



# CONSERVATION MANAGEMENT PLAN FOR WATERFORD CITY WALLS

For

WATERFORD CITY COUNCIL

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## **BIBLIOGRAPHY & APPENDIX**

## 1. SUMMARY

TKB Southgate and Associates have been employed by the client Waterford City Council to draw up a Conservation Management Plan for Waterford City Walls. The Plan has been funded by the Heritage Council's Irish Walled Town Network (IWTN) Initiative 2007

In this Conservation Management Plan we outline the works which are required to conserve the remaining wall sections to best practice standards as well as a preliminary budget for this. This future budget should be taken as the cumulative figure that is required from grant aids, private enterprise etc over the coming years to complete the walls. We also include the budget for work already completed or ongoing to form a complete progress report and overview of all the upstanding medieval wall sections. Our conservation recommendations and costings for each individual wall section are included in the spreadsheet format in section 4.

In all cases we at TKB Southgate and Associates recommend ongoing vegetation treatment and maintenance of walls to maintain them both visually and structurally into the future. Indeed several seasons of vegetation treatment are essential for an effective treatment of deeply rooted vegetation. We have included an estimated annual budget for this per square metre of completed wall. This is included in section 4.

A number of wall sections and mural towers have been completed under the supervision of TKB Southgate and Associates to best conservation practice standards. Other wall sections have been conserved by other bodies. Conservation work is proposed for further sections of wall with priority given to those that lie in public areas.

Our brief does not include providing detailed recommendations on public realm and interpretative lighting in this particular plan. We feel that this is a key area however and have made preliminary proposals for interpretation, lighting and access in section 7.3. We have also included costings for fibre optic lighting in our conservation recommendations in section 4.

## **2. BACKGROUND**

TKB Southgate and Associates have successfully drawn up and implemented conservation measures on a number of the wall sections to date. We have been asked by Waterford City Council to prepare this Conservation Management Plan as a template for works in the future. In it we propose a table of future works for the individual standing wall sections based on their present physical condition. This includes conservation specifications and cost estimates.

The assignment of letters to denote the various sections of upstanding walls was originally proposed by Duffy Henry Architects in their 2003 report and has been used since in the various reports done on them.

## **3. ARCHITECTURAL AND HERITAGE MERIT**

Waterford City Walls are the most intact and extensive upstanding urban medieval walls in Ireland. They therefore have a high level of architectural, historical and archaeological merit. They are a National Monument in State ownership under the custody of Waterford City Council.

## **4. CONSERVATION RECOMMENDATIONS FOR WATERFORD CITY WALLS**

We have included our recommendations in a spreadsheet format with costings.

### **4.1 Notes on conservation recommendations in part 4**

As recommended in part 7.3 consideration should be given to a cohesive interpretative lighting scheme. A costing for fibre optic lighting has been included in the conservation plans but detailed proposals are required from a lighting specialist, (Refer to part 7.3).

In cases where vegetation has been removed and treated it must be remembered that this treatment needs to continue for several seasons to be fully effective. Thereafter regular maintenance will ensure the best preservation of the walls.

Our conservation specifications are detailed in part 7.4.

**WALL SECTION C1 (Refer to plate 1 in the appendix)**

This wall section requires raking out, deep pointing and capping. The area has been proposed as an open air theatre area. This idea should be developed in the future under a Public Realm scheme.

**WALL SECTIONS C2-C4 (Refer to plate 2 in the appendix)**

This walls section is at present covered in modern plaster. Initially it is necessary to remove this to ascertain the extent of medieval wall surviving and its condition. We have assumed that the wall will require deep pointing in lime mortar.

**WALL SECTIONS D ALONG SPRING GARDEN ALLEY (Refer to plate 3-8 in the appendix)**

Work has been completed on a number of these walls sections. We have proposed conservation work on others in part 4. Considerable strong vegetation growth will need to be treated initially. We recommend signage at the entrances to Spring Garden Alley to raise awareness of and provide information on the historical walls here.

**WALL SECTION D 10 (Refer to plates 8 and 9 in the appendix)**

This is the area of St Martins Gate. The wall survives at a low level here. Public Realm opportunities exist here which need to be investigated in the future.

**WALL SECTIONS E (Refer to plates 10-14 in the appendix)**

Works have been proposed on one side of these walls due to access problems. The wall backs onto private gardens. The other side of the wall runs along a national school playground. It is at the moment covered in modern plaster. This needs to be removed to ascertain the condition of the wall. We have included costings for deep pointing and capping. Given its location we recommend educational interpretative signs suitable for the adjacent national school as well as the interpretational lighting we recommend for all wall sections.

**WALL SECTIONS F1 AND F2 (Refer to plates 15 and 16 in the appendix)**

We have included costings for one side of the wall here as the other is in private property. F1 forms part of the retaining wall of a building. We have recommended lead flashing to preserve the wall here.

**WALL SECTION F4 (Refer to plate 17 in the appendix)**

Work has been completed on this wall section. Interpretative lighting is recommended in the church grounds.

**WALL SECTION F5 (Refer to plate 18 in the appendix)**

Some work has been completed on this wall section that lies behind the now closed Renault garage. That which remains to be done is covered in a lime wash. This will have to be removed before pointing work can begin.

**WALL SECTION G1 (Refer to plate 19 in the appendix)**

This is a low priority section of wall invisible to the passing public. Concrete block buttresses have been built against the wall. We have recommended the removal of limewash.

**WALL SECTION G2 (Refer to plate 20 in the appendix)**

This is a low priority section of wall that contains a large amount of later brick rebuilds.

**WALL SECTION G4 (Refer to plate 21 in the appendix)**

We have recommended pointing and capping for one side of this wall fronting onto the parking lot of Waterside. The other side faces onto private property.

**WALL SECTIONS G5-G8**

These sections are at present surrounded by hoarding and their state could not be fully ascertained. We have recommended repointing and capping.

**WALL SECTIONS H (Refer to plate 22 in the appendix)**

Wall sections in this area are at present awaiting private development to best practice conservation specifications.

**MURAL TOWER AT RAILWAY SQUARE**

This tower has not been included in the cost estimates. It is recommended that the tower is deep pointed and extensive conservation work be carried out on it.

**WALL SECTION I**

This wall section is important as it is positioned along a main artery into Waterford where interpretative measures would be highly effective. Three mural towers are located in this vicinity with substantial surviving interjoining walls (Refer to part 7.3)

**WALL SECTIONS J1-J6 (Refer to plates 23 to 26 in the appendix)**

This wall section is important interpretatively as it runs immediately perpendicular to a main artery into the modern heart of Waterford City. Conservation work is included in our costings (Refer to part 7.3 for interpretative recommendations)

**WALL SECTION L (Refer to plates 27 and 28 in the appendix)**

Completed. Interpretative measures are recommended.

**WALL SECTION M (Refer to plates 29-31 in the appendix)**

We recommend extensive vegetation treatment, repointing and capping.

**WALL SECTION N (Refer to plate 32 in the appendix)**

We recommend interpretative initiatives here as this is another main artery into the fortified medieval city. Interpretative lighting and paving marking is recommended.

**WALL SECTION O (Refer to plate 34 in the appendix)**

We have recommended pointing and capping work on this wall. It is in an area with low public perception and it is recommended that these be completed as part of a later phase of work.

**WALL SECTION P (Refer to plates 35 to 37 in the appendix)**

Work has been completed on wall sections here. Extensive ongoing vegetation treatment is required as is an interpretative lighting scheme (Refer to part 7.3)

**WALL SECTION P6 (Refer to plate 38 in the appendix)**

Recommendations are given for lighting in part 7.3.

## **5. THE SITE**

### **5.1 Evolution of the Waterford City Walls**

Waterford owes its origins to a Norse settlement founded at the beginning of the 10<sup>th</sup> century AD. Its genesis like other Viking towns was as a defended riverine settlement. By the end of the century it had developed into a significant urban centre.

It is likely that this early settlement focused on the area around Reginald's Tower and developed along the ridge of high ground where present day High Street and Peter Street are situated. By the end of the 11<sup>th</sup> century the town was defended by a broad ditch and bank. It is likely that the wooden defences that were in this location were the precursors of the stone walls built in the second quarter of the 12<sup>th</sup> century.

The Anglo-Normans continued the strengthening of Waterford's defences throughout the following centuries. The walls have been subject to considerable rebuilds and additions. Waterford's continued loyalty to the English crown through the 15<sup>th</sup> century made it a hotbed of military activity and in December of 1466 an Indenture was passed to construct a wall within the parish of St John to protect against the constant threat of attack upon the suburbs. This proposal would have greatly increased the size of the defended city and was built in several phases. Historic maps of the wall depict a greater number of watchtowers than the six that survive to modern times.

As defence became less of an issue the walls became redundant and fell into disuse and disrepair. Extensive areas of wall persisted through the centuries and remain standing today.

### **5.2 Social and cultural issues**

The high visibility and extent of Waterford's Medieval Walls in the heart of the city means that they play a peripheral role in peoples day to day lives. Members of the community pass by them and work and live permanently within sight of these historic monuments. When sensitively and appropriately conserved they are a positive feature and lend to a positive social atmosphere. Vegetation growth can render the walls difficult to interpret by the public, while when appropriately preserved they can evoke an interest in the history of the city and lend to a 'sense of place'. This is a key component related to an individual's happiness in an area and a community.

The conserved walls while being an attractive feature in themselves in the modern fabric of the city, are also an important educational resource readily accessible to all. On a related note these historic structures are an important piece in the tourist fabric of the region and should be developed as such while preserving as much of their physical character as is possible.



### **5.3 Art historical value of the site**

The assessment of the art historical value of the site is based on its significance across a spectrum of interests.

A monument can be classed as either of national, regional or local importance. Waterford City Walls are the most intact and extensive urban medieval walls in Ireland and as such have a high intrinsic art historical value which merits their national importance.

Historically the walls are very representative of their time and represent a period of upheaval when defence was of paramount importance. Although this type of defensive wall is quite common in Ireland and Britain each has its own merit, Waterford Walls extensive nature adds to this intrinsic merit.

The upstanding walls contain a number of architectural features of merit such as window loops and bastions. Several towers have also survived largely intact.

A number of archaeological investigations have taken place in the vicinity of the wall, for example at the Railway Square section. The possibility of subsurface archaeology is high under, and in the area of both the surviving upstanding wall sections and areas along the wall line.

## **6. ISSUES ARISING**

### **6.1 Ownership of the City Walls**

The medieval walls of Waterford are a National Monument under state ownership and are under the custody of Waterford City Council. From a practical position however access to walls and responsibility for works is in some cases unclear especially in areas where private developments directly abut the walls or even include the walls in their retaining walls. Close consultation with private interests will be required in the future to effectively deal with access and funding issues.

### **6.2 Waterford City Development Plan**

The medieval defences of the city are included under chapter 6 of the 2007 Waterford City Development Plan created by Waterford City Council. The following are the main points regarding the walls.

- It is the objective of the Planning Authority to secure the preservation of all sites and features of historical interest
- It is an objective of the planning authority to secure the preservation of the city walls..... bastions or ancillary fortifications or portions thereof.
- When considering development in the vicinity of city defences the planning authority will aim to achieve a satisfactory buffer area between the development and the city defences in order to insure the preservation and enhancement of the amenity.
- To protect, preserve, conserve and restore where appropriate the upstanding remnants of the city walls and towers

Waterford has two designated Architectural Conservation Areas (ACAs). Many sections of the city defences fall within these areas.

### **6.3 Resources for the City Walls**

Funding from the DoEHLG, Waterford City Council Heritage Council and private developers adjacent to the walls has been forthcoming to date. Because of the extensive nature and duration of work to the walls spanning several years uncertainty over ongoing funding is an issue. We hope that the phased approach over the next five years recommended in this document will secure a commitment to funding from all parties to bring this essential heritage project to completion. Integration with Waterford City Council expenditure on parks and streetscaping is recommended but is outside the brief of this document.

### **6.4 Further issues to be considered**

Other issues which will arise in the future include that of graffiti and anti social behaviour. At present some areas of the wall are sites of anti social behaviour. One of the key reasons for this is the lack of proper lighting. Implementation of suitable interpretative lighting will help in some way to address this. It is appreciated that wider social problems are at work here however. Related to the above issue is that of graffiti. Removal of graffiti will require specialist consultation and professional treatment. This treatment could include the use of non-abrasive brushes, weak concentrations of solvents or the use of poultices amongst others. A budget has not been included for graffiti removal but it must be remembered that this will be an occasional additional maintenance cost.

## **7. CONSERVATION POLICY**

### **7.1 Vision for the conserved medieval Towers and walls of Waterford City**

Significant conservation and interpretative work has been completed to date on the walls. Best conservation practices will continue to guide repair and conservation work on the walls. It is envisaged that these practices will eventually be applied to all sections of the wall to form a cohesive and sustainable interpretation of the medieval defences of Waterford.

Public access, interpretative and usage issues will continue to be investigated and implemented. Locational and informational plaques exist in many locations along conserved wall sections. In some areas where the walls no longer survive above ground the probable line is marked in paving as at Reginald's Tower. We propose that these simple measures continue to facilitate public awareness and education.

Ongoing vegetation treatment will be necessary as a component of routine maintenance.

## **7.2 Maintaining the significance of the walls and towers of Waterford**

Our conservation proposals for the walls and towers of Waterford City are based on a policy of minimum intervention. Their significance lies in being historical structures of national significance existing within the modern urban surroundings.

Our proposals are aimed at reducing further deterioration from vegetation growth and water ingress etc and to apply best conservation practices to preserve the existing fabric as best and as safely as possible. Therefore our proposals pose no threat to the significance of the walls and towers of Waterford City.

## **7.3 Recommendations for interpretation, lighting and access to the walls**

Although not a part of our current brief it is important in any management plan to allow at least preliminary budgets for interpretation. Such measures should be subject to a study with local consultations in the future. We recommend the following strategic measures.

- At present a number of the conserved walls and towers of Waterford City have interpretative locational and informational plaques. We propose that such measures continue and are applied to the other wall sections.
- We believe that due to the disjointed nature of the walls and their invisibility during the day a more ambitious interpretative strategy is also required. In other cases of a similar nature fibre optic lighting has been used to great effect to link geographically spread wall sections in a cohesive way. A system of subtly changing lights illuminating the wall sections at night would serve to interpret them as a single historical defensive feature.
- The area at Railway Square and Castle Street is a priority for interpretative measures. It is along a main artery into the modern city and the public and visitors should be aware that they are passing into the medieval fortified city at this point. Three mural towers and substantial upstanding sections of inter-joining wall exist here. Visually one gets the impression of the defensive nature of these structures. We recommend augmenting this impression with the following recommendations once priority conservation work has been completed on the walls and towers themselves.
- We recommend a unified and cohesive lighting programme for the walls. The walls and towers themselves should be lit with fibre optic uplighting.
- In other locations laser lighting has been used to great effect on towers such as those in Waterford. The lighting is pointed skywards from the towers to give a spatial impression of the enclosing defensive walls in the sky. We recommend the use of such measures to highlight the conserved walls.

- We recommend the relocation of the present litter bin at the junction of Manor Street and castle Street
- At wall section P an opportunity again exists for imaginative interpretative measures. We recommend looking into the possibility of fibre optic uplighting along the top of the rock outcrop on which the wall is built.

## **7.4 Repair and conservation specification**

### **7.4.1 Ivy and vegetation removal**

It is recommended that any loose vegetation be removed allowing the roots to project. Vegetation and root systems growing deeper into the walls should be treated with a suitable poison such as root out rather than trying to remove them manually from the bridge that could cause further structural damage. Here sections of the vegetation are cut out exposing the core of the plant for application of a suitable toxin. This poison is drawn through the plant system thereby killing it.

Treatment systems work by drawing poison into the plant. Holes should be injected as per manufacturer's instructions. Where possible this should not be done in rainy weather when the poison can be washed away from the area requiring it.

Copper nails should be applied to any stumps prior to pointing both to facilitate location for further treatment and to act against the roots in itself.

### **7.4.2 Stonework and pointing**

#### **Stone cleaning**

Hot water washing after the application of a biocide is recommended for the stonework.

#### **Mortars**

The use of cement mortars can cause long term damage to stonework and could also resulted in the decay of mortars.

Hydraulic Lime mortars are recommended for re-pointing due to their evaporation characteristics and durability. Hydraulic lime sets by chemical reaction with very little or no access to air. Its

principal advantage is that it sets faster than non-hydraulic lime and is not as dependent on good weather conditions. It also has an improved durability.

Mortars were designed to be softer and more porous than the substrate to encourage efficient evaporation of moisture through the mortar joint. The aggregate should be carefully selected in terms of texture and of colour to match the original. Aggregates should be well washed to avoid salt attack through mortar contamination. Only trained and experience operatives should be employed in the preparation, application and immediate aftercare of lime mortar. Generally a 1:2.5 NHL 3.5:Sand mortar mix is recommended. Mortar tests should be obtained for historical record. The aggregate should be carefully chosen to match the existing and spalls (pinning stones) should be used in areas where the mortar joint is wide.

## **7.5 Conservation philosophy**

The following principles of conservation have guided recommendations in this document and have resulted in the conservation management plan outlined within for the medieval walls of Waterford City.

### **Preservation**

The intention is to promote the preservation of the walls in a state comparable to their original state, by retaining the original character of the structure in so far as is reasonably practicable with due regard to public safety. Proposals have been put forward to preserve the original fabric of the walls, halt decay, and to repair the structure where it has deteriorated, using a policy of minimum intervention.

### **Recording**

It is a universally agreed principle of conservation that no work will be carried out without first recording the fabric of the structure and materials to be preserved. This recording will be in the form of measured surveys, photographic recording and condition reports.

## **Rehabilitation**

The original purpose of the walls as defence is of course no longer necessary. We propose the conservation of the walls in a way that facilitates their interpretation as defensive structures.

## **Restoration**

Areas of stone that are missing should be replaced with appropriate stone that matches the original in composition. Restored areas should be subtly discernable from the original either in tone or in the proportion of different stone colours or types used.

## **8. CONCLUSIONS**

Phases one to three of conservation of Waterford City Walls has cost a total of €1.8 million funded by the DoEHLG followed by a second phase of work by the Heritage Council of €170,000. In order to complete the project funding is required as shown in the spreadsheet in part 4.

We propose the following 6 year plan for the conservation of the remaining walls. We have included a costing for ongoing vegetation treatment and maintenance work for year one; thereafter an annual budget will be required based on the area of wall completed for vegetation treatment. Each phase is in the order of 500,000 euro to ensure economies of scale in relation to the different aspects of the project.

- Health and safety
- Ownership
- Contract overheads
- Consent applications with the DoEHLG

Regarding the prioritization of the wall sections in the plan consideration was given to all facets [i.e. present condition, access, public realm issues etc] when deciding on which wall sections went into which phase.

Conservation of the walls consists of the work included in the costings spreadsheet in section 4 of this report such as pointing, capping and initial vegetation treatment

It is also possible to tender a larger amount of work than the immediate budget to allow contracts to be extended when funding becomes available. Consideration should be given to procurement. We recommend that three phases of work be put out as an individual tender [i.e. phases 4-6, 2008-2010 as an individual tender]. In our experience this represents a sensible option for a number of reasons. Firstly it allows continuity of work when funding becomes available. Secondly it avoids delays due to reapplications, remobilization of contractors etc. Thirdly it allows some flexibility should, due to unforeseen circumstances, any wall section run over time and need to be brought into the next phase of work.

Where appropriate private developments directly adjacent to the wall will be given responsibility for conservation of that wall section. This will be part of the planning conditions on that particular development.

This should be discussed with funding parties and local authority to ensure compliance with public tender requirements.

## 8.1 Proposed phases and costing

<b>YEAR ONE [PHASE 5]</b>
Comprising of conservation of walls D3, D6, D7, D10, I1 and the Watchtower at Railway Square. Maintenance vegetation treatment on completed walls.
<b><u>534 505.16 euro</u></b>
<b>YEAR TWO [PHASE 6]</b>
Comprising of conservation of walls J1 to J7 inclusive and wall D5.
<b><u>490 665.19 euro</u></b>
<b>YEAR THREE [PHASE 7]</b>
Comprising of conservation of walls P6, C1 to C4 inclusive, walls F1, F2, F5, N2 and N3.
<b><u>511 714.48 euro</u></b>
<b>YEAR FOUR [PHASE 8]</b>
Comprising of conservation of walls E1 to E6 inclusive and G5 to G8 inclusive
<b><u>520 051.93 euro</u></b>
<b>YEAR FIVE [PHASE 9]</b>
Comprising of conservation of walls O1 to O4 inclusive and G1, G2 and G4
<b><u>409 748.45 euro</u></b>
<b>YEAR SIX [PHASE 10]</b>
Comprising of conservation of walls M1 to M4 inclusive
<b><u>361 019.31 euro</u></b>



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‘Waterford City Development Plan’, Waterford City Council website

‘Conservation Report on the Medieval Walls and Towers of Waterford City’, Duffy Henry Architects Ltd June 2003



**APPENDIX**

**PLATE 1**



**Wall section C1**

**PLATE 2**



**C at Bishops Palace**

**PLATE 3**



**D1 Spring Garden Alley**

**PLATE 4**



**D2 at Spring Garden Alley**

**PLATE 5**



**Section D at Spring Garden Alley**

**PLATE 6**



**Section D at Spring Garden Alley**





**PLATE 7**



**D9 AT Spring Garden Alley**

**PLATE 8**



**D9 and D10 at Spring Garden Alley**

**PLATE 9**



**D10 at St Martins Gate**

**PLATE 10**



**E1 behind garden centre**

**PLATE 11**



**E2**

**PLATE 12**



**E4**

**PLATE 13**



**E5**

**PLATE 14**



**E6**

**PLATE 15**



**F1**

**PLATE 16**



**F2**

**PLATE 17**



**F4**

**PLATE 18**



**F5**

**PLATE 19**



**G1**

**PLATE 20**



**G2**



**PLATE 21**



**G4**

**PLATE 22**



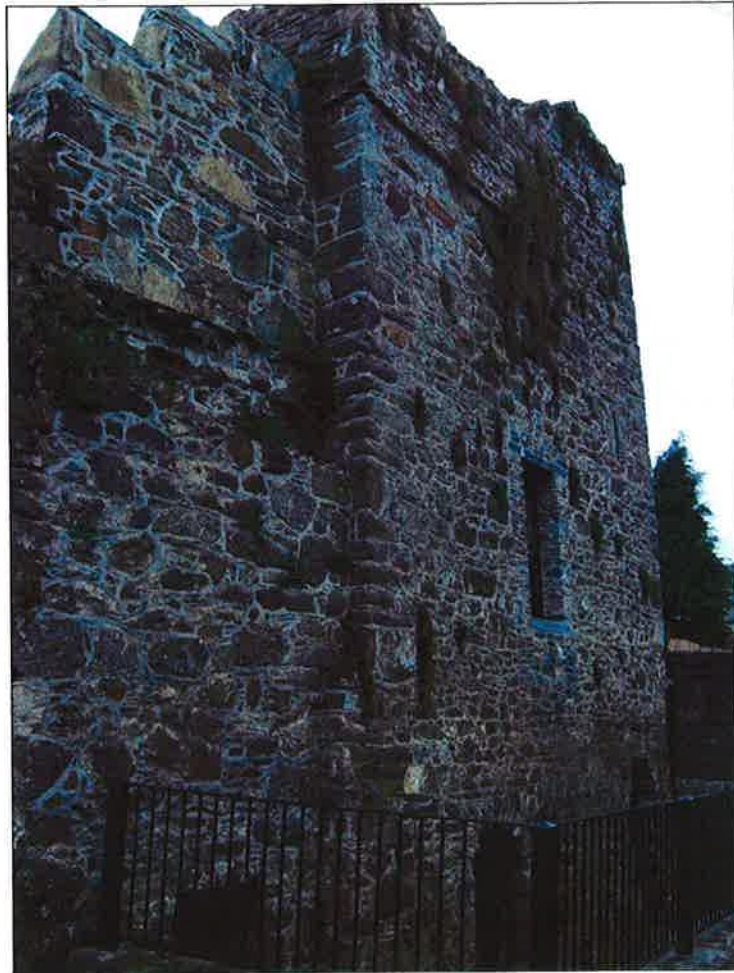
**H4**

**PLATE 23**



**I2**

**PLATE 24**



**PLATE 25**



**Section J at Castle Street**

**PLATE 26**



**Section J at Castle Street**

**PLATE 27**



**Section L at Brownes Lane**

**PLATE 28**



**J7 Frenches Tower**

**PLATE 29**



**M1 and M2**

**PLATE 30**



**M3**

**PLATE 31**



**M4 AND M5**



**PLATE 32**



**N1**

**PLATE 33**



**N3**

**PLATE 34**



**O2 from Garda station**

**PLATE 35**



**Section P**

**PLATE 36**



**Section P**

**PLATE 37**



**P5**

**PLATE 38**



**P6**

PLATE 38



Q7