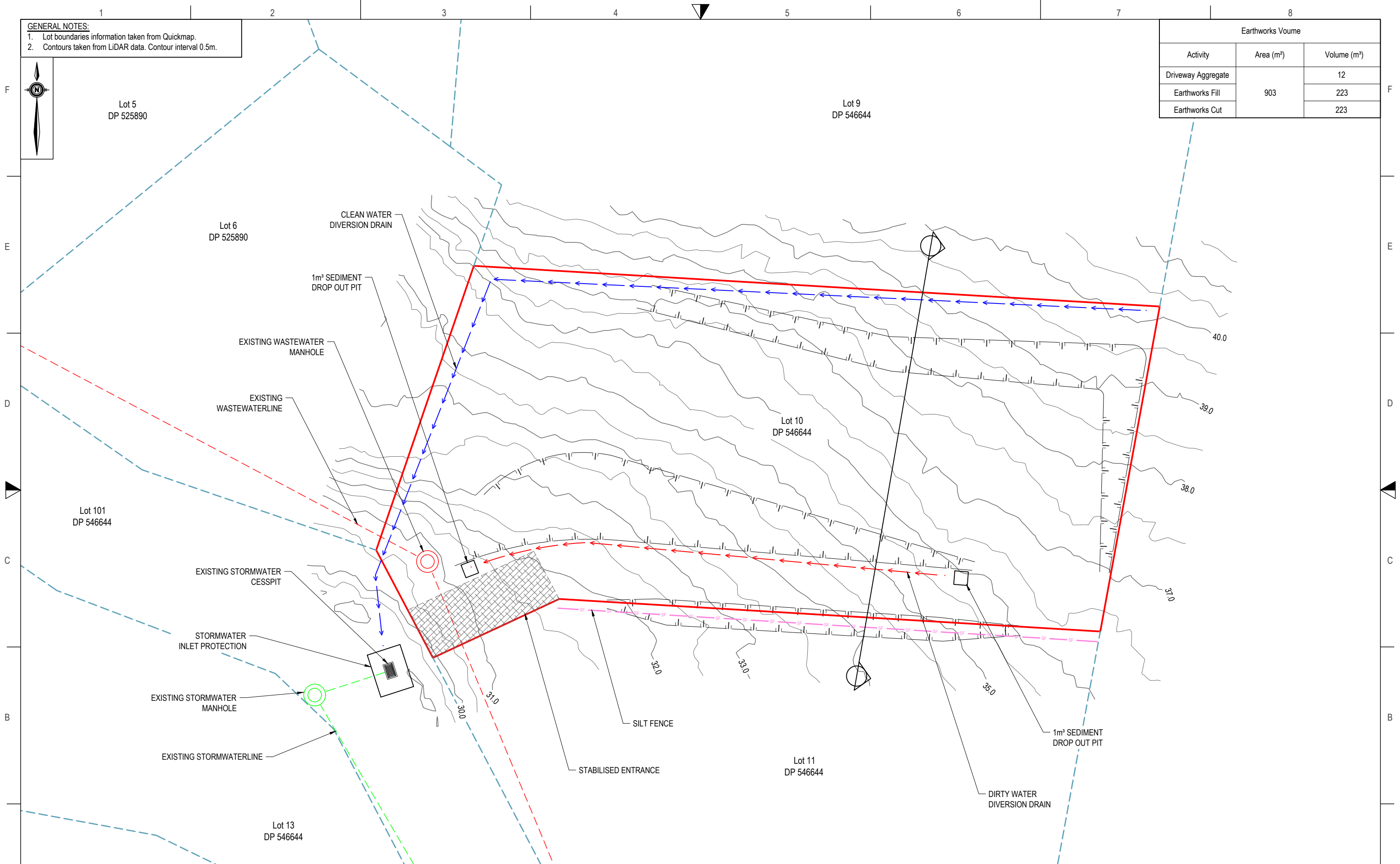


GENERAL NOTES:
 1. Lot boundaries information taken from Quickmap.
 2. Contours taken from LiDAR data. Contour interval 0.5m.

Earthworks Voume		
Activity	Area (m ²)	Volume (m ³)
Driveway Aggregate	903	12
Earthworks Fill		223
Earthworks Cut		223



Rev	Date	Description	By	Checked
A	06/05/2022	FOR EARTHWORKS CONSENT	JT	TA

DWG **PROPOSED EARTHWORKS PLAN**

A3 SCALE 1:250

0 5m 10m

Date 06/05/2022

Drawn JT Checked TA Approved TA

File C:\USERS\JASONTIGARON\ONE\DRIVE - HAIGH WORKMAN LIMITED\DESKTOP\MY JOBS - DESKTOP\21 259 - WAIANGA PLACE, OPONONI (LOT 10 DP 546644)\21 259_DENNIS MATENE.DWG

HAIGH WORKMAN
Civil & Structural Engineers

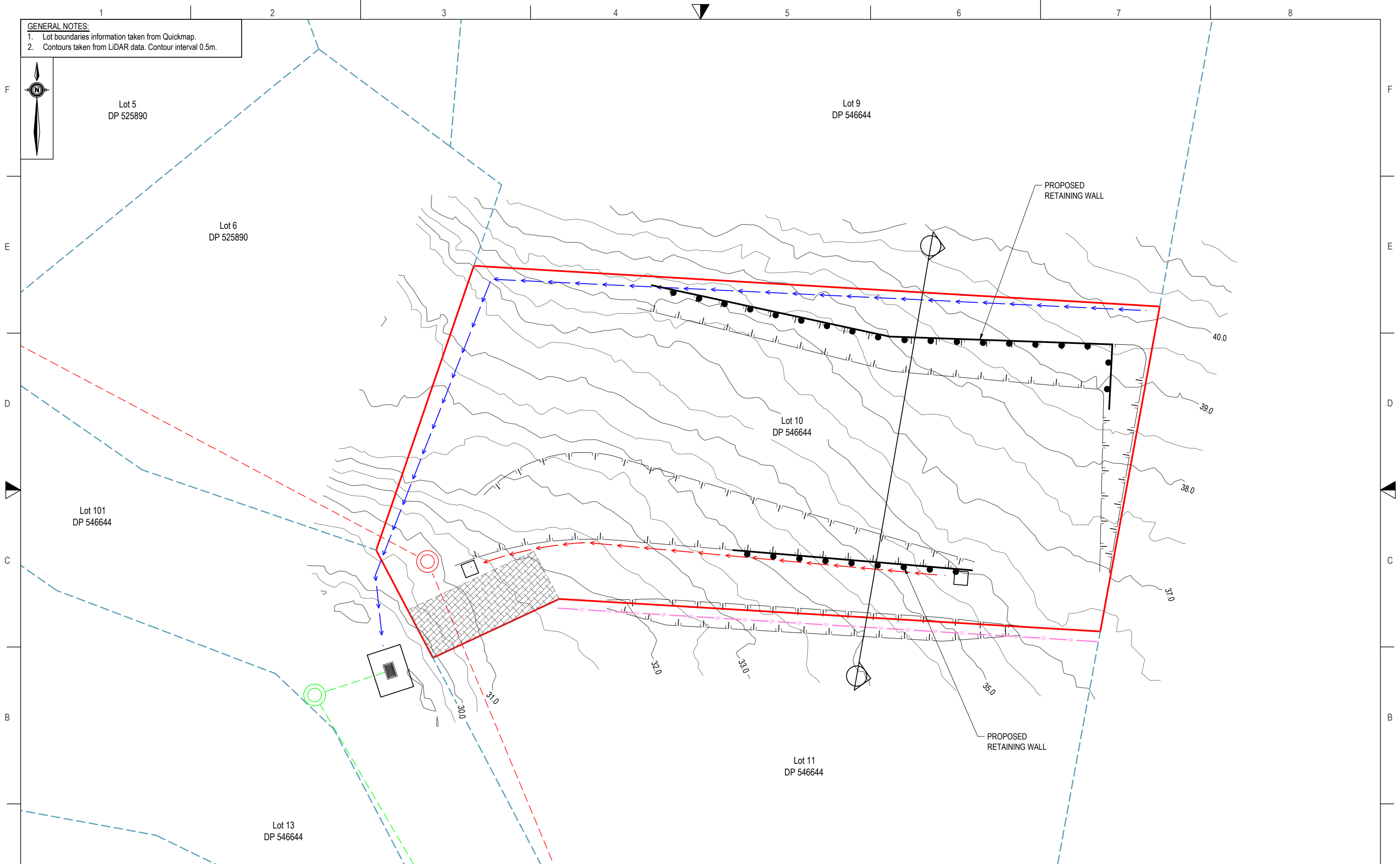
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Project	EARTHWORKS WAIANGA PLACE, OPONONI (LOT 10 DP 546644)	Stage	
Client	DENNIS MATENE	Dwg No.	P2
Project No.	21 259	Sheet No.	2 of 3
RC no.			

GENERAL NOTES:
 1. Lot boundaries information taken from Quickmap.
 2. Contours taken from LiDAR data. Contour interval 0.5m.



Rev	Date	Description	By	Checked
A	06/05/2022	FOR EARTHWORKS CONSENT	JT	TA

DWG PROPOSED RETAINING WALL PLAN

A3 SCALE 1:250

0 5m 10m

Date 06/05/2022

Drawn JT Checked TA Approved TA

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Project EARTHWORKS
WAIANGA PLACE, OPONONI (LOT 10 DP 546644)

Client DENNIS MATENE

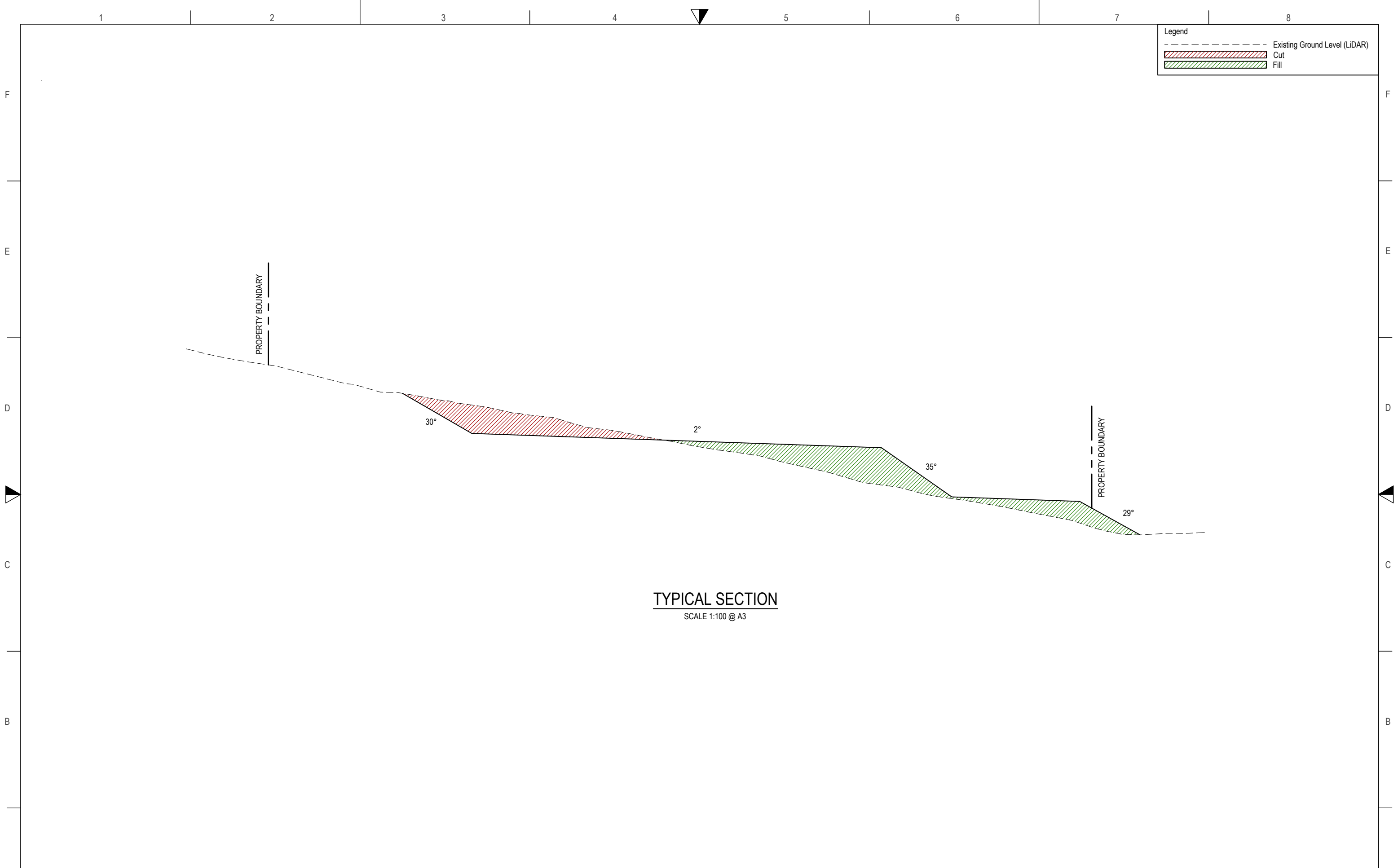
Project No. 21 259

RC no.

Stage

Dwg No. P3

Sheet No. 3 of 3



Legend	
	Existing Ground Level (LIDAR)
	Cut
	Fill

TYPICAL SECTION
SCALE 1:100 @ A3

Rev	Date	Description	By	Checked
A	06/05/2022	FOR EARTHWORKS CONSENT	JT	TA

DWG CROSS SECTION SHOWING EARTHWORKS
TEMPORARY CONDITION (NO RETAINING)

A3 SCALE 1:100 Date 06/05/2022

Drawn JT Checked TA Approved TA

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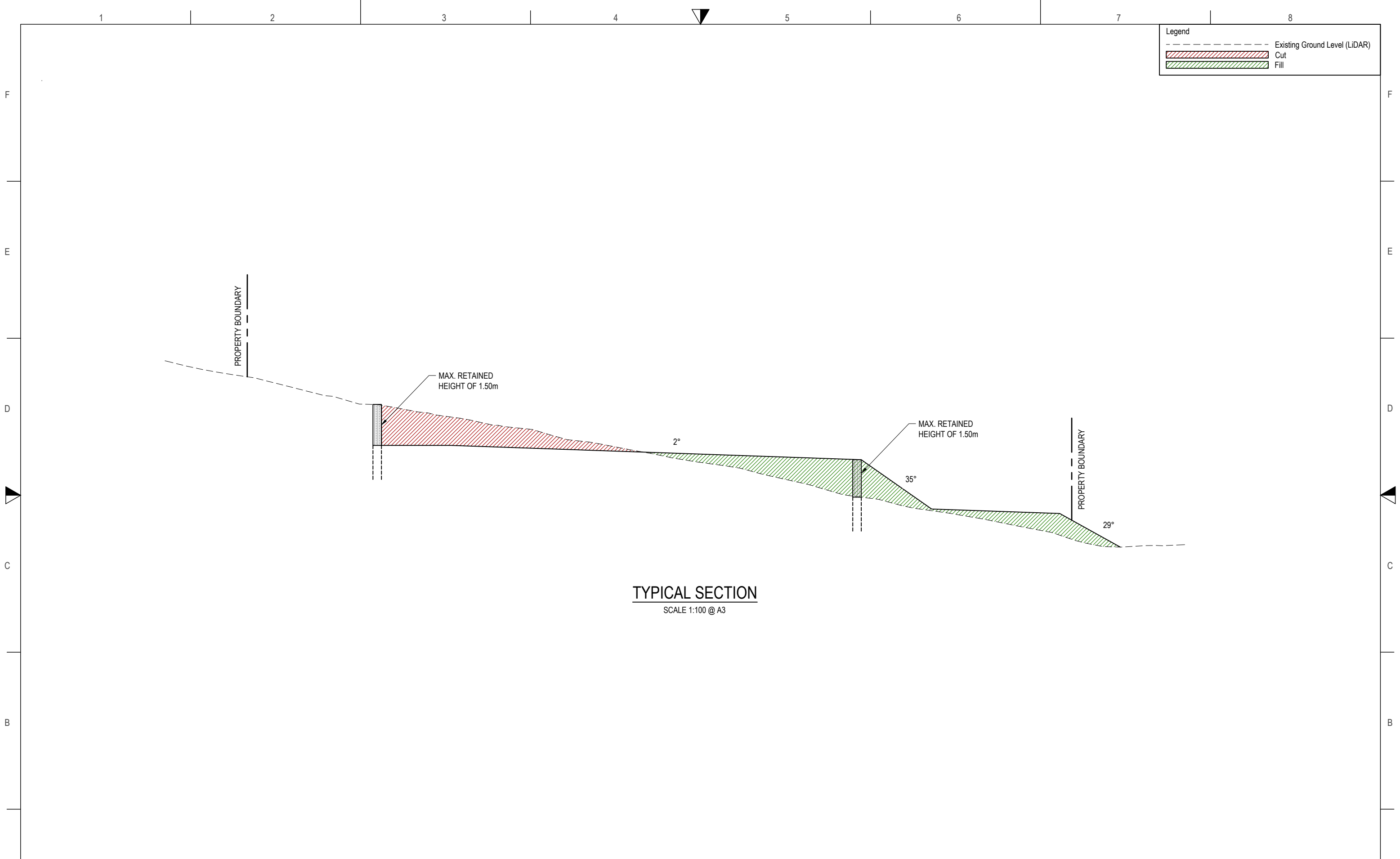
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Project	EARTHWORKS CONTROL PLAN WAIANGA PLACE, OPONONI (LOT 10 DP 546644)	Stage	
Client	DENNIS MATENE	Dwg No.	CS1
Project No.	21 259	Sheet No.	1 of 2
RC no.			



TYPICAL SECTION
SCALE 1:100 @ A3

Rev	Date	Description	By	Checked
A	06/05/2022	FOR EARTHWORKS CONSENT	JT	TA

DWG CROSS SECTION SHOWING EARTHWORKS
TEMPORARY CONDITION (WITH RETAINING)

A3 SCALE 1:100  Date 06/05/2022

Drawn JT Checked TA Approved TA

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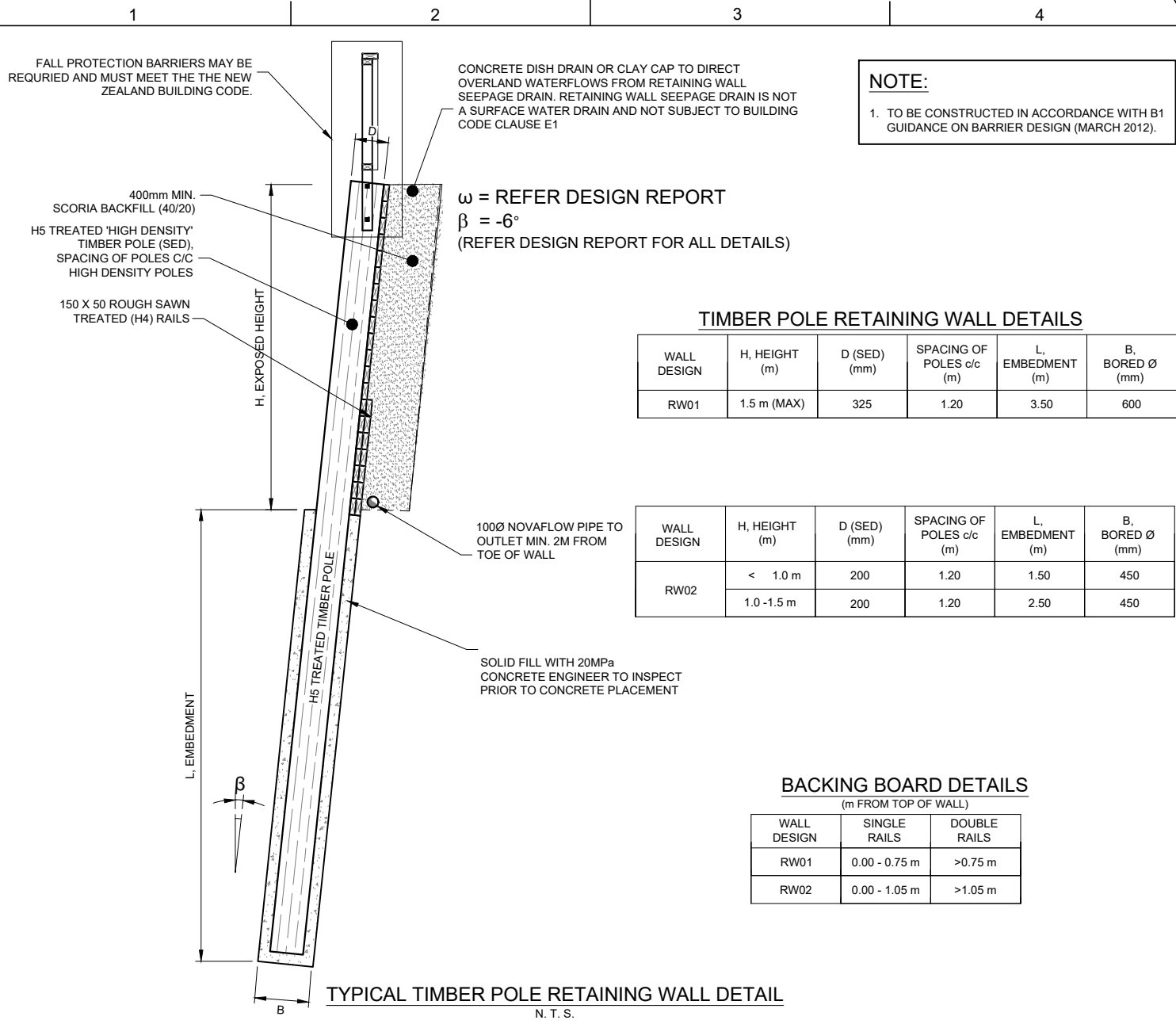
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Project	EARTHWORKS WAIANGA PLACE, OPONONI (LOT 10 DP 546644)	Stage	
Client	DENNIS MATENE	Dwg No.	CS2
Project No.	21 259	Sheet No.	2 of 2
RC no.			



TIMBER POLE RETAINING WALL DETAILS

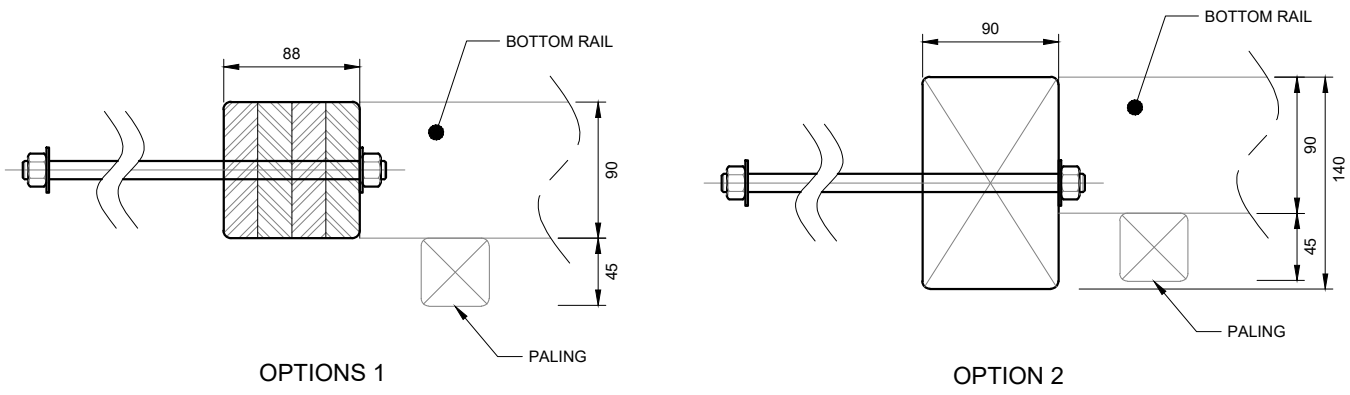
WALL DESIGN	H, HEIGHT (m)	D (SED) (mm)	SPACING OF POLES c/c (m)	L, EMBEDMENT (m)	B, BORED Ø (mm)
RW01	1.5 m (MAX)	325	1.20	3.50	600

WALL DESIGN	H, HEIGHT (m)	D (SED) (mm)	SPACING OF POLES c/c (m)	L, EMBEDMENT (m)	B, BORED Ø (mm)
RW02	< 1.0 m	200	1.20	1.50	450
	1.0 - 1.5 m	200	1.20	2.50	450

BACKING BOARD DETAILS
(m FROM TOP OF WALL)

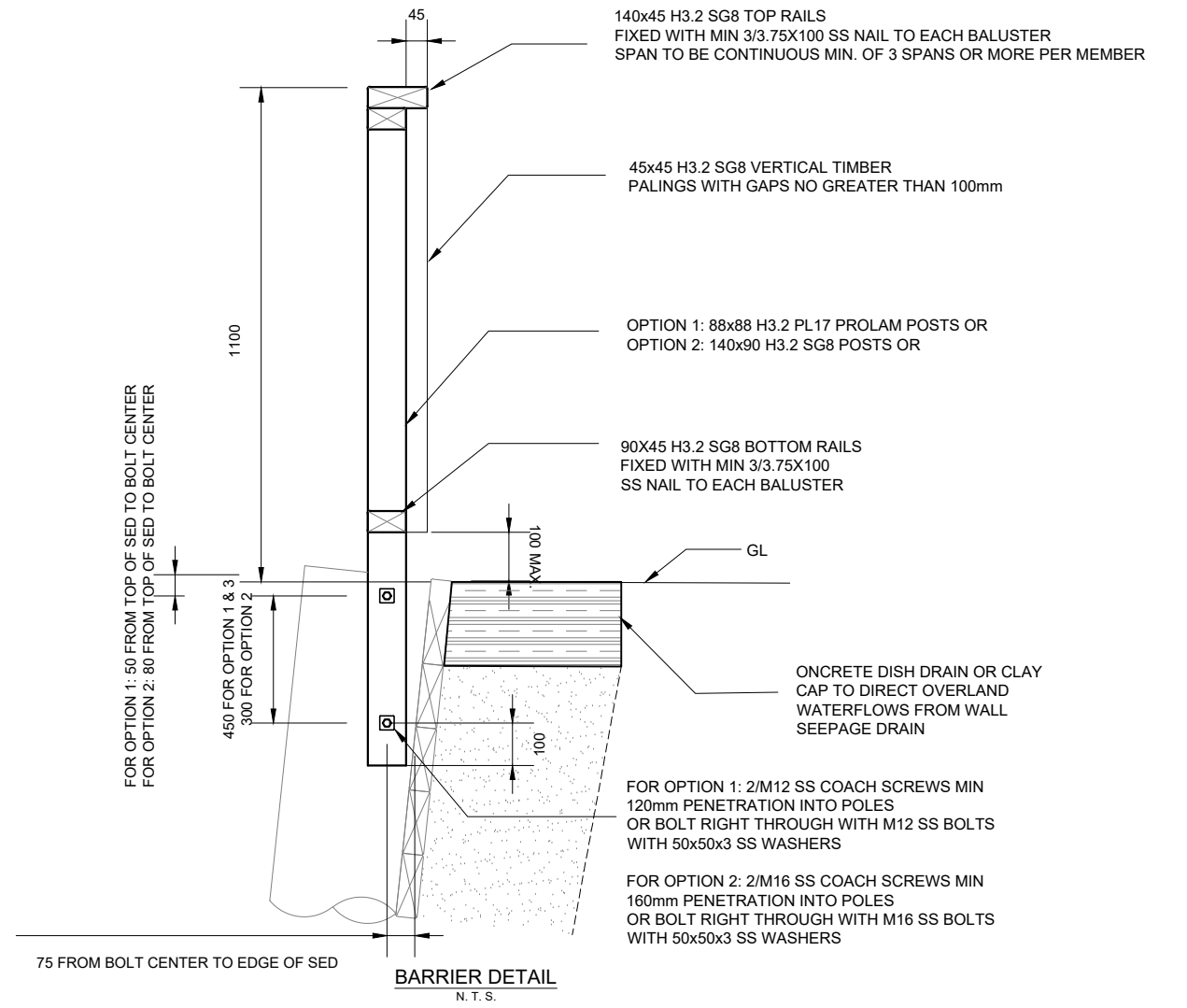
WALL DESIGN	SINGLE RAILS	DOUBLE RAILS
RW01	0.00 - 0.75 m	>0.75 m
RW02	0.00 - 1.05 m	>1.05 m

- IMPORTANT NOTE:**
- PROLAM GRADE: PL17 H3.2 88x88
RADIATA PINE: SG8 H3.2 140x90
 - BOTTOM RAIL, PALING AND POST CONFIGURATION SHOULD BE AS PER DETAIL SHOWN BELOW
 - SED POLE NOT SHOWN FOR CLARITY
 - PROLAM LAMINATION MUST BE PERPENDICULAR TO BOLT



TIMBER SPECIFICATION NOTES:

- CAUTION:**
DEEP EXCAVATIONS UNSUPPORTED DURING CONSTRUCTION MAY BE HAZARDOUS PARTICULARLY WHEN WORKING IN CONFINED SPACES. THE DEPARTMENT OF LABOUR'S EXCAVATION GUIDE GIVES RECOMMENDED SAFETY PROCEDURES FOR SUCH SITUATIONS. THE EXCAVATION AND EARTHWORKS CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT ADEQUATELY ALL PERSONS AND PROPERTY LIABLE TO THE BE AFFECTED BY THE EXCAVATION AND EARTHWORKS OPERATIONS.
- MATERIALS:**
TIMBER:
TIMBER POLES SHALL BE PEELLED RADIATA PINE LOGS COMPLYING WITH THE REQUIREMENT OF NZS 3605 "LOAD BEARING ROUND TIMBER PILES AND POLES" TREATED TO TPA COMMODITY SPECIFICATION H5. ALL TIMBER POLES TO BE HIGH DENSITY. DIMENSIONS OF POLES ARE SPECIFIED AS MINIMUM SMALL END DIAMETERS. ACTUAL DIAMETERS WILL BE GREATER DUE TO TAPER AND TIMBER GRADING. SAWN TIMBER IN GROUND CONTACT SHALL BE RADIATA PILE TREATED TO SPECIFICATION H4. ALL TIMBER SHALL HAVE TPA IDENTIFICATION BRANDS VISIBLE WHEN DELIVERED TO THE SITE AND SHALL BE PROTECTED AGAINST DAMAGE DURING STORAGE AND HANDLING
CONCRETE:
CONCRETE FOR FOUNDATION BACKFILL SHALL BE ORDINARY GRADE CONCRETE COMPLYING WITH NZS 3109 'SPECIFICATION FOR CONCRETE', AND WITH A 28-DAY STRENGTH OF 20 MPa. CONCRETE SHALL BE PLACED UNDER AND AROUND POLES AND WELL COMPACTED BY VIBRATING. POLES SHALL BE TEMPORARILY PROPPED AND PROTECTED AGAINST DISTURBANCE FOR AT LEAST TWO DAYS AFTER PLACEMENT OF CONCRETE
- EXCAVATION:**
EXCAVATION IN STAGES TO ALLOW FOR TEMPORARY SUPPORT DURING CONSTRUCTION IS REQUIRED. NO MORE THAN 3.0m OF UNSUPPORTED SLOPE SHALL EXIST AT ANY ONE TIME. EXCAVATION FOR POLES SHALL BE TAKEN OUT BY AUGERING TO THE DIMENSIONS DETAILED, WITH ALL SURPLUS SOIL BEING DISPOSED OF AWAY FROM THE SITE. ALLOWANCE SHALL BE MADE IN POSITIONING AUGERED HOLES FOR THE SLOPE OF THE WALL AND FOR CONCRETE TO SURROUND THE POLES. DRIVING OF POLES IS NOT ACCEPTABLE AS AN ALTERNATIVE TO AUGERING. POLES SHALL BE INSTALLED AS SOON AS POSSIBLE AFTER EXCAVATION. EXCAVATIONS FOR POLES SHALL BE FREE OF WATER AND LOOSE MATERIAL BEFORE CONCRETING. IF NECESSARY THE CONTRACTOR SHALL ALLOW FOR HANDCLEANING AND PUMPING OF EXCAVATION.
- INSTALLATION:**
DRIVING OF POLES IS NOT ACCEPTABLE AS AN ALTERNATIVE TO AUGERING. FIXING OF HORIZONTAL TIMBERS TO POLES SHALL UTILISE GALVANISED NAILS AS DETAILED. TIMBERS SHALL BE LAYED IN POSITION COMMENCING AT THE BOTTOM OF THE WALL WITH JOINTS BETWEEN TIMBERS STAGGERED BETWEEN THE POLES BY USE OF SHORT TIMBERS AT ENDS OF ALTERNATIVE ROWS. IF CUTTING IS NECESSARY THE EXPOSED SURFACES SHALL BE FLOODED WITH A COPPER NAPHTHENATE TYPE OF WOOD PRESERVATIVE. CARE SHALL BE TAKEN IN SELECTING AND LAYING HORIZONTAL TIMBERS TO MAINTAIN THE SPECIFIED MINIMUM THICKNESS OF TIMBERS, PARTICULARLY NEAR THE BASE OF THE WALL AND TO ACHIEVE NEAT STRAIGHT LINES AT THE TOP OF THE WALL.
- BACKFILLING:**
A PERFORATED OR OPEN JOINTED SUBSOIL DRAIN SHALL BE LAID AND SURROUNDED IN FINE GRANULAR MATERIAL WITH THE INVERT BELOW LOWER GROUND LEVELS AND LED TO A FREE OUTLET AT A POINT OF SAFE DISCHARGE. REMAINING BACKFILL TO WITHIN 300mm OF FINISHED SURFACE LEVEL SHALL BE DRAINED COMPACTED GRANULAR FILL NOT LARGER THAN 65mm DIMENSIONS (eg RUN OF PIT SCORIA OR SIMILAR). THE FINISHED SURFACE OF BACKFILL SHALL BE SEALED AGAINST ENTRY OF SURFACE WATER WITH A LAYER OF TOPSOIL, CLAY OR CONCRETE.



Issue	Date	Revision	DWG	TYPICAL TIMBER POLE WALL DETAILS RW01 AND RW02		 Civil & Structural Engineers 6 Fairway Drive Kerikeri, BOI. T: 09 407 8327 F: 09 407 8378 E: info@haighworkman.co.nz	Project	WAIANGA PLACE, OPONONI		DWG No.	G03	
A	21/01/2022	GEOTECHNICAL INVESTIGATION AND RW DESIGN	Scale	N. T. S.	Date		21/01/2022	Client	DENNIS MATENE (LOT 10, DP 546644)			Sheet No.
			Drawn	WT	Checked	JP	Approved	JP	Project No.	21 259	RC no.	
			File	S:\CLIENTS\DENNIS MATENE\JOBS\21 259 - WAIANGA PLACE, OPONONI (LOT 10 DP 546644)\ENGINEERING\DRAWINGS\21 259_RW01-02.DWG			<small>DIMENSIONS MUST NOT BE SCALE MEASURED FROM THESE DRAWINGS. THE CONTRACTOR SHALL CHECK & VERIFY ALL DIMENSIONS INCLUDING, SITE LEVELS, HEIGHTS AND ANGLES ON SITE PRIOR TO COMMENCING ANY WORK. THE COPYRIGHT TO THESE DRAWINGS AND ALL PARTS THERE OF REMAIN THE PROPERTY OF HAIGH WORKMAN. ©2008</small>					