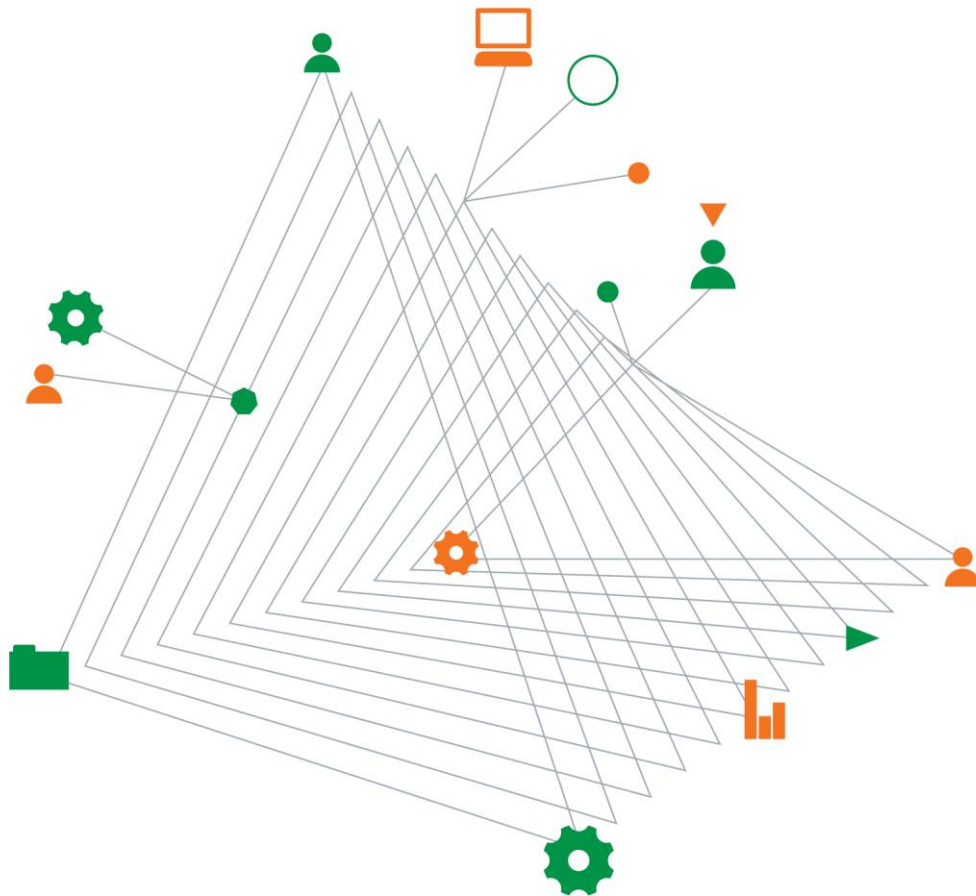


Hugh Green Limited

**Donegal Stud Residential Subdivision Stage 13 at
Conaill Road, Flat Bush**

Geotechnical Completion Report
GENZAUCK16856AE

19 January 2021



Experience
comes to life
when it is
powered by
expertise

Donegal Stud Residential Subdivision Stage 13 at Conaill Road, Flat Bush

Prepared for
Hugh Green Limited
C/- Harrison Grierson Consultants Limited
PO Box 5760
Wellesley Street
Auckland 1051

Prepared by
Coffey Geotechnics (NZ) Limited
Level 4, 25 Teed Street, Newmarket
Auckland 1010 New Zealand
PO Box 8261 Symonds Street
Auckland 1150 New Zealand
t: +64 9 379 9463 f: +64 9 307 2654

19 January 2021

Our Reference: GENZAUCK16856AE

RE: Geotechnical Completion Report for Donegal Stud Residential Subdivision Stage 13 at Conaill Road, Flat Bush

This Geotechnical Completion Report presents all supporting geotechnical data, our Suitability Statement, and the Harrison Grierson Consultants Limited as-built plan set in relation to land development works recently completed at the above location.

It has been prepared in accordance with instructions received from Harrison Grierson Consultants Limited and forms part of the documentation required by Auckland Council to achieve certification under Section 224(c) of the Resource Management Act.

If you have any queries or you require any further clarification on any aspects of this report, please do not hesitate to contact the undersigned.

For and on behalf of Coffey



Ray Berry
Associate Engineering Geologist

Quality information

Revision history

Revision	Description	Date	Author	Reviewer	Signatory
0	Final	19/01/2021	RB	PBCB	PBCB

Distribution

Report Status	No. of copies	Format	Distributed to	Date
Final	1	PDF	Hugh Green Limited	19/01/2021
Final	1	PDF	Harrison Grierson Consultants Limited	19/01/2021
Final	1	PDF	Auckland Council	19/01/2021
Final	1	Original	Coffey Services (NZ) Limited	19/01/2021

Table of contents

1.	Introduction and Description of Subdivision	1
2.	Related Reports.....	1
3.	Earthworks Operations	2
3.1.	Plant	2
3.2.	Construction Programme	3
4.	Quality Assurance and Controls.....	4
4.1.	Inspections	4
4.2.	Quality Control Criteria.....	5
4.2.1.	Compaction	5
4.3.	Quality Assurance Testing	5
4.3.1.	Compaction	5
5.	Project Evaluation.....	6
5.1.	Bearing Capacity and Settlement of Building Foundations.....	6
5.2.	Expansive Soils	6
5.3.	Fill Induced Settlement.....	7
5.4.	Slope Stability.....	7
5.4.1.	General.....	7
5.4.2.	Uncertified Fill.....	7
5.5.	Lot Gradients.....	7
5.6.	Land Drainage.....	7
5.6.1.	Underfill Drains	7
5.7.	Stormwater Controls	8
5.8.	Service Trenches	8
5.9.	Road Subgrades	8
5.10.	Vegetation Cover	8
5.11.	Topsoil.....	8
5.12.	Contractor's Work	8
6.	Statement of Professional Opinion as to the Suitability of Land for Building Development.....	9
6.1.	Limitations	10

Important information about your Coffey Report

Tables

Table 1 - Harrison Grierson Consultants Limited As-Built Plans

Table 2 - Minimum Shear Strength and Maximum Air Voids Method - General Fill

Table 3 - Suitability Statement Summary

Appendices

Appendix A – Harrison Grierson Consultants Limited As-Built Plans

Appendix B - Classification Test Data

Appendix C - Field Density Test Summary Sheets

Appendix D - Existing Coffey Slope Stability Assessments

1. Introduction and Description of Subdivision

This Geotechnical Completion Report (GCR) has been prepared for Hugh Green Limited as part of the documentation required to be submitted to Auckland Council following residential subdivisional development.

It contains our Suitability Statement, relevant test data, and the Harrison Grierson Consultants Limited (HGCL) as-built plan set relating to Stage 13 of the Donegal Stud residential subdivision as follows:

Table 1: Harrison Grierson Consultants Limited As-Built Plans

Title	Reference No.	Date
Finished Contours As-Built Plan	142875-13-AB200-Rev B	13 January 2021
Cut to Fill As-Built Plan	142875-13-AB220-Rev A	21 December 2020
Power and Gas Services As-Built Plans	142875-13-AB600 to AB602-Rev A	21 December 2020
Retaining Wall As-Built Plan	142875-13-AB250 to AB251-Rev A	21 December 2020
Road Layout and Road Marking As-Built Plans	142875-13-AB300 to AB306 and AB310 to - AB312 and AB320 to AB323 and AB330 to AB333 Rev A	21 December 2020
Stormwater As-Built Plans	142875-13-AB400 to AB404-Rev A	21 December 2020
Wastewater As-Built Plans	142875-13-AB405 to AB408-Rev A	21 December 2020

This report covers the construction period between late December 2019 and December 2020 and is intended to be used for certification purposes for:

- 94 residential lots numbered Lots 84 to 177;
- The extension of Dungloe Avenue and Drumnaconagher Drive;
- 3 new roads named Ballyliffin Drive, Bushfield Drive and Tannaghmore Drive;
- 3 joint owned accessways numbered Lot 204, Lot 205 and Lot 206; and
- 1 new Local Purpose Allotment numbered Lot 303.

Stage 13 is located at Conaill Road, Flat Bush, and as can be seen on the Cut to Fill as-built plan, most of the lots in Stage 13 have been partly or totally affected by filling to a maximum depth of approximately 2.5 metres.

2. Related Reports

Previous Coffey geotechnical reports prepared on the subject land include:

- Geotechnical Investigation Report, Donegal Stud Stage 8 at 62 Thomas Road, reference GENZAUCK16403AA, dated 18 December 2014;
- Geotechnical Investigation Report on Proposed Donegal Stud Stage 10 Residential Subdivision, 62 Thomas Road, Flat Bush, reference GENZAUCK16856AB, dated 11 May 2017;

- Slope Stability Assessment for Eastern and Western Boundary Gully Flanks, reference GENZAUCK16856AB, dated 16 April 2018;
- Geotechnical Completion Report on Donegal Stud Stage 10A, reference GENZAUCK16856AB, dated 24 September 2018;
- Geotechnical Completion Report on Donegal Stud Stage 10A Residential Subdivision, 84 Thomas Road, Flat Bush, reference GENZAUCK16856AB, dated 24 September 2018;
- Slope Stability in Recreation Reserve (Lot 406), reference 16856AB, dated 2 April 2019;
- Geotechnical Completion Report on Donegal Stud Stage 10B Residential Subdivision, 84 Thomas Road, Flat Bush, reference GENZAUCK16856AB, dated 9 August 2019;
- Slope Stability in Recreation Reserve (Lot 408), reference 16856AE, dated 6 December 2019;
- Proposed MSE Block Retaining Wall at Road 6 Donegal Stud Stage 13 Residential Subdivision Flat Bush, reference GENZAUCK16856AE, dated 23 January 2020;
- Geotechnical Investigation Report on Proposed Donegal Stud Stage 14-16 at, 64 Thomas Road, Flat Bush, reference GENZAUCK16856AE, dated 8 April 2020; and,
- Geotechnical Completion Report on Donegal Stud Stages 11 and 12, Flat Bush, reference GENZAUCK16856AE, dated 25 September 2020.

The conclusions and recommendations of the above documents (where relevant) have been referenced as part of the preparation of this report.

3. Earthworks Operations

3.1. Plant

The main items of plant used by the subdivision contractor, Dempsey Wood Civil Limited, included:

- Motor Scrapers;
- Bulldozers with Scoops;
- Bulldozers;
- Dump Trucks;
- Excavators;
- Tractor with Discs;
- Tractors;
- Front End Loaders;
- Water Trucks;
- Sheep Foot Compactors;
- Pad Foot Compactor;
- Graders; and

- Vibrating Drum Rollers.

3.2. Construction Programme

Bulk earthworks to develop Stage 13 has been completed over multiple stages of the Donegal Stud residential subdivision. The majority of the earthworks were undertaken during the development of Stages 10A, 10B and 12 between November 2017 and September 2020. The earthworks completed over this period were centred on mucking out and installing underfill drainage systems and then backfilling existing gullies and watercourses. All earthworks conducted during this period was reported on and certified in the Geotechnical Completion Reports on Stages 10A, 10B and 11D to 12 and is not reiterated in this report.

Recent works to complete Stage 13 involved bulk earthworks to construct a MSC block retaining wall to support a fill embankment required to form Road 6. Earthworks were also required to install services and form road subgrades as well as general site contouring and to infill the head of a shallow watercourse extending into Stage 12.

A brief summary of the chronology of the construction events follows:

November 2019:

- Silt pond excavation in the northern portion of the site adjacent to Drumbuooy Drive. Muck out of gully watercourse which fed into the silt pond;

December 2019:

- Continuation of gully muck out that lead to silt pond;
- Gully in Lot 403 was mucked out and an underfill drain comprising a perforated drain coil fully surrounded by drainage metal and fully wrapped with Bidim A19 cloth is placed along the centreline of the gully before being backfilled with compacted clay fill;
- Connect new drainage lines to existing underfill drains located at various points along the northern boundary of the site;

January 2020:

- Completion of silt pond and backfill of excavated gully.

February 2020;

- Inspection of ground conditions below stockpiles completed;
- Road construction commences and bulk earthworks are focussed in Stage 13;

March 2020:

- Excavation of Road 6 retaining wall foundation – section 1
- Backfill RW1 foundation with Engineered clay fill and geotextile cloth and NDM testing
- Commencement of excavation for Road 6 retaining wall foundation – section 2
- COVID19 lockdown 28/03/2020

April 2020:

- Continuation of RW2 foundation excavation
- Commencement of backfill RW2 with Engineered clay fill and geotextile cloth and NDM testing

May 2020:

- Construction of block retaining wall along Road 6 commenced – section 1. Compaction testing of hardfill.
- Excavation of Road 6 retaining wall foundation section 2 complete

- Continuation of RW2 backfill with Engineered clay fill and geotextile cloth
- Commence excavation of Road 6 retaining wall foundation – section 3
- Construction of MSE block retaining wall along Road 6 commenced – section 2. Compaction testing of hardfill.
- Excavation of Road 6 retaining wall foundation section 3 complete
- Commence backfill to RW3 with Engineered clay fill and geotextile cloth and NDM testing

June 2020:

- Engineered fill, NDM testing and geotextile cloth installation complete
- Continuation of RW1 and RW2 construction and compaction testing of hardfill.
- Construction of block retaining wall along Road 6 commenced – section 3. Compaction testing of hardfill.

July 2020:

- Continuation of retaining wall construction and compaction testing of hardfill.

August 2020:

- Construction of MSC block retaining wall at Road 6 completed.

August 2020 to December 2020:

- General road construction and installation of power, telecoms, gas, footpaths and street lighting

December 2020:

- Reserve land adjacent to intersection of Road 6 and Road 11 (eastern side of Road 6) is re-contoured. Re-contouring involved benching the existing slope, compacting fill onto the bench and then trimming back the material to form a 1V:2.5H fill embankment.

4. Quality Assurance and Controls

4.1. Inspections

During the earthworks operation engineering inspections were undertaken on a regular basis to assess compliance with NZS 4431 and our project specific recommendations and specifications. Project specific inspections were required on Stage 13 for:

- Topsoil stripping;
- Undercuts to remove soft and/or unsuitable material and to confirm that adequate strength base materials had been exposed;
- Retaining wall construction;
- Removal of existing stockpiles;
- Gully areas prior to the placement of fill materials to ascertain that all mullock and soft inorganic subsoils had been satisfactorily removed;
- Placement of underfill drainage in the bases of the gullies;
- Silt pond stripping and preparation for backfilling to ensure that all soft unsuitable material had been removed; and
- Observation of bulk cut to fill operations and compaction testing on Engineered fill.

4.2. Quality Control Criteria

4.2.1. Compaction

Due to the varying soil types being used as filling, the compaction control criteria of minimum allowable shear strength and maximum allowable air voids were mainly used for quality assurance purposes.

Specification details were as follows:

Minimum Shear Strength and Maximum Air Voids Method

Table 2: Minimum Shear Strength and Maximum Air Voids Method - General Fill

(a)	<u>Air Voids Percentage</u>	
	(As defined in NZS 4402)	
	General Fill	
	Average value less than	10%
	Maximum single value	12%
(b)	<u>Undrained Shear Strength</u>	
	(Measured by Pilcon shear vane - calibrated using NZGS 2001 method)	
	General fill	
	Average value not less than	140 kPa
	Minimum single value	120 kPa

Note: The average value shall be determined over any ten consecutive tests

4.3. Quality Assurance Testing

4.3.1. Compaction

Regular insitu density, strength and water content tests were carried out on all areas of the filling at or in excess of the frequency recommended by NZS 4431.

Control tests carried out on the filling showed that on a few occasions the required compaction standards were not achieved. Results of these test failures were relayed to the site foreman and/or his staff, and to the best of our knowledge the affected areas of fill were re-worked as necessary.

In each case, further testing was carried out until compliance with the above standards was achieved.

5. Project Evaluation

5.1. Bearing Capacity and Settlement of Building Foundations

Following the completion of earthworks operations, we returned to the site during December 2020 and drilled a series of hand auger boreholes at appropriate natural ground locations in order to evaluate likely foundation options for future residential building development. Typical topsoil depths on each lot were also assessed at this time.

Based on the findings of the boreholes we have assessed that at current subgrade levels, all cut, filled and undisturbed natural ground has a geotechnical ultimate bearing capacity of 300 kPa (as required by NZS3604) within the zone of influence of conventional shallow residential building foundation loads.

It should be noted that NZS 3604 only allows a maximum backfill depth of 600mm over the building platform of a dwelling unless an Engineering design solution is proposed, on account of the risk of induced consolidation of the subsoils caused by the weight of the backfill.

5.2. Expansive Soils

Two sets of laboratory Shrink Swell Index Tests were carried out on samples selected from within the zone of likely influence of future shallow building foundations in Stage 13.

These tests were carried out in accordance with NZS 4402, "Methods of Testing Soils for Civil Engineering Purposes" test section 2 and were primarily intended to assess the Expansive Classes of the site materials as defined in AS 2870, "Residential Slabs and Footings – Construction".

All test results are IANZ (International Accreditation New Zealand) endorsed and full details are included in Appendix B.

The AS 2870 expansive site Class for Stage 13 is assessed to be H (high) and is based on the laboratory results together with our visual-tactile assessment and local knowledge. Specific design alternatives for this expansive site Class are presented in the following Suitability Statement.

Further testing to confirm the site specific expansivity classification at each lot within the subdivision is recommended.

On some expansive clay sites if cast on-grade floor slab construction takes place during a long dry summer, exposed building platform soils may dry out and become highly desiccated.

Over time the presence of the floor slab will cause capillary rise of moisture to the underside of the damp proof course and potentially expansive dry ground may wet up and swell, causing floor slab uplift. The effect may be very slight in some cases and extreme in others, especially if free water can reach the central underside of the slab as could occur if any subsoil drainage is discharged beneath the slab or an under-slab water pipe leaks.

Floor slab uplift usually remains unnoticed in carpeted homes but can cause distress on tile floors and in garages where cracks are more apparent. It may also rack upper storeys if non-load bearing ground floor walls are lifted and act as struts. Further, it may cause drainage problems on flat roofed houses where gutter gradients may be reversed.

Thorough soaking (in the form of low flow sprinklers for an extended period rather than flooding of the surface with a hose only once is recommended to allow for infiltration into the soil) of the exposed building platform area a few days before hardfill placement can help to reduce this potential problem.

Careful detailing of construction joints in brittle building elements can also be of benefit. Alternatively, removal and replacement of the desiccated surface layers could be undertaken.

5.3. Fill Induced Settlement

As a result of our pre-fill inspections and quality control testing, we are of the opinion that induced differential settlements beneath or within the certified filling due to its imposed weight should be insignificant with respect to conventional NZS 3604 residential building developments.

5.4. Slope Stability

5.4.1. General

Stability conditions along the gully flank within the Drainage Reserve (Lot 303) have been assessed for post earthworks profiles which includes the placement of 1 to 1.5m depth of uncertified landscape fill over the slopes adjacent to Lots 135 to 137, refer Appendix D:

5.4.2. Uncertified Fill

As discussed above, the landscaping fill placed over the slopes adjacent to Lots 135 to 137 comprised clays, silts, sands and topsoil with some gravel and basalt cobbles. The fill was placed and compacted in layers and typically meets landscape fill standards.

5.5. Lot Gradients

The appended HGCL Finished Contour as-built plan shows Lots 133, 134 and 142 to 146 as having or being immediately adjacent to land having gradients steeper than 1V:4H. The extent of these areas has been determined by as-built site gradients.

We are generally satisfied that these areas are not subject to the hazards described in Section 71(3) of the Building Act.

Details of resulting building and earthworks restrictions in the vicinity of these areas are presented in the Suitability Statement.

5.6. Land Drainage

5.6.1. Underfill Drains

During the development of Stage 13 perforated underfill drains were placed in the base of 2 to 3m depth trenches cut into the bases of the gullies extending west towards Stage 12 and north towards Lot 410. The underfill drains were installed as part of the work required to infill the gullies and/or to intercept groundwater flows daylighting in the base of service trenches

The drains were intended to intercept localised groundwater seepages and springs exposed during earthworks and to help provide general control over groundwater levels, as required by NZS 4431. They are buried beneath more than 3m depth of Engineered fill. We do not foresee any construction issues related to the drains due to its location being well beyond any building platforms and / or accessways or service corridors.

5.7. Stormwater Controls

It is important on all lots that due care is paid to the design and construction of appropriate stormwater disposal systems. These systems should serve to collect all runoff from roofs, driveways and paved areas, together with discharges from retaining wall drains and other subsoil drains and should connect directly into the public stormwater drainage network.

5.8. Service Trenches

As is normal on all subdivisions, building developments involving foundations within the 45-degree zone of influence from pipe inverts will require engineering input. However, it is unlikely to be an issue for the Stage 13 lots based on the as-built plans provided.

5.9. Road Subgrades

Dynamic Cone Penetrometer (DCP) testing was undertaken at regular intervals on the trimmed road subgrades and the results were subsequently forwarded to HGCL for pavement design purposes.

5.10. Vegetation Cover

Wherever practical on sloping land beyond building platform areas, all existing grass cover should be maintained and even supplemented with new plantings. Any vegetation cleared beyond the immediate area of building platforms for temporary construction purposes should be replanted replaced as soon as possible.

The contribution of appropriate vegetation cover to sediment and erosion control should not be underestimated.

5.11. Topsoil

Topsoil depths in likely building platform areas were checked by the drilling of a shallow borehole probe in the approximate centre of each lot. Our findings, which are indicative only and subject to variation at other locations, show that topsoil depths are likely range between 100 mm and 300 mm.

5.12. Contractor's Work

We have relied on the Contractor's work practices and assume that the works have been carried out in accordance with:

- (i) The approved Contract drawings and design details,
- (ii) The approved Contract specifications,
- (iii) Authorised Variations issued during the execution of the works,
- (iv) The conditions of Resource, Earthworks and Building Consents where applicable,
- (v) The relevant Coffey Geotechnics reports, recommendations and site instructions,

and that all as-built information and other details provided to the Client and/or Coffey Services (NZ) Limited are accurate and correct in all respects.

6. Statement of Professional Opinion as to the Suitability of Land for Building Development

I, Chris Armstrong, of Coffey Services (NZ) Limited, Auckland, hereby confirm that:

1. I am a Chartered Professional Engineer experienced in the field of geotechnical engineering as defined in section 1.2.3 of NZS 4404 and was retained by the Developer as the Geotechnical Engineer on Stage 13 of the Donegal Stud residential subdivision, Flat Bush.
2. The extent of preliminary investigations carried out to date are described in the Coffey Geotechnical Investigation Report, reference GENZAUCK16403AA, dated 18 December 2014. The conclusions and recommendations of that document have been re-evaluated during the preparation of this report. Details of the results of all tests carried out are appended.
3. In my professional opinion, not to be construed as a guarantee, I consider that:
 - a. The earth fills shown on the appended Harrison Grierson Consultants Limited Cut to Fill as-built plan have been placed in compliance with NZS 4431 and related documents.
 - b. A geotechnical ultimate bearing capacity of 300 kPa may be assumed for shallow foundation design on all residential lots. Where a geotechnical bearing capacity greater than 300 kPa is required, (i.e. outside the limits of NZS 3604, such as when piling is undertaken), further specific site investigation and design of foundations should be carried out prior to building consent application.
 - c. The completed earthworks give due regard to land slope and foundation stability considerations within the residential lots and in Lot 303 but as shown on the appended HGCL Finished Contours as-built plan, areas within Lots 133, 134 and 142 to 146 have or are immediately adjacent to gradients steeper than 1V:4H or are adjacent to land having such gradients.

No building construction and no earthworks which increases the slope angle or surcharge loading should take place anywhere within the areas shown as steeper than 1 in 4 on these lots, or elsewhere if similar gradients exist, unless endorsed by a Chartered Professional Engineer experienced in geomechanics, as such operations may, in certain circumstances, have detrimental effects on overall site stability. Depending on the building design proposals this may require geotechnical investigations. As a minimum, lateral loads from potential soil creep should be addressed in these areas if the landforms are to remain unmodified following building development.

- d. The backfilling and compaction of the stormwater and sanitary sewer trenches on this subdivision has where possible been carried out to appropriate standards having regard for the prevailing ground conditions and associated compaction induced pipe loadings.

Nevertheless, no building development should take place within the 45-degree zone of influence of drain inverts unless endorsed by specific site investigations, foundation designs and by construction inspections undertaken by a Chartered Professional Engineer experienced in geomechanics to ensure that lateral stability and differential settlement issues are addressed and that building loads are transferred beyond the influence of the pipe and the trench backfill.

- e. Although unlikely to be an issue, the function of the underfill drains through Lots 132, 133, 142, 148, 149, 157 to 159 and 161 must not be impaired by any future building development or landscaping works. In particular, any trenched services, bored or driven piles must be positioned to avoid damaging these drains. The presence of all such drains should be recorded on Council's Hazard Register.

- f. The assessed AS 2870:2011 expansive site Class for all residential lots in Stage 13 is H (high).
- g. Subject to the geotechnical recommendations and expansive soil assessment associated with 3(b), 3(c), 3(d), 3(e) and 3(f) above:
 - (i) The cut, filled and original ground within residential lot boundaries is generally suitable for residential buildings constructed in accordance with NZS 3604 (that incorporates specific foundation and associated structural design on account of the expansive soils site Class) and related documents.
 - (ii) On all residential lots in Stage 13 foundation design may be carried out in accordance with AS 2870:2011 (Class H) or alternatively, a specific foundation and structural design may be undertaken by a Chartered Professional Engineer who should allow for expansive soil effects in the design. The minimum recommended foundation depth below cleared ground level following topsoil removal and benching of building platform areas is 900mm for NZS3604 type strip and pad foundations.
- 4. Road subgrades have been formed having due regard for slope stability and settlement, although CBR values will likely vary between natural and filled ground as is to be expected.

6.1. Limitations

The as-built plans and the professional opinion contained within this report are furnished to Auckland Council and Hugh Green Limited for their purposes alone on the express condition that they will not be relied upon by any other person. Prospective purchasers should still satisfy themselves as to any specific conditions pertaining to their particular land interest.

The appended table summarises the status of each residential lot covered by this Suitability Statement.

For and on behalf of Coffey

Prepared By:



Ray Berry
Associate Engineering Geologist

Reviewed and Authorised By:



Peter Bosselmann
Senior Principal

Table 3: Suitability Statement Summary

Lot No.	Comments	Topsoil Depth (mm)	Ultimate Bearing (kPa)	AS2870:2011 Class
84	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
85	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
86	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
87	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
88	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
89	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	150	300	H
90	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
91	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
92	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
93	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
94	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
95	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
96	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
97	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
98	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
99	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
100	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
101	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
102	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
103	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
104	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	150	300	H
105	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	150	300	H
106	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	150	300	H

Lot No.	Comments	Topsoil Depth (mm)	Ultimate Bearing (kPa)	AS2870:2011 Class
107	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
108	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
109	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
110	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
111	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
112	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
113	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	150	300	H
114	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
115	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	150	300	H
116	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
117	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
118	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
119	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
120	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
121	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
122	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
123	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
124	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
125	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
126	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
127	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
128	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
129	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H

Lot No.	Comments	Topsoil Depth (mm)	Ultimate Bearing (kPa)	AS2870:2011 Class
130	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
131	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
132	Protection of the function of subsoil drains required (refer to clause (6.3 (e))) AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
133	Specific engineering endorsement required for any building development or earthworks within the area shown as having gradients steeper than 1 (v) in 4 (h). Protection of the function of subsoil drains required (refer to clause (6.3 (e))) AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	150	300	H
134	Specific engineering endorsement required for any building development or earthworks within the area shown as having gradients steeper than 1 (v) in 4 (h). AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
135	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
136	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
137	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
138	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	150	300	H
139	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	100	300	H
140	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
141	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
142	Specific engineering endorsement required for any building development or earthworks within the area shown as having gradients steeper than 1 (v) in 4 (h). Protection of the function of subsoil drains required (refer to clause (6.3 (e))) AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
143	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
144	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
145	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	100	300	H

Lot No.	Comments	Topsoil Depth (mm)	Ultimate Bearing (kPa)	AS2870:2011 Class
146	Specific engineering endorsement required for any building development or earthworks within the area shown as having gradients steeper than 1 (v) in 4 (h). AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
147	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	100	300	H
148	Protection of the function of subsoil drains required (refer to clause (6.3 (e))) AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
149	Protection of the function of subsoil drains required (refer to clause (6.3 (e))) AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
150	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
151	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
152	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
153	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
154	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
155	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
156	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
157	Protection of the function of subsoil drains required (refer to clause (6.3 (e))) AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
158	Protection of the function of subsoil drains required (refer to clause (6.3 (e))) AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
159	Protection of the function of subsoil drains required (refer to clause (6.3 (e))) AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
160	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
161	Protection of the function of subsoil drains required (refer to clause (6.3 (e))) AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
162	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	150	300	H

Lot No.	Comments	Topsoil Depth (mm)	Ultimate Bearing (kPa)	AS2870:2011 Class
163	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
164	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	100	300	H
165	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
166	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
167	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
168	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
169	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
170	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
171	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
172	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
173	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
174	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	300	300	H
175	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	250	300	H
176	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	200	300	H
177	AS 2870 foundation design or NZS 3604 with minimum footing depth 900mm.	150	300	H



Important information about your **Coffey** Report

As a client of Coffey you should know that site subsurface conditions cause more construction problems than any other factor. These notes have been prepared by Coffey to help you interpret and understand the limitations of your report.

Your report is based on project specific criteria

Your report has been developed on the basis of your unique project specific requirements as understood by Coffey and applies only to the site investigated. Project criteria typically include the general nature of the project; its size and configuration; the location of any structures on the site; other site improvements; the presence of underground utilities; and the additional risk imposed by scope-of-service limitations imposed by the client. Your report should not be used if there are any changes to the project without first asking Coffey to assess how factors that changed subsequent to the date of the report affect the report's recommendations. Coffey cannot accept responsibility for problems that may occur due to changed factors if they are not consulted.

Subsurface conditions can change

Subsurface conditions are created by natural processes and the activity of man. For example, water levels can vary with time, fill may be placed on a site and pollutants may migrate with time. Because a report is based on conditions which existed at the time of subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. Consult Coffey to be advised how time may have impacted on the project.

Interpretation of factual data

Site assessment identifies actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from literature and external data source review, sampling and subsequent laboratory testing are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how qualified, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, owners should retain the services of Coffey through the development stage, to identify variances, conduct additional tests if required, and recommend solutions to problems encountered on site.

Your report will only give preliminary recommendations

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has commenced and therefore your report recommendations can only be regarded as preliminary. Only Coffey, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered as the project develops. If another party undertakes the implementation of the recommendations of this report there is a risk that the report will be misinterpreted and Coffey cannot be held responsible for such misinterpretation.

Your report is prepared for specific purposes and persons

To avoid misuse of the information contained in your report it is recommended that you confer with Coffey before passing your report on to another party who may not be familiar with the background and the purpose of the report. Your report should not be applied to any project other than that originally specified at the time the report was issued.

Interpretation by other design professionals

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, retain Coffey to work with other project design professionals who are affected by the report. Have Coffey explain the report implications to design professionals affected by them and then review plans and specifications produced to see how they incorporate the report findings.



Important information about your **Coffey** Report

Data should not be separated from the report*

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, drawings, etc. are customarily included in our reports and are developed by scientists, engineers or geologists based on their interpretation of field logs (assembled by field personnel) and laboratory evaluation of field samples. These logs etc. should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

Geoenvironmental concerns are not at issue

Your report is not likely to relate any findings, conclusions, or recommendations about the potential for hazardous materials existing at the site unless specifically required to do so by the client. Specialist equipment, techniques, and personnel are used to perform a geoenvironmental assessment. Contamination can create major health, safety and environmental risks. If you have no information about the potential for your site to be contaminated or create an environmental hazard, you are advised to contact Coffey for information relating to geoenvironmental issues.

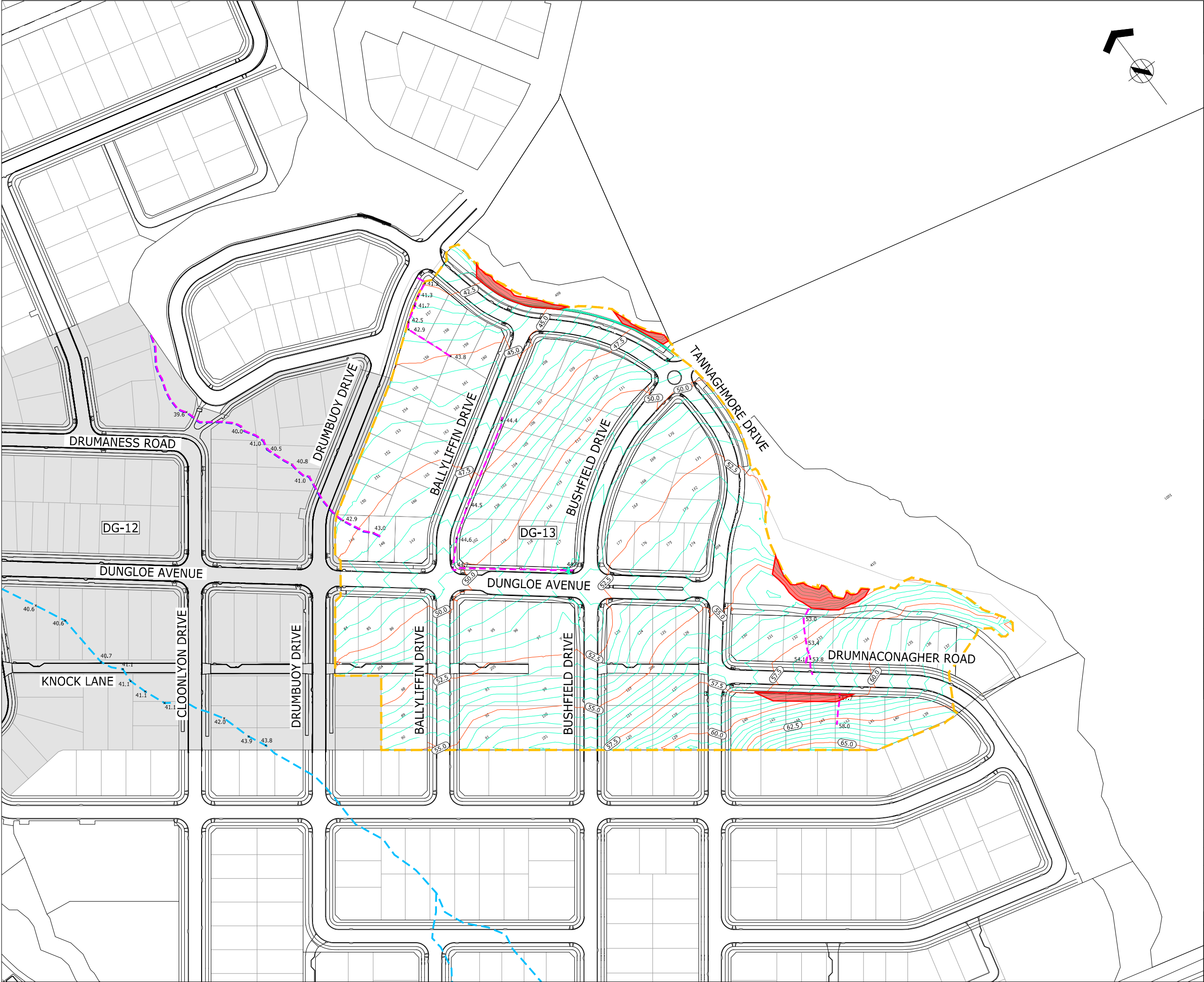
Rely on Coffey for additional assistance


Coffey is familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to a project, from design to construction. It is common that not all approaches will be necessarily dealt with in your site assessment report due to concepts proposed at that time. As the project progresses through design towards construction, speak with Coffey to develop alternative approaches to problems that may be of genuine benefit both in time and cost.

Responsibility

Reporting relies on interpretation of factual information based on judgement and opinion and has a level of uncertainty attached to it, which is far less exact than the design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. To help prevent this problem, a number of clauses have been developed for use in contracts, reports and other documents. Responsibility clauses do not transfer appropriate liabilities from Coffey to other parties but are included to identify where Coffey's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Read all documents from Coffey closely and do not hesitate to ask any questions you may have.

**Appendix A – Harrison Grierson Consultants
Limited As-Built Plans**





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

- ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m
- ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
- SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD CIVIL LTD AND TO THE BEST OF OUR KNOWLEDGE IS ACCURATE.

LEGEND:

- 45 CONTOUR MAJOR
- 44.5 CONTOUR MINOR AT 0.5m INTERVALS
- 3x EXISTING 150Ø NOVAFLOW
- 1x 150Ø PERFORATED NOVAFLOW
- 1x 150Ø NON-PERFORATED NOVAFLOW
- EXTENT OF EARTHWORKS

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.


Signed: *Campbell McGregor*
CHARTERED PROFESSIONAL ENGINEER

Date: 13/01/2021

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisonsongrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisonsongrierson.com

B	AS-BUILT	DDS	13.01.21
A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLAT BUSH

TITLE:

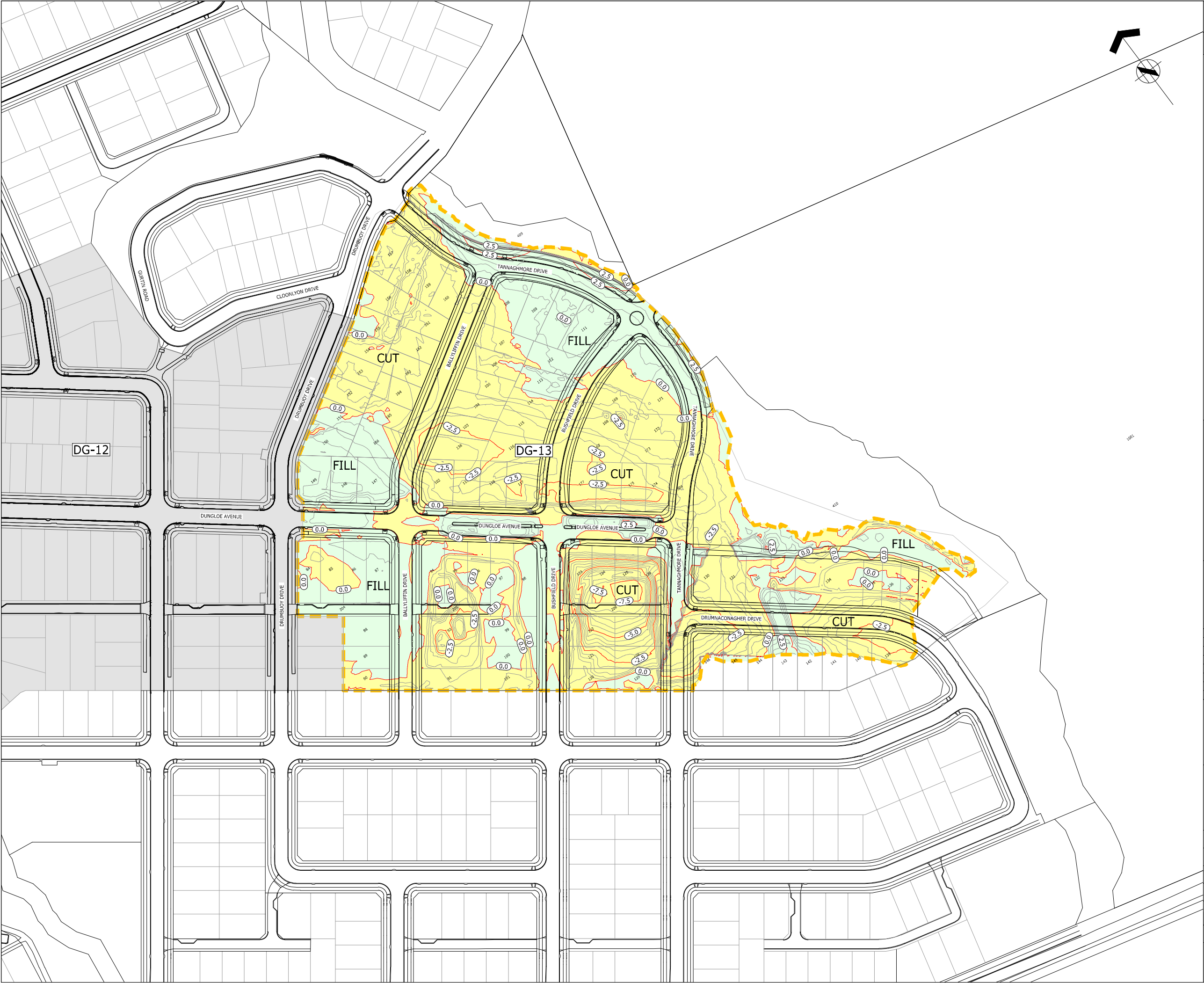
FINISHED CONTOURS
AS-BUILT PLAN

ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	23.11.20		DDS
DRAWN:	DATE:	SIGNED:	PLOT DATE:
DDS	23.11.20		13.01.21
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	13.01.21		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	13.01.21		11.2020

ISSUE STATUS:

AS-BUILT

PROJECT No:	SCALES:	A1
1050-142875-01	1:1000-A1 1:2000-A3	
DRAWING No:		REV
142875-13-AB200		B





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED
OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS
LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

1. ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m

2. ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE

3. EARTHWORKS VOLUMES :
AREA = 63221.3m²
CUT VOLUME (UNADJUSTED) = 53,392m³
FILL VOLUME (UNADJUSTED) = 14,697m³
NET (UNADJUSTED) = 38,695m³ CUT

4. SURVEY INFORMATION PROVIDED BY DEMPSEY
WOOD CIVIL LTD AND TO THE BEST OF OUR
KNOWLEDGE IS ACCURATE.

LEGEND:

 CUT CONTOURS SHOWN AT 0.5m
INTERVALS

 FILL CONTOURS SHOWN AT 0.5m
INTERVALS

 EARTHWORK BOUNDARY

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF
THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD
(2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL)
LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisongrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisongrierson.com

REF	REVISIONS	BY	DATE
A	AS-BUILT	DDS	21.12.20

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLAT BUSH

TITLE:

CUT AND FILL
AS-BUILT PLAN

ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	24.11.20		JYW

DRAWN:	DATE:	SIGNED:	PLOT DATE:
DDS	24.11.20		21.12.20

CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD

APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		23.11.20

ISSUE STATUS:

AS-BUILT

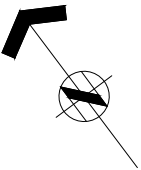
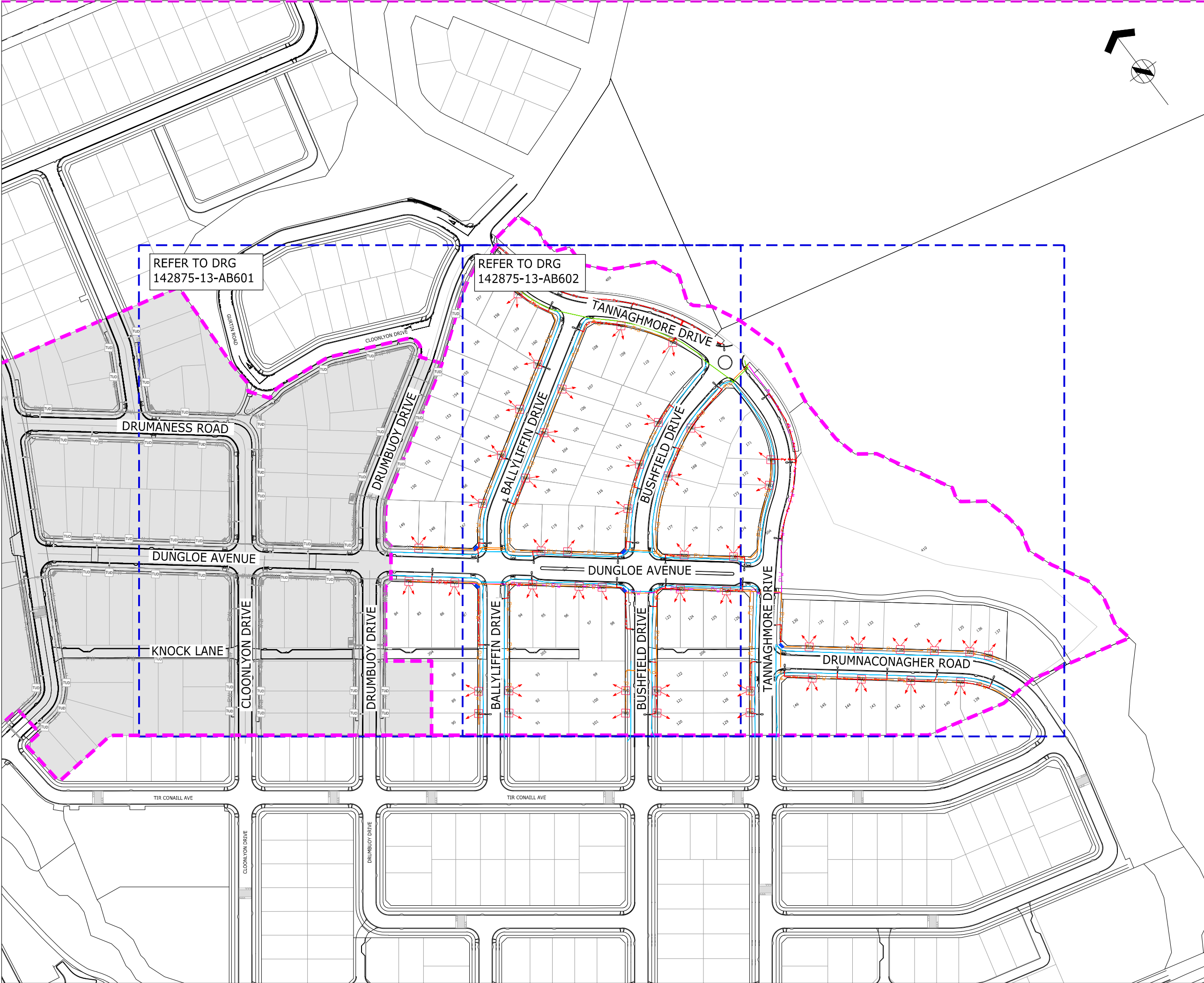
PROJECT No:	SCALES:	
1050-142875-01	1:1000-A1 1:2000-A3	A1


DRAWING No:

142875-13-AB220

REV

A





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

- ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m
- ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
- SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD CIVIL LTD AND TO THE BEST OF OUR KNOWLEDGE IS ACCURATE.


LEGEND:

- STAGE BOUNDARY
- NEW GAS 50 PVC PIPE
- NEW GAS 100 PVC PIPE
- PW NEW LV POWER
- PW NEW HV POWER
- NEW STREETLIGHT CABLE
- NEW POWER TUD
- NEW STREETLIGHT
- LINK PILLAR
- NEW POWER CONNECTION

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.


Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrissongrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrissongrierson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVE, FLATBUSH

TITLE:

OVERALL POWER AND GAS
SERVICES AS-BUILT PLAN

ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	16.11.20		DDS
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	16.11.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

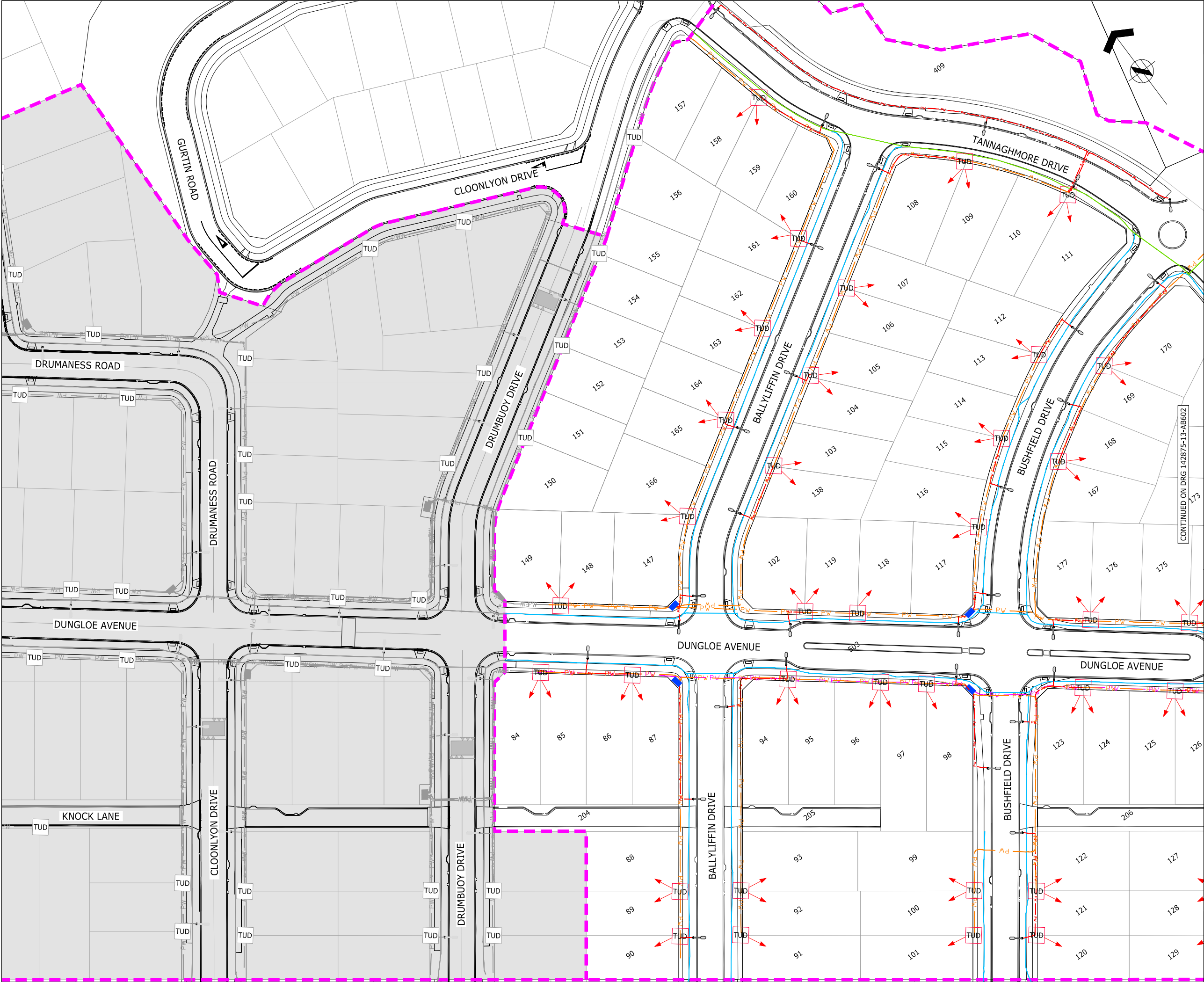
ISSUE STATUS:


AS-BUILT

PROJECT No:	SCALES:	A1
1050-142875-01	1:1000-A1 1:2000-A3	
DRAWING No:		REV

142875-13-AB600

A





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

1. ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m

2. ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE

3. SURVEY INFORMATION PROVIDED BY DEMPSEY
WOOD CIVIL LTD AND TO THE BEST OF OUR
KNOWLEDGE IS ACCURATE.

LEGEND:

STAGE BOUNDARY

NEW GAS 50 PVC PIPE

NEW GAS 100 PVC PIPE

NEW LV POWER

NEW HV POWER

NEW STREETLIGHT CABLE

NEW POWER TUD

NEW STREETLIGHT

LINK PILLAR


NEW POWER CONNECTION

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.

THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.



Signed:
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

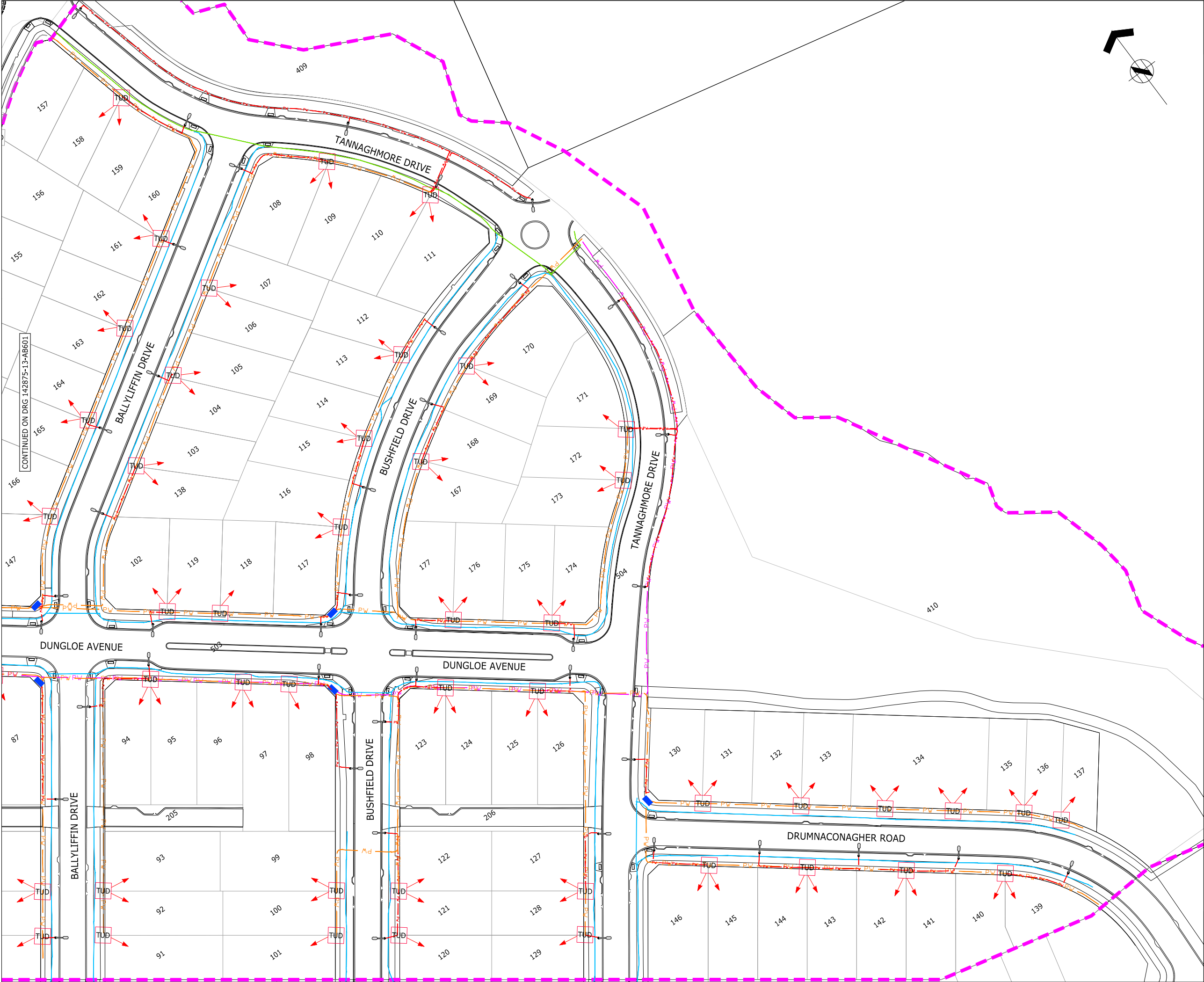
Phone: 09-917-5000


Email: c.mcgregor@harrissongrierson.com

HC

AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrissongrierson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE
PROJECT:			
HUGH GREEN LIMITED DONEGAL STAGE 13 36 TIR CONAILL AVE, FLATBUSH			
TITLE:			
POWER AND GAS SERVICES AS-BUILT PLAN SHEET 1 OF 2			
ORIGINATOR: DDS	DATE: 16.11.20	SIGNED:	PLOT BY: DDS
DRAWN: JYW	DATE: 16.11.20	SIGNED:	PLOT DATE: 21.12.20
CHECKED: JOM	DATE: 18.12.20	SIGNED:	SURVEY BY: DEMPSEY WOOD
APPROVED: DAS	DATE: 18.12.20	SIGNED:	SURVEY DATE: 11.2020
ISSUE STATUS:			
AS-BUILT			
PROJECT No: 1050-142875-01	SCALES: 1:500-A1 1:1000-A3	A1	
DRAWING No:		REV	
142875-13-AB601		A	





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

- ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m
- ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
- SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD CIVIL LTD AND TO THE BEST OF OUR KNOWLEDGE IS ACCURATE.


LEGEND:

- STAGE BOUNDARY
- NEW GAS 50 PVC PIPE
- NEW GAS 100 PVC PIPE
- PW NEW LV POWER
- PW NEW HV POWER
- NEW STREETLIGHT CABLE
- TUD NEW POWER TUD
- NEW STREETLIGHT
- LINK PILLAR
- NEW POWER CONNECTION

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.


Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisongrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisongrierson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVE, FLATBUSH

TITLE:

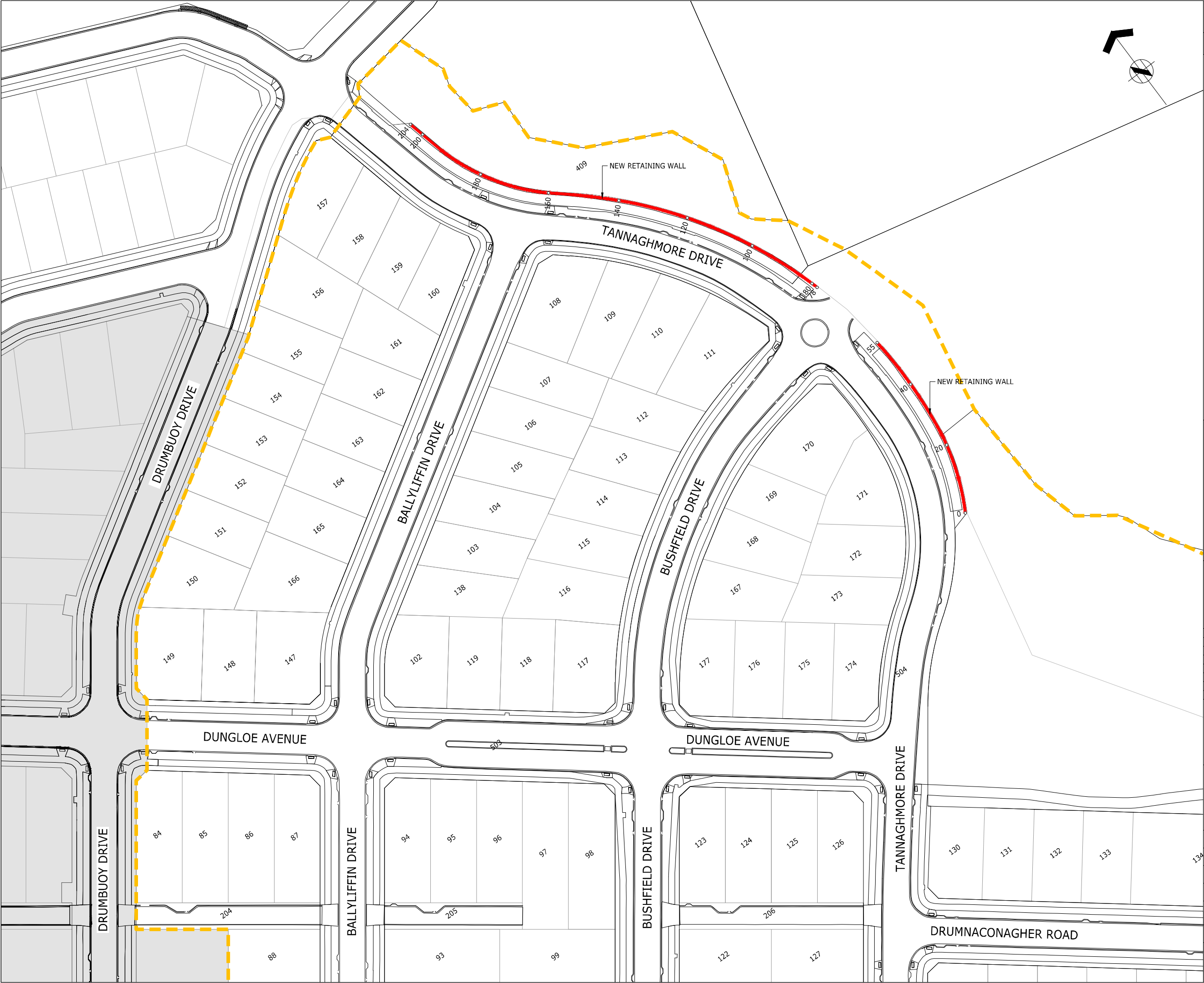
POWER AND GAS
SERVICES AS-BUILT PLAN
SHEET 2 OF 2

ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	16.11.20		DDS
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	16.11.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

ISSUE STATUS:

AS-BUILT

PROJECT No:	SCALES:	A1
1050-142875-01	1:500-A1 1:1000-A3	
DRAWING No:		REV
142875-13-AB602		A





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED
OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS
LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

1. ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m

2. ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE

3. SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD
CIVIL LTD AND TO THE BEST OF OUR KNOWLEDGE IS
ACCURATE

LEGEND:

STAGE BOUNDARY

NEW RETAINING WALL

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF
THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD
(2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL)
LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisonsongrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisonsongrierson.com

REF	REVISIONS	BY	DATE
A	AS-BUILT	DDS	21.12.20

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLAT BUSH

TITLE:

RETAINING WALL
AS-BUILT PLAN

ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	02.12.20		JYW
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	02.12.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

ISSUE STATUS:


AS-BUILT

PROJECT No:	SCALES:	
1050-142875-01	1:500-A1 1:1000-A3	A1
DRAWING No:		REV
142875-13-AB250		A

REFER TO APPROVED MASTER DRAWINGS FOR ORIGINAL SIGNATURES File: NEWMARKET N:\1050\142875_A\CAD\AS-BUILTS\STAGE 13\142875-13-AB250-251.DWG

RW CO-ORDINATE SCHEDULE					
CHAINAGE	mE	mN	TOP OF WALL	BOTTOM OF WALL	HEIGHT
1.293	1770557.13	5905362.20	52.45	51.15	1.30
3.034	1770557.95	5905363.74	52.45	50.94	1.51
4.326	1770558.52	5905364.90	52.46	50.73	1.73
5.199	1770558.92	5905365.67	52.44	50.53	1.91
6.283	1770559.41	5905366.64	52.44	50.33	2.11
6.284	1770559.41	5905366.64	52.23	50.33	1.90
7.591	1770559.95	5905367.83	52.23	49.93	2.30
9.158	1770560.57	5905369.27	52.22	49.73	2.49
9.159	1770560.57	5905369.27	52.03	49.73	2.30
10.483	1770561.06	5905370.50	52.01	49.52	2.49
11.799	1770561.52	5905371.73	52.01	49.32	2.70
13.096	1770561.93	5905372.96	52.01	49.11	2.90
14.404	1770562.34	5905374.21	52.01	49.10	2.91
15.912	1770562.82	5905375.64	52.02	48.76	3.26
15.913	1770562.82	5905375.64	51.82	48.76	3.06
17.201	1770563.23	5905376.86	51.81	48.71	3.10
18.534	1770563.57	5905378.15	51.81	48.51	3.31
19.833	1770563.88	5905379.41	51.81	48.50	3.31
20.710	1770564.07	5905380.27	51.79	48.27	3.53
21.838	1770564.30	5905381.38	51.81	48.14	3.67
21.838	1770564.30	5905381.38	51.61	48.14	3.47
23.128	1770564.50	5905382.65	51.61	48.06	3.55
24.435	1770564.69	5905383.95	51.60	48.01	3.60
25.987	1770564.92	5905385.48	51.59	47.94	3.65
25.988	1770564.92	5905385.48	51.40	47.94	3.45
27.732	1770565.18	5905387.21	51.39	47.88	3.51
28.604	1770565.34	5905388.07	51.40	47.86	3.54
30.176	1770565.54	5905389.63	51.40	47.81	3.59
30.176	1770565.54	5905389.63	51.20	47.81	3.39
31.461	1770565.66	5905390.91	51.21	47.77	3.44
32.756	1770565.78	5905392.20	51.20	47.73	3.46
33.847	1770565.85	5905393.29	51.17	47.70	3.48
33.847	1770565.85	5905393.29	50.98	47.70	3.28
36.289	1770565.97	5905395.73	51.00	47.61	3.39
36.290	1770565.97	5905395.73	50.81	47.61	3.20
38.025	1770566.01	5905397.47	50.82	47.55	3.27
39.721	1770566.05	5905399.17	50.82	47.53	3.29
41.759	1770566.04	5905401.20	50.81	47.60	3.21
41.759	1770566.04	5905401.20	50.62	47.60	3.02
45.035	1770566.10	5905404.48	50.58	47.70	2.89
45.035	1770566.10	5905404.48	50.39	47.70	2.69
49.632	1770566.07	5905409.08	50.42	47.52	2.89
49.633	1770566.07	5905409.09	50.22	47.52	2.70
53.793	1770565.77	5905413.24	50.19	47.53	2.66
53.793	1770565.77	5905413.24	49.99	47.53	2.46
55.066	1770565.65	5905414.51	49.99	47.54	2.46

RW CO-ORDINATE SCHEDULE					
CHAINAGE	mE	mN	TOP OF WALL	BOTTOM OF WALL	HEIGHT
78.198	1770561.32	5905437.22	48.82	45.63	3.19
81.687	1770560.37	5905440.57	48.81	45.12	3.69
81.688	1770560.37	5905440.57	48.61	45.12	3.49
85.875	1770559.16	5905444.59	48.41	44.71	3.71
85.875	1770559.16	5905444.59	48.61	44.71	3.90
90.022	1770557.82	5905448.52	48.39	44.12	4.27
90.024	1770557.81	5905448.52	48.19	44.12	4.07
94.185	1770556.28	5905452.40	48.19	43.29	4.90
94.186	1770556.28	5905452.40	47.98	43.29	4.69
97.888	1770554.76	5905455.78	47.77	42.68	5.09
97.888	1770554.76	5905455.78	47.97	42.68	5.29
102.049	1770552.99	5905459.56	47.80	42.48	5.32
102.050	1770552.99	5905459.56	47.60	42.48	5.11
105.773	1770551.36	5905462.91	47.60	43.19	4.41
105.776	1770551.36	5905462.92	47.39	43.19	4.20
109.511	1770549.52	5905466.18	47.42	43.64	3.77
109.513	1770549.52	5905466.18	47.20	43.64	3.56
113.657	1770547.40	5905469.75	47.22	43.42	3.80
113.658	1770547.40	5905469.75	47.00	43.42	3.58
117.388	1770545.38	5905472.89	47.02	43.33	3.69
117.389	1770545.38	5905472.89	46.82	43.33	3.49
123.726	1770541.70	5905478.06	46.85	44.01	2.84
123.727	1770541.70	5905478.06	46.65	44.01	2.64
124.840	1770541.07	5905478.98	46.41	44.13	2.28
124.840	1770541.07	5905478.98	46.63	44.13	2.50
128.966	1770538.56	5905482.26	46.41	43.95	2.46
128.974	1770538.55	5905482.27	46.22	43.95	2.27
133.142	1770535.95	5905485.54	46.23	43.79	2.44
133.145	1770535.95	5905485.54	46.03	43.79	2.24
135.973	1770534.10	5905487.68	46.05	43.66	2.39
135.981	1770534.09	5905487.69	45.84	43.66	2.18
141.417	1770530.39	5905491.68	45.63	43.41	2.22
141.417	1770530.39	5905491.68	45.82	43.41	2.41
142.942	1770529.33	5905492.78	45.62	43.34	2.28
142.944	1770529.33	5905492.78	45.40	43.33	2.06
146.451	1770526.87	5905495.29	45.41	42.91	2.51
149.713	1770524.52	5905497.56	45.41	42.18	3.23
149.715	1770524.52	5905497.56	45.21	42.18	3.04
152.978	1770522.14	5905499.81	45.19	41.70	3.49
152.985	1770522.14	5905499.81	44.99	41.70	3.29
155.921	1770519.91	5905501.73	45.00	41.51	3.49
159.193	1770517.43	5905503.87	45.00	41.14	3.86
159.203	1770517.42	5905503.88	44.80	41.14	3.66
162.061	1770515.31	5905505.78	44.82	40.90	3.92
162.064	1770515.31	5905505.78	44.61	40.90	3.71
164.230	1770513.73	5905507.25	44.63	40.79	3.85
166.203	1770512.36	5905508.66	44.62	40.74	3.88
166.212	1770512.35	5905508.67	44.42	40.74	3.69
167.790	1770511.31	5905509.84	44.42	40.75	3.67
167.795	1770511.30	5905509.85	44.22	40.75	3.47
169.550	1770510.21	5905511.21	44.23	40.67	3.56
171.970	1770508.80	5905513.17	44.23	40.57	3.66
171.977	1770508.79	5905513.17	44.03	40.57	3.46
175.261	1770506.94	5905515.87	43.82	40.43	3.39
175.261	1770506.94	5905515.87	44.03	40.43	3.60
178.115	1770505.40	5905518.26	43.82	40.49	3.33
178.116	1770505.40	5905518.26	43.63	40.49	3.14
180.492	1770504.28	5905520.36	43.62	41.11	2.51
180.493	1770504.28	5905520.36	43.43	41.11	2.32
183.381	1770503.04	5905522.96	43.43	41.16	2.27
183.390	1770503.04	5905522.97	43.22	41.16	2.06
186.679	1770501.76	5905525.98	43.22	41.00	2.22
186.686	1770501.76	5905525.99	43.03	41.00	2.03
189.974	1770500.70	5905529.09	43.02	41.27	1.76
189.978	1770500.70	5905529.10	42.84	41.27	1.57
193.264	1770499.72	5905532.22	42.84	41.31	1.53
193.266	1770499.72	5905532.22	42.62	41.31	1.32
196.571	1770498.86	5905535.41	42.65	41.02	1.63
196.578	1770498.86	5905535.42	42.45	41.02	1.43
200.730	1770497.96	5905539.47	42.46	41.62	0.85
200.735	1770497.96	5905539.47	42.25	41.62	0.63
204.038	1770497.21	5905542.69	42.27	41.51	0.75



ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

1. ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m


2. ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE

3. SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD CIVIL LTD AND TO THE BEST OF OUR KNOWLEDGE IS ACCURATE.

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.



Signed:
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrissongrierson.com

HC

AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrissongrierson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLAT BUSH

TITLE:

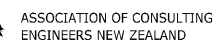
RETAINING WALL AS-BUILT
SCHEDULE OF COORDINATES

ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	02.12.20		JYW
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	02.12.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

ISSUE STATUS:

AS-BUILT

PROJECT No:	SCALES:	A1
1050-142875-01	NOT TO SCALE	
DRAWING No:		REV
142875-13-AB251		A













ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

1. ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m
2. ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
3. SURVEY INFORMATION PROVIDED BY DEMPSEY
WOOD CIVIL LTD AND TO THE BEST OF OUR
KNOWLEDGE IS ACCURATE

LEGEND:

- | | |
|---|-----------------------------|
|  | STAGE BOUNDARY |
|  | NO STOPPING LINEWORK |
|  | NO PASSING LINEWORK |
|  | NEW RETAINING WALL |
|  | ROAD SIGN/ STREET NAME SIGN |
|  | STREETLIGHT |
|  | NEW SPEED TABLE
(TC003) |
|  | PRAM CROSSING |
|  | NEW RAINGARDEN (PUBLIC) |
|  | NEW RAINGARDEN (PRIVATE) |

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN $\pm 50\text{mm}$.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN $\pm 25\text{mm}$.

Signed:
 CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL McGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisingrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisongrierson.com

A	AS-BUILT	DDS	ZI-12.2
REF	REVISIONS	RY	DATE

REF	REV
PROJECT:	

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLAT BUSH

TITLE:

OVERALL ROADING & ROAD MARKING
AS-BUILT LAYOUT PLAN

ORIGINATOR: DDS	DATE: 23.11.20	SIGNED:	PLOT BY: JY
DRAWN: JYW	DATE: 23.11.20	SIGNED:	PLOT DATE: 21.12.20
CHECKED: JOM	DATE: 18.12.20	SIGNED:	SURVEY BY: DEMPSEY WOOD
APPROVED: DAS	DATE: 18.12.20	SIGNED:	SURVEY DATE: 11.2020

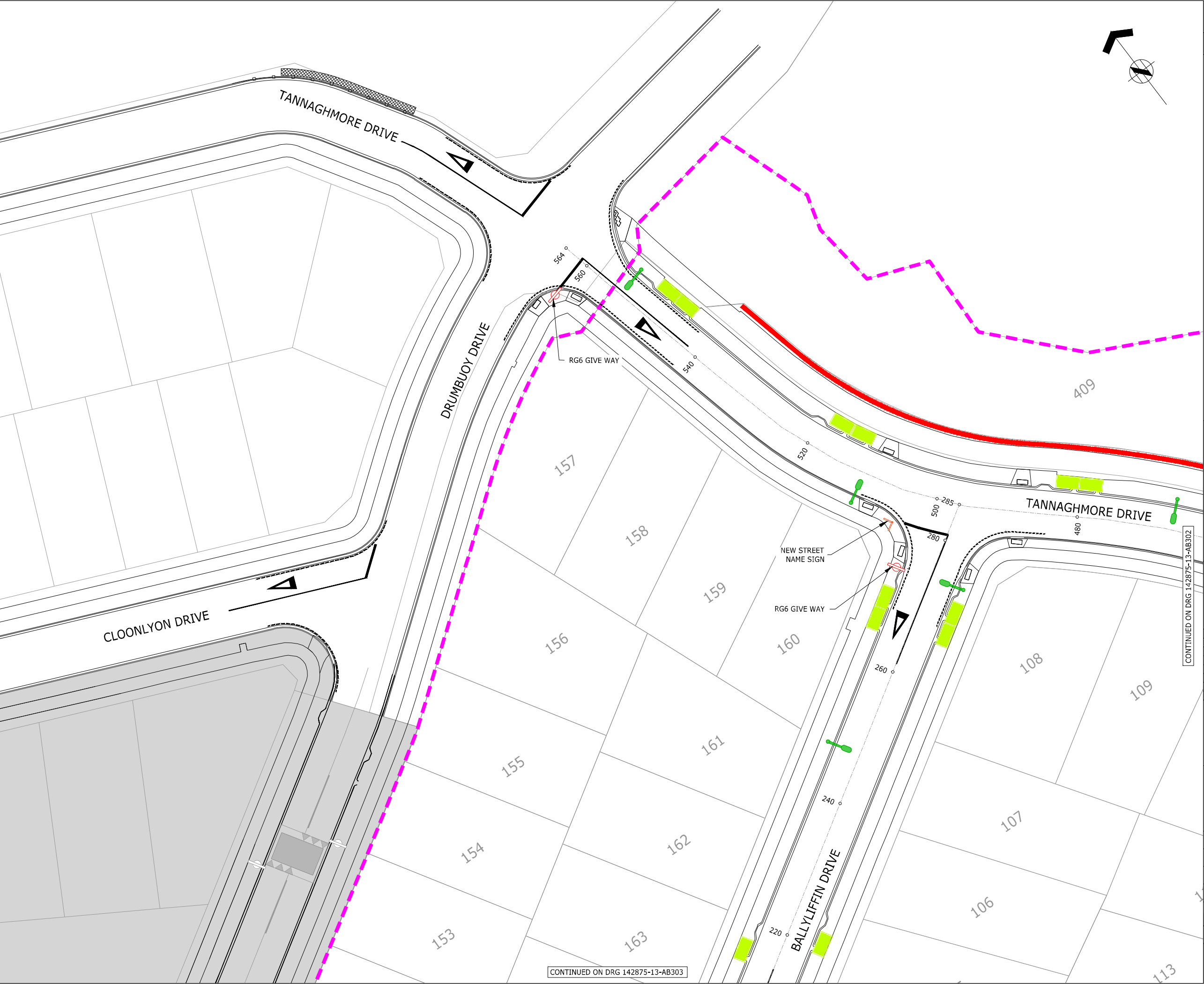
ISSUE STATUS:

AS-BUILT

PROJECT No: 1050-142875-01	SCALES: 1:1000-A1 1:2000-A3	A1
DRAWING No:		REV

142875-13-AB300

A





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED
OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS
LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

1. ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m

2. ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE

3. ALL PRAM CROSSINGS HAVE TACTILE GROUND
SURFACE INDICATORS (TGS1) INSTALLED AS PER AT
STANDARD DRAWING FP009 REV 5.

4. SURVEY INFORMATION PROVIDED BY DEMPSEY
WOOD CIVIL LTD AND TO THE BEST OF OUR
KNOWLEDGE IS ACCURATE

LEGEND:

STAGE BOUNDARY

NO STOPPING LINEWORK

NO PASSING LINEWORK

NEW RETAINING WALL

ROAD SIGN/ STREET NAME SIGN

STREETLIGHT

NEW SPEED TABLE
(TC003)

PRAM CROSSING

NEW RAINGARDEN (PUBLIC)

NEW RAINGARDEN (PRIVATE)

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF
THE WORKS UNDERTAKEN AND THAT:

THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD
(2000), AND ARE WITHIN ±50mm.

THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL)
LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisongrierson.com

HG

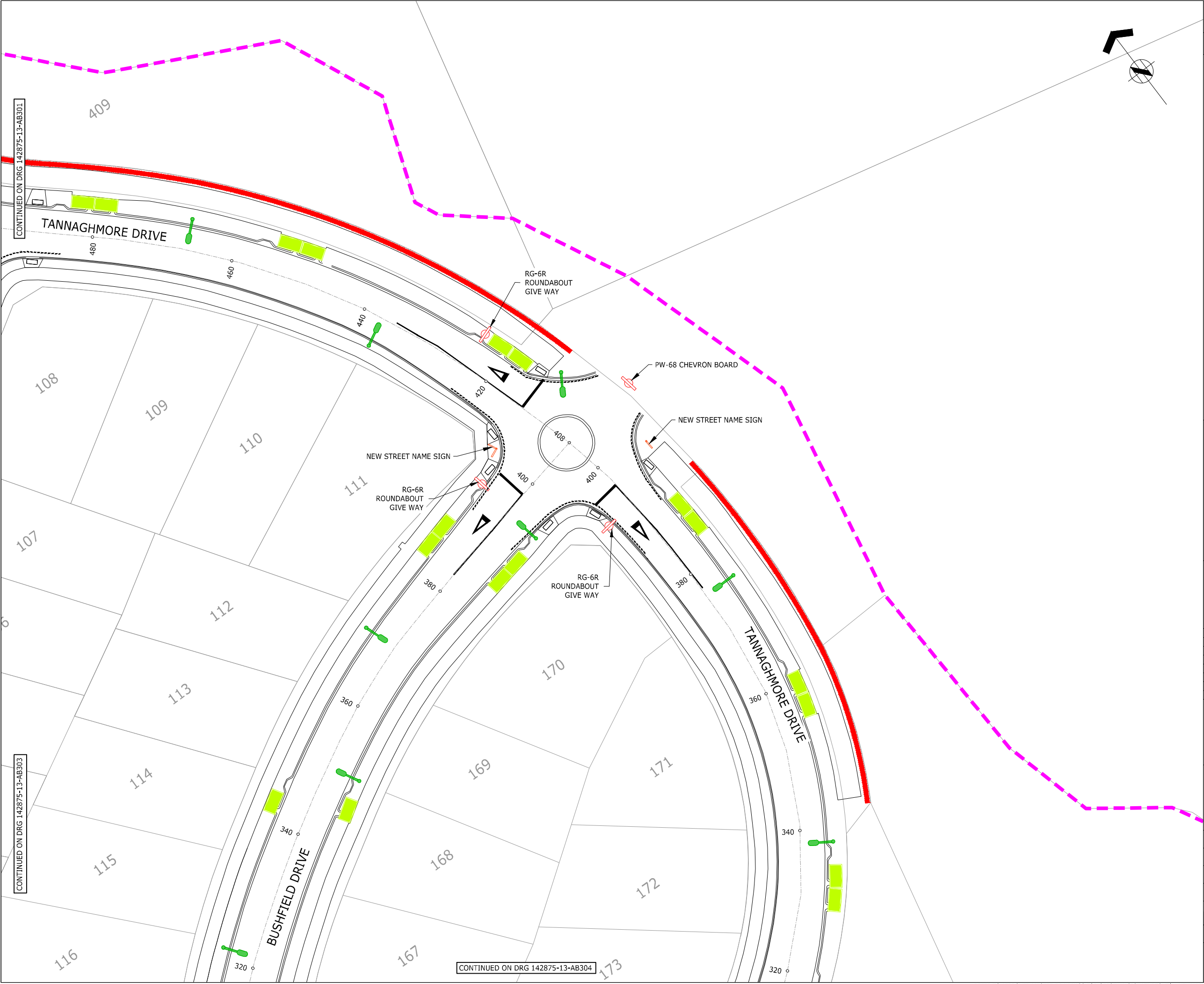
AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisongrierson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE
PROJECT:			
HUGH GREEN LIMITED			
DONEGAL STAGE 13			
36 TIR CONAILL AVENUE, FLAT BUSH			
TITLE:			
ROADING LAYOUT & ROAD MARKING			
AS-BUILT PLAN			
SHEET 1 OF 6			
ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	23.11.20		JYW
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	23.11.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020
ISSUE STATUS:			
AS-BUILT			
PROJECT No:	SCALES:		A1
1050-142875-01	1:250-A1 1:500-A3		
DRAWING No:			REV
142875-13-AB301			A

CONTINUED ON DRG 142875-13-AB302

CONTINUED ON DRG 142875-13-AB303

REFER TO APPROVED MASTER DRAWINGS FOR ORIGINAL SIGNATURES File: NEWMARKET N:\1050\142875_A\CAD\AS-BUILTS\STAGE 13\142875-13-AB300-306.DWG





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

- ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m
- ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
- ALL PRAM CROSSINGS HAVE TACTILE GROUND SURFACE INDICATORS (TGTI) INSTALLED AS PER AT STANDARD FP009 REV 5.
- SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD CIVIL LTD AND TO THE BEST OF OUR KNOWLEDGE IS ACCURATE

LEGEND:

- STAGE BOUNDARY
- NO STOPPING LINEWORK
- NO PASSING LINEWORK
- NEW RETAINING WALL
-  ROAD SIGN/ STREET NAME SIGN
-  STREETLIGHT
-  NEW SPEED TABLE (TC003)
-  PRAM CROSSING
- NEW RAINGARDEN (PUBLIC)
- NEW RAINGARDEN (PRIVATE)

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: 
 CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020
 Name: CAMPBELL MCGREGOR
 Phone: 09-917-5000
 Email: c.mcgregor@harrisonsongrierson.com

HG

AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisonsongrierson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE

PROJECT:

HUGH GREEN LIMITED
 DONEGAL STAGE 13
 36 TIR CONAILL AVENUE, FLAT BUSH

TITLE:

ROADING LAYOUT & ROAD MARKING
 AS-BUILT PLAN
 SHEET 2 OF 6

ORIGINATOR: DDS	DATE: 23.11.20	SIGNED:	PLOT BY: JYW
DRAWN: JYW	DATE: 23.11.20	SIGNED:	PLOT DATE: 21.12.20
CHECKED: JOM	DATE: 18.12.20	SIGNED:	SURVEY BY: DEMPSEY WOOD
APPROVED: DAS	DATE: 18.12.20	SIGNED:	SURVEY DATE: 11.2020

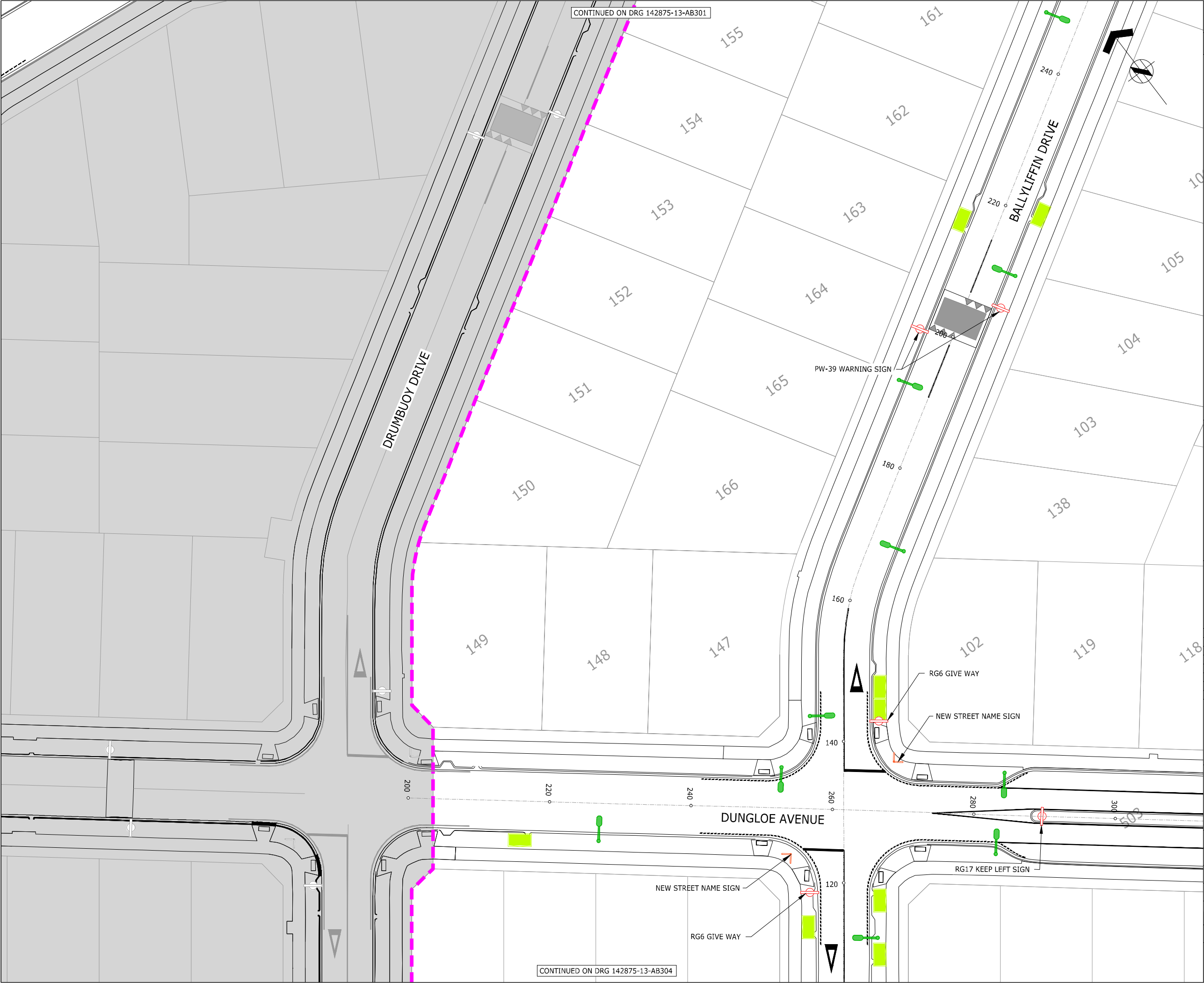
ISSUE STATUS:


AS-BUILT

PROJECT No: 1050-142875-01	SCALES: 1:250-A1 1:500-A3	A1
DRAWING No:		REV

142875-13-AB302

A





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

1. ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m

2. ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE

3. ALL PRAM CROSSINGS HAVE TACTILE GROUND SURFACE INDICATORS (TGSi) INSTALLED AS PER AT STANDARD DRAWING FP009 REV 5.

4. SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD CIVIL LTD AND TO THE BEST OF OUR KNOWLEDGE IS ACCURATE

LEGEND:

STAGE BOUNDARY

NO STOPPING LINEWORK

NO PASSING LINEWORK

NEW RETAINING WALL

ROAD SIGN/ STREET NAME SIGN

STREETLIGHT

NEW SPEED TABLE (TC003)

PRAM CROSSING

NEW RAINGARDEN (PUBLIC)

NEW RAINGARDEN (PRIVATE)

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE AS-BUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: 

CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisingrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisingrierson.com

REF	REVISIONS	BY	DATE
A	AS-BUILT	DDS	21.12.20

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLAT BUSH

TITLE:

ROADING LAYOUT & ROAD MARKING
AS-BUILT PLAN
SHEET 3 OF 6

ORIGINATOR: DDS	DATE: 23.11.20	SIGNED:	PLOT BY: JYW
DRAWN: JYW	DATE: 23.11.20	SIGNED:	PLOT DATE: 21.12.20
CHECKED: JOM	DATE: 18.12.20	SIGNED:	SURVEY BY: DEMPSEY WOOD
APPROVED: DAS	DATE: 18.12.20	SIGNED:	SURVEY DATE: 11.2020

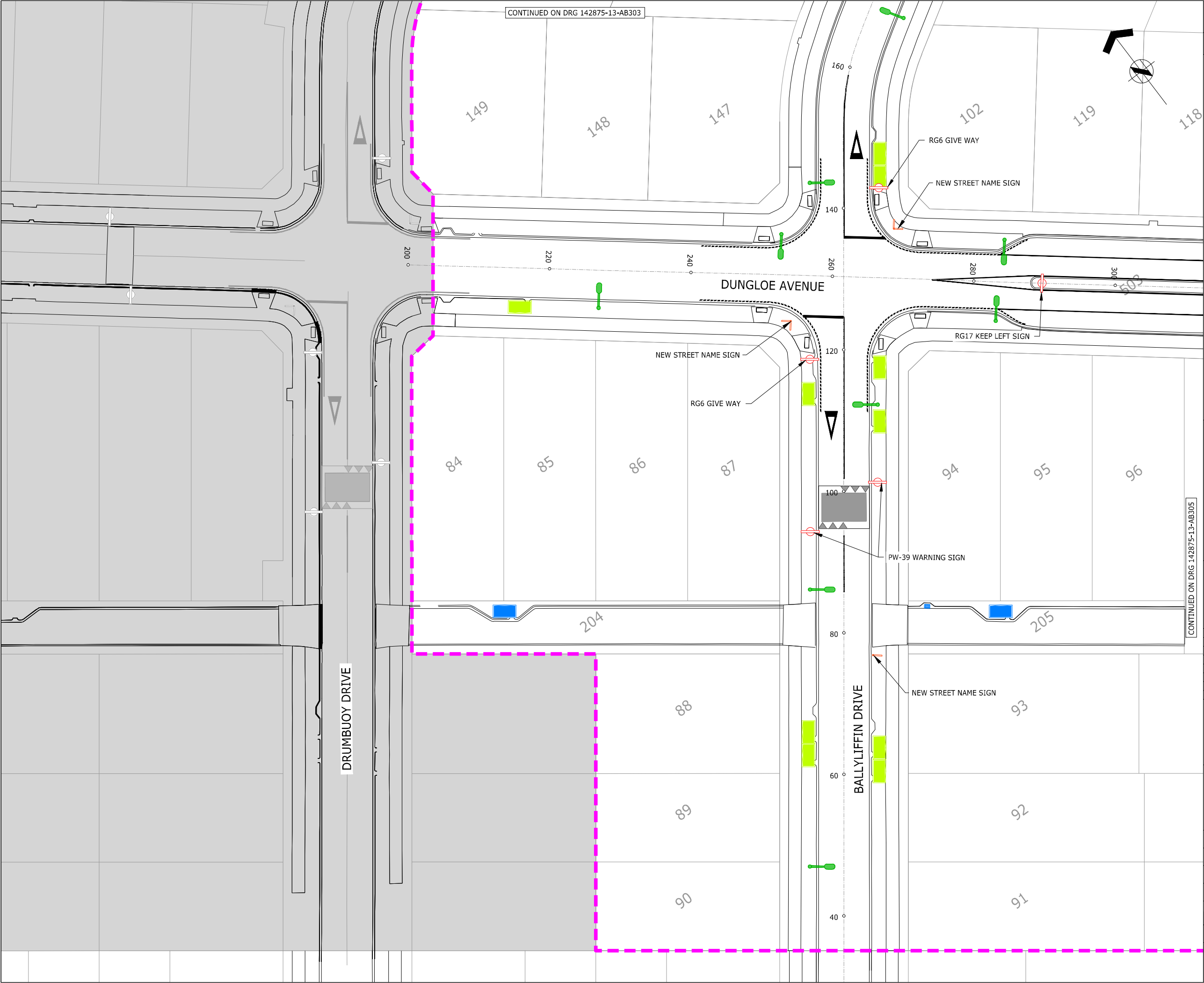
ISSUE STATUS:


AS-BUILT

PROJECT No: 1050-142875-01	SCALES: 1:250-A1 1:500-A3	A1
DRAWING No:		REV

142875-13-AB303A

REFER TO APPROVED MASTER DRAWINGS FOR ORIGINAL SIGNATURES File: NEWMARKET N:\1050\142875_A\CAD\AS-BUILTS\STAGE 13\142875-13-AB300-306.DWG





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

- ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m
- ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
- ALL PRAM CROSSINGS HAVE TACTILE GROUND SURFACE INDICATORS (TGSI) INSTALLED AS PER AT STANDARD DRAWING FP009 REV 5.
- SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD CIVIL LTD AND TO THE BEST OF OUR KNOWLEDGE IS ACCURATE

LEGEND:

- STAGE BOUNDARY
- NO STOPPING LINEWORK
- NO PASSING LINEWORK
- NEW RETAINING WALL
- ROAD SIGN/ STREET NAME SIGN
- STREETLIGHT
- NEW SPEED TABLE (TC003)
- PRAM CROSSING
- NEW RAINGARDEN (PUBLIC)
- NEW RAINGARDEN (PRIVATE)

ENGINEERING APPROVAL

ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: *C. McGregor*
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisongrierson.com

HG

AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisongrierson.com

REF	REVISIONS	BY	DATE
A	AS-BUILT	DDS	21.12.20

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLAT BUSH

TITLE:

ROADING LAYOUT & ROAD MARKING
AS-BUILT PLAN
SHEET 4 OF 6

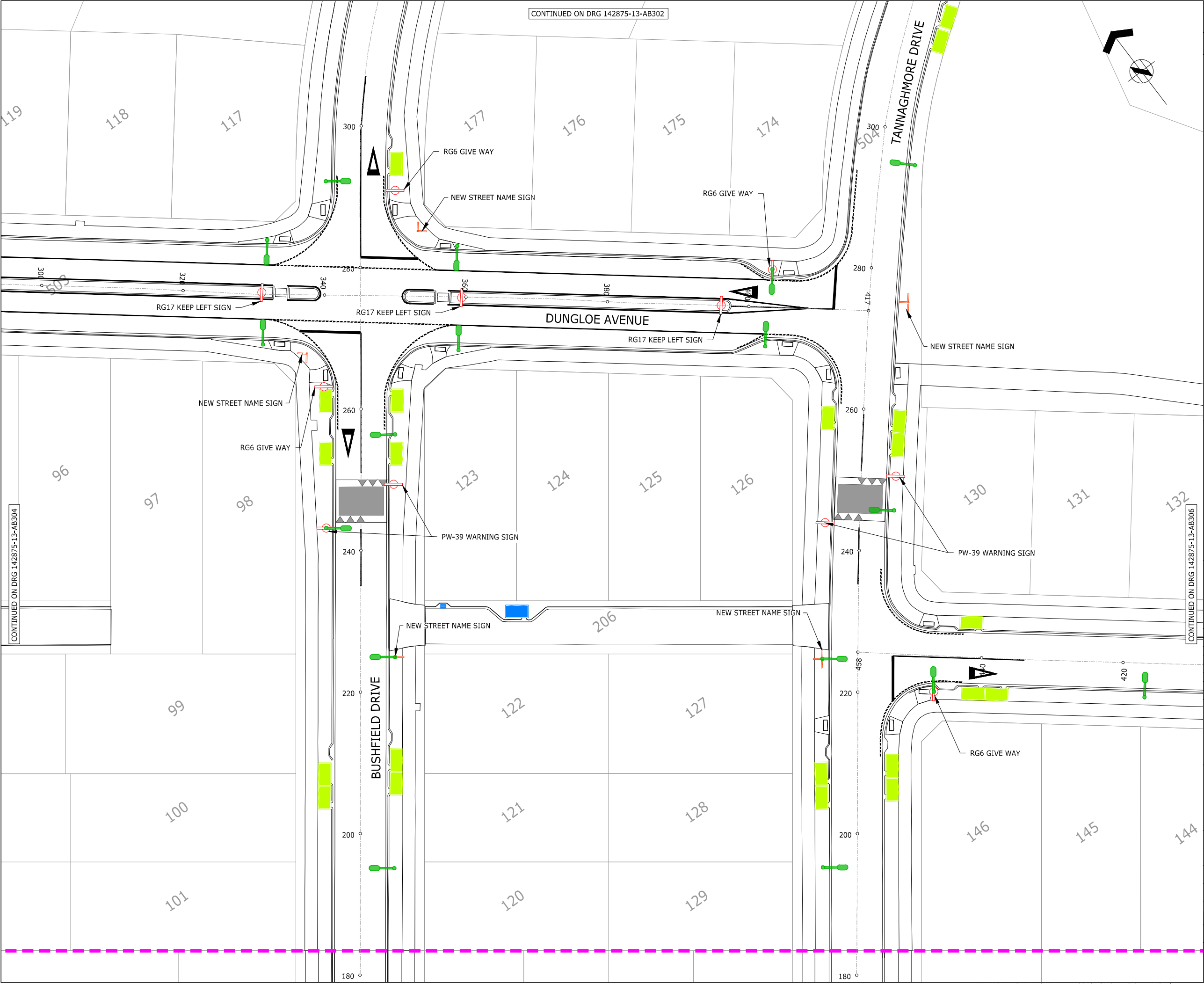
ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	23.11.20		JYW
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	23.11.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

ISSUE STATUS:

AS-BUILT


PROJECT No:	SCALES:	A1
1050-142875-01	1:250-A1 1:500-A3	
DRAWING No:		REV
142875-13-AB304		A

REFER TO APPROVED MASTER DRAWINGS FOR ORIGINAL SIGNATURES File: NEWMARKET N:\1050\142875_A\CAD\AS-BUILTS\STAGE 13\142875-13-AB300-306.DWG



CONTINUED ON DRG 142875-13-AB302

CONTINUED ON DRG 142875-13-AB304



ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED
OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS
LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

1. ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m

2. ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE

3. ALL PRAM CROSSINGS HAVE TACTILE GROUND
SURFACE INDICATORS (TGST) INSTALLED AS PER AT
STANDARD DRAWING FP009 REV 5.

4. SURVEY INFORMATION PROVIDED BY DEMPSEY
WOOD CIVIL LTD AND TO THE BEST OF OUR
KNOWLEDGE IS ACCURATE

LEGEND:

STAGE BOUNDARY

NO STOPPING LINEWORK

NO PASSING LINEWORK

NEW RETAINING WALL

ROAD SIGN/ STREET NAME SIGN

STREETLIGHT

NEW SPEED TABLE
(TC003)

PRAM CROSSING

NEW RAINGARDEN (PUBLIC)


NEW RAINGARDEN (PRIVATE)

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF
THE WORKS UNDERTAKEN AND THAT:

• THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD
(2000), AND ARE WITHIN ±50mm.

• THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL)
LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

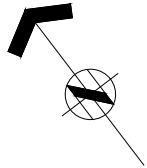
Email: c.mcgregor@harrisonsgrierson.com

HG

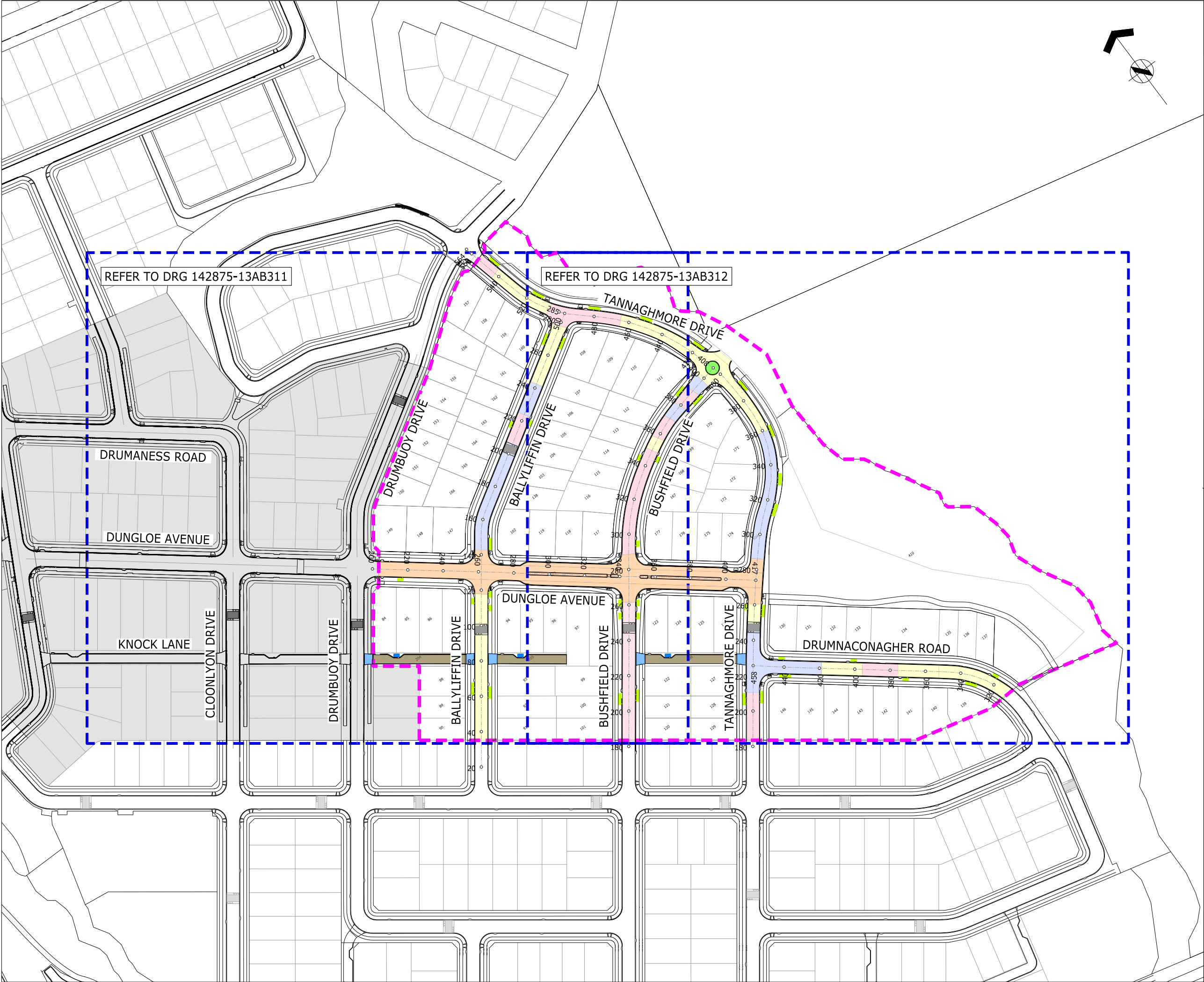
AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisonsgrierson.com


A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE
PROJECT:			
HUGH GREEN LIMITED DONEGAL STAGE 13 36 TIR CONAILL AVENUE, FLAT BUSH			
TITLE: ROADING LAYOUT & ROAD MARKING AS-BUILT PLAN SHEET 5 OF 6			
ORIGINATOR: DDS	DATE: 23.11.20	SIGNED:	PLOT BY: JYW
DRAWN: JYW	DATE: 23.11.20	SIGNED:	PLOT DATE: 21.12.20
CHECKED: JOM	DATE: 18.12.20	SIGNED:	SURVEY BY: DEMPSEY WOOD
APPROVED: DAS	DATE: 18.12.20	SIGNED:	SURVEY DATE: 11.2020
ISSUE STATUS:			
AS-BUILT			
PROJECT No: 1050-142875-01	SCALES: 1:250-A1 1:500-A3	A1	
DRAWING No: 142875-13-AB305			REV A

REFER TO APPROVED MASTER DRAWINGS FOR ORIGINAL SIGNATURES File: NEWMARKET N:\1050\142875_A\CAD\AS-BUILTS\STAGE 13\142875-13-AB306-306.DWG



REFER TO APPROVED MASTER DRAWINGS FOR ORIGINAL SIGNATURES File: NEWMARKET N:\1050\142875_A\CAD\AS-BUILTS\STAGE 13\142875-13-AB300-306.DWG





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

- ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m
- ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
- SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD CIVIL LTD AND TO THE BEST OF OUR KNOWLEDGE IS ACCURATE.

LEGEND:


- 300mm BLACK SAND (UNDERCUT)
- 200 AP 65 (SUBBASE)
- 150mm AP 40 (BASE)
- 200 AP 65 (SUBBASE)
- 150mm AP 40 (BASE)
- 300mm AP 65 (UNDERCUT & SUBBASE)
- 150mm AP 40 (BASE)
- 350mm AP 65 (UNDERCUT & SUBBASE)
- 150mm AP 40 (BASE)
- 500mm AP 65 (UNDERCUT & SUBBASE)
- 150mm AP 40 (BASE)
- CONCRETE JOAL
- 175mm (30 MPa) CONCRETE
- 150mm AP 40 (BASE)
- COMMERCIAL VEHICLE CROSSING
- 200mm (20MPa) CONCRETE
- 100mm AP40 (BASE)
- CONCRETE ROUNDABOUT
- 200mm AP65
- 150mm AP40
- 175mm 20MPa CONCRETE
- MANARC RESIDENTIAL VEHICLE CROSSING
- RAINGARDEN (PUBLIC / PRIVATE)

ENGINEERING APPROVAL

ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.


Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisongrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisongrierson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVE, FLAT BUSH

TITLE:

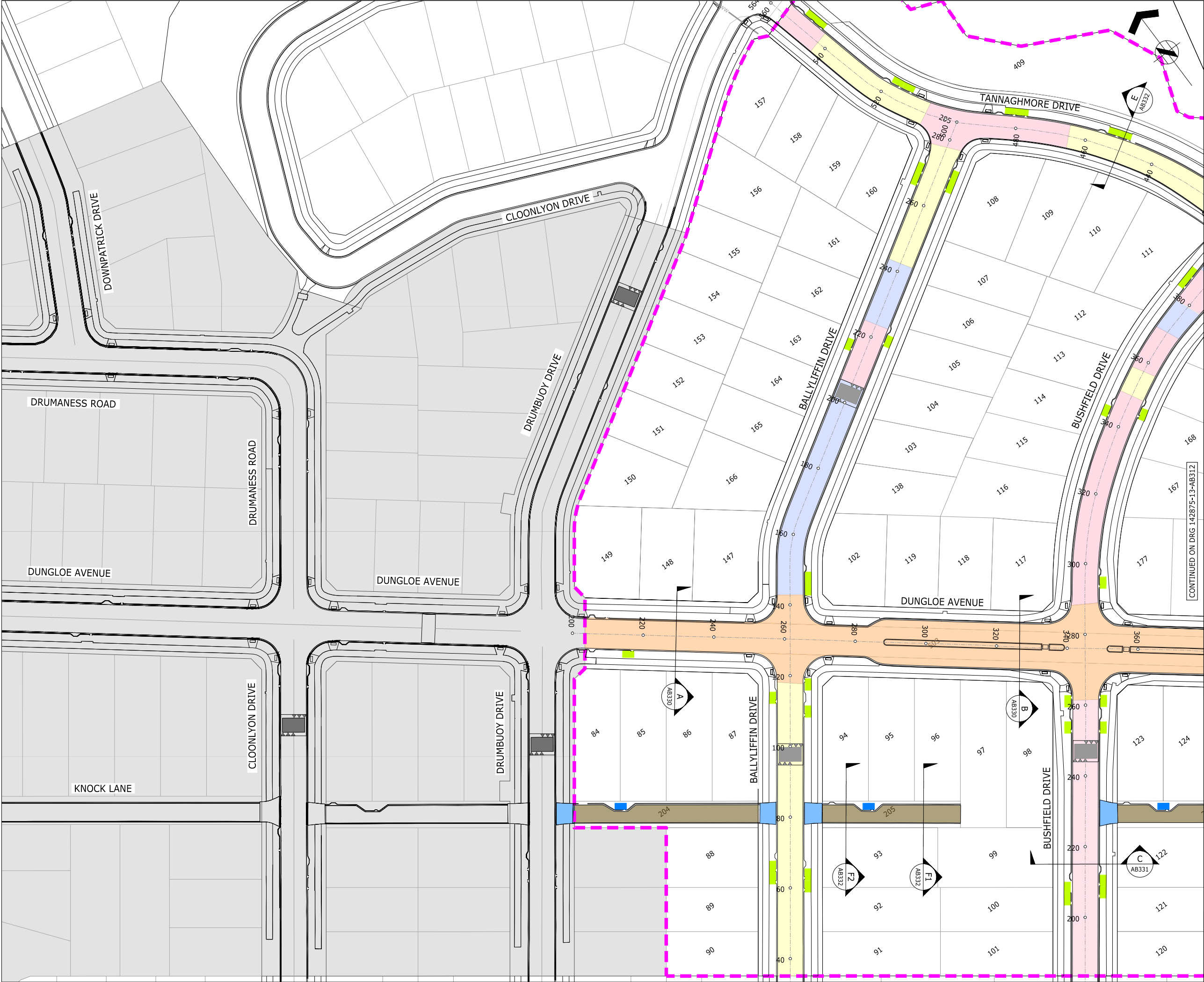
OVERALL PAVEMENT AS-BUILT PLAN


ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	30.11.20		JYW
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	30.11.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

ISSUE STATUS:

AS-BUILT

PROJECT No:	SCALES:	A1
1050-142875-01	1:1000-A1 1:2000-A3	
DRAWING No:		REV
142875-13-AB310		A





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

- ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m
- ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
- ALL PAVEMENT COVERED IN 40mm HOTMIX (MIX 10)
- SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD CIVIL LTD AND TO THE BEST OF OUR KNOWLEDGE IS ACCURATE.

LEGEND:

- 300mm BLACK SAND (UNDERCUT)
- 200 AP 65 (SUBBASE)
- 150mm AP 40 (BASE)
- 200 AP 65 (SUBBASE)
- 150mm AP 40 (BASE)
- 300mm AP 65 (UNDERCUT & SUBBASE)
- 150mm AP 40 (BASE)
- 350mm AP 65 (UNDERCUT & SUBBASE)
- 150mm AP 40 (BASE)
- 500mm AP 65 (UNDERCUT & SUBBASE)
- 150mm AP 40 (BASE)
- CONCRETE JOAL
- 175mm (30 MPa) CONCRETE
- 150mm AP 40 (BASE)
- COMMERCIAL VEHICLE CROSSING
- 200mm (20MPa) CONCRETE
- 100mm AP40 (BASE)
- CONCRETE ROUNDABOUT
- 200mm AP65
- 150mm AP40
- 175mm 20MPa CONCRETE
- MANARC RESIDENTIAL VEHICLE CROSSING
- RAINGARDEN (PUBLIC / PRIVATE)

ENGINEERING APPROVAL

ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.


Signed: *C. McGregor*
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrissongrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrissongrierson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE

PROJECT:

HUGH GREEN LIMITED

DONEGAL STAGE 13

36 TIR CONAILL AVE, FLAT BUSH

TITLE:

PAVEMENT AS-BUILT PLAN

SHEET 1 OF 2

ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	30.11.20		JYW
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	30.11.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

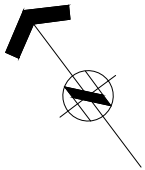
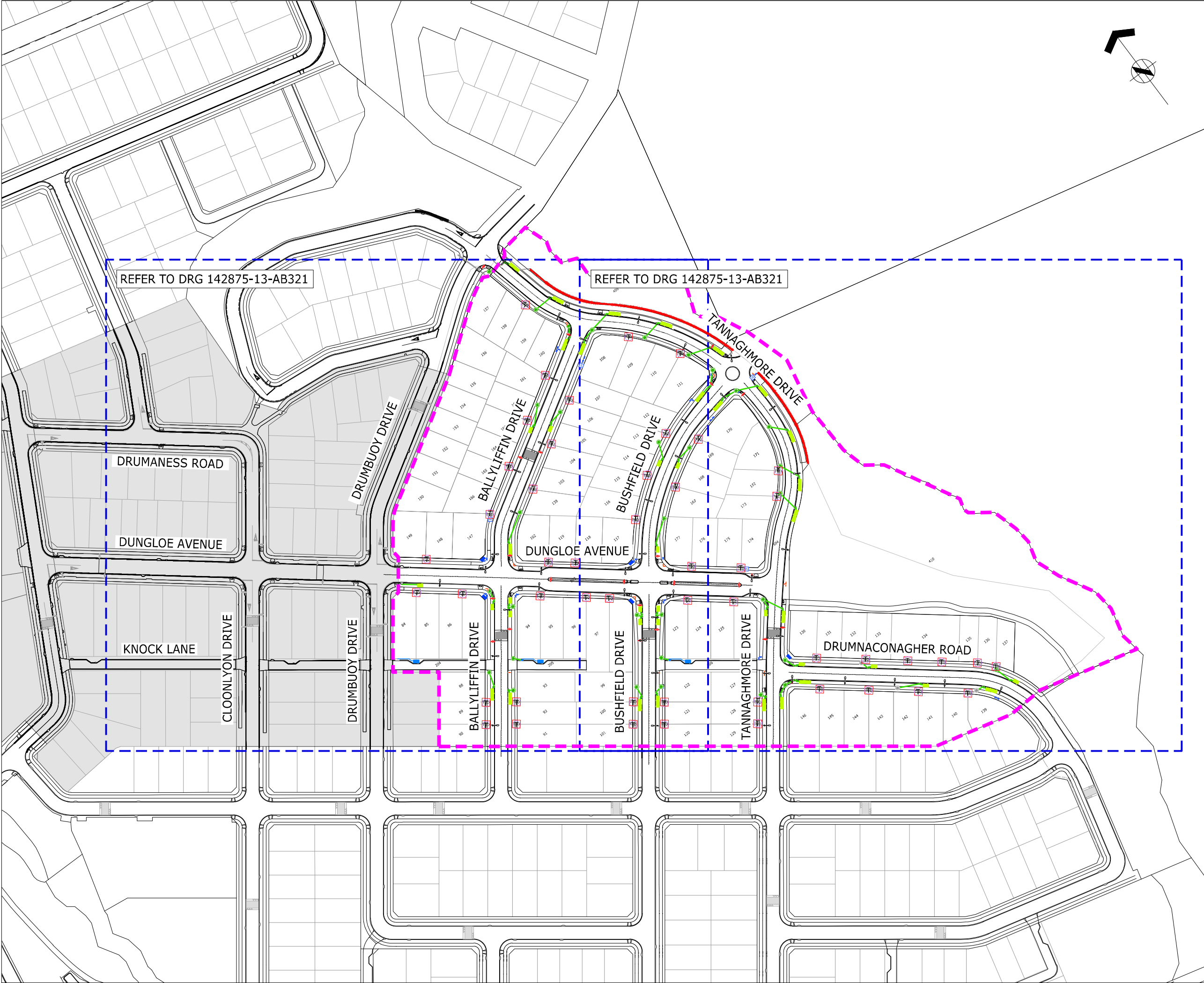
ISSUE STATUS:


AS-BUILT

PROJECT No:	SCALES:	A1
1050-142875-01	1:500-A1 1:1000-A3	
DRAWING No:		REV

142875-13-AB311

A





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

- ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m
- ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
- SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD CIVIL LTD AND TO THE BEST OF OUR KNOWLEDGE IS ACCURATE.


LEGEND:

- STAGE BOUNDARY
- NEW RETAINING WALL
- NEW CESSPIT LEAD
- NEW STORMWATER MANHOLE
- NEW CESSPIT
- NEW POWER TUD
- NEW TELECOM HAND HOLE
- LINK PILLAR
- NEW STREETLIGHT
- NEW ROAD SIGN/
STREET NAME SIGN
- NEW FIRE HYDRANT
- NEW SLUICE VALVE
- NEW RAINGARDEN (PUBLIC)
- NEW RAINGARDEN (PRIVATE)

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.


Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrissongrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrissongrierson.com

REF	AS-BUILT	DD	DATE
A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVE, FLATBUSH

TITLE:

OVERALL ROADING AS-BUILT PLAN

ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	30.11.20		JYW
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	30.11.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

ISSUE STATUS:

AS-BUILT

PROJECT No:	SCALES:	
1050-142875-01	1:1000-A1 1:2000-A3	A1
DRAWING No:		REV
142875-13-AB320		A





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

- ORIGIN OF LEVELS
S 66 SO 48643
RL 54,50m
- ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
- SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD CIVIL LTD AND TO BEST OF OUR KNOWLEDGE IS ACCURATE.

LEGEND:

- STAGE BOUNDARY
- NEW RETAINING WALL
- NEW CESSPIT LEAD
- NEW STORMWATER MANHOLE
- NEW CESSPIT
- NEW POWER TUD
- NEW TELECOM HAND HOLE
- LINK PILLAR
- NEW STREETLIGHT
- NEW ROAD SIGN/
STREET NAME SIGN
- NEW FIRE HYDRANT
- NEW SLUICE VALVE
- NEW RAINGARDEN (PUBLIC)
- NEW RAINGARDEN (PRIVATE)

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000


Email: c.mcgregor@harrisonsgrinson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisonsgrinson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE
PROJECT:			
HUGH GREEN LIMITED DONEGAL STAGE 13 36 TIR CONAILL AVE, FLATBUSH			
TITLE: ROADING AS-BUILT PLAN SHEET 2 OF 2			
ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	30.11.20		JYW
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	30.11.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020
ISSUE STATUS:			
AS-BUILT			
PROJECT No:	SCALES:	A1	
1050-142875-01	1:500-A1 1:1000-A3		
DRAWING No:			REV
142875-13-AB322			A

COORDINATE SCHEDULE		
SL No.	mE	mN
SL01	1770488.70	5905555.66
SL02	1770492.63	5905511.60
SL03	1770529.77	5905484.32
SL04	1770538.96	5905455.06
SL05	1770558.44	5905435.73
SL06	1770560.70	5905398.16
SL07	1770549.37	5905359.62
SL08	1770518.12	5905329.10
SL09	1770486.49	5905291.84
SL10	1770465.77	5905281.16
SL11	1770448.14	5905257.55
SL12	1770497.90	5905492.21
SL13	1770469.81	5905486.52
SL14	1770443.94	5905459.38
SL15	1770421.99	5905457.59
SL16	1770407.96	5905437.77
SL17	1770383.36	5905427.12
SL18	1770543.21	5905422.00
SL19	1770514.73	5905423.41
SL20	1770500.95	5905406.70
SL21	1770471.46	5905399.42
SL22	1770450.16	5905377.29
SL23	1770348.89	5905430.92
SL24	1770375.82	5905423.72
SL25	1770400.56	5905404.15
SL26	1770392.69	5905395.74
SL27	1770438.55	5905375.60
SL28	1770429.21	5905364.16
SL29	1770459.54	5905358.83
SL30	1770450.45	5905349.91
SL31	1770493.18	5905329.41
SL32	1770485.83	5905321.34
SL33	1770372.23	5905396.29
SL34	1770348.89	5905381.15
SL35	1770325.39	5905349.85
SL36	1770436.53	5905342.77
SL37	1770420.78	5905338.05
SL38	1770417.63	5905317.63
SL39	1770399.63	5905293.84
SL40	1770475.60	5905268.01
SL41	1770498.95	5905249.49
SL42	1770520.88	5905231.99
SL43	1770543.01	5905214.43
SL44	1770565.41	5905192.54



ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

1. ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m


2. ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE

3. SURVEY INFORMATION PROVIDED BY DEMPSEY
WOOD CIVIL LTD AND TO THE BEST OF OUR
KNOWLEDGE IS ACCURATE.

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.


Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisongrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisongrierson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVE, FLATBUSH

TITLE:

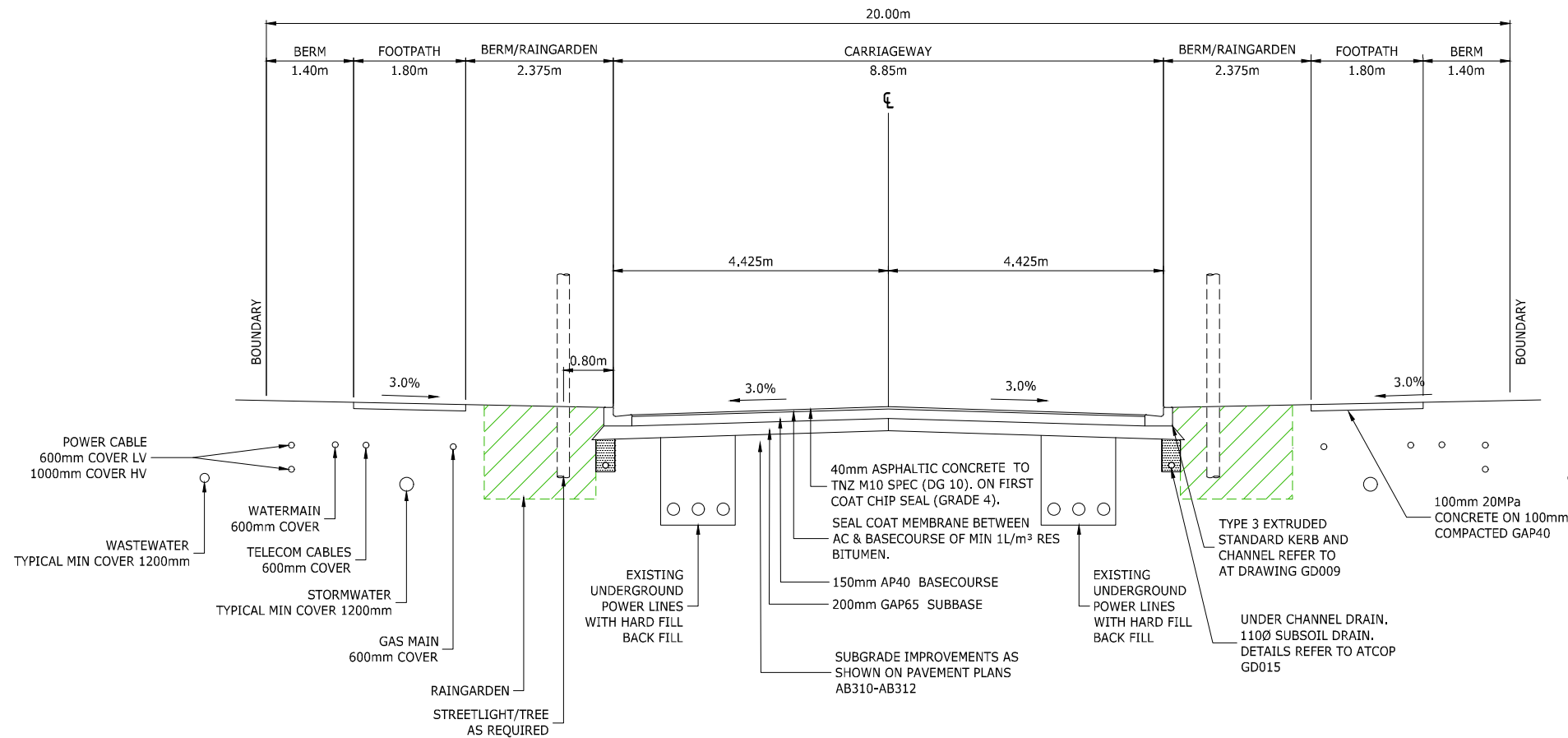
STREETLIGHTS AS-BUILT
SCHEDULE OF COORDINATES

ORIGINATOR: DDS	DATE: 30.11.20	SIGNED:	PLOT BY: JYW
DRAWN: JYW	DATE: 30.11.20	SIGNED:	PLOT DATE: 21.12.20
CHECKED: JOM	DATE: 18.12.20	SIGNED:	SURVEY BY: DEMPSEY WOOD
APPROVED: DAS	DATE: 18.12.20	SIGNED:	SURVEY DATE: 11.2020

ISSUE STATUS:

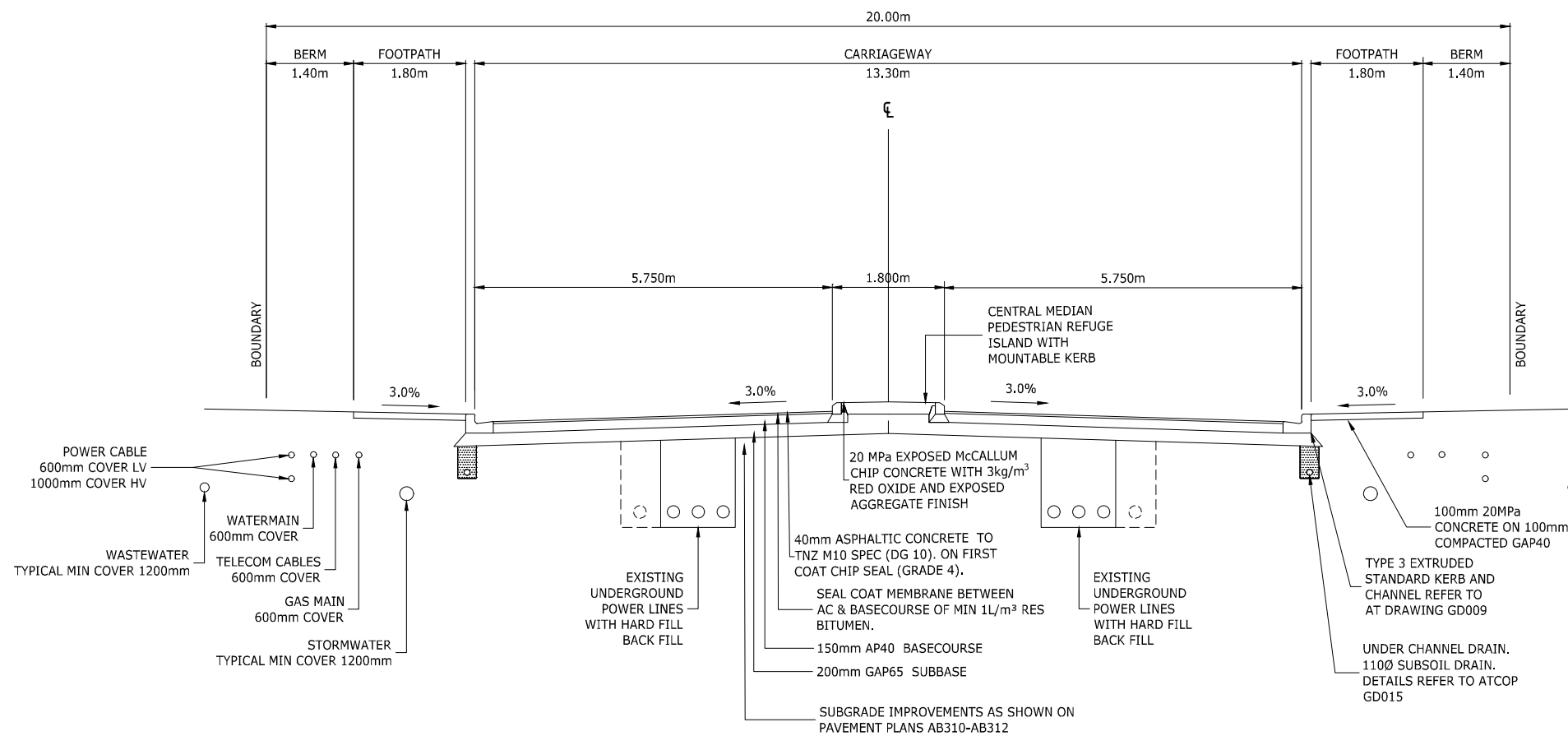
AS-BUILT

PROJECT No: 1050-142875-01	SCALES: NOT TO SCALE	A1
DRAWING No: 142875-13-AB323		REV A



A CROSS SECTION (LOCAL ROAD)

311 SCALE 1:50 -A1 1:100 -A3 DUNGLOE AVENUE - ROAD 11 (CH 0.0 - 283.0, CH 402.0 - CH 418.0)



B CROSS SECTION (LOCAL ROAD)

311 SCALE 1:50 -A1 1:100 -A3 DUNGLOE AVENUE - ROAD 11 (CH 283.0 - CH 402.0)

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrsongrierson.com

HG AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrsongrierson.com

REF	REVISIONS	BY	DATE
A	AS-BUILT	DDS	21.12.20

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLAT BUSH

TITLE:
TYPICAL ROAD CROSS-SECTIONS
SHEET 1 OF 3
AS-BUILT

ORIGINATOR: DDS	DATE: 30.11.20	SIGNED:	PLOT BY: JYW
DRAWN: JYW	DATE: 30.11.20	SIGNED:	PLOT DATE: 21.12.20
CHECKED: JOM	DATE: 18.12.20	SIGNED:	SURVEY BY: DEMPSEY WOOD
APPROVED: DAS	DATE: 18.12.20	SIGNED:	SURVEY DATE: 11.2020

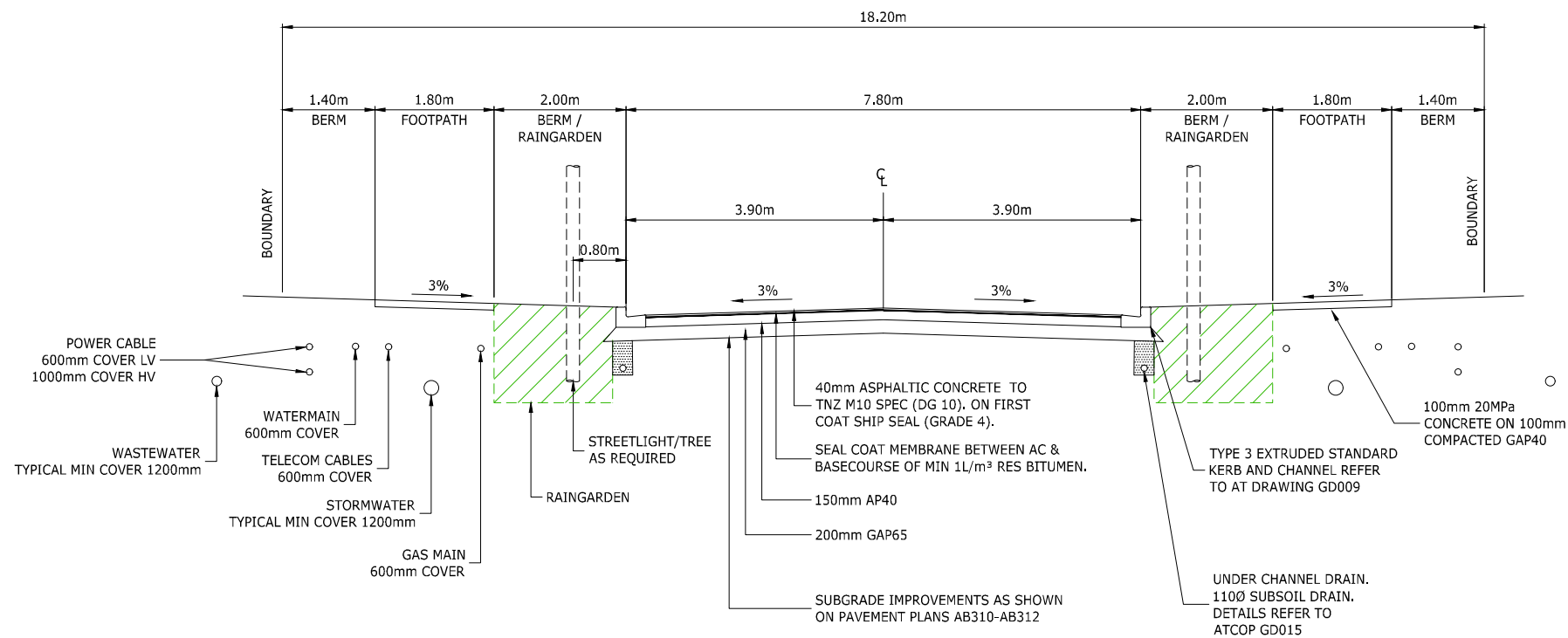
ISSUE STATUS: **AS-BUILT**

PROJECT No: 1050-142875-01	SCALES: AS SHOWN	A1
----------------------------	------------------	----

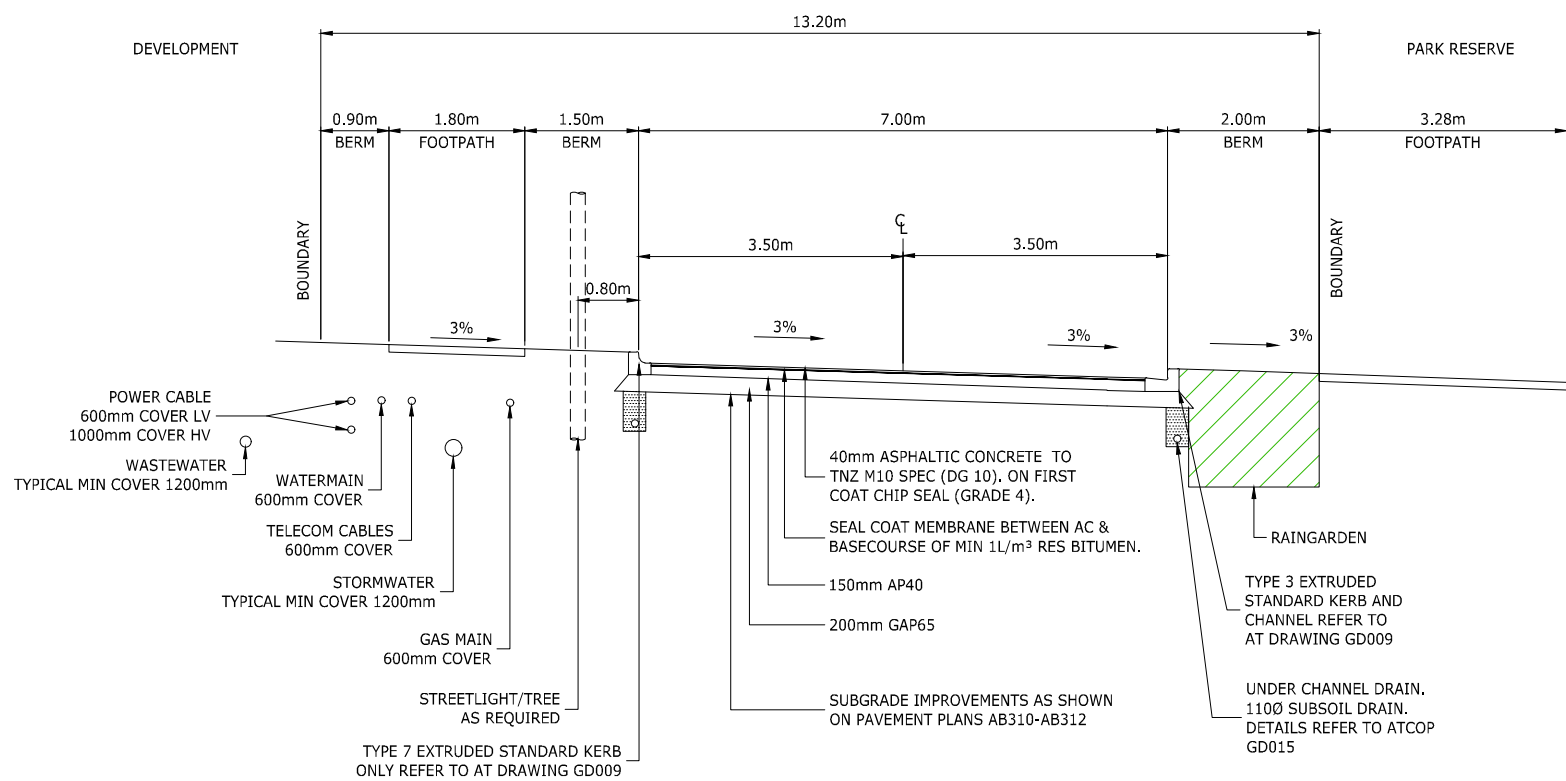
DRAWING No:	REV
-------------	-----

142875-13-AB330

A



C CROSS SECTION (LOCAL ROAD)
SCALE 1:50 -A1
1:100 -A3
BUSHFIELD DRIVE - ROAD 4 (CH 184.0 - CH 400.0)
TANNAGHMORE DRIVE - ROAD 6 (CH 186.0 - CH 265.0)
BALLYLIFFIN DRIVE - ROAD 9 (CH 35.0 - CH 280.0)
DRUMNACONAGHER DRIVE - ROAD 10 (CH 309.0 - CH 451.0)




D CROSS SECTION (LOCAL ROAD)
SCALE 1:50 -A1
1:100 -A3
TANNAGHMORE DRIVE - ROAD 6 (CH 543.0 - CH 568.0, CH 289.0 - CH 348.0)

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisingrierson.com

HG AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisingrierson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLAT BUSH

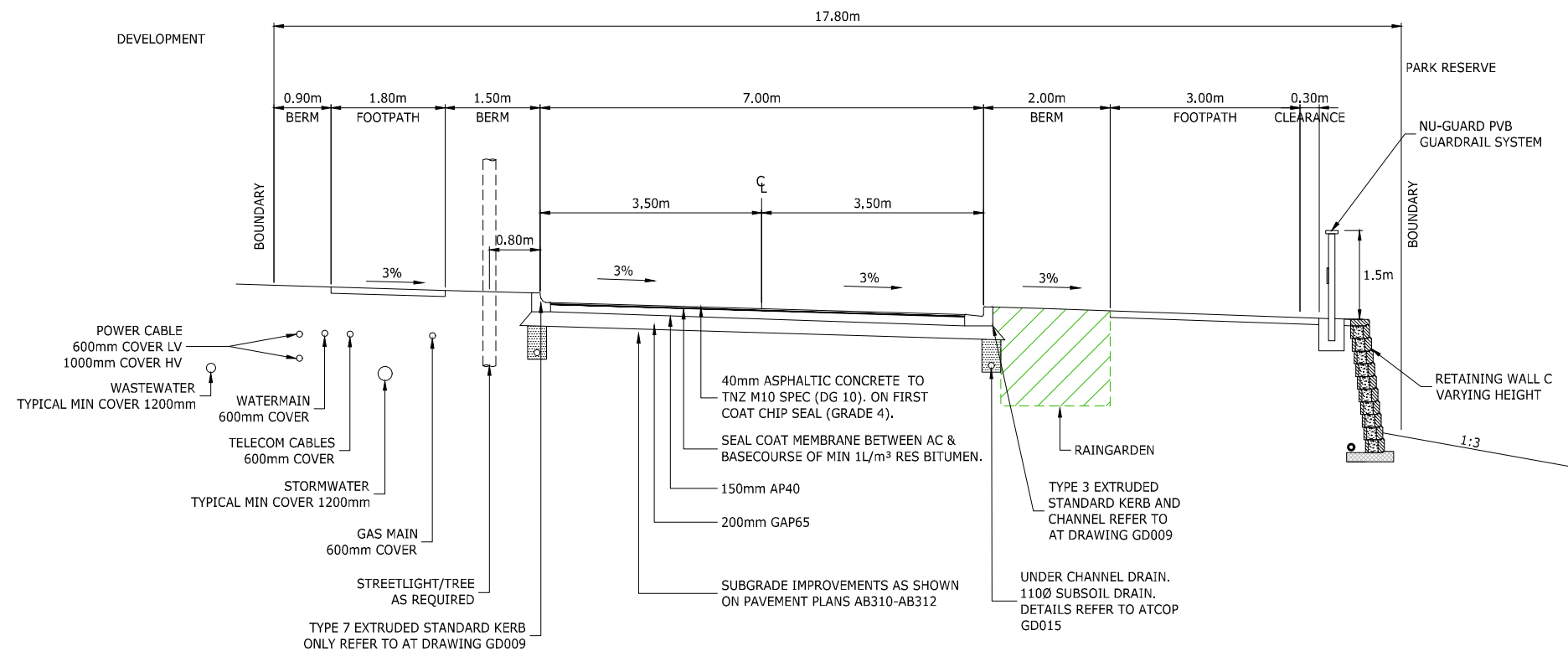
TITLE:
TYPICAL ROAD CROSS-SECTIONS
SHEET 2 OF 3
AS-BUILT

ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	30.11.20		JYW
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	30.11.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

ISSUE STATUS:
AS-BUILT

PROJECT No:	SCALES:	A1
1050-142875-01	AS SHOWN	
DRAWING No:		REV

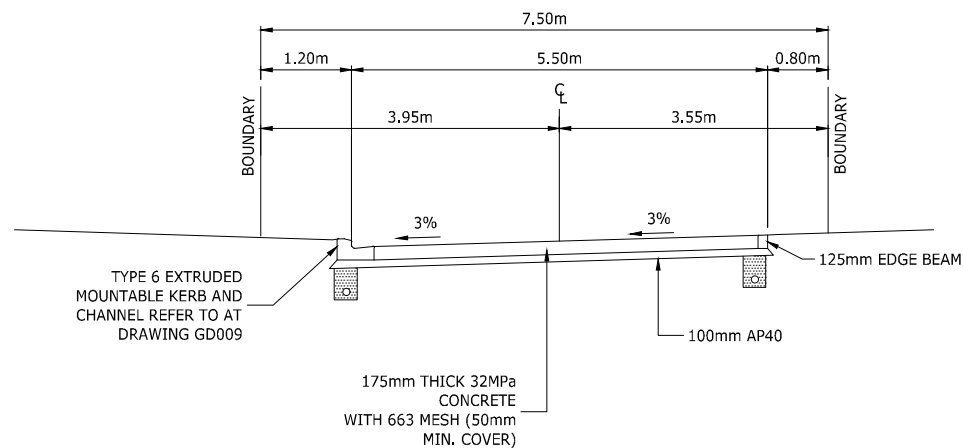
142875-13-AB331
A



CROSS SECTION (LOCAL ROAD)

312 SCALE 1:50-A1
1:100-A3

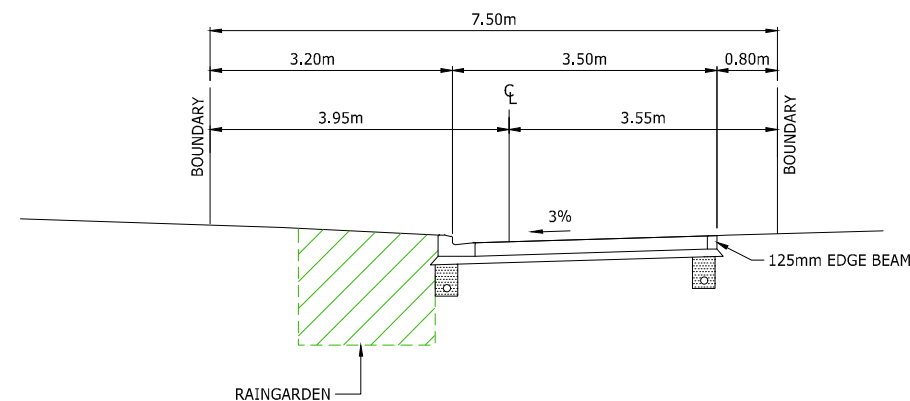
TANNAGHMORE DRIVE - ROAD 6 (CH 343.0 - 540.0)



CROSS SECTION (JOAL WITHOUT RAINGARDEN)

311 SCALE 1:50-A1
1:100-A3

JOAL 4 (CH 201.0 - CH 209.0 & CH 219.0 - CH 253.0)
JOAL 5 (CH 272.0 - CH 280.0 & CH 289.0 - CH 311.0)
JOAL 6 (CH 355.0 - CH 364.0 & CH 373.0 - CH 407.0)



CROSS SECTION (JOAL WITH RAINGARDEN)

311 SCALE 1:50-A1
1:100-A3

JOAL 4 (CH 209.0 - CH 219.0)
JOAL 5 (CH 280.0 - CH 289.0)
JOAL 6 (CH 364.0 - CH 373.0)

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisingrierson.com

HG AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisingrierson.com

REF	REVISIONS	BY	DATE
A	AS-BUILT	DDS	21.12.20

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLAT BUSH

TITLE:
TYPICAL ROAD CROSS-SECTIONS
SHEET 3 OF 3
AS-BUILT

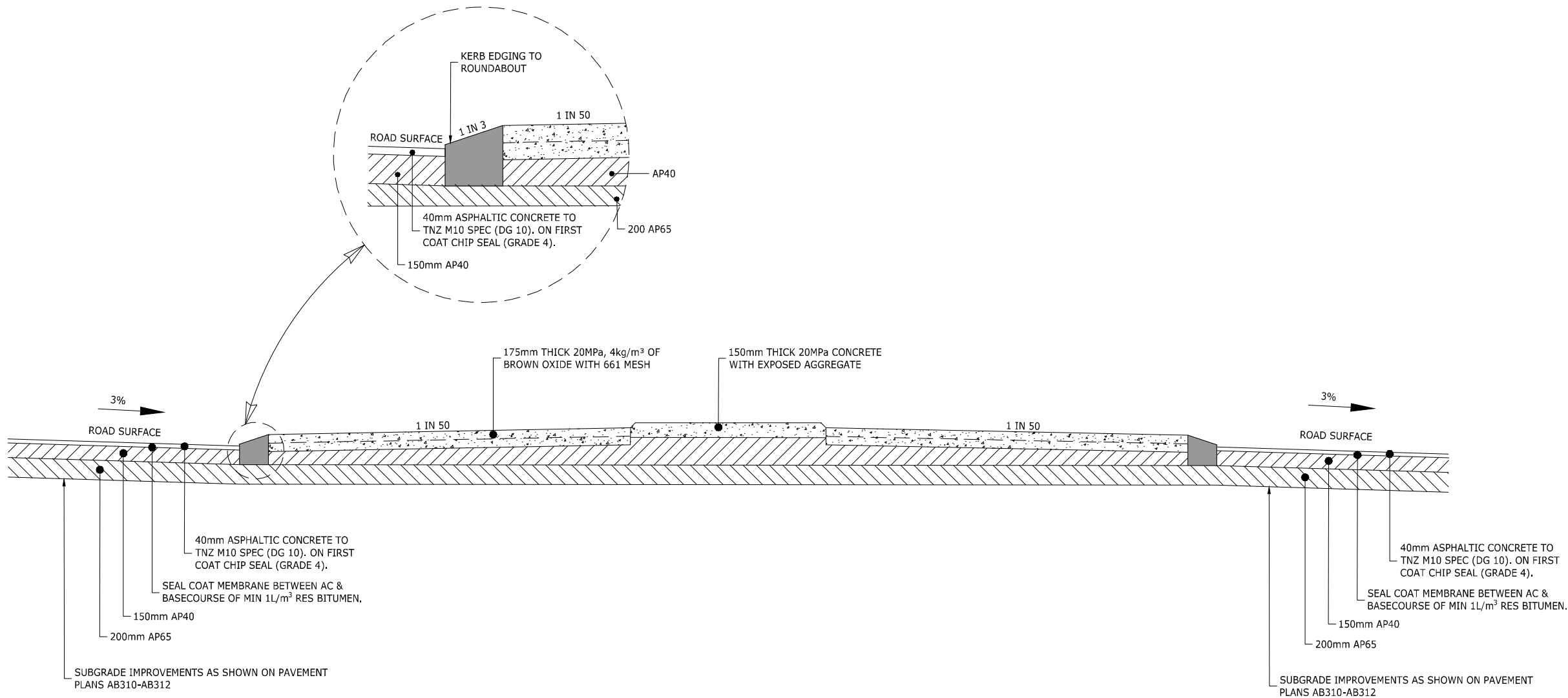
ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	30.11.20		JYW
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	30.11.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

ISSUE STATUS:

AS-BUILT

PROJECT No: 1050-142875-01 SCALES: AS SHOWN A1

DRAWING No: 142875-13-AB332 A



G **ROUNDABOUT DETAIL**
312 SCALE 1:25-A1 1:50-A3 TANNAGHMORE DRIVE - ROAD 6 (CH402.0 - CH410.0)

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrissongrierson.com

HG AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrissongrierson.com

A		AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE	

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLAT BUSH

TITLE:
TYPICAL ROAD CROSS-SECTIONS
SHEET 3 OF 3
AS-BUILT

ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	30.11.20		JYW
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	30.11.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

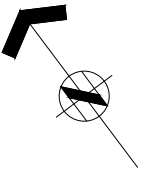
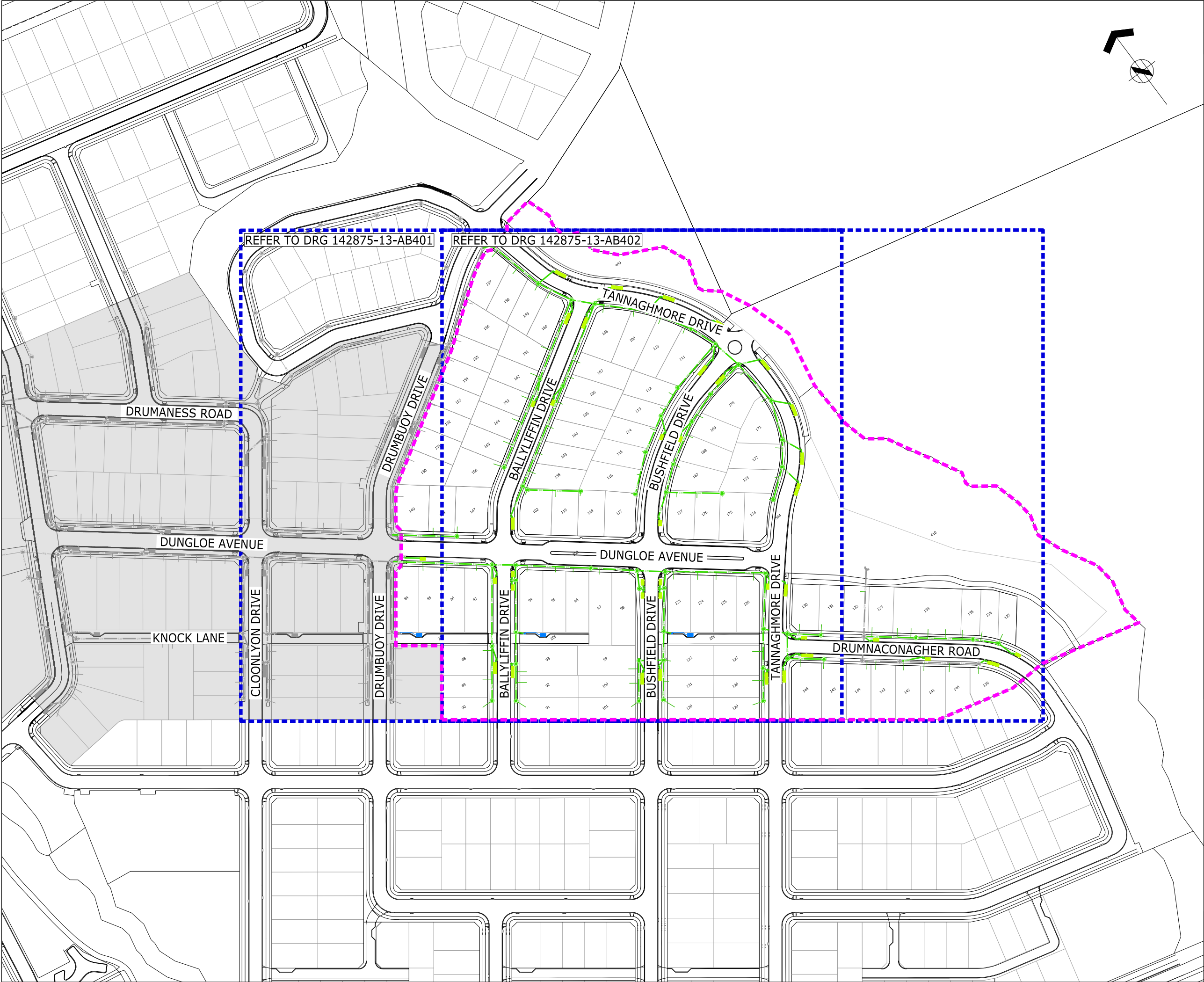
ISSUE STATUS:

AS-BUILT

PROJECT No:	1050-142875-01	SCALES:	AS SHOWN	A1
DRAWING No:				REV

142875-13-AB333

A



ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED
OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS
LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:
1. ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m
2. ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
3. ALL CONNECTIONS ARE DN 100 uPVC. CHAINAGE FOR
CONNECTIONS ARE FROM DOWNSTREAM MANHOLE
CENTRE.
4. ALL STORMWATER LINES ARE RCRRJ CLASS 2 UNLESS
SHOWN OTHERWISE.
5. ALL CATCHPIT LEADS ARE RCRRJ CLASS 4.
6. ALL NEW MANHOLES ARE DN 1050 RC UNLESS
SHOWN OTHERWISE.
7. SURVEY INFORMATION PROVIDED BY DEMPSEY
WOOD CIVIL LTD AND TO THE BEST OF OUR
KNOWLEDGE IS ACCURATE.
8. REFER AB480-AB481 FOR RAIN GARDEN DETAILS

LEGEND:
— SW — NEW PUBLIC STORMWATER
NEW PUBLIC/ PRIVATE CATCHPIT
— NEW LOT CONNECTION
— EXISTING LOT CONNECTION
— SW — EXISTING SW LINE, MH AND CP
NEW PUBLIC/ PRIVATE RAINGARDEN
EXISTING RAINGARDEN
— NEW PRIVATE CONNECTION
— STAGE BOUNDARY

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF
THE WORKS UNDERTAKEN AND THAT:
• THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD
(2000), AND ARE WITHIN ±50mm.
• THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL)
LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisonsgrinson.com

AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisonsgrinson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLATBUSH

TITLE:

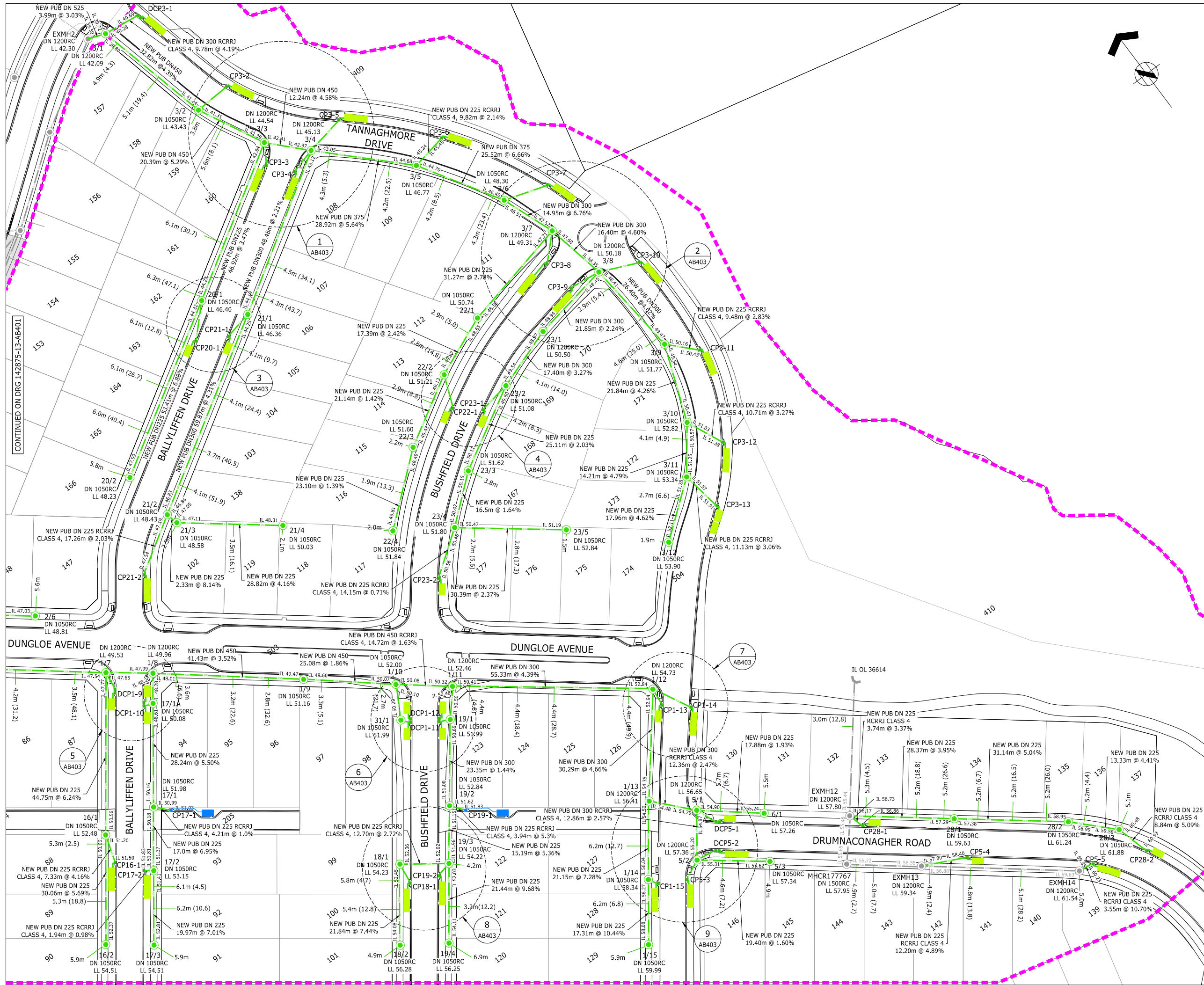
OVERALL STORMWATER
AS-BUILT PLAN


ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	16.11.20		DDS
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	16.11.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

ISSUE STATUS:

AS-BUILT

PROJECT No:	SCALES:	A1
1050-142875-01	1:1000-A1 1:2000-A3	
DRAWING No:	REV	
142875-13-AB400	A	





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

- ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m
- ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
- ALL CONNECTIONS ARE DN 100 uPVC. CHAINAGE FOR CONNECTIONS ARE FROM DOWNSTREAM MANHOLE CENTRE.
- ALL STORMWATER LINES ARE RCRRJ CLASS 2 UNLESS SHOWN OTHERWISE.
- ALL CATCHPIT LEADS ARE RCRRJ CLASS 4.
- ALL NEW MANHOLES ARE DN 1050 RC UNLESS SHOWN OTHERWISE.
- SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD CIVIL LTD AND TO THE BEST OF OUR KNOWLEDGE IS ACCURATE.
- REFER AB480-AB481 FOR RAIN GARDEN DETAILS

LEGEND:


- SW NEW PUBLIC STORMWATER
- NEW PUBLIC/ PRIVATE CATCHPIT
- NEW LOT CONNECTION
- EXISTING LOT CONNECTION
- SW EXISTING SW LINE, MH AND CP
- NEW PUBLIC/ PRIVATE RAINGARDEN
- EXISTING RAINGARDEN
- NEW PRIVATE CONNECTION
- STAGE BOUNDARY

ENGINEERING APPROVAL

ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.


Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrissongrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrissongrierson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE
PROJECT:			

HUGH GREEN LIMITED

DONEGAL STAGE 13

36 TIR CONAILL AVENUE, FLATBUSH

STORMWATER

AS-BUILT PLAN

SHEET 2 OF 2

ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	16.11.20		DDS
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	16.11.20		21.12.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

AS-BUILT

PROJECT No:	SCALES:	A1
1050-142875-01	1:500-A1 1:1000-A3	
DRAWING No:	REV	
142875-13-AB402	A	



ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED
OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS
LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

1. ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m
2. ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
3. ALL CONNECTIONS ARE DN 100 uPVC. CHAINAGE FOR
CONNECTIONS ARE FROM DOWNSTREAM MANHOLE
CENTRE.
4. ALL STORMWATER LINES ARE RCRRJ CLASS 2 UNLESS
SHOWN OTHERWISE.
5. ALL CATCHPIT LEADS ARE RCRRJ CLASS 4.
6. ALL NEW MANHOLES ARE DN 1050 RC UNLESS
SHOWN OTHERWISE.
7. SURVEY INFORMATION PROVIDED BY DEMPSEY
WOOD CIVIL LTD AND TO THE BEST OF OUR
KNOWLEDGE IS ACCURATE.
8. REFER AB480-AB481 FOR RAIN GARDEN DETAILS

LEGEND:

- SW — NEW PUBLIC STORMWATER
- NEW PUBLIC/ PRIVATE CATCHPIT
- NEW LOT CONNECTION
- EXISTING LOT CONNECTION
- EXISTING SW LINE, MH AND CP
- NEW PUBLIC/ PRIVATE RAINGARDEN
- EXISTING RAINGARDEN
- STAGE BOUNDARY

ENGINEERING APPROVAL ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF
THE WORKS UNDERTAKEN AND THAT:
• THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD
(2000), AND ARE WITHIN ±50mm.
• THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL)
LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: *C. McGregor*

CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrissongrierson.com

HG AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrissongrierson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLATBUSH

TITLE:

STORMWATER DETAILS AS-BUILTS

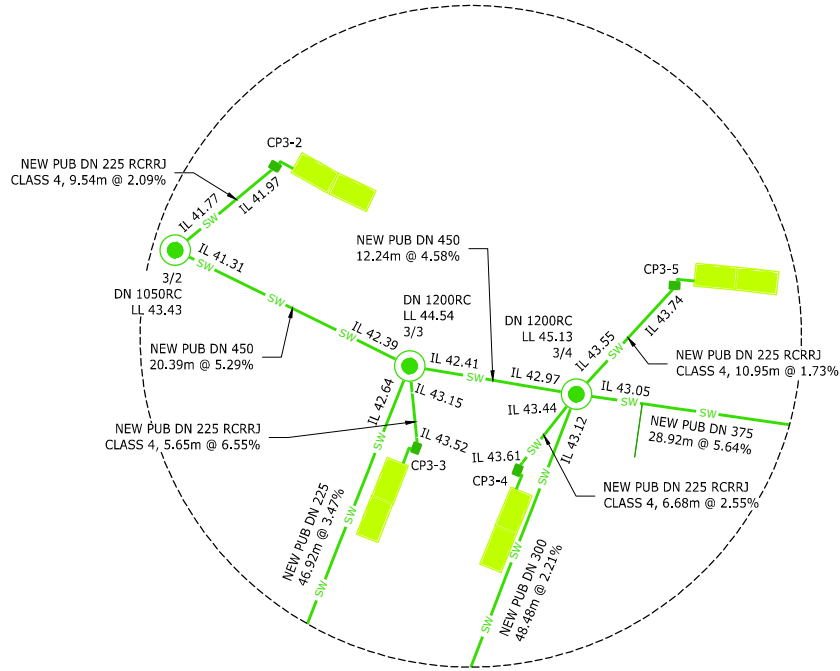
ORIGINATOR: DDS	DATE: 16.11.20	SIGNED:	PLOT BY: DDS
DRAWN: JYW	DATE: 16.11.20	SIGNED:	PLOT DATE: 21.12.20
CHECKED: JOM	DATE: 18.12.20	SIGNED:	SURVEY BY: DEMPSEY WOOD
APPROVED: DAS	DATE: 18.12.20	SIGNED:	SURVEY DATE: 11.2020

ISSUE STATUS: AS-BUILT

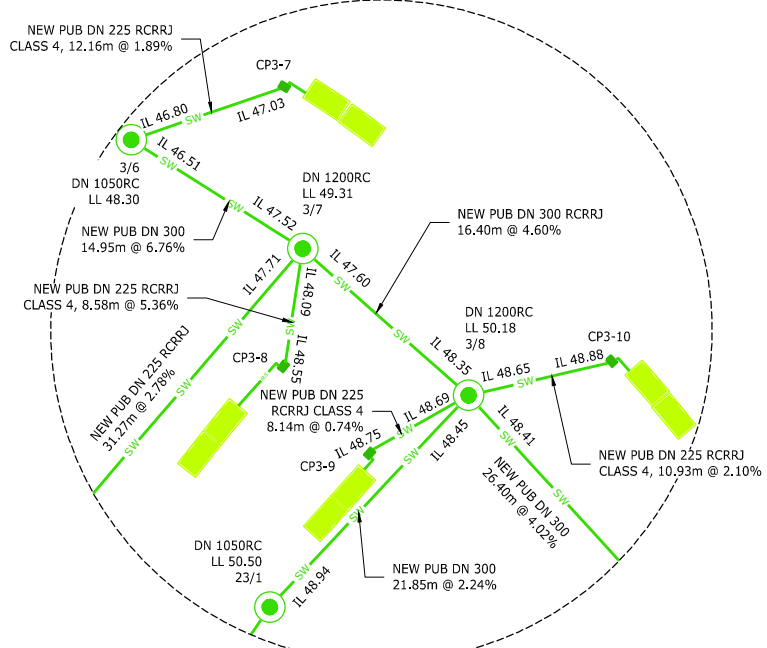
PROJECT No: 1050-142875-01	SCALES: NOT TO SCALE	A1
DRAWING No:		REV

142875-13-AB403

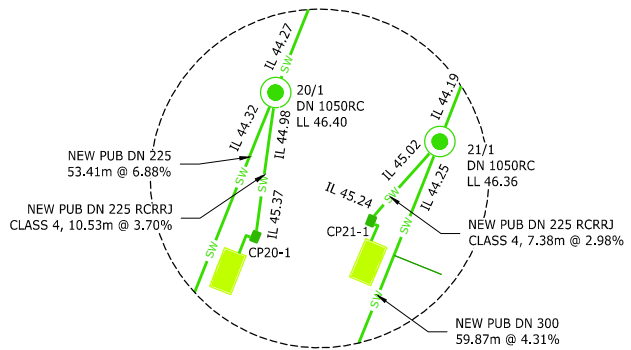
A



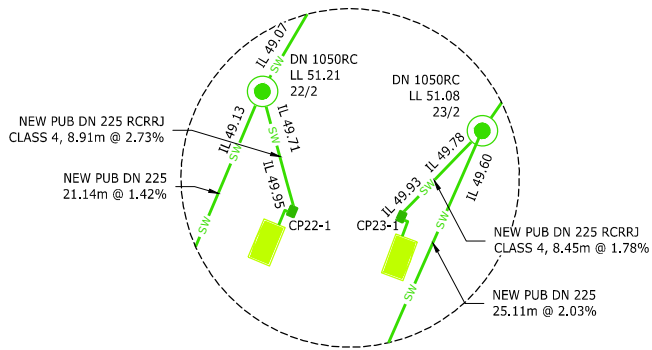
1
AB403
DETAIL
SCALE NTS



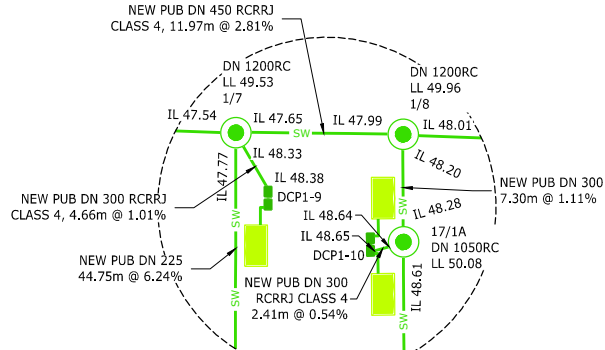
2
AB403
DETAIL
SCALE NTS



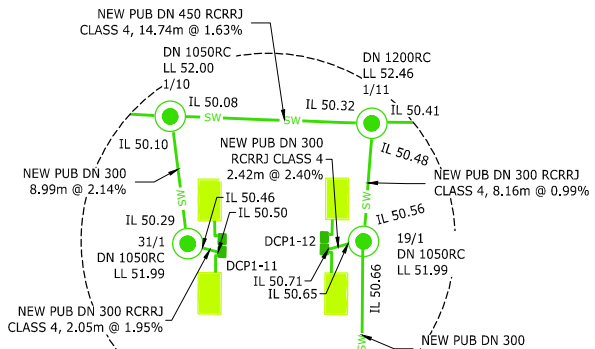
3
AB403
DETAIL
SCALE NTS



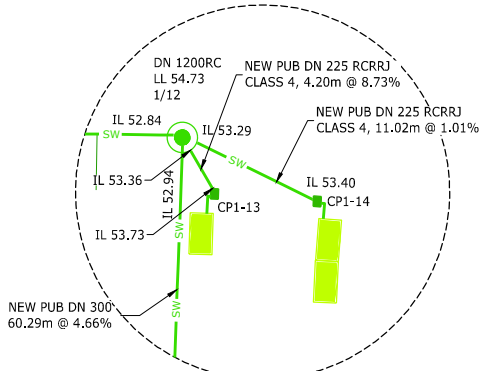
4
AB403
DETAIL
SCALE NTS



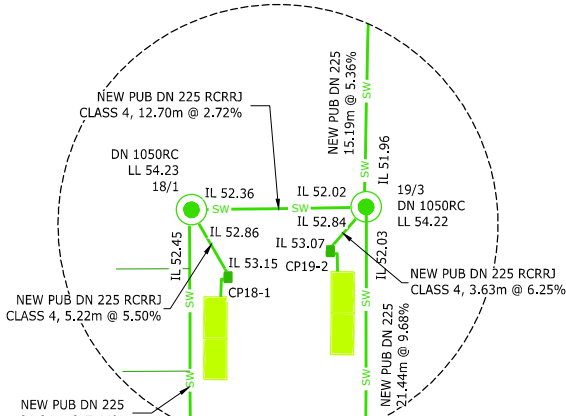
5
AB403
DETAIL
SCALE NTS



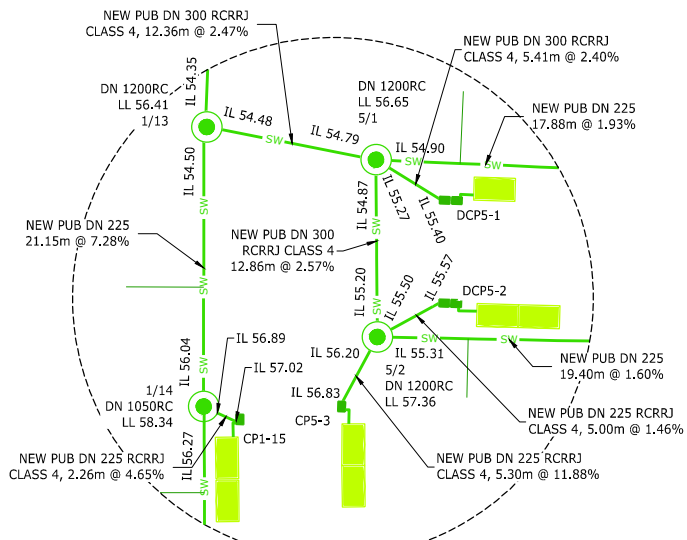
6
AB403
DETAIL
SCALE NTS



7
AB403
DETAIL
SCALE NTS




8
AB403
DETAIL
SCALE NTS



9
AB403
DETAIL
SCALE NTS

COORDINATE SCHEDULE			
MH No.	mE	mN	LL
1/10	1770432.97	5905359.61	52.00
1/11	1770445.43	5905349.58	52.46
1/12	1770490.23	5905314.91	54.73
1/13	1770470.42	5905290.26	56.41
1/14	1770456.91	5905272.66	58.34
1/15	1770445.91	5905257.92	59.99
1/7	1770369.42	5905411.50	49.53
1/8	1770379.95	5905403.41	49.96
1/9	1770412.96	5905376.44	51.16
2/6	1770363.07	5905436.32	48.81
3/1	1770477.77	5905555.97	42.09
3/10	1770543.25	5905369.40	52.82
3/11	1770533.91	5905357.17	53.34
3/12	1770518.78	5905345.44	53.90
3/2	1770485.81	5905522.94	43.43
3/3	1770495.17	5905504.42	44.54
3/4	1770504.40	5905494.68	45.13
3/5	1770525.67	5905473.41	46.77
3/6	1770539.59	5905450.67	48.30
3/7	1770545.29	5905435.60	49.31
3/8	1770548.84	5905418.37	50.18
3/9	1770551.44	5905390.92	51.77
31/1	1770428.03	5905350.71	51.99
5/1	1770479.60	5905280.11	56.65
5/2	1770471.24	5905268.80	57.36
5/3	1770487.48	5905256.11	57.34
6/1	1770494.34	5905268.00	57.26
16/1	1770341.79	5905374.87	52.48
16/2	1770323.22	5905350.09	54.51
17/1	1770357.36	5905373.05	51.98
17/1A	1770374.84	5905396.57	50.08
17/2	1770346.61	5905358.63	53.15
17/3	1770334.04	5905341.78	54.51
18/1	1770403.35	5905318.31	54.23
18/2	1770389.67	5905299.96	56.28
19/1	1770439.29	5905342.47	51.99
19/2	1770424.52	5905323.06	52.84
19/3	1770414.57	5905310.17	54.22
19/4	1770401.08	5905292.16	56.25
20/1	1770454.18	5905479.34	46.40
20/2	1770407.97	5905451.54	48.23
21/1	1770462.27	5905468.40	46.36
21/2	1770410.07	5905436.79	48.43
21/3	1770410.88	5905433.36	48.58
21/4	1770434.39	5905414.74	50.03
22/1	1770513.60	5905428.57	50.74
22/2	1770496.44	5905421.42	51.21
22/3	1770477.09	5905410.29	51.60
22/4	1770458.34	5905394.83	51.84
23/1	1770526.13	5905414.42	50.50
23/2	1770508.52	5905408.44	51.08
23/3	1770485.56	5905395.60	51.62
23/4	1770472.86	5905385.09	51.80
23/5	1770497.74	5905365.63	52.84
28/1	1770536.37	5905234.49	59.63
28/2	1770561.67	5905214.42	61.24
28/3	1770571.82	5905204.04	61.88
EX1/6	1770325.04	5905446.96	47.66
EX2/5	1770334.13	5905459.28	47.34
EXMH12	1770513.25	5905252.89	57.80
MHCR177767	1770504.37	5905242.47	57.95
EXMH13	1770520.94	5905229.35	59.34
EXMH14	1770555.82	5905201.42	61.54
EXMH2	1770472.91	5905557.78	42.30

COORDINATE SCHEDULE						
POINT	mE	mN	LL	IL (OUT)	IL (IN)	SIZE (mm)
CP1-13	1770489.61	5905309.79	54.91	53.73	53.36	675 x 450
CP1-14	1770495.77	5905304.40	54.92	53.40	53.29	675 x 450
CP1-15	1770458.56	5905270.09	58.22	56.79	56.69	675 x 450
CP3-10	1770559.56	5905413.74	50.20	51.38	51.03	675 x 450
CP3-11	1770558.56	5905383.64	51.75	50.43	50.16	675 x 450
CP3-12	1770548.00	5905358.90	52.63	51.38	51.03	675 x 450
CP3-13	1770535.98	5905345.46	53.13	51.91	51.57	675 x 450
CP3-2	1770496.13	5905523.57	43.21	41.97	41.77	675 x 450
CP3-3	1770491.76	5905498.87	44.76	43.52	43.15	675 x 450
CP3-4	1770497.03	5905492.64	44.72	43.61	43.44	675 x 450
CP3-5	1770515.72	5905496.94	45.10	43.74	43.55	675 x 450
CP3-6	1770536.09	5905475.37	46.67	45.45	45.24	675 x 450
CP3-7	1770551.88	5905446.81	48.40	47.03	46.80	675 x 450
CP3-8	1770538.51	5905429.05	49.99	48.55	48.09	675 x 450
CP3-9	1770539.79	5905419.39	49.99	48.75	48.69	675 x 450
CP5-3	1770465.64	5905266.04	58.11	56.83	56.20	675 x 450
CP5-4	1770532.74	5905223.48	59.63	58.40	57.80	675 x 450
CP5-5	1770560.07	5905200.84	61.44	60.23	59.85	675 x 450
CP16-1	1770339.32	5905367.01	52.81	51.50	51.20	675 x 450
CP17-1	1770360.73	5905369.38	52.28	51.03	50.99	675 x 450
CP17-2	1770344.40	5905360.40	52.96	51.83	51.51	675 x 450
CP18-1	1770402.51	5905312.30	54.54	53.15	52.86	675 x 450
CP19-1	1770427.43	5905319.32	53.27	51.83	51.62	675 x 450
CP19-2	1770410.20	5905309.08	54.36	53.07	52.84	675 x 450
CP20-1	1770446.03	5905471.12	46.58	45.37	44.98	675 x 450
CP21-1	1770454.14	5905466.61	46.43	45.24	45.02	675 x 450
CP21-2	1770394.60	5905427.20	48.86	47.54	47.19	675 x 450
CP22-1	1770492.66	5905412.43	51.21	49.95	49.71	675 x 450
CP23-1	1770499.32	5905406.85	51.14	49.93	49.78	675 x 450
CP23-2	1770460.61	5905376.26	51.74	50.56	50.46	675 x 450
CP28-1	1770514.55	5905248.38	58.25	56.86	56.73	675 x 450
CP28-2	1770574.39	5905194.62	62.11	60.93	60.48	675 x 450
DCP1-10	1770372.61	5905398.04	49.91	48.65	48.64	675 x 450
DCP1-11	1770430.01	5905348.85	51.79	48.65	48.64	675 x 450
DCP1-12	1770436.70	5905344.26	51.79	50.71	50.65	675 x 450
DCP1-9	1770368.39	5905405.82	49.65	48.38	48.33	675 x 450
DCP3-1	1770488.25	5905554.15	47.71	40.69	40.28	675 x 450
DCP5-1	1770482.37	5905274.00	56.73	55.40	55.27	675 x 450
DCP5-2	1770477.44	5905267.49	56.73	55.57	55.50	675 x 450



ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

1. ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m

2. ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE


3. SURVEY INFORMATION PROVIDED BY DEMPSEY
WOOD CIVIL LTD AND TO THE BEST OF OUR
KNOWLEDGE IS ACCURATE.

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

• THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.

• THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.

Signed: .....
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisongrierson.com

HC

AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisongrierson.com

A	AS-BUILT	DDS
REF	REVISIONS	BY DATE

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONATLL AVENUE, FLATBUSH

TITLE:

STORMWATER AS-BUILT
SCHEDULE OF COORDINATES

ORIGINATOR: DDS	DATE: 16.11.20	SIGNED:	PLOT BY: DDS
DRAWN: JYW	DATE: 16.11.20	SIGNED:	PLOT DATE: 21.12.20
CHECKED: JOM	DATE: 18.12.20	SIGNED:	SURVEY BY: DEMPSEY WOOD
APPROVED: DAS	DATE: 18.12.20	SIGNED:	SURVEY DATE: 11.2020

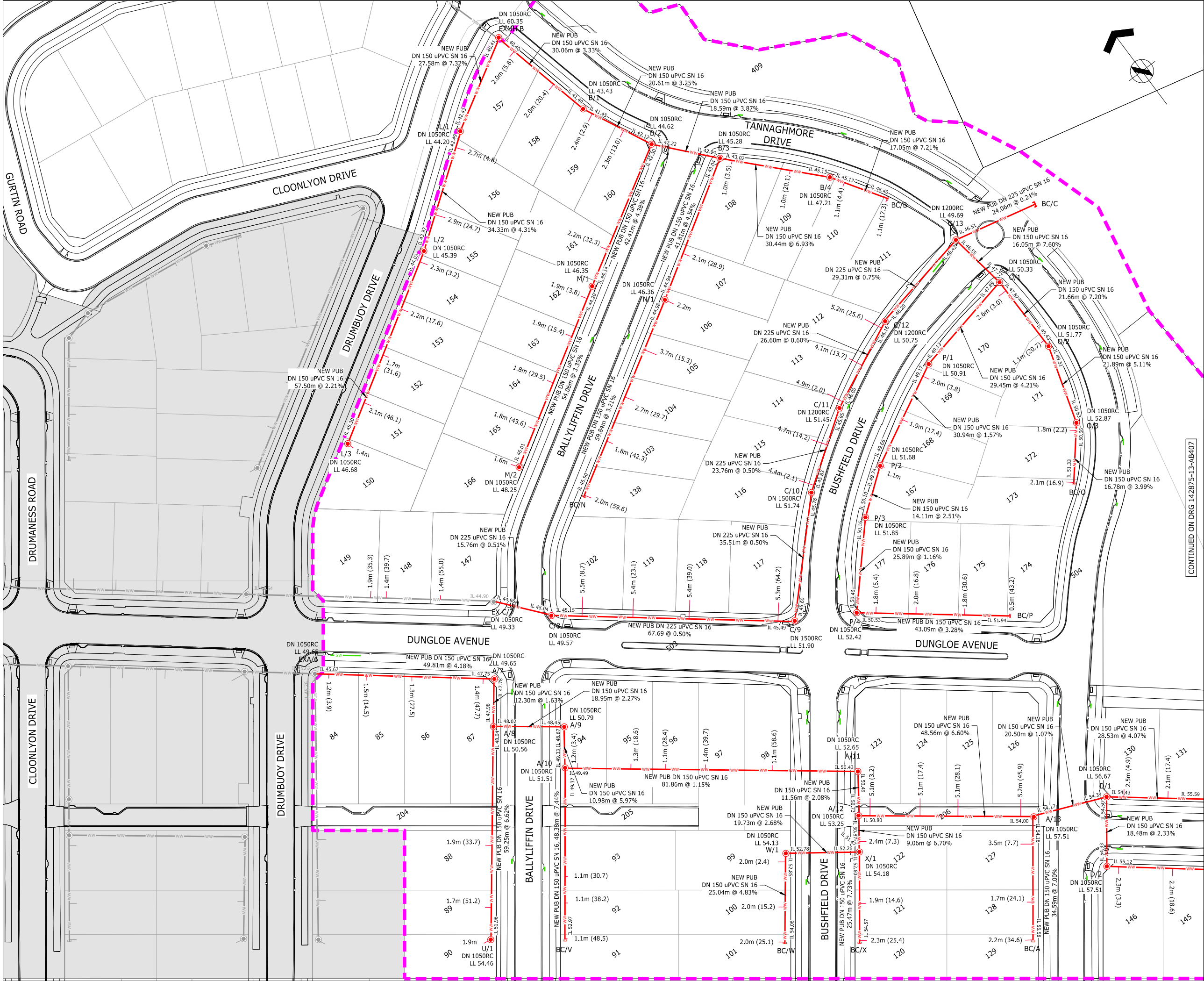
ISSUE STATUS:


AS-BUILT

PROJECT No: 1050-142875-01	SCALES: NOT TO SCALE	A1
DRAWING No:		REV

142875-13-AB404

A





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

- ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m
- ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
- ALL CONNECTIONS ARE DN 100 uPVC. CHAINAGE FOR CONNECTIONS ARE FROM DOWNSTREAM MANHOLE CENTRE.
- ALL WASTEWATER LINES ARE PVC-U SN16 UNLESS SHOWN OTHERWISE.
- ALL NEW MANHOLES ARE DN 1050 RC UNLESS SHOWN OTHERWISE.
- SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD CIVIL LTD AND TO THE BEST OF OUR KNOWLEDGE IS ACCURATE.

LEGEND:


- STAGE BOUNDARY
- NEW PUBLIC WASTEWATER LINE
- EXISTING PUBLIC WASTEWATER LINE
- NEW LOT CONNECTION
- NEW PUBLIC MANHOLE
- EXISTING PUBLIC MANHOLE

ENGINEERING APPROVAL

ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.


Signed:  CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrissongrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrissongrierson.com

REF	REVISIONS	BY	DATE
A	AS-BUILT	DDS	21.12.20

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLATBUSH

TITLE:
**WASTEWATER
AS-BUILT PLAN
SHEET 1 OF 2**

ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	16.11.20		DDS

DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	16.11.20		21.12.20

CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD

APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

ISSUE STATUS:

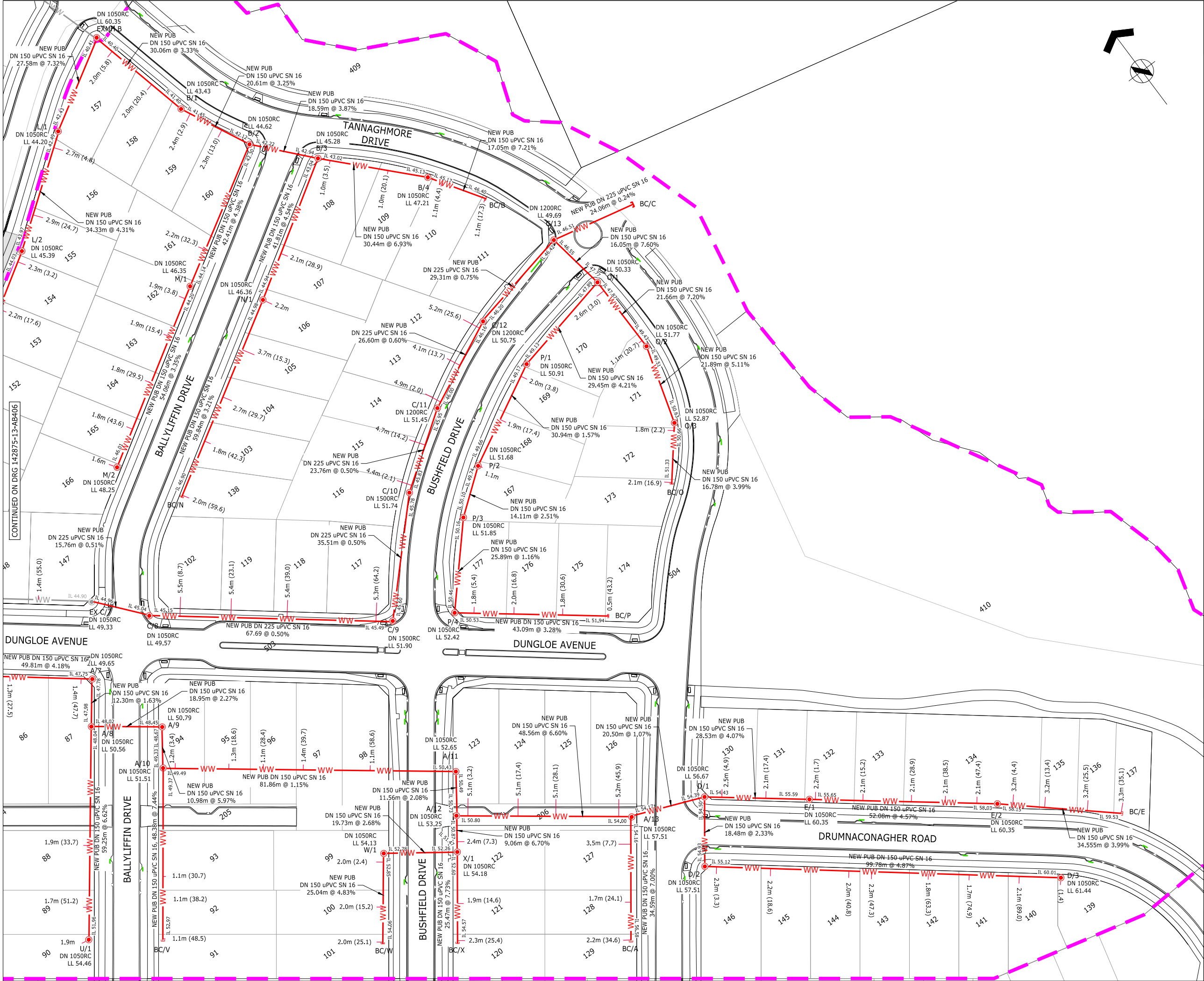
AS-BUILT


PROJECT No:	SCALES:	A1
1050-142875-01	1:500-A1 1:1000-A3	

DRAWING No:

142875-13-AB406

A





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

- ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m
- ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE
- ALL CONNECTIONS ARE DN 100 uPVC. CHAINAGE FOR CONNECTIONS ARE FROM DOWNSTREAM MANHOLE CENTRE.
- ALL WASTEWATER LINES ARE PVC-U SN16 UNLESS SHOWN OTHERWISE.
- ALL NEW MANHOLES ARE DN 1050 RC UNLESS SHOWN OTHERWISE.
- SURVEY INFORMATION PROVIDED BY DEMPSEY WOOD CIVIL LTD AND TO THE BEST OF OUR KNOWLEDGE IS ACCURATE.


LEGEND:

- STAGE BOUNDARY
- NEW PUBLIC WASTEWATER LINE
- EXISTING PUBLIC WASTEWATER LINE
- NEW LOT CONNECTION
- NEW PUBLIC MANHOLE
- EXISTING PUBLIC MANHOLE

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.


Signed: 
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrissongrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrissongrierson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLATBUSH

TITLE:

WASTEWATER
AS-BUILT PLAN
SHEET 2 OF 2

ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
DDS	16.11.20		DDS

DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	16.11.20		21.12.20

CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	18.12.20		DEMPSEY WOOD

APPROVED:	DATE:	SIGNED:	SURVEY DATE:
DAS	18.12.20		11.2020

ISSUE STATUS:

AS-BUILT

PROJECT No:	SCALES:	A1
1050-142875-01	1:500-A1 1:1000-A3	

DRAWING No:

142875-13-AB407

A

COORDINATE SCHEDULE			
POINT	mE	mN	LEVEL
A/10	1770366.20	5905378.89	51.51
A/11	1770431.87	5905328.31	52.65
A/12	1770424.53	5905318.21	53.25
A/13	1770463.99	5905288.14	57.51
A/7	1770365.29	5905411.05	49.65
A/8	1770357.00	5905400.46	50.56
A/9	1770372.97	5905388.31	50.79
B/1	1770482.26	5905524.95	43.43
B/2	1770491.76	5905505.33	44.62
B/3	1770504.86	5905490.51	45.28
B/4	1770526.50	5905467.53	47.21
C/10	1770468.76	5905399.32	51.74
C/11	1770489.47	5905413.69	51.45
C/12	1770514.55	5905425.56	50.75
C/13	1770544.38	5905431.91	49.69
C/8	1770388.95	5905415.69	49.57
C/9	1770443.19	5905373.12	51.90
D/1	1770483.88	5905280.28	56.67
D/2	1770472.13	5905264.50	57.51
D/3	1770550.83	5905201.41	61.44
E/1	1770507.22	5905261.90	60.35
E/2	1770549.01	5905228.94	60.35
L/1	1770450.65	5905540.79	44.20
L/2	1770422.06	5905519.86	45.39
L/3	1770372.07	5905489.21	46.68
M/1	1770454.17	5905483.29	46.35
M/2	1770406.87	5905454.76	48.25
N/1	1770468.35	5905467.84	46.36
O/1	1770547.08	5905414.92	50.33
O/2	1770547.31	5905392.12	51.77
O/3	1770540.62	5905370.04	52.87
P/1	1770517.14	5905408.48	50.91
P/2	1770488.88	5905393.69	51.68
P/3	1770476.78	5905384.52	51.85
P/4	1770458.59	5905364.44	52.42
U/1	1770320.19	5905352.68	54.46
W/1	1770401.64	5905322.03	54.13
X/1	1770418.55	5905309.86	54.18
EX C/7	1770378.27	5905428.63	49.33
EXA/6	1770325.56	5905442.74	49.65
EXMH B	1770475.26	5905555.45	60.35



ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

1. ORIGIN OF LEVELS
S 66 SO 48643
RL 54.50m


2. ORIGIN OF COORDINATES
S 66 SO 48643
5905356.71mN
1770941.22mE

3. SURVEY INFORMATION PROVIDED BY DEMPSEY
WOOD CIVIL LTD AND TO THE BEST OF OUR
KNOWLEDGE IS ACCURATE.

ENGINEERING APPROVAL
ENG-60349136

I CERTIFY THAT THESE ASBUILT PLANS ARE AN ACCURATE RECORD OF THE WORKS UNDERTAKEN AND THAT:

- THE COORDINATES (X,Y) ARE IN TERMS OF NZTM ON NZGD (2000), AND ARE WITHIN ±50mm.
- THE LEVELS (Z) ARE IN TERMS OF THE AUCKLAND 1946 (MSL) LINZ DATUM (DOSLI DATUM), AND ARE WITHIN ±25mm.




Signed:
CHARTERED PROFESSIONAL ENGINEER

Date: 21/12/2020

Name: CAMPBELL MCGREGOR

Phone: 09-917-5000

Email: c.mcgregor@harrisongrierson.com



AUCKLAND OFFICE
LEVEL 4, 96 ST GEORGES BAY ROAD
PARNELL AUCKLAND 1052
T +64 9 917 5000
W www.harrisongrierson.com

A	AS-BUILT	DDS	21.12.20
REF	REVISIONS	BY	DATE

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGE 13
36 TIR CONAILL AVENUE, FLATBUSH

TITLE:

WASTEWATER AS-BUILT
SCHEDULE OF COORDINATES

ORIGINATOR: DDS	DATE: 16.11.20	SIGNED:	PLOT BY: DDS
DRAWN: JYW	DATE: 16.11.20	SIGNED:	PLOT DATE: 21.12.20
CHECKED: JOM	DATE: 18.12.20	SIGNED:	SURVEY BY: DEMPSEY WOOD
APPROVED: DAS	DATE: 18.12.20	SIGNED:	SURVEY DATE: 11.2020

ISSUE STATUS:

AS-BUILT

PROJECT No: 1050-142875-01	SCALES: NOT TO SCALE	A1
DRAWING No: 142875-13-AB408		REV A

Appendix B – Classification Test Data

Shrink Swell Index Report

Report No: SSI:ETAM20S-06726

Issue No: 1

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Ray Berry

Project No.: 773-ETAM01121AA

Project Name: 773-GENZAUCK16856AE - DONEGAL STUD

Lot No.: - **TRN:** -



Approved Signatory: James McKelvey
(Senior Technician)

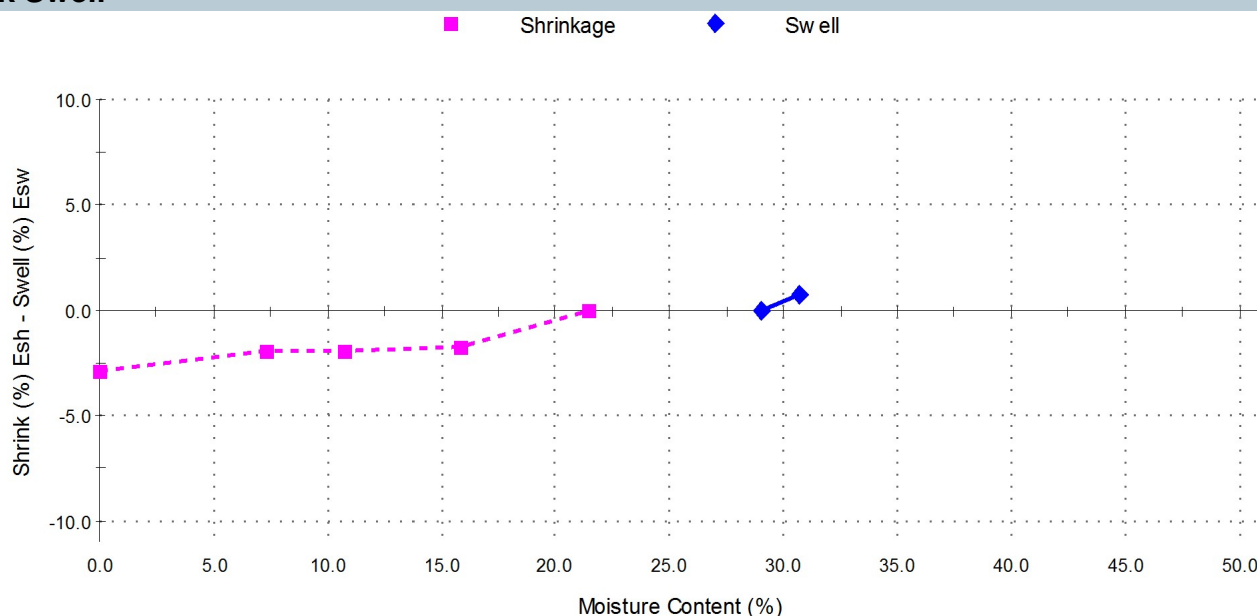
Date of Issue: 17/12/2020

Sample Details

Sample ID:	ETAM20S-06726	Sampling Method:	NZS4407: 2015 Part 2.4.8.3
Date Sampled:	7/12/2020	Material:	Undisturbed Soil
Date Submitted:	7/12/2020	Source:	In-Situ
Date Tested:	8/12/2020		
Project Location:	Greenam Drive, Flat Bush		
Sample Location:	HA52, 0.2 - 0.4 m		
Borehole Number:	HA52 LOTS 159/160		
Borehole Depth (m):	0.2 - 0.4		

Swell Test AS 1289.7.1.1		Shrink Test AS 1289.7.1.1	
Swell on Saturation (%):	0.8	Shrink on drying (%):	2.9
Moisture Content before (%):	29.0	Shrinkage Moisture Content (%):	21.4
Moisture Content after (%):	30.7	Est. inert material (%):	20 %
Est. Unc. Comp. Strength before (kPa):	350	Crumbling during shrinkage:	1%
Est. Unc. Comp. Strength after (kPa):	300	Cracking during shrinkage:	3%

Shrink Swell



Shrink Swell Index - Iss (%): 1.8

Comments

Work Order: ETAM20W01887
Tested By: JM

Shrink Swell Index Report

Report No: SSI:ETAM20S-06727

Issue No: 1

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Ray Berry

Project No.: 773-ETAM01121AA

Project Name: 773-GENZAUCK16856AE - DONEGAL STUD

Lot No.: - **TRN:** -



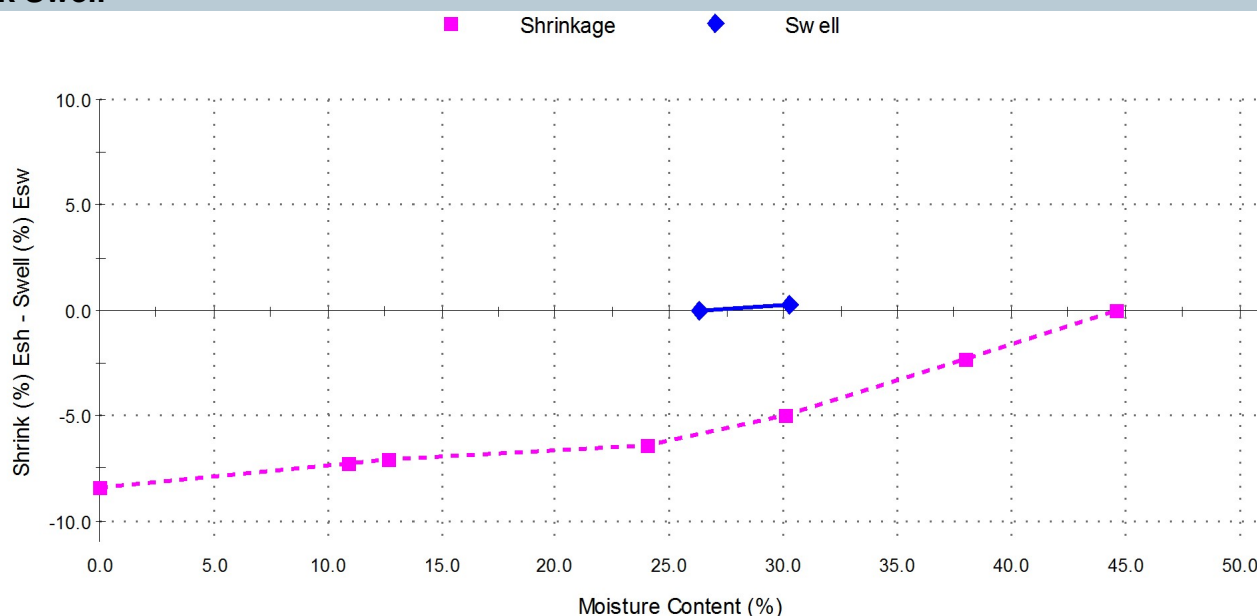
Approved Signatory: James McKelvey
(Senior Technician)
105
Date of Issue: 17/12/2020

Sample Details

Sample ID:	ETAM20S-06727	Sampling Method:	NZS4407: 2015 Part 2.4.8.3
Date Sampled:	7/12/2020	Material:	Undisturbed Soil
Date Submitted:	7/12/2020	Source:	In-Situ
Date Tested:	8/12/2020		
Project Location:	Greenam Drive, Flat Bush		
Sample Location:	HA73, 0.2 - 0.4 m		
Borehole Number:	HA73 LOTS 123/124		
Borehole Depth (m):	0.2 - 0.4		

Swell Test AS 1289.7.1.1		Shrink Test AS 1289.7.1.1	
Swell on Saturation (%):	0.2	Shrink on drying (%):	8.4
Moisture Content before (%):	26.3	Shrinkage Moisture Content (%):	44.6
Moisture Content after (%):	30.3	Est. inert material (%):	1%
Est. Unc. Comp. Strength before (kPa):	350	Crumbling during shrinkage:	0.5%
Est. Unc. Comp. Strength after (kPa):	275	Cracking during shrinkage:	1%

Shrink Swell



Shrink Swell Index - Iss (%): 4.7

Comments

Work Order: ETAM20W01887
Tested By: JM

Appendix C - Field Density Test Summary Sheets

Earthworks Fill Report

Report No: EFIL:ETAM19W03901

Issue No:1

This report replaces all previous issues of report no. EFIL:ETAM19W03901

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Ray Berry

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.
{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}



Approved Signatory: Cesar Pura
Senior Technician
IANZ Site Number: 105
Date of Issue: 17/12/2019

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1):

Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL	Material Tested	Comments
12/12/2019	ETAM19W03901	JJ	9	1.92	24.1	1.55	2.70	5	UTP	UTP	UTP	UTP	Gully Fill	1770338	5905560	-	Silty CLAY	0.9m to Finished Level
12/12/2019	ETAM19W03901	JJ	10	1.97	20.6	1.64	2.70	6	UTP	UTP	UTP	UTP	Gully Fill	1770345	5905537	-	Silty CLAY	1.2m to Finished Level
12/12/2019	ETAM19W03901	JJ	11	1.95	21.0	1.61	2.70	7	UTP	UTP	UTP	UTP	Gully Fill	1770349	5905529	-	Silty CLAY	1.6m to Finished Level
12/12/2019	ETAM19W03901	JJ	12	1.95	21.4	1.60	2.70	6	UTP	UTP	UTP	UTP	Gully Fill	1770360	5905497	-	Silty CLAY	2.0m to Finished Level
12/12/2019	ETAM19W03901	JJ	13	1.91	23.2	1.55	2.70	7	UTP	UTP	UTP	UTP	Gully Fill	1770370	5905463	-	Silty CLAY	3.0m to Finished Level

Comments:

Moisture contents and dry densities are corrected against oven dried moisture content testing. Probe Depth: 150mm; SG= 2.70 T/m3 (Assumed)

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM19W03901

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

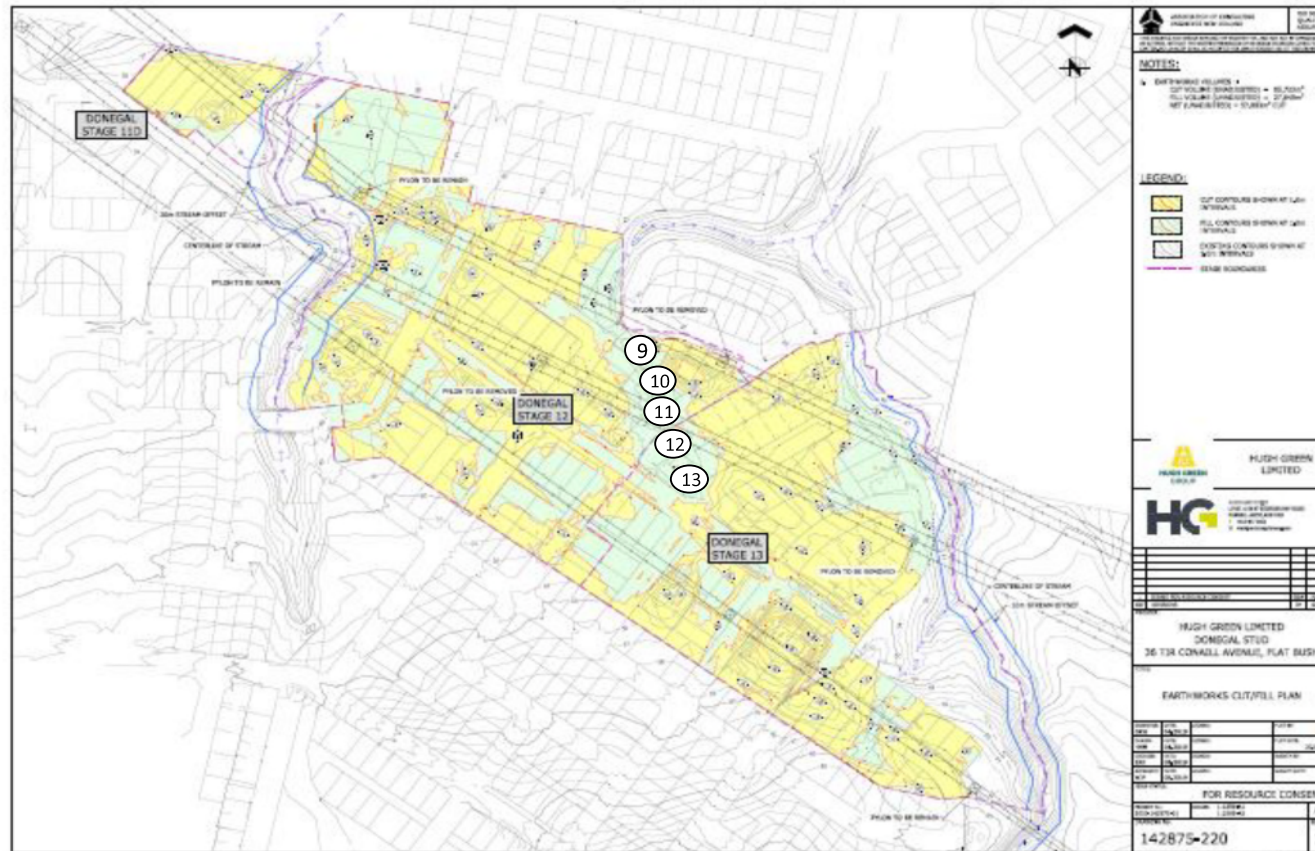
Location: As below

Tested by:

JJ

Date tested:

12/12/2019



Earthworks Fill Report

Report No: EFIL:ETAM20W00010

Issue No:1

This report replaces all previous issues of report no. EFIL:ETAM20W00010

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Ray Berry

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.
{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}



Approved Signatory: Cesar Pura
Senior Technician
IANZ Site Number: 105
Date of Issue: 9/01/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1):

Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL	Material Tested	Comments
7/01/2020	ETAM20W00010	TR	14	1.98	19.4	1.66	2.70	6	UTP	UTP	UTP	UTP	Gully 12B	1770357	5905501	-	Gravelly CLAY	~1.5m to Finished Level
7/01/2020	ETAM20W00010	TR	15	2.00	24.0	1.62	2.70	2	UTP	UTP	UTP	UTP	Gully 12B	1770366	5905464	-	Gravelly CLAY	~1.5m to Finished Level

Comments:

Moisture contents and dry densities are corrected against oven dried moisture content testing. Probe Depth: 150mm; SG= 2.70 T/m3 (Assumed)

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM20W00010

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

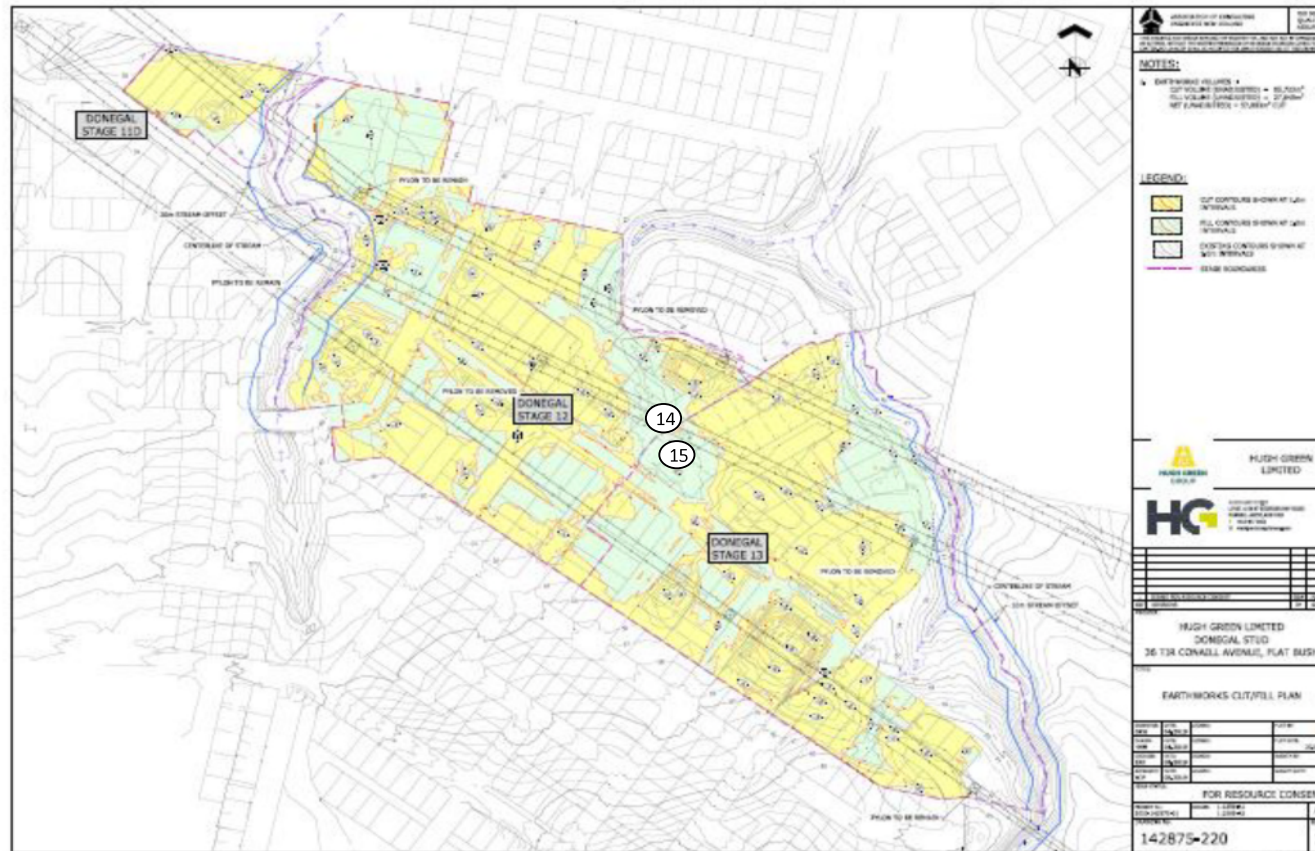
Location: As below

Tested by:

TR

Date tested:

7/01/2020



Earthworks Fill Report

Report No: EFIL:ETAM20W00061

Issue No:1

This report replaces all previous issues of report no. EFIL:ETAM20W00061

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Ray Berry

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.
{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}



Approved Signatory: Cesar Pura
Senior Technician
IANZ Site Number: 105
Date of Issue: 22/01/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1):

Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL	Material Tested	Comments
13/01/2020	ETAM20W00061	LW	16	1.83	29.6	1.41	2.70	6	UTP	UTP	UTP	165	Fill Area	1770339	5905534	44.5	Clayey SILT	
13/01/2020	ETAM20W00061	LW	17	1.81	45.0	1.25	2.70	0	UTP	UTP	UTP	UTP	Fill Area	1770357	5905486	46.3	Clayey SILT	
13/01/2020	ETAM20W00061	LW	18	1.91	28.3	1.49	2.70	3	UTP	UTP	UTP	UTP	Fill Area	1770362	5905454	47.3	Clayey SILT	

Comments:

Moisture contents and dry densities are corrected against oven dried moisture content testing. Probe Depth: 150mm; SG= 2.70 T/m3 (Assumed)

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM20W00061

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

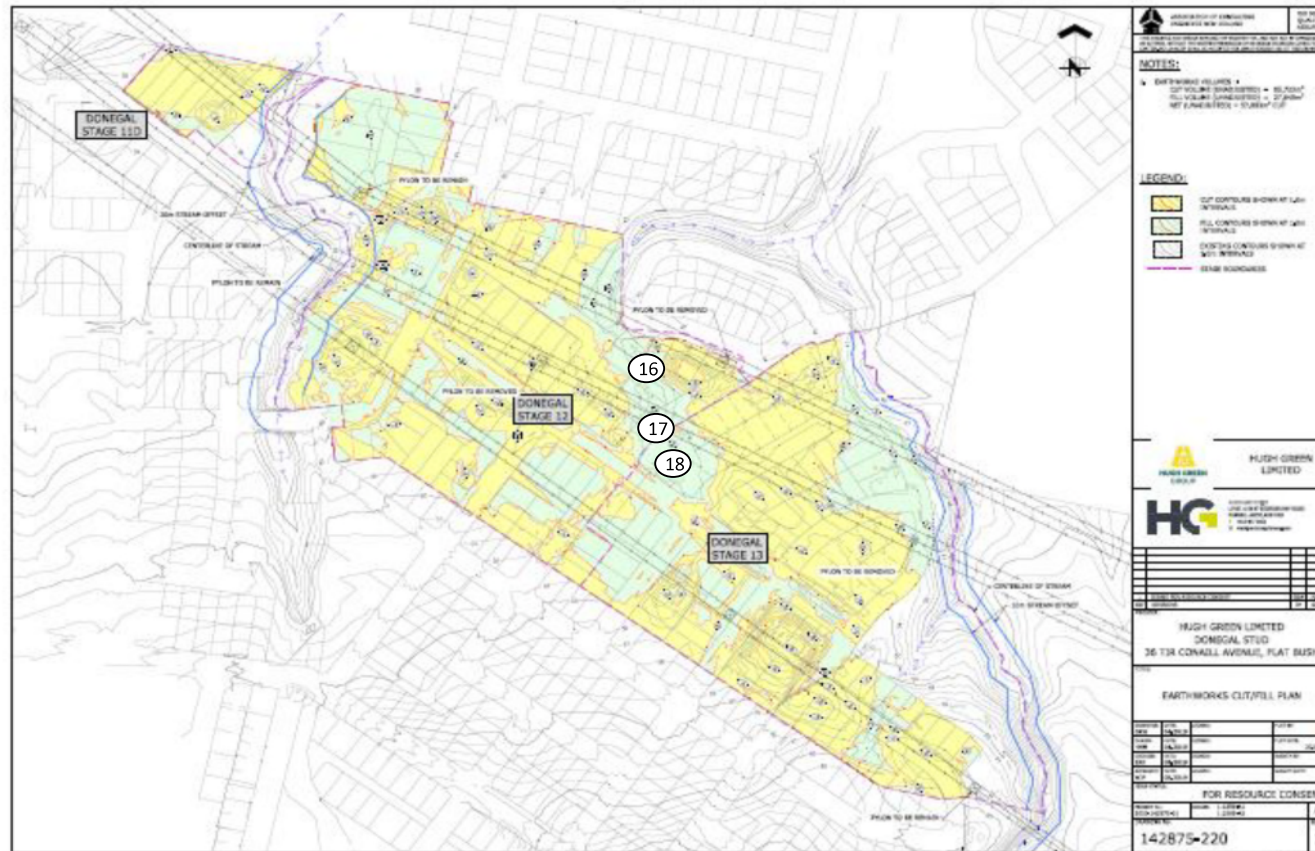
Location: As below

Tested by:

LW

Date tested:

13/01/2020



Earthworks Fill Report

Report No: EFIL:ETAM20W00520

Issue No:1

This report replaces all previous issues of report no. EFIL:ETAM20W00520

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Louis Smit

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.

{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}



Approved Signatory: Cesar Pura

Senior Technician

IANZ Site Number: 105

Date of Issue: 20/03/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1):

Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL	Material Tested	Comments
9/03/2020	ETAM20W00520	CP	19	1.83	24.8	1.46	2.70	9.4	UTP	UTP	UTP	UTP	Stage 13 Retaining Wall Undercut	413492	788747	37.330	Clayey SILT	CH 155, Centreline
9/03/2020	ETAM20W00520	CP	20	1.81	40.7	1.29	2.70	0.0	UTP	UTP	UTP	UTP	Stage 13 Retaining Wall Undercut	413505	788731	38.01	Clayey SILT	CH 178, Centreline

Comments:

Moisture contents and dry densities are corrected against oven dried moisture content testing. Probe Depth: 150mm; SG= 2.70 T/m3 (Assumed). Coordinates supplied by Vinesh.

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM20W00520

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

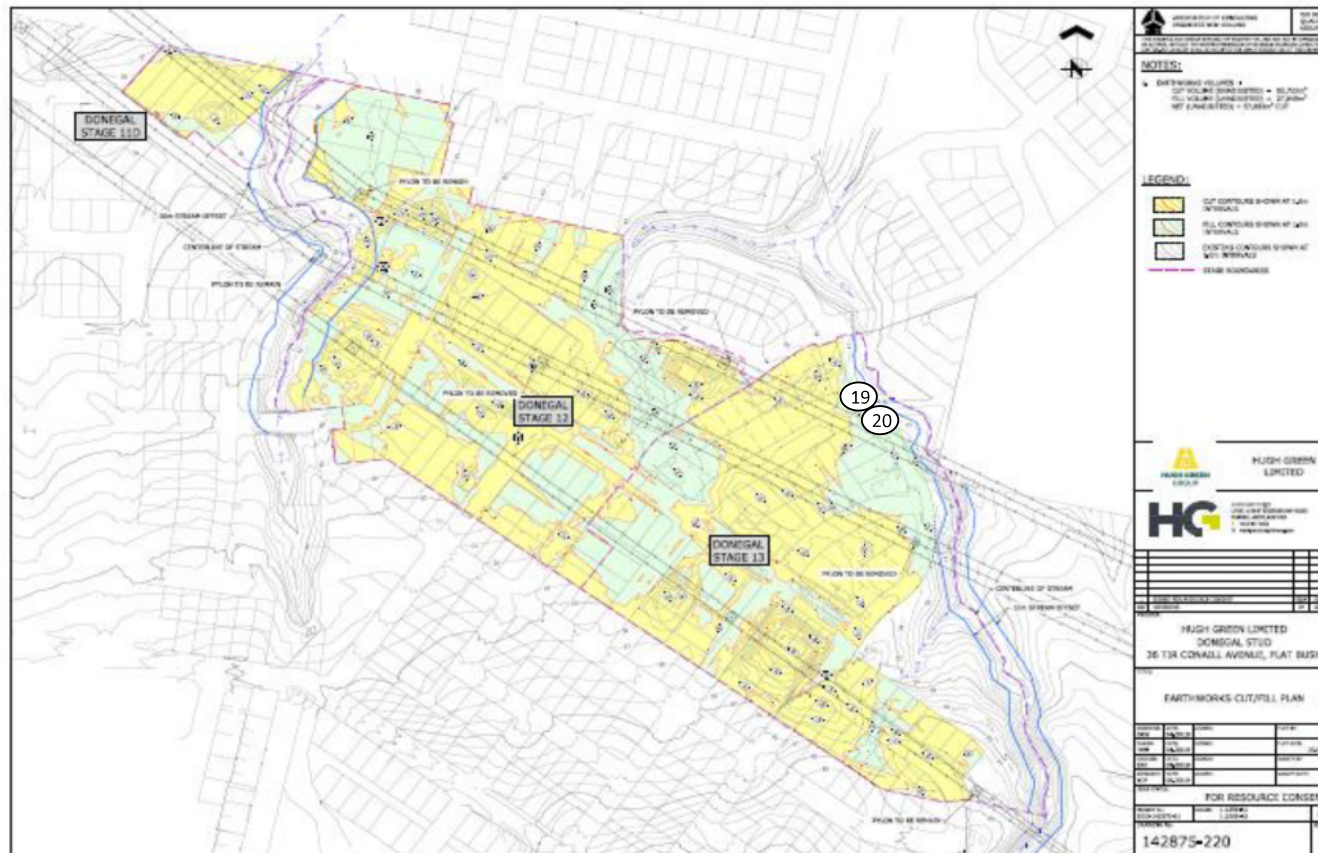
Location: As below

Tested by:

CP

Date tested:

9/03/2020



Earthworks Fill Report

Report No: EFIL:ETAM20W00531

Issue No:1

This report replaces all previous issues of report no. EFIL:ETAM20W00531

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Louis Smit

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.

{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}

Approved Signatory: Cesar Pura

Senior Technician

IANZ Site Number: 105

Date of Issue: 20/03/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001); Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2); Water Content Testing (in accordance with NZS 4402:1986 Test 2.1);

Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL (m)	Material Tested	Comments
10/03/2020	ETAM20W00531	CP	21	1.87	28.6	1.46	2.70	5	156	UTP	156	167	Stage 13 Retaining Wall Undercut	1770497	5905541	37.9	Silty CLAY	
10/03/2020	ETAM20W00531	CP	22	1.90	26.7	1.50	2.70	5	UTP	167	188+	UTP	Stage 13 Retaining Wall Undercut	1770506	5905521	38.2	Silty CLAY	
10/03/2020	ETAM20W00531	CP	23	1.81	30.0	1.39	2.70	7	UTP	UTP	UTP	UTP	Stage 13 Retaining Wall Undercut	1770511	5905501	38.9	Silty CLAY	Contains aggregate

Comments:

Moisture contents and dry densities are corrected against oven dried moisture content testing. Probe Depth: 150mm; SG= 2.70 T/m3 (Assumed)

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM20W00531

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

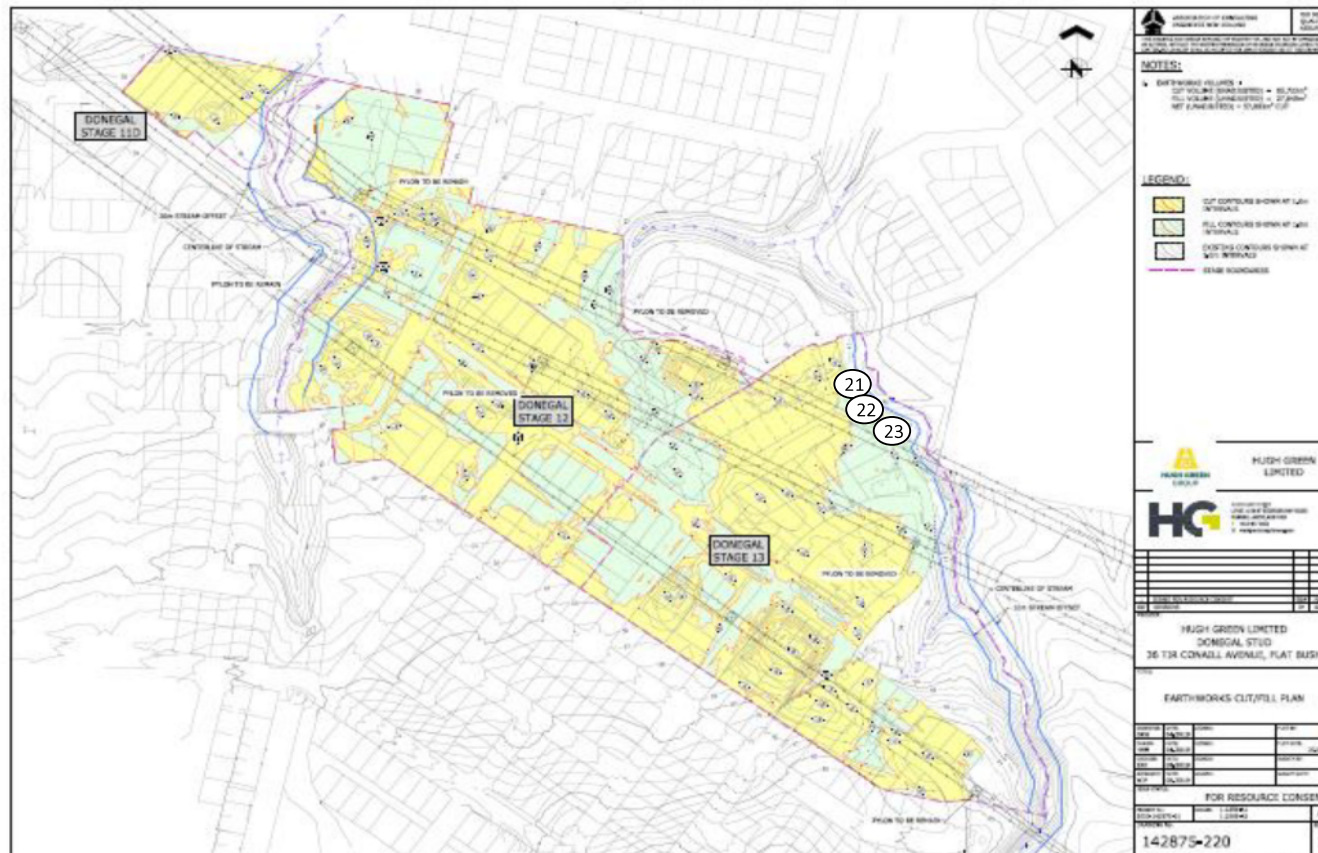
Location: As below

Tested by:

CP

Date tested:

10/03/2020



Earthworks Fill Report

Report No: EFIL:ETAM20W00551

Issue No:1

This report replaces all previous issues of report no. EFIL:ETAM20W00551

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Louis Smit

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.

{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}



Approved Signatory: Cesar Pura

Senior Technician

IANZ Site Number: 105

Date of Issue: 20/03/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1):

Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL	Material Tested	Comments
11/03/2020	ETAM20W00551	LW	24	1.91	24.8	1.53	2.70	5	UTP	UTP	UTP	UTP	Retaining Wall Fill	1770495	5905535	39.2	Clayey SILT	
11/03/2020	ETAM20W00551	LW	25	1.88	23.4	1.52	2.70	8	UTP	UTP	UTP	UTP	Retaining Wall Fill	1770503	5905521	39.04	Clayey SILT	
11/03/2020	ETAM20W00551	LW	26	1.87	27.7	1.47	2.70	5	UTP	UTP	UTP	UTP	Retaining Wall Fill	1770519	5905495	39.63	Clayey SILT	

Comments:

Moisture contents and dry densities are corrected against oven dried moisture content testing. Probe Depth: 150mm; SG= 2.70 T/m3 (Assumed)

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM20W00551

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

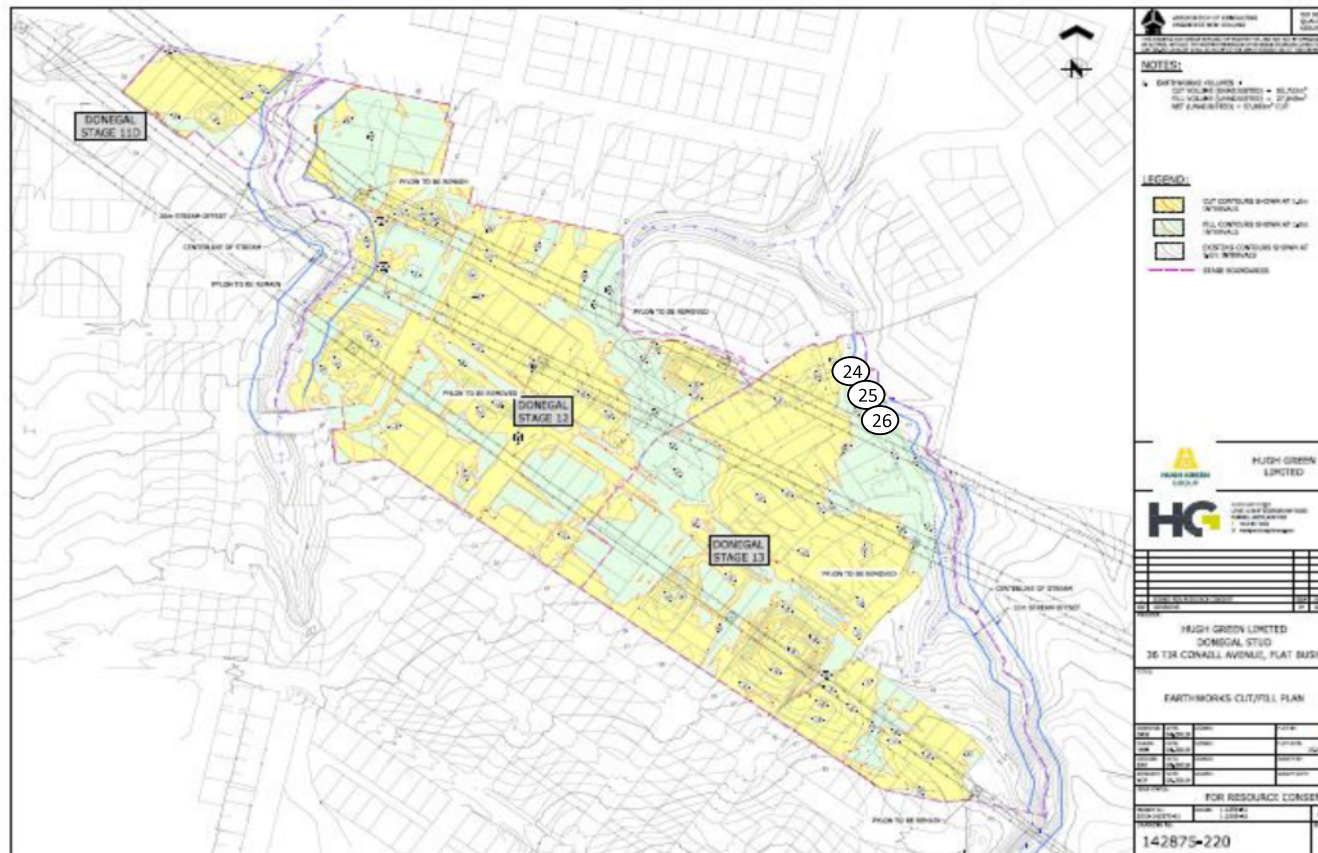
Location: As below

Tested by:

LW

Date tested:

11/03/2020



Earthworks Fill Report

Report No: EFIL:ETAM20W00561

Issue No:1

This report replaces all previous issues of report no. EFIL:ETAM20W00561

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Louis Smit

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.

{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}



Approved Signatory: Cesar Pura
Senior Technician
IANZ Site Number: 105
Date of Issue: 24/03/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1):

Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL	Material Tested	Comments
12/03/2020	ETAM20W00561	LW	27	1.91	26.8	1.50	2.70	4	156	184+	UTP	UTP	Retaining Wall Fill	1770521	5905500	39.8	Clayey SILT	
12/03/2020	ETAM20W00561	LW	28	1.77	29.6	1.36	2.70	9	147	152	165	152	Retaining Wall Fill	1770499	5905535	39.9	Clayey SILT	

Comments:

Moisture contents and dry densities are corrected against oven dried moisture content testing. Probe Depth: 150mm; SG= 2.70 T/m3 (Assumed)

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM20W00561

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

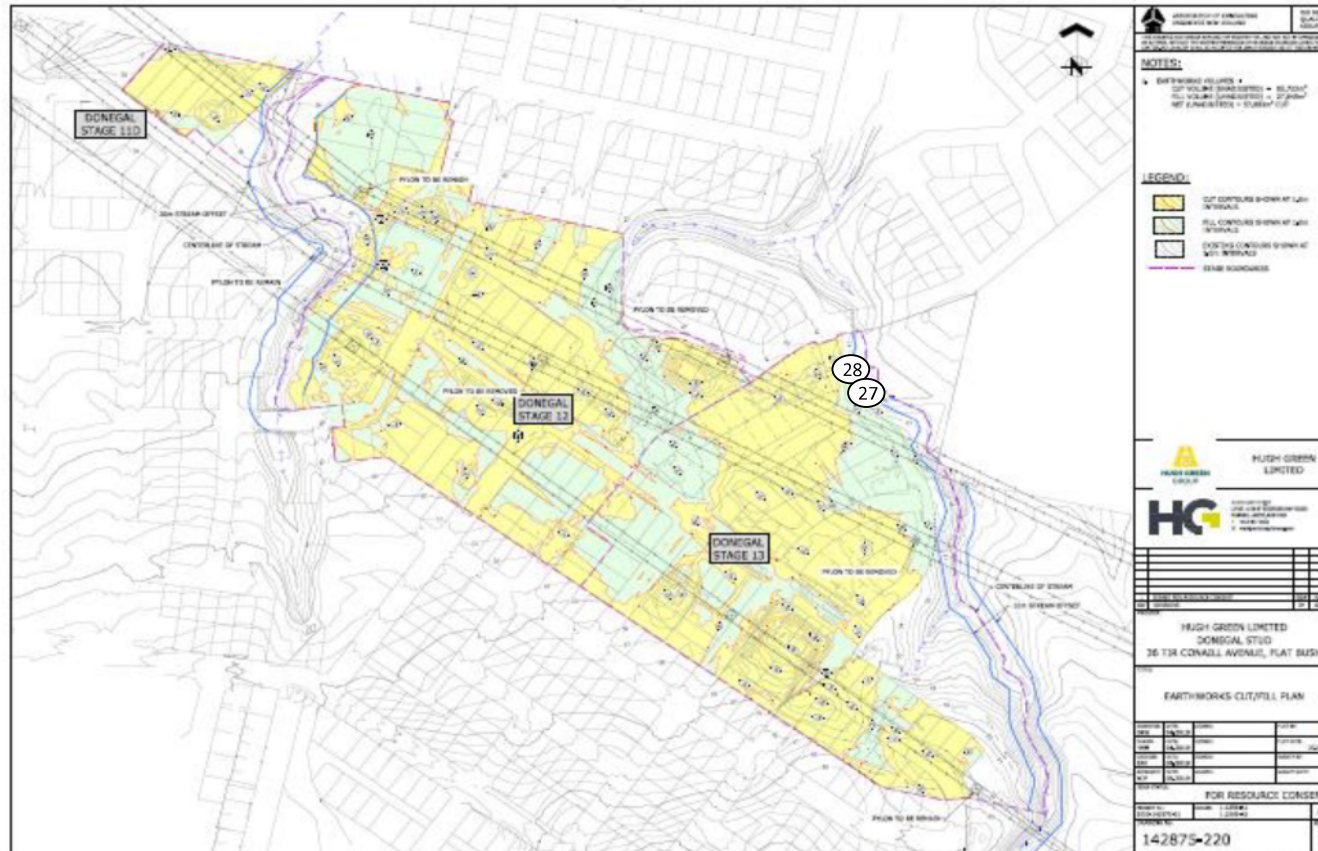
Location: As below

Tested by:

LW

Date tested:

12/03/2020



Earthworks Fill Report

Report No: EFIL:ETAM20W00566

Issue No:1

This report replaces all previous issues of report no. EFIL:ETAM20W00566

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Louis Smit

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.

{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}



Approved Signatory: Cesar Pura

Senior Technician

IANZ Site Number: 105

Date of Issue: 24/03/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1):

Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL	Material Tested	Comments
13/03/2020	ETAM20W00566	MA	29	1.97	24.0	1.59	2.70	3	UTP	UTP	UTP	169	Retaining Wall Undercut	1770516	5905500	40.94	CLAY	
13/03/2020	ETAM20W00566	MA	30	1.98	25.7	1.57	2.70	1	UTP	UTP	158	175	Retaining Wall Undercut	1770499	5905539	40.93	CLAY	

Comments:

Moisture contents and dry densities are corrected against oven dried moisture content testing. Probe Depth: 150mm; SG= 2.70 T/m3 (Assumed)

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM20W00566

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

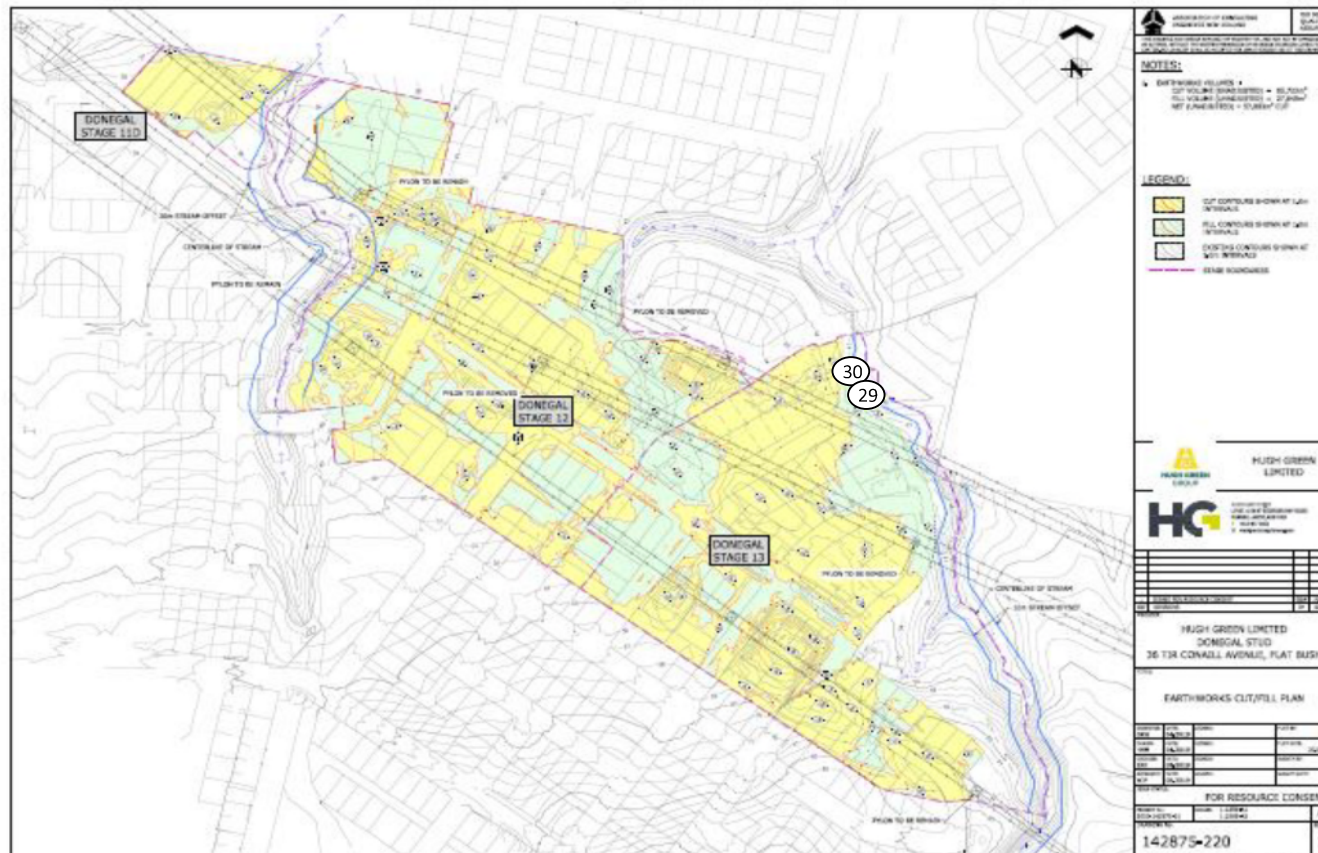
Location: As below

Tested by:

MA

Date tested:

13/03/2020



Earthworks Fill Report

Report No: EFIL:ETAM20W00605

Issue No:1

This report replaces all previous issues of report no. EFIL:ETAM20W00605

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Louis Smit

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.

{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}



Approved Signatory: Cesar Pura

Senior Technician

IANZ Site Number: 105

Date of Issue: 24/03/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1):

Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL	Material Tested	Comments
18/03/2020	ETAM20W00605	SC	31	1.98	20.9	1.63	2.70	5	UTP	UTP	UTP	UTP	Bottom of Retaining Wall	1770498	5905536	41.38	Silty CLAY	At Finished Level
18/03/2020	ETAM20W00605	SC	32	1.94	20.8	1.60	2.70	7	UTP	UTP	UTP	UTP	Bottom of Retaining Wall	1770505	5905517	40.33	Silty CLAY	At Finished Level
18/03/2020	ETAM20W00605	SC	33	1.92	20.9	1.59	2.70	8	UTP	UTP	UTP	UTP	Bottom of Retaining Wall	1770520	5905496	41.28	Silty CLAY	

Comments:

Moisture contents and dry densities are corrected against oven dried moisture content testing. Probe Depth: 150mm; SG= 2.70 T/m3 (Assumed)

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM20W00605

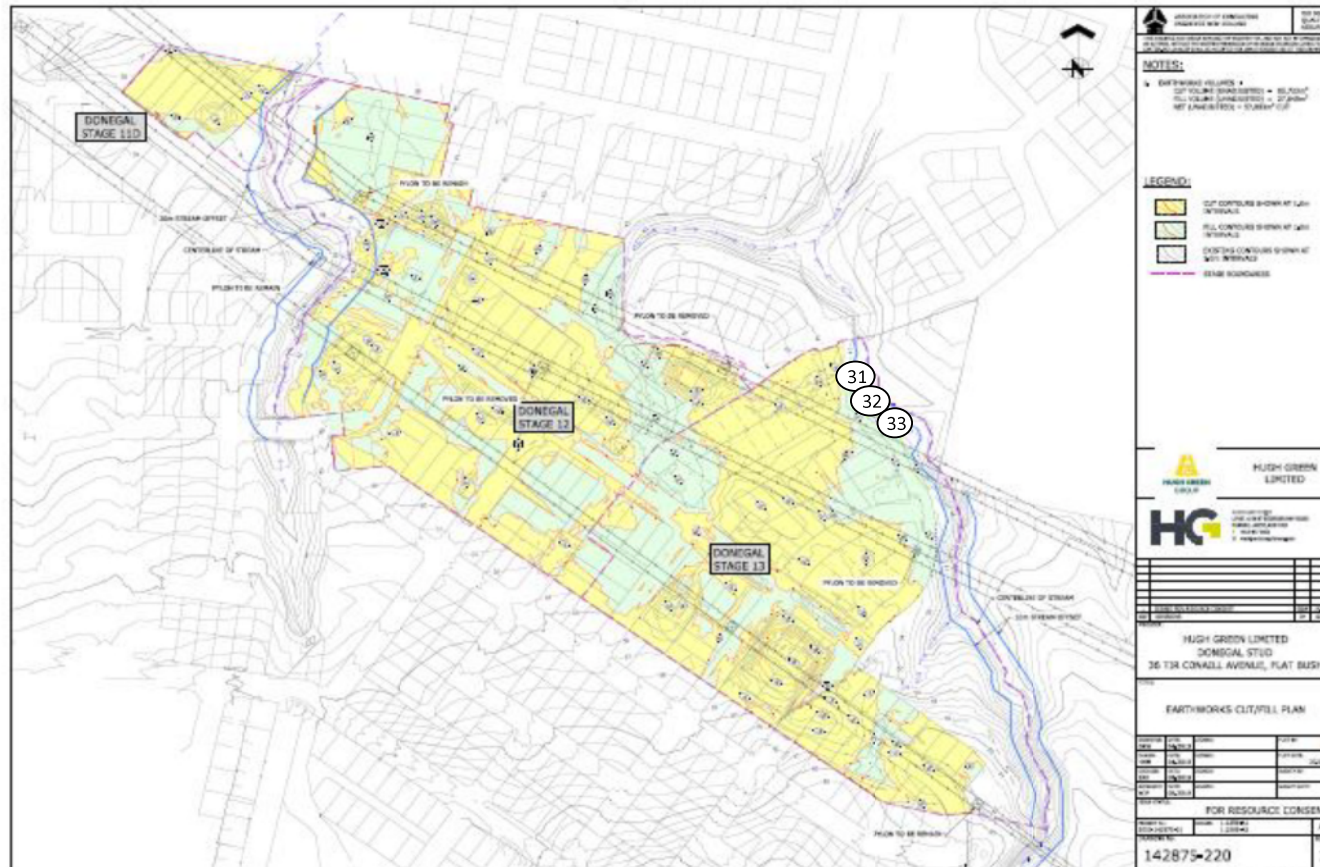
Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Location: As below

Tested by: SC

Date tested: 18/03/2020



Earthworks Fill Report

Report No: EFIL:ETAM20W00626

Issue No:1

This report replaces all previous issues of report no. EFIL:ETAM20W00626

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Louis Smit

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.

{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}

Approved Signatory: Cesar Pura

Senior Technician

IANZ Site Number: 105

Date of Issue: 25/03/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1):

Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL	Material Tested	Comments
21/03/2020	ETAM20W00626	MP	34	1.80	30.9	1.37	2.70	7	219+	219+	219+	187	Retaining Wall Undercut	1770497	5905540	42.8	Silty CLAY	Test no. 37 could not be plotted in the Site plan
21/03/2020	ETAM20W00626	MP	35	1.89	26.3	1.50	2.70	5	219+	UTP	UTP	UTP	Retaining Wall Undercut	1770503	5905514	42.4	Silty CLAY	
21/03/2020	ETAM20W00626	MP	36	1.81	29.0	1.40	2.70	7	UTP	UTP	UTP	UTP	Retaining Wall Undercut	1770520	5905497	43.0	Silty CLAY	
21/03/2020	ETAM20W00626	MP	37	1.87	23.6	1.51	2.70	8	UTP	UTP	UTP	UTP	Stage 14	1770729	5905277	54.84	Silty CLAY	

Comments:

Moisture contents and dry densities are corrected against oven dried moisture content testing. Probe Depth: 150mm; SG= 2.70 T/m3 (Assumed)

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM20W00626

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

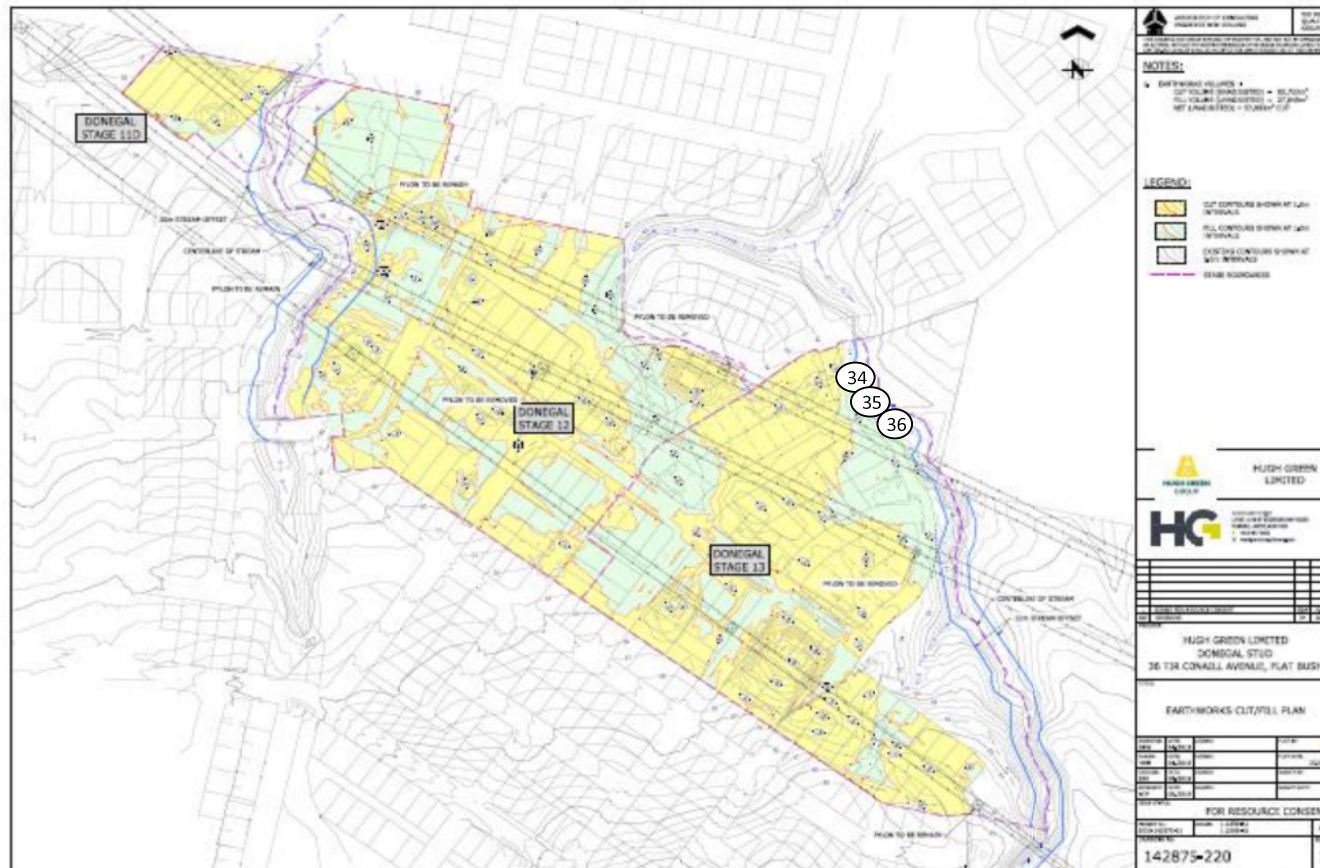
Location: As below

Tested by:

MP

Date tested:

21/03/2020



Earthworks Fill Report

Report No: EFIL:ETAM20W00642

Issue No:1

This report replaces all previous issues of report no. EFIL:ETAM20W00642

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Louis Smit

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.

{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}



Approved Signatory: Cesar Pura

Senior Technician

IANZ Site Number: 105

Date of Issue: 4/05/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1):

Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL	Material Tested	Comments
29/04/2020	ETAM20W00642	LW	38	1.78	36.6	1.30	2.70	4	165	156	179	UTP	Retaining Wall	1770520	5905488	43.69	Clayey SILT	
29/04/2020	ETAM20W00642	LW	39	1.76	35.6	1.30	2.70	6	174	151	UTP	UTP	Retaining Wall	1770501	5905510	42.39	Clayey SILT	
29/04/2020	ETAM20W00642	LW	40	1.74	32.7	1.31	2.70	9	UTP	UTP	UTP	179	Retaining Wall	1770491	5905534	42.26	Clayey SILT	

Comments:

Moisture contents and dry densities are corrected against oven dried moisture content testing. Probe Depth: 150mm; SG= 2.70 T/m3 (Assumed)

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM20W00642

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

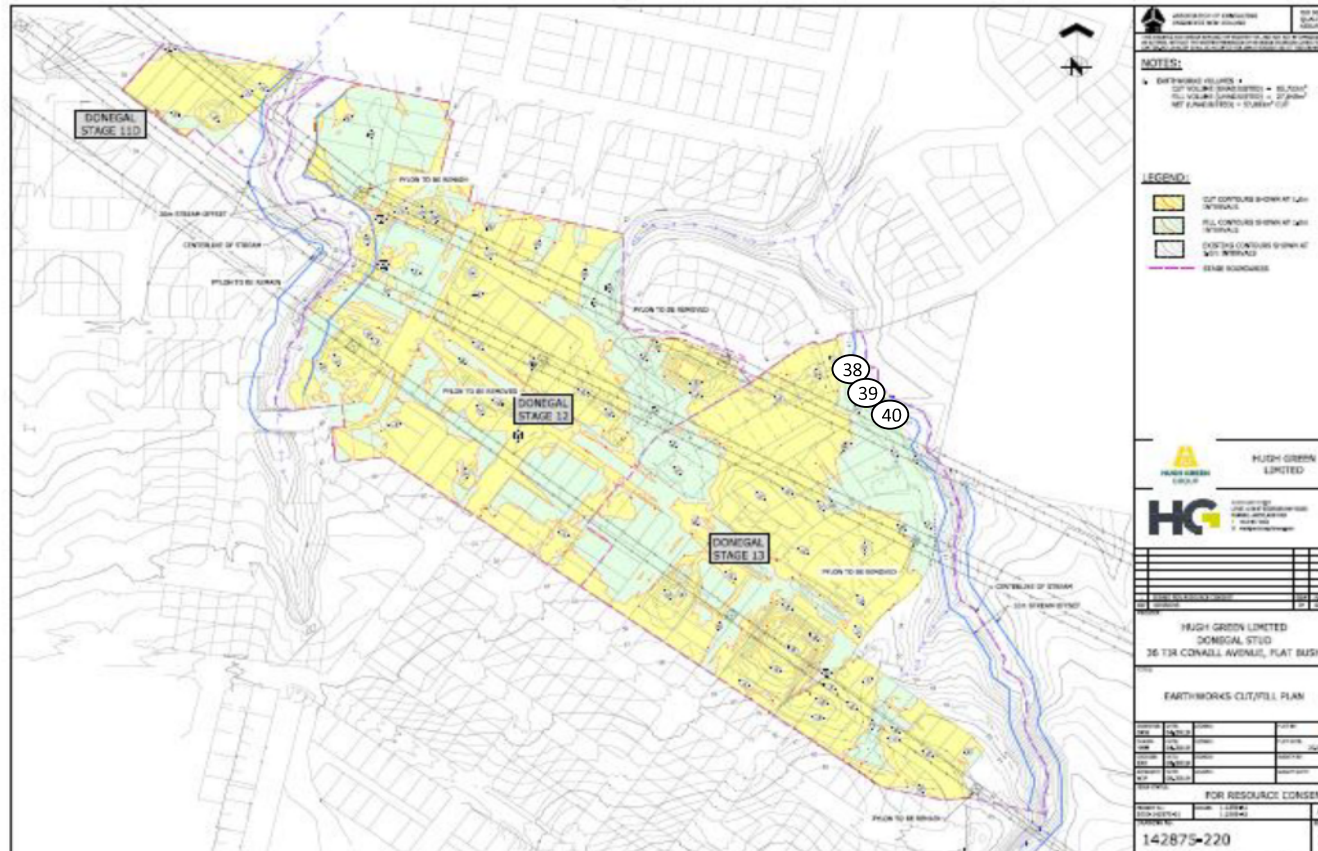
Location: As below

Tested by:

LW

Date tested:

29/04/2020



Earthworks Fill Report

Report No: EFIL:ETAM20W00655

Issue No:1

This report replaces all previous issues of report no. EFIL:ETAM20W00655

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Louis Smit

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.

{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}



Approved Signatory: Joanna Jones

Laboratory Manager

IANZ Site Number: 105

Date of Issue: 6/05/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1):

Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL	Material Tested	Comments
2/05/2020	ETAM20W00655	MA	43	1.91	23.7	1.55	2.70	6.1	UTP	UTP	UTP	UTP	Wall Undercut	770552	5905460	40.72	CLAY	

Comments:

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM20W00655

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

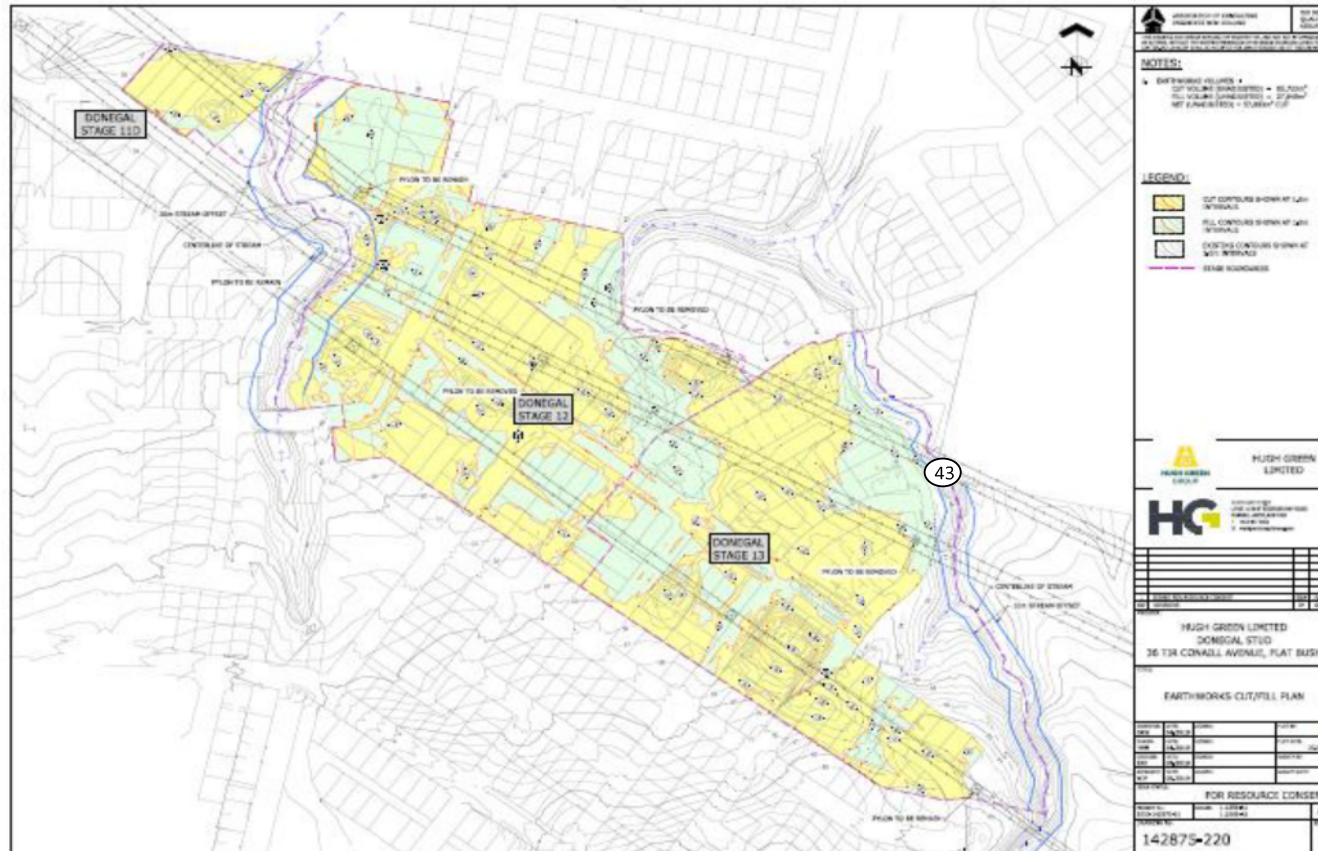
Location: As below

Tested by:

MA

Date tested:

2/05/2020



Earthworks Fill Report

Report No: EFIL:ETAM20W00685

Issue No:1

This report replaces all previous issues of report no. EFIL:ETAM20W00685

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Louis Smit

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.

{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}



Approved Signatory: Joanna Jones

Laboratory Manager

IANZ Site Number: 105

Date of Issue: 17/05/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1):

Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL	Material Tested	Comments
11/05/2020	ETAM20W00685	MA	44	1.88	26.4	1.49	2.70	5.5	155	152	155	160	Retaining Wall Undercut Backfill	413543	78868	41.3	CLAY	CH 100 (APCC)

Comments:

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM20W00685

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

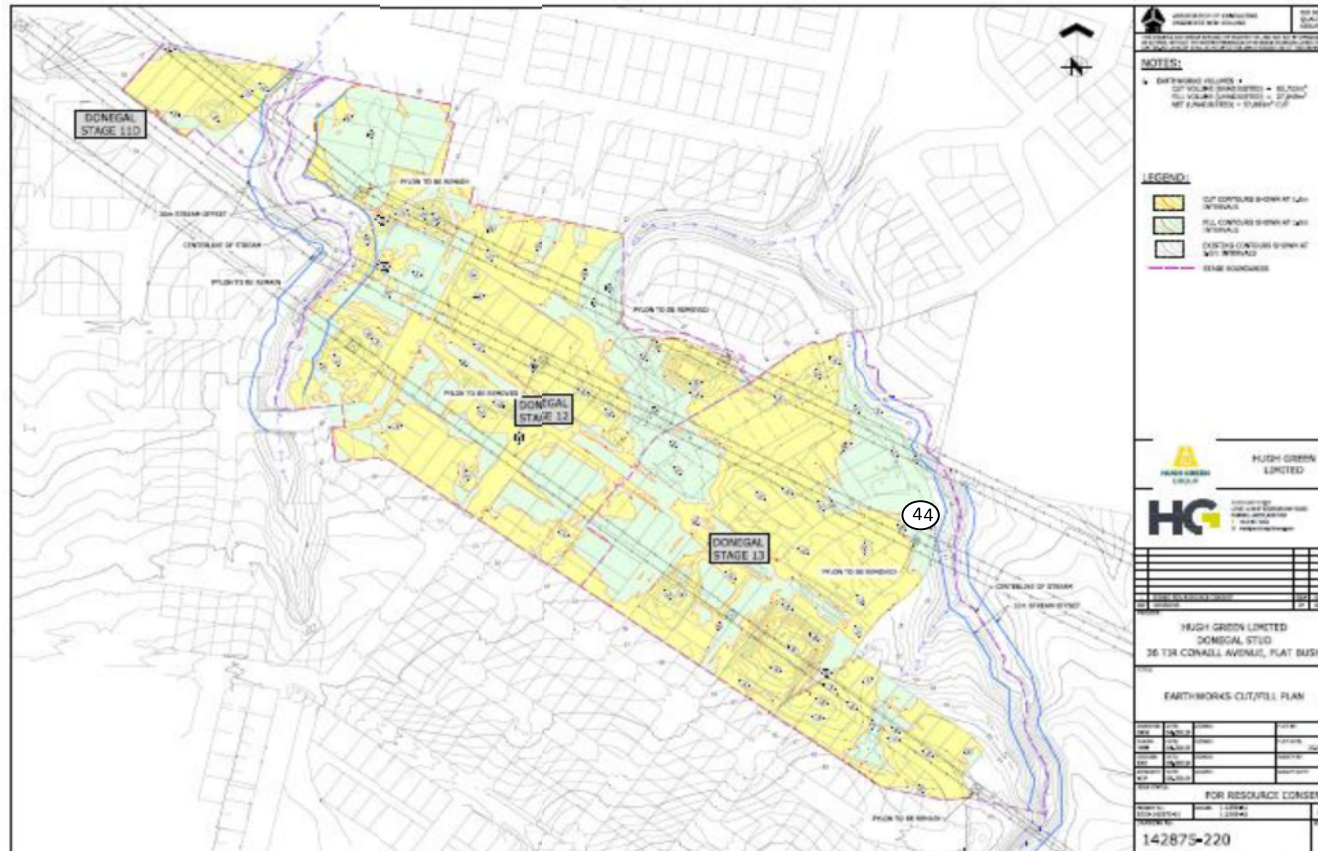
Location: As below

Tested by:

MA

Date tested:

11/05/2020



Earthworks Fill Report

Report No: EFIL:ETAM20W00686

Issue No:1

This report replaces all previous issues of report no. EFIL:ETAM20W00686

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Louis Smit

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.

{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}



Approved Signatory: Joanna Jones

Laboratory Manager

IANZ Site Number: 105

Date of Issue: 17/05/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1):

Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL	Material Tested	Comments
11/05/2020	ETAM20W00686	MA	45	1.77	46.2	1.21	2.70	0.0	UTP	UTP	UTP	UTP	Retaining Wall Undercut Backfill	413536	788695	40.98	CLAY	CH 107.6 (APCC)

Comments:

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM20W00686

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

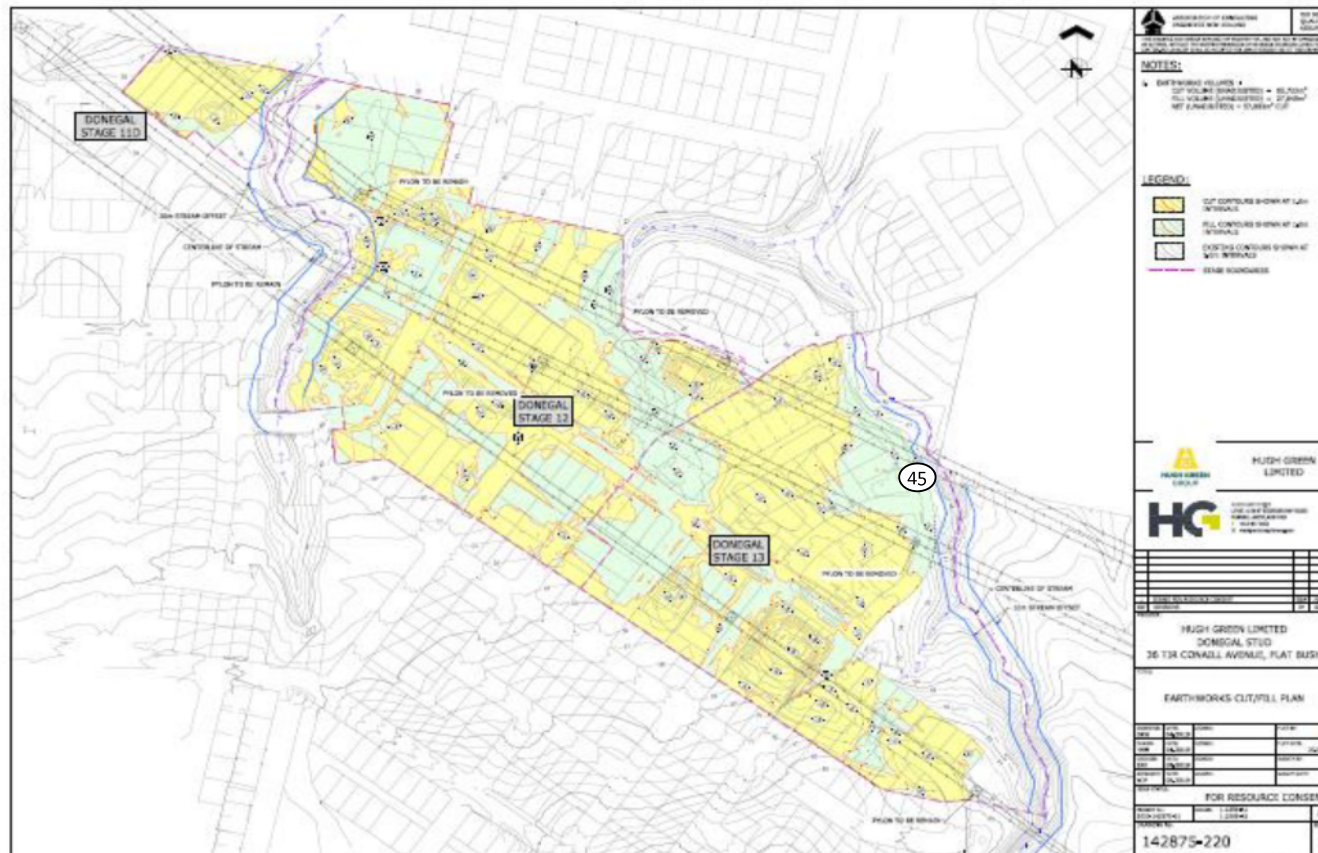
Location: As below

Tested by:

MA

Date tested:

11/05/2020



Earthworks Fill Report

Report No: EFIL:ETAM20W01400
Issue No:1
This report replaces all previous issues of report no. EFIL:ETAM20W01400

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Louis Smit

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Project Location: Greenam Drive, Flat Bush



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.
{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}



Approved Signatory: Cesar Pura
Senior Technician
IANZ Site Number: 105
Date of Issue: 14/09/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1):
Density Calculations (in accordance with NZS 4402:1986 Tests 4.2.7)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL	Material Tested	Comments
3/09/2020	ETAM20W01400	MA	56	1.91	26.5	1.51	2.70	4	163	163	143	156	Old Silt Pond Beside Rd 6	413459.7	788745.8	42.53	CLAY	

Comments:

Moisture contents and dry densities are corrected against oven dried moisture content testing. Probe Depth: 150mm; SG= 2.70 T/m3 (Assumed)

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

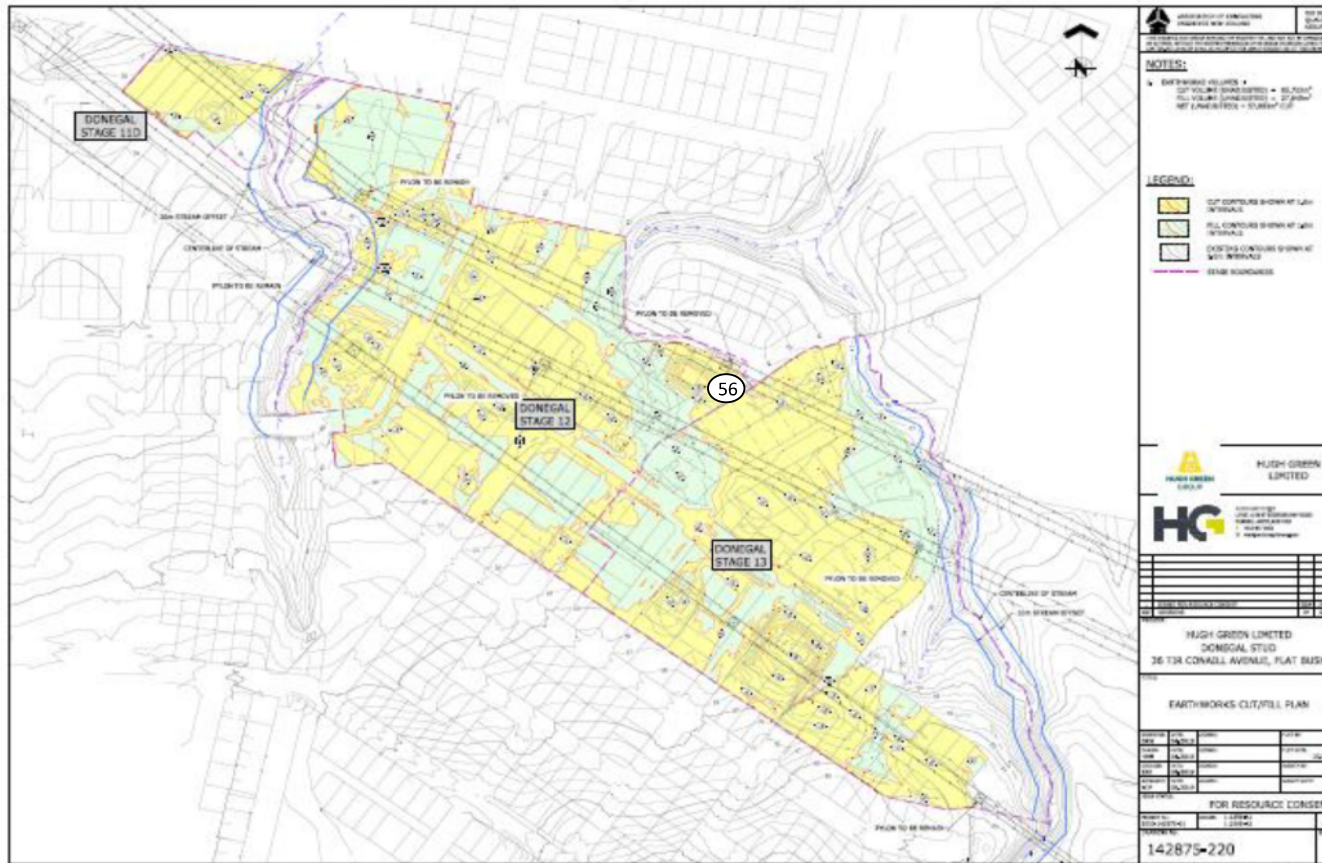
Work Order No: ETAM20W01400

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Location: Old Silt Pond beside Road 6

Tested by: MA
Date tested: 3/09/2020



Earthworks Fill Report

Report No: EFIL:ETAM20W01974
Issue No:1
This report replaces all previous issues of report no. EFIL:ETAM20W01974

Client: Coffey Services (NZ) Limited (Auckland)
PO Box 8261, Symonds Street
Auckland 1150

Principal: Ray Berry

cc to: -

Project No.: 773-ETAM01121AA

Project Name.: 773-GENZAUCK16856AE - DONEGAL STUD

Project Location: DONEGAL STUD Stage 11 - 13



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.
{This document may not be altered or reproduced except in full. This report relates only to the positions tested.}



Approved Signatory: Cesar Pura
Senior Technician
IANZ Site Number: 105
Date of Issue: 21/12/2020

Test Results

Test Methods : Shear Strength (using field Shear vane in accordance with NZGS 2001):Nuclear Densometer Testing (in accordance with NZS 4407:2015 Test 4.2): Water Content Testing (in accordance with NZS 4402:1986 Test 2.1)

Date Sampled	Work Order	Tested By	Test No.	Wet Density t/m ³	Oven Water Content %	Dry Density t/m ³	Solid Density t/m ³	Air Voids %	Field Shear Strength (UTP = Unable to penetrate) kPa				Test Location	Easting	Northing	RL (m)	Material Tested	Comments
16/12/2020	ETAM20W01974	MP	81	1.85	31.6	1.41	2.70	3	UTP	UTP	UTP	UTP	Road 6, Lot extension	1770540	5905317	52.49	Silty CLAY	

Comments:

Moisture contents and dry densities are corrected against oven dried moisture content testing. Probe Depth: 150mm; SG= 2.70 T/m3 (Assumed)

SITE PLAN

NOT TO SCALE

Project No: 773-ETAM01121AA

Work Order No: ETAM20W01974

Page No: 2 of 2

Project: 773-GENZAUCK16856AE - DONEGAL STUD - Stage 11-13

Location: As below

Tested by:

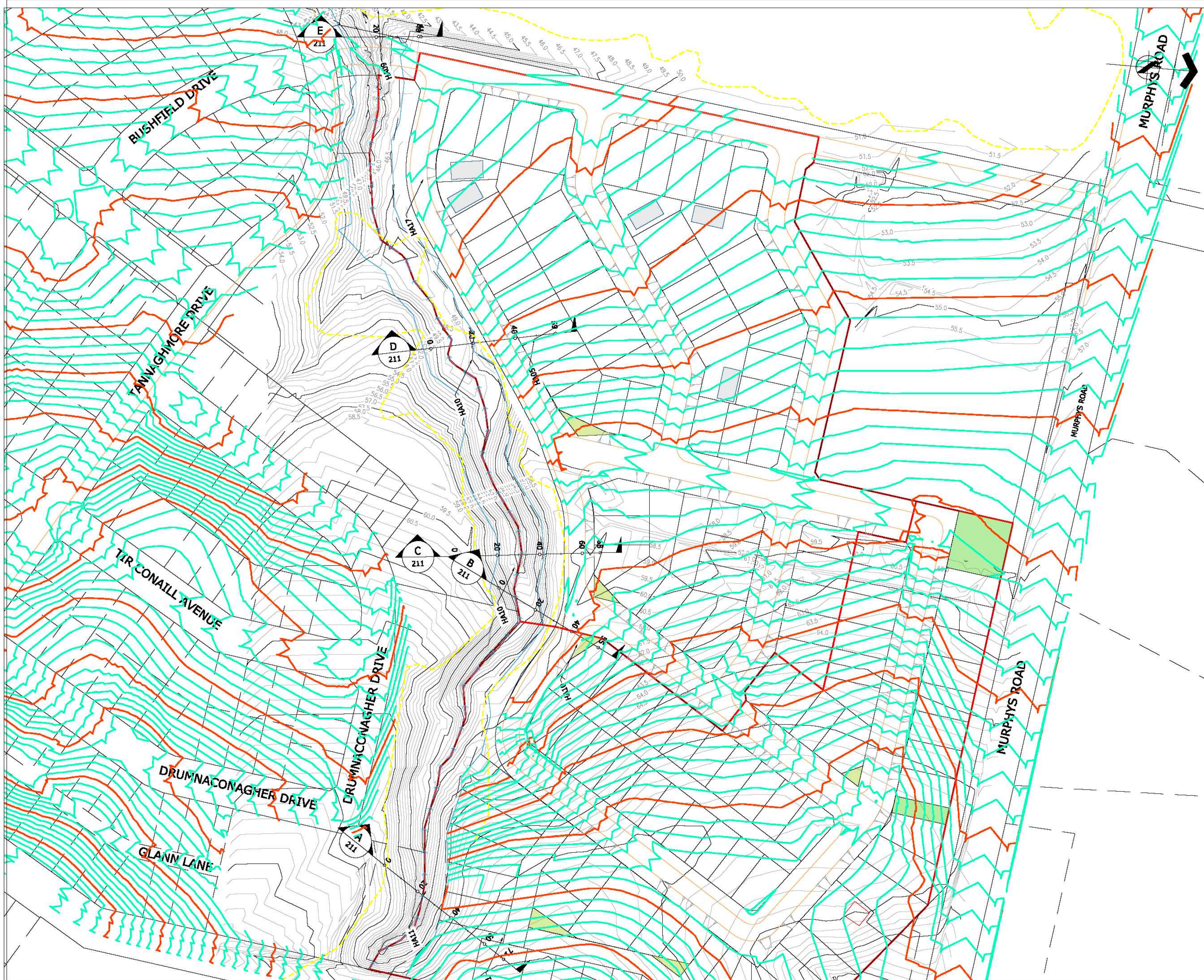
MP

Date tested:

16/12/2020



Appendix D – Existing Coffey Slope Stability Assessment





ASSOCIATION OF CONSULTING
ENGINEERS NEW ZEALAND

ISO 9001
QUALITY
ASSURED

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED OR ALTERED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LIMITED. NO LIABILITY SHALL BE ACCEPTED FOR UNAUTHORISED USE OF THIS DRAWING.

NOTES:

LEGEND:

 FINISHED CONTOURS SHOWN AT 0.5m
INTERVALS

 EXISTING CONTOURS SHOWN AT 0.5m
INTERVALS

 EXISTING STREAM



HUGH GREEN
GROUP



AUCKLAND OFFICE
LEVEL 4, 98 ST GEORGES BAY ROAD
PARNELL, AUCKLAND 1052
T +64 9 917 8888
W www.harrisongrierson.com

1	FOR INFORMATION	JOM	27.02.20
REF	REVISIONS	BY	DATE

PROJECT:

HUGH GREEN LIMITED
DONEGAL STAGES 14, 15 AND 16
36 TIR CONAILL AVENUE, FLAT BUSH

TITLE:

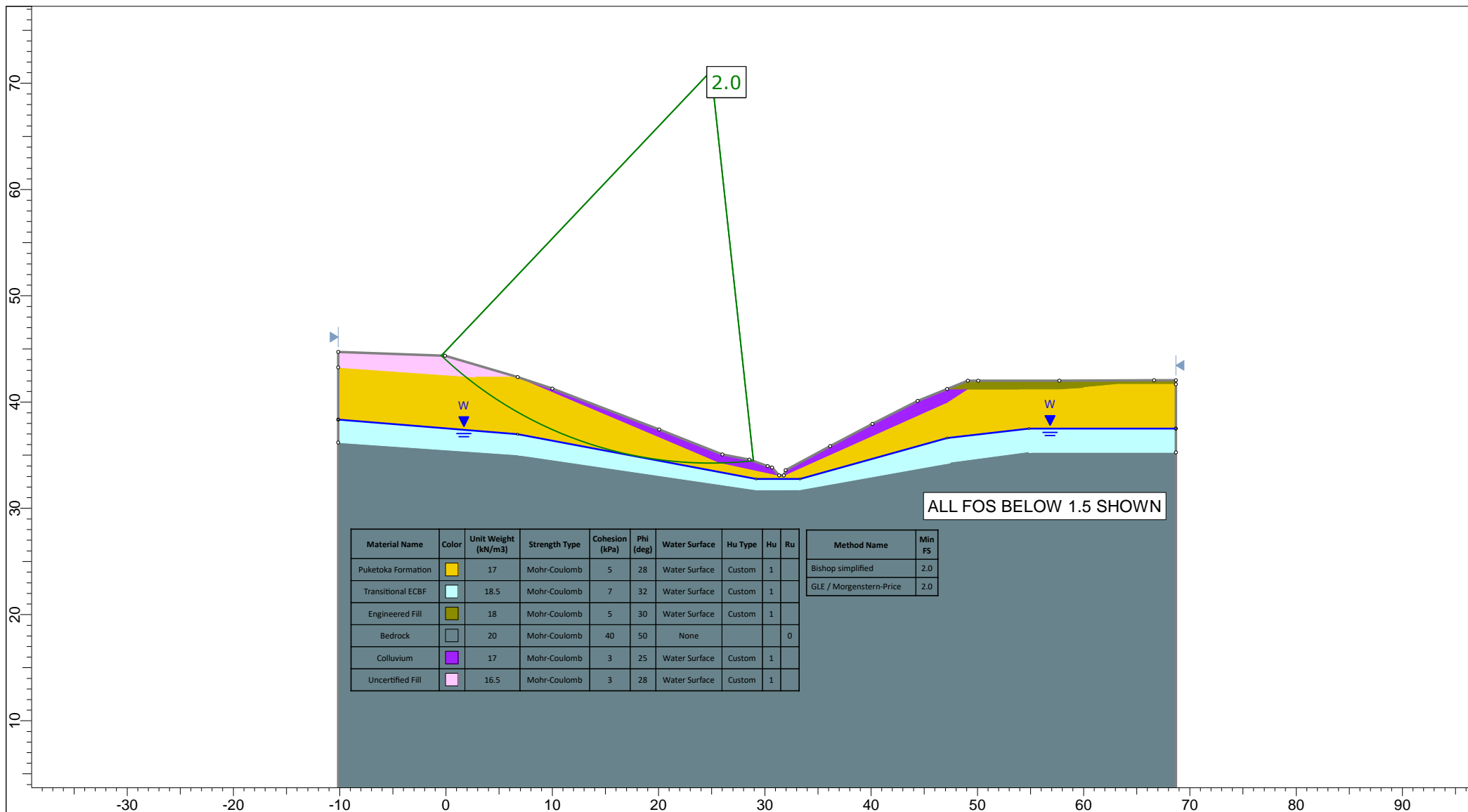
STREAM CROSS SECTION LOCATIONS

ORIGINATOR:	DATE:	SIGNED:	PLOT BY:
SXK	02.2020		JOM
DRAWN:	DATE:	SIGNED:	PLOT DATE:
JYW	02.2020		09.03.20
CHECKED:	DATE:	SIGNED:	SURVEY BY:
JOM	02.2020		
APPROVED:	DATE:	SIGNED:	SURVEY DATE:
SXK	02.2020		

ISSUE STATUS:

FOR INFORMATION

PROJECT No:	SCALES:	A1
1050-146689-01	1:750-A1 1:1500-A3	
DRAWING No:		REV
146689-210		1



SLIDEINTERPRET 7.036

Project			DONEGAL STUD RESIDENTIAL SUBDIVISION STAGES 13 - 16		
Analysis Description			CROSS SECTION C - MODIFIED SLOPE PROFILE PREVAILING GROUNDWATER CONDITIONS (LEFT-RIGHT)		
Drawn By		COFFEY RB	Scale	1:500	Company
			HUGH GREEN LIMITED		
Date		30/03/2020, 10:00:17 AM			File Name
					16856AE XSC MDSL PGW (R-L).slim

