
Central Plains Water

Supplementary Landscape Report

Report prepared by Andrew Craig – BA, Dip.LA. ANZILA (Landscape Architect)
August 2008

PETER ROUGH LANDSCAPE ARCHITECTS LTD.
St. Elmo Courts
47 Hereford Street
PO Box 3764
Christchurch
Tel. 366 3268
E mail: andrew.craig@prla.co.nz

1.0 INTRODUCTION

This report has been prepared in response to further landscape evidence produced by submitters and CPW to date. In particular I will be focussing on the landscape effects of the proposed river intakes, as I understand further clarification is required in this regard. Other matters will be addressed as well, particularly those needing elaboration or requiring a response to submitters and CPW landscape evidence not already covered in my original report.

The assessment to follow is not intended to be exhaustive, instead being a summary discussion of the matters referred to above.

2.0 SUPPLEMENTARY ASSESSMENT

2.1 The Photo-simulations

2.1.1 A significant issue regarding these concerns the visual and landscape effects of the proposed intake canals and dam. The effects of these have been difficult to assess due to the lack of adequate visualisations. These have since been supplied by the applicant's landscape architect, Mr Chris Glasson. These generally provide a fair and representative indication of anticipated visual and landscape effects on the receiving environment. However, some detail is absent, particularly that relating to the accessory structures associated with the dam such as the spillway, tower and pump station.

2.1.2 It is evident from these that certain visual principles come into play that clearly influence the proposal's visual effects. Photo-simulations mostly convey visual effects with respect to landscape character and amenity, and even then as 'snapshots' in time. For this reason these principles are now discussed with reference to specific visual effects arising from the proposal as illustrated in Mr Glasson's photo-simulations.

2.1.3 Perspective

This is where objects appear to diminish in size over distance. With regard to the proposal, the distance of vantage points from structures will influence the impact of visual effects. In some of the photo-simulations (PPT) this effect is apparent, particularly those that have a high view point – notably PPT's 5, 6, 7 and 8. These are of the intake canals, the visual dominance of which diminishes substantially with distance from the photo-points. In these instances the surrounding landscape becomes increasingly dominant the further viewers are from the proposed structures. It is evident that from most frequented vantage points (Waimakariri Bridge and the PPT 7 viewing point on SH 77) the intake canals are going to occupy middle to background distant views, and will be less dominant than those in the foreground.

2.1.4 Conversely, the closer one gets to an object the larger it will appear. This is evident in PPT's 11, 13 and 15. These PPT's are of the dam and canal structure crossed by Homebush Road, where views of it are dominant due to vantage point proximity. A further visual effect arising from this occurs where the closer one approaches an object, the more it will have the ability to obscure views. This is also evident in the above PPT's and PPT 11 of the dam. Thus the dam especially, is going to appear as a very large structure when viewers are close to it. This will particularly be the case as it is seen from SH77 (Homebush Road) from where PPT 11 was taken. The

curvature of the dam will also be subject to perspective effects – where it will apparently diminish away from the viewer. This effect is also evident in PPT11.

2.1.5 This same effect can be used to facilitate mitigation by way of screening. Tree planting, for example, in proximity to a vantage point can effectively screen very large more distant objects – such as the proposed dam. The closer the screening is to the viewer the more effective it is. For viewers on SH77 tree planting alongside the road will be more effective in this regard than that along the base of the proposed dam. Mr Glasson points out that this will be done in front of the dam so as to soften its appearance and partially screen it from view.¹

2.1.6 For CPW, perspective plays an important role in determining whether or not visual effects are going to be dominant and therefore potentially adverse. So for the intake canals in vicinity of their river sources, the visual effects are not going to be especially significant as seen from popular vantage points. This is especially so for those viewers located on the river or its bed, for reasons that will be explained next. However, other vantage points such as from farm dwellings, or less frequented public roads, the visual effects would be more significant where they are close to the canals. This could occur on Rubicon or Keens Road for example, depending on what option is implemented.

2.1.7 Viewpoint Elevation

Generally the higher the view or vantage point the more will be seen. The photo-simulation points show in the case of PPT's 5, 6, 7 and 8 high elevation views of the Waimakariri and Rakaia intake canals. In particular PPT 7 from SH77 looks down onto the intake canal, As a consequence of elevation therefore, the structure and extent of the intake canal is readily apparent, which as mentioned is some distance from this vantage point.

2.1.8 There are other high elevation vantage points from which views of the proposed infrastructure would be seen. These include views from the Millennium walkway behind Coalgate affording potential views of the dam about 2km away. Other views will be had from the upper terraces of the Waimakariri, especially from the elevated parts of Rubicon Road. On a recent site visit (15.07.08) I noted that good views are afforded of the lower terraces and river margin from Mr Taege's dwelling (see photograph in Appendix 1). Although no photo-simulation was produced from this vantage point, it is evident that an intake canal from here would have a significant adverse visual effect on the natural character of the river corridor. From a landscape point of view this is one reason why the canal option shown in PPT's 2a and 2b is not favourable.

2.1.9 Where viewpoint elevation is low (PPT's 1,1b,2a,2b 3,4a,4b,9, 10a,10b,11,12,13 and 14) the visual effects tend to be diminished, unless a strongly vertical element is present such as the dam in PPT 11 or canal in PPT 13. Most of the low elevations are going to be from the river beds and plains. Consequently views of the canals are not easily seen, reinforced by the general absence of vertical structures. However, the vertical nature of the batters alongside the intake canals where they ascend the river terraces will render them highly visible, irrespective of low elevation vantage points. This is especially evident in PPT 10a and 10b where the canal batters are clearly visible from the bed of the Rakaia. A similar effect occurs in respect of the vertical canal embankment in and around Coalgate (PPT's 13, 14 and 15).

¹ Additional evidence 2008 Paragraph (k) p.7

2.1.10 So overall the visual effects arising from viewpoint elevation are additionally influenced by whether or not proposed structures have horizontal or vertical aspects. Thus the vertical components of the proposal – the dam, intake canal batters, and canal embankments will result in higher levels of visibility. Otherwise the canals, sediment traps, siphons and irrigation races will have very little visual impact as seen, or not seen as the case may be, from low elevations relative to the structure.

2.1.11 Foreshortening

Allied to the visual effects arising from elevation are those resulting from foreshortening. This is where objects on a horizontal plane, such as a canal, appear narrower, which is entirely dependent on viewpoint elevation. Wide horizontal objects can look quite thin or even disappear from view altogether due to the effects of foreshortening. This disappearing effect occurs when the viewer's eyelevel matches that of the object or is below it.

2.1.12 Visibility of vertical objects, in this case the dam, intake canal batters and embankments, are not generally affected by foreshortening, and therefore will be visible.

2.1.13 The photographic effects of foreshortening can be seen in PPT's 1a, 1b, 4a, 4b, 9,10a, and 10b. The photo-points are mostly taken from the river beds at low elevation, and therefore generate foreshortening effects. These effectively render the canal virtually invisible as seen from these low viewpoints. However, a visual indicator of the canal's presence is evident in the vertical batters where they ascend the river terraces as seen from these viewpoints.

2.1.14 In this case there are also instances when horizontal surfaces disappear due to their elevation above eye level. The reservoir lake is an example of this when viewed from below the dam (PPT11). So too are the canals where they are supported by elevated embankments (PPT's 12 and 13).

2.1.15 Once again, for those proposed objects of a horizontal nature, the effects of foreshortening are going to diminish their visibility. This is only going to apply to the reservoir lake, canals, irrigation races and siphons. But this is also dependent on viewer elevation in relation to that which is observed.

2.2 The Waimakariri Intake Canal Options

2.2.1 The photo-simulations give some indication of what effects will arise in respect of each of the two intake canal options from the Waimakariri River. To some extent these have already been briefly covered in the above discussion, but further consideration is needed. This is because it is necessary to determine which of the options has the least adverse effects on the landscape.

2.2.2 Generally, the river corridor displays a reasonably high level of naturalness, although it is by no means pristine. Nonetheless, the degree of adverse effects is going to directly correspond to loss of naturalness. Ultimately this will determine what option is the better.

2.2.3 Upper Waimakariri Intake

The photo-simulations (PPT's 2a and 2b) indicate a canal intake sourced from above the bluff upstream of Joyce Stream junction and 'Alpine Jets' launching facility. As

the Photographs in the Appendix indicate, this area has high natural character. Its significance is also amplified due to its location at the mouth of the gorge. In this regard it has high scenic value where it represents a critical transition point between the braided river bed and contrasting confines of the gorge. This point would be one of the most important in terms of how the riverine landscape of Canterbury is experienced, in addition to that where the plains meet the hills.

2.2.4 And as mentioned, rare basalt outcrops occur at the base of the bluff where it juts into the river. The natural character of the existing riparian margin and remnant terraces is also apparent downstream of the bluff.

2.2.5 All of these features will be adversely affected if the canal option is implemented. For this reason the upper intake canal option is not favoured from a landscape point of view.

2.2.6 However, it may be possible to introduce a tunnel on the upstream side of the bluff, from where water could be directed to emerge some 1500 to 2000 metres south within the lower, inner terraces. This would avoid the sensitive river margin and preserve its braided pattern. Further, location of the tunnel portal beneath the upstream northern side of the bluff could be done with negligible effects on landscape character (see Appendix 1 Photographs). This is because the cliff face is oriented away from important view points, and comprising gravels and silt it is not an especially significant feature.

2.2.7 Lower Waimakariri Intake

The 'Pinnacles' rock formation supporting the Waimakariri Bridge is a significant landscape feature, especially given that it is a 'stand alone' one within the setting of the Plains. The drama of the rock faces are amplified by the river they contain. And the bridge also serves to highlight the character of this feature. However, the presence of the bridge subtracts from the naturalness of the setting as well. Nonetheless, the overall ensemble displays a high level of pleasantness and is scenically very appealing. It is also highly accessible to the public and is a popular destination point.

2.2.8 The photo-simulations indicate that the proposed tunnel intake will detract from the landscape character and amenity of the site. This largely comes about through its design, which is somewhat prosaic in appearance, and not particularly sympathetic to its setting. The additional structure (service platform?) above the intake aggravates adverse effects, and ideally could be better designed so as to be more in keeping with the rock face that supports it. I also note that the intake structure is unlikely to be seen from the bridge and from land based access points. It appears that it would be seen from the water only and therefore potentially affect river users.

2.2.9 From a landscape point of view, a tunnel intake within the 'Pinnacles' formation may not be entirely out of the question. With more sensitive design, notwithstanding practical considerations, it might be possible to devise a structure that fits more sympathetically. For example, it would be desirable, if feasible, to recess the structure into the cliff face so that it resembles a natural cleft or cavern. Consequently the naturalness and scenic appeal of the 'Pinnacles' could be maintained to a higher level than what is proposed.

2.2.10 With the settling pond and canal beyond the tunnel being located within farmland outside the active riverine environment, the effects on landscape character and amenity are not going to be significantly adverse. A water race already exists along

the proposed route, as does another on the north side of the river. There exist too, a small patch of native vegetation in the vicinity of a small gully at the eastern end of the lower terrace, and I understand that this will not be affected by the proposed canal works.

2.2.11 Summary of Waimakariri Intake Options

There are 'pros' and 'cons' for both options in terms of their potential effects on landscape values. In my opinion the Upper Waimakariri option is the better with the tunnel intake. This is because, relative to the 'Pinnacles', the upper intake portal can be more discretely located in a cliff face that is not particularly significant (see again Appendix 1 photographs). Further it is not a popular public destination compared to the 'Pinnacles' site, and therefore has a low profile. It will however be visible to river borne users such as jet boaters and kayakers. But the intake portal is located in a secondary true right river channel away from the main channel that I understand is most commonly used by boats.

2.2.12 The option to channel water from the upper intake around the bluff (as shown in PPT's 2a and 2b) is not a good one for the reasons discussed earlier.

2.2.13 The lower intake option as it is presented will generate significant adverse effects at the 'Pinnacles' tunnel intake portal. If the design of this can be made more sympathetic to the setting, a more acceptable outcome may result.

3.0 OTHER LANDSCAPE MATTERS

During the course of the hearing further information has come to light concerning landscape matters. These are now discussed.

3.1.1 The Proposed Lake

Since preparing my original evidence I have visited Lake Opuha in south Canterbury. I understand that the proposed reservoir lake will display similar characteristics to the one at Opuha. Both lakes are in foothill settings dominated by pastoral land use. In this case, similar pastoral farmland will be inundated, and significant fluctuations in water level will occur. From this I deduce that the landscape effects at the proposed reservoir will resemble those at Opuha.

3.1.2 When I visited Lake Opuha in May the weather conditions were good. Overall the lake looked attractive in its foothill pastoral setting with alpine backdrop. On nearing the lakeshore I observed that the lake levels were very low. Consequently extensive areas of the lakebed were exposed. The amenity quality of this varied considerably.

3.1.3 I noted that exposed lakebed with shallow gradients is the most aesthetically unattractive due to the extensive tracts of mud (see Appendix 2 photographs). The mud was sticky and puggy, making access to the lake difficult. In some areas it was relatively dry and cracked, whereas in others it was wet or contained stranded puddles and ponds. The latter were quite turbid, as was, to my surprise, the entire lake. Adding to the unpleasantness were dried algae, leaving a whitish coating on the mud where it was generally dry.

3.1.4 I further observed that where exposed lakebed gradients steepened, the more aesthetically pleasing the exposed lakebed became. This was especially the case

where the shoreline comprised gravel or rock. Nonetheless, some of the steeper exposed lakebed sections did consist of mud. This too displayed similar characteristics to that just described of the shallow gradients.

- 3.1.5 The final point I noted was the general lack of vegetation around the lake margin. I realised that it would be impossible to establish vegetation within the lakebed except at the very shallow edges (less than 1m). This means that when lake levels are low, there will not be a vegetative shoreline. Or to put it another way, there will always be a barren surface devoid of vegetation resulting from low lake levels. This is a feature common to all lakes where significant water level fluctuation occurs.
- 3.1.6 My observations at Lake Opuha have led me to conclude that, firstly, inundated soil will result in unattractive, barren mud when lake levels are low. Secondly, gravel or rocky lakebeds are, relative to mud, more aesthetically pleasing. Such shorelines are common to many artificial and natural lakes throughout New Zealand – notably those in the Mackenzie Country. And finally, it would not be possible to establish vegetation within the potentially exposed lakebed with a view to mitigating adverse visual and amenity effects.
- 3.1.7 The only possible mitigation measure would be to ensure that the potentially exposed lakebed comprise entirely of rock or gravel. Lake margin planting would contribute to mitigation also, but its effectiveness would decrease in correspondence with decreasing lake levels. Further, lakeshore planting would need to tolerate a wide range of conditions from the very wet to the very dry. This would limit the plant species able to be used around the lakeshore.

3.2.1 The evidence of Ms Di Lucas

I note that the focus of Ms Lucas's evidence is that she regards the receiving environment to be an important heritage landscape worthy of preservation. Her research in this regard appears to be exhaustive and thorough, to which I have no reason to contest. I accept that the receiving landscape exhibits important heritage values, some of which are identified in the Selwyn District Plan. I also accept that many of these heritage landscape values will be lost or altered should the proposal be implemented.

- 3.2.2 While doubtless there are significant heritage landscape values in the potentially affected area, it also needs to be appreciated that the whole of the Canterbury Plains have evolved in a historically similar way. In this regard the Plains in their entirety can be considered a heritage landscape. Despite this, I also acknowledge that there exist specific areas with the Plains that harbour greater heritage values than others. The receiving environment, in part at least, appears likely to be one of these, A district wide analysis would confirm this, or would determine the relative importance of each heritage landscape. Such an exercise is beyond the scope of my instruction or expertise, but I believe that this would help locate and establish the significance of the potentially affected heritage landscape within the wider context of Canterbury.
- 3.2.3 Finally the matter of outstanding natural features and landscapes concerning the Waimakariri and Rakaia Rivers. I agree that the braided riverbeds are significant landscape features and, with more thorough analysis, are likely to be considered outstanding landscape features, even though they are not yet recognised as such in the current Plan. Although such status does not rule out development, the question is triggered of whether or not it is appropriate to allow it with protection of the landscape feature being the ultimate objective. Or if considered a s6(a) matter,

where the preservation of its natural character becomes important. Thus it is important that the proposed intake structures do not detract from the natural character of these rivers, particularly with regard to their braided character.

4.0 CONCLUSION

- 4.1 The photo-simulations have proved to be very useful in clarifying what various components of the proposal will look like. While not all aspects of proposed scheme are covered, they do illustrate most of the important visual effects. The visual principles I describe should hopefully assist in gaining some appreciation of the nature of visual effects not portrayed in the photo-simulations.
- 4.2 Based on these visual principles, it would appear that those parts of the scheme that are generally horizontal in nature – the canals and reservoir lake – will generally have less visual impact than those features that are vertical – the dam, accessory structures, canal embankments and batters. But this also depends on the relative elevation of the viewer.
- 4.3 And then consideration has to be given to what constitutes an offensive view or otherwise. It does not necessarily follow that just because something resulting from human activity is visible, that it is visually disagreeable. Of the irrigation and hydro canals I have seen around the country, I cannot recall any that, in my opinion, are offensive to look at. Even the very large hydro canals in the Mackenzie Country blend in reasonably well with their setting, and quite possibly are considered by many to be scenically attractive. Further they only occur in rural settings, and in this regard can be considered typically rural features. So even though they can be quite large structures, and have the potential to significantly change specific landscape character, they are not necessarily going to give rise to unpleasant visual effects. In my view, those proposed fall into this category.
- 4.4 However, the potential does exist for adverse landscape effects to arise from the proposed scheme. These largely relate to the loss of naturalness where its ongoing presence is important to protect and maintain – namely the braided river beds. That is why I think it important that the intake canals do not disturb these in any but the most minor of ways.
- 4.5 Loss of the heritage landscape also generates another adverse landscape effect. This is especially so for important historic features such as dwellings and notable trees. Such features are usually part and parcel of their wider setting. It is evident that the area most affected in this regard is within the bounds of the proposed reservoir lake and in the immediate vicinity of the dam. Apart from avoidance entailing cancellation of the project, I cannot see any way to mitigate potential adverse effects arising from the loss of such landscape values. Or to put it another way, the potentially affected heritage aspects of the landscape would have to be sacrificed to the scheme. And as mentioned, this really needs to be considered within the context of the whole of Canterbury in respect of its heritage landscapes. The only other possibility might be by way of some form of environmental compensation or maybe relocation and re-establishment of important historic features.

Andrew Craig
August 2008