



CENTRE for  
INFORMATION  
RESILIENCE

RUSSIA ESCALATES DRONE-DROPPED  
MUNITIONS USE IN KHERSON, UKRAINE

July to 21 October 2024

# Russia escalates drone-dropped munitions use in Kherson, Ukraine

3 DECEMBER 2024

*This report uses information collected through open-source research and verified by CIR's investigators to provide detailed descriptions of selected conflict events and their impact on the population of Ukraine.*

---

## TABLE OF CONTENTS

TABLE OF CONTENTS.....	1
1. EXECUTIVE SUMMARY.....	2
2. INTRODUCTION.....	2
3. INCIDENT VERIFICATION AND ANALYSIS.....	3
CLUSTERS IDENTIFIED BY CIR.....	5
VERIFICATION OF CIVILIAN CASUALTY INCIDENTS.....	8
DRONE-DROPPED MUNITIONS TARGETING INDIVIDUALS.....	11
Drone-dropped ordnance targeting individuals in August 2024.....	13
Drone-dropped ordnance targeting individuals in September 2024.....	13
Drone-dropped ordnance targeting individuals in October 2024.....	14
TARGETING OF CIVILIAN INFRASTRUCTURE.....	14
CIR ASSESSMENT: SURGE IN DRONE-DROPPED ORDNANCE INCIDENTS IN KHERSON CITY AND ANTONIVKA.....	15
ATTRIBUTION OF THE DRONE-DROPPED MUNITION STRIKES.....	16
ANTI-PERSONNEL MINES DROPPED BY DRONES.....	17
VERIFIED LOCATIONS OF MINE DEPLOYMENT.....	19

---

## 1. EXECUTIVE SUMMARY

The Centre for Information Resilience (CIR) has identified a significant escalation in the use of drone-dropped ordnance by Russian forces to target possible civilians, possible civilian vehicles, and civilian infrastructure in Kherson City and its neighbouring suburb, Antonivka. Between July and 21 October 2024, CIR verified 88 such incidents and has established the locations of anti-personnel mines likely dropped by Russian drone operators.

CIR also identified posts from pro-Russian Telegram channels declaring Kherson and Antonivka a “red zone”; these channels state that any vehicle or critical civilian infrastructure within this zone is a legitimate military target. Some of these channels also claim to be affiliated with Russian military units. CIR was unable to conclusively confirm whether this is the case. All 88 incidents verified by CIR took place within this “red zone” and follow a discernible pattern of targeting vehicles and individuals along key roads through Kherson and Antonivka.

This report provides detailed analysis of these events and assesses the possibility that this recent surge in incidents involving drone-dropped ordnance may include the deliberate targeting of civilians by Russian forces.

---

## 2. INTRODUCTION

Since Russia's November 2022 retreat from the right bank of the Dnipro River, Kherson City and towns along the river's right bank have been shelled almost daily by Russian forces. CIR previously [noted](#) a trend, starting in September 2023, of Russian forces appearing to target civilians, civilian vehicles, and civilian infrastructure in Beryslav using drone-dropped explosive ordnance.

Since July 2024, CIR has observed an acute increase in the use of similar methods by Russian forces in Kherson City and its neighbouring suburb, Antonivka. The frequency of these incidents increased throughout August and September 2024. Currently, they take place almost daily, to the point where they have been described across social media and in [mainstream international news reports](#) as a “human safari”.

Pro-Russian Telegram channels known to share drone footage of drone-dropped explosive ordnance declared the immediate area on the right bank of the Dnipro River, including Kherson and Antonivka, a “red zone”. These channels appear to state that any vehicle or critical civilian infrastructure found in this “red zone” represents a legitimate military target, putting any civilian who finds themselves in

the “red zone” at risk of being targeted by drone-dropped ordnance. This may indicate a violation of Article 51 of the Geneva Convention and could constitute war crimes. CIR assesses that Russian units on the right bank of the Dnipro River using civilian targets for live training exercises is a realistic possibility.

Most of the footage of these incidents was shared by a single pro-Russian Telegram channel. CIR found a notable level of interaction between this channel and another channel. Between these two accounts, CIR found funding and aid requests for several Russian military units, including the 291st Guards Motor Rifle Regiment (likely the 205th Brigade). CIR also found another Telegram channel that claims to belong to the 18th Combined Arms Army, although this has not been independently verified. Possibly a drone unit within the 18th Combined Arms Army, the HABR team, observed by CIR in user-generated content (UGC) to be operating in Kherson City, has similarly designated Kherson City and its suburbs a “red zone”.

Between July and 21 October 2024, CIR verified 88 incidents of Russian forces dropping explosive munitions from drones, targeting possible civilian vehicles, possible civilians, and civilian infrastructure. Footage of drone-dropped ordnance is shared almost daily; this investigation relies on the relatively limited proportion of available footage so far verified by CIR and is therefore not exhaustive. CIR continues to work on both verifying outstanding footage and collecting new footage as it becomes available.

---

### 3. INCIDENT VERIFICATION AND ANALYSIS

Between July and 21 October 2024, CIR verified 88 incidents of Russian forces dropping explosive munitions from drones, targeting possible civilians, possible civilian vehicles, and civilian infrastructure (figure 1). 68 of the 88 incidents involve the targeting of what appear to be non-military vehicles, such as trucks, cars, buses, and ambulances.



Figure 1: Map of Kherson and Antonivka showing incidents verified between July and October 2024 involving Russian drone-dropped ordnance targeting possible civilian vehicles [blue], possible civilians [red], educational facilities [purple], and energy infrastructure [yellow]. Russian controlled territory is highlighted in red. (Source: UA Control).

Of the 88 incidents, CIR assesses that 15 incidents directly targeted possible civilians. Given ongoing military activity in the area and the varying quality of footage, CIR could not independently verify whether these individuals were civilian or military. However, CIR found that the individuals targeted were wearing civilian attire and appeared to be unarmed, suggesting they were not legitimate military targets. Furthermore, CIR’s analysis of the drone footage found that drone operators often either waited for an individual to leave a vehicle before releasing the payload or, in a minority of cases, dropped explosives on individuals who were not near civilian vehicles. This suggests that these drone operators were targeting individuals rather than the vehicles themselves.

One pro-Russian Telegram channel frequently shares footage of drone-dropped munitions striking targets. On 2 September 2024, this channel also shared an image outlining a “red zone” in Kherson and Antonivka (figure 2). CIR could not identify a link between this channel and the Russian military regarding the

creation of this “red zone”. However, all incidents verified by CIR occur within the “red zone” shown in figure 2, suggesting a possible alignment with military activity in the area (see figure 4).

The channel also states that any individual or vehicle found within this “red zone” is a legitimate target. It is claimed in a post that within this “red zone” Russian forces do not differentiate between civilian and non-civilian targets.



*Figure 2: Image shared on 2 September 2024 by a pro-Russian Telegram channel designating a “red zone” in Antonivka and the Dniprovs'kyi district of Kherson City.*

## **CLUSTERS IDENTIFIED BY CIR**

Between July and October 2024, CIR identified three clusters of incidents involving drone-dropped munitions (figure 3). As figure 4 shows, all incidents verified by CIR took place within the “red zone” shown in figure 2. The areas within the clusters have been targeted most frequently and therefore may be of particular threat to civilians present.



Figure 3: Heatmap of all incidents involving drone-dropped ordnance verified by CIR between July and October 2024. Dashed circles outline the three main clusters of incidents verified by CIR during this period, with incidents in Antonivka outlined in red, eastern Dniprovs'kyi district outlined in yellow, and central Dniprovs'kyi district outlined in green.



Figure 4: Heatmap of all drone-dropped explosive incidents verified by CIR between July and October 2024 with the "red zone" overlaid in red.

Sixty of the 88 incidents verified took place in Antonivka (see figure 3). Within Antonivka, incidents were notably concentrated along primary roads in the central

residential district. These incidents reportedly occurred along the east-west Viacheslava Chornovola Highway and along the intersecting north-south 22 Skhidna Street. CIR also identified a concentration of incidents where these two roads intersect, at the Viacheslava Chornovola roundabout [46.677146, 32.685127].

CIR found that a large number of the verified incidents took place on main roads, running parallel with the Dnipro River, in the south of Antonivka. These incidents were identified along the east-west Khersons'ka/Budonoho Street. This road turns into Perekopska Street as it enters Kherson City. Figure 5 shows that the majority of verified incidents took place in close proximity to this central route through Kherson City and Antonivka.

Within Antonivka (the red cluster in figure 3), CIR identified a concentration of incidents in close proximity to Antonivka School No. 18. Although CIR previously verified damage to the school in November 2023, no direct damage to the school from drone-dropped explosive incidents was verified between July and October 2024. However, CIR did verify four incidents where individuals on the ground were targeted by drone-dropped explosives within an approximately 800 metre radius of this location.



*Figure 5: Heatmap of incidents involving drone-dropped munitions verified by CIR, with the Perekopska Street/Viacheslava Chornovola Highway/Khersons'ka Street route highlighted in red.*

In the second cluster identified by CIR (figure 3, in yellow), to the west of Antonivka which borders Kherson City itself, in the eastern area of Dniprovs'kyi district, CIR



verified a direct drone strike on School No. 75. Also hit were an electrical substation and two individuals on the ground.

The majority of these incidents within the yellow cluster took place along or in close proximity to main roads, as in Antonivka. CIR verified eight incidents in close proximity to Perekopska Street, which runs through the Dniprovs'kyi district and into central Kherson City in parallel with the Dnipro River.

In the third cluster, located in the central Dniprovs'kyi district (the green cluster in figure 3), most of the incidents verified by CIR similarly occur along, or in close proximity to, main roads. Within this cluster of 14 incidents, CIR identified five incidents that took place along Universytets'ka Street, three along Chornomors'ka Street, and three along Illyushy Kulyka. The remaining four incidents took place in residential areas. All incidents in this cluster struck either stationary or moving vehicles, apart from one in which drone-dropped ordnance struck an educational facility.

## **VERIFICATION OF CIVILIAN CASUALTY INCIDENTS**

CIR identified several incidents where it is highly likely that civilians and their vehicles were targeted by drone-dropped munitions. CIR was able to verify this by matching geolocated drone-footage shared on pro-Russian Telegram channels with verified user-generated content (UGC) filmed from the ground.

Due to the quality of the drone footage and the ubiquity of military activity in Kherson and Antonivka, generally it is unclear whether the individuals targeted by drone-dropped munitions are civilians. Some pro-Russian Telegram channels sharing footage of drone-dropped ordnance state that the Ukrainian military are using civilian vehicles, and thereby justify their strikes.

In an incident highly likely to have directly affected civilians, CIR verified drone footage shared on 28 August 2024 of a drone dropping explosive munitions on an ambulance located in central Antonivka [46.680127, 32.686279]. As the ambulance turns in and stops the explosive lands next to it and detonates.

CIR analysed on-the-ground images of the same incident shared on a local Telegram channel on 28 August 2024 (see figure 6). In these images, three unarmed individuals in protective armour can be seen attempting to repair damage to the ambulance. CIR assesses that these individuals are highly likely volunteer evacuators or medics.



Figure 6: Comparison of an image shared on a local Telegram channel of a damaged ambulance [left] with drone footage of the strike [right] shared by a pro-Russian Telegram channel [46.680127, 32.686279].

In other incidents verified by CIR throughout this period, a number of individuals can be seen wearing protective body armour. These individuals may be associated with the military. However, CIR has noted that many aid volunteers and medics who operate in Kherson and the surrounding area also wear body armour. This could indicate that Russian forces may have targeted individuals wearing protective armour, regardless of their status.

In another incident, CIR verified drone footage shared on 2 September 2024 of a drone dropping explosive ordnance on a van located in eastern Antonivka [46.683038, 32.703198]. In the footage, a drone drops munitions on the windshield of the van, damaging it. CIR matched CCTV footage obtained and shared by the Head of the Kherson City Military Administration, Roman Mrochko, of the same location, in which two individuals can be seen spotting a drone and taking cover (see figure 7). The footage then cuts to the same explosion impacting the van. CIR analysed the CCTV footage and assessed that, given that they appear to be unarmed and wearing civilian attire with no body armour, the two individuals are highly likely civilians. CIR also found no evidence of military activity nearby.



Figure 7: Comparison of an image from CCTV footage showing two people spotting a drone and running for cover before a civilian vehicle is struck by an explosive [top]; drone footage shared by a pro-Russian Telegram channel [bottom] [46.683038, 32.703198].

In relation to another incident that took place on 2 October 2024, CIR verified drone footage posted on Telegram showing a drone dropping an explosive on the bonnet of a civilian vehicle in Antonivka [46.681286, 32.688090]. The car sustained minor damage. CIR also verified footage posted on X of the same vehicle in Kherson, after the incident, roughly 7.5 kilometres south-west of its previous location in Antonivka, being driven by a man and a woman in civilian clothing [46.639436, 32.610602]. CIR matched the vehicle to the drone footage and on the ground-footage (see figure 8) by comparing the colour, design, model, and damage to the vehicle's bonnet.



Figure 8: Comparison of drone footage of a drone-dropped explosive striking a civilian vehicle in Antonivka [top] [46.681286, 32.688090]; footage showing the same vehicle driven by a man and woman in civilian clothing, following the strike, in Kherson on the same day [bottom] [46.639436, 32.610602].

## DRONE-DROPPED MUNITIONS TARGETING INDIVIDUALS

CIR verified a total of 15 incidents of drone-dropped munitions targeting individuals on the ground. However, it is generally unclear if these individuals were civilians. Overall, the 15 verified incidents targeted individuals across Kherson and Antonivka who were either on foot or in close proximity to a vehicle. Based on UGC analysis, CIR verified that at least 20 individuals and two dogs were present at these incidents. Figure 9 shows the locations of these 15 incidents.



Figure 9: Map showing 15 incidents verified by CIR from July to October 2024 involving what appear to be civilians being targeted or struck by drone-dropped munitions.

CIR verified that of the 20 individuals present at these incidents, at least 10 were injured and one was likely killed. Due to the quality of the footage analysed, CIR was unable to verify if the remaining nine individuals involved were injured. CIR also confirmed that at least one of the two dogs present was injured in an explosion resulting from drone-dropped munitions.

Although it is not clear whether the individuals present at these incidents were civilians, CIR was able to confirm that at least 17 of the 20 individuals affected were wearing civilian attire. CIR was also able to verify that at least 18 out of the 20 individuals present appeared to be unarmed. Due to a lack of clear footage, CIR was unable to verify whether the remaining individuals present at these incidents were armed or wearing civilian attire.

Twelve of the 15 CIR-verified drone strikes targeting individuals took place in Antonivka. The remaining two incidents took place in Kherson City. Notably, these two incidents occurred within approximately 600 metres of the border between Kherson and Antonivka, in the Dniprovs'kyi district. Additionally, 11 out of the 15 incidents occurred within 200 metres of one of the major routes running through Kherson and Antonivka (see figure 9). CIR verified that five incidents involving individuals targeted by drone-dropped ordnance occurred on a major through

road, which starts off as Perekopska Street in eastern Kherson, turns into Khersonska Street, and ends as Budonoho Street in eastern Antonivka.

### **Drone-dropped ordnance targeting individuals in August 2024**

CIR verified an incident on 26 August involving drone-dropped ordnance targeting an individual in a vehicle in Antonivka. Footage shows the drone following a vehicle driving through northern Antonivka. The vehicle stops next to some train tracks before a drone drops ordnance next to it. UGC shows that just before the ordnance explodes, the driver of the vehicle opens its door. The driver appears unarmed and is wearing civilian clothing. After the explosion the individual falls to the ground in what appears to be an unconscious state. CIR assesses that this incident likely resulted in the death of this individual.

On 28 August 2024, CIR verified another incident of drone-dropped explosives targeting an individual in Antonivka. Footage shows an individual exiting a vehicle carrying what appears to be a box or a bag in their hands. CIR notes that the individual appears to be unarmed and wearing civilian attire. An explosive strikes the vehicle leaving a visible hole in the roof. The individual then walks towards some nearby trees after the explosion, likely seeking shelter from the drone. It is unclear whether the individual was injured in the strike.

### **Drone-dropped ordnance targeting individuals in September 2024**

Throughout September 2024, CIR verified seven incidents of individuals being targeted by drone-dropped ordnance in Kherson City and Antonivka. Across these incidents, CIR found that at least 13 individuals were either in close proximity to or visibly injured by exploded drone-dropped ordnance.

In five of the seven incidents, CIR noted that individuals present were wearing civilian attire and appeared to be unarmed. For one incident on 4 September 2024, involving an individual riding a bicycle [46.675550, 32.711302], due to the quality of the footage it was not possible to determine whether this individual was armed or wearing civilian attire.

CIR verified another incident on 30 September 2024 involving two drone-dropped explosives striking an individual with a dog and a civilian vehicle. CIR was not able to verify how many individuals were in the vehicle, if they were armed, or if they were wearing combat attire. However, CIR did confirm that an individual standing in a driveway during this strike was unarmed and wearing civilian attire.

Of the seven incidents that took place in September, the majority (six out of seven) occurred in Antonivka. Five of the six incidents took place within roughly 300

metres of the Viacheslava Chornovola Highway/Khersons'ka Street route (highlighted in figure 5). One incident took place roughly 800 metres north of this route in the north-western manufacturing district of Antonivka [46.682937, 32.677562].

The only incident to occur outside Antonivka took place in the Dniprovs'kyi district, in close proximity to Perekopska Street, similarly in a manufacturing area [46.665902, 32.664937].

### **Drone-dropped ordnance targeting individuals in October 2024**

Throughout October 2024, CIR verified six incidents of drone-dropped ordnance targeting individuals in Kherson city and Antonivka. Across these incidents, CIR found that at least seven individuals were either visibly injured by or in close proximity to drone-dropped ordnance.

In five of the six incidents, CIR noted that individuals were wearing civilian attire and appeared to be unarmed. In one incident on 6 October 2024, one individual and a dog were struck by drone-dropped ordnance. However, CIR was unable to verify if they were armed or wearing civilian attire since they were struck just as they were exiting a what appears to be a civilian vehicle [46.673618, 32.691474].

Of the six incidents, five took place in Antonivka and all took place within roughly 300 metres of the Viacheslava Chornovola Highway/Khersons'ka Street route (highlighted in figure 5). Another incident verified on 9 October 2024 took place in Dniprovs'kyi district [46.669854, 32.656154]. Unlike other incidents in the area, this incident did not occur in close proximity to Perekopska Street, but further north in a residential area. The two individuals struck by the explosive are both visibly injured. Both can be seen wearing civilian attire and appear to be unarmed.

## **TARGETING OF CIVILIAN INFRASTRUCTURE**

Although Russian forces using drone-dropped munitions overwhelmingly targeted possible civilian vehicles, civilian infrastructure was also targeted within the “red zone” shown in figure 2. Between July and October 2024, CIR verified five incidents of damage to civilian infrastructure.

Three incidents involved drone-dropped explosives striking energy infrastructure. Two of these incidents involved drone-dropped ordnance striking substations. One incident occurred at a substation in Kherson city in the Dniprovs'kyi district [46.665988, 32.663492] on 19 August 2024 and another in Antonivka on 25 September 2024 [46.683121, 32.685092]. On 25 September 2024, CIR verified

footage of a drone dropping explosives on a fuel tank at a petrol station in Kherson City [46.668974, 32.633144].

CIR verified two incidents of drone-dropped munitions striking educational facilities in the Dniprovs'kyi district of Kherson City. On 29 July 2024, CIR verified footage of a drone dropping explosives onto School No. 75 [46.663332, 32.657965]. Roughly 1 km west, CIR verified drone footage of a drone dropping an explosive on School No. 50 (46.659127, 32.641931) and another on a civilian vehicle located on the school grounds. CIR could not verify any evidence of military activity in the footage for either incident.

## **CIR ASSESSMENT: SURGE IN DRONE-DROPPED ORDNANCE INCIDENTS IN KHERSON CITY AND ANTONIVKA**

CIR has verified evidence of drone-dropped ordnance by both Russian and Ukrainian forces throughout Russia's full-scale invasion of Ukraine. However, until the recent developments discussed in this report, these incidents have been largely limited to frontline areas. CIR has verified an increasing number of incidents involving drone-dropped ordnance on civilian targets throughout 2024, a trend likely arising from a number of factors, discussed below.

Locals living on the right bank of the Dnipro River have denounced on [national and international media](#) that they are being used as target practice by Russian units. Oleksandr Prokudin, head of the Kherson Oblast Military Administration, has stated on Telegram that everyone in Kherson is a target. Using drones to strike moving targets is difficult to replicate in a test environment, and the overwhelming majority of the drone-dropped ordnance incidents investigated by CIR involve either moving or stationary vehicles. This trend (although still unverified) aligns with theories that they may be being targeted as training proxies for military vehicles at the front.

CIR assesses that increased instances of drone-dropped ordnance are also part of a continuing Russian campaign to make Kherson City uninhabitable for civilians, a trend [CIR](#) has observed since the city's liberation by Ukrainian forces in November 2022. The west of the city, where CIR verified fewer incidents of drone-dropped ordnance, is regularly struck by GRAD MLRS and other artillery systems. Russia may be using drone-dropped ordnance further east, in Antonivka and Kherson City's Dniprovs'kyi district, as another method to inflict damage on a broader area and its inhabitants. In other words, the west of the city is bombarded by artillery whereas the east and Antonivka are targeted by drone-dropped munitions, but the objective may be the same.



Finally, following the retreat of Ukrainian forces from Krynky on the right bank of the Dnipro River in June 2024, Russian forces shifted their operational focus from Beryslav to Kherson City and the surrounding area. CIR first noticed a spike in drone-dropped ordnance incidents in July 2024, immediately following this retreat. Although there is no ongoing military activity or incursion on the right bank of the Dnipro river by Ukrainian forces, the Ukrainian retreat likely freed up Russian drone operatives who may have been redeployed to make Kherson and Antonivka uninhabitable.

## **ATTRIBUTION OF THE DRONE-DROPPED MUNITION STRIKES**

CIR has observed, among others, the HABR team drone unit operating in the Kherson City area. This unit claims to have been created in May 2024, despite its Telegram channel being created on 6 September 2024. The unit claims to belong to the 18th Combined Arms Army, but CIR was unable to verify this. Its posts are often shared by the same pro-Russian Telegram channel that designated Kherson City and its suburbs a “red zone”. The HABR unit’s channel has similarly declared Kherson city and its suburbs a “red zone”.

The HABR unit has since shared multiple videos of drone attacks on what appear to be civilian vehicles, which CIR has geolocated to Antonivka, falling within the “red zone”. In one such video posted to Telegram on 17 October 2024, a drone drops an explosive on a taxi picking up what appears to be an individual in protective chest armour. The HABR unit declared in the video that since public transport is used by Ukrainian soldiers it is a legitimate target, warning civilians not to use it.

CIR was unable to verify whether the individual involved was military or civilian. However, use of protective chest armour is not necessarily indicative of military status. Regardless of the individual's status, CIR assesses that the taxi driver was likely the target of the strike, being the only person in the vehicle when it was struck.

Between two of the three Telegram channels interacting with each other and sharing content of drone strikes in Kherson Oblast, CIR found funding and aid requests for several Russian military units, including the 205th Brigade and the 291st Guards Motor Rifle Regiment.

The theory that Russian drone operators are using the Kherson suburb of Antonivka as a training ground could explain the lack of easily definable units involved in the attacks against civilians assuming that multiple units are training simultaneously.

Between them, these channels have also shared footage of both drone-dropped ordnance and FPV kamikaze drones. CIR has also verified evidence of anti-personnel mines, likely dropped by drones. These mines have been geolocated to residential areas, where civilians are at significant risk of detonating them.

## ANTI-PERSONNEL MINES DROPPED BY DRONES

The [PFM-1 Petal mine](#) is an anti-personnel mine used by Russian forces since the Soviet invasion of Afghanistan. They are light brown or green in colour, meaning they are easily camouflaged by leaves or grass, and require as little as [5 kilograms of pressure](#) to activate. They are also known as “toy mines” because their shape [leads children to mistake them for toys](#) and pick them up, accidentally detonating them.

Footage shared on the HABR unit Telegram channel on 6 October 2024 shows personnel attaching two PFM-1 mines to a drone (figure 10). CIR assesses that the HABR unit is likely one of several units responsible for dropped PFM-1 mines in Kherson City. The earliest reports of PFM-1 mines in Kherson City appeared in August 2024, pre-dating the creation of the HABR unit’s Telegram channel, however, indicating a potential for other perpetrators.



Figure 10: A PFM-1 “petal” mine [left] (Source: [Wikimedia Commons](#)); a screenshot from footage shared by the HABR unit to Telegram showing four PFM-1 mines being attached to a drone [right].

The day after footage of personnel attaching PFM-1 mines to a drone was shared by the HABR unit, Roman Mochko, the head of Kherson City Military Authority, shared a post on Telegram warning of mines being spotted in the Dnipro district of Kherson City.

CIR geolocated footage shared on the same day by a local Telegram channel, showing PFM-1 mines scattered in the middle of a road leading to Perekopska

Street, in the Dnipro district of Kherson City (figures 11 and 12) [46.648948, 32.640685].



Figure 11: A PFM-1 "petal" mine [left] (Source: [Wikimedia Commons](https://commons.wikimedia.org/wiki/File:PFM-1_mine.jpg)); a photo showing a PFM-1 mine geolocated to Perekopska Street, Dnipro District, Kherson city [46.648948, 32.640685] [right].



Figure 12: Geolocation of footage shared by Kherson Non Fake showing mines in Perekopska Street, Dnipro district, Kherson City [46.648948, 32.640685] [left] and screenshot of Google street view from the same location [right].

CIR cannot verify that the HABR unit was responsible for these mines, since they have not shared footage of their dispersal. However, CIR has verified footage shared by the HABR unit showing a vehicle driving over and detonating mines, which is then attacked with both drone-dropped ordnance and an FPV kamikaze drone. CIR assesses that although the dispersal of mines was not shown in the footage, this was highly likely a coordinated attack, suggesting that an earlier dispersal of the mines by the same operator or another operator associated with the HABR unit is likely.

## VERIFIED LOCATIONS OF MINE DEPLOYMENT

Figure 13 shows three locations of mine deployment verified by CIR in Kherson City and its suburbs. While CIR was only able to verify one incident of mine dispersal on Perekopska Street, one Telegram channel reported 14 separate incidents of drone-related activity in the area since 2 July 2024. Mine warning signs have been posted in Shevchenkiv park [46.633324, 32.618666], bordering the street, suggesting a particular focus on the area. CIR was unable to verify 13 of the 14 incidents due to a lack of available footage.



Figure 13: Map showing verified locations of PFM-1 mines in Kherson and its suburbs. [Blue] a mine on Perekopska Street [46.648948, 32.640685]; [red] a mine on Portova Street next to the “Frigate” hotel [46.630669, 32.622259]; [orange] a car filmed by a HABR unit drone driving over and detonating mines on a level crossing in Antonivka [46.678801, 32.753163].

The area in which CIR verified the presence of anti-personnel mines matches the area mapped by CIR of verified drone-dropped ordnance attacks (figure 1). CIR assesses that multiple Russian units in the area are likely responsible for dropping

multiple types of ordnance on Kherson city and Antonivka. Though the HABR unit Telegram channel has shared images of anti-personnel mines attached to drones, CIR cannot attribute the unit to the dispersal of those mines. As no unit operating in Kherson Oblast has uploaded footage showing the dispersal of mines, CIR cannot verify the perpetrators.

CIR noted further footage of drone-dropped ordnance being shared on Telegram in late October 2024, beyond the data collection period for this report (July to 21 October 2024). Considering the scale and frequency of these strikes, there appear to be ineffective drone-jamming EW systems operating over Kherson and Antonivka. CIR therefore assesses that this “human safari” will likely continue and cause significant harm to civilians in the area.