Appendix 12.3: Report on evaluating potential sites for planting riparian and floodplain woodland

All of the positive stream reaches identified by the application of the OVERFLOW model to the Pickering Beck catchment were considered for their suitability for planting riparian woodland and/or constructing large woody debris (LWD) dams. The latter were termed Catchment Riparian Intervention Measures (CRIMS) and the term used to number individual reaches. Since all sites lay within the National Park they were jointly assessed with the NYMNPA through a series of meetings and site visits. The results of these assessments are summarised below and in Table 1:

CRIM ID 8: Trees have been planted in the middle section of this CRIM. Other areas are not suitable due to important wetland vegetation or existing tree cover. The potential for LWD dams is severely limited by the gradient of the watercourse and the lack of available floodplain storage but will be considered for the less steep upper reaches.

CRIM ID 5: This drain had been partially restored 4/5 years ago using earth bunds to create linear ponds for water vole, which were still functioning to slow the flow. The landowner feels tree planting is inappropriate due to the impact on the landscape and on the water vole and bog habitat.

CRIM ID 4: There is extremely limited potential for tree planting due to the level of existing tree cover. There is felt to be nil potential for the construction of LWD dams due to the nature of the stream channel and anticipated negative impact on adjacent wetland habitat.

CRIM ID 9: The location is on the open moorland plateau and as such is deemed inappropriate for larger scale riparian tree planting for reasons of landscape and habitat preservation. The site encompasses seasonal flushes only so LWD dams are unlikely to have a significant impact on flood flows and would be difficult to construct in the absence of a clearly defined channel.

CRIM ID 11a: Tree planting considered inappropriate on any scale due to potential adverse effects on existing water vole and wet grassland habitats. Site inspection confirmed the reach has little potential for LWD dam construction due to the incised nature of the channel and lack of available storage on the floodplain.

CRIM ID 27: Initially considered that activity may be constrained by common land on the western side of the beck and a private farm tenant on the eastern side, however the site appeared to have significant potential for both tree planting and the installation of LWD dams. Noted that the southern end would need Scheduled Monument consent. A site meeting was subsequently held to agree locations and suitability for individual measures. General areas with potential were agreed, with scope for tree planting in three areas. One lengthy reach with potential for LWD dams was identified, subject to confirmation by FR. Some minor preventative measures to address water flows to prevent peat erosion were also identified. Tree planting within this CRIM forms the majority of the NYMNPA's initial contribution to the project and has been funded by FC under EWGS.

CRIM ID 17: Northern reaches of the CRIM have nil potential for tree planting for landscape reasons due to open moorland plateau. 200 oak trees have been planted in the southern section funded by the NYMNPA but there is little scope for further establishment work on a scale that would contribute to project aims. The middle section is already wooded. Opinion was sought from FR and the site confirmed as inappropriate for LWD dam construction due to the extremely incised nature of the channel and complete lack of available floodplain.

CRIM ID 14: There was no scope for tree planting due to the northern end being a prominent location on the open moorland plateau and the southern end already tree covered. FR visit confirmed site was unsuitable for LWD dams due to the incised nature of the stream channel and the lack of available floodplain. However, an eroding moorland drain which forms the northern end of the CRIM has been blocked with small heather bales to slow the flow and help prevent further erosion. This was funded by the NYMNPA.

CRIM ID's 11b & 13: The reaches under NYMNPA ownership have existing tree cover. There is some potential for in-fill planting in places but not on the moorland plateau for landscape reasons. LWD dams are also felt to be inappropriate on this section of the moor and the gradient is likely to preclude this sort of intervention on the valley side. The NYMR is likely to be a major constraint to in-channel works along the southern part of the CRIM, with large stretches of the watercourse abutting the retaining wall of railway line. However, there is some potential in reaches more remote from the railway, where the water level is well below that of the track. An extensive survey of the main channel in September 2010 identified three suitable locations where there was access for LWD dam construction. Consents have been issued by the EA and FC intends to construct between 10 and 15 dams on the main beck during periods of low flow in summer 2011.

CRIM ID 31: Modelling for the 2000 flood indicated that this reach was a negative site, whereas it was predicted to be a positive site for intervention for a 2007 type event. Ultimately this proved largely irrelevant as the private landowner did not favour woodland planting and associated works, mainly due to inadequate financial incentives.

CRIM ID 18: This site was excluded due to the presence of extensive existing tree cover along the CRIM. There was initially thought to be some potential for LWD dams, however on closer inspection the incised nature of the channel and lack of associated floodplain made in-channel interventions inappropriate.

CRIM ID 35: Activity at this location was constrained by several private landowners owning opposite sides of the watercourse. This factor and a potential issue over LWD dams influencing local erosion and wetting of adjacent agricultural land meant that in-channel intervention was difficult. As was the case for CRIM 35 modelling indicated the reach to be a negative site for intervention for a 2000 event but positive for a 2007 type flood. There remains potential for tree planting along this reach if private landowners could be persuaded (likely to require a greater financial incentive).

CRIM ID 20: Tree planting on this area of common ground is considered inappropriate as it forms one of the few open moorland areas left on Stony Moor. The

loss of this glade habitat was considered detrimental given the predominance of extensive tree cover in the locality. There was limited potential for LWD dams due to the presence of wet flushes and lack of a clearly defined channel.

CRIM ID 26: This reach was discounted due to existing tree and scrub cover. Land upstream under FC ownership was selected as an alternative for constructing LWD dams due to its immediate proximity to this reach and the suitability of the channel and surround.

CRIM ID 12: The private landowner made a successful bid to the 2010 round of the Catchment Sensitive Farming capital grant scheme for yard works. There remains scope for further measures, with support for constructing LWD dams provided the FC supply materials. Subject to agreement being reached construction of LWD dams may commence later in 2011.

CRIM ID 16: Potential for tree planting appears limited given the level of existing tree cover and the majority of the reach comprising privately owned agricultural land. The watercourse survey of Cropton Forest suggests there is little potential for LWD dam construction on the northern and southern ends of the reach on FC land due to the extremely incised nature of the channel and the steep surrounding topography. As per CRIM 12 the property owner along the middle of the reach is receptive to project aims and there remains potential for LWD construction if FC supplied the materials. Subject to agreement being reached construction of LWD dams may commence later in 2011.

CRIM ID 28: The reach lay within existing plantation forest, precluding any woodland establishment. The excessive gradient and incised nature of the watercourse also made it inappropriate for LWD dam construction.

CRIM ID 10: The reach lies within existing plantation forest and there is no clearly defined channel to benefit from LWD dam construction. There is however a small reach with greater potential for dam construction immediately downstream, before the watercourse becomes severely incised. This will be considered for dam building by FC in spring 2011.

CRIM ID 21: This reach is under private ownership and appears to comprise seasonal flow down an old field drain rather than a permanent watercourse. There remains potential for tree planting but the landowner expressed no interest upon an initial visit in 2010, citing lack of satisfactory financial incentives.

CRIM ID 25: The private landowner at the western end of this reach is receptive to both tree planting and LWD dams in principal. The property is managed as a conservation area by the owner. An initial site meeting was held and the owner expressed a willingness to consider firm proposals providing all his costs would be covered. The existing level of additional contribution for woodland creation is unlikely to cover full costs and thus landowner interest remains to be secured.

SITE NAME/ID	TREE PLANTING	LWD DAMS
8	X	X
5	X	X
4	X	X
9	X	X
11	X	X
27	√	√
17	X	X
14	X	X
11	X	√
13	X	√
31	X	X
18	X	X
35	?	X
20	X	X
26	X	√
12	X	√
16	X	√
28	X	X
10	X	√
21	X	X
25	?	?

Table 1 Summary of the suitability of individual positive reaches to tree planting and/or constructing LWD dam (X unsuitable, ? potential, √ suitable).

In terms of floodplain woodland, attention concentrated on the River Seven catchment where there was perceived to be much greater opportunity for planting, which could help to reduce flood risk for the village of Sinnington. A total area of 40.5 ha of floodplain was identified as being potentially available and an ambitious target of creating an extended 30 ha demonstration floodplain woodland along the main watercourse was set by the project. All of the potential land lay in private ownership and was in agricultural use, comprising improved grassland or arable cropping. A total of six main landowners were identified and canvassed for their willingness to consider woodland planting, of which two expressed significant interest, two were uncertain and the remaining two were not interested.

Unfortunately both of those that expressed an initial interest have preferred not to proceed to date. The main reasons given for their reluctance to plant were essentially financial, particularly the fact that despite the enhanced rate of grant available, planting would represent a significant net cost, including a loss of annual agricultural income from the planted area. Another key factor was the reduction in the enhanced rate of grant that could be offered (from an intended additional contribution of £4,000/ha to £2,000/ha) due to the formal withdrawal of funding following the closure of the Regional Development Agency (Yorkshire Forward). None of the other landowners have shown any renewed interest in woodland creation in the floodplain, which is also thought to be largely due to the lack of a sufficient financial incentive.