parcels of land specific to the survey area. Red outlines marked as further areas of interest.

Survey Code - B4A – 270922



Magnetometer raw data:

Mean..... 1.673659
SD 3.759381
3 SD 11.27814
Minimum -100 nT
Maximum 100 nT
Dummy Value..... 2047.5 nT

Processing filters applied:

Despike
Zero Mean Grid
Zero Mean Transverse
Clip Min = -5 nT Max = +5 nT
High Pass Filter applied
Interpolate Y, expend – SinX/X, x2
Interpolate X, expend – SinX/X, x2

Palette selection:

Grey-scale (grey 8)
White (lowest) to Black (highest)
indicates increasing earth's
magnetic readings.

Fig (70) B4A – 270922: A-Possible WW2 Foxholes;
B- Historic hedgerows; C-Strip Lynchets

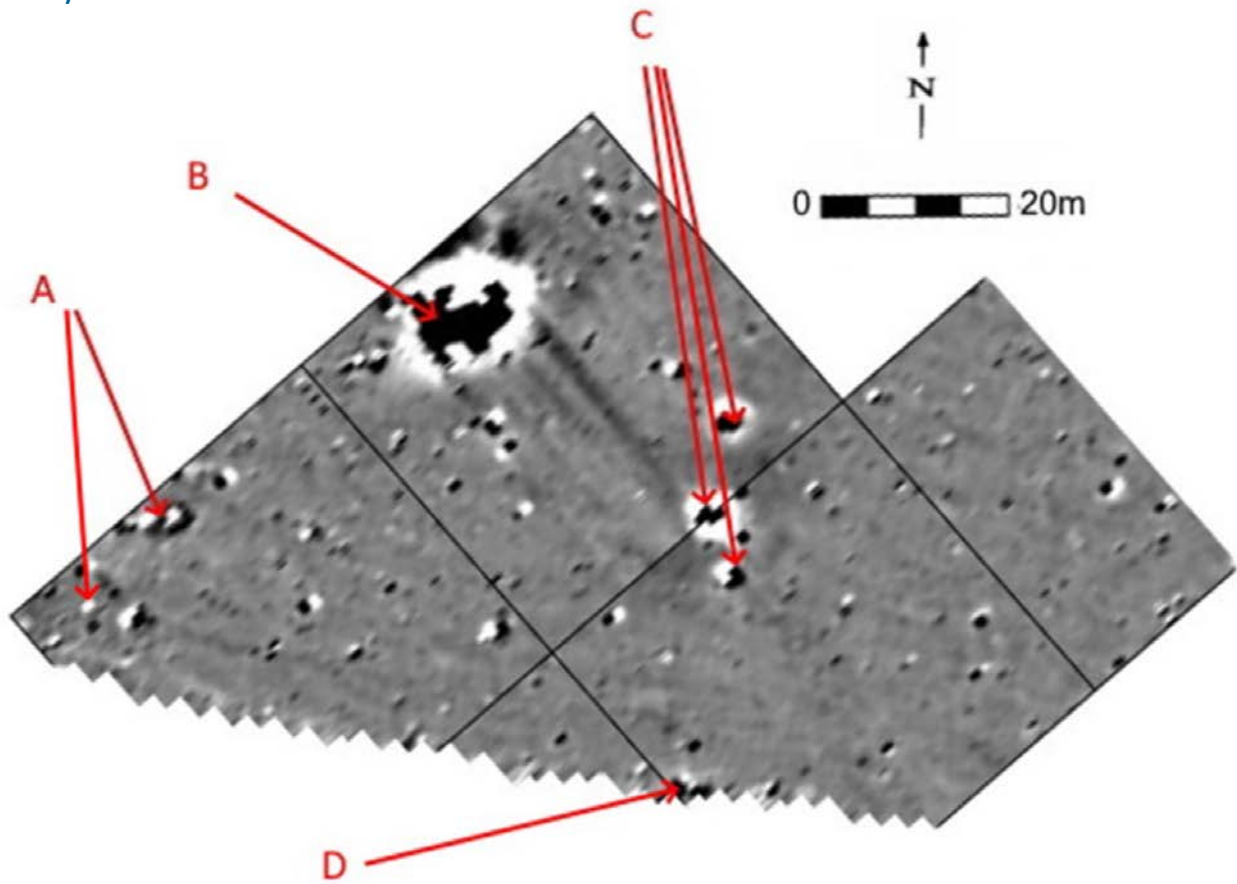


Fig (71) B4B-28 : A-Possible WW2 foxholes; B- Large deposits of metal material.; C & D- Possible WW2 foxholes.

Magnetometer raw data:

Mean..... -1.056312
 SD 9.551167
 3 SD 28.6535
 Minimum -100 nT
 Maximum 100 nT
 Dummy Value..... 2047.5 nT

Processing filters applied:

Despike
 Zero Mean Grid
 Zero Mean Transverse
 Clip Min = -10 nT Max = +10 nT
 High Pass Filter applied
 Interpolate Y, expend – SinX/X, x2
 Interpolate X, expend – SinX/X, x2

Palette selection:

Grey-scale (grey 8)
 White (lowest) to Black (highest)
 indicates increasing earth's
 magnetic readings.

Survey Code - B4C-280922

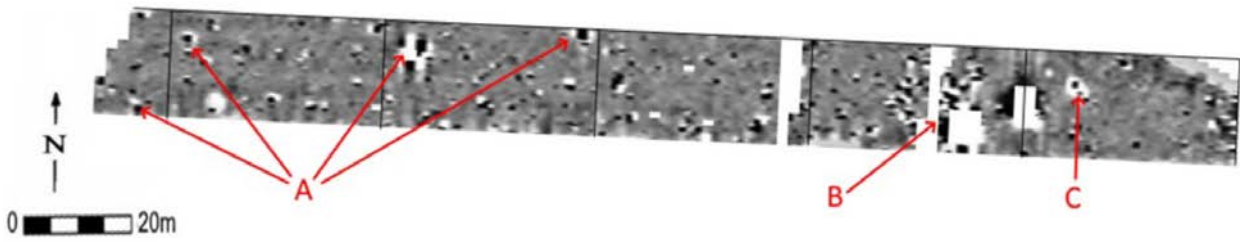
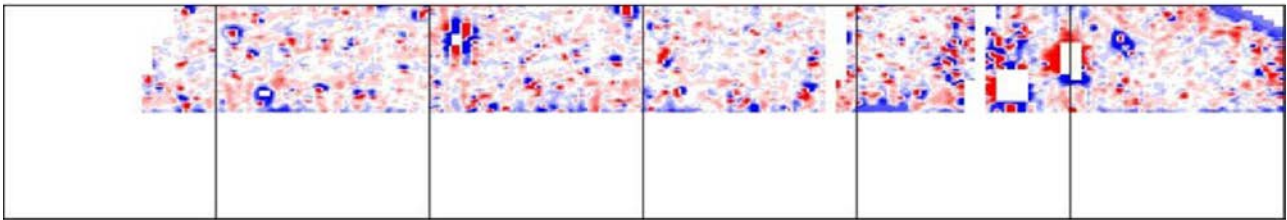


Fig (72) B4C-28: A-Possible WW2 foxholes; B-Area of burning and metal scatter; C-WW2 foxholes.



Magnetometer raw data;
area B4C-280922:

Mean..... -2.06985
 SD 6.791889
 3 SD 20.37567
 Minimum -100 nT
 Maximum 100 nT
 Dummy Value..... 2047.5 nT

Processing filters applied:

Despike
 Zero Mean Grid
 Zero Mean Transverse
 Clip Min = -5 nT Max = +5 nT
 High Pass Filter applied
 Interpolate Y, expend - SinX/X, x2
 Interpolate X, expend - SinX/X, x2

Palette selection:

Grey-scale (grey 8)
 White (lowest) to Black (highest)
 indicates increasing earth's
 magnetic readings.
 Blue (lowest), through White (middle)
 to Red (highest) indicates increasing
 earth's magnetic readings.

10.2 Survey Area - B6 - La Voltalaine

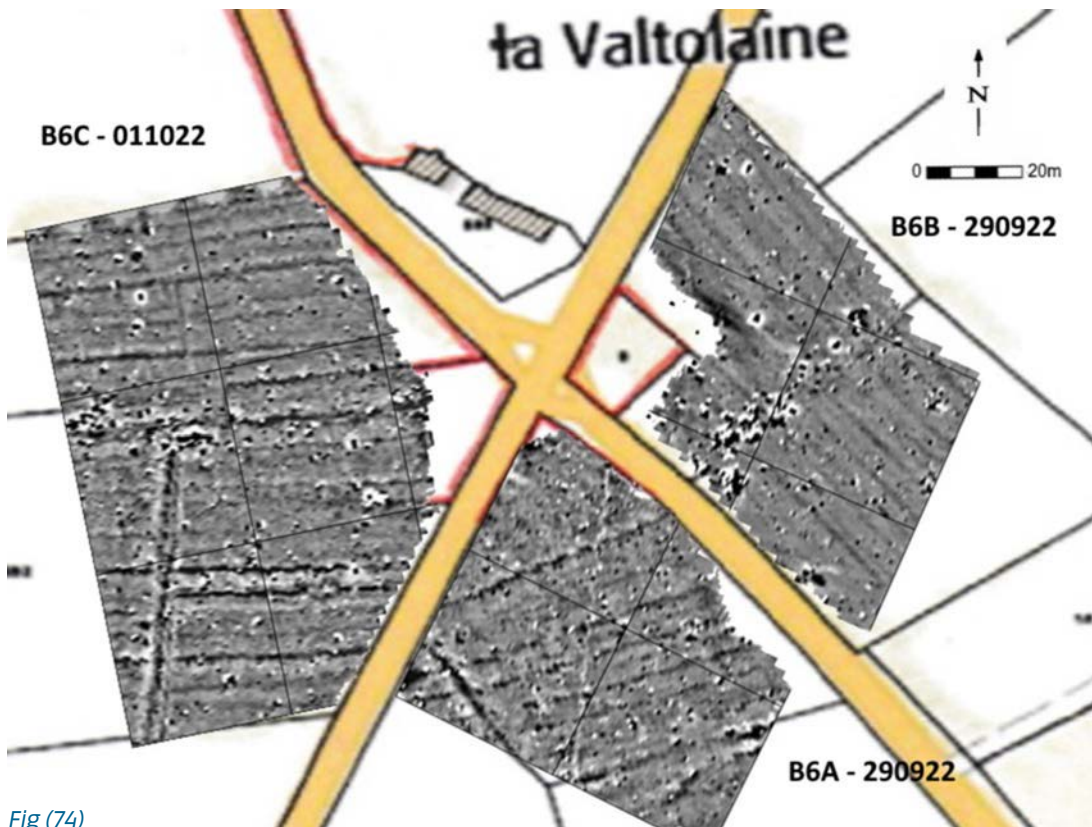


Fig (74)

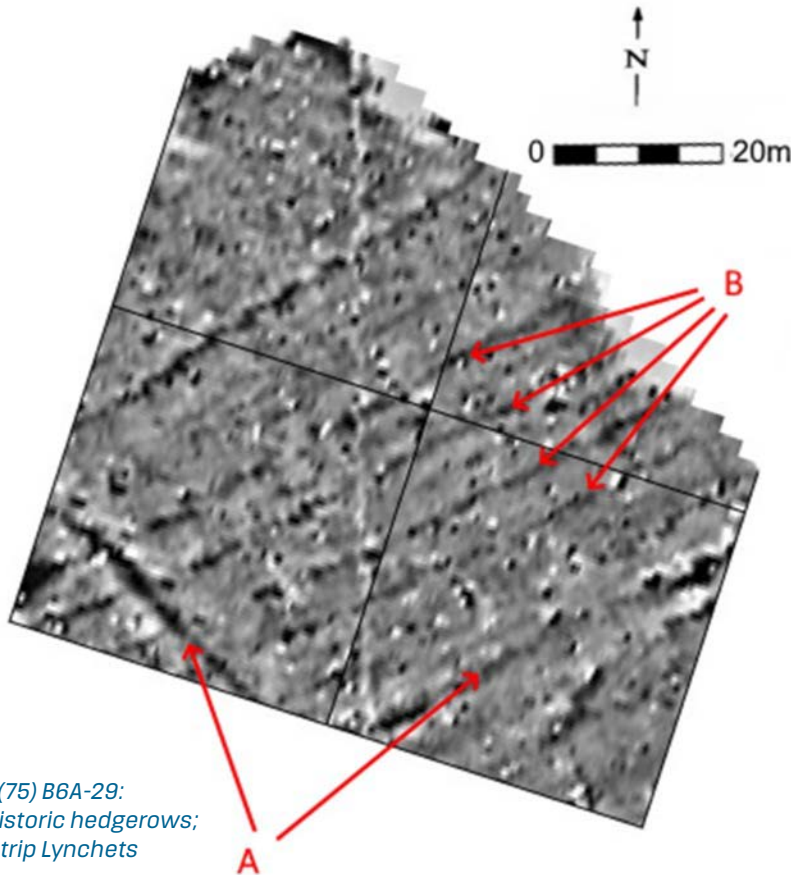


Fig (75) B6A-29:
A-Historic hedgerows;
B-Strip Lynchets

Survey Code - B6A – 290922

**Magnetometer raw data
B6A-290922:**

Mean..... -0.7610202
SD 4.435238
3 SD 13.30572
Minimum -100 nT
Maximum 94.83 nT
Dummy Value..... 2047.5 nT

Processing filters applied:

Despike
Zero Mean Grid
Zero Mean Transverse
Clip Min = -5 nT Max = +5 nT
High Pass Filter applied
Interpolate Y, expend – SinX/X, x2
Interpolate X, expend – SinX/X, x2

Palette selection:

Grey-scale (grey 8)
White (lowest) to Black (highest)
indicates increasing earth's
magnetic readings.

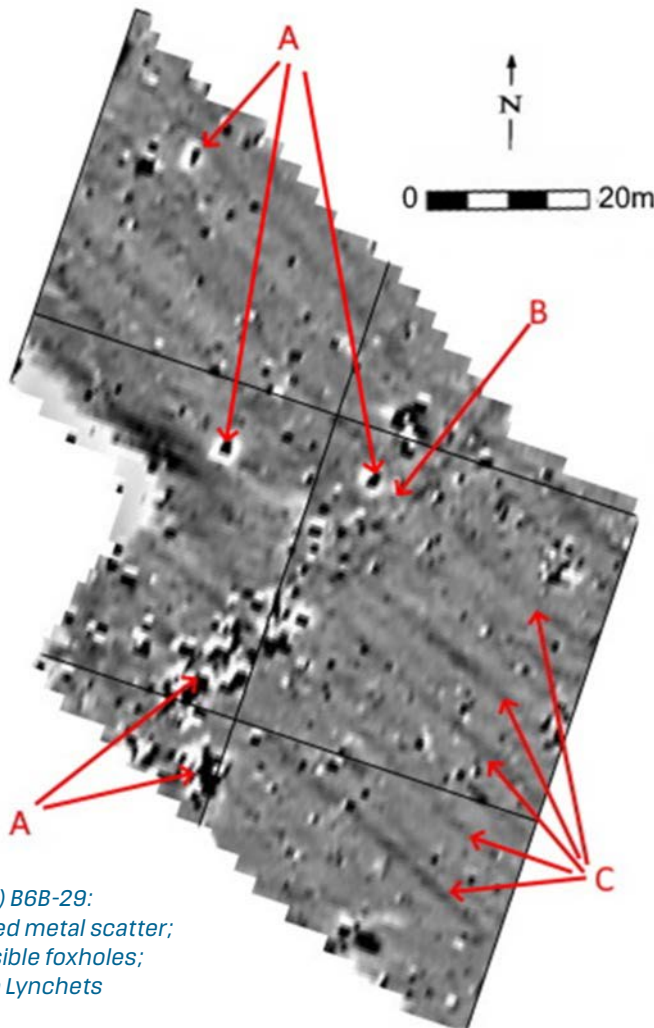


Fig (76) B6B-29:
A-Buried metal scatter;
B-Possible foxholes;
C-strip Lynchets

Survey Code - B6B – 290922

**Magnetometer raw data
B6B-290922:**

Mean..... -0.416333
SD 11.7606
3 SD 35.2818
Minimum -100 nT
Maximum 100 nT
Dummy Value..... 2047.5 nT

Processing filters applied:

Despike
Zero Mean Grid
Zero Mean Transverse
Clip Min = -10 nT Max = +10 nT
High Pass Filter applied
Interpolate Y, expend – SinX/X, x2
Interpolate X, expend – SinX/X, x2

Palette selection:

Grey-scale (grey 8)
White (lowest) to Black (highest)
indicates increasing earth's
magnetic readings.

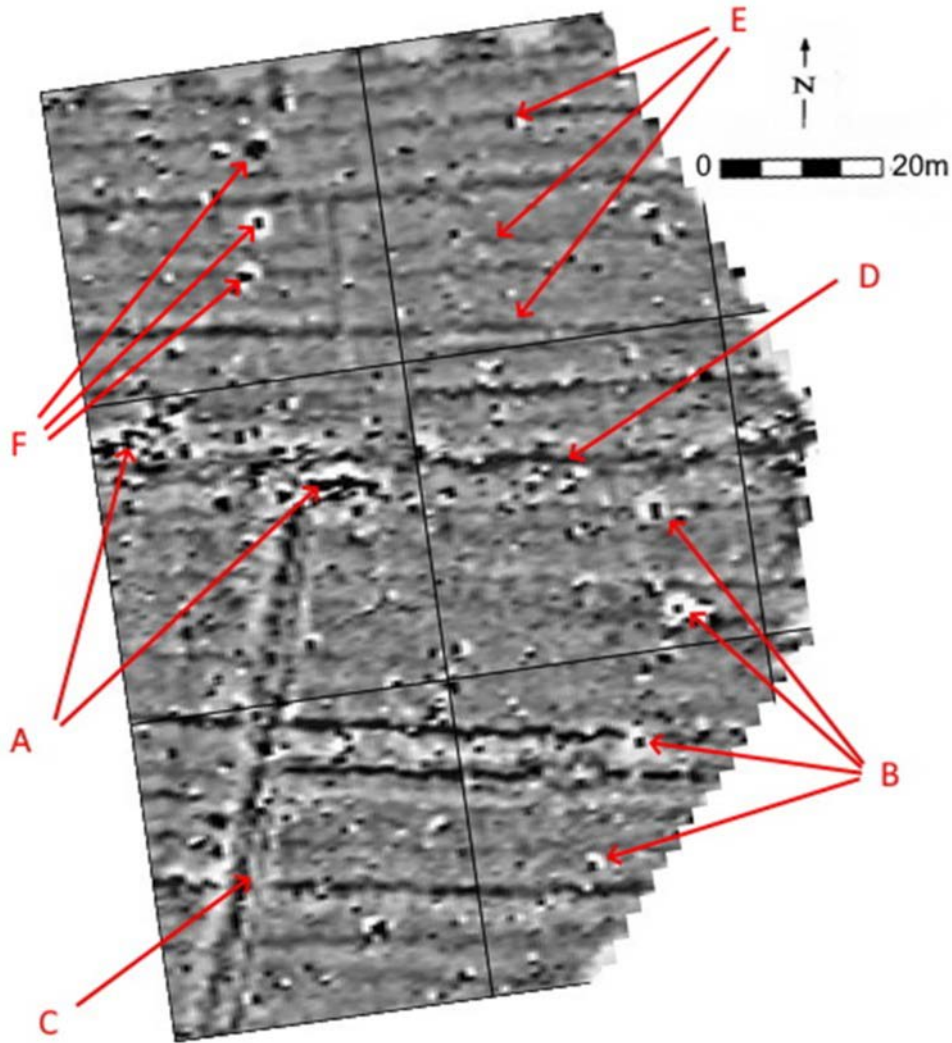


Fig (77) A-Metal scatter; B-Possible foxholes; C-Historic hedgerow ditch ; D-Ditch; E-Strip Lynchets; F- Foxholes

Magnetometer raw data:

Mean..... 1.172083
 SD 6.324355
 3 SD 18.97306
 Minimum -100 nT
 Maximum 100 nT
 Dummy Value..... 2047.5 nT

Processing filters applied:

Despike
 Zero Mean Grid
 Zero Mean Transverse
 Clip Min = -5 nT Max = +5 nT
 High Pass Filter applied
 Interpolate Y, expend – SinX/X, x2
 Interpolate X, expend – SinX/X, x2

Palette selection:

Grey-scale (grey 8)
 White (lowest) to Black (highest)
 indicates increasing earth's
 magnetic readings.

10.3 Survey Area - B8 - D49 Grimesnil Road

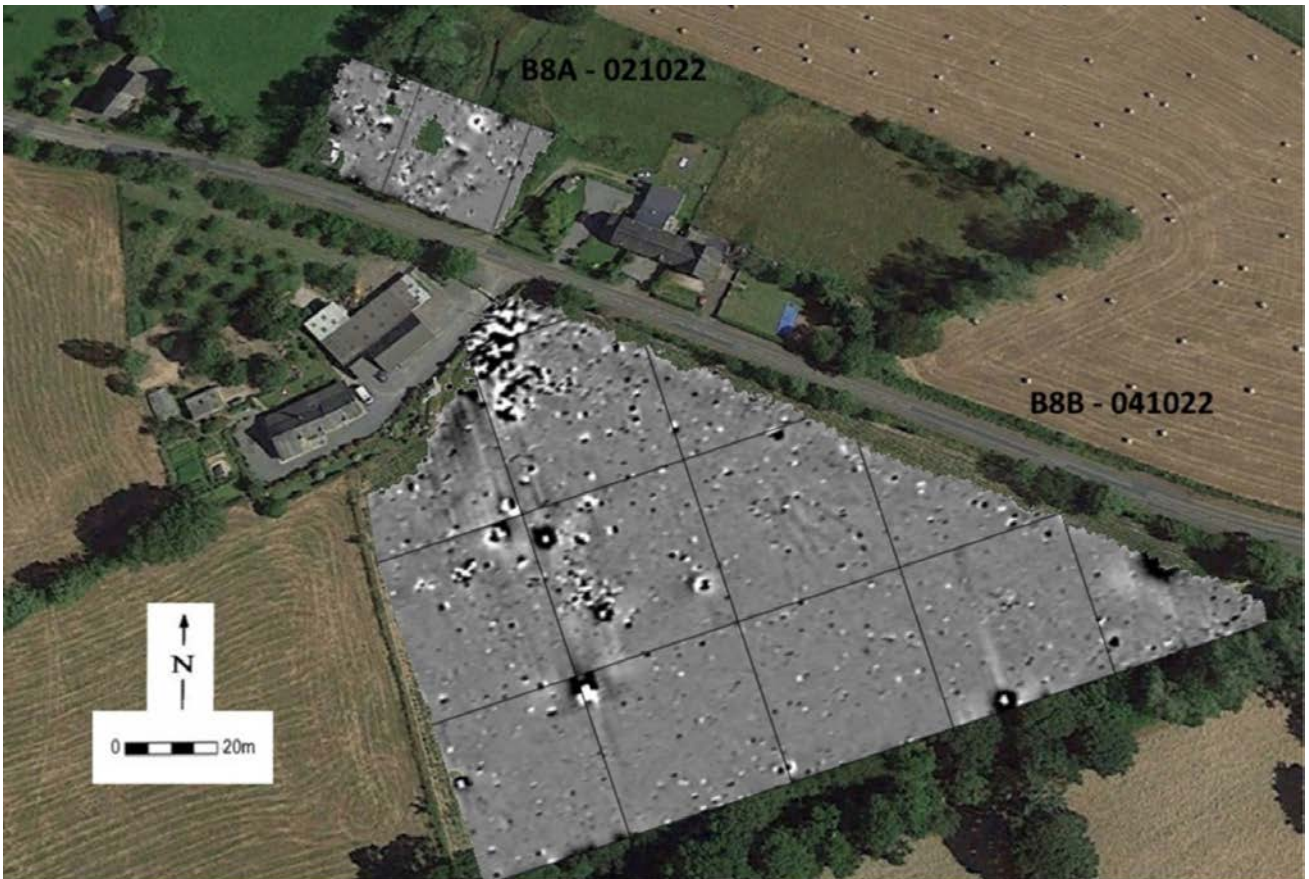


Fig (78)

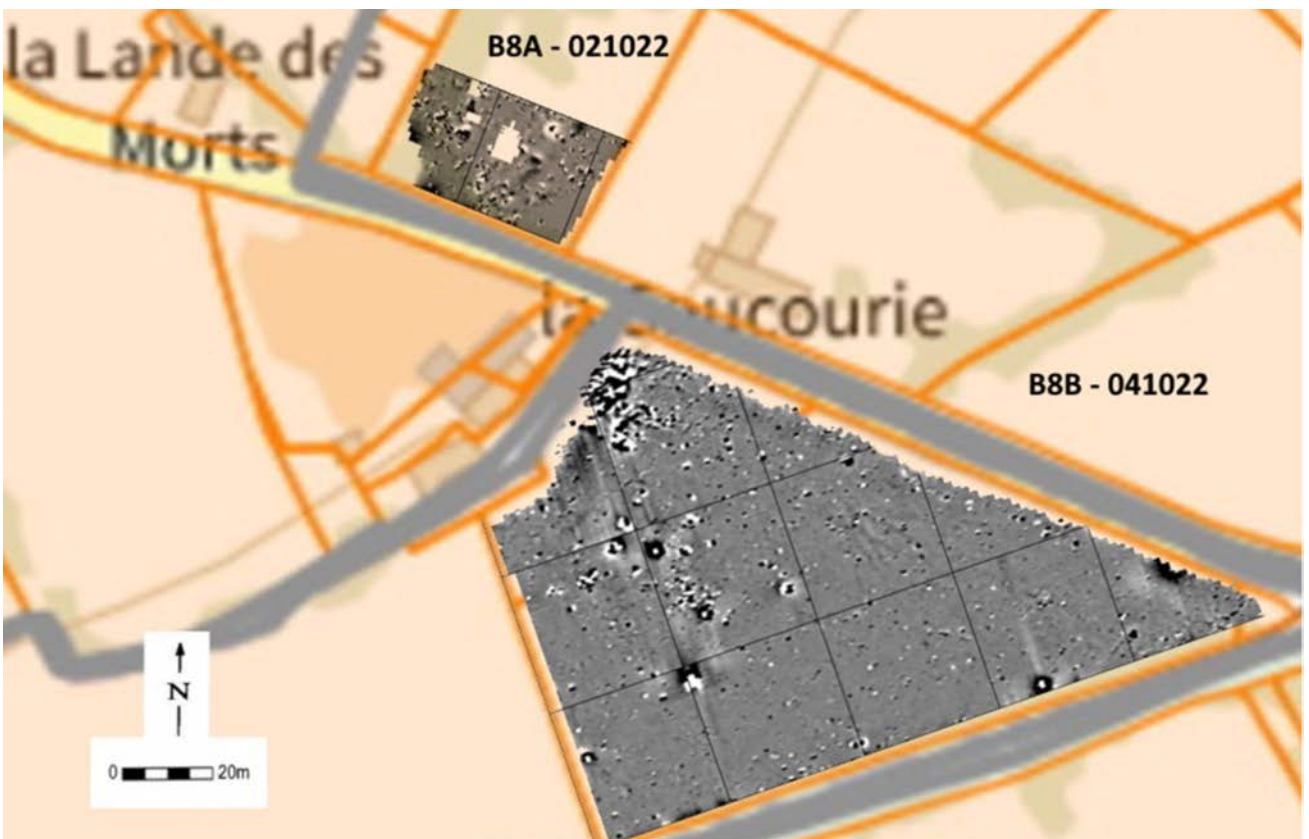


Fig (79)

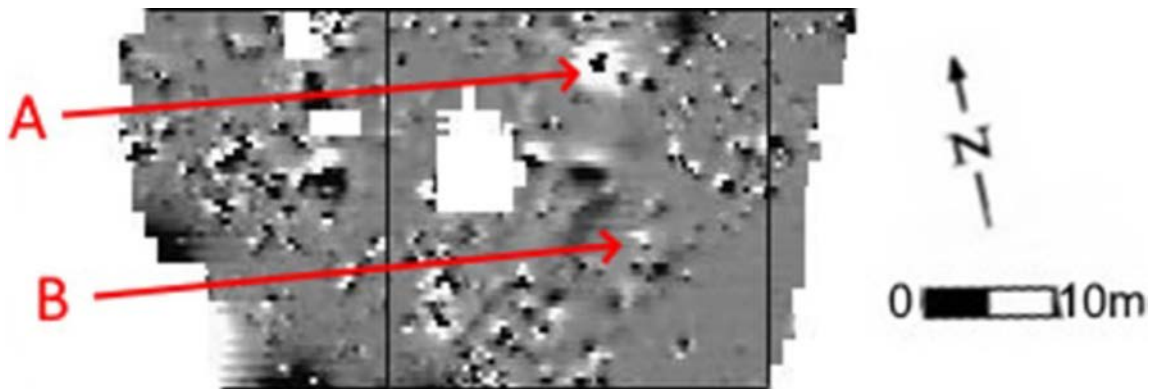


Fig (80) B8A-021: A-Metal object; B-Possible mass grave pit.

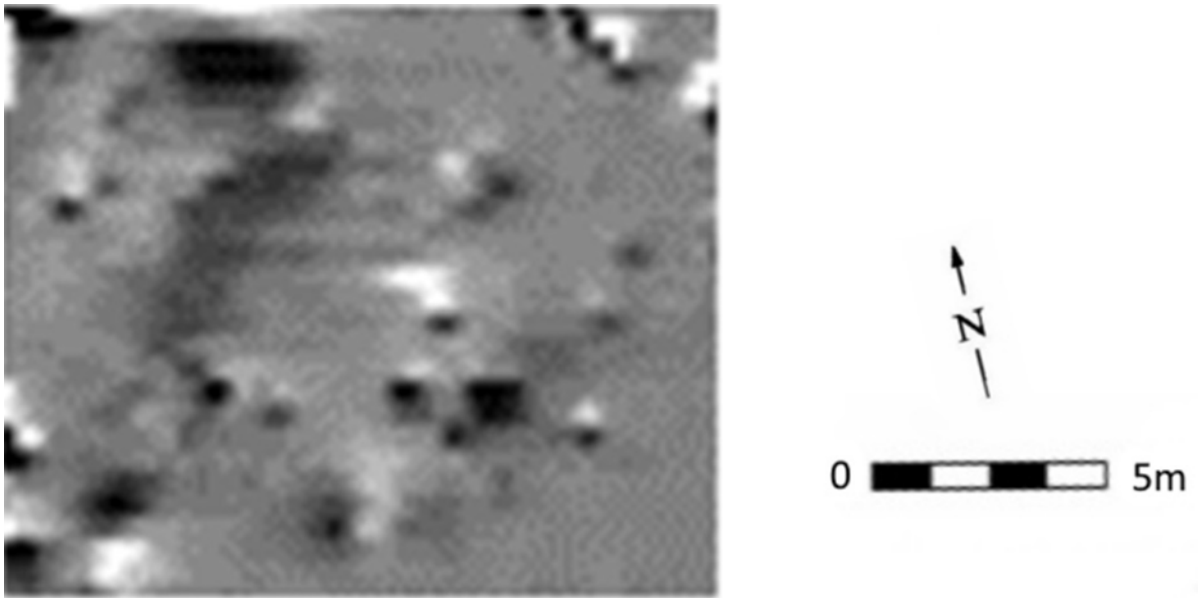


Fig (81) B8A-021: Area B-Possible grave pit. Enlarged image.

Magnetometer raw data:

Mean..... 1.583089
SD 35.71498
3 SD 107.1449
Minimum -100 nT
Maximum 100 nT
Dummy Value..... 2047.5 nT

Processing filters applied:

Data not processed

Palette selection:

Grey-scale (grey 8)
White (lowest) to Black (highest)
indicates increasing earth's
magnetic readings.

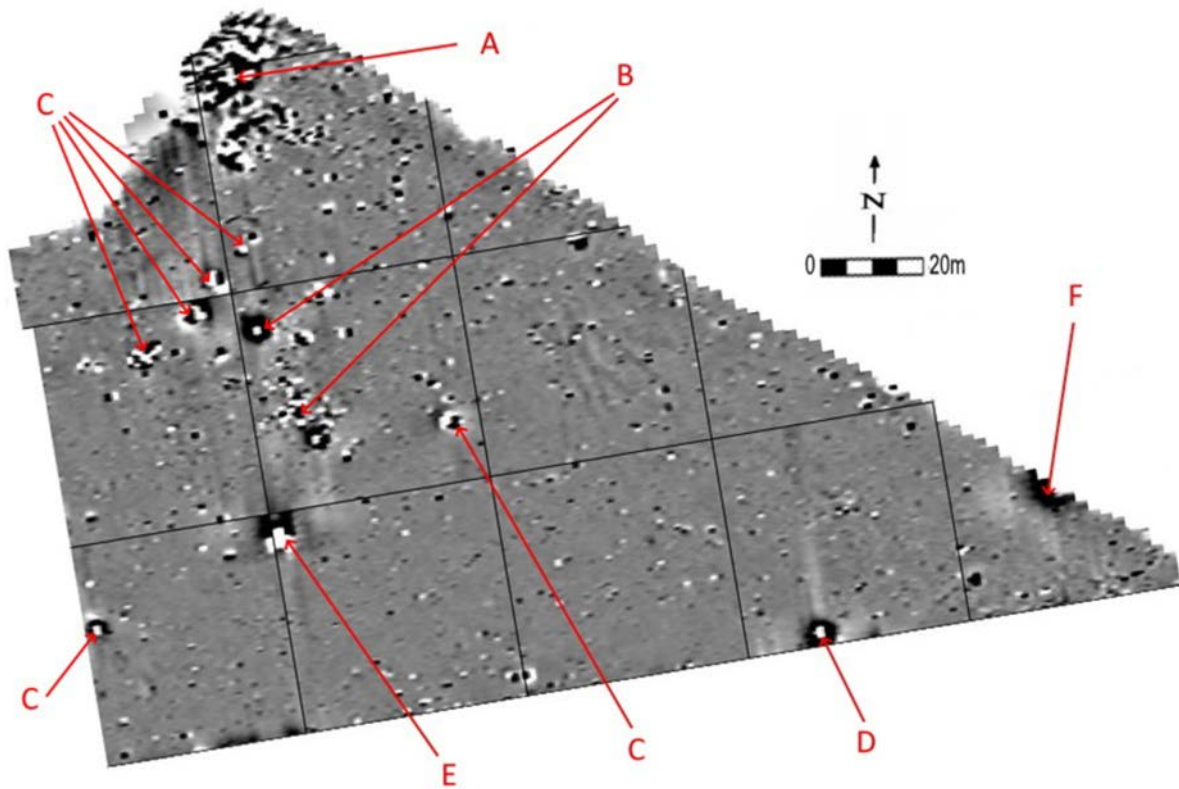


Fig (82) B8B-041: A-Historic building remains; B-Metal concentrations; C- Possible WW2 foxhole; D- Metal object ; E- Pylon base; F-large metal anomaly.

Magnetometer raw data:

Mean..... -0.02662548
 SD 8.229548
 3 SD 24.68864
 Minimum -100 nT
 Maximum 100 nT
 Dummy Value..... 2047.5 nT

Processing filters applied:

Despike
 Zero Mean Grid
 Zero Mean Transverse
 Clip Min = -10 nT Max = +10 nT
 High Pass Filter applied
 Interpolate Y, expend – SinX/X, x2
 Interpolate X, expend – SinX/X, x2

Palette selection:

Grey-scale (grey 8)
 White (lowest) to Black (highest)
 indicates increasing earth's
 magnetic readings.

Survey Area	Survey Code	Northings/ Westings	Area Surveyed (Hectares)	Magnetometer Readings	Distance Covered (kms)	Survey Date(s)
B4	B4A- 270922	48° 59' 11.85" N 1° 16' 09.35" W	0.6919	27,676	3.459	27 Sep 22
B4	B4B- 270922	48° 59' 14.29" N 1° 16' 08.09" W	0.5184	20,736	2.592	27 Sep 22
B4	B4C- 280922	48° 59' 14.97" N 1° 16' 17.81" W	0.4002	16,006	2.001	28 Sep 22
B6	B6A- 290922	48° 58' 04.60" N 1° 17' 44.29" W	0.5310	21,240	2.655	29 Sep 22
B6	B6B- 290922	48° 58' 07.64" N 1° 17' 42.83" W	0.5379	21,516	2.689	29 Sep 22
B6	B6C- 011022	48° 58' 06.72" N 1° 17' 48.84" W	0.9380	37,520	4.690	1 Oct 22
B8	B8B-	48° 57' 12.37" N	1.5334	61,334	7.667	4 Oct 22
TOTALS			5.1508	206,028	25.753	5 DAYS

Fig (83) Table of the 'standard' magnetometer surveys, codes, location, area covered, no. of readings, distance covered and survey date(s).

Survey Area	Survey Code	Northings/ Westings	Area Surveyed (Hectares)	Magnetometer Readings	Distance Covered (kms)	Survey Date(s)
B8	B8A- 021022	48° 57' 16.18" N 1° 22' 56.67" W	0.1478	23,648	1.478	2 Oct 22
TOTALS			0.1478	23,648	1.478	1 DAY

Fig (83) Table of the 'detailed' magnetometer surveys, codes, location, area covered, no. of readings, distance covered and survey date(s).

Summary Conclusions:

Geophysics revealed the presence of anomalies related to the conflict in all six sites. These anomalies to be the focus of further investigation and excavation in 2023.

11.0 Metal Detector Surveys

11.1 Metal Detector survey

A metal detector survey was carried out across all areas related to the assumed battlefield locations. The periphery of the assumed battle zone, was also subject to survey, so as to pick up American occupation prior to the battle. These periphery locations however also formed part of the wider battlefield, yet some may have been acting in a supporting role. These peripheral sites were pivotal to understanding the action as they were American occupation sites and may therefore reveal evidence of the American defensive or organisational layout for and during the battle itself. The main American occupation site locations were situated in fields around the main crossroads of the battle zone of interest, as well as outpost locations over 500m east along lateral roads from the main US positions. The main battlefield, in all sites surveyed was along the sides of the existing road networks leading to and including the crossroads, running east/west for distances of over 1,000m. These areas of interest included the road side verge up to the bitumen black top road and ditch and bank associated to the verge. Both sides of the road for equal distance were targeted for survey. Some areas within the survey zone, such as field entrance ways, were excluded, as modern disturbance in these areas was extensive. A total of two days was allocated for the metal detector survey for each site; only on two occasions did a survey run into the following morning after the 2 day limit had expired. All project target zones that had been given access by the landowner were surveyed with geophysics yet not all locations of interest were subject to a metal detector survey during this seasons' activities. Some areas known to be involved in the events relevant to the conflict still needed further research to define the historical positions of combatants and so these areas were left for future work, and form the basis for next season's objectives. No anomalies located by geophysics were also excavated or investigated and will also form the basis for next season or future investigations.

The aim of the survey was to assess the archaeological potential of each site, to locate evidence of the German counterattacks, to define the exact location of the epicentre of battle, and try to ascertain the location of the American positions according to contemporary combat reports. The archaeological evidence identified would be wrecked German vehicle parts and equipment, destroyed and fired munitions in the forms of cartridges, bullets, grenades and armaments, shell casings and shrapnel, along with soldier's personal items and equipment.

11.2 Recording technique

Metal detector teams were split into two groups, team 1 and team 2. Each separate team was deployed at a different site and worked in unison, for example team 1; was deployed at site B2-Pont Brocard, while team 2; was deployed at site B4-La Pinetiere. In that way two sites would be surveyed at once over a two day period. 6 sites were targeted for survey, and it was estimated that all 6 sites then could easily be covered within a 10 day time-frame accounting for time extensions if necessary, due to complicated or numerous archaeology. Each detector team consisted of three to four detectorists and at least four diggers and was led by a lead detectorist and a lead archaeologist. Each detector team, once at their respective site, was then split again into two further groups. Each group working the respective road side verges, or one group working the road and the other group working the designated periphery fields. The survey technique deployed for each group consisted of one detectorist followed by two diggers. The detectorist having set his machine to 'Non Discrimination Mode' would aim to pick up 'all ferrous' items, would locate a target and flag it with a yellow or red flag, then move onto the next target. The diggers would dig the target and bag the artefact then re-spear the finds bag w/ flag, now containing the artefact back into the ground and move on to dig the next target. A surveyor accompanied by an assistant would then locate the bagged artefact and record the location with a hand held GPS, the assistant then adding this information onto a label accompanied by a basic identification, for example; a German cartridge or vehicle part, etc. This information was then recorded onto a finds register. The bagged and labelled artefact then collected, the flag removed and handed back to the detectorist to be reused. Initially all items were collected by the detectorist teams, yet this was modified after day two as due to the heavy amount of modern 'trash' being collected. The detector teams still dug all items identified yet didn't bother to flag or bag obvious modern items such as foil, wire fencing, cans and

cigarette packets. As the survey sites were mostly roadside verges a survey area of 1,000m on each side of the road was an initial target. For detector teams working in adjacent fields and orchards, the survey areas coincided with the areas covered by the geophysics survey. The field survey teams worked east-west or north-south with a systematic approach.

One of the two sites being surveyed was designated the main headquarters of the project for the two day period. At this position all the finds from both sites were collected and a first phase of further finds processing was undertaken. As the field conditions in late September were not ideal and often rainy, it was thought prudent to run a second stage of processing which entailed further cleaning and photography to correctly identify items recovered and get ahead with creating a digital archive of material recovered. A further third processing stage was also included later in the survey when all items from the survey that were undiagnosed, yet were recognised as being from a WW2 context, were displayed at the local town hall as part of the projects open day, to the local community, and cleaned again in the company of local experts and enthusiasts. All artefacts of interest found during the project survey were open for discussion and a vast amount of technical detail regarding the items correct name and use was obtained using this approach. It was also a great day and enjoyed by all the community that attended. All finds correctly labelled and identified, now registered onto a digital database are positioned onto a French IGN base map. This archaeological data forming a map of the artefact distribution across each location. Items given a colour to define their category. This category defined by their use, type, nationality and modern context. This display of data defining the combination of single events that make up the artefact distribution relevant to the conflicts time-frame.

Data sets depicted on IGN maps are presented in several categories listed as:

- 'Unallocated vehicle parts'- vehicle parts of a WW2 context, use and nationality undefined.
- 'Metal and Wood' as well as 'Glass'- categories showing a wider distribution of material directly relate to the events.
- 'Horse related' – horse shoes and tack possibly related to the conflict
- 'German Vehicle parts'- Vehicle parts identified as German.
- 'American Vehicle parts'-Vehicle parts identified as American.
- 'German ammunition' and 'American ammunition' also 'Incoming Ammunition' - ammunition relative to nationality.
- 'Unallocated ammunition' - Undefined nationality of ammunition.
- 'German uniform /equipment'-field gear and personal items in a German context.
- 'American uniform /equipment'- field gear and personal items in an American context.
- 'Unallocated uniform/equipment' - field gear and equipment not associated to any one nationality.
- 'Human remains'- whole or in fragments, nationality undefined.

12.0 Metal detector results per site

12.1 Site B2- Pont Brocard

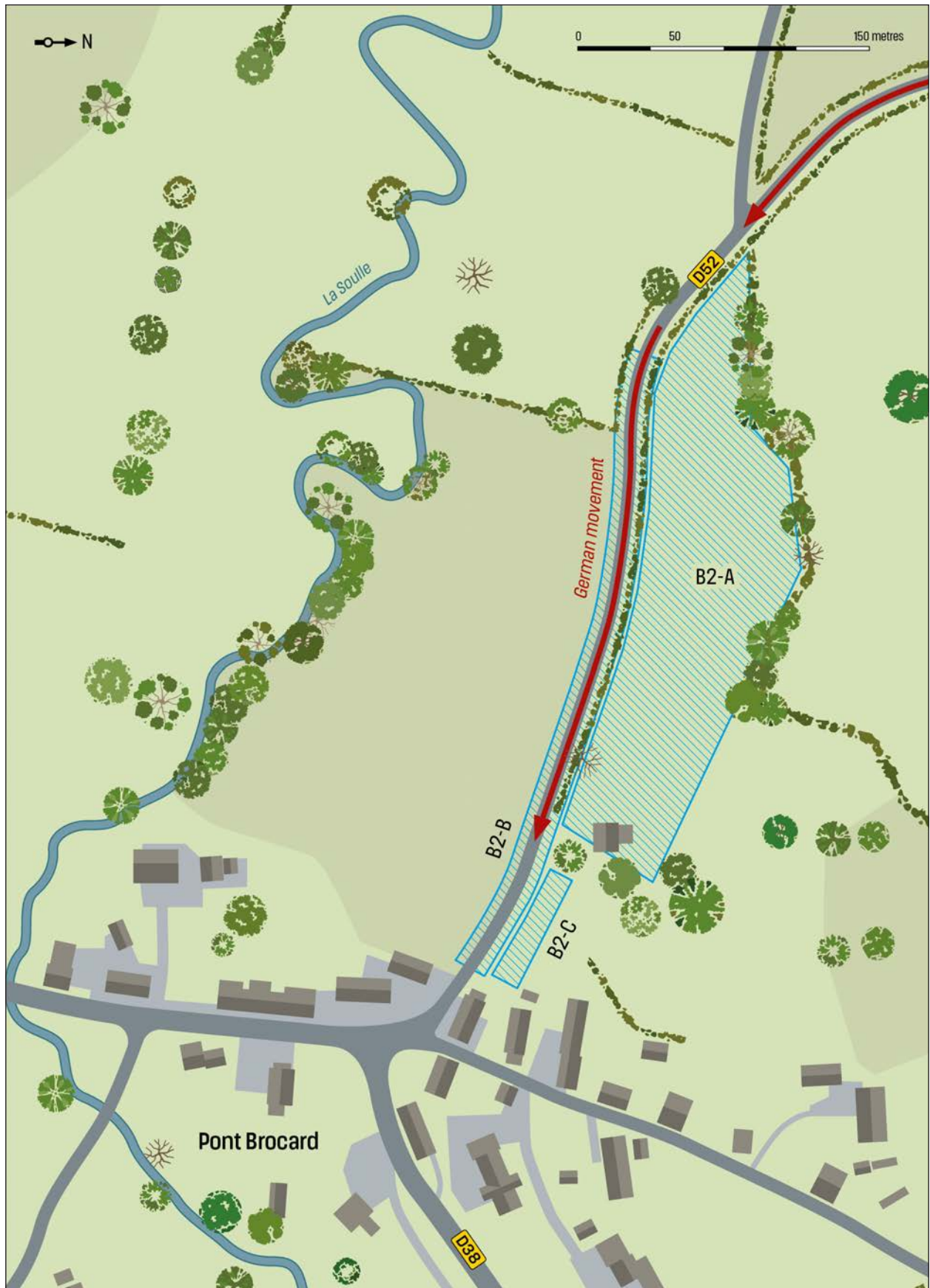


Fig (84) Site B2-Pont Brocard. Survey zones in blue. Zones; B2-A / B2-B / B2-C.



Fig (85) A contemporary image of the conflict taken on the 28th July 1944 from the American B/41st AIR positions looking west along the D52 road, depicting the destroyed German column of armoured vehicles, motorcycles and equipment (H.V.Robinson B/41st AIR)



Fig (86) The D52 Road looking west showing the same location in 2022 (BAG)

12.2 Pont Brocard Site B-2

Survey evidence defining the location of main military action on the D52

On the afternoon of the 27th July 1944, 2nd Armoured Divisions CCB with attached elements of the 41st Armoured Infantry secured the town of Pont Brocard. To defend the town a 57mm anti-tank gun was placed over the bridge crossing the Soules river south of the town and another 57mm anti-tank gun was also placed at the intersection of the D38 and D52 north of the town. It was at this position with the 57mm anti-tank gun manned by troopers of the 41st AIR on the night of the 27th/28th July, that the town was attacked by elements of retreating German units. The American defence, completely destroying the attempted German infiltration. A metal detector survey was deployed in three zones. Zone B2-B stretching back from the D38/D52 intersection along the D52 for 1,000m, both sides of the road, including the roadside ditches and banks. Zone B2-A, a large high field to the north of the road overlooking the D52, and Zone B2-C, a small section of field in and amongst the small farm buildings alongside the D52 on reaching the town. From photographic and contemporary combat reports and unit history diaries the main area of conflict for the military actions on July 27th/28th were identified to be located along the D52 heading west out of the town and therefore within Zone B2-B area of survey. Metal detector teams were then deployed both sides of the road and initiated the project protocol for identifying, collecting and positioning relevant artefacts related to the conflict.

A vast amount of material was recovered. Far more than could be represented with any clarity on any one survey map, so the decision was taken to break up the archaeological collections into types. The objective being, that the positioning of artefacts would make more sense if seen separately in categories. For example the large concentration of vehicle parts and associated material would indicate the main concentration of military action. Concentrations of destroyed ammunition and military equipment would also, not only corroborate this conclusion but narrow down the epicentre of the action. This would also apply to concentrations of personal items such as infantry field gear and uniform/fabric and equipment as well as human remains. The distribution of cartridges or shells would give an indication of outgoing fire and therefore the positions of combatants, and single bullets, remains of solid shot projectiles, rockets and hand grenades, in a separate category would denote incoming fire. Referring to the key on each map indicating the relevant symbols given to each category, a concise visual structure of events can then be better ascertained. Each symbol will also be allocated a number describing the artefact in more detail, a description of the artefact will be included in the initial text and for further analysis a complete finds register will be listed in the appendix.

It must also be noted that the area has been the focus of intense sporadic metal detector activity over the past 20 years, and so the material recorded is only a representation of what remains. There is also a modern artefact layer, represented by modern ammunition scatters relevant to the 1944 action. Highlighting the use of the location as a place of re-enacting the conflict as a sense of remembrance. This archaeological sequence is also included in the survey. The modern artefact layer is significant as it describes the movements of the re-enactors as they recreate the popular narrative of the actions in this area. Cartridge Base stamps were all dated to 1963-1974, Fig (66).

12.3 Site B-2 Pont Brocard: Vehicle parts and associated artefacts

Zone B2-B was defined as the main concentration of military action due to contemporary photographs and backed up by the project survey evidence, indicated by artefact concentrations of vehicle part locations. At points (003/004/005/06) a total of 27 vehicle parts were found, including the remains of armoured plate, all showing evidence of fire damage, and a large piece of armoured plate identified as coming from a German halftrack (033). This epicentre of conflict then expands west back up the road indicated by more concentrations of vehicle parts and armoured plate at points (007/008) and then again at points (013/014), gradually thinning out to single scattered vehicle parts indicated at points (120/041/025) back up the D52 as the road initially curves into the Town. These artefacts could indicate the initial exchanges of fire on the approaching German column by the American defence, as concentrations of cast off material are mainly at two locations indicating first contact, or shrapnel cast off from the epicentre of the action closer to the town. Certainly the distribution of items labelled 'Metal and wood' are all believed to be vehicle parts described as shrapnel, as the German column is under fire, the direction of cast off material from vehicles has been thrown back up onto the adjacent field indicated as Zone B2-A.

Horse related equipment was also located in zones B2-A at point (106) yet mainly in Zone B2-B at points (035) and (125), all horse shoes have been identified as contemporary within the period of study. It has been documented that horse drawn German artillery had travelled down this road in and out of the town during and prior to the time frame of the conflict, some columns of horse-drawn material being shot at along the road and into the town. The artefacts have therefore been recorded as relevant yet could also be just an accumulation of roadside debris from normal agricultural use.

Some scatter of archaeological material of a WW2 context was located forward of the epicentre of action, yet only a few items, the most compelling item located at point (036) was identified as the remains of seat springs from a German type motorcycle, which collaborates well with the contemporary WW2 image of the conflict, depicted in Fig (20).

Zone B2-C was devoid of any artefacts related to the conflict, the only items found were concentrations of farm refuse and building material.

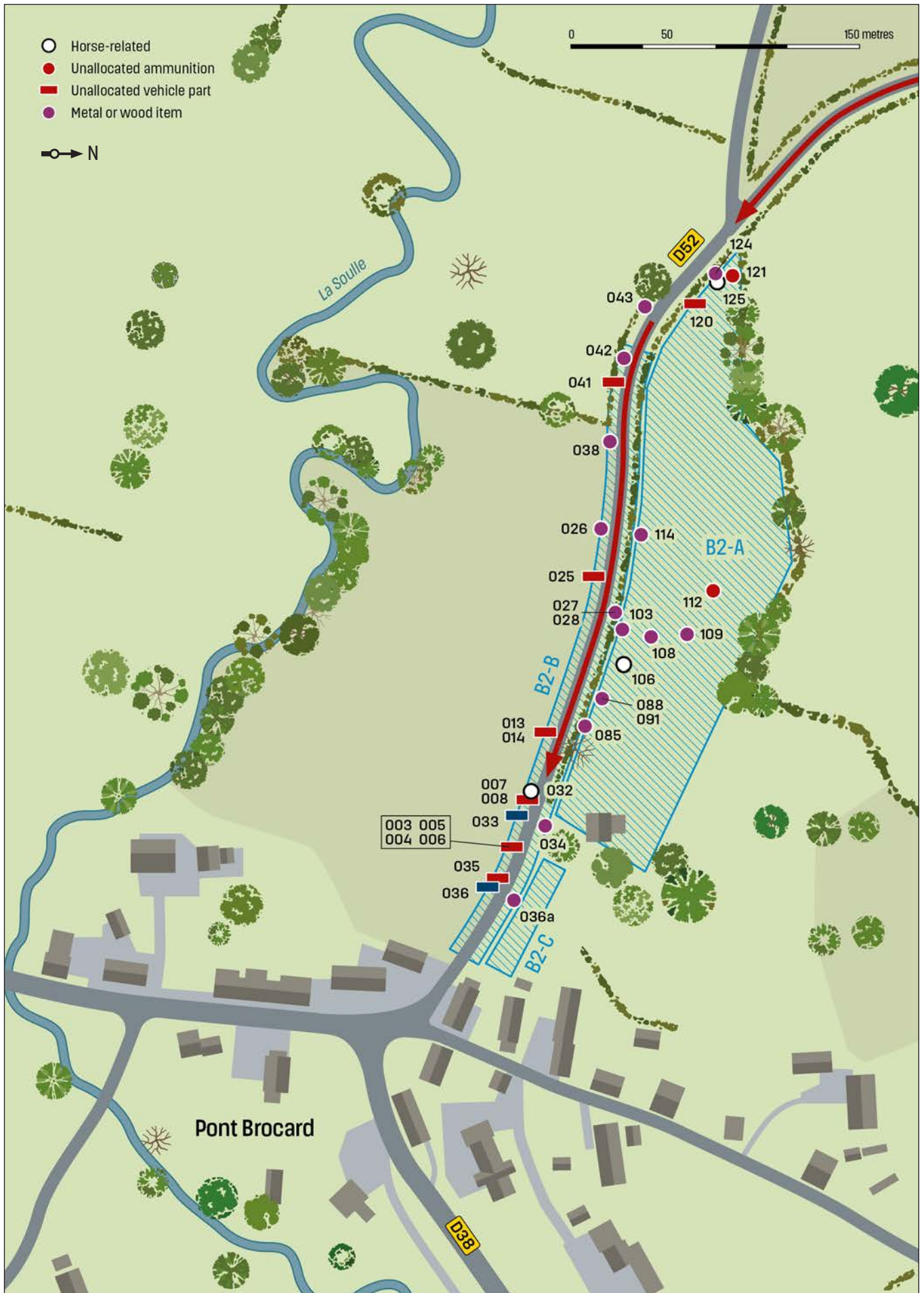


Fig (87) Site B-2 Pont Brocard: Distribution of WW2 Vehicle Parts and associated artefacts such as wood and metal locations are annotated with a number, symbol type and colour showing the distribution of archaeological material related to the historical time frames of the 27th-30th July 1944. For more detail refer to the appendix finds register.

12.4 B-2 Pont Brocard: Distribution of German ammunition and equipment

The distribution of German ammunition located in Zone B2-B and Zone B2-A is small, yet it does collaborate with the distribution of vehicle parts highlighted in Fig (87) in so much as it places the epicentre of the conflict 150m to 200m from the D52/D38 intersection. German personal equipment (09) represented by a water bottle cap and 2 German flare cartridges (010), the flares both fired, a blue/green flare and a parachute flare, light grey or white. These flare cartridge locations indicate perhaps a desperate attempt by the German column to signal for help and or highlight the night so as to identify their attackers. Another flare (122) found higher up the road at perhaps the point of initial contact with the American defence or a call for later artillery support, also indicates an attempt by the approaching Germans to call for help. There is some evidence of an attempted German counterattack, with cartridges found at (002) and (126) with a possible rifle grenade position set up at point (012), yet the artefacts are too small in number to quantify this conclusion. As other ammunition (121) was also discovered in Zone B2-A that looks more like debris scattered due to the intense action played out on the road in Zone B2-B.



Fig (88) Artefact no: B2-(010): German fired flares, found in the epicentre of the action of July 27th/28th 1944, along the D52 road 150m from the intersection with the D38 and the crossroads of Pont Brocard. Note the crenelated edge on the right flare, highlighting this as a Parachute flare. Also present on the same cartridge is a faint grey stripe from right to left indicating its colour.

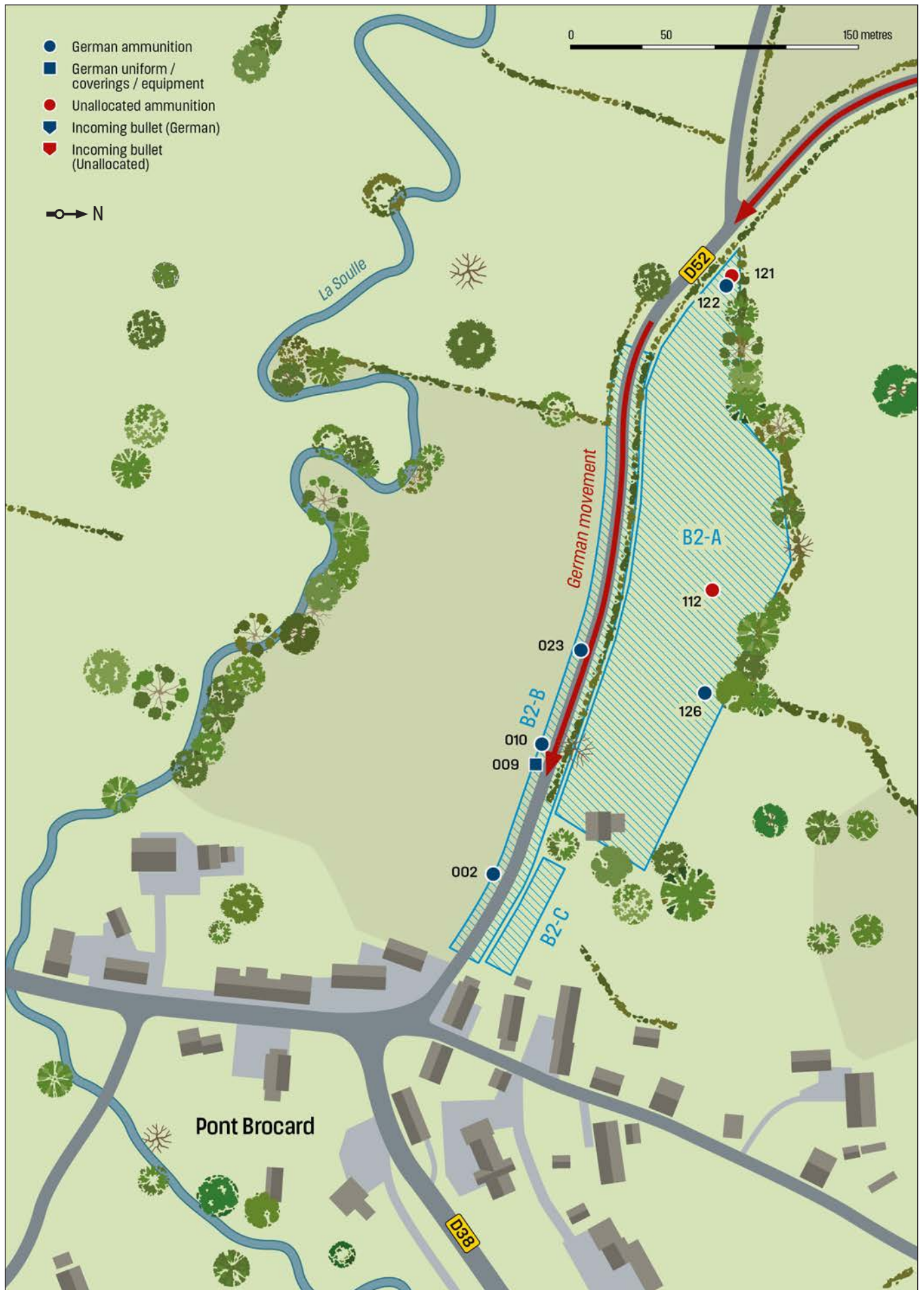


Fig (89) Site B-2 Pont Brocard: Distribution of German ammunition and equipment related to the conflict, specifically between the 27th-30th July, 1944. Dark blue artefacts are German and red are an undiagnosed nationality yet are contemporary with the study time frame.

12.5 Site B-2 Pont Brocard B-2: American Material

American material recovered was limited; this has been assumed due to casual metal detector activity over the years. The battles at Pront Brocard are widely known to WW2 enthusiasts, as the area featured heavily in contemporary photographs of the period. Pont Brocard is one of the most well-known areas of conflict associated with the Cobra operation, in particular the breakout of the 2nd Armoured Division. The area is also very popular with WW2 enthusiast groups who re-enact the battle wearing period costume. A vast amount of ammunition from the 1960s and 1970s has left its own archaeological record on the landscape and the archaeologist agree that this ghost battle is an important episode in the historical life of the events of the past. The American 1944 period artefacts found, although few in number, still add significant knowledge to the events of 27th/28th July. At point (119) a 50 calibre cartridge was located at the high western end of Zone B2-A. A forward US position was known to be somewhere forward of the main anti-tank gun position along the D38 in the town. This forward position opened up on the advancing German column and in turn came under fire, forcing the forward outpost to retire back down the road. It is interesting to speculate that this outpost as it descended back down the road, it again laid down fire on the advancing Germans at point (087) now in Zone B2-B, as again we find evidence of American 30-calibre cartridges and again in turn receiving fire, as we find what is an American light vehicle part, perhaps a windscreen panel from an American jeep (029). American incoming fire was also located just forward of this position. A 50-calibre bullet was imbedded in the roadside verge at point (033a). The position coinciding exactly with the culmination of vehicle parts also found in this area; See (Distribution of WW2 Vehicle Parts and associated artefacts, Fig(87))



Fig (90) Modern Re-enactor ammunition from the 1960's and 1970's found at Pont Brocard showing clear evidence of the 'ghost battles' that still play out across these historic battlefields as forms of remembrance.

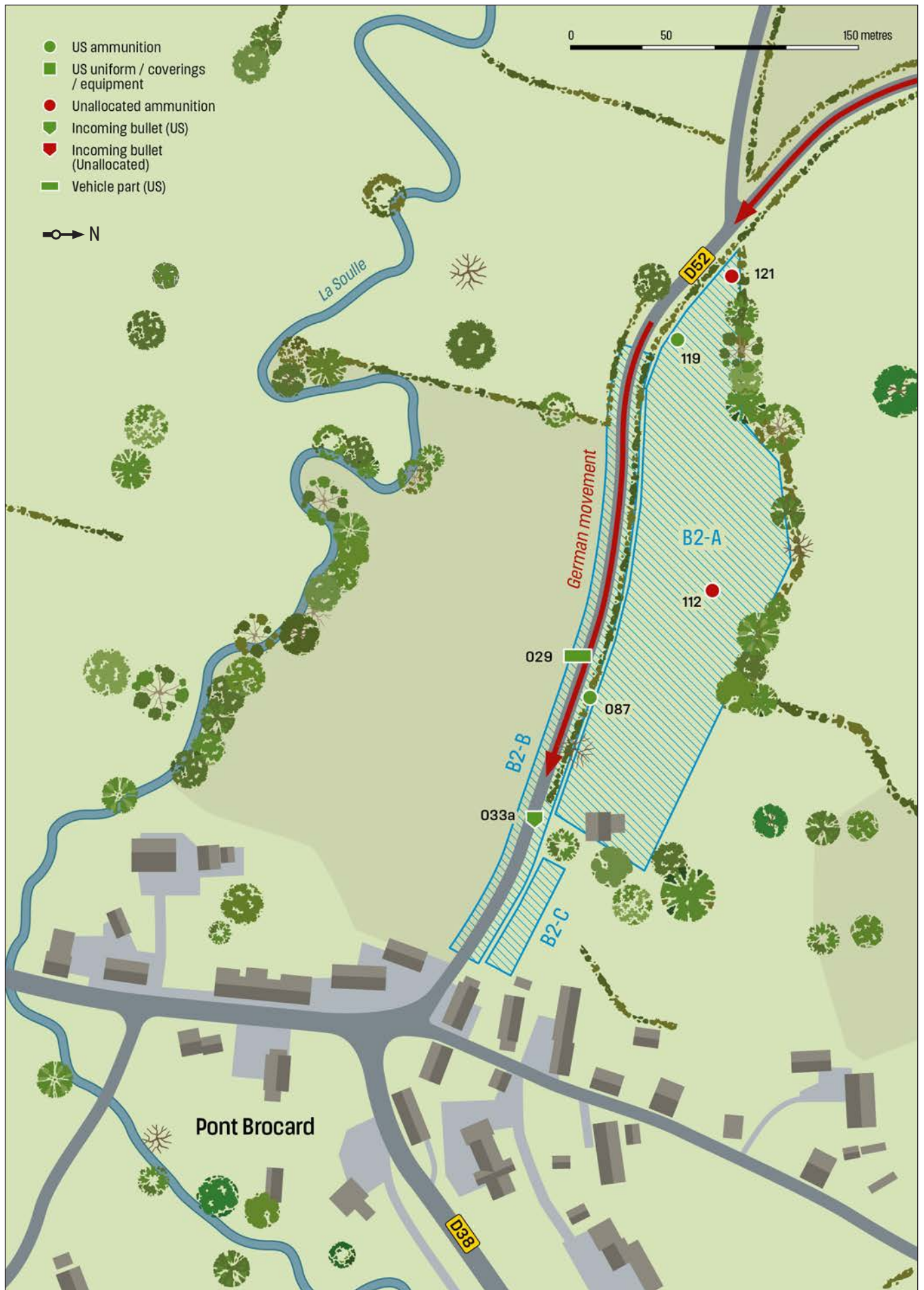


Fig (91) Site B-2 Pont Brocard: Distribution of American artefacts

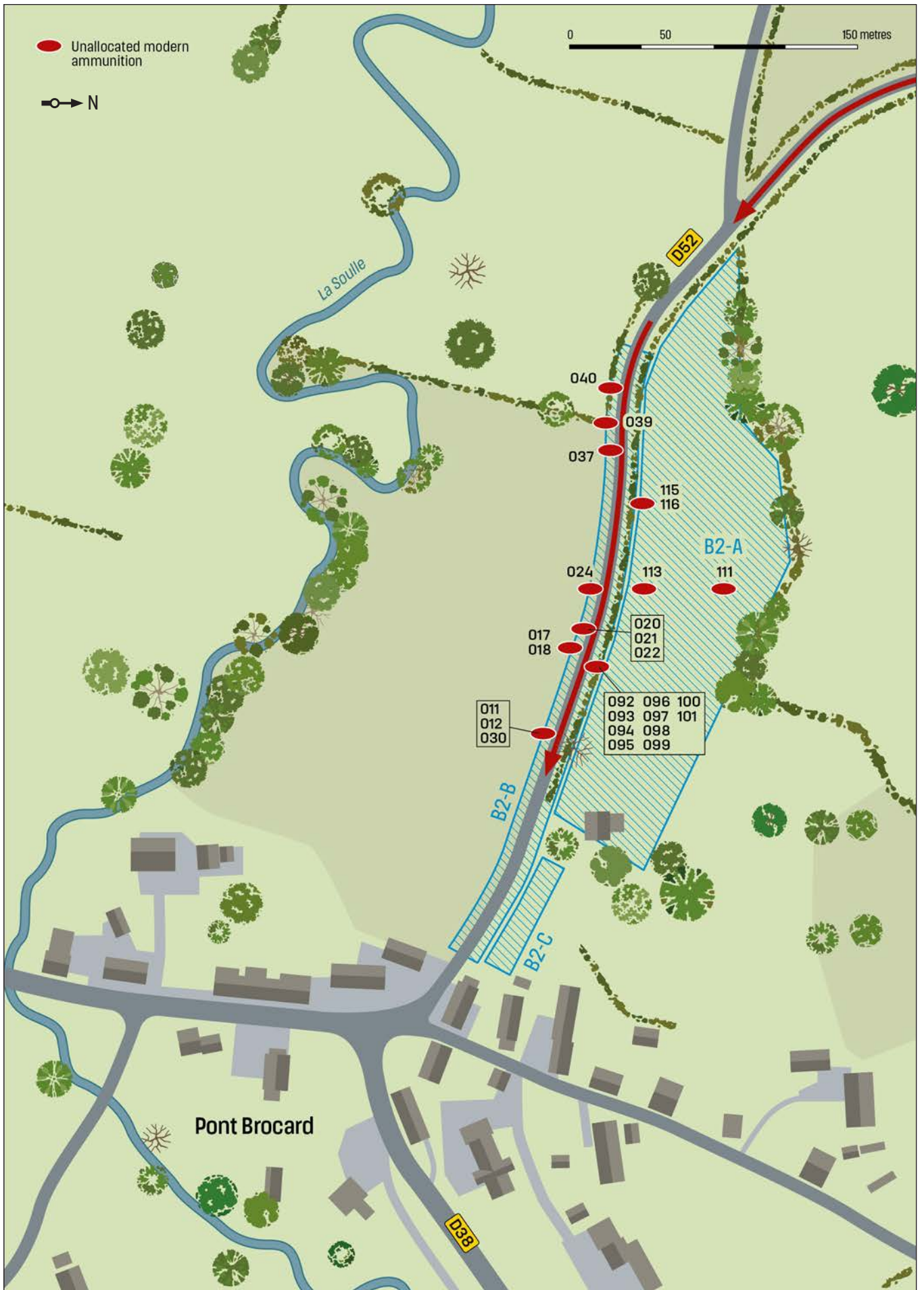


Fig (92) Site B-2 Pont Brocard B-2: Modern re-enactor Material

13.0 Site B4-La Pinetiere Survey Zones

2nd Armoured Division CCB had now, by the 28th/29th July, picketed all the crossroads heading south down the D38 to Lengronne. Each road block was manned by infantry, anti-tank and tank destroyers as well as covered by artillery support. At La Pinetiere, positioned at the crossroad of the D27/D38 a company of infantry gave immediate support to the 78th Armoured Field Artillery battalion setting up positions around the crossroads. Positioned 150m west along the D27, four M10 tank destroyers covered the road as a forward position assisted by elements of 8th Infantry. 8th Infantry's soft skinned vehicles parked up around the crossroads. 78th AFA equipped with M7 self-propelled 105mm howitzers were located on both sides of the crossroads. B Battery occupied the orchard at 'La Pompe' north of the crossroads along the D27, with C Battery across the D38 in the opposite fields, south-east corner, looking directly west up the D27. At this corner sat a 37mm anti-tank gun, offering protection to the battery and giving a clear view on oncoming traffic from the west. It was down this road, the D27 on the night of the 28th/29th of July, the German attack struck. All American positions were engaged in hectic close action fighting, the forward elements were completely overrun, forcing surviving tanks and infantry to fall back to the crossroads.

The 2022 metal detector survey zones therefore were set out to cover all areas of American occupation and 1,000m west along the D27, in the hope of identifying the main concentration of the German attack, and the epicentre of the conflict. Zones for survey were divided as: The D27, from the crossroads for 1,000m: Zone B4-D. The orchard of 'La Pompe' and the main position of 78th AFA B Battery: Zone B4-C. The south-west corner of the field over the D38 road: Zone B4-B. Another area of interest was also targeted for survey which was located on the south-east corner of the crossroads opposite C-battery AFA: Zone B4-A.

Metal detector teams briefed on the project recording protocols were deployed in three zones; Zone B4-D, Zone B4-C and partially in Zone B4-A. Zones B4-D and Zones B4-C were seen as the area's most likely to contain evidence of the July action and so was targeted first to maximise the use of time available. This proved fortuitous as the amount of WW2 material recovered along the stretch of the D27 road and the orchard of 'La Pompe' was considerable. Far more than could be represented with any clarity on any one survey map, so the decision was taken, using the same template as at B2 Pont Brocard, to break up the archaeological collections into types. Artefact representation into categories would not only allow the full collection of material to be presented within context, it would also enable the artefact representation to be clearly understood. For example as with B-2 Pont Brocard.

The large concentration of vehicle parts and associated material would indicate the main concentration of military action. Concentrations of destroyed ammunition and military equipment would also, not only corroborate this conclusion but narrow down the epicentre of the action. This would also apply to concentrations of personal items such as infantry field gear and uniform/fabric and equipment, as well as human remains. The distribution of cartridges or shells would give an indication of outgoing fire and therefore the positions of combatants, and single bullets, remains of solid shot projectiles, rockets and hand-grenades, a separate category would denote incoming fire.

A template for the corroboration and display of recorded data recovered would be consistent for each site and designed accordingly.

Referring to the key on each typology map indicating the relevant symbols given to each category a concise visual structure of events can then be better ascertained. Each symbol was allocated a number describing the artefact in more detail and a description of the artefact will be included in the initial text. For further analysis a complete finds register will be listed in the appendix.

It must also be noted as with B2 Pont Brocard that this area at La Pinetiere has also been the focus of intense sporadic metal detector activity over the past 20 years, and so the material recorded is only a representation of what remains.

There is also a modern artefact layer, represented by modern ammunition scatters relevant to 'Ghost battles' carried out by modern re-enactor WW2 groups replaying the 1944 action. Highlighting the use of the location, as a place of remembrance. This archaeological context again has been considered and has been included in the survey.



Fig (93) (BAG) Volunteers recording German vehicle part locations in the ditch and high banks along the D27 road at La Pinetiere B4. (BAG) Note the American positions in the orchard top left across and down the road.

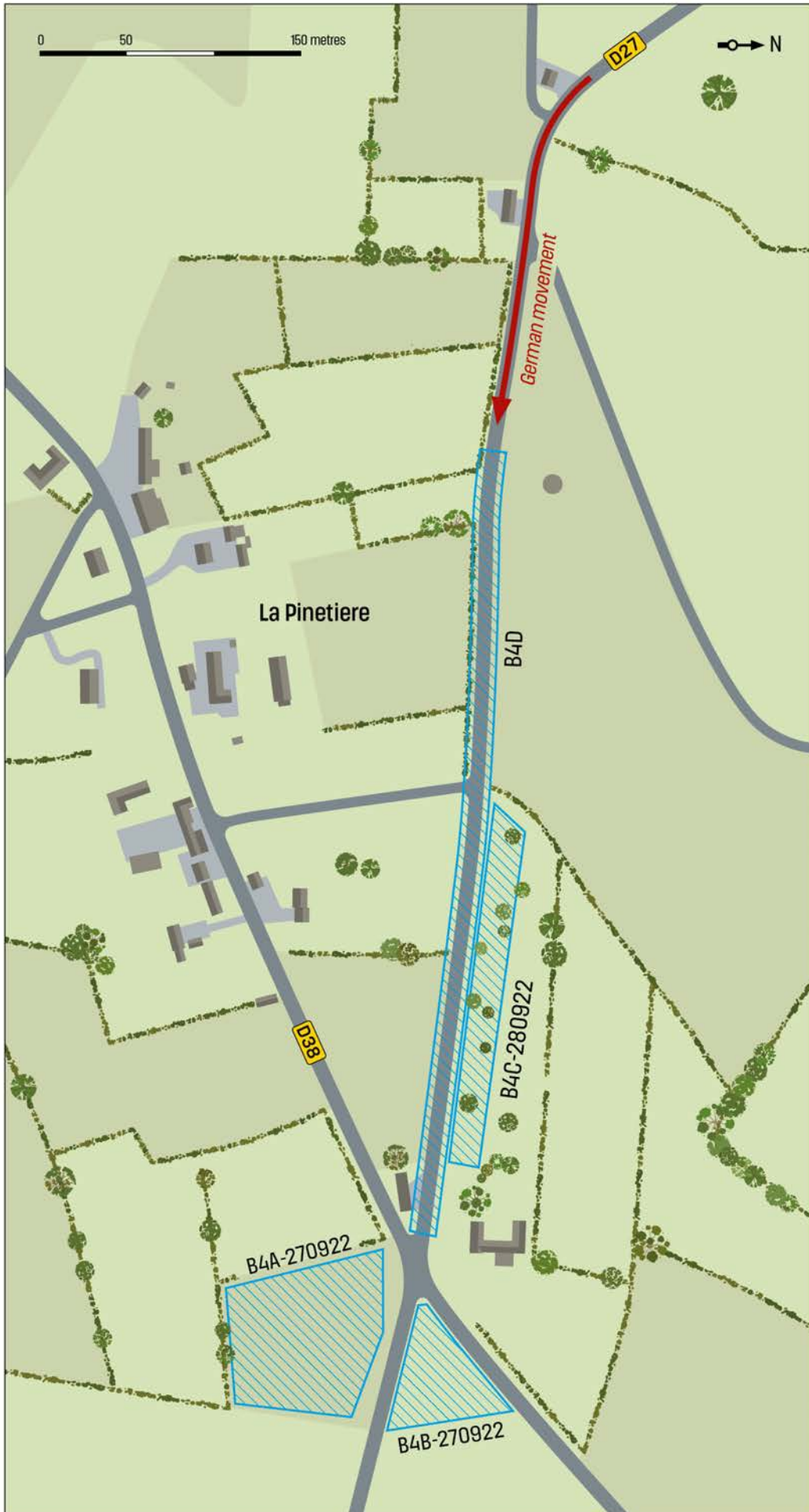


Fig (94) Site B2-La Pinetiere. Survey zones in blue. Zones; B4B / B4A / B4C / B4D
 La Pinetiere Survey evidence defining the location of main military action on the D27

13.1 B-4 La Pinetiere: Vehicle parts and associated artefacts

A vast amount of material was recovered within the zones surveyed thus enabling to produce a compelling picture of the conflicts events for the period of the 28th/29th July 1944. The epicentre of the action was clearly defined by not only the intense accumulation of WW2 material but evidence of burning on the ground and the state of the artefacts themselves, as almost all the artefacts recovered in the epicentre area showed clear evidence of being destroyed by fire. The main epicentre of destroyed material indicated at points (284/286c/308f/308g/309f/309h) depicting destroyed vehicle parts and armoured tank plate as well as (142b/144/147/150h/203/204/287289), destroyed vehicle parts, also (184/190/193h/197/205/263/267/268/269/295/296) are representative of the intensity of the action at this location, as all points represents areas of multiple destroyed vehicle parts and melted rubber. Most of the material recovered at this location was imposable to identify its use or nationality, yet the highest concentration of identifiable German material was at this location, identified as (193i) German halftrack, track link, and at points (163/286e/308) which included, two more German halftrack links for a SdKfz225 armoured personnel vehicle. The beginning of vehicle part concentrations stem mainly from points (084/135/162). This is consistent with 78th AFA combat reports, stating that B Battery AFA laid down point blank fire onto the advancing German column at the position where the column was about to overrun the orchard. This is clearly defined by the physical evidence recovered. The concentration of material from this position, then spread out in clusters to points (215/305/307) representing more tank armoured plates and (250/253/251/306a), (306a) alone representing over 30 vehicle parts. Single vehicle parts rather than clusters then stretch back up the road west (259), (230), (169), (238) to what seems from the recorded ammunition scatter data (see fig 95) the first point of contact between the opposing forces.

Vehicle part clusters do continue east down the D27 past the epicentre of the action and indicate that many German vehicles (129/130) managed to continue their penetration through American lines at least to the crossroads. Vehicle part clusters are still found at points (081/082/083/127/128/322) and (070/071/073) and again in a cluster of vehicle parts and rubber at (055/056/057/059/062/065). Yet at this position, these vehicle parts could be representative of material scatter related to the position occupied by the soft skinned vehicles of the American 8th Infantry, who were known to have taken fire. Yet this is speculative. Armoured plate at (375a) and other clusters of vehicle parts at and around the crossroads indicate that at least some German vehicles penetrated to the crossroads itself. Horse related material was also located along the whole length of the D27 survey area (233/331/078/053) all horse shoes could also represent retreating horse drawn German artillery units, yet possibly prior the 28th/29th of July. American 82nd Reconnaissance units describe shooting up horse-drawn vehicles in this vicinity on the 27th July and sporadic horse-drawn German units were known to have been spotted and shot up throughout the same period.

Textile and uniform/equipment material evidence was also located yet under represented; this will be discussed in further detail. Most of this evidence was amongst the clusters of vehicle parts (306g), fragment of leather pouch and (189a/189d/309i) infantry boot fragments and buttons and buckles. All believed to be German. Other clusters of equipment though un-diagnostic for a specific nationality were located at points (151/189b/189e).

Tarpaulin rivets and clasp are assumed American due to their position.

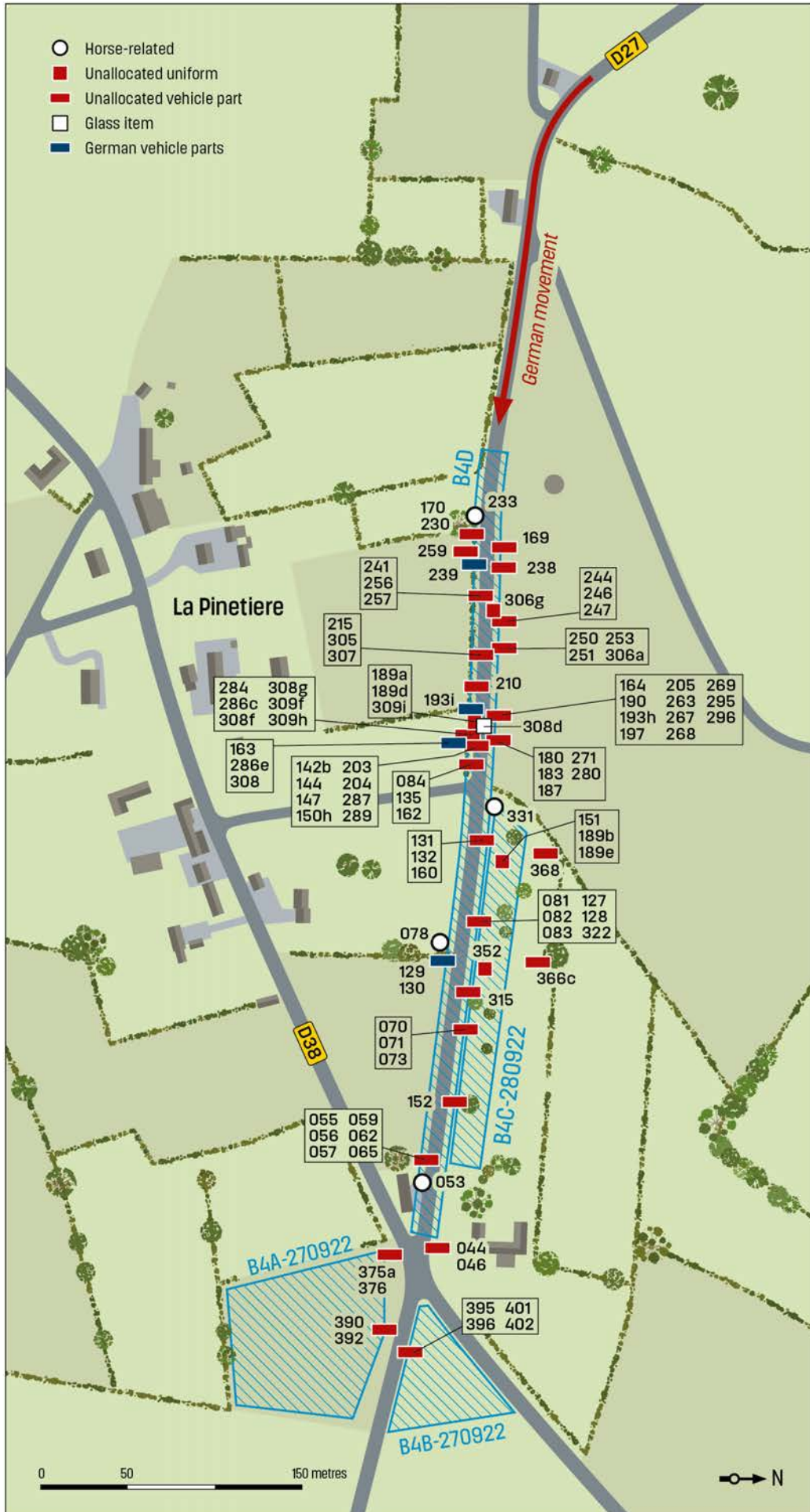


Fig (95) B4-La Pinetiere: Vehicle parts and associated artefacts



Fig (96) working image of the artefact scatter highlighted by yellow flags pin point artefact locations along the edge of the D27 in the identified epicentre of the events relevant to the night action of the 27th/28th of July 1944. La Pinetiere. (BAG)

13.2 Site B4 La Pinetiere: Metal and wood

Several categories of artefacts were also included within the survey finds recording strategy yet later removed from the presentation of material recovered. This was due to the sheer volume of material recorded. The category of 'Shrapnel' although recorded and included in the site file was not visually represented on IGN mapping. The decision was made that representation of 'Shrapnel' ie-metal fragment scatters, would be overwhelming and confuses the results. However a second category of artefacts derived from the 'shrapnel' category was seen as relevant in some cases, as the artefacts were more representative of vehicle parts and more identifiable evidence of the conflict. The category of 'Metal and Wood' was seen as applicable for site B4-La Pinetiere as it gave another layer to the evidence defining areas of conflict. This can be seen clearly with the concentrated locations of artefacts in Zone B4-D at points (134/140/148/202/288/291/150a/150g) all representing melted metal objects reminiscent of vehicle parts and or equipment (150g) representing 12 objects. All material was totally degraded and destroyed by fire. Within this same location points (180a) representing 10 metal objects also (186/309g), and at location (207/293/298/299/300/301/302) and along this same section of road among other assemblages (182/194/261/264/192d/193), point (193) representing 3 objects and point (193d) representing 14 objects, again all metal objects, totally destroyed by fire and diagnostic yet relevant to the historical events related to the conflict. At points (306e) was located small fragments of fibre board, possibly asbestos and within this context (306c) springs and mesh, vehicle fragments large enough to possibly represent seat springs. Other significant artefacts were also found in this location (Refer to Fig 95).

The concentration of artefacts located in Zone B4-D tells a story of a concentrated violent event along the road, specific to a particular position. The scatter of artefacts then markedly changes in zone B4-C. The artefact scatter is wider and unspecific. The material evidence is still diagnostically the same, as the artefacts found were all undiagnosed destroyed metal objects, yet unspecific to any one location. This is the same for Zone B4-A yet artefacts found at points (400/389) are of a more personal nature, a small metal box lid and part of a jewellery cross. Yet it is possible that these items are not related to the conflict.

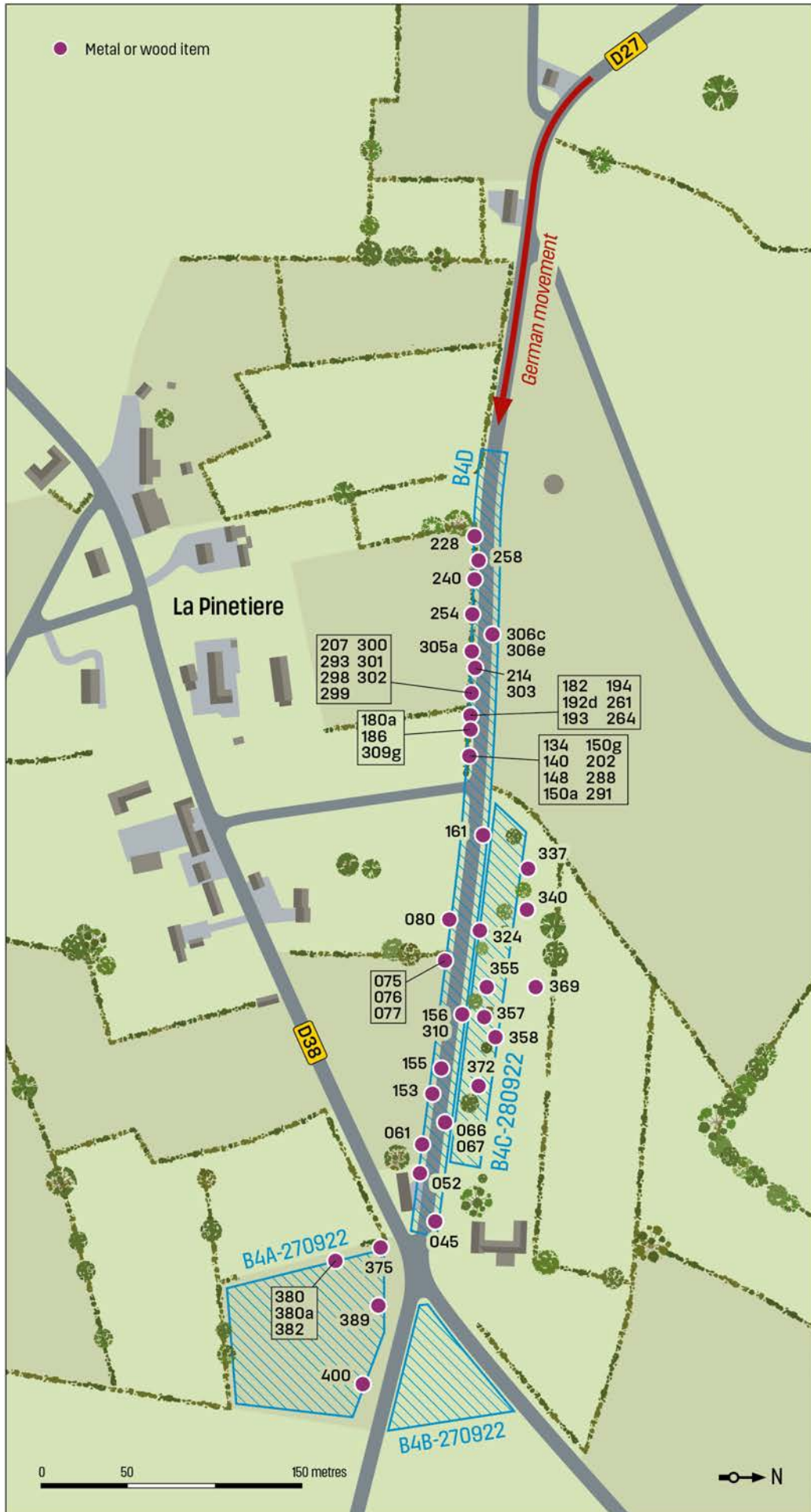


Fig (97) B4-La Pinetiere: Metal and wood

13.3 Site B4-La Pinetiere: German Ammunition and Equipment

The recovery of German ammunition and equipment in Zone B4-D is consistent with the previous findings of vehicle parts and concentrations of related artefacts, as the vast amount of material recovered was located at the same epicentre of conflict on the D27 road. All the ammunition recovered as a collection, showed signs of being slightly damaged by fire or total destroyed by fire/explosions generated by the intense 1944 action. Artefact assemblages at points (180b/181/277/290/309a,g) and (149b,c,d,e/150b,e/285/286308b,i) are all destroyed German 7.92mm rounds and machine-gun links, with some 9mm rounds and assemblages of bullets. These artefacts have been subject to extreme fire damage and have all exploded or 'cooked off'. The same condition is found with ammunition at (150c/180c/286b/286a) and (192a/192c/193a,c,f) all destroyed 7.92mm German rounds and bullets with MG links for a machine-gun. Some of these bullets could be categorised as incoming bullets fired onto American units positioned on the road, yet this is unclear due to the condition of the artefacts. It's more likely they represent the other collections of destroyed ammunition that pinpoint the location of the destroyed German column that was attacked by American units stationed in the orchard and crossroads. Found also within these assemblages at the same epicentre of action were collections of Zunder 35 pushbutton detonators for Teller mines (308a)(309c) and (308c) these detonators were all 'blown,' yet were inactivated at the time of their destruction. It's possible they were all in a box together within a vehicle at the point of destruction. An MG42 cover feed (193g) as well as collections of German stick grenade fuses (192/193b) and a MG42 barrel container were also located at this position and all destroyed by fire. Evidence of German uniform and equipment were also found at this location, part of a German boot (191) and fragments of Helmet at (165). Infantry webbing and buckles at (193e) and leather strapping and buckles (150d). These artefact collections all are representative of the location of the epicentre of conflict in Zone B4-D. New evidence has also been identified that broadens our understanding of the German movements on the 28th/29th July. The American 8th Inf Reg had a forward outpost along the D27 forward of the 78th AFA in the orchard (Zone B4-C) at a previously unknown location on the D27 (see American ammunition survey). The 8th Infantry fired the opening shots from this outpost at the approaching Germans, as they descended the road around the first bend in the road. The German column returned fire on the American position forcing the 8th Inf to retire. German bullets, whole (234) and in fragments (171/222/232) were located in the southern bank of the ditch alongside D27. This position was then consolidated by the Germans; 20mm cartridges (239a) discovered at this position could indicate German return fire, on now a fully alert American force. A German parachute flare cartridge (252) was also found forward of this location, perhaps the Germans were calling in artillery support, or more than likely to illuminate the road ahead before the entire German column was destroyed by the American howitzers positioned in the orchard. American Artillery, later in the night, put down a barrage on this position with the hope of breaking up the German column, possible evidence of this artillery action is seen with artillery shell fragments and shell bases (213/206) and (242). German units were known to have counter attacked the American positions down the road. Possible German bullets were also located at (074) a possible location of American 8th Inf, soft skinned vehicles, and in the orchard (Zone B4-C), as they were desperate to get off the road. Evidence of German movement in Zone B4-C shows that the Germans could have managed a slight infiltration at (157/158) MG links and rounds, yet these artefacts could just as easily be ammunition and equipment thrown out by the explosion of vehicles on the road, as seen with (333) destroyed rounds (366)(351). No German ammunition was found at Zone B4-A and Zone B4-B is to be investigated in a following season.



Fig (98) Artefact No: 308a Zunder35 Pressure fuse

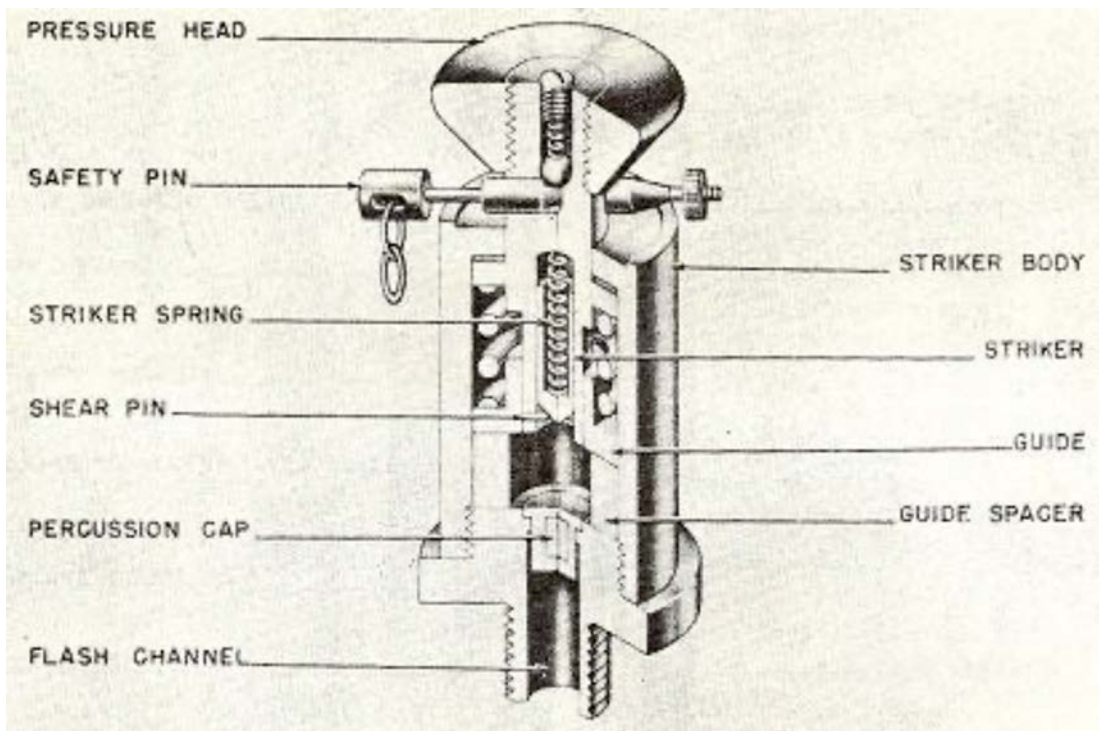


Fig (99) Zunder 35 pressure fuse diagram

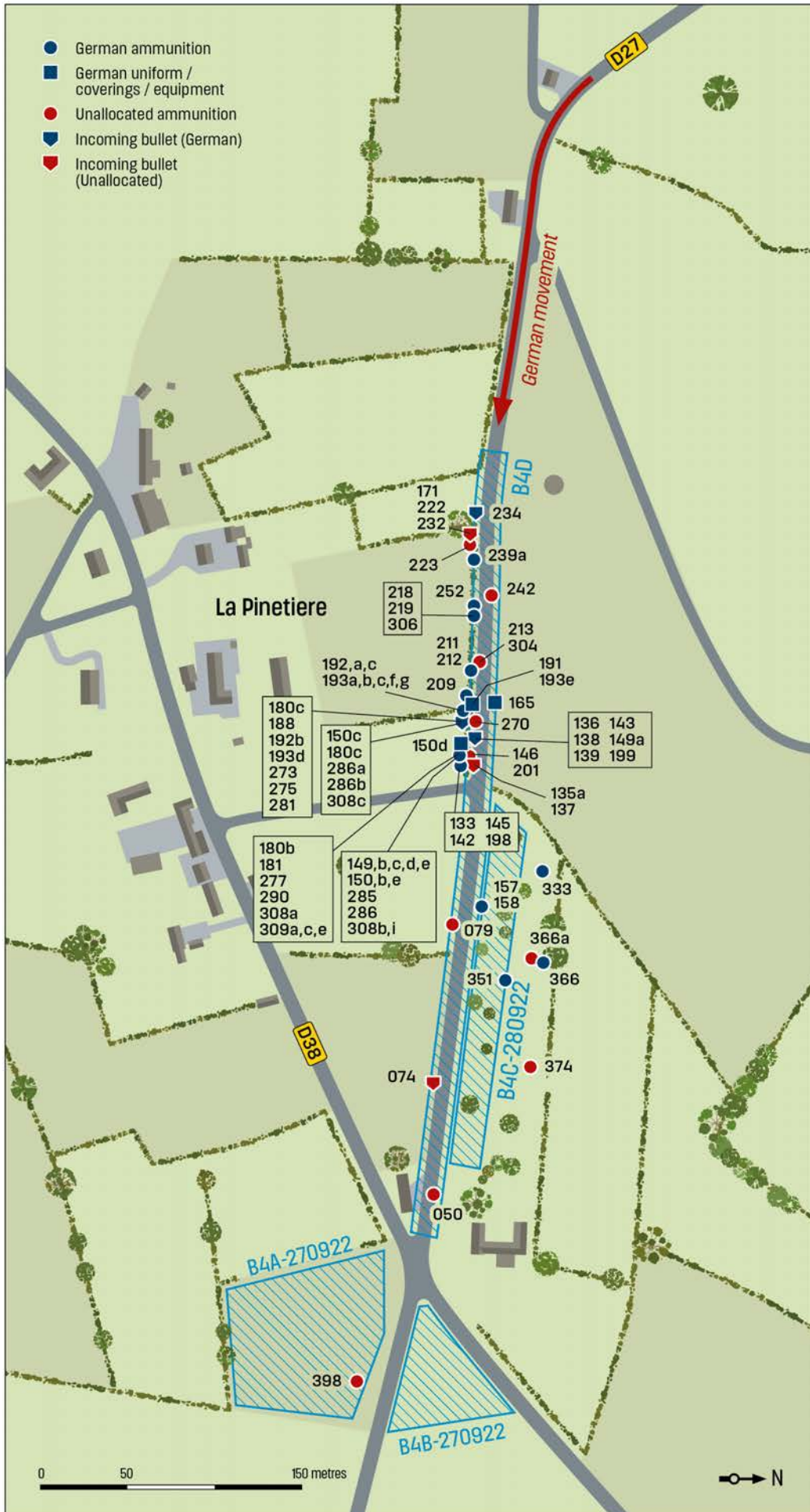


Fig (100) B4-La Pinetiere: German Ammunition and Equipment

13.4 Site B4-La Pinetiere: American ammunition and equipment

The main concentrations of American incoming ammunition were found along the D27 road in Zone B4-D. The forward American outpost position picketed by men from the 8th Inf Reg located during the survey, having been a previously unknown position. This discovery was unique as it defined the extent of the American defence along the road. 30 calibre US Cartridges were located at (171a/173/174/221/224/226/227/229/231) defining this as the outpost position. Also note that German incoming fire was recorded at this position (See ammunition (171/ 222/232). The position was untenable to the American defending units and so they retreated under fire. American equipment, lost or destroyed, was found at (306d). A rubberised pouch with two American rounds and more lost rounds at point (306b). These form part of a collection of artefacts that have been previously mentioned (306e) fibre board (306c) springs and mesh. Parts of a leather pouch (306g) and (306a) 30+ destroyed vehicle parts. Amongst these artefacts, all showing fire damage, were also fragments of human skull (306f), none of the items have been positively allocated to any one nationality, yet this could be an American casualty location. There is further evidence of a desperate American scuffle east down the road, with discarded 50 calibre rounds at point (141) and 50 calibre cartridges found in the same vicinity (189c). American M-10 tank destroyers were up with the 8th Inf Position, yet pulled back to the orchard in Zone 4B-C, no doubt putting down suppressive fire while doing so. American incoming fire on the approaching German column is evident at point (292) and solid shot anti-tank projectiles at points (168) and (249). The American anti-tank gun positioned at the angle of crossroads at zone B4-B would have been in an excellent field of fire on the approaching German column, so it's possible these incoming shots are from this position. Further down the road closer to the intersection with the D38, numerous other American artefacts are located, however these look like they are scattered and form part of a violent event. Fragments of 30-calibre ammunition case lids are found at points (063) and (051) also 50 calibre cartridges (072). 8th Inf Reg soft skinned vehicles were known to be in this area and believed to be struck by incoming German fire, so it's possible these artefact scatters are part of this episode. The orchard (Zone B4-C) is the other significant location for American activity. A US 30-calibre Machine gun position was most likely located at point (1380) as over 30 American 30-calibre cartridges and rounds were located in a single area. Some of these rounds were bound together within canvas links forming a feed belt for a machine gun. Amazingly no other American artefacts were located at this location, however it was brought to the attention of the survey team that the orchard had been heavily searched by metal detectors in the past. What was present in abundance was a vast amount of modern re-enactor material, most of which was very similar to their WW2 counterpart, which made positive identification that more difficult. This data set will still be included in the survey results as it fits with the theme of recording the 'Ghost battles' as a living history depicting the events of the past.

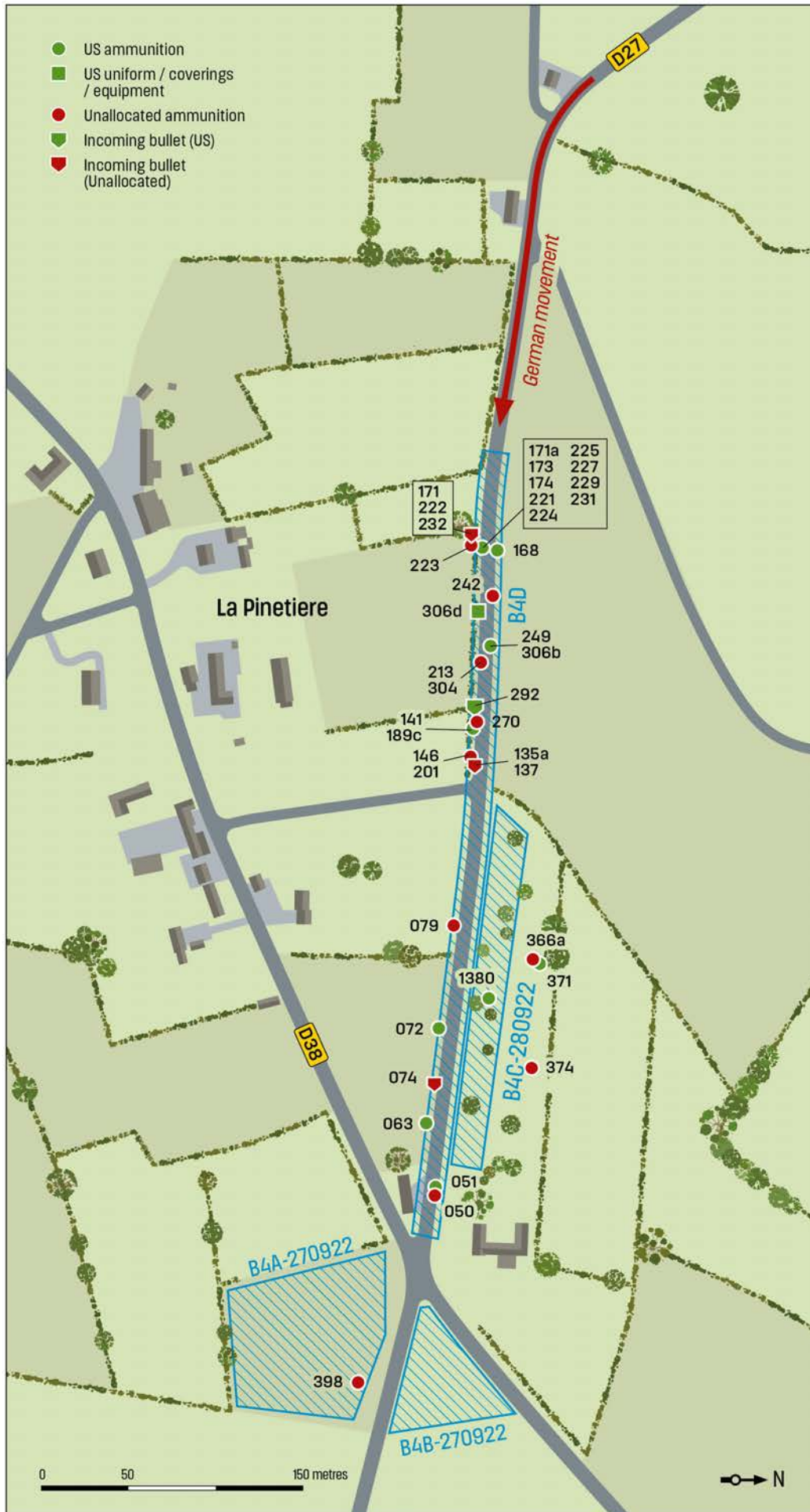


Fig (101) B4-La Pinetiere: American Ammunition and equipment locations



Fig (102) Artifact (1380) 30-calibre rounds in a canvas MG belt (BAG)



Fig (103) American M1917 Browning MG



Fig (104) B4-La Pinetiere: Modern re-enactor material, found within Zone B4-C.

13.5 Site B4-La Pinetiere: Modern 'Re-enactor' ammunition

Concentrations of modern ammunition was located in the orchard, zone B4-C in the fields centre and western section. This modern material has all been associated to the 'Ghost battles' that have been played out over the significant sites associated with Operation Cobra and the American occupation of the area in 1944. All the ammunition recovered was manufactured to resemble their 1944 equivalent ammunition, in this case American 30-calibre ammunition, the only main difference was that this ammunition was stamped on their base plates with dates from the 1960's and 1970's and all cartridges found were 'blank' cartridges.

Interestingly the location of the artefacts found, all correspond with the location of the Historical American 78th AFA defence of the orchard and support the historical narrative of the defence of the area from the advancing German units in July 1944.

13.6 Site B4-La Pinetiere: Human Remains

Human remains were located within this survey at one location (306f). Analysis of the remains indicate they are diagnosed as fragments of cranium, specifically frontal bone and in two small pieces, one inch in diameter. Nationality is difficult to define yet the artefacts, in the same context, are numerous and some are diagnostic. All artefacts recovered from this location form part of an associated assemblage, and in a burnt context. Within this burning zone was located two destroyed rounds possibly German (306), as well as (306a) over 30+ destroyed vehicle parts (306b). American destroyed 30-calibre rounds (306c). Destroyed metal springs and mesh (possibly from a seat), also (306d) American rubberised fabric containing two US rounds, (306e) fibre board fragments and (306g) parts of a leather pouch.

The location of these artefacts was also inconclusive. Found close to the epicentre of the destruction of the German column, these remains could form part of the general destruction of the German column that was all up the road, including this position. Yet also half-way from the American forward outpost, that was eventually overrun, forcing American infantry to flee back down the road. The American artefacts found in this location would be representative of these fleeing infantry, yet it is inconclusive to say that the human remains are associated to this event. What is evident is that the remains are found within a burnt and destroyed vehicle. Human remains are currently still undergoing analysis.



Fig (105) Site B4-La Pinetiere: Location of Human Remains (306f)



Fig (106) American 30-calibre ammunition canister lid (063) la Pinetiere B4



Fig (107) Contemporary WW2 American 30-calibre ammunition canister.

14.0 Site B6-Ia Valtolaine

Survey evidence for military action on the D58

The action at La Valtolaine crossroads on the morning of the 29th July 1944 has been a point of contention for historians, as some have placed this action further south-east along the D58 where it crosses the D610 and some have overlooked this action altogether. However combat action reports by the American 67th Armoured clearly place the fight at the crossroads of Valtolaine. On the morning of the 29th July, Lt Col Crawley and E Company tanks from the 67th Armoured Regiment, were stationed at and around the crossroads with 3rd Bn 41st Armoured Infantry in a forward outpost north of the crossroads and in the fields overlooking the D58. A German column of over 30 vehicles consisting of tanks, armoured vehicles and bicycle infantry from the 2nd SS Panzer Division and the 17th SS Panzergrenadier Division and a mixed bag of stragglers from other units. Leading the column was an 88mm Self-Propelled gun. Locations of the American defence around the crossroads are unknown. Survey zones were then positioned at all points around the crossroads itself, except the location of the Farm on the crossroads northern corner as landowner permission was not granted. Zone B6-A to the south, Zone B6-B to the east, Zone B6-C in the west. The D58 was also designated for survey for close to 1,000m from the northern crossroads with the D348 and La Valtolaine crossroads at the intersection with the D38 and designated as Zone B6-D. Zone B6-D being the focus of main military action, as it was down this road heading southeast the German column was advancing on the 29th of July. All zones were equally targeted for a full metal detector survey following the project protocol, however Zone B6-D was given priority, as this zone was seen as the main consideration. A vast amount of archaeology relevant to the project was found at all locations. Far more than could be represented with any clarity on any one survey map, so the decision was taken, as with the previous sites using the same template as at B2- Pont Brocard, and B4-La Pinetiere to break up the archaeological collections into types. Artefact type categories would not only allow the full collection of material to be represented within a context, it would also enable the artefact representation to be clearly understood. The template as it now stands:

The large concentration of vehicle parts and associated material would indicate the main concentration of military action. Concentrations of destroyed ammunition and military equipment would also, not only, corroborate this conclusion but narrow down the epicentre of the action. This would also apply to concentrations of personal items such as infantry field gear and uniform/fabric and equipment, as well as human remains. The distribution of cartridges or shells would give an indication of outgoing fire and therefore the positions of combatants, and single bullets, remains of solid shot projectiles, rockets and hand grenades, in a separate category would denote incoming fire. Referring to the key on each typology map indicating the relevant symbols given to each category, a concise visual structure of events can then be better ascertained. Each symbol with an allocated number describing the artefact in more detail, the description of relevant artefacts will be included in the initial text. For further analysis a complete finds register will be listed in the appendix.

It is unknown if the crossroads at La Valtolaine has been the focus of metal detector activity in the past, yet it's important to consider that the material recorded is only a representation of what remains. There is also no known modern re-enactor activity in this area. This archaeological context again has been considered and has been included in the survey.

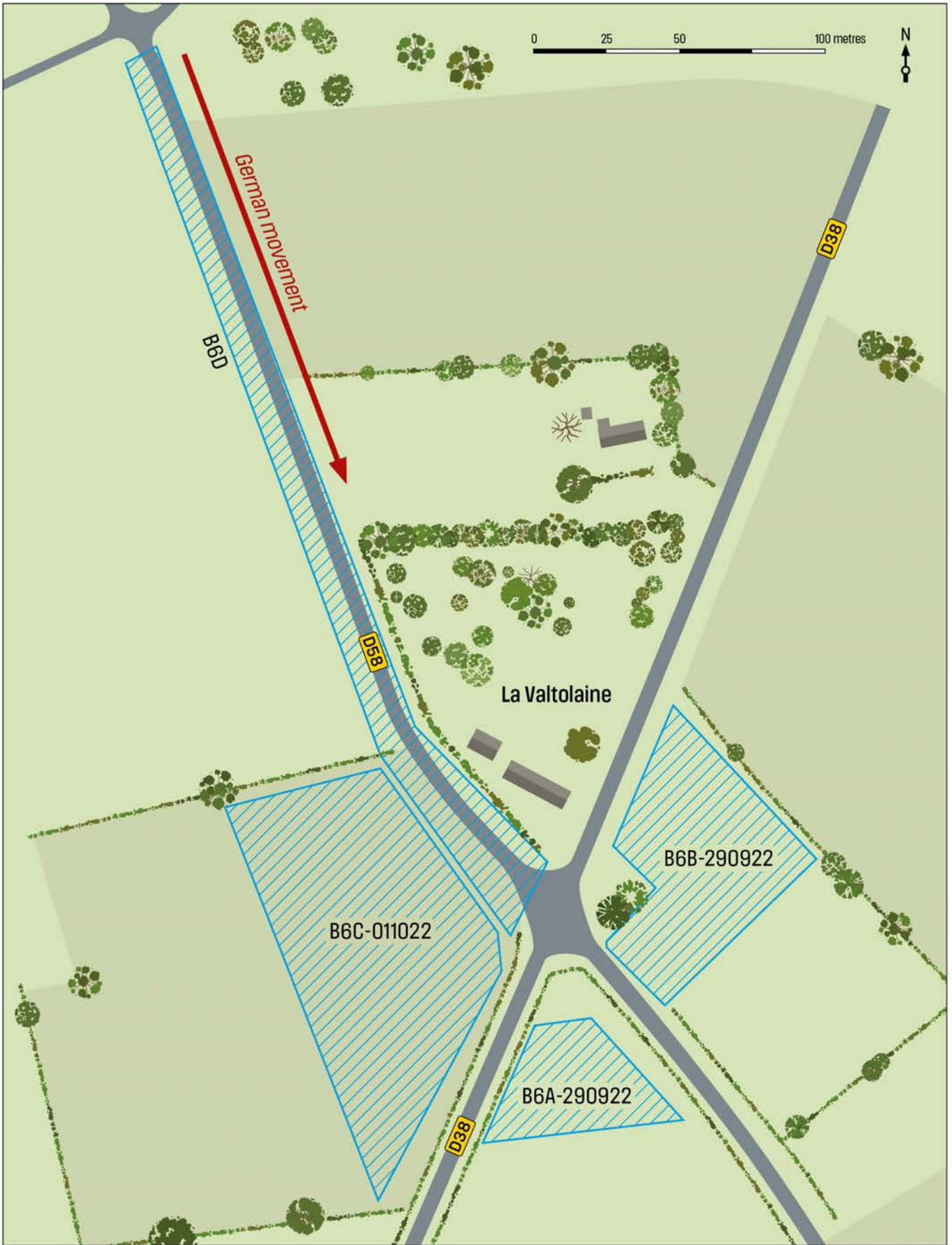


Fig (108) Site B6-La Valtolaine Survey Zones.

14.1 Site B6 La Valtolaine: Vehicle parts and associated artefacts

As with previous artefact collections relevant to this survey the main concentrations of vehicle parts and associated finds has proved diagnostic for locating the main points of impact between combatants, helping also to define an epicentre of the conflict. 67th Armoured and 41st Armoured Infantry after action reports mention that due to the size of the approaching German column, the American defence at the crossroads stayed low and waited until the column was close and almost at the crossroads when the Americans opened fire at close range. This is evident in the archaeological collection found. At points (469/535/536) and (562/565/686/711/776/778) as well as (467/531/532) were found large quantities of vehicle parts. This location was also at a point where the roadside ditches and banks were considerably higher, thus bottlenecking any traffic on the road. Artefact Identity and use were undiagnosed due to their condition, yet almost all were destroyed by fire. At Point (566a,c,d,e) artefact collections were identifiable and diagnosed as motorcycle parts and burnt rubber, and a German boot heel at point (709). Including a corresponding category of metal and wood, all items destroyed beyond recognition, the artefact scatter also corresponds with the intense action at this point along the D58. Beginning roughly 150m from the crossroads with the D38. The artefact scatters continue south along the road with two more clusters of vehicle parts and associated metal shrapnel at (427/465/527) and (425) with clusters of un-diagnostic metal at (430/424/426) and another concentration of vehicle parts and associated shrapnel at (417),(413/438/481/440) and (441) identified as a fragment of a top small running wheel from a Panzer III or IV, also (461) armoured plate. The vehicle part collections continue to and beyond the crossroads into the fields south and east of the crossroads, which could indicate a penetration of German armour into these fields, as Armoured tank plate was found at points (672/667), (658/659/661/663) also at Points (726/792) yet these items seem to represent artefact scatter due to exploding vehicles, as these locations are considerably higher than the roadway. Although it's not impossible that tanks could have penetrated this far. Contemporary 67th Armoured after action report does mention that the lead German Self-Propelled tank actually went through their position. A double envelopment German counterattack was also deployed on both sides of the crossroads in an attempt for the Germans to get around the American positions, though this was undertaken by infantry rather than tanks. Evidence for this counterattack was limited to the area of survey, yet some evidence was evident in the surveys recording of German ammunition (Fig 110). Horse related material was also located at (435) a horse shoe and a fragment of horse's mouth 'bit' was found at point (446). Both items were believed to be from a WW2 context and associated with the German retreat from the area, possibly earlier than July 29th.

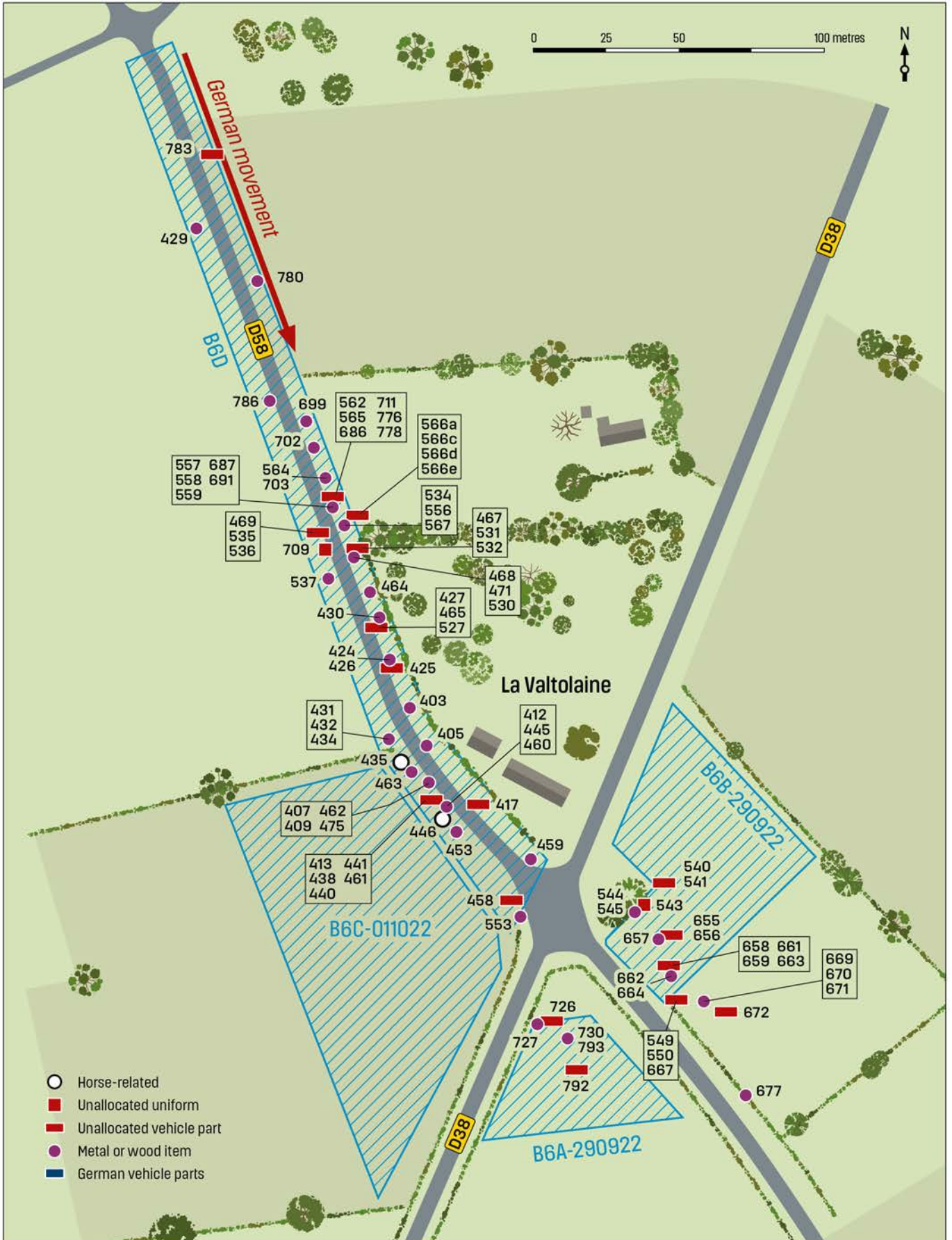


Fig (109) Artefact scatters relevant to Vehicle parts and associated artefacts including horse related finds depicting archaeological material relevant to the events of 27th-29th July 1944

14.2 Site B6-La Valtoliane: German Ammunition

German ammunition scatter though small does coincide with the concentrations of vehicle parts at key points along the D58 and gives some evidence of German movement and intensions. The main concentration of German material was found at a position 150/200m from the crossroads (696/697), MG rounds and belt and infantry German buckles and gasmask respirator (533). Not far, and north from this position, A Gewehr 98 Mauser rifle bolt was also found at (781) and another gas mask and associated parts at (779). All of these artefacts could represent casualty locations. Further south on the road and on the bend towards the crossroads with the D38 could also again be a casualty location, with the finds of (423) German toothpaste tube and rounds and cartridges (426a/422). Closer to the crossroads itself is another concentration of artefacts (404/473) and (414/437/447) rounds and cartridges, and again at (449/451/455) as well as a 'live' German anti-personnel rifle grenade (457) at the intersection. German incoming fire was also recorded close to the intersection (410) 7.92mm and a 9mm (454) bullets.

Beyond the D38 intersection collections of German ammunition was also located and may indicate elements of German units that managed to penetrate or get through the American positions. In Zone B6-B at point (539) were located collection of 6 German rounds, which could represent a casualty location and interestingly, a white parachute flare cartridge found further southeast in Zone B6-B. This flare position found so far into the American defence indicates that some form of deep penetration was achieved, at least to the point where the flare was recovered.

14.3 Site B6-La Valtolaine American Ammunition

American concentration of ammunition was found specifically in two locations. At a forward position 150m north of the D38 crossroads and then possibly the main American position at the head of the D38/D58 crossroads at Zone B6-A. A single US 50-calibre cartridge was found on the D58 road close to the D38 and possibly associated with Zone B6-C, but more than likely, it was representative of an American position within the farmhouse buildings at the crossroad, which was not included within this survey.

American ammunition found at point (706) and (694) were US 50-calibre cartridges and 50-calibre machine-gun metal links, all representative of an American machine-gun position in this area, more than likely located higher up in the elevated fields overlooking the road. This area was not surveyed. The most concentrated area for American ammunition was at Zone B6-A. 14 US 50-calibre cartridges were located in a scatter at the angle of field in Zone B6-A. This location had a perfect field of fire on any German units moving down the D58 and covering the D38 crossroads. This zone has a high elevation and would enable a sweeping field of fire across the whole crossroads. Only a section of this field was surveyed and so the artefacts found may continue further south or in the ditches along the D38 road.

There was no evidence of modern re-enactor activity. This is significant as this site has been a contentious location for activities related to Cobra. Yet there is evidence to suggest a large scale action has taken place here. Casual metal detector activity in this area has to be taken into consideration and could be responsible for reducing the size of archaeological material recovered.

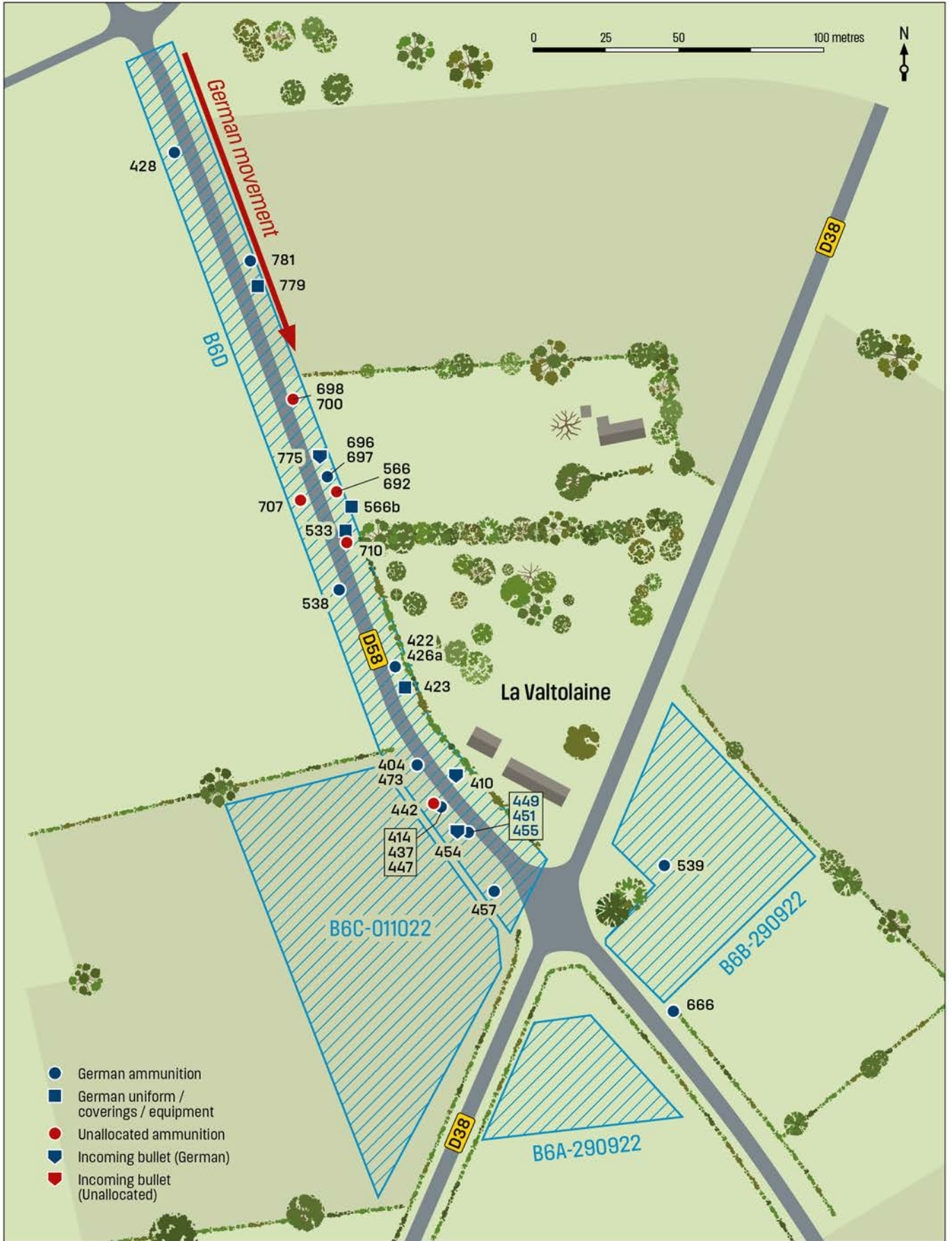


Fig (110) German Ammunition and equipment locations at La Valtolaine

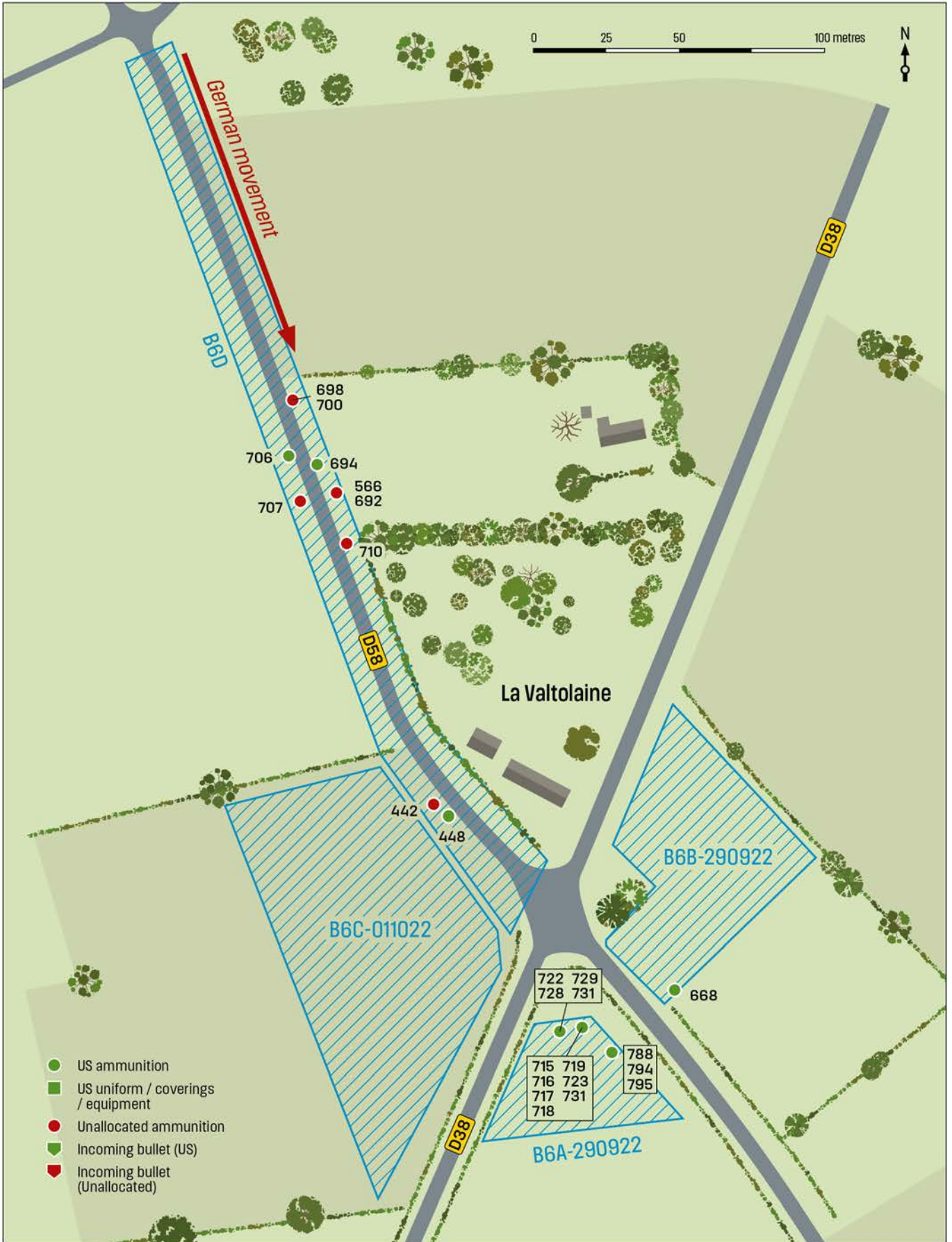


Fig (11) American Ammunition and equipment locations at La Valtolaine



Fig (112) BAG team volunteer holding a German anti-personnel rifle grenade (457) found close to the intersection of the D38 and D58 roads at La Valtolaine in the 2022 survey. (BAG)



Fig (113) A Gewehr-Sprenggranate – German anti-personnel Rifle grenade in action during WW2 (Bundesarchiv)



Fig (114) German Gas mask remains (779) La Valtolaine B6. (BAG)



Fig (115) German gas masks. (USNA)

15.0 Site B5-D610 Crossroads

Survey evidence for military action on the D610 and D238 roads

American 2nd Armoured CCB, by the night of the 29th of July, had established blocking positions all down the D38 to St-Denis-Le-Gast and west out onto the D7 Lengronne to Coutance Road. The 67th Armour and 41st Armoured Infantry had set up their command posts in fields around the D610 and D238 crossroads, just north of St-Denis-Le-Gast. The Americans had set up a string of outposts either side of the crossroads stretching east and west protecting their command post positions with a detachment of tanks and infantry in the town. It was a weakly held position and completely inadequate to what was about to descend upon them. An escape column of German units of the 17th SS Panzer Grenadiers and 2nd SS Panzer Division totalling over 2,000 men, aware of the American threat on the night of the 29th, launched a massive attack on the crossroads in an attempt to break out of the American cordon. A forward outpost picketed by the 41st AIR was located about 200m north along the D238 from the crossroads. Outpost 5 was located on the crossroads itself and protecting 67th Armours CP in the field directly west at the corner of the crossroads itself. 41st AIR was bivouacked a few fields back closer to the town. Outpost 6 was alongside outpost 5 yet a little east, controlling the road networks of the D610, D238 and D38 that orientated around them forming an island. At 2300hrs on the night of the 29th, 41st AIR forward outpost, outpost 5 and the CP of 67th Armour was completely overrun as German units smashed their way in and through the American positions. The action that unfolded was more on the size of a battle, due to the number of combatants and the intensity of the action and one of the biggest combat actions of the Cobra Operation.

The location has been in dispute and contemporary after action reports have been confusing as to the exact locations of these actions, often combining separate actions into an event even though they are at different places. For example the action here at the D610 crossroads has often been confused with the action at La Valtolaine further up the D38. Therefore little has been researched on the area and it has been assumed very little casual metal detecting



Fig (116) German prisoners collecting dead bodies along the D610 road after the July actions. (USNA)

has been undertaken. The survey team was hesitant as to the exact location of historical events and so a tentative reconnaissance survey was undertaken to ascertain the presence of archaeology and its association to the events of July 29th/30th 1944. No written landowner permission was available for a geophysical or metal detector survey of the fields around the crossroads, yet permission was given to access the roads networks around and including the crossroads. The objective therefore was to record and recover artefacts relevant to the German attack south down the D238 and onto the crossroads with the D610. Two days was allocated to gain a conclusion to the nature of the site and if it was relevant to the conflict.

The survey areas of interest were designated as: Zone B5-A the D238 heading south onto the crossroads with the D610. This was to record any evidence of the German advance. Also Zone B5-B, from the crossroads heading west down the D610 for 150m. This area was associated with aspects of the American defence of the 67th Armour's CP position.

As with previous sites using the same template as at B2-Pont Brocard, and B4-La Pinetiere and B6-La Valtolaine, the archaeological data collections would again be grouped into types. Artefact type categories would not only allow the full collection of material to be represented within a context, it would also enable the artefact representation to be clearly understood. The template:

The large concentration of vehicle parts and associated material would indicate the main concentration of military action. Concentrations of destroyed ammunition and military equipment would also, not only corroborate this conclusion but narrow down the epicentre of the action. This would also apply to concentrations of personal items, such as infantry field gear and uniform/fabric and equipment, as well as human remains. The distribution of cartridges or shells would give an indication of outgoing fire and therefore the positions of combatants, and single bullets, remains of solid shot projectiles, rockets and hand grenades, in a separate category would denote incoming fire. Referring to the key on each typology map indicating the relevant symbols given to each category, a concise visual structure of events can then be better ascertained. Each symbol with an allocated number describing the artefact in more detail, the description of relevant artefacts will be included in the initial text. For further analysis a complete finds register will be listed in the appendix.

It is unknown if the crossroads at the D610/D238 has been the focus of metal detector activity in the past, yet it's important to consider that the material recorded is only a representation of what remains.

There is also no known modern re-enactor activity in this area, though it is possible.

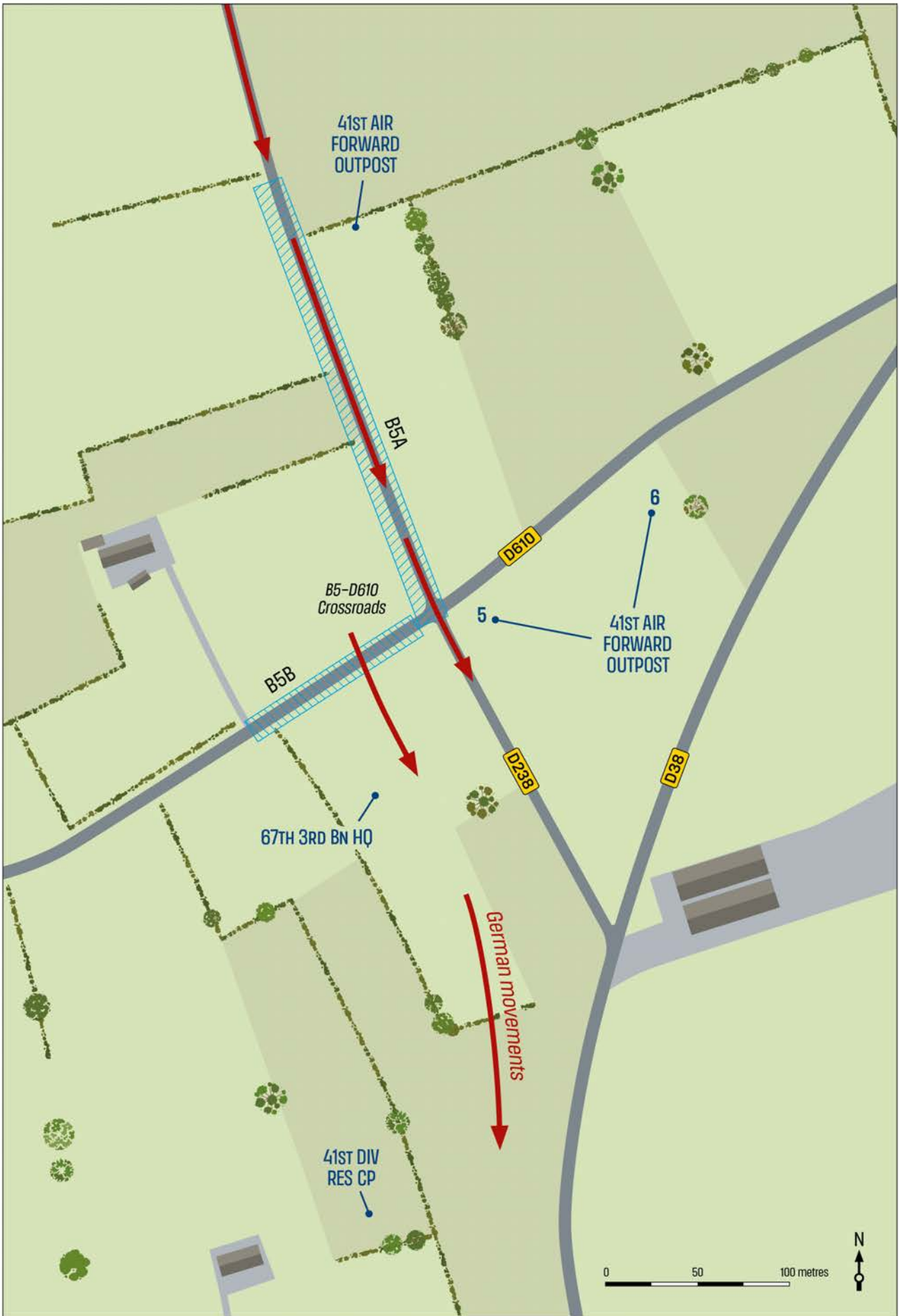


Fig (117) Site B5-The D610 Crossroads. Survey Zones: B5-A on the D238, and Zone B5-B 150m west down the D610. Note the positions of the 67th and 41st CP's and the movement of German units heading south to St-Denis-Le-Gast, less than 1km away down the D38.

15.1 Site B-5 The D160 Crossroads: Unallocated vehicle parts and associated artefacts

Collections of various vehicle parts and destroyed metal artefacts were located on the D238 from 150m north of the crossroads and up until and beyond the crossroads with the D610. At 100m from the crossroads the artefact scatters are more grouped and form a concentration of archaeological material around the crossroads itself, these clusters of finds could indicate the centre of the conflict and the point of the action, at its most concentrated. Majority of artefacts were unallocated vehicle parts and metal/fabric items, yet at points (882) identified as armoured plate possibly from a tank, and another possible tank part at (955) could indicate the debris from American anti-tank fire onto the column or tank on tank action at the crossroads. A larger survey in this area needs to be undertaken to understand exactly the movement and extent of the action, not only down the D238 but also to the east and west along the D610. Expanding the survey zones into the fields either side of the crossroads would also indicate the extent of the action and movement and location of the combatants.

15.2 Site B-5 The D610 Crossroads: American ammunition, equipment and vehicle parts

American vehicle parts were located at point (1029), a section of track was found alongside the road belonging to an M3 US halftrack. It had been damaged by explosive action indicating it had been shot off, or torn off a vehicle under fire. This is significant as further artefact scatters were extensively located in two main locations. The first concentration of material is located 100m from the crossroads north up the D238 and consists of remains of an ammunition pouch, possibly American (841a) and American cartridges and incoming bullets, suggesting that this position was the scene of retreating men of the 41st AIR from the forward outpost, laying down suppressive fire (853/984/866/898) on the approaching German units coming down the road, then leaving this position only for the same position to then be occupied by the Germans, who were now receiving incoming fire (856/867), (876) from 30-calibre bullets, as well as bazooka anti-tank fire (899) and incoming tank fire (884) as they then pushed further into the crossroads and the 67th Armour's CP. At this position we have our second context of American material which represents heavier American fire on approaching German units as they begin to break into the American line. We find 50-calibre cartridges (987/993/995/996) and a US water bottle (1017) then bullets (1014/1014a) and incoming American tank fire (1007/1009/1010/1012) as the 67th CP position is under direct attack. Several US command vehicles were known to have been destroyed within the CP field at this point, these command vehicles were M3 halftrack's the exploded remains of which could be repetitive of the M3 track (1029) previously mentioned, found close to this position.

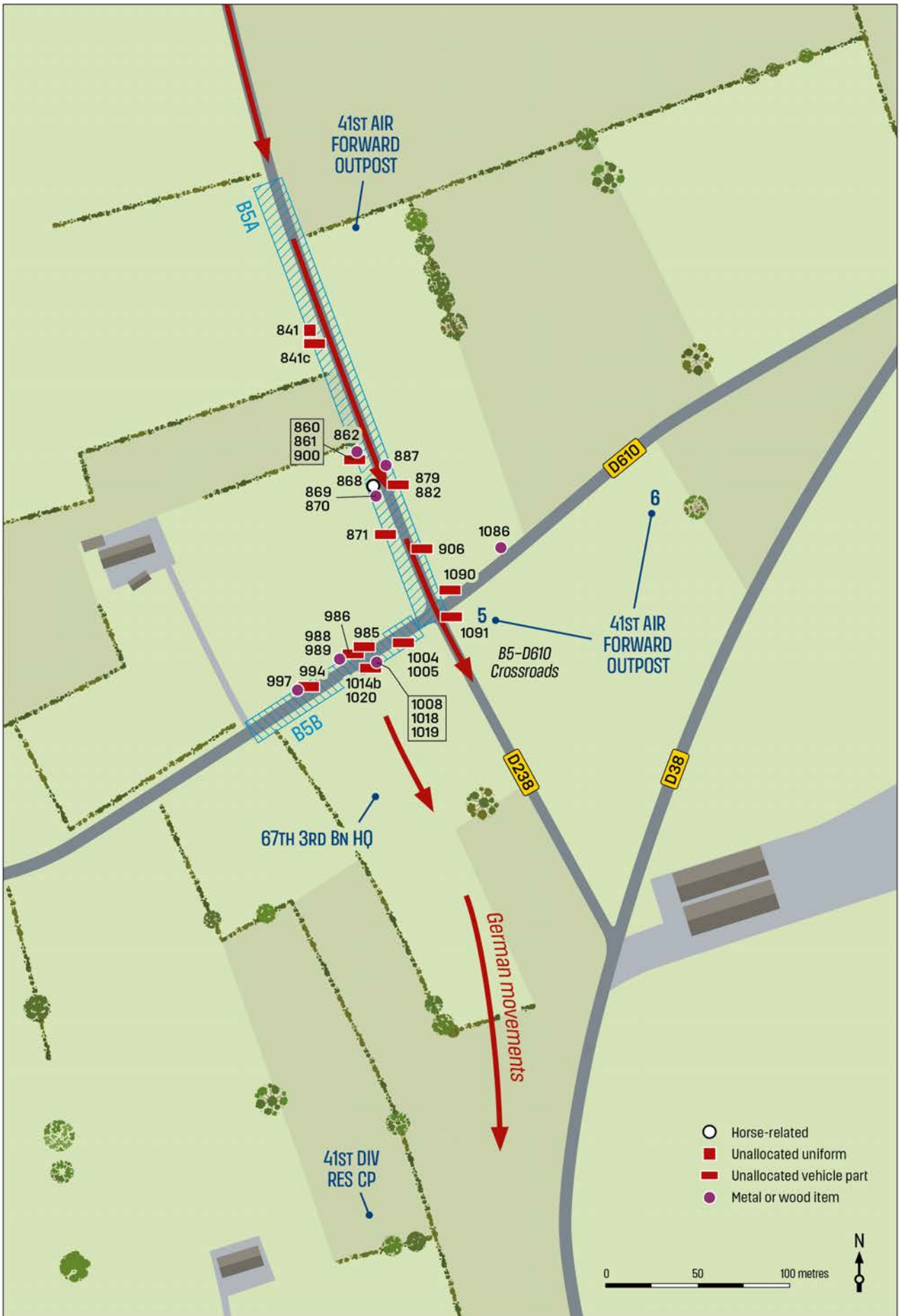


Fig (118) Site B5-D610 Crossroads. Remains of vehicle parts and associated material found on the D238 and D610 roads, representing the main areas of conflict in relation to the events of July 29th/30th, 1944.

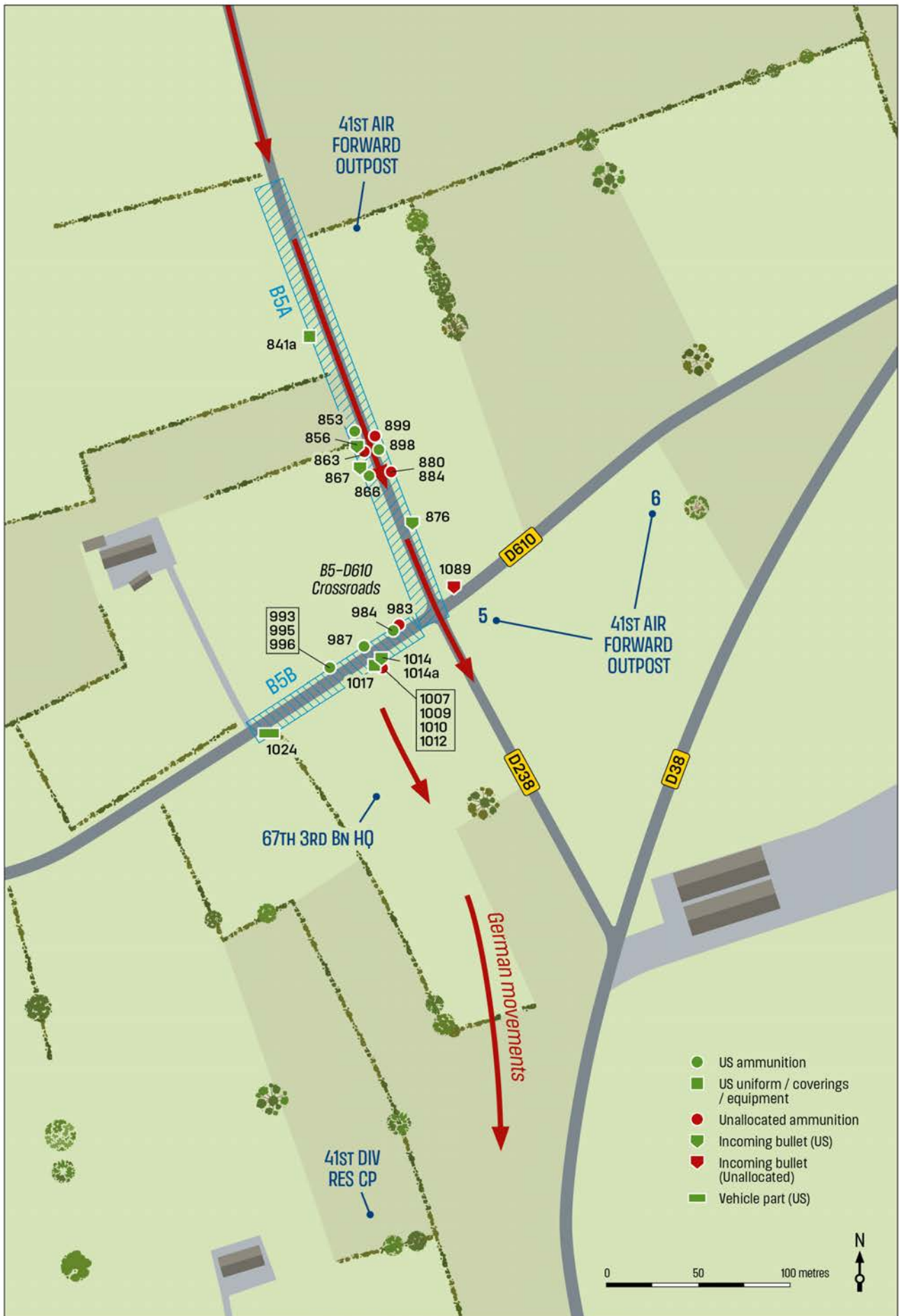


Fig (119) Site B5- The D610 Crossroads. Location of American ammunition and associated artefacts found along the D238 and D610 Roads, representing American movement under fire on the 29th/30th 1944.

15.3 Site B6-The D610 Crossroads: German ammunition and equipment

The German material evidence of fire and movement is evident with the artefacts located on the D238 and D610 roads. Large concentrations of German cartridges were found in several key locations, and corresponded with evidence of American incoming fire at these locations. At a position of roughly 150m-200m from the D610 crossroads on the D238 road there was located numerous clusters of German cartridges found in the ditch lines and bank of the road at points (843/844/845/846), (847/849/850/851/852) and again at points (854/855/857/858/859), (889/890/891/892/893/897) also (883/886/888/901) all cartridges denoting firing positions, (856a) live rounds in a full clip were also located at this position, yet was destroyed which could indicate incoming fire onto these positions. Closer to the crossroads was located a definite firing position of spent German cartridges and discarded clip and a full clip with rounds (872a,c) alongside 10 machine-gun rounds in a metal belt feed for a machine-gun (873) and yet more rounds and cartridges (875). Incoming German rifle fire (872b), (1087) and possibly (1089) and tank fire (982) was also located at or near the crossroads, indicating advancing German suppressing fire on the American outpost positions in this area. Following the D610 road west of the crossroads, yet still in its vicinity, were located yet more clusters of German cartridges (905/983a/983b/1013) on the bank of the road and up into the hedge line, possibly firing into the American 67th Armour CP area. Loose German rounds were also located in this area, possibly lost in the confusion or represent casualty positions (1023) and (1088).

The artefacts found show a clear picture of German movement down the D238 road, placing suppressing fire onto American units at the crossroads and in turn taking American incoming fire. Moving then onto the crossroads and putting pressure onto the 67th CP location. Yet more evidence needs to be gathered to understand the site as a whole event.

It was evident by the end of this reconnaissance survey that Site B-5 needs to be expanded to gain a fuller picture of events, to the corresponding fields around the crossroads and further along the D160, east and west, as well as the D238 heading south onto at least the D38.

This site seems also unique as its relatively untouched by metal detector enthusiasts and re-enactor groups.

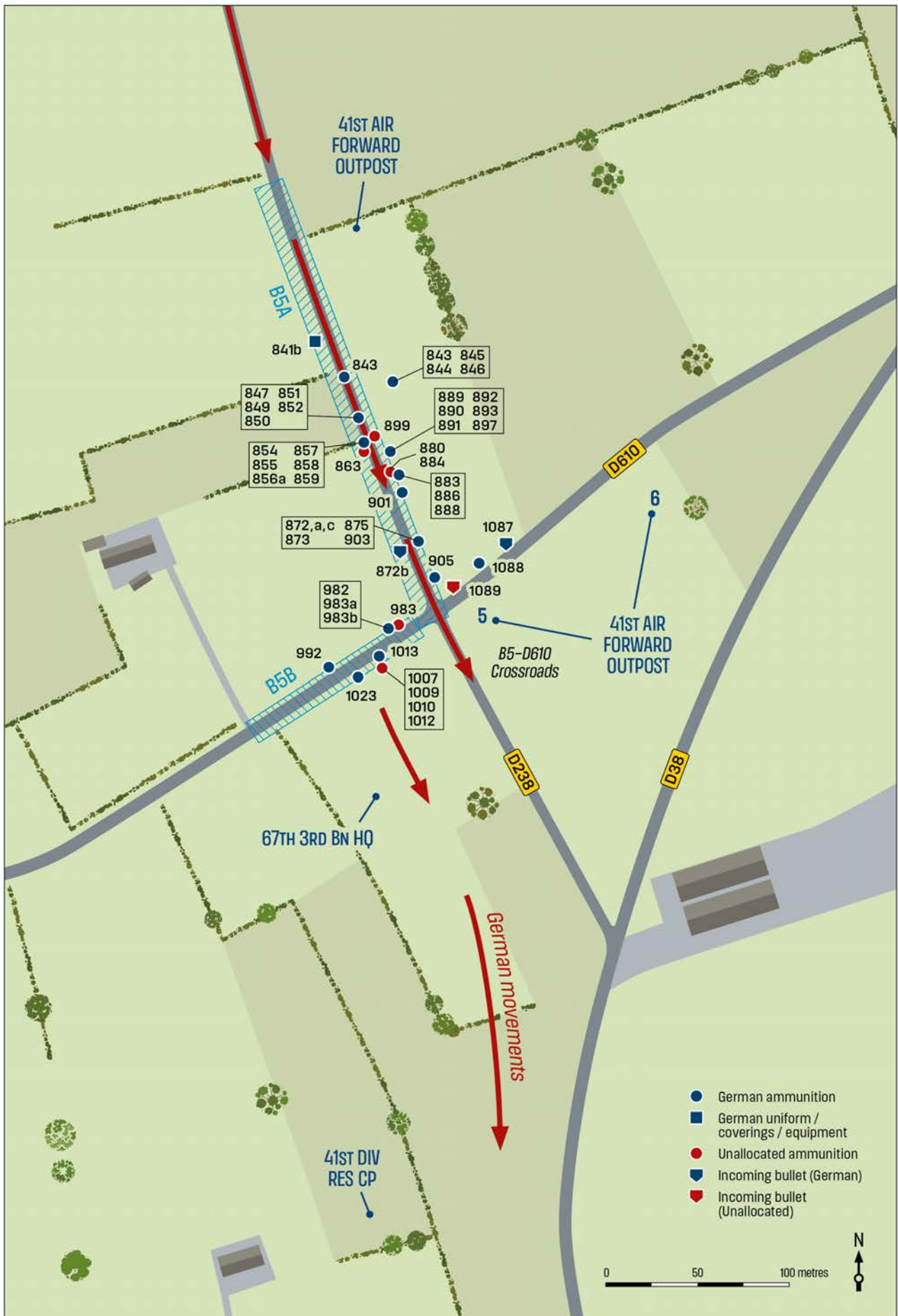


Fig (120) Site B5- The D610 Crossroads. Location of German ammunition and associated artefacts found along the D238 and D610 Roads, representing German movement under fire on the 29th/30th 1944.



Fig (121) B5-D610 Crossroads. American M3 halftrack (1024) track found on the D610 Round alongside the American 67th Amour command post. (BAG)

16.0 Site B7-La Chapelle

Survey evidence for military action on the D13

On the night of the 29th/30th of July the US 78th Armoured Field Artillery Battalion had now moved into positions around the hamlet of La Chapelle, halfway along the D13 road from St-Denis-Le-Gast to Lengronne. A Battery was positioned south of the road alongside C Battery and B battery was positioned across the road to the North. HQ Battery was positioned in the triangle of fields and buildings along the road between the other batteries. 78th AFA CP was positioned in the sunken lane parallel to the road. Cpt Simnard was interrogating German prisoners on the road in HQ Batteries position when he identified the presence of a German column entering the American line along the D13 road. He immediately alerted the rest of the American position then opened fire with a 50-calibre machine-gun aboard his M3 halftrack. The rest of the 78th AFA then opened fire at point-blank range on the German column, including a parked up American M10 tank destroyer, previously bypassed by the Germans. With frontal and flanking fire from the 78th AFA and direct fire from the M-10 the German column was totally destroyed. 40 Germans were killed, 60 wounded and 197 prisoners were taken. American losses were 4 vehicles destroyed, 6 wounded and 5 men killed, one of which was Cpt Simnard, whose vehicle was hit and destroyed by incoming German fire.

The location of this action is known, yet the exact position of American units, the 78th AFA command position and the exact whereabouts of Cpt Simnard's position have not been previously located. The position of the German column destroyed in the action is also unclear, yet a lot of this survey's work was based on contemporary photographic material from the period, which gave a good indication of the precise location of events, however no physical evidence has ever been surveyed.

The survey areas of interest were designed to cover all of the supposed American positions that were directly involved with the action, as well as the road verges alongside the orchard and fields at La Chapelle: Zone B7-A; the orchard alongside the D13. This was part of HQ Batteries position and possibly alongside the German column. Zone B7-B; The D13 road, from the crossroads until the orchard. Zone B7-C; HQ Battery 78th AFA position. The road side verge running the full length of the road from the crossroads into B Battery's position and past the known 78th AFA occupation area.

As with previous sites using the same template as at B2- Pont Brocard, and B4-La Pinetiere and B6-La Valtolaine and B5-D610 Crossroads, the archaeological data collections will be grouped into types. Artefact type categories would not only allow the full collection of material to be represented within a context, it would also enable the artefact representation to be clearly understood.

The template: Concentration of vehicle parts and associated material would indicate the main concentration of military action. Concentrations of destroyed ammunition and military equipment would also, not only corroborate this conclusion but narrow down the epicentre of the action. This would also apply to concentrations of personal items, such as infantry field gear and uniform/fabric and equipment, as well as human remains. The distribution of cartridges or shells would give an indication of outgoing fire and therefore the positions of combatants, and single bullets, remains of solid shot projectiles, rockets and hand grenades, in a separate category would denote incoming fire. Referring to the key on each typology map indicating the relevant symbols given to each category, a concise visual structure of events can then be better ascertained. Each symbol with an allocated number describing the artefact in more detail, the description of relevant artefacts will be included in the initial text. For further analysis a complete finds register will be listed in the appendix.

It is unknown if the locations at La Chapelle have been the focus of metal detector activity in the past, yet it's important to consider that the material recorded is only a representation of what remains.

There is also no known modern re-enactor activity in this area, though it is possible.

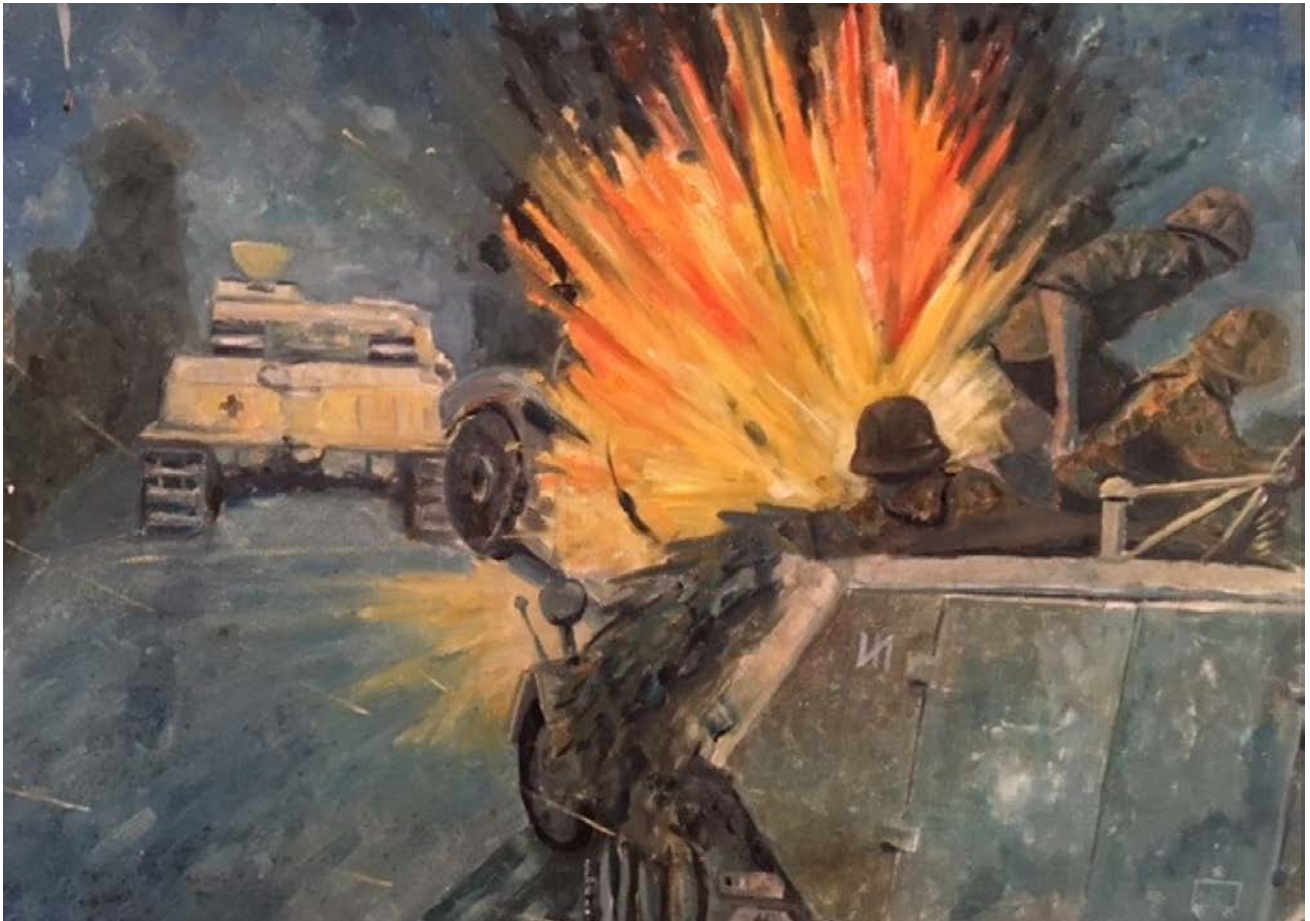


Fig (122) An artist's impression of the night action along the D13 road at La Chapelle on the 29th/30th July 1944. The surprised German column is seen here hit by direct howitzer fire from the US 78th Armoured Field Artillery and machine gun and rifle fire from the orchard and buildings. Painting by Cameron Ross

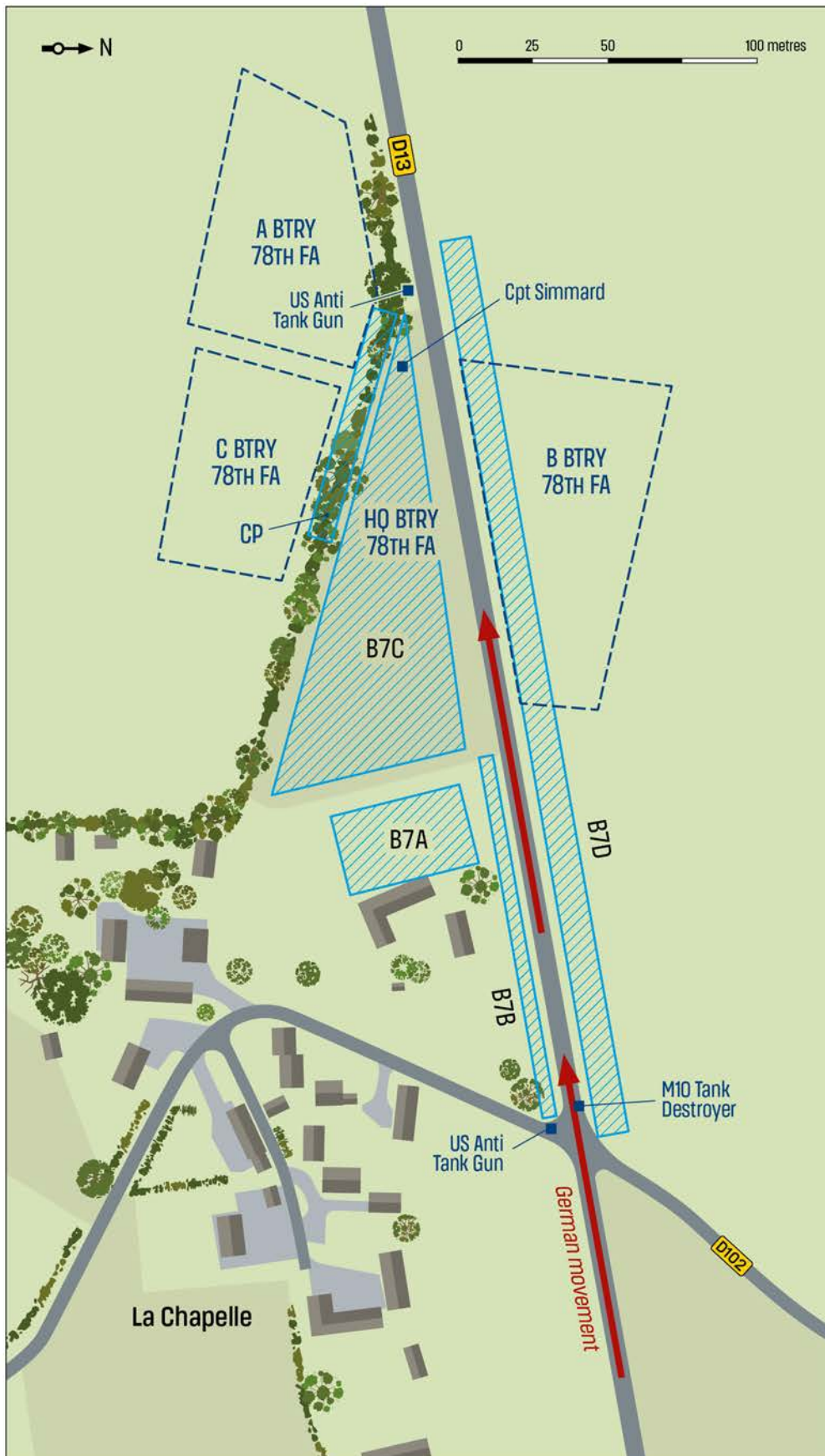


Fig (123) Site B7-La Chapelle, Survey zones locations and placement of American 78th AFA positions and key points of interest.

16.1 B-7 La Chapelle: Unallocated vehicle parts and associated artefacts

Vehicle parts were found in virtually every zone within the survey, however there were clear clusters of artefacts in certain areas that fit the narrative of the conflict, not only highlighting the position of the German column but also the possible location of Cpt Simmard's position. Clusters of vehicle parts were prominent at the crossroads at La Chapelle with the D102 and D13 roads. All these locations (507), (504), (519) and (523/524/525/526) consisted of vehicle parts consistent to being destroyed by fire, most of these vehicle part locations, also constant with clusters of burnt and destroyed ammunition (See fig 125) for 50 meters west, the concentrations of vehicle part positions continued at Points (510/510b/575), (511) and (479/481/514), including (513) of which 2 armoured vehicle plates were discovered and another fragment at (570). This whole stretch of road verge for more than 100m from the crossroads to the orchard was found to be littered with metal fragments and burnt and destroyed vehicle parts and ammunition. Areas of burning on the ground were also located within this context at (646). Artefact and shrapnel scatters still continue west along the D13 yet these are fairly scattered and spread out with only one cluster found at (608, 610,735), but this area was slightly out of the roadside verge survey and was difficult to survey due to the long grass, so needs to be re-visited at a later date.

The next cluster of vehicle parts and patches of burning on the ground is found within Zone B7-C and the 78th HQ Battery positions. This is an intriguing location as Cpt Simmard was believed to be located close to the 78th CP in the sunken lane, yet close to the road interrogating prisoners when he challenged the oncoming German vehicles. The location archaeological scatter found in the western top corner of Zone B7-C depicts a desperate fight within a large area of burning (753) with associated vehicle parts and equipment (751/752/756/773/826a/827a/830/830a) all within an American context found with associated US ammunition (Fig) and equipment (831/833a). Another concentration of burnt and destroyed vehicle parts (750/833b/831d/827c) and burnt metal and auto parts (739/747/831c/) also located within this vicinity, again in an American context, due to associated ammunition. The area is close to the 78th AFA CP, Cpt Simmard was up on the road on foot, close enough to the CP to warn them of the German presence on the road, then get back to his parked-up M3 Halftrack and open fire onto the German column. Cpt Simmard's M3 was destroyed in the action and Simmard killed. Could these locations of burning and destroyed vehicle parts be associated with Cpt Simmard's final fight. Corresponding photographic material (fig 44) depicting Cpt Simmard's burnt and destroyed M3 Halftrack shows the M3 positioned with its back up against the sunken lane running parallel to the road, the 50-calibre machine-gun once manned by Simmard now pointing skyward, the positioning and orientation could correspond with the image being placed in the top western corner of Zone B7-C.

All the vehicle parts found along the road in Zone B7-B and Zone B7D are assumed to be German and representative of the night action on the 29th/30th of July. The only collection of artefacts positively diagnosed as German were located at point (635) and listed as motorcycle parts.

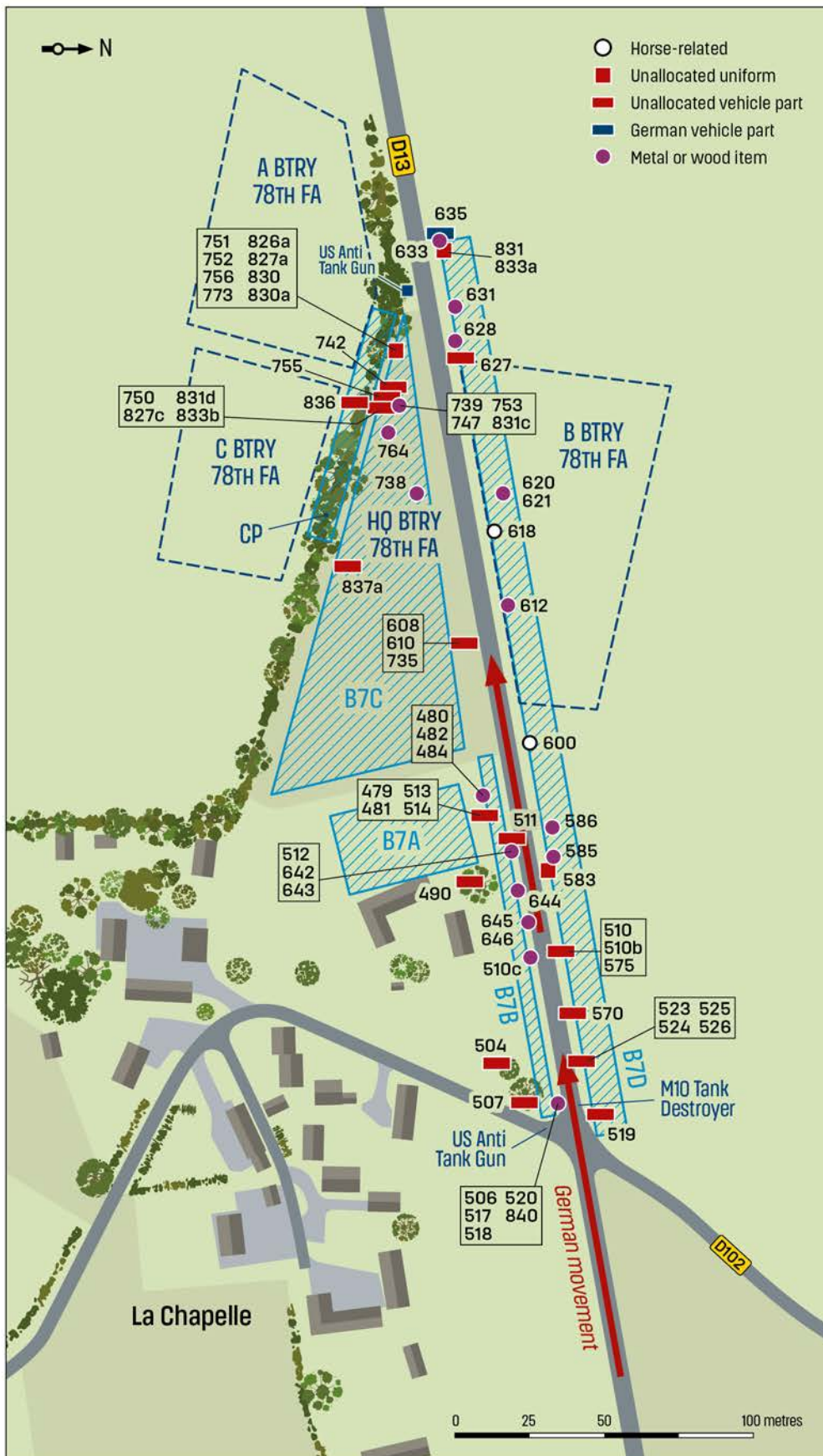


Fig (124) B7-La Chapelle: Vehicle parts and equipment associated with the night fight on the 29th/30th July 1944.

16.2 B7-La Chapelle: German ammunition and equipment

German and unallocated ammunition recovered from all zones surveyed, form the same picture and pattern of vehicle part clusters and areas of intense action previously recorded. Clusters of rounds destroyed by fire were found at (510a/647/650) 50m from the D102 crossroads and again at (495/499/497/501) as well as numerous and scattered 20mm flak rounds (573/502) and bullets also destroyed by fire. This location also corresponds with vehicle part debris previously surveyed and would indicate that vehicles associated with the German column were destroyed within this location. Incoming fire could possibly be associated with artefacts found at (496/498/500) yet could also be explosive debris and possible American tank fire (509a), yet this is inconclusive, but does coincide with the position and orientation of the American M-10 tank destroyer firing into the rear of the column. A shell base (516) measuring 76.2mm was recovered at the crossroads which could also be associated with the M-10.

German cartridges are found at points (584/578/579) indicating some German returned fire yet many of these cartridges show signs of damage so could just as easily be explosive debris from the burning column. Cartridges, rounds and 20mm flak rounds are found at (485/492/487/639/488) and (588/590/592) and German equipment at (594/593) gasmask and boot fragments, indicating a possible casualty location. This whole location seems consistent with the epicentre of the action along the road, as across the road at the orchard in Zone B7-A was found a K98 Rifle bolt (478) and more destroyed German rifle rounds (488a) and flak rounds (492) as well as shell bases, possibly from exploding vehicles carrying artillery shells (494/489). Further archaeological evidence could exist further west along the D13 yet constraints with the terrain and road traffic limited the survey zone to the orchard. Further ammunition scatter locations were still present beyond the orchard position across the road in Zone B7-D, yet these were sporadic with a destroyed 20mm Flak round found at (601) and destroyed rounds and cartridges found at (605/608), (611) and a 37mm anti-tank round (614) and evidence of possible American artillery fire (616/617).

A concentration of ammunition was also located at the far western corner of Zone B7-C. A vast quantity of American ammunition was located at this location (Fig 126) what has been recorded as unallocated ammunition at this point has now been assumed as American (827a) part of a gun and an American live Bazooka round at (835), all were located within the 78th AFA CP position, which was a known American firing position.

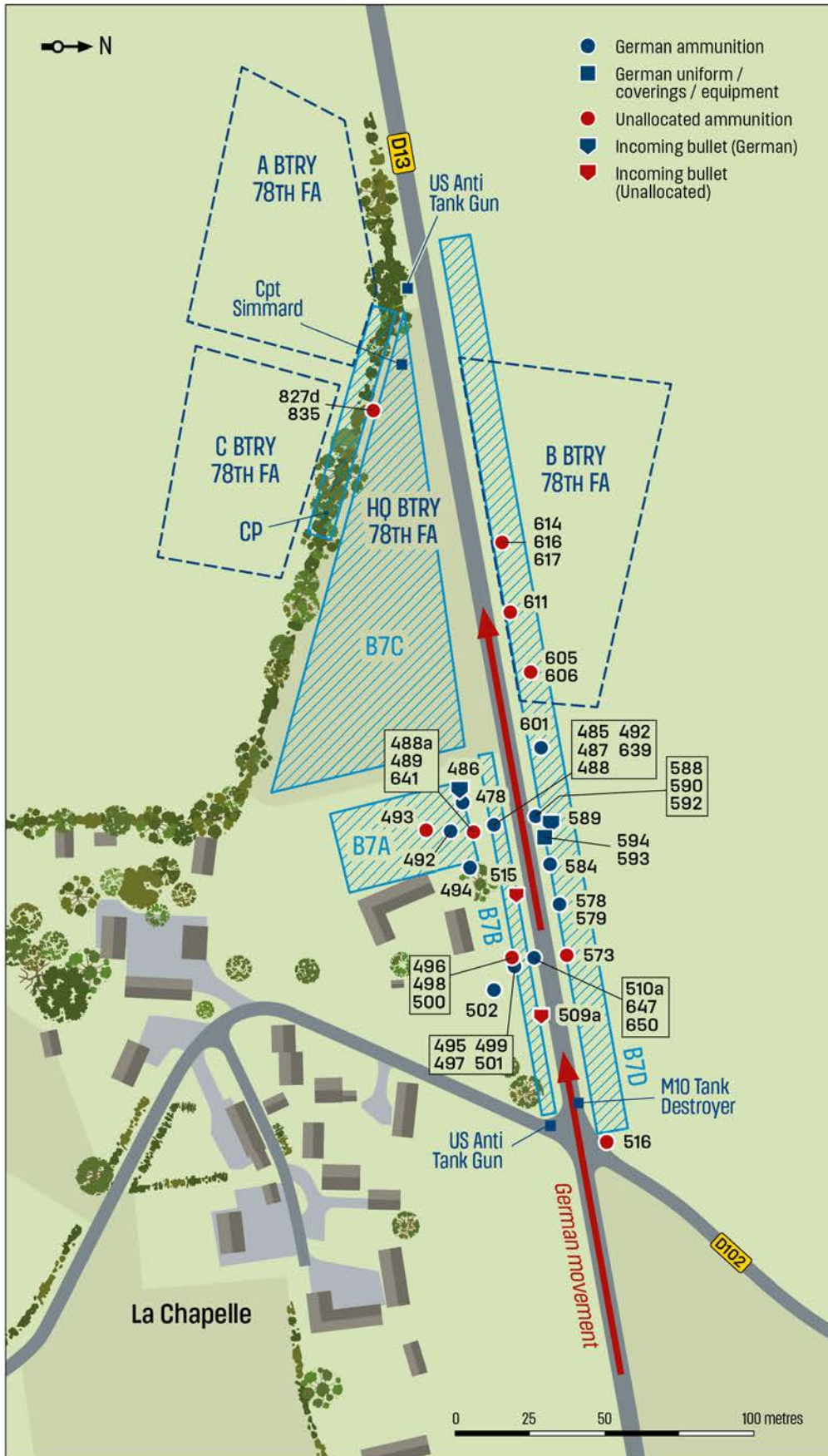


Fig (125) B7-La Chapelle: German and unallocated ammunition and equipment locations depicting the epicentre of action along the D13 on the 29th/30th July 1944.

16.3 B7-La Chapelle: American ammunition and equipment

American ammunition and evidence of incoming American fire was evident within the survey and corresponds with the historical narrative, in several locations. At the crossroads with the (D102) in Zone B7-B, an American 50-calibre 'Black Tip' armour piercing bullet (652) was found, as well as in the same location a 76.2mm 'solid shot' armour piercing shot (509). This projectile, considering its position, is highly likely to have come from the American M-10 tank destroyer parked up at the crossroads and associated with the (516) shell case in Zone B7-D. Incoming American fire in the form of a scatter of American bullets, from 30-calibre (593a) and 50-calibre (582) and 45-calibre ammunition (582a) was located across the road directly north of the orchard in Zone B7-D, corresponding with the American positions in and around the buildings and orchard in Zone B7-A. A US solid shot anti-tank projectile (597) was also located within this location and could indicate the engagement of the American antitank gun positioned at the crossroads, or the other US antitank gun positioned, believed, further west up the road.

A large concentration of American ammunition and equipment was located within Zone B7-C, the main position of 78th AFA HQ battery, at the CP location and in the top western corner close to the D13 road. Located at the CP position was found an American mess tin (767) also just forward of the CP out of the sunken lane and positioned in the open field was found a considerable amount of US 50-calibre cartridges, 102 in total (838). More than likely fired from the deck of an M3 halftrack, giving a perfect flanking fire position onto the side of the German column on the road. The next concentration of ammunition was located within the western corner of what seems highly likely, as Cpt Simmonds position. 29 cartridges were found in this location in a wide scattered arch, depicting fire from an elevated position, at points; (740/743b/745/748/749/759/760/760a/761/765/766/774/826b/827/827a/831a/833/834)

At the rear of this position and in the sunken lane was found a live (American) bazooka round (835) and a rifle fragment (827d). Close to and above this position situated within the triangle corner of the field and associated with burning on the ground was also found a collection of burnt, 'cooked off' 50-calibre cartridges and bullets (758/763/762/827e /741/743a/744/746/748a/754/834a). Also at this location and corresponding with associated vehicle part scatters was found a collection of burnt and destroyed American infantry webbing and a small brown pocket sized bottle for water purification tablets-American (828). This whole area needs more work and a survey across a broader area would provide a bigger picture, but suffice to say that this area was the location of HQ vehicles that were putting down suppressing fire onto the German column and then receiving direct fire in return, resulting in the destruction of American vehicles.

Incoming American fire was also located directly opposite this western corner location in Zone B7-C in the fields across the D13 road in Zone B7-D, in the form of 50-calibre bullets (625) and (619/622). These finds providing evidence of the arch of American fire onto the stagnant German column.

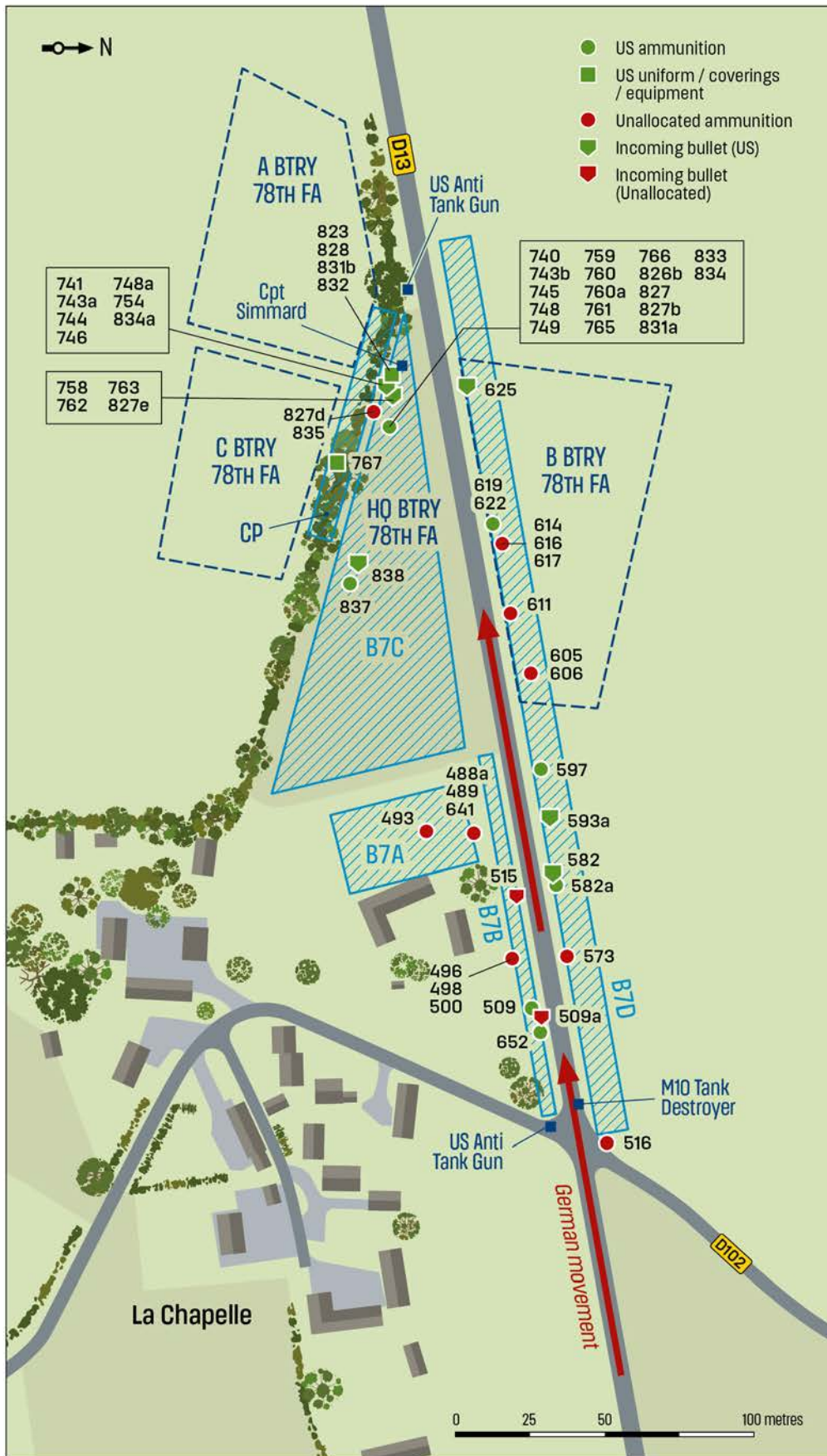


Fig (126) B7-La Chapelle: American ammunition and equipment locations depicting American firing positions and incoming fire on the approaching German column on the 29th/30th July 1944.



Fig (127) American Bazoooka rocket (835) possibly a 60mm M6A3 found in the sunken lane at the 78th AFA HQ battery position in Zone B7-C at Site B7 La Chapelle. (BAG)



Fig (128) WW2 American 60mm M6A3 Bazoooka rocket examples possibly representing the Rocket found at La Chapelle. (USNA)



Fig (129) German gasmask respirator (593) coming out of the ground at La Chapelle in Zone B7-D. (BAG)



Fig (130) German K98 rifle bolt (478) found in the orchard of Zone B7A

17.0 Site B8- The D49 Grimesnil Road 'La Lande des Morts':

Survey evidence for military action

The action on the D49 Grimesnil Road took place in conjunction with the night fight and German breakout attempt at the D610 crossroads also on the 29th/30th July. Just 3km west of the outpost American positions at B5, north of St-Denis-Le-Gast, units from the 2nd Armoured CCB, 1/41st Armoured Infantry and Cpt James R. McCartney's E/67th Armour had set up pickets on the Grimesnil road with CP positions at La Coucourie Farm and a forward outpost line at the intersection with the D49 and D438 Roads. The Germans now bottled up in Roncey and their route south blocked at St-Denis-Le-Gast, their only escape was now down the Grimesnil Road. 2,500 Waffen-SS troops and over 90 vehicles were now by 11.30, on the night of the 29th July, about to crash into 1/41st road block at the intersection then push their way into the 41st AIR and 67th Armour CP at La Coucourie. The struggle that unfolded was the biggest action of the Cobra campaign, on the scale of a small battle. The German units were completely annihilated and the entire German column stopped only 20 metres from the 67th Armour and 41st AIF CP.

There has been a lot of photographic evidence of the aftermath of this action. Out of all the actions that took place during Cobra this was indeed the most photographed and documented, yet surprisingly the sites and their historical importance had been overlooked until only recently. 10 to 15 years ago, historians started to pay the area more attention, the results of which, targeted and casual metal detecting has taken place across this area. It has been assumed that due to this activity many of the high value items, such as rifles/helmets and insignia have been removed, yet it was the general opinion of the survey team that much of the archaeological evidence that details the movement of the conflict still remains. And this has indeed proven to be the case. The survey areas of interest were designed to cover all of the supposed American positions involved with the action and locations depicting German movement. The entire area of conflict and German movement is too large to survey in its entirety in one season, so the decision was taken to concentrate on the main American defence at the 67th Armour and 41st AIR CP locations at La Coucourie, it was at this position the German attack was at its most fierce. And it was the furthest distance the Germans reached before the column was stopped. The German action within this context was all along the D49 road for 500m leading up to La Coucourie Farm. This Phase 1 survey was then built within these parameters. Phase 2 will focus on the collapse of the 41st AIR's forward outpost at the D49/D438 intersection and the German flanking movements around La Coucourie farm. Both of these areas will not form part of this 2022 survey. Zone B8-B formed the area occupied by the American CP's. Zone B8-D is located in the farm orchard and formed part of the American defence. Zone B8-E; also formed part of the American defence in fields alongside the D49 road. Zone B8-D covered the verges of the D49 road and was the epicentre of the German position. Zone B8-A was considered a place of interest.

As with previous sites using the same template as at B2- Pont Brocard, and B4-La Pinetiere and B6-La Valtolaine, B5-D610 Crossroads and B7-La Chapelle the archaeological data collections will be grouped into types. Artefact type categories would not only allow the full collection of material to be represented within a context, it would also enable the artefact representation to be clearly understood.

The template for previous sites within this project would then still apply: Concentration of vehicle parts and associated material would indicate the main concentration of military action. Concentrations of destroyed ammunition and military equipment would also, not only corroborate this conclusion but narrow down the epicentre of the action. This would also apply to concentrations of personal items, such as infantry field gear and uniform/fabric and equipment, as well as human remains. The distribution of cartridges or shells would give an indication of outgoing fire and therefore the positions of combatants, and single bullets, remains of solid shot projectiles, rockets and hand grenades, in a separate category would denote incoming fire. Referring to the key on each typology map indicating the relevant symbols given to each category, a concise visual structure of events can then be better ascertained. Each symbol with an allocated number describing the artefact in more detail, the description of relevant artefacts will be included in the initial text. For further analysis a complete finds register will be listed in the appendix.



Fig (131) At the head of the German column trying to breakthrough the American position at La Coucourie Farm on the D49 road was this Hummel named 'Clausewitz' firing a 150mm gun.



Fig (132) Site B8-The D49 Grimesnil Road: Survey zones of interest.

17.1 B-8 D49 Grimesnil Road: Vehicle parts and associated equipment

By the time the 90 strong German column had turned the bend of the D49 road and entered the outer American held perimeter of La Coucourie Farm, the Germans were well aware that they were attempting to smash through a prepared American position. At the head of the column was a Panzer IV, low profile Sturmgeschutz firing while on the move, in the hope of knocking out any American opposition in its path. Directly behind the Panzer IV was a Hummel SP gun with a 150mm howitzer, also firing consecutive salvos, sounding like thunder as they tore through the farm buildings along the road and into the American positions beyond. Behind these two lead vehicles an array of armoured personnel carriers, packed with infantry and a stream of other vehicles of all sorts displaying anti-aircraft guns towed artillery pieces and trucks full of equipment, men and ammunition. The approach of the German column was straight along the D49 road. The Germans compelled to be stuck on the roads trajectory due to the high hedges and banks along the roadside verge. The American response was apocalyptic with direct tank fire onto the column and onto its flanks, as well as indirect artillery fire laid down in an artillery 'stonk' directly onto the Column. US infantry from all sides putting down suppressive fire and fighting hand to hand with infiltrating German units. Both the Panzer IV and the Hummel were stopped at the entrance to La Coucourie, 20 meters from the main American CP. The rest of the column now trapped, was wiped out.

Vehicle parts of all descriptions including armoured plate were found in groups all along the road side verge of the D49 in Zone B8-C. At La Coucourie and buried deep into the road side verges of both sides of the road were found (810/817/820/907/908/910/911/914/ 915/972/1048/1050/1080) vehicle parts and armoured plate as well as (916/918/921/924/ 975/977a /1056/1057/1058) and (802/807/812/813/829/930/935/937/939/941/978/1077). Most of the artefacts recovered were un-diagnostic, yet some artefacts were categorically German, at (1073) an armour vehicle vision block was found, most likely from a Sdkfz 251 halftrack, complete with bullet damage to the front glass panel. Also at the same location a track link from the same type of vehicle. All artefacts recovered showed signs of being destroyed by fire, the vast majority of items recovered were corroded beyond recognition. Forward of this position continuing east down the D49 the artefact assemblages dramatically stop. This would then indicate the end position of the German advance on the road. US Photographic images taken just after the July action would also collaborate this position. Artefacts may have been thrown forward into the American positions in Zone B8-B yet these were few. From La Coucourie heading west back down the road the continuation of artefact scatters continues in equal intensity. At locations (947) and (952/957/981) cluster so vehicle parts are found including an ammunition transport stabiliser w/lid (955) and vehicle parts (966/968/1063/1064) including an armoured vehicle engine grill box and armoured plate, and another halftrack link for an Sdkfz 251. At this point there is a slight bend in the road, and at this location a large area of burning was located in visible patches on the old road surface still present within the road side verge and ditch. A vast cluster of burnt and melted vehicle parts and metal was located (1120c/1120d/1120e/1120h/1120o) consisting of heavy vehicle burnt tire fragments, destroyed melted vehicle parts x 100+, more burnt rubber and armoured plate fragments x29 and an alloy grill. Also thick pieces of bullet-proof glass (1120q). This location was more than likely targeted by American anti-tank fire or possibly part of the artillery 'Stonk' laid down on the column towards the end of the German attack. More vehicle parts were located at (1129) and further down the road a German mess tin (1118) was recovered and yet more vehicle parts (1111/1112/1113) including a diagnostically German spacer arm (1110) from an Sdkfz, in very good condition. More armoured plate (1199/1201) was recovered in the high fields above this position in Zone B8-E, yet still close to the road to be in a German context. Here the current survey ends, and no more work was continued further north. The whole of Zone B8-C has been considered as being in a German context and representative of German vehicles and equipment knocked out and destroyed along the road. Some American vehicle parts could be present within this context and indeed at least one item was identified as American (922) Sherman tank hatch spring, but this is seen as an isolated case. Photographic evidence does place a Sherman tank at this position, slipped into the ditch beside the road (Fig 136).

The next area of concentrated vehicle parts is Zone B8-B, located in the American CP position. It is assumed all artefacts recovered represent American material from German incoming fire. This position was counter-attacked by flanking German infantry and so was the main focus of the German attack.

Vehicle parts were recovered at (1147/1150/1333) and (1216/1218) including another Sherman tank hatch spring (1448). Armour plate (1166) and bullet-proof glass fragments (1160) found also at this location as well as leather boot

fragments(1162) and webbing (1165) were also recovered in this context, yet too badly damaged to be given a nationality. The next cluster of artefacts is located at (1231/1236/1238/1239/1242/1260) all destroyed vehicle parts and armoured plate, and again at (1280/1281/1286) and (1358/1361) more than likely these clusters of vehicle parts/armoured plate and metal represent American vehicles within the CP Zone hit by German incoming fire. Interestingly evidence of German incoming fire, is present in this area (1353) and (1314) here have been misdiagnosed as vehicle parts yet are now recognised as incoming German bullets; also see locations of German incoming in Fig (135). Another similar cluster of vehicle parts and armoured plate also located at positions (1214), (1209), (1208), (1219). This context again shows evidence of German incoming fire.

Apparently over the past few years, German casualties have been located in the sunken lane above and alongside Zone B8-B and recent building work at the farm. German equipment has been located in this area within this current survey. To understand in more detail the events associated within this area, an expanded survey needs to be applied to the flanks and rear of the American CP position.

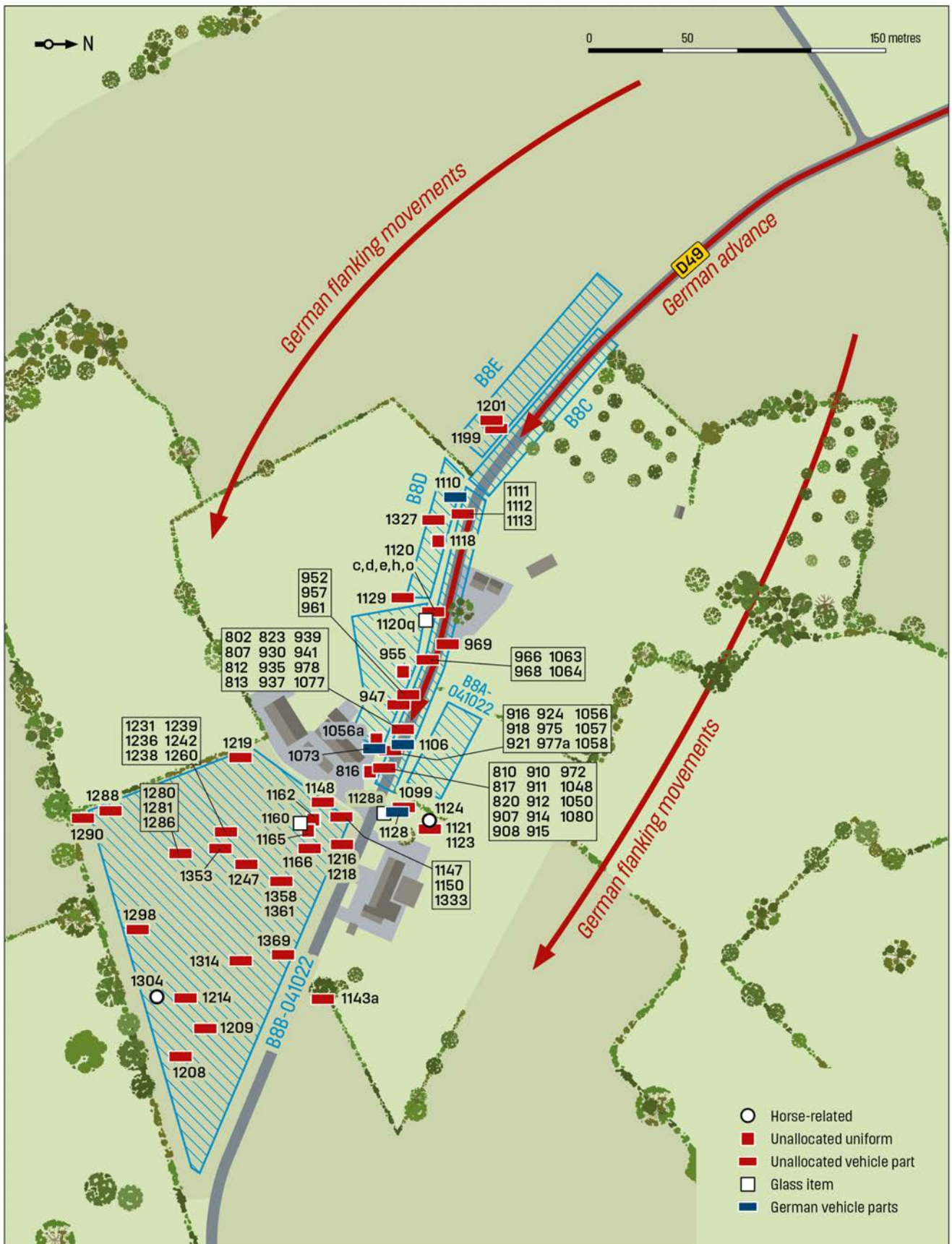


Fig (133) Site B8-D49 Grimesnil Road: Vehicle part and associated equipment locations within allocated survey zones of interest. Supposed German flanking movements also represented outside of the current survey parameters.

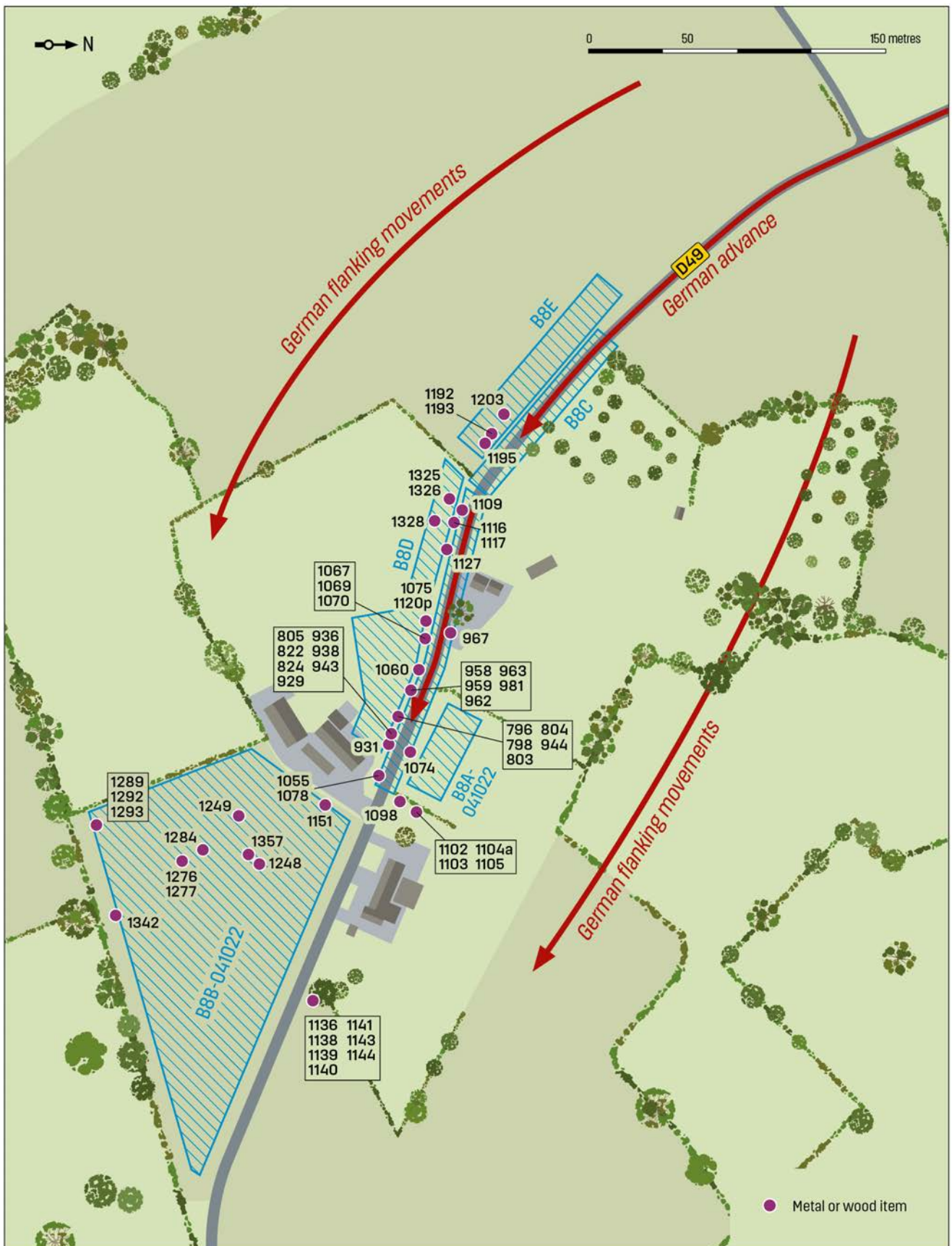


Fig (134) Site B8-The D49 Grimesnil Road: Undiagnosed Metal clusters or shrapnel in association with vehicle part groups represented with Fig (133). The results correspond with the vehicle part locations forming clearer picture of epicentres of the conflict, especially on the D49 in Zone B8-C and the American CP location in Zone B8-B.

17.2 B8-D49 Grimesnil Road: German ammunition and equipment

German ammunition and equipment was located throughout all the zones within the survey area. The highest concentration of ammunition and equipment including cartridges, rounds, grenades and bullets both fired and destroyed was in zone B8-C, the location of the German column, the artefacts recovered forming the same picture of destruction as the location of vehicle parts and associated material within this context. Concentrations of cartridges were located at (799/801/979) and (974/1051/1049/1052) also rounds in charger clip (928) and rounds at (940/1076). These locations were consistent with the vehicle part evidence that denoted this area as being the head of the column. Cartridges and rounds support the combat reports of German fire also coming from this position as the oncoming Germans came close to the American main position in Zone B8-B. Close to this forward position along the road was also located a German tunic button (951) and yet more rounds and cartridges (964a/1060a/1063a/1065/1066/1071), a German water bottle w/ cap (965), this water bottle on closer examination revealed the name 'Rolf' scratched into its lid, and a German anti-tank rifle grenade (971). This position was also constant with the Sdkfz 251 halftrack vision block (1073) recovered in the same area making it likely that this ammunition and equipment was associated with German troops debussing from this, or a similar vehicle. Destroyed rounds (1120a/1120g/1120k/1120n/1120r) and bullets (1120bi) slightly further north were again located. This is consistent with the large quantities of burnt and destroyed vehicle parts, illustrating the intense action and concentration of American fire at this position. At the bend in the road 150m from La Coucourie was located a German button (1324), more rounds and cartridges (1108a/115), including a 9mm bullet(1206) and possibly the most significant find of the survey, a shell case from a 150mm German howitzer (1107). The only vehicle in the column firing such a calibre was the Hummel. The Hummel was known to have fired a salvo on turning the bend before being knocked out further up the road, finding the artefact associated with that event is significant.

German incoming fire was also evident within the survey. Several incoming bullets were located at (1190/1202), (1377) and (1101), all these positions known to be occupied by Americans. But the most consistent area targeted by German fire was the American CP position in the field of Zone B8-B. Here the German bullet scatter was consistent with vehicle part locations (Fig 135) suggesting targeted fire. Significantly German bullets were located into four groups. Forward targets within Zone B8-B (1215/1152/1167/1172/1315), middle targets at (1285/1244/1354) and rear targets at (1301/1213/1306/1308/1309) and also along the D49 at (1137). The concentration of German fire in these areas was specific, and could be related to concentrated fire from German movement on the flanks of the American CP position, not just from the column itself. German rounds (1336/1046) were also located in the far south eastern corner and running parallel to the sunken lane that runs west. These rounds could indicate German movements trying to outflank the Americans or could represent German casualty locations.

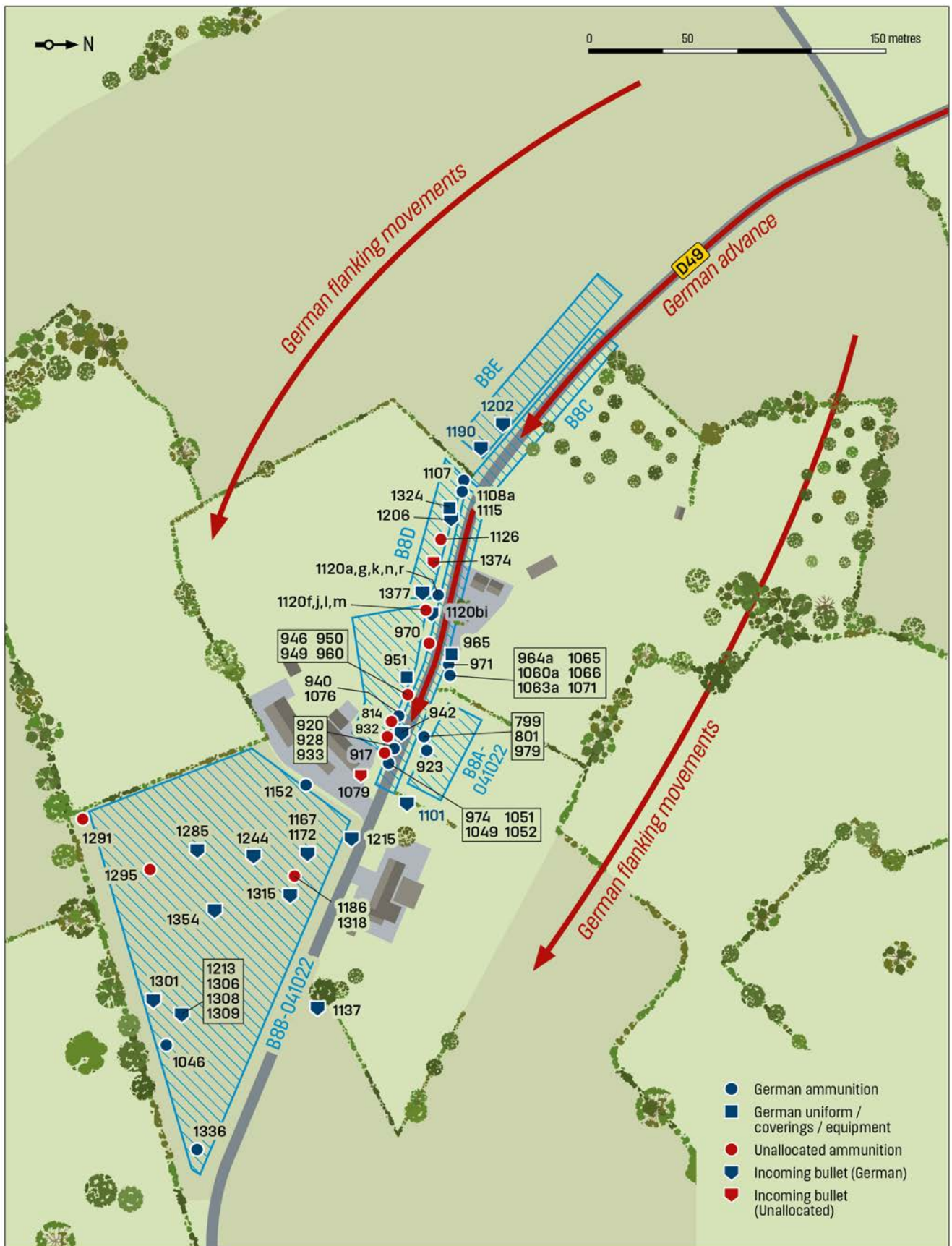


Fig (135) B8-D49 Grimesnil Road: German ammunition and equipment locations identifying concentrations of ammunition including German firing positions and incoming German bullets. Depicting the night attack on American positions at La Coucourie on the 29th/30th July 1944.

17.3 B8: D49 Grimesnil Road: American ammunition and equipment

American ammunition, equipment and evidence of incoming fire was evident within the survey and corresponded with the historical narrative on a whole, especially in relevance to the US defence positions around La Coucourie Farm, in face of the oncoming German column and attack down the D49 road. What the survey did reveal that was previously unknown, was just how much pressure was on the American CP position from multiple sides, by infiltrating German units. The Germans, even managing to get around the CP position, from the east and possibly the west.

Evidence of the American defence along the D49 was evident at three locations. At the first bend in the road, before it turns towards La Coucourie, there is evidence that American positions were in action (1108), (1119) with US 50-calibre cartridges and 30-calibre ammunition. From zone B8-D, putting down direct fire on the German flank at (1330/1331/1375) or from elevated positions, Zone B8-E, above the road (1194). At the entrance to La Coucourie along the D49 road, at what would end up being the final destination of the German column, American incoming fire was located at (821) with 30-calibre bullets located and at (1096) with 50-calibre machine-gun bullets. Cartridges specific to both types of ammunition were located in the American CP in Zone B8-B, which would correspond with the direction of American incoming fire upon the head of the German column at this point. A tank hatch spring (922), believed to be from an American Sherman was located 50m from La Coucoure on the west side of the road. This find is intriguing and could correspond to one of the E/67th Armour Sherman's retreating back from the 41st AIR positions further down the road on the opening moves of the action, as the onslaught of the German column rolled over them. One of these Sherman tanks is seen in contemporary images of the area in the days after the action (Fig 136).

The third concentration of American ammunition and incoming fire was at, and all around the American CP field in Zone B8-B. Evidence also of direct German fire was evident within this field, some of which had detonated a US Ammunition dump. German infiltrating units had also forced the American defenders to lay down suppressive fire, not only to the front of their position, but both flanks and even to the rear. Evidence of forward American firing positions can be found at (1146). Not far from this forward position was found a vast amount of destroyed American rounds (1158/1170/1173/1174/1175/1176/1177/1179) and (1171/1183/1185/1187) as well as bullets (1157/1181/1182/1159/1161/1178/1180), (1168/1169/1184/1317). No doubt these artefact scatters were as a result of American ammunition storage being hit and detonating in this location. More scattered bullets around this position were also found and could be associated with the same event (1355/1243/1255/1272/1316) including a 'live' US hand-grenade (1163). This last find could also indicate the chaotic nature of the fight and resemble ricochets and loss of equipment during the battle.

Evidence for the CP position being attacked from the flanks is evident primarily in the south east corner of Zone B8-B. 50-calibre cartridges are found at (1372) and (1212) also 30-calibre rifle cartridges at (1211). A vast concentration of American fire was found in and around the south east corner itself with 30-calibre and 50-calibre bullets found in large amounts primarily laid down along the parameters of the CP field at locations (1312/1210/1341/1095), (1030/1031/1032/1026/1027/1028) and (1029). American trajectory of fire then shifts south, firing parallel to movement down the sunken lane at (1033/1034/1035/1036/1037/1045/1046a) and (1039/1040/1041/1042/1044). German live rounds were located in this area and recently a German casualty was known to have been recovered in the sunken lane. So there is good evidence that the American CP was being outflanked. American bullets, 30 and 50-calibres, were also found at the western end of the CP field in Zone B8-B at (1300/1296/1343) suggesting that infiltrating German units were flanking the CP from the west also. The combined evidence paints a hectic picture of an American all-round defence being attacked from all sides.



Fig (136) One of the abandoned E Company 67th Armour Sherman tanks stuck in a ditch at la Coucourie Farm along the D49 road. Slipping into the road side ditch as German vehicles eventually overwhelmed the position in a desperate attempt to break out of the Roncey pocket. A Sherman tank hatch spring (922) was found in this location during the 2022 (BAG) survey.

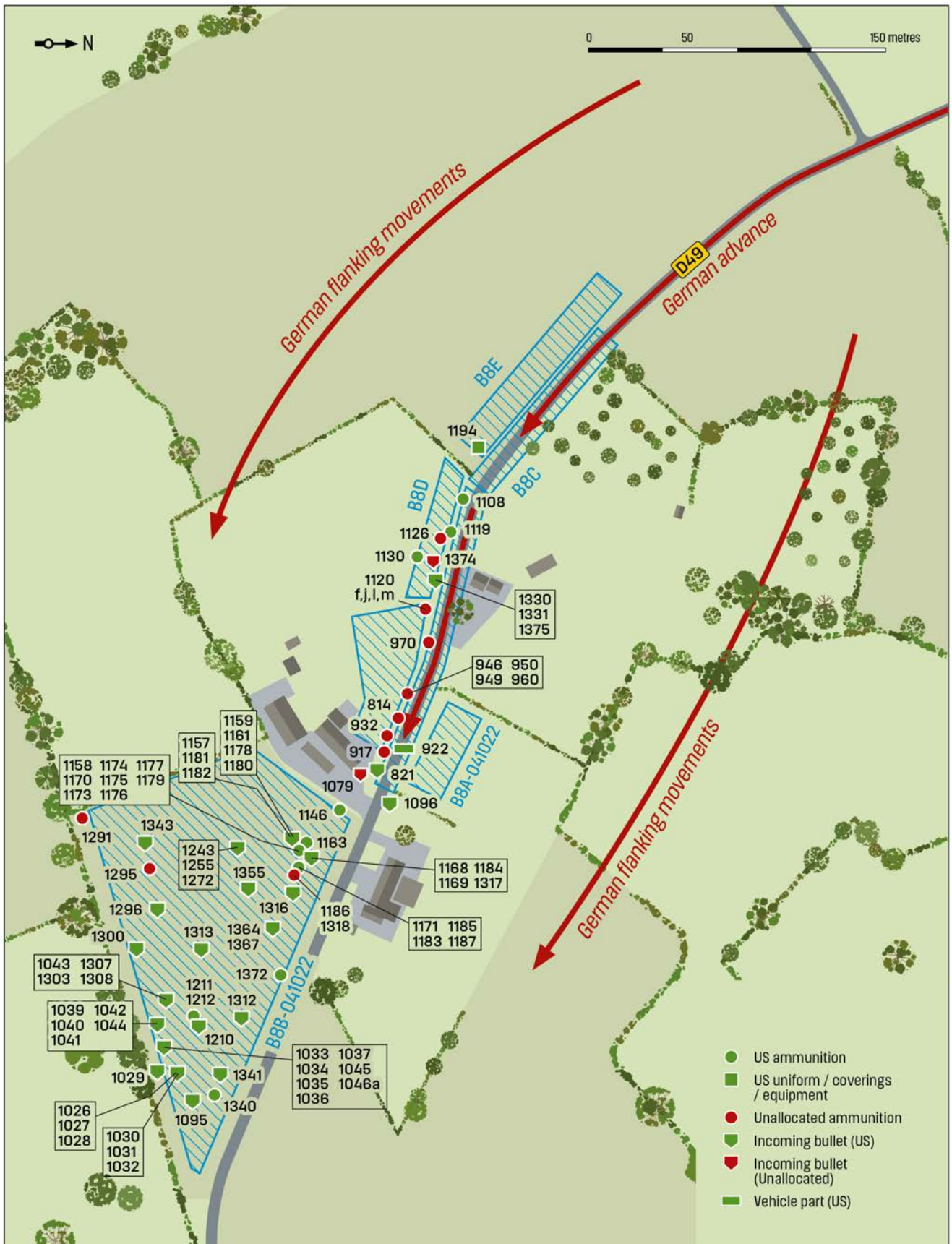


Fig (137) B8-D49 Grimesnil Road: American ammunition and equipment locations identifying concentrations of ammunition, firing positions and incoming American bullets. Depicting the night attack on American positions at La Coucourie, on the 29th/30th July 1944.



Fig (138) (BAG) Volunteer Des Mullaney holding the 150mm shell (1107) found on the D49 road at site B8. This was probably the last round fired by the German SP Hummel who came to rest in July, 1944 just opposite the white van seen in the background. (BAG)



Fig (139) The German SP Hummel 'Clausewitz' destroyed outside La Coucourie farm, July 1944. (USNA)



Fig (140) Degraded 150mm German shell case (1107) belonging to the German SP Hummel knockout and destroyed at La Coucourie Farm. (BAG)



Fig (141) (BAG) Volunteers hold the German Sdkfz 251 halftrack vision block (1073) found along the D49. Note the American bullet hole smashed into the glass. (BAG)



Fig (142) Knocked out German Sdkfz halftracks along the D49 at La Coucourie. It was at this location the (1073) Vision block was found. (USNA)



Fig (143) The same location in 2022 (BAG)



Fig (144) German water bottle and cap (965) found alongside the D49 road



Fig (145) Name scratched into the cap of the German water bottle (965) found alongside the D49 road. Note also the date: 1940



Fig (146) Processing the German water bottle (965)

18.0 Conclusions and Recommendations

The Archaeology of Operation Cobra-Phase 2 of the project 'Breakthrough' sites, has to a large extent fulfilled the phase 2 project objectives, of identify key sites associated with the Cobra breakout, identified by contemporary photographic images, after action combat reports taken by the American battalions involved and ultimately gaining evidence of these actions by detailed survey on the ground collecting, analysing and displaying the data sets gathered into a coherent narrative of events. All sites surveyed were archaeology heavy in a WW2 context, and all sites investigated showed conclusive evidence that they played a decisive role in Cobra, not only due to the spread of archaeological material defining the area as a significant battleground, but significantly the finding of artefacts that directly related to an individual event within the conflict. A primary example of this was finding the 150mm shell case from the German SP Hummel, at Site B8-D49 Grimesnil Road. There was only one Hummel 'Clausewitz' allocated to the German column on the D49, and its subsequent wreckage has been much photographed on the days following the action, the images taken becoming synonymous with Cobra and the attempted German breakout from the 'Roncey Pocket'. Also The 76.2mm shell case found alongside the position the M-10 tank destroyer at site B7-La Chapelle, parked up alongside the D13 and playing a key role in destroying the German column that rolled into the American strong point, Not only finding the shell case but also discovering the incoming solid shot fired at the German position amongst areas of burning and vehicle part remains. The same could be said for the discovery of the exact location of Cpt Simard's last stand, also at Site B7, which has never been located before and no significant research into this event had been carried out previously.

New and significant insights and discoveries were made at all the six sites investigated. At B2-Pont Brocard, even though the area, to a large extent, had been searched by casual metal detectors, it was not only possible to track the historical events significant to the recorded narrative such as vehicle part scatter and locations of American incoming fire, and previously unknown movements of German flanking movements were recorded. Also it was interesting to recover and trace the cartridges scatters left behind by modern re-enactor groups reliving the events of 1944. This added a new dimension to the overall archaeological landscape and in my opinion a valid one. Recorded as 'Ghost battles' of remembrance, keeping these historical events alive. More needs to be done at Pont Brocard, mainly in tracing back up the D52 in an effort to define the full extent of German movement and possibly to define the American forward outpost position, yet largely the action has now been fully recorded. Photographic evidence at Pont Brocard has been extensive; the physical evidence though small has been conclusive to the historical narrative.

Site B4-La Pinetiere was beyond the survey teams expectations in terms of the sheer amount of archaeology recovered. La Pinetiere too was a known area of interest to the casual historian as the modern re-enactor material was also present. The area lacks in contemporary WW2 photographs, albeit though well documented by after action combat reports and divisional histories. It was assumed that any remaining archaeology would be few. On the contrary the archaeological material was decisive in locating critical events mentioned within the historical narrative and in abundance, thus opening out the narrative in material detail, the intensity of the destruction and where significant details were recorded, such as American forward positions on the D27 and subsequent opening shots onto the advancing German column were recorded, then retreating back under fire and possibly American human remains associated with these movements. The full extent of the destroyed German column was located, the Germans firing flares to call in support or eliminated the position, and areas of counter fire put down on American positions. Most crucially the epicentre of the destroyed German column was located on the D27 and the size of the destruction and density of destroyed vehicle parts, munitions and equipment recorded. Location of American positions in the Orchard were also located, yet this area showed signs of being 'pouched' by previous metal detecting. However American artefact clusters could be associated to specific events. An abundance of machine-gun cartridges in the orchard denoting a single MG position and Howitzer and anti-tank gun solid shot found within the German context, yet the crucial American battery position at the crossroads were not subject to survey for this season. To understand the full extent of the American position these areas will be the focus of a future survey. A geophysical survey undertaken over the American positions at the crossroads did reveal a large area of buried material. Local knowledge suggests this is battlefield material from the conflict.

The Site B6-La Valtolaine, its location as part of the breakout had been in contention by several historians and often left out of the historical narrative or just combined with other events happening up and down the D38 road on the 28th-

30th July, 1944. The survey proved that there was a considerable action at the crossroads during this period. Although the artefact scatters were not as large as other areas, the evidence displayed a picture of a German column of men and material being shot up and destroyed along the D58 and at the intersection with the D38. German armoured plate, remains of tank wheel fragments, grenades, cartridges and rounds, all representative of close action fighting for the crossroads. American material found in positions supporting a road block at the crossroads also told of heavy fighting with 50 and 30 calibre cartridges found in groups. There is only one photograph of German destroyed vehicles in this area, yet we have managed to identify these to be at La Valtolaine. The Combat after action reports have been accurate in describing the action, the archaeological evidence was located in several positions. More work needs to be done in understanding the overall German response, as it was known they tried to outflank the American positions, yet were heavily repulsed. We found some evidence of infiltrating German units into the American lines, yet this is not conclusive. An expanded survey on the flanks needs to be undertaken to get a broader picture. Large amounts of buried WW2 material associated with the conflict is also believed to be in the near vicinity.

The Site at the B5-D610 crossroads was initially a preliminary survey to ascertain if the survey team had the right location, and if there was any archaeological evidence of the conflict. Resent Combat reports obtained from the Eisenhower Museum in the US contained an overlay map of the area and the American positions. This was obtained late in the year and so a full strategy of exploration could not be deployed, however what was recovered was unique, not only in the amount of archaeology present, but how specific the Artefacts found fit the after action reports. Detailing a narrative of German units breaking through the American forward positions, the Americans then were undertaking a fighting retreat, and the main American road block being overrun and vehicles within the American command post being hit and destroyed. The 2022 survey managed to record evidence to support all these events, in a short space of time. Located within the survey were; Individual groups of men's firing positions, destroyed German and American personal equipment, suppressive artillery fire on the crossroads, incoming fire from both combatants and remains of an American halftrack. Only two roads were surveyed for a limited area within the 2022 survey parameters. This whole site needs further work, not only in continuing the road side surveys but opening out the fields each side of the road especially the American CP fields to the south. Again there are rumours of a buried dump of material relevant to the conflict in the area. This whole area offers a unique opportunity of an archaeologically untouched area of the conflict. It is believed no previous metal detector activity has been associated with the site, as high value items have been found, and the site may possibly be unknown to re-enactor groups, as there was no scattering of modern ammunition.

The Site B7-La Chapelle was a case in point for recording specific archaeological evidence to support individual events. Like all the sites investigated within the 2022 survey archaeological material relevant to the conflict was found. At La Chapelle the artefacts found, directly told the story of the events that unfolded on the night of 29th/30th July, 1944. Most significantly the location of the American M-10 tank destroyer, that caused so much damage to the stranded German column. With evidence US 76.2 mm tank shells at this location and the subsequent incoming tank fire onto the rear of the column with incoming US solid shot hitting the column. Remains of the Column were located, giving specific locations of vehicles. German artefacts clustered in groups telling of a desperate fight for survival and discarded rifle bolts found in the same location, as German troops are disarmed. More survey work needs to be undertaken in the large triangle field, the location of which was picketed by the 78th AFA HQ, but the western half of the field that was surveyed revealed the previously undiscovered American CP position and probably the most significant find of the whole survey, the location of Cpt Simmard's halftrack position, burnt out and littered with spent 50-calibre cartridges. Again much like as with Site B5, this area is an untouched WW2 battlefield landscape. More work needs to be done, especially in an American context and also more local knowledge needs to be gathered as few local people were found to add their perspective of the conflict.

The largest area surveyed and the most complex was site B8-D49 Grimesnil Road. This area along with B2-Pont Brocard has been identified as the most well-known of the conflict, as with Pont Brocard the area was heavily photographed and filmed by US signals photographers, many of these images being published, depicting the destruction of the Germans in Normandy. Its true to say that the image locations were often misplaced, yet most placed these images within the 'Roncey Pocket' which was correct. Local metal detector activity over this area has been frequent and local museums contain high value items found along the D49 Grimesnil Road. Local people are also well aware of the history of the area and have their own collections of material found on their farms. The survey objectives were to try and define the

exact location of the knocked out German column and what can be gained by analysing any evidence related to the conflict, specific to events. Also the extent of the action, as it took place in several locations up and down the road. Also and intriguingly overlooked, what was the nature of the American defence. Even though the survey team had low expectations, a vast amount of archaeological material was recorded directly related to the conflict. A vast amount of vehicle parts were recovered all up the D49, up until La Coucourie Farm. The head of the German column was located at this point. Artefacts recovered in this area were significant and diagnostic compared with contemporary photographic images. A case in point, where German equipment was found it was also associated with remains of German Armoured personnel carriers Sdfkz 251's and ammunition. The most significant find of this survey was the 155mm shell from the SP Hummel, as previously mentioned, this was a significant find and tells the movements of that vehicle in its final moments. American incoming fire was also evident within the German position. Significantly German incoming fire was also found within the American command post position. The survey of this position was a great surprise, as what was found told a picture of the American position being attacked from all sides by German units trying to outflank the Americans. Evidence of these German units were also located at the rear of the American position, which possibly tells a story of the Germans actually getting in behind the Americans. All this information was previously unknown. The survey at Site-B8 has much more area to cover and the fields either side of the American CP position need to be investigated. Also the forward American positions further north at the D438 intersection, although their location is known, the extent and remaining evidence of the action remains unrecorded. German mass graves are also known to be in existence, some were found at La Coucourie many years ago and some may still be nearby. Lone German casualties have been found very recently. Local knowledge is definite that they exist; their possible locations are being investigated by the survey team. Several possible areas seem viable and a full geophysical survey will need to be deployed across these areas in next forthcoming season.



Fig (147) (BAG) Team leader Helen delivering an educational lecture to local schoolchildren at the town hall at Notre-Dame-de-Cenilly.

19.0 Working with the community

A survey of this scale cannot be run in isolation and a determined effort has been made by (BAG) to make contact and talk to as many local people as possible, to gain more detail on what really happened at the sites in 1944. Many families that occupied the farms and buildings in the area are still owned by the same families. What we have found is, all these people have a story to tell. Since working on the project BAG team members and volunteers have been approached by countless local people offering what they know about the events that took place, even telling of where certain events took place, where items were found and what has changed in the landscape since 1944. The support from the local community has been extremely positive and we have now set up a database of information that people have offered to the team so an archive of stories and information can be stored. It's the teams ultimate hope that the local community will add to this archive not only in first-hand accounts of the action but new locations of historical events, and found artefact locations that can be given a GPS position to be included in the database of artefacts found. These finds registered forming a part of the projects future results.

Due to the increased interest of local people about the archaeology we were uncovering a 'Community action day' was planned for the last days of the survey in 2022 and held at Notre-Dame-de-Cenilly town hall. Not only would this give the survey team a good opportunity to display, clean and identify the artefacts recovered, it would give an opportunity for local people to come along and take part in the process and be a part of the project, see what we are doing, open discussions about the history and contribute with the identification and recording activities. Schoolchildren accompanied by their parents were present and were very interested in the whole experience, so much so an education table was assembled and one of our team leaders gave the children a hands-on lecture, talking about the conflict and what each artefact represented. Local media informed of the event made an appearance and the project was covered in the local papers and regional television. Regional television already requesting to cover the project again for 2023.. It was a fun day and of great benefit to all, including the team. This educational day will now be written into our project plan and will take place each year we are running a survey.

Advertising and planning for the event 'Archaeology of Operation Cobra-Working with the Community' which we hope will be bigger this year and possibly involve organised school groups is being planned again for October 2023, again at Notre-Dame-de-Cenilly town hall.



Fig (148) Cleaning and identifying the artefacts found on the archaeology of operation Cobra survey, at the community working day at Notre-Dame-de-Cenilly.

Des Américains fouillent le bocage

Saint-Martin-de-Cenilly
La société Battlefield Archaeology Group effectue en ce moment des fouilles afin de mieux comprendre l'opération Cobra.

La société d'archéologie anglaise "Battlefield Archaeology Group" effectue en ce moment des fouilles afin de mieux comprendre l'opération Cobra, nom de code de l'offensive américaine menée fin juillet 1944 dans le Cotentin pendant la bataille de Normandie, afin de s'ouvrir la route de la Bretagne, et d'enfoncer les lignes de défense allemandes. La réussite de cette opération, suivie de la percée d'Avranches, puis le contournement des lignes allemandes, en a fait le tournant majeur de l'offensive alliée en Normandie.

Une louable motivation

Anglais, américains, russes, lituaniens, ces passionnés sont venus de loin pour effectuer des fouilles permettant d'éclaircir cette page de notre histoire. Cinq profes-

sionnels et 16 bénévoles sont sur le site. Les bénévoles ont payé 680 livres sterling pour participer et doivent en outre subvenir à leurs frais de séjour.

Sur les pas des soldats

Les recherches ont commencé il y a 10 ans, par la lecture des rapports de combats de plusieurs régiments américains figurant aux archives. Elles ont été croisées avec les rapports ou témoignages de prisonniers allemands, avec les coordonnées de ITGN et avec des photos aériennes ou de reportages. Un long travail de préparation donc. En 2019, les recherches étaient localisées à Hébécrevon et, après deux ans d'interruption, ont repris cette année sur une ligne allant de la D38 à Pont-Brocard à la Coucourie à Trelly, en passant par La Pinière à Notre-Dame-de-Cenilly, le carrefour de la Valtolaine à Saint-Martin-de-Cenilly, Grimesnil, et la chapelle du pont Flamba à Lengronne, où se trouvait l'ancien quartier général américain. Le rythme d'un séjour par an doit désormais reprendre, avant la sortie d'un livre bien documenté !



Philip Harris, Christine Nesbether, Alyson Baldry et Cameron Ross, le directeur de la Battlefield Archaeology Group.

Fig (149) Local press coverage of The archaeology of Operation Cobra project in Sept/Oct-2022



Fig (150) Local press coverage of the community working day event at Notre-Dame-de-Cenilly town hall. Local residents holding key artefacts found on the survey.

La mairie expose les résultats des fouilles sur l'opération Cobra

Notre Dame-de-Cenilly

Lundi 3 octobre, l'équipe de "Battlefield Archaeology group" exposait ses découvertes à la salle des fêtes de Notre-Dame-de-Cenilly : des objets trouvés sur les lieux des fouilles archéologiques sur l'opération Cobra, pendant la Seconde Guerre mondiale, entre Pont Brocard et Lengronne.

Des témoignages sur le quotidien des soldats

Une ambiance de ruche où chacun s'activait à "décrotter" les objets trouvés sur le site des fouilles. Chaque objet était

précieusement emballé dans un sac, non sans avoir été, auparavant, grossièrement débarrassé de sa terre ou boue, puis nettoyé plus minutieusement dans l'eau avec une brosse à dents. Un travail de fourmi pour tous ces passionnés ! Sarah a sorti une gourde, des balles et un boîtier de vision pour satisfaire la curiosité des nombreux visiteurs. *"Le boîtier de vision était l'équipement des chars qui permettait de voir l'extérieur tout en restant à l'abri des balles grâce à son double vitrage blindé"*, explique-t-elle. Passionnant !



Johann Osouf, Madeleine Prevel, Emile Fossard, Gilbert Duval et Marie-Jo Lemardelé entourent Sarah Silverstone, de l'équipe d'archéologues et présentent un boîtier de vision, une gourde et des

VeroniqueFrance

Fig(151) Press coverage of the Operation Cobra project at the Notre-Dame-de-Cenilly community day, 2022

20.0 Acknowledgements

Large scale projects like this can only be achieved with the collaboration of many people. A heartfelt thank you to all that have played a role big or small. Suffice to say a few people need to be acknowledged. Although the Archaeology of Operation Cobra project began in 2018, the Project didn't really get moving without the help, guidance and contacts provided by Christopher Long, who I am eternally grateful. A special thanks also goes to the initial co-creator of the project Pete Revell, who not only lined up the contacts we needed to get things rolling, provided much of the research material included in this report. If it wasn't for Pete's enthusiasm and drive the project wouldn't be where it is today. Also the director would like to acknowledge Cyrille Billard of the Direction Régionale des Affaires Culturelles (DRAC) in Normandy who's support and guidance has been key to the success of the project, and that this support will continue with future exploration and collaboration. Also Fanette-Leyroy for doing all our report translations from English to French and countless emails to the DRAC facilitating our licence agreements. Fanette has been pivotal in the projects creation and presentation, for this I am extremely grateful. Special acknowledgement to the landowners of all the sites investigated, far too many to mention everyone. If it wasn't for the support of the landowners we wouldn't have a project at all. Thank you, not only for access to your property but also for the enthusiasm shown for the project and the contributions made in stories and research provided relative to the events of 1944.

There are some key people that have played a pivotal role in this year's project that need to be acknowledged. For running the Geophysics, a special thanks to Kevin Cornwell from Hastings Area Archaeological Research Group (HAARG) for huge areas of land surveyed and the presentation of some very impressive results. It was a 10 day solid survey, so no small commitment. A special acknowledgment to the (BAG) team leader Helen Basson whose tireless work behind the scenes, liaising with landowners, organising permission from local council and road traffic authority, researching local archives, providing the lunches each day and co-creating the project on a daily basis. The power house that is Helen, Thank you. Team leader and site supervisor Brian M. Powell for helping to lead the archaeology throughout the life of the project, keeping up moral and making sure the archaeology was excavated and recorded professionally. Also to Alison Baldry for jumping in at the last minute and running the GPS survey, it turned into a mountain of work but the results couldn't have been better executed and organised. Also the key players in the project, a huge thank you to all of the on-site paying volunteers who assisted in the archaeological excavations for this year; Phil Harris, Alexey Karikh, Tim Adams, Emily Stewart, David Billingham, Joey Tucker, Michelle Parsons-Hagstrom, Michaela Nicole Thode, Lisette Abrahmans, Sarah Brookes, Des Mullaney, David Long, Gedimas Petrauska, Christine Nestleroth, Ben Goodman and Jay Tadikonda. What a team! Your funding and physical support is what made this project such a success.



Fig (152) Most of The (BAG) 2022 season team.



Fig (153) (BAG) Volunteers holding bags of US 50-calibre cartridges from Site-B7



Fig (154) (BAG) Volunteer Gedimas Petrauskas



Fig (155) (BAG) Finds team; Tim Adams. Geophysics; Kevin Cornwell

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- Death of General Lesley McNair, p115
- La Nouillerie Crossing, p130-135-143
- La Fontaine des Bains, p137-143
- attacks down the D29 to Marigny, p169
- General Bayerleins command post, p171-2
- Bayerlein. Dangy, p209
- 9th Inf.Div Battalions, p172
- Down the D29/Montreuil/ D29,D900 Crossroads, p177-181
- German Counter attack near La Chapelle-en-Juger, p184
- 1st Inf. Div. Drive to Marigny,16th/18th/26th Inf. Reg. 3rd Arm.CCB, p192-203
- 9th Inf.Div/4th Inf.Div, p202
- Battle Group Kentner, p202
- 18th Inf.Reg. Marigny, p204
- La Jusseliere/Le Lorey. p205
- 4th Cavalry Squadron at Le Lorey, p205-6
- Barkmann? p206
- CCB heads west.Hill 177.La Chapelle. p206
- German high ground positions south of marigny. p207
- Pont Brocard. 2nd Arm. CCB. 82nd Reccon. p209
- Exploiting the gap. p212
- 3rd Arm. Div. p213-14
- German positions on the 28th July. 6th Para. 17th SS. 2nd SS Panzer Div. p218
- Fight at Montpinchon. p222/p216
- Fights at Carantilly. p222
- German positions at Ouville and Savigny. p223
- St-Denis-Le-Gast, 28th July. p223
- Notre-Dame-de-Cenilly, 28th July. p223
- Germans attack east on the US breakthrough. p226
- 27th July, Pont Brocard. p230/232
- 28th July, La Denisiere Crossroads. p230
- 2nd Arm.Div. Pont Brocard to St-Denis-le-Gast. 28/29 July. p235-6
- La Valtolaine Crossroads. p237
- La Pinetiere Crossroads. p238
- 2nd Arm.Div.CCB at St-Denis-Le-Gast. p238-9
- Shooting up German convoys on the Roncey/ St Denis-le-Gast road. p240
- Slaughter on the Grimesnil Road. p241
- Crossroads D610/D238. p242
- La Chapelle. p242/p243-4
- Action at St-Denis-Le-Gast.p243
- East flank, Percy. p245
- Villebaudon/Tessy-Sur-Vire,22nd Inf.Reg. p247-249 (also see p40,p51 "If U Survive")
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- St Gilles then Canisy. p19
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- Fritz Langangke. p304
- Lieutenant Philip B Reisler's 2nd Arm.Div. p302

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- Operation Cobra. p77-110
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- Christian Tyhsen. p93

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- 27th July, Bayerlein. Dangy/Percy. p235-6
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- Cobra bombings, German perspective. p166-7
- Fritz bayerlein. p167
- Panzer Lehr, St-Gilles. p168
- 29th july. p172
- Roncey. p173

Breakout and Pursuit (Martin Blumenson)

- Chateau Tallis. pre-cobra battles. p199
- Cobra Plan, Bombing. p220
- make up of German Forces in Cobra zone. p227
- Fighting to re-take original US positions after failed July 24th bombing. p231
- Short bombing/effects. p237

- Bombing effect on Germans. p238
- German counter attack from Marigny through Chapelle-en-Juge, 25th July. p240
- 4th Infant.Reg action and positions. p245
- 30th Div. attack positions, German road blocks, Hebecrevon. p244-5
- German Re-action/counter attack at Chapelle-en-Juger.p247
- German counter attack near Marigny, 26th July. p248
- German position north of Marigny/1st Div.CCB. p258
- Breakthrough achieved/2nd Arm.Div.CCA. p255
- N of Canisy, railway embankment, German resistance/ Samson de Bonfosse/Le Mesnil Herman.p257
- 27th July. Fight, Luzon River 3 miles west of marigny/ 16th Inf/18th Inf/Comprond/Barkmann? p259
- 27th-28th July german unit lists heading south/CCB, 1st Div take Camberton/Pont Brocard/ German positions hold up US advance between Carantilly and Quibou. p260-1
- CCB resistance at Montpinchon/28th July German pocket near Savigny. p263
- 3rd Arm CCA attacks south east of marigny 27th July. p265
- The West Flank, 6th Arm.Div/4th Arm.Div/Battles for St Germain/Lessay. p268-9
- Notre-Dame-de-Cenilly/Pont Brocard/Tychsen killed/ Germans decide to breakout! p275
- 29th July La Valtolaine Crossroads/La Pinetiere Crossroads. p 277
- Battles in St Denis Le Gast/Roncey/ 29th July.p279
- Battle at La Chapelle/Slaughter on the Grimesnil road. p280-1
- Moyon-Troisgots line 28th/29th July. Villeboudon falls. p299
- La Denisiere/percy-Villibaudon road. p301
- Attack on Tassy-sur-Vire. p304
- 29th July, Pz 116th Div. Arrives in Percy/28th July, 4th Div. 22nd Inf.Reg. takes Le Mesnil Herman. p314

Fighting the Breakout (David C. Isby)

By Generalmajor Rudolf-Christoph freiherr von Gersdorf

- Montreuil/Lozon/Counter attack via la Chapelle-en-Juger, 25th -26th July.p41
- Action at Le Mesnil Hermann/Pont Brocard 27th July. p46
- West flank, Le Lorey/La Denisiere. P47
- 28th/29th July. La Denisiere.p49
- 28th.2nd SS Pz/17th SS Pz.p52
- Moyon to the crossroads at La Denisiere/St-Denis-le-Gast. p53
- Mont Robin/ La Denisiere.p54-5
- Avranches Collapses.p59
- German defence on the east flank/Beaucoudray/ Mont Robin-Villeboudon crossroads.p61

By Generaloberst Paul hausser

- German 7th army Order of battle/Evaluation of Armed Forces.p64-5
- Action between La Chapelle and Marigny 26th July. p66
- 27th July. p94
- 28th July/Bois de Moyon/la Denisiere/Hill 133. p95
- Mont Robin Action/La Denisiere Crossroads. p96-7
- 30th July Mont Robin. p98-9

Saving the Breakout/30th Division (Alwyn Featherston)

- Cobra Short Bombings July 25th/Death of Lt.Gen. McNair. p30-38

- 2nd Arm. Captures St-Samson-de-Bonfosse/crossroads north of Mesnil Herman. p39
- Germa account of bombing 25th July. p40
- 30th Div. Tassy-Sur-Vire. p43

Busting the Bocage (Capt. Michael D. Doubler)

- Description of the bocage. p14
- German Forces during Cobra. p17
- German defence of the Bocage/Tactics. p23
- American tactics. p39
- Revised tactics. p45
- 2nd Arm.Div.Cobra. p54

Closing with the Enemy (Michael D. Doubler)

- The Bocage. p34-6
- German Hedgerow defence. p37-39
- German Tank placement in the bocage. p40
- Fire and movement. p49
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- Quesada's Air-ground support VHF radios

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- Cobra plans. p197
- Cobra. p205-229
- 24th July. p210
- Roncey. p223

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Dying for Saint-Lo (Didier Lodieu)

- Kampfgruppe Kentner.p104
- Joachim Meissner Commander of III/fjr14 killed 25th July 1944.p 138

The Battle of the Hedgerows (Leo Daugherty)

- Kampfgruppe Heintz ,275th battalion. p150

Ruckmarsch-The German retreat from Normandy (Jean Paul Pallud)

- Breakout. p10-22
- St-Denis-le-Gast. p16

Panzers in Normandy (Eric lefevre)

- Barkmann's Corner p131-33
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Citizen Soldiers (Stephen E. Ambrose)

- Breakout. p77-106

Breakout at Normandy (Mark Bando)

- 101st Airborne Div. Battles outside of Carantan, Donville or Douville. p18-19
- German forces, 2nd July/275th Div/353rd Div/2nd SS Pz/17th SS Pz/Pz Lehr/small Battle Groups. p23
- Fritz Langanke/Christian Tychsen. p26-27
- Barkmann, D972 Le Lorey. p29
- Bombing 24th-25th July/Ernie Pyle. p36-37

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- CCA 2nd Arm drive to Villebaudon/tessy -Sur-Vire/22nd Inf. Reg/66th Arm.Reg/Road to St-Gilles/Moyan (George Wilson "If you Survive") p41
- La denisiere(battle)/Convoy hit by German AT fire/ Villebaudon/N799-D13 Crossroads. p44-45
- Beacoudray(George Wilson 22nd Inf. Reg) p46
- Escape of general Bayerlein at Dangy/Dan Bubolz A/82nd Recon.Batt. p51
- 82nd Recon(Sgt Charles Hinds) 67th Armour/ Quibou,Dangy,Le Pont Brocard. p55
- Notre-Dame-de-Cenilly/Germans shot at church/abandoned vehicles/Pont Brocard battle/Valtolaine crossroads. p56–57
- Notre-Dame-de-Cenilly p58
- Dead Horses outside Notre-Dame-de-Cenilly along the D38 not far from the "White House" Killing of German prisoners. p61–63
- German Prisoners at Notre-Dame/wallets in ditch. P66
- D49 Les Haut Vents shot up column/ death of Christian Tychsen. p67–72
- La Pinetiere crossroads. p73
- 195th AAA/2nd Arm Div. action. p75
- US Positions west of "Bois de Soultres" south west of Pont Brocard.p76–77
- 1st action at St-Denis-le-Gast/1st capture of town/Mention of knocked out Pz IV outside of house. p78
- Death of Madame Alexandre Guenir at St-Denis-le –Gast. p81
- Roncey crossroads. p82
- La Valtolaine Crossroads night of 28th-29th July (1st action)/67th Arm/41st Arm. Inf. p85
- La Valtolaine/Fritz Langanke. p87
- La Valtolaine, Evening 29th July (2nd action)/ Fritz Langanke. p88
- Action down the D238/D610 crossroads. p91
- Fritz Langanke. p92–93
- D610 29th July. p94
- St-Denis-le-Gast re-occupied by the Germans/Fighting in the D610/D238/D38 Triangle. p115
- Fritz langanke. p118
- D49 La Lande Des Morts. p119
- Action at La Chapelle/D13 road early morning 30th July. p126
- La Chapelle. p128–129

Death Traps (Cooper)

- Hedgerow Busting problems. p11
- Cobra planning/Bois du Hommet. p48–49
- Short bombing/Gen Leslie McNair. p52–3
- Cobra. p54
- 3rd Armoured in Compron. p57
- La Chapelle. p58
- Roncey. p60–61
- Field deployment of an American Armoured Division. p313

The Duel For France, 1944 (Blumenson)

(These references primarily concerned with the events pre-Cobra)

- Battle of the hedgerows, La Haye-du-Puits, Mont Castra. p21
- Battle of the hedgerows, Montgardon. p25
- St-Jean-de-Daye, Taut canal, Vire river. p32–33
- German response north of St-Lo, enter Panzer Lehr. p34
- 3rd Arm,30th Div, Airel Bridge. p37
- CCB, Hauts Vents. p41

- St Jean-de-Daye friendly fire. p43
- Hauts vents. p44–45
- La-Haye-du-Puits falls, 8th of July. p48
- Montgarden, Mont Castra, Sainteny. p49
- Panzer Lehr attacks, Hauts Vents/CCB. p51
- Liberation of St-Lo. p53
- St-Lo, Eugen Meindl 3rd Para, 352nd Inf, Div. p54
- Hill 192. p55
- Hill 122. p57
- Martinville Ridge. p59
- German withdrawal from St-Lo, Rommel injured. p60
- St-Germain-sur-Seves. p74
- P. Quesada ground air support. p77
- Cobra. p80

Hell on Wheels (Donald E. Houston)

- Cobra begins. p210
- Make up of 2nd Arm, at beginning of Cobra. p211-212
- Death of Lesley McNair. p213
- St Gilles action, Le Mesnil Herman, St Sampson de Bonfose, Canasy positions. p215
- Crossroads Le Mesnil Herman, Hill183. p217
- 2nd Arm,CCA holds back German attacks from Tessy-Sur-Vire, advance on Le Mesnil Opac, La Denisiere. p218
- 2nd Arm, CCB becomes spearhead-Pont Brocard.Notre-Dame-de-Cenilly, St denis le Gast.p219
- CCB Quibou, Dangy, Fritz Bayerlein over-run, Pont Brocard, Notre-Dame-de-Cenilly church action. p220
- Pont Brocard, St Denis Line. p221
- La Chappelle, La Penetiere, Voltolaine Crossroads. p222
- La Chappelle action. p224
- Grimesnil road action. p225

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- COBRA bombing. p102
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22.0 Apendix 1:

22.1 Finds Register

Phase 2 - Season 2022 'Breakthrough Sites'

B2 - Pont Brocard

B4 - La Pinetiere

B6 - La Valtolaine

B5 - D610 Crossroads

B7 - La Chapelle

B8 - The D49 Grimesnil Road

[Key to the interpretation of ballistics within the register:](#)

Bullet - Fired projectile from a cartridge.

Round - Live ammunition consisting of a bullet and cartridge w/explosive propellant.

Cartridge - Shell casing from a fired round with no explosive propellant present.

'Cooked Off' - A round that has exploded due to extreme heat.

GPS Ref	Description	Rec'd	Site
002	German cartridge	Y	B2
003	Vehicle fragments x 2	Y	B2
004	Vehicle fragments x 10	Y	B2
005	Vehicle parts x 15	Y	B2
006	Iron panel, 3mm thick - armoured vehicle	Y	B2
007	Iron panel 10mm thick - armoured vehicle	Y	B2
008	Vehicle part	Y	B2
009	German water bottle cap	Y	B2
010	Fired German green flare cartridge x 2	Y	B2
011	.45 cal modern blank	Y	B2
012	Fired .30 cal re-enactment cartridge 1963 x 2	N	B2
013	Vehicle part	Y	B2
014	Vehicle part	Y	B2
017	Fired .30 cal re-enactment cartridge 1963	N	B2
018	Fired .30 cal re-enactment cartridge 1963	N	B2
020	Fired .30 cal re-enactment cartridge 1963	N	B2
021	Fired .30 cal re-enactment cartridge 1963	N	B2
022	Fired .30 cal re-enactment cartridge 1963	N	B2
023	Fired German tracer cartridge	Y	B2
024	Fired .30 cal re-enactment cartridge 1963	N	B2
025	Vehicle part	N	B2
026	Metal tube	N	B2
027	Metal ring	N	B2
028	Glass rod	Y	B2
029	American vehicle part-possible jeep part	Y	B2
030	.45 cal modern blank	Y	B2
031	Coin - 20 Francs 1952	Y	B2
032	Iron horse shoe	Y	B2
033	German armoured vehicle part	Y	B2
033a	American .50 cal bullet head, 1a	Y	B2
034	Nail	N	B2
035	Vehicle part	Y	B2
036	German motorcycle/bicycle seat	Y	B2
036a	Coil	Y	B2
037	Fired 7.62mm blank cartridge 1974	N	B2
038	Barbed wire	N	B2
039	Fired .30 cal re-enactment cartridge 1963	N	B2
040	Fired .30 cal re-enactment cartridge 1963	N	B2
041	Metal strapping - vehicle part	N	B2
042	Metal cap	Y	B2
043	Unknown metal item	N	B2
085	Unknown metal item	Y	B2
087	Fired American .30 cal cartridge	Y	B2
088	Chain and iron pin	N	B2
089	Roman coin	Y	B2
091	Post-medieval nail	N	B2

GPS Ref	Description	Rec'd	Site
092	Fired .30 cal re-enactment cartridge 1963	N	B2
093	Fired .30 cal re-enactment cartridge 1963	N	B2
094	Fired .30 cal re-enactment cartridge 1963	N	B2
095	Fired .30 cal re-enactment cartridge 1963	N	B2
096	Fired .30 cal re-enactment cartridge 1963	N	B2
097	Fired .30 cal re-enactment cartridge 1963	N	B2
098	Fired .30 cal re-enactment cartridge 1963	N	B2
099	Fired .30 cal re-enactment cartridge 1963	Y	B2
100	Fired .30 cal re-enactment cartridge 1963	N	B2
101	Fired .30 cal re-enactment cartridge 1963 x 3	N	B2
103	Enamel cup destroyed	N	B2
106	Horse shoe	N	B2
108	Chain and hook	N	B2
109	Large bolt	N	B2
111	Fired .30 cal re-enactment cartridge 1963	N	B2
112	Live 7.62mm blanks x 3 in clip	Y	B2
113	Fired .30 cal re-enactment cartridge 1963	N	B2
114	Unknown metal item	N	B2
115	Fired .30 cal re-enactment cartridge 1963	N	B2
116	Fired .30 cal re-enactment cartridge 1963	N	B2
119	Fired American .50 cal cartridge	Y	B2
120	Metal bracket - vehicle part	N	B2
121	20mm flak round with detonator	N	B2
122	Fired German flare cartridge with red band	Y	B2
124	Unidentifiable metal item	N	B2
125	Horse shoe fragment	N	B2
126	Destroyed German round	Y	B2
044	Metal strapping with hole - vehicle part	N	B4
045	Wire	N	B4
046	Metal ring, vehicle part	N	B4
050	Destroyed cartridge	Y	B4
051	American .30 cal ammo lid	Y	B4
052	Screw head	N	B4
052	Unknown metal item	N	B4
053	Horse shoe	N	B4
055	Metal strip x 3 - vehicle part	N	B4
056	Vehicle part - iron and rubber	N	B4
056	Rubber ring - vehicle part	N	B4
057	Metal strip x 3 - vehicle part	N	B4
059	Vehicle part x 2	N	B4
061	Wire	N	B4
062	Metal strip x 6 - vehicle part	N	B4

GPS Ref	Description	Rec'd	Site
063	American .30 cal ammo lid	Y	B4
065	Multiple metal strips - vehicle part	N	B4
066	Flat metal ring - possibly packing piece	Y	B4
067	Wire	N	B4
070	Metal strip x 3 - vehicle part	N	B4
071	Armoured plate fragment - vehicle part	N	B4
072	Fired American .50 cal machine gun cartridge	Y	B4
073	Bracket - vehicle part	N	B4
074	Damaged bullet x 2	N	B4
075	Nail/barbed wire	N	B4
076	Unknown metal item	N	B4
077	Electrical fitting	Y	B4
078	Horse shoe	N	B4
079	Rifle bolt	Y	B4
080	Wire	N	B4
081	Bracket - vehicle part	N	B4
082	Vehicle part	N	B4
083	Bracket - vehicle part	N	B4
084	Nail with strip attached - vehicle part	N	B4
127	Bracket - vehicle part	N	B4
128	Armoured plate - vehicle part	N	B4
129	German artillery rack for Half Track fragment	Y	B4
130	Small metal grill fragment	Y	B4
131	Metal strip - vehicle part	N	B4
132	Vehicle part x 3	N	B4
133	German round, destroyed	Y	B4
134	Unidentifiable metal item	N	B4
135	Vehicle part	N	B4
135a	Bullet tip	Y	B4
136	German bullet	Y	B4
137	Fired bullet tip	Y	B4
138	Destroyed bullet - possible German 7.92mm in MG link	Y	B4
139	German bullet	Y	B4
140	Aluminium fragment x3	N	B4
141	Destroyed unfired American .50 cal machine gun round x3	N	B4
142	German rounds cooked off x 3	Y	B4
142b	Vehicle parts x 2	Y	B4
143	German bullet	Y	B4
144	Vehicle door clasp - vehicle part	Y	B4
145	Unfired German bullet	Y	B4
146	Unfired round	Y	B4
147	Rubber fan belt- vehicle part	N	B4
148	Metal plate - electric component	Y	B4
149	German MG rounds cooked off x 5	Y	B4

GPS Ref	Description	Rec'd	Site
149a	German bullet x 3	Y	B4
149b	German MG oil container top	Y	B4
149c	German 9mm round	Y	B4
149d	German MG links destroyed x 4	Y	B4
149e	Unknown metal items x 7	Y	B4
150	German MG firing bolt	Y	B4
150a	Unknown metal items	Y	B4
150b	German MG part	Y	B4
150c	German bullet x 5	Y	B4
150d	German infantry webbing buckle and leather strap	Y	B4
150e	German MG rounds and links cooked off x 8	Y	B4
150g	Metal objects destroyed by fired x 12	Y	B4
150h	Large armoured plate x 2 - vehicle part	Y	B4
151	Tarpaulin rivet	Y	B4
152	Vehicle part	Y	B4
153	Metal clip	N	B4
155	Wire	N	B4
156	Saw blade	N	B4
157	Unfired German 7.92mm round in MG link 1938	Y	B4
158	Unfired S* German 7.92mm round 1938	Y	B4
160	Metal ring - vehicle part	N	B4
161	Light metal fragment	N	B4
162	Metal bracket - vehicle part	N	B4
163	Tank track - possible German Half Track track link	Y	B4
164	Vehicle part	N	B4
165	German helmet fragment	Y	B4
168	American 75mm solid shot anti-tank round	Y	B4
169	Vehicle part	N	B4
170	Metal strip - vehicle part	N	B4
171	Bullet	Y	B4
171a	Fired American .30 cal cartridge	Y	B4
173	Fired American .30 cal cartridge	Y	B4
174	Fired American .30 cal cartridge	Y	B4
180	Armoured iron plate - vehicle part	Y	B4
180a	Metal objects destroyed by fire x 10	Y	B4
180b	German round cooked off x 8	Y	B4
180c	German bullet x 7	Y	B4
181	German MG rounds and links cooked off	Y	B4
182	Unknown metal item	Y	B4
183	Vehicle part	Y	B4
186	Wire	N	B4
187	Vehicle part	N	B4

GPS Ref	Description	Rec'd	Site
188	German bullet	N	B4
189	Bullet tip	Y	B4
189a	Button	y	B4
189b	Rivet	y	B4
189c	Cooked off American .50 cal cartridge	y	B4
189d	Buckle	y	B4
189e	Clasp	Y	B4
190	Armoured plate - vehicle part	Y	B4
191	German infantry boot fragments	Y	B4
192	German stick grenade fuse	Y	B4
192a	German round cooked off x 4	Y	B4
192b	German bullet x 8	Y	B4
192c	German MG links destroyed by fire x 5	Y	B4
192d	Metal objects destroyed by fire x 14	Y	B4
193	Metal objects destroyed by fire x 3	Y	B4
193a	German MG links x 9	Y	B4
193b	German stick grenade fuses x 2	Y	B4
193c	German rounds and links cooked off >20	Y	B4
193d	German bullets	Y	B4
193e	German webbing buckle x 2	Y	B4
193f	German 9mm round	Y	B4
193g	German MG42 cover feed	Y	B4
193h	Vehicle part x 10	Y	B4
193i	German Sdkfz armoured car track link	Y	B4
194	Unknown metal item	N	B4
195	Vehicle part	N	B4
197	Vehicle part	N	B4
198	Destroyed German round	N	B4
199	German bullet tip	N	B4
201	Cooked off cartridge (unknown if fired and unknown size)	Y	B4
202	Small metal grill	Y	B4
203	Vehicle part	N	B4
204	Vehicle part	N	B4
205	Metal tube with rim - vehicle part	N	B4
207	Wire	N	B4
209	German MG42 barrel container	Y	B4
210	Large bracket - vehicle part	N	B4
211	German destroyed cartridge (unknown calibre)	Y	B4
212	Unfired German MG cartridge	Y	B4
213	Artillery shell base fragments x 4	Y	B4
214	Unidentifiable metal item	N	B4
215	Armoured plate - vehicle part	Y	B4
218	German artillery shell base, probably 75mm	Y	B4
219	German artillery shell carrier case for 105mm	Y	B4

GPS Ref	Description	Rec'd	Site
220	Artillery shell base	Y	B4
221	Fired American .30 cal cartridge	Y	B4
222	Bullet tip	Y	B4
223	Fired unknown cartridge	N	B4
224	Fired American .30 cal cartridge	Y	B4
225	Fired American .30 cal cartridge	Y	B4
226	Fired American .30 cal cartridge	Y	B4
227	Fired American .30 cal cartridge x 2	Y	B4
228	Small metal cog/wheel	Y	B4
229	Fired American .30 cal cartridge	Y	B4
230	Vehicle part	N	B4
231	Fired American .30 cal cartridge x 3	Y	B4
232	Bullet tip	Y	B4
233	Horse shoe	N	B4
234	German bullet	Y	B4
238	Vehicle part	Y	B4
239	Snow shoe for German Half Track SD-KFZ251	Y	B4
239a	Fired German 20mm cartridge x 2	N	B4
240	Corner of metal box	Y	B4
241	Metal strap - vehicle part	N	B4
242	Artillery shell base	Y	B4
244	Vehicle fragment x 4	N	B4
246	Bolt - vehicle part	N	B4
247	Thin metal part - vehicle part	N	B4
249	American AP solid shot with tracer	Y	B4
250	Vehicle part	N	B4
251	Rubber lining - vehicle part	N	B4
252	German flare casing, black markings	Y	B4
253	Large armoured plate	Y	B4
254	Handle	Y	B4
256	Metal ring - vehicle part	N	B4
257	Vehicle part	Y	B4
258	Metal fragment	N	B4
259	Reflector vehicle part	Y	B4
261	Unknown metal item	N	B4
263	Piece of armoured plate	N	B4
264	Unknown metal item	N	B4
267	Armoured plate - vehicle part	N	B4
268	Armoured plate - vehicle part	N	B4
269	Vehicle part	N	B4
270	Destroyed cartridge	N	B4
271	Vehicle part	N	B4
273	German 9mm bullet, broken	N	B4
275	German bullet	Y	B4
277	Cooked off German cartridge	Y	B4
280	Vehicle part	Y	B4

GPS Ref	Description	Rec'd	Site
281	German bullet destroyed	N	B4
284	Armoured plate - vehicle part	N	B4
285	Unfired German cartridge	Y	B4
286	Cooked off, destroyed, German cartridge x 27	Y	B4
286a	German bullet x 24	Y	B4
286b	German 9mm bullet x 5	Y	B4
286c	German vehicle part fragments >20	N	B4
286d	German civilian car fragment	Y	B4
286e	German melted vehicle cap	Y	B4
287	Vehicle part, burnt	Y	B4
288	Melted alloy	N	B4
289	Armoured plate - vehicle part	N	B4
290	Cooked off German machine gun cartridge x 3 with belt	Y	B4
291	Unknown metal item	N	B4
292	American .30 cal bullet	Y	B4
293	Unknown metal item	N	B4
295	Armoured plate - vehicle part	N	B4
296	Vehicle part	N	B4
298	Unknown metal item	Y	B4
299	Unknown metal item	N	B4
300	Burnt metal fragment	N	B4
301	Unknown metal item	N	B4
302	Wire	N	B4
303	Wire	N	B4
304	Destroyed cartridge	Y	B4
305	Metal ring - vehicle part	N	B4
305a	Unknown metal item	N	B4
306	Cooked off German cartridge	Y	B4
306a	Destroyed vehicle parts >30	N	B4
306b	Unfired American .30 cal bullet x 2	Y	B4
306c	Assorted metal - springs and mesh	Y	B4
306d	US rubberised fabric with 2 x American round	Y	B4
306e	Fibreboard piece	N	B4
306f	Possible burnt bone fragment x 2	Y	B4
306g	Piece of leather pouch	Y	B4
307	Vehicle parts	N	B4
308	German Half Track track	Y	B4
308a	German Zunder 35b pressure fuse (mine) x 2	Y	B4
308b	Destroyed German machine gun cartridges x10	Y	B4
308c	German bullet x 7	Y	B4
308d	Bullet proof glass fragments x 4	Y	B4
308e	Coin - 1942 French franc	Y	B4
308f	German armoured plate x 2	N	B4
308g	German vehicle part x 16	N	B4

GPS Ref	Description	Rec'd	Site
308h	ZZ35 German mine fuse	Y	B4
308i	German unfired destroyed bullets x 4	N	B4
309	Armoured plate fragment - vehicle part	N	B4
309a	Destroyed German 7.92mm round x 52	Y	B4
309b	ZZ35 German mine fuse	Y	B4
309c	Detonator unknown size	Y	B4
309d	Zunder 35b pressure fuse (mine)	Y	B4
309e	Unfired German round	Y	B4
309f	Armoured plate	Y	B4
309g	Metal strapping	N	B4
309h	Square iron plate - vehicle part	N	B4
309i	Leather fragment- boot and heel	Y	B4
310	Unknown metal item	N	B4
311	Fired .30 cal re-enactment cartridge 1963 x 2	Y	B4
312	Fired .30 cal re-enactment cartridge 1963	N	B4
313	Fired .30 cal re-enactment cartridge 1963	N	B4
314	Fired .30 cal re-enactment cartridge 1963 x 2	N	B4
315	Vehicle cap	N	B4
316	Fired .30 cal re-enactment cartridge 1963	N	B4
319	Fired .30 cal re-enactment cartridge 1963	N	B4
320	Aluminium dummy bank round	N	B4
321	Fired .30 cal re-enactment cartridge 1963 x 4	N	B4
322	Vehicle part	N	B4
323	Unfired collection of German rounds with stripper clip and fabric	Y	B4
324	Unidentifiable metal item	N	B4
325	Fired .30 cal re-enactment cartridge 1963	N	B4
326	Fired .30 cal re-enactment cartridge 1963	N	B4
327	Fired .30 cal re-enactment cartridge 1963	N	B4
328	Unfired German rounds on stripper clip x 4	Y	B4
329	Fired aluminium dummy blank rounds x 6	Y	B4
330	Fired .45 cal blank cartridge	Y	B4
331	Horse shoe	N	B4
332	Fired .30 cal re-enactment cartridge 1963	N	B4
333	Fired 75mm German exploded artillery shell	Y	B4
334	Fired .30 cal re-enactment cartridge 1963	N	B4
335	Fired .30 cal re-enactment cartridge 1963	N	B4
336	Fired .30 cal re-enactment cartridge 1963	N	B5
337	Bolt	N	B6
338	Fired .30 cal re-enactment cartridge 1963	N	B4
339	Fired .30 cal re-enactment cartridge 1963	N	B4
340	Unidentifiable metal item	N	B4
341	Aluminium dummy blank rounds x 2	N	B4
342	Fired .30 cal re-enactment cartridge 1963	N	B4

GPS Ref	Description	Rec'd	Site
343	Fired .30 cal re-enactment cartridge 1963 x 2	N	B4
344	Fired .30 cal re-enactment cartridge 1963	N	B4
347	Fired .30 cal re-enactment cartridge 1963	N	B4
348	Fired .30 cal re-enactment cartridge 1963	N	B4
349	Aluminium dummy blank round	N	B4
350	Aluminium dummy blank round	N	B4
351	German smoke canisters x 3	N	B4
352	Buckle	Y	B4
355	Metal farm equipment	N	B4
357	Nail	N	B4
358	Lead flashing	N	B4
360	Fired .30 cal re-enactment cartridge 1963 x 2	N	B4
361	Aluminium dummy blank round	N	B4
363	Fired .30 cal re-enactment cartridge 1963	N	B4
364	Fired .30 cal re-enactment cartridge 1963	N	B4
365	Fired .30 cal re-enactment cartridge 1963	N	B4
366	Destroyed German round x 7	N	B4
366a	Destroyed 20mm round	N	B4
366c	Vehicle part	N	B4
367	Aluminium dummy blank round	N	B4
368	Metal cap - vehicle part	N	B4

GPS Ref	Description	Rec'd	Site
369	Nail	N	B4
370	Fired IMI .30 cal blank cartridge 1992	Y	B4
371	Fired American .50 cal machine gun cartridge 1943	Y	B4
372	Chain	N	B4
374	PPU 30-65 SPRG cartridge x 2	Y	B4
375	Wheel balancing weight	Y	B4
375a	Armoured plate	N	B4
376	Vehicle part	N	B4
380	Jubilee clip	Y	B4
380a	Metal bracket	N	B4
382	Post med nail	N	B4
389	Metal cross - jewellery, brooch?	Y	B4
390	Gauge - vehicle part	N	B4
392	Vehicle part	N	B4
395	Vehicle part x 2	N	B4
396	Vehicle part	N	B4
398	Unfired cartridge	Y	B4
400	French medicine metal container	Y	B4
401	Aluminium tube - vehicle part	N	B4
402	Vehicle part	N	B4
1380	American .30 cal machine gun rounds x 30+	Y	B4

GPS Ref	Description	Rec'd	Site
403	Unknown metal item	N	B6
404	Destroyed German round	Y	B6
405	Spoon handle	Y	B6
407	Alloy collar	N	B6
409	Bolt head	N	B6
410	German bullet	Y	B6
412	Unknown metal item	Y	B6
413	Metal washer - vehicle part	N	B6
414	Live German round	Y	B6
417	Hub cap cap - vehicle part	Y	B6
422	German cartridge	N	B6
423	German toothpaste tube	N	B6
424	Metal strap	N	B6
425	Vehicle part	N	B6
426	Metal fragment x 3	N	B6
426a	Live German round	N	B6
427	Vehicle part	N	B6
428	German unfired flare cartridge	Y	B6
429	Metal lid edge	N	B6
430	Unknown metal item - mess tin?	Y	B6
431	Metal strap with hole	N	B6
432	Metal strap with hole	N	B6
434	Metal handle	N	B6
435	Horse shoe	N	B6
437	Live German round	Y	B6
438	Vehicle part	N	B6
439	Wire	N	B6
440	Vehicle part	N	B6
441	Armoured vehicle wheel fragment	Y	B6
442	Artillery shell base	N	B6
445	Wire and shrapnel x 3	N	B6
446	Horse bit	Y	B6
447	Fired German cartridge, possibly tracer	Y	B6
448	Fired American .50 cal cartridge	Y	B6
449	Fired German cartridge	Y	B6
451	Unfired German cartridge destroyed	Y	B6
453	Spoon shaft	Y	B6
454	9mm bullet tip	Y	B6
455	Unfired German round	Y	B6
457	German anti-personnel rifle grenade	N	B6
458	Vehicle part	N	B6
459	Metal flower	Y	B6
460	Unidentifiable metal	N	B6
461	Piece of armoured plate	N	B6
462	Wire	N	B6
463	Barbed wire	N	B6

GPS Ref	Description	Rec'd	Site
464	Unknown metal item	N	B6
465	Vehicle part	N	B6
467	Cleat - vehicle part	Y	B6
468	Wire	N	B6
469	Hub cap	Y	B6
471	Metal can key	Y	B6
473	Live German round	N	B6
475	Nail	N	B6
527	Vehicle part	Y	B6
528	Fired LC .50 cal 1943 cartridge	Y	B6
530	Unidentified metal item	N	B6
531	Vehicle part	N	B6
532	Bracket - vehicle part	N	B6
533	German gas mask respirator	Y	B6
534	Rasp/file tool	Y	B6
535	Vehicle part	N	B6
536	Vehicle part	Y	B6
537	Plough blade - agricultural	N	B6
538	Live German round	Y	B6
539	Unfired German round x 6	Y	B6
540	Metal ring - vehicle part	N	B6
541	Vehicle part x 2	Y	B6
543	Rivet	Y	B6
544	Unidentified metal item	N	B6
545	Unidentified metal item	N	B6
549	Large bracket with circular ring - vehicle part	N	B6
550	Vehicle part	N	B6
553	Metal ring	N	B6
554	Coin - French franc	Y	B6
556	Unidentified metal item	N	B6
557	Aluminium item	N	B6
558	Aluminium item	N	B6
559	Melted metal	N	B6
562	Vehicle part x 2	Y	B6
564	Aluminium item	N	B6
565	Broken light bulb - vehicle part	N	B6
566	Ammunition chest handle	Y	B6
566a	Motor cycle part x 13	Y	B6
566b	German buckle x 2	Y	B6
566c	Motor cycle fuel line - vehicle part	Y	B6
566d	Piece of rubber tyre with track	Y	B6
566e	Vehicle part x 14	N	B6
567	Corroded aluminium	N	B6
655	Armoured plate	N	B6
656	Armoured plate	N	B6

GPS Ref	Description	Rec'd	Site
657	Chain	N	B6
658	Armoured plate	N	B6
659	Armoured plate	N	B6
661	Armoured plate	N	B6
662	Chain links	N	B6
663	Armoured plate	N	B6
666	Flare cartridge, possibly German	Y	B6
667	Armoured plate	N	B6
668	Fired American .50 cal cartridge	Y	B6
669	Triangular metal plate	Y	B6
670	Chain	N	B6
671	Wire	N	B6
672	Armoured plate	N	B6
677	Nail	N	B6
686	Vehicle part	Y	B6
687	Metal strip	N	B6
691	Unidentifiable metal	N	B6
692	Unfired bullet 1937 VII - needs some research	Y	B6
694	American .50 cal chain loops for machine gun	Y	B6
696	Unfired German machine gun round with part belt	Y	B6
697	Live German round	Y	B6
698	Cartridge, unknown as damaged	N	B6
699	American stop cock for water bauser	Y	B6
700	Destroyed ammunition - unable to identify	Y	B6
702	Unidentifiable metal	N	B6
703	Corroded aluminium	N	B6
706	Fired American .50 cal 1943 cartridge	Y	B6
707	Ammunition metal crate handle	Y	B6
709	Heel plate	Y	B6

GPS Ref	Description	Rec'd	Site
710	Detonator	N	B6
711	Vehicle part	N	B6
715	Fired American .50 cal 1943 cartridge	Y	B6
716	Fired American .50 cal 1943 cartridge	Y	B6
717	Fired American .50 cal 1943 cartridge	Y	B6
718	Fired American .50 cal 1943 cartridge	Y	B6
719	Fired American .50 cal 1943 cartridge	Y	B6
722	Fired American .50 cal 1943 cartridge	Y	B6
723	Fired American .50 cal 1943 cartridge	Y	B6
726	Armoured plate	N	B6
727	Unidentifiable metal	N	B6
728	Fired American .50 cal 1943 cartridge	Y	B6
729	Fired American .50 cal 1943 cartridge	Y	B6
730	Unknown metal item	N	B6
731	Fired American .50 cal 1943 cartridge	Y	B6
774	Fired American .50 cal 1943 cartridge destroyed	Y	B6
775	German corroded bullet	Y	B6
776	Copper alloy vehicle part	N	B6
778	Large artillery spanner	Y	B6
779	German gas mask	Y	B6
780	Metal bracket	N	B6
781	German Mauser K98 rifle bolt	Y	B6
783	Exhaust - vehicle part	N	B6
784	Coin 1982	N	B6
786	Top/cap squashed	Y	B6
788	Fired American .50 cal cartridge	Y	B6
792	Armoured plate	N	B6
793	Unidentifiable metal	N	B6
794	Fired American .50 cal cartridge	Y	B6
795	Fired American .50 cal cartridge	Y	B6

GPS Ref	Description	Rec'd	Site
841	Length of fabric with holes	Y	B5
841a	Ammunition pouch, possibly American?	Y	B5
841b	German leather webbing	Y	B5
841c	Bakelite switch - vehicle part	Y	B5
843	Fired German cartridge	Y	B5
844	Live German cartridge	Y	B5
845	Fired German cartridge	Y	B5
846	Live German cartridge	Y	B5
847	Fired German cartridge	Y	B5
849	Live German round in pieces	Y	B5
850	Fired German cartridge	Y	B5
851	Fired German cartridge	Y	B5
852	Live German round	Y	B5
853	M1 carbine .30 cal cartridge	Y	B5
854	Fired German cartridge	Y	B5
855	Destroyed German cartridge	Y	B5
856	American bullet	Y	B5
856a	German rounds in clip destroyed	N	B5
857	Unfired German cartridge	Y	B5
858	Fired German cartridge x2	Y	B5
859	Fired German cartridge	Y	B5
860	Large bolt - vehicle part	N	B5
861	Small iron plate - vehicle part	N	B5
862	Butterfly valve	Y	B5
863	Fired .22 cal cartridge	N	B5
866	Fired American cartridge, destroyed	N	B5
867	American bullet, destroyed	N	B5
868	Horse shoe	N	B5
869	Unidentifiable metal	N	B5
870	Bracket and brace	Y	B5
871	Bracket - vehicle part	N	B5
872	Live German round x 6	Y	B5
872a	Live German round in clip	Y	B5
872b	German bullet x 5	Y	B5
872c	German cartridge x 4, 1 in stripper clip	Y	B5
873	Unfired German machine gun 7.92mm rounds x 10 with remains of belt	Y	B5
875	Destroyed German round	Y	B5
876	American bullet	Y	B5
879	Bakelite item	N	B5
880	Artillery travel cap	Y	B5
882	Armoured plate	N	B5
883	Fired German cartridge	Y	B5
884	Artillery shell shrapnel 75mm	Y	B5
886	Fired German round	Y	B5
887	Cattle tag/charm	Y	B5
888	Fired German cartridge	Y	B5

GPS Ref	Description	Rec'd	Site
889	Live German round	Y	B5
890	Live German round x 2	Y	B5
891	Fired German cartridge, destroyed	Y	B5
892	Unfired German round	Y	B5
893	Fired German cartridge	Y	B5
897	Fired German cartridge	Y	B5
898	Fired American .30 cal cartridge	Y	B5
899	Fired bazooka round	Y	B5
900	Vehicle part	Y	B5
901	Fired German cartridge	Y	B5
903	Fired German cartridge	Y	B5
905	Fired German cartridge, destroyed	N	B5
906	Vehicle part	N	B5
982	German artillery shell case 75 mm	Y	B5
983	Fuse collar, 46mm	Y	B5
983a	Fired German cartridge x 2	Y	B5
983b	Live German round	Y	B5
984	Fired American .50 cal cartridge	Y	B5
985	Tank piece	Y	B5
986	Travel plug and bike calliper - unknown if modern	Y	B5
987	Destroyed American .50 cal cartridge (unknown if fired)	Y	B5
988	Unidentifiable metal	N	B5
989	Spring and chain	N	B5
991	Patch of burning	N	B5
992	Exploded 75mm German artillery shell	Y	B5
993	Destroyed American .50 cal cartridge	N	B5
994	Fuse plug	Y	B5
995	Destroyed American .50 cal cartridge	Y	B5
996	Cooked off American .50 cal cartridge	Y	B5
997	French civilian window catch/stopper	Y	B5
999	Shell base 75mm	Y	B5
1000	Panzer II, possible artillery tractor track	Y	B5
1001	Fuse head	Y	B5
1002	Shell fuse ring	Y	B5
1002a	Live German round and strapping	Y	B5
1003	Live German round	Y	B5
1004	Vehicle part	N	B5
1005	Vehicle part	N	B5
1007	Destroyed 75mm shell case	N	B5
1008	Petrol can lid	N	B5
1009	Fuse cap/ring for shell	Y	B5
1010	Fuse collar	Y	B5
1012	Burnt alloy fuse head	N	B5
1013	Unfired 7.92mm German round	Y	B5
1014	American .50 cal bullet x 2	Y	B5

GPS Ref	Description	Rec'd	Site
1014a	American .30 cal bullet x 2	Y	B5
1014b	Unknown metal item x 2, valve - vehicle part and alloy collar - hose?	Y	B5
1017	American water bottle with cap, possible bullet damage	Y	B5
1018	Iron rod	N	B5
1019	Bracket	N	B5
1020	Vehicle part	N	B5
1023	Unfired 7.92mm German round	Y	B5

GPS Ref	Description	Rec'd	Site
1024	American Half Track tank track - vehicle part	Y	B5
1086	Wire	N	B5
1087	German bullet	Y	B5
1088	Destroyed German round	Y	B5
1089	Bullet	Y	B5
1090	Bolt - vehicle part	N	B5
1091	Vehicle part	Y	B5

GPS Ref	Description	Rec'd	Site
478	German rifle K78 Bolt	Y	B7
479	Vehicle part	N	B7
480	Bolt	N	B7
481	Metal disc - vehicle part	N	B7
482	Unidentifiable metal	N	B7
484	Unidentifiable metal	N	B7
485	20mm German cartridge, broken	Y	B7
486	German bullet	Y	B7
487	Destroyed German cartridge	Y	B7
488	Destroyed German cartridge	Y	B7
488a	Bakelite fragments x2	N	B7
489	Shell base	N	B7
490	Vehicle part	N	B7
492	German 20mm flak round	Y	B7
493	Fuse base, 20mm	N	B7
494	Exploded German 37mm anti-tank round cartridge	Y	B7
495	Unfired German 7.92mm cartridge, destroyed	Y	B7
496	Driving band fragment	N	B7
497	German 20mm flak round	Y	B7
498	37mm shell case	Y	B7
499	20mm German charger	Y	B7
500	Artillery shell fragment	N	B7
501	Unfired German 7.92mm cartridge, destroyed	Y	B7
502	German 20mm cartridge	Y	B7
503	Artillery shell transport piece	Y	B7
504	Vehicle part	N	B7
506	Metal fragment	N	B7
507	Large metal clamp - vehicle part	N	B7
509	American tank shot	N	B7

GPS Ref	Description	Rec'd	Site
509a	75mm shell casing (base) 'tank round' incoming	N	B7
510	Vehicle part	N	B7
510a	20mm German cartridge	N	B7
510b	Engine part	N	B7
510c	Wood nail/screws	N	B7
511	Large wing nut	N	B7
512	Nuts and bolts destroyed by fire	N	B7
513	Armoured tank plates x 2	N	B7
514	Vehicle part	N	B7
515	Bullet	Y	B7
516	Shell casing	N	B7
517	Fence post	N	B7
518	Lead fragment	N	B7
519	Vehicle part	N	B7
520	Unidentifiable metal	N	B7
523	Vehicle part	N	B7
524	Vehicle part	N	B7
525	Armature - vehicle part	Y	B7
526	Vehicle part	N	B7
570	Armoured plate - vehicle part	N	B7
573	Unfired destroyed 20mm cartridge base	Y	B7
575	Vehicle part	N	B7
578	Destroyed German 7.92mm cartridge (unknown if fired)	Y	B7
579	Live German round, destroyed	Y	B7
582	American .50 cal bullet	Y	B7
582a	American .45 cal cartridge (unknown if fired)	Y	B7
583	Press stud button	Y	B7

GPS Ref	Description	Rec'd	Site
584	Fired German cartridge	Y	B7
585	Unidentifiable metal	N	B7
586	Unidentifiable metal	N	B7
588	Live German round	Y	B7
589	German 20mm anti-aircraft bullet	Y	B7
590	Live German round	Y	B7
591	Unidentifiable metal	N	B7
592	Live German round	Y	B7
593	German gas mask piece with red number	Y	B7
593a	American .30 cal bullet, damaged	Y	B7
594	Leather boot remains, possibly German	Y	B7
595	Tiny possibly medieval coin	Y	B7
597	American 37mm solid shot anti-tank round	Y	B7
599	Napoleon III coin 1855	Y	B7
600	Horse shoe and nail	N	B7
601	20mm German round destroyed	Y	B7
604	German aluminium collar - vehicle part	Y	B7
605	Destroyed round	N	B7
606	Destroyed cartridge	Y	B7
608	Metal ring x2 - vehicle part	N	B7
610	Metal ring - vehicle part	N	B7
611	Cartridge, damaged	N	B7
612	Bolt	N	B7
614	Anti-tank round - could be high explosive	Y	B7
616	Firing band	N	B7
617	37mm shell base	N	B7
618	Horse ring	N	B7
619	Destroyed American .50 cal cartridge (unknown if fired)	Y	B7
620	Aluminium fragment with paint	Y	B7
621	Top/cap	N	B7
622	Unfired American .50 cal cartridge, destroyed	Y	B7
625	American .50 cal bullet	Y	B7
627	Bakelite stick shift knob	Y	B7
628	Nail and shrapnel	N	B7
631	Unknown metal item	N	B7
633	Clock/timer mechanism	Y	B7
635	German motor cycle part	Y	B7
639	37mm German anti-tank round	Y	B7
641	Unfired cartridge	Y	B7
642	Nail head	N	B7
643	Broken nail	N	B7
644	Aluminium	N	B7
645	Aluminium	N	B7
646	Metal ring	N	B7

GPS Ref	Description	Rec'd	Site
647	Unfired German round	Y	B7
650	Unfired German round, destroyed	Y	B7
652	American .50 cal bullet, black tip, armour piercing	Y	B7
735	Metal disc - vehicle part	N	B7
738	Unidentifiable metal	N	B7
739	Metal band	Y	B7
740	American .50 cal cartridge, unknown if fired as destroyed	Y	B7
741	American .50 cal bullet	Y	B7
742	Metal ring - vehicle part	N	B7
743	American .50 cal bullet, black tip, armour piercing (unknown if fired)	Y	B7
743a	American .50 cal bullet (unknown if fired)	Y	B7
743b	Fired American .50 cal cartridge, destroyed x 2	Y	B7
743c	American .50 cal cartridge, burnt	Y	B7
744	American .50 cal bullet ,blue tip, incendiary	Y	B7
745	American .50 cal cartridge destroyed	Y	B7
GPS Reference	Description	Recovered	Site
746	American .50 cal bullet	Y	B7
747	Spanner	Y	B7
748	American .50 cal cartridge, burnt and destroyed	Y	B7
748a	American .50 cal bullet, tracer	Y	B7
749	American .50 cal cartridge, destroyed x 2	Y	B7
750	Bakelite switch	Y	B7
751	Webbing rivet	Y	B7
752	Button/fastener	Y	B7
753	Burnt metal fragments x2	N	B7
754	American .50 cal bullet	Y	B7
755	Vehicle part	N	B7
756	Possible belt loop	Y	B7
758	American .50 cal bullet, black tip, armoured piercing	Y	B7
759	Burnt American .50 cal cartridge (unknown if fired)	Y	B7
760	Unfired American .50 cal cartridge	Y	B7
760a	American .50 cal cartridge (unknown if fired)	Y	B7
761	American .50 cal cartridge (unknown if fired)	Y	B7
762	American bullet	Y	B7
763	American .50 cal bullet	Y	B7
764	Metal fragment	N	B7
765	Exploded American .50 cal cartridge	Y	B7
766	Unfired melted belted American .50 cal cartridge	Y	B7

GPS Ref	Description	Rec'd	Site
767	American mess tin	Y	B7
773	Webbing rivet	Y	B7
826	Rivet and clasp, US webbing, x12	Y	B7
826a	2 way zip	Y	B7
826b	American .30 cal cartridge, destroyed x 2	Y	B7
827	Fired American .50 cal cartridge	Y	B7
827a	Tarpaulin half shelter metal ring	Y	B7
827b	Cooked off American .50 cal cartridge x 3	Y	B7
827c	Vehicle part	Y	B7
827d	Gun part	Y	B7
827e	American .50 cal, blue tip, incendiary	Y	B7
828	US water purification bottle	Y	B7
829	1930's Shilling	Y	B7
830	Buckle x 2	Y	B7
830a	Rivets and clasps x 6	Y	B7
831	Entrenching tool handle destroyed	Y	B7

GPS Ref	Description	Rec'd	Site
831a	Cooked off American .50 cal cartridge x 3	Y	B7
831b	American Webbing x 4	Y	B7
831c	3amp fuse	Y	B7
831d	Vehicle part	N	B7
832	Collection of burnt destroyed US webbing	N	B7
833	Cooked off American .50 cal cartridge	Y	B7
833a	Entrenching tool remains x 3	y	B7
833b	Small vehicle part, possibly switches x 4	y	B7
834	Fired American .50 cal cartridge	y	B7
834a	American .50 cal bullet	y	B7
835	Live bazooka round	N	B7
836	Collection of destroyed vehicle parts >20	N	B7
837	American .50 cal cartridges x 102	Y	B7
837a	Vehicle part	N	B7
838	Fired American .50 cal bullet	Y	B7
840	Metal strap	N	B7

GPS Ref	Description	Rec'd	Site
796	Unidentifiable metal	N	B8
798	Unknown metal item	N	B8
799	German cartridge x 2, destroyed	N	B8
801	German cartridge destroyed	Y	B8
802	Armoured plate	N	B8
803	Unidentifiable metal	N	B8
804	Unidentifiable metal	N	B8
805	Nail	N	B8
807	Vehicle part	N	B8
810	Armoured plate	N	B8
811	Metal ring x 2	Y	B8
812	Vehicle part	N	B8
813	Vehicle part	N	B8
814	Destroyed cartridge	N	B8
816	Kerosene lamp metal parts	Y	B8
817	Vehicle part	Y	B8
819	Unidentifiable metal	N	B8
820	Vehicle part	Y	B8
821	American .50 cal bullet	Y	B8
822	Aluminium metal	N	B8
823	Armoured plate	N	B8
824	Unidentifiable metal	N	B8
825	Unknown metal item x 2	N	B8
907	Armoured plate	N	B8

GPS Ref	Description	Rec'd	Site
908	Vehicle part	N	B8
910	Vehicle part	N	B8
911	Vehicle part	N	B8
912	Hook - vehicle part	N	B8
914	Bolt - vehicle part	N	B8
915	Vehicle part	N	B8
916	Iron plate- vehicle part	N	B8
917	Artillery spanner	Y	B8
918	Vehicle part	N	B8
920	German 20mm round	N	B8
921	Vehicle part	N	B8
922	American, M4 Sherman tank hatch spring - vehicle part	y	B8
923	German 20mm cartridge destroyed	Y	B8
924	Vehicle part	N	B8
928	Unfired German rounds in clip	N	B8
929	Corroded aluminium	N	B8
930	Vehicle part	N	B8
931	Box handle	N	B8
932	Machine gun cartridge	N	B8
933	Destroyed German 20mm round	N	B8
935	Metal tube - vehicle part	N	B8
936	Metal strap	N	B8
937	Vehicle part	N	B8

GPS Ref	Description	Rec'd	Site
938	Lead fragment	N	B8
939	Artillery range finding wheel - vehicle part	Y	B8
940	Destroyed German live round	Y	B8
941	Signal light - vehicle part	Y	B8
942	Fired German bullet	Y	B8
943	Unidentifiable metal	N	B8
944	Iron nail	N	B8
946	Artillery shell base fragment	N	B8
947	Vehicle part	N	B8
949	Artillery shrapnel	Y	B8
950	20mm cartridge destroyed	N	B8
951	German button	Y	B8
952	Bracket - vehicle part	N	B8
954	Roman coin	Y	B8
955	Ammunition transport stabiliser and lid	Y	B8
957	Knob - vehicle part	Y	B8
958	Alloy tube	N	B8
959	Alloy tube	N	B8
960	Destroyed cartridge	N	B8
961	Bracket - vehicle part	N	B8
962	Nail	N	B8
963	Burnt aluminium	N	B8
964	Unfired German rounds in clip	N	B8
964a	Unfired German round	Y	B8
965	German water bottle and cap	Y	B8
966	Armoured vehicle grill - vehicle part	Y	B8
967	Metal fragment	N	B8
968	Armoured plate	N	B8
969	Half Track track	Y	B8
970	Shell base	Y	B8
971	German live anti-tank rifle grenade	N	B8
972	Vehicle part	N	B8
974	Unfired German cartridge destroyed	Y	B8
975	Vehicle part	N	B8
977	Bakelite screw/nut - vehicle part	Y	B8
977a	Metal tube - vehicle part	N	B8
978	Vehicle part	N	B8
979	Fired German cartridge x 4	Y	B8
981	Unidentifiable metal	N	B8
1025	Aluminium shrapnel	N	B8
1026	American bullet	Y	B8
1027	American bullet	Y	B8
1028	American bullet	Y	B8
1029	American bullet	Y	B8
1030	American bullet	Y	B8
1031	American bullet	Y	B8
1032	American bullet	Y	B8

GPS Ref	Description	Rec'd	Site
1033	American bullet	Y	B8
1034	American bullet	Y	B8
1035	American bullet	Y	B8
1036	American bullet	Y	B8
1037	American bullet	Y	B8
1039	American bullet	Y	B8
1040	American bullet	Y	B8
1041	American bullet	Y	B8
1042	American bullet	Y	B8
1043	American bullet	Y	B8
1044	American bullet	Y	B8
1045	American bullet	Y	B8
1046	Unfired German cartridge x 2	Y	B8
1046a	American bullet	Y	B8
1048	Vehicle part	N	B8
1049	Live German round x 2 destroyed	N	B8
1050	Vehicle part	N	B8
1051	German Mauser clip	Y	B8
1051	Fired German cartridge		B8
1052	Destroyed German cartridge	Y	B8
1055	Metal fragment	N	B8
1056	Destroyed vehicle part x 8	N	B8
1056a	Destroyed mess tin	Y	B8
1057	Vehicle part x 3	N	B8
1058	Vehicle part	N	B8
1060	Spoon	Y	B8
1060a	Fired German round x 2	Y	B8
1060a	Unfired German round	Y	B8
1063	Vehicle parts x 5	N	B8
1063a	Live German round x 4	N	B8
1064	Heavily corroded wood screws x 7 - vehicle part	Y	B8
1065	Unfired German round x 12	Y	B8
1066	German round x 4	N	B8
1067	Destroyed aluminium layers	N	B8
1069	Nail	N	B8
1070	Wire	N	B8
1071	Unfired German machine gun round	Y	B8
1073	Armoured vehicle glass vision block, SDKFZ251	Y	B8
1074	Metal ring	Y	B8
1075	Steel metal tube	Y	B8
1076	German round destroyed	N	B8
1077	Vehicle part	N	B8
1078	Burnt aluminium	N	B8
1079	Bullet	Y	B8
1080	Metal ring - vehicle part	N	B8
1094	Bullet	Y	B8

GPS Ref	Description	Rec'd	Site
1095	American .50 cal bullet	Y	
1096	American .50 cal bullet	Y	
1098	Ointment tube	Y	
1099	Vehicle part	N	
1101	German bullet destroyed	N	
1102	Large nail	N	
1103	Nail	N	
1104a	Nail	N	
1105	Nail	N	
1106	German Half Track tank snow shoe	Y	
1107	Shell case, German Hummel 150mm SP	Y	
1108	Fired American .50 cal cartridge	Y	
1108a	Unfired German round	Y	
1109	Bolt	N	
1110	Vehicle arm spacer SDKFZ222	Y	
1111	Vehicle part	Y	
1112	Bolt - vehicle part	N	
1113	O-ring - vehicle part	N	
1115	Fired German cartridge	Y	
1060	Spoon	y	B8
1060a	Fired German round x 2	Y	B8
1060a	Unfired German round	Y	B8
1063	Vehicle parts x 5	N	B8
1063a	Live German round x 4	N	B8
1064	Heavily corroded wood screws x 7 - vehicle part	Y	B8
1065	Unfired German round x 12	Y	B8
1066	German round x 4	N	B8
1067	Destroyed aluminium layers	N	B8
1069	Nail	N	B8
1070	Wire	N	B8
1071	Unfired German machine gun round	Y	B8
1073	Armoured vehicle glass vision block, SDKFZ251	Y	B8
1074	Metal ring	Y	B8
1075	Steel metal tube	Y	B8
1076	German round destroyed	N	B8
1077	Vehicle part	N	B8
1078	Burnt aluminium	N	B8
1079	Bullet	Y	B8
1080	Metal ring - vehicle part	N	B8
1094	Bullet	Y	B8
1095	American .50 cal bullet	Y	B8
1096	American .50 cal bullet	Y	B8
1098	Ointment tube	Y	B8
1099	Vehicle part	N	B8
1101	German bullet destroyed	N	B8
1102	Large nail	N	B8

GPS Ref	Description	Rec'd	Site
1103	Nail	N	B8
1104a	Nail	N	B8
1105	Nail	N	B8
1106	German Half Track tank snow shoe	Y	B8
1107	Shell case, German Hummel 150mm SP	Y	B8
1108	Fired American .50 cal cartridge	Y	B8
1108a	Unfired German round	Y	B8
1109	Bolt	N	B8
1110	Vehicle arm spacer SDKFZ222	Y	B8
1111	Vehicle part	Y	B8
1112	Bolt - vehicle part	N	B8
1113	O-ring - vehicle part	N	B8
1115	Fired German cartridge	Y	B8
1116	Wood screw	N	B8
1117	unidentifiable metal item	N	B8
1118	Mess tin fragment	Y	B8
1119	American .30 ammunition tin lid	N	B8
1120 c, d,e,h,o	Heavy vehicle tyre fragment x 4	Y	B8
1120 a, g,k,n,r	Destroyed cooked off German round	Y	B8
1120bi	German bullet x 42	Y	B8
1120c	Destroyed vehicle part x 15	N	B8
1120d	Burnt rubber	N	B8
1120e	Melted vehicle part x 88	N	B8
1120 f,j,l,m	75mm cooked off shell base	Y	B8
1120g	Melted cooked off German round	Y	B8
1120h	Armoured plate x 29	N	B8
1120i	German 9mm bullet x 2	Y	B8
1120j	Fuse	N	B8
1120k	37mm German shell base	Y	B8
1120l	Blank cartridge x 2, melted	N	B8
1120m	75mm exploded shell base	Y	B8
1120n	Fired destroyed German round x 12	N	B8
1120o	Alloy grill	Y	B8
1120p	Unknown metal item	Y	B8
1120q	Bullet proof glass shard x 5	Y	B8
1120r	German 37mm cooked off anti-tank round, destroyed, x 2	Y	B8
1121	Vehicle part	N	B8
1123	Metal strip - vehicle part	N	B8
1124	Horse ring	N	B8
1126	37mm anti-tank round	Y	B8
1127	Nail	N	B8
1128	German Half Track tank snow shoe	Y	B8
1128a	Bulletproof glass	Y	B8
1129	Vehicle part	N	B8

GPS Ref	Description	Rec'd	Site
1095	American .50 cal bullet	Y	B8
1096	American .50 cal bullet	Y	B8
1098	Ointment tube	Y	B8
1099	Vehicle part	N	B8
1101	German bullet destroyed	N	B8
1102	Large nail	N	B8
1103	Nail	N	B8
1104a	Nail	N	B8
1105	Nail	N	B8
1106	German Half Track tank snow shoe	Y	B8
1107	Shell case, German Hummel 150mm SP	Y	B8
1108	Fired American .50 cal cartridge	Y	B8
1108a	Unfired German round	Y	B8
1109	Bolt	N	B8
1110	Vehicle arm spacer SDKFZ222	Y	B8
1111	Vehicle part	Y	B8
1112	Bolt - vehicle part	N	B8
1113	O-ring - vehicle part	N	B8
1115	Fired German cartridge	Y	B8
1060	Spoon	y	B8
1060a	Fired German round x 2	Y	B8
1060a	Unfired German round	Y	B8
1063	Vehicle parts x 5	N	B8
1063a	Live German round x 4	N	B8
1064	Heavily corroded wood screws x 7 - vehicle part	Y	B8
1065	Unfired German round x 12	Y	B8
1066	German round x 4	N	B8
1067	Destroyed aluminium layers	N	B8
1069	Nail	N	B8
1070	Wire	N	B8
1071	Unfired German machine gun round	Y	B8
1073	Armoured vehicle glass vision block, SDKFZ251	Y	B8
1074	Metal ring	Y	B8
1075	Steel metal tube	Y	B8
1076	German round destroyed	N	B8
1077	Vehicle part	N	B8
1078	Burnt aluminium	N	B8
1079	Bullet	Y	B8
1080	Metal ring - vehicle part	N	B8
1094	Bullet	Y	B8
1095	American .50 cal bullet	Y	B8
1096	American .50 cal bullet	Y	B8
1098	Ointment tube	Y	B8
1099	Vehicle part	N	B8
1101	German bullet destroyed	N	B8
1102	Large nail	N	B8

GPS Ref	Description	Rec'd	Site
1103	Nail	N	B8
1104a	Nail	N	B8
1105	Nail	N	B8
1106	German Half Track tank snow shoe	Y	B8
1107	Shell case, German Hummel 150mm SP	Y	B8
1108	Fired American .50 cal cartridge	Y	B8
1108a	Unfired German round	Y	B8
1109	Bolt	N	B8
1110	Vehicle arm spacer SDKFZ222	Y	B8
1111	Vehicle part	Y	B8
1112	Bolt - vehicle part	N	B8
1113	O-ring - vehicle part	N	B8
1115	Fired German cartridge	Y	B8
1116	Wood screw	N	B8
1117	unidentifiable metal item	N	B8
1118	Mess tin fragment	Y	B8
1119	American .30 ammunition tin lid	N	B8
1120 c, d,e,h,o	Heavy vehicle tyre fragment x 4	Y	B8
1120 a, g,k,n,r	Destroyed cooked off German round	Y	B8
1120bi	German bullet x 42	Y	B8
1120c	Destroyed vehicle part x 15	N	B8
1120d	Burnt rubber	N	B8
1120e	Melted vehicle part x 88	N	B8
1120 f,j,l,m	75mm cooked off shell base	Y	B8
1120g	Melted cooked off German round	Y	B8
1120h	Armoured plate x 29	N	B8
1120i	German 9mm bullet x 2	Y	B8
1120j	Fuse	N	B8
1120k	37mm German shell base	Y	B8
1120l	Blank cartridge x 2, melted	N	B8
1120m	75mm exploded shell base	Y	B8
1120n	Fired destroyed German round x 12	N	B8
1120o	Alloy grill	Y	B8
1120p	Unknown metal item	Y	B8
1120q	Bullet proof glass shard x 5	Y	B8
1120r	German 37mm cooked off anti-tank round, destroyed, x 2	Y	B8
1121	Vehicle part	N	B8
1123	Metal strip - vehicle part	N	B8
1124	Horse ring	N	B8
1126	37mm anti-tank round	Y	B8
1127	Nail	N	B8
1128	German Half Track tank snow shoe	Y	B8
1128a	Bulletproof glass	Y	B8
1129	Vehicle part	N	B8
1130	Fired American .50 cal cartridge	Y	B8

GPS Ref	Description	Rec'd	Site
1136	Nail	N	B8
1137	German bullet	Y	B8
1138	Unidentifiable metal item	N	B8
1139	Nail	N	B8
1140	Nail	N	B8
1141	Unidentifiable metal item	N	B8
1143	Wire	N	B8
1143a	Vehicle part	N	B8
1144	Nail	N	B8
1144	Unknown metal item	Y	B8
1144	Modern metal item	N	B8
1146	Fired American cartridge	Y	B8
1147	Bolt - vehicle part	N	B8
1148	Tank hatch spring - vehicle part	Y	B8
1150	Vehicle part	N	B8
1151	Chain	N	B8
1152	Destroyed German round	Y	B8
1157	American bullet	Y	B8
1158	Unfired American round	Y	B8
1159	American bullet	Y	B8
1160	Glass	N	B8
1161	American	Y	B8
1162	Leather boot	Y	B8
1163	American hand grenade	N	B8
1165	Webbing	Y	B8
1166	Armoured plate - vehicle part	N	B8
1167	German bullet	Y	B8
1168	American bullet	Y	B8
1169	American bullet	Y	B8
1170	Destroyed American round	Y	B8
1171	Destroyed American round	Y	B8
1172	German bullet	Y	B8
1173	Destroyed American round	Y	B8
1174	Destroyed American round	Y	B8
1175	Destroyed American round	Y	B8
1176	Destroyed American round	Y	B8
1177	Destroyed American round	Y	B8
1178	American bullet	Y	B8
1179	Unfired American round	Y	B8
1180	American bullet	Y	B8
1181	American bullet	Y	B8
1182	American bullet	Y	B8
1183	Destroyed American round	Y	B8
1184	American bullet	Y	B8
1185	American round	Y	B8
1186	37mm shell base	Y	B8

GPS Ref	Description	Rec'd	Site
1187	Destroyed American round	Y	B8
1188	Coin - Napoleonic	Y	B8
1189	American bullet	Y	B8
1190	German bullet	Y	B8
1192	Unidentifiable metal item	N	B8
1193	Unidentifiable metal item	N	B8
1194	US webbing clip	Y	B8
1195	Unknown metal item	Y	B8
1199	Bolt - vehicle part	N	B8
1201	Armoured plate - vehicle part	N	B8
1202	German bullet	Y	B8
1203	Unknown metal item	N	B8
1205	American bullet	Y	B8
1206	9mm German bullet	Y	B8
1208	Bracket - vehicle part	N	B8
1209	Armoured plate - vehicle part	N	B8
1210	American bullet	Y	B8
1211	American round	Y	B8
1212	Fired American .50 cal cartridge	Y	B8
1213	German bullet	Y	B8
1214	Vehicle part	N	B8
1215	German bullet	Y	B8
1216	Vehicle part	N	B8
1218	Nail - vehicle part	N	B8
1219	Armoured plate - vehicle part	N	B8
1220	Coin	Y	B8
1231	Armoured plate - vehicle part	N	B8
1236	Metal ring - vehicle part	N	B8
1238	Nail - vehicle part	N	B8
1239	Big nail - vehicle part	N	B8
1242	Nail - vehicle part	N	B8
1243	American bullet	Y	B8
1244	German bullet tip	Y	B8
1247	Nail - vehicle part	N	B8
1248	Weight disc	N	B8
1249	Metal pole	N	B8
1255	American bullet	Y	B8
1256	Coin	Y	B8
1260	Metal hook - vehicle part	N	B8
1272	American .50 cal bullet	Y	B8
1276	Unidentifiable metal item	N	B8
1277	Chain	N	B8
1280	Armoured plate - vehicle part	N	B8
1281	Bolt - vehicle part	N	B8
1284	Nail	N	B8
1285	German bullet	Y	B8

GPS Ref	Description	Rec'd	Site
1288	Hook - vehicle part	N	B8
1289	Roman pot base	Y	B8
1290	Bolt - vehicle part	N	B8
1291	Destroyed unknown round	Y	B8
1292	Wire	N	B8
1293	Wire	N	B8
1295	Fuse head	Y	B8
1296	American bullet	Y	B8
1297	Coin	Y	B8
1298	Nail - vehicle part	N	B8
1300	American bullet	Y	B8
1301	German bullet	Y	B8
1302	American bullet	Y	B8
1303	American bullet	Y	B8
1304	Horse shoe	N	B8
1306	German bullet	Y	B8
1307	American bullet	Y	B8
1308	German bullet	Y	B8
1309	German bullet	Y	B8
1312	American bullet	Y	B8
1313	American bullet	Y	B8
1314	Bullet	Y	B8
1315	German bullet	Y	B8

GPS Ref	Description	Rec'd	Site
1316	American bullet	Y	B8
1317	American bullet	Y	B8
1318	Destroyed unknown round	Y	B8
1324	German button	Y	B8
1325	Nail	N	B8
1326	Nail	N	B8
1327	Tank tread	Y	B8
1328	Alloy collar	Y	B8
1330	American bullet	Y	B8
1331	American bullet	Y	B8
1333	Metal strip - vehicle part	N	B8
1334	Unknown metal item	Y	B8
1336	Live German round	Y	B8
1337	German bullet	Y	B8
1338	Coin	Y	B8
1339	Unknown metal item	y	B8
1340	Destroyed American round	Y	B8
1341	American bullet	Y	B8
1342	Agricultural metal item	N	B8
1343	American .50 cal bullet	Y	B8
1353	Bullet	Y	B8