Operation Undergo – Gris Nez

Campaign Design

Designed and Created by Rtdood

Contents

Purpose

This booklet is aimed to help explain the triumphs, failures, difficulties, and solutions that went into the creation of this campaign. Some of the information provided may contain minor spoilers for anyone that has not yet played it through, as it includes information about the axis order of battle that is not alluded to in the campaign briefing in any great detail.

I have also created this booklet this to help explain the way I have designed the campaign and to give a greater understanding about decisions that have been made as a result. It is not all encompassing, and whilst I would like budding campaign designers to gain something from taking the time to read this, I must ultimately direct them to Jon Sowdens valuable resource The *Sheriff of Oosterbeek: A Scenario Design DAR/AAR.* An excellent resource, it helps explain how to make a truly engaging scenario.

At the Beginning

I did a small amount of research back in 2016, knowing that I wanted to create a scenario which replicated the efforts made by Commonwealth forces in some lesser-known operations, and was enticed by the allied actions against the channel ports in 1944. I was drawn to Canadian efforts, as part of Operation Undergo, to take on the sizable German garrison at Cap Gris Nez. I also wanted the scenario to be as historical as possible and eagerly set about researching the allied and German order of battle and began designing the map in earnest which now forms the Northern Master Map.

I envisioned it as being one large scenario. This included establishing the terrain heights, map features and I even completed some of the unit placements. It turns out however once this was completed that my CPU nearly went into meltdown when processing all the command actions once the scenario had loaded! Thus, sadly it was not a playable scenario. I do have to admit however that waiting 2-3 minutes to see a 150mm artillery gun fire its shell 4km to its target was well worth it!

Figure 1: Master Map showing the northern sector that the player will fight through. Map dimensions: 4.5km x 2.8km. There is always something beautiful looking at the expanse of a huge map.

Still having the commitment and interest, I decided had to go back and essentially break down the map into smaller sections which meant the campaign format would be the best way to document the players progression, whilst still keeping the units involved. This is not an easy task to complete, as I realised in order to keep line of sight for units placed at distance (i.e., Anti-Tank guns) parts of enemy map positions would essentially overlap. This means the player would be going over some of the terrain from the previous battle, which does not make it very exciting. I therefore decided to break some of the map sections down even further to 1km x 1km approximate margins. This frontage worked well as it could be assigned to an individual company. This is a lot easier to manage and helps ensure each scenario has a new map area.

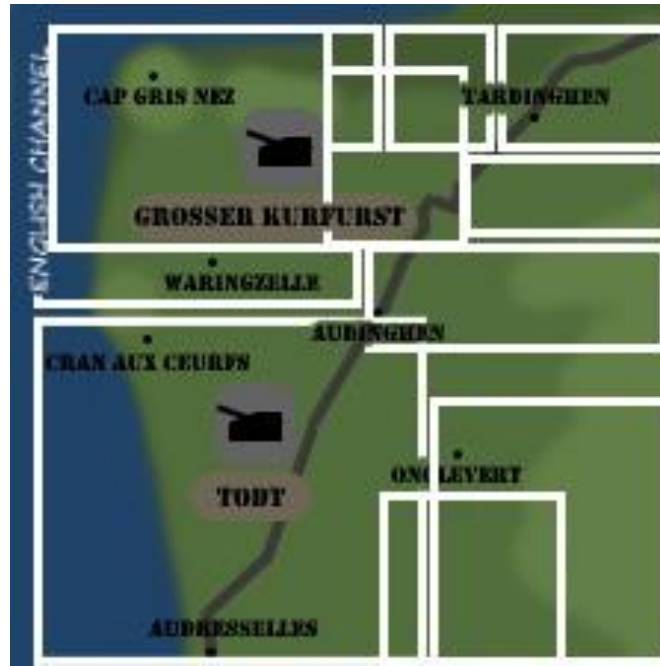Thus, what was 2 massive master maps became 11 smaller ones.

Figure 2: Example of how the Campaign Area (including Northern and Southern Master Maps) has been divided down into smaller scenario areas. Despite my efforts some map areas still overlap slightly.

The extra work dividing the master map had its benefits which would otherwise have been completely missed. Having smaller maps meant that I could concentrate more on adding specific details to each map from additional favour objects. It also gave greater sense to the perspective of playability and additional time which could be applied for research.

The original scenario comprised, albeit in a rough state, the axis order of battle as it was in August of 1944. This included nearly 2 Grenadier Battalions, a full light and heavy AA platoon, 2 Kriegsmarine Schiffstamm Battalions and numerous fortifications. When placed against Canadian forces (2 infantry battalions) it was evidently clear the player would have exhausted his forces by casualties alone before even making it to the garrison. I certainly wanted a challenging scenario, but this would be just unwinnable! (Historically it is reckoned the Canadians would have needed at least 2 to 3 Infantry Brigades if this were to be a winnable phase of the operation against such stubborn resistance).

I therefore had to go back to the drawing board and think again, and I am glad. It forced me to re-examine my sources covering another very, very important point: Research.

Problem Solving Research: Balancing History & Gameplay

The original research I did highlighted the difficulty of obtaining additional sources of information and that it was in reality sometimes contradictory.

For example, for the Germans, elements of 115th Grenadier Regiment were located across all the strongpoints featured in the campaign in August of 1944, but no records document if they were still positioned here afterwards. I therefore had to delve deeper for information. From here it became apparent that 115th although superbly placed for defensive operations, was hastily mobilised and moved south on 28th August to counter allied movements elsewhere.[1] The next question was, who, if anyone, took over these interior positions on the Gris Nez peninsula.

From the account of the Northern France Campaign by General Major, Carl Wahle, of the 47th Infantry Division (to which the 115th belonged) I know that the sector positions were taken over by the 60th Infantry Division.[2] Canadian sources confirm that units of the 60th were encountered at Calais, suggesting that the division covered the entire Calais area and may or not have covered all the positions in their entirety as previously occupied by the 115th. There is however an important anomaly.

The anomaly is that the 60th Infantry Division did not seemingly exist on paper in 1944. I was able to find out that it was destroyed in Stalingrad in 1943 and was reformed under a new name called *Panzer-Grenadier-Division Feldherrnhalle* later that same year. It was then destroyed at Minsk July 1944 before being reformed as *Panzer-Division Feldherrnhalle* in November.[3] One could assume it is likely between these times that the force was reforming and undergoing refit, albeit not in an active state in the Calais sector, and as such, served as a piecemeal under-strength formation during the period.

Then again, Axis History state that *panzergrenadier-division-feldherrnhalle*, formed in southern France in 1943 and then saw action on the eastern front until October of 1944.[4] This is contrary to the formation being in northern France in September. The only explanation is I can think of is that either not all units from the 60th initially formed part of *Panzer-Grenadier-Division Feldherrnhalle* suggesting some remained in the Calais area, perhaps due to poor fitness or lack of transport. More likely is that *Feldherrnhalle* was indeed refitting out in the Calais area and that to some generals the formation was still known as the 60th.

This also provided solutions which could then be used to my advantage in making the campaign playable and giving Canadian forces a chance at seizing Gris Nez. I set about replacing the 115th grenadier battalions with that of a single Grenadier Ersatz battalion, essentially an all-rifle battalion with the formation quality setting of 'poor' to reflect a refitting unit that is not fully up to strength such as the 60th. I then set about cutting the number of troops at each position down. This is more realistic as an understrength division being reformed would likely lack sufficient troops to occupy all positions in the same quantity. In the

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[1] Report on the Northern France Campaign (26 August – 4 September 1944), Generalmajor Carl Wahle

[2] Ibid.

[3] http://www.lexikon-der-wehrmacht.de/Gliederungen/Infanteriedivisionen/60ID-R.htm

[4] https://www.axishistory.com/books/150-germany-heer/heer-divisionen/4142-panzergrenadier-division-feldherrnhalle

campaign just 1 Grenadier Ersatz battalion is deployed rather than 2 Grenadier battalions as previously designed.[5]

Reducing the troop concentrations also needed to be done and highlights two points which are likely to be most critical of the whole campaign: lack of AI plans and also, prime emphasis on preserving allied casualties. As the assault on Gris Nez took place across 1 day there is no room for replenishment of troops, meaning the player has to be careful in managing his forces keeping casualties down a minimum across all scenarios. This is pretty extreme given the number of times any same company features across the campaign. Ideally, I should have split the campaign to cover the other Canadian battalions fighting over at Calais which would better help tell the story of the entire operation. Oh, how hindsight is a wonderful thing!
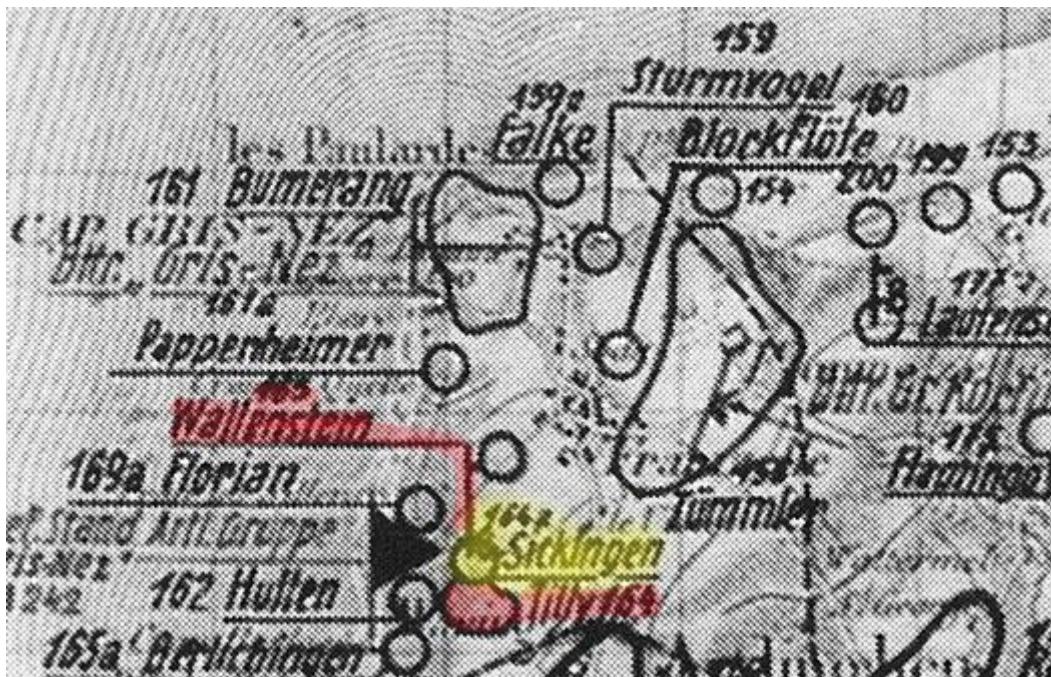

Figure 3: German defensive map showing just how truly dense the German resistance nests were around Gris Nez.

Ammunition supply is also an aspect about the campaign I wanted to incorporate but had to tweak after testing. Squads tended to expend a lot of ammunition during any single scenario and negating resupply between battles meant the player would need to manually do this for the next battle that the same units appear on. Whilst I think this is an important feature to get to know how to use in Combat Mission it can be frustrating for the player to resupply all the units before or during the battle. I therefore decided that for the majority of battles, particularly the larger scenarios, units would be fully resupplied beforehand.[6] For the remaining scenarios I left units with 50% resupply chance. This was chosen to help replicate that due to the speed of the advance not all units would have the possibility of being resupplied before moving to the next objective.

The reduction of troops meant AI plans had to be cancelled or severely reduced. Admittedly this is disappointing and severely reduces the re-playability value of the campaign. But it is

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[5]I did experiment setting different headcounts for Grenadier battalions. However, doing so anywhere from 80-50% strength meant the remainder still tended to spawn with MG's and GW43's. Obviously this can really effect the tide and flow of battle adversely for the player.

[6] This is also important as I realised grenades cannot be acquired on map unlike ammunition.

also, in a way, historical. The Germans at Gris Nez did not put up much of a fight, many being blind drunk and others surrendering at first available opportunity. No German counterattacks, or tactical retreats are documented in any of the source material I have consulted. Many soldiers knew they were deeply cut off from German lines and consequently moral was low. Given the sheer number of dug-in defences that the Germans had, it greatly concerned the allies that if they adopted a stern defensive stance, then it would be catastrophically devastating for the operations success. Fortunately, some AI plans remain.

  A key point I struggled on is the victory calculations. I wanted the campaign to reflect the preservation of causalities whilst also measuring territorial gain for the allies so that the player remains to see the campaign through to completion. Adding additional points of measure such as unit and terrain objectives, with the option of parameters helps in delivering different outcomes for the player. Such outcomes would be measured as total, tactical, minor, and major victory/defeat although the smaller map sizes presented a challenge in this regard. Learning from Jon Sowdon's AAR design book, I experimented with setting specific unit objectives, to help give more accurate casualty reporting rather than the win or lose all casualty percentage points that can be awarded (as it currently stands).

A couple of problems resulted in this method: one is that this works more for the smaller battles as individual units can be weighted but in larger battles with more unit types the limit on unit objectives makes this difficult (only 7-unit objectives can be selected for any 1 scenario). Second, as I experienced with my own testing, if a tank became immobilised the Germans were only awarded 1 point when 30 points had been set for the unit to be destroyed. I felt at least be half of the total allotted points should have been awarded, reason being the tank becomes of little value to the player given it is unable to move up and cannot support the advance of the infantry.

Thus, I opted for the casualty parameters. I cannot say I am fully happy with the victory calculation system as it stands currently but am open for helpful suggestions on how this could be improved in the future. Acknowledgement must be made that using the victory calculator by Ithikial was very useful in reviewing hypothetical player results.

	THE COMBAT MISSION VICTORY CALCULATOR								
2	Designed by Ithikial		Hover your mouse over cells to see what values you enter in each cell.						
3	If you notice a possible bug or error, please PM Ithikial_AU on the Battlefront forums.								
4		Blue Force					Red Force		
5	Number	Type	Title	Assigned Points	Points Scored		Number	Type	Title	Assigned Points	Points Scored
6	Terrain Objective 1	Occupy	Zuphen	300	300		Terrain Objective 1	Occupy	Zuphen	300	
7	Terrain Objective 2	Occupy	Bridge	150	150		Terrain Objective 2	Occupy	Bridge	150	
8	Terrain Objective 3	Occupy					Terrain Objective 3	Occupy			
9	Terrain Objective 4	Occupy					Terrain Objective 4	Occupy			
10	Terrain Objective 5						Terrain Objective 5				
11	Terrain Objective 6						Terrain Objective 6				
12	Terrain Objective 7						Terrain Objective 7				
13	Terrain Objective 8						Terrain Objective 8				
14	Unit Objective 1	Destroy					Unit Objective 1				
15	Unit Objective 2	Destroy					Unit Objective 2				
16	Unit Objective 3	Destroy					Unit Objective 3				
17	Unit Objective 4	Destroy					Unit Objective 4				
18	Unit Objective 5						Unit Objective 5				
19	Unit Objective 6						Unit Objective 6				
20	Unit Objective 7						Unit Objective 7				
21	Parameter 1	Enemy Casualties					Parameter 1	Enemy Casualties		200	200
22	Parameter 2	Enemy Condition					Parameter 2	Enemy Condition			
23	Parameter 3	Enemy Ammo					Parameter 3	Enemy Ammo			
24	Parameter 4	Friendly Casualties		200			Parameter 4	Friendly Casualties			
25	Parameter 5	Friendly Condition					Parameter 5	Friendly Condition			
26	Parameter 6	Friendly Ammo					Parameter 6	Friendly Ammo			
27	Bonus				0		Bonus				
28										
29	Total			650	450		Total			650	200
30			Proportion of Points Achieved		69.2%				Proportion of Points Achieved		30.8%
31										
32										
33	Victory Level			2.19047619							
34	Battle Result		TACTICAL VICTORY				<- Degree of victory for whichever side has the highest overall 'Points Scored' value listed above.				
35	Note: Results above apply to which ever side has the highest in point score.									

Figure 4: Ithikial's excellent scenario creation resource is a must for anyone looking to weigh up different victory and defeat options.

Set-up zones in each battle are remarkably accurate to the starting positions each infantry company had the beginning and followed during the operation. This means the map that each company progresses through is true to the journey that actual company took in 1944. There are still some small differences, however. The first difference is that on the North Nova Scotias front, the attack on Onglevert took place from the south west from Zuphen before C and D Companies swung north west towards Cran Aux Cuerfs. In the campaign however, the attack on Onglevert comes directly from the south. It is also not clear if the battalion attacked the radar station located nearby, although it is possible this position was abandoned.[7]

The second key difference is that the attack on Tardinghen, made by D Company of the Highland Light Infantry, came from the south east, as opposed to the north east as is depicted in game. This positioning was made in error, as I based the idea that the battalion would need the coastal road for the amour to move against the battery. To combat this mistake, in late development I added a deployment zone further south to give the player the option of attacking the village from this direction.

The best Combat Mission campaigns offer different scenarios that branch out from the main story of the campaign. They offer the player the chance to follow scenarios in historical order whilst also offering the chance to later alter the course of the campaign, so it becomes ahistorical, introducing new outcomes and scenarios as a result. I explored the idea to replicate this here however realised creating a campaign off a single battle against static enemy forces offered poor opportunity to do so. Still, a limited attempt was made (consult page 10 for more on this). The branching within involves minor alternations to enemy units and features a battle where a company reserve is committed.

Intelligence strength was a mechanic which I also experimented with in the scenarios, as this could provide locations of enemy units with on map locations at the start of the engagement for the player's benefit. The downside to this is that it is entirely random, meaning any unit could be identified and I wanted there still to be a decent amount of surprise and fog of war for the player about what units he could encounter and where on the map. Another matter of consideration was that the briefings already had a decent amount of information presented so I figured that it would be best to remove the intelligence strength buff for the player as it negates this. Still, an easier difficulty level can always be selected for increased information if the player wishes. My own testing of the campaign was completed on 'Iron' difficulty.

Pathfinding issues have been corrected with more passable terrain for infantry. Despite my best efforts there is a small chance that some infantry may become stuck on jagged bocage resulting in the section becoming split. Part of the section would remain behind while others were able to navigate through to the next waypoint beyond the bocage. The best way to avoid this is to set a waypoint just behind the section thus allowing them to form up and move together. Some troops are able to 'unstuck' themselves without this method to re-join although this is occasional. Placing waypoints reasonably close together helps not only ensure adequate soldier spacing within a section but also helps with terrain pathfinding.

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[7] Consult 10. Flugmelde-Leit-Kompanie, III. Abteilung, Luftnachrichten-Regiment 52 section on the next page.

Figure 5: Note above how spread the section has become as a result of crossing long distances between waypoints. The bocage and other terrain features can exacerbate this further to the players detriment, although this can also work to the players advantage in some situations.

Figure 6: Helpful waypoint positions to aid pathfinding around terrain features. Note how the section has become split, as indicated by the gap caused by the jagged bocage to the left. The waypoint directly behind will allow them to regroup. Waypoints should also be near passable terrain, thus allowing a unit to follow the players preferred avenue of approach. This is particularly important in urban environments.

I did contemplate using Target Reference Points (TRP), on some of the maps to aid the player however decided against the idea for the most part. This is because I believe the benefits of a TRP in CM are relatively minor in scope, and most artillery in the campaign is meant to be used as pre-planned bombardments, the effects of which negate a TRP if ordered in the set-

up phase. That is not to say there are small benefits to having them included but I do not believe game play will be adversely affected without.

Although the branching featured in the campaign is minor, mainly consisting of small force variations, I compiled a rough order to the slightly more historical route at each variation. For example, at Tardighen there was no reinforcements sent from Mont de la Mottelette, meaning the player would need to claim victory in *Mont de la Mottelette* for the near historical outcome '*Tardinghen*' to be played. Likewise, *Mont aux Loups* would need to be seized on the first attempt, avoiding *If at First You Don't Succeed* as it is likely C Company was deployed further south closer to B Company historically.

The battle titled *Audinghen* is also slightly more historically accurate than *The Rat Catchers* because of there being no AT present. In *The Rat Catchers* scenario, the single AT gun has been placed there on the basis it was moved up from its actual position - depicted correctly in *If at First You Don't Succeed*. In *Audinghen* the player will not have this unit to contend with making the approach with tanks much safer. In terms of battle order, if the player does play through *If at First You Don't Succeed*, they will play *Audinghen*, without the gun present as supposedly it has already been taken care of by the player. No tanks were actually lost to AT fire that I can recall at time of writing, and the heavy guns used by the Germans were not actually mobile instead being fixed in static positions. It is likely the Highland Light Infantry of Canada (HLI) passed through Audinghen as it is doubtful Germans occupied the ruins of the village at the time.

The final option battles in the line-up of the campaign are 'The Last Withering's'. One option gives the player the opportunity to continue with all his remaining forces without refit whilst the other provides refit but only with the HLI and the tank units that were assigned in the HLI sector. The North Nova Scotia's (NNS) did not feature in seizing the Grosser Kurfurst battery, instead halting at Todt once the battery there had been taken. This might have been because Grosser Kurfurst was already likely to be captured by the HLI by the time the NNS was clearing Todt (timings differ as to the correct time it was seized) but it is still doubtful the NNS could been committed given that they were already assigned to the south.

The option of presenting the player with two force composition options for the final battle was a very late-stage development. This was based on my own testing as by this stage of the campaign it could be very narrow if the player would have the forces available to ensure victory without refit. For example, one test resulted in strength of the HLI prior to the final battle as being: A co 91%, B co. 65%, C co. 100% and D co. 67%, averaging about 80% battalion manpower (this is with a small amount of careless decision making on some of the battles previous for D and B companies respectively AND without *If at First You Don't Succeed* being played). It was possible to win the final battle with support from the remaining tanks but without them I believe the player would seriously struggle.

It is important as a campaign scenario designer to remember that other players may not fare so well. The reality is that the HLI cleared the way with little casualties, the majority being inflicted at the battery, so it made sense to present the player with the opportunity for refit prior to attacking the battery if they so choose.

As previously mentioned, researching material proved challenging. From what I have discovered the campaign order of battle has been matched as closely as to what there was historically. Additional notes have been added to give further explanation which otherwise could not be added in the design or briefing notes.

Order of Battle

Axis:

60th Infantry Division

Elements depicted in game as: 1 Grenadier Ersatz Battalion (depleted strength).

Landesschützenbataillon 302/IV

This unit carried out various security duties and typically did not see front line service. In April of 1942 it was responsible for the defence of Luftwaffe radar stations in the Pas-de-Calais area. It may have been attached to the 302nd Infantry Division but was perhaps exempt from redeployment east to Russia at the beginning of 1943 - unlike the rest of the division. The only trace of the battalion in the Calais sector in 1944 is at Mont Malassis and Mont de la Mottelette, having only a full platoon strength presence, and as such, feature in those scenarios.

115th Grenadier Regiment

A small understrength Grenadier platoon appear as remnants from the 115th Grenadier Regiment, together with a couple of light 20mm Anti-aircraft guns which have been left behind to simulate the lack of available transportation that prevented movement east with the rest of the 47th Infantry Division. Some of these units have also had their fitness settings reduced to reflect them being unfit enough to warrant it.

10. Flugmelde-Leit-Kompanie, III. Abteilung, Luftnachrichten-Regiment 52

Elements appear in game a 1 light flak platoon and 1 understrength Jager infantry platoon. The Abteilung was disbanded in September and prior to this, the regiment covered a wide area that extended to Boulogne in the south, Calais in the north and Dunkirk to the east. It is therefore likely that whilst some units were withdrawn (one company withdrew to Dunkirk) not enough made it through with the HQ to Rotterdam to still make it an effective fighting force, explaining why the regiment was disbanded in October. It is likely however that the light Luftwaffe AA units, where encountered in the campaign, were withdrawn elsewhere in the Calais sector.[8] They have remained to add some challenge to the allied player.

242nd Naval Coastal Artillery Battalion

In game, the formation is represented by 2 Marine-Schutzen Battalions (understrength). Given the force had responsibility for both the Grosser Kurfurst and Battery Todt 1 battalion is represented at each. This is roughly how the force strength was split historically. An eagle-eyed player may notice that some platoons have lower headcounts than others, and this has been done to simulate a small number of casualties resulting from allied bombing.

Interestingly Kriegsmarine units also manned AA guns at both sites. Unfortunately, there is no option to select Kriegsmarine flak units in Combat Mission so instead the flak units have been fielded under the German Army. The larger AA guns at the batteries consisted of two types. One type being an inter-war French 75mm gun which was later modified before the outbreak of WW2 to have a higher traverse meaning it could be used in an anti-aircraft role as well as being deployed against land targets.[9] In game these have been depicted as the 75mm Pak

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[8] http://www.ww2.dk/ground/ln/ln52.html some browsing through is required to gain a better understanding of the different units and their movements.

[9] This was one of the better French guns to fall into German service under the designation M33 (f).

40. This might seem an unfair miss-match however the muzzle velocity was similar to that of the PaK40 and had a good fire control system despite its optics and reloading time being generally poorer. To make up for this, the Pak 40 units around the batteries have reduced supply and lower headcounts to reflect the slower reloading speed and having expended ammunition against the allied bombing raids in the nights previous. The superior optics of the Pak 40 are also negated by the closer ranges that the allied player is likely to engage.

The other gun type was the early pre-war variant of the Flak 88 (Flak 18) which was moved to the Todt battery during construction and was situated north of Audresselles on a small plateau. Around mid-1944 they were moved closer towards the battery. A few guns then may have been moved further north and east - although this is unclear. In game they are depicted as being the 8.8cm Flak 36. To simulate the slower reload time, as was the case for the Flak 18, a lower headcount has been selected. HE ammunition has also been reduced to reflect the supply largely being expended during the allied bombing raids. It is therefore possible some guns may spawn with no ammunition.

The 170mm heavy artillery gun battery (3 guns) originally installed at Griz Nez were actually moved south (Stp 164 'Sickinghen' near the village of Waringzelles), although the Germans still left false wooden replicas to imitate the belief to the allies that the guns were still located on the cape. It turns out this indeed worked, fooling the allies into believing they were still there for a period. One of these guns, being in an open emplacement and not a casemate, was able to fire inland at Canadian forces during UNDERGO. I initially included this as a K18 170mm artillery gun.

Unfortunately, this selection did not work well in practice. The K18 artillery formation in game consists of 4 guns, and the headcount (number of guns in this case) cannot be reduced lower than 50% meaning a minimum of 2 guns are still available to call on for fire missions. With the blast radius being incredibly large, on a tight map where freedom of movement is reduced and with the player needing to keep casualties low it was all too much firepower to being to bare. To balance the historic number of guns available, the 170mm gun has been replaced with singular, off-map 150mm sIG 33 infantry gun which is still not to be underestimated (only features across a couple of battles). Ammunition supply for this gun has also been reduced to simulate that it had already expended some ammunition towards Calais in the previous days.

Figure 7:A 170mm K18 artillery gun proves too effective during testing. Here a shell detonates against a tree sending hot wood and metal splinters in all directions tearing through blackness of the night. Numerous allied casualties are caused at quite some distance from the blast (as indicated by the orange icons from two sections of the platoon).

A small point to mention is that the heavy casemate artillery guns located at the batteries were originally going to be depicted by 4 150mm, on map, sIG 33 infantry guns. The idea being that an AI fire mission command could be given so that as the player approached, he could hear the guns firing in the distance. Unfortunately, the artillery mission that the player would need to use as a pre bombardment against the positions at the beginning of the battle would negate this effect. Furthermore, casualties resulting from the bombardment would neutralise the guns too quickly and crews could still abandon them. To solve this the 76mm PAK36 (r) bunker was chosen as a replacement.

Some of the above-named units have also had their morale settings lowered to reflect the inclination of surrender, as historically happened. The garrison knew they were cut off from German lines and had been for 2 weeks. Further to this they were under repeated relentless bombing knowing that the allies had significant firepower to bring against them.

Minor experience settings for the Kriegsmarine battalions had to be changed too as during testing the overall experience of units was marginally high. It was only partially true that the men of 242nd were regarded as being of a higher standard of solider than other coastal artillery units. This is largely fed from German propaganda but also because of regular training instigated by visits from important German officials early in the war. Troop quality was believed to be better due to Todt and Grosser Kurfurst's significance, as unlike other German coastal artillery sites, both could actually fire on British soil and occupied a key area where allied troops would be expected to land during an invasion. After reviewing information provided by other source material, I decided to lower the experience very slightly to offset this. For example, some units with the experience of 'Veteran' were changed to 'Regular'. The result is that the battalion is more likely closer to that of the garrison force as it was in 1944.

Figure 8: It does not matter how experienced you are in order to have a bit fun!

Defences:

The Germans had many types of fortification available to them that they utilized for defence. Some of these have been able to be reproduced during the map creation process, and as such are covered under that section. Unit types added by the editor will be covered below:

Minefields were used extensively by the Germans and most feature in the locations they did historically. For example, minefield *Kiefer* surrounds much of Mont Malassis and further mines are present on the roads around Tardinghen. Only the road to Le Chatelet was spared. A notable exception is that there was a minefield located west of Audinghen which was moved slightly to a fielded area to the north in the campaign. The reason for this is that leaving the minefield where it was historically would place it too close to the allied deployment zone in the battle: '*The Waringzelles Plateau'*.

Early testing also revealed the density of minefields across many areas in the campaign was too condensed, often leaving the player little opportunity to navigate a safe route through them. In the final version of the campaign, the quantity of the mines was reduced and the spacing between them increased to give the player a chance at moving through a minefield, as what had to be done historically - if going around was not an option.

Figure 9:The mark mines command can be very useful, as the manual describes: "This command enables engineer units to detect and mark hidden minefields so that other units are aware of them. Other units can then move through the marked minefield, albeit slowly. Mark Mines is a very slow movement command that takes the unit's full attention and reduces awareness and returning fire."

It appears most of the bunker types in the Gris Nez area were concrete with many serving different purposes. Some examples are that they were used for ammunition storage, power generation stations, command & fire control '*Leitstand'* stations, observation, personnel shelters, anti-tank positions etc - the list goes on. Due to the sheer number of bunkers in the sector I decided to only include those in the which had a specialised purpose to help explain the story of the campaign such as the radar bunkers in the first battle and observation bunkers in '*Mont aux Loups'*. Defensive positions such as MG and AT bunkers have also remained to offer some tactical choices for the player.

Concrete bunkers really do pose a challenge in this regard. This is because of how truly resistant they are to most types of fire, including tank rounds. Whilst it is debatable to what degree Battlefront has accurately reflected this in game, it does force the player to think of other ways around the issue when dealing with them. Hopefully, I have hinted at this well during some of the mission briefings, but the key thing to remember is that most bunkers do not have to be destroyed or knocked out. Many can simply be bypassed, obscured by smokescreens or otherwise de-crewed or supressed from direct fire. These are some of the methods the player will need to utilize in order to be successful when going up against the heavy battery positions in the later stages of the campaign. Furthermore, the bunkers can really chew up a lot of rounds, so the player will also need to carefully monitor how much ammunition is expended against any single position.

Figure 10: A MG bunker that has been de-crewed. A total of 10 non penetrating tank rounds have been expended against this single fortification.

If a bunker is needed to be taken out different methods can be applied to achieve this. First and foremost, is that a bunker should never be attacked from the front unless the attacking force is well concealed or covered and at a safe distance. The highest chance of success and route of attack is from the rear as this is the weakest part of the fortification. Infantry can use grenades and satchel charges against the position to get a penetrating hit. Any retreating crew will exit through the door at the rear.

During testing sometimes not all the crew would exit the bunker, often leaving one or two pixeltruppen inside with such narrow line of sight that my troops could not get a good angle of fire against them. This often resulted in an absorbent amount of ammunition being expended. To get around this issue I found pulling the force back from the bunker to a safe distance helped in giving all the crew inside a chance to exit before being shot or taken prisoner.

Allied:

Allied order of battle was lot easier to replicate correctly than the Germans. This is down to more resources being available and them being less contradictory. However, it was not all easy. Precise naming of unit sub-formations involved was still difficult to identify and locate.

British 79th Armoured Division:

Source material referred to the flail units used in the operation as being from 1st Lothians and Border Horse without distinguishing further which sectors they were assigned too, and likewise all crocodile flamethrowers were from the '141st regiment' which I know was made up of several subdivisions. Despite looking further into this it is again unclear what units were where. It is therefore possible the 1st Lothians' were actually based against Calais and not the cape. Units depicted in game are identified by the overarching brigade or regiment, unless source material provided conclusive proof to the subdivision the unit belongs too.

In the campaign the following units make up the British 79th Division at Gris Nez:

1 Troop (5 Sherman Crab Tanks), Flail Squadron, 30th Armoured Brigade

1st & 2nd Troop (x3 Crocodile Flamethrowers each), A Squadron, 141st Regiment Royal Armoured Corps

1st and 2nd Sections (X3 Churchill Petard Tanks each), 1st Troop (Assault), 6th ARRE, 1st Assault Brigade

Figure 11: Bull insignia of the British 79th Division, worn as a uniform patch. The Germans would consider this marking an indication of an elite British unit. P.O.W.s would be interrogated by the SS.

Canadian 6th Armoured Regiment, 1st Hussars:

Represented by B Squadron, 4 Troop Sherman Regiment (4 Sherman Tanks in each Troop)

Due to a bug the 4th Sherman in each troop would spawn dismounted with no crew. To get around this problem the 4th Sherman was deleted and replaced with an individual Sherman which was attached to the formation. This bug has since been fixed in a recent patch update made after the campaign was created.

No information has been found on the Sherman variant used, so 'typical' formation setting has been selected which provided the Sherman III.

Medium and Heavy Artillery:

14th Field Regiment, Royal Canadian Army:

34 Battery, 8 x 88mm Howitzer (25 pdr)

66 Battery, 8 x 88mm Howitzer (25 pdr)

84 Battery, 8 x 88mm Howitzer (25 pdr)

11th Medium Regiment, 9th Army Group Royal Artillery:

A Troop, 4 x 140mm Medium Gun (5.5 inch)

B Troop, 4 x 140mm Medium Gun (5.5 inch)

C Troop, 4 x 140mm Medium Gun (5.5 inch)

D Troop, 4 x 140mm Medium Gun (5.5 inch)

These formations are attached with full supply and headcounts.

Canadian 9th Infantry Brigade

The North Nova Scotia Highlanders (NNS) Infantry Battalion

The Highland Light Infantry of Canada (HLI) Infantry Battalion

Typically, Canadian Infantry Brigades consisted of 3 infantry battalions but due to the incredibly wide front that Operation Undergo covered (some 36 miles including the area around Calais) available forces were limited. Thus the 9th drew the short straw only having just 2 battalions for this phase.[10]

Both the NNS and HLI feature as a standard Infantry Battalion, albeit with the anti-tank platoon withdrawn given there was no use for them in the campaign.

Trucks originally did not feature in the campaign for either battalion in early testing, however it became apparent for the larger maps, particularly '*To the High Ground'*, they were needed. Thus 1 truck was added for each company on such maps.

A minor change is that the morale setting was slightly increased for some sections across each battalion. The reason for this is that source material notes both battalions being in 'high spirits' for the operation. It should be noted this is a minor edit, and the force still very closely resembles that of a typical Canadian infantry battalion at this time in the war.

The total number of units across the entire campaign for both Axis and Allies total very near to their actual force deployment numbers. In the campaign, German forces, across all services, total 1,484 troops compared to just over 1,600 historically. Likewise, the Canadians and British total 1,355 troops including armour (medium and heavy artillery units not counted). The use of artillery, as true to the actual battle, and the skill of player will have a big effect in helping reduce the Germans numerical majority.

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[10] Stormont, Dundas and Glengarry Highlanders (Glenngarrians) Infantry Battalion also formed part of the 9th Inf Brigade; however, they were kept in divisional reserve for UNDERGO and saw no action.

Map Design

Map design was one of most interesting and exciting parts I loved about making the entire campaign. Whilst the scenario editor is basic in its capability it is also amazing the level of detail and storytelling that the designer can really achieve. I was able to alter the terrain to mimic massive concrete casemates as well as doing it in a way which allows the player to move infantry on top to throw grenades down to the gun crews below, just as what historically happened.
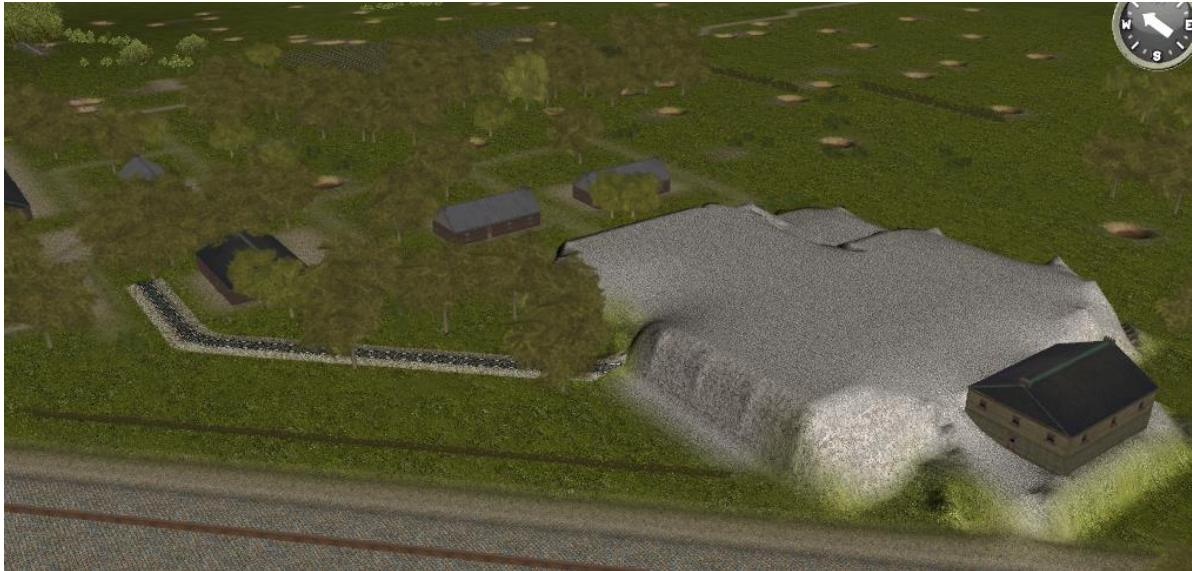

Figure 12: Terrain edited to look like a massive concrete casemate for 15-inch naval guns. A building has been added to symbolise a blockhouse to disguise the site from Allied bombing.

Additionally, tree stump favour objects could be placed near wooden bunkers to indicate the Germans created the bunker from cutting down the nearby woodland. It really is amazing what can be done to help bring a scenario to life!

Figure 13: Oh, the humanity! Will someone please think of the environment?!

I previously mentioned was able to use satellite imagery from Google to design the master map, and then essentially cut the map into smaller map scenarios from which additional details could be made. This included replicating historical imagery wherever possible, although such historical images were limited. Correct terrain heights were also added. Some edits did have to be made though. For example, the areas around the casemates at Haringzelles and Grosser Kurfurst feature more trees than what there were historically. In fact, the area around the entire site was relatively open.

A thick layer of trees and forest terrain was added for 3 purposes in these scenarios: The first is that it helps to mimic the camouflage that was used to hide the gun casements. Second Is that it reduces line of sight for the enemy and the player in order for both sides to have a fair chance at the beginning of the scenarios. Third is that it offers the player the opportunity for slightly more challenging gameplay. Afterall, it would not be fair for the players force to be engaged in a firefight right from the deployment zone! A small side note is that the Germans did actually plant a small forest near battery Todt which has grown to take hold today and has been designated a protected area for nature.

One of the most useful tools was that I was able to use was downloading the exact geographical positions of German defences at the various sites they were historically located by importing this data into Google Earth. This included the fortification type thus ensuring a high degree of accuracy in unit placement keeping it as historical as possible.
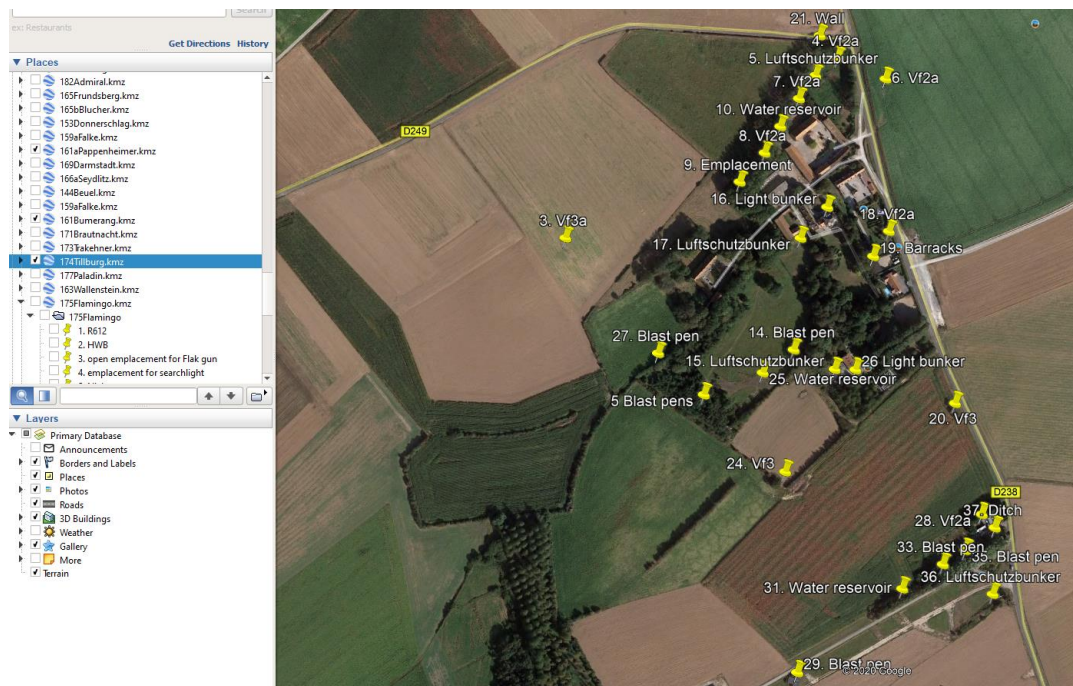

Figure 14: The precise locations of German fortifications that were able to be exported to Google Earth proved most useful in accurately placing defences as they were in 1944.

One fortification that the Germans had which does not feature in the campaign was a long anti-tank ditch which was placed between the Todt battery and Zuphen. This was attempted in the editor by changing the elevation tiles to mimic that of a larger ditch (using ditch lock), however as the terrain naturally slopes in this area it was quite hard to get right. After some effort, these attempts were abandoned. Fortunately, other historical factors come into effect to help impede the movement of armour such as the craters caused by allied bombing and ground condition.

Compiling the Campaign

Creating the campaign is actually quite easy when you know how, just like creating a scenario. However, creating the campaign script file and compiling the scenarios into a campaign file thereafter could do with a little explanation as very few tutorials exist on how to do this. Whilst I am no expert, and am still learning myself, I have included below some helpful tips based on my own experiences to aid any aspiring campaign creators.

The first and foremost tip is to have all the scenarios checked through to the point that you are happy with them. Next step is to move all the scenario files into a folder with the unit file. The unit file has the CORE campaign units that will be imported for the campaign (remember to name this file with title of the campaign and add a picture and description in the editor – checking spelling!). Finally create a BACKUP file of these in a different directory (this is because once the campaign is created a .cam file is made, from which the individual scenarios CANNOT be extracted).

The next part is the scripting file. This is actually quite easy, although minor problems will arise from silly things like spelling errors and spacing! None of these problems will corrupt your file or make you lose the individual scenarios. All you will get in an "*Incorrect syntax error: line 123"* message, helping you identify where the error is.

A small example section of the campaign script where I made 2 errors (highlighted in colour). The errors are identified underneath.

 /*Battle #1*/

[BATTLE NAME] To the High ground

[WIN THRESHOLD] minor victory

[NEXT BATTLE IF WIN] Zuphen

[NEXT BATTLE IF LOSE]
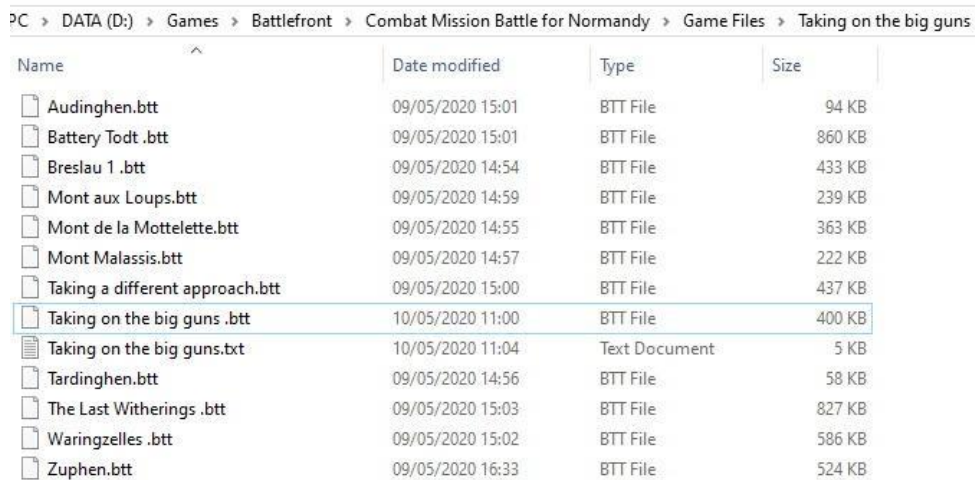
[BLUE REFIT %] 0

[BLUE REPAIR VEHICLE %] 50

Here there is a missing capitalisation. The saved file name has the word 'ground' spelt with a capital 'G'.

The yellow highlighted section shows an additional space has been accidently added. Only 1 space needs to be applied.

Figure 15: Can you spot what is wrong with two file names?

Spacing applies to the file name and can easily be missed when saving the scenario in the editor. Double checking is invaluable. Be aware also, that the file name mistake will need to be corrected in the editor itself. Trying to rename the file in windows did not work in my case.

In summary, make sure each battle has the correct script file name that matches the saved file name. Also check that words are correctly spaced by checking the number spacing between them and at the end of the file name (remember the script file needs to line up exactly with the titles as they appear in the editor, so this is important).

Once the errors have been corrected try again. If no error messages pop up, then this means the script file was able to tell the editor to compile all files in the right order necessary to make the campaign. Check your campaign file folder and it should be in there! Congratulations 😊

Figure 16: After checking and correcting mistakes; over 175 script lines later the campaign has been compiled. Victory!

It is also worth repeating the process a couple of times, making a couple of minor edits, to help you become familiar with how to compile a campaign.

In Conclusion:

I have learnt a lot from the creation of this campaign. Planning is key and never underestimate the amount of time required for completion. This is my first campaign, so a second of the same length could perhaps be done quicker now I have learned a few lessons!

It is not perfect either although it would very much like it to be. There are still elements that are inaccurate, information I may have interpreted incorrectly, or new source material brought to bear that I missed. It is not all encompassing. The fact this campaign is not perfect is something I have come to accept and is important to understand for anyone looking to create a campaign. There are always limits.

Despite these challenges creating a campaign is incredibly rewarding and has not put me off from making others. In fact, the whole experience has taught me a lot that can be incorporated into future scenarios, such as AI plans and more varied gameplay having the player attack as well as defend. Furthermore, it is best to choose a campaign around forces that were relatively mobile, rather than the having one side be a static force and centre it around several battles across a campaign that took place instead of one large battle split into several smaller ones.

There is also considerable help available from the Combat Mission community, both on the Battlefront forums and over at A Few Good Men. I have to thank those that took the time to respond to my questions and aided me when I struggled, particularly with campaign scripting. My many thanks also extend over to the few play testers who gave feedback on the first battle way back in 2019 and particularly to Vacilllator who played this campaign through beyond the first mission.

I have already created most of the maps and units that are going to be involved for my next campaign which is going to be called '*First into Antwerp'*. This will tell the story of the 4th Kings Shropshire Light Infantry Battalion in their advance towards Antwerp and subsequent bridgehead. I would gladly welcome any play testers to review these battles (I estimate there only to be about 8 battles in total, possibly 7 with the latter half relatively short in duration). It is not quite ready yet, but in time it certainly will be!

If anyone is considering making a campaign do not be put off. In fact, even just 3 small battles can be made into a campaign - it is that easy. And for some players a short campaign is ideal!

Bibliography

Key sources for reference:

https://www.canadiansoldiers.com

Referenced source regarding the organization, vehicles, weapons, uniforms, traditions, and insignia of Canadian soldiers in the 20th Century. The site contains a large number of maps and images dealing with history, equipment, literature and more for students of history, re-enactors, modellers, gamers, serious researchers, and anyone interested in the Canadian Army between 1900 and 2000.

This site was used repeatedly and provided a lot of useful information and pictures about the entire Campaign as well as about the order of battle for the units that took part. In fact, I would say of all resources used for the allied side it proved the most useful.

http://users.telenet.be/Atlantikwall-15tharmy/

Atlantic Wall website dedicated to the German 15th Army. The detailed information provided here is incredible. Unit locations, fortification types, unit histories, staff histories, and HQ information is all provided regarding the entire 15th army, and even extends a little bit further to additional regions concerned. Fortification locations were gathered from this site as was information about each German strongpoint featured in the campaign.

http://www.batterietodt.com/historique

This is the webpage for Battery Todt museum which sits on the former site and documents life at the battery during the war. Whilst few of the battery sites have been preserved today (many being used for demolition and dismantling at the end of the war) some of the casemates remain – a true testament to their construction. Turm 1 has been partially converted into a museum exhibitions area. The museum offers on display a diorama of the site alongside many other artifacts & objects from the war.

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http://www.atlantikwall.co.uk/index.php A secondary website that contains useful pictures for the Pas-de-Calais region of the Atlantic wall.

http://www.ww2.dk/ Website useful for researching information about Luftwaffe ground and air units, 1933-1945.

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http://ww1.royalartilleryunitsnetherlands1944-1945.com/ - site has since been deactivated.

https://www.blighty-at-war.net/german-coastal-gun-sites.html General information regarding the German coastal guns in the Pas-de-Calais area.

http://www.lexikon-der-wehrmacht.de/Gliederungen/Infanteriedivisionen/60ID-R.htm information on the 60th Infantry Division which explains the renaming to *Panzergrenadier Division Feldherrnhalle.*

https://www.axishistory.com/books/150-germany-heer/heer-divisionen/4142-panzergrenadier-division-feldherrnhalle information on the unit that the 60th Infantry Division became and subsequent information on its locations post 1943.

https://www.freemaptools.com/elevation-finder.htm this was used to help identify the terrain heights for all the maps featured in the campaign.

http://nshighlandersmuseum.rf.gd/exhibits.html The North Nova Scotia's Regimental History Museum website.

https://map.project44.ca/ Documents the day-to-day movements of each Canadian unit from D-Day to VE day. Included are useful excerpts from war diaries plus unit information pages and more.