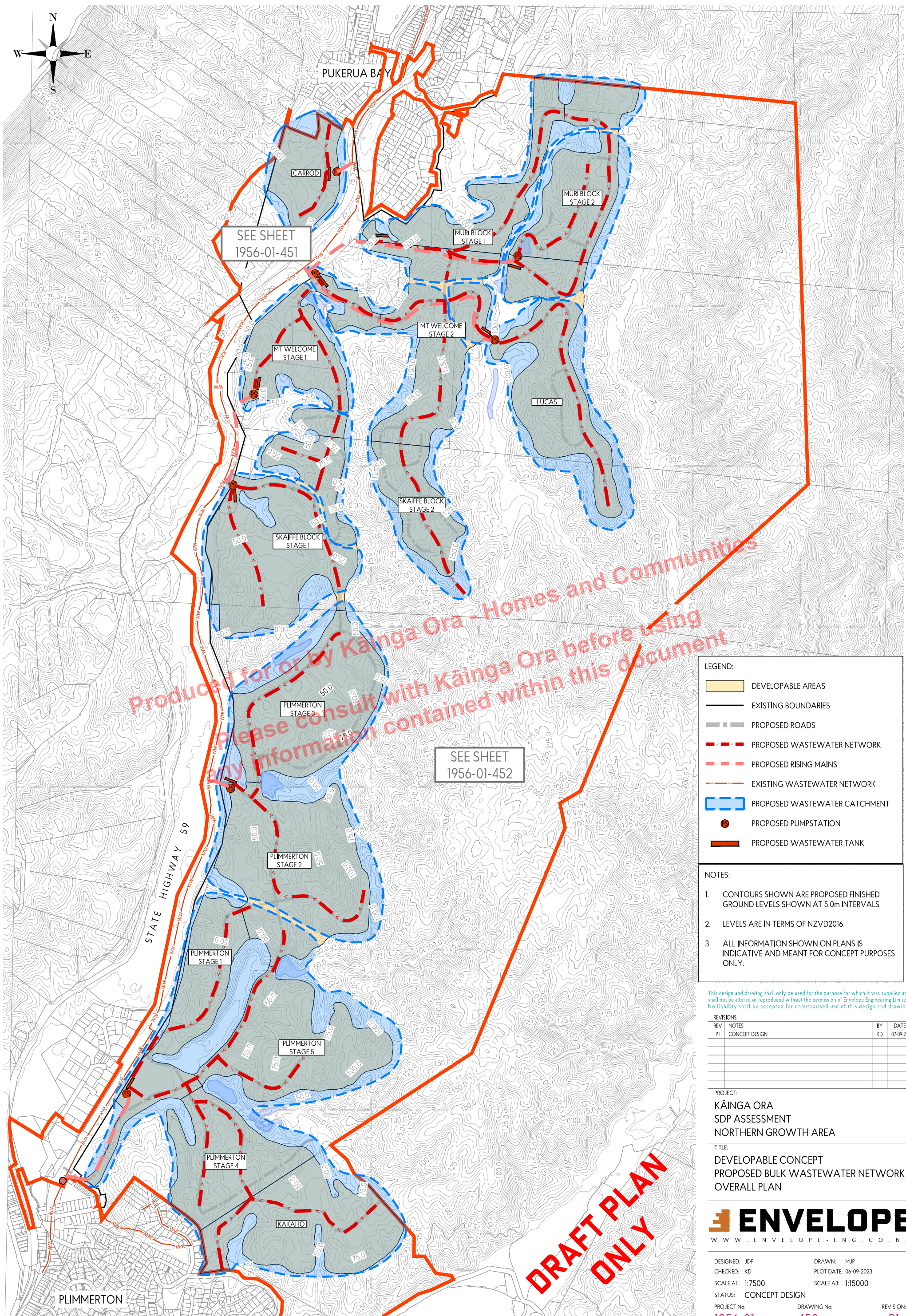
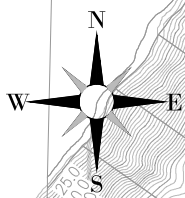




SEE SHEET
1956-01-451

SEE SHEET
1956-01-452

LEGEND:

- DEVELOPABLE AREAS
- EXISTING BOUNDARIES
- PROPOSED ROADS
- PROPOSED WASTEWATER NETWORK
- PROPOSED RISING MAINS
- EXISTING WASTEWATER NETWORK
- PROPOSED WASTEWATER CATCHMENT
- PROPOSED PUMPSTATION
- PROPOSED WASTEWATER TANK

- NOTES:**
- CONTOURS SHOWN ARE PROPOSED FINISHED GROUND LEVELS SHOWN AT 5.0m INTERVALS
 - LEVELS ARE IN TERMS OF NZVD2016
 - ALL INFORMATION SHOWN ON PLANS IS INDICATIVE AND MEANT FOR CONCEPT PURPOSES ONLY.

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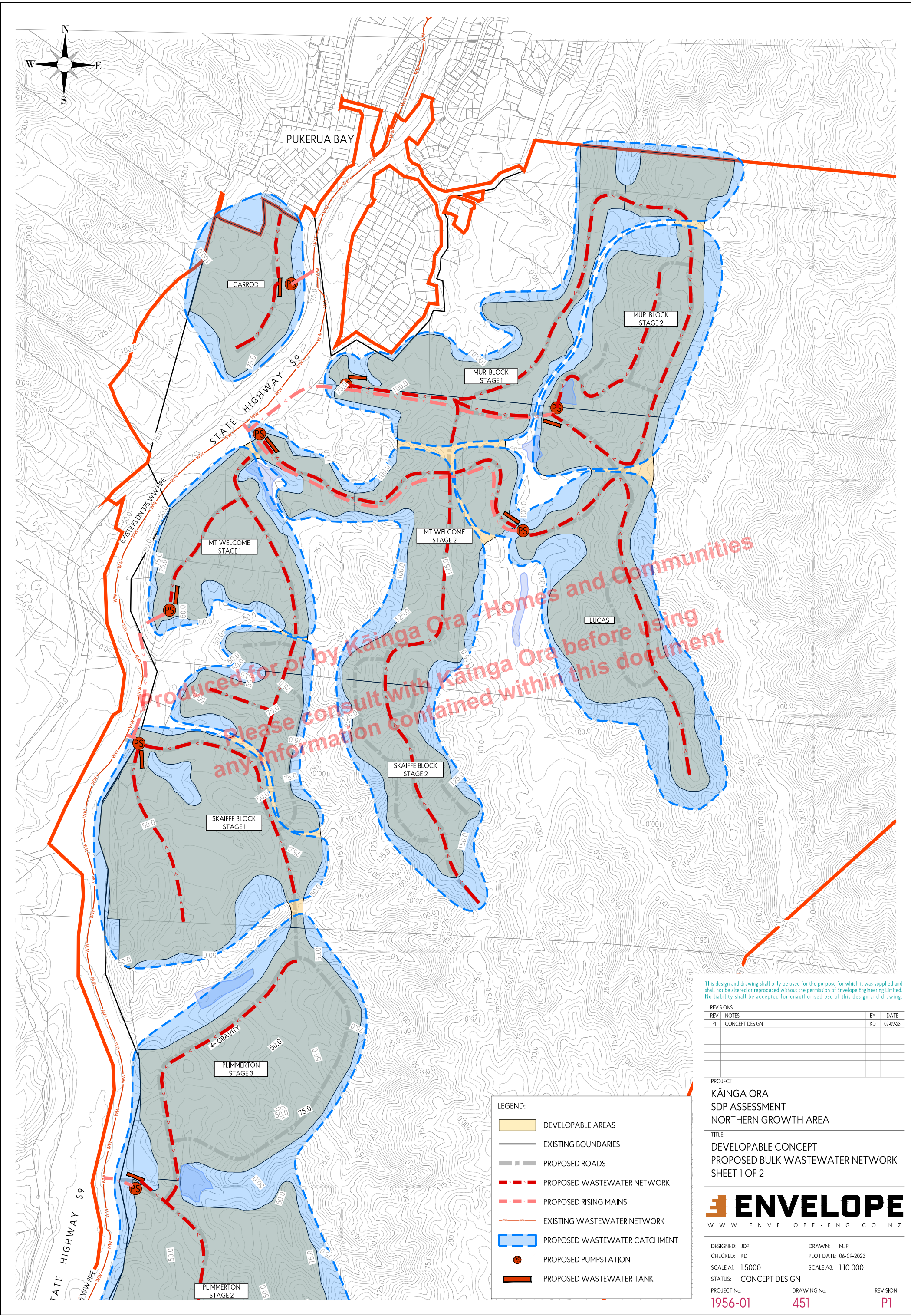
REVISIONS:			
REV	NOTES	BY	DATE
PI	CONCEPT DESIGN	KD	07-09-23

PROJECT:
KAINGA ORA
SDP ASSESSMENT
NORTHERN GROWTH AREA

TITLE:
DEVELOPABLE CONCEPT
PROPOSED BULK WASTEWATER NETWORK
OVERALL PLAN



DESIGNED: JDP	DRAWN: MJP
CHECKED: KD	PLOT DATE: 06-09-2023
SCALE A1: 1:7500	SCALE A3: 1:15000
STATUS: CONCEPT DESIGN	
PROJECT No: 1956-01	DRAWING No: 450
	REVISION: P1



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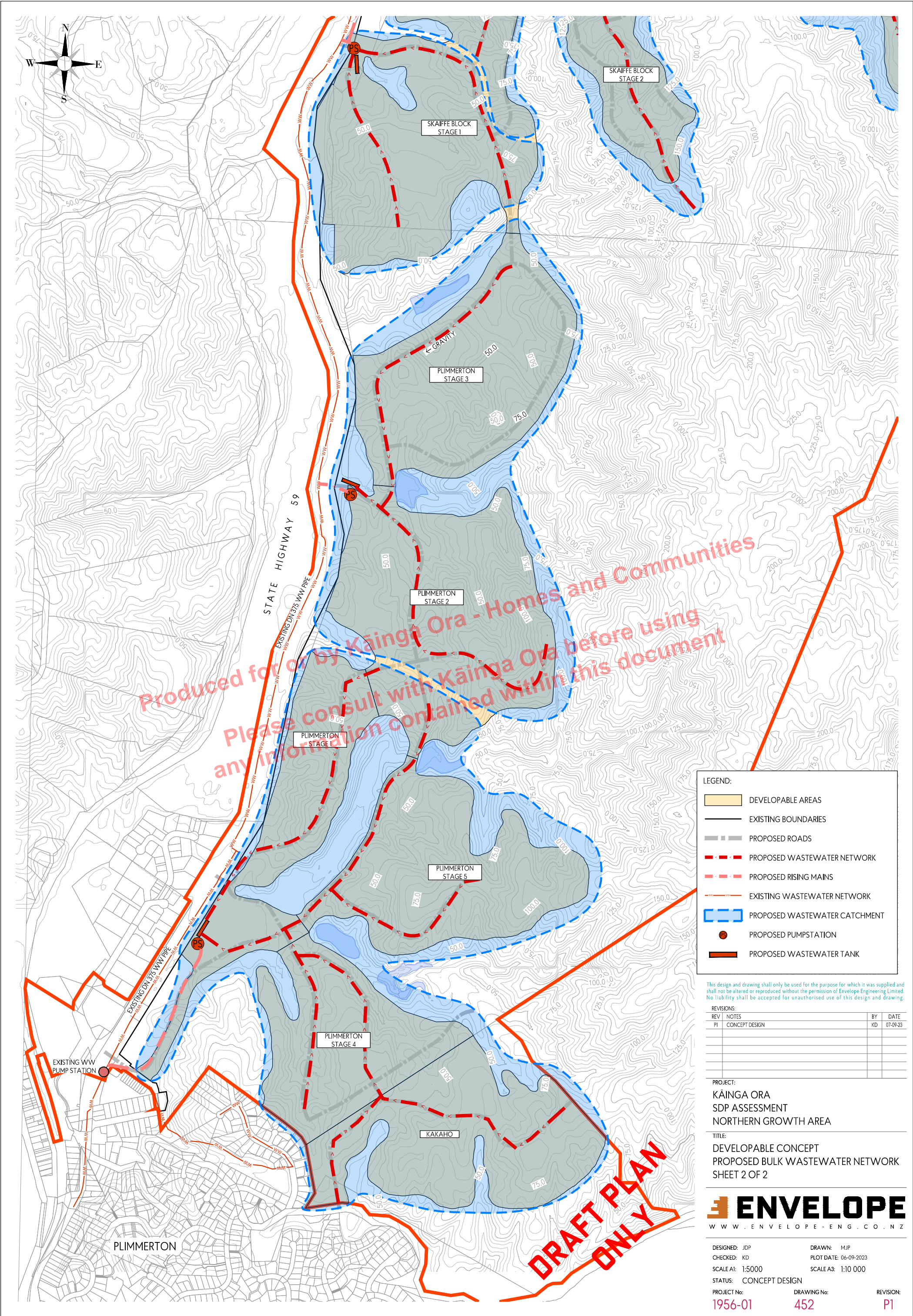
REVISIONS:			
REV	NOTES	BY	DATE
PI	CONCEPT DESIGN	KD	07-09-23

PROJECT:
KAINGA ORA
SDP ASSESSMENT
NORTHERN GROWTH AREA

TITLE:
DEVELOPABLE CONCEPT
PROPOSED BULK WASTEWATER NETWORK
SHEET 1 OF 2



DESIGNED: JDP	DRAWN: MJP
CHECKED: KD	PLOT DATE: 06-09-2023
SCALE A1: 1:5000	SCALE A3: 1:10 000
STATUS: CONCEPT DESIGN	
PROJECT No: 1956-01	DRAWING No: 451
	REVISION: P1



LEGEND:

- DEVELOPABLE AREAS
- EXISTING BOUNDARIES
- PROPOSED ROADS
- PROPOSED WASTEWATER NETWORK
- PROPOSED RISING MAINS
- EXISTING WASTEWATER NETWORK
- PROPOSED WASTEWATER CATCHMENT
- PROPOSED PUMPSTATION
- PROPOSED WASTEWATER TANK

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REVISIONS:			
REV	NOTES	BY	DATE
PI	CONCEPT DESIGN	KD	07-09-23

PROJECT:
KAINGA ORA
SDP ASSESSMENT
NORTHERN GROWTH AREA

TITLE:
DEVELOPABLE CONCEPT
PROPOSED BULK WASTEWATER NETWORK
SHEET 2 OF 2



DESIGNED: JDP	DRAWN: MJP	REVISION:
CHECKED: KD	PLOT DATE: 06-09-2023	1956-01
SCALE A1: 1:5000	SCALE A3: 1:10 000	452
STATUS: CONCEPT DESIGN	DRAWING No:	P1



NGA - CONCEPT WASTEWATER SIZING																		
Node	Description	Catchment Area (Residential)	Number of dwellings	Catchment Area (Commercial)	PWWF (Residential)	PWWF (Commercial)	PWWF (Combined)	Cumulative PWWF,	PIPE CROSS- SECTIONAL AREA	PIPE MATERIAL	'n' FACTOR	PIPE SIZE	SLOPE	VELOCITY	CAPACITY	SPARE CAPACITY	GRAVITY PIPE LENGTH	PRESSURE PIPE LENGTH
		ha	no	ha	l/s	l/s	l/s	l/s				mm	%		l/s	l/s	m	
A4	Kakaho Block	28	556	0.834	27.16	0.5	27.62	27.62	0.049	PE	0.011	250.00	1.000	0.56	70.3	42.7	1100.00	
A2	Plimmerton Stage 4	21	420	0.63	20.52	0.34	20.86	48.48	0.071	PE	0.011	300.00	1.000	0.69	114.3	65.8	1500.00	
A3	Plimmerton Stage 5	28	552	0.83	26.97	0.45	27.42	27.42	0.071	PE	0.011	300.00	1.000	0.39	114.3	86.9	1500.00	
A1	Plimmerton Stage 1	21	418	0.627	20.42	0.3	20.76	96.65	0.096	PE	0.011	350.00	1.000	0.22	172.4	75.7	1020.00	
Pumpstation A1								96.65										600.00
B1	Plimmerton Stage 2	39	770	1.155	37.62	0.6	38.24	68.64	0.071	PE	0.011	300.00	1.000	0.54	114.3	45.6	1100.00	
B2	Plimmerton Stage 3	31	612	0.92	29.90	0.50	30.40	30.40	0.049	PE	0.011	250.00	1.000	0.62	70.3	39.9	1000.00	
Pumpstation B1								68.64										100.00
C1	Skaffe Stage 1	40	804	1.21	39.28	0.65	39.93	39.93	0.049	PE	0.011	250.00	1.000	0.81	70.3	30.3	1400.00	
Pumpstation C1								39.93										50.00
D1	Mt Welcome Stage 1	22	430	0.65	21.01	0.35	21.36	21.36	0.049	PE	0.011	250.00	1.000	0.44	70.3	48.9	1000.00	
Pumpstation D1								21.36										450.00
E2	Skaffe Stage 2	12	246	0.37	12.02	0.20	12.22	12.22	0.049	PE	0.011	250.00	1.000	0.25	70.3	58.1	1500.00	
E1	Mt Welcome Stage 2	28	556	0.83	27.16	0.45	27.62	39.83	0.049	PE	0.011	250.00	1.000	0.56	70.3	30.4	700.00	
Pumpstation E1								39.83										70.00
F1	Carrod	11	224	0.34	10.94	0.18	11.13	11.13	0.049	PE	0.011	250.00	1.000	0.23	70.3	59.2	500.00	
Pumpstation F1								11.13										100.00
G1	Muri Stage 1	15	308	0.46	15.05	0.25	15.30	15.30	0.049	PE	0.011	250.00	1.000	0.31	70.3	55.0	1700.00	
Pumpstation G1								15.30										500.00
H1	Muri Stage 2	22	430	0.65	21.01	0.35	21.36	21.36	0.049	PE	0.011	250.00	1.000	0.44	70.3	48.9	1800.00	
Pumpstation H1								21.36										1000.00
I1	Lucas Block	28	568	0.85	27.75	0.46	28.21	28.21	0.049	PE	0.011	250.00	1.000	0.57	70.3	42.1	1700.00	
Pumpstation I1								28.21										1200.00

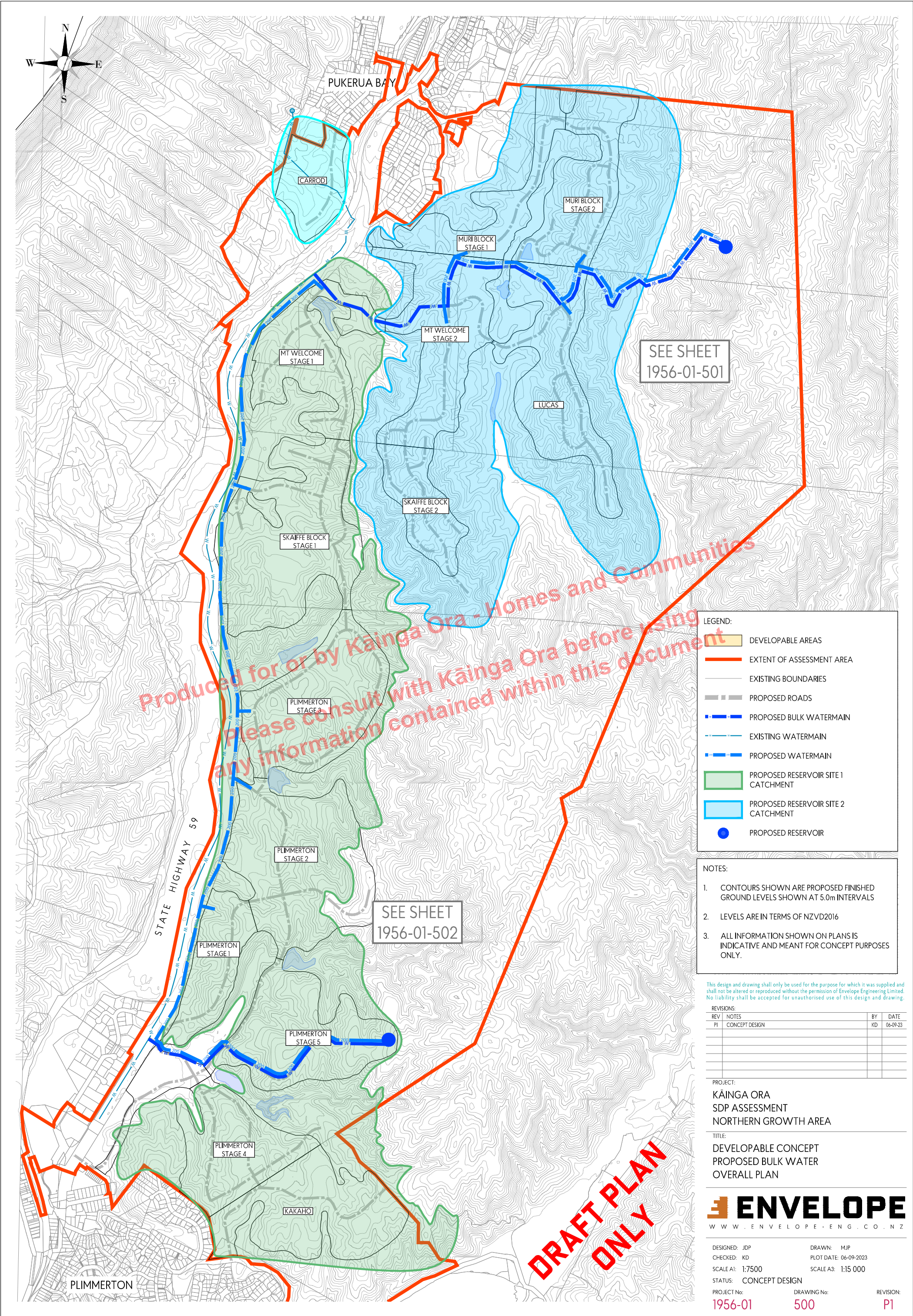
Pump Station	Cumulative PWWF,	Cumulative ADWF litres/second	Storage Required (hours)	Total Storage Required (L)	Total Storage Required (m3)
Pumpstation A1	96.7	14.4	12.0	623206.5	623.2
Pumpstation B1	68.6	10.2	12.0	442585.5	442.6
Pumpstation C1	39.9	6.0	12.0	257481.0	257.5
Pumpstation D1	21.4	3.2	12.0	137707.5	137.7
Pumpstation E1	39.8	5.9	12.0	256840.5	256.8
Pumpstation F1	11.1	1.7	12.0	71736.0	71.7
Pumpstation G1	15.3	2.3	12.0	98637.0	98.6
Pumpstation H1	21.4	3.2	12.0	137707.5	137.7
Pumpstation I1	28.2	4.2	12.0	181902.0	181.9

APPENDIX 6

CONCEPT WATER SUPPLY LAYOUT

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any information contained within this document



LEGEND:

- DEVELOPABLE AREAS
- EXTENT OF ASSESSMENT AREA
- EXISTING BOUNDARIES
- PROPOSED ROADS
- PROPOSED BULK WATERMAIN
- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- PROPOSED RESERVOIR SITE 1 CATCHMENT
- PROPOSED RESERVOIR SITE 2 CATCHMENT
- PROPOSED RESERVOIR

NOTES:

- CONTOURS SHOWN ARE PROPOSED FINISHED GROUND LEVELS SHOWN AT 5.0m INTERVALS
- LEVELS ARE IN TERMS OF NZVD2016
- ALL INFORMATION SHOWN ON PLANS IS INDICATIVE AND MEANT FOR CONCEPT PURPOSES ONLY.

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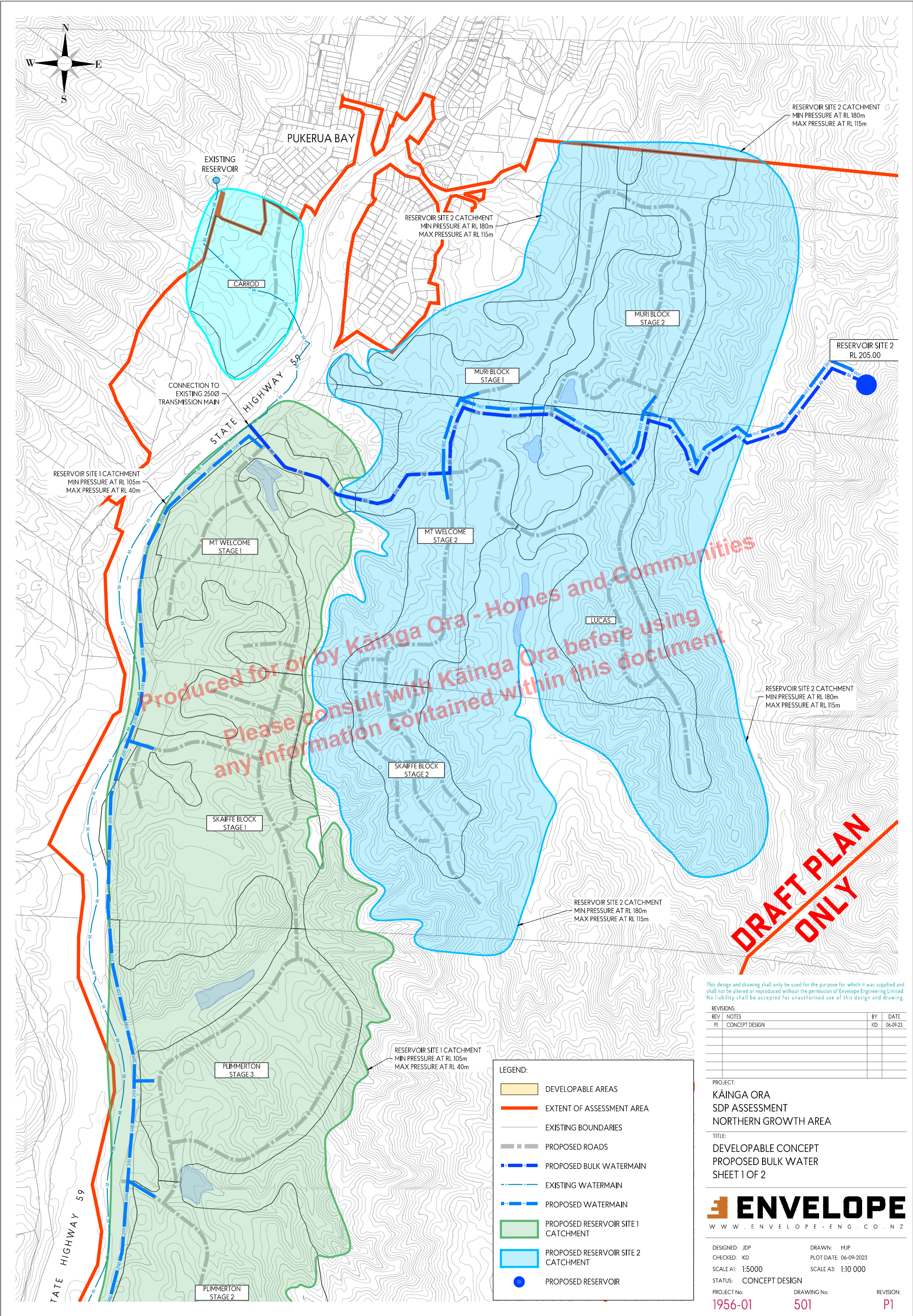
REVISIONS:			
REV	NOTES	BY	DATE
PI	CONCEPT DESIGN	KD	06-09-23

PROJECT:
KAINGA ORA
SDP ASSESSMENT
NORTHERN GROWTH AREA

TITLE:
DEVELOPABLE CONCEPT
PROPOSED BULK WATER
OVERALL PLAN



DESIGNED: JDP	DRAWN: MJP
CHECKED: KD	PLOT DATE: 06-09-2023
SCALE A1: 1:7500	SCALE A3: 1:15 000
STATUS: CONCEPT DESIGN	
PROJECT No: 1956-01	DRAWING No: 500
	REVISION: P1



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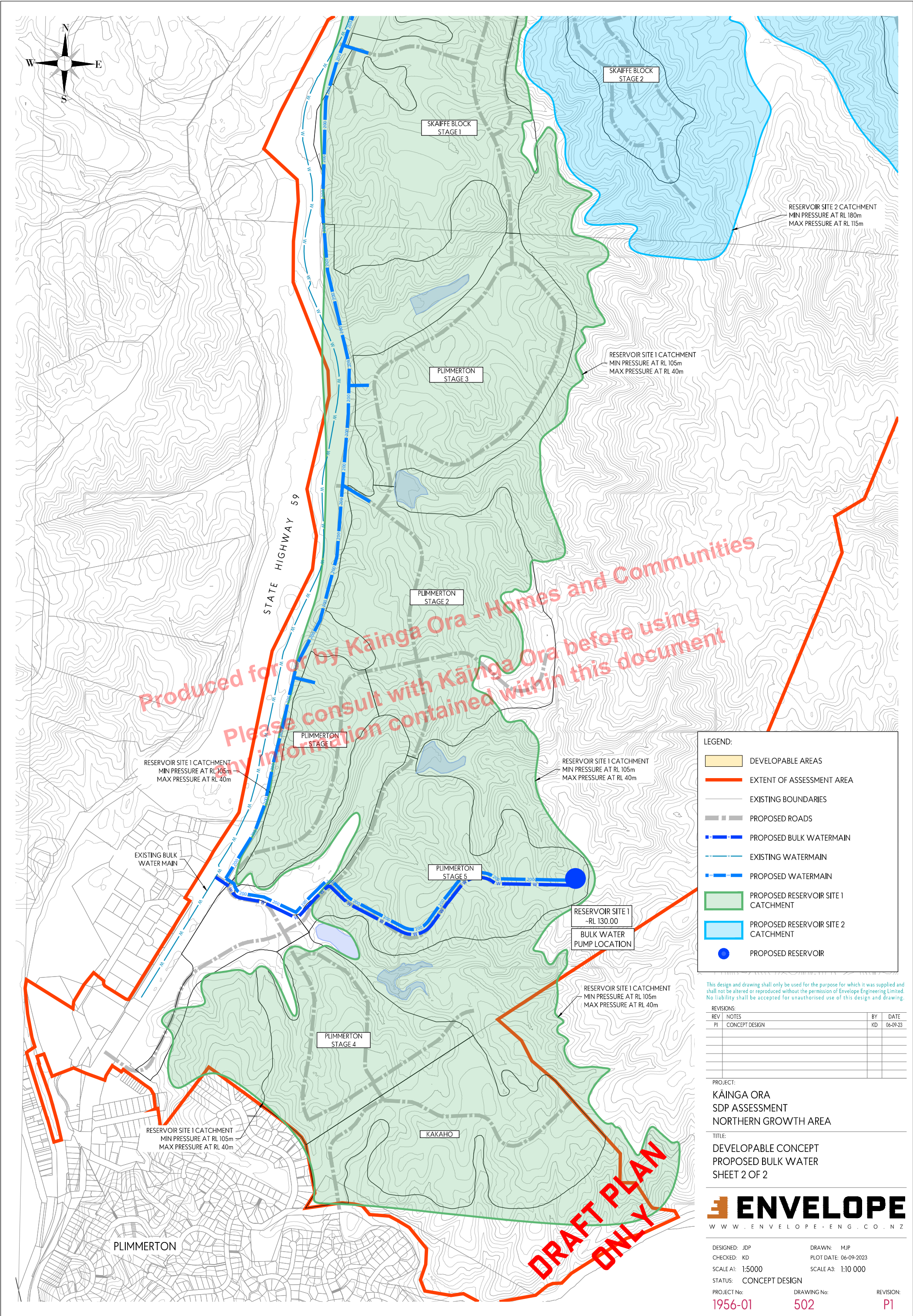
REVISIONS:			
REV	NOTES	BY	DATE
PI	CONCEPT DESIGN	KD	06-09-23

PROJECT:
KAINGA ORA
SDP ASSESSMENT
NORTHERN GROWTH AREA

TITLE:
DEVELOPABLE CONCEPT
PROPOSED BULK WATER
SHEET 1 OF 2



DESIGNED: JDP	DRAWN: MJP
CHECKED: KD	PLOT DATE: 06-09-2023
SCALE A1: 1:5000	SCALE A3: 1:10 000
STATUS: CONCEPT DESIGN	
PROJECT No: 1956-01	DRAWING No: 501
	REVISION: P1



LEGEND:

- DEVELOPABLE AREAS
- EXTENT OF ASSESSMENT AREA
- EXISTING BOUNDARIES
- PROPOSED ROADS
- PROPOSED BULK WATERMAIN
- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- PROPOSED RESERVOIR SITE 1 CATCHMENT
- PROPOSED RESERVOIR SITE 2 CATCHMENT
- PROPOSED RESERVOIR

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REVISIONS:			
REV	NOTES	BY	DATE
PI	CONCEPT DESIGN	KD	06-09-23

PROJECT:
KAINGA ORA
SDP ASSESSMENT
NORTHERN GROWTH AREA

TITLE:
DEVELOPABLE CONCEPT
PROPOSED BULK WATER
SHEET 2 OF 2



DESIGNED: JDP	DRAWN: MJP	REVISION:
CHECKED: KD	PLOT DATE: 06-09-2023	1956-01
SCALE A1: 1:5000	SCALE A3: 1:10 000	502
STATUS: CONCEPT DESIGN	DRAWING No:	P1



NGA - CONCEPT RESERVOIR SIZING										
ID	Name	Developable Area (ha)	Yield (lots)	Household Total (40 p/ha)	Persons (3.5 p/hh)	Reservoir Size Required (L)	Reservoir Size Required (ML)	Height	Radius	Volume (ML)
1	Kakaho Block	28	556							
2	Plimmerton Stage 1	21	418							
3	Plimmerton Stage 2	39	770							
4	Plimmerton Stage 3	31	612							
5	Plimmerton Stage 4	21	420							
6	Plimmerton Stage 5	28	552							
7	Skaffe Stage 1	40	804							
8	Skaffe Stage 2	12	246							
9	Mt Welcome Stage 1	22	430							
Plimmerton Reservoir			4808.00	4808.00	16828.00	11779600.00	11.78	10.00	20.00	12.57
10	Mt Welcome Stage 2	28	556							
11	Lucas Block	28	568							
12	Muri Stage 1	15	308							
13	Muri Stage 2	22	430							
Muri Road Reservoir			1862.00	1862.00	6517.00	4561900.00	4.56	8.00	14.00	4.93
14	Carrod	11	224							
Existing Reservoir										

6.2.7.2 Reservoir volume

Reservoirs shall be designed to accommodate the storage volume outlined in Table 6-2.

Table 6-2 – Mandated levels of service for storage volumes

Method	Storage (L/person)	Scenario
1	700	Where actual consumption is not known such as new developments
2	2 x Average Day Demand	Used when demand statistics are available from Wellington Water. The designer to target the greater of the volume determined by each method. Consult with Wellington Water to determine critical users and their consumption.
3	Maximum Day Demand + 20% + SNZ PAS 4509 firefighting requirements	
4	(20 L/person/day for 23 days + critical users allowance) x 1.43	

Table 6-1 – Mandated levels of service for pressure at point of supply

Maximum pressure*	Minimum pressure**	Comment
90 m	25 m	10 m min. pressure may be accepted for highest properties adjacent to reservoir

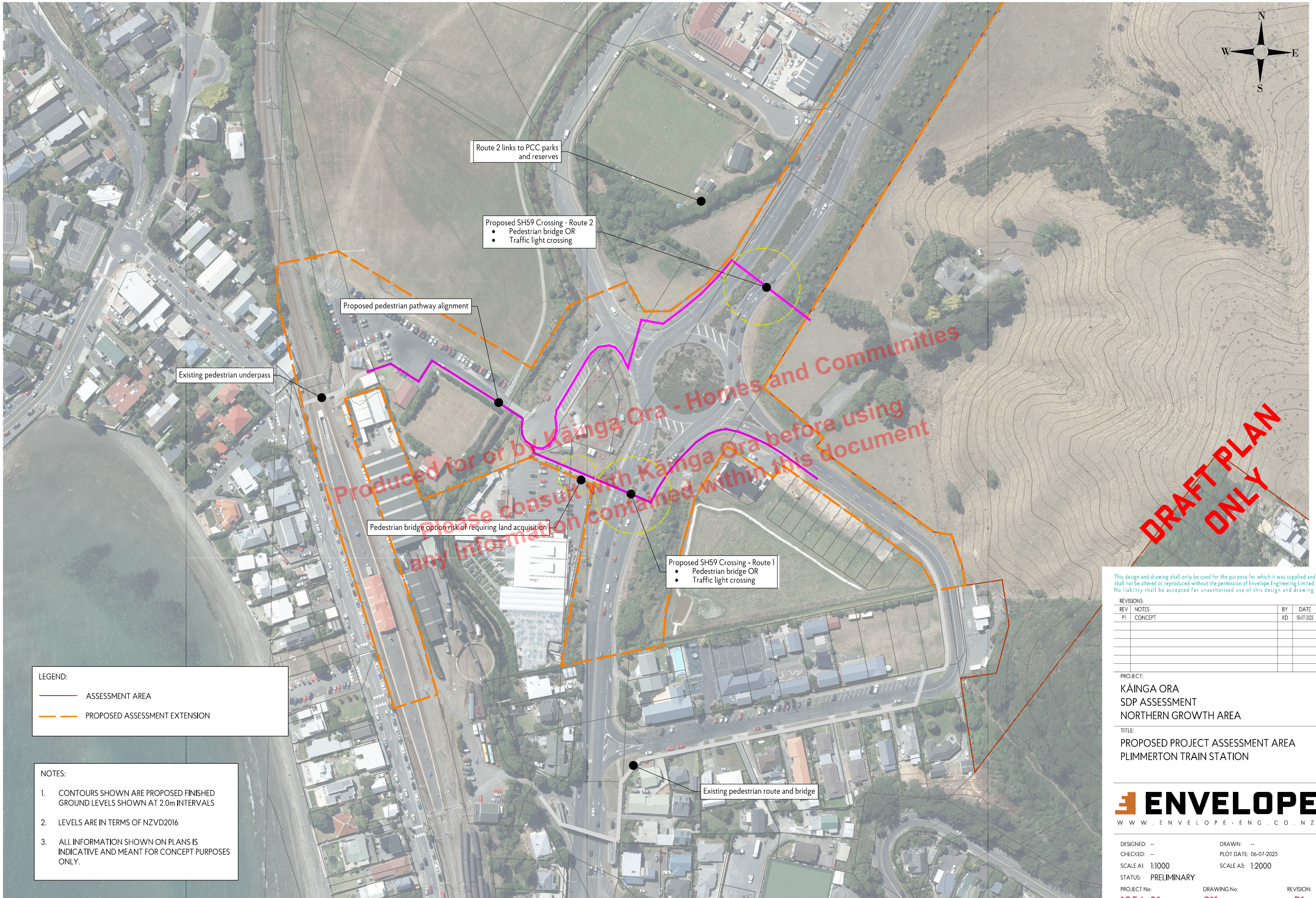
* Gauge pressure as measured at any point in the public network.
** As measured during peak demand flow assuming reservoir level is at the reservoir floor (bottom water level)

APPENDIX 7

TRAIN STATION CONSTRAINT ASSESSMENT

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LEGEND:

- ASSESSMENT AREA
- PROPOSED ASSESSMENT EXTENSION

NOTES:

- CONTOURS SHOWN ARE PROPOSED FINISHED GROUND LEVELS SHOWN AT 2.0m INTERVALS
- LEVELS ARE IN TERMS OF NZVD2016
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REVISIONS:			
REV	NOTES	BY	DATE
P1	CONCEPT	KD	06-07-2023

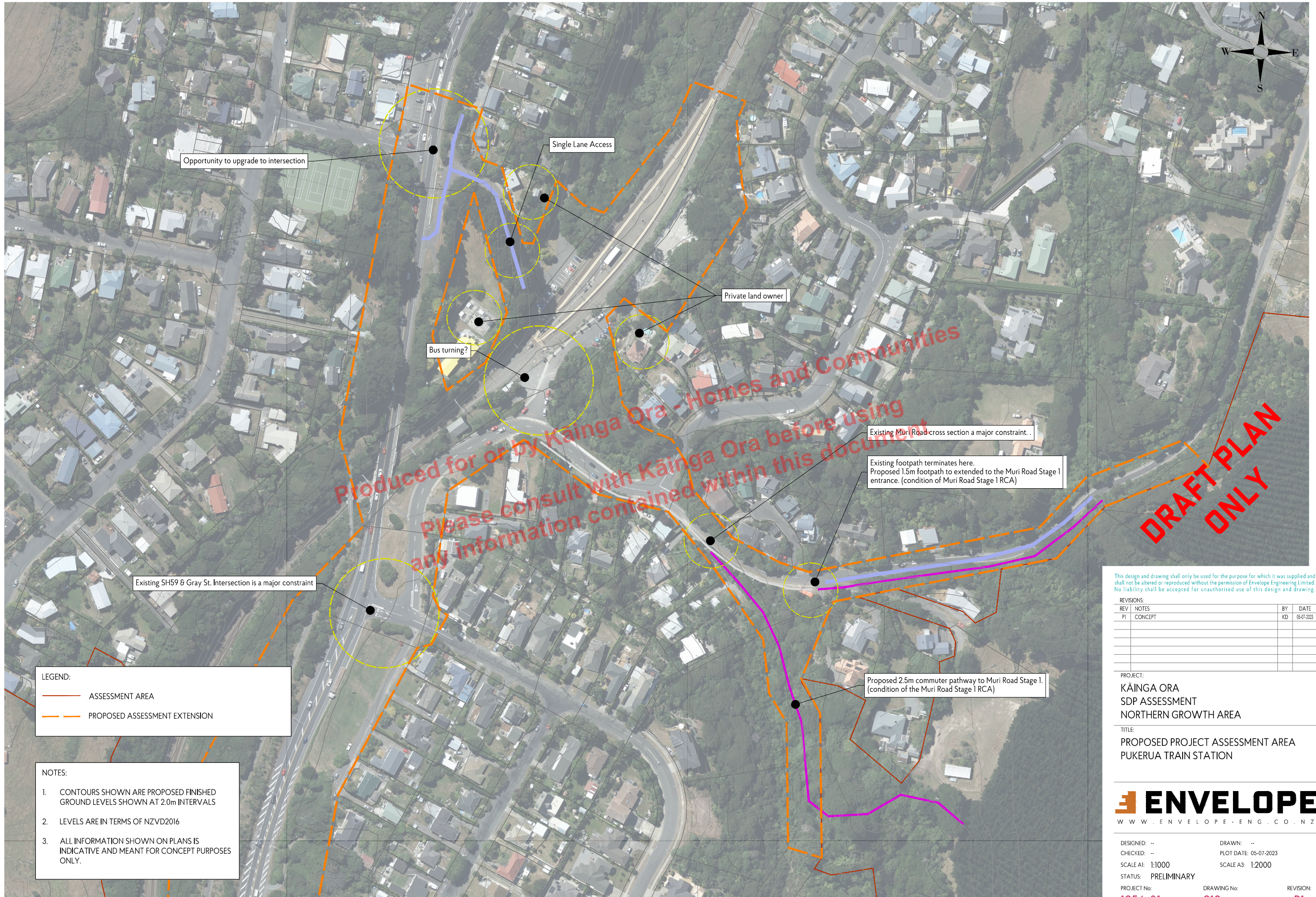
PROJECT:
KĀINGA ORA
SDP ASSESSMENT
NORTHERN GROWTH AREA

TITLE:
PROPOSED PROJECT ASSESSMENT AREA
PLIMMERTON TRAIN STATION

ENVELOPE
W W W . E N V E L O P E - E N G . C O . N Z

DESIGNED: --	DRAWN: --	REVISION: P1
CHECKED: --	PLOT DATE: 06-07-2023	
SCALE A1: 1:1000	SCALE A3: 1:2000	
STATUS: PRELIMINARY		

PROJECT No: **1956-01** DRAWING No: **911**



Opportunity to upgrade to intersection

Single Lane Access

Private land owner

Bus turning?

Existing Muri Road cross section a major constraint. .

Existing footpath terminates here.
Proposed 1.5m footpath to extended to the Muri Road Stage 1 entrance. (condition of Muri Road Stage 1 RCA)

Existing SH59 & Gray St. Intersection is a major constraint

Proposed 2.5m commuter pathway to Muri Road Stage 1. (condition of the Muri Road Stage 1 RCA)

LEGEND:

- ASSESSMENT AREA
- PROPOSED ASSESSMENT EXTENSION

NOTES:

1. CONTOURS SHOWN ARE PROPOSED FINISHED GROUND LEVELS SHOWN AT 2.0m INTERVALS
2. LEVELS ARE IN TERMS OF NZVD2016
3. ALL INFORMATION SHOWN ON PLANS IS INDICATIVE AND MEANT FOR CONCEPT PURPOSES ONLY.

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REVISIONS:		BY	DATE
REV	NOTES	KD	05-07-2023
P1	CONCEPT		

PROJECT:
KAINGA ORA
SDP ASSESSMENT
NORTHERN GROWTH AREA

TITLE:
PROPOSED PROJECT ASSESSMENT AREA
PUKERUA TRAIN STATION

ENVELOPE
W W W . E N V E L O P E - E N G . C O . N Z

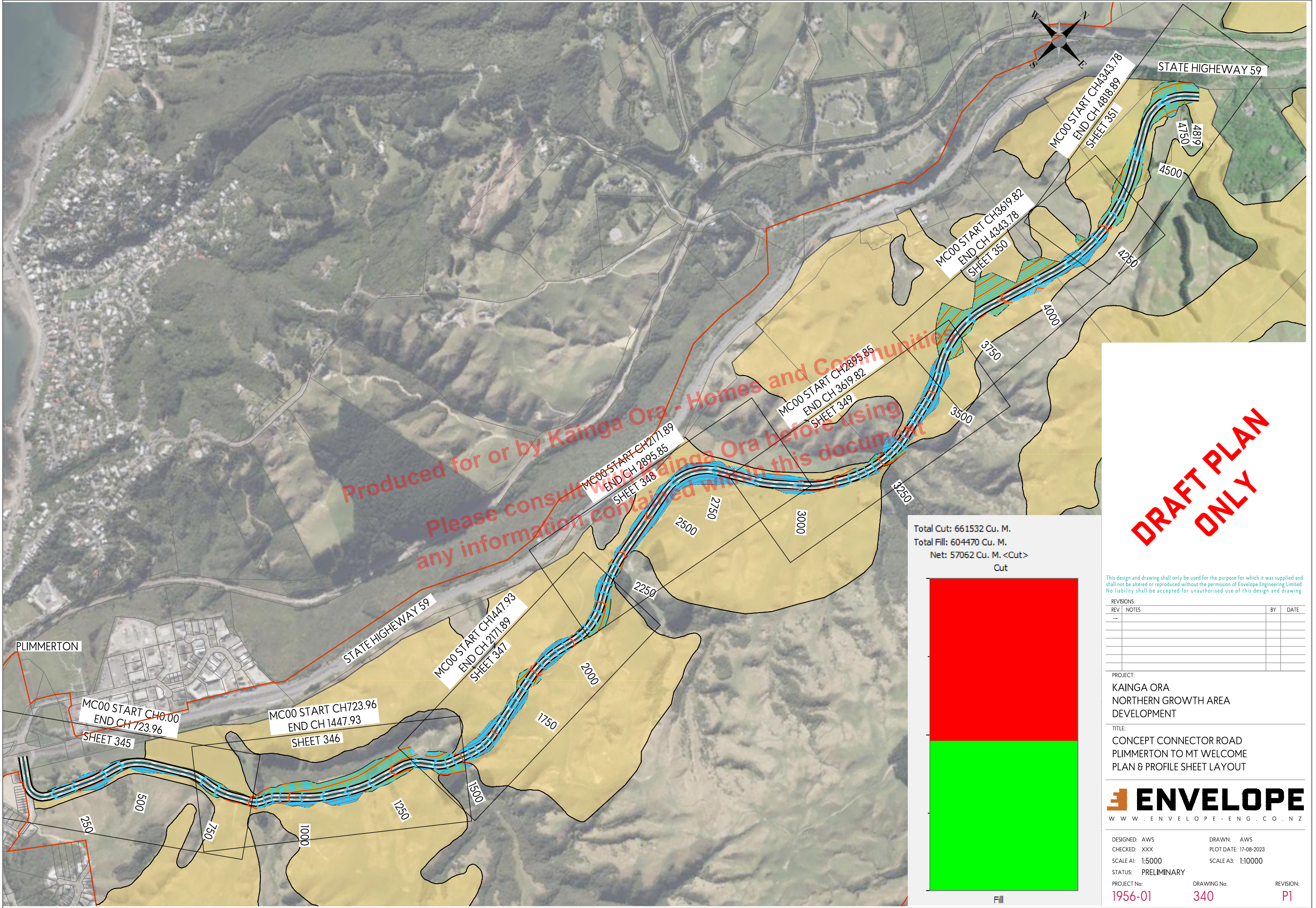
DESIGNED: --	DRAWN: --	
CHECKED: --	PLOT DATE: 05-07-2023	
SCALE A1: 1:1000	SCALE A3: 1:2000	
STATUS: PRELIMINARY		
PROJECT No: 1956-01	DRAWING No: 912	REVISION: P1

APPENDIX 8

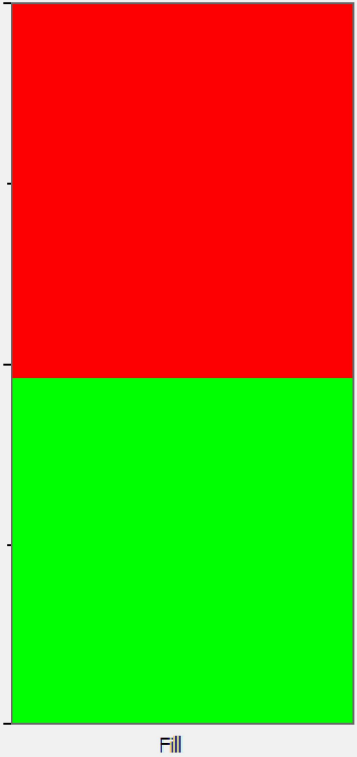
CONCEPT NORTH – SOUTH ROADING CONNCETION

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Total Cut: 661532 Cu. M.
Total Fill: 604470 Cu. M.
Net: 57062 Cu. M. <Cut>
Cut



**DRAFT PLAN
ONLY**

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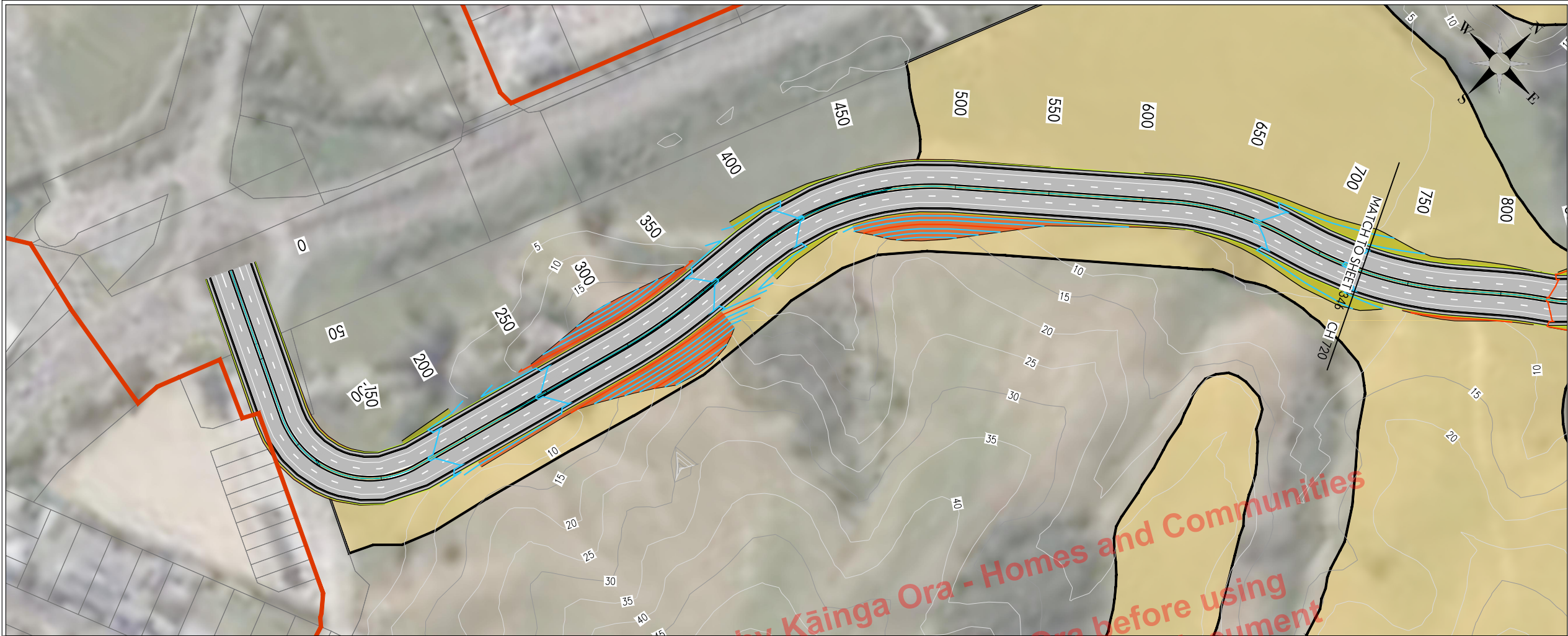
REVISIONS:		BY	DATE
REV	NOTES		

PROJECT:
KAINGA ORA
NORTHERN GROWTH AREA
DEVELOPMENT

TITLE:
CONCEPT CONNECTOR ROAD
PLIMMERTON TO MT WELCOME
PLAN & PROFILE SHEET LAYOUT



DESIGNED: AWS	DRAWN: AWS	REVISION:
CHECKED: XXX	PLOT DATE: 17-08-2023	
SCALE A1: 1:5000	SCALE A3: 1:10000	
STATUS: PRELIMINARY		
PROJECT No: 1956-01	DRAWING No: 340	P1



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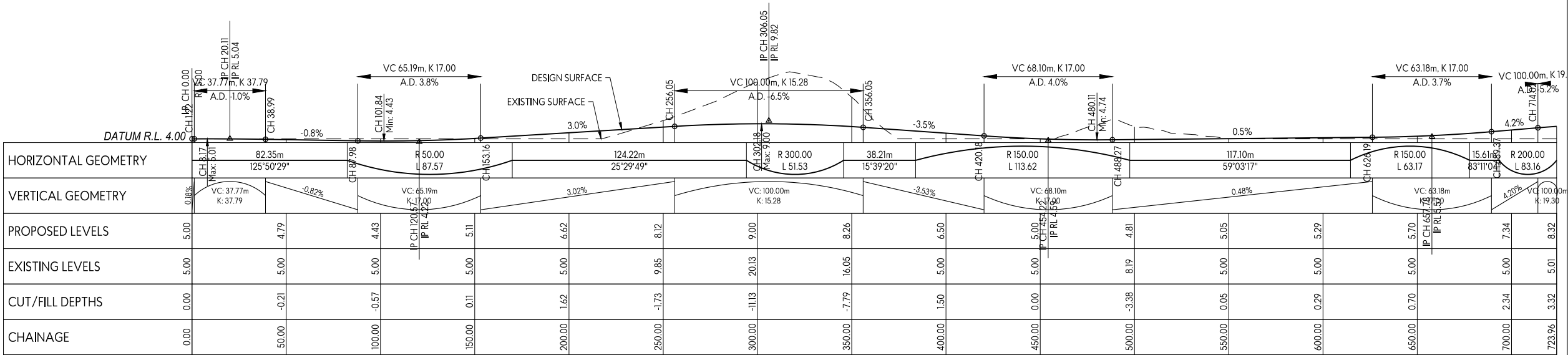
REVISIONS:			
REV	NOTES	BY	DATE
--			

PROJECT:
KAINGA ORA
NORTHERN GROWTH AREA
DEVELOPMENT

TITLE:
CONCEPT CONNECTOR ROAD
PLIMMERTON TO MT WELCOME
PLAN & PROFILE



DESIGNED: AWS	DRAWN: AWS	
CHECKED: XXX	PLOT DATE: 17-08-2023	
SCALE A1: 1:1250	SCALE A3: 1:2500	
STATUS: PRELIMINARY		
PROJECT No: 1956-01	DRAWING No: 345	REVISION: P1



MC00 SCALE HORZ 1:1250 SCALE VERT 1:2 @ A1
LONGSECTION BETWEEN 0.00 AND 723.96