

7 June 2022

e2environmental Civil Engineers
Unit 1/46 Acheron Drive
PO Box 31159
Christchurch

Attn: Andrew Tisch

ENGINEERING APPROVAL – GALL STREET, FAIRLIE RM 200071

Engineering approval for the works associated with RM200071 is given for the project as submitted subject to the following conditions and any engineering conditions set down in the resource consent dated 5 February 2021.

General Conditions

1. The development shall proceed in accordance with the information and plans submitted with the application. The Approved Consent Document has been entered into Council records and includes:
 - a. The Specification – Gall Street Fairlie Engineering Approval Drawings (4 May 2021)
 - b. The approved plans being:

	Drawing title	File	Drawing No	Revision
1	Existing Site Plan	20015-02	210	C
2	Earthworks Plan	20015-02	211	B
3	Depth Cut/Fill Plan	20015-02	212	A
4	Roading Plan	20015-02	220	C
5	Roading Cross-Sections and Details	20015-02	221	A
6	Roading Long sections	20015-02	222	B
7	Sewer and Stormwater Plan	20015-02	230	C
8	Water Plan	20015-02	231	B
			232	A
9	All Services General Arrangement	20015-02	240	C
10	Water & Services Trenching Plan	20015-02	241	A
11	Typical Roof Soak pits	20015-02	250	B

	Drawing title	File	Drawing No	Revision
12	Sunshine Housing Flood Wall – Panel Schedule	Job 12371	NA	NA
13	Sunshine Housing Flood Wall – Type 1 Details	Job 12371	P01	NA
14	Sunshine Housing Flood Wall – Type 2 Details	Job 12371	P02	NA
	West Boundary/Lot 11; Gall St, Fairlie	NA	NA	NA
	Lot 13/14 Boundary	NA	NA	NA
	Lot 14/15 Boundary	NA	NA	NA

c. Additional approved plans being:

	Drawing title	File	Drawing No	Revision
15	Proposed Subdivision Lot 1 DP (Philip Conway Surveyor)	Job 345030	1	21 Jan 2021
16	Earthworks, Roading, Sewer and Stormwater	20015-01	220	A

2. Prior to any works starting on site, the developer shall present a list with names, contact numbers and office location/s that are related to the contractor on site and/or to the consultant's nominated persons for site supervision works.
3. The consent holder shall be responsible for all contracted operations relating to the exercise of this consent. These included works to achieve sub-grade levels for the access, general cut to fill as well as work to implement and maintain ESC measures (run-offs and dust & noise) during the works. The consent holder shall ensure that all personnel working on the site are made aware of the conditions of this consent and have access to the contents of this consent document (as well as all of the associated erosion and sediment control plans) and shall ensure compliance with consent conditions.
4. Preventive and specific erosion and sediment control measures are to be employed on site prior to earthworks development (excavation / filling). Prior to works commencing, an ESCMP is to be provided to the Council Engineer. The ESCMP measures are to be inspected and approved by the Council's Consents Engineer.
5. Works are to also comply with the Environment Canterbury Erosion and Sediment Control Guidelines.
6. No work, with the exception of dust and sediment control related work or to ensure the site is safe, shall be undertaken on Sundays, Public Holidays, or outside the interval of 7.00 am to 7.00 pm Monday to Friday. No works shall be undertaken on Saturday outside the interval between 7.00 am and 5.00 pm. Works may only be carried out outside these times with the Council's prior consent.
7. Should the Consent Holder cease or abandon construction on site or stop the works for a longer period, it shall first take adequate preventive and remedial measures to control sediment discharge and dust emission, as well as site safety and shall thereafter maintain these measures for such time as necessary to prevent sediment discharge from the site or

dust emission, etc. All such measures shall be of a type and to a standard which are to the satisfaction of the Consultant and the Council's Consents Engineer.

8. A Traffic Management Plan shall be prepared and forwarded for approval to Council.
9. Access area to and from the site, for import of fill or for machineries required on site, shall be **only** through Gall Street. Access area (from road boundary and up to 15 m inside property area), shall be laid with a stabilised coarse gravel aggregate layer.

Maximum attention shall be employed in preventing any deterioration of access roads (vicinity and within neighbourhood) and keeping them clean and free of dust, mud or any other detritus (the road area close to site entrance and crossing points shall be cleaned on regular basis and whenever that is required).

Any damage to the public road area, resulting from earthwork activity or subdivision engineering works, will be the developer's responsibility to repair within the time frame associated to the subdivision related works. The Council's engineering clearance (for the repairs) will be issued at Section 224 stage of the subdivision consent or when (if) the works on site are going to cease for a period longer than 6 months (see Condition 7).

Earthworks

10. The general new ground level (after filling) shall not cause any kind of ponding / drainage related nuisance to the neighbouring (surrounding) properties to the South or East.
11. No works are to be undertaken in frozen conditions or when the ground conditions are saturated.
12. If during site development works, any potentially contaminated or contaminated materials or archaeological/burial sites are encountered (e.g. stained, odours, content, appearance), be that in the known areas or areas not yet identified at the investigation site visit, these sites should be isolated and all works involving them and around the immediate area shall cease immediately until the matter is properly assessed and appropriate remediation options are determined and the Consultant advised.

The Consultant should be contacted in first instance. The services of a specialist contaminated land consultant/archaeologist will be required to undertake the appropriate investigation. The consultants work shall be undertaken in accordance with the NES and will keep the Council apprised of their progress on the matter so that a consensus in approach, if practicable, is maintained.

The finished remedial work shall be approved by the Council's Engineer prior to any subdivision work starting on site. The acceptance/approval process is to be agreed between the developer/specialist consultant and the Council's Engineer.

13. The consent holder shall ensure that contractual arrangements with contractors on site are in place and include a requirement for using suppressant measures to avoid nuisance from dust conditions and protective measure for people working on site (personnel protection).

Work on site shall stop if windy conditions prevail (if wind speed exceeds 14 metres per second towards residential areas). Contractors on site shall have vehicles' speed under control (and shall instruct the drivers in this matter) when using residential roads and when traversing through the site area (earthwork affected area).

14. During dry days the stockpiles on site shall be kept moist during excavation (avoiding the dust leaving the site area). All of the "on site" routes, used by trucks and heavy machineries, must be frequently watered. The appropriate equipment (water cart or sprinklers) must be available on site at all times and consistently used (use the watercart a few times per day or at intervals to suit the conditions and to avoid nuisance from dust emission). When the depositing is finished, the stockpiles piles shall be grassed to prevent dust emission and minimise run-off.

15. Immediately following earthworks, the site is to be topsoiled to a minimum depth of 100mm and sown in Rye grass. Irrigation is to be applied to the grassing of the site should conditions become dry. Should the conditions become so cold that grass is unable to be established, then the site will need to be stabilised with a suitable Council approved polymer or some other similar application.

Erosion and Sediment control measures are to stay in place until such time as the site is fully stabilised with a significant grass growth.

Should there be a period where the site is unattended or abandoned for the winter, then all construction surfaces that are not top soiled and grassed are to be metalled.

16. Noise from excavation and traffic (on site machineries / trucks) must be limited to comply with requirements of NZS 6803 "Acoustic – Construction Noise" (See Table 3, page 11 from NZS 6803).

Accessway Construction

17. Road metal must be sourced from a quarry supplying certified metal. Council reserves the right to request grading results.
18. The Contractor shall density test the completed ROW carriageway subbase and base course materials as per the specification. The Consultant shall supply a copy of all test results as part of the application for S224c. Alternatively Clegg Hammer tests to achieve a minimum of CIV 28 on sub-base and CIV 35 on base-course.
19. You are reminded that the first coat seal is to be a two-coat seal (Grade 3 & 5) and that a second coat two coat seal is to be applied prior to the end of the Maintenance Period (12 months).

Footpaths, Driveways and Berms

20. Any defective areas of berm are to be made good including poor growth, excessive weed growth or damage. If conditions are not appropriate for good growth within the contract works defects liability period, then arrangements shall be made with the Council to maintain the berms until an acceptable standard is reached.
21. Bank battering on berm and property areas shall be formed to a standard that allows easy hand mowing.

Sanitary Sewer

22. In soft ground conditions Penetrometer testing is required at regular intervals to determine existing ground bearing strength. A soft ground foundation will need to be considered if the existing ground has a bearing strength of less than 50kPa.
23. Manholes installed below the water table as determined at its highest level shall have a suitable length of riser on base to get above this water level. Manholes shall be sealed to stop water ingress and tested in accordance with the standard specification.
24. Standard concrete manhole chambers are required to be installed at all 150mm lateral connections to the sewer main. Where there are 100mm lateral connections to the sewer main these can be installed with standard junction fittings.
25. Sewer manhole lids shall be circular ductile cast iron, hinged, with a composite ring and 606mm diameter opening (Korum). The design traffic loading shall be HN-HO-72.
26. All sewer reticulation services to be vested in Council shall be inspected via CCTV and all pipelines must be flushed clean prior to inspection. All data and operator analysis shall be collated on an indexed DVD. The CCTV work is to be carried out at the completion of works (Section 224c).
27. Pressure tests shall be undertaken on all pipelines in accordance with NZS 4404:2010, test reports shall be submitted to Council.

Stormwater

28. Any filling on the site is to take into account the current land stormwater and drainage pattern and it shall not cause runoff to discharge onto adjacent properties.
29. If an adjacent neighbour's historical stormwater drainage was onto the proposed development, the proposed development must maintain or mitigate the historical discharge.

Water

30. Connection into Council's mains to be carried out by Council's Maintenance Contractor or other approved Contractor.

31. Valve covers are to be painted white with heavy duty road marking paint.
32. All testing shall be verified on site by the consultant and test results forwarded to the Council on completion.
33. Reticulation shall be installed to Fire Code of Practice (SNZ PAS 4509 and subsequent amendments) specifications. This includes amongst other matters that spacing between hydrants shall be no more than 135 lineal meters.
34. Where water is needed to be temporarily shut off to enable the connection of a subdivision water reticulation to Council reticulation, then council must be given 48 hours' notice to attend. Council must be in attendance for every water outage with their costs to be covered by the developer. Council must be in attendance both at the start of the outage and also for the reconnection of the Council supply.
35. Vertical spacing between services is to be at least 100mm with backfill in between services, otherwise a concrete paver is to be used as protection for the services.

Flood Hazard

36. Lots 4 to 9 and 11 to 16 have a minimum finished floor level as tabulated below, The LINZ Land Transfer Survey Plan shall show reduced levels on three survey control marks located in public land with at least one being within 50 m of the road frontage of each lot to be suitable for establishing minimum FFLs by builders The level datum shall be in terms of Lyttleton Vertical Datum 1937.

Lot	Finished Floor Level, mRL
4	308.05
5	307.95
6	308.15
7	308.25
8	308.45
9	308.85
11	308.8
12	308.5
13	308.2
14	308.00
15	307.8

16	307.66
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Acceptance Criteria – Roading Assets

37. Prior to the 1st coat seal being applied the finished carriageway shape shall be consistently convex across the constructed width, unless otherwise specified. All mate-ins to existing carriageways, concrete kerbs or other street furniture shall be flush. The surface finish shall be such that when swept, it presents a tightly compacted, non-glazed, clean stone mosaic surface that will not unravel as a result of sweeping. The standard of sweeping shall be sufficient to remove all loose aggregate, dirt, dust, silt and other detritus matter. The Engineer shall certify that the surface is in that condition prior to calling Council for final acceptance before sealing. Surface shall be swept prior to Council inspection.
38. Kerb and channel and sump surrounds - There shall be no cracks other than those on the construction joints. No area shall pond water. (Flood testing may be required to check this prior to 224c inspection)
39. Mackenzie District Council have the final say as to acceptance or otherwise.

Producer Statement

40. At the completion of the project and prior to the final inspection or 224c signoff, a Producer Statement from the Contractor/Consultant specifying that all work has been carried out to the approved plans and specifications is required.

Notices

41. The Development Engineer is to be informed of the commencement of work and timing of the following stages to allow the opportunity to inspect the stage of work:

Drainage

- a) Prior to start. A pre-start meeting is required with the drain layer present to outline specifications and methodologies.
- b) Prior to backfilling. In weak ground conditions and/or where a high water table is present a subgrade inspection may be required along with the observation of testing as deemed necessary.
- c) Prior to the first Corbel being poured. Inspections of Corbels there-on as deemed necessary.
- d) Pressure testing of Stormwater and sewer.
- e) Grass strike of swales and basins. Grass strike should be established on swales and basins prior to 224c where practical. If grass strike has not been established the

hydroseeding must be in place. This inspection may be undertaken as part of the 224c sign off process.

Roading

- a) Prior to sub-base placement. To allow an inspection of the subgrade.
- b) Prior to kerb and channel placement. To allow an inspection of subgrade preparation and kerb alignment.
- c) Prior to sealing of carriageways. To allow inspection of the basecourse surface.
- d) After sealing of carriageways, access ways or footpaths. This Inspection may be undertaken as part of the S224c sign off process.

Water

- a) Prior to back filling of any water mains. Pressure testing of mains. Pressure tests must be undertaken by a qualified and experienced person and independently witnessed.
- b) Prior to back filling of any water mains. To allow confirmation of the correct separation between all services.
- c) Chlorination of mains. Chlorination must be undertaken by a qualified and experienced person in accordance with NZS4404:2010.

Practical Completion

- a) To allow inspection of all completed works. This may be undertaken as part of the 224 sign off process.

Defect Liability Periods

42. The defects liability period shall commence from the date of issue of the 224 certificate.

The periods of defects liability are outlined below:

- a. Roothing (1 year)
- b. Water (1 year)
- c. Sewerage (1 year)
- d. Stormwater (1 year)

43. The minimum acceptable defects liability period shall be 12 months for all contract works.

44. A joint inspection between the Consultant, Contractor and Council Staff is required within one month of the expiration of any defects liability period, unless agreed otherwise, to determine the acceptability of the works to Council and to ensure defective works previously identified by Council staff have been satisfactorily repaired.

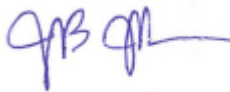
As-Builts

45. As built information shall be supplied no later than the time of S224c application by the Consultant as per MDC requirements. These are to include water, sewerage, stormwater utilities, roading, footpath, landscape, irrigation and earth fill details where applicable. As-builts shall be given in a completed file format (PDF) and AutoCAD DWG/DXF format.
46. An electronic (xls) schedule of all roading, streetlighting, landscaping, water, sewerage and stormwater installed and being vested to Council shall be provided. Plans shall note the point of supply for water and point of discharge for sewer or differentiate clearly Council and private services. Components detailing areas, metres, pressure, class, diameter and manufacturer are required no later than the time of S224c application.
47. A full RAMM inventory is to be supplied to the requirements of the Council of the roading assets. This information is to be populated into the Council's RAMM database.

Other

48. Sanitary drainage and stormwater work not to be vested in Council within a private right of way is to comply with the New Zealand Building Code.
49. All plastic pipes and fittings to comply with AS/NZS standards and that only "licensed marked products" are to be used. The Consultant shall confirm to Mackenzie District Council that on completion the above has been complied with.
50. All physical works associated with this approval shall be overseen by Milward Finlay Lobb, who shall certify that the work is complete to Council's specifications and that all testing in terms of NZS 4404:2010 has been undertaken and passed those requirements.
51. At the completion of the physical works the consulting engineer overseeing the works shall provide an ENGINEER'S COMPLETION CERTIFICATE - Infrastructure/land development and the contractor shall provide a CONTRACTOR'S COMPLETION CERTIFICATE - Infrastructure/land development. Both certificates shall be provided as part of the application for 224c approval.

Kind regards,

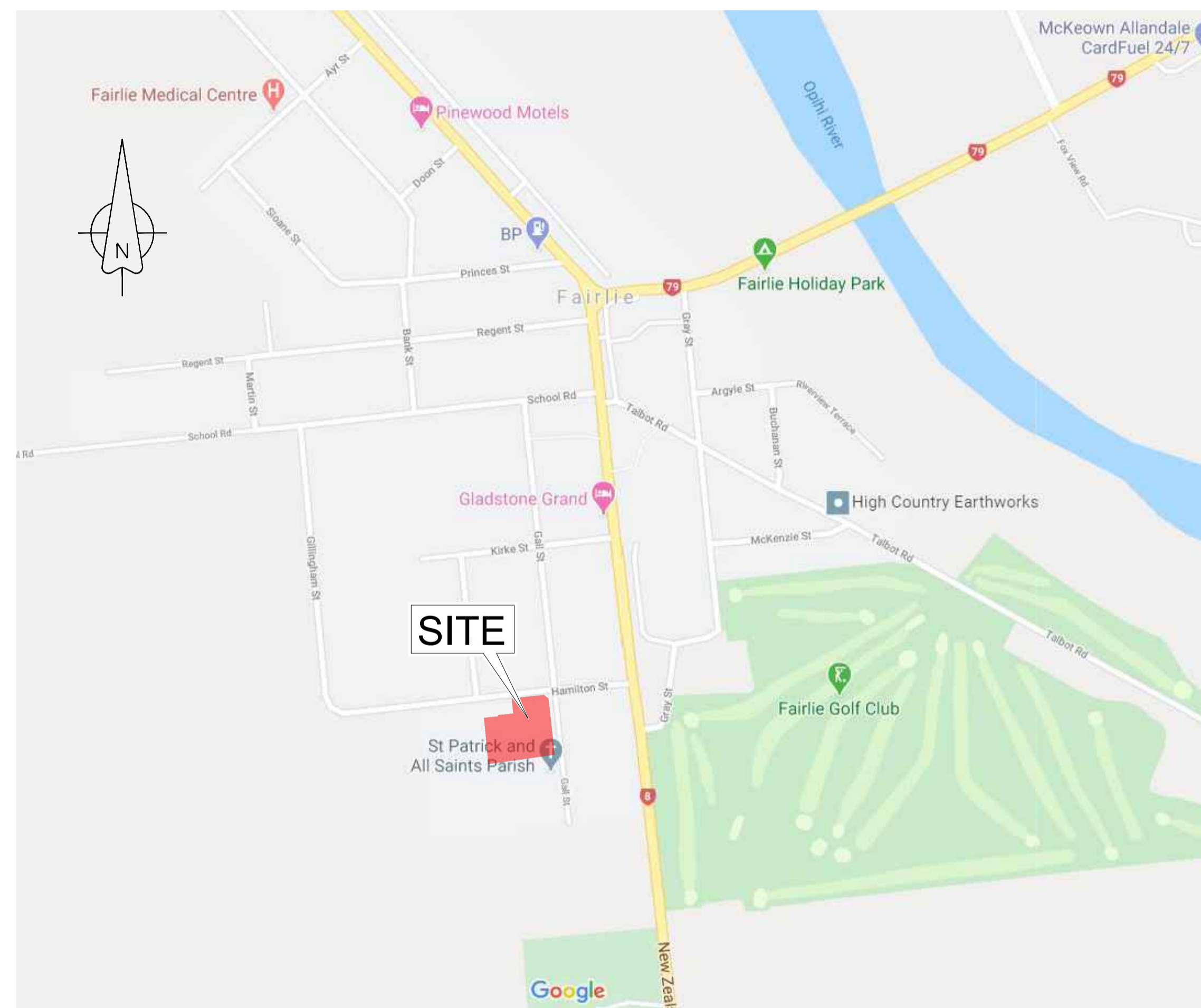


Joni Johnson
Engineering Manager

GALL STREET - FAIRLIE

ENGINEERING APPROVAL DRAWINGS

DRAWING SHEETS	
DRAWING #	DRAWING TITLE
200	COVER SHEET
210	EXISTING SITE PLAN
211	EARTHWORKS PLAN
212	DEPTH CUT/FILL CONTOUR PLAN
220	ROADING PLAN
221	ROADING CROSS SECTIONS & DETAILS
222	ROADING LONGSECTIONS
230	SEWER & STORMWATER PLAN
231	WATER PLAN
232	SEWER LONGSECTIONS
240	ALL SERVICES GENERAL ARRANGEMENT
241	WATER & SERVICES TRENCHING PLAN
250	TYPICAL ROOF SOAKPITS



Rev	Comments	Approved	Date
B	FOR APPROVAL	AJT	03/06/22
A	FOR APPROVAL	AJT	4 MAY 21

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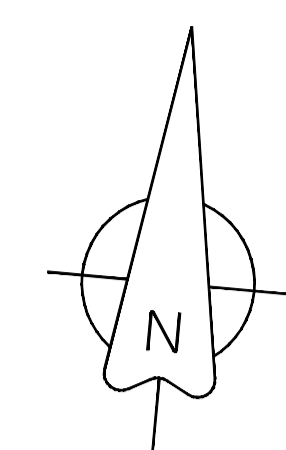
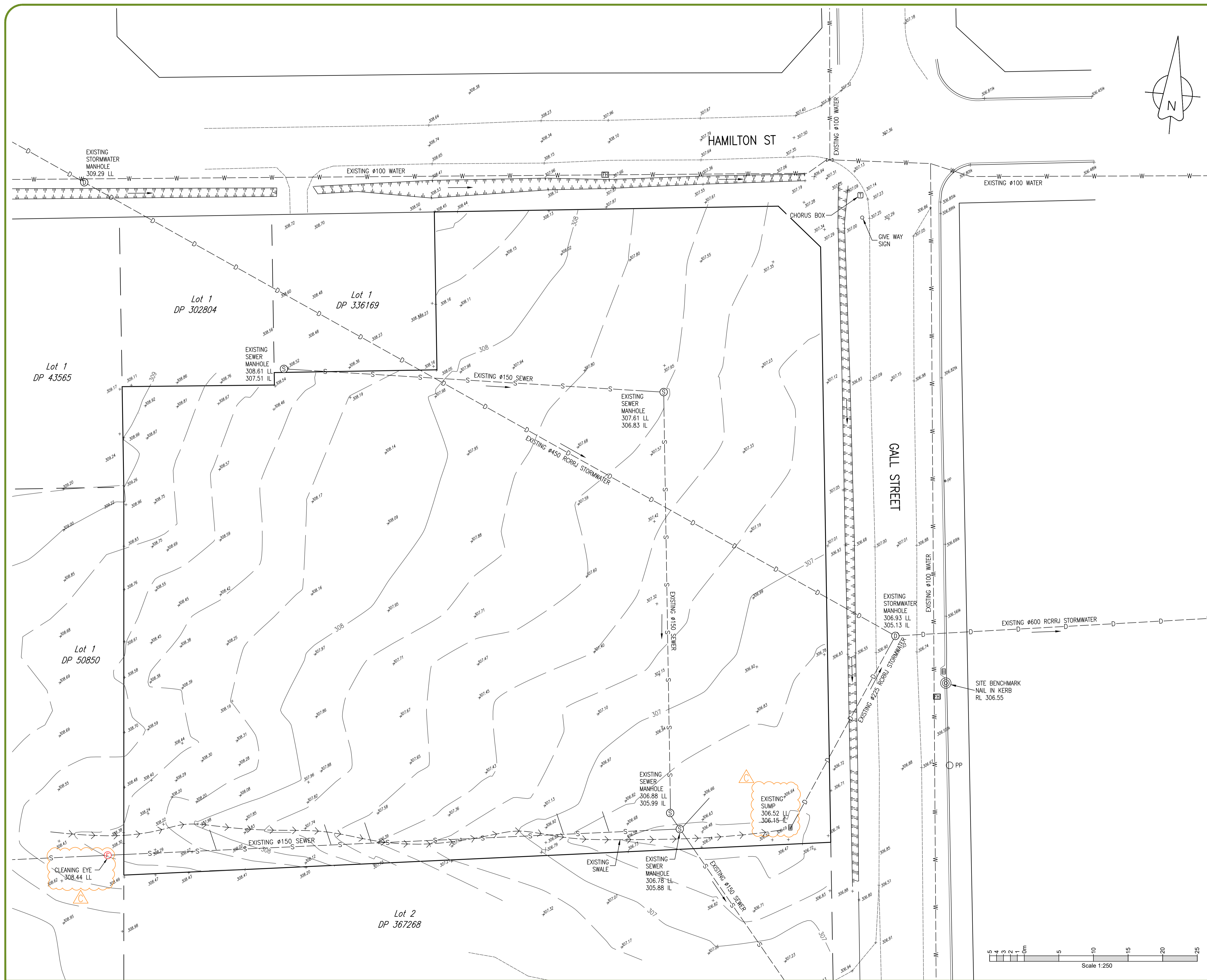
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Client									
Designed by	PH/AJT	Drawn by	ADF	Checked by	AJT	Approved by	AJT	Approved by Date	4 MAY 2021

Project
**GALL STREET
FAIRLIE**
Title
COVER SHEET

Status
FOR APPROVAL Scale
NOT TO SCALE

Project No
20015-02 Drawing No
200 Revision
B



1. LEVELS ARE IN TERMS OF ET1B (BP OVER IT1DP457216)
RL=307.719
ETOL - RL=309.611
LYTTELTON VERTICAL DATUM 1937
2. COORDINATES ARE IN TERMS OF TIMARU CIRCUIT 2000
3. ALL EXISTING INFORMATION FROM PC SURVEY LTD 2020 EXCEPT WATER WHICH IS DIGITISED FROM CANTERBURY MAPS.
4. DN150 SEWER AND LATERALS INSIDE SOUTH BOUNDARY ADDED FROM SURVEY BY MFL LTD.

LEGEND

- 10.0 — MAJOR CONTOUR
- - - - - MINOR CONTOUR (0.2m)
- - - - - EXISTING EDGE OF SEAL
- PP EXISTING SPOT HEIGHT
- PP EXISTING POWER POLE
- - - - - EXISTING SEWER
- ⊙ EXISTING SEWER MANHOLE
- - - - - EXISTING STORMWATER
- ⊙ EXISTING STORMWATER MH
- ⊞ EXISTING SUMP
- ⊞ EXISTING CHORUS BOX
- - - - - EXISTING POWER
- — — — — EXISTING KERB & CHANNEL
- ⊞ EXISTING WATER VALVE
- ⊞ EXISTING FIRE HYDRANT
- - - - - EXISTING TOP OF SWALE
- - - - - EXISTING SWALE

C	FOR APPROVAL	AJT	03/06/22
B	FOR APPROVAL	AJT	04/04/22
A	FOR APPROVAL	AJT	4 MAY 21
Rev	Comments	Approved	Date

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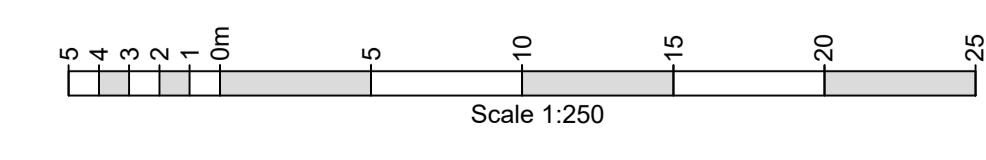


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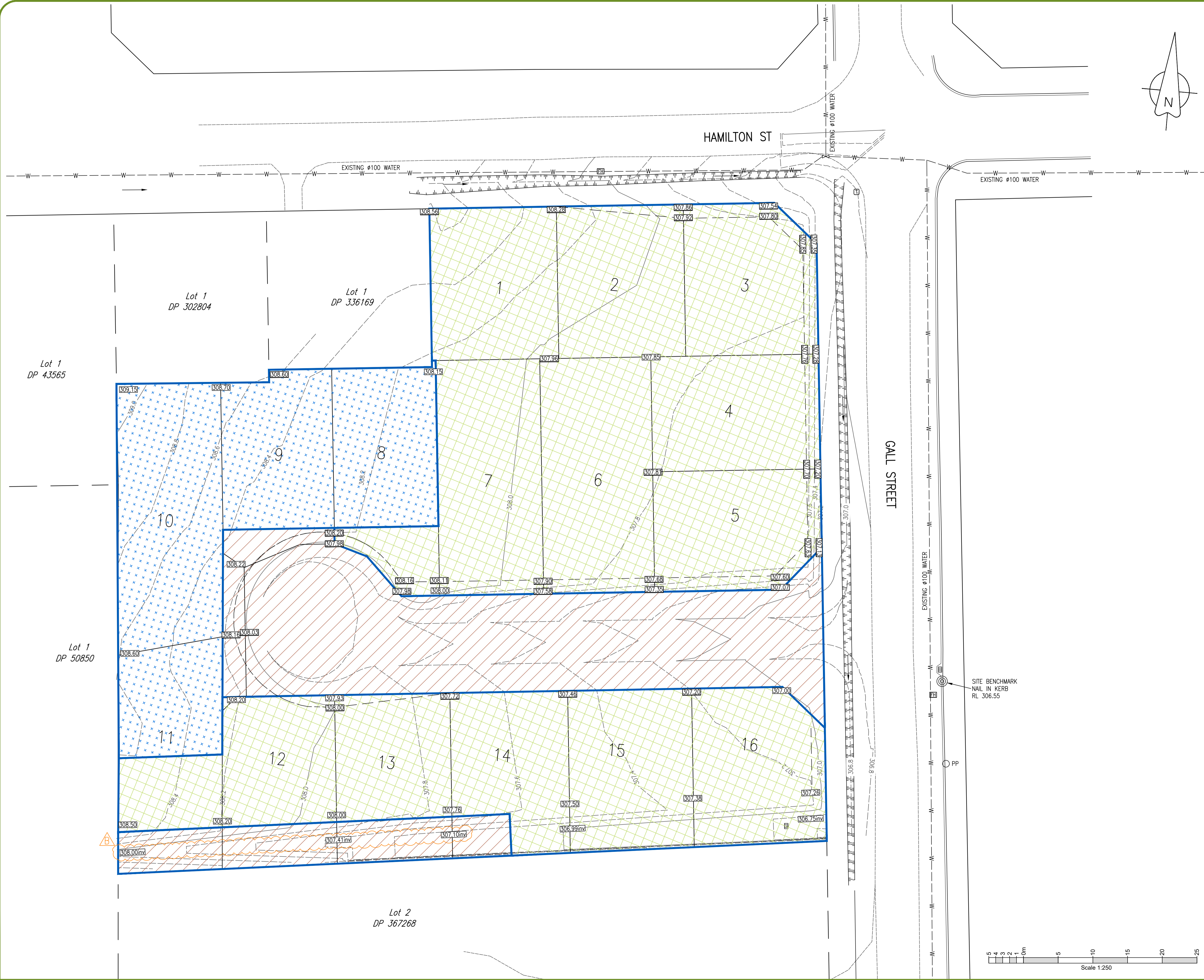
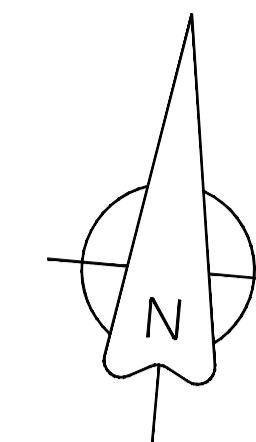
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GALL STREET FAIRLIE
Title
EXISTING SITE PLAN

Status: **FOR APPROVAL** Scale: 1:250 (A1) 1:500 (A3)
Project No: **20015-02** Drawing No: **210** Revision: **C**



NOTES:
 1. LEVELS ARE IN TERMS OF
 ET18 (BP OVER IT1DP457216)
 RL=307.719
 ETOL - RL=309.611
 LYTTELTON VERTICAL DATUM 1937
 2. COORDINATES ARE IN TERMS OF TIMARU CIRCUIT 2000



LEGEND

- MAJOR CONTOUR FINISHED LEVEL
- MINOR CONTOUR FINISHED LEVEL
- CUT
- ENGINEERED FILL
- TOPSOIL CUT/FILL
- FINISHED LEVEL
- PROPOSED TERRACE

B	FOR APPROVAL	AJT	03/06/22
A	FOR APPROVAL	AJT	4 MAY 21
Rev	Comments	Approved	Date

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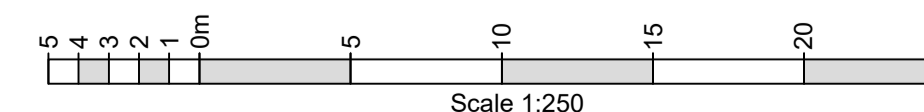
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Approved by Date	4 MAY 2021

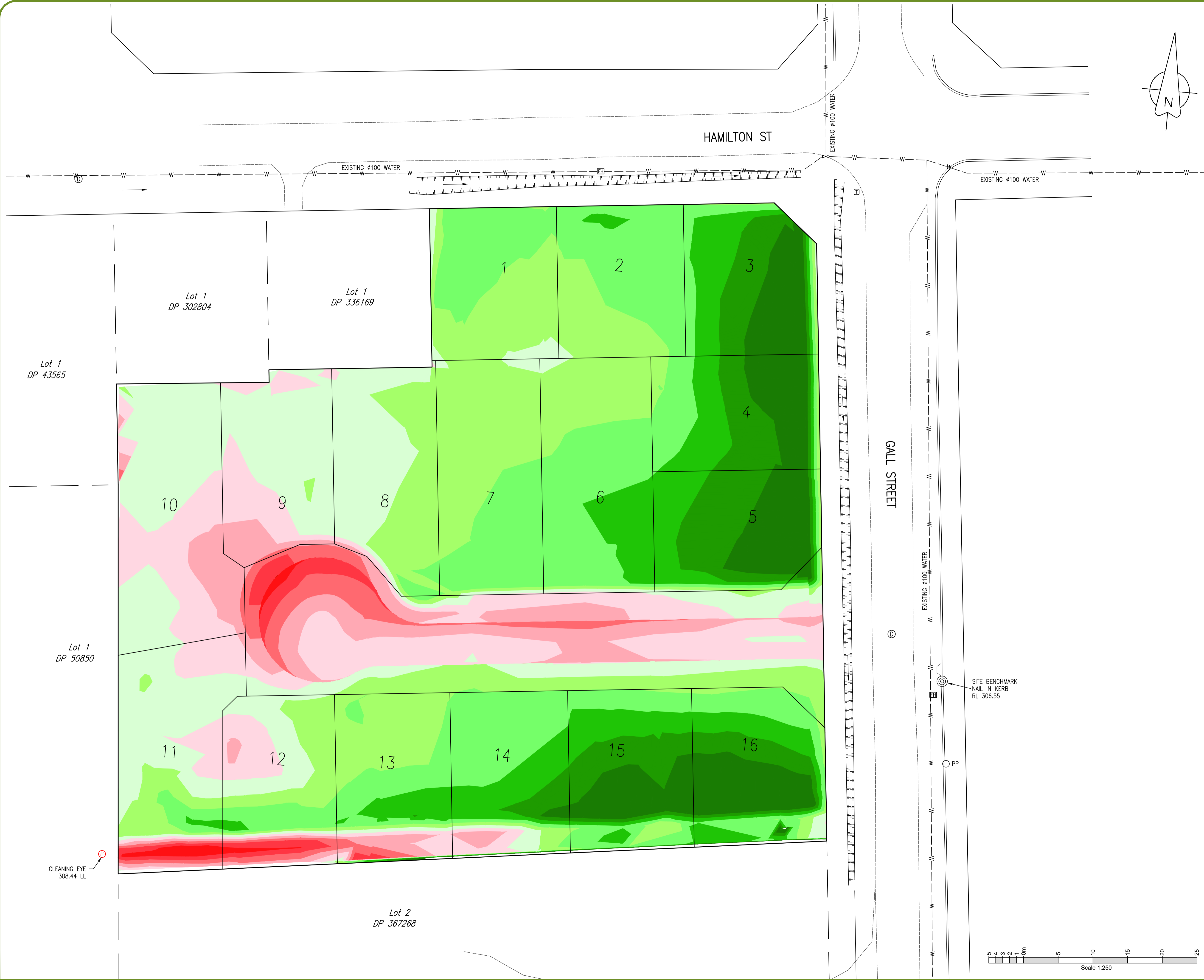
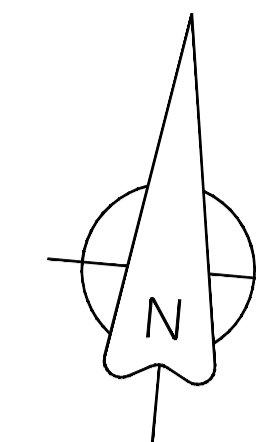
GALL STREET FAIRLIE
 Title
EARTHWORKS PLAN

Status
FOR APPROVAL Scale
 1:250 (A1) 1:500 (A3)

Project No
20015-02 Drawing No
211 Revision
B



NOTES:
 1. LEVELS ARE IN TERMS OF
 ET1B (BP OVER IT1DP457216)
 RL=307.719
 ETOL - RL=309.611
 LYTELTON VERTICAL DATUM 1937
 2. COORDINATES ARE IN TERMS OF TIMARU CIRCUIT 2000



LEGEND

DEPTH RANGE (m) (EXISTING GROUND vs. DESIGN SURFACE)	
■	-0.50 - -0.40
■	-0.40 - -0.30
■	-0.30 - -0.20
■	-0.20 - -0.10
■	-0.10 - 0.00
■	0.00 - 0.10
■	0.10 - 0.20
■	0.20 - 0.30
■	0.30 - 0.40
■	0.40 - 0.50
■	0.50 - 0.60


NOTE:
 NEGATIVE VALUES = CUT DEPTHS
 POSITIVE VALUES = FILL DEPTHS

Rev	Comments	Approved	Date
A	FOR APPROVAL	AJT	4 MAY 21

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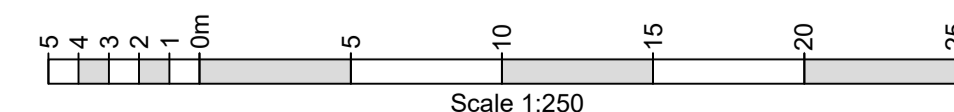
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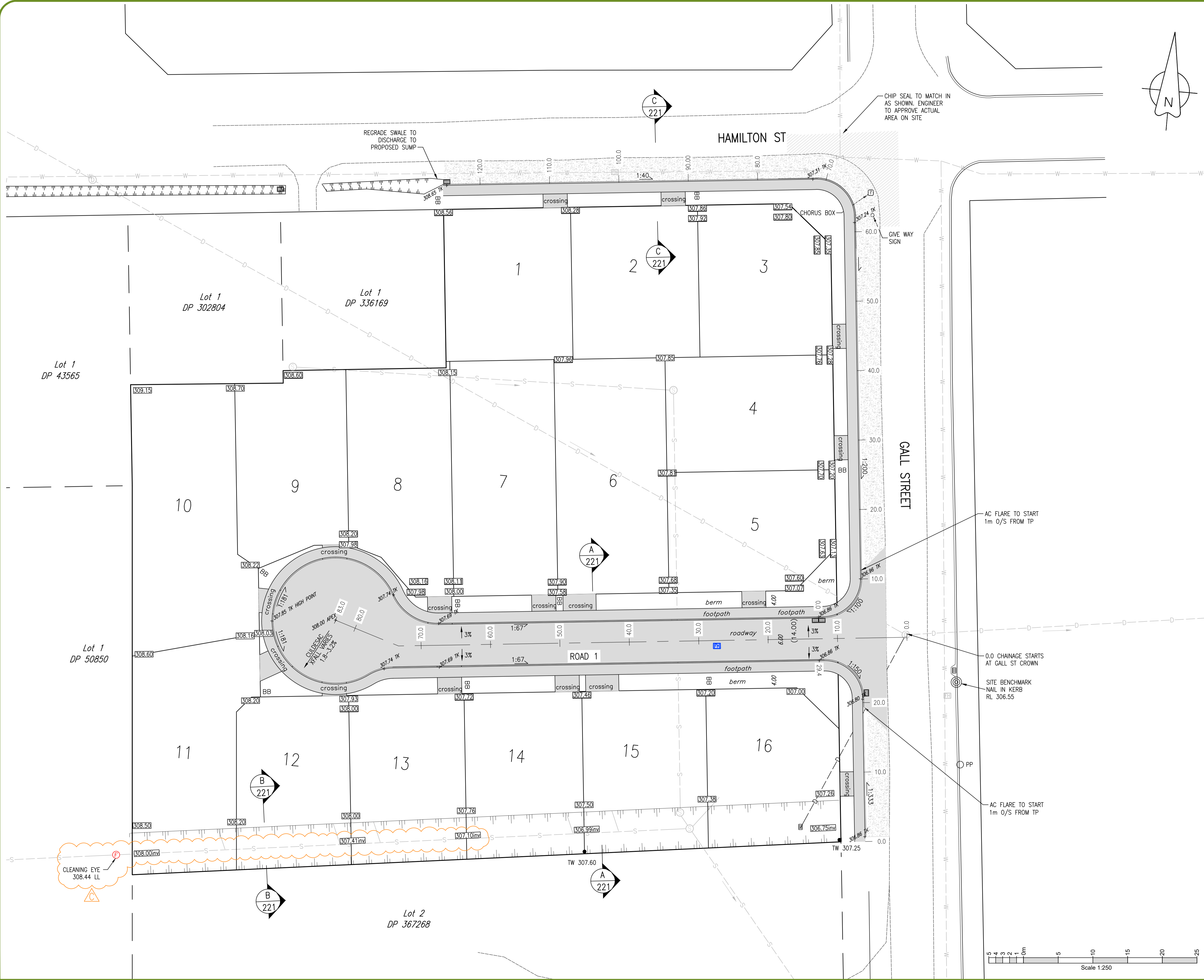
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 Approved by Date: 4 MAY 2021

**GALL STREET
 FAIRLIE**
 Title
**DEPTH CUT/FILL
 CONTOUR PLAN**

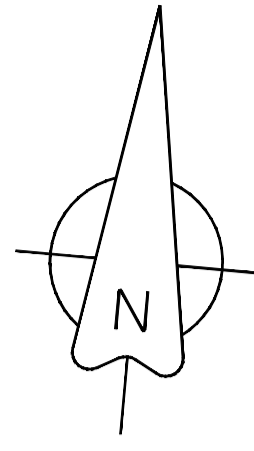
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Project No: **20015-02** Drawing No: **212** Revision: **A**





- NOTES:
- LEVELS ARE IN TERMS OF
ET1B (BP OVER IT1 DP457216)
RL=307.719
ETOL = RL=309.611
LYTELTON VERTICAL DATUM 1937
 - COORDINATES ARE IN TERMS OF TIMARU CIRCUIT 2000
 - REFER DRAWING 20015-02-250 FOR TYPICAL ROAD CROSS SECTIONS AND DETAILS.
 - LEVELS SHOWN ARE AT BACK OF KERB.
 - ROAD DESIGN ASSUMES SUBGRADE CBR OF 7. CONTRACTOR TO CONFIRM SUBGRADE STRENGTH PRIOR TO METAL COURSE BEING PLACED, ON WRITTEN INSTRUCTION FROM ENGINEER.
 - PROPOSED SERVICES NOT SHOWN ON THIS DRAWING FOR CLARITY.



LEGEND

	KERB & CHANNEL
	PROPOSED AC PAVEMENT
	PROPOSED CHIPSEAL
	PROPOSED EXPOSED BASECOURSE SURFACE
	PROPOSED TOP OF KERB
	PROPOSED FINISHED LEVEL
	PROPOSED SUMP
	ROADING DIMENSION
	TOP OF WALL LEVEL

C	FOR APPROVAL	AJT	03/06/22
B	FOR APPROVAL	AJT	04/04/22
A	FOR APPROVAL	AJT	4 MAY 21
Rev	Comments	Approved	Date

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CONSULTING CIVIL ENGINEERS

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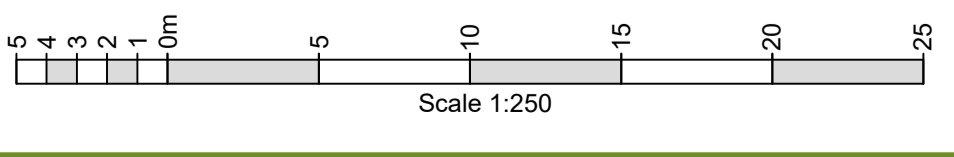
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Approved by Date: 4 MAY 2021

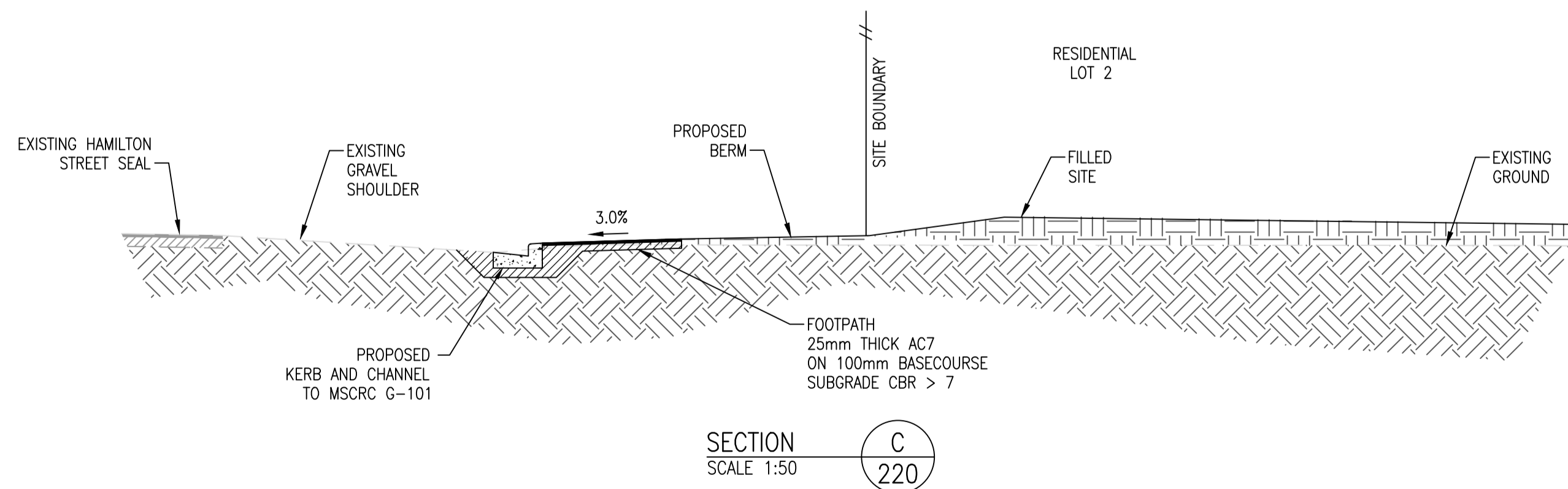
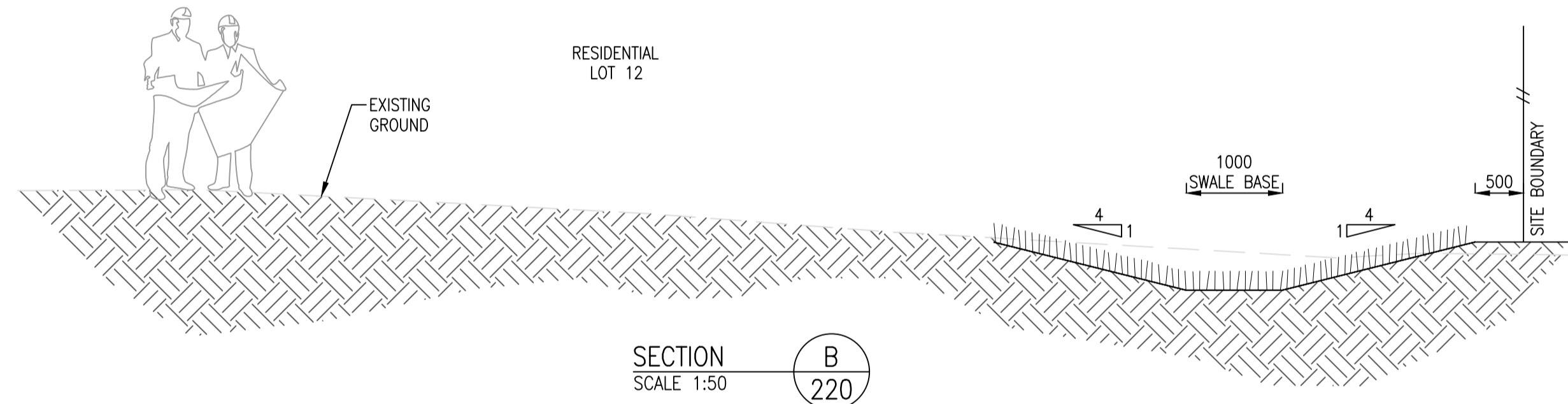
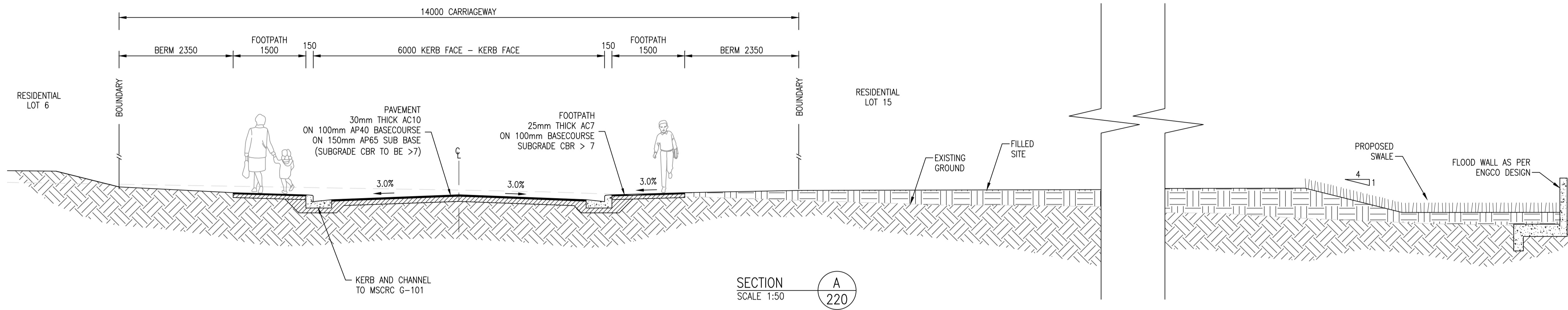
**GALL STREET
FAIRLIE
ROADING PLAN**

Status: **FOR APPROVAL**

Scale: 1:250 (A1) 1:500 (A3)

Project No: **20015-02** Drawing No: **220** Revision: **C**





Rev	Comments	Approved	Date
A	FOR APPROVAL	AJT	4 MAY 21

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Designed by PH	Drawn by ADF	Checked by AJT	Approved by AJT	Approved by Date 4 MAY 2021
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GALL STREET FAIRLIE
Title
ROADING CROSS SECTIONS & DETAILS

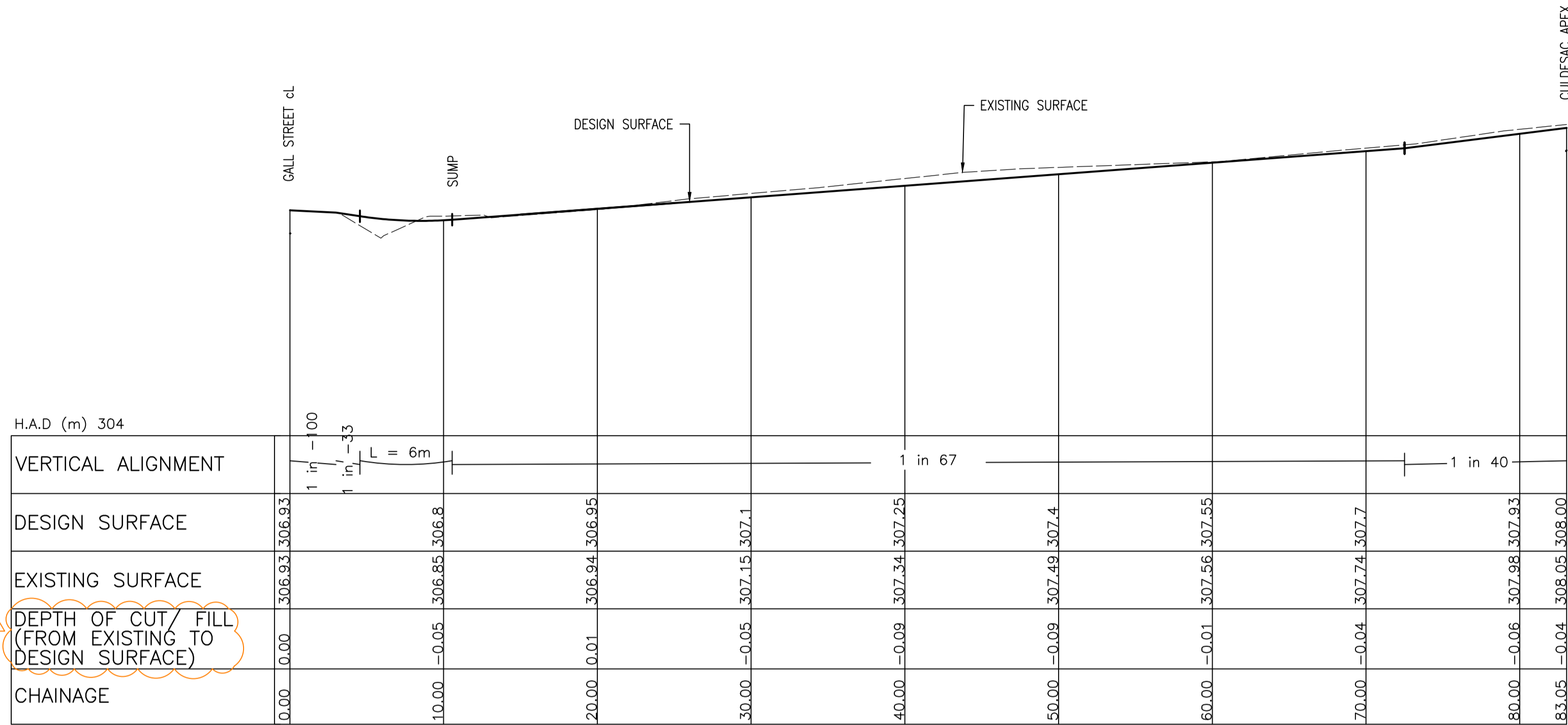
Status
FOR APPROVAL

Scale
1:50 (A1) 1:100 (A3)

Project No
20015-02

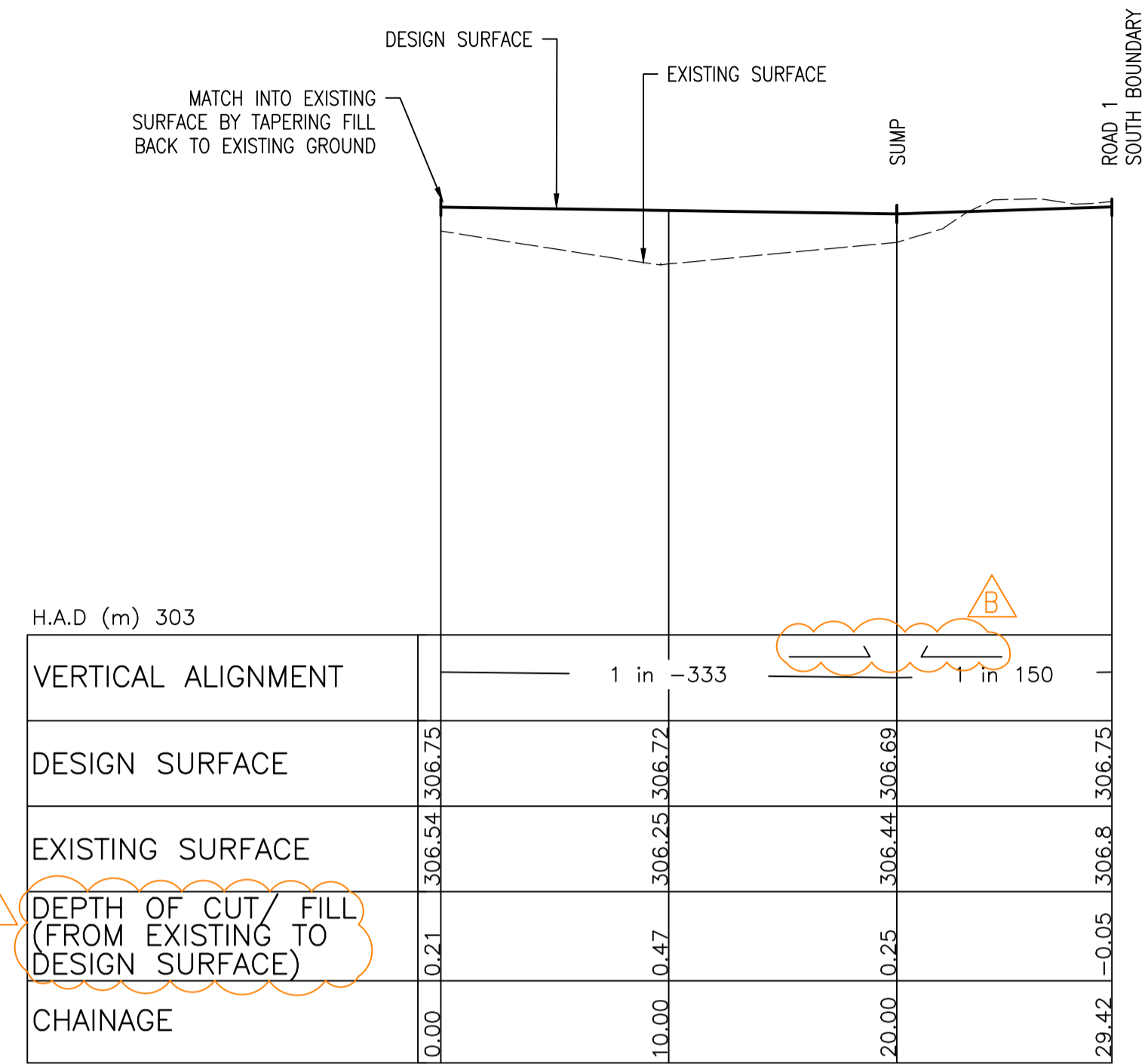
Drawing No
221

Revision
A



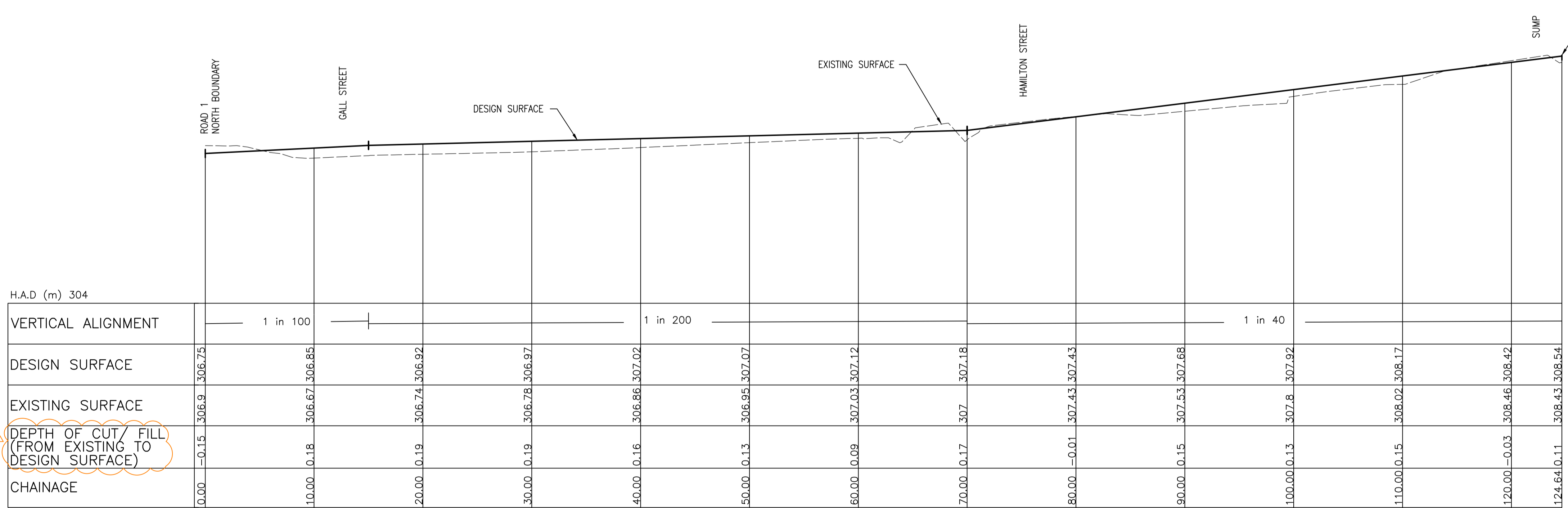
ROAD 1 LONGSECTION – ALIGNMENT ON CENTRELINE

HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:50



GALL ST (SOUTH OF ROAD 1) LONGSECTION
ALIGNMENT ALONG FENDER

HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:50



GALL ST / HAMILTON ST LONGSECTION – ALIGNMENT ALONG FENDER

HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:50

B	FOR APPROVAL	AJT	03/06/22
A	FOR APPROVAL	AJT	4 MAY 21
Rev	Comments	Approved	Date

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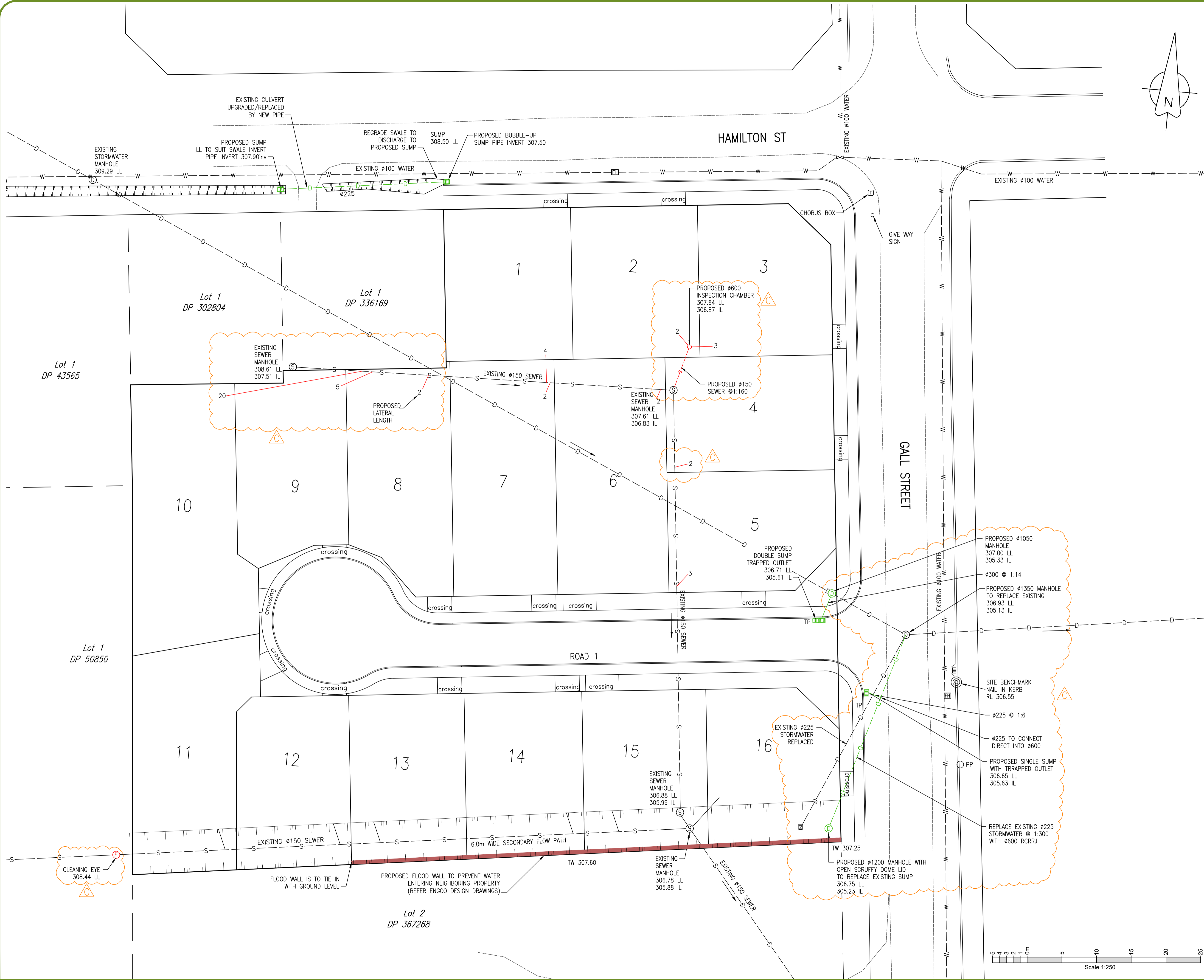
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Client			
Designed by	PH	Drawn by	ADF
Checked by	AJT	Approved by	AJT
Approved by Date	4 MAY 2021		

Project
**GALL STREET
FAIRLIE**
Title
ROADING LONGSECTIONS

Status
FOR APPROVAL
Scale
1:50 (A1) 1:100 (A3)

Project No
20015-02
Drawing No
222
Revision
B



- NOTES:
- LEVELS ARE IN TERMS OF ET1B (BP OVER IT1 DP457216)
RL=307.719
ETOL - RL=309.611
LYTTELTON VERTICAL DATUM 1937
 - COORDINATES ARE IN TERMS OF TIMARU CIRCUIT 2000
 - ALL EXISTING INFORMATION FROM PC SURVEY LTD 2020 EXCEPT WATER WHICH IS DIGITISED FROM CANTERBURY MAPS.
 - REFER TO MCKENZIE DISTRICT COUNCIL SPECIFICATIONS FOR CONSTRUCTION OF WASTEWATER AND STORMWATER DRAINS.
 - ALL SUMPS TO HAVE SUBMERGED OUTLETS UNLESS DESCRIBED OTHERWISE.
 - ALL SUMPS LOCATED ON THE ROAD TO BE BACK ENTRY ACCORDING TO MSCRC SD G-112 WITH TRAPPED OUTLETS (WHERE SHOWN ON PLAN) TO BE ACCORDING TO THE CCC CSS SD329.
 - ALL SS AND SW LATERALS TO BE LAID AT 1:60
 - SEWER MH SIZE 1050mm.
 - ALL SS LATERAL ENDS TO HAVE INSPECTION JOINTS (IJ) WITH RODDING EYE.
 - ALL PIPE CORBELS, FOR PIPES ≤ 400 TO CCC CSS SD341

LEGEND

---	EXISTING EDGE OF SEAL
○ PP	EXISTING POWER POLE
---	EXISTING SEWER
⊙	EXISTING SEWER MANHOLE
---	EXISTING STORMWATER
⊙	EXISTING STORMWATER MH
⊞	EXISTING SUMP
⊞	EXISTING CHORUS BOX
---	EXISTING POWER
---	PROPOSED KERB & CHANNEL
BB	SERVICES BOUNDARY BOX
---	PROPOSED SEWER
⊙	PROPOSED SEWER MANHOLE
---	PROPOSED STORMWATER
⊞	PROPOSED SUMP
⊙	PROPOSED STORMWATER MH
○	TRAFFICABLE INSPECTION CHAMBER
crossing	PROPOSED VEHICLE CROSSING
TF 307.46	LEVEL AT TOP OF FLOOD WALL
306.99inv	PROPOSED SECONDARY FLOW PATH INVERT LEVEL
---	PROPOSED FLOOD WALL

C	FOR APPROVAL	AJT	03/06/22
B	FOR APPROVAL	AJT	04/04/22
A	FOR APPROVAL	AJT	4 MAY 21
Rev	Comments	Approved	Date

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Client:

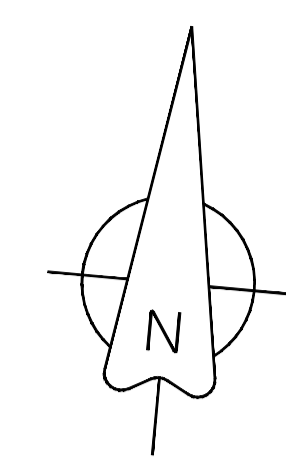
Designed by PH
Drawn by ADF
Checked by AJT
Approved by JT
Approved by Date 4 MAY 2021

GALL STREET FAIRLIE
SEWER & STORMWATER PLAN

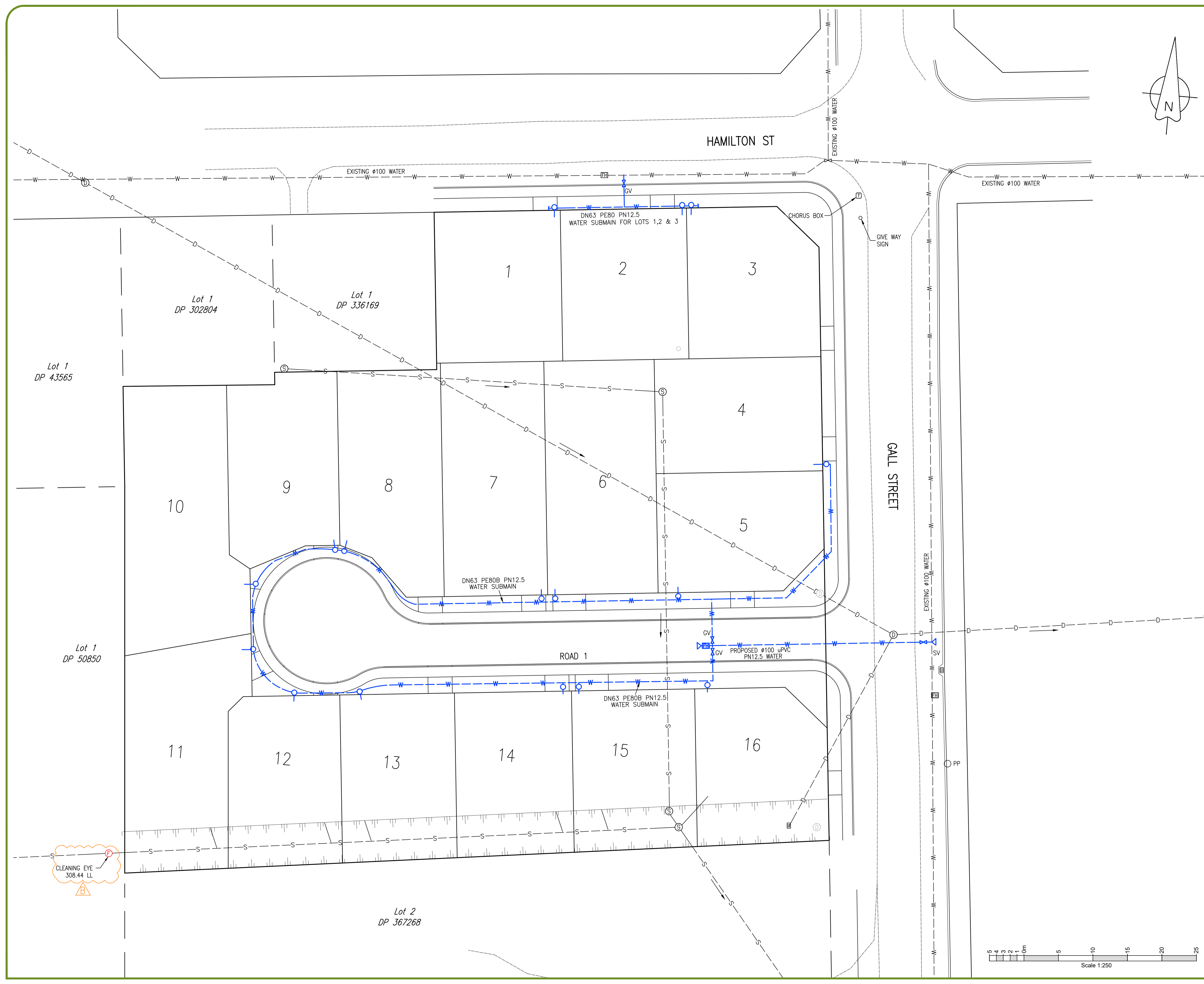
Status: **FOR APPROVAL**

Scale: 1:250 (A1) 1:500 (A3)

Project No: **20015-02** Drawing No: **230** Revision: **C**



- NOTES:
- LEVELS ARE IN TERMS OF
ET1B (BP OVER IT1 DP457216)
RL=307.719
ETOL = RL=309.611
LYTELTON VERTICAL DATUM 1937
 - COORDINATES ARE IN TERMS OF TIMARU CIRCUIT 2000
 - ALL EXISTING INFORMATION FROM PC SURVEY LTD 2020 EXCEPT WATER WHICH IS DIGITISED FROM CANTERBURY MAPS.
 - REFER TO NZS 4404 FOR CONSTRUCTION OF WATER SUPPLY PIPELINES.
 - DN25 PE80 PN12.5 SUPPLY FOR REAR SECTION LOT 4
 - PE PIPE FOR WATER SUPPLY SHALL BE 'BLUE' IN COLOUR, UNLESS SPECIFIED OTHERWISE.
 - ALL COMMON TRENCH SERVICES TO HAVE AT LEAST 300mm SEPARATION (INCLUDING PRIVATE ROWS). REFER TO TRENCH DETAILS SHEET 250.
 - WATER SERVICE CONNECTIONS TO BE HOUSED IN AN APPROVED IN GROUND TOBY BOX. WATER LATERAL TO BE MINIMUM 1000mm INTO NET LOT AREA.



LEGEND

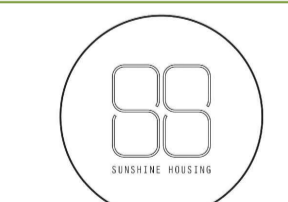
- EXISTING EDGE OF SEAL
- PP EXISTING POWER POLE
- S--- EXISTING SEWER
- ⊙ EXISTING SEWER MANHOLE
- D--- EXISTING STORMWATER
- ⊙ EXISTING STORMWATER MH
- ⊞ EXISTING SUMP
- ⊞ EXISTING CHORUS BOX
- E--- EXISTING POWER
- ==== PROPOSED KERB & CHANNEL
- W--- PROPOSED WATER
- PROPOSED WATER METER
- ⊞ PROPOSED FIRE HYDRANT
- ⊞ PROPOSED VALVE (GV OR SV)
- ⊞ PROPOSED THRUST BLOCK

B FOR APPROVAL	AJT	03/06/22
A FOR APPROVAL	AJT	4 MAY 21
Rev	Comments	Approved Date

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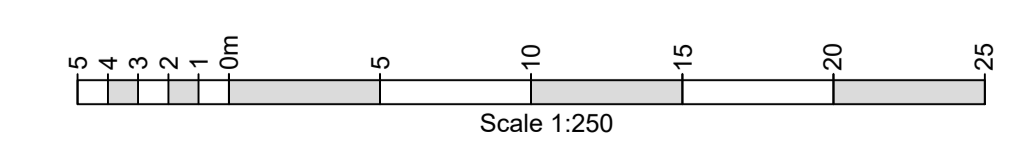


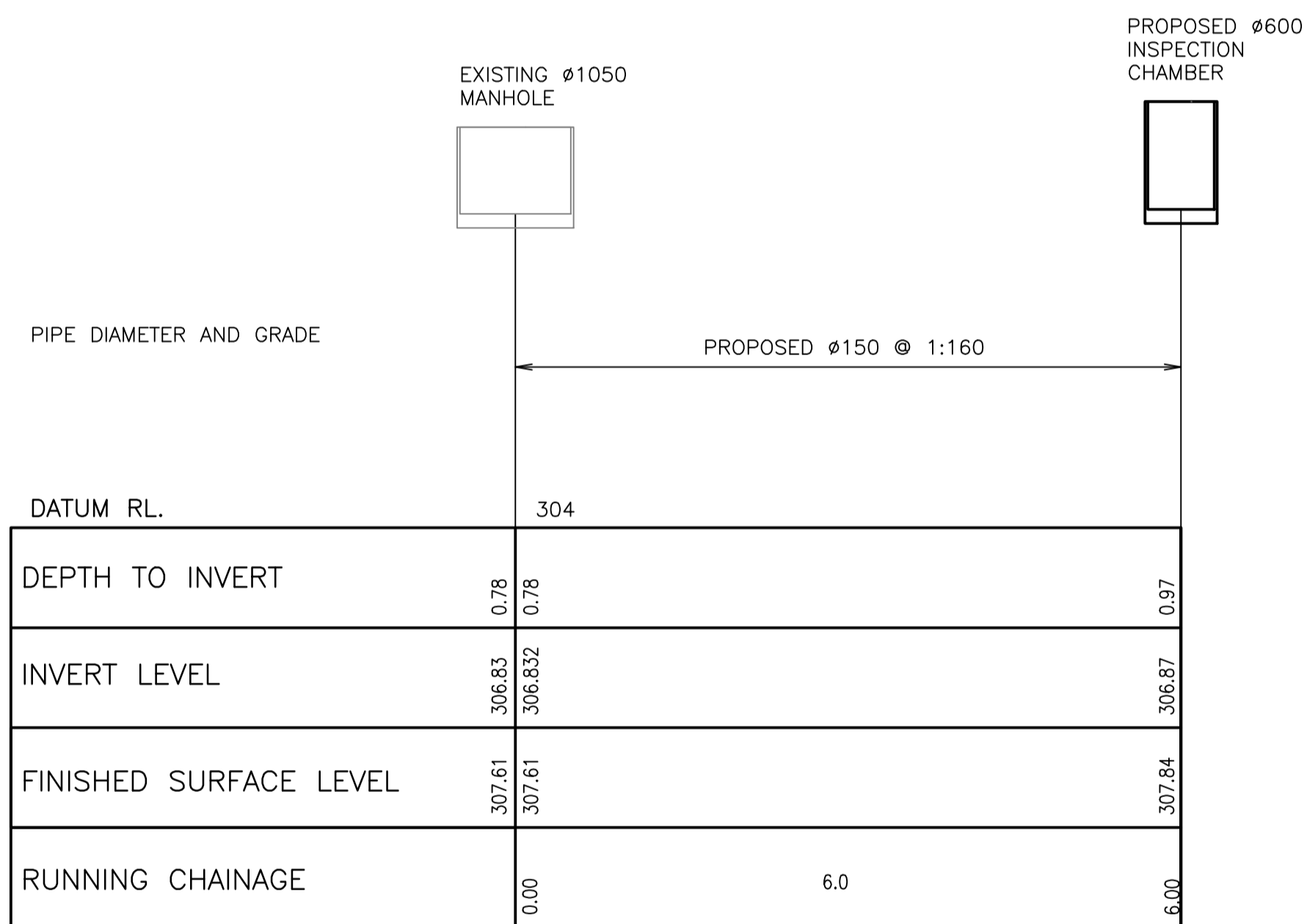
Designed by PH Drawn by ADF Checked by AJT Approved by AJT Approved by Date 4 MAY 2021

GALL STREET FAIRLIE
Title
WATER PLAN

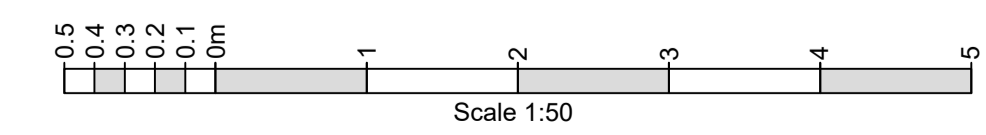
Status **FOR APPROVAL** Scale 1:250 (A1) 1:500 (A3)

Project No **20015-02** Drawing No **231** Revision **B**





SEWER FOR LOTS 2 TO 4
 SCALE A1 H = 1:100 V = 1:100
 SCALE A3 H = 1:200 V = 1:200




Rev	Comments	Approved	Date
A	FOR APPROVAL	AJT	03/06/22

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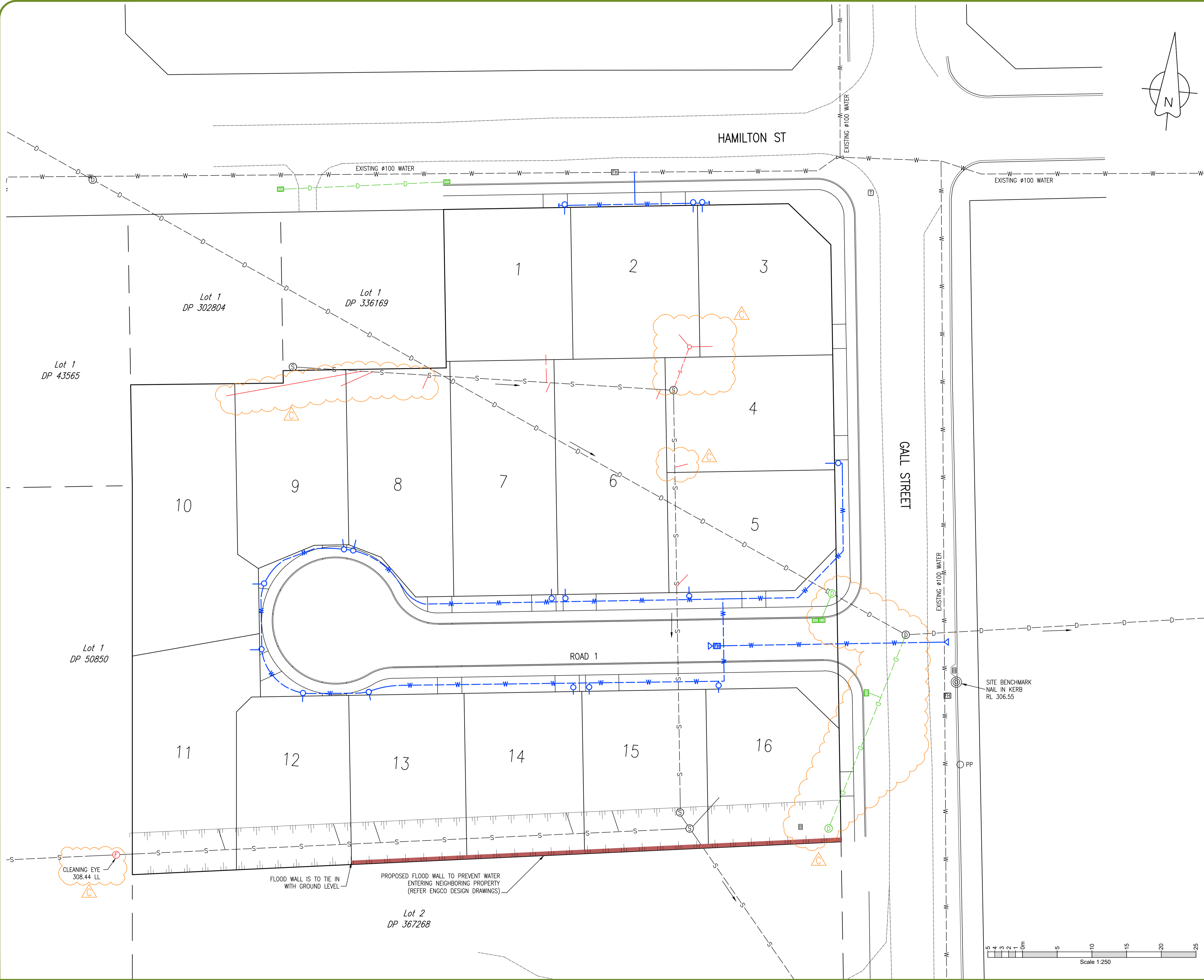


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Client

 Designed by PH Drawn by HN Checked by AJT Approved by AJT Approved by Date

Project
GALL STREET FAIRLIE
 Title
SEWER LONGSECTIONS

Status
FOR APPROVAL
 Scale 1:50 (A1) 1:100 (A3)
 Project No 20015-02 Drawing No 232 Revision A



- NOTES:
- LEVELS ARE IN TERMS OF ET1B (BP OVER IT1 DP457216) RL=307.719 E.T.O.L. - RL=309.611 LYTTLETON VERTICAL DATUM 1937
 - COORDINATES ARE IN TERMS OF TIMARU CIRCUIT 2000
 - ALL EXISTING INFORMATION FROM PC SURVEY LTD 2020 EXCEPT WATER WHICH IS DIGITISED FROM CANTERBURY MAPS.
 - REFER TO MCKENZIE DISTRICT COUNCIL SPECIFICATIONS FOR CONSTRUCTION OF WATER SUPPLY PIPELINES.
 - REFER TO MCKENZIE DISTRICT COUNCIL SPECIFICATIONS FOR CONSTRUCTION OF WASTEWATER AND STORMWATER DRAINS.
 - ALL SUMPS TO HAVE SUBMERGED OUTLETS UNLESS DESCRIBED OTHERWISE.
 - ALL SUMPS LOCATED ON THE ROAD TO BE BACK ENTRY SUMPS MSCRC SD 6-112 TRAPPED OUTLETS (WHERE SHOWN ON PLAN) TO BE CCC CSS SD329.
 - ALL SS AND SW LATERALS TO BE LAID AT 1:60
 - DN20 PE80 PN12.5 SUPPLY TO FRONT SECTIONS AND DN25 PE80 PN12.5 SUPPLY FOR REAR SECTIONS.
 - PE PIPE FOR WATER SUPPLY SHALL BE 'BLUE' IN COLOUR, UNLESS SPECIFIED OTHERWISE.
 - Ø100 SEWER LATERALS TO EACH LOT SHALL BE MINIMUM SN16.
 - WATER SUPPLY SUBMAIN IS PE 80B PN12.5
 - SEWER MH SIZE 1050mm.
 - ALL WATER MANIFOLD SHALL BE METERED AS PER MDC SPECIFICATION.
 - ALL SS LATERAL ENDS TO HAVE INSPECTION JOINTS (J) WITH RODDING EYE.
 - ALL COMMON TRENCH SERVICES TO HAVE AT LEAST 300mm SEPARATION (INCLUDING PRIVATE ROWs).

LEGEND

---	EXISTING EDGE OF SEAL
○	EXISTING POWER POLE
---	EXISTING SEWER
⊙	EXISTING SEWER MANHOLE
---	EXISTING STORMWATER
⊙	EXISTING STORMWATER MH
■	EXISTING SUMP
□	EXISTING CHORUS BOX
---	EXISTING POWER
---	PROPOSED KERB & CHANNEL
BB	SERVICES BOUNDARY BOX
---	PROPOSED SEWER
⊙	PROPOSED SEWER MANHOLE
---	PROPOSED STORMWATER
■	PROPOSED SUMP
⊙	PROPOSED STORMWATER MH
○	TRAFFICABLE INSPECTION CHAMBER
---	PROPOSED WATER
○	PROPOSED WATER METER
■	PROPOSED FIRE HYDRANT
▽	PROPOSED VALVE
▽	PROPOSED THRUST BLOCK

C	FOR APPROVAL	AJT	03/06/22
B	FOR APPROVAL	AJT	04/04/22
A	FOR APPROVAL	AJT	4 MAY 21
Rev	Comments	Approved	Date

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Client:

Designed by PH
Drawn by ADF
Checked by AJT
Approved by AJT
Approved by Date 4 MAY 2021

GALL STREET FAIRLIE
Title
ALL SERVICES GENERAL ARRANGMENT

Status: **FOR APPROVAL** Scale: 1:250 (A1) 1:500 (A3)

Project No: **20015-02** Drawing No: **240** Revision: **C**



- NOTES:
- LEVELS ARE IN TERMS OF ET1B(BP OVER IT1DP457216)
RL=307.719
ETOL - RL=309.611
LYTTELTON VERTICAL DATUM 1937
 - COORDINATES ARE IN TERMS OF TIMARU CIRCUIT 2000
 - ALL EXISTING INFORMATION FROM PC SURVEY LTD 2020 EXCEPT WATER WHICH IS DIGITISED FROM CANTERBURY MAPS.
 - REFER DRAWING 221 FOR NOMINATED TRENCH DETAILS
 - REFER TO CHORUS AND ALPINE ENERGY TRENCH SPECIFICATIONS FOR FIBRE AND CABLE TRENCH DETAILS

LEGEND

- CHORUS ONLY
- WATER ONLY
- CHORUS AND ALPINE ENERGY
- CHORUS, ALPINE ENERGY & WATER
- CHORUS & WATER
- ALPINE ENERGY OFF SITE WORK
- CHORUS OFF SITE WORK

Rev	Comments	Approved	Date
A	FOR APPROVAL	AJT	4 MAY 21

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Client:

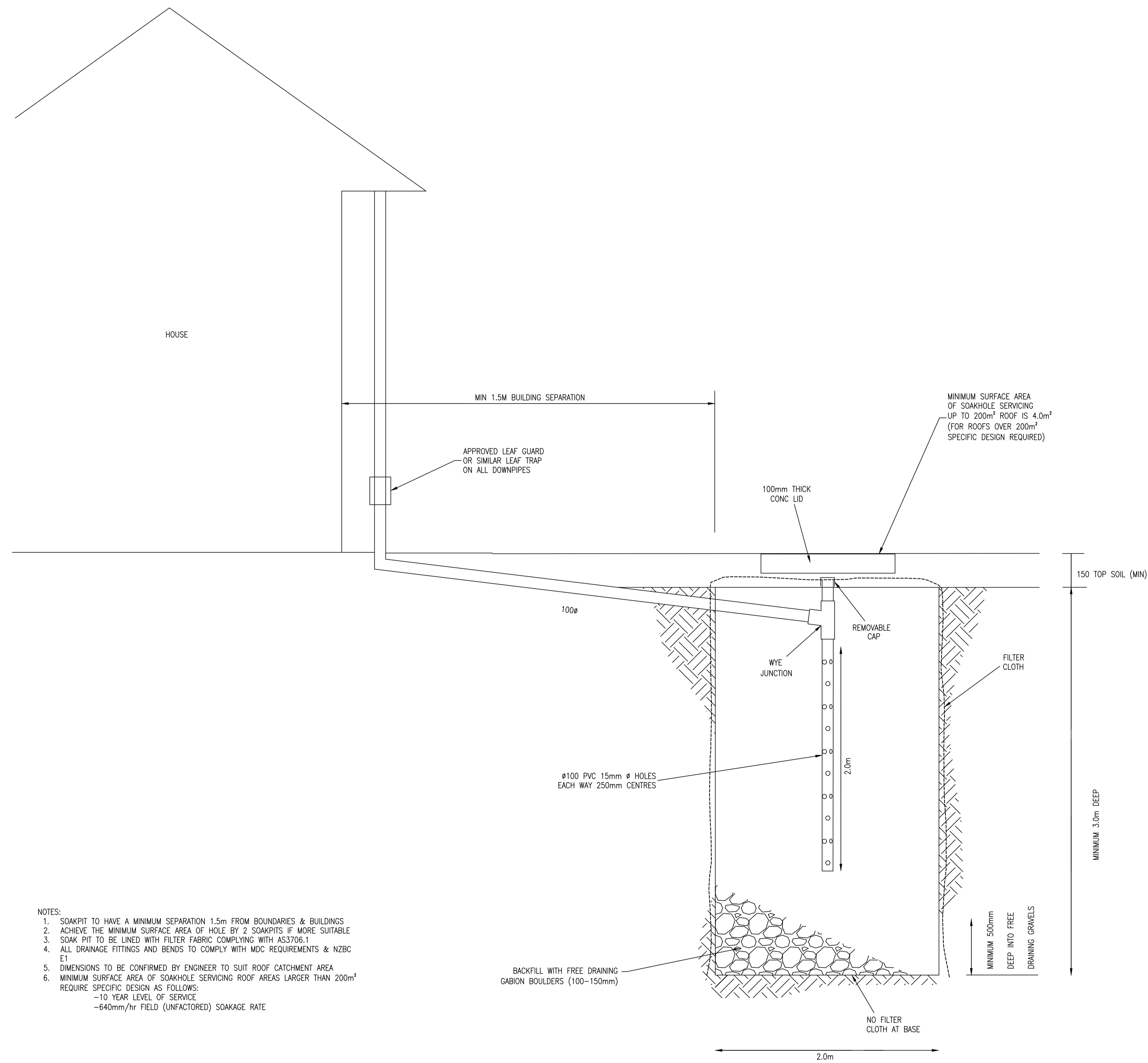
Designed by PH
Drawn by ADF
Checked by AJT
Approved by AJT
Approved by Date 4 MAY 2021

GALL STREET FAIRLIE
Title
WATER & SERVICES TRENCHING PLAN

Status: **FOR APPROVAL** Scale: 1:250 (A1) 1:500 (A3)

Project No: **20015-02** Drawing No: **241** Revision: **A**

NOTES:
 1. THIS DRAWING FOR INFORMATION ONLY.
 2. SOAKPITS TO BE CONSTRUCTED AT THE BUILDING CONSENT STAGE.



- NOTES:
1. SOAKPIT TO HAVE A MINIMUM SEPARATION 1.5m FROM BOUNDARIES & BUILDINGS
 2. ACHIEVE THE MINIMUM SURFACE AREA OF HOLE BY 2 SOAKPITS IF MORE SUITABLE
 3. SOAK PIT TO BE LINED WITH FILTER FABRIC COMPLYING WITH AS3706.1
 4. ALL DRAINAGE FITTINGS AND BENDS TO COMPLY WITH MDC REQUIREMENTS & NZBC E1
 5. DIMENSIONS TO BE CONFIRMED BY ENGINEER TO SUIT ROOF CATCHMENT AREA
 6. MINIMUM SURFACE AREA OF SOAKHOLE SERVICING ROOF AREAS LARGER THAN 200m² REQUIRE SPECIFIC DESIGN AS FOLLOWS:
 -10 YEAR LEVEL OF SERVICE
 -640mm/hr FIELD (UNFACTORED) SOAKAGE RATE

TYPICAL SOAKPIT FOR ROOF WATER DISPOSAL
 (UP TO 200m² ROOF)
 SCALE 1:20

Rev	Comments	Approved	Date
B	FOR APPROVAL	AJT	03/06/22
A	FOR APPROVAL	AJT	4 MAY 21

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Designed by	Drawn by	Checked by	Approved by	Approved by Date
PH	ADF	AJT	AJT	4 MAY 2021

Project
GALL STREET FAIRLIE
 Title
TYPICAL ROOF SOAKPITS

Status
FOR APPROVAL Scale
 1:20 (A1) 1:40 (A3)

Project No
20015-02 Drawing No
250 Revision
B