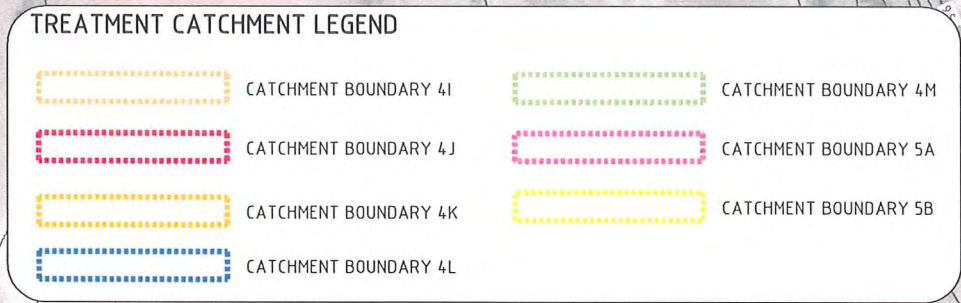


KEY PLAN

NOTE:
REFER TO DRAWING 20.111-3-D-D-300-100 FOR LEGEND



WAITEMATA HARBOUR

TD4I - CAUSEWAY BRIDGE TO TRAHERNE EASTBOUND FILTER STRIP
CATCHMENT AREA: 4.19ha
WIDTH: 7m
REFER TO DWG: 20.111-3-D-D-340-304

TD4L - GREAT NORTH ROAD TO CAUSEWAYBRIDGE EASTBOUND BIO FILTER STRIP
CATCHMENT AREA: 0.94ha
WIDTH: 7m
REFER TO DWG: 20.111-3-D-D-340-304

TD5A - CAUSEWAY EAST END EASTBOUND BIO FILTER STRIP
CATCHMENT AREA: 0.46ha
WIDTH: 7m
REFER TO DWG: 20.111-3-D-D-340-304 FOR TYPICAL SECTION

TD4N - CAUSEWAY SB CARTRIDGE FILTER
CATCHMENT AREA: 0.177ha
VAULT DIMENSIONS: ϕ 1.8m
690mm CARTRIDGE UNITS: 5 No
REFER TO DWG: 20.111-3-D-D-340-306 FOR TYPICAL DETAIL

BRIDGE CATCHPITS
225 ϕ PIPE AT 0.9%

TD4J - CAUSEWAY BRIDGE TO TRAHERNE WESTBOUND FILTER STRIP
CATCHMENT AREA: 3.836ha
WIDTH: 7m
REFER TO DWG: 20.111-3-D-D-340-304

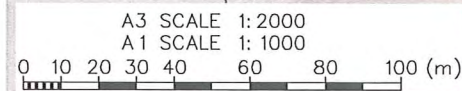
TD4N - CAUSEWAY SB CARTRIDGE FILTER
CATCHMENT AREA: 0.177ha
VAULT DIMENSIONS: ϕ 1.8m
690mm CARTRIDGE UNITS: 5 No
REFER TO DWG: 20.111-3-D-D-340-306 FOR TYPICAL DETAIL

TD5A - CAUSEWAY EAST END WESTBOUND BIO FILTER STRIP
CATCHMENT AREA: 0.96ha
WIDTH: 7m
REFER TO DWG: 20.111-3-D-D-340-304 FOR TYPICAL SECTION

TD5A - WATERVIEW INTERCHANGE SWALE
CATCHMENT AREA: 0.58ha
BASE WIDTH: 1.8m
LONGITUDINAL SLOPE: 3%
REFER TO DWG: 20.111-3-D-D-340-304 GENERIC SECTION

JOIN LINE SHEET 107

JOIN LINE SHEET 109



No.	Revision	By	Chk	Appd	Date
D	ADD TREATMENT TO CAUSEWAY BRIDGES	EHF	TSRF	TSRF	09.11.10
C	PRELIMINARY DESIGN	JC	JB	JH	06.10.10
B	CONSENT ISSUE	TM	JB	JH	27.07.10
A	FOR REVIEW	TM	JB	JH	30.03.10

Drawing Originator:
aurecon
Aurecon New Zealand Limited
139 Carlton Gore Road (PO Box 9782) Newmarket Auckland New Zealand
Telephone: +64 9 520 4019
Facsimile: +61 9 524 7815
Email: auckland@aurecongroup.com

Original Scale (A1)	1:1000	Design Engineer	EHF (I&T)
Reduced Scale (A3)	1:2000	Review Engineer	TSRF (I&T)
		Drafting Checked	-
		Consultant Approval	TSRF (I&T)
		Received by	Beca



Project: WATERVIEW CONNECTION
PROJECT
SH16 / SH20

Title: STORMWATER & STREAMWORKS
OPERATIONAL PHASE
SHEET 8

FOR CONSENT
NOT FOR CONSTRUCTION

Base level:
MSL AUCK. VERT. DATUM 1946
Grid Reference:
MT EDEN 2000

Originator No.
Project No.
20.111-3-D-D-300-108

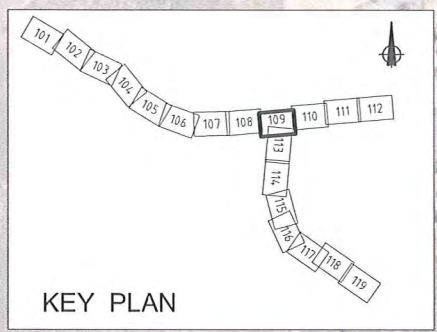
Rev.
D

DO NOT SCALE

IF IN DOUBT ASK

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Document No. 2011-3-D-D-300-108.dwg



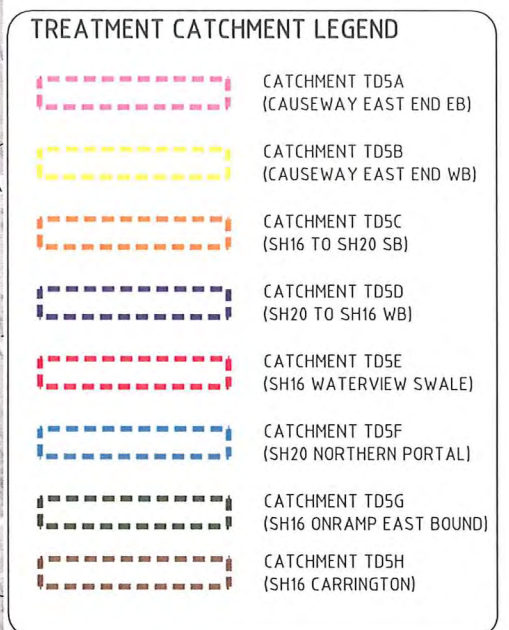
TD5C - SH16 TO SH20 SB CARTRIDGE FILTER
 CATCHMENT AREA: 9,655m²
 VAULT DIMENSIONS: 5.7mX2.4m
 690mm CARTRIDGE UNITS: 20 No
 FOR TYPICAL DETAIL REFER TO DWG: 20.111-3-D-D-340-306

TD5G - SH16 ONRAMP EAST BOUND TDM WETLAND
 CATCHMENT AREA: 51,870m²
 REFER TO DWG: 20.111-3-D-D-345-231

TD5H-SH16 CARRINGTON CARTRIDGE FILTER
 CATCHMENT AREA: 16,600m²
 VAULT DIMENSIONS: 5.7mX2.7m
 690mm CARTRIDGE UNITS: 33 No
 FOR TYPICAL DETAIL REFER TO DWG: 20.111-3-D-D-340-306

TD5E-WATERVIEW INTERCHANGE SWALE WITH INFILTRATION TRENCH
 CATCHMENT AREA: 5820m²
 BASE WIDTH: 1.8m
 LONGITUDINAL SLOPE: 3%
 FOR GENERIC SECTION REFER TO DWG: 20.111-3-D-D-340-305

TD5D - SH20 TO SH16 WB CARTRIDGE FILTER
 CATCHMENT AREA: 20,850m²
 VAULT DIMENSIONS: 7.8m x 2.9m
 690mm CARTRIDGE UNITS: 36 No
 FOR TYPICAL DETAIL REFER TO DWG: 20.111-3-D-D-340-306



EXISTING 700/750 Ø OUTLET PIPE
 450 Ø OUTLET PIPE CONNECTING TO EXISTING OUTLET

EXISTING 750 Ø OUTLET PIPE

DRAINAGE IMPROVEMENTS TO MANAGE SURFACE WATER

EXISTING 1050 Ø CULVERT

825 Ø OUTLET PIPE CONNECTING TO EXISTING STORMWATER SYSTEM

PRECAST CULVERT WINGWALL WITH ROCK ARMOUR IN TRANSITION CHANNEL REFER TO DWG 20.2.22-3-D-D-310-212

600 Ø OUTLET PIPE

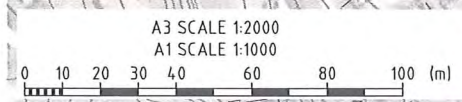
OAKLEY INLET

CYCLE TRACK

ARCHAEOLOGICAL SITE

EXISTING CYCLE TRACK

GREAT NORTH ROAD CULVERT



NOTE:
 1. CONVEYANCE FOR SURFACE MOTORWAY IS TO BE PIPED WITH KERB AND CHANNEL UNLESS OTHERWISE NOTED.

FOR CONSENT NOT FOR CONSTRUCTION

Base Level: MSL AUCK. VERT. DATUM 1946
 Grid Reference: MT EDEN 2000

No.	Revision	By	Chk	Appd	Date
C	ADD TREATMENT FOR SH16 EASTBOUND OFF RAMP	JATG	TSRF	TSRF	09.11.10
B	CONSENT ISSUE	JATG	KANM	KJD	30.07.10
A	FOR REVIEW	JATG	KANM	KJD	30.03.10

Drawing Originator:
Tonkin & Taylor
 Environmental and Engineering Consultants

Original Scale (A1)	1:1000	Design Engineer	SHR/KANM
Reduced Scale (A3)	1:2000	Review Engineer	TSRF
		Drafting Checked	-
		Consultant Approval	TSRF
		Received by Becca	RM

NZ TRANSPORT AGENCY
 WAKA KOTAHU

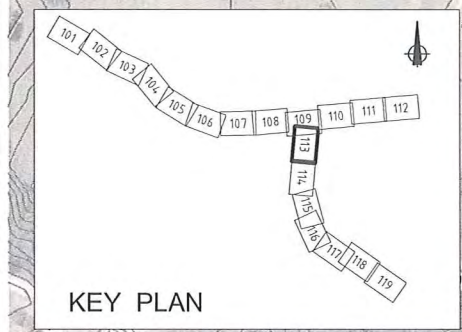
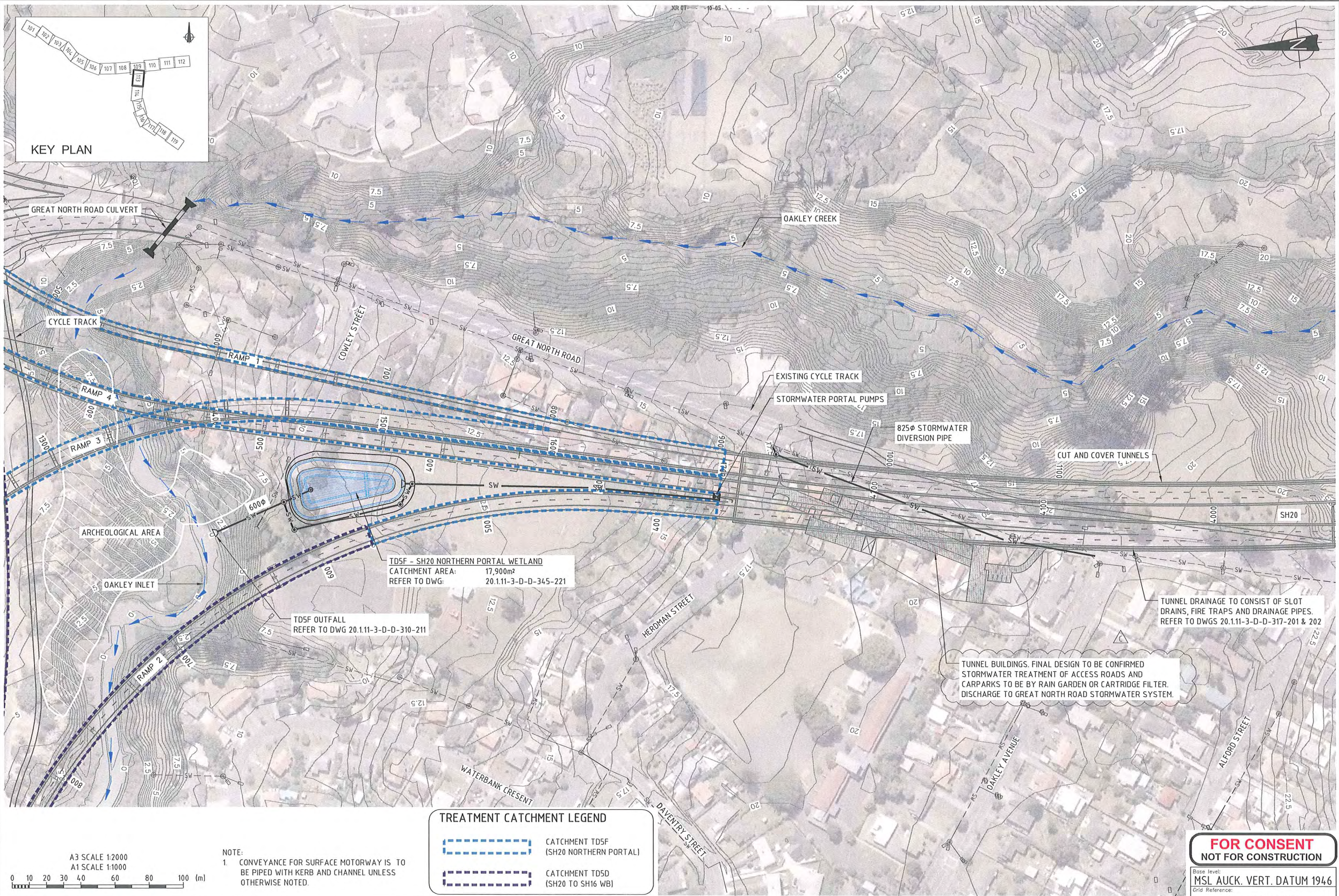
Project: **WATERVIEW CONNECTION PROJECT**
 SH16 / SH20

Title: **STORMWATER & STREAMWORKS OPERATIONAL PHASE**
 SHEET 9

Project No.	20.111-3-D-D-300-109	Rev.	C
Originator No.			

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Document No. 20.111-4-D-D-300-109_119.dwg



TDSF - SH20 NORTHERN PORTAL WETLAND
 CATCHMENT AREA: 17,900m²
 REFER TO DWG: 20.1.11-3-D-D-345-221

TDSF OUTFALL
 REFER TO DWG 20.1.11-3-D-D-310-211

TREATMENT CATCHMENT LEGEND

- CATCHMENT TDSF (SH20 NORTHERN PORTAL)
- CATCHMENT TDS (SH20 TO SH16 WB)

NOTE:
 1. CONVEYANCE FOR SURFACE MOTORWAY IS TO BE PIPED WITH KERB AND CHANNEL UNLESS OTHERWISE NOTED.

A3 SCALE 1:2000
 A1 SCALE 1:1000

C	ADD TREATMENT FOR TUNNEL BUILDINGS	EHF	TSRF	TSRF	09.11.10
B	CONSENT ISSUE	JATG	KANM	KJD	30.07.10
A	FOR REVIEW	JATG	KANM	KJD	30.03.10
No.	Revision	By	Crk	Appd	Date

Drawing Originator:
Tonkin & Taylor
 Environmental and Engineering Consultants

Original Scale (A1)	1:1000	Design Engineer	SHR/KANM
Reduced Scale (A3)	1:2000	Review Engineer	TSRF
		Drafting Checked	-
		Consultant Approval	TSRF
		Received by Beca	RM

NZ TRANSPORT AGENCY
 WAKA KOTAHĪ

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

Title: **STORMWATER & STREAMWORKS OPERATIONAL PHASE**
 SHEET 13

FOR CONSENT
NOT FOR CONSTRUCTION

Base level:
 MSL AUCK. VERT. DATUM 1946

Grid Reference:
 MT EDEN 2000

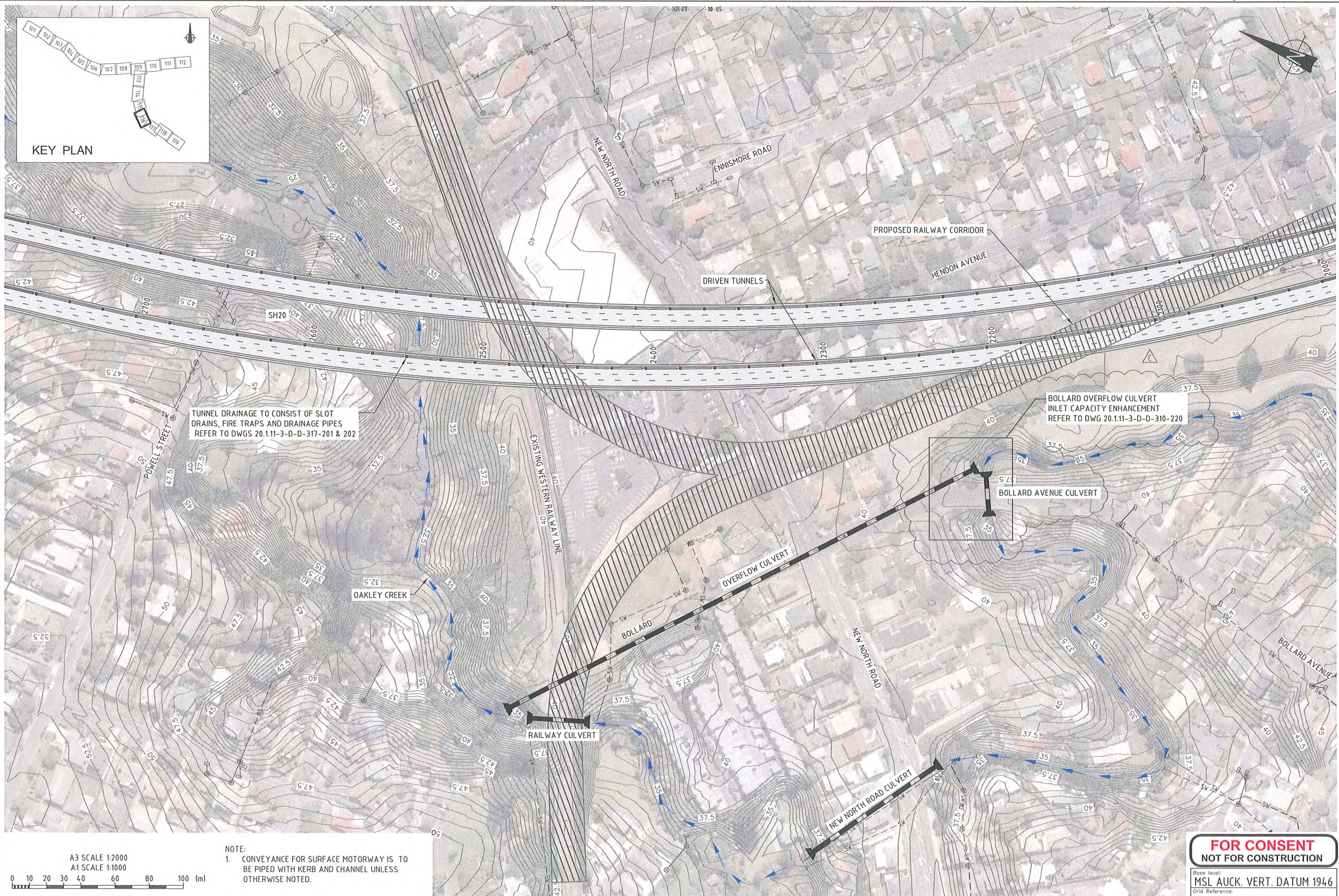
Originator No.:

Project No.
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Rev.
 C

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Document No. 20.111-4-D-D-300-109_119.dwg



KEY PLAN

TUNNEL DRAINAGE TO CONSIST OF SLOT DRAINS, FIRE TRAPS AND DRAINAGE PIPES REFER TO DWGS 20.111-3-D-D-317-201 & 202

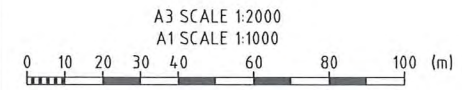
BOLLARD OVERFLOW CULVERT INLET CAPACITY ENHANCEMENT REFER TO DWG 20.111-3-D-D-310-220

BOLLARD AVENUE CULVERT

RAILWAY CULVERT

NEW NORTH ROAD CULVERT

OVERFLOW CULVERT



NOTE:
1. CONVEYANCE FOR SURFACE MOTORWAY IS TO BE PIPED WITH KERB AND CHANNEL UNLESS OTHERWISE NOTED.

FOR CONSENT
NOT FOR CONSTRUCTION

Base level:
MSL AUCK. VERT. DATUM 1946
Grid Reference:

MT EDEN 2000
Originator No.

Project No.
20.111-3-D-D-300-116
Rev. C

C	BOLLARD OVERFLOW CULVERT INLET CAPACITY ENHANCEMENT	JATG	TSRF	TSRF	10.11.10
B	CONSENT ISSUE	JATG	KANN	KJD	30.07.10
A	FOR REVIEW	JATG	KANN	KJD	30.03.10
No.	Revision	By	Crk	Appd	Date

Drawing Originator:
Tonkin & Taylor
 Environmental and Engineering Consultants

Original Scale (A1)	Design Engineer	SHR/KANN
1:1000	Review Engineer	TSRF
Reduced Scale (A3)	Drafting Checked	-
1:2000	Consultant Approval	TSRF
	Received by	RM

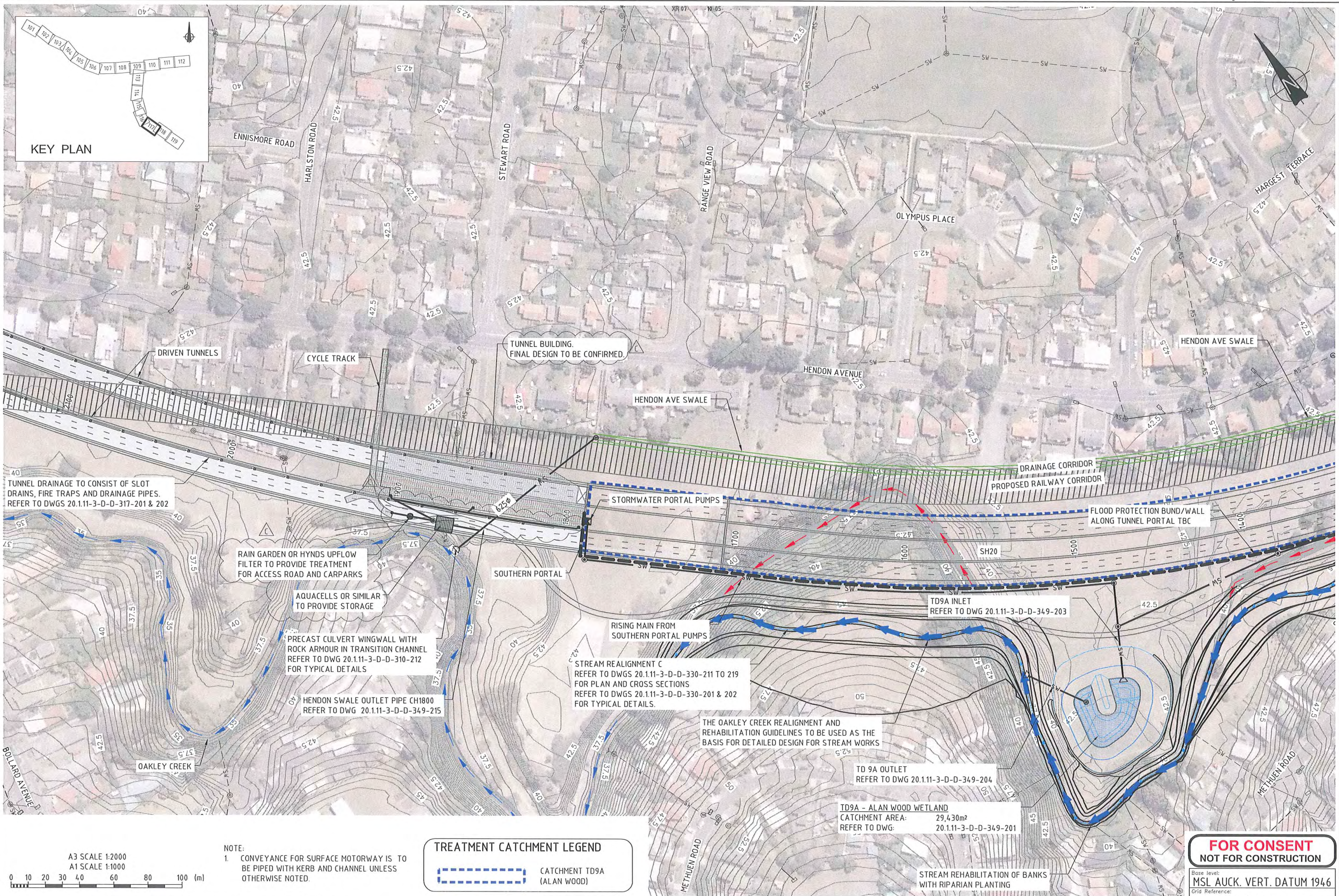
NZ TRANSPORT AGENCY
 WAKA KOTAHU

Project:
WATERVIEW CONNECTION
PROJECT
SH16 / SH20

Title:
STORMWATER & STREAMWORKS
OPERATIONAL PHASE
SHEET 16

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Document No. 20.111-4-D-D-300-109_119.dwg



KEY PLAN

TUNNEL DRAINAGE TO CONSIST OF SLOT DRAINS, FIRE TRAPS AND DRAINAGE PIPES. REFER TO DWGS 20.111-3-D-D-317-201 & 202

RAIN GARDEN OR HYNDS OUTFLOW FILTER TO PROVIDE TREATMENT FOR ACCESS ROAD AND CARPARKS

AQUACELLS OR SIMILAR TO PROVIDE STORAGE

PRECAST CULVERT WINGWALL WITH ROCK ARMOUR IN TRANSITION CHANNEL REFER TO DWG 20.111-3-D-D-310-212 FOR TYPICAL DETAILS

HENDON SWALE OUTLET PIPE CH1800 REFER TO DWG 20.111-3-D-D-349-215

TUNNEL BUILDING. FINAL DESIGN TO BE CONFIRMED.

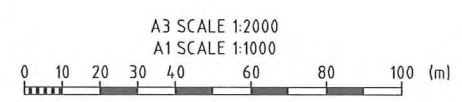
STORMWATER PORTAL PUMPS
 RISING MAIN FROM SOUTHERN PORTAL PUMPS
 STREAM REALIGNMENT C REFER TO DWGS 20.111-3-D-D-330-211 TO 219 FOR PLAN AND CROSS SECTIONS REFER TO DWGS 20.111-3-D-D-330-201 & 202 FOR TYPICAL DETAILS.

THE OAKLEY CREEK REALIGNMENT AND REHABILITATION GUIDELINES TO BE USED AS THE BASIS FOR DETAILED DESIGN FOR STREAM WORKS

TO 9A OUTLET REFER TO DWG 20.111-3-D-D-349-204

TD9A - ALAN WOOD WETLAND
 CATCHMENT AREA: 29,430m²
 REFER TO DWG: 20.111-3-D-D-349-201

STREAM REHABILITATION OF BANKS WITH RIPARIAN PLANTING



NOTE:
 1. CONVEYANCE FOR SURFACE MOTORWAY IS TO BE PIPED WITH KERB AND CHANNEL UNLESS OTHERWISE NOTED.

TREATMENT CATCHMENT LEGEND

CATCHMENT TD9A (ALAN WOOD)

FOR CONSENT NOT FOR CONSTRUCTION

Base Level: MSL AUCK. VERT. DATUM 1946
 Grid Reference: MT EDEN 2000

No.	Revision	By	Crk	Appd	Date
C	ADD TREATMENT FOR TUNNEL BUILDING AREA	JATG	EHF	TSRF	09.11.10
B	CONSENT ISSUE	JATG	KANM	KJD	30.07.10
A	FOR REVIEW	JATG	KANM	KJD	30.03.10

Drawing Originator:
Tonkin & Taylor
 Environmental and Engineering Consultants

Original Scale (A1)	Design Engineer	SHR/KANM
1:1000	Review Engineer	TSRF
Reduced Scale (A3)	Drafting Checked	-
1:2000	Consultant Approval	TSRF
	Received by Becca	RM

NZ TRANSPORT AGENCY
 WAKA KOTAHU

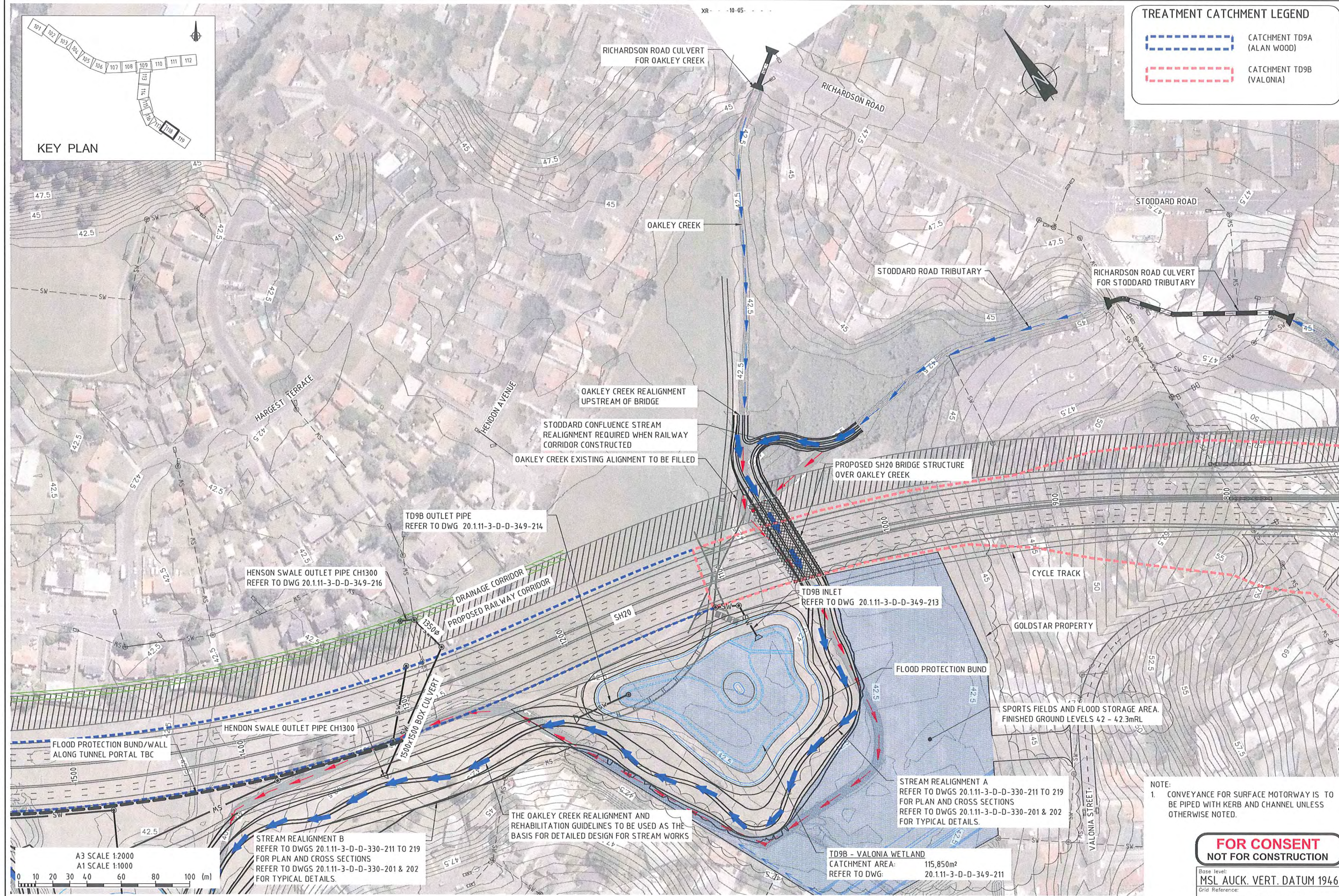
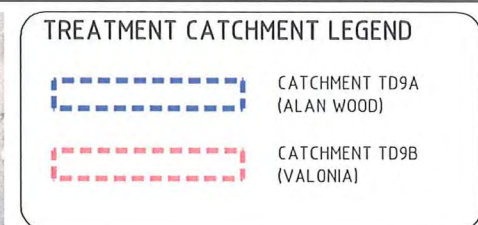
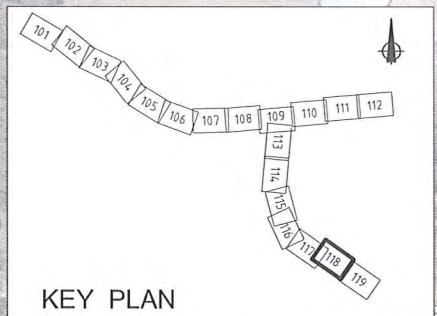
Project: **WATERVIEW CONNECTION PROJECT**
 SH16 / SH20

Title: **STORMWATER & STREAMWORKS OPERATIONAL PHASE**
 SHEET 17

Project No.	Rev.
20.111-3-D-D-300-117	C

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Document No. 20.111-4-D-D-300-109_119.dwg



NOTE:
1. CONVEYANCE FOR SURFACE MOTORWAY IS TO BE PIPED WITH KERB AND CHANNEL UNLESS OTHERWISE NOTED.

TD9B - VALONIA WETLAND
CATCHMENT AREA: 115,850m²
REFER TO DWG: 20.111-3-D-D-349-211

FOR CONSENT
NOT FOR CONSTRUCTION

Base Level: MSL AUCK. VERT. DATUM 1946
Grid Reference: MT EDEN 2000

Originator No. [blank]
Project No. 20.111-3-D-D-300-118
Rev. C

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A3 SCALE 1:2000
A1 SCALE 1:1000
0 10 20 30 40 60 80 100 (m)

STREAM REALIGNMENT B
REFER TO DWGS 20.111-3-D-D-330-211 TO 219
FOR PLAN AND CROSS SECTIONS
REFER TO DWGS 20.111-3-D-D-330-201 & 202
FOR TYPICAL DETAILS.

THE OAKLEY CREEK REALIGNMENT AND
REHABILITATION GUIDELINES TO BE USED AS THE
BASIS FOR DETAILED DESIGN FOR STREAM WORKS

No.	Revision	By	Crk	Appd	Date
C	ADD FLOOD STORAGE AREA	JATG	TSRF	TSRF	09.10.11
B	CONSENT ISSUE	JATG	KANM	KJD	30.07.10
A	FOR REVIEW	JATG	KANM	KJD	30.03.10

Drawing Originator:
Tonkin & Taylor
Environmental and Engineering
Consultants

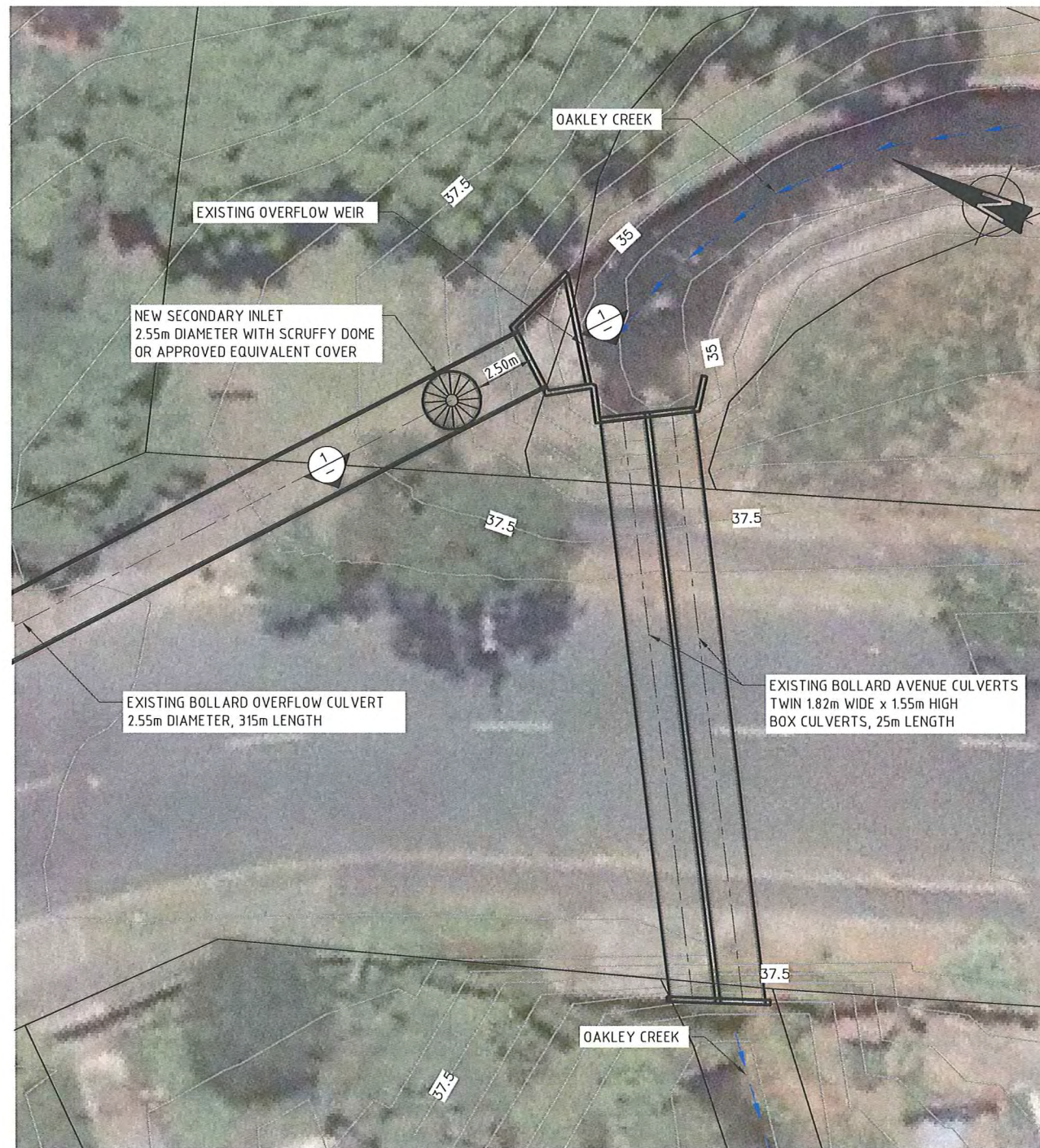
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Reduced Scale (A3)	1:2000	Review Engineer	TSRF
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		Received by Beca	RM

NZ TRANSPORT AGENCY
WAKA KOTAHAI

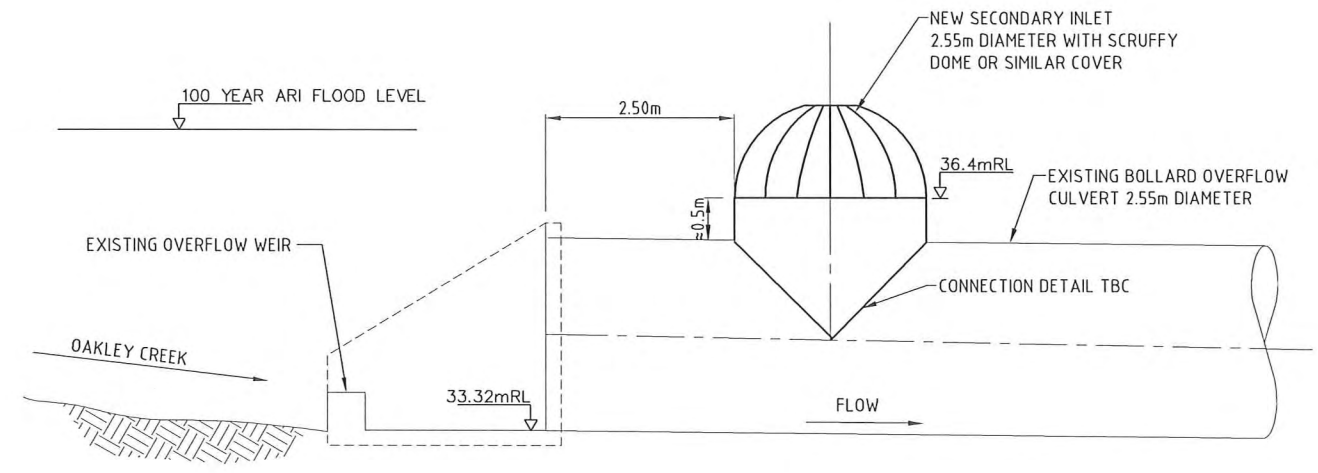
Project: **WATERVIEW CONNECTION PROJECT**
SH16 / SH20

Title: **STORMWATER & STREAMWORKS OPERATIONAL PHASE**
SHEET 18

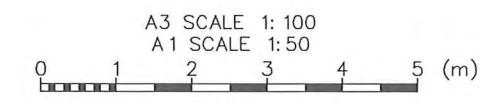
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PLAN
SCALE 1: 125



SECTION 1
SCALE 1:50



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A CONSENT ISSUE		JATG	TSRF	TSRF	11.11.10
No.	Revision	By	Chk	Appd	Date

Drawing Originator:		Original Scale (A1) AS SHOWN	Designer	EHF
Tonkin & Taylor Environmental and Engineering Consultants		Reduced Scale (A3) AS SHOWN	Reviewer	TSRF
		Drafting Checked	BKD	
		Consultant Approval	TSRF	
		Received by Beca		



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

Title: **BOLLARD OVERFLOW CULVERT INLET CAPACITY ENHANCEMENT PLAN AND SECTION**

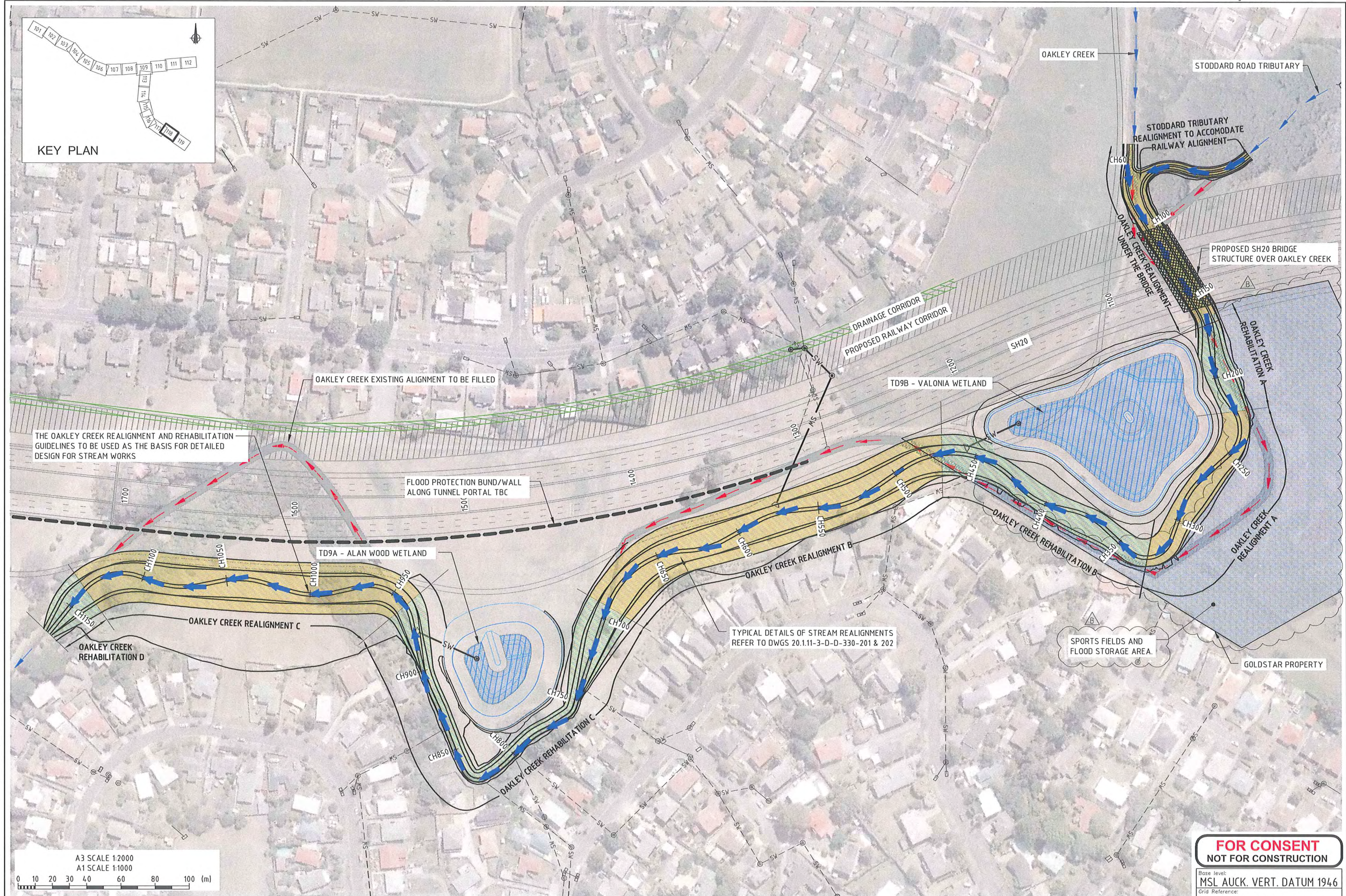
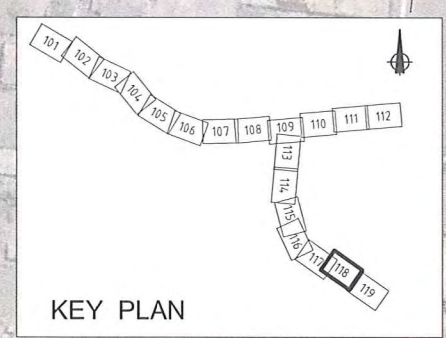
FOR CONSENT
NOT FOR CONSTRUCTION

Base level:
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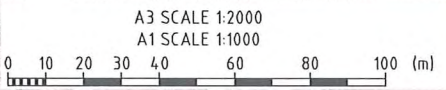
Project No. 20.111-3-D-D-310-220 Rev. A

Document No. 20.111-3-D-D-310-220.dwg



THE OAKLEY CREEK REALIGNMENT AND REHABILITATION GUIDELINES TO BE USED AS THE BASIS FOR DETAILED DESIGN FOR STREAM WORKS

TYPICAL DETAILS OF STREAM REALIGNMENTS REFER TO DWGS 20.111-3-D-D-330-201 & 202



FOR CONSENT
NOT FOR CONSTRUCTION

Base Level:
MSL AUCK. VERT. DATUM 1946

Grid Reference:
MT EDEN 2000

Originator No.

Project No.
20.111-3-D-D-330-211

Rev.
B

No.	Revision	By	Crk	Appd	Date
B	ADD FLOOD STORAGE AREA	JATG	TSRF	TSRF	09.10.11
A	CONSENT ISSUE	JATG	KANM	KJD	30.07.10

Drawing Originator:
Tonkin & Taylor
 Environmental and Engineering Consultants

Original Scale (A1)	1:1000	Designer	EHF
Reduced Scale (A3)	1:2000	Reviewer	TSRF
		Drafting Checked	-
		Consultant Approval	TSRF
		Received by Becca	RM

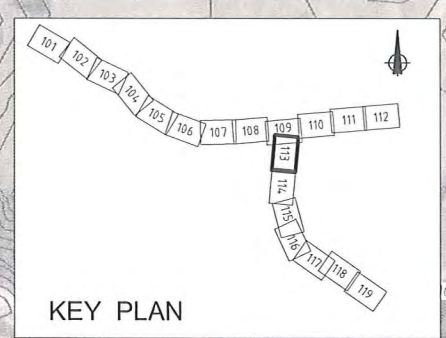
NZ TRANSPORT AGENCY
WAKA KOTAHĪ

Project:
WATERVIEW CONNECTION PROJECT
SH16 / SH20

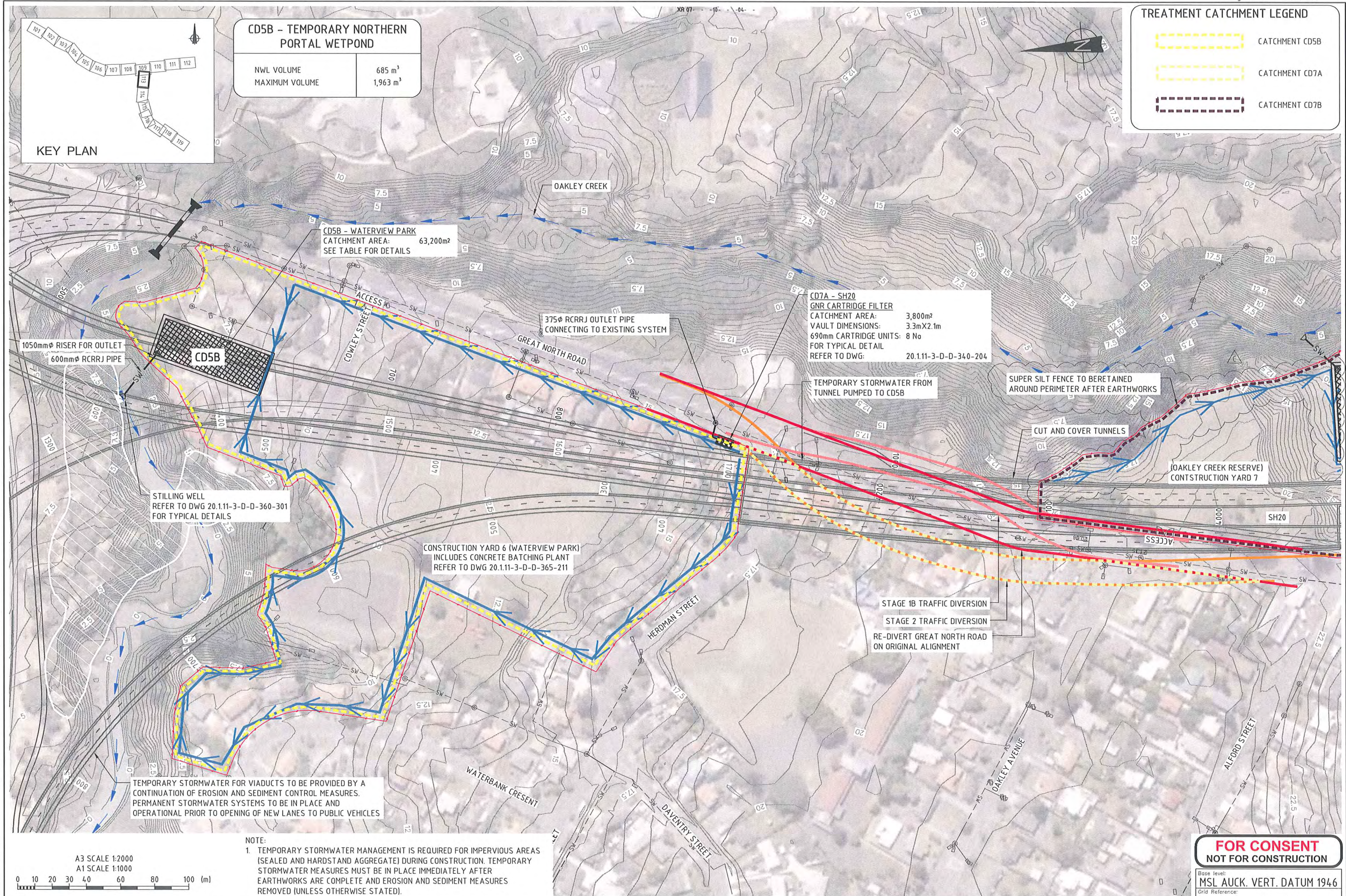
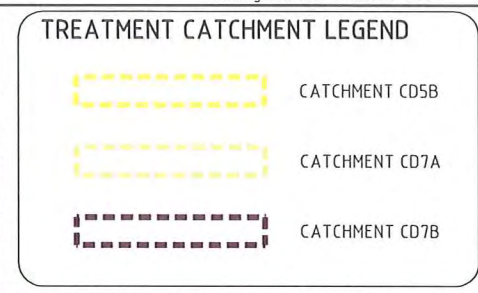
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STREAMWORKS & FLOOD PROTECTION OAKLEY CREEK REALIGNMENT LAYOUT PLAN

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Document No. 20.111-3-D-D-330-211.dwg



CD5B - TEMPORARY NORTHERN PORTAL WETPOND	
NWL VOLUME	685 m ³
MAXIMUM VOLUME	1,963 m ³



STILLING WELL
REFER TO DWG 20.111-3-D-D-360-301
FOR TYPICAL DETAILS

CD5B - WATERVIEW PARK
CATCHMENT AREA:
SEE TABLE FOR DETAILS 63,200m²

CD7A - SH20
GNR CARTRIDGE FILTER
CATCHMENT AREA: 3,800m²
VAULT DIMENSIONS: 3.3m X 2.1m
690mm CARTRIDGE UNITS: 8 No
FOR TYPICAL DETAIL
REFER TO DWG: 20.111-3-D-D-340-204

CONSTRUCTION YARD 6 (WATERVIEW PARK)
INCLUDES CONCRETE BATCHING PLANT
REFER TO DWG 20.111-3-D-D-365-211

TEMPORARY STORMWATER FOR VIADUCTS TO BE PROVIDED BY A CONTINUATION OF EROSION AND SEDIMENT CONTROL MEASURES. PERMANENT STORMWATER SYSTEMS TO BE IN PLACE AND OPERATIONAL PRIOR TO OPENING OF NEW LANES TO PUBLIC VEHICLES

NOTE:
1. TEMPORARY STORMWATER MANAGEMENT IS REQUIRED FOR IMPERVIOUS AREAS (SEALED AND HARDSTAND AGGREGATE) DURING CONSTRUCTION. TEMPORARY STORMWATER MEASURES MUST BE IN PLACE IMMEDIATELY AFTER EARTHWORKS ARE COMPLETE AND EROSION AND SEDIMENT MEASURES REMOVED (UNLESS OTHERWISE STATED).



**FOR CONSENT
NOT FOR CONSTRUCTION**

Base level:
MSL AUCK. VERT. DATUM 1946
Grid Reference:
MT EDEN 2000

C	MODIFY CY6 SWALE AND PERIMETER SSF	JATG	TSRF	TSRF	09.10.11
B	CONSENT ISSUE	JATG	KANM	KJD	30.07.10
A	FOR REVIEW	JATG	KANM	KJD	30.03.10
No.	Revision	By	Chk	Appd	Date



Original Scale (A1)	1:1000	Design Engineer	SHR
Reduced Scale (A3)	1:2000	Review Engineer	TSRF
		Drafting Checked	-
		Consultant Approval	TSRF
		Received by	RM



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

Title:
**STORMWATER & STREAMWORKS
CONSTRUCTION PHASE
SHEET 13**

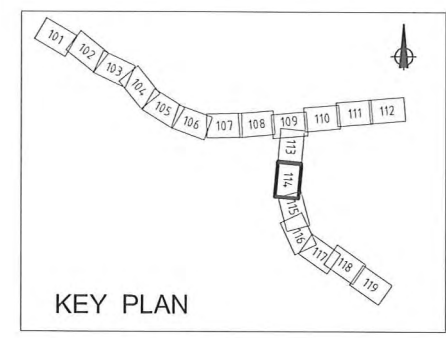
Project No.	20.111-3-D-D-350-113	Rev.	C
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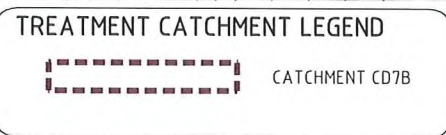
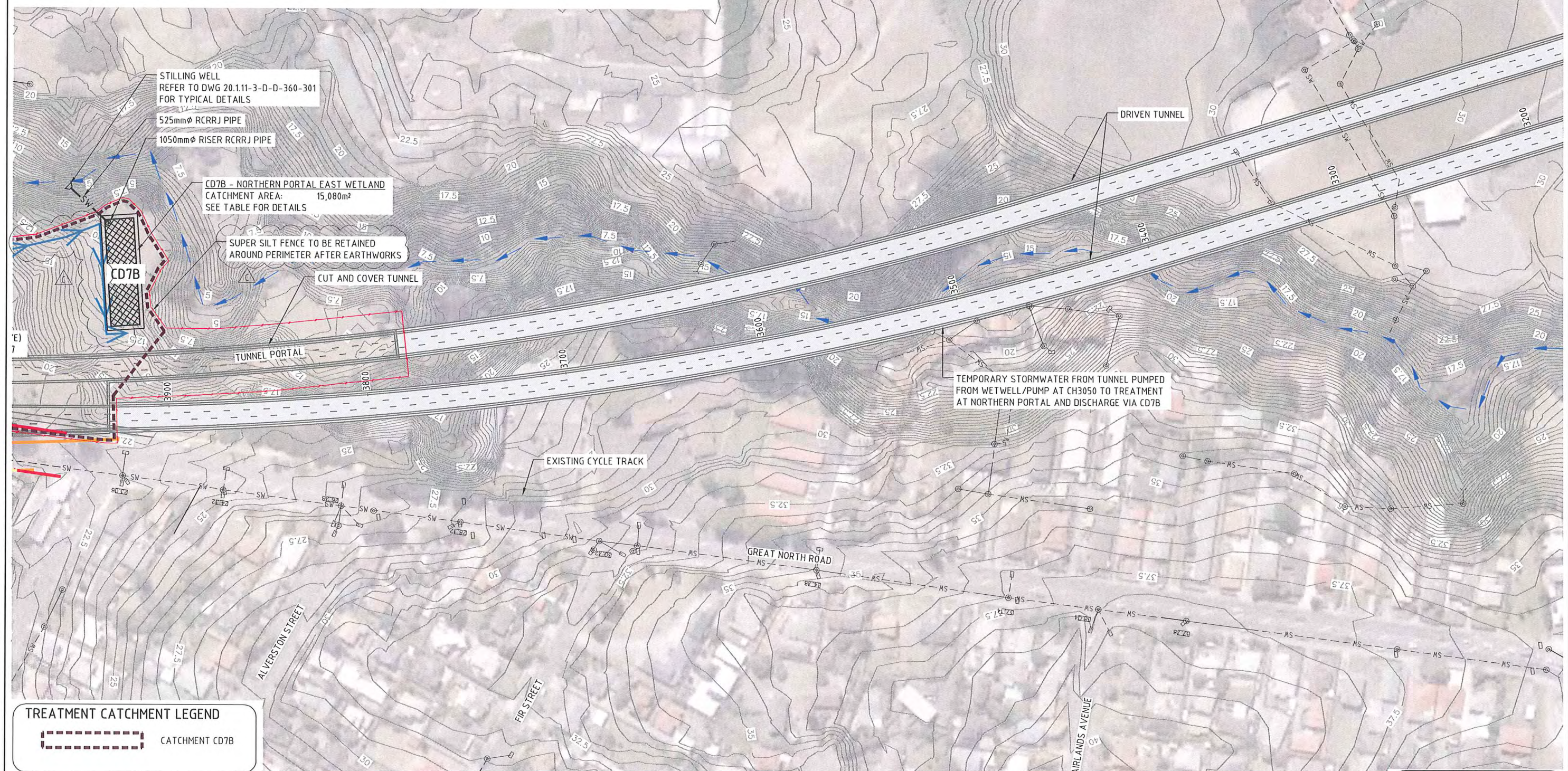
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Document No. 20.111-3-D-D-350-100_119.dwg



CD7B - NORTHERN PORTAL EAST WETPOND	
NWL VOLUME	463 m ³
MAXIMUM VOLUME	1126 m ³

- TO TREAT:
- TREATMENT FOR CONSTRUCTION YARD 7
 - CONSTRUCTION STORMWATER FROM TUNNEL AFTER PRETREATMENT IN ESC DEVICE (300 m³/day)
 - TEMPORARY STORMWATER FROM TUNNEL (16.4 m³/day)



NOTE:
 1. TEMPORARY STORMWATER MANAGEMENT IS REQUIRED FOR IMPERVIOUS AREAS (SEALED AND HARDSTAND AGGREGATE) DURING CONSTRUCTION. TEMPORARY STORMWATER MEASURES MUST BE IN PLACE IMMEDIATELY AFTER EARTHWORKS ARE COMPLETE AND EROSION AND SEDIMENT MEASURES REMOVED (UNLESS OTHERWISE STATED).

**FOR CONSENT
NOT FOR CONSTRUCTION**

Base Level:
MSL AUCK. VERT. DATUM 1946

Grid Reference:
MT EDEN 2000

Originator No.:

Project No.
20.111-3-D-D-350-114

Rev.
C

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No.	Revision	By	Chk	Appd	Date
C	MODIFY CY6 SWALE AND PERIMETER SSF	JATG	TSRF	TSRF	09.10.11
B	CONSENT ISSUE	JATG	KANH	KJD	30.07.10
A	FOR REVIEW	JATG	KANH	KJD	30.03.10

Drawing Originator:

Tonkin & Taylor
Environmental and Engineering Consultants

Original Scale (A1)	1:1000	Design Engineer	SHR
Reduced Scale (A3)	1:2000	Review Engineer	TSRF
		Drafting Checked	-
		Consultant Approval	TSRF
		Received by Beca	RM

NZ TRANSPORT AGENCY
WAKA KOTAHĪ

Project:
WATERVIEW CONNECTION PROJECT
SH16 / SH20

Title:
STORMWATER & STREAMWORKS CONSTRUCTION PHASE
SHEET 14

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