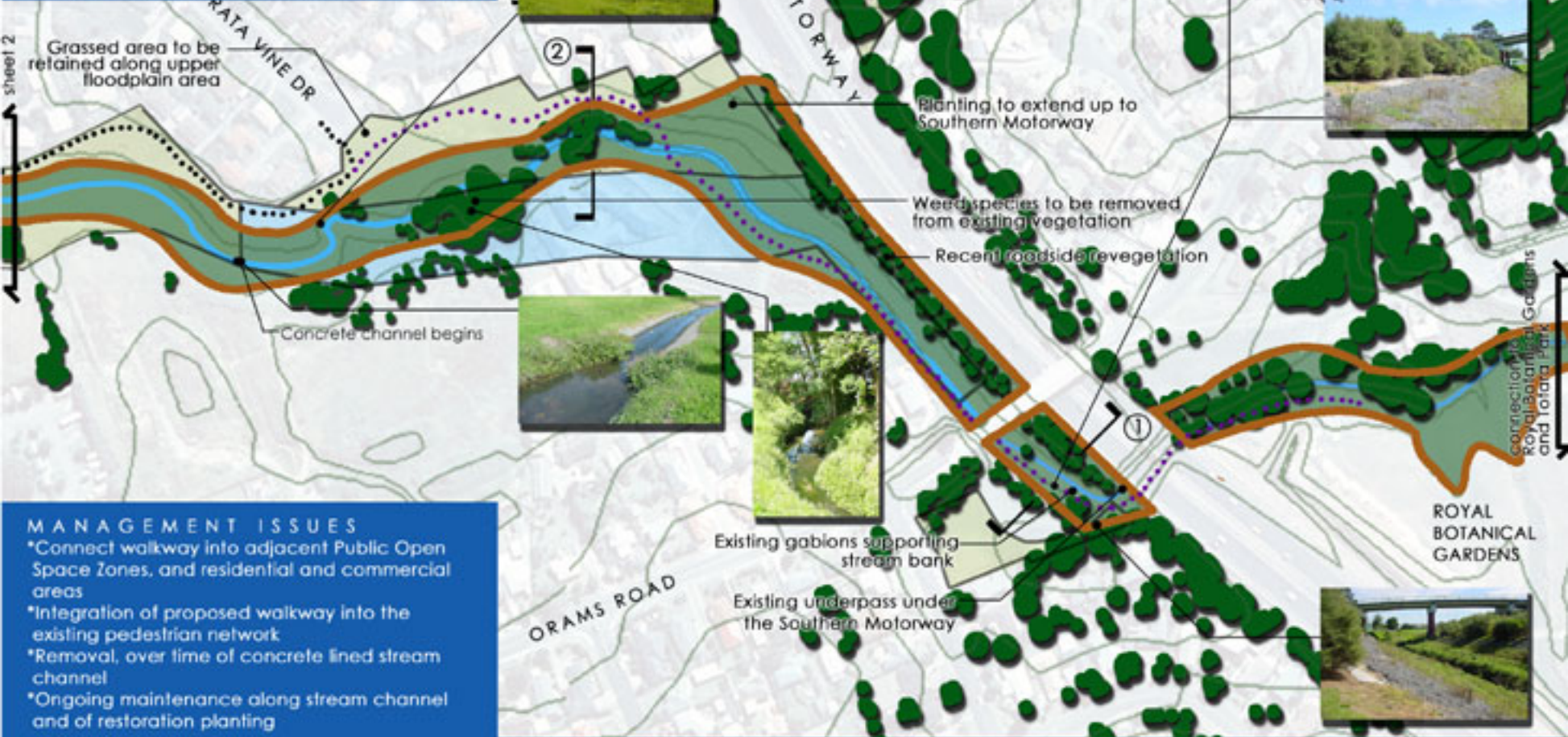


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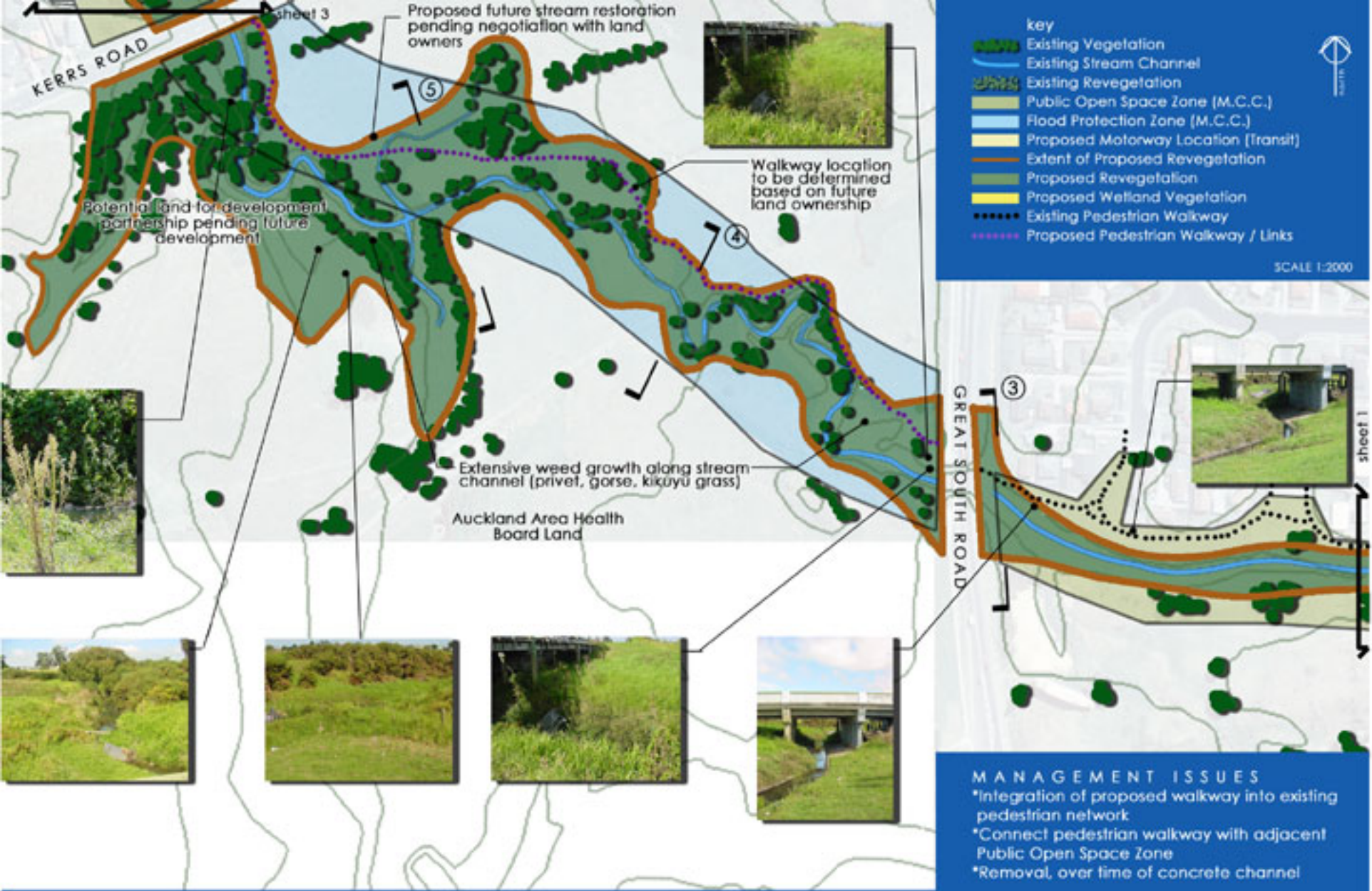
- Existing Vegetation
- Existing Stream Channel
- Existing Revegetation
- Public Open Space Zone (M.C.C.)
- Flood Protection Zone (M.C.C.)
- Proposed Motorway Location (Transit)
- Extent of Proposed Revegetation
- Proposed Revegetation
- Proposed Wetland Vegetation
- Existing Pedestrian Walkway
- Proposed Pedestrian Walkway / Links

SCALE 1:2000



MANAGEMENT ISSUES

- *Connect walkway into adjacent Public Open Space Zones, and residential and commercial areas
- *Integration of proposed walkway into the existing pedestrian network
- *Removal, over time of concrete lined stream channel
- *Ongoing maintenance along stream channel and of restoration planting



key

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SCALE 1:2000



MANAGEMENT ISSUES

- *Interplanting along existing 'park' planting of native vegetation
- *Planting of native wetland species in areas where the stream channel has expanded beyond the concrete base and sides
- *Integration of walkway of the existing pedestrian walkway network into adjacent Open Space
- *Correction of seepage along the upper floodplain



PUHINUI STREAM RESTORATION - CONCEPT PLAN

PREPARED FOR: Manukau City Council
JUNE 2002

MANAGEMENT ISSUES

- *Placement of walkway along the upper floodplain with provision for the formation of 'desire lines' along the stream channel
- *Pedestrian walkway located as preliminary, final walkway location to be associated with future motorway works (i.e. walkway connection through Hayman Park)
- *Formation of linkage within and into adjacent commercial, industrial and residential areas
- *Removal of stock from floodplain / improvement of fencing

- key
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SCALE 1:2000

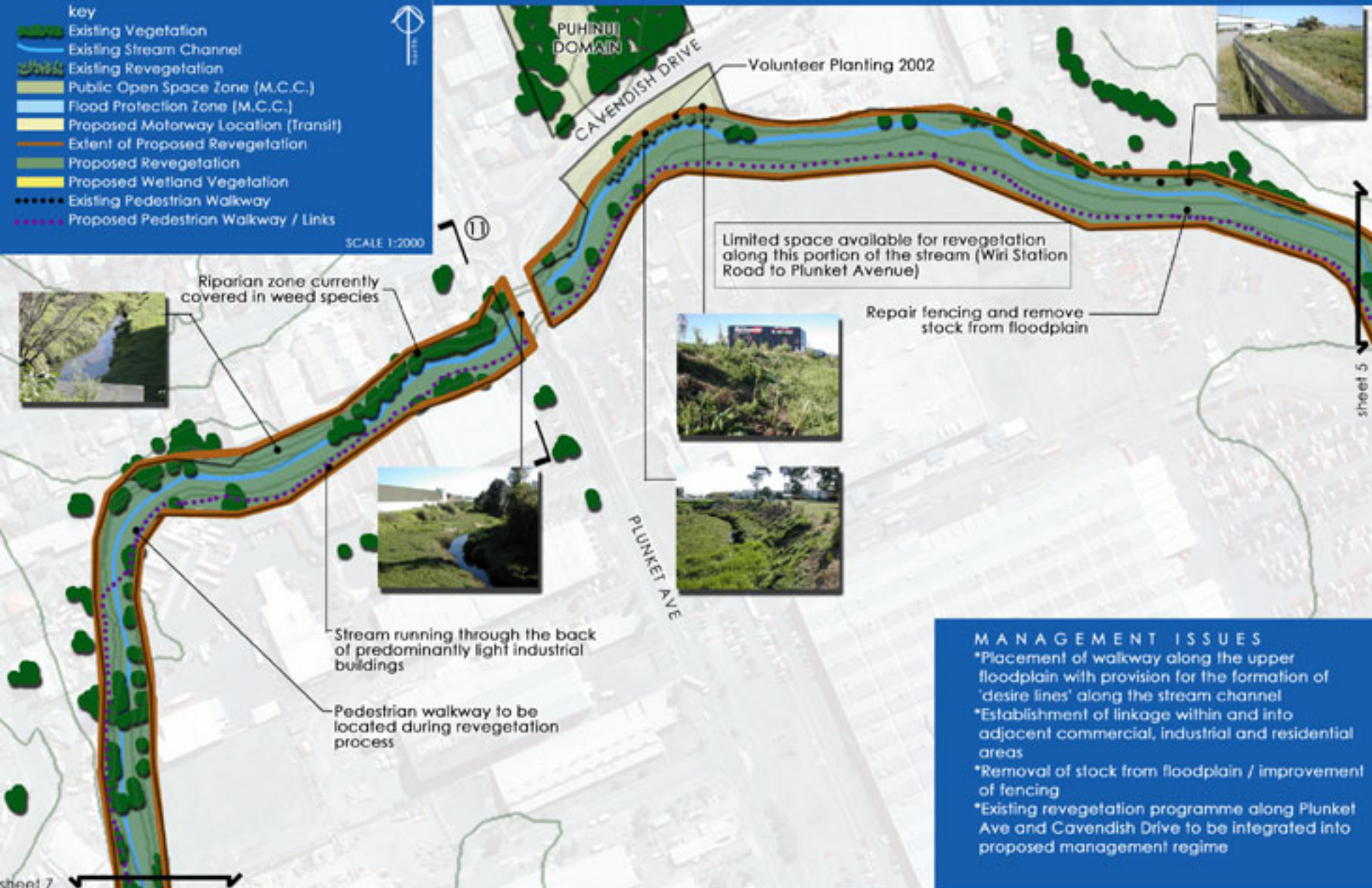


key

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SCALE 1:2000



Riparian zone currently covered in weed species



Limited space available for revegetation along this portion of the stream (Wiri Station Road to Plunket Avenue)

Repair fencing and remove stock from floodplain



Stream running through the back of predominantly light industrial buildings

Pedestrian walkway to be located during revegetation process

MANAGEMENT ISSUES

- *Placement of walkway along the upper floodplain with provision for the formation of 'desire lines' along the stream channel
- *Establishment of linkage within and into adjacent commercial, industrial and residential areas
- *Removal of stock from floodplain / improvement of fencing
- *Existing revegetation programme along Plunket Ave and Cavendish Drive to be integrated into proposed management regime

sheet 7

D. J. SCOTT ASSOCIATES LIMITED

PUHINUI STREAM RESTORATION -CONCEPT PLAN

PREPARED FOR: Manukau City Council JUNE 2002

SHEET

6

MANAGEMENT ISSUES

- *Placement of walkway to be determined at a later date and based on revegetation and weed management programme
- *Awareness of safety concerns in this area

Extensive weed coverage through floodplain area in this location, weed species include:privet, gorse, mothvine, wandering jew, woolly nightshade, wattle and buttercup

Pedestrian access in this area to be determined during revegetation programme, due to steep slopes and safety issues



Steep, weed-covered slopes

Steep, weed covered and isolated portion of the stream, creating safety concerns

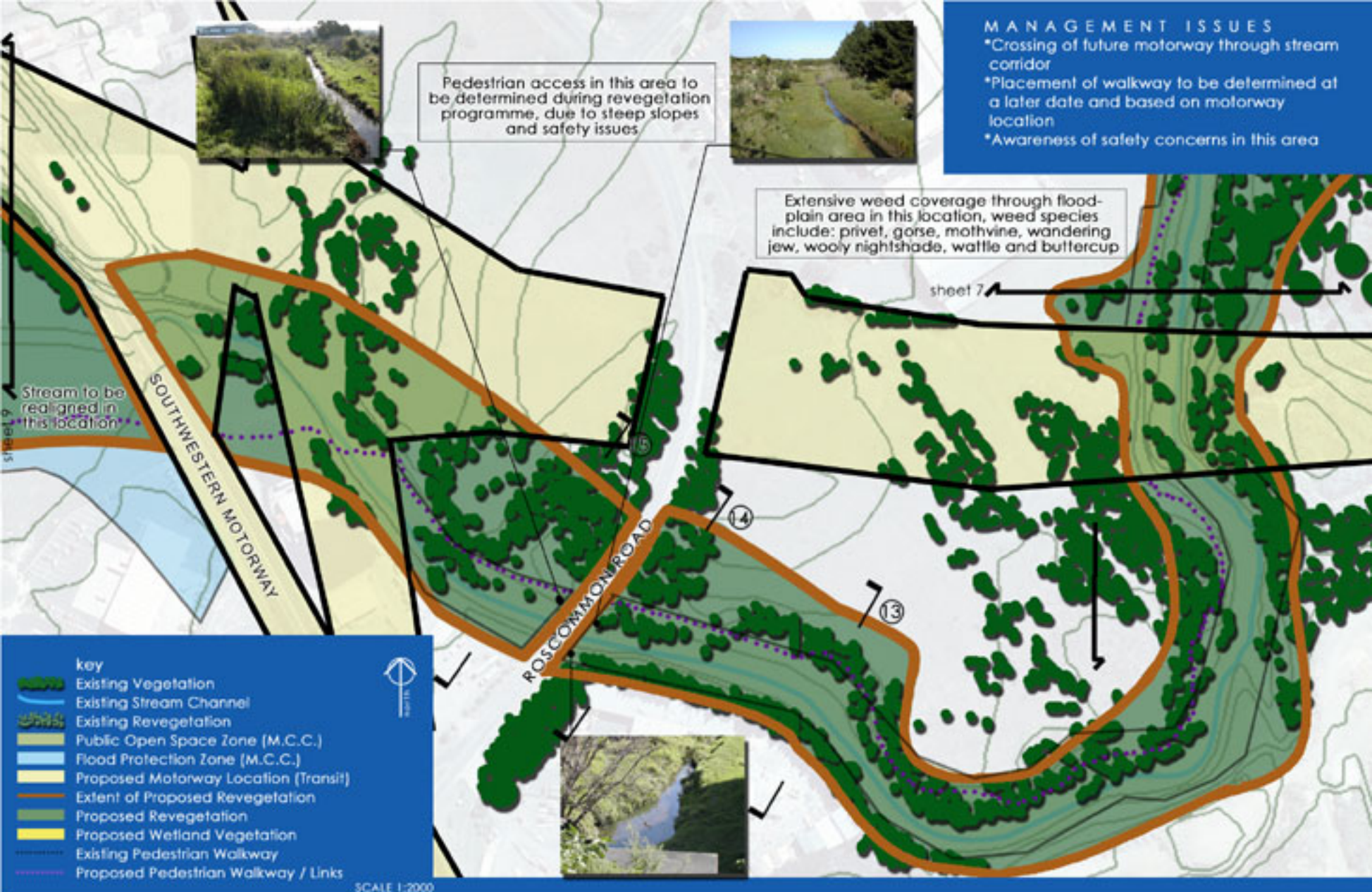
NORTH ISLAND MAIN TRUNK RAILROAD

SH20 MOTORWAY DESIGNATION

key

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SCALE 1:2000



Pedestrian access in this area to be determined during revegetation programme, due to steep slopes and safety issues



Extensive weed coverage through floodplain area in this location, weed species include: privet, gorse, mothvine, wandering jew, woolly nightshade, wattle and buttercup

MANAGEMENT ISSUES
 *Crossing of future motorway through stream corridor
 *Placement of walkway to be determined at a later date and based on motorway location
 *Awareness of safety concerns in this area

Stream to be realigned in this location

- key**
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SCALE 1:2000

MANAGEMENT ISSUES

- *Removal of willow trees along stream corridor
- *Walkway location to be based on ownership rights and available land
- *Adjacent agricultural land use causing sediment and nutrient loading in the floodplain, riparian vegetation to be planted in order to mitigate this effect
- *Current and future engineering works and the construction of ponds adjacent to the motorway to be determined

key

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SCALE 1:2000



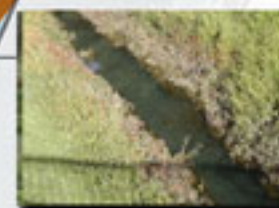
Stream restoration programme to be linked into current upgrade and construction of ponds in this area

Sediment from adjoining agricultural activities to be buffered by the addition of appropriate native vegetation in the floodplain and adjoining gully patterns

Exotic species (Willow) and weeds are to be removed and replaced with appropriate native species

Location of walkway to be determined by the extent of existing construction works in this area

Restoration of stream channel to extend up existing gully patterns on the site.
Restoration programme is dependent on land ownership rights and potential partnerships with Manukau City Council



sheet 10

Restoration of stream channel to extend up existing gully patterns on the site, restoration programme is dependent on land ownership rights and potential partnerships with Manukau City Council



Sediment from adjoining agricultural activities to be buffered by the addition of appropriate native vegetation along the floodplain



Existing Willow trees (and all weed species) to be removed

MANAGEMENT ISSUES

- *Removal of weed species and replanting with appropriate native species
- *Removal of willow trees along stream corridor
- *Walkway location to be based on ownership rights and available land
- *Adjacent agricultural land use causing sediment loading in the floodplain, riparian appropriate vegetation to be planted in order to mitigate this effect

key

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SCALE 1:2000

sheet 11

sheet 9



Sediment from adjoining agricultural activities to be buffered by the addition of appropriate native vegetation across the floodplain

Planting to extend along gully systems and along boundaries of adjoining agricultural land

PUHINUI RESERVE

sheet 12

sheet 10

18

19

MCUAUGHILINS ROAD

key

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SCALE 1:2000

Opportunities in this location for boardwalks over existing wetland vegetation

Exact location of pedestrian walkway to be determined based on land ownership along stream edge

EXISTING QUARRY

MANAGEMENT ISSUES

- *Removal of willow trees along stream corridor
- *Walkway location to be based on ownership rights and available land
- *Opportunities throughout this portion of the stream for the development of boardwalks over wetlands / boggy ground
- *Adjacent agricultural land use causing sediment loading in the floodplain, riparian vegetation to be planted in order to mitigate this effect

key

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SCALE 1:2000



sheet 11

Steep floodplain edges mostly covered in a mixture of exotic and native vegetation

Opportunities for enhancing existing 'wet' areas with wetland vegetation

EXISTING QUARRY

Pedestrian walkway to rise and fall with existing topography, small bridges and steps may need to be constructed



PUHINUI RESERVE

EXISTING REVEGETATION

MANAGEMENT ISSUES

- *In areas currently in vegetative cover, remove weeds and interplant amongst existing canopy and native vegetation with appropriate native vegetation
- *Walkway location to be based on ownership rights and available land
- *Adjacent agricultural land use and quarrying potentially causing sediment loading in the floodplain, riparian vegetation to be planted in order to mitigate this effect

sheet 13

MANAGEMENT ISSUES

- *In areas currently in vegetative cover, remove weeds and interplant amongst existing canopy and native vegetation with appropriate native vegetation
- *Integrate proposed planting programme with existing revegetation
- *Stock to be removed from the floodplain area and fencing to be repaired / constructed

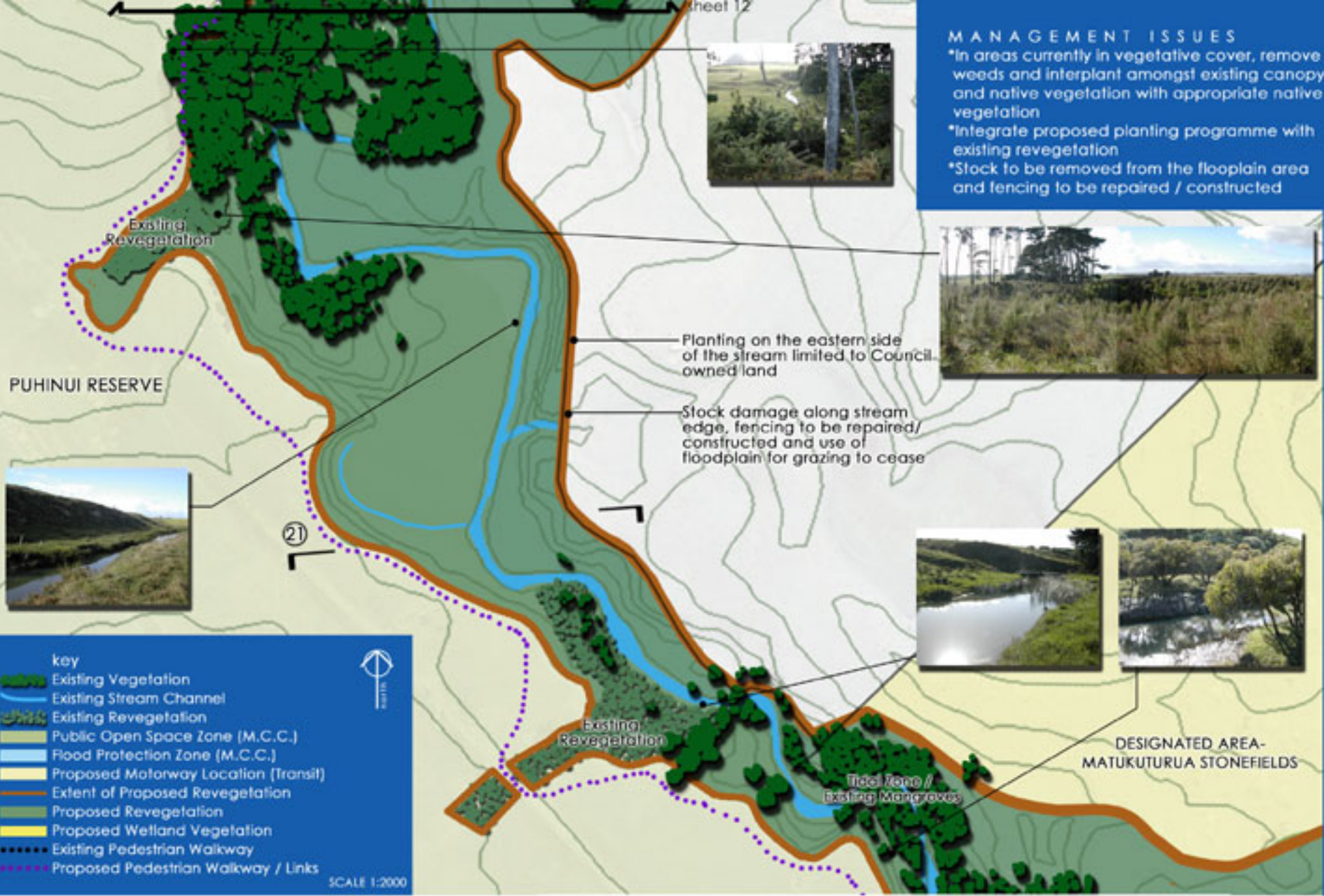


Planting on the eastern side of the stream limited to Council-owned land

Stock damage along stream edge, fencing to be repaired/constructed and use of floodplain for grazing to cease



DESIGNATED AREA - MATUKUTURUA STONEFIELDS



PUHINUI RESERVE



key

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SCALE 1:2000

PUHINUI STREAM RESTORATION - CONCEPT PLAN

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JUNE 2002