

John Twamley (W.S. 629) was the first to enter 10 Moore Street. 'I went to the side door of the provision shop at the corner of Moore Street and Henry Place and burst it open.'

He recounts being confronted by the residents, 'an old man and a woman who were frightened out of their wits' who locked themselves in the basement for safety.

There was a regular huddle around the entrance doorway from Henry Place into the shop at the corner of Moore street, and Oscar Traynor was standing on the steps, passing us through, one by one. (Charles Saurin W.S. 288)

We dashed across the mouth of Moore Lane and entered the corner house at Moore Street by a side door. (Seumus Robinson W.S. 156)

At the last house of this lane with a frontage in Moore St, Commandant General P.H. Pearse was standing in a gable end doorway. (Charles Donnelly W.S. 824)

Connolly was carried on a stretcher into 10 Moore Street and this building served as the General Headquarters overnight (Friday 28th April).

We placed Connolly in a bed and made his room the headquarters. I placed the green flag with the harp, which I had taken from the GPO with me, over his bed. (Michael Staines W.S.284)

The Volunteers took turns breaking through the walls of the terrace in the direction of Great Britain (Parnell) Street.

We were using a very large crowbar, and each man would take his turn for a few minutes and then stop to rest ... (Seamus Robinson W.S. 156)

The Volunteers succeeded in reaching the final house in the terrace adjacent to Sackville Lane (O'Rahilly Parade) the following morning.

A4.7.6.2. Summary of forensic analysis findings

Evidence of Conflict

There is a repaired opening or 'creep hole' in the party wall of 10 Moore Street, which is externalised in No.11, owing to the later reconstruction of No. 11. This opening was recorded in 2008 by Frank Myles & Shaffrey Associates.



P 30 10 Moore Street.

A4.7.7 No 11 Moore Street**A4.7.7.1. Significance to 1916**

Site formed part of the evacuation route.

A4.7.7.2. Summary of forensic analysis findings**Pre-1916 fabric remaining**

None found. Present structure was constructed in 1960 for KC Confectionary with extensive bakery premises at rear stretching to Moore Lane and Henry Place.

Evidence of Conflict

Opening in party wall with No.10 Moore Street now externalised.

A4.7.8 No 12 Moore Street**A4.7.8.1. Significance to 1916**

Site formed part of the evacuation route.

A4.7.8.2. Summary of forensic analysis findings**Pre-1916 fabric remaining**

No. 12 Moore Street was reconstructed in 1960 as a grocery and subsumed into the adjacent KC Confectionery in the early 1970s. The party wall between Nos 12 and 13 survived the reconstruction and was inspected for evidence of the conflict.

Evidence of Conflict

A repaired opening or 'creep hole' was found in the first-floor front room in the party wall with No 13.

A4.7.9 No 13 Moore Street**A4.7.9.1. Significance to 1916**

Site formed part of the evacuation route.

A4.7.9.2. Summary of forensic analysis findings**Evidence of Conflict**

A repaired opening or 'creep hole' was found in the first-floor front room in party wall with No 12.

Note: Nos 14, 15, 15, 17 and 18A, the National Monument, are outside the scope of this report.

A4.7.10 No 18 Moore Street**A4.7.10.1. Significance to 1916**

Site formed part of the evacuation route.

A4.7.10.2. Summary of forensic analysis findings**Pre-1916 fabric remaining**

None, there was no building on the site in 1916. The volunteers describe the timber hoarding separating them from Moore Street and the record of the Valuation Office confirm this.

Evidence of Conflict

None found.

A4.7.11 No 19 Moore Street**A4.7.11.1. Significance to 1916**

Site formed part of the evacuation route.

A4.7.11.2. Summary of forensic analysis findings**Pre-1916 fabric remaining**

None, there was no building on the site in 1916. The volunteers describe the timber hoarding separating them from Moore Street and the record of deeds confirm this. The present building on the site was constructed in the 1930s.

Evidence of Conflict

None found.

A4.7.12 Nos 20-21 Moore Street & 12 Moore Lane to rear

(Hanlon's fishmonger and ice merchants, with 'big empty barn at rear')

**A4.7.12.1. Significance to 1916**

A large number of the Volunteers gathered in the yard at the rear. Pearse looked out at Moore Lane from the loft at the rear of the site, at the crown forces at the top of Moore Lane.¹⁴ Oscar Traynor confirmed to Pearse that this would be a good place for a headquarters.¹⁵

A4.7.12.2. Summary of forensic analysis findings**Pre-1916 fabric remaining**

The party wall between Nos.20 and 21 at first and second floor level are comprised of handmade brick and clearly predates 1916. The north party wall of No.21 is later, comprised of machine-cut brick and dates from the first quarter of the 20th century. There is insufficient evidence to confirm if this wall pre-dates 1916.

Evidence of Conflict

None found.

A4.7.13 Nos 22-23 Moore Street**A4.7.13.1. Significance to 1916**

Site formed part of the evacuation route.

¹⁴ W.S. 288, Lieut Charles Saurin.

A4.7.13.2. Summary of forensic analysis findings**Pre-1916 fabric remaining**

None found. Present structure was constructed in 1965.

Evidence of Conflict

None found.

A4.7.14 Nos 24-25 Moore Street and 14 Moore Lane to rear

(Kelly's Fish Shop, with gate onto Sackville Lane)

**A4.7.14.1. Significance to 1916**

After breaking through the terrace of houses, the Volunteers were gathered in the rear yard, awaiting an order to charge out the side gate on Sackville Lane and towards the barricade manned by crown forces at the Parnell Street end of Moore Street. The decision to surrender was conveyed by McLoughlin in this yard.

We were in the first batch that were to charge out onto the street [Sackville Lane]. We were told to keep very, very quiet. There was only a wide door separating the yard from the lane into which we were to go. We were then supposed to proceed into Moore Street and charge the big barricade about fifty yards away at the end of Moore Street ... One man was loosening the bolt of the door gently so that no noise would be made when the actual order to move would be given. (Fergus (Frank) de Burca W.S. 694)

A4.7.14.2. Summary of forensic analysis findings

¹⁵ W.S. 340. Oscar Traynor.

Pre-1916 fabric remaining

No pre-1916 fabric was identified within Nos.24-25. Present building built in 1990s. The calp limestone southern boundary wall in the rear yard is pre-1916.

Evidence of Conflict

None found.

A4.7.15 The Public Realm

It is the streetscape along which the Republican forces advanced into the Moore Street terrace that best orientates the witness statements and significantly aids present interpretation of the events of the battle.

The original setts retained beneath the modern surface material are an authentic physical connection with those events. Where these setts survive, one can literally walk the footsteps of the Volunteers and stand on the surface where those that lost their lives fell. This evocative connection to the past events is emphasised by the tactility of the smoothly worn setts.

The majority of the historic street surfaces are concealed under the modern road surface. Murphy Surveys were engaged to carry out a GPR survey to determine to extent of setts beneath the surface.

A4.7.15.1. HENRY PLACE**Significance of Henry Place in relation to the 1916 battlefield;**

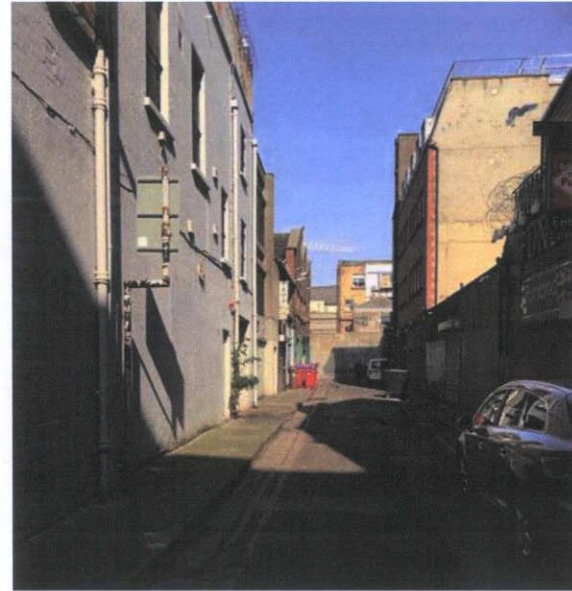
- The Volunteers travelled the entire length of Henry Place, dashing across Henry Street from the side door of the GPO, gathering at the corner, before crossing the junction with Moore lane under heavy fire to reach the shelter of 10 Moore Street.
When we entered Henry Place there seemed to me to be a state bordering on chaos. Men were trying to get shelter in doorways and against walls from the fire, which no one seemed to know whence it was coming. Oscar Traynor W.S. 340.
- The sharp bend in Henry Place is an important orientation device in understanding the witness statements, who frequently referred to it.
- Fatalities recorded along this route.

Pre-1916 Fabric surviving

- Street surface:
 - Granite kerbs largely complete, partly concealed beneath concrete cover.
 - No evidence of setts under existing street surface was detected following non-invasive GPR survey.
- Building Fabric: There are a number of buildings which feature in the witness statements located on Henry Place, namely: O'Brien's mineral water stores, 10 Henry Place 'the white house', O'Brien's stables (11-13 Henry Place, with painted lettering visible), 9 Moore Street and 10 Moore Street. The extent of surviving pre-1916 built fabric within these buildings varies and is described in the preceding sections.



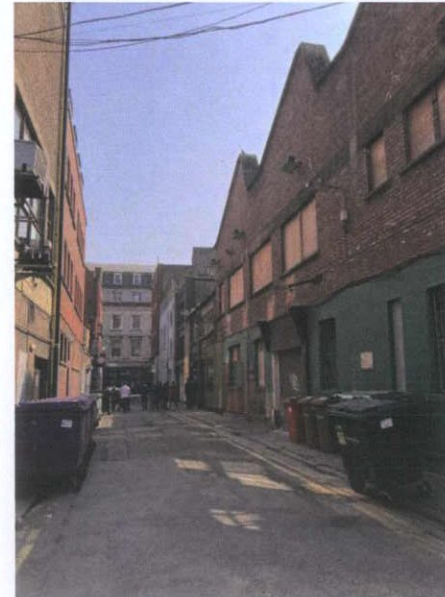
P 31 Henry place looking from Henry Street, 1926, Source: Military Archives.



P 33 Henry Place, from the junction with Henry Street, 2020.



P 32 Henry Place, looking towards Henry Street, 1926, Source: Military Archives.



P 34 Henry Place, looking towards Henry Street, 2020. Note surviving granite kerbstones.



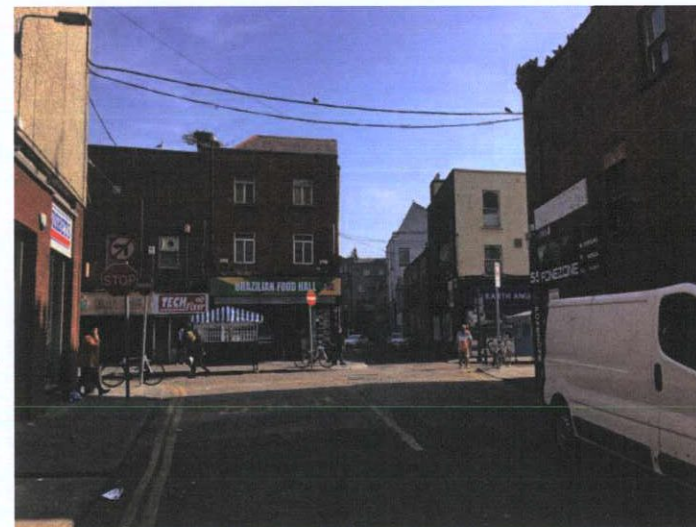
P 35 'Unknown building' damaged in 1916, thought be 10 Henry Place, at the junction of Moore Lane and Henry Place. Property Loss Archives describes the front of 10 Henry Place blown in by shell fire.



P 37 10 Henry Place, at the junction of Moore Lane and Henry Place, 2020.



P 36 Sampson's Lane looking east towards Henry Place, 1926, Source: Military Archives



P 38 Sampson's Lane looking east towards Henry Place, 2020

A4.7.15.2. MOORE LANE**Significance of Moore Lane in relation to the 1916 battlefield;**

- The crown forces maintained consistent firing down Moore Lane from the direction of the Rotunda Hospital.
- The junction with Henry Place, which the Volunteers had to rush across is a significant location in the battle.
- The single evidence of the conflict within the public realm, found thus far, is a possible bullet hole located at the rear of 57 O'Connell Street Upper, at Moore Lane.

Pre-1916 Fabric surviving**Street surface:**

- Granite kerbstones evident in areas beneath concrete cover.
- An extensive number of historic setts under existing street surface detected following non-invasive GPR survey.
- Drain covers pre-1916 evident.

Building Fabric:

- The modified structures at the junction of Henry Place, 60a O'Connell Street Upper and 18 Moore Lane contextualise, and witness statements frame the events relating to 10 Henry Place, the 'white house'.
- The former wine merchant's premises with brick facade at 6-9 Moore Lane, extends across the site of the National Monument.
- Volunteers occupied multiple warehouses at the rear of the Moore Street premises.



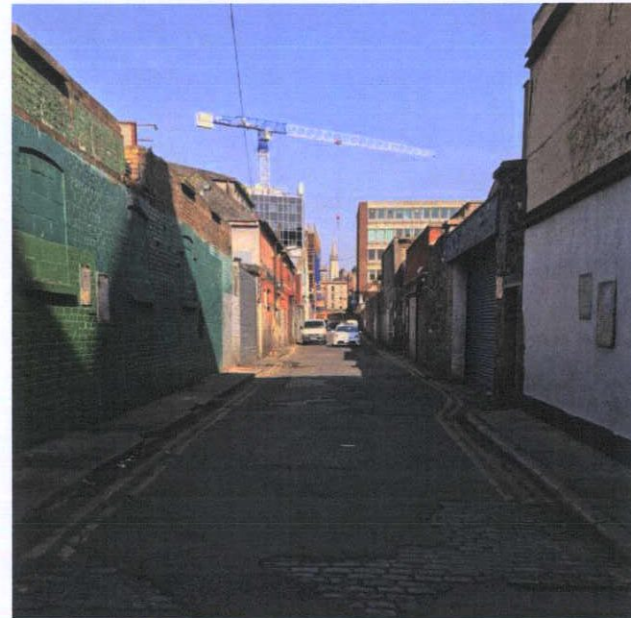
P 39 Original setts on Moore Lane visible under modern road surface.



P 40 Detail of smoothly worn diorite setts on Moore Lane.



P 41 Moore Lane, looking north from the junction of Henry Place towards Parnell St, 1926, Source: Military Archives



P 43 Moore Lane 2020



P 42 Moore Lane, midway point, facing north towards Parnell Street, 1926, Military Archives



P 44 Moore Lane, midway point, facing north towards Parnell Street, 2020, Source: Google



P 45 Moore Lane in the aftermath of the 1916 Rising, View looking south from the Parnell Street towards Henry Place.



P 46 Moore Lane looking south from the Parnell Street towards Henry Place 2020

A4.7.15.3. O'RAHILLY PARADE

**Significance of O'Rahilly Parade:**

- Location of The O'Rahilly's death. Sackville Lane was renamed O'Rahilly Parade in 1938 in his memory.¹⁶
- The Volunteers were gathered behind Kelly's (24-25 Moore Street) and poised to charge out a gate on Sackville Lane towards the British forces at the barricade at the Parnell Street end of Moore Lane.

Pre-1916 Fabric surviving

- Street surface:
 - Areas of historic setts under existing street surface detected following non-invasive GPR survey.
 - No original kerbstones observed.
- Building Fabric: None

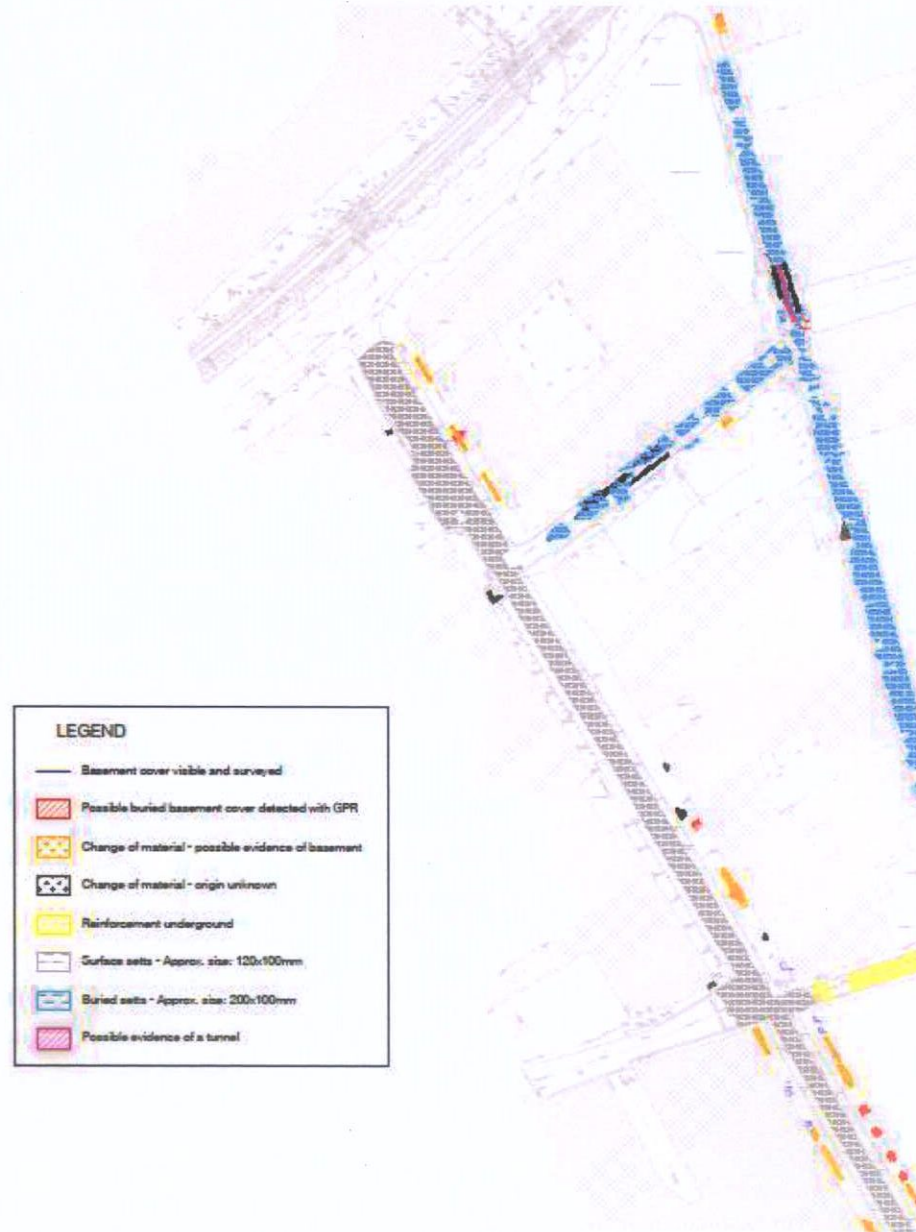


P 47 O'Rahilly Parade facing towards Moore Street in 1926, Source: Military Archives



P 48 O'Rahilly Parade, facing east towards Moore Street 2020

¹⁶ Irish Press, 30th November 1938



P 49 The GPR survey of the internal street network, indicating existence of setts below tarmac surfaces. Please Note, due to their concealed presence, it is not possible to confirm the extent of disturbance to accommodate extensive ground works in the past. Source:Murphy Geospatial [fix image](#)

A4.7.16 Directory

Moore Street, from Henry Street to Parnell Street		
No	1916 Thom's Directory	1917 Thom's Directory
1 & 2	Humphrys, J. tea, wine & spirit merchant	Humphrys, J. tea, wine & spirit merchant (shown as destroyed on insurance map)
3	Savino, O., fried fish shop	Rebuilding
4	Morris, Miss Bridget, dairy	Rebuilding
.....here Clarke's court intersects		
5	Dunne, M J, pork butcher	Dunne, M.J. pork butcher - Rebuilding (Shown as destroyed on insurance map)
6	Dillon, Robert, fruiterer	Dillon, Robert, fruiterer
6a		Rebuilding
7	Reddy, Patrick, fish & poultry	Reddy, P., fish & poultry
8	Dillon, Robert	Shields, John, provision dealer
	Sheilds, John, provision dealer	
9	vacant	
10	Cogan, T. F., provision dealer	Cogan, T. F. provision dealer
11	Plunkett, James, china & glass dealer	Plunkett, James, china & glass dealer
12	Cogan, T. F. confectionery	McGivney, Patk., cutler &c.
13	Hogan, Mrs. Rose Anne	Hogan, Mrs. Rose Anne
14	Norton, Mrs. china & glass warehouse	Norton, Mrs. china & glass warehouse
15	O'Gorman, Miss M., clothes dealer	O'Gorman, Miss M. clothes dealer
16	Plunkett, Patrick, poulterer, &c.	Plunkett, Patk., poulterer, &c.
17	Gore, R. J. chemist & druggist	Gore, R. J. chemist & druggist
18 & 19	Ruins	Ruins
20 & 21	Hanlon, M. & P. fishmongers & ice merchants	Hanlon, M. & P. fishmongers & ice merchants
22 & 23	Price's Stores, importer of china, glass, earthenware, fancy baskets etc.	Price's Stores, importers of baskets and goods
24 & 25	Kelly, Patk, fish merchant Miss A Matassa	Kelly, Patk, fish merchant Miss A Matassa
...here Sackville lane intersects		

26	McCormack & Fogarty, grocers, tea, wine & spirit merchant	McCormack & Fogarty, grocers, tea, wine & spirit merchant
27	Tenements	Maypole Dairy Co. (ltd)
27A	Ruhmann, M. pork butcher	Ruhmann, M., pork butcher
28	Byrne, Thomas, delph & china	Ruins
28a	The Maypole Dairy Co. (Ltd)	Ruins
29	Melling, James, fruiterer	Tallon, P., merch.
30	O'Connor, P., poulterer	O'Connor, P., poulterer
30 ½	Flanagan, Chrstr., poulterer	Flanagan, C., poulterer
... here Parnell street intersects..... [end of street]		

Henry Street, from Henry Place to Moore Street		
No	1916 Thom's	1917 Thom's Directory
..... here Henry place intersects		
34	Dundon & Co. tailors & outfitters	Dundon & Co. tailors & outfitters (shown as destroyed on insurance map)
35	Clarke, A. & Co. millinery, underclothing & gen. fancy warehse.	Destroyed in rebellion, 1916
36	Drago, Madame, Parisian hair-dresser & wigmaker, Randall McDonnell dentist	Destroyed in rebellion, 1916
37	Marks, E. & Co. (ltd), penny bazaar	Destroyed in rebellion, 1916
38	Wilson, R. J. & Co., confectioners & fancy bakers	Destroyed in rebellion, 1916
39a	Leonard J. & Co. pharmaceutical chemists & druggists	Destroyed in rebellion, 1916
39	McCarthy & Co. costume & mantle warehouse & ladies' outfitting w'house	Destroyed in rebellion, 1916
40	Bailey, Bros. tailors	Destroyed in rebellion, 1916
40a	Gahagan, Mrs. Charlotte, baby linen warehouse & ladies outfitter	Destroyed in rebellion, 1916
41a	Calvert, Joseph, provision merchant	Destroyed in rebellion, 1916
41	McGivney, Patrick, cutler & optician Albert Nicholson, dentist	Destroyed in rebellion, 1916

A4.7.17 Bibliography

Please refer to main Conservation Plan for inclusion of bibliography.

A4.8 THE CIVIL WAR

The conflict within the study area during the Civil War was mainly confined to O'Connell Street Upper, then known as Sackville Street Upper, at the end of June and beginning of July 1922. This section starts with a general overview of the events leading up to July 1922 when the main events on O'Connell Street took place.

A4.8.1 Prelude to the Treaty

In the wake of the 1916 Rising, sixteen of the principal participants were executed and this led to a significant change in public attitudes to the events of Easter week arising from a general revulsion for the executions.

With the populace more politicised, the proposal by the government to extend conscription to Ireland led to widespread dissent around the country. At the time of the United Kingdom's entry into the World War in August 1914 recruitment had been strong throughout the two islands, but this initial enthusiasm for joining the war effort waned as the war continued without indication of when or how it would end. In view of the mounting casualties the decision was taken in 1916 to introduce conscription, though this was initially confined to England, Wales and Scotland, with Ireland excluded for the time being. Following the Russian Revolution and the exit of that country from the war, the diversion of German military efforts from the eastern front to the western front created renewed difficulties for the Allied war effort and, with a need for new recruits to the army, the government made the decision to extend conscription to Ireland. This accelerated the political shift towards nationalism, with widespread opposition to conscription and strike action and other protests throughout Ireland. Ultimately the war came to an end before conscription could be enforced, but the political fallout was to remain.

The post-war general election in December 1918 brought a significant swing towards nationalist candidates, assisted by the decision of the Labour Party not to take part in the election. With a substantial majority of nationalists elected, Sinn Féin implemented its pre-election decision for its candidates to refuse to take their seats in Westminster and to establish a parliament in Ireland instead. This parliament, to be known as Dáil Éireann, first met in January 1919, though more than half of the Sinn Féin members were in gaol and unable to take their seats. Unionist MPs did not participate.

At the same time as the Dáil met for the first time, the violence of the War of Independence began. Two and a half years of disturbance, fighting and destruction came to a climax in July 1921 with an attack on the Custom House in Dublin, during which a substantial number of nationalist fighters were

captured by crown forces. In the wake of this attack a truce was called, with a view to brokering a treaty to bring peace to Ireland that would satisfy all parties involved. For more than a decade prior to this, however, a substantial proportion of the population of the north-eastern part of the island was opposed to the nationalist ideals and to any form of home rule or republic. In 1920, the Government of Ireland Act had recognised this opposition and provided for Home Rule for two sections of a divided Ireland.

A4.8.2. The Treaty and its Aftermath

The outcome of the negotiations between the government and representatives of Dáil Éireann was the signing of a treaty in December 1921. One of the provisions of the treaty was that Ireland would have dominion status within the British Commonwealth, with the monarch as head of state. Amongst the implications of this was that those elected to the new parliament to be established in Dublin would be required to swear an oath of allegiance to the crown.

This provision of the treaty, in particular, was not acceptable to many of those who had sought an independent Irish Republic and who were not prepared to settle for anything less. Others, however, believed that, in the circumstances prevailing, this was the best that could be achieved in the first instance and that a full republic could be brought into being at a later date.

In January 1922 the Dáil met to debate the treaty and it was clear from the outset that the division between the two sides was deep and could not be resolved by debate. When the issue came to a vote those who supported the treaty prevailed and many of those who did not support it walked out in protest.

At the same time as this issue was focusing the minds of those in the larger part of the island, the Government of Ireland Act was coming into effect in the north-east, where six counties were excluded from the provisions of the treaty and where Home Rule was established. The new status of this part of the country, led some within the majority Protestant and Unionist population to undertake acts of violence against those of a Roman Catholic and Nationalist background. These acts, frequently referred to as a pogrom, resulted in large numbers of Catholics from those north-eastern counties fleeing their homes as refugees and travelling across the new border into the rest of the country.

Over the months following the decision of Dáil Éireann to ratify the treaty, those who were opposed to the treaty remained dissatisfied with the outcome and retained a coherence as a body, being of the view that some form of action was required, but as yet not certain what form that action would take. One early programme that was initiated by the anti-treaty faction was to commandeer a number of buildings with a view to providing hostel accommodation for refugees from the north-east, particularly from Belfast. In an overtly political move, the decision was taken that the buildings to be taken over would be those that were associated with Protestantism, with the presumption that this also meant Unionism, as a means of punishing those deemed responsible for the need for people to move their homes and travel as refugees to Dublin. The buildings taken over included the Kildare Street Club, the Masonic Hall in Molesworth Street and the Fowler Hall at number 10 Parnell Square. This move also brought the first of the buildings in the Dublin Central area into the actions of the period when the Young

Men's Christian Association (YMCA) building at 43 O'Connell Street was commandeered for this purpose on 22nd April.¹⁷

P 50 43 and 42 Sackville Street prior to 1922.



The YMCA had acquired number 43 O'Connell Street Upper in 1898. With its premises commandeered, the YMCA sought alternative premises. Clery's department store had occupied the Metropolitan Hall in Abbey Street Lower since its premises in O'Connell Street Lower had been destroyed in 1916 and was now vacating the hall. Accordingly, the City of Dublin YMCA negotiated with the trustees of the Metropolitan Hall to take over the building.¹⁸

A week before the YMCA building was taken over by the anti-treaty faction a larger group of Republicans moved into the Four Courts and occupied it as their headquarters in defiance of the provisional government. At this stage there was no certainty as to what would happen next. The British troops had begun the evacuation of the army barracks around the country, commencing with Beggars Bush Barracks in Dublin at the end of January 1922. With increasing tensions between the pro-treaty and anti-treaty factions and the occupation of the Four Courts the Westminster government made the decision to stop the evacuation of the army for the time being.

The occupation of the Four Courts continued while leading figures on both sides of the divide worked hard to find common ground to avoid the return to violence. Then, on 22nd June 1922, General Sir Henry Wilson, military advisor to the Northern Irish government, was shot dead in London. The Westminster government increased its pressure on the provisional government in Dublin to bring the

occupation of the Four Courts to an end and finally, on 28th June, the National Army opened fire on the courts, signalling the beginning of the Civil War.

A4.9. THE SECOND BATTLE OF O'CONNELL STREET

Once the attack on the Four Courts commenced, anti-treaty forces began to occupy other buildings around the city. At this time, they had a headquarters in Barry's Hotel in Great Denmark Street, in addition to the base in the courts and on 28th June 1922 further buildings in the neighbourhood of Barry's were taken over, including Moran's Hotel and Hughes's Hotel in Gardiner Street Lower, other buildings in Parnell Square and North Great George's Street as well as elsewhere in the city. The following day, 29th June, with the bombardment of the Four Courts continuing, Oscar Traynor, who was in charge of the anti-treaty forces based at Barry's Hotel, decided to relocate his headquarters to the Hammam Hotel on the eastern side of O'Connell Street Upper and thirty volunteers were sent to take over the building. A number of other buildings around the area were taken over, including the offices of the Dublin United Tramways Company at 26 O'Connell Street Upper, the Sackville Club at number 59 O'Connell Street, while the volunteers based in Hughes's Hotel in Gardiner Street were transferred to the premises of Adam Scott & Co, wine merchants, at number 44 O'Connell Street Upper, next door to the YMCA building that was already occupied.¹⁹

While the principal theatre of fighting was in and around the Four Courts, National Army troops were also present in the O'Connell Street area and there was frequent firing from pistols, rifles and machine guns. The anti-treaty forces made a number of attempts to relieve the volunteers in the Four Courts but found it impossible to do so; ultimately the Four Courts garrison was told to leave the building. The fighting at the courts ended with two massive explosions that destroyed the Public Record Office and did great damage to the central tower and dome, though many anti-treaty volunteers managed to avoid capture and to join their comrades in the O'Connell Street area.

By this time, the anti-treaty forces had taken over the entire city block between Cathedral Street and Findlater Place, which included four hotels – the Hammam Family Hotel, the Crown Hotel, the Granville Hotel and the Gresham Hotel. It also included the Dublin United Tramways Office and the accounts department of the GPO, which had been taken over as the temporary offices of the GPO following the destruction of the main building in 1916. Holes had been broken through the party walls of these buildings so that it was possible to crawl through and gain access along the entire line of properties. This section of O'Connell Street became known as "the Block".

With the cessation of fighting at the Four Courts the National Army concentrated its efforts in removing the anti-treaty forces from elsewhere in the city, particularly the O'Connell Street area. Armoured cars were brought into use along O'Connell Street and its vicinity, with snipers located in various buildings

¹⁷ *Evening Herald*, 22nd April 1922

¹⁸ *Freemans Journal*, 13th June 1922

¹⁹ Gillis, 2011, pp. 65-69.

around the area to fire on any anti-treaty volunteers that could be seen in the occupied buildings or in the streets. The anti-treaty forces appear to have had no strategy and the occupation of a diverse range of buildings was ultimately not a tenable position. Despite this, various members of the group managed to move in and out of the area carrying messages and orders.

To the north of Findlater Street anti-treaty forces had occupied the buildings on the eastern side of the street up to the corner of Parnell Street, but by Sunday 2nd July they had abandoned this position and it was taken over by National Army troops, giving them a strong vantage point at the corner of the two streets. They found that, as with 'The Block', holes had been broken through the party walls and it was possible to move between buildings along the street to Findlater Place. On that same day, the National Army had defeated the anti-treaty forces in the Gardiner Street area and could concentrate greater forces in O'Connell Street, throwing a cordon around the area to surround their opponents.

On Monday 3rd July, the National Army began a concerted attack on the buildings held by the anti-treaty forces, bringing three armoured cars with machine guns and rifle grenades, allowing them to approach the fronts of the buildings in reasonable safety. These armoured cars were backed by machine guns placed in high positions on the tower of Arnott's shop in Henry Street and Elvery's at 45-46 O'Connell Street Lower.



P 51 43 and 44 Sackville Street following the fire.

As the fighting progressed, there were times of lull, when the danger remained though with no action taking place, as occurs in all wars. Two National Army soldiers in a building on the eastern side of O'Connell Street decided to alleviate the boredom by seeing if they could knock the YMCA sign off the

²⁰ Gillis, 2011, p. 106.

²¹ Geraghty and Whitehead, 2004, p. 173.

front of 43 O'Connell Street Upper by firing a Lewis machine gun at it.²⁰ In the process they hit a gas pipe and the building went on fire. This achieved the unexpected result of clearing the anti-treaty forces out of the building, but when the Dublin Fire Brigade tried to extinguish the fire, they found that the battle did not abate and with bullets flying around them they left the scene, abandoning their ladder. It was not until two days later that the brigade was able to return and finally quench the fire.²¹

On the evening of 4th July, the anti-treaty forces in The Block realised that there was nothing further to be gained from a continued fight and any hope of reinforcements arriving to relieve them had evaporated. During the evening, the majority of the remaining volunteers evacuated the buildings, including most of the leaders. Cathal Brugha remained behind in charge of a small band of volunteers, and they continued to offer serious resistance to the pro-treaty attacks. During the evening an 18-pounder field gun previously used to fire on the Four Courts, was brought into play, located in Henry Street at the junction with O'Connell Street and with armoured cars positioned in front of the gun to protect the gunners from rifle and machine gun fire. For about four hours the guns fired on The Block with no lasting effect.



P 52 Field gun in Henry Street firing on The Block.

The field gun recommenced its firing on Wednesday 5th July, augmented by Lancia and Rolls Royce armoured cars approaching close to the building with their machine guns and rifle grenades. Before

long, the Hammam Hotel was on fire and the fire spread, aided by the holes that had been breached through the party walls. By this time buildings on the western side of the street, including the Sackville Club at number 59, had been secured by the National Army forces and these provided firing positions. Despite the fire raging through the buildings in The Block anti-treaty volunteers continued to resist until finally, during the evening of 5th July many of them finally surrendered, with a few escaping and some killed. The second battle of O'Connell Street had come to an end.

A4.8.10. AFTERMATH

In the aftermath of the battle most of the eastern side of O'Connell Street Upper was in ruins, particularly the area between Cathedral Street and Findlater Place, though with some destruction on the western side as well. The map on the right shows in red those buildings that were destroyed and those that were partially destroyed.



P 53 Anti-treaty forces surrendering at number 55 O'Connell Street Upper.



P 54 Destruction of numbers 10 to 12 O'Connell Street Upper.

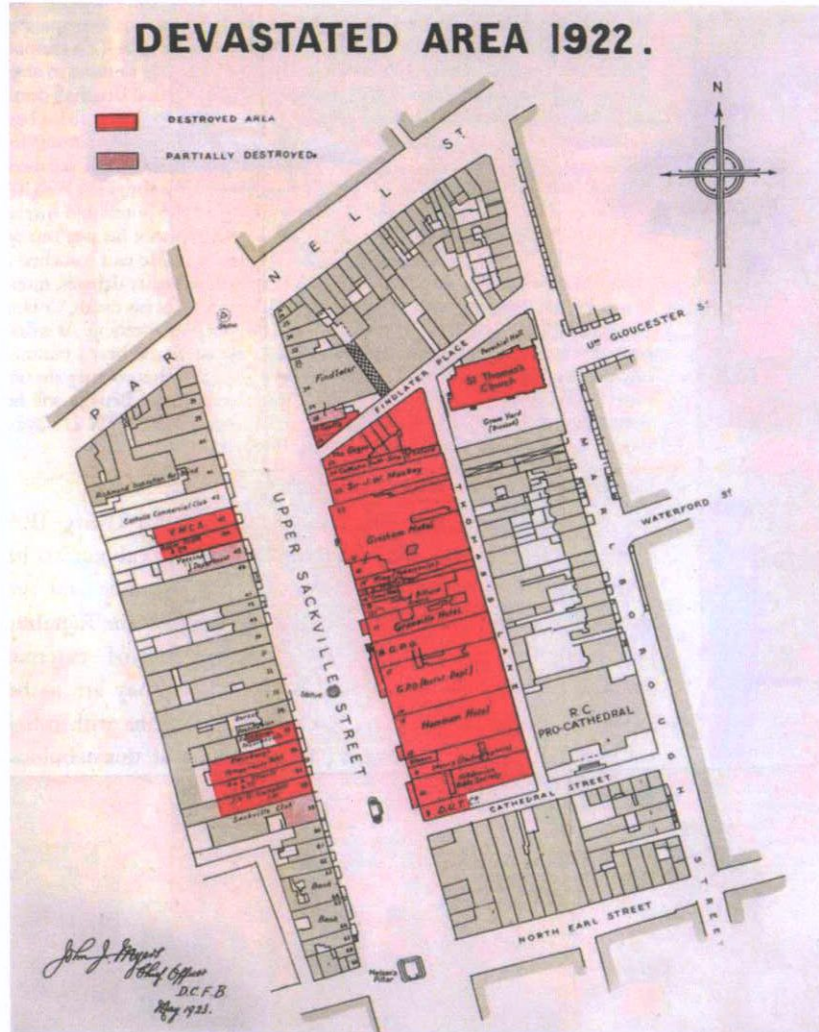


Fig. 6 Chief Fire Officer's map showing buildings damaged or destroyed in the battle

On the western side of the street, within the Dublin Central site, the destroyed buildings noted on this map include number 43, the YMCA building, and number 44, which was Adam Scott & Co. Adjacent to these was number 45, which is noted on the map as "partially destroyed". On the face of it the categorisation indicated on the map appears to conflict with what appears in the photograph reproduced above showing the three buildings after the fire, with the Dublin Fire Brigade still present. This photograph was taken on the morning of 6th July during the second, and successful, attempt to

extinguish the fire and it appeared in the *Evening Herald* later that day. A photograph of the fire brigade tackling the fire in number 44 appeared in the *Freemans Journal* on 7th July and appears to have been taken at around the same time.

The *Evening Herald* on the same date noted that "on the west side of Upper O'Connell St. seven fine buildings have been completely burned out, and several others, including the beautiful structure of Messrs. Gilbey, had narrow escapes." The *Irish Independent* on 6th July listed the buildings that had been destroyed and on the western side the list included:

- 42 – The Catholic Commercial Club
- 43 – City of Dublin YMCA, the White Cross Association and the Irish Missions to the Jews.
- 44 – Adam Scott & Co, foreign wine importers, and wholesale tea merchants
- 55 – Edinburgh Assurance Co, and offices of J and J Galloway, solrs, and insurance agents, and J W Dyas, solr.
- 56 – Edinburgh Temperance Hotel
- 57 – Messrs A and R Thwaites & Co; mineral water manufacturers

The Lord Mayor, Laurence O'Neill, was reported in the *Irish Times* on 6th July as saying that the firemen "are now trying to save Thwaites mineral water factory, in Upper Sackville Street, which is ablaze, and are striving to prevent a spread of the outbreak to the premises of Messrs. Adam Scott and Co. and Messrs. Gilbey's (sic)", adding that "There is an enormous quantity of whiskey stored in the vaults under Gilbey's. The vaults run from Gilbey's establishment right up to the Rotunda. If the whiskey vaults go, I fear for the city". This would refer to the vaults under numbers 46-47 O'Connell Street Upper and the railway tunnel that connected Gilbey's premises in O'Connell Street with their bottling plant on the other side of Moore Lane, and which was unearthed during the archaeological investigations of the Point A Hotel development on the western side of Moore Lane. The Lord Mayor's reference to the attempts to stop the spread to Scott's premises suggests that on 5th July number 44 O'Connell Street had not yet caught fire, though the photograph taken the following morning shows that the attempt to prevent the fire had been unsuccessful.

The following day, 7th July, the *Freemans Journal* listed the buildings destroyed and given the slightly later date it is probable that the list was more accurate. On the western side of the street the paper noted that "the top end of the west side of the street has escaped, and it is wondrous strange to note amidst the ruin how little damage it sustained." Buildings slightly further to the south along the street were not so lucky and the paper listed the following on the west side:

- No. 43 – The City of Dublin YMCA
- No. 44 – Adam Scott & Co., wine and tea merchants
- No. 45 – The Vaccine Department, LGB [Local Government Board]
- No. 55 – The Edinboro' Life Assurance Co.
- No. 56 – Edinburgh Temperance Hotel.

- No. 57 – Thwaites & Co., mineral water makers.
- No. 58 – Campbell's and Lambkin Murphy's wine and tea merchants
- No. 60 – Askin's, Land Agents, and the Imperial Norwich Insurance Offices

It is notable that number 42 is absent from this list, though included the previous day in the *Irish Independent* and it is probable that this was an error by the *Independent*. It is also notable that number 45 has joined the list and it seems likely that the fire had spread from number 44 since the previous day. Also included on this list and not in the previous day's *Independent* were numbers 58 and 60. It is likely that the fire had spread from number 57 to 58, but there is no mention of number 59, which had been occupied by the anti-treaty forces and which is noted on the Chief Fire Officer's map as being damaged. The inclusion of number 60 must be an error, as that building retains its interior plaster and fittings, which are unlikely to have been reproduced in any repairs after a fire.

The *Irish Times* on 7th July included a list of buildings destroyed, though it is not as comprehensive. It states that number 43 had been "virtually gutted", the premises at number 44 "have been virtually gutted", number 55 "have been gutted", number 56 "has been destroyed. Only the front wall is left standing", while the premises at number 57 "have been burned out". It also noted that "The Sackville Club, which had been heavily barricaded with sandbags by the Irregular forces, had its fortifications intact, but the windows were severely shattered."



P 55 Shattered window at the Sackville Club, 59 O'Connell Street Upper (Source: George Morrison)

Given that no early brickwork has been identified in the above-ground parts of the present buildings on the site it is probable that the three, i.e., numbers 55, 56 and 57, were demolished rather than destroyed forming the basis for the new buildings. This accords with the system for clearing the battlefield in the weeks following the end of hostilities on this site as described in the *Evening Herald*. On 8th July the paper reported on the clearance of the street, stating that "the east side of the street has been roped off, as there is danger of many of the tottering walls of the destroyed buildings liable to crumble at any moment." It then describes the demolition process:

About 11 o'clock, when the crowd was fairly thick, a party of firemen and others recommenced demolition operations on the remaining walls of the Tramway Offices [at 9 O'Connell Street Upper]. A fire escape was backed up into Cathedral Street, and the long arm of the ladder escape was slowly extended. A man in a black oilskin cot (sic) nimbly ascended to the topmost rungs, and with the confidence of experience carefully began to entwine strong wire cable about a jagged arm of wall. ... The sinuous coil was placed in position and a noose made. The man on the fire escape descends from his perch, and a lumbrous steam-roller takes the place of the fire escape. The wire coil is attached to it and puffing like a fussy, fat man it draws it taut.

There is a moment of anti-climax when the cable breaks and a delay while it is reattached and then: Again it draws taut and, with a series of short, snorting puffs, the steam-roller tugs hard. The amateur camera youths and girls are again ready, as the heap of charred masonry comes crashing down they triumphantly press their recording buttons and smile happily. Somewhere, in some attic, some of those photographs may yet await discovery.

The *Evening Herald* also described the work of firemen on the balcony of the Sackville Club at 59 O'Connell Street Upper, which they used as a vantage point for tackling the fire that still blazed in the adjacent premises of Campbell's' at 58 O'Connell Street.

... a few moments later the two firemen appear on the roof of the club. They peer over the edge into the mass of wreckage in the building below, seeking further traces of fire. As they hang there over the edge of that yawning abyss of destruction there is a sudden crash. ... It is only a few heavy beams of an upper floor collapsing.

This account indicates that number 58 O'Connell Street Upper was badly damaged and roofless, with floors collapsing, while at number 59 there was significantly less damage and the roof was intact. The *Meath Chronicle* on 8th July reported that on the Thursday, two days previously, the premises of Campbell's' at number 58

was a mass of flames and the Fire Brigade worked like Trojans to prevent the fire spreading to the Sackville Club adjoining it on the south side. The buildings on the north side of it had already been destroyed, and the main efforts of the Brigade were directed to the preservation of the remaining houses from Campbell's to Henry Street.

An article in the *Freemans Journal* on 11th July described the loss of architectural heritage that resulted from the destruction in O'Connell Street. The account concentrates on the eastern side of the street, commenting that "The houses on the west side of the street did not receive anything like the same degree of internal embellishment as Drogheda House [11 O'Connell Street Upper] and those to the north of it." The only comments relating to the western side were that only one house in the street "that

occupied by Dr Montgomery, at No. 45, remained a family dwelling-place to the last." The article also states that:

In the Sackville Club were many interesting relics of 18th-century Dublin. Dublin then enjoyed a European reputation for the quality of its silverware, and many beautiful specimens of the silver-smith's art have perished in the flames.

This last statement is either an error or implies that the fire brigade was unsuccessful in preventing the fire from spreading to the Sackville Club.

Over the ensuing weeks the newspapers reported on the clearance of debris from O'Connell Street and the works to ensure that the trams could run again. No specific details were given about the clearance of burned-out buildings and it is uncertain whether the system of demolishing buildings by means of a steel cable and a steam roller continued throughout the street. As was noted above, The Chief Fire Officer's map describes numbers 43 and 44 as "destroyed" and number 45 as "partially destroyed", while the photograph of the fire brigade at work on the buildings shows that a substantial amount of number 43 remains standing and would presumably be better described as "partially destroyed" than "destroyed". Given the lack of early masonry identified in the upper floors of these buildings it seems likely that they succumbed to the steel cable and the steam roller in the ensuing weeks.

Shortly after the end of the battle the newspapers began to report that claims for compensation had been lodged with the authorities for damage and loss. Many of these were for loss of personal effects, such as one lodged by "Alex. Fleming, Glasgow" for property worth £60-3s-6d lost in the destruction of the Edinburgh Hotel. It is unlikely that this was Alexander Fleming, discoverer of penicillin, as although he was Scottish, he was based at St Mary's Hospital in London at the time and not at Glasgow. Amongst the more substantial claims were the following:

Evening Herald, 11th July:

Lord Viscount Bangor, loss of 56 Up. O'Connell Street, £20,000
Messrs. A and R Thwaites and Co., Ltd. Destruction of premises at 10-19 Moore Lane and Up. O'Connell Street, £25,000
City of Dublin Young Men's Christian Association, £20,000

Freemans Journal, 11th July:

Mr R J Mackey, 55 Upper O'Connell Street, £50,000

Evening Herald, 13th July:

The Edinburgh Assurance Co Ltd, for destruction of premises, etc, at 55 Up. O'Connell Street, £20,000
Adam Scott, destruction of premises, 44 Up. O'Connell Street, with stock-in-trade etc, £38,000
Robert John Mackey, for destruction of the Edinburgh Temperance Hotel, up. O'Connell St, £50,000 [also noted above]

Amongst the smaller claims there are some that relate to properties not noted as being destroyed or otherwise affected by the fighting, though inevitably there was damage to buildings in battle zone through gunfire or small incidents. Amongst those listed are:

Hyman Shaper, for destruction of property at 39 Henry Street, £292 (*Evening Herald*, 13th July)
Trustees, Catholic Commercial Club [42] Upper O'Connell Street, £3,000, (*Evening Herald*, 13th July).
P T Kelly, 48 Up. O'Connell Street, £100 (*Freemans Journal*, 13th July)
Trustees of the estate of the late Albert O Wells, premises at 61 Up. Sackville St, with contents, £1,475-12s-7d (*Irish Times*, 20th July)
The Dorset Institution, 54 Upper O'Connell Street, damage to property, £500 (*Freemans Journal*, 31st July)
Capt H E Priestman, Sackville Club, loss sustained, £228-11s-6d (*Freemans Journal*, 31st July)
W R Murphy, 55 Up. O'Connell Street, destruction of furniture, etc, £690 (*Freemans Journal*, 31st July)

Apart from the compensation claims listed in the newspapers, records of claims are also held in the National Archives of Ireland and include the following:

Thomas F Cogan, merchant, 10 Moore Street, premises damaged and goods taken by National Army forces in July 1922, plate glass broken due to gunfire at 10 Moore Street on 18 April 1923.
Rosanna O'Brien, 15 Moore Street, damage to personal goods and furniture due to being used as a barricade by National Army forces at 15 Moore Street between 28 June and 8 July 1922.
Kate Isabella Gore, 17 Moore Street, seizure of goods, damage to furniture and premises by National Army forces between 28 June and 3 July 1922.
Kate Isabella Gore, 17 Moore Street, house and premises damaged and goods taken at 17 Moore Street due to occupation by both Irregular forces and subsequently National Army forces between 28 June and 5 July 1922.
George Price Limited, 22 and 23 Moore Street, goods taken at 22 and 23 Moore Street by armed men on 1 July 1922.
Alexander Montgomery, for destruction by fire of premises at 45 Upper Sackville Street and damage to furniture as a result of military operations between Irregular forces and National Army forces in June and July 1922. Also includes valuation of damaged items and repair work to property.
Mary Jane Raper, housekeeper, 46 and 47 Upper Sackville Street, personal property including furniture destroyed due to burning of the premises at 46 and 47 Upper Sackville Street between 28 June and 3 July 1922.
C J Hyder, manager of Messrs W and A Gilbey Limited, 46 and 47 Upper Sackville Street, premises and furniture destroyed at 46 and 47 Upper Sackville Street on 28 June 1922.

Michael Foster, director of Messrs Waters Brothers Limited, 51 Upper Sackville Street, damage to premises at 51 Upper Sackville Street due to gunfire on 28 June 1922 and subsequent days.

Jacob Ellis, manager of Carlton Cinema Limited, 52 Upper Sackville Street, damage to cinema premises at 52 Upper Sackville Street due to armed conflict between 28 June and 8 July 1922, cinema premises damaged due to a bomb explosion on 23 March 1923.

Robert A Falconer, publisher, 53 Upper Sackville Street, premises damaged at 51 Upper Sackville Street due to gunfire on 5 July 1922.

Fitzjames Russell, director of Mecredy Percy and Company Limited, 54 Upper Sackville Street, damage to premises at Sackville Street due to military operations on 2 July 1922.

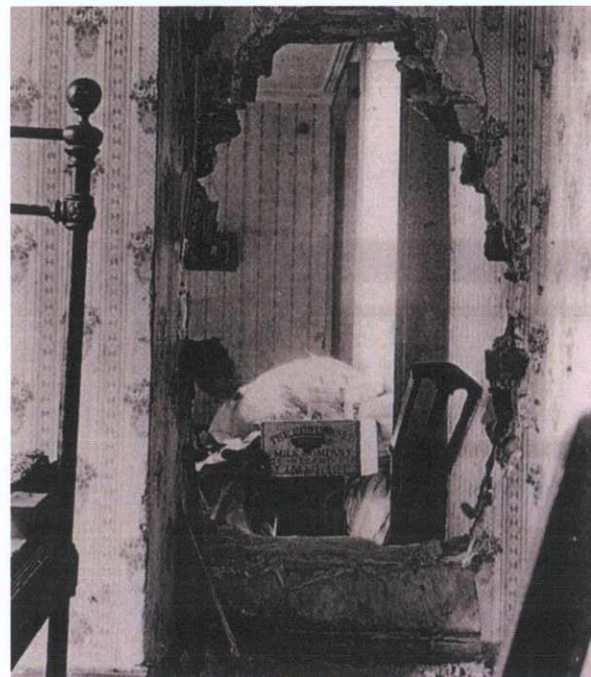
William Eager Hewitt, A and R Thwaites and Company Limited, 57 Upper Sackville Street, premises and contents destroyed by fire during armed conflict at 57 Upper Sackville Street on 5 July 1922.

Commandeered premises: Sackville Street Club (sic), 59 Upper Sackville Street, settlement of a claim by Raoul Coutourier Debessane, KC, ... for damage incurred during billeting of premises by Irregular forces and subsequently the National Army forces during military operations between 28 June 1922 and 6 July 1922.

Francis John Askin, 60 Upper Sackville Street, damage to house and premises at 60 Upper Sackville Street due to armed conflict between 27 June and 8 July 1922; damage to premises at 60 Upper Sackville Street due to the explosion of a land mine by persons unknown on 17 March 1923.

William Weir, 60 Upper Sackville Street furniture and personal goods destroyed at 60 Upper Sackville Street during occupation by Irregular forces and subsequently National Army forces between 27 June and 8 July 1922.

Much of what is included in that list of claims had been noted in the newspapers, but this also includes reference to occupation of number 60 O'Connell Street Upper by anti-treaty forces and subsequently by the National Army. Mention is also made of the occupation of 17 Moore Street by both sides successively and the taking of goods and furniture from premises in that street, which is a reminder that the battle had its impacts on those that lived in the area, but which is generally unrecorded. Local businesses also suffered and while those that lodged compensation claims for direct damage are acknowledged, the loss of trade to businesses would have been a significant element of collateral damage. One possible business to suffer at the time was the Corona Cinema in Parnell Street. This had opened in 1914 as the Cosy Cinema but closed following the loss of trade during and after the 1916 Rising. The premises were taken over by a new company and reopened in 1919 as the Corona Picture House but closed in 1922 and this may have been a repeat of the previous closure, resulting from loss of business to a company with large overheads and small margins.



P 56 Hole in the party wall between properties on the eastern side of O'Connell Street, July 1922.
(Source: George Morrison)

A4.11. LATER EVENTS IN THE CIVIL WAR

The battle for Dublin in the Civil War came to an end in July 1922, but this was not the end of the Civil War and was not the end of isolated events in the city. Various attacks, killings and other incidents occurred throughout the city until the end of the Civil War in May 1923. Businesses, if they survived, established temporary premises while their main buildings were rebuilt. Notwithstanding the claim from A and R Thwaites for the destruction of their premises at Moore Lane as well as O'Connell Street, the company set up temporary offices in Moore Lane, with their telephone line restored.

One of the compensation claims, lodged by Francis John Askin, related to number 60 Upper Sackville Street and sought damages not only arising from the operations in June and July 1922, but also due to an explosion by a land mine by persons unknown on 17th March 1923. On this occasion there was an international boxing match taking place in Prince's Street and anti-treaty forces attempted to disrupt the event, particularly in view of the worldwide attention and presence of reporters from far afield. A substantial land mine was laid in Henry Place, close to the junction with Henry Street, seemingly in an attempt to sever the main electricity cable leading to Prince's Street. The mine was detonated at 7.30 in the evening and it is remarkable how few injuries resulted, no-one killed, and one child injured by flying glass.²² The explosion occurred directly to the rear of the Pillar Picture House at 62 O'Connell Street Upper, blowing the doors in but not injuring those who were watching a picture at the time. The blast also caused damage to number 60 O'Connell Street and windows and doors of nearby buildings destroyed.

A week later, a second land mine was placed, this time at the entrance to the Carlton Cinema at 52 O'Connell Street Upper.²³ This time the mine was later at night, after the cinema had closed, and no injuries resulted. There was damage to the cinema and to nearby properties such as M H Gill and Sons at number 50 O'Connell Street Upper and McGuire's Civil Service College at number 51, but it was not serious and was repaired immediately.

It is estimated that more than two hundred and fifty people were killed in Dublin city and its environs between January 1922 and May 1923 due to political violence. This included ninety-five National Army, eighty-four Anti-Treaty IRA and seventy-two civilians.²⁴ While there were still six thousand British Army troops in the city up to the end of 1922, they played little part in the conflict, though six died.

A4.11.1. Bibliography

Please refer to main Conservation Management Plan text for inclusion of bibliography.

²² *Freemans Journal*, 19th March 1923.

²³ *Irish Times*, 24th March 1923.

²⁴ : Dorney, 2017.

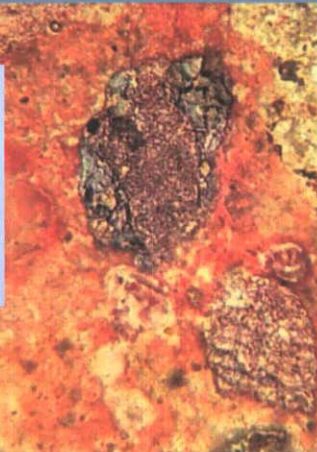
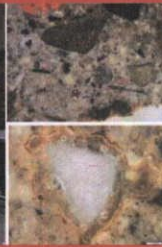
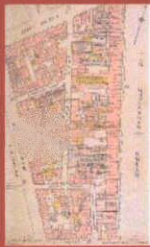
Dublin Central Masterplan Area Conservation Management Plan

Appendix A5 Building Materials Analysis Report

Sites 3,4,5

Volume 1

Dr. Jason Bolton



Conservation

Research

Analysis

Dublin Central

Historic Building Materials Analysis Report Volume 1 – Sites 3, 4, 5

April 2021

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IMPORTANT

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1. Introduction & Purpose of the Report

This report was prepared at the request of Molloy & Associates Conservation Architects to inform the Dublin Central Built Heritage Review for Hammerson Plc. The purpose of the work was to analyse the physical fabric of buildings on O'Connell Street, Parnell Street, Henry Street, Moore Street, Moore Lane and Henry Place; and to use the physical evidence gathered through study of the building materials to gain a better understanding of the significance and dating of each of the buildings. This report refers to buildings from Sites, 3,4 and 5 on Henry Street, Moore Street and Moore Lane¹.



Fig.1.1: GoogleMaps aerial view of the study area.

2. Methodology & Limitations of Inspection

Sitework began in June 2020 with sampling from July until November 2020. No.18 Moore Street was visited separately in April 2021. The buildings were visited as access was made available (some of the buildings had been disused and vacant for some time). The work comprised initial reconnaissance surveys of the exterior of all buildings listed for the project from the public street; followed by a visual assessment survey of the exterior and accessible parts of the interior of the buildings; investigative opening-up of targeted parts of the buildings to determine the nature of the masonry; sampling of a representative number of building materials from each of the sites; and analysis of those samples.

2.1 Visual Assessment Survey: The buildings and materials were examined using a standard methodology for the assessment of historic buildings and monuments. The sites were visited on various dates between July and April 2021. The survey visits encompassed a close visual observation of the materials, together with a digital photographic record of relevant features, drawing on the survey methodologies for historic building exteriors and historic stone surfaces laid out in Teutonico (1988)², Cooper et al (1997)³, Pavía & Bolton (2001)⁴, Fitzner and Heinrichs (2002)⁵, Bolton & Pavía (2005)⁶, Abrey (2007)⁷, Verges-Belmin (2008)⁸, Henry (2012)⁹, the practical experience of the report author in the study and investigation of historic buildings and their materials, and also with reference to other technical publications relevant to the inspection, analysis and repair of historic buildings and monuments which are referenced in the main body of the text.

2.2 Sampling, In situ Testing & Analysis: Each building was visited to assess and identify the range of historic buildings materials present. Representative samples were taken from each building for further analysis. A field laboratory was set up in No.10 Henry Place for preliminary sorting and recording of the bricks, plasters, bedding mortars, stones and other building materials recovered during the sampling. A list of samples is provided as Appendix 1. Preliminary recording, basic physical testing, and selection of parts of each sample for more detailed examination (microscopy, thin sectioning etc.) was made at No.10 Henry Place. Samples were mounted on thin sections for viewing under the petrographic microscope by specialist labs in the UK, Germany and Poland¹⁰, and then returned to the report author for analysis. A portable

microscope was used to examine building surfaces *in situ* in each building. Due to covid-restrictions and increasing difficulties in accessing the samples in No.10 Henry Place, all samples were removed to the premises of the report author in December 2020. The samples will be returned to No.10 Henry Place in 2021 on completion of the work.

All samples were analysed using both physical and chemical methods. Brick, stone and mortar fragments were carefully cleaned with a soft brush to remove dirt as well as any detached aggregate and binder. All samples were examined with the naked eye and with the help of a magnifying glass and an optical microscope. The samples were then cleaned with water to remove soil and other debris and then photographed. All samples were recorded following a standardised procedure. Selected areas of each sample were treated with dilute hydrochloric acid digestion to assess the nature and composition of some aggregate and binder. Basic physical testing was also carried out to determine values relating to porosity and water transport. Porosity strongly influences drying processes, which is important as the presence of moisture impacts how a material may deteriorate¹¹. The total porosity of a porous building material includes open, closed and trapped porosity¹², and testing focused on the percentage of porosity accessible to water under normal weathering conditions.

Thin sections of selected mortar fragments were prepared for petrographic analysis. This analysis provides essential information on the composition and properties of the aggregate and binder(s) comprising the plastering mortars. In order to preserve the original features of the mortars, the samples were impregnated in a deep blue coloured resin under vacuum before thin sectioning. This resin appears a deep blue colour in the petrographic microscope photographs. The impregnation with resin pre consolidates the samples preserving their minerals and micro structure, and facilitates identification and description of its pore space characteristics. As an aid to mineral identification during analysis, the section was stained using a standard dual carbonate alizarin red-S and potassium ferricyanide chemical stain to help determine the composition of any carbonate cement phases and grains present. The staining differentiates non-ferroan calcite (pale red) from ferroan calcite (mauve → purple → dark blue with increasing Fe-content); from dolomite (no colour); from ferroan dolomite (pale to deep turquoise with increasing Fe-content). Thin sections of selected mortars were polished to the standard thickness of approximately 30 microns, covered with a glass slip and examined with the petrographic microscope. The petrographic examination was carried out by using transmitted both natural and polarised light. SEM-EDS was used for selected samples to investigate the nature of the binder.

2.3 Inaccessible Parts & Limitations of the Work: A representative amount of opening-up and sampling was undertaken at each of the properties to obtain an understanding of the type and range of materials present, and where the structure had been altered with new materials added or replacing earlier fabric. Not all buildings were visited (some were of relatively recent construction and unlikely to contain historic building materials) and the survey and sampling followed the criteria set out by Molloy & Associates Architects. The focus was on determining the range of materials, especially early materials, and to make a clear differentiation between building materials which are of architectural heritage significance, and later more modern materials (though these were also informative in understanding change to the fabric). However, comprehensive sampling and opening-up was not undertaken at all buildings and the range of information returned from each property ranged from thorough (10 Henry Place) to indicative (e.g. where the premises was still in active use). The details of each are provided in the individual building descriptions provided below. The study focused on the information provided by the materials.

No historical research was undertaken (but is being undertaken by other Design Team members); apart from reference to a limited selection of historic maps of the Moore Street and O'Connell Street area. Some of the interpretations and opinions below may be revised in the light of historical, cartographic and survey work undertaken by the Design Team in subsequent drafts.

3. Discussion

3.1 Terminology: Discussions of historic brick are hampered by the wide range of specialist terms used by different writers in different places, and by different classification systems (based on nature of raw clay, manufacturing technique, firing technique, durability or colour). Modern writers have sometimes confused these terms, using terms from different systems interchangeably or mixing them with marketing terms for bricks found in nineteenth century price books from different parts of England; which also drew on regional terms to refer to different brick products (see Table 1). The recent Historic England Practical Building Conservation volume on ‘Earth, Brick & Terracotta’ continued this confusion by noting three 17th century terms for brick (in descending order of quality and cost) as ‘cutters’, ‘stock bricks’ and ‘place bricks’; followed by a burst of regional terms drawn from different parts of England, and finishing with:

“Over- or under-burnt bricks that were considered unsuitable for building purposes were discarded, although under-burnt ‘sammels’ might be re-fired, or perhaps used in the brickyard as a casing for clamps. Over-burnt ‘clinkers’, sometimes fused together, are occasionally seen in garden walls where bricks were made”¹³.

It is important to realise that these brick terms are specific to England, sometimes specific to London or Kent, and were not in common usage in Dublin or in Ireland. Contemporary writers in Ireland made no such distinctions, Broadly, bricks in Dublin can be considered to be of four types:

1. **Gauged brickwork** – specialist high-quality brickwork, with few surviving Irish examples. ‘Tuck pointing’ and Irish ‘Wigging’ were used to emulate gauged brickwork.
2. **Facing/Stock Bricks** – These were facing bricks used for the front and rear walls, and could be red, yellow or another colour – the quality and durability were the key criteria. Also termed ‘yellow stocks’ or ‘grey stocks’. Stock bricks formed c.20% of the bricks found in a typical terraced house.
3. **Place bricks** – The term originates from bricks originally not made on a stock or pallet¹⁴, but turned straight out of the mould on to the ground where they were left to dry before being built in a clamp for firing¹⁵. Place bricks formed c.80% of the bricks found in a typical terraced house.
4. **Specials** – moulded specials for architectural detail, engineering brick, fire-backs etc. Specials formed c.1% of bricks found in a typical terraced house.

Classification of Clamp-fired bricks					
Malms		Washed		Common	
Cutters	140/-	Shippers	28/6	Shippers	28/-
Best Seconds	70/-	Stocks	20/-	Stocks	24/-
Mean do.	80/-	Hard Stocks	20/-	Grizzles	16/-
Brown Facing Paviers	55/-	Grizzles	17/-	Rough Stocks	16/-
Hard Paviers	50/-	Place	13/-	Place	12/-
Shippers	32/6				
Bright Stocks	37/6				
Grizzles	19/-			<i>Price shown per thousand at the brickfield</i>	
Place	16/-				

Table 3.1: Classes of bricks in ‘Rivington’s Building Construction’ (1904). The bricks are divided into three classes (Malms, Washed, Common) according to the manner in which the raw clay was prepared. For the third or Common class, the earth was not washed at all. All three classes are moulded and burned in exactly the same manner, and are sorted after firing into the varieties shown above according to the manner in which they were affected by firing.

In addition to historical terminology, the report will also make use of terms from the natural sciences when referring to historic building materials. Building stones and mortars (bedding, pointing, plasters, parging etc.) share much of the specialist geological terminology used for the description and classification of sedimentary, igneous and metamorphic rocks; while bricks and tiles are normally classified using terms from the petro-archaeometric study of archaeological ceramics (Fig.3.1). In addition, soiling and past alteration of building materials provides useful information on their stress history which can provide useful information for dating and to identify past interventions. The professional literature on the conservation of historic building materials uses specialised terms (e.g. drawn from the ICOMOS-ISCS: illustrated glossary on stone deterioration patterns): further information and references to same will be either explained in the text or referenced in the Endnotes in the final section of this report.

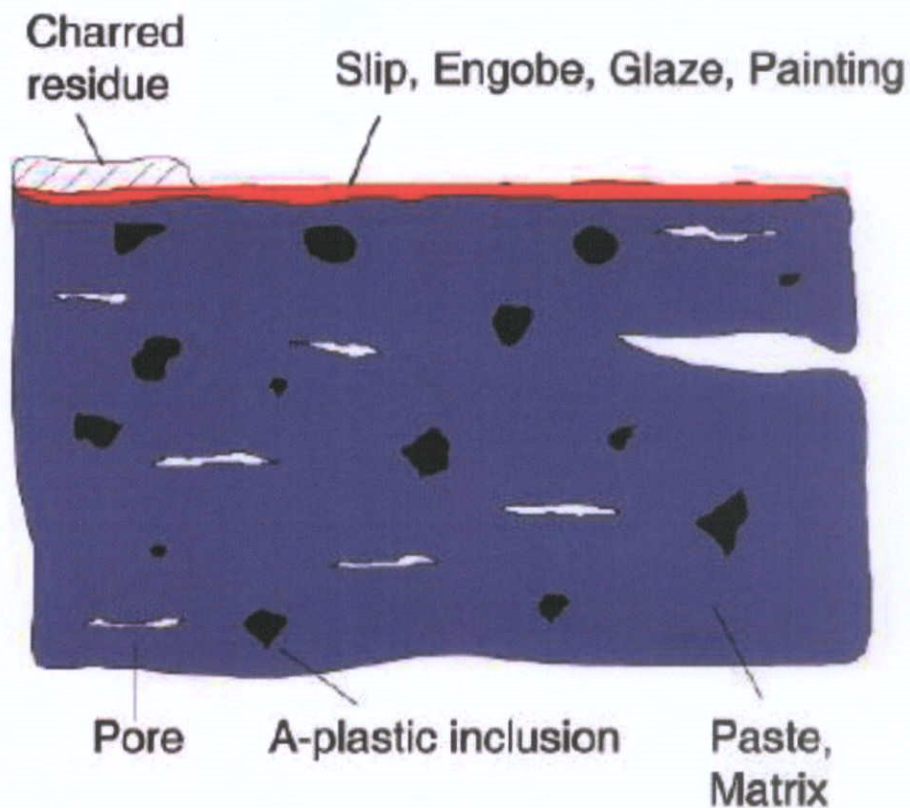


Fig.3.1: A ceramic is an inorganic, non-metallic solid prepared by the action of heat and subsequent cooling. The resulting product consists of holes (large pores), a matrix (former clay substance) and non-plastic inclusions (either natural and/or intentionally added, that is temper). Different terms for the surface are used depending on the type of ceramic and whether a treatment has been applied to the surface.

3.2 Historic Building Materials in Dublin City

The buildings seen in the O'Connell Street and Moore Street area represent a cross-section of construction materials used in Dublin City from the eighteenth century to the present day, and include stone, brick, mortars, slates and concrete. Moore Lane itself was originally known as 'Old Brick Field Lane' running behind and servicing the rear of the properties on O'Connell Street (then Sackville Street). The disused brick field is seen on the west side of Moore Lane, on the future site of Nos.10-24 Moore Street. The bricks burnt in this location would have been used for the construction of houses in the immediate area, and were probably used during the building of at least some of the Georgian buildings on O'Connell Street prior to 1756¹⁶. The properties included in the Dublin Central project encompass everything from Georgian hand-made brick to the introduction of perforated brick into the Dublin market to emergency repairs, haphazard 'cowboy' building and poor quality modern construction of concrete blockwork and partition walling. The brief

paragraphs below are thumbnail sketches of building materials which would be expected to be found in historic Dublin buildings of the period in question; and provide context for the discussion of the materials found in individual buildings found in deeper in the body of the report.

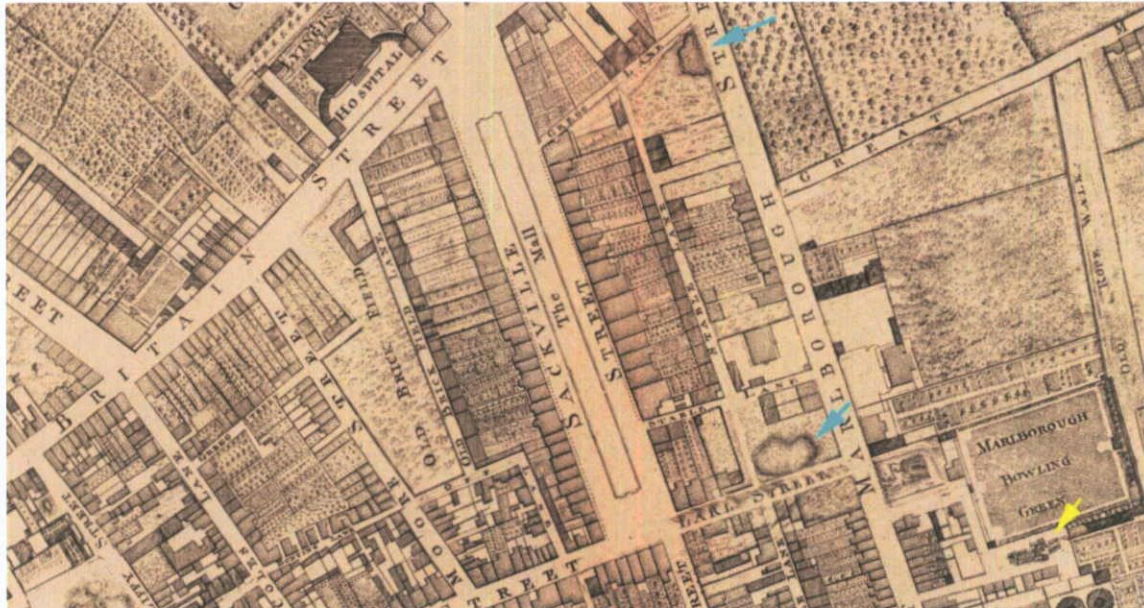


Fig.3.2: John Rocque's 1756 map of Dublin City. Moore Lane was then known as 'Old Brick Field Lane', with the brick field seen immediately west of the lane. This brickfield was probably used to fire bricks used for early Georgian buildings in the immediate area. Two possible sand pits are indicated (blue arrow) as is a timber yard (yellow arrow).

3.2.1 Stone: Dublin 'Calp' limestone, the bedrock beneath and the city, was the principal building stone used for general construction in Dublin City. Even buildings largely made of brick, rose from a basement level and foundations of Dublin 'Calp' limestone. Calp was extracted everywhere it was exposed, and the city is built on a range of small-scale quarries dating from many different periods¹⁷. The second most common building stone was Leinster Granite, extracted from a large number of quarries from the Dublin Mountains and along the coastline between Seapoint and Dalkey which was used for ashlar, doors, steps, string courses, windows and other architectural elements. Other Irish building stones are also found in much smaller quantities, and generally imported for specific building projects (Ardraccon limestone for the facades of Leinster House, Charlemont House or the Provost's House of Trinity College Dublin, or English Portland Stone which was widely favoured for public buildings). A range of other stones were also imported into the city for different specialist purposes such as flagging (Mountmellick, Liscannor and Swedish flags were brought into the city), chimneypieces (Kilkenny marble and Italian marbles were favoured) and the doorways to Irish Georgian and Victorian houses could be formed from Portland, Bath or Forest of Dean stone from England (though granite, painted timber and plaster doorways were also made)¹⁸. Decorative marbles were also imported for shopfronts and commercial buildings from the mid-nineteenth century onwards.

3.2.2 Brick: One of the challenges in using bricks as a relative dating tool is the diversity of type, colour and origin of bricks entering Dublin City during the eighteenth and nineteenth century. In the mid-nineteenth century there were c.480 brickfields in operation in Ireland¹⁹. Contemporary writers such as George Wilkinson (*Practical Geology and Ancient Architecture in Ireland*, published in 1845) were frustratingly vague about the sources of building materials; often simply noting that bricks were "made at several places about 4 miles from Dublin" as well as noting imports to the city from Athy, Tullamore and from places in England such as Bridgewater (blue and perforated red bricks) in Staffordshire²⁰. Bricks were a mainstay of barge cargo on the Grand and Royal Canals, and bricks were regularly transported to Dublin by

ship from Belfast, Wexford²¹, Cardigan in Wales and elsewhere²². The brickyards were inconsistent in output and longevity; some were opened for single building projects, while others could remain in operation for a number of decades before the clay supply was exhausted (though the bricks from the brickyard could change colour, texture and brick stamp over time). By the 1880s, the Dublin construction industry was fed by handmade clamp-fired bricks (both red and brownish-yellow) which continued to be made on small to medium farms along the canals and small brickyards in the vicinity of the city²³, while some manufacturers had invested in machinery and infrastructure to produce a range of brick and terracotta products:

*"Kill-o'-the-Grange.-The pottery and brickyard at this place is of long standing; formerly it had an extensive trade in coarse pottery, flooring and roof tiles, draining-tiles, chimney-pots, flower-pots and bricks. Some years ago the bricks, through careless work, got for a time into disrepute, but of late years they have been good..."*²⁴.



Fig.3.3: A brickyard depicted in 'The Boy's Book of Trades in 1871 showing a man and woman (possibly husband and wife) moulding bricks at a bench in a rough timber shelter, while a small boy (possibly their son) carries clay from a pug mill with the circular track walked by the horse also seen. In the background, a part-dismantled clamp can be seen, with a man wheeling bricks on a barrow.

The bricks available in the Dublin market in the past were intended for a variety of purposes such as 'facing bricks' for the façade (<10% of the amount of brick needed to build a house²⁵), 'place bricks' for internal masonry walls and wall linings, as well as high quality gauged and rubbed brick²⁶. The variety of brick expanded with the development of new manufacturing techniques in the nineteenth and twentieth century. Both solid and perforated (which reduced freight costs and required less material) were brought into the city from Castle Espie, Co. Down and Courtown, Co. Wexford in the 1880s though there was some debate over their resistance to damp and frost in comparison to the solid yellow stock brick produced. Handmade clamp-fired rough building brick continued to be made and fired in the traditional manner in rural Ireland into the twentieth century before being supplanted by mechanised industrial practices. The work was largely farm-based and family-based, with children routinely forming part of the labour force²⁷ (Figs.3.3-3.4). The presence of the imprint of a child's fingerprints in the surface of a brick in the wall between Nos. 12 and 13

Moore Street (Fig.5.3.4) is physical evidence of the common use of child labour in brickmaking and construction in eighteenth and nineteenth century Ireland²⁸. As bricks are usually stacked on edge to dry in a hack from right to left, then this suggests the marks were made by a right-handed person. Three finger-prints are seen, the three strongest fingers suggesting that the little finger was curled back and not used while handling the brick.



Fig.3.4: 'The Brick Children' from 'The Graphic', Saturday 27 May 1871, with a pug mill in the background; and a detail showing hand-made bricks which had been laid out to dry and then stacked.

The quality of the brick varied according to the nature of the raw clay, any processing of the raw clay, the moulding and drying process (surface features include animal footprints, palm and finger marks, 'grass marks', rain/hail marks and strike marks) and the firing process (chemical changes induced by firing the raw clay at temperatures of between 600-1300°C), and whether the brick was fired in a clamp (in use from the sixteenth century until World War II in Ireland) and kilns (with four key types in operation). The properties and provenance of the brick is also informed by intentional and unintentional additions to the matrix such as shell and 'dust' (domestic refuse was added to some types of bricks²⁹). The processing of raw brick clay to remove stones and other inclusion referred to handpicking pebbles, stones, soil and similar materials by hand. Clay or 'pug' mills were developed in the late eighteenth century in the Netherlands and England for the porcelain industry, and came into common use in the brickmaking industry by the mid-nineteenth century³⁰. However, these would be supplanted by new machines which were developed during the Industrial Revolution from the eighteenth century onwards.

The Industrial Revolution encompassed a wide range of patents and experiments in the mechanised production of bricks from the late eighteenth century onwards. Between 1820 and 1850, 109 brick patents were taken out in the United Kingdom and Ireland including brickmaking machines (generally extruded or 'wire-cut' bricks) and improvements to kilns. Despite this, Edward Dobson's *A Rudimentary Treatise on the Manufacture of Bricks and Tiles* in 1850 makes no mention of wire-cut or extruded bricks suggesting that none of these machines and processes had penetrated the brickmaking industry. Brickmaking machines were noted in *The Builder* from 1852 onwards, but the attitude was pessimistic "We scarcely anticipate that bricks will be made more cheaply by machines than by hand". These included machines designed by William Irving in England in 1841 and by the Marquis of Tweeddale in Scotland in 1837, but these machines were not suitable for all types of brick clay. By the 1860s, brickmaking machines had become more elaborate; the speed of development accelerated by the diversification of iron founders and agricultural machinery makers beginning to manufacture brickmaking and tilemaking machines. Many of these were small machines, ideal for a brickyard supplying local needs or a specific building project. By the 1880s, many of these machines were available, generally feeding clay into a machine from a barrow. The raw clay first fell into a trap between

a pair of rollers in the crushing mill, from which two or more columns of clay extruded sideways in a long column which were then cut by a series of wires into ten or more individual bricks³¹. Susan Roundtree has noted that machine-made bricks were imported into Dublin City from the mid-nineteenth century from England and Belfast³², and that the earliest machine-made bricks manufactured in the Dublin area were made at Portmarnock c.1881 and at Kill of the Grange which had been a pottery since before 1837 and which subsequently developed to become the Kill Brick Co. in 1900 and the Kill-o'-the-Grange Brick Co. Ltd in 1910. A number of other Dublin machine-made brickmakers were in operation at Balbriggan c.1890-1930s and at Boghall Road in Bray Co. Wicklow from the 1870s onwards³³.

TO BRICKMAKERS, ETC.

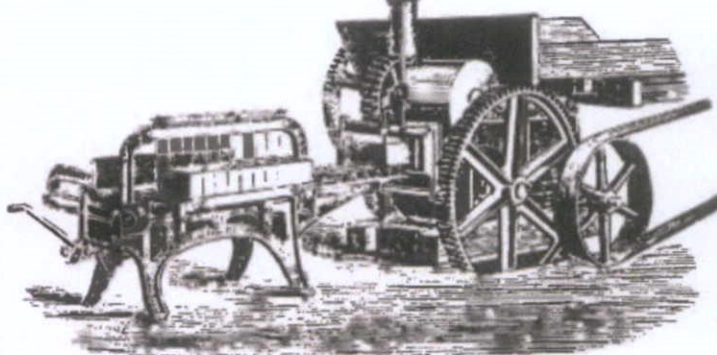
CLEWS' IMPROVED BRICK, TILE AND PIPE MAKING MACHINE.

J. CLEWS begs to call attention to his new high-class Brick Making Machine, which to makers requiring a really sound and good one is invaluable.

AMONG THE ADVANTAGES these Machines have over others are they are low, the PUG BOX which is in an horizontal position, being only 3ft. from the ground, and are entirely devoid of bevil gearing.

THE PUGGING APPARATUS is very effective and will work up any plastic material without any previous preparation, and make the bricks sufficiently stiff to act 7 or 8 high.

THE DIE is brass-lined and requires no fasten, and can easily be attached to any other make of Brick Machine.



They are capable making from 10,000 to 20,000 bricks per hour when driven by a 1 H.P. Engine, and if desired, can at an extra be fitted with WIND GEAR for bringing clay to the Pug box.

These Machines simple in construction the very best materials workmanship, and neatness and efficacy of their work, combined with the low price not to be equalled by any other machine in the market, and which they have been proved to give the greatest satisfaction. Testimonials on application.

J. CLEWS, Engineer, Clarendon Iron Works, OXFORD.

Fig.3.5: 1885 advertisement by J.Clews, engineers for the Clarendon Iron Works of Oxford for their 'new high class Brick-Making machine'.

3.2.3 Mortars: There are no publications offering an overview of historic mortars in Dublin City and the materials examined for the Dublin Central project were compared with unpublished records held by the report author on mortars previously analysed from archaeological sites and monuments and historic buildings in Dublin City and environs dating from c.1210 to the present day. The term mortar is both simple (see Table 3.2) and broad, and includes materials based on function (bedding, jointing, repointing, repair, plastering, rendering, parging, core-work etc.) and nature of the binder (lime, hydraulic lime, Portland Cement, natural cement, gypsum etc.).

Mortar Definitions
"Mixture of binder, fine aggregate and water that hardens". BS 6100 part 6.6.1:1992
"Mortar is a mix of organic and inorganic binders, mainly fine aggregates, water and admixtures and organic and inorganic additives, mixed in order to give to the fresh mortar a good workability and to the hardened mortar adequate physical properties (porosity, vapour permeability etc.) and mechanical (Strength, deformability, adhesion etc.) behaviour and good appearance and durability". Groot, C., Ashall, G & Hughes, J. [eds] (2004) 'Characterisation of old mortars, with respect to their repair – Final Report of RILEM Technical Committee TC167-COM'
"The most basic mortars consist simply of a binder paste that cures or sets and bind together a filler of aggregate, which adds bulk. Some mortars include additives to modify workability or performance. Varying the nature and proportions of binders, fillers and additives enables mortars to be adapted to perform an enormous range of functions in a variety of locations". Henry, A. & Stewart, J. (2012) English Heritage Practical Building Conservation – Mortars, Renders & Plasters, P.27

Table 3.2: Definitions of mortar.

The study of relative dating of mortars in buildings draws on building archaeology, and uses the composition of the mortars found among the buildings and structures within the Dublin Central project to make an informed assessment of their likely age. This draws on the introduction of new materials such as natural cement (patented by James Parker in England in 1796 and introduced to Ireland c.1804) and artificial cements such as Portland Cement (first patented by Joseph Aspdin in England in 1824, and first used in Ireland in 1850 for engineering purposes such as the foundations of the bridge over the River Glyde in Dundalk in 1850, in Dublin Port c.1871-5, and with early cement production in Ringsend and Rialto c.1900, and Drinagh in Wexford Harbour c.1883-1925³⁴. However, widespread adoption of Portland Cement for construction was not in place until after 1938 with the opening of Irish Cement production centres in Limerick and Drogheda. These key dates offer touchstones with which to compare the materials found in the O’Connell Street and Moore Street area for the Dublin Central project.

There is little published literature on mortar production in eighteenth and nineteenth century Dublin, and much of the lime burning activity appears to have been small-scale³⁵, and burning for single building projects was normal practice³⁶. Lime kilns can be seen appearing and disappearing on subsequent Ordnance Survey maps indicating that many were in use for only a few years; occasionally changing shape where they had remained in use (Fig.3.6). Sand pits, gravel pits, lime kilns and small quarries are shown surrounding the city on historic maps; the materials extracted from which fed the Dublin construction industry. Traditional craft practices such as the use of animal hair and pozzolan continued for high-end work, while there was also some innovation such as the use of ‘black lime’ mortars for pointing, bedding and plastering mortars³⁷, which appear to have been made in Grand Canal Dock during the second half of the nineteenth century. The high variability which characterises traditional lime mortars both in Ireland and internationally, arises from the standard historic practice of local limeburners extracting local limestones and other calcareous material such as shell and dolomite (which varies in composition and properties), and then firing that in a range of different kilns to produce a quicklime. Different Irish limes had different properties – some were non-hydraulic and could run to a fine paste suitable for plasterwork and stucco, some could set underwater and could be used as a limecrete, and local masons and builders adapted to the properties and limitations of the mortars available to them.

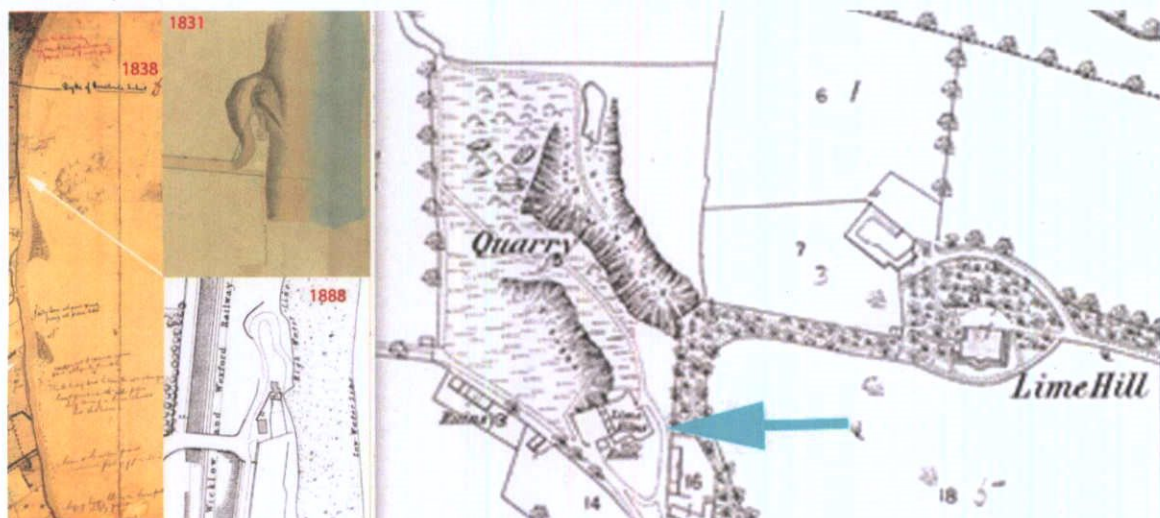


Fig.3.6: 19th century lime kilns at Killiney in south Dublin and Lime Hill in north Dublin. These would have supplied local building construction, but similar arrangements of small kilns and small limestone quarries would have been found surrounding the city and feeding construction in the north inner city.

4. Site 3

Nos.37-41 Henry Street and Nos.1-7 Moore Street offer valuable evidence of post-1916 building materials comprising concrete, cement-lime mortars, pozzolanic lime mortars, granite and limestone detailing, red facing brick and yellow stock brick which are visually distinct from the building materials found in earlier buildings in the area. The materials of these buildings offer a useful benchmark to understand and differentiate from pre-1916 materials.

Nos.8-9 Moore Street consists of two eighteenth century buildings combined into one premises; and connected to Nos.11-13 Henry Place at the rear. When the internal brick lining was broken open (Fig.4.12.7), the brick contains distinctive angular limestone aggregate also seen at No.42 O'Connell Street and other Georgian buildings in the area. Two buildings are marked in this location on John Rocque's 1760 map.

No.10 Henry Place consists largely of c.1920 yellow stock brick laid in a cementitious mortar, and rendered with a Portland Cement-based render. The building retains some nineteenth-century brickwork at ground floor level at the south end of the east wall and at parts of the south and the west walls. The new building appears to have been built on the footprint of the site, but with most of the east, north and west walls replaced. The 1893 Goad Insurance Plan maps show three tenement buildings on the site – the pre-1920s material is confined to the southern tenement.

Nos. 5-8 Henry Place consists of the ground floor of a late nineteenth century, possibly 1870s, brick building with a twentieth century brick building built on top. The machine-made kiln-fired perforated brickwork is consistent with the building shown on the 1893 Insurance Plan map as 'O'Brien & Co. Mineral Water Factory' which survives in plan form on the 1927 Insurance Plan map.

4.1 37 Henry Street: The four-storey two-bay Henry Street façade has upper floors of red brick with soiled slightly recessed joints, framed by faience pilasters. The brick is well-fired and similar to other brickwork seen along this part of Henry Street, and consistent with brickwork of the first quarter of the twentieth century.



Fig.4.1.1: General view of the brickwork at the rear of 37 Henry Place adjacent to the alley separating Nos.9 and 10 Henry Place.

The rear elevation is adjacent to No.10 Henry Place and was built predominantly with a new yellow stock brick (hereafter referred to as a c.1920 brick) and a small fraction of probably salvaged yellow clamp-fired brick. The pointing was finished 'flush' and the bedding mortar contains a wide range of lithics which are different to those seen in early building in Dublin City, and not likely to have been obtained from a sand pit

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within Dublin City. The bedding mortar also contains a significant amount of red and yellow brick aggregate and brick pozzolan. The mortar is hydraulic due to a significant proportion of reactive brick pozzolan – such a rich mix is not common to Dublin City in the 1920s, but would have been common in many areas where natural hydraulic lime was not available (impurities in some sub-types of Dublin Calp limestone mean that when it is fired, the resultant lime was slightly hydraulic³⁸). The building is known from historical records to have been rebuilt after the 1916 Rising, and the materials seen in the façade and on the rear elevations are therefore useful indicators of the building materials used in the rebuilding work after 1916.

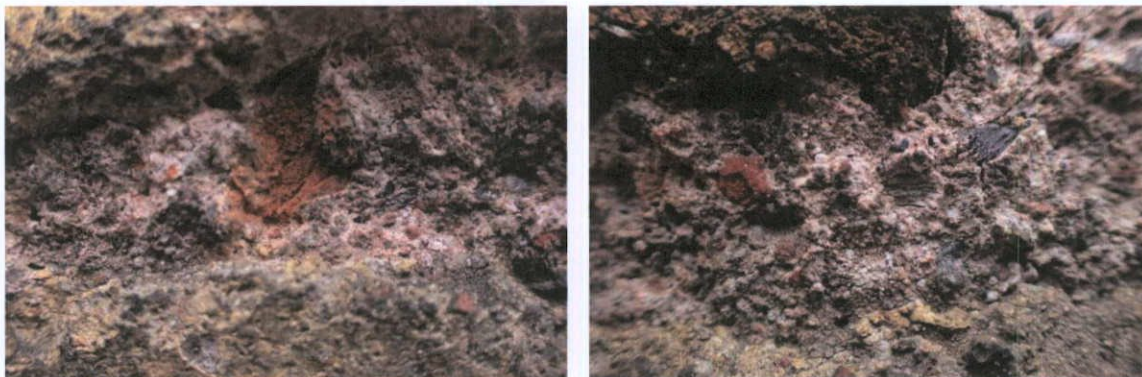


Fig.4.1.2: Coarse brick aggregate and fine brick dust in the bedding mortar of the 1920s yellow stock brick.

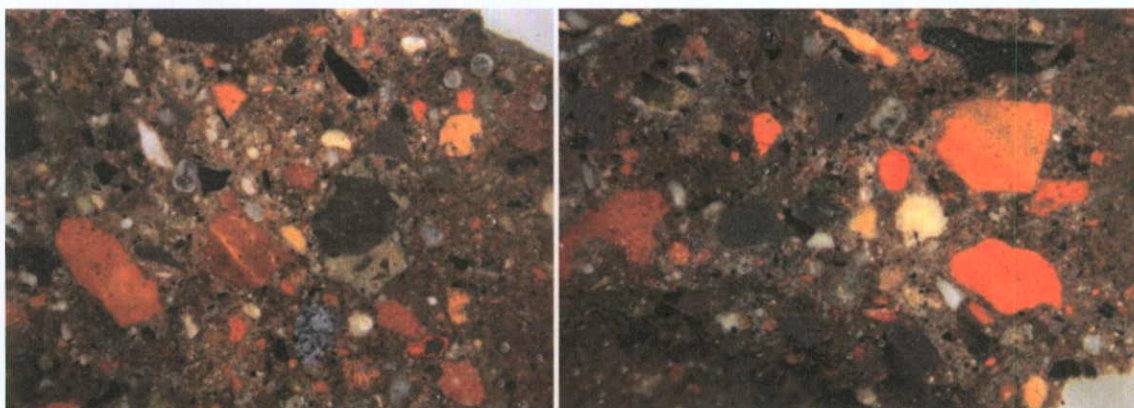


Fig.4.1.3: Microscope cross-section (visible light x.13.5) showing abundant brick aggregate.

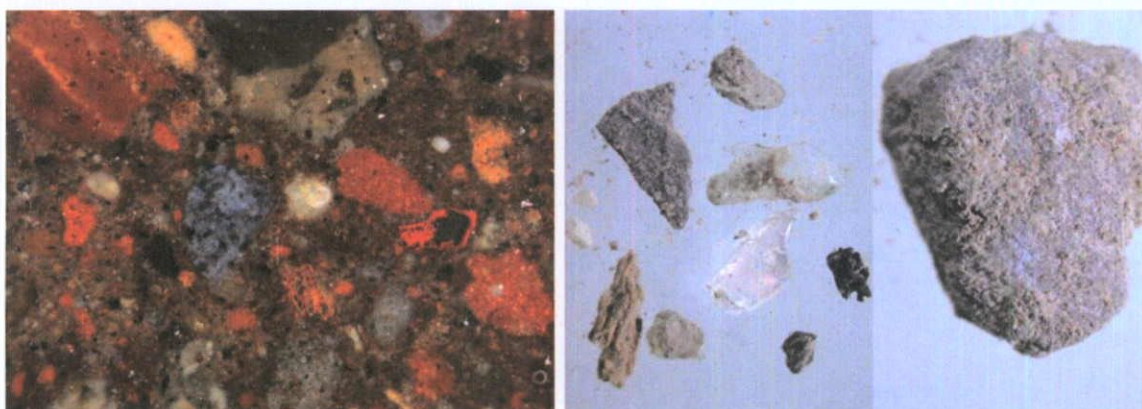


Fig.4.1.4: Brick makes up c.50% of the aggregate content. The natural stone aggregate consists of limestone, quartz, granite fragments but also occasional timber and glass. It is possible that some of the aggregate was formed of building debris.

4.2 38 Henry Street: The four-storey two-bay building is of a homogenous red brick with rusticated limestone quoins supporting a frieze and cornice, probably c.1917-20. The rear of the building has c.1920 yellow stock brick with a rebuilt parapet³⁹. The c.1920 yellow stock brickwork also includes some yellow clamp-fired brick probably salvaged from earlier buildings. The bedding mortar contains abundant crushed brick acting both as porous reactive aggregate and as fine brick pozzolan; and is very similar to that used for the rear of No.37 Henry Street, suggesting that both buildings were erected at the same time.



Fig.4.2.1: The façade of 38 Henry Street is of well-fired red brick with limestone detailing, with the parapet rebuilt in a different brick and heavier Portland Cement-based mortar.



Fig.4.2.2: The brickwork and limestone detailing on the façade of 38 Henry Street has been cleaned and small 'plastic' mortar repairs (appearing dark red) seen.



Fig.4.2.3: No.38 Henry Street forming part of a terrace using identical c.1920 yellow stock brick.



Fig.4.2.4: Yellow stock brick masonry fabric used for the rear and for the return of the building. The same brick is used in the neighbouring rear elevations of Nos.37 and 39 Henry Street, and all three buildings appear to have been erected at the same time.

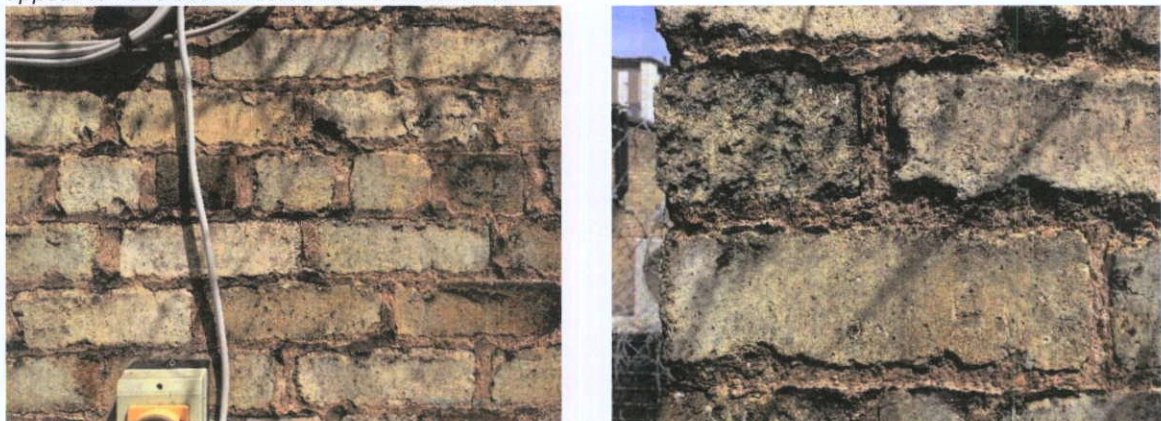


Fig.4.2.5: Slightly pinkish coloured bedding mortar due to the presence of abundant brick aggregate.



Fig.4.2.6: Crushed brick in the bedding mortars at the rear of No.38 Henry Street.

4.3 39 Henry Street: The façade consists of four-storey three-bay building built with machine-cut red brick with rusticated quoins rising to brick pilasters with Leinster granite capitals, frieze and cornice. The brick has been abrasively cleaned in the past, and is pointed with Portland Cement. The brickwork is consistent with the first quarter of the twentieth century and consistent with the historical record which indicates construction dates of 1917-1920. The rear of the building is the c.1920 yellow stock brick with a rebuilt parapet level. The brick is crudely pointed and edge lined and contains rounded aggregate and crushed brick similar to Nos.37 and 38 Henry Street. The front and rear elevations consequently appear to date to c.1917-1920.



Fig.4.3.1: General views of the rear elevation (note rebuilt parapet) and façade of 39 Henry Street. The rear elevation brickwork matches that of No.38 and is contemporary with same.



Fig.4.3.2: The superstructure is built with machine-cut red brick with granite used for architectural detailing. The granite shows brown staining, but the building surface is generally free from soiling and has been cleaned in the past.



Fig.4.3.3: Detail of the brickwork on the façade of 39 Henry Street showing a damaged surface (probably from past cleaning) and the edge of the Leinster granite detail.



Fig.4.3.4: No.39 Henry Street forms part of a terrace using identical yellow stock brick, and all buildings appear to have been built at the same time.



Fig.4.3.5: The rear elevation shows soiled Portland Cement pointing mortar.

4.4 40 Henry Street: This three-bay four-storey terraced brick building has a shopfront at ground floor level with a brick superstructure above framed by soiled decorative granite architectural detailing. The brickwork is well-fired machine-cut homogenous red brick without surface defects or features, and showing weatherstruck Portland Cement-based pointing mortars. The brickwork is consistent with the first quarter of the twentieth century and a good indicator of materials in use c.1917-1920. The rear elevation is coated with a Portland Cement-based rendering mortar (Fig.4.3.4) and its composition is unclear.



Fig.4.4.1: The brickwork on the soiled façade of No.40 Henry Street consists of well-fired machine-cut red clay brick with weatherstruck Portland Cement-based pointing mortars. Leinster granite was used for architectural detailing. The work probably dates to c.1917-1920.



Fig.4.4.2: Soiled brick and granite detailing at upper floor level.

4.5 41 Moore Street: This four-storey building occupies the corner with Moore Street and consists of well-fired machine-cut homogenous red brick without surface defects with granite architectural detailing. The rear elevation is rendered with exposed brick chimney stacks standing proud of the surface. The Moore Street elevation parapet has been rebuilt with a different dark red brick and dark grey Portland Cement mortar. The brickwork is consistent with the first quarter of the twentieth century, and probably 1917-1920.



Fig.4.5.1: The brickwork on the soiled façade of No.40 Henry Street consists of well-fired machine-cut red clay brick with weatherstruck Portland Cement-based pointing mortars. Leinster granite was used for architectural detailing. The work probably dates to c.1917-1920.



Fig.4.5.2: Soiled brick and granite detailing at upper floor level.



Fig.4.5.3: Detail of the c.1917-1920 brickwork at 41 Henry Street.

4.6 1-2 Moore Street: Three-storey four-bay brick façade with limestone quoins, frieze and quoins framing the building. The building has been cleaned in the past and is largely free from atmospheric particulate soiling, suggesting that the cleaning occurred in the recent past. The rear elevation is rendered with an extension protruding from the north end of the east elevation. The façade brickwork is consistent with the first quarter of the twentieth century and probably c.1917-1920.

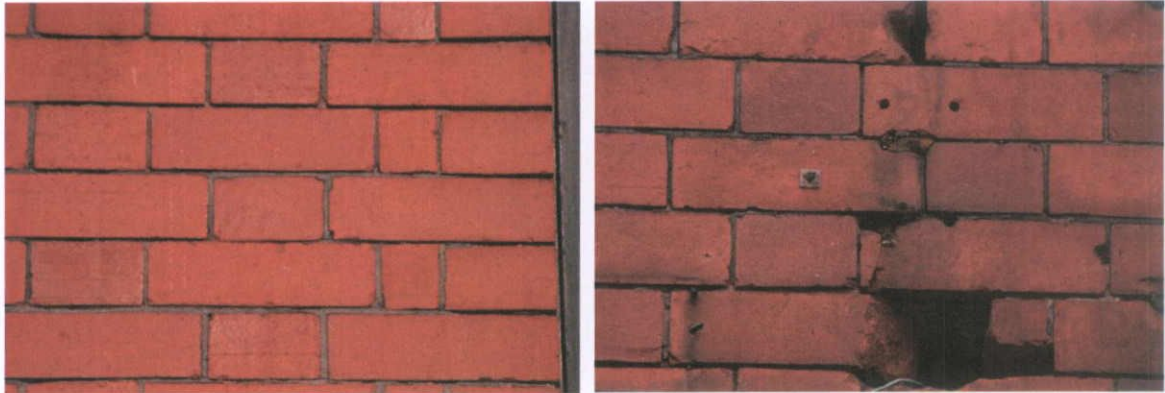


Fig.4.6.1: Homogenous red brickwork at first floor level of 1-2 Moore Street showing a grey-coloured Portland Cement-based pointing mortar (but also some joint recession suggesting this may be later repair work). The façade shows some minor damage exposing the bedding (right).



Fig.4.6.2: 1-2 Moore Street. The brickwork is remarkably free from soiling, indicating that it has been cleaned in the relatively recent past.

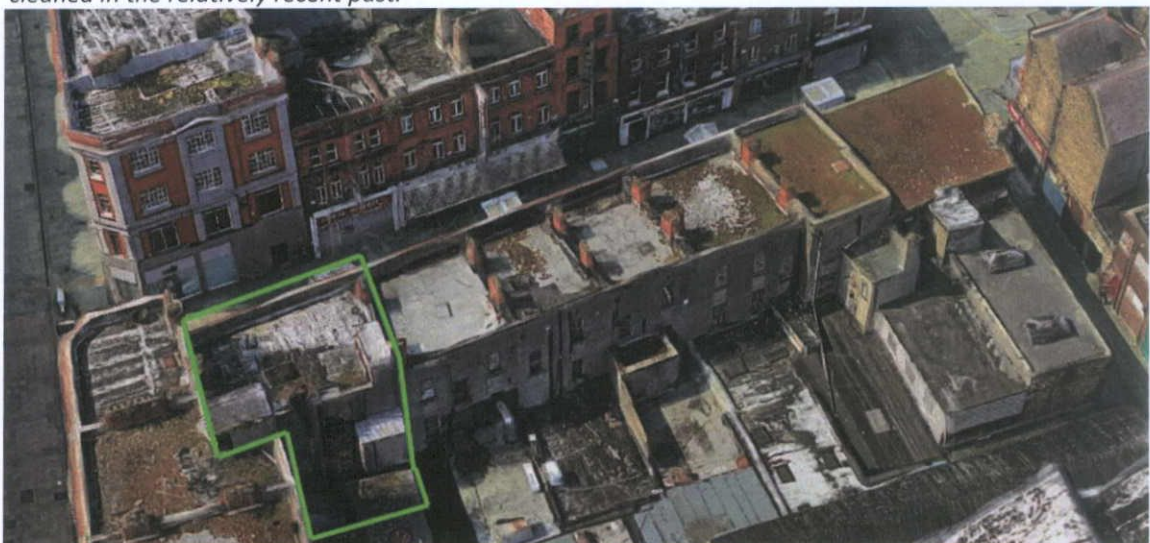


Fig.4.6.3: View of the rear of Nos.1-2 Moore Street. Note flat roofs throughout the terrace.

4.7 3 Moore Street: The three-storey three-bay brick-fronted terraced building, built c.1917 as part of a single build with Nos.4, 5, and 6 Moore Street. The terrace consists of two three-storey three-bay buildings enclosing a central pair of two-bay buildings, with brick soldier quoins separating each building and with a coarse-grained limestone frieze over the full terrace. The internal walls and rear elevation are of concrete construction with a Portland Cement render coating the rear elevation. The window cills and cornice above ground floor level are also of limestone. The ground floor houses a shopfront and a segmental-arched carriage arch giving access to Clarke's Court.



Fig.4.7.1: No.3 Moore Street forms the southernmost member of a terrace of four buildings of similar design and construction.

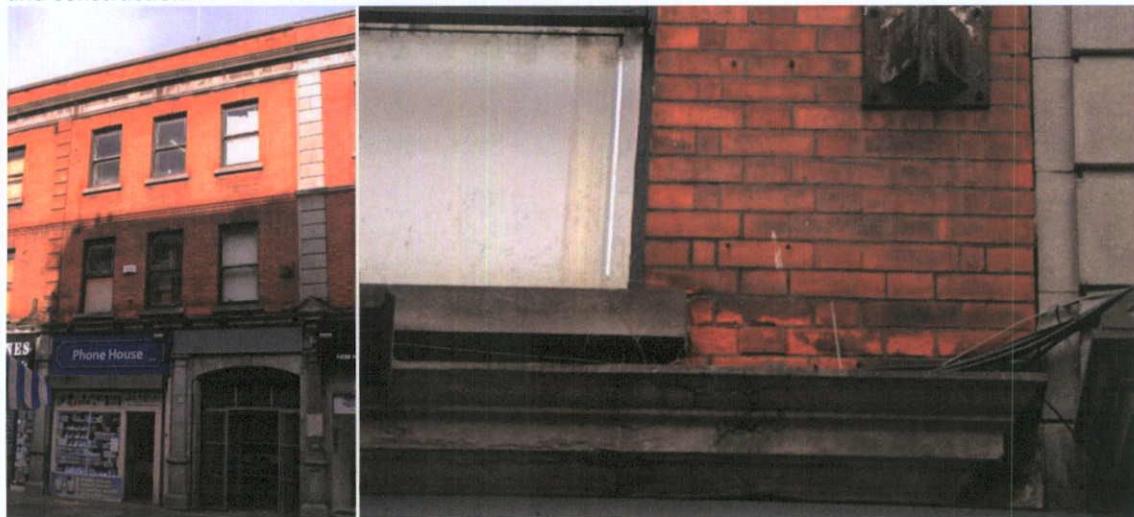


Fig.4.7.2: No.3 Moore Street built with machine-cut homogenous red brick with limestone used for window cills and architectural detail. The masonry is soiled, exaggerating certain stone features.



Fig.4.7.3: Detail showing the soiled limestone frieze and coping stones.



Fig.4.7.4: The soiled brickwork is machine-cut kiln-fired, consistent with c.1917 work.

The rear elevation (Fig.4.8.4) is of concrete with crushed brick aggregate added to the dark-grey cement matrix in addition to natural stone aggregate. The party walls and internal walls are also of concrete. The internal plasterwork, also c.1917, is a traditional lime plaster, including lime lumps and crushed yellow and red brick pozzolan and fuel fragments (coal). Brick pozzolan is common throughout the plasterwork. The external concrete render to rear is coarse-grained and contains burnt vitrified aggregate and brick fragments.

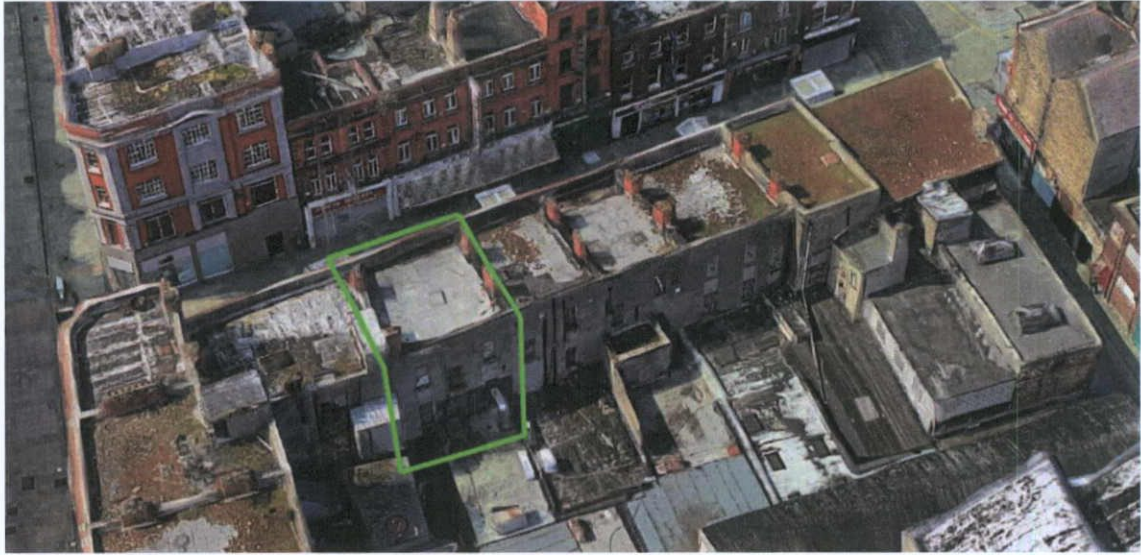


Fig.4.7.5: GoogleMaps view showing the flat roof and rendered rear elevation of the building.

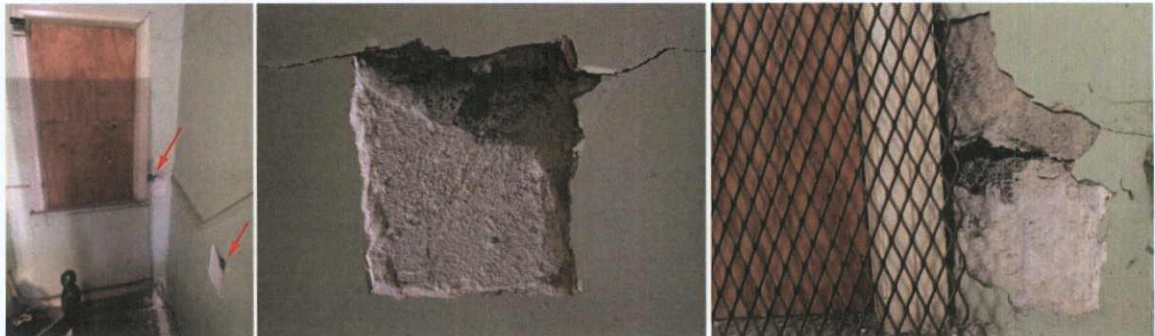


Fig.4.7.6: The rear (left) and internal (centre) walls at the stairs are formed of plastered concrete.

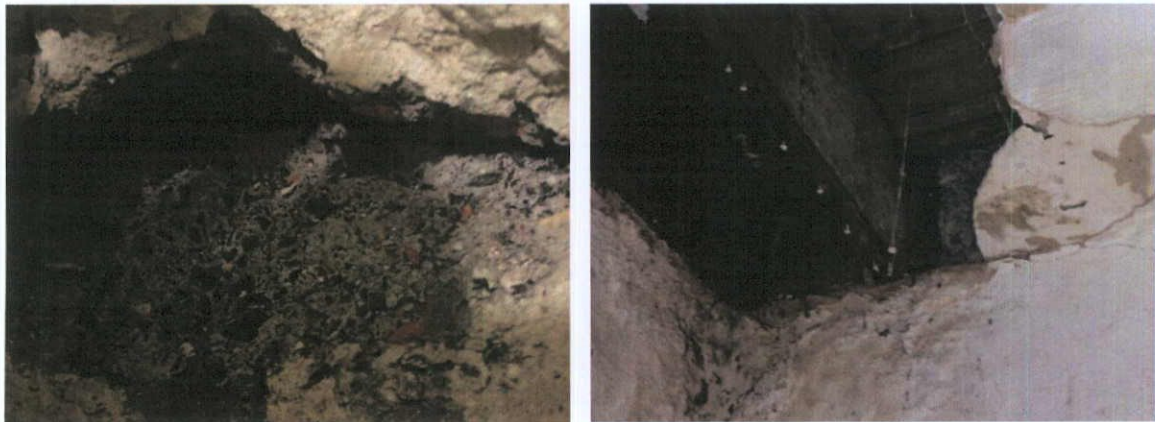


Fig.4.7.7: The clinker concrete used to form the rear, party and internal walls is a distinctive mix with coarse angular brick shards as aggregate; and this material was also used for the construction of Nos.4,5 and 6 Moore Street.

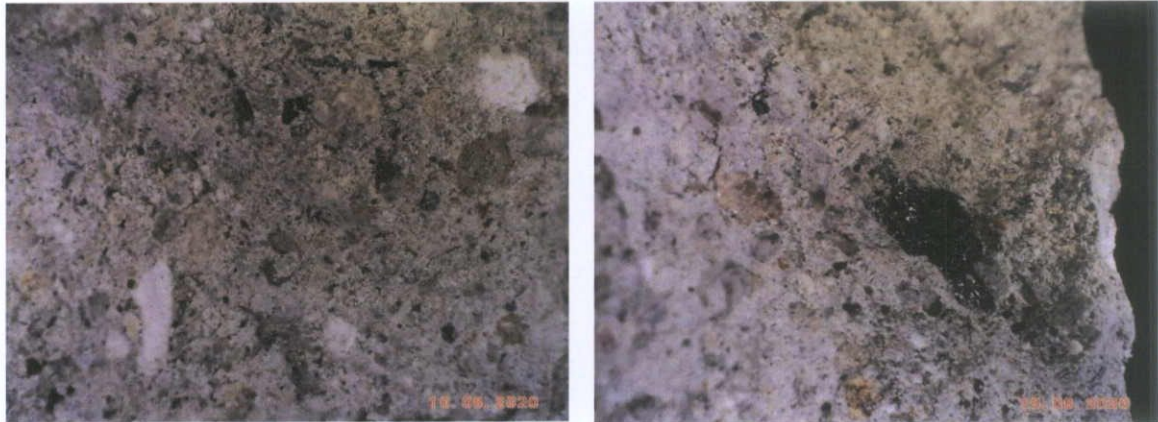


Fig.4.7.8: Cross-section of the internal plaster which contains natural stone aggregate, lime lumps, fine pozzolanic brick fragments and occasional coarse burnt fuel fragments.

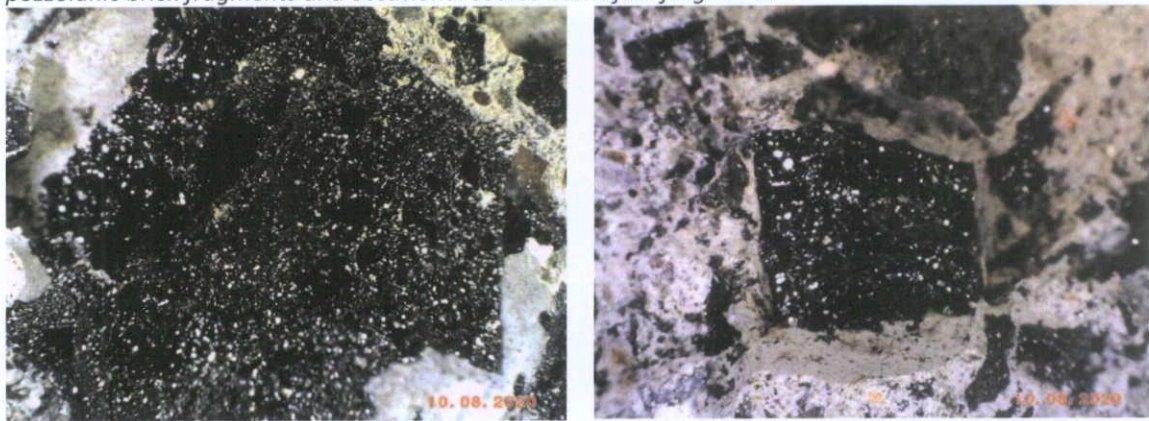


Fig.4.7.9: Distinctive dark-coloured fired aggregate in the concrete used for the rear, internal and party walls.

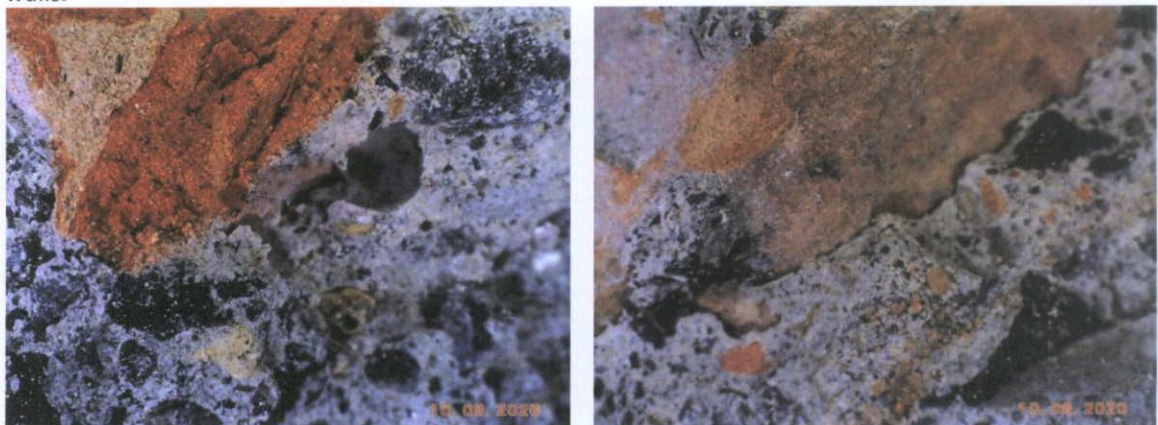


Fig.4.7.10: Microscope view of crushed brick aggregate in the concrete at the rear of No.3 Moore Street.

4.8 4 Moore Street: The three-storey two-bay brick-fronted terraced building rising to a limestone frieze and cornice, built c.1917, with brick ‘soldier’ quoins and a modern shopfront at ground floor level. The rear wall is rendered in Portland Cement above a concrete core. A sample of the render and concrete core were taken for analysis as a temporal reference point. The plaster on the internal walls has a white skim coat over a cementitious base coat, very different to the plaster seen in No.3 Moore Street, and contains large unslaked and unmixed lime, fine brick fragments and quartz. The plaster contains a mix of probably salvaged crushed material as aggregate including crushed red and yellow stock brick, fragments of the concrete render, fine natural stone aggregate and coarse lime lumps. The presence of crushed red and yellow stock brick may indicate that building debris was re-used as aggregate. The three-storey three-bay brick-fronted terraced building, built c.1917 as part of a single build with Nos.3,5,and 6 Moore Street. The terrace consists of two

three-storey three-bay buildings enclosing a central pair of two-bay buildings, with brick soldier quoins separating each building and with a coarse-grained limestone frieze over the full terrace.



Fig.4.8.1: No.4 Moore Street, forming part of a terrace with Nos.3,5 and 6.

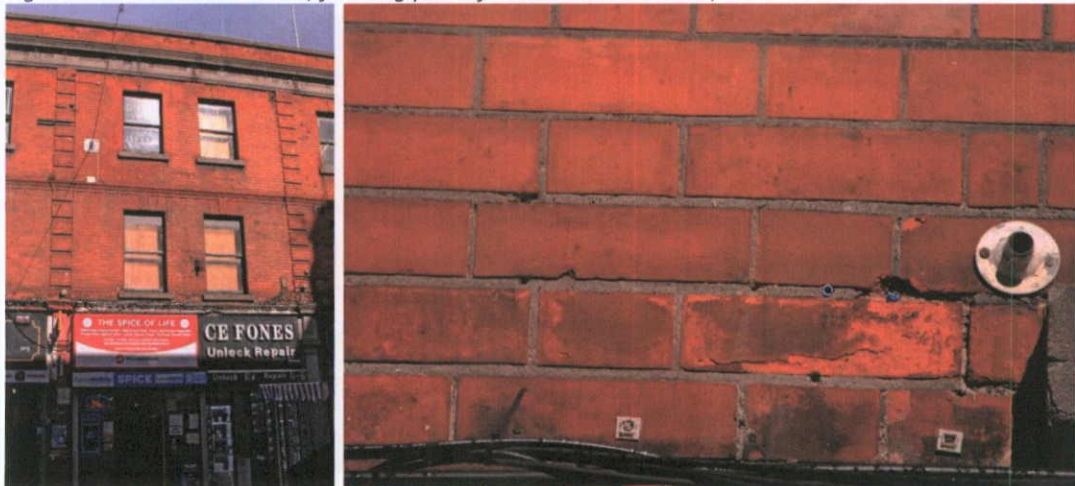


Fig.4.8.2: The brick and stone masonry matches that of Nos.3,5 and 6 Moore Street.



Fig.4.8.3: GoogleMaps view of the roof and rear elevation of No.4 Moore Street.



Fig.4.8.4: Note the rendered rear of No.4 mirrors the treatment of No.3 and 5.



Fig.4.8.5: Ruled and lined Portland Cement render over a concrete structure. Rear elevation, No.4 Moore St.



Fig.4.8.6: Concrete fabric beneath the Portland Cement render coat.



Fig.4.8.6: Microscope cross-section of the internal plaster of No.4 Moore Street, with coarse shell fragment.

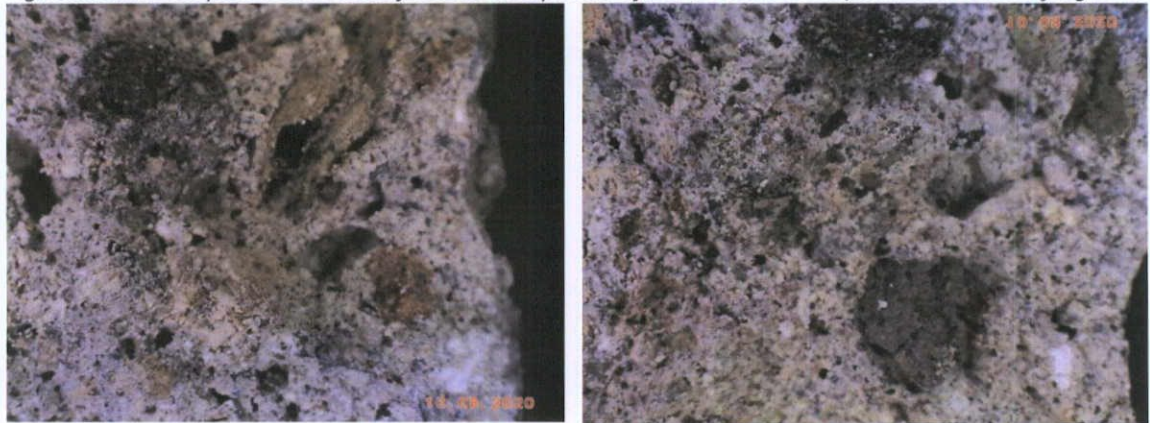


Fig.4.8.7: The plaster contains a mix of salvaged crushed material as aggregate including crushed red and yellow stock brick, concrete render, fine natural stone aggregate and coarse lime lumps.

4.9 5 Moore Street: The three-storey two-bay brick-fronted terraced building rising to a limestone frieze and cornice, built c.1917, has brick ‘soldier’ quoins and a modern shopfront at ground floor level. The architectural detail is uniform across the terrace, with identical limestone detailing at parapet and shopfront level, and with brick specials forming a string course between the first and second floor levels. The brickwork was finished with flush joints. No.5 was built c.1917 as part of a single build with Nos.3, 4 and 6 Moore Street.

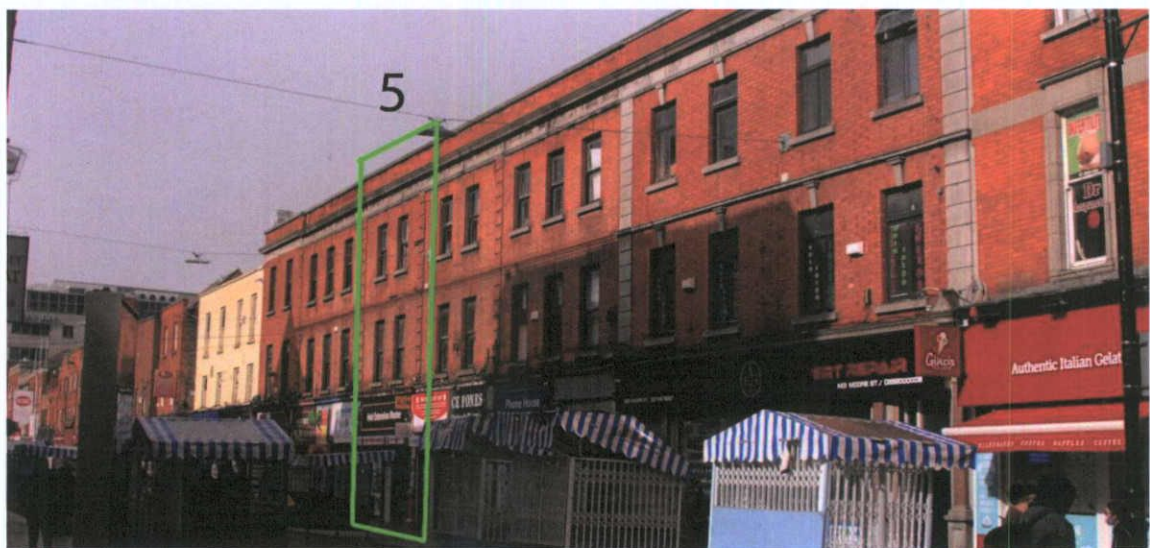


Fig.4.9.1: No 5 Moore Street

The internal walls and rear elevation are of concrete construction with Portland Cement render on the rear elevation above a concrete core similar to that of No.4 Moore Street. The building retains no early fabric and is of c.1917 construction, forming part of a group with Nos.3,4 and 6 Moore Street.



Fig.4.9.1: No 5 Moore Street

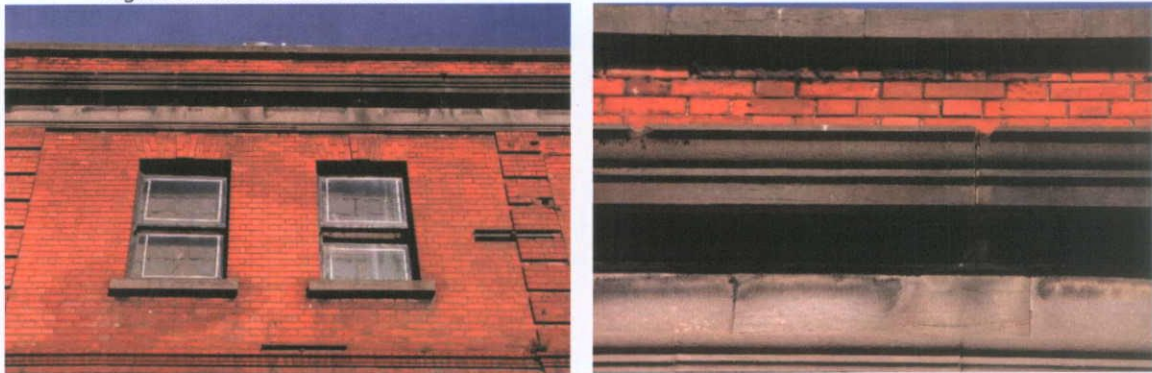


Fig.4.9.2: The brick, brick specials and limestone detail matches that of Nos.3,4 and 6 Moore Street.



Fig.4.9.3: The surface of the brick shows subtle colour variations from the firing process.



Fig.4.9.4: The rear elevation of No.5 Moore Street, built c.1917. Note that the colour and composition of the Portland Cement render and the configuration of the openings of Nos.5 and 4 matches; while the neighbouring No.6 Moore Street (right of image) was built using a slightly different Portland Cement render mix and with a different window arrangement.

4.10 6 Moore Street: The three-storey three-bay brick-fronted terraced building rising to a limestone frieze and cornice, built c.1917, has brick specials forming a string course between first and second floor levels, and with 'soldier' quoins farming the building, having a modern shopfront at ground floor level. The building forms part of a group with Nos.4,5,and 6 Moore Street.

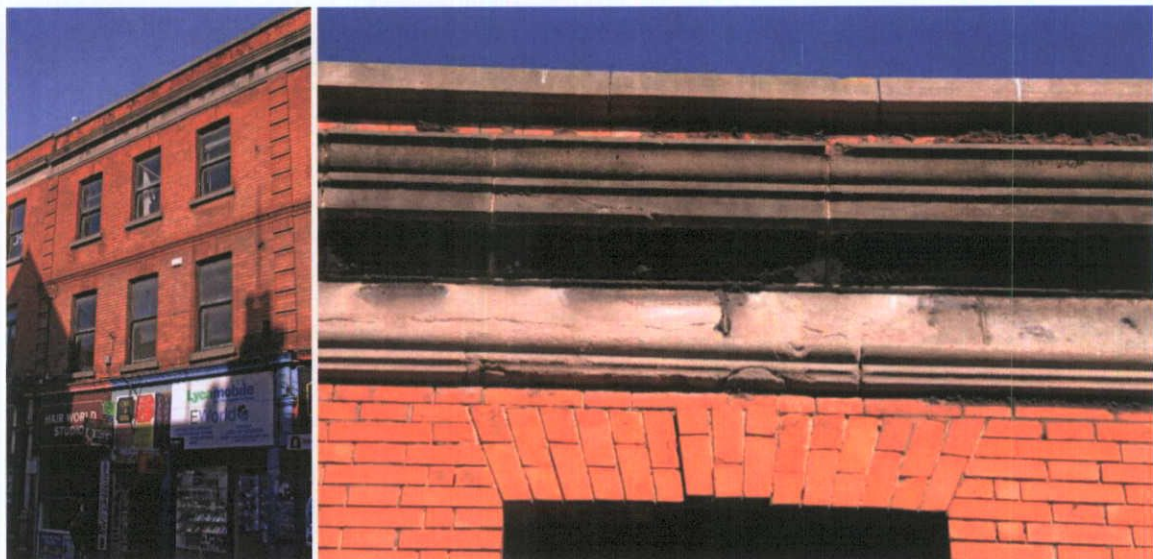


Fig.4.10.1: Limestone frieze and brickwork at No.6 Moore Street, matching that of Nos.3-5.