

No.	Revision	By	CHK	Appd	Date
B ISSUE FOR STATUTORY APPROVAL A ISSUE FOR NZTA / SRT REVIEW					
		ME			23.07.10
		ME			21.07.10

Drawing Originator:	
Becca	
Original Scale (A1)	1:12500
Reduced Scale (A3)	1:25000
Designer	ME
Reviewer	BH
Drafting Checked	AL
Consultant Approval	
Received By Becca	



Project: WATERVIEW CONNECTION
PROJECT
SH16 / SH20

Title: LANDSCAPE & URBAN DESIGN
KEY PLAN

PRELIM. DRAFT
NOT FOR ISSUE

Base Level:	MSL AUCK. VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Project No.	20.111-3-D-L-810-200
Rev.	B



PLANTING LEGEND

- POHUTUKAWA SPECIMEN
- NATIVE CANOPY - TE ATATU POHUTUKAWA ESCARPMENT SPECIES
- NATIVE CANOPY - HARBOUR COASTLINE SPECIES
- NATIVE CANOPY - TE ATATU ESCARPMENT SPECIES
- TE ATATU PARKLAND PLANTING
- RIPARIAN AND WETLAND PLANTING
- SALTMARSH / ESTUARINE FRINGE SPECIES
- GRASS
- BIO FILTER STRIP
- ROCK ARMOUR WITH SALTWATER REVETMENT PLANTING
- ROCK ARMOUR
- EXISTING VEGETATION TO BE RETAINED

NOTE
See also Waterview Connection Project - Landscape Planting Schedules + Specification for sheets 810 - 201 to 209.

This plan illustrates Landscape and Urban Design proposals, including integration of elements designed by other disciplines into the overall spatial form of the corridor. This plan defines the relationships and approximate location of elements but is subject to detailed design changes.

No.	Revision	By	Chk	Appd
C	ISSUE FOR STATUTORY APPROVAL	AA	AA	AA
B	ISSUE FOR SRT REVIEW			
A	ISSUE FOR NZTA REVIEW			

Drawing Originator:

Original Scale (A1)	1: 500	Design Engineer	AA
Reduced Scale (A3)	1: 2000	Review Engineer	AA
		Drafting Checked	AA
		Consultant Approval	OB







NZ TRANSPORT AGENCY
WAKA KOTAHI

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
201

ISSUED FOR STATUTORY APPROVAL
NOT FOR CONSTRUCTION

Base level:	MSL AUCK. VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No.	
Project No.	20.1.11-3-D-810-201
Rev.	C

-  CONCRETE FASCIA PANEL RETAINING WALLS
-  NOISEWALLS
-  WELDED WIRE PANEL FENCE
-  CONCRETE MOTORWAY BARRIER
-  INDICATIVE CONSTRUCTION FOOTPRINT
-  SWALE

PLANTING LEGEND

-  POHUTUKAWA SPECIMEN
-  NATIVE CANOPY - TE ATATU POHUTUKAWA ESCARPMENT SPECIES
-  NATIVE CANOPY - HARBOUR COASTLINE SPECIES
-  NATIVE CANOPY - TE ATATU ESCARPMENT SPECIES
-  TE ATATU PARKLAND PLANTING
-  RIPARIAN AND WETLAND PLANTING
-  SALTMARSH / ESTUARINE FRINGE SPECIES
-  GRASS
-  BIO FILTER STRIP
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-  ROCK ARMOUR

NOTE
See also Waterview Connection Project - Landscape Planting Schedules + Specification for sheets 810 - 201 to 209.



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**ISSUED FOR STATUTORY APPROVAL
NOT FOR CONSTRUCTION**

Base level: MSL AUCK. VERT. DATUM 1946
Grid Reference: MT EDEN 2000
Originator No.
Project No. 20.1.11-3-D-810-202
Rev. C

No.	Revision	By	Chk	Appd
C	ISSUE FOR STATUTORY APPROVAL	AA	AA	AA
B	ISSUE FOR SRT REVIEW			
A	ISSUE FOR NZTA REVIEW			

Drawing Originator:



Original Scale (A1) 1: 500	Design Engineer AA
Reduced Scale (A3) 1: 2000	Review Engineer AA
	Drafting Checked AA
	Consultant Approval OB



NZ TRANSPORT AGENCY
WAKA KOTAHI

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
202



This plan illustrates Landscape and Urban Design proposals, including integration of elements designed by other disciplines into the overall spatial form of the corridor. This plan defines the relationships and approximate location of elements but is subject to detailed design changes.

**ISSUED FOR STATUTORY APPROVAL
 NOT FOR CONSTRUCTION**

No.	Revision	By	Chk	Appd
C	ISSUE FOR STATUTORY APPROVAL	AA	AA	AA
B	ISSUE FOR SRT REVIEW			
A	ISSUE FOR NZTA REVIEW			

Drawing Originator:

Design Engineer	AA
Review Engineer	AA
Drafting Checked	AA
Consultant Approval	OB

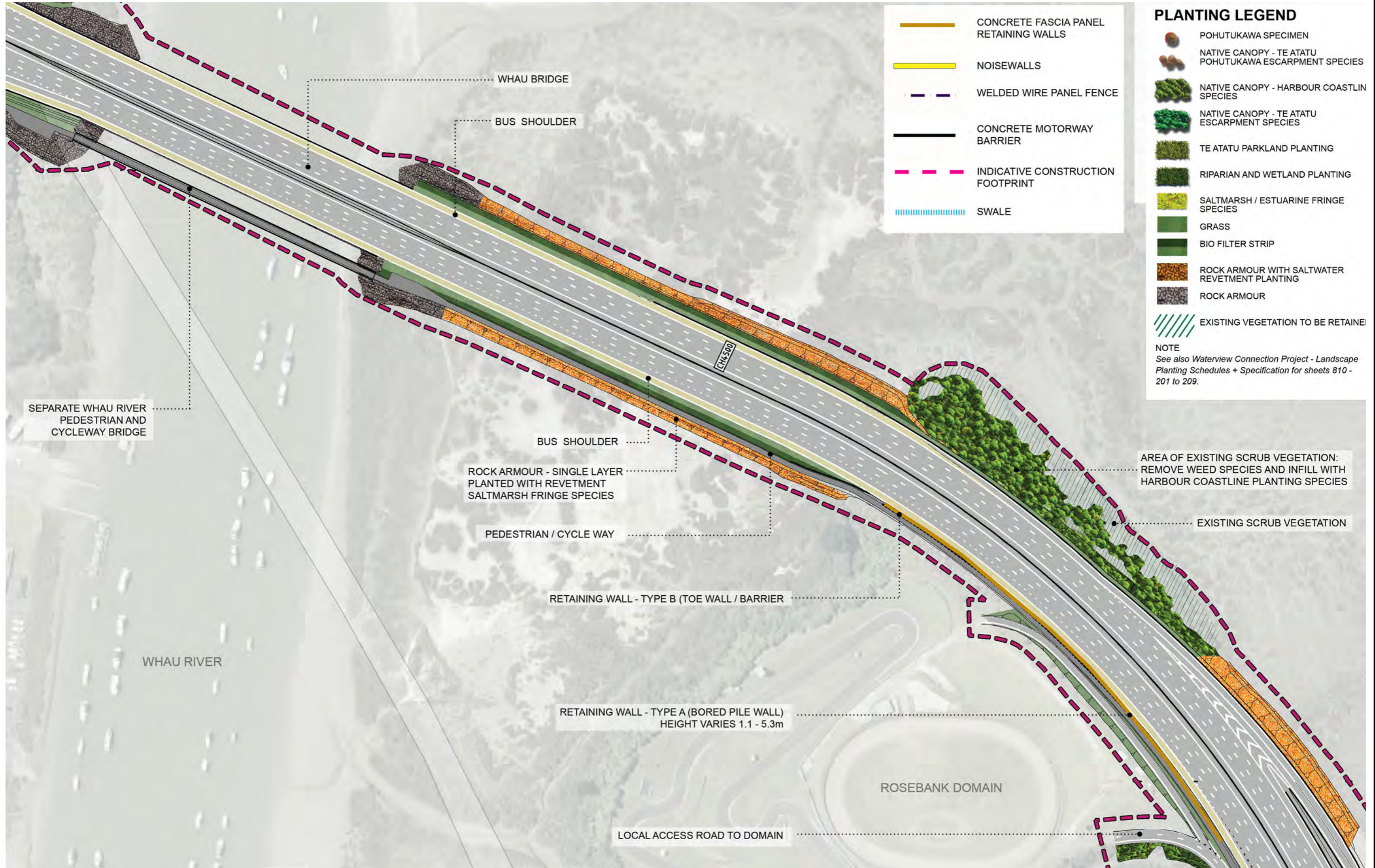
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NZ TRANSPORT AGENCY
 WAKA KOTAHI

Project: **WATERVIEW CONNECTION PROJECT**
 SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
 203

Base level: MSL AUCK. VERT. DATUM 1946
Grid Reference: MT EDEN 2000
Originator No.
Project No. 20.1.11-3-D-810-203
Rev. C



This plan illustrates Landscape and Urban Design proposals, including integration of elements designed by other disciplines into the overall spatial form of the corridor. This plan defines the relationships and approximate location of elements but is subject to detailed design changes.

**ISSUED FOR STATUTORY APPROVAL
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No.	Revision	By	Chk	Appd
C	ISSUE FOR STATUTORY APPROVAL	AA	AA	AA
B	ISSUE FOR SRT REVIEW			
A	ISSUE FOR NZTA REVIEW			

Drawing Originator:



Original Scale (A1)	1: 500	Design Engineer	AA
Reduced Scale (A3)	1: 2000	Review Engineer	AA
		Drafting Checked	AA
		Consultant Approval	OB

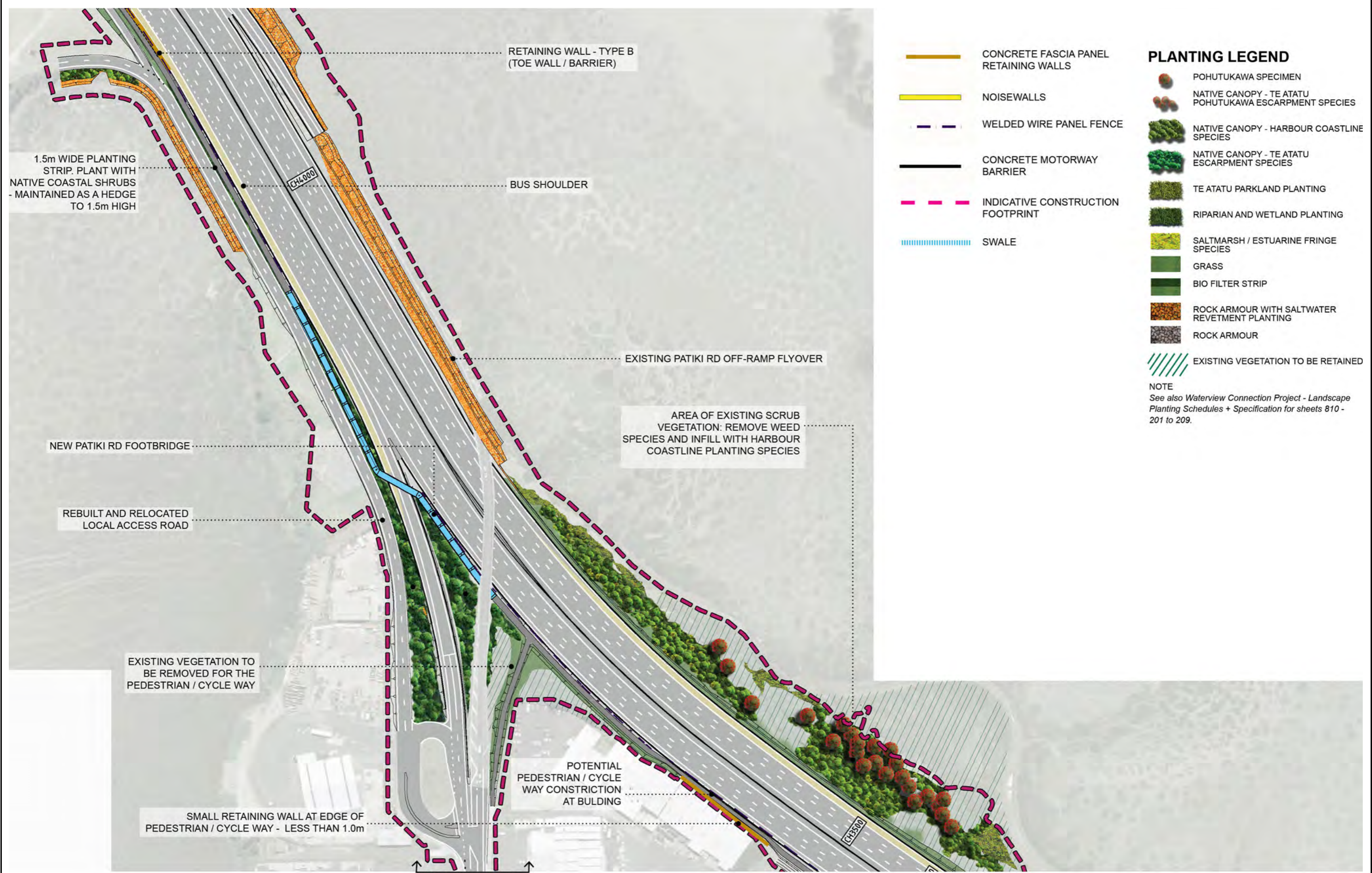


NZ TRANSPORT AGENCY
WAKA KOTAHI

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
204

Base level:	MSL AUCK. VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No.	
Project No.	20.1.11-3-D-810-204
Rev.	C



This plan illustrates Landscape and Urban Design proposals, including integration of elements designed by other disciplines into the overall spatial form of the corridor. This plan defines the relationships and approximate location of elements but is subject to detailed design changes.

**ISSUED FOR STATUTORY APPROVAL
NOT FOR CONSTRUCTION**

No.	Revision	By	Chk	Appd
C	ISSUE FOR STATUTORY APPROVAL	AA	AA	AA
B	ISSUE FOR SRT REVIEW			
A	ISSUE FOR NZTA REVIEW			

Drawing Originator:



Design Engineer	AA
Review Engineer	AA
Drafting Checked	AA
Consultant Approval	OB

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Reduced Scale (A3)
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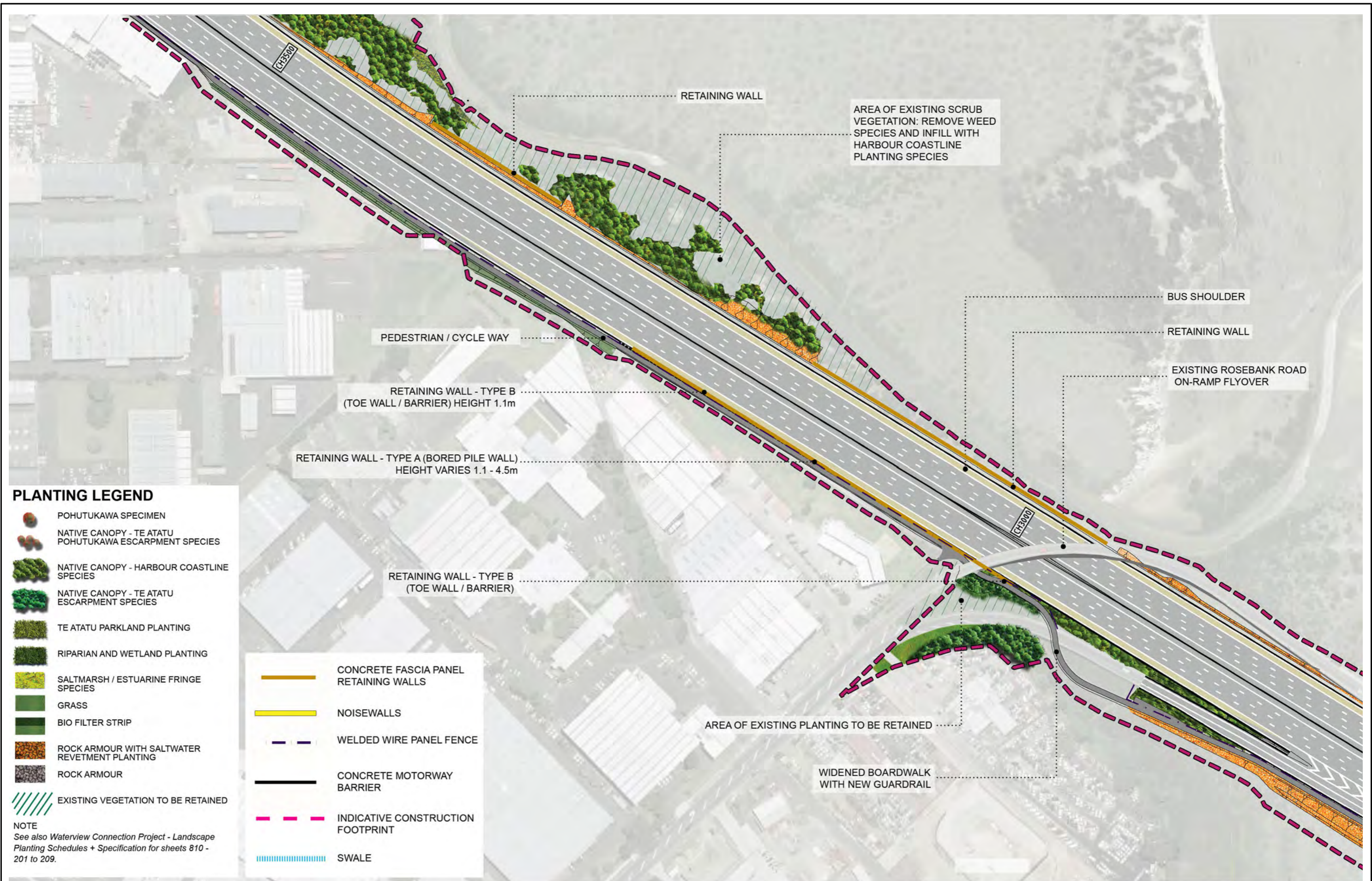


NZ TRANSPORT AGENCY
WAKA KOTAHI

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
205







Base level: MSL AUCK. VERT. DATUM 1946
Grid Reference: MT EDEN 2000
Originator No.
Project No. 20.1.11-3-D-810-205
Rev. C



PLANTING LEGEND

-  POHUTUKAWA SPECIMEN
-  NATIVE CANOPY - TE ATATU POHUTUKAWA ESCARPMENT SPECIES
-  NATIVE CANOPY - HARBOUR COASTLINE SPECIES
-  NATIVE CANOPY - TE ATATU ESCARPMENT SPECIES
-  TE ATATU PARKLAND PLANTING
-  RIPARIAN AND WETLAND PLANTING
-  SALTMARSH / ESTUARINE FRINGE SPECIES
-  GRASS
-  BIO FILTER STRIP
-  ROCK ARMOUR WITH SALTWATER REVETMENT PLANTING
-  ROCK ARMOUR
-  EXISTING VEGETATION TO BE RETAINED

NOTE
See also Waterview Connection Project - Landscape Planting Schedules + Specification for sheets 810 - 201 to 209.

-  CONCRETE FASCIA PANEL RETAINING WALLS
-  NOISEWALLS
-  WELDED WIRE PANEL FENCE
-  CONCRETE MOTORWAY BARRIER
-  INDICATIVE CONSTRUCTION FOOTPRINT
-  SWALE

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No.	Revision	By	Chk	Appd
C	ISSUE FOR STATUTORY APPROVAL	AA	AA	AA
B	ISSUE FOR SRT REVIEW			
A	ISSUE FOR NZTA REVIEW			

Drawing Originator: 

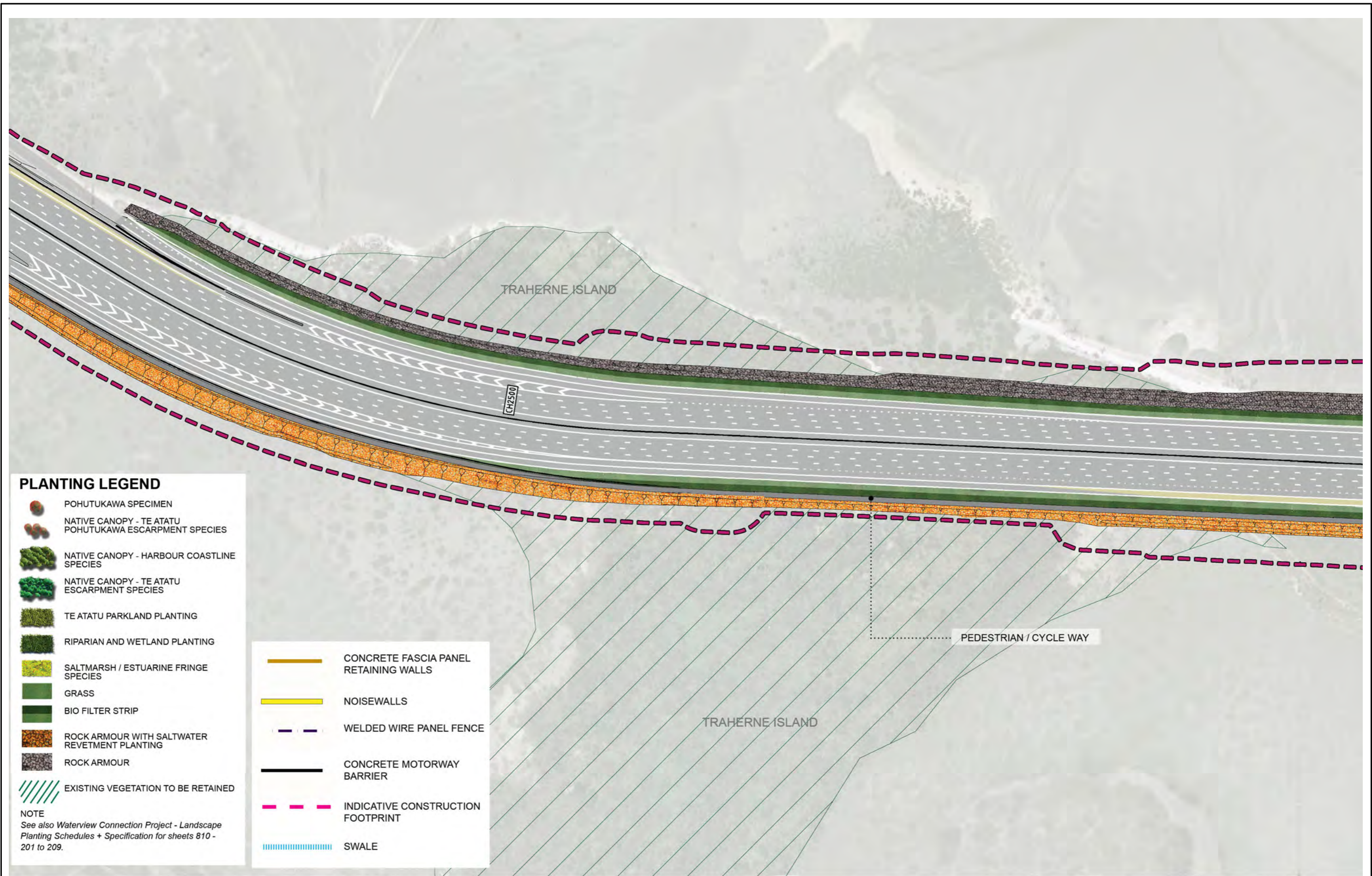
Original Scale (A1) 1: 500	Design Engineer AA
Reduced Scale (A3) 1: 2000	Review Engineer AA
	Drafting Checked AA
	Consultant Approval OB

 NZ TRANSPORT AGENCY
WAKA KOTAHI

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
206







MSL AUCK. VERT. DATUM 1946 Grid Reference:	MT EDEN 2000
Originator No.	
Project No. 20.1.11-3-D-810-206	Rev. C



PLANTING LEGEND

-  POHUTUKAWA SPECIMEN
-  NATIVE CANOPY - TE ATATU POHUTUKAWA ESCARPMENT SPECIES
-  NATIVE CANOPY - HARBOUR COASTLINE SPECIES
-  NATIVE CANOPY - TE ATATU ESCARPMENT SPECIES
-  TE ATATU PARKLAND PLANTING
-  RIPARIAN AND WETLAND PLANTING
-  SALTMARSH / ESTUARINE FRINGE SPECIES
-  GRASS
-  BIO FILTER STRIP
-  ROCK ARMOUR WITH SALTWATER REVETMENT PLANTING
-  ROCK ARMOUR
-  EXISTING VEGETATION TO BE RETAINED

NOTE
See also Waterview Connection Project - Landscape Planting Schedules + Specification for sheets 810 - 201 to 209.

-  CONCRETE FASCIA PANEL RETAINING WALLS
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No.	Revision	By	Chk	Appd
C	ISSUE FOR STATUTORY APPROVAL	AA	AA	AA
B	ISSUE FOR SRT REVIEW			
A	ISSUE FOR NZTA REVIEW			

Drawing Originator: 

Original Scale (A1)	1: 500	Design Engineer	AA
Reduced Scale (A3)	1: 2000	Review Engineer	AA
		Drafting Checked	AA
		Consultant Approval	OB

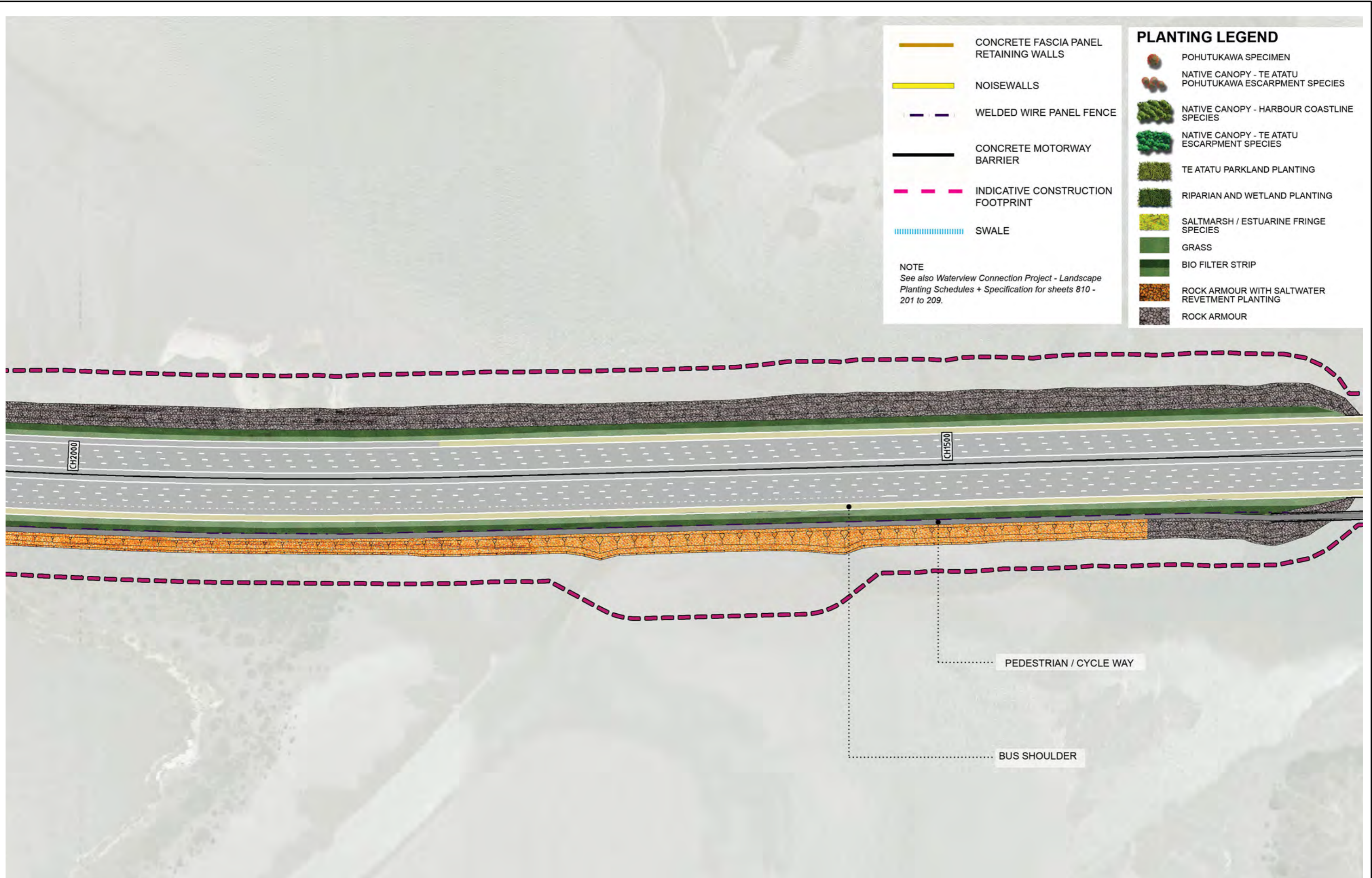
 NZ TRANSPORT AGENCY
WAKA KOTAHI

Project: WATERVIEW CONNECTION PROJECT
SH16 / SH20

Title: URBAN DESIGN AND LANDSCAPE PLANS
207

**ISSUED FOR STATUTORY APPROVAL
NOT FOR CONSTRUCTION**

Base level:	MSL AUCK. VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No.	
Project No.	20.1.11-3-D-810-207
Rev.	C



This plan illustrates Landscape and Urban Design proposals, including integration of elements designed by other disciplines into the overall spatial form of the corridor. This plan defines the relationships and approximate location of elements but is subject to detailed design changes.

**ISSUED FOR STATUTORY APPROVAL
NOT FOR CONSTRUCTION**

No.	Revision	By	Chk	Appd
C	ISSUE FOR STATUTORY APPROVAL	AA	AA	AA
B	ISSUE FOR SRT REVIEW			
A	ISSUE FOR NZTA REVIEW			

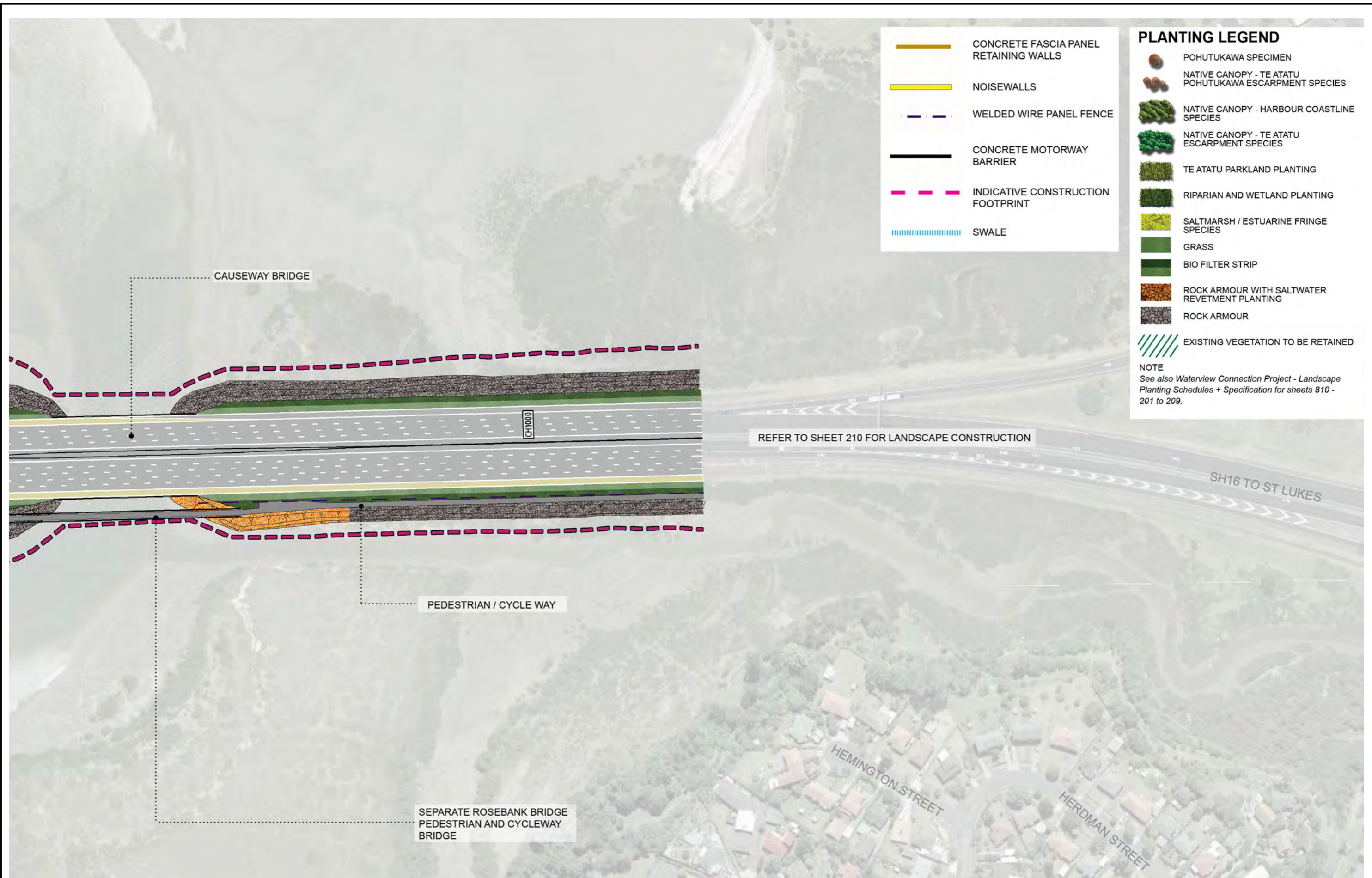
Drawing Originator:

Original Scale (A1)	1: 500	Design Engineer	AA
Reduced Scale (A3)	1: 2000	Review Engineer	AA
		Drafting Checked	AA
		Consultant Approval	OB

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
208

Base level:	MSL AUCK. VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No.	
Project No.	20.1.11-3-D-810-208
Rev.	C



This plan illustrates Landscape and Urban Design proposals, including integration of elements designed by other disciplines into the overall spatial form of the corridor. This plan defines the relationships and approximate location of elements but is subject to detailed design changes.

**ISSUED FOR STATUTORY APPROVAL
NOT FOR CONSTRUCTION**

No.	Revision	By	Chk	Appd
C	ISSUE FOR STATUTORY APPROVAL	AA	AA	AA
B	ISSUE FOR SRT REVIEW			
A	ISSUE FOR NZTA REVIEW			

Drawing Originator:



Design Engineer	AA
Review Engineer	AA
Drafting Checked	AA
Consultant Approval	OB

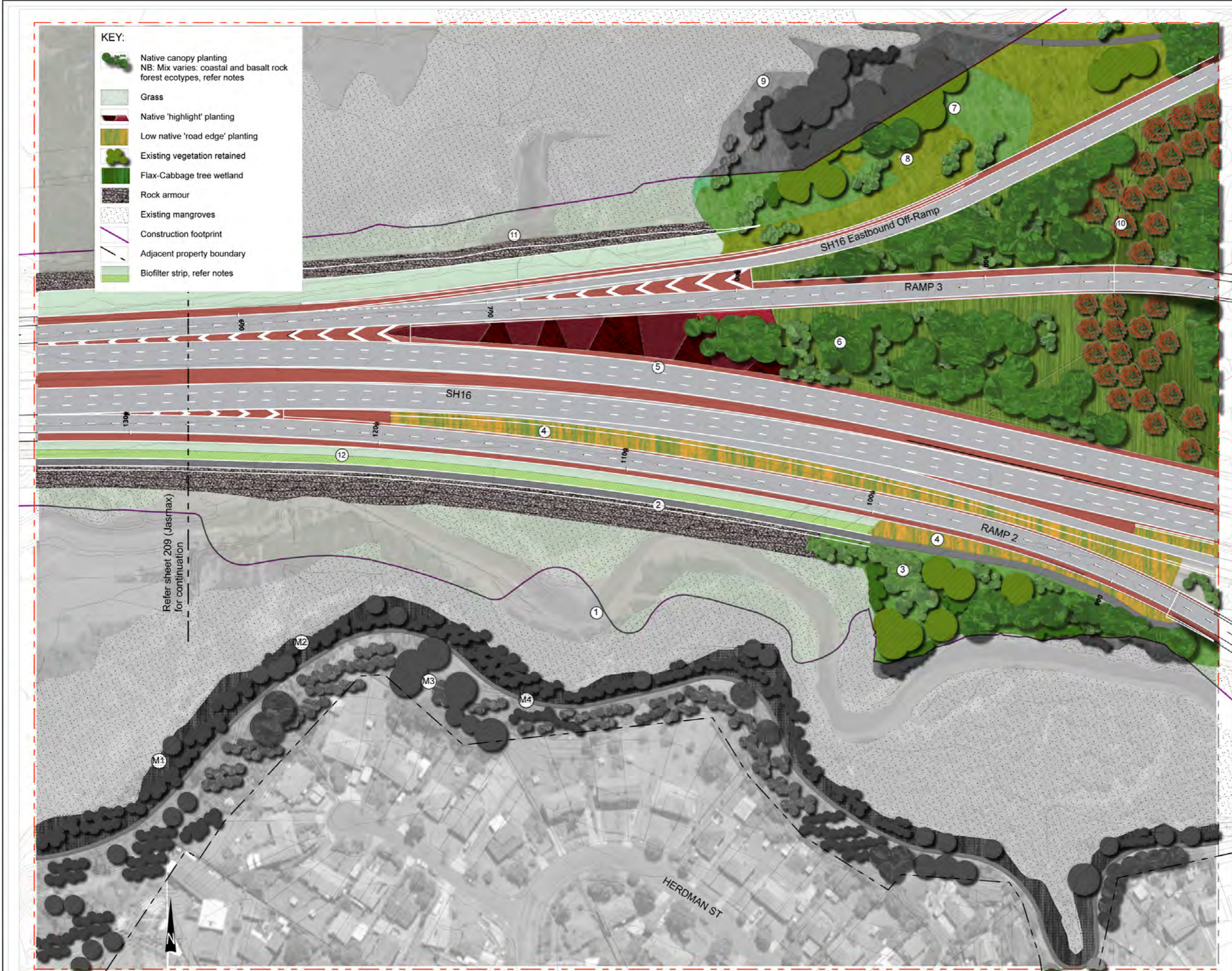


NZ TRANSPORT AGENCY
WAKA KOTAHI

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
209

Base level:	MSL AUCK. VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No.	
Project No.	20.1.11-3-D-810-209
Rev.	C



KEY:

	Native canopy planting
	Grass
	Native 'highlight' planting
	Low native 'road edge' planting
	Existing vegetation retained
	Flax-Cabbage tree wetland
	Rock armour
	Existing mangroves
	Construction footprint
	Adjacent property boundary
	Biofilter strip, refer notes

NB: Mix varies: coastal and basalt rock forest ecotypes, refer notes

GENERAL NOTES:

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The notes for these drawings refer to those proposed by NZTA (plan notes) and those to be confirmed through the management plan approach, working with Council and others. Colour denotes proposed work within the designation or consent applications.

PLAN NOTES:

- 1 Oakley Creek mouth channel
- 2 Proposed 3m width pedestrian/cycle way, links the SH20 interchange to the proposed SH16 causeway pedestrian/cycle way alignment.
- 3 Existing bush in this area to be selectively thinned to remove exotic weeds, and interplanted with canopy and underplanting specimens selected from the 'Coastal Forest' ecotype. Refer schedules for further details.
- 4 Low mixed planting between pedestrian/cycle way and SH16, selected from the 'Coastal Forest' ecotype, and also between ramp 2 and SH16
- 5 'Impact planting' at interface with SH20 ramps and SH16 alignment. Planting to be raised to 200mm below top of barrier where impermeable barriers (ie Portland type) are used. Refer planting schedules.
- 6 Exotic weeds in this area removed, and mixed underplanting/canopy specimens installed, selected from the 'Basalt Rock Forest' ecotype.
- 7 Existing bush in this area to be selectively thinned to remove exotic weeds, and interplanted with canopy and underplanting specimens selected from the 'Coastal Forest' ecotype. Refer schedules for further details.
- 8 Flax-cabbage tree wetland ecotone to be created as part of ecological mitigation works.
- 9 Salt marsh ecotone (Olearia dominant with interplanted Plagianthus) to be created along northern shoreline, approximately 5m width as part of ecological mitigation works
- 10 Dotted line denotes slope change for earthworks at the interface of the abutment/pier support junction for ramp 3. Land grades back gently to the west, north and south, tying in with adjacent motorway grades, and grades back more steeply to the east.
- 11 Refer to SH16 works package for detail on the revetment planting amongst the rock armor to the causeway.
- 12 Biofilter strip comprising 50/50 mix of grass and oioi, refer SH16 drawings for further detail.

MANAGEMENT PLAN APPROACH:

- NB: These items are conceptual only, shown for reference-for discussion and agreement with Council through the management plan process (including future cost share arrangements).
- M1 Existing native coastal scrub retained wherever possible, exotic weeds removed, and species interplanted as selected from the 'coastal forest' species list. Refer planting schedules for further details.
 - M2 Low riparian planting at regular intervals allows views to water's edge. Plant species to be selected from 'coastal forest' ecotype, with lower growing specimens selected as per planting schedules.
 - M3 Taller growing and canopy species selected from coastal forest ecotype flank residential property boundaries, to screen views of motorway. Further detailed consultation to be undertaken with property owners to determine extent of planting in this area, as it may affect water views.
 - M4 1.8m width all weather footpath, with alignment selected to minimise changes in grade and avoid use of steps, allowing for all forms of access. This will require earth shaping, regrading and minor retaining walls in places, to be investigated during the detailed design phase.

No.	Revision	By	Chk.	Appd.	Date
C	REVISED FOR REBUTTAL EVIDENCE	DLNR			31.01.11
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

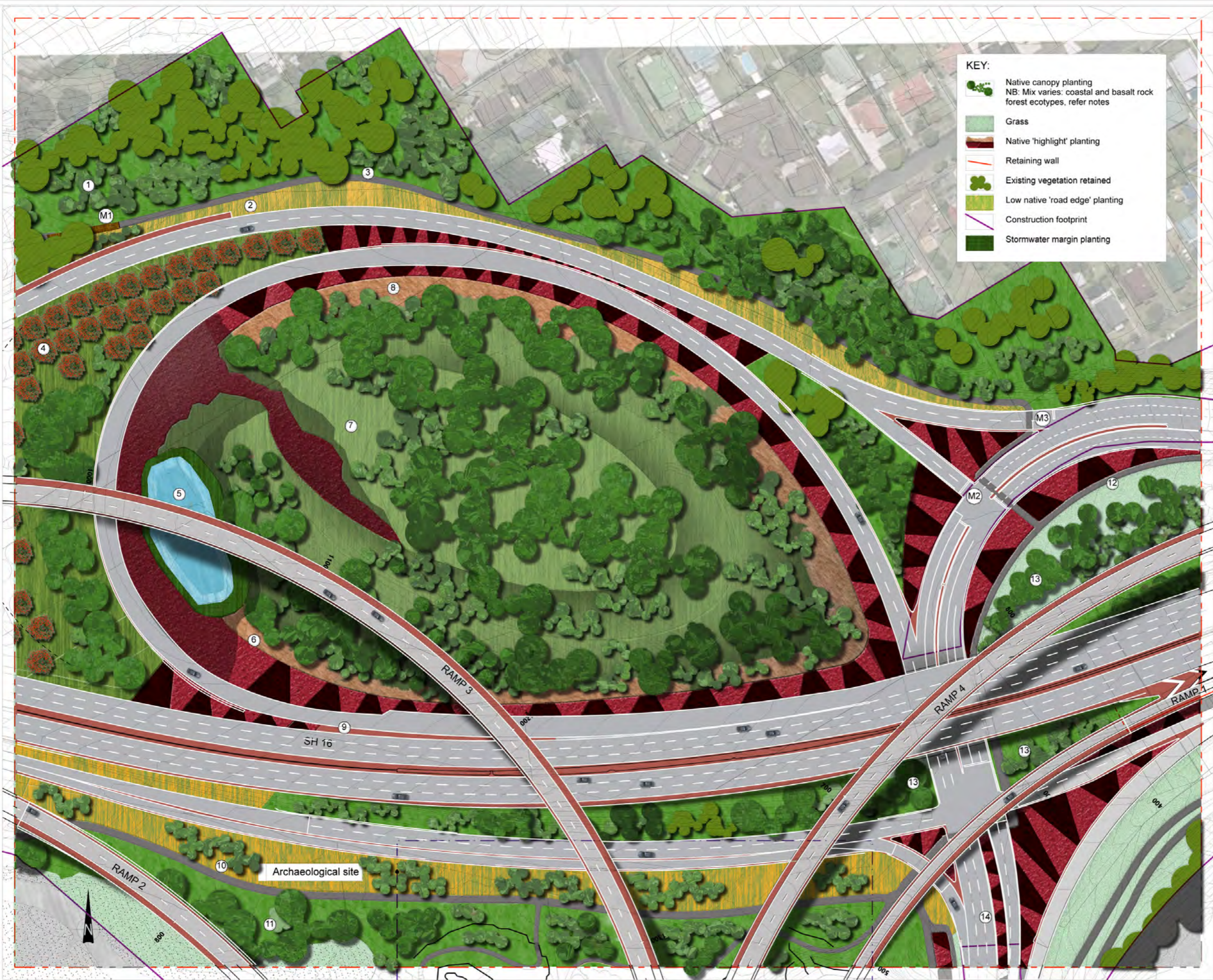
Drawing Originator:

Original Scale (A1)	1:750	Designer	DL
Reduced Scale (A3)	1:1500	Reviewer	DL/NR
		Drafting Checked	
		Consultant Approval	AL

Project: WATERVIEW CONNECTION PROJECT
SH16 / SH20

Title: URBAN DESIGN AND LANDSCAPE PLANS
SHEET 210

Base level:	MSLAUCK. VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No.:	
Project No.:	20.1.11-3-D-L-810-210
Rev.:	C



GENERAL NOTES:

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PLAN NOTES:

- 1 Low-lying naturally wet area to be cleared of weeds and replanted with coastal saline wetland species, refer schedules.
- 2 Low-growing mixed native planting between the footpath to Eric Armishaw Park and the SH16 eastbound off-ramp, selected from the 'Coastal Forest' ecotype.
- 3 Existing vegetation thinned to remove poorly performing species & weeds. New canopy and understorey native species interplanted to gaps. Species to be selected from the 'coastal forest' ecotype. Refer schedules for further details. NB: Mature specimens to be transplanted to this area to screen views to adjacent residential properties.
- 4 Stand of large-grade Pohutakawa trees at western approach to interchange, underplanted with single/dual species low native underplanting — refer planting schedules for further details.
- 5 Existing stormwater pond reshaped to suit contours of proposed central mound, in similar location to existing, and reusing existing buried infrastructure.
- 6 Massed aquatic vegetation to edge of stormwater pond. Species will be low-growing ecosourced aquatic species, local to the area and arranged in strong patterned bands to support the planting concept for the mound. Refer planting schedules for further details.
- 7 Proposed central mound, built up from fill excavated from tunnel, capped with topsoil won from the project — refer details for subgrade construction to ensure drainage. Mound generally slopes at 1 in 3 to flatter top 'plateau' section. This section grades gently from east to west — further details to be provided on earthworks plans.
- 8 Central mound to feature low 'impact planting', mixed patterned flax species at base, bordered by a loose arrangement of single species *Lophomyrtus*. Above this is lush 'basalt rock forest' to the sloping sides of the mound. The flatter top plateau features mass planted 'impact species' spilling from the western edge down the slope as shown. Refer planting schedules for details.
- 9 All new flush medians and shoulders to be constructed from red aggregate chip, to match that installed on the SH20 section.
- 10 3m width shared footpath/cycleway linking to the SH16 cycle way east and west of the interchange. Discrete, black 1.1m height mesh fencing to be installed between cycleway and motorway as required.
- 11 Weed removal to be carried out to existing vegetation in this area, and native 'coastal forest' specimens interplanted to gaps as per the planting schedules. Staged removal of weed species is proposed, to allow new native vegetation to establish.
- 12 Existing section of 3m width cycleway relocated in this area, to allow for new configuration of Ramp 4 to the east.
- 13 New native 'basalt rock forest' planting to existing sloping motorway edges in this area, refer planting schedules for further details.
- 14 Native 'impact planting' to frame intersections and road reserve as shown — refer planting schedules.

MANAGEMENT PLAN APPROACH:

- NB: These items are conceptual only, shown for reference-for discussion and agreement with Council through the management plan process (including future cost share arrangements).
- M1 Low timber boardwalk connects across saline wetland area, joining access path to Eric Armishaw Park to the north. Details of path north of NZTA property to be confirmed with Council, including connection point and access arrangements. Connections from this path to adjacent streets in Pt Chevalier to be investigated during detailed design.
 - M2 3m width all weather path connection to cross Great North Road at this location, in order to link to Eric Armishaw in the northwest. New signalisation required at existing traffic lights.
 - M3 New connection required across off ramp, with intersection reconfiguration to be confirmed during detailed design.

Base level:	MSLAUCK, VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No.	
Project No.	20.1.11-3-D-L-810-211
Rev	C

C	REVISED FOR REBUTTAL EVIDENCE	DL/NR	31.01.11
B	ISSUE FOR STATUTORY APPROVAL	JJ	04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ	18.06.10
No.	Revision	By	Chk

Drawing Originator:	STEPHEN BOON ENVIRONMENTAL
Original Scale (A1)	1:750
Reduced Scale (A3)	1:1500
Designer	DL
Reviewer	DL/NR
Drafting Checked	
Consultant Approval	AL



Project: WATERVIEW CONNECTION
SH16 / SH20

Title: URBAN DESIGN AND LANDSCAPE PLANS
SHEET 211



GENERAL NOTES:

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The notes for these drawings refer to those proposed by NZTA (plan notes) and those to be confirmed through the management plan approach, working with Council and others. Colour denotes proposed work within the designation or consent applications.

PLAN NOTES:

- 1 Existing exotic vegetation in this area (mainly Pine and Poplar) to be protected where possible for the duration of the works, in order to retain vertical scale. These areas shall be underplanted with a mix of native canopy and underplanting specimens from the 'coastal forest' ecotype, with the existing exotic species removed via a succession strategy. Refer planting schedules for details.
- 2 Massed aquatic vegetation to edge of stormwater pond, following natural ground contours. Species will be low-growing ecosourced aquatic species, local to the area and arranged in strong patterned bands.
- 3 Stormwater pond, refer stormwater engineer's details.
- 4 3m width reinforced grass access track for servicing and maintaining the stormwater pond forebay.
- 5 Ecosourced and massed native planting in and around all interchange ramps. Species to be selected from the 'coastal forest' ecotype — refer schedules.
- 6 Native 'impact planting' to frame intersections and road reserve as shown — refer planting schedules.
- 7 Existing Great North Road cycle overbridge retained.
- 8 Cor-ten steel and hardwood pedestrian bridge.

MANAGEMENT PLAN APPROACH:

NB: These items are conceptual only, shown for reference-for discussion and agreement with Council through the management plan process (including future cost share arrangements).

- M1 1.8m width all weather footpath leading around the Waterview Coast, to Oakley Avenue. Alignment selected to minimise changes in grade and avoid use of steps, allowing for all forms of access. This will require earth shaping, regrading and minor retaining walls in places.
- M2 Flat seating area at junction of paths, refer detailed design set for surfacing and location of seating.
- M3 Proposed playground, configuration, play elements and layout to be determined as part of the detailed design package.
- M4 Concrete volleyball court, including fixed support posts and netting.
- M5 Two 'Parklife' basketball half-courts and seating, linked by all-weather footpath.
- M6 Grassed bund, sloping at 1 in 4 to allow for informal seating watching the playground or ball games.
- M7 Full sized football pitch, with a 5m buffer
- M8 Carparks provided, for playing field and wider park. Carpark a mix of hotmix and exposed aggregate concrete bays, draining to road edge rain garden.
- M9 Rain garden treats stormwater runoff from carpark, prior to entering stormwater system. Planting to be massed water-tolerant native sedges as set out on the planting schedules.
- M10 Low grassed mound at 1 in 4 slope reduces incidence of balls travelling onto Herdman St from playing field.
- M11 1.8m width all weather path network provides a circulation network throughout the park as shown.
- M12 Ecosourced and massed native planting to screen proposed interchange ramps from Herdman St and Waterview Primary school to the south. Species to be selected from the 'coastal forest' ecotype — refer planting schedules for further details.
- M13 Sloping bund at 1 in 3 slope (where planted) to around 5m above natural ground level. Bund to screen interchange ramps from proposed open space, and vegetated in a mix of mass planted amenity native species and 'coastal forest' species as shown. Bund reuses fill excavated from tunnel.
- M14 Grassed slope for informal seating while watching the football, at 1 in 4 slope to permit mowing by vehicle.
- M15 Modular toilet facility: Novaloo or similar as approved by Council

KEY:

- Native canopy planting
NB: Mix varies: coastal and basalt rock forest ecotypes, refer notes
- Grass
- Native 'highlight' planting
- Native amenity planting
- Existing vegetation retained
- Riparian planting, refer notes
- Retaining wall
- Existing mangroves
- Construction footprint
- Adjacent property boundary
- Transition from ramp abutment to piers
- Basalt quarry wall (existing)
- Bridge or boardwalk structure
- Modular toilet facility

No.	Revision	By	Crk	Appd	Date
C	REVISED FOR REBUTTAL EVIDENCE	DLNR			31.01.11
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

Drawing Originator:

Original Scale (A1): 1:750
Reduced Scale (A3): 1:1500

Designer	DL
Reviewer	DLNR
Drafting Checked	
Consultant Approval	AL

NZ TRANSPORT AGENCY
WAKA KOTAHĪ

Project: WATERVIEW CONNECTION
PROJECT
SH16 / SH20

Title: URBAN DESIGN AND
LANDSCAPE PLANS
SHEET 212

Base level:	MSLAUCK. VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No.:	
Project No.:	20.1.11-3-D-L-810-212
Rev.:	C



GENERAL NOTES:

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PLAN NOTES:

- 1 Existing native planted in this area to be supplemented by further native planting, selected from the 'coastal lowland forest' species list — refer planting schedules for further details.
- 2 Existing pedestrian/cycle way in this area relocated closer to Gt North Road as shown, to allow for ramp 4. Concrete surface finish to match existing path to the east, with 'impact species' planted between cycleway and Great North Road.
- 3 Potential for existing Pohutakawa specimens in grassed berms south of Great North Road to be relocated via treespade to this location, to reduce visual impact of works from St Francis School.
- 4 'Volcanic' retaining wall to ramp 4 borders cycleway in this location. Refer facade drawing and engineer's details for further information.
- 5 Existing tree planting supplemented by further specimen tree planting, to reduce visual impact of works from key intersection. 'Impact' planting to intersection and ramp/cycleway interface as shown.
- 6 Existing planting to be uplimbed, weeds removed and interplanted with ecosourced native 'coastal forest' specimens in this area.
- 7 Existing planting to be uplimbed and interplanted with ecosourced native 'coastal forest' specimens in this area. Noise walls and earthworks (battering) to be carried out as per noise wall long and cross sections - refer detail drawing set.
- 8 Existing vegetation screening the motorway from Unitec to be retained, as are the existing retaining walls in this location.
- 9 Existing 3m width pedestrian/cycle way to be retained.
- 10 'Impact' planting in relatively narrow planting strips between merge lanes. Planting to be raised to 200mm below top of barrier where impermeable barriers (ie Portland type) are used. Refer planting schedules.
- 11 'Volcanic' retaining wall cladding refer facade drawing
- 12 All new flush medians and shoulders to be constructed from red aggregate chip, to match that installed on the SH20 section.
- 13 Existing cycle way to Carrington Road (shared footpath) and Sutherland Road (on-road).
- 14 Provision of a 2m height boundary fence to be developed in consultation with St Francis School during detailed design phase.

KEY:

- Native canopy planting
NB: Mix varies: coastal and basalt rock forest ecotypes, refer notes
- Grass
- Native 'highlight' planting
- Retaining wall
- Noise wall
- Existing vegetation retained
- Construction footprint
- Adjacent property boundary

No.	Revision	By	Chk.	Appd.	Date
C	REVISED FOR REBUTTAL EVIDENCE	DLNR			31.01.11
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

Drawing Originator:

Original Scale (A1)	1:750	Designer	DL
Reduced Scale (A3)	1:1500	Reviewer	DLNR
		Drafting Checked	
		Consultant Approval	AL

NZ TRANSPORT AGENCY
WAKA KOTAHĀ

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
SHEET 213

Base level:	MSLAUCK. VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No:	
Project No:	20.1.11-3-D-L-810-213
Rev:	C



GENERAL NOTES:

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PLAN NOTES:

- 1 Bunding used to minimise the apparent height of the noise wall viewed from adjacent residences. Sloping bund to be replanted following construction with ecosourced 'coastal lowland' native species as per planting schedules. Noise wall is 'Waterview Ply' design, using painted Ezyshield ply and battens.
- 2 Existing vegetation in this area to be protected and retained throughout the works.
- 3 Bunding used to minimise the apparent height of the noise wall viewed from adjacent residences. Sloping bund to be replanted following construction with ecosourced 'coastal lowland' native species as per planting schedules. Noise wall is 'Waterview Ply' design, using painted Ezyshield ply and battens as per the detailed drawing.
- 4 Bunding used to minimise the apparent height of the noise wall viewed from adjacent residences. Sloping bund to be replanted following construction with ecosourced 'coastal lowland' native species as per planting schedules. Noise wall is 'Waterview Ply' design, using painted Ezyshield ply and battens as per the detailed drawing.
- 5 Bunding used to minimise the apparent height of the noise wall viewed from adjacent residences. Sloping bund to be replanted following construction with ecosourced 'coastal lowland' native species as per planting schedules. Noise wall is 'Waterview Ply' design, using painted Ezyshield ply and battens as per the detailed drawing.
- 6 Existing Sutherland Road pedestrian/cycle way connection retained in current configuration.
- 7 Property not required for open space or landscaping purposes. Use to be determined upon completion of project. Final configuration to include maintenance access to pond forebay.
- 8 Swathe of massed low planting allows views to the stormwater pond from the motorway. Species to be selected from the 'coastal forest' ecotype, using lower growing species only — refer planting schedules.
- 9 Meola wetland. Massed aquatic vegetation to be planted around edges of stormwater pond. Species will be low-growing ecosourced aquatic species, local to the area and arranged in strong patterned bands. Refer planting schedules for further details.
- 10 Ecosourced native planting, from 'coastal forest' ecotype — refer planting schedules for further details.
- 11 Low massed native planting in narrow section of designation — soil levels to be raised behind 'Portland' barrier, to reduce apparent wall height.
- 12 Ecosourced native planting, from 'coastal forest' ecotype — refer planting schedules for further details.
- 13 Existing native planting to be rejuvenated — removing unhealthy specimens, weedmat and weed species, and interplanting with new understorey and canopy species. Planting to reflect the 'coastal forest' ecotype.
- 14 All new flush medians and shoulders to be constructed from red aggregate chip, to match that installed on the SH20 section.
- 15 'Volcanic' retaining wall to ramp 4 borders on-ramp in this location.

KEY:

- Native canopy planting
NB: Mix varies: coastal and basalt rock forest ecotypes, refer notes
- Grass
- Existing vegetation retained
- Retaining wall
- Noise wall
- Riparian planting, refer notes
- Construction footprint
- Redevelopment land

**FOR APPROVAL
NOT FOR CONSTRUCTION**

Base level: MSL AUCK. VERT. DATUM 1946	
Grid Reference: MT EDEN 2000	
Originator No.:	
Project No. 20.1.11-3-D-L-810-214	Rev. B

No.	Revision	By	Chk	Appd	Date
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

Drawing Originator:
 STEPHEN BROWN ENVIRONMENT

Original Scale (A1) 1:750	Designer DL
Reduced Scale (A3) 1:1500	Reviewer DL
	Drafting Checked SB
	Consultant Approval AL

NZ TRANSPORT AGENCY
WAKA KOTAHI

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
SHEET 214

GENERAL NOTES:

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PLAN NOTES:

- 1 Bunding used to minimise the apparent height of the noise wall viewed from adjacent residences. Sloping bund to be replanted following construction with ecosourced 'coastal lowland' native species as per planting schedules.
- 2 Noise wall is 'Waterview Ply' design, using painted Ezyshield ply and battens.
- 3 Ecosourced and massed native planting, from 'coastal forest' ecotype — refer planting schedules for further details.
- 4 Low massed native planting between noise wall and 'Portland' barrier — soil levels to be raised behind 'Portland' barrier, as shown on typical cross sections in detailed drawing.
- 5 Existing vegetation flanking Meola Creek, shown for reference. Not affected by works.
- 6 Meola Creek
- 7 Existing vegetation flanking Western Springs Gardens to be retained and protected for duration of works.
- 8 Low mixed planting between pedestrian/cycle way and SH16, selected from the 'Coastal Forest' ecotype. Stands of Pohutakawa incorporated into planting for visual interest and shade.
- 9 Spine between pedestrian/cycle way and golf course to be planted with mid and canopy height 'Coastal Forest' vegetation, refer planting schedules for further details.
- 10 Existing established planting between pedestrian/cycle way and golf course retained and protected for duration of works.
- 11 Existing 3m width SH16 pedestrian/cycle way (and security fencing) retained.



KEY:

- Native canopy planting
NB: Mix varies: coastal and basalt rock forest ecotypes, refer notes
- Grass
- Existing vegetation retained
- Mixed low coastal forest planting
- Noise wall
- Riparian planting, refer notes
- Creek centre line
- Construction footprint

**FOR APPROVAL
NOT FOR CONSTRUCTION**

Base level:	MSLAUCK, VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No.:	
Project No.:	20.1.11-3-D-L-810-215
Rev:	B

No.	Revision	By	Chk	Appd	Date
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

Drawing Originator:

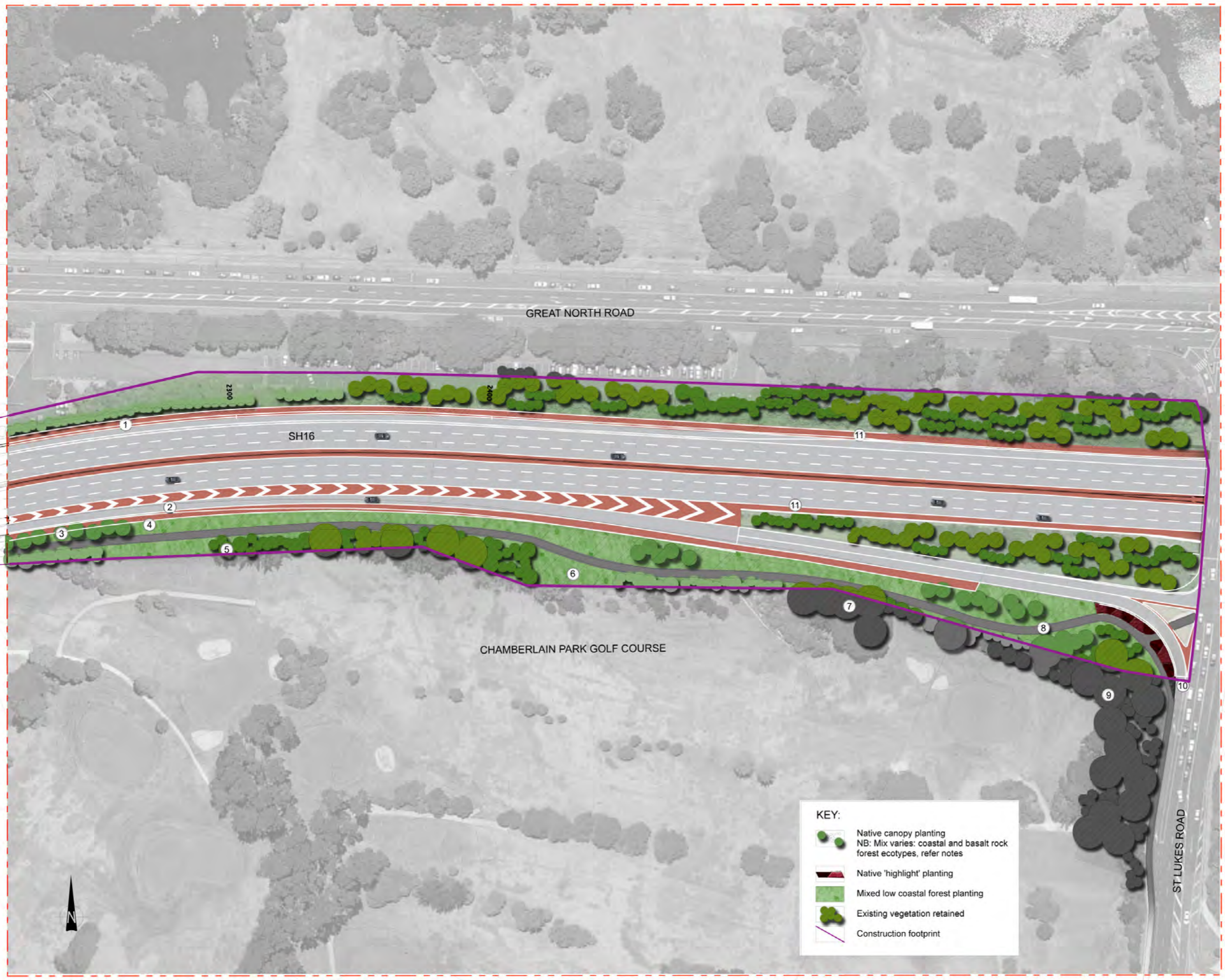
STEPHEN BROWN ENVIRONMENTS

Original Scale (A1)	1:750	Designer	DL
Reduced Scale (A3)	1:1500	Reviewer	DL
		Drafting Checked	SB
		Consultant Approval	AL

NZ TRANSPORT AGENCY
WAKA KOTAHI

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS SHEET 215**



GENERAL NOTES:

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PLAN NOTES:

- 1 Motorway margin between boundary and edge of basalt rock face to be planted in 'Coastal Forest' low and mid-height species, refer planting schedules for further details.
- 2 All new flush medians and shoulders to be constructed from red aggregate chip, to match that installed on the SH20 section.
- 3 Native specimen canopy trees planted at regular intervals amongst underplanting to provide a buffer between motorway and cycleway, and add interest along the route. Species to be selected from coastal planting list, refer schedules.
- 4 Low mixed planting between cycleway and SH16, selected from the 'Coastal Forest' ecotype.
- 5 Spine between cycleway and golf course to be planted with mid and canopy height 'Coastal Forest' vegetation, refer planting schedules for further details.
- 6 Sections of low 'Coastal Forest' plantings allow views into golf course for those using the pedestrian/cycle way, and open up sightlines for passive surveillance of both areas.
- 7 Existing Pine trees to be retained in this location.
- 8 Existing 3m width pedestrian/cycle way and associated fencing retained and protected for duration of works.
- 9 Existing vegetation in this area retained and protected for duration of widening works.
- 10 Low native 'Impact Planting' at intersection, refer planting schedules for further details.
- 11 The sections north and south of the St Lukes interchange has been replanted in June 2010 as part of an AMA visual quality project, no further works proposed. Existing vegetation to be retained.

KEY:

- Native canopy planting
NB: Mix varies: coastal and basalt rock forest ecotypes, refer notes
- Native 'highlight' planting
- Mixed low coastal forest planting
- Existing vegetation retained
- Construction footprint

**FOR APPROVAL
NOT FOR CONSTRUCTION**

Base level:	MSLAUCK. VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No.:	
Project No.:	20.1.11-3-D-L-810-216
Rev.:	B

No.	Revision	By	Chk.	Appd.	Date
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

Drawing Originator:

STYLEN BROWN
ENVIRONMENT

Original Scale (A1)	1:750	Designer	DL
Reduced Scale (A3)	1:1500	Reviewer	DL
		Drafting Checked	SB
		Consultant Approval	AL

NZ TRANSPORT AGENCY
WAKA KOTAHI

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
SHEET 216



KEY:

- Transplanted mature tree, species tbc
- Specimen tree planting, tbc
- Low feature planting [massed]
- Low feature planting [banded]
- Loose chip surface above underground building, suggest recycled brick
- Construction footprint
- Retaining wall
- Underground tunnel
- Native amenity planting
- Northern ventilation bldg site boundary

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PLAN NOTES:

- 1 Herdman St corner to be banded up at around 1 in 7 from edge of footpath to reduce visible height of building, visually softening the corner profile. Bund to be vegetated with mass planted, low growing native specimens - suggest *Phormium* 'Green Dwarf', subject to detailed design.
- 2 Grove of small-medium height trees screen bulk of building from school site to the west. Trees to be underplanted with massed low growing native species as per note 1.
- 3 Mature, established tree specimen to be transplanted (from other sectors of the project if possible), to provide immediate vertical scale to the landscape and offset the vertical scale and bulk of the structure. Tree to be 04-6m at initial planting.
- 4 Dotted line indicates submerged water tanks.
- 5 Ventilation stack, refer architectural plans.
- 6 Central courtyard almost completely invisible from outside of the site. Treatment of this area to be worked up as developed design of the building progresses, recommended to be recycled brick or crushed concrete.
- 7 Seven carparks provided at the southern end of the building to provide for day to day operations. Surfacing to match the one-way access through the building.
- 8 2m height solid boundary fence blocks low views towards building from adjacent school. Fence to be lined with closely spaced small-medium trees as shown (species tbc). Underground building restricts available planting space in this area to that shown (refer architectural plans).
- 9 400mm of topsoil to be placed above tanked waterproof roof structure of building below, to allow for low shrub planting in these areas, drainage and final levels to be confirmed. Low nib walls define this area, material to match adjacent building 'skin'. Colourful bands refer to mass planted low native planting, mixture of 3 species in organic bands to contrast linear forms of building as shown. Suggested species *Astelia banksii*, *Phormium* 'Black Rage' and *Phormium* 'Green Dwarf', subject to detailed design.
- 10 One way operational access runs from Great North Road through the building, and exits onto Herdman St.
- 11 Footpath realigned as shown, to allow a c2m footpath adjacent to the site and a c2m 'front berm' separating pedestrians from the traffic lane, vegetated with mass planted low-growing native shrub species. Suggest *Phormium* 'Green Dwarf', subject to detailed design.
- 12 Grove of medium-large trees planted on sloping berms in front of proposed security screens, to soften views into the service courtyards beyond. Single species low native underplanting as per note 1.
- 13 Existing bus stop retained in original location.
- 14 Corner site banded up at 1 in 5 from edge of footpath to partially screen views towards the tunnel portal. Bund to be planted with mass-planted vegetation, as per note 1.
- 15 Security fencing wraps around tunnel portal, details to be worked up in consultation with artist, taking into account this site's strategic and highly visible location on Great North Road.
- 16 Investigate minor realignment of property line as part of divestment process to allow for wider footpath in this area, improving the pedestrian experience along this block (dotted line at this point indicates existing fence line).

No.	Revision	By	Chk	Appd	Date
C	REVISED FOR REBUTTAL EVIDENCE	DL/NR			31.01.11
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

Drawing Originator:

Original Scale (A1)	Designer	DL
1:750	Reviewer	DL/NR
Reduced Scale (A3)	Drafting Checked	
1:1500	Consultant Approval	AL

Project: **WATERVIEW CONNECTION PROJECT SH16 / SH20**

Title: **URBAN DESIGN AND LANDSCAPE PLANS SHEET 217**

Base level:	MSL AUCK. VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No.	
Project No.	20.1.11-3-D-L-810-217
Rev	C



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MANAGEMENT PLAN APPROACH:

- NB: These items are conceptual only, shown for reference-for discussion and agreement with Council through the management plan process (including future cost share arrangements).
- M1 Main entry to Alan Wood Reserve from New North Road to be planted with low growing native specimen planting, and include 'Living Parks' signage and all weather path access. Works to be minimal in this area due to presence of rail designation.
 - M2 Secondary entry from Bollard Avenue to feature all-weather path access and 'Living Parks' signage. Existing planting to east of path to be thinned and planted with low growing native specimens around park entry to increase passive surveillance and perception of personal safety.
 - M3 Two way vehicular access to temporary carpark for sports field.
 - M4 3m width all-weather path connects Bollard Avenue and New North Road to playing fields and SH20 cycleway.
 - M5 Existing native vegetation retained where possible, with minor thinning around the edges where it compromises sightlines, and replacement in these areas with low growing, flowering native vegetation. Interplanting with 'basalt rock forest' canopy species.
 - M6 Riparian vegetation planted to Oakley Creek as part of wider project SEV requirements. Refer to planting schedules for species lists.
 - M7 Existing vegetation bordering residential properties to be retained.
 - M8 1.8m width all-weather path linkage to Hendon Avenue.
 - M9 Oakley Creek

KEY:

- Native canopy planting
NB: Mix varies: coastal and basalt rock forest ecotypes, refer notes
- Riparian planting, refer notes
- Grass
- Specimen planting
- Safety netting
- Existing vegetation retained
- Adjacent property boundary

No.	Revision	By	Chk.	Appd.	Date
C	REVISED FOR REBUTTAL EVIDENCE	DLNR			31.01.11
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

Drawing Originator:	
Original Scale (A1)	1:750
Reduced Scale (A3)	1:1500
Designer	DL
Reviewer	DLNR
Drafting Checked	
Consultant Approval	AL



Project: **WATerview CONNECTION PROJECT SH16 / SH20**

Title: **URBAN DESIGN AND LANDSCAPE PLANS SHEET 218**

Base level:	MSL AUCK. VERT. DATUM 1946
Grid Reference:	
MT EDEN 2000	
Originator No.	
Project No.	20.1.11-3-D-L-810-218
Rev.	C



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PLAN NOTES:

- 1 Existing vegetation retained as shown, and protected for duration of construction works.
- 2 Native riparian vegetation to be planted along northern banks of Oakley Creek as part of project SEV requirements. Refer to schedules and specifications for details. Subject to the management plan process with Auckland City Council.
- 3 Oakley Creek.
- 4 1.8m all-weather footpath access to Hendon Avenue.
- 5 Pedestrian/cycle way to be provided with connection to Hendon Avenue.
- 6 3m width pedestrian/cycle way, all-weather surfacing. Cycle way illuminated as per existing sections of SH20.
- 7 Feature native planting softens edges of proposed buildings - generally low planting around cycleway, and taller specimen trees buffering the outer edges of the building, as shown.
- 8 Access point for maintenance and operational vehicles; joint access servicing both the ventilation and control building.
- 9 Southern Portal Building, refer architectural plans.
- 10 Native 'basalt rock forest' planting maximum in possible area to buffer ventilation stack, and portal building.
- 11 Proposed rail corridor for the future Avondale: Southdown rail link. In the interim, this area is to be planted with low growing native species, mix to be confirmed during detailed design.
- 12 South Portal ventilation stack, refer architect's drawings.
- 13 Surface section of SH20 motorway
- 14 Buffer land between proposed Rail Corridor and motorway corridor for safety separation. This area to be heavily vegetated in native, ec sourced 'basalt rock forest' species as part of the visual mitigation package for the works.
- 15 Security fencing provides safety for workers using control building at night. Fencing to be high amenity, appropriate to its positioning adjacent to the SH20 cycleway.
- 16 Existing gravel footpath retained outside designation.
- 17 Tunnel control building.
- 18 Carparking with access from Hendon Avenue. This will be a medium-term carpark providing for the sportsfields, and removed if the rail line is constructed. Carpark a combination of hotmix and exposed aggregate concrete, draining to swales, with all-weather footpaths providing circulation.

MANAGEMENT PLAN APPROACH:

NB: These items are conceptual only, shown for reference-for discussion and agreement with Council through the management plan process (including future cost share arrangements).

M1 Junior playing fields (with 3m buffer) created for use during construction of the motorway. 4 floodlights on poles provided to field for night-time use, as per the existing fields (to be developed with Auckland City Council). Note: Eastern most field will be available for use for first half of construction period only, after which time provision will shift to the Goldstar Site (refer sheet 221).

M2 1.8m width all-weather path to Hendon Avenue.

M3 Former reserve area severed by project. Refer open space plan-final form to be resolved via management plan process.

KEY:

- Native canopy planting
NB: Mix varies: coastal and basalt rock forest ecotypes, refer notes
- Riparian planting, refer notes
- Grass
- Specimen planting
- Ball netting
- Existing vegetation retained
- Proposed future rail corridor
- Creek centre line
- SH20 portal safety rail
- Safety fencing
- Construction footprint
- Adjacent property boundary
- Central median paving (tbc)
- Open space severed by project, refer notes

No.	Revision	By	Chk	Appd	Date
C	REVISED FOR REBUTTAL EVIDENCE	DLNR			31.01.11
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

Drawing Originator:

Original Scale (A1): 1:750
Reduced Scale (A3): 1:1500

Designer	DL
Reviewer	DLNR
Drafting Checked	
Consultant Approval	AL

NZ TRANSPORT AGENCY
WAKA KOTAHĪ

Project: WATERVIEW CONNECTION PROJECT
SH16 / SH20

Title: URBAN DESIGN AND LANDSCAPE PLANS
SHEET 219

Base level:	MSLAUCK. VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No.:	
Project No.:	20.1.11-3-D-L-810-219
Rev.:	C



GENERAL NOTES:

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PLAN NOTES:

- 1 Proposed Rail Corridor. In the interim, this area is to be planted with low growing native species as part of the visual mitigation measures for the surface section of motorway. Fencing at either end will exclude the public from this area, (to be confirmed with Kwiirail).
- 2 Buffer land created between proposed Rail Corridor and motorway corridor due to safety separation required. This area to be heavily vegetated in native, eco-sourced 'basalt rock forest' species as part of the visual mitigation package for the works.
- 3 200m length flushed paved area for vehicle marshalling, to be formed from two differing aggregate concrete mixes, in a pattern that reflects the median planting pattern as shown.
- 4 Central section of median to be planted in 'impact planting' species mix. This planting to be bands of colourful flax, planted in a random geometric pattern as shown.
- 5 3m width SH20 cycleway, all-weather surfacing. Cycle way illuminated as per existing sections of SH20.
- 6 Dense native 'basalt rock forest' vegetation, refer stream realignment sections and planting schedules for details.
- 7 Oakley Creek diverted at this location, refer SW engineer's details and the 'Oakley Creek Restoration Guidelines' document for further information, along with the detailed planting sheets.
- 8 Sloping bank area to be regraded to an approximate 1 in 3.5 slope to allow for stream diversion and prevent the need for extensive retaining walls. Slope to be entirely revegetated with 'basalt rock forest' vegetation due to grade.
- 9 'Alan Wood' stormwater pond, to be revegetated with mass planted riparian species in areas shown, refer SW engineer's details and planting schedule for further information.
- 10 'Waterview' security rail, refer detailed drawing.
- 11 Stepped retaining wall detail around mouth of portal — refer geotechnical details and architectural drawings for further detail.
- 12 Native screening vegetation between cycleway and noise walls — refer planting schedules for details.
- 13 Former residential properties to be demolished as part of works, with reinstatement of these properties to be resolved as part of the management plan process with council. Specimen tree planting in interim.
- 14 Native riparian vegetation to be planted along banks of Oakley Creek as part of project SEV requirements. Refer to schedules and specifications for details.

MANAGEMENT PLAN APPROACH:

- M1 Alan Wood' style pedestrian cor-ten steel and hardwood bridge crosses Oakley Creek at this point to connect Methuen Road to the SH20 cycleway. Refer architectural drawings for details.
- M2 Hardwood timber viewing platform aligned with viewshaft to Mt Albert, details tbc.
- M3 1.8m width all weather footpath links Methuen Road to the SH20 cycleway. The path angles across the slope at a 1 in 12 grade, to prevent the need for steps.
- M4 Low feature planting and 'Living Parks' plinth signage at park entry from Methuen Road.
- M5 1.8m width all-weather footpath provides increased walking options around SW pond, and provides access to the 'cascades' section of Oakley Creek.
- M6 Former reserve area severed by project. Refer open space plan-final form to be resolved via management plan process.

KEY:

- Native canopy planting
NB: Mix varies: coastal and basalt rock forest ecotypes, refer notes
- Riparian planting, refer notes
- Grass
- Specimen planting
- Proposed future rail corridor
- Median 'highlight' planting
- Noise wall
- Creek centre line
- SH20 safety rail
- Motorway buffer planting
- Existing vegetation retained
- Safety fencing
- Construction footprint
- Central median paving (tbc)
- Open space severed by project, refer notes

C	REVISED FOR REBUTTAL EVIDENCE	DLNR	31.01.11
B	ISSUE FOR STATUTORY APPROVAL	JJ	04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ	18.06.10
No.	Revision	By	Chk. Appd. Date

Drawing Originator:

STEPHEN BROWN ENVIRONMENTAL

Original Scale (A1)	1:750	Designer	DL
Reduced Scale (A3)	1:1500	Reviewer	DLNR
		Drafting Checked	
		Consultant Approval	AL

NZ TRANSPORT AGENCY
WAKA KOTAHI

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
SHEET 220

Base level:	MSLAUCK. VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No.:	
Project No.:	20.1.11-3-D-L-810-220
Rev.:	C



GENERAL NOTES:

This plan is for the purposes of lodgement with the EPA only. It is not to be used as a construction drawing, and shall be read in conjunction with the civil, structural, architectural and stormwater drawing packages. These sheets illustrate the landscape concept only, and detailed design may alter the extent or location of proposed built elements.
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PLAN NOTES:

- 1 Oakley Creek realigned to a more natural, meandering profile and edges terraced and benched to improve habitat. Refer to the SH20 Stream diversion guidelines and the stormwater details. Slopes to be revegetated with native riparian planting — species, spacings and specification as per planting schedules.
- 2 Southern 'Hendon Bridge' ramp installed on piers over 'Hendon' stormwater pond, refer architect's drawings.
- 3 3m width pedestrian/cycle way runs from existing cycleway at the Maoro interchange to the southern portal building, connecting to Hendon Ave.
- 4 'Hendon' SW pond — refer stormwater engineer's details.
- 5 Precast concrete 'Waterview' noise wall, refer to detail drawings and noise engineer's package of works.
- 6 Vegetated bund (1m height) reduces height of noise wall from both park and motorway sides. Planting to be coastal lowland native species to either side of wall, using lower growing species on the motorway side and within 2m of the cycleway, in order to maintain sightlines.
- 7 Realigned eastern section of Valonia Street shown, refer to civil engineer's details.
- 8 'Alan Wood' style pedestrian bridge crosses Oakley Creek to allow for cycleway connection. Vegetation here to allow sightlines to existing basalt columns.

MANAGEMENT PLAN APPROACH:

- M1 1.8m width all-weather footpath provides pedestrian circulation around stormwater pond, and links cycle way with playing fields to the south.
- M2 Minor ephemeral waterway connects wetland overflow with Oakley Creek, and collects overland flows from elevated catchment immediately to the west.
- M3 'Alan Wood' style cor-ten steel and hardwood pedestrian bridge crosses Oakley Creek at this point to connect the cycleway and 'Hendon' bridge with playing fields.
- M4 Twisted knotless polyethylene netting (black) on black support posts to prevent balls from entering the creek. Nominal height 4m, to be confirmed.
- M5 Senior football field (with 3m buffer), 4 floodlights on poles provided for night-time use, as per existing. To be provided as early works, allowing for use during construction period. Note: this field to be provided as early works, for use during construction period.
- M6 Senior football field (with 3m buffer), 4 floodlights on poles provided for night-time use, as per existing. To be provided as early works, allowing for use during construction period. Note: this field is to be constructed for use following decommissioning of the second field adjacent to the portal building.
- M7 Low lying, locally wet area at the termination of two stormwater pipes has the potential to become a wetland area, creating habitat and treating the stormwater prior to release into Oakley Creek.
- M8 New all-weather path connection to Valonia Street
- M9 Internal park circulation provided by 1.8m width all-weather paths, flanked by specimen tree planting, generally south of adjacent residential properties.
- M10 New all-weather path connection to Valonia Street
- M11 Carpark spaces provided to service both the playing fields and also the wider reserve and cycleway network. Carpark to be formed from asphalt hotmix and exposed aggregate concrete, and drains downhill to swales for water treatment before delivery to stormwater pond. Carpark to be lockable to prevent nighttime use.
- M12 Selected 'basalt rock forest' species at reserve entry, to offset visual impact of motorway from Richardson reserve, and provide vegetated entry to reserve. Species to be selected to maintain significant sightlines.
- M13 Specimen trees in this area provide softening of carpark, while maintaining sightlines for vehicle security.
- M14 Modular toilet facility: Novaloo or similar approved.
- M15 'Parklife' half basketball court.

KEY:

- Native canopy planting
NB: Mix varies: coastal and basalt rock forest ecotypes, refer notes
- Riparian planting, refer notes
- Grass
- Specimen planting
- Proposed future rail corridor
- Median 'highlight' planting
- Noise wall
- Creek centre line
- Safety netting
- Motorway buffer planting
- Carpark amenity planting
- Exposed aggregate concrete parking bays
- Construction footprint
- Adjacent property boundary
- Modular toilet facility

No	Revision	By	Chk	Appd	Date
C	REVISED FOR REBUTTAL EVIDENCE	DLNR			31.01.11
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

Drawing Originator:

Original Scale (A1) 1:750
 Reduced Scale (A3) 1:1500

Designer	DL
Reviewer	DLNR
Drafting Checked	AL
Consultant Approval	

NZ TRANSPORT AGENCY
 WAKA KOTAHĪ

Project: **WATERVIEW CONNECTION**
 SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
 SHEET 221

Base level:	MSLAUCK, VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No:	
Project No:	20.1.11-3-D-L-810-221
Rev:	C



KEY:

- Native canopy planting
NB. Mix varies: coastal and basalt rock forest ecotypes, refer notes
- Riparian planting, refer notes
- Grass
- Specimen planting
- Proposed future rail corridor
- Median 'highlight' planting
- Noise wall
- Creek centre line
- Safety netting
- Motorway buffer planting
- Construction footprint
- Adjacent property boundary

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The notes for these drawings refer to those proposed by NZTA (plan notes) and those to be confirmed through the management plan approach, working with Council and others. Colour denotes proposed work within the designation or consent applications.

- PLAN NOTES:**
- 1 Precast concrete 'Waterview' noise wall, refer to detail drawings and noise engineer's package of works.
 - 2 Proposed rail corridor for future Avondale/Southdown rail link. In the interim, this area is to be planted with low growing native species as part of the visual mitigation measures for the motorway works.
 - 3 Buffer land between rail designation and motorway corridor due to different alignment curves required. This area to be heavily vegetated in native, ecosourced 'basalt rock forest' species as part of the visual mitigation package for the works.
 - 4 Hendon Bridge ramp to be created on piers, with adjacent riparian vegetation to extend under the ramp, to footpath. NB Ramp to be straightend as shown is detailed design to accommodate adjacent path.
 - 5 Oakley Creek channel remains in its current state, north of proposed realignment works.
 - 6 Minor diversion of the Oakley Creek tributary in this area as shown, to accommodate motorway. Refer stormwater engineer's plans for further details.
 - 7 'Hendon Bridge' crosses motorway and proposed Future Rail Corridor. Refer architect's details.
 - 8 Central section of the median to be planted in 'impact planting' as per the Maoro Street intersection to the east. This planting to be bands of colourful flax, planted in a random geometric pattern as shown.
 - 9 Existing carpark to be restored following completion of works.
 - 10 Low native planting to match adjacent rail corridor.
 - 11 Area south of the Oakley Creek tributary to be interplanted with native canopy species to assist with long-term visual mitigation of the project. As canopy trees establish, exotic weeds in this area may be selectively removed by Council.
 - 12 Detailed design to investigate lower growing species in this area, to provide sun to rare geranium species located in (and transplanted to) this location.

- MANAGEMENT PLAN APPROACH:**
- M1 Barrymore Road seal to receive minor park entry improvements carried out — footpaths and low planting.
 - M2 Specimen tree planting (in grass) between access path and proposed noise walls
 - M3 Balance of former NZTA property not used for open space to be divested.
 - M4 3m width all-weather connection to Hendon pedestrian/cycle bridge and the wider Underwood/Waimsey cycle way.
 - M5 Native riparian vegetation to be planted along western banks of Oakley Creek as part of project SEV requirements. Refer to schedules for details.
 - M6 'Alan Wood' style pedestrian bridge crosses Oakley Creek at this point to connect cycleway to Underwood/Waimsey cycleway. Refer architectural drawings for details.
 - M7 Existing exotic weeds and willows remain north of designation as it is outside of the scope of the project. This area represents an ecological opportunity for future work by Council.
 - M8 Existing Underwood/Waimsey footpath and cycle way

No.	Revision	By	Chk	Appd	Date
D	FLAX IN RAIL CORRIDOR AMENDED	DL			17.02.11
C	REVISED FOR REBUTAL EVIDENCE	DL/NR			31.01.11
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

Drawing Originator		Designer	DL
Original Scale (A1)		Reviewer	DL/NR
1:750		Drafting Checked	
Reduced Scale (A3)		Consultant Approval	AL
1:1500			



Project: **WATERVIEW CONNECTION PROJECT SH16 / SH20**

Title: **URBAN DESIGN AND LANDSCAPE PLANS SHEET 222**

Base level	MSLAUCK, VERT. DATUM 1946
Grid Reference	MT EDEN 2000
Originator No.	
Project No.	20.1.11-3-D-L-810-222
Rev	D



KEY:

- Native canopy planting
NB: Mix varies: coastal and basalt rock forest ecotypes, refer notes
- Existing vegetation retained
- Grass
- Amenity planting
- Proposed future rail corridor
- Median 'highlight' planting
- Retaining wall
- Creek centre line
- Proposed noise wall
- Existing noise wall (constructed 2010)
- Motorway buffer planting
- Construction footprint

GENERAL NOTES:

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The notes for these drawings refer to those proposed by NZTA (plan notes) and those to be confirmed through the management plan approach, working with Council and others. Colour denotes proposed work within the designation or consent applications.

- PLAN NOTES:**
- 1 Section of Richardson Road to become bridge, refer detailed architect's plans for further details, including linemarking and footpath arrangement.
 - 2 Central section of median to be planted in 'impact planting' species mix. This planting to be bands of colourful flax, planted in a random geometric pattern as shown.
 - 3 Continuation of planting on 8m width vegetated noise bund to east. Planting to be coastal lowland native species — with lower growing species selected.
 - 4 Proposed rail corridor for future Avondale: Southdown rail link. In the interim, this area is to be planted with low growing native species as part of the visual mitigation measures for the surface section of motorway. Fencing at either end will exclude the public from this area.
 - 5 Low native amenity planting between motorway corridor and rail designation land.
 - 6 Existing Oakley Creek tributary crosses rail designation at this point. Margins (15m width) to be planted with low native vegetation, selected from the riparian planting list. Blue line to the north indicates future stream diversion works planned for but not carried out as part of this project.
 - 7 Crib wall retaining to proposed future rail corridor. Stacked Lusit precast concrete retaining system, suggested with details to be confirmed.
 - 8 Sloping banks between offramps and motorway to be planted in 'impact planting' species mix. This planting to be bands of colourful flax, planted in a random geometric pattern as shown, bordered by red *Lophomyrtus* species.
 - 9 'Volcanic' retaining wall borders motorway in this location. Refer detail drawing for further information.
 - 10 Low amenity planting at intersection, refer planting schedules for further details.
 - 11 'Maoro Interchange' noise walls, constructed 2011-2012
 - 12 Ecosourced and massed native planting to screen proposed noise walls from motorway. Species to be selected from the 'coastal forest' ecotype — refer planting schedules for further details.
 - 13 Proposed 'Waterview Ply' noise wall, using painted Ezyshield ply and battens as per the detailed drawing. Bunding to be used at 1 in 3 grade to reduce actual wall height.
 - 14 Ecosourced and massed native planting to soften motorway corridor — swathes of lower growing species at regular intervals to provide sightlines to pedestrian/cycle way corridor. All species selected from 'Coastal Forest' ecotype. Lower-growing species border pedestrian/cycle way to maintain viewshafts.
 - 15 3m width SH20 pedestrian/cycle way, all-weather surfacing. Cycle way illuminated as per existing sections of SH20. Detailed design to review separating cycle and pedestrian access between carpark and playing fields.
 - 16 Low native amenity planting on variable slope grades up to Richardson Road, refer planting schedules for further details.

- MANAGEMENT PLAN APPROACH:**
- M1 Low native amenity planting on 1 in 3 slope, refer planting schedules for further details.
 - M2 Carparks provided, complying with Transfund parking provisions, and in excess of District Plan requirements. Carpark a mix of hotmix and exposed aggregate concrete bays.
 - M3 Low native amenity planting on variable slope grades up to Richardson Road, refer planting schedules and earthworks plans for further details.
 - M4 Grassed berm grades down to carpark on a 1 in 4 slope.

C	REVISED FOR REBUTTAL EVIDENCE	DLNR	31.01.11
B	ISSUE FOR STATUTORY APPROVAL	JJ	04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ	18.06.10
No.	Revision	By	Chk

Drawing Originator:

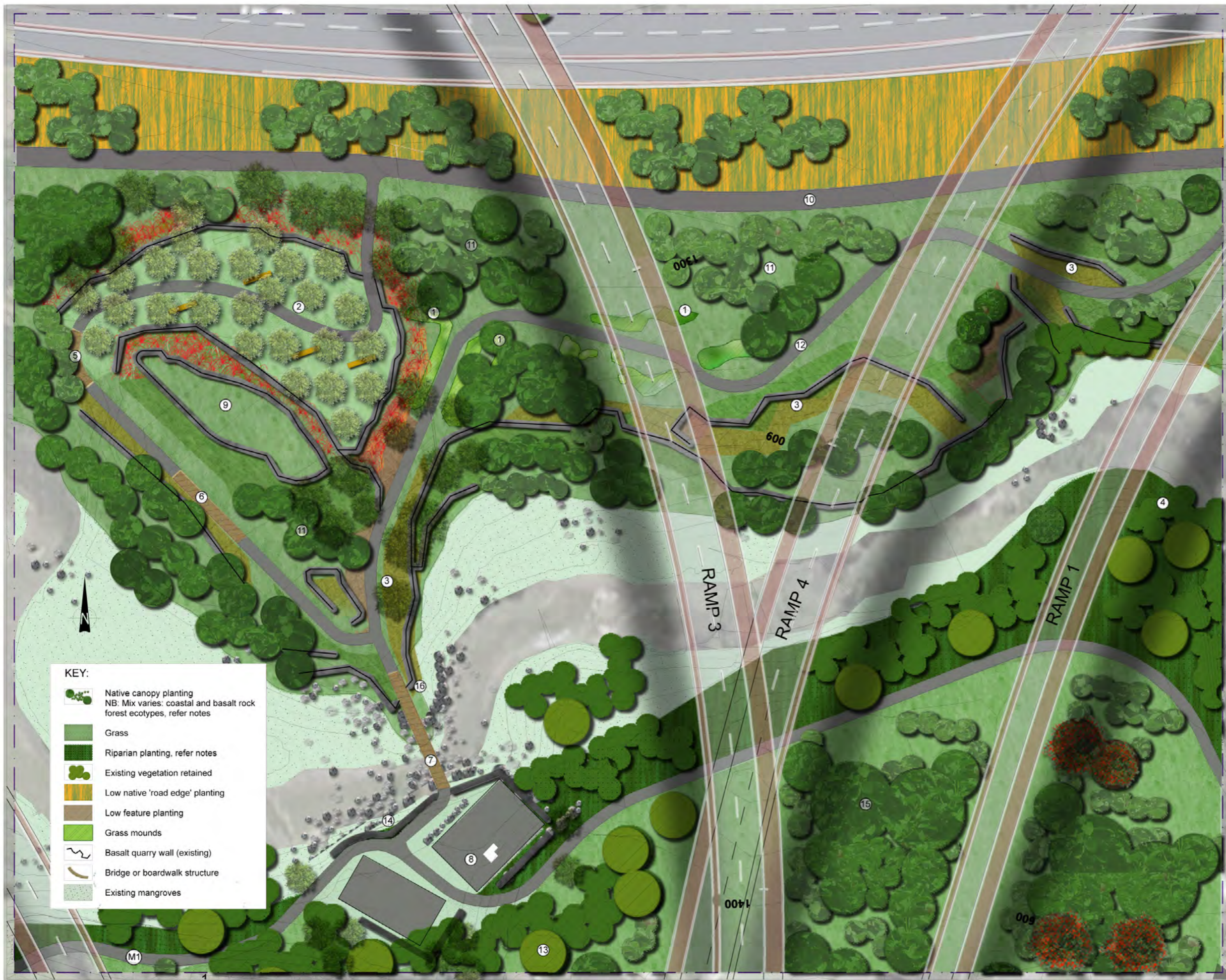
Original Scale (A1)	1:750	Designer	DL
Reduced Scale (A3)	1:1500	Reviewer	DLNR
		Drafting Checked	
		Consultant Approval	AL

NZ TRANSPORT AGENCY
WAKA KOTAHI

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
SHEET 223

Base level:	MSLAUCK. VERT. DATUM 1946
Grid Reference:	MT EDEN 2000
Originator No.	
Project No.	20.1.11-3-D-L-810-223
Rev	C



KEY:

- Native canopy planting
NB: Mix varies: coastal and basalt rock forest ecotypes, refer notes
- Grass
- Riparian planting, refer notes
- Existing vegetation retained
- Low native 'road edge' planting
- Low feature planting
- Grass mounds
- Basalt quarry wall (existing)
- Bridge or boardwalk structure
- Existing mangroves

GENERAL NOTES:

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PLAN NOTES:

- 1 Existing low earthen walls to be cleared and grassed. Forms to be emphasised and exaggerated using mounding and massed planting. Pedestrian path routed through the mounds.
- 2 Historic stone quarry pit. Karaka grove to be created within existing quarry pit, consisting of historic planting and new species. Pedestrian access and seating provided in this area, including stair access running up exposed quarry face. Detail tbc as part of detailed design, working with archaeologist.
- 3 Existing quarry pits and terraces consisting of low blue stone blast walls. Weeds to be cleared and accentuated by low mass single species planting.
- 4 Weed removal to be carried out to the steep of Oakley Creek, with native riparian species planted in the gaps, refer planting schedules.
- 5 Boardwalk sections required where pedestrian path crosses landing/ boat slip lane associated with historic quarrying activities
- 6 Boardwalk section required where path passes over or through midden sites.
- 7 Proposed cor-ten steel and hardwood pedestrian bridge crossing Oakley Creek.
- 8 Historic Star Mill / tannery & quarry site. Original foundations to remain. Area to contain seating and interpretative signage. Site to be enclosed with proposed drystone wall to retain sloping contours.
- 9 Historic stone working site and protected food pit site.
- 10 3m wide shared footpath/cycleway linking SH16 cycleway west and east of the interchange.
- 11 Existing native vegetation thinned to remove poorly performing species, weeds removed and new canopy and understorey planting species planted in gaps. Species selected from 'basalt rock forest' ecotype.
- 12 1.8m wide all weather pedestrian path through archaeological park.
- 13 Existing exotic planting in this area (mainly Pine and Poplar) to be protected where possible for the duration of the works, in order to retain vertical scale. These areas shall be underplanted with a mix of native canopy and underplanting species from the 'coastal forest' ecotype, with the existing exotic species removed via a succession strategy.
- 14 Blue stone sea wall fronts Star Mill site, to be restored as part of works.
- 15 Ecosourced and massed native planting in and around all interchange ramps. Species to be selected from the 'coastal forest' ecotype.
- 16 Retain and protect existing stonework to northern edge of bridge abutment.

MANAGEMENT PLAN APPROACH:

NB: These items are conceptual only, shown for reference-for discussion and agreement with Council through the management plan process (including future cost share arrangements).

- M1 1.8m width all weather footpath leading around the Waterview Coast to Oakley Ave. Alignment selected to minimise changes in grade and avoid use of steps, allowing for all forms of access. This will require earth shaping, regrading and minor retaining in places.

No.	Revision	By	Chk.	Appd.	Date
C	REVISED FOR REBUTTAL EVIDENCE				31.01.11
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

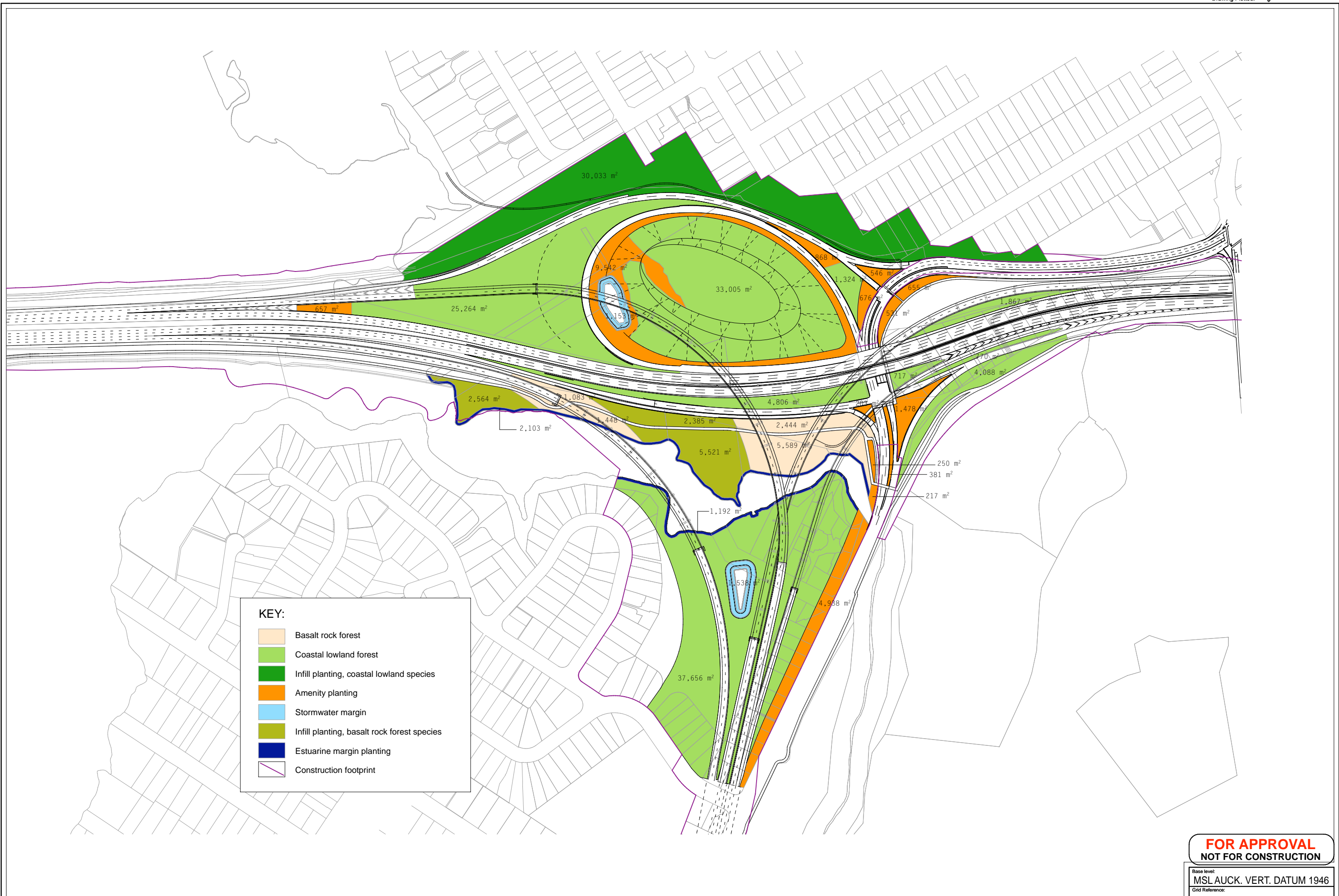
Drawing Originator:

Original Scale (A1)	1:300	Designer	DL
Reduced Scale (A3)	1:600	Reviewer	DLNR
		Drafting Checked	
		Consultant Approval	AL

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS**
SHEET 224

Base level:		MSL AUCK. VERT. DATUM 1946	
Grid Reference:		MT EDEN 2000	
Originator No.:			
Project No.:	20.1.11-3-D-L-810-224	Rev.:	C



KEY:

	Basalt rock forest
	Coastal lowland forest
	Infill planting, coastal lowland species
	Amenity planting
	Stormwater margin
	Infill planting, basalt rock forest species
	Estuarine margin planting
	Construction footprint

FOR APPROVAL
NOT FOR CONSTRUCTION

Base level:
MSLAUCK. VERT. DATUM 1946

Grid Reference:
MT EDEN 2000

Originator No.:

Project No. 20.1.11-3-D-L-810-226

Rev. B

No.	Revision	By	Chk	Appd	Date
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

Drawing Originator:

STEPHEN BROWN ENVIRONMENTS

Original Scale (A1)	1:2000	Designer	DL
Reduced Scale (A3)	1:4000	Reviewer	DL
		Drafting Checked	SB
		Consultant Approval	AL
		Received by Beca	

NZ TRANSPORT AGENCY
WAKA KOTAHĪ

Project: WATERVIEW CONNECTION
PROJECT
SH16 / SH20

Title: Northern Portal:
Indicative Planting Areas



KEY:

- Coastal forest planting
- Coastal forest planting (shrubs)
- Stormwater margin
- Infill planting
- Construction footprint

FOR APPROVAL
NOT FOR CONSTRUCTION

Base level:
MSLAUCK. VERT. DATUM 1946

Grid Reference:
MT EDEN 2000

Originator No. _____

Project No. 20.1.11-3-D-L-810-227

Rev. B

No.	Revision	By	Chk	Appd	Date
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

Drawing Originator:



STEPHEN BROWN ENVIRONMENTS

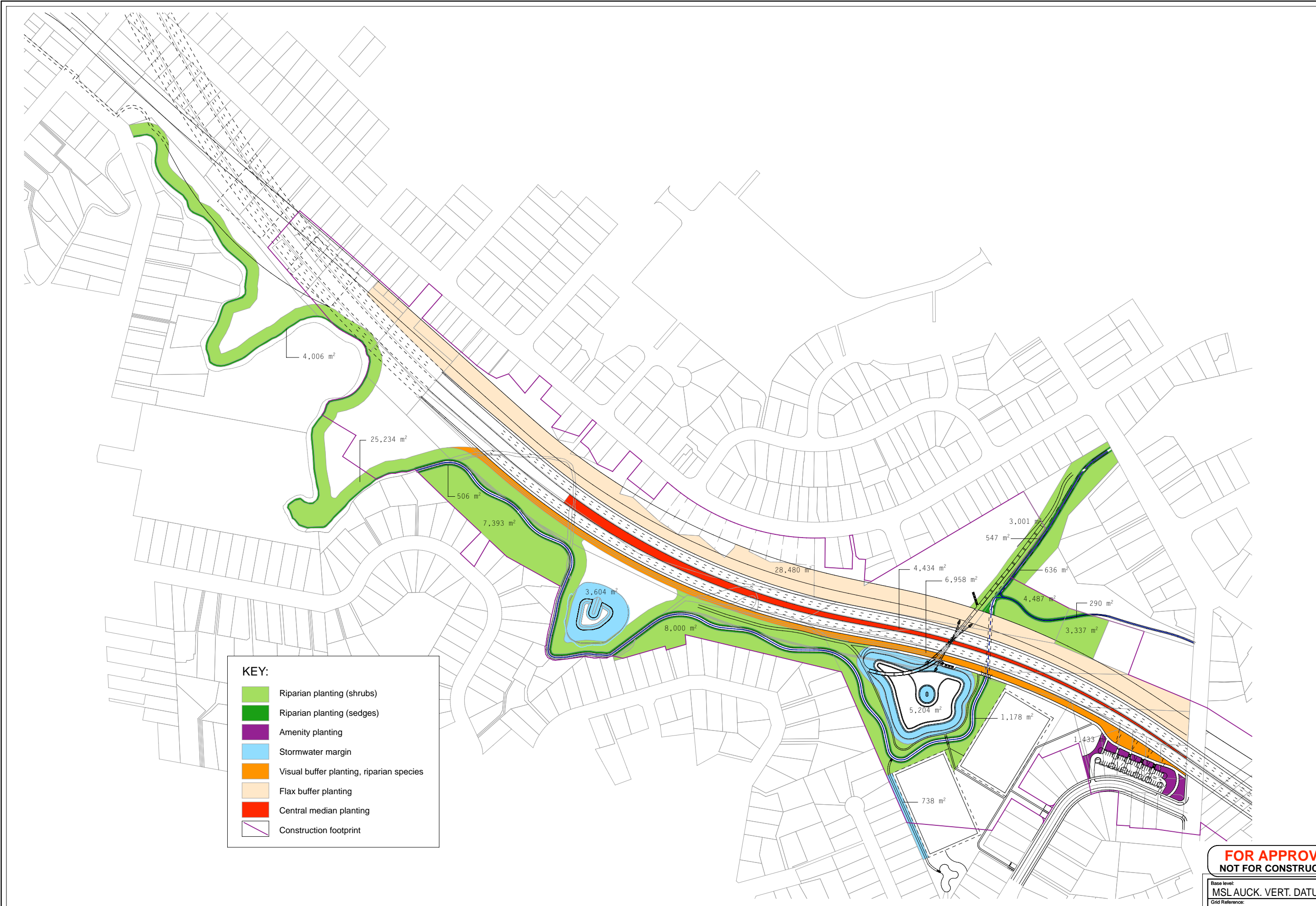
Original Scale (A1)	1:2000	Designer	DL
Reduced Scale (A3)	1:4000	Reviewer	DL
		Drafting Checked	SB
		Consultant Approval	AL
		Received by Beca	



NZ TRANSPORT AGENCY
WAKA KOTAHĪ

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **St Lukes Section: Indicative Planting Areas**



KEY:

- Riparian planting (shrubs)
- Riparian planting (sedges)
- Amenity planting
- Stormwater margin
- Visual buffer planting, riparian species
- Flax buffer planting
- Central median planting
- Construction footprint

FOR APPROVAL
NOT FOR CONSTRUCTION

Base level:
MSLAUCK. VERT. DATUM 1946

Grid Reference:
MT EDEN 2000

Originator No. _____

Project No. 20.1.11-3-D-L-810-228

Rev. B

No.	Revision	By	Chk	Appd	Date
B	ISSUE FOR STATUTORY APPROVAL	JJ			04.08.10
A	ISSUE FOR SRT/NZTA REVIEW	JJ			18.06.10

Drawing Originator:



STEPHEN BROWN ENVIRONMENTS

Original Scale (A1) 1:2000	Designer DL
Reduced Scale (A3) 1:4000	Reviewer DL
	Drafting Checked SB
	Consultant Approval AL
	Received by Beca



NZ TRANSPORT AGENCY
WAKA KOTAHI

Project: **WATERVIEW CONNECTION**
PROJECT
SH16 / SH20

Title: **Alan Wood Reserve:**
Indicative Planting Areas



GENERAL NOTES:

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PLAN NOTES:

- 1 All existing bus stops to be restored to original locations following completion of works
- 2 Row of street trees to be planted along western edge of Waterview Glades following completion of construction to mitigate loss of existing exotic species at this location. Minimum 400L grade, species tbc via detailed design.
- 3 New 1.8m width all-weather path (stepped where required) formed to this location to allow access to Oakley Creek. Path to be installed prior to occupation of Construction Yard 7 to the south.
- 4 Northerly branch of path terminates just south of the BP station - follows natural contour, but steps included as required.
- 5 Existing pines in this location to be retained as a nurse species for new planting.
- 6 New path joins to existing path at bridge in this location (bridge unaffected by works and retained).
- 7 Existing contours of Waterview Glades to be restored following completion of construction, with minor modifications. Area around cycleway between Alford St and Oakley Avenue to be slightly raised to avoid retaining walls/fencing that currently exist, and the grassed banks around chainage 4000 will become slightly steeper to cover the 'cut and cover' section at this point.
- 8 Existing path connections to remain in place throughout construction works.
- 9 Existing bridge and stepped pathway linking Great North Road to Unitec to remain in place throughout construction works.
- 10 Southbound transition from tunnel to cut and cover construction.
- 11 Existing Unitec accommodation buildings
- 12 Majority of existing vegetation surrounding hostel buildings to be retained, and protected through construction period. Any vegetation removed via the creation of Construction Yard 7 to be replaced with similar species following construction.
- 13 Northbound transition from tunnel to cut and cover construction.
- 14 Existing grass cover and park furniture replaced to park area following completion of construction works. Specimen trees added to edge of flat area for shade.

MANAGEMENT PLAN APPROACH:

NB: These items are conceptual only, shown for reference for discussion and agreement with Council through the management plan process (including future cost share arrangements).

M1 15m width riparian planting to be carried out to western edge of Oakley Creek as shown, installed prior to occupation of Construction Yard 7, where possible. Riparian planting to use species noted in planting schedules, and retain all existing native planting. Exotic species, if not weed species should be retained to provide shelter and may be removed by Council over time as riparian planting matures. Canopy species shown to be selected from the 'coastal forest' ecotype, and be planted at minimum PB95 grade.

KEY:

- Existing planting to be retained (and protected during works)
- Proposed canopy planting, refer notes for indicative species
- Grass
- Proposed riparian planting, refer notes
- Bridge or boardwalk structure
- Cycleway to be replaced, refer notes
- Walking track - generally existing, unless otherwise noted
- Oakley Creek
- Designation boundary
- Construction yard boundary
- Underground tunnel/cut and cover section, refer notes

A ISSUED FOR REBUTTAL EVIDENCE		DJL		7.1.11
No.	Revision	By	Chk	Appd

Drawing Originator:

Original Scale (A1)	1:750	Designer	DL
Reduced Scale (A3)	1:1500	Reviewer	DL/NR
		Drafting Checked	NR
		Consultant Approval	AL

NZ TRANSPORT AGENCY
WAKA KOTAHU

Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **URBAN DESIGN AND LANDSCAPE PLANS SHEET 229**

Base level: MSL AUCK. VERT. DATUM 1946	
Grid Reference: MT EDEN 2000	
Originator No:	
Project No:	20.1.11-3-D-L-810-229
Rev:	A

Planting schedules

1.0 Rock Armour with Saltwater Revegetation Planting

botanical name	common name	approx. size at maturity	plant grade	Centres (m)	no./m2	% in mix	staking
Apodasmia similis	oioi, jointed rush	1.5h x 1.0w	root trainer	0.55	3.8	35.0%	no
Austrostipa stipoides	needlegrass	0.75h x 0.5w	root trainer	0.75	2.1	5.0%	no
Cortaderia splendens	toetoe	2.5h x 2.5w	root trainer	1.00	1.2	10.0%	no
Ficinia nodosa						1.5%	
Juncus kraussi	sea rush	1.0 x 1.0m	root trainer	0.75	2.1	5.0%	no
Muehlenbeckia complexa	pohuehue	5.0h x 5.0w (if climbing)	root trainer	1.00	1.2	17.5%	no
Olearia solandri	coastal tree daisy	up to 4m high	root trainer	1.00	1.2	5.0%	cane
Phormium tenax	NZ flax	3.0h x 3.0 w	root trainer	1.00	1.2	10.0%	no
Plagianthus divaricatus	marsh ribbonwood	2.0h x 1.5w	root trainer	1.00	1.2	5.0%	cane
Samolus repens						1.5%	
Sarcocornia quiqueflora						1.5%	
Selliera radicans						1.5%	
Suadea novae-zelandiae						1.5%	
TOTAL:						100%	
							Groundstorey species

NOTES:

Planting mix composition based on the Kowhai - Kotare Harbour coastline species list from the W.C.C. planting and species selection guide 'Native to the West', April 2005

and native species identified during site inspection and from the scheme's Ecology Report. Additional native coastal species to be further considered in the detailed design.

Plants to be planted in soil filled voids between rock armour of the inner harbour only. Detail design to consider species in relation to tidal inundation.

All plants are to be eco-sourced from the Tamaki Ecological District, favouring seed sources closest to the site. The contractor is to submit proof of seed sources to the engineer for approval prior to the acceptance of tender.

Waterview Connection Project - Landscape Planting Schedules + Specification for sheets 810 - 201 to 209

2.o Saltmarsh/Estuarine Fringe Species

botanical name	common name	approx. size at maturity	plant grade	Centres (m)	no./m2	% in mix	staking
Metrosideros excelsa	pohutukawa	20m	pb18	1.00	1.2	12.0%	1 stakes
Apodasmia similis	oioi, jointed rush	1.5h x 1.0w	pb3	0.55	3.8	30.0%	no
Austrostipa stipoides						2.5%	
Ficinia nodosa						2.5%	
Juncus krausii						2.5%	
Leptospermum scoparium	tea tree / manuka	4m	pb5	1.00	1.2	10.0%	cane
Muehlenbeckia complexa	pohuehue	5.0h x 5.0w (if climbing)	pb5	1.00	1.2	8.0%	no
Olearia solandri	coastal tree daisy	up to 4m high	pb5	1.00	1.2	10.0%	cane
Plagianthus divaricatus	marsh ribbonwood	2.0h x 1.5w	pb5	1.00	1.2	10.0%	cane
Phormium tenax	NZ flax	3.0h x 3.0 w	pb5	1.00	1.2	10.0%	no
Sarcocornia quinqueflora						2.5%	

TOTAL:

100%

High canopy species

Understorey species

NOTES:

Planting mix composition based on the Kowhai - Kotare Harbour coastline species list from the W.C.C. planting and species selection guide 'Native to the West', April 2005 and native species identified during site inspection and from the scheme's Ecology Report. Additional native coastal species to be further considered in the detailed design.

Waterview Connection Project - Landscape Planting Schedules + Specification for sheets 810 - 201 to 209

All plants are to be eco-sourced from the Tamaki Ecological District, favouring seed sources closest to the site.
The contractor is to submit proof of seed sources to the engineer for approval prior to the acceptance of tender.

3.0 Traherne Island Motorway Edge

botanical name	common name	approx. size at maturity	plant grade	Centres (m)	no./m2	% in mix	staking
<i>Cordyline australis</i>	cabbage tree / ti kouka	12-20m	pb5	1.00	1.2	5.0%	no
<i>Coprosma macrocarpa</i>	coastal karamu	6.0h x 5.0w	pb5	1.00	1.2	5.0%	no
<i>Coprosma robusta</i>	karamu	6m	pb5	1.00	1.2	5.0%	no
<i>Myrsine australis</i>	mapou	6m	pb5	1.00	1.2	10.0%	cane
<i>Muehlenbeckia complexa</i>	pohuehue	5.0h x 5.0w (if climbing)	pb5	1.00	1.2	5.0%	no
<i>Olearia solandri</i>	coastal tree daisy	up to 4m high	pb5	1.00	1.2	10.0%	cane
<i>Phormium tenax</i>	NZ flax	3.0h x 3.0 w	pb5	1.00	1.2	50.0%	no
<i>Plagianthus divaricatus</i>	marsh ribbonwood	2.0h x 1.5w	pb5	1.00	1.2	10.0%	cane

TOTAL:

100%

High canopy species
Sub canopy species
Understorey species



NOTES:

Planting extents shall be contained by the earthworks boundary, all areas beyond this are subject to natural regeneration / weed control by NZTA management plan.

Planting mix composition based on the Kowhai - Kotare Harbour coastline species list from the W.C.C. planting and species selection guide 'Native to the West', April 2005 and native species identified during site inspection and from the scheme's Ecology Report.

All plants are to be eco-sourced from the Tamaki Ecological District, favouring seed sources closest to the site.

The contractor is to submit proof of seed sources to the engineer for approval prior to the acceptance of tender.

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4.0 Native Canopy Planting - Te Atatu Pohutukawa Escarpment Species

botanical name	common name	approx. size at maturity	plant grade	Centres (m)	no./m2	% in mix	staking
<i>Cordyline australis</i>	cabbage tree / ti kouka	12-20m	pb5	1.00	1.2	2.5%	no
<i>Corynocarpus laevigatus</i>	karaka	15m	pb5	1.00	1.2	2.5%	cane
<i>Metrosideros excelsa</i>	pohutukawa	20m	pb40	1.00	1.2	7.5%	1 stakes
<i>Metrosideros excelsa</i>	pohutukawa	20m	pb18	1.00	1.2	7.5%	1 stake
<i>Knightia excelsa</i>	rewarewa	30m	pb8	1.00	1.2	2.5%	1 stake
<i>Kunzea ericoides</i>	kanuka	15m	pb5	1.00	1.2	5.0%	cane
<i>Vitex lucens</i>	puriri	20m	pb8	1.00	1.2	2.5%	1 stake
<i>Coprosma lucida</i>	shining karamu	3-6m	pb5	1.00	1.2	5.0%	no
<i>Coprosma robusta</i>	karamu	6m	pb5	1.00	1.2	5.0%	no
<i>Dodonea viscosa</i>	akeake	7m	pb5	1.00	1.2	1.0%	cane
<i>Houheria populnea</i>	lacebark	11m	pb5	1.00	1.2	4.0%	cane
<i>Macropiper excelsum</i>	kawakawa	6m	pb5	1.00	1.2	2.5%	no
<i>Melicytus ramiflorus</i>	mahoe	10m	pb5	1.00	1.2	5.0%	cane
<i>Myrsine australis</i>	mapou	6m	pb5	1.00	1.2	2.5%	cane
<i>Rhopalostylis sapida</i>	nikau palm	10m+	pb8	0.75	2.1	5.0%	no
<i>Sophora microphylla</i>	kowhai	10m	pb8	1.00	1.2	5.0%	1 stake
<i>Astelia banksii</i>	wharawhara	1.0h x 1.5w	pb8	0.75	2.1	2.5%	no
<i>Blechnum novae-zelandiae</i>	kiokio	1.0h x 2.0w	pb5	0.75	2.1	2.5%	no
<i>Gahnia setifolia</i>	cutty grass	2.0h x 3.0w	pb5	1.00	1.2	2.5%	no
<i>Geniostoma rupestre</i> var. <i>ligustrifolium</i>	hangehange	4m	pb5	1.00	1.2	2.5%	no
<i>Leptospermum scoparium</i>	tea tree / manuka	4m	pb5	1.00	1.2	10.0%	cane
<i>Phormium tenax</i>	NZ flax	3.0h x 3.0 w	pb5	1.00	1.2	10.0%	no
<i>Pomaderris kumeraho</i>	kumerahou	3m	pb5	0.75	2.1	5.0%	no

TOTAL:

100%

High canopy species

Sub canopy species

Understorey species



NOTES:

Planting mix composition based on the Kowhai - Kotare Harbour coastline species list from the W.C.C. planting and species selection guide 'Native to the West', April 2005 and native species identified during site inspection and from the scheme's Ecology Report.

All plants are to be eco-sourced from the Tamaki Ecological District, favouring seed sources closest to the site.

The contractor is to submit proof of seed sources to the engineer for approval prior to the acceptance of tender.

Waterview Connection Project - Landscape Planting Schedules + Specification for sheets 810 - 201 to 209

5.0 Native Canopy Planting - Te Atatu Escarpment Species (under 6m)

botanical name	common name	approx. size at maturity	plant grade	Centres (m)	no./m2	% in mix	staking
Coprosma lucida	shining karamu	3-6m	pb5	1.00	1.2	7.5%	no
Coprosma robusta	karamu	6m	pb5	1.00	1.2	7.5%	no
Entelea arborescens	whau	6m	pb5	1.00	1.2	12.5%	cane
Macropiper excelsum	kawakawa	6m	pb5	1.00	1.2	5.0%	no
Myrsine australis	mapou	6m	pb5	1.00	1.2	10.0%	cane
Astelia banksii	wharawhara	1.0h x 1.5w	pb8	0.75	2.1	5.0%	no
Blechnum novae-zelandiae	kiokio	1.0h x 2.0w	pb5	0.75	2.1	2.5%	no
Gahnia setifolia	cutty grass	2.0h x 3.0w	pb5	1.00	1.2	2.5%	no
Geniostoma rupestre var. ligustrifolium	hangehange	4m	pb5	1.00	1.2	2.5%	no
Leptospermum scoparium	tea tree / manuka	4m	pb5	1.00	1.2	20.0%	cane
Muehlenbeckia complexa	pohuehue	5.0h x 5.0w (if climbing)	pb5	1.00	1.2	2.5%	no
Phormium tenax	NZ flax	3.0h x 3.0 w	pb5	1.00	1.2	20.0%	no
Pomaderris kumeraho	kumerahou	3m	pb5	0.75	2.1	2.5%	no

TOTAL:

100%

Sub canopy species

Understorey species

NOTES:

Planting mix composition based on the Kowhai - Kotare Harbour coastline species list from the W.C.C. planting and species selection guide 'Native to the West', April 2005 and native species identified during site inspection and from the scheme's Ecology Report.

All plants are to be eco-sourced from the Tamaki Ecological District, favouring seed sources closest to the site.

The contractor is to submit proof of seed sources to the engineer for approval prior to the acceptance of tender.

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6.0 Native Canopy Planting - Harbour Coastline Species

botanical name	common name	approx. size at maturity	plant grade	Centres (m)	no./m2	% in mix	staking
<i>Cordyline australis</i>	cabbage tree / ti kouka	12-20m	pb5	1.00	1.2	7.5%	no
<i>Corynocarpus laevigatus</i>	karaka	15m	pb5	1.00	1.2	5.0%	cane
<i>Houheria populnea</i>	lacebark	11m	pb5	1.00	1.2	2.0%	cane
<i>Kunzea ericoides</i>	kanuka	15m	pb5	1.00	1.2	7.5%	cane
<i>Metrosideros excelsa</i>	pohutukawa	20m	pb40	1.00	1.2	2.5%	1 stake
<i>Vitex lucens</i>	puriri	20m	pb8	1.00	1.2	0.5%	1 stake
<i>Coprosma macrocarpa</i>	coastal karamu	6.0h x 5.0w	pb5	1.00	1.2	5.0%	no
<i>Coprosma rhamnoides</i>		1.5h x 1.0w	pb5	1.00	1.2	1.0%	no
<i>Coprosma robusta</i>	karamu	6m	pb5	1.00	1.2	2.5%	no
<i>Dodonea viscosa</i>	akeake	7m	pb5	1.00	1.2	2.0%	cane
<i>Macropiper excelsum</i>	kawakawa	6m	pb5	1.00	1.2	2.5%	no
<i>Melicytus ramiflorus</i>	mahoe	10m	pb5	1.00	1.2	2.0%	cane
<i>Myoporum laetum</i>	ngaio	10m	pb5	1.00	1.2	1.0%	cane
<i>Myrsine australis</i>	mapou	6m	pb5	1.00	1.2	2.5%	cane
<i>Pittosporum crassifolium</i>	karo	9m	pb5	1.00	1.2	2.5%	cane
<i>Rhopalostylis sapida</i>	nikau palm	10m+	pb8	0.75	2.1	5.0%	no
<i>Sophora microphylla</i>	kowhai	10m	pb8	1.00	1.2	5.0%	1 stake
<i>Astelia banksii</i>	wharawhara	1.0h x 1.5w	pb8	0.75	2.1	2.5%	no
<i>Blechnum novae-zelandiae</i>	kiokio	1.0h x 2.0w	pb5	0.75	2.1	1.0%	no
<i>Carex flageliffera</i>		0.75h x 0.75w	pb3	0.50	4.6	2.0%	no
<i>Carex lambertiana</i>		0.75h x 0.75w	pb3	0.50	4.6	2.0%	no
<i>Carex virgata</i>		0.8h x 0.8w	pb3	0.50	4.6	2.0%	no
<i>Cortaderia splendens</i>	toetoe	2.5h x 2.5w	pb5	1.00	1.2	5.0%	no
<i>Gahnia setifolia</i>	cutty grass	2.0h x 3.0w	pb5	1.00	1.2	2.0%	no
<i>Geniostoma rupestre</i> var. <i>ligustrifolium</i>	hangehange	4m	pb5	1.00	1.2	2.5%	no
<i>Leptospermum scoparium</i>	tea tree / manuka	4m	pb5	1.00	1.2	5.0%	cane
<i>Muehlenbeckia complexa</i>	pohuehue	5.0h x 5.0w (if climbing)	pb5	1.00	1.2	2.5%	no
<i>Phormium tenax</i>	NZ flax	3.0h x 3.0 w	pb5	1.00	1.2	15.0%	no
<i>Pomaderris kumeraho</i>	kumerahou	3m	pb5	0.75	2.1	2.0%	no

TOTAL:

100%

High canopy species

Sub canopy species

Understorey species



NOTES:

Planting mix composition based on the Kowhai - Kotare Harbour coastline species list from the W.C.C. planting and species selection guide 'Native to the West', April 2005 and native species identified during site inspection and from the scheme's Ecology Report.

All plants are to be eco-sourced from the Tamaki Ecological District, favouring seed sources closest to the site.

The contractor is to submit proof of seed sources to the engineer for approval prior to the acceptance of tender.

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7.0 Native canopy Planting - Te Atatu Pohutukawa Parkland Planting

botanical name	common name	approx. size at maturity	plant grade	Centres (m)	no./m2	staking
<i>Metrosideros excelsa</i> *	pohutukawa	20m	400lt	varies	n/a	3 stakes
<i>Metrosideros excelsa</i> **	pohutukawa	20m	pb95	varies	n/a	2 stakes
<i>Metrosideros excelsa</i> ***	pohutukawa	20m	pb40	varies	n/a	1 stakes
<i>Rhopalostylis sapida</i>	nikau palm	10m+	45lt	1.00	1.2	no
<i>Arthropodium cirratum</i>	rengarenga lily	0.6h x 0.5w	pb5	0.40	7.2	no
<i>Coprosma repens</i> "Prostrate Form"	"Karekare Wave" or "Poor Knights"	0.2 h x 3.0w or 1.0h x 2.0w	pb5	0.75	2.1	no
<i>Libertia grandiflora</i>	large flowered iris	0.4h x 0.4w	pb5	0.35	9.4	no
<i>Phormium cookianum</i>	mountain flax	1.5h x 1.5w	pb5	0.75	2.1	no
<i>Phormium</i> 'Green Dwarf'	flax 'Green Dwarf'		pb5	0.65	2.7	no
<i>Phormium tenax</i>	NZ flax	3.0h x 3.0 w	pb5	1.00	1.2	no

High canopy species	
Sub canopy species	
Understorey species	

NOTES:

Planting mix composition based on the Kowhai - Kotare Harbour coastline species list from the W.C.C. planting and species selection guide 'Native to the West', April 2005 and native species identified during site inspection and from the scheme's Ecology Report.

All plants are to be eco-sourced from the Tamaki Ecological District, favouring seed sources closest to the site.

The contractor is to submit proof of seed sources to the engineer for approval prior to the acceptance of tender.

* 25% of parkland pohutukawa specimens at 400lt grade

** 50% of parkland pohutukawa specimens at pb95 grade

*** 25% of parkland pohutukawa specimens at pb40 grade

The contractor is to submit proof of seed sources to the engineer for approval prior to the acceptance of tender.

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8.0 Riparian + Wetland Planting

botanical name	common name	approx. size at maturity	plant grade	Centres (m)	no./m2	staking
Apodasmia similis	Oioi	1.5h x 1.0w	pb 1	0.6m		no
Baumea articulata		NA	pb 1	0.6m		no
Carex sects	Pukio	NA	pb 1	0.6m		no
Carex virgaba		NA	pb 1	0.6m		no
Cortaderia fulvida	Toetoe	3.0 h x 3.0 w	pb 1	1.0m		no
Cordyline australis	Ti kouka / Cabbage tree	8.0 h x 4.0 w	pb 3	3.0m		no
Elaeocharis spacelata		NA	pb 1	0.6m		no
Juncus pallidus		NA	pb 1	0.6m		no
Phormium tenax	New Zealand Flax	3.0h x 3.0w	pb 3	1.0m		no

Understorey species

NOTES:

All plants are to be eco-sourced from the Tamaki Ecological District, favouring seed sources closest to the site.
The contractor is to submit proof of seed sources to the engineer for approval prior to the acceptance of tender.

Western Ring Route: Waterview Connection, Indicative Planting Species by Ecotype

Refer Basic Planting Area Plans for Northern Portal Concept, St Lukes Widening Concept, Alan Wood Reserve Concept & Richardson Rd to Maioro Street. Note that no overall numbers are given, as these will be calculated as part of the detailed planting plan set. Spacings and mixture ratios are however given as a reference. All native plant species shall be ecosourced where possible.

PLANTING ZONE: COASTAL LOWLAND FOREST					
Botanical Name	Common Name	Spacing	Mix	Typ. Grade	Notes
SHRUB PLANTING					
<i>Coprosma repens</i>	Karamu	1m ctrs	10%	PB 3	Used at Sector 5 only. Replaced by <i>Coprosma robusta</i> for sectors 6, 7 and 9.
<i>Cordyline australis</i>	Cabbage tree	n/a	4%	PB 3	
<i>Entelea arborescens</i>	Whau	1m ctrs	15%	PB 3	
<i>Gahnia setifolia</i>	Gahnia		5%	PB 3	To be used in low lying, locally wet areas .
<i>Geniostera ligustrifolium</i>	Hangehange		7%	PB 3	
<i>Griselinia lucida</i>	Broadleaf	1m ctrs	5%	PB 3	
<i>Hebe stricta</i>	Koromiko		5%		
<i>Kunzea ericoides</i>	Kanuka	1m ctrs	5%	PB 3	
<i>Macropiper excelsum</i>	Kawakawa	1m ctrs	15%	PB 3	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Melicope ternata</i>	Wharangi	1m ctrs	10%	PB 3	
<i>Meliccytus ramiflorus</i>	Mahoe	n/a	10%	PB 3	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Phormium tenax</i>	Flax	1m ctrs	8%	PB 3	
<i>Pseudopanax lessonii</i>	Houpara		3%		
TREE PLANTING *					
<i>Beilschmiedia tarairi</i>	Taraire	n/a	12%	PB 95/28	
<i>Corynocarpus laevigatus</i>	Karaka	n/a	20%	PB 95/28	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Dysoxylum spectabile</i>	Kohekohe	n/a	12%	PB 95/28	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Metrosideros excelsa</i>	Pohutukawa	n/a	20%	PB 95/28	
<i>Myrsine australis</i>	Mapou		9%	PB 95/28	
<i>Planchonella costata</i>	Tawapou	n/a	6%	PB 95/28	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Rhopalostylis sapida</i>	Nikau palm	n/a	6%	PB 95/28	To be used in shady and wet areas - under and around fringes of existing vegetation to be retained as marked
<i>Vitex lucens</i>	Puriri	n/a	15%	PB 95/28	

* Trees to be planted at spacings of one per 10m²

NOTE: Those species marked 'shady areas only' may also be interplanted amongst establishing shrubs around 2 years after the initial planting, if a succession strategy is developed on the detailed planting plans.

NOTE: This planting mix is also to be used for the 'Infill Planting' sections, with planting at lower densities as any native existing planting in these areas is to be retained.

PLANTING ZONE: AMENITY AND CENTRAL MEDIAN

Botanical Name	Common Name	Spacing	Mix	Typ. Grade	Notes
<i>Lophomyrtus x ralphii</i> *	Lophomyrtus	1m ctrs	5%	PB 5	
<i>Phormium</i> 'Magestic Rage'	Flax (bronze / red)	1m ctrs	20%	PB 5	
<i>Phormium</i> 'Black Rage'	Flax (burgandy)	1m ctrs	15%	PB 5	
<i>Phormium</i> 'Rainbow Red'	Dwarf flax (red)	500mm ctrs	30%	PB 5	
<i>Phormium</i> 'Sundowner'	Flax (red)	1m ctrs	30%	PB 5	

*not included in central median planting

PLANTING ZONE: BASALT ROCK FOREST

Botanical Name	Common Name	Spacing	Mix	Typ. Grade	Notes
SHRUB PLANTING					
<i>Adiantum hispidulum</i>	Rosy Maidenhair Fern	500mm ctrs	8%	PB3	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Coprosma macrocarpa</i>	Large Karamu	1m ctrs	8%	PB3	
<i>Doodia australis</i>	Pukupuku	500mm ctrs	8%	PB3	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Geniostema ligustrifolium</i>	Hangehange	1m ctrs	10%	PB3	
<i>Griselinia lucida</i>	Puka	1m ctrs	5%	PB3	
<i>Macropiper excelsum</i>	Kawakawa	1m ctrs	8%	PB3	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Meliccytus ramiflorus</i>	Mahoe	1m ctrs	20%	PB3	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Myrsine australis</i>	Mapou	1m ctrs	25%	PB3	
<i>Pseudopanax lessonii</i>	Houpara	1m ctrs	8%	PB3	
TREE PLANTING*					
<i>Alectryon excelsus</i>	Titoki	n/a	30%	PB 95/28	
<i>Corynocarpus laevigatus</i>	Karaka	n/a	25%	PB 95/28	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Dysoxylum spectabile</i>	Kohekohe	n/a	20%	PB 95/28	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Pittosporum eugenioides</i>	Lemonwood	n/a	5%	PB 28	
<i>Vitex lucens</i>	Puriri	n/a	20%	PB 95/28	

* Trees to be planted at spacings of one per 10m²

NOTE: Those species marked 'shady areas only' may also be interplanted amongst establishing shrubs around 2 years after the initial planting, if a succession strategy is developed on the detailed planting plans.

NOTE: Mosses and liverworts to be relocated from around Oakley Creek to this location, on fallen Privet limbs. Logs to be placed in shaded areas.

NOTE: All species to be ecosourced from the Oakley Creek and Three Kings Basalt Rock Forest sites where possible. In the event that sufficient seed stock does not exist for any species, seed to be collected from the Mt Eden Basalt Rock forest. Sufficient time to be allowed in the contract to allow for this specific ecosourcing.

PLANTING ZONE: STORMWATER MARGINS

Botanical Name	Common Name	Spacing	Mix	Typ. Grade	Notes
<i>Baumea articulata</i>	Jointed Twig Rush	600mm ctrs	10%	PB 2	Stormwater wet margins , water depth less than 100mm
<i>Baumea campanulata</i>		500mm ctrs	5%	PB 2	Stormwater wet margins , water depth less than 100mm
<i>Baumea rubiginosa</i>	Soft Twig Rush	500mm ctrs	10%	PB 2	Stormwater wet margins , water depth less than 100mm
<i>Carex dissita</i>		500mm ctrs	5%	PB 2	Upper margins , subject to periodic inundation but no permanent standing water
<i>Carex lessoniana</i>	Ruatahi	500mm ctrs	10%	PB 2	Upper margins , subject to periodic inundation but no permanent standing water
<i>Carex secta</i>	Purei	500mm ctrs	5%	PB 2	SW area fringes , adjacent to paths or other planting areas, around maximum flood level
<i>Carex virgata</i>		500mm ctrs	5%	PB 2	Upper margins , subject to periodic inundation but no permanent standing water
<i>Cyperus ustulatus</i>	Giant Umbrella Sedge	1m ctrs	10%	PB 2	Upper margins , subject to periodic inundation but no permanent standing water
<i>Eleocharis sphacelata</i>		500mm ctrs	5%	PB 2	Shallow to deep water areas , between 100-500mm depth
<i>Juncus gregiflorus</i>	Wiwi	750mm ctrs	10%	PB 2	inundation but no permanent standing water
<i>Juncus kraussii</i>	Wiwi	750mm ctrs	10%	PB 2	inundation but no permanent standing water
<i>Phormium tenax</i>	NZ flax	1m ctrs	5%	PB 2	SW area fringes , adjacent to paths or other planting areas, around maximum flood level
<i>Typha orientalis</i>	Raupo	750mm ctrs	10%	PB 2	Shallow to deep water areas , between 100-500mm depth

NOTE: This list details low growing sedges to be planted within the stormwater zone only. It is intended that canopy specimens are planted to the outer margins of all ponds at a rate of 1/10m² in order to blend in visually with the surrounding forested areas. Canopy specimens to be selected from the adjoining coastal or basalt rock forest species lists, as appropriate to expected inundation levels and water tolerance. Mix percentages given as a guide only, and detailed planting plans shall be prepared for each pond - mix ratios will vary according to pond design. It is expected that the species would be mass planted in discrete areas, using the water depth notes as a guide, and not all species on this list may be used at all ponds.

PLANTING ZONE: ESTUARINE MARGINS					
Botanical Name	Common Name	Spacing	Mix	Typ. Grade	Notes
<i>Apodasmia similis</i>	Oioi	500mm ctrs	15%	PB 2	Coastal riparian margins , in and around MHWS
<i>Bolboschoenus fluviatilis</i>	Marsh Clubrush	500mm ctrs	15%	PB 2	Coastal riparian margins , in and around MHWS
<i>Carex roostei</i>	Ruatahi	500mm ctrs	7%	PB 2	Coastal riparian margins , in and around MHWS
<i>Cortaderia fulvida</i>	Toetoe	1m ctrs	5%	PB 2	Clumped above MHWS , grouped with lower growing specimens to allow sightlines to creek
<i>Coprosma repens</i>	Karamu	1m ctrs	5%	PB 3	
<i>Cyperus ustulatus</i>	Giant umbrella sedge	1m ctrs	10%	PB 2	Coastal riparian margins , in and around MHWS
<i>Entelea arborescens</i>	Whau	1m ctrs	5%	PB 3	
<i>Griselinia lucida</i>	Broadleaf	1m ctrs	5%	PB 3	
<i>Isolepis nodosa</i>		500mm ctrs	5%	PB 2	Coastal riparian margins , in and around MHWS
<i>Macropiper excelsum</i>	Kawakawa	1m ctrs	5%	PB 3	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Meliclytus ramiflorus</i>	Mahoe	n/a	5%	PB 3	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Phormium tenax</i>	NZ flax	1m ctrs	5%	PB 2	Clumped above MHWS , grouped with lower growing specimens to allow sightlines to creek
<i>Plagianthus divaricatus</i>	Saltmarsh Ribbonwood	1m ctrs	10%	PB 3	Coastal riparian margins , in and around MHWS
<i>Pseudopanax lessonii</i>	Houpara	1m ctrs	3%	PB 3	

NOTE: This list details low growing sedges and shrubs to be planted within the stormwater zone only. It is intended that canopy specimens are planted to all riparian margins at a rate of 1/10m² in order to provide adequate shading to the creek itself, lowering water temperature. Canopy specimens to be selected from the adjoining coastal or basalt rock forest species lists. Canopy specimens to be selected from the adjoining coastal or basalt rock forest species lists, as appropriate to expected inundation levels and water tolerance. It is expected that the species would be mass planted in groups of like species.

PLANTING ZONE: FRESHWATER RIPARIAN MARGINS					
Botanical Name	Common Name	Spacing	Mix	Typ. Grade	Notes
<i>Aristotelia serrata</i>	Makomako	5m ctrs, clumped	2%		
<i>Blechnum novaezelandiae</i>	Swamp kiokio	500mm ctrs	2%		
<i>Carex dissita</i>		500mm ctrs	5%	PB 2	To be used in lower; wetter and shadier areas.
<i>Carex lessoniana</i>	Ruatahi	500mm ctrs	10%	PB 2	To be used in lower; wetter areas.
<i>Carex secta</i>	Purei	500mm ctrs	5%	PB 2	
<i>Carex virgata</i>			5%		
<i>Carpodetus serratus</i>	Putaputaweta	4m ctrs, clumped	2%		
<i>Coprosma robusta</i>	Karamu	1m ctrs	5%	PB 3	
<i>Cordyline australis</i>	Cabbage tree	n/a	3%	PB 3	
<i>Cortaderia fulvida</i>	Toetoe	1m ctrs	5%	PB 2	
<i>Cyperus ustulatus</i>	Giant umbrella sedge	1m ctrs	10%	PB 2	To be used in lower; wetter areas.
<i>Gahnia setifolia</i>	Gahnia	1m ctrs	5%	PB 3	To be used in lower; wetter areas.
<i>Geniostema ligustrifolium</i>	Hangehange	2m ctrs	5%	PB 3	
<i>Hebe stricta</i>	Koromiko	1m ctrs	5%		
<i>Kunzea ericoides</i>	Kanuka	1m ctrs	5%	PB 3	
<i>Leptospermum scoparium</i>	Manuka	1m ctrs	3%		
<i>Macropiper excelsum</i>	Kawakawa	1m ctrs	5%	PB 3	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Melicope ternata</i>	Wharangi	1m ctrs	5%	PB 3	
<i>Melicytus ramiflorus</i>	Mahoe	n/a	3%	PB 95/28	To be used in shady areas - under and around fringes of existing vegetation to be retained as marked
<i>Phormium tenax</i>	NZ flax	1m ctrs	5%	PB 2	
<i>Pseudopanax arboreus</i>	Five Finger	3m ctrs, clumped	3%		
<i>Schefflera digitata</i>	Pate	3m ctrs, clumped	2%		To be used in shady areas - under and around fringes of existing vegetation to be retained as marked

NOTE: This list details sedges and shrubs to be planted within the flood zone only. It is intended that canopy specimens are planted to all riparian margins at a rate of 1/10m² in order to provide adequate shading to the creek itself, lowering water temperature. Canopy specimens to be selected from the adjoining coastal or basalt rock forest species lists.

NOTE: Plant composition and percentages will vary along the creek margin, according to local conditions - overall percentages given as a guide.