

IN THE MATTER OF the Resource Management Act 1991
and a Notice of Requirement to
Selwyn District Council and
Applications to Canterbury Regional
Council for resource consents.

BY Central Plains Water Trust
AND Central Plains Water Ltd

**STATEMENT OF EVIDENCE OF KERI DAVIS-MILLER
ON BEHALF OF THE CHRISTCHURCH CITY COUNCIL**

Introduction

1. My name is Keri Davis-Miller. I hold a Bachelor of Arts Honours degree in Urban and Environmental Planning from London Southbank University, England and I have completed a further resource management law paper at Lincoln University. I have planning experience as a planner for the Greater London Authority and as a member of the City Plan Team at Christchurch City Council. I am responsible for investigations into the review of the Rural Quarry provisions in the Operative Christchurch City Council City Plan. This investigation will lead to a potential plan change for the Rural Quarry zones.
2. Investigation by the City Plan Team of Christchurch City Council into the supply of aggregate for the greater Christchurch area has concluded that there is a limited aggregate supply in the district of about 10 years. I understand from the evidence of Mr Peter Callander for the City Council that the proposed Central Plains Water Enhancement Scheme has the potential to raise groundwater levels within the existing Rural Q and the Open Space 3D (Issac Conservation Park) zones in the Christchurch district.

City Plan Provisions for mineral extraction

3. In Policy 13.1.9 and 13.1.10 Mineral extraction, the Christchurch City Plan recognises that aggregate supply is an important resource for Christchurch and that low cost mineral extraction, which is economically important to the City, is possible because of the proximity of the quarries to uses within the City. Through Objective 13.1: "The rural land and soil resource" and Policies 13.1.9-13.1.10, the Plan also recognises that the effects of quarrying on neighbouring land limits the availability of appropriate sites and has restricted the location of quarries to within the Rural Quarry zones. These zones are based on areas that have historically been quarried for aggregate. This is in order to avoid adverse environmental effects which cannot be adequately mitigated in more densely settled rural areas. Environmental effects include heavy vehicle generation, dust, noise and visual detracting. A copy of Objective 13.1 and Policies 13.1.9 and 13.1.10 is attached to this evidence in Attachment 1.

4. The Rural Quarry zone comprises of two areas generally known as the Miners Road and Pound Road areas. Located in Yaldhurst, the Miners Road area is between the Old West Coast Road and State Highway 73. The Pound Road area is located between Pound Road and Hasketts Road and adjacent to Leggett Road. The City Plan does not provide for dry land mineral extraction outside of these areas other than within the Isaac Conservation Area in Coutts Island. The Council recently provided for mineral extraction activities within the Isaac Conservation Area (ICP/Q) zone as part of Variation 93. The provisions of the variation relating to mineral extraction activities are now beyond challenge. Copies of the planning maps showing the location and zoning of these areas are attached to this evidence in Attachment 2.

The Road Metals Case and Investigation into the Supply of Aggregate

5. The current City Plan approach to the provision for mineral extraction is premised on the understanding that the Waimakariri River would provide an adequate supply of aggregate in the future and on that basis that the existing Rural Q zones could be allowed to 'play out'. No further dry land for aggregate extraction was identified. Removal of quarry material from the

river was seen to be beneficial not only because it provided an available and close supply of aggregate but also because of the effect in terms of reducing alluvium in the river bed and reducing potential flood hazard to the City.

6. The City Plan provisions were further premised on the view that dry land and river aggregate extraction from these sites would meet the City's needs for another 50 years. This estimation relied on analysis carried out by the Paparua District Council in 1995 which planned for 1.2m³ of aggregate to be utilised per year. It was estimated that there was 20 years supply available from dry land zoned for quarrying.
7. However the Environment Court in *Road Metals Company Limited v Christchurch City Council*¹ found that the Christchurch City Council had significantly over estimated the supply of aggregates in defining its provision for aggregate extraction in the City Plan Rural Quarry Zones. A report from Environment Canterbury (The Gravel Management Report) also found that the Waimakariri River is over allocated and future aggregate extraction cannot be sustained. In the same decision the Court commented that the City Plan should make provision for up to 40 years mineral extraction supply in advance.
8. It was apparent from the *Road Metals* decision that the City Council should take steps to change the City Plan to enable a greater supply of aggregate to be extracted. Following the *Road Metals* decision, the City Council carried out a desktop study to identify potential future quarry zones within the Christchurch district. The identification of these sites was steered by their suitability in relation to location of residential dwellings, predicted groundwater levels and groundwater ponding issues relating to bird strikes within the Christchurch International Airport flight paths. The most suitable sites identified were then mapped with the inclusion of a 400 metre buffer radius around dwellings and businesses. This 'desk top' study illustrated the very limited possibilities within Christchurch for future quarry sites. Only two of these areas are of reasonable size and both sites have significant barriers

¹ Decision ENV C163/05

to rezoning them for quarrying. This is land associated with the Christchurch Prison and the Rural 6 Grasslands Zone.

9. The findings of the Environment Court and the Council's initial desktop study led to the Council initiating an independent review to determine future aggregate demand (to year 2041) and existing capacity within the Christchurch Area including the capacity of river sourced supplies. The review was undertaken by Mr Richard English, a Civil Engineer with over 15 years experience of the quarrying and roading industry. The report was commissioned to support planning for the long term future of aggregate supply and demand for Christchurch and was completed in December 2007.
10. In brief the report established that the presently zoned areas for quarrying and rivers, Ashley, Eyre, Waimakariri, Selwyn, Kowai, Cass and Rakaia, which equate for 20-30% of total aggregate output, will be exhausted in approximately ten to twelve years. Future demand for aggregate is predicted to grow from 3 million tonnes annually, in 2006, to 8 million tonnes by 2026. The predictions are based on historic demand, using a scenario of average demand growth of 5% per annum (which includes one off projects programmed over the next ten years) and takes into account the region's demands on Christchurch's resources.
11. The report puts the shortfall for Christchurch at approximately 40,000,000 tonnes to the year 2026 and projects that the land based quarries within the Christchurch City Council area will effectively be exhausted by approximately 2020.
12. Having identified constraints on the resources within Christchurch and qualified the findings of the Court and Environment Canterbury, the Council is now at the point of investigating alternatives for aggregate supply. The next step of the Council's enquiry is to investigate the economic cost of sourcing aggregate from outside the Christchurch area.
13. The City Plan recognises that greater Christchurch has a need for aggregate as it provides a basic raw material for building and construction. The supply of aggregate is an important resource for the Christchurch district. The provision of aggregate has historically been constrained by the location of

available sources and the need to mitigate the environmental effects of quarrying. The City Plan has rules in this respect for the control and mitigation of effects on properties adjoining quarrying operations, landscape and visual amenities. These rules include boundary setbacks, noise standards, slope stability and safety and protection of ground water levels. In particular rule 3.4.5 provides:

“3.4.5 Protection of groundwater - Mineral extraction activities. No extraction of sands, gravels or other materials shall take place to a depth greater than 1m above maximum recorded groundwater level.

(Maximum recorded groundwater level will be determined upon consultation with the Canterbury Regional Council.)”

14. In simple terms, the higher the highest recorded groundwater level is within the aggregate extraction zones, the less aggregate there is available for extraction.

Groundwater Levels and the Potential Effect on Aggregate Supply

15. I understand from the evidence of Mr Peter Callander that the proposed Central Plains Water Enhancement Scheme may cause groundwater levels in the central and upper Canterbury Plains to rise, and that in some areas this may be a significant rise. The groundwater levels over much of this area are relatively deep. However this is not the case further down the Plains where the water table is much shallower. It is therefore conceivable that, although the predicted rises in groundwater levels in the lower Plains are small, the groundwater table may rise sufficiently to effectively reduce the available gravel resources in some areas and hence influence the number and location of new quarries required to fulfil demand.
16. In my opinion, this may further reduce the already limited supply of aggregate within the district if groundwater levels were to rise within the existing quarry zones² and may also further restrict potential future extraction areas.

² Although I accept this may not occur within the expected operational life of those quarries.

Conclusion

17. The City Plan states that extraction of aggregates is fundamental to the economic well-being of the City. It is an important resource for the sustained development, maintenance and demands of the growing City and Region. The Environment Court has given the Council a clear indication that it needs to make provision in the City Plan for aggregate resources for up to 40 years well in advance of demand. Constraints on current and potential future aggregate extraction areas mean that the available and future quantities are limited and that the Council may have to look outside of the City boundary for future resources. If the groundwater levels are raised due to the Central Plains Water Enhancement Scheme then this could jeopardise existing extraction rates and place further constraints on the identification and activity of future quarry sites. Such a constraint is likely to have an adverse economic effect on development within Christchurch and across the region.

Keri Davis-Millar

24 April 2008

Attachment 1

Policies 13.1.9 – 13.1.10: Mineral extraction

Updated 21 September 2007

13.1.9 To ensure that mineral extraction is confined:

- (a) to locations previously allocated for mineral extraction purposes, or within or adjacent to the Waimakariri River;
- (b) in the case of sand, to areas remote from settlement and where erosion risk can be mitigated.

13.1.10 To ensure provision is made for reducing the associated adverse effects of mineral extraction, and rehabilitating worked out areas for activities compatible with the surrounding rural environment.

Explanation and reasons

Extractive industries (mining) within the City include the winning of shingle, gravel, and sand.

Extraction of aggregates is fundamental to the economic well-being of the City as it provides a basic raw material for building and construction. Christchurch is fortunate in having a virtually unlimited gravel resource. Much of the City's aggregate resources are obtained from dry land sites to the west of the urban area which provide a greater variety of more cheaply processed aggregates than the alternative river supplies, which is a lesser but still important source. One major advantage of extracting aggregates from the river is the potential to reduce risk to the City from any major flood event in the Waimakariri River by lowering the bed level. River sources are not however, able to satisfy demands for some specified grades of aggregate.

A considerable amount of time and effort has already been expended in recent years on refining regulatory controls to overcome the major adverse effects of quarrying activities adjacent to dry land sites in the western part of the City. These adverse effects include heavy traffic generation, dust, noise, and visual detracting. There is also the difficulty of what use can be made of areas of land that have already been quarried and restoring the land to its original condition. There are high compliance costs with administering performance standards, and concerns about potential contamination of ground waters by inappropriate fill materials. It is doubtful, given past experience, that the environmental impact of quarrying can be adequately mitigated in more densely settled rural areas, even with performance standards, unless these are extremely restrictive. Moreover, it is difficult to restore any soil cover to its original character and versatility. However, other long term alternatives for obtaining aggregates from dry land sites, may include sparsely settled rural areas immediately south of the Waimakariri River.

While the advantage of extracting aggregates from the Waimakariri River bed are recognised, the potential adverse effects of quarrying activities in the river bed must be avoided or mitigated. Ecological values, natural values and habitat values for river birds, trout and salmon are examples of such matters requiring particular consideration for quarrying activities in the river bed.

The adverse effects known to be associated with dry land quarrying and experience with the environmental difficulties associated with dry land quarry operations in the western part of the City, means that no provision is made to extend areas to accommodate dry land in the rural area other than that provided for in the Open Space 3D (Isaac Park) which is to be the subject of a management plan. There are sufficient areas identified as dry land quarry sources available to meet needs for at least 50 years at current rates of consumption. The Council will monitor the performance of quarrying, and of restoration practices in existing dry land sites in the western part of the City and the restoration of quarry land. Other land uses which former quarries may be put to include appropriate recreational activities, forestry development, or other forms of development which may be appropriate having regard to compatibility with the surrounding pattern of land use. **(Variation 93)**

Obtaining aggregate from the Waimakariri River has substantial beneficial effects in terms of reducing alluvion in the river bed and reducing potential flood hazard to the City. In addition, use of further potential dry land sites adjacent to the southern edge of the river in the McLeans Island area (subject to performance standards) may be considered in the longer term with a view to the end use of the land for recreation purposes upon the completion of quarrying activity. This is the ultimate goal for the Isaac Park. The Plan acknowledges the economic impacts on the quarrying and construction industries, and therefore on the City itself, of adopting more expensive sources of quarry material and it is expected that dry land sources will continue to be used for many years. However, the reduction in flood risk (and the potential costs of major flooding) is a factor of fundamental importance for long term policy, favouring greater use of river sources for aggregates. **(Variation 93)**

The extraction of sand from old dune formations in the north eastern part of the City has little impact on rural production, subject to necessary measures to mitigate adverse effects where vegetation is removed. This provision does not include extraction from active dunes close to the coastline where there is a moderate to high risk of erosion or inundation by the sea. The Plan contains standards to mitigate dust, noise, and traffic nuisance related specifically to quarrying activities.

13.1 Objectives: The rural land and soil resource

Updated 14 November 2005

- (a) That the rural land and soil resource be managed to:
- enable rural resources to continue to be used for a variety of rural activities while recognising their operational needs and the potential environmental effects of such activities;
 - provide scope for the appropriate establishment or extension of urban activities; and
 - retain the stability and character of rural soils, and the life supporting capacity of the soil resource, including the potential for primary production, and to safeguard natural values.
- (b) That the open space character and low density of built form which distinguish the rural area be maintained and enhanced.

Reasons

There are a number of factors impinging on the sustainable management of land and soil resources, the most important of which are identified in the three parts of the first objective. Rural land has potential value as a resource for a number of activities, some of which may be conflicting, or which when established preclude other options, notably the process of urbanisation.

While farming and forestry in the rural area is only a small part of the region's economic output, it diversifies the economic base of the City and realises the productive potential of versatile soils. It also retains the informal rural open space character in terms of visual amenity in contrast to the urban area. The retention of land for rural uses enhances the amenity values of the City and reduces the impact on the environment and services of unplanned urban activities which might seek to locate in such areas.

There are already areas of established forestry within the City which serve both production and amenity values. Limitations are only to be imposed in areas of major landscape or ecological significance (such as parts of the Port Hills and natural grassland sites) to protect their natural character.

The extraction of aggregates at low cost is important to the economy of the City, but such workings can have marked adverse effects on the local environment. For this reason, extraction of aggregates has been provided for in the Plan, but restricted as to location in order to avoid adverse environmental effects which cannot be adequately mitigated in more densely settled rural areas.

The Council recognises from experience that rural dwellings and other buildings serve a necessary function in the management and security of rural enterprises involving farming and, in some cases, other rural activities. The potential density of dwellings in the rural area is limited in recognition of servicing constraints, the need to sustain soil resources, and avoiding incompatibility with other activities.

While the emphasis will be on retention of rural character, there are circumstances where it is economically sound and environmentally acceptable for urban activities to establish on rural land, having regard to the relative significance of servicing costs, availability of services, soil qualities and local environmental constraints.

The appropriateness of urban development in the rural area is determined in part by the above factors, but in addition to other policies in this Plan which emphasise urban consolidation. While there are areas in the rural area suitable for urbanisation, the rate of likely growth and the effect of various constraints on urban growth will mean that only a small proportion of the rural area will be urbanised in the foreseeable future. Tourism and recreational activities requiring large land areas or a rural setting are also appropriate in some parts of the rural area.

The rural area has visual and open space character which benefits all residents of the City, provides recreation and tourism benefits, complements areas of natural value, and is the main contributor to the quality of life for rural residents. The Plan contains measures to enhance these qualities and to avoid or reduce the impact of incompatible activities. In the case of the Port Hills, a continuation of environmentally sound pastoral farming practices is desirable to maintain the open tussock grassland character of the majority of this area both as a visual background to the City, and to protect the ecological value of grassland species.

Within the rural area there is existing infrastructure, including the International Airport and the roading network, which represents substantial public investment and which justifies protection from development which could compromise their operations. Similarly the effect of development on the operation of existing rural activities (such as orchards or intensive livestock management) will be taken into account.

The components of these objectives, in conjunction with each other, are considered appropriate to promote sustainable management of the rural land and associated soil and water resources for a variety of future potential needs, including food production, and for environmentally sustainable urban growth opportunities.

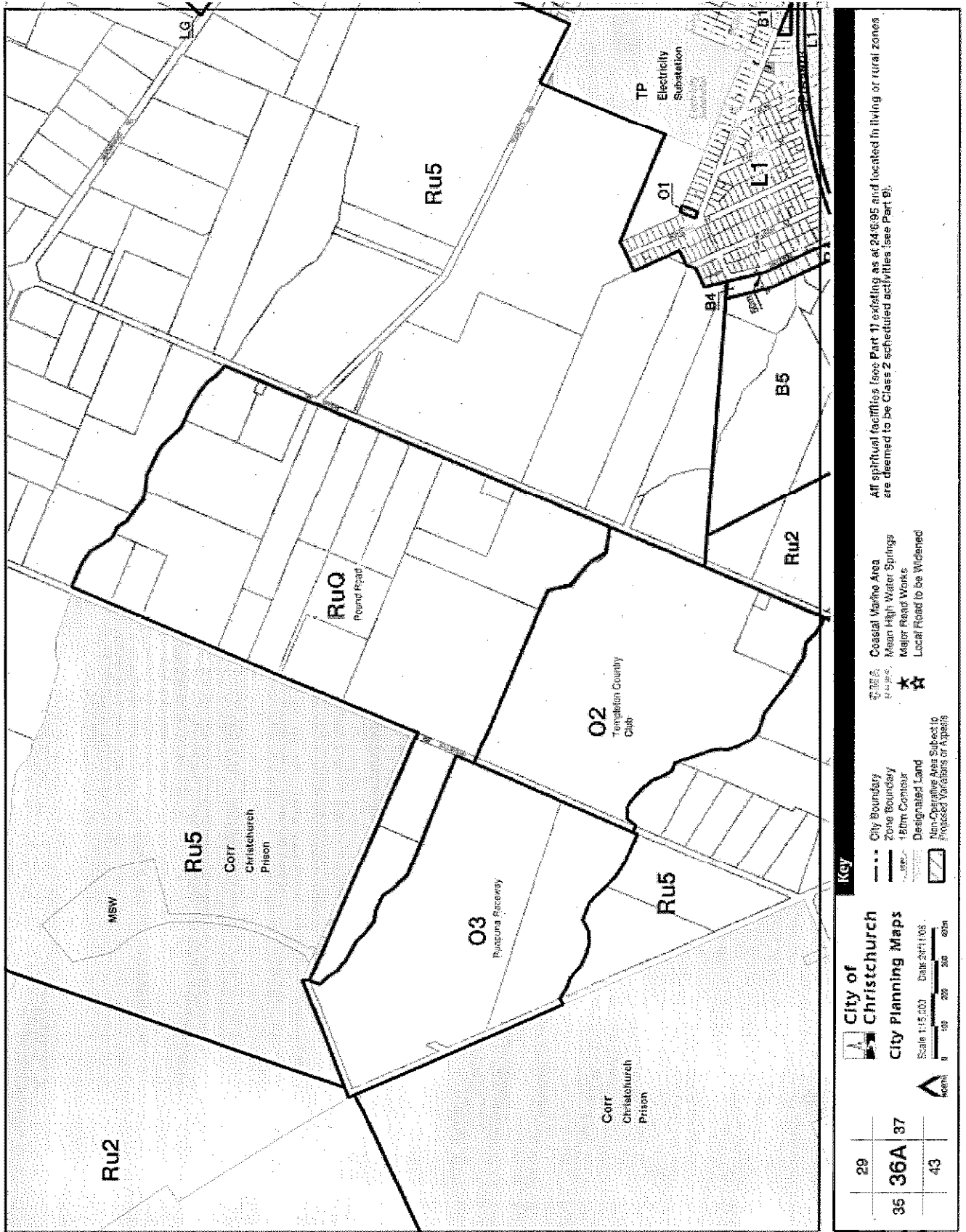
There are areas of highly versatile soils within the rural area of the City the use of which generates significant income for the local and regional economy, or which have the potential to generate such income. Protection of some of the versatile soils is provided for in the Plan primarily to sustainably manage this resource (including for food production) to meet the needs of future generations, to avoid unnecessary loss of life supporting capacity and, as a related benefit, to diversify the base of the City's economy. Sustainability of versatile soil resources, and the protection of future options, needs to be a consideration, but not necessarily the primary consideration, when urban activities compete for this land resource. While production from poorer soils can be achieved by improved technology, this can also entail higher costs, and versatile soils are a finite resource.

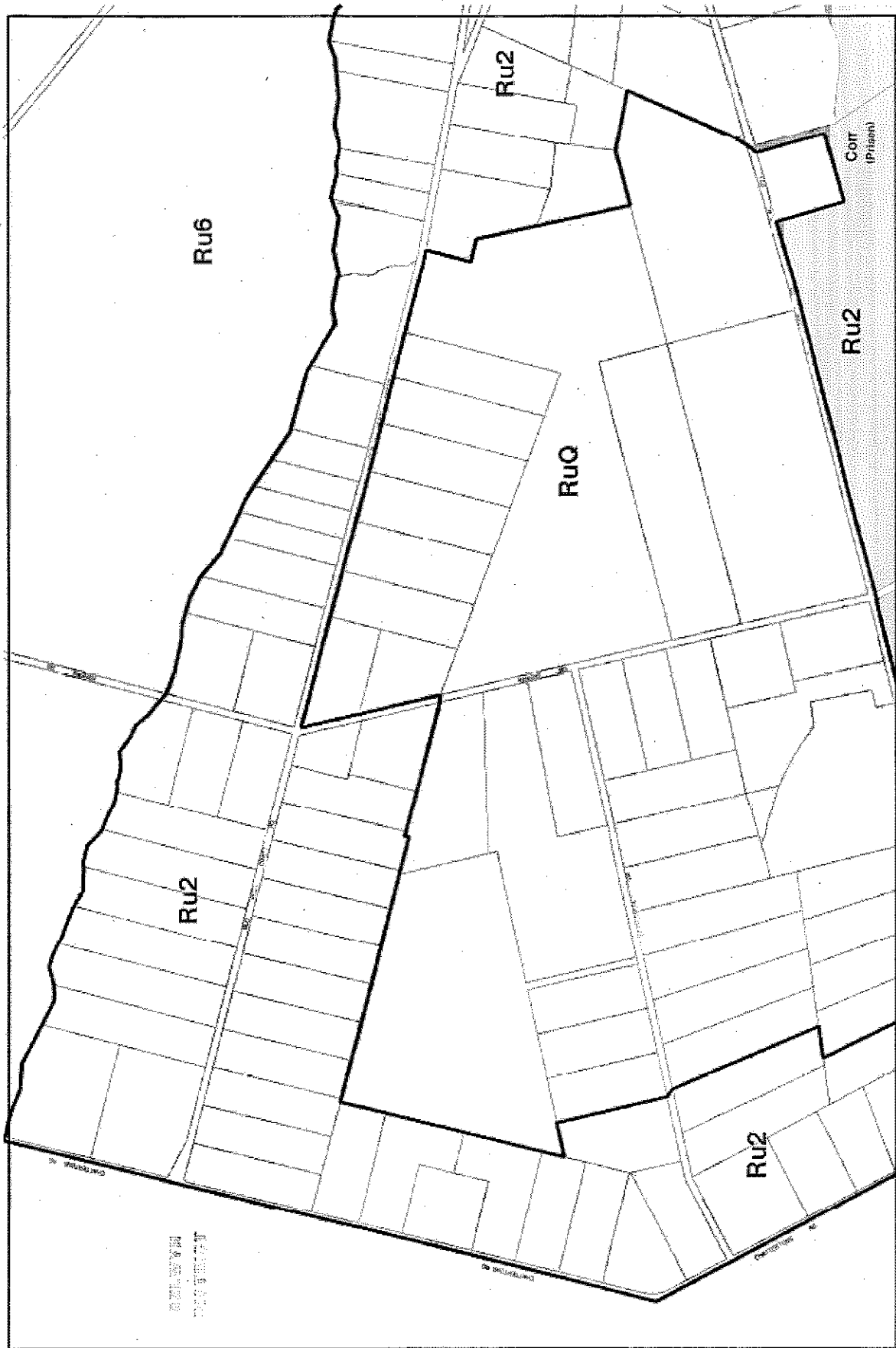
The protection of rural soils (or land generally) has to be balanced with the resource being sustained for other activities such as urban development, and for this reason development of rural land for urban purposes is envisaged in those locations where urban development remains in a compact form and poorer soils are given preference for urban development. However, it is inevitable that some urban growth will occur on versatile soils. The life supporting capacity of versatile soils does not by itself, justify restricting the growth of urban Christchurch (refer also to Policy 6.3.4).

Less versatile soils are also capable of production for a variety of rural activities. In recognition of their limitations, greater scope for urban uses and other activities that do not sustain the life supporting capacity of soils is provided for subject to servicing constraints and protection of amenity values. Through this selective strategy, the Plan both provides greater flexibility for urban activities than under previous Plans, while still sustaining the potential of the majority of versatile soil resources for rural production.

Attachment 2

City Plan, planning maps showing the location and zoning of Rural Quarry zones and the Isaac Conservation Area.





21	28A 29	35	
City of Christchurch City Planning Maps			
Scale 1:15,000 Date 14/11/09 			
Key			
<ul style="list-style-type: none"> City Boundary Zone Boundary 150m Contour Designated Land Non-Compluive Area Subject to Proposed Variations or Appeals 	<ul style="list-style-type: none"> Coastal Marine Area Major High Water Springs Major Road Works Local Road to be Widened 	<p>All spiritual facilities (see Part 1) existing as at 24/6/95 and located in flying or rural zones are deemed to be Class 2 scheduled activities (see Part 9).</p>	

