



**Ground Contamination Site
Management Plan - Herne Bay
Tunnel Construction Support
Areas (CSAs)**

Herne Bay Tunnel

Prepared for
Watercare Services Limited

Prepared by
Tonkin & Taylor Ltd

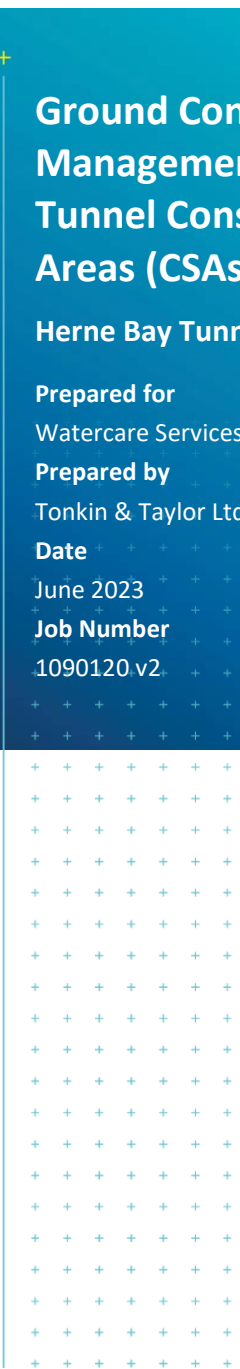
Date
June 2023

Job Number
1090120.v2



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Document control

Title: Ground Contamination Site Management Plan - Herne Bay Tunnel Construction Support Areas (CSAs)					
Date	Version	Description	Prepared by:	Reviewed by:	Authorised by:
April 2023	1	Draft GCSMP issued to client for comment	X. Jin	L. Phuah	S. Richardson
June 2023	2	GCSMP for consent lodgement	L. Phuah	S. Richardson	S. Richardson

Distribution:

Watercare Services Limited

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1 Introduction

Tonkin & Taylor Ltd (T+T) has been commissioned by Watercare Services Limited (Watercare) to prepare this Ground Contamination Site Management Plan (GCSMP) for the development of the proposed Herne Bay Tunnel Alignment Construction Support Areas (CSAs). The proposed CSAs (also referred to as the site) are shown below in Figure 1.1. This GCSMP is not applicable to the proposed tunnel alignment as no Hazardous Activities and Industries List (HAIL) activities have been identified in that area.

This GCSMP has been prepared in accordance with the variation to our proposal dated 1 March 2023.



Figure 1.1: Approximate Herne Bay Tunnel alignment shown in purple, connecting pipes to engineered overflow points in red and CSAs shown in yellow (Source: Topomaps NZ)

1.1 Background and proposed development

Watercare is working jointly with Auckland Council in delivering a programme of infrastructure improvement works to reduce wastewater overflows and improve water quality at local beaches. The programme of works is known as the Western Isthmus Water Quality Improvement Programme (WIWQIP).

To build a resilient wastewater system and ensure reliability of service and reduced overflows, Watercare is proposing to construct a new wastewater trunk sewer for the Herne Bay catchment, to connect into the proposed Central Interceptor (CI) tunnel extension to Point Erin Park.

The scope of the works involves:

- Installation of approximately 1.5 km of 2.1m internal diameter trunk sewer line, constructed via a tunnel-boring machine (TBM);
- Installation of approximately 150 m of 600 mm diameter trunk sewer within Marine Parade, constructed via open-cut trenching;
- Construction of 8x primary tunnel shafts, ranging in diameter from 3.5 m to 11 m, along with 4 x 3.5 m diameter intercepting shafts;

- Installation of 4x interception pipes and 11x connections to existing engineered overflow points (EOPs);
- Establishment of two CSAs in public reserves; and,
- Relocation and reinstatement of utilities as required.

The resource consent application is prepared for the activities described above, hereafter referred to as 'the Project'. To support the Project, Watercare is also proposing the establishment of two CSAs at the following locations:

- Western half of Salisbury Reserve (19 Salisbury Street) (CSA1); and
- 94A and 94B Shelly Beach Road (also known as the 'McConnell Dowell site' or 'Bridge site') (CSA2)

The Preliminary Site Investigation (PSI)¹ has identified these sites as having been subject to potential HAIL activities and therefore likely to require ground contamination resource consents for soil disturbance. It is understood that remediation is not required and only topsoil will be stripped from these locations and hardfill imported to form a working surface for the storage of plant and materials.

1.2 Objective and scope of work

This GCSMP has been prepared to support the application for resource consents as a discretionary activity under Regulation 10 of the NESCS and Chapter E30 of the AUP for the proposed works at CSA1 and CSA2. This GCSMP provides the following to inform the management of contaminated soil during development works within CSA1 and CSA2:

- A summary of currently known ground conditions and contamination risks to be managed during soil disturbance;
- Sets out soil management requirements, health and safety requirements and disposal requirements for soil disturbance activities during the proposed earthworks; and
- Provides procedures if previously unidentified contamination is encountered during the redevelopment works.

1.3 Regulatory compliance

The persons preparing this GCSMP are suitably qualified and experienced practitioners (SQEP) as required by the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS) and defined in the NESCS Users' Guide (April 2012).

This GCSMP has been prepared in general accordance with the following documents:

- The Ministry for the Environment (MfE) Contaminated Land Management Guidelines No. 1 - Reporting on Contaminated Sites in New Zealand (Revised 2021);
- Sampling procedures provided in the plan generally comply with the MfE Contaminated Land Management Guideline No.5 - Site Investigation and Analysis of Soils (Revised 2021);
- The New Zealand Guidelines for Assessing and Managing Asbestos in Soil (herein referred to as the Asbestos-in-Soil Guidelines) which were published in November 2017 by BRANZ Ltd; and
- The soil disturbance related controls referred to in the NESCS and contaminated land rules of the AUP.

¹ T+T, April 2023. Preliminary Site Investigation – Herne Bay Tunnel and Construction Support Areas. Prepared for Watercare Services Limited. T+T ref: 1090120.2000.v4

2 Roles and responsibilities

2.1 Organisational roles

The proposed hierarchy of roles and responsibilities under the GCSMP is provided in Table 2.1.

Table 2.1: Organisational involvement

Company/Organisation	Role and responsibilities
Watercare	Project owner.
Main Contractor (Contractor)	Responsible for implementation of GCSMP during earthworks.
Site Manager	Responsible for monitoring: <ul style="list-style-type: none"> • Compliance of all subcontractors with the requirements of this GCSMP. • Ensuring appropriate controls provided in the GCSMP are implemented during earthworks.
Health and safety officer	Responsible for overseeing implementation of the project's Health and Safety plan and ensuring the contaminated land-related health and safety procedures are adhered to if unexpected contamination is encountered.
Any Subcontractor(s) undertaking soil disturbance work	Responsible for undertaking works in accordance with requirements of the GCSMP.
Contaminated Land Specialist (CLS)	Responsible for provision of ground contamination advice during the works and validation reporting including additional soil testing, as required.
Auckland Council (Regulatory)	Monitoring of compliance with consent conditions.
WorkSafe NZ	Responsible for overseeing compliance with Health and Safety at Work Act 2015 and Health and Safety (Asbestos) Regulations 2016.

2.2 Distribution

In accordance with the provisions of the Health and Safety at Work Act 2015, it is the responsibility of the persons conducting a business or undertaking (PCBU) to communicate to any persons undertaking work on the site the likely extent of contamination, associated hazards, and the recommended procedures.

It is the responsibility of Watercare to distribute the GCSMP to the Contractor appointed to carry out the work. It is the responsibility of Watercare or its nominated Contractor to distribute the GCSMP to any other sub-contractors or parties carrying out earthworks.

A copy of the GCSMP shall be kept within the site office at the respective CSAs at all times during the proposed works.

2.3 Review and update

Any variations to the GCSMP by the Contractor must be approved by Watercare prior to works commencing, or the variation being implemented if works have already commenced. If the changes are substantive (e.g. have the potential to increase effects to the environment) they may also need to be approved and/or certification by Council prior to implementation.

It is the responsibility of the appointed Contractor to distribute any changes to the plan to the relevant parties involved in the construction works and update the project copy.

2.4 Implementation

Responsibility for the implementation of the GCSMP lies with Watercare and its appointed Contractor and their sub-contractors.

Watercare shall engage a CLS to observe and provide advice as required during the works at the CSAs. The CLS must be sufficiently experienced to comply with the “suitably experienced investigation manager/practitioner” level as required by the NESCS and defined in the NESCS Users’ Guide (April 2012).

3 CSA locations

Two CSAs are proposed in support of the construction of the project works shown in Figure 3.1 and Figure 3.2. The CSAs are further identified in Table 3.1 below.



Figure 3.1: CSA1, western half of Salisbury Reserve site shown in red (Source: Auckland Council Geomaps)

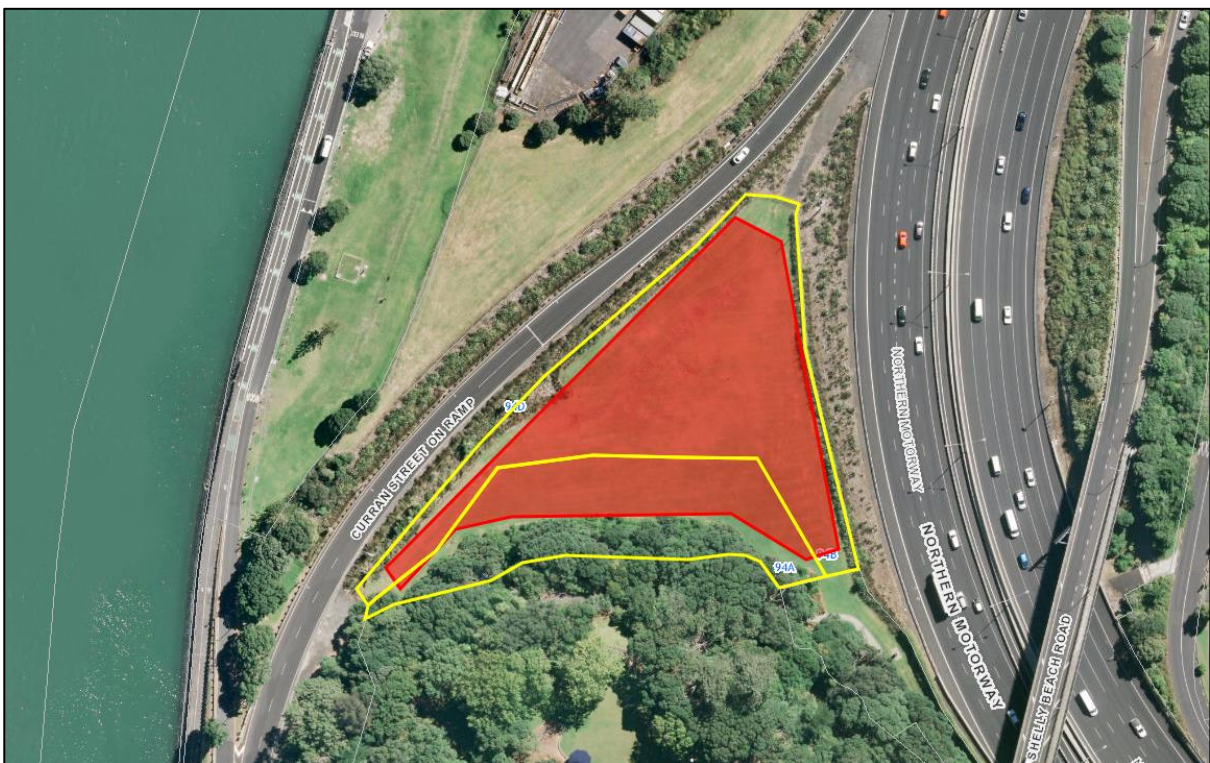


Figure 3.2: CSA2, also known as the McConnell Dowell or Bridge site shown in red (Source: WSP) Table

Table 3.1: CSA Site identification

CSA number	CSA address	Lot and DP numbers	Approximate CSA area (m ²)
1	Western portion of Salsbury Reserve (19 Salisbury Street)	PT DP 16520, ALLOT 52 SEC 8, Lot 4 DP 22075, Lot 1 DP35983	3,900
2	94A & 94B Shelly Beach Road	SEC 2 SO 469767	6,500

3.1 Geology

Published geology² for the project area, shown below in Figure 3.3, indicates that the proposed sewer line alignment (including shaft locations), along with the CSA1 is underlain by sediments of the East Coast Bays Formation (ECBF) described as alternating sandstone and mudstone with variable volcanic content and interbedded volcanoclastic grits.

Natural Pleistocene and Holocene deposits are expected in some of the low-lying parts of the alignment. Made ground (fill) may also be encountered at or near the ground surface in this urban environment.

CSA2 has been reclaimed from the former shoreline. The reclamation fill has been described as containing recompacted clay with gravel sized materials and sometimes including demolition debris. Investigations³ undertaken by Aurecon in 2017 for the St Mary's Bay – Masefield Beach Water Quality Improvement Project indicates that:

- Topsoil was encountered from the surface of the site to depths of 0.15 m - 0.2 m below ground level (m bgl);
- Hydraulic fill comprising of gravel, silty sand and clayey silts with organics were encountered underneath the topsoil layer. The hydraulic fill layer was observed to be between 3.35 m – 3.9 m thick and extend to depths of up to 5.25 m bgl; and
- Tauranga group deposits were observed underlying the hydraulic fill to the termination.

² Kermode, L.O. 1992: Geology of the Auckland Urban Area. Scale 1:50,000, Institute of Geological & Nuclear Sciences geological map 2. 1 sheet + 63p. Institute of Geological and Nuclear Sciences Ltd. Lower Hutt, New Zealand.

³ Aurecon, 26 April 2018. St Marys Bay – Masefield Beach Water Quality Improvement Project, Detailed Site Investigation. Prepared for Auckland Council. Aurecon ref: 255303.



Figure 3.3: Published geology map of alignment, connecting pipes, CSA1 and CSA2 (source: Kermode).

3.2 Hydrogeology and hydrology

Groundwater flow beneath the 2 CSAs is inferred to follow topography to the north towards the Waitematā Harbour. The council online database (Geomaps) (refer Figure 3.4) indicates CSA2 is a flood prone area.

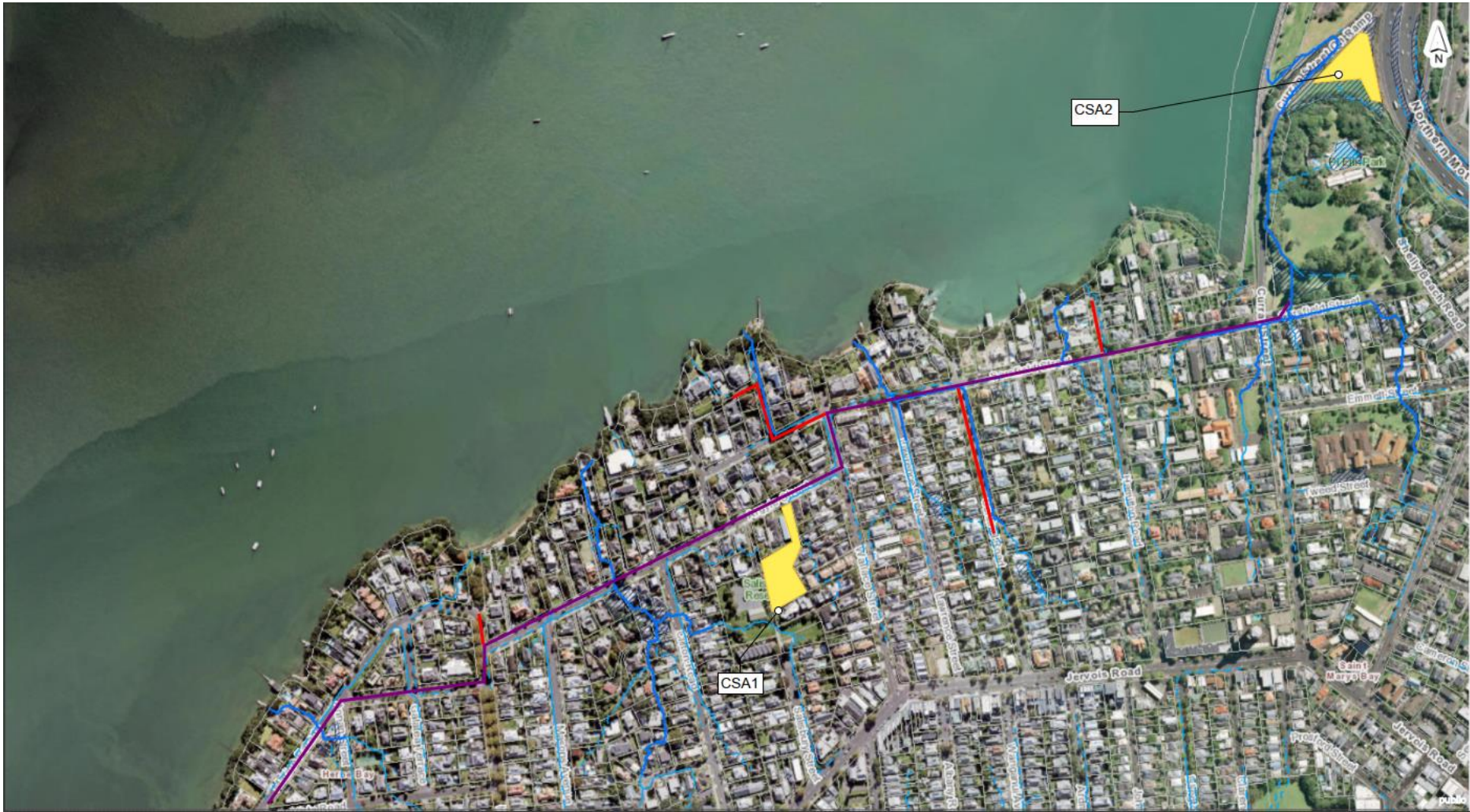


Figure 3.4: Overlandflow paths and flood plains for the alignment, connecting pipes and CSAs (Source: Auckland Council Geomaps)

3.3 Site history and potential for contamination

The site history and potential for contamination for the CSAs as presented in the PSI are summarised in the subsections below.

3.3.1 CSA1

CSA1 has remained open space since at least 1940. A square area located towards the middle of the of the CSA1 was redeveloped between 1940 and 1959. This area was used as a bowling pavilion. An online search⁴ shows that Herne Bay Pétanque Club was formed in 1994 and uses the bowling pavilion for their activities.

The council contamination enquiry indicates that CSA1 was possibly subject to HAIL activity A.10 (persistent pesticide bulk storage or use including sports turfs market gardens, orchards, glass houses or spray sheds) as council records indicated a consent was granted in 1958 for a bowling pavilion.

3.3.2 CSA2

Historic aerial photographs show that CSA2 was reclaimed from the Waitematā Harbour between 1950 and 1955. The site has remained undeveloped or used for recreational purposes since its reclamation until the 2010s. Aerial photographs from 2001 and 2010 indicate that the site was converted into a construction yard between aeriels and subsequently returned to recreational use by 2017. We understand that the site has also been used as a CSA for the proposed St Marys Bay and Point Erin Stormwater tunnel which commenced circa 2018. Since the completion of the Point Erin Stormwater tunnel, the site has returned to being used for recreational purposes.

The council contamination enquiry indicated that CSA2 as having possibly been subject to HAIL Item (G.5) – Waste disposal to land citing that the property was subject to reclamation in the 1950s with soil sampling undertaken in 2017 indicating heavy metals above background levels, low levels of PAHs and the presence of asbestos in the fill material.

3.3.3 Potential for contamination and risks

Based on site historical review information and identification of HAIL at CSA1 and CSA2, the site management procedures that follow, are based on the assumption of low levels of contamination being present in fill and/or shallow material (i.e. below criteria for the protection of site workers) from historic activities. Natural soils are expected to be at background concentrations for non-volcanic soils in Auckland. The management procedures in this GCSMP shall be confirmed on completion of pre-works testing.

Based on the expected site condition, the following receptors of contamination in soil and groundwater that could be encountered during and following the proposed works may include:

- i People – construction workers doing excavation work, future site users, disposal site operators and the general public; and
- ii Environment – aquatic life in the nearby Herne Bay, and potentially any flora or fauna at disposal destinations of removed material.

⁴ <https://www.hernebaypetanque.nz/club-history> (viewed 14 February 2023)

The **pathways** by which the contamination can affect the receptors during the proposed works include:

- Direct contact by excavation workers;
- Contaminant migration to people or the environment via dust; and
- Contaminant migration to the environment via stormwater at the site or at a disposal site.

If contamination is found during pre-works testing, the conceptual site model indicates that the works will need to be managed to minimise potential adverse effects on the environment from occurring.

4 Pre-works testing

Intrusive investigations within the CSAs are in progress as of March 2023. The findings of the investigations will be reported to Council, and if required, the controls set out in the following sections of this GCSMP will be updated.

If the intrusive investigations identify soil with contaminant concentrations within expected background concentrations, then the procedures set out in Sections 4 – 6 will not apply (with the exception of Section 5.5 for unexpected contamination) and the works can proceed using standard earthworks controls.

4.1 Sampling rationale

Samples of the soil that are proposed to be disturbed will be collected from across each of the CSAs. The proposed sampling locations at CSA1 and CSA2 are shown in Figure 4.1 and Figure 4.2 respectively.

4.2 Sampling methodology

The soil sampling work will be undertaken in general accordance with the MfE's CLMG⁵:

- Materials encountered shall be logged in accordance with the NZ Geotechnical Society "Guidelines for the classification and field description of soils and rocks for engineering purposes";
- Freshly gloved hands shall be used to collect soil samples into laboratory supplied containers;
- Non dedicated equipment used to collect soil samples shall be decontaminated between sample locations using clean water and Decon 90 (a phosphate-free detergent) rinses; and
- Samples for chemical analysis shall be shipped in chilled conditions to an IANZ-accredited laboratory under chain of custody (CoC) documentation.

⁵ MfE, revised 2021, CLMG No. 1 & 5



Figure 4.1: Proposed sampling locations CSA1



Figure 4.2: Proposed sampling locations CSA2

5 Site management procedures

The procedures set out in this section of the GCSMP are soil-related earthworks procedures for managing contaminated soils, including controls to manage the effects of dust, sediment, surface water, soil disposal and stockpiling for the ground disturbance. "Site" in this section of the GCSMP includes both CSA1 and CSA2.

5.1 Site establishment

The Contractor shall ensure the following occurs:

- Be familiar with the requirements of the Auckland Council resource consent and advise Council prior to the commencement of works;
- Install security fencing, where suitable boundary fencing does not exist, to prevent unauthorised access to the site;
- Place signage and a site hazard board at the site entrance point. The site hazard board shall include summary information on site works and notification processes for unexpected contaminated soil encounters;
- Obtain contamination specific personal protective equipment (PPE) as required;
- Establish appropriate decontamination facilities on the entry/exit to contaminated/clean areas;
- Obtain approvals/permits for the disposal of material from the proposed receiving facilities prior to commencing work; and
- Ensure all relevant personnel are inducted and provided information on contamination conditions, including the presence of asbestos (if present) in shallow fill/soil before commencing work. The purpose of the induction is to make sure the worker is aware of the hazards related to contamination, safe working procedures, PPE and decontamination requirements and also be made aware of the procedures for responding to unexpected contamination or in case of an emergency.

5.2 Excavation, disposal and transport

The following shall be adhered to during excavation and transportation of excavated soils:

- Project-relevant erosion and sediment controls (that meets requirements of the Auckland Council Guideline Document 2016/005, "*Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region*") shall be in place during excavation;
- Frequent spraying of water over the excavation, access roads and truck loading area during dry/windy conditions to ensure the working surfaces remain damp;
- Wetting of the loaded material (particularly shallow fill/soil) once placed on the truck when material could generate dust;
- Trucks shall be loaded within the site where runoff and possible spills can be controlled and contained;
- Truck loads shall be monitored and a weighbridge summary dockets retained;
- Vehicles exiting the site that have tracked over soil shall have their wheels and undercarriage washed or brushed down to prevent tracking soil offsite:
 - During disturbance of shallow fill/soil, unless further testing in Section 5 indicates otherwise), vehicles that have tracked over the soil also require visual assessment by a competent person⁵ or the CLS following brush and or wash down.

- Stockpiles shall be dampened during formation and maintained damp or covered if left unworked longer than 24 hours, or if conditions are dry/windy.
- Disposal options shall be confirmed following the completion of the intrusive investigations.

5.3 Water management

Water that comes into contact with contaminated soil shall either be contained within the project footprint and allowed to soak to ground or tested to confirm that it complies with relevant Auckland Council requirements, e.g. removal of suspended sediment prior to being discharged to the reticulated stormwater network.

The following are also good practice measures that the Contractor shall maintain during all excavation works:

- Separation and diversion of clean stormwater away from areas of ground disturbance is standard practice for any earthworks activity;
- Temporary bunding systems including socks, sand bags etc. shall be employed as necessary by the Contractor;
- Should any unexpected contaminated materials be encountered, then surface water shall be diverted away from the area and disposed separately (via sucker truck or by permit to sewer) if required; and
- Surface water that comes into contact with contaminated soil, and potentially groundwater if it comes into contact with that surface water, will require treatment to reduce the sediment load, potentially pH prior to disposal to the stormwater network.

5.4 Imported material

Hardfill imported for backfill, if sourced directly from a quarry or supplier, does not require testing. Any material imported to the site shall originate from:

- A site which has been determined by a Suitably Qualified Contaminated Land Professional (SQEP or CLS) to have had no known history of potentially contaminating activities, as detailed on MfE's HAIL; or

A site which has been adequately investigated by a CLS, in accordance with *Contaminated Land Management Guidelines No.5 Site Investigation and Analysis of Soils* (Ministry for the Environment, revised 2011) to meet the cleanfill material definition as prescribed in the Auckland Unitary Plan – Operative in Part (AUP).

It is preferable that any fill not sourced from a quarry is tested at its source prior to its use at the site. However, if not, then the Contractor shall stockpile the fill on site until test results are available.

5.5 Unexpected contamination

Even after intrusive investigations are complete, it is possible that unidentified contamination may still be encountered. This section sets out procedures for identifying and managing unexpected contamination and implementation of contingency measures (if required).

The onus is on the Contractor to note where visual and olfactory indicators of contamination exist and liaise with the CLS to ensure the controls in place remain appropriate to the type and level of contamination encountered.

All site staff involved in soil disturbance activities shall be inducted prior to works commencing as to the protocols for reporting on and managing unexpected contamination.

Typical indicators of contamination include:

- Odour (petroleum hydrocarbons, oil);
- Discoloured soil (black, green staining most common);
- Asbestos-containing materials (ACM), as fragments or free fibre; and
- Inclusions of deleterious materials such as timber, brick, concrete, clinker, metal.

The following is a “first response” checklist for the Contractor to follow should unexpected contamination be encountered during the works.

Table 5.1: First response procedures

First Response Checklist	
Stop work in the immediate vicinity (within 5 m) of the contamination discovery and isolate the area by taping, coning or fencing off.	<input type="checkbox"/>
Advise the Contractor’s site manager who shall notify Watercare.	<input type="checkbox"/>
Update the site Hazard Board and prevent unnecessary access to the area by personnel.	<input type="checkbox"/>
Contain surface water/sediment and dust as per this GCSMP.	<input type="checkbox"/>
The Contractor’s site manager is to contact the project CLS to inspect, sample and advise on specific controls if appropriate. If the CLS considers it appropriate, the suspected contaminated material may be excavated into a covered bin or similar to allow works to continue with minimum delay.	<input type="checkbox"/>
Inform Auckland Council	<input type="checkbox"/>

5.6 Emergency response

Should an incident occur on site which may result in any unauthorised discharges (dust, vapour, odour, water, soil, separate phase hydrocarbon etc.), the Site Manager will take control of the situation and coordinate the efforts of all on site to minimise the impact. As soon as practicable the Site Manager shall contact Watercare, who will notify the CLS.

5.7 Complaints

A written record of all contamination-related complaints received shall be maintained. The Site Manager shall initiate an investigation upon receipt of a complaint and shall notify Watercare immediately (who will notify the CLS). Watercare shall notify Auckland Council as soon as practicable, including providing details of any corrective actions taken.

Appropriate feedback will be provided to the complainant, such as the response made, and any corrective actions taken in response to the complaint.

6 Health and safety procedures for contamination

These procedures have been developed to provide a framework for managing potential contamination related effects at the site, however, these protocols are not intended to relieve the owner or controller of the place of work of either their responsibility for the health and safety of their workers, contractors and the public, or their responsibility for protection of the environment.

The purpose of these contaminated land-related health and safety procedures are to:

- Provide and maintain a safe working environment for workers where contaminated soils are exposed;
- Document safety facilities and procedures to prevent exposure to contaminated soil by workers and the general public;
- Identify and ensure awareness of potential contaminated land-related hazards; and
- Describe emergency procedures.

These contaminated land-related health and safety procedures shall be implemented during the disturbance of shallow fill/soil that contains elevated levels of contamination and in the event of unexpected contamination. The CLS will advise the Contractor when these procedures no longer apply to the site works based on further investigation data and/or onsite inspections.

6.1 New hazards

The Contractor is responsible for reviewing any new work element and assessing whether there are any new associated hazards, and whether these can be eliminated or isolated. The Contractor shall advise Watercare and seek review by the CLS if necessary. The Contractor shall then instruct all staff on the health and safety procedures associated with the new hazard.

6.2 Personal protective equipment provisions

Standard earthworks personal protective equipment (PPE) is to be worn during the excavation of shallow contaminated soil. At a minimum this includes:

- Long sleeves and pants; and
- Steel toe capped gumboots or safety footwear with disposable overshoes.

If the investigation confirms further contamination present along the proposed alignment i.e. asbestos, further PPE may be required during soil disturbance.

6.3 Decontamination

At minimum personnel shall practice good hygiene and personal contamination whenever they stop work i.e. for meal breaks, toilet breaks etc.

Further personnel and equipment decontamination procedures may need to be implemented depending on the findings of the ground investigation.

7 Reporting and validation

7.1 Validation

Validation shall be conducted by a CLS. The validation programme proposed includes observation of the ground works and sampling of any unexpected contamination as required.

7.2 Information required from the Contractor

Information is required from the Contractor for inclusion in the Site Validation Report (SVR). The information requirements, also detailed in the Contractors checklist (Appendix B), are:

- Copies of weighbridge summaries for the disposal verification;
- Source and volumes of any imported material and supporting information of suitability;
- Records of visits by contaminated land Council representatives;
- Details of any contamination-related complaints and the action taken;
- Details of any health and safety incident related to contamination and the action taken; and
- Details of any unexpected contamination encountered and the action taken.

The Contractor shall provide the required information within one month of completion of the works to which the information relates.

7.3 Reporting

A SVR should be prepared and submitted to Auckland Council within three months of completion of the excavation works. The report should document any variations from the strategies outlined in this GCSMP and the reasons why variations were necessary. The SVR should also include, as a minimum:

- Volumes of soil removed from the site and confirmation of the disposal destination of all soil, based on documentation provided by the Contractor;
- Details of any variations to the GCSMP;
- Details of any environmental or health and safety incidents during the works; and
- Results of soil validation samples.

The validation report should comply with the (MfE) Contaminated Land Management Guidelines No. 1 - Reporting on Contaminated Sites in New Zealand (Revised 2021).

8 Applicability

This report has been prepared for the exclusive use of our client Watercare Services Limited, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that this report will be used by Auckland Council in undertaking its regulatory functions in connection with the Herne Bay Tunnel project.

Recommendations and opinions contained in this report are based on the information reviewed in the PSI. The nature and continuity of the subsoil away from the information reviewed in the PSI is inferred and it must be appreciated that actual conditions may vary from the assumed model.

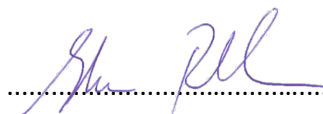
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Appendix A Development plans

Herne Bay Trunk Sewer Shaft Locations - For Ground Investigation only - all shaft locations and depths are indicative							
Location	Name	DTI (M)	Min. Investigation Depth (M)	Coordinates (NZTM)		DIAMETER SHAFT (M)	
				X	Y		
Cnr Bella Vista Rd & Marine Parade	EOP199	2.5		5	1753729.088	5920673	3.5
Marine Parade	Shaft 8	1.89		3	1753734.392	5920699	3.5
22 MARINE PARADE	EOP198	4.85		7	1753815.632	5920806	3.5
22 MARINE PARADE	SHAFT 7	5.48		7	1753818.065	5920809	9
33 MARINE PARADE	SHAFT 6	7.37		10	1753847.338	5920856	9
34 HERNE BAY RD	SHAFT 5	19.01		21	1754036.05	5920868	13
1 MARINE PARADE	EOP197	3.57		6	1754025.288	5920995	3.5
72 ARGYLE ST	SHAFT 4	17.47		20	1754046.493	5920915	9
45 ARGYLE ST	EOP740	4.11		6	1754224.363	5921013	3.5
45 ARGYLE ST	SE04	6.93		9	1754224.409	5921010	3.5
50 WALLACE ST	SHAFT 3	17.31		20	1754523.148	5921160	13
15 CREMORNE ST	EOP1019	1.79		3	1754366.45	5921255	3.5
1 WAIRANGI ST	EOP1019 WWMH02	4.91		7	1754414.549	5921285	3.5
12 STACK ST	EOP1019 WWMH01	7.24		10	1754433.59	5921207	3.5
58 WALLACE ST	SHAFT 2	13.9		16	1754512.837	5921240	9
91 SARSFIELD ST (SARSFIELD WWPS)	EOP201	4.06		6	1754599.322	5921267	3.5
91 SARSFIELD ST (SARSFIELD WWPS)	SE03	8.97		11	1754601.21	5921263	3.5
28 SENTINEL RD	EOP200	2.66		5	1754731.301	5921096	3.5
80 SARSFIELD ST	SE02	13.39		16	1754694.73	5921284	3.5
59 HAMILTON RD	EP195	2.31		5	1754888.885	5921316	3.5
69 HAMILTON RD	EP202	1.1		3	1754880.067	5921402	3.5
59 HAMILTON RD	SE01	17.8		20	1754894.405	5921322	3.5
ERIN POINT	SHAFT 1	11.47		14	1755122.275	5921377	13

HARBOUR BRIDGE

POINT ERIN

HORNE BAY

SARSFIELD ST

WALLACE ST

HERENE BAY

ARGYLE ST

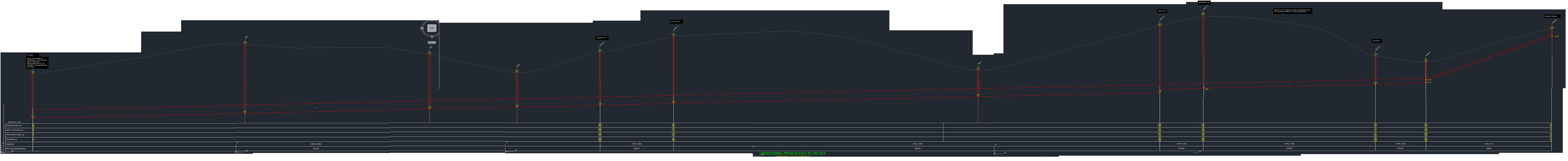
HERNE BAY RD

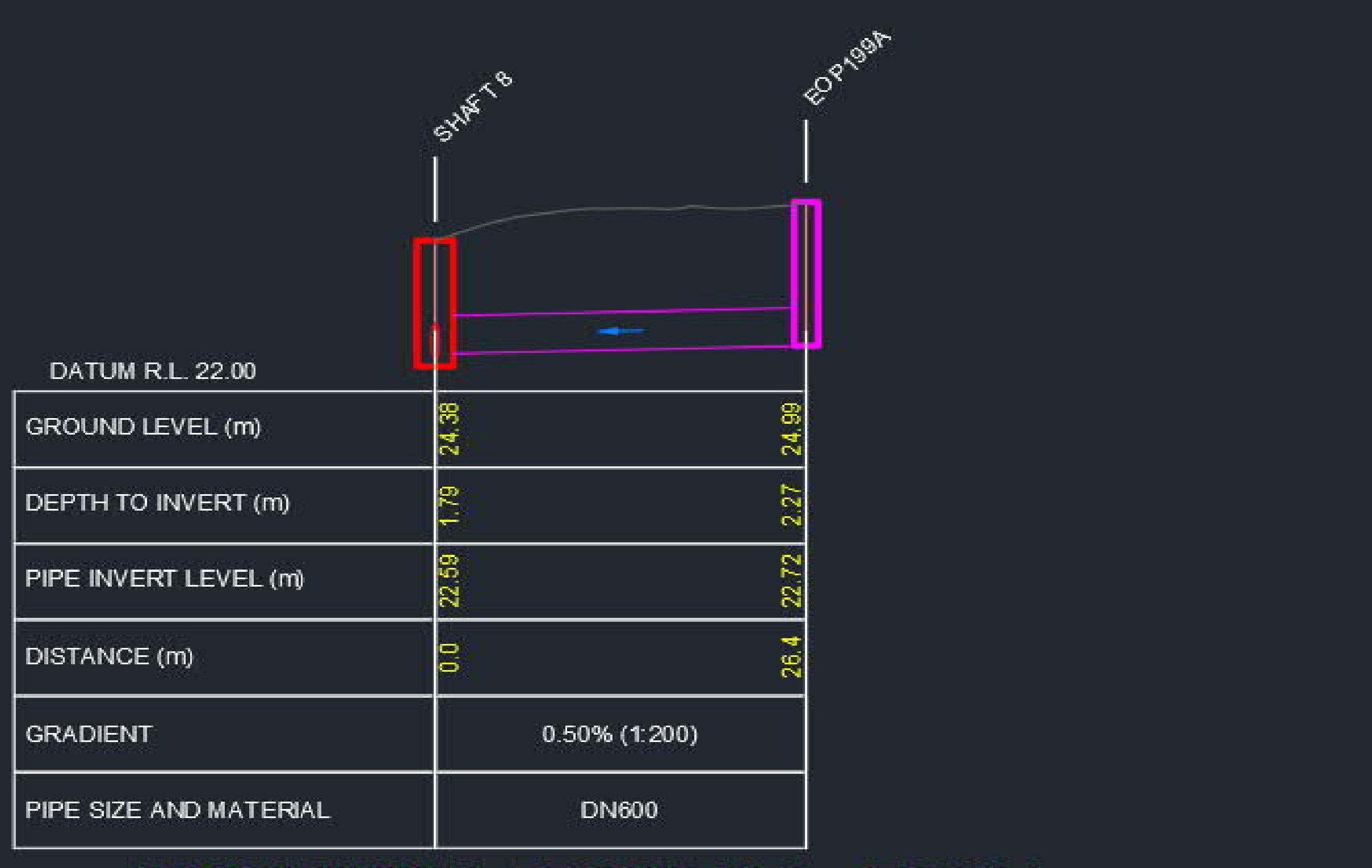
UPTON ST

COXS BAY

MARINE PARADE



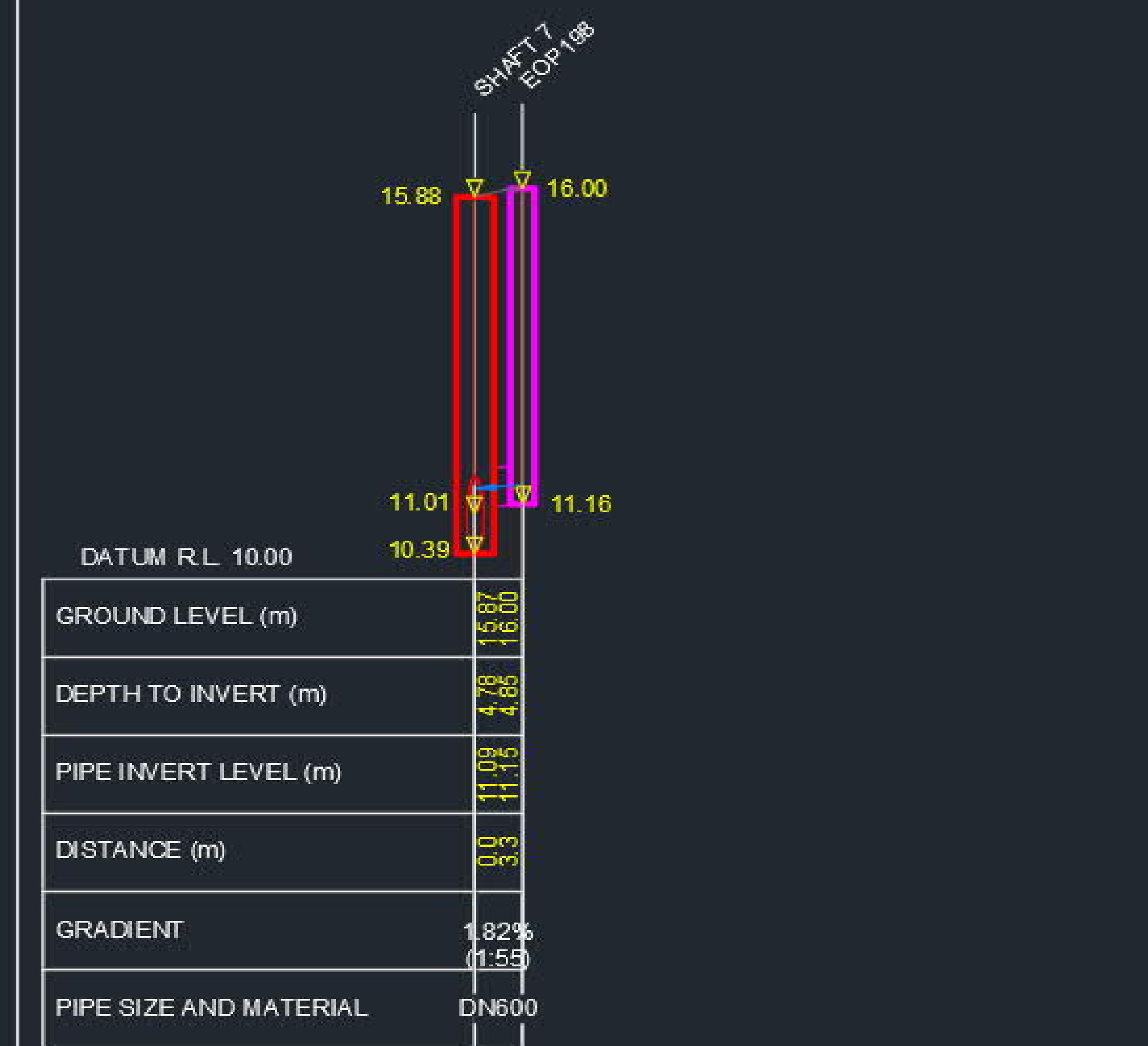




LONGITUDINAL PROFILE 0.0 m TO 26.4 m

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

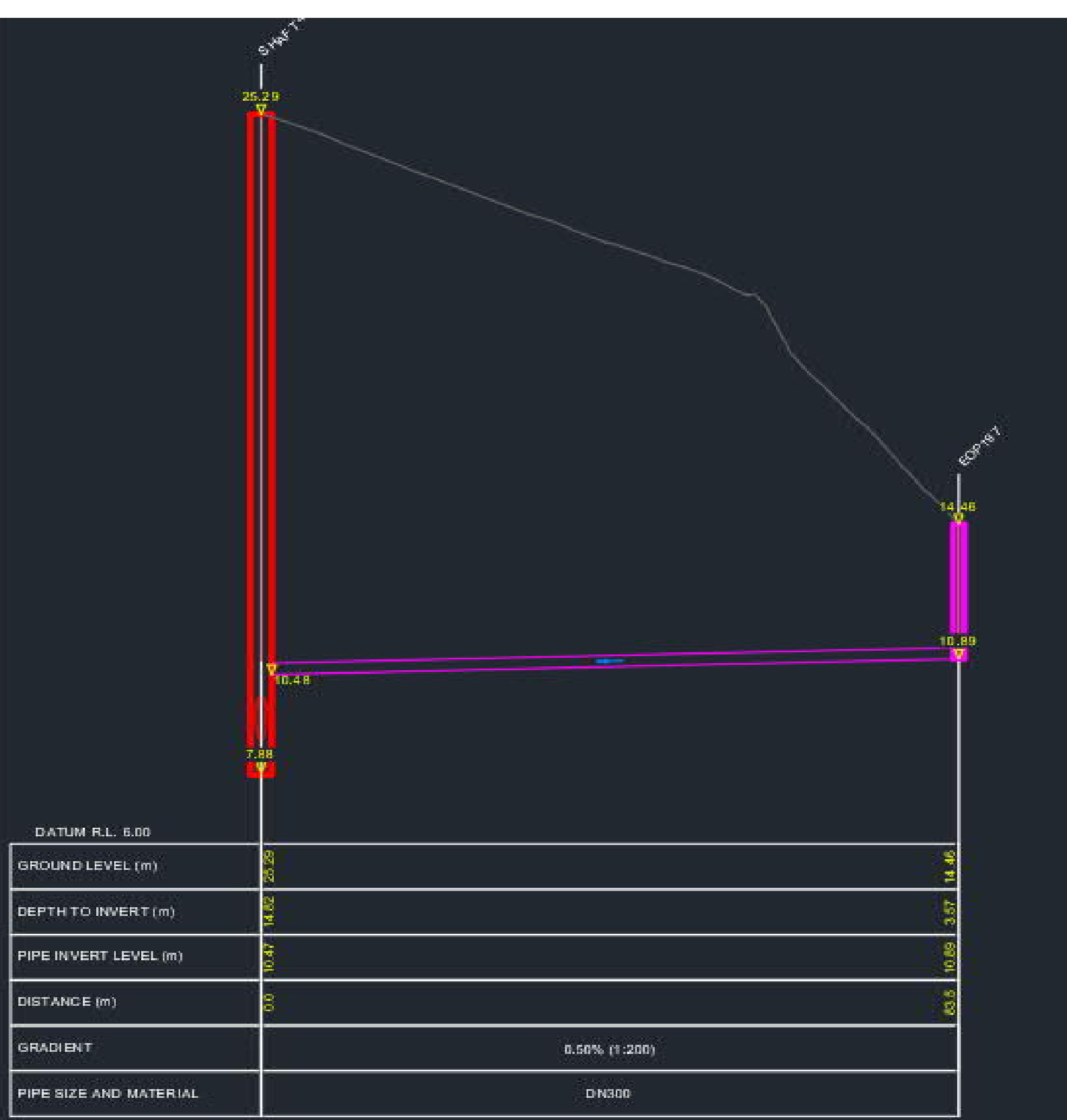
EOP199A - SHAFT 8



LONGITUDINAL PROFILE 0.0 m TO 3.3 m

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

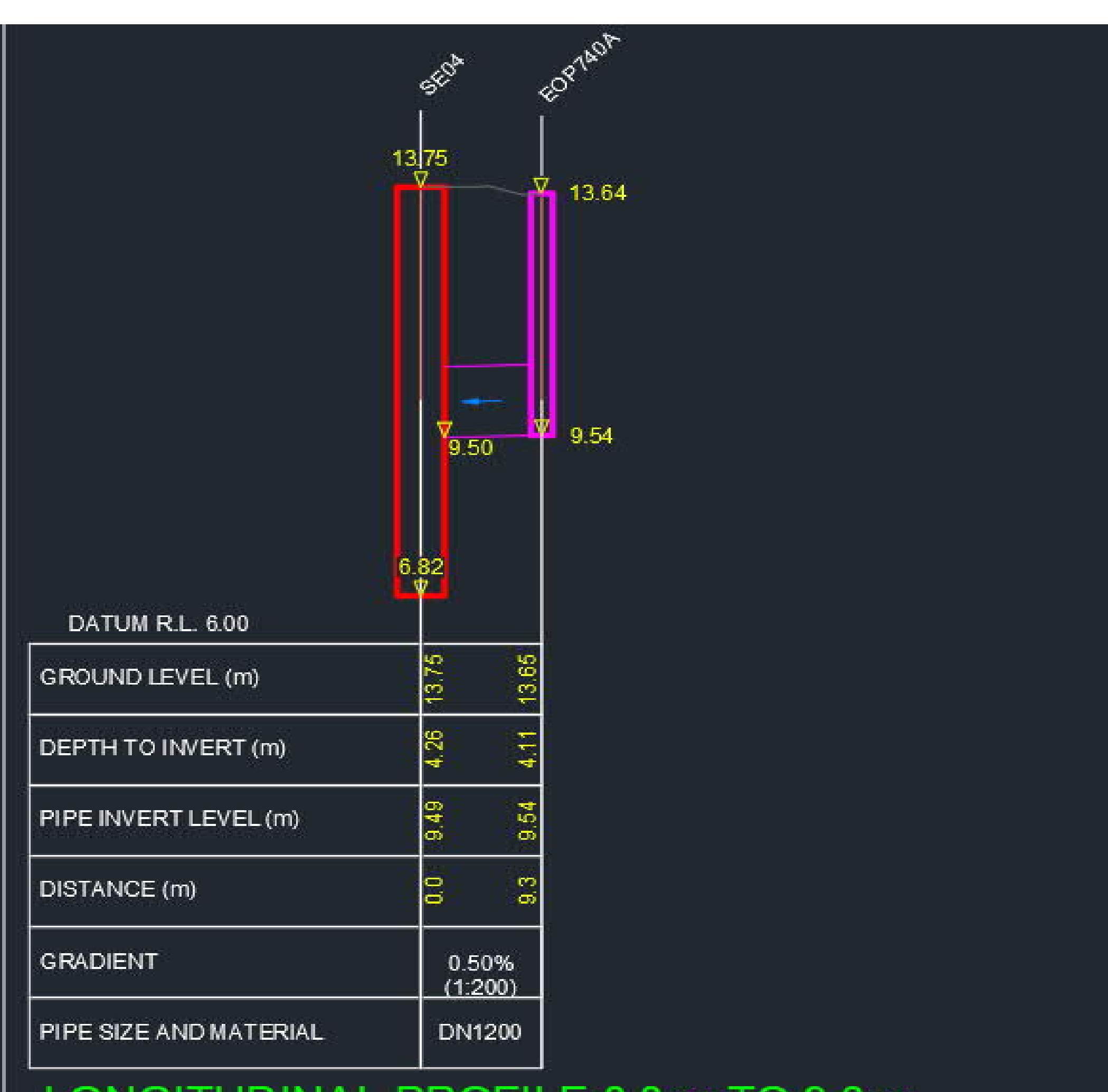
EOP198- SHAFT 7



LONGITUDINAL PROFILE 0.0 m TO 83.5 m

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

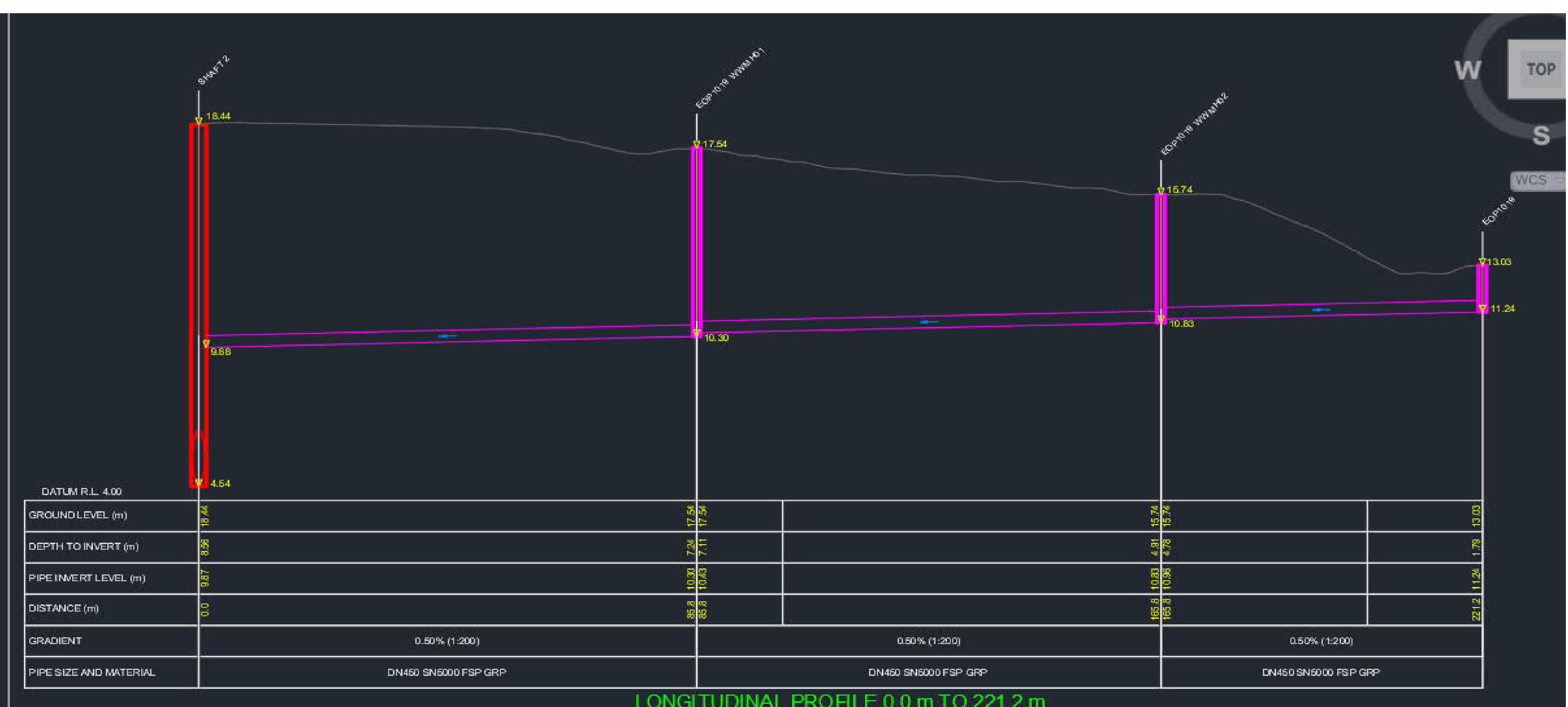
EOP197 - SHAFT 4



LONGITUDINAL PROFILE 0.0 m TO 9.3 m

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

EOP740A - SE04



LONGITUDINAL PROFILE 0.0 m TO 221.2 m

HORIZONTAL SCALE 1:500 @ A1
VERTICAL SCALE 1:100 @ A1

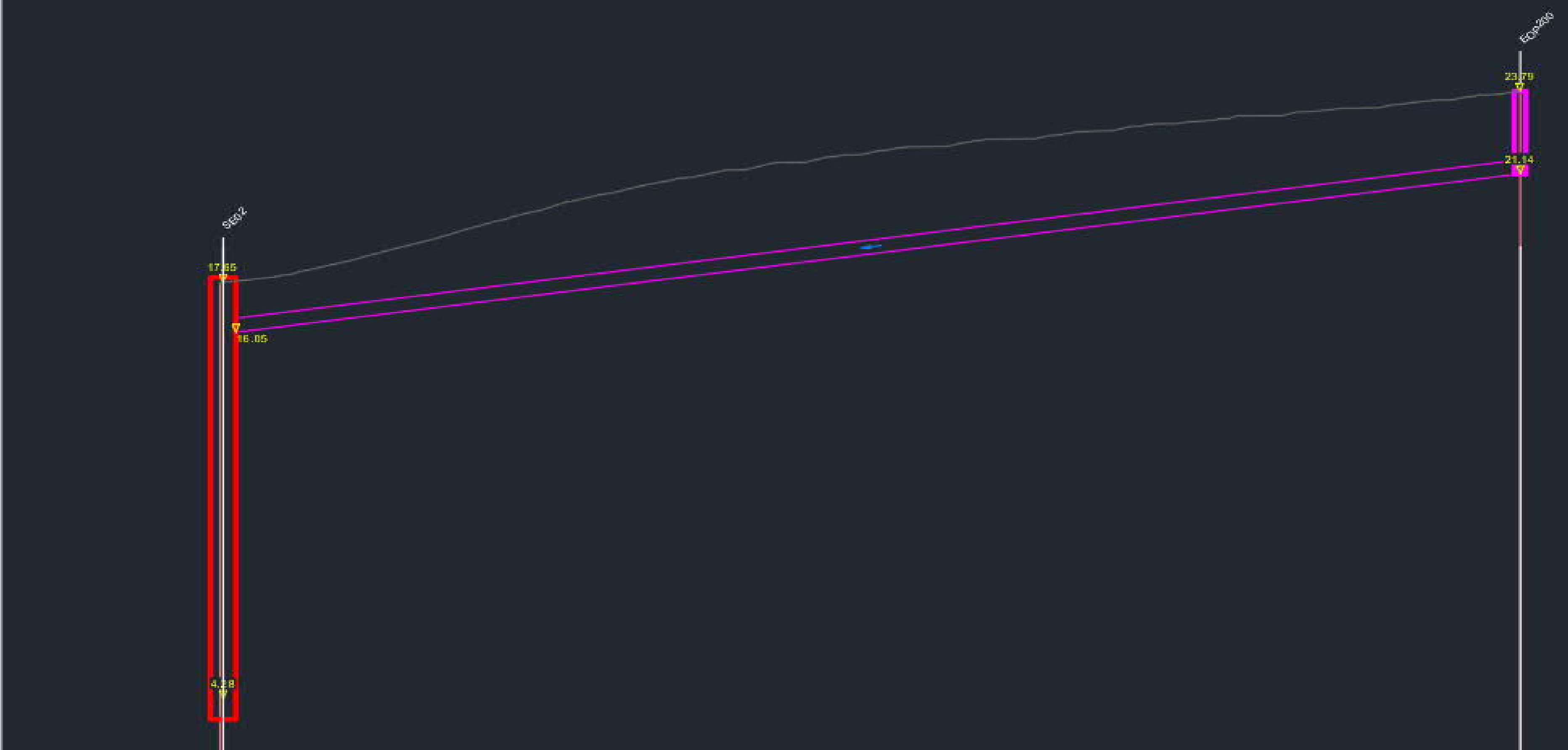
EOP1019 - SHAFT 2



DATUM R.L. 4.00	
GROUND LEVEL (m)	13.05
DEPTH TO INVERT (m)	4.40
PIPE INVERT LEVEL (m)	8.66
DISTANCE (m)	0.0
GRADIENT	0.50% (1:200)
PIPE SIZE AND MATERIAL	DN1200

LONGITUDINAL PROFILE 0.0 m TO 7.4 m
 HORIZONTAL SCALE 1:500 @ A1
 VERTICAL SCALE 1:100 @ A1

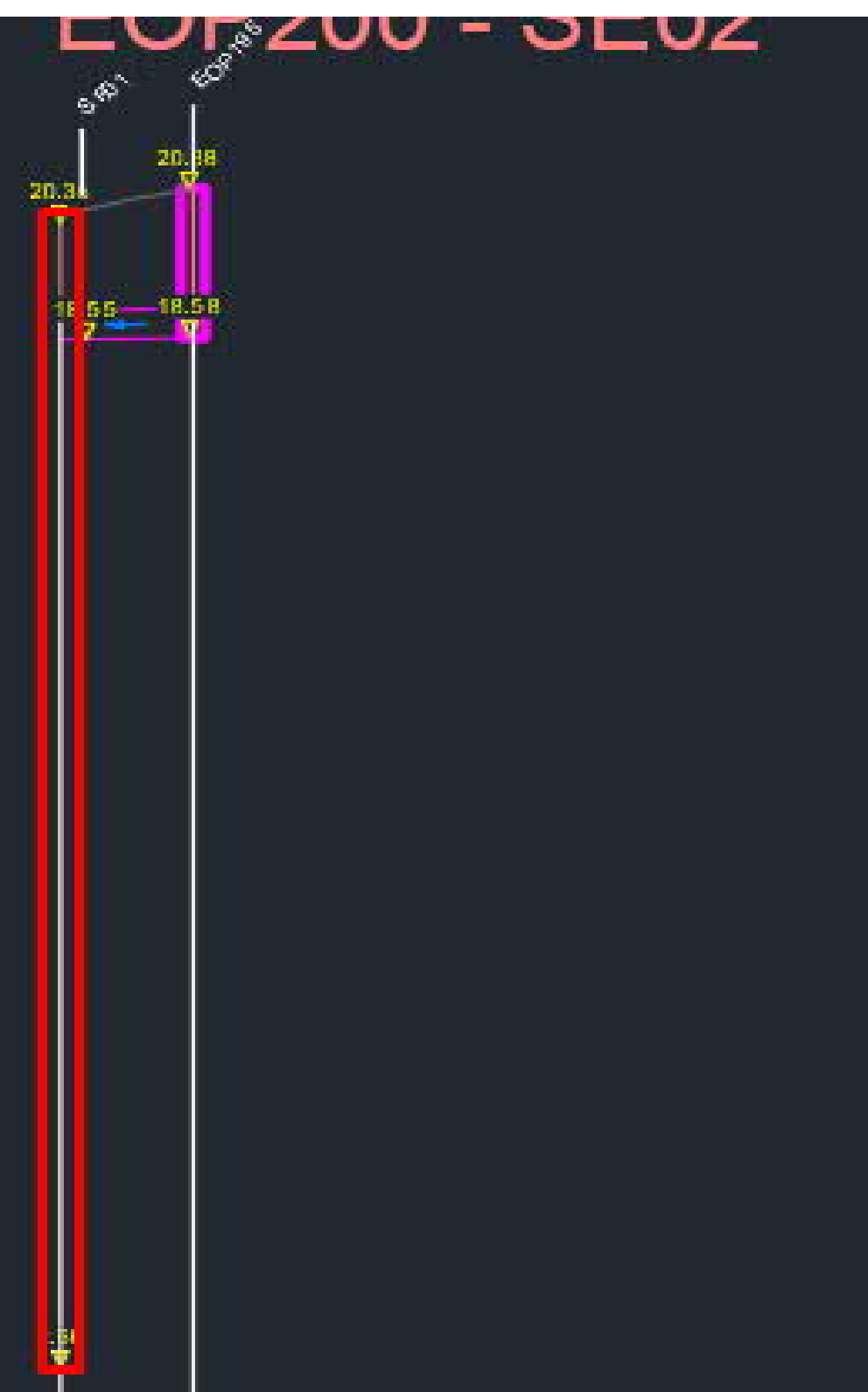
EOP201 - SE03



DATUM R.L. 2.00	
GROUND LEVEL (m)	17.85
DEPTH TO INVERT (m)	1.00
PIPE INVERT LEVEL (m)	16.85
DISTANCE (m)	0.0
GRADIENT	2.74% (1:37)
PIPE SIZE AND MATERIAL	DN450

LONGITUDINAL PROFILE 0.0 m TO 188.4 m
 HORIZONTAL SCALE 1:500 @ A1

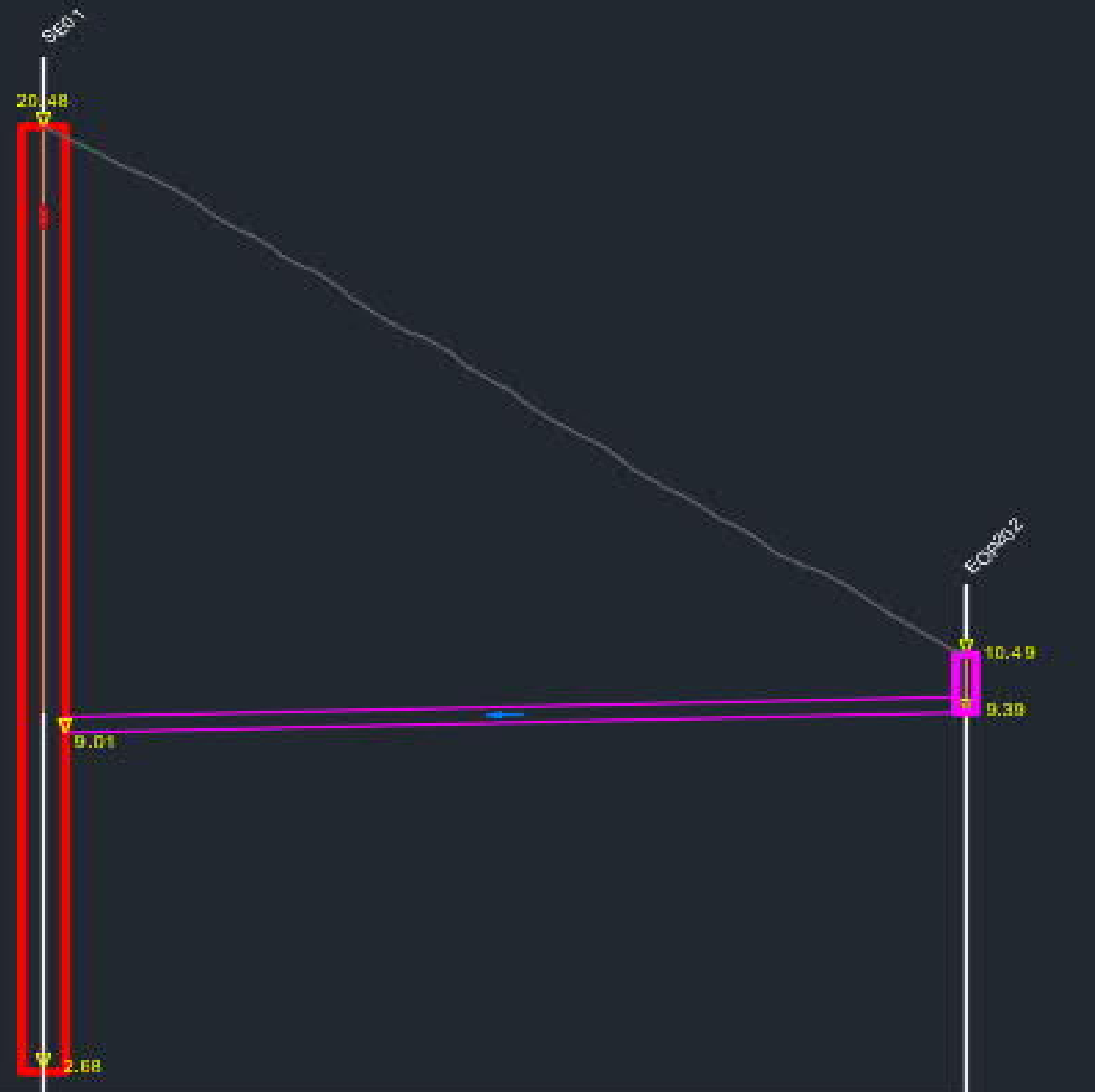
EOP200 - SE02



DATUM R.L. 2.00	
GROUND LEVEL (m)	20.48
DEPTH TO INVERT (m)	1.83
PIPE INVERT LEVEL (m)	18.35
DISTANCE (m)	0.0
GRADIENT	0.35% (1:288)
PIPE SIZE AND MATERIAL	DN450

LONGITUDINAL PROFILE 0.0 m TO 9.3 m
 HORIZONTAL SCALE 1:500 @ A1
 VERTICAL SCALE 1:100 @ A1

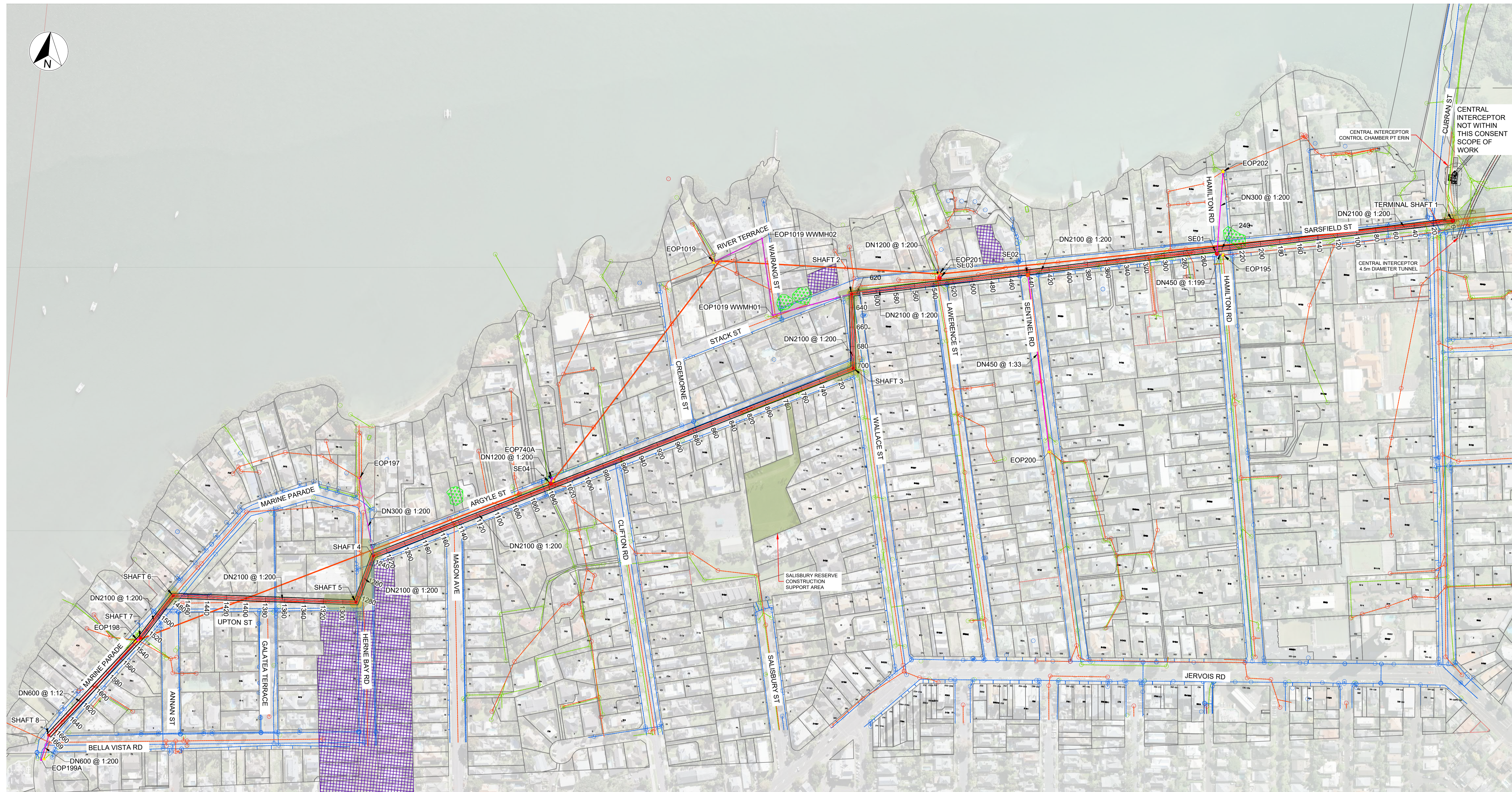
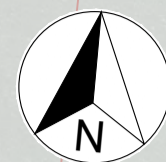
EOP195 - SE01



DATUM R.L. 2.00	
GROUND LEVEL (m)	20.68
DEPTH TO INVERT (m)	11.47
PIPE INVERT LEVEL (m)	9.01
DISTANCE (m)	0.0
GRADIENT	0.50% (1:200)
PIPE SIZE AND MATERIAL	DN300

LONGITUDINAL PROFILE 0.0 m TO 78.5 m
 HORIZONTAL SCALE 1:500 @ A1
 VERTICAL SCALE 1:100 @ A1

EOP202 - SE01



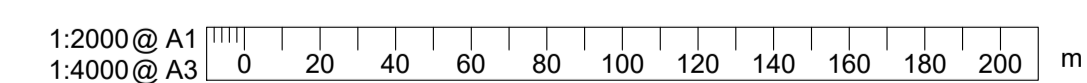
PLAN
SCALE 1:2000 @ A1

NOTES:

1. REFER TO SHEET W-SL007.002 FOR PROPOSED TRUNK SEWER LONG SECTION
2. COORDINATES ARE IN TERMS OF NEW ZEALAND TRANSVERSE MERCATOR 2000 CIRCUIT.
3. LEVELS ARE IN TERMS OF METRES AUCKLAND 1946 LOCAL VERTICAL DATUM.
4. DIMENSIONS / DISTANCE ARE IN METRES UNLESS STATED OTHERWISE.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL EXISTING SERVICES PRIOR TO CONSTRUCTION.
6. DESIGN AT CONCEPT STAGE AND SUBJECT TO CHANGE THROUGH DESIGN PROCESS.
7. NO SURVEY OF THE EXISTING UTILITIES AND FEATURES HAVE BEEN CARRIED OUT.
8. TUNNEL ALIGNMENT SHOWN WITH 2.5m WIDE CORRIDOR EITHER SIDE OF PROPOSED ALIGNMENT.

KEY:

- PARCEL BOUNDARY
- EXISTING WATER SUPPLY
- EXISTING LOCAL SEWER
- EXISTING TRANSMISSION SEWER
- EXISTING STORMWATER
- EXISTING GROUND PROFILE
- EXISTING EOP
- PROPOSED LOCAL SEWER
- PROPOSED TUNNEL SEWER
- PROPOSED SEWER MANHOLE
- PROPOSED SHAFT
- PROPOSED HERITAGE BUILDING
- PROPOSED NOTABLE TREE
- TUNNEL 2.5m WIDE CORRIDOR
- PROPOSED CONSTRUCTION AREA



ISSUE	DATE	AMENDMENT	BY	APPD.	DATE
1	16.02.23	DRAFT ISSUED FOR CONSENT APPLICATION	GI	MK	

DESIGNED	G.I.P	02-23
DES. APPROVED	C.STOKES	02-23
DRAWN	G.I.P	02-23
DWG. APPROVED	M.KUDOIC	02-23
WSL DESIGN MGMT	B.DEVILLIERS	-
WSL PROJ. LEAD	-	-

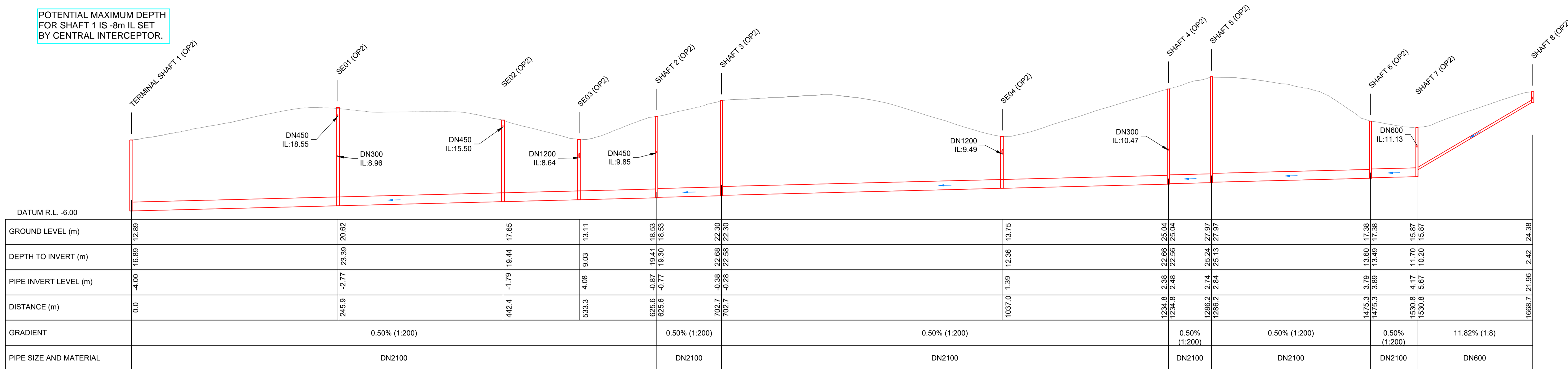
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HERNE BAY TRUNK SEWER UPGRADE
MARINE PARADE TO PT ERIN
PROJECT OVERVIEW - PLAN

DRAFT

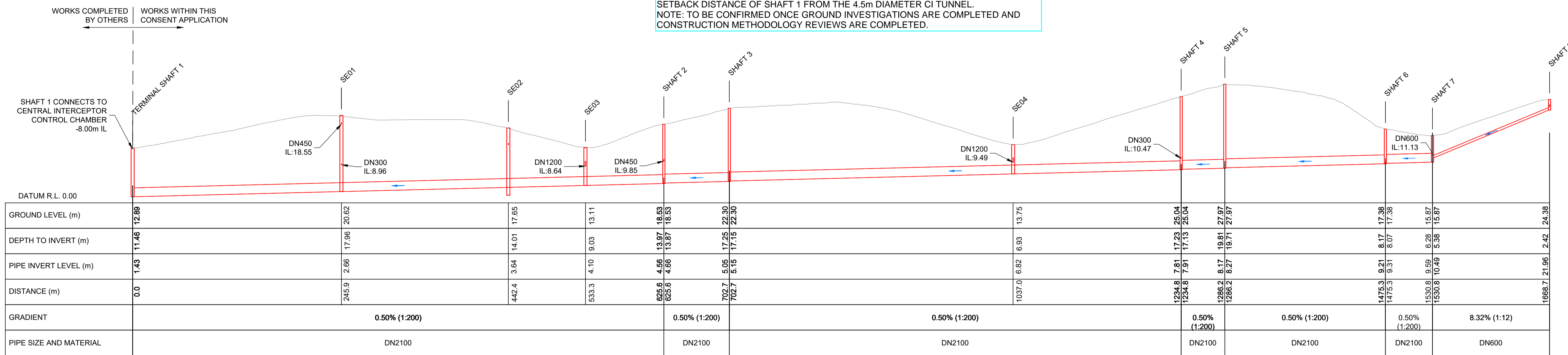
CAD FILE	W-SL007.001	DATE	16-02-2023
ORIGINAL SCALE	A1	CONTRACT No.	1
REF. No.	W-SL007.01		
DWG. No.	W-SL007.001	ISSUE	1

POTENTIAL MAXIMUM DEPTH FOR SHAFT 1 IS -8m IL SET BY CENTRAL INTERCEPTOR.



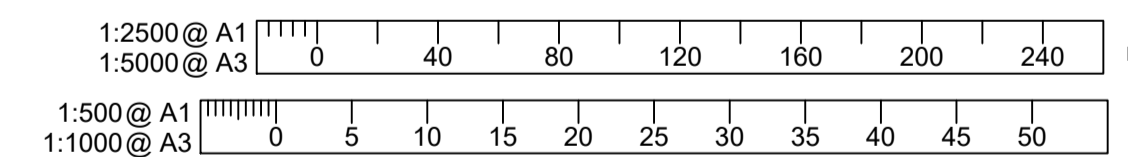
HERNE BAY SEWER TRUNK MAIN LONGITUDINAL SECTION OPTION 1

OPTION 1 IS ASSUMED TO BE THE PROBABLE DEPTH OF HERNE BAY TRUNK SEWER BASED ON SET LEVELS FROM CENTRAL INTERCEPTOR TUNNELS AND VERTICAL SETBACK DISTANCE OF SHAFT 1 FROM THE 4.5m DIAMETER CI TUNNEL.
NOTE: TO BE CONFIRMED ONCE GROUND INVESTIGATIONS ARE COMPLETED AND CONSTRUCTION METHODOLOGY REVIEWS ARE COMPLETED.



HERNE BAY SEWER TRUNK MAIN LONGITUDINAL SECTION OPTION 2

SCALE 1:2500H 1:500V @ A1



NOTES:

- REFER TO SHEET W-SL007.002 FOR PROPOSED TRUNK SEWER LONG SECTION
- COORDINATES ARE IN TERMS OF NEW ZEALAND TRANSVERSE MERCATOR 2000 CIRCUIT.
- LEVELS ARE IN TERMS OF METRES AUCKLAND 1946 LOCAL VERTICAL DATUM.
- DIMENSIONS / DISTANCE ARE IN METRES UNLESS STATED OTHERWISE.
- IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL EXISTING SERVICES PRIOR TO CONSTRUCTION.
- DESIGN AT CONCEPT STAGE AND SUBJECT TO CHANGE THROUGH DESIGN PROCESS.
- NO SURVEY OF THE EXISTING UTILITIES AND FEATURES HAVE BEEN CARRIED OUT.
- TUNNEL ALIGNMENT SHOWN WITH 2.5m WIDE CORRIDOR EITHER SIDE OF PROPOSED ALIGNMENT

OPTION 2 IS ASSUMED TO BE THE MINIMUM DEPTH OF HERNE BAY TRUNK SEWER BASED ON HYDRAULIC REQUIREMENTS TO CAPTURE EOP FLOWS.
NOTE: TO BE CONFIRMED ONCE GROUND INVESTIGATIONS AND SURVEY ARE COMPLETED AND CONSTRUCTION METHODOLOGY REVIEWS ARE COMPLETED.

ISSUE	DATE	AMENDMENT	BY	APPD.	DESIGNED	G.I.P	DATE
					DES. APPROVED	C.STOKES	02-23
					DRAWN	G.I.P	02-23
					DWG. APPROVED	M.KUDOIC	02-23
					WSL DESIGN MGMT	B.DEVILLIERS	-
					WSL PROJ. LEAD	-	-
1	16.02.23	DRAFT ISSUED FOR CONSENT APPLICATION	GI	MK			

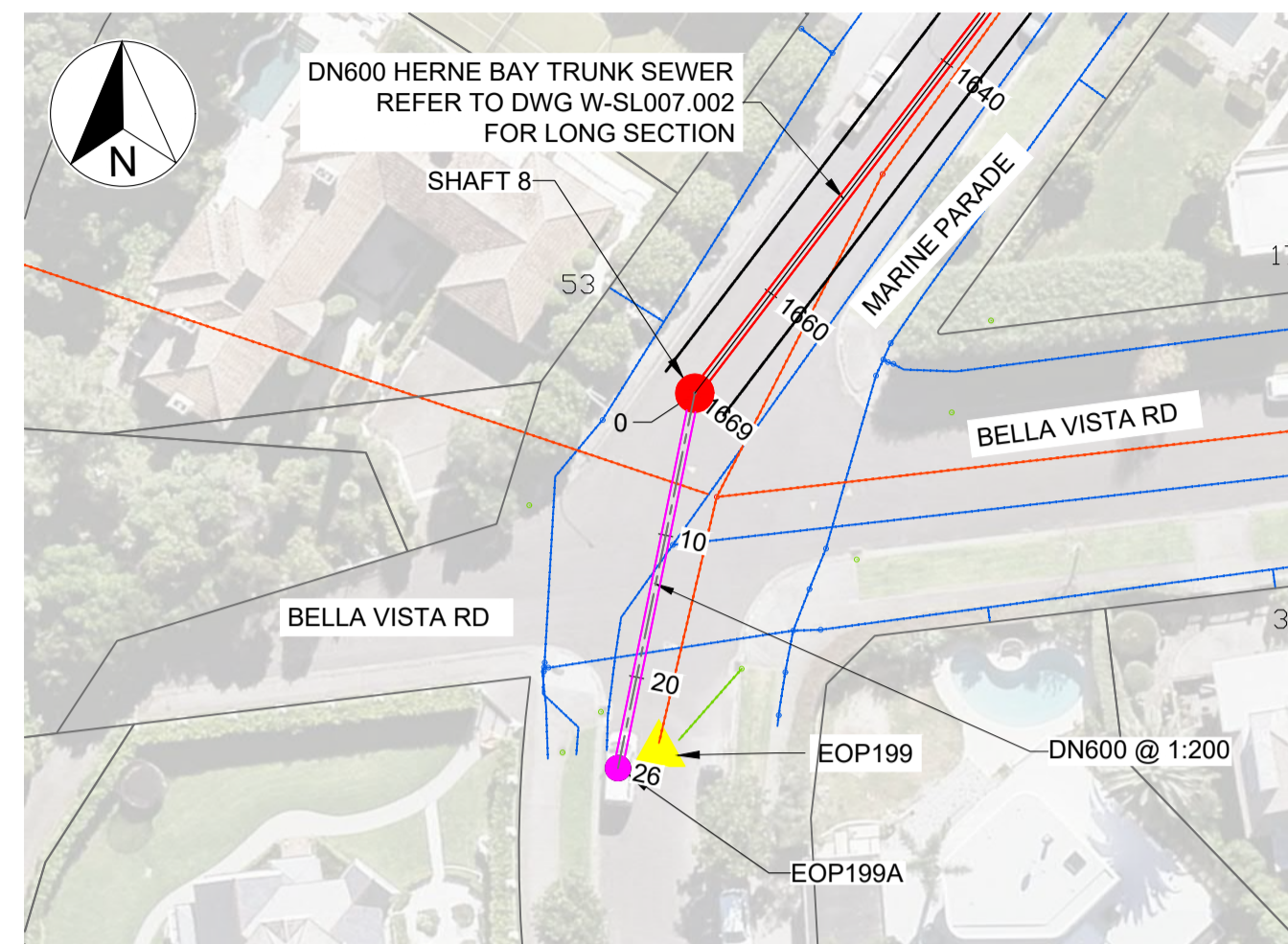


HERNE BAY TRUNK SEWER UPGRADE
MARINE PARADE TO PT ERIN
LONGITUDINAL SECTION - TRUNK SEWER

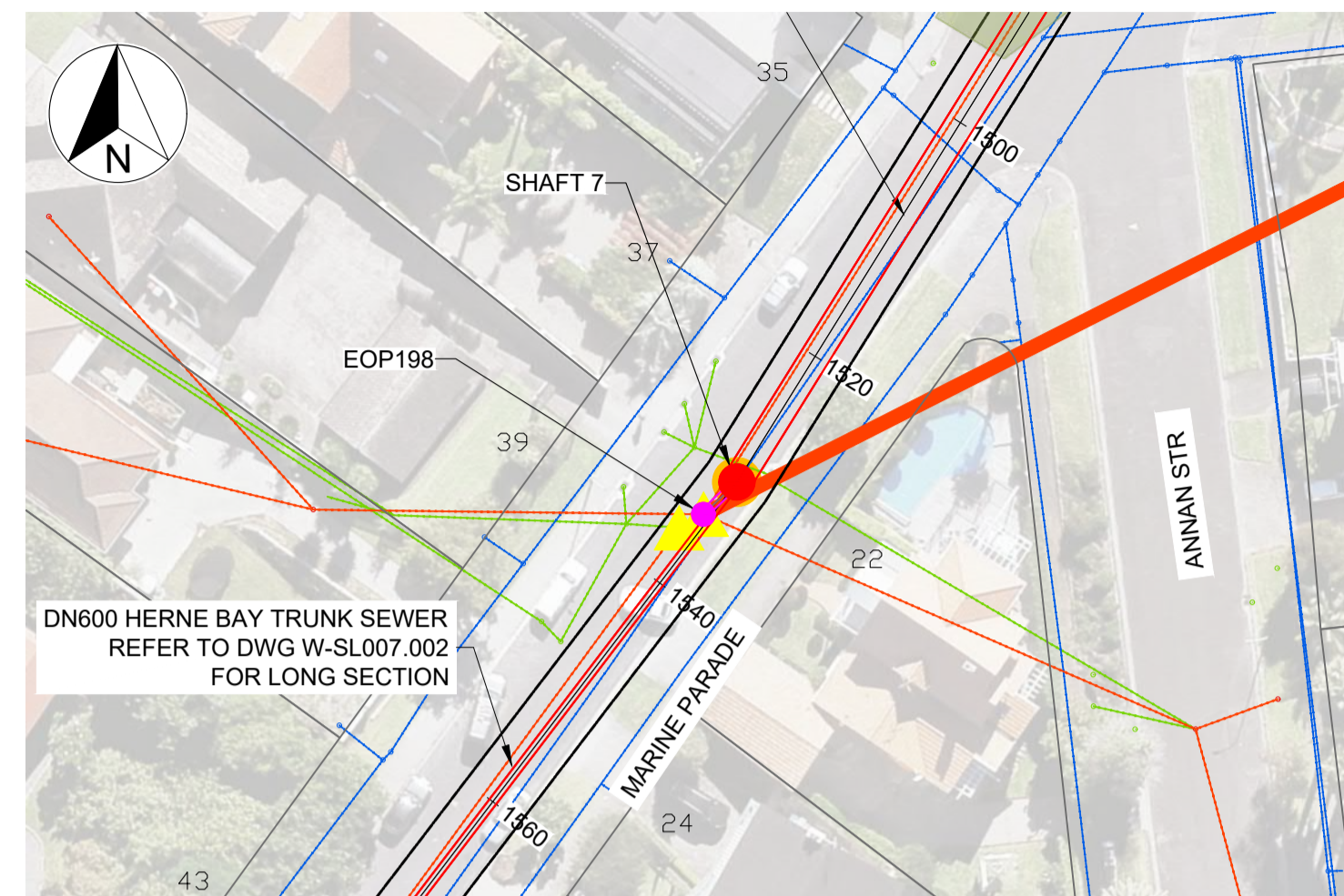
DRAFT

CAD FILE	W-SL007.002	DATE	16-02-023
ORIGINAL SCALE	A1 1:2000	CONTRACT No.	1
REF. No.	W-SL007.01		
DWG. No.	W-SL007.002	ISSUE	1

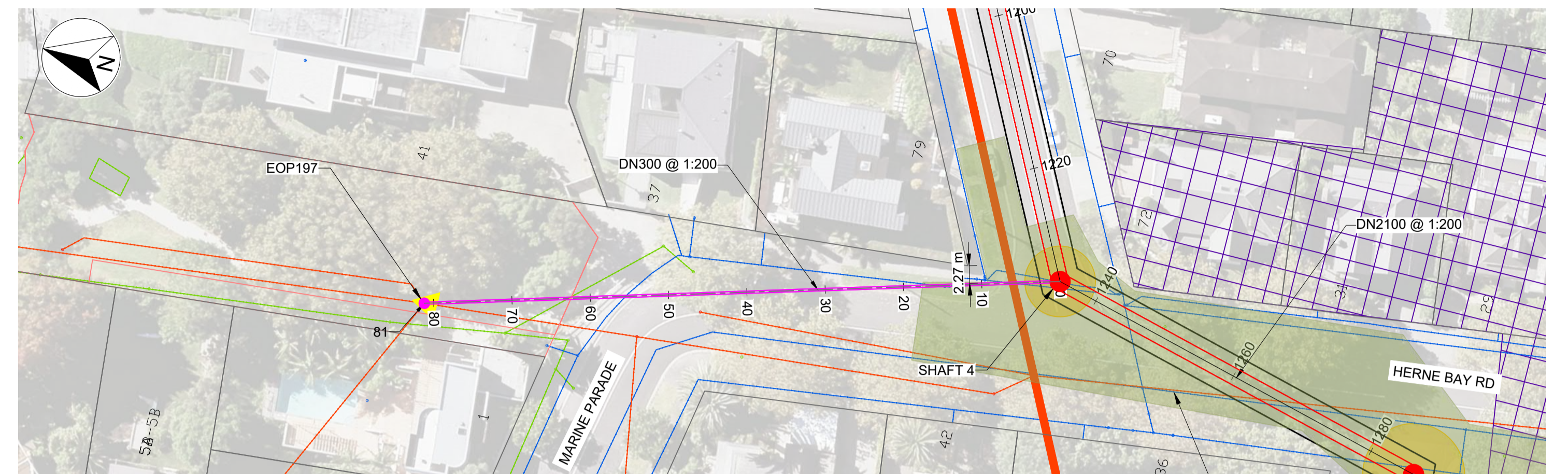
PIPE SIZE OF EOP CONNECTIONS ARE TBC.
EOP LONG SECTIONS ARE IN RELATION TO OPTION 2 (MINIMUM DEPTH)



PLAN - EOP 199 - SHAFT 8
SCALE 1:500 @ A1

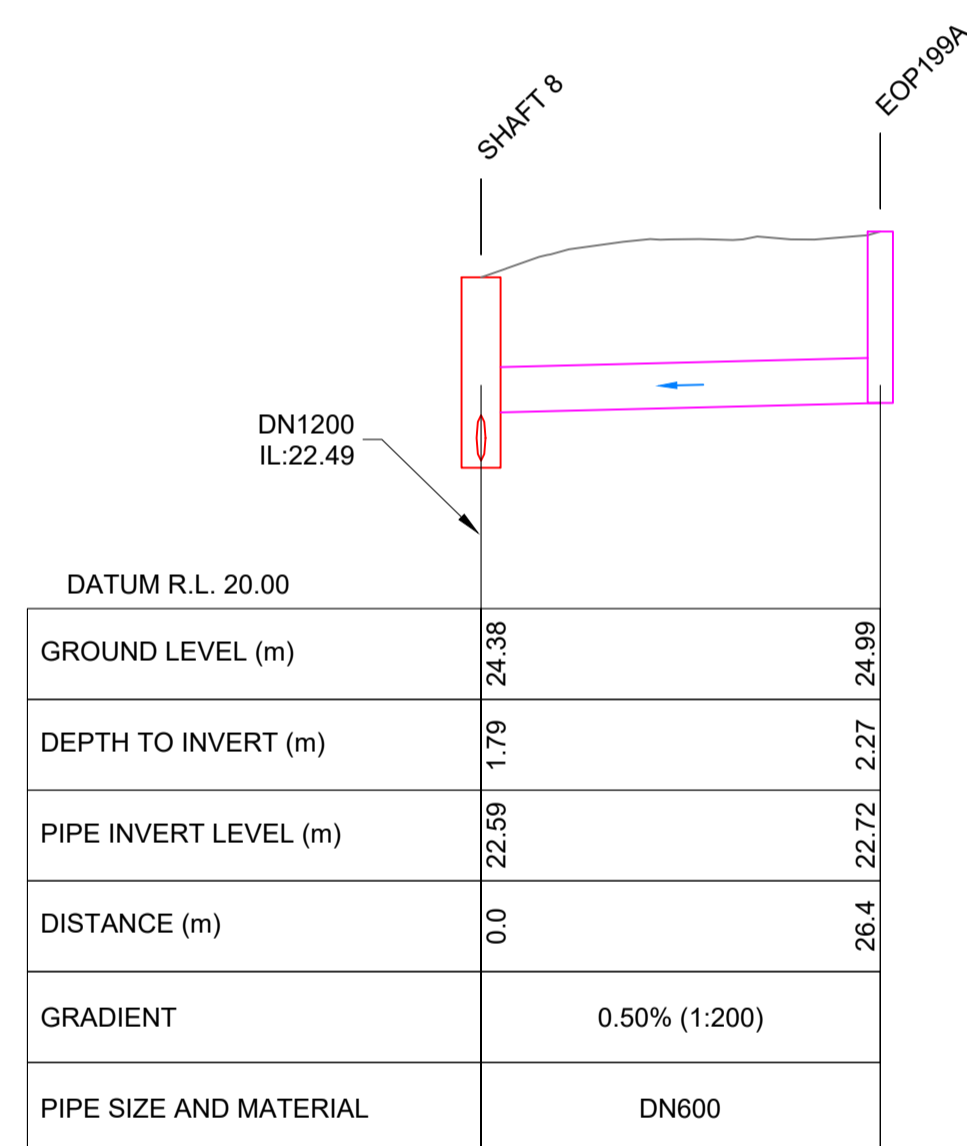


PLAN - EOP 198 - SHAFT 7
SCALE 1:500 @ A1

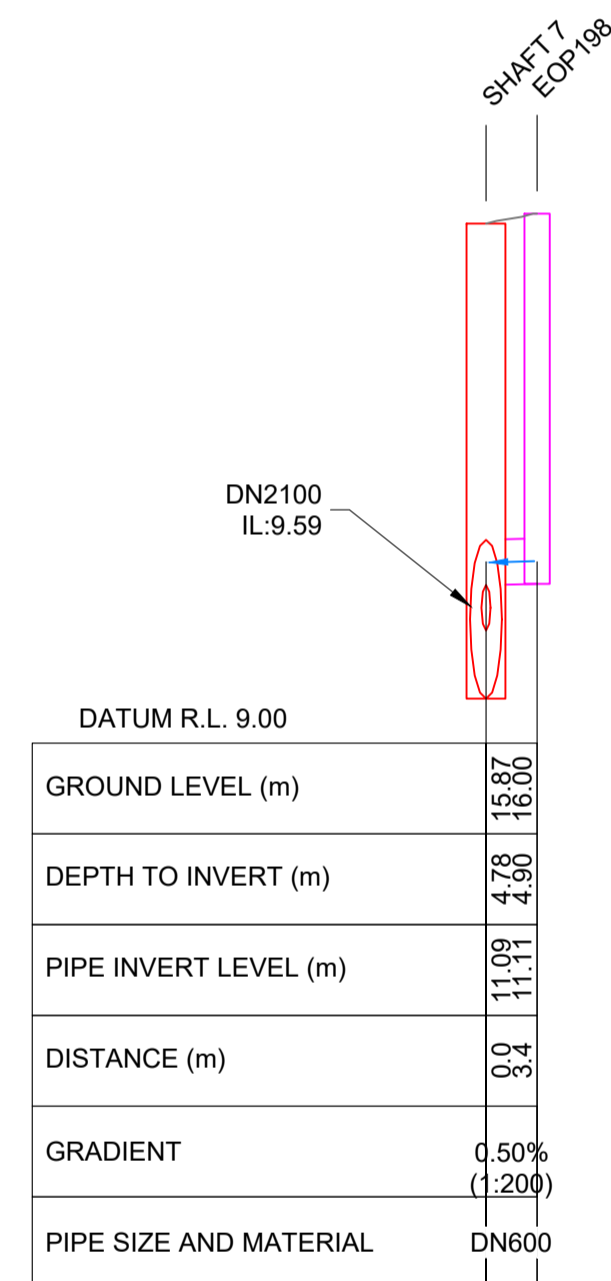


PLAN - EOP 197 - SHAFT 4

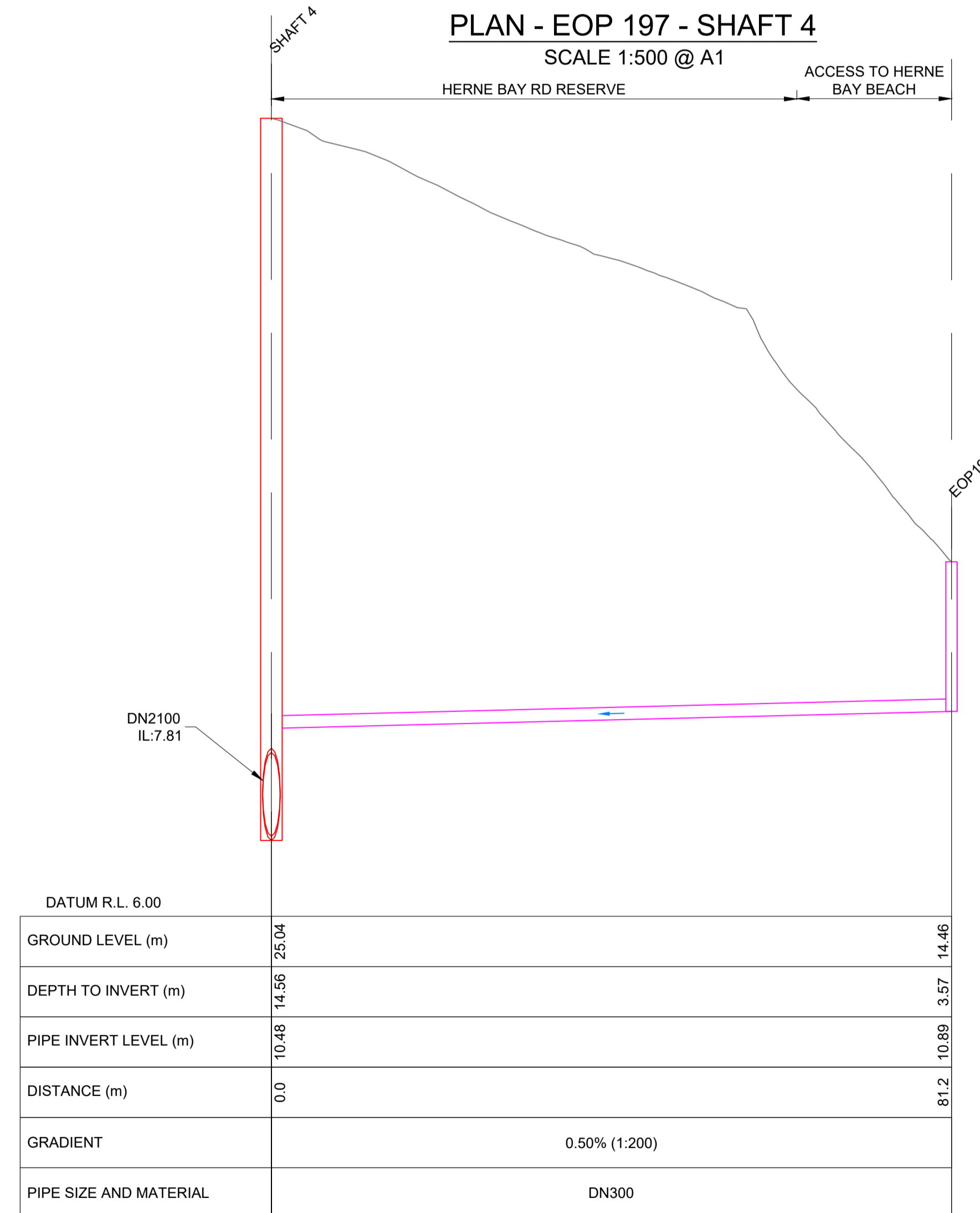
SCALE 1:500 @ A1



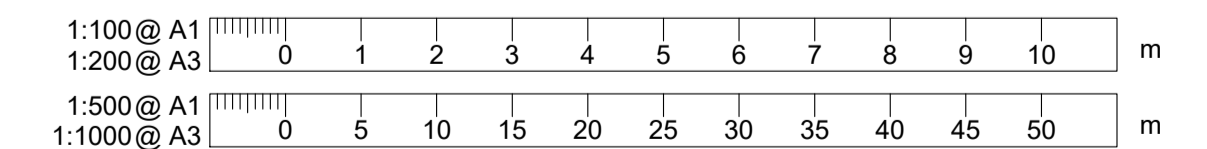
LONGITUDINAL SECTION
EOP 199 - SHAFT 8
SCALE 1:500H 1:100V @ A1



LONGITUDINAL SECTION
EOP 198 - SHAFT 7
SCALE 1:500H 1:100V @ A1



LONGITUDINAL SECTION
EOP 197 - SHAFT 4
SCALE 1:500H 1:100V @ A1



- NOTES:
- REFER TO SHEET W-SL007.002 FOR PROPOSED TRUNK SEWER LONG SECTION
 - COORDINATES ARE IN TERMS OF NEW ZEALAND TRANSVERSE MERCATOR 2000 CIRCUIT.
 - LEVELS ARE IN TERMS OF METRES AUCKLAND 1946 LOCAL VERTICAL DATUM.
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 - NO SURVEY OF THE EXISTING UTILITIES AND FEATURES HAVE BEEN CARRIED OUT.
 - TUNNEL ALIGNMENT SHOWN WITH 2.5m WIDE CORRIDOR EITHER SIDE OF PROPOSED ALIGNMENT.

KEY:

PARCEL BOUNDARY	—
EXISTING WATER SUPPLY	— w —
EXISTING LOCAL SEWER	— WSL —
EXISTING TRANSMISSION SEWER	—
EXISTING STORMWATER	— SW —
EXISTING GROUND PROFILE	—
EXISTING EOP	▲
PROPOSED LOCAL SEWER	—
PROPOSED TUNNEL SEWER	—
PROPOSED SEWER MANHOLE	●
PROPOSED SHAFT	○
PROPOSED HERITAGE BUILDING	▨
PROPOSED NOTABLE TREE	▨
TUNNEL 2.5m WIDE CORRIDOR	▨
PROPOSED CONSTRUCTION AREA	▨

ISSUE	DATE	AMENDMENT	BY	APPD.	DESIGNED	G.I.P.	DATE
1	16.02.23	DRAFT ISSUED FOR CONSENT APPLICATION	GI	MK	DES. APPROVED	C.STOKES	02-23
					DRAWN	G.I.P.	02-23
					DWG. APPROVED	M.KUDOIC	02-23
					WSL DESIGN MGMT	B.DEVILLIERS	-
					WSL PROJ. LEAD	-	-

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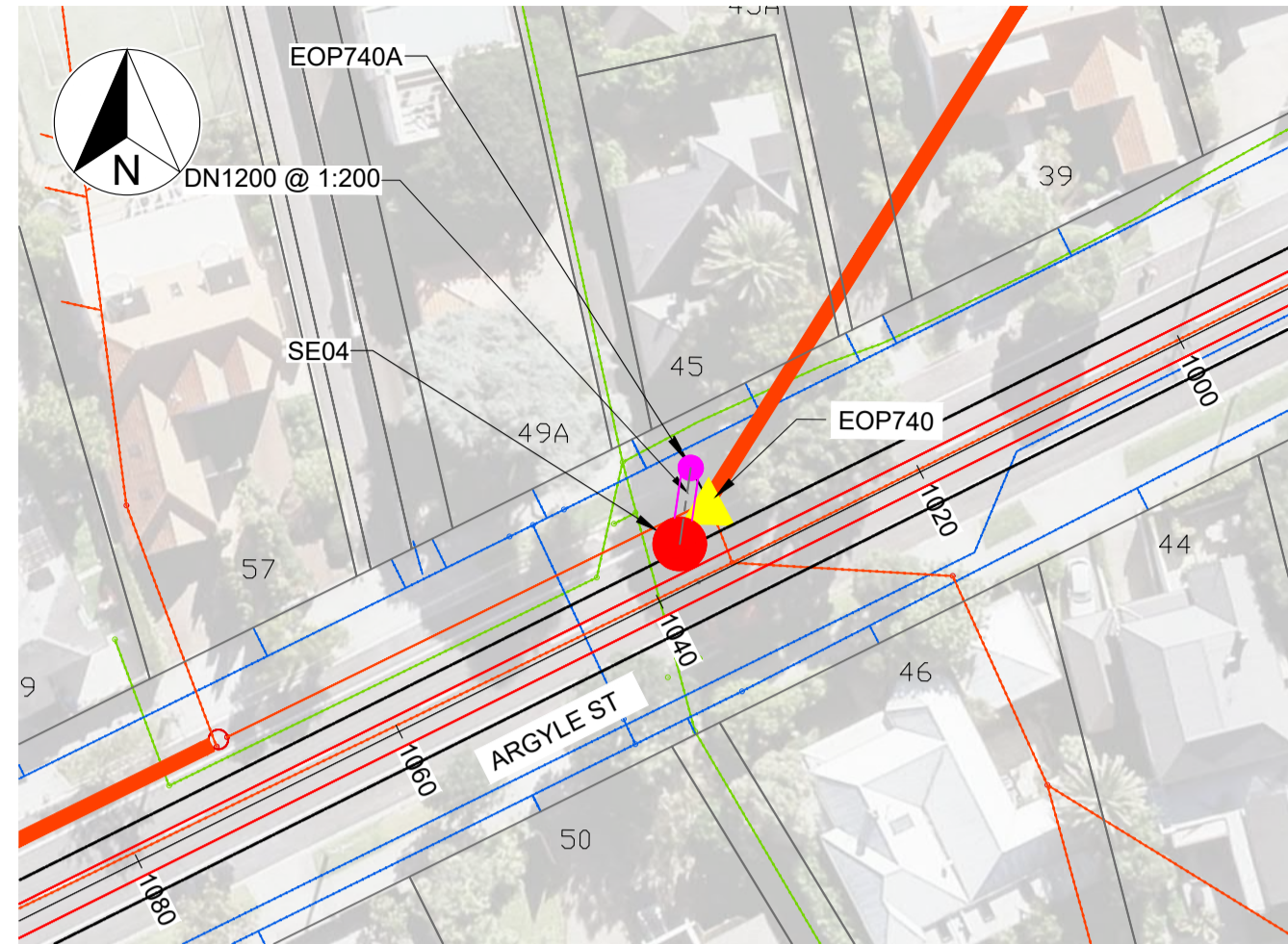
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HERNE BAY TRUNK SEWER UPGRADE
MARINE PARADE TO PT ERIN
LONGITUDINAL SECTIONS – LOCAL NETWORK SHEET 1

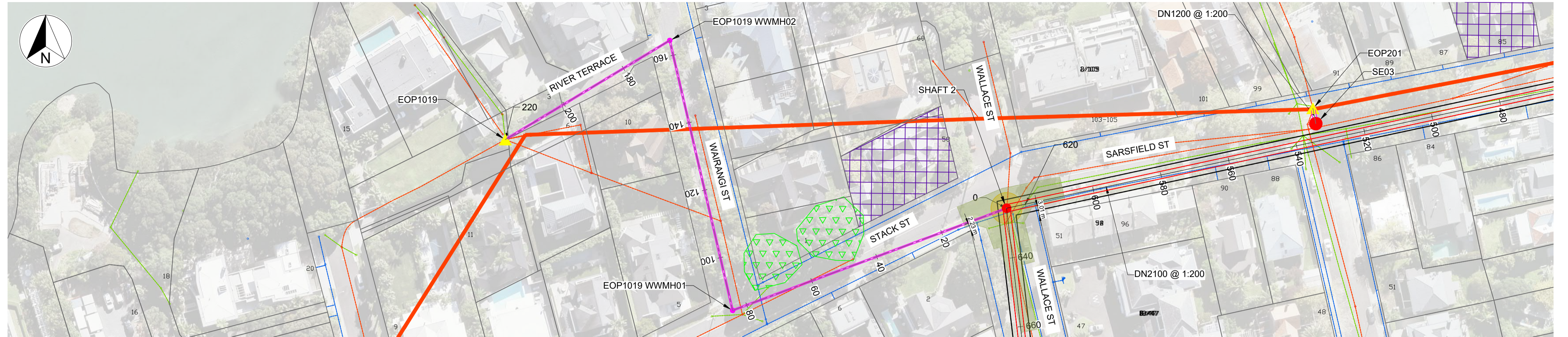
DRAFT

CAD FILE	W-SL007.003	DATE	16-02-2023
ORIGINAL SCALE	A1	CONTRACT No.	1
REF. No.	W-SL007.01		
DWG. No.	W-SL007.003	ISSUE	1

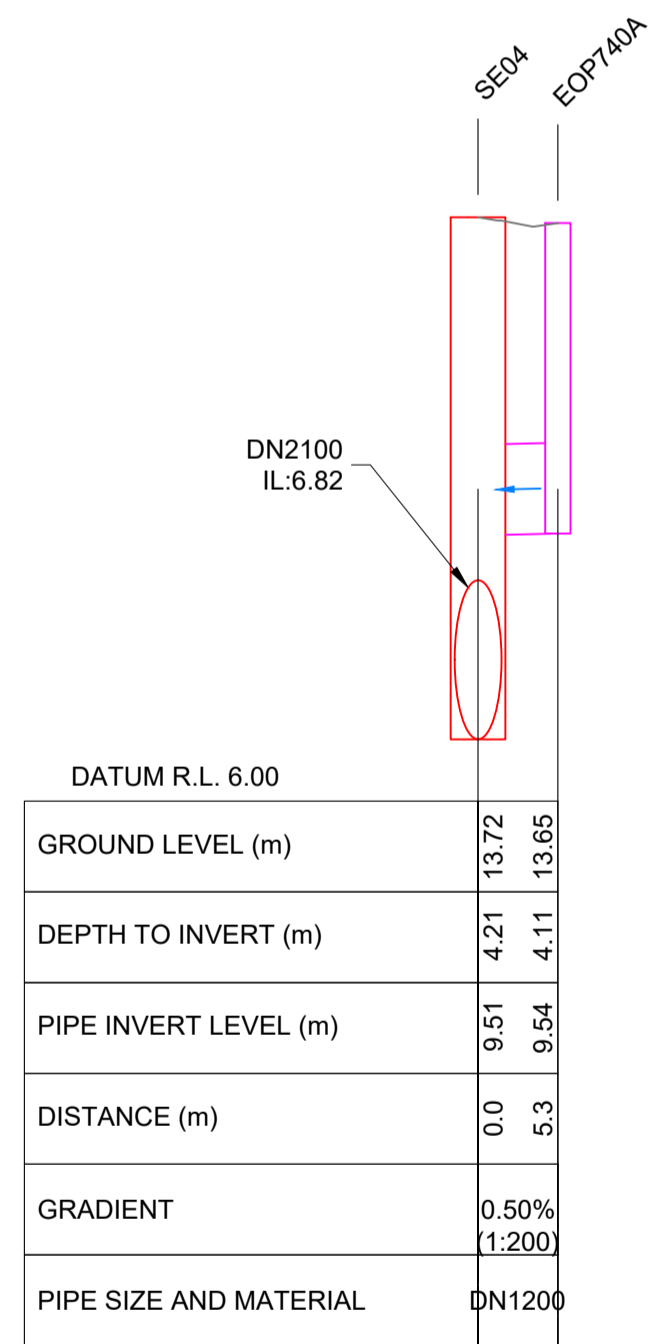
PIPE SIZE OF EOP CONNECTIONS ARE TBC.
EOP LONG SECTIONS ARE IN RELATION TO OPTION 2 (MINIMUM DEPTH)



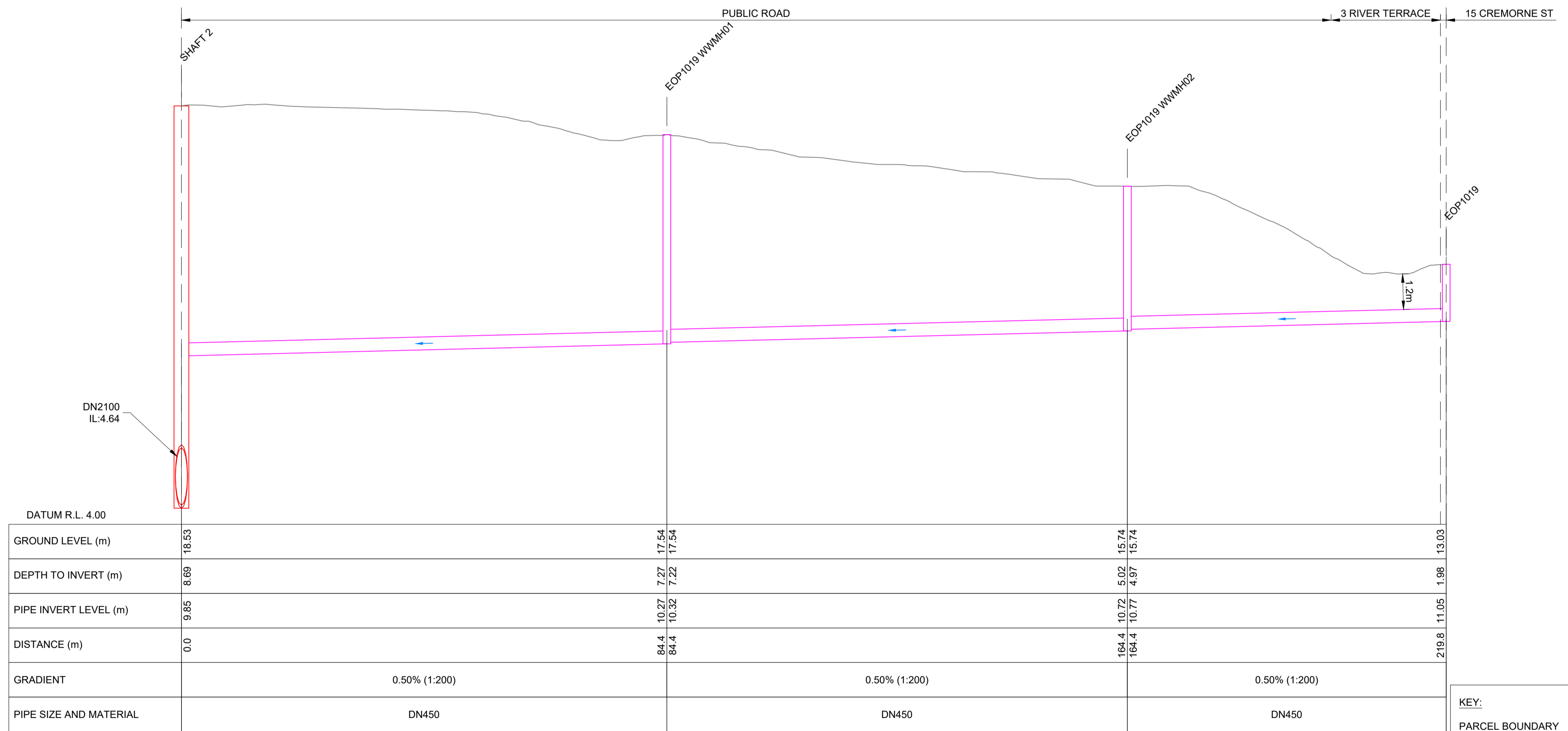
PLAN - EOP 740 - SE04
SCALE 1:500 @ A1



PLAN - EOP 1019 - SHAFT 2
SCALE 1:750 @ A1



LONGITUDINAL SECTION
EOP 740 - SE04
SCALE 1:500 1:100V @ A1

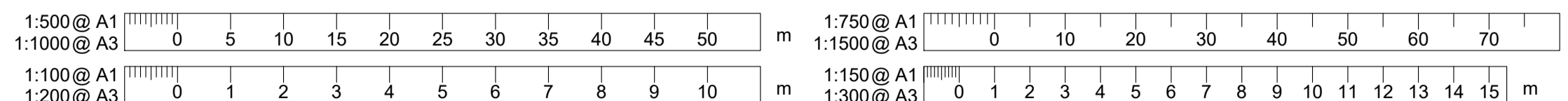


LONGSECTIONS SHOWN HERE ARE
FOR DESIGN OPTION 1 IN W-SL007.002

LONGITUDINAL SECTION
EOP 1019 - SHAFT 2
SCALE 1:500H 1:100V @ A1

NOTES:

- REFER TO SHEET W-SL007.002 FOR PROPOSED TRUNK SEWER LONG SECTION
- COORDINATES ARE IN TERMS OF NEW ZEALAND TRANSVERSE MERCATOR 2000 CIRCUIT.
- LEVELS ARE IN TERMS OF METRES AUCKLAND 1946 LOCAL VERTICAL DATUM.
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- TUNNEL ALIGNMENT SHOWN WITH 2.5m WIDE CORRIDOR EITHER SIDE OF PROPOSED ALIGNMENT.



- KEY:
- PARCEL BOUNDARY
 - EXISTING WATER SUPPLY
 - EXISTING LOCAL SEWER
 - EXISTING TRANSMISSION SEWER
 - EXISTING STORMWATER
 - EXISTING GROUND PROFILE
 - EXISTING EOP
 - PROPOSED LOCAL SEWER
 - PROPOSED TUNNEL MANHOLE
 - PROPOSED SEWER MANHOLE
 - PROPOSED SHAFT
 - PROPOSED HERITAGE BUILDING
 - PROPOSED NOTABLE TREE
 - TUNNEL 2.5m WIDE CORRIDOR
 - PROPOSED CONSTRUCTION AREA

ISSUE	DATE	AMENDMENT	BY	APPD.	DATE
1	16.02.23	DRAFT ISSUED FOR CONSENT APPLICATION	GI	MK	

DESIGNED	G.I.P	02-23
DES. APPROVED	C.STOKES	02-23
DRAWN	G.I.P	02-23
DWG. APPROVED	M.KUDOIC	02-23
WSL DESIGN MGMT	B.DEVILLIERS	-
WSL PROJ. LEAD	-	-

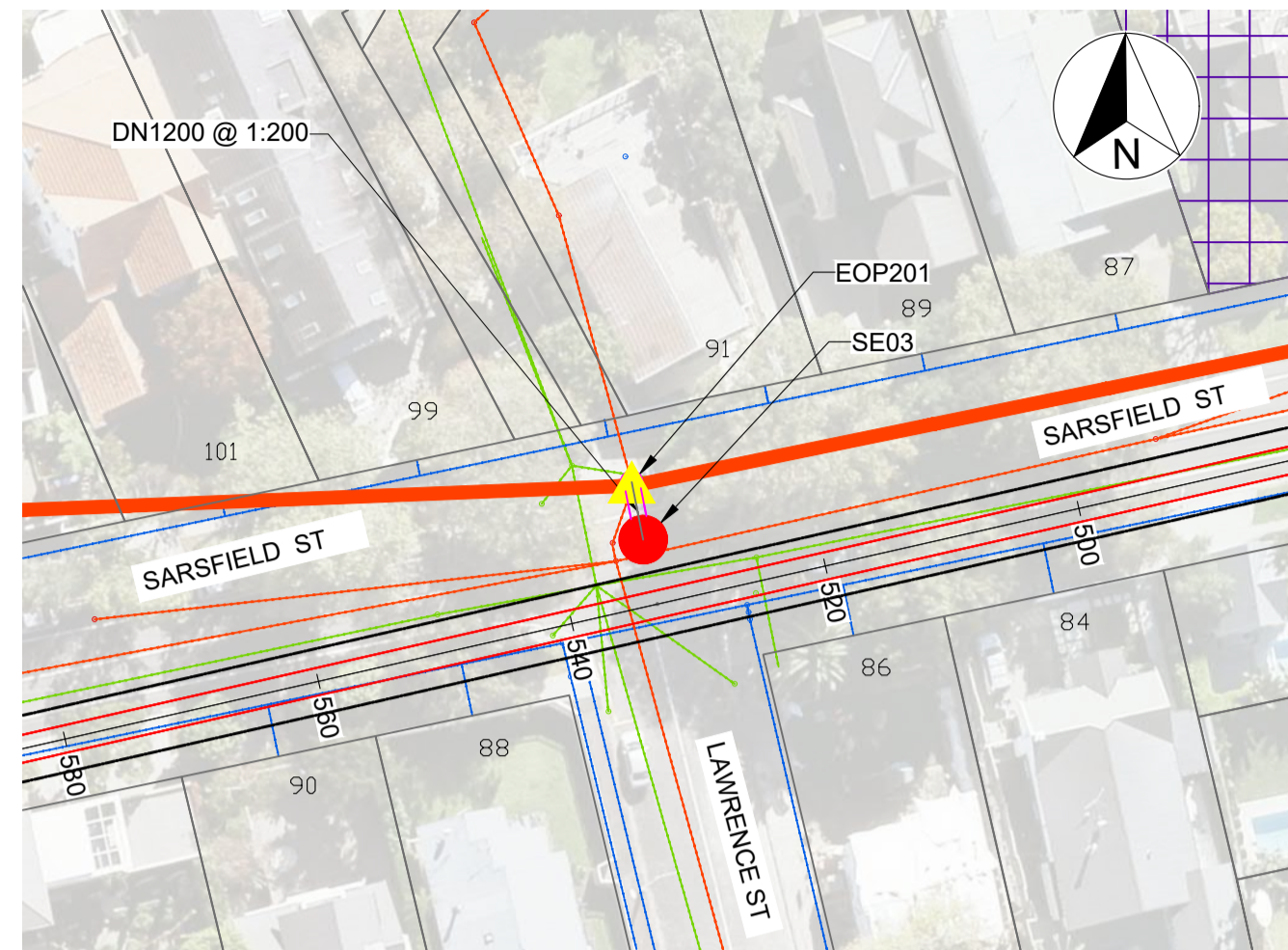
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HERNE BAY TRUNK SEWER UPGRADE
MARINE PARADE TO PT ERIN
LONGITUDINAL SECTIONS - LOCAL NETWORK SHEET 2

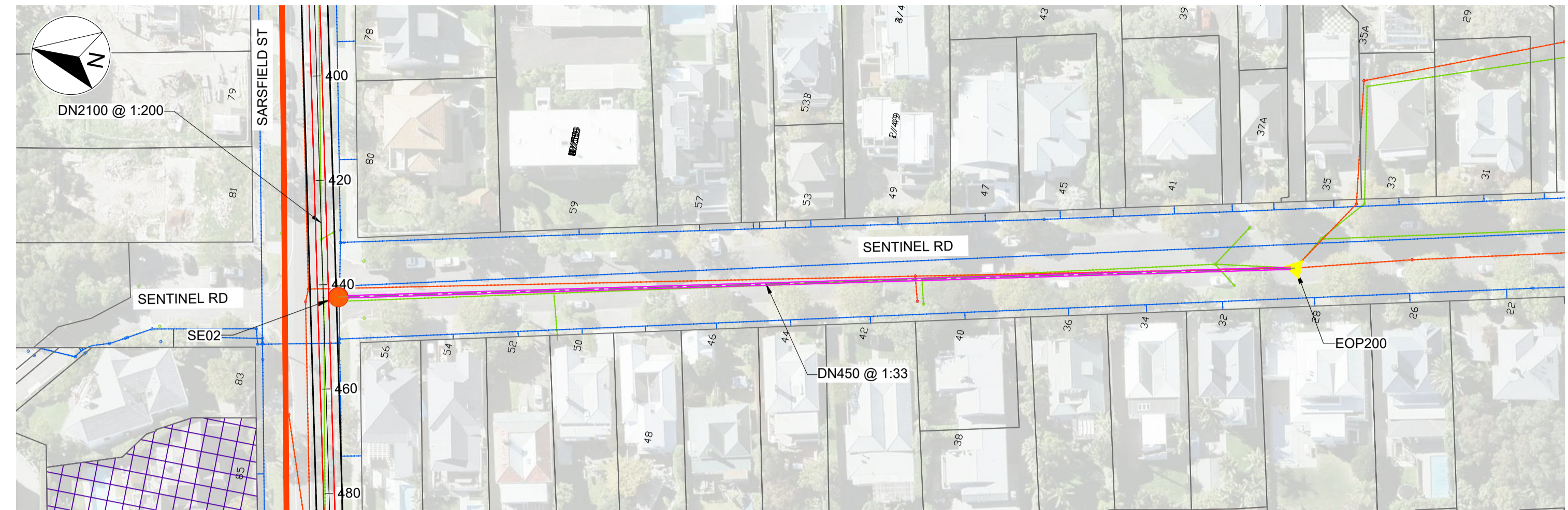
DRAFT

CAD FILE	W-SL007.004	DATE	16-02-2023
ORIGINAL SCALE	A1 1:2000	CONTRACT No.	1
REF. No.	W-SL007.01	ISSUE	1
DWG. No.	W-SL007.004		

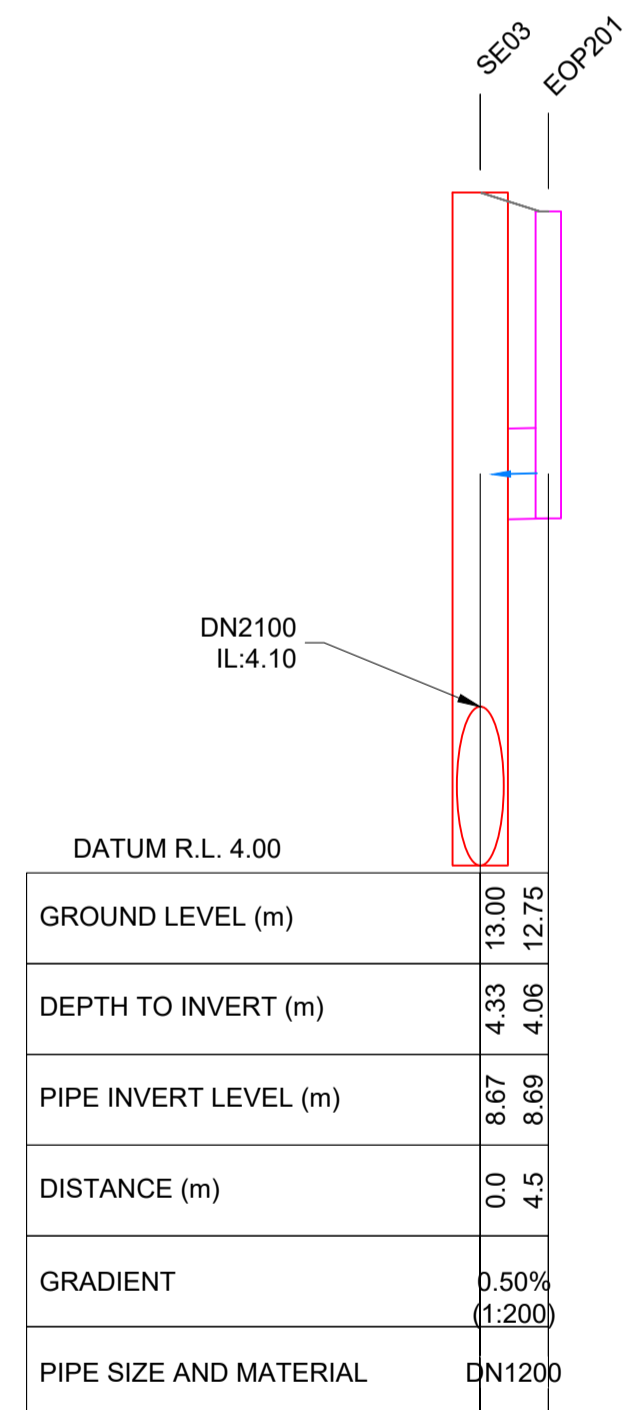
PIPE SIZE OF EOP CONNECTIONS ARE TBC.
EOP LONG SECTIONS ARE IN RELATION TO OPTION 2 (MINIMUM DEPTH)



PLAN - EOP 201 - SE03
SCALE 1:500 @ A1

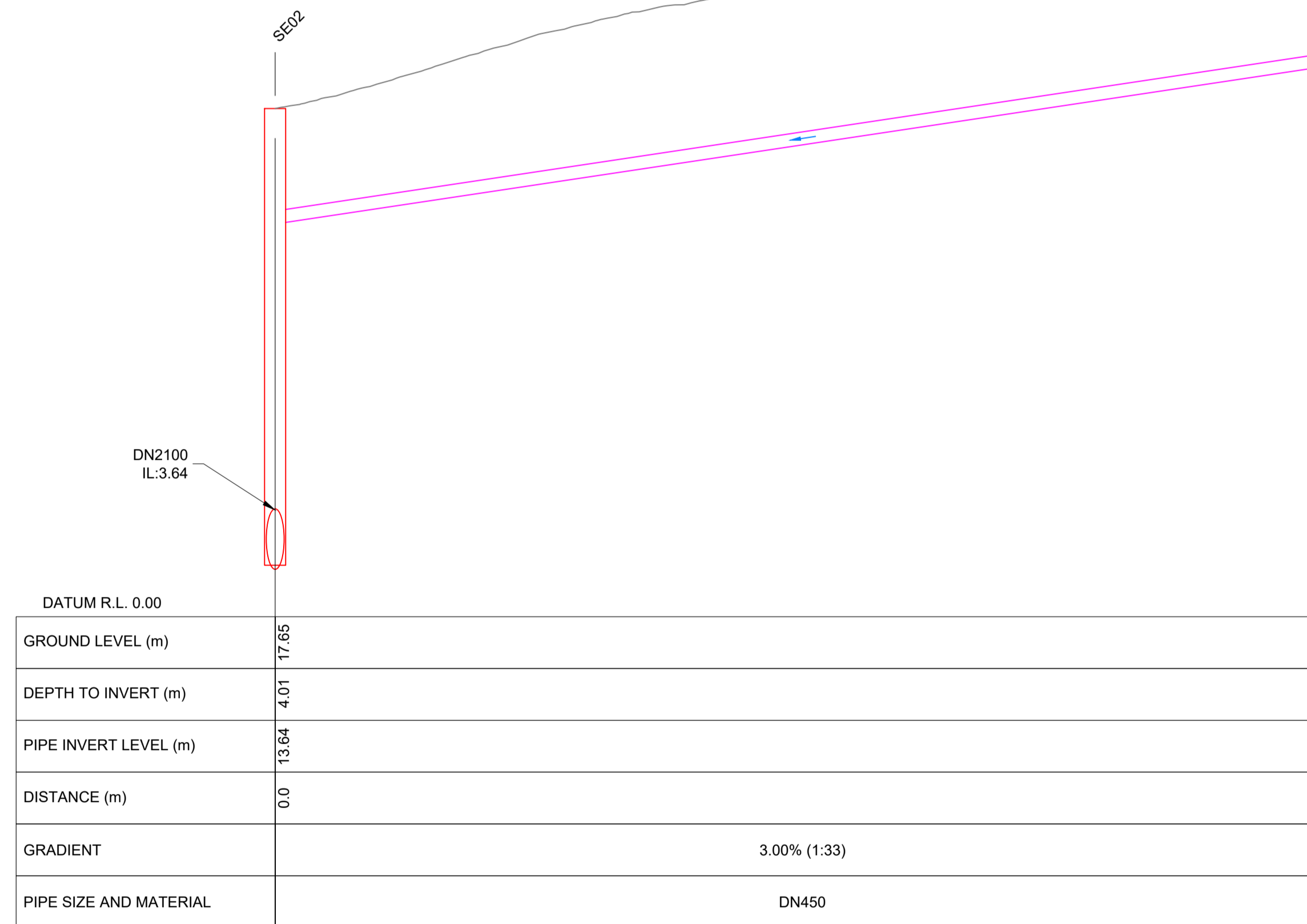


PLAN - EOP 200 - SE02
SCALE 1:750 @ A1



DATUM R.L. 4.00	
GROUND LEVEL (m)	13.00
DEPTH TO INVERT (m)	4.33
PIPE INVERT LEVEL (m)	8.67
DISTANCE (m)	0.0
GRADIENT	0.50%
PIPE SIZE AND MATERIAL	DN1200

LONGITUDINAL SECTION
EOP201 - SE03
SCALE 1:500H 1:100V @ A1



DATUM R.L. 0.00	
GROUND LEVEL (m)	17.65
DEPTH TO INVERT (m)	4.01
PIPE INVERT LEVEL (m)	13.64
DISTANCE (m)	0.0
GRADIENT	3.00% (1:33)
PIPE SIZE AND MATERIAL	DN450

LONGITUDINAL SECTION
EOP200 - SE02
SCALE 1:750H 1:150V @ A1

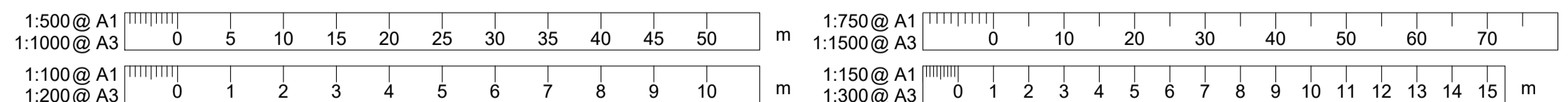
LONGSECTIONS SHOWN HERE
ARE FOR DESIGN OPTION 1 IN
W-SL007.002

NOTES:

- REFER TO SHEET W-SL007.002 FOR PROPOSED TRUNK SEWER LONG SECTION
- COORDINATES ARE IN TERMS OF NEW ZEALAND TRANSVERSE MERCATOR 2000 CIRCUIT.
- LEVELS ARE IN TERMS OF METRES AUCKLAND 1946 LOCAL VERTICAL DATUM.
- DIMENSIONS / DISTANCE ARE IN METRES UNLESS STATED OTHERWISE.
- IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL EXISTING SERVICES PRIOR TO CONSTRUCTION.
- DESIGN AT CONCEPT STAGE AND SUBJECT TO CHANGE THROUGH DESIGN PROCESS.
- NO SURVEY OF THE EXISTING UTILITIES AND FEATURES HAVE BEEN CARRIED OUT.
- TUNNEL ALIGNMENT SHOWN WITH 2.5m WIDE CORRIDOR EITHER SIDE OF PROPOSED ALIGNMENT.

KEY:

PARCEL BOUNDARY	—
EXISTING WATER SUPPLY	— W —
EXISTING LOCAL SEWER	— WSL —
EXISTING TRANSMISSION SEWER	— SW —
EXISTING STORMWATER	— SW —
EXISTING GROUND PROFILE	—
EXISTING EOP	▲
PROPOSED LOCAL SEWER	—
PROPOSED TUNNEL SEWER	—
PROPOSED SEWER MANHOLE	●
PROPOSED SHAFT	●
PROPOSED HERITAGE BUILDING	▣
PROPOSED NOTABLE TREE	▣
TUNNEL 2.5m WIDE CORRIDOR	—
PROPOSED CONSTRUCTION AREA	—



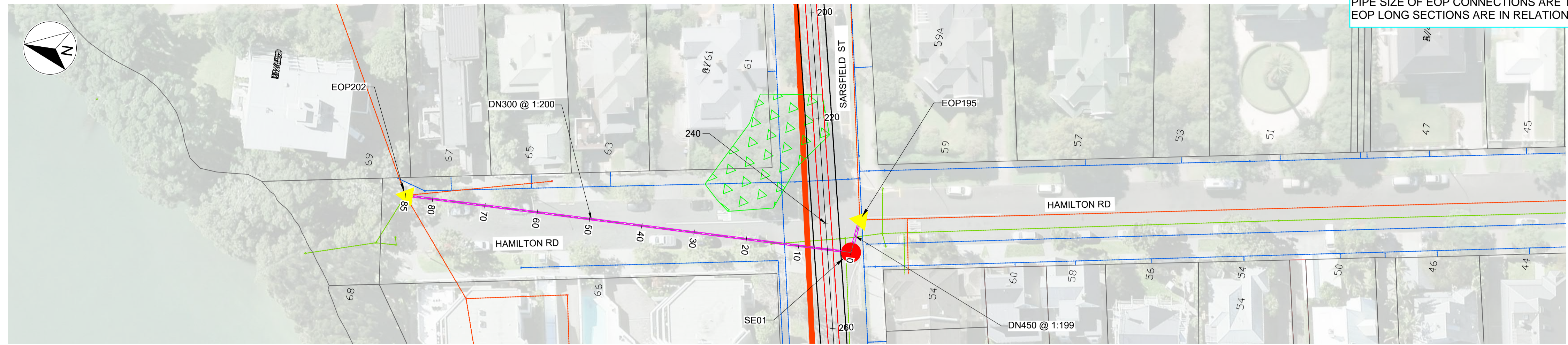
ISSUE	DATE	AMENDMENT	BY	APPD.	DATE
1	16.02.23	DRAFT ISSUED FOR CONSENT APPLICATION	GI	MK	

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HERNE BAY TRUNK SEWER UPGRADE
MARINE PARADE TO PT ERIN
LONGITUDINAL SECTIONS - LOCAL NETWORK SHEET 3

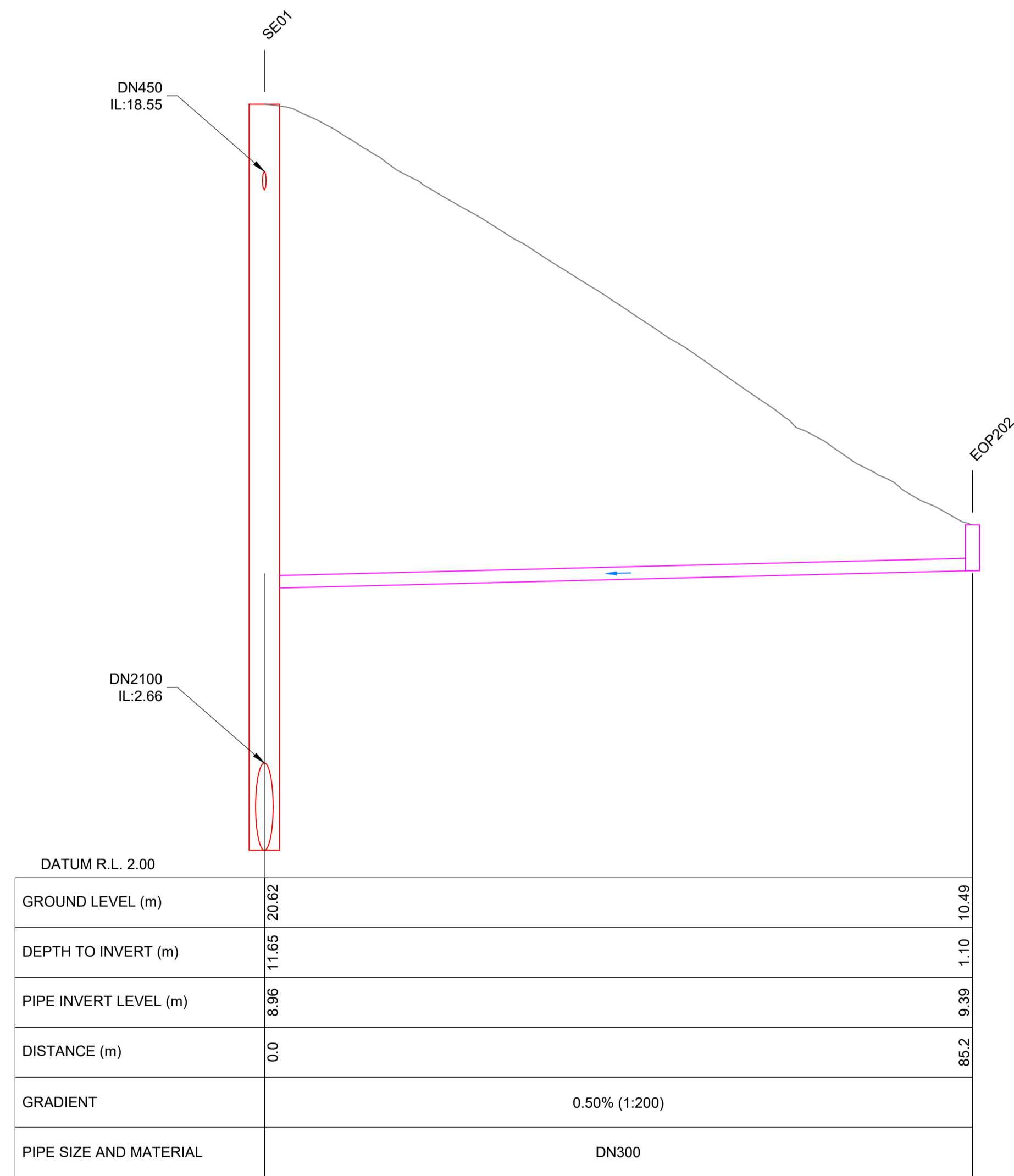
DRAFT

CAD FILE	W-SL007.005	DATE	16-02-2023
ORIGINAL SCALE	A1	CONTRACT No.	1
REF. No.	W-SL007.01		
DWG. No.	W-SL007.005	ISSUE	1

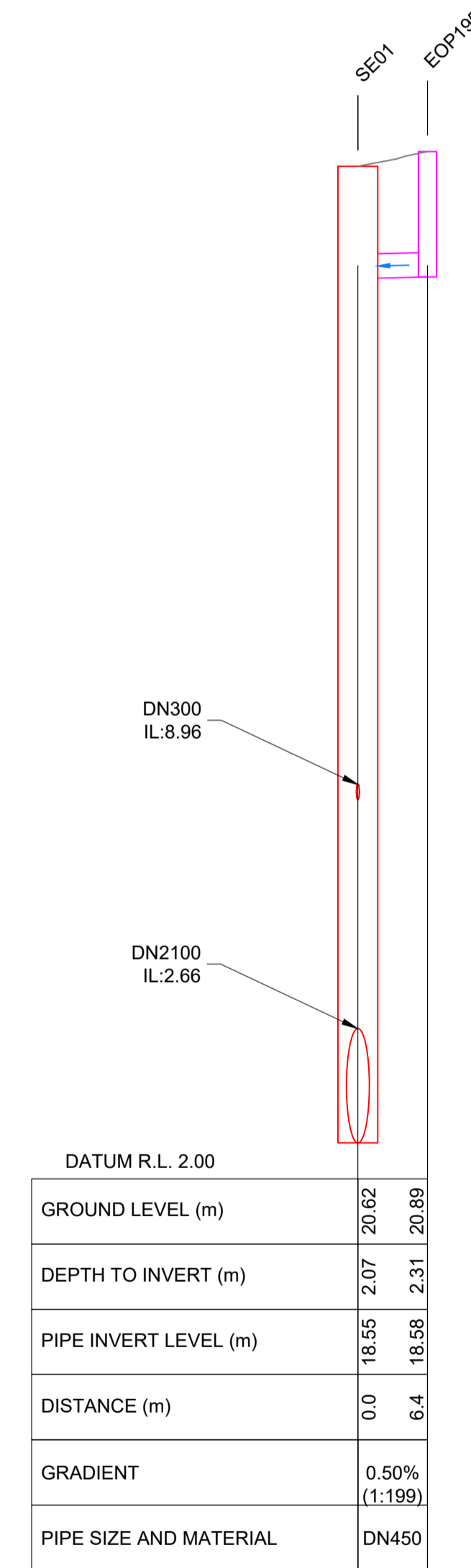
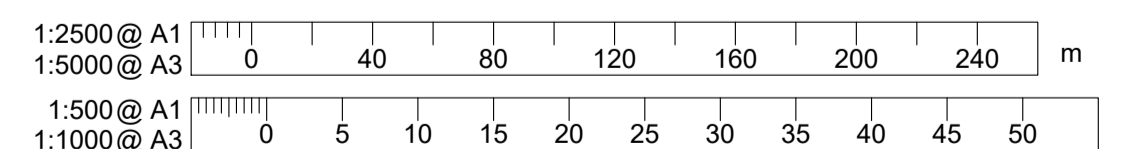


PIPE SIZE OF EOP CONNECTIONS ARE TBC.
EOP LONG SECTIONS ARE IN RELATION TO OPTION 2 (MINIMUM DEPTH)

PLAN - EOP202 AND EOP 195 - SE01
SCALE 1:500 @ A1



LONGITUDINAL SECTION
EOP202 - SE01
SCALE 1:500H 1:100V @ A1



LONGITUDINAL SECTION
EOP 195 - SE01
SCALE 1:500H 1:100V @ A1

KEY:

PARCEL BOUNDARY	---
EXISTING WATER SUPPLY	---
EXISTING LOCAL SEWER	---
EXISTING TRANSMISSION SEWER	---
EXISTING STORMWATER	---
EXISTING GROUND PROFILE	---
EXISTING EOP	---
PROPOSED LOCAL SEWER	---
PROPOSED TUNNEL SEWER	---
PROPOSED SEWER MANHOLE	●
PROPOSED SHAFT	○
PROPOSED HERITAGE BUILDING	■
PROPOSED NOTABLE TREE	■
TUNNEL 2.5m WIDE CORRIDOR	---
PROPOSED CONSTRUCTION AREA	---

LONGSECTIONS SHOWN HERE
ARE FOR DESIGN OPTION 1 IN
W-SL007.002

- NOTES:
- REFER TO SHEET W-SL007.002 FOR PROPOSED TRUNK SEWER LONG SECTION
 - COORDINATES ARE IN TERMS OF NEW ZEALAND TRANSVERSE MERCATOR 2000 CIRCUIT.
 - LEVELS ARE IN TERMS OF METRES AUCKLAND 1946 LOCAL VERTICAL DATUM.
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 - NO SURVEY OF THE EXISTING UTILITIES AND FEATURES HAVE BEEN CARRIED OUT.
 - TUNNEL ALIGNMENT SHOWN WITH 2.5m WIDE CORRIDOR EITHER SIDE OF PROPOSED ALIGNMENT.

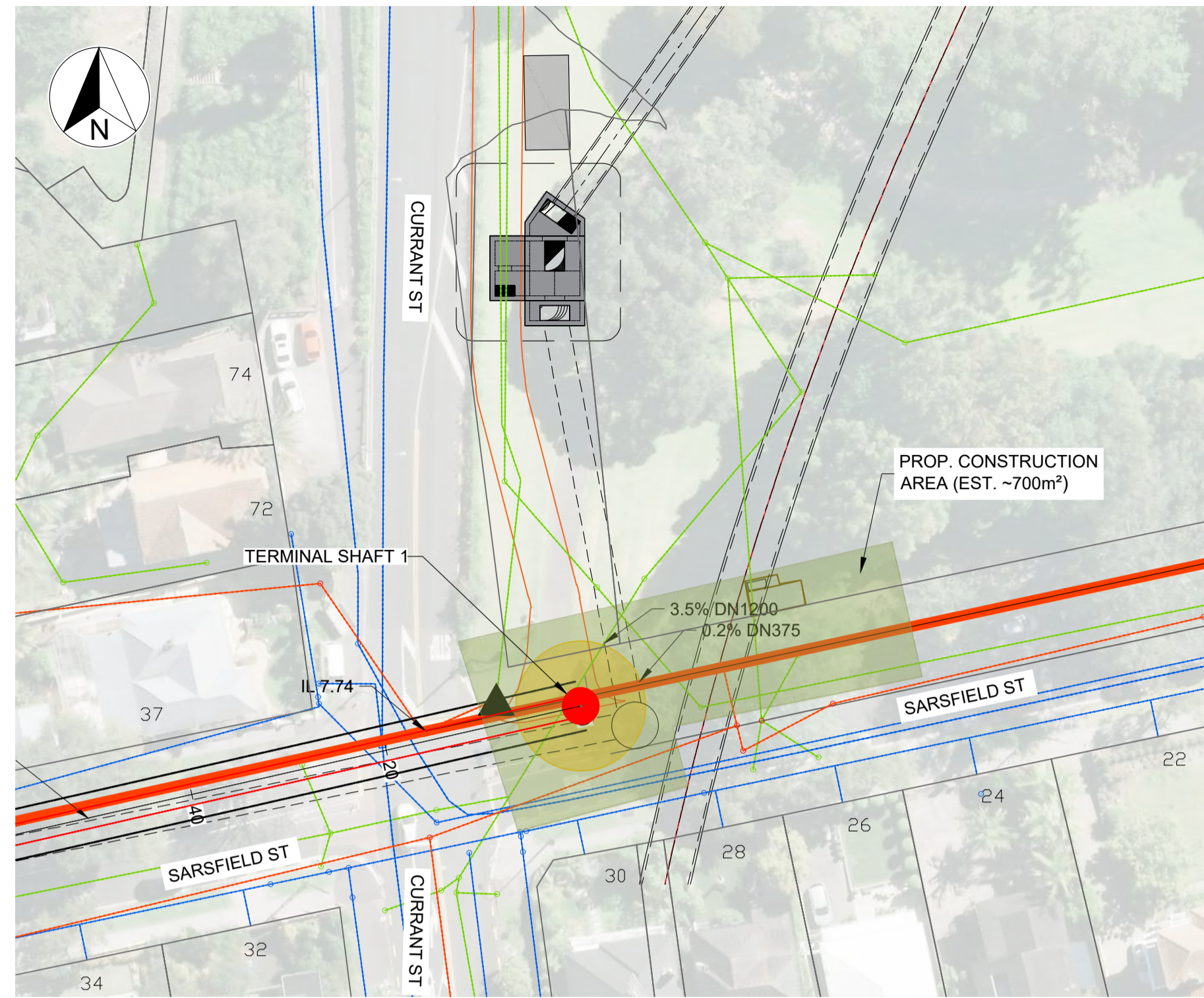
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DES. APPROVED	C.STOKES	02-23
DRAWN	G.I.P	02-23
DWG. APPROVED	M.KUDOIC	02-23
WSL DESIGN MGMT	B.DEVILLIERS	-
WSL PROJ. LEAD	-	-
ISSUE	DATE	AMENDMENT
1	16.02.23	DRAFT ISSUED FOR CONSENT APPLICATION

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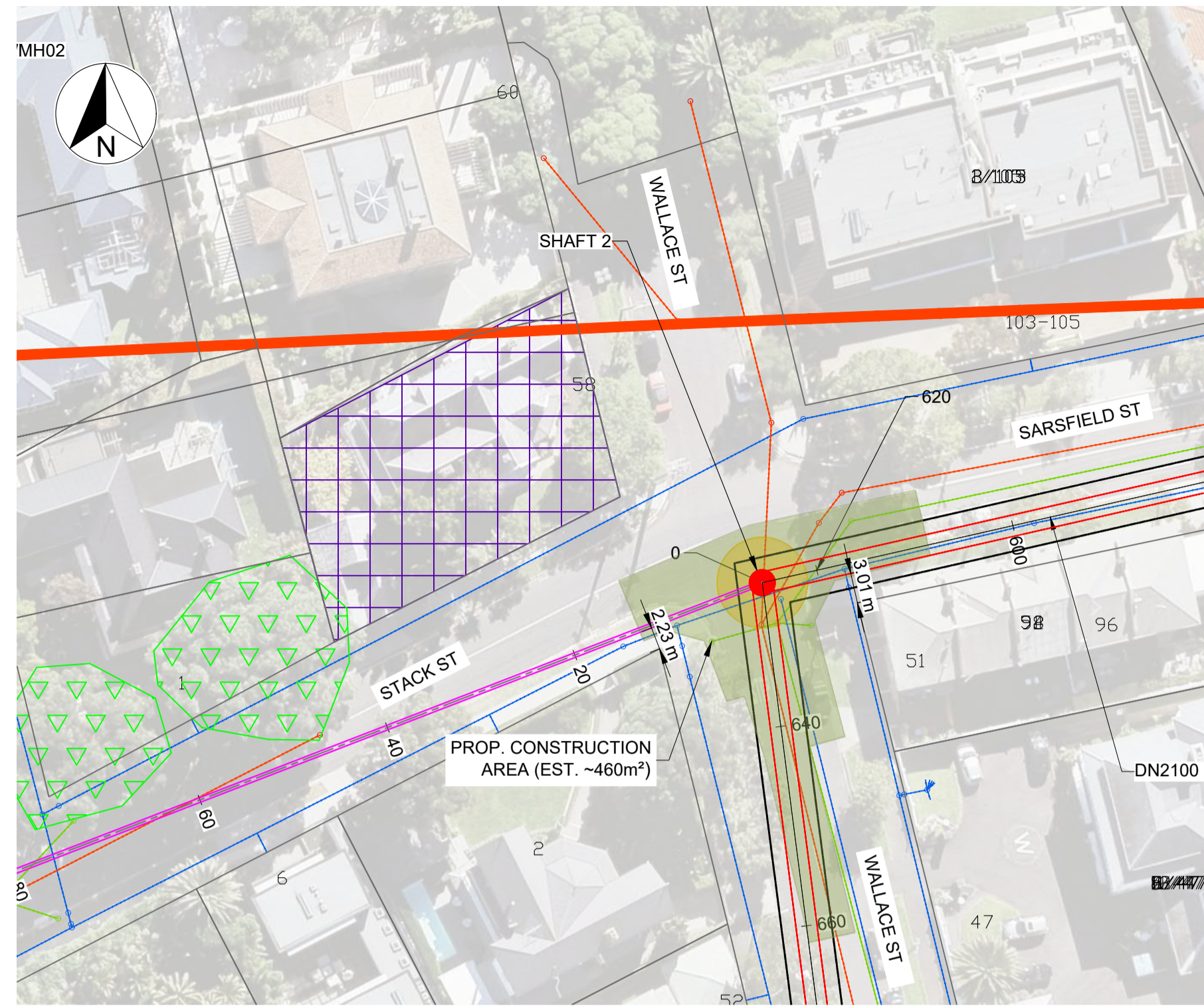
HERNE BAY TRUNK SEWER UPGRADE
HAMILTON ROAD, HERNE BAY
LONGITUDINAL SECTIONS - LOCAL NETWORK SHEET 4

DRAFT

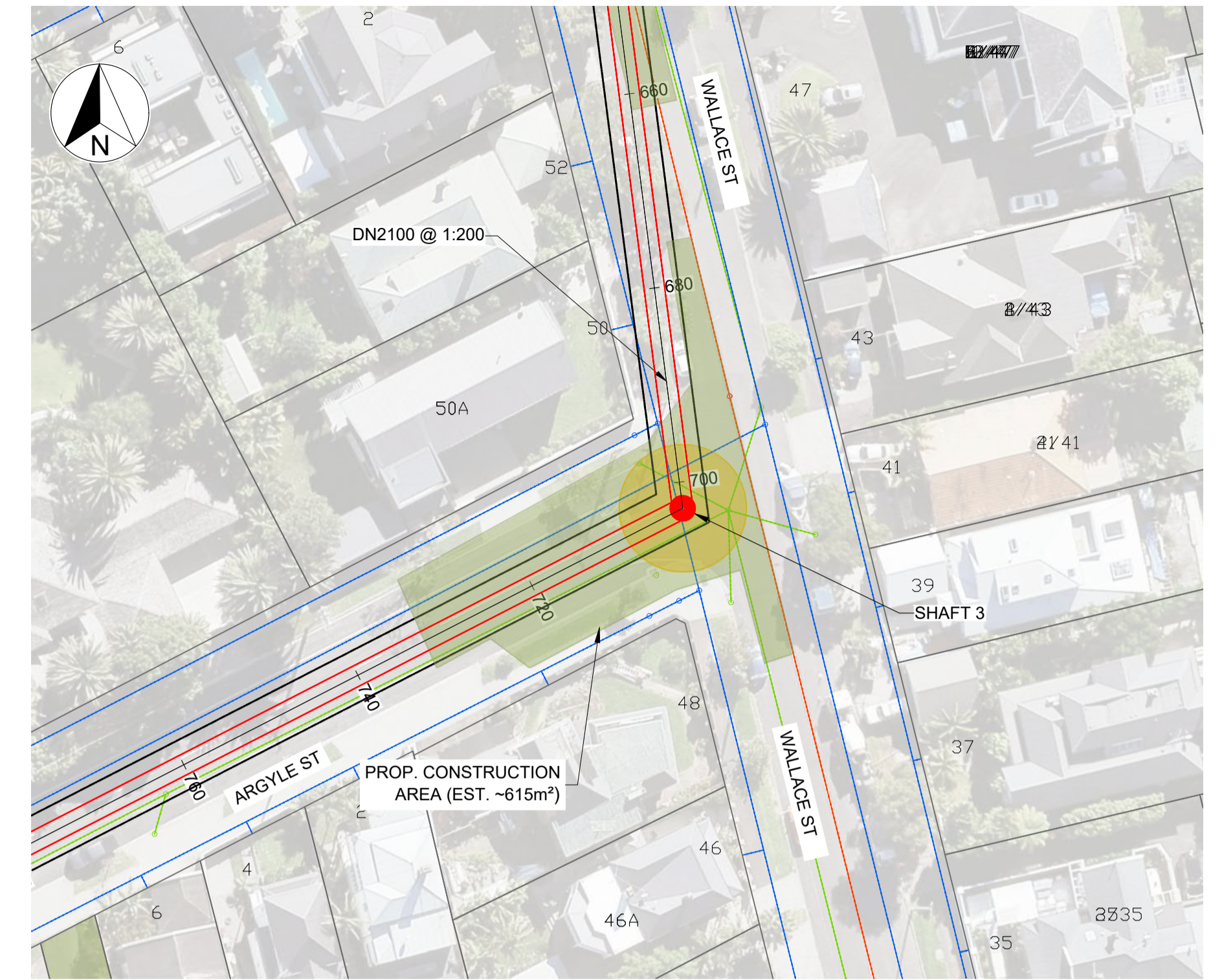
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REF. No.	W-SL007.01		
DWG. No.	W-SL007.006	ISSUE	1



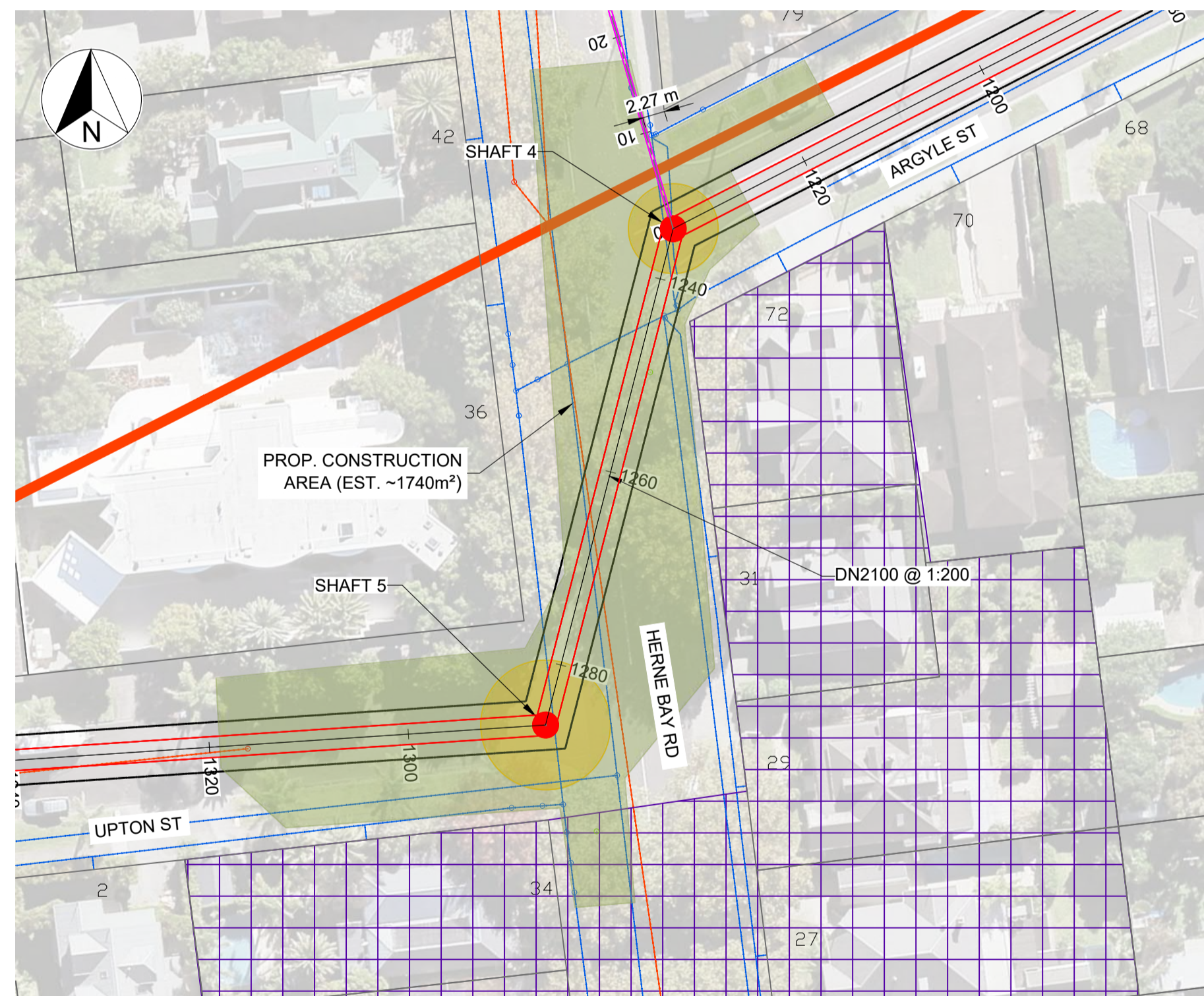
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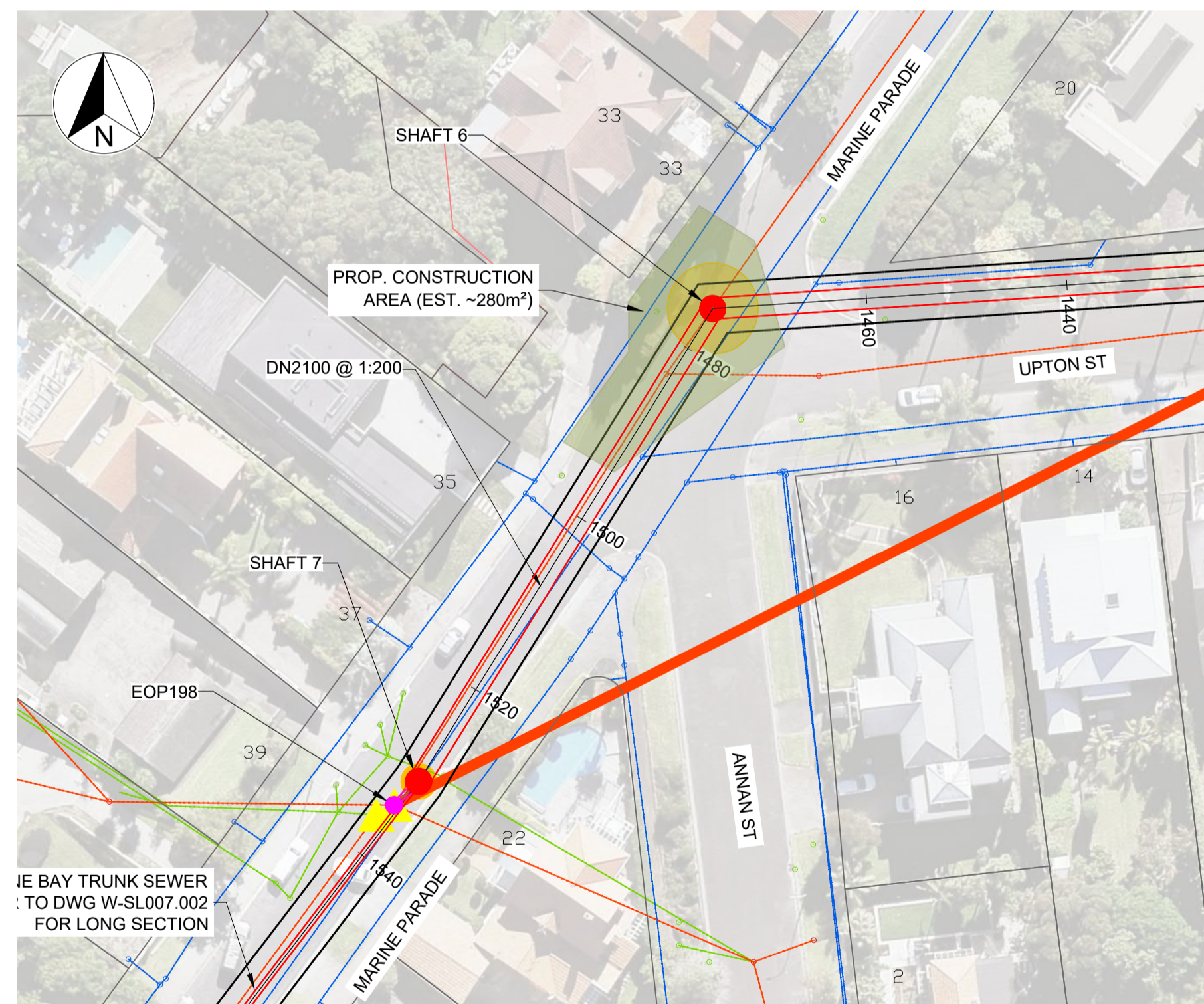
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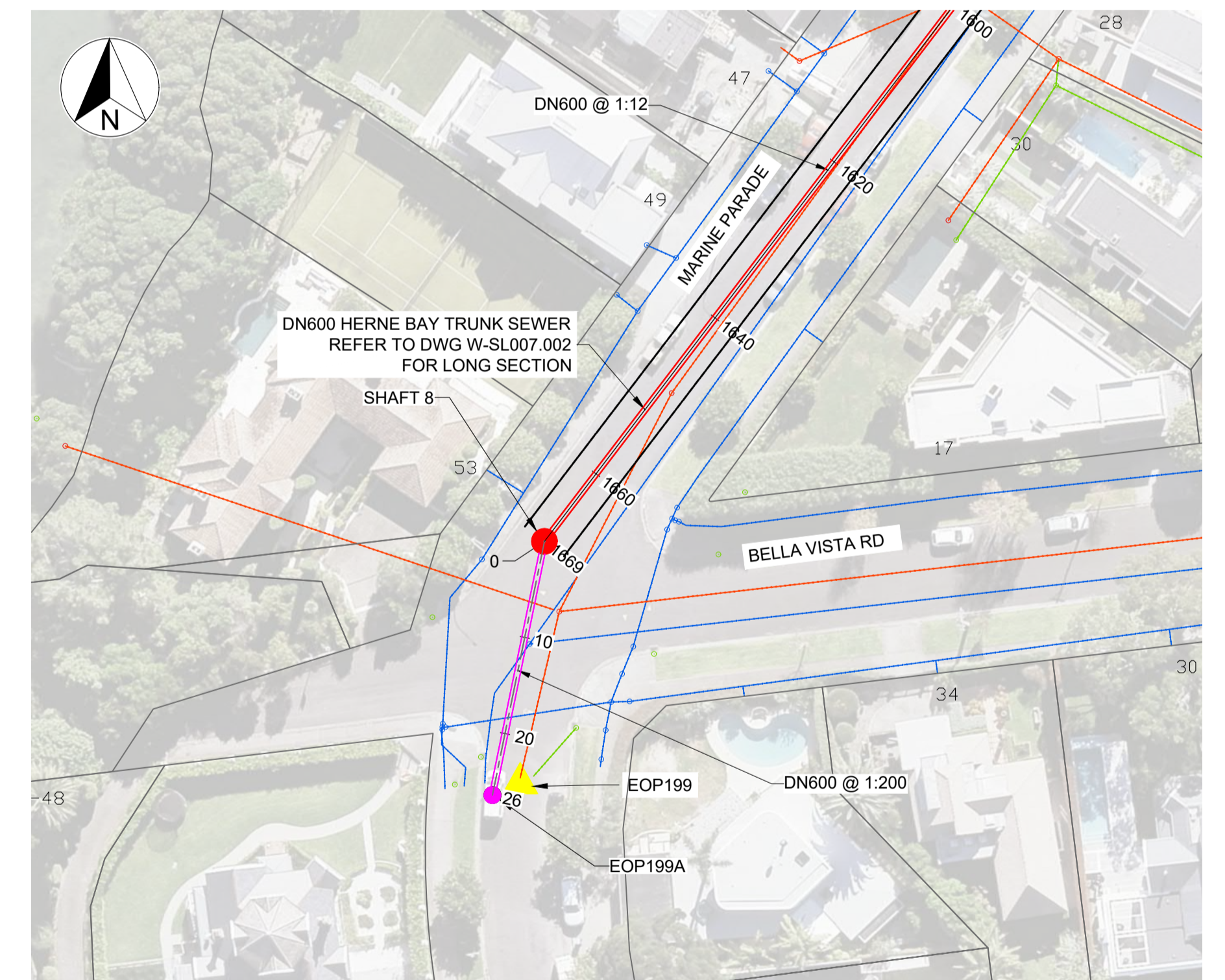
SHAFT 3 LOCATION
SCALE 1:500 @ A1



SHAFT 4 & 5 LOCATION
SCALE 1:500 @ A1



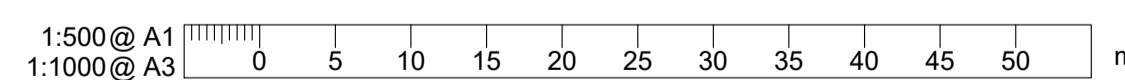
SHAFT 6 & 7 LOCATION
SCALE 1:500 @ A1



SHAFT 8 LOCATION
SCALE 1:500 @ A1

NOTES:

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KEY:

PARCEL BOUNDARY	—
EXISTING WATER SUPPLY	— W —
EXISTING LOCAL SEWER	— WSL —
EXISTING TRANSMISSION SEWER	— TS —
EXISTING STORMWATER	— SW —
EXISTING GROUND PROFILE	— GP —
EXISTING EOP	— EOP —
PROPOSED LOCAL SEWER	— PL —
PROPOSED TUNNEL SEWER	— T —
PROPOSED SEWER MANHOLE	●
PROPOSED SHAFT	●
PROPOSED HERITAGE BUILDING	▣
PROPOSED NOTABLE TREE	▣
TUNNEL 2.5m WIDE CORRIDOR	—
PROPOSED CONSTRUCTION AREA	■

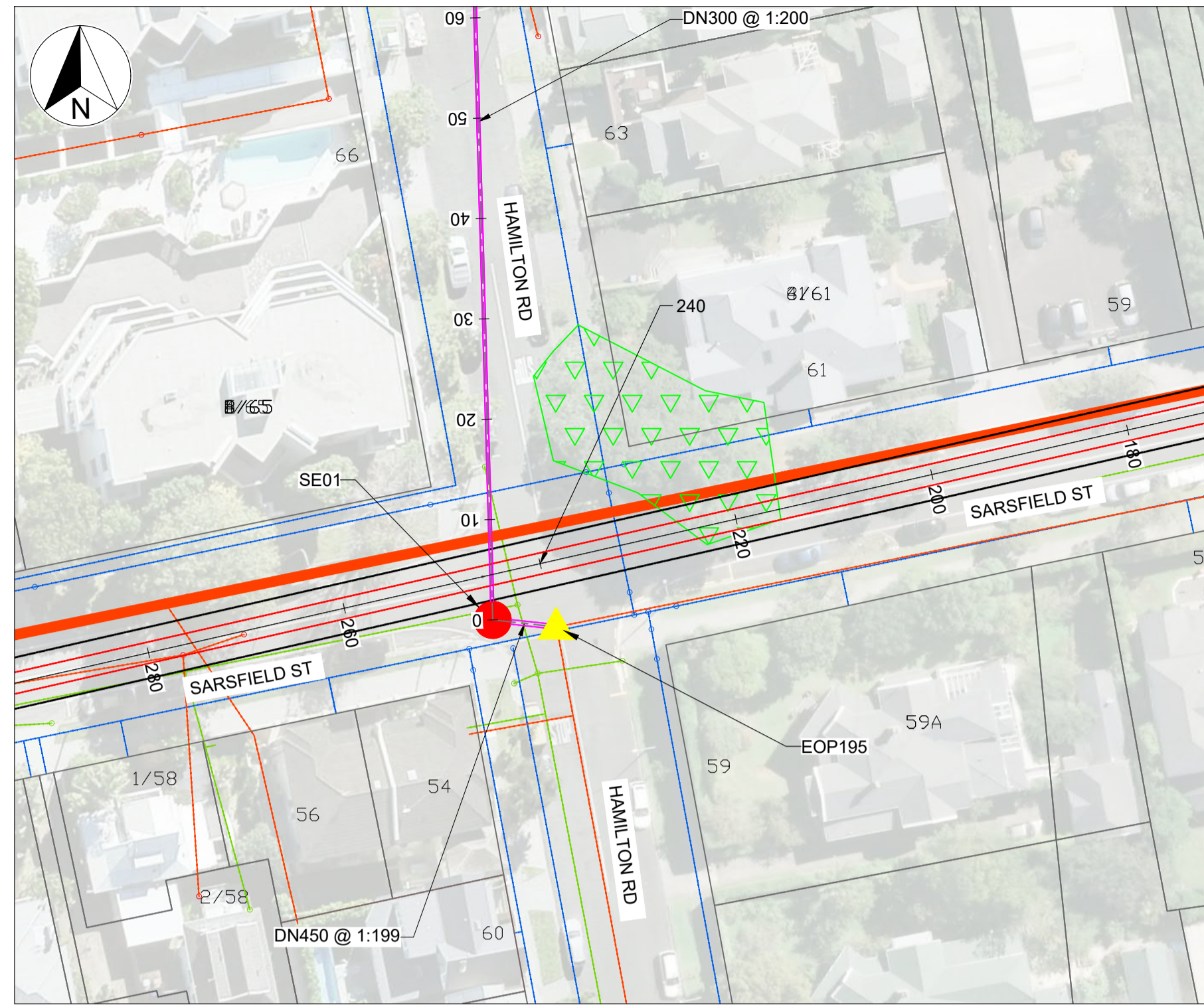
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1	16.02.23	DRAFT ISSUED FOR CONSENT APPLICATION	GI	MK	W.SL DESIGN MGMT	02-23
					WSL PROJ. LEAD	

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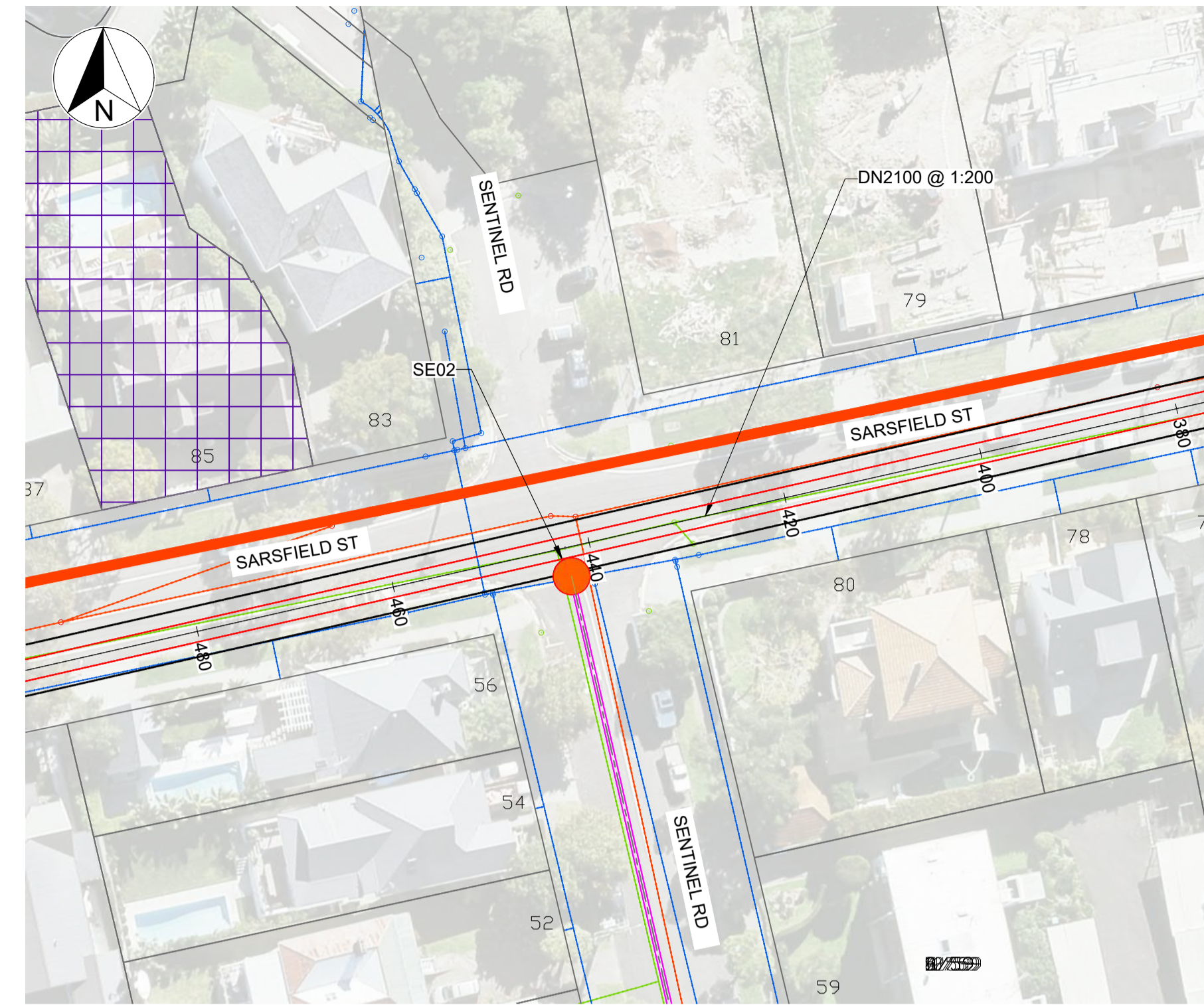
HERNE BAY TRUNK SEWER UPGRADE
HAMILTON ROAD, HERNE BAY
CONSTRUCTION PLAN – TUNNEL SHAFT LOCATIONS

DRAFT

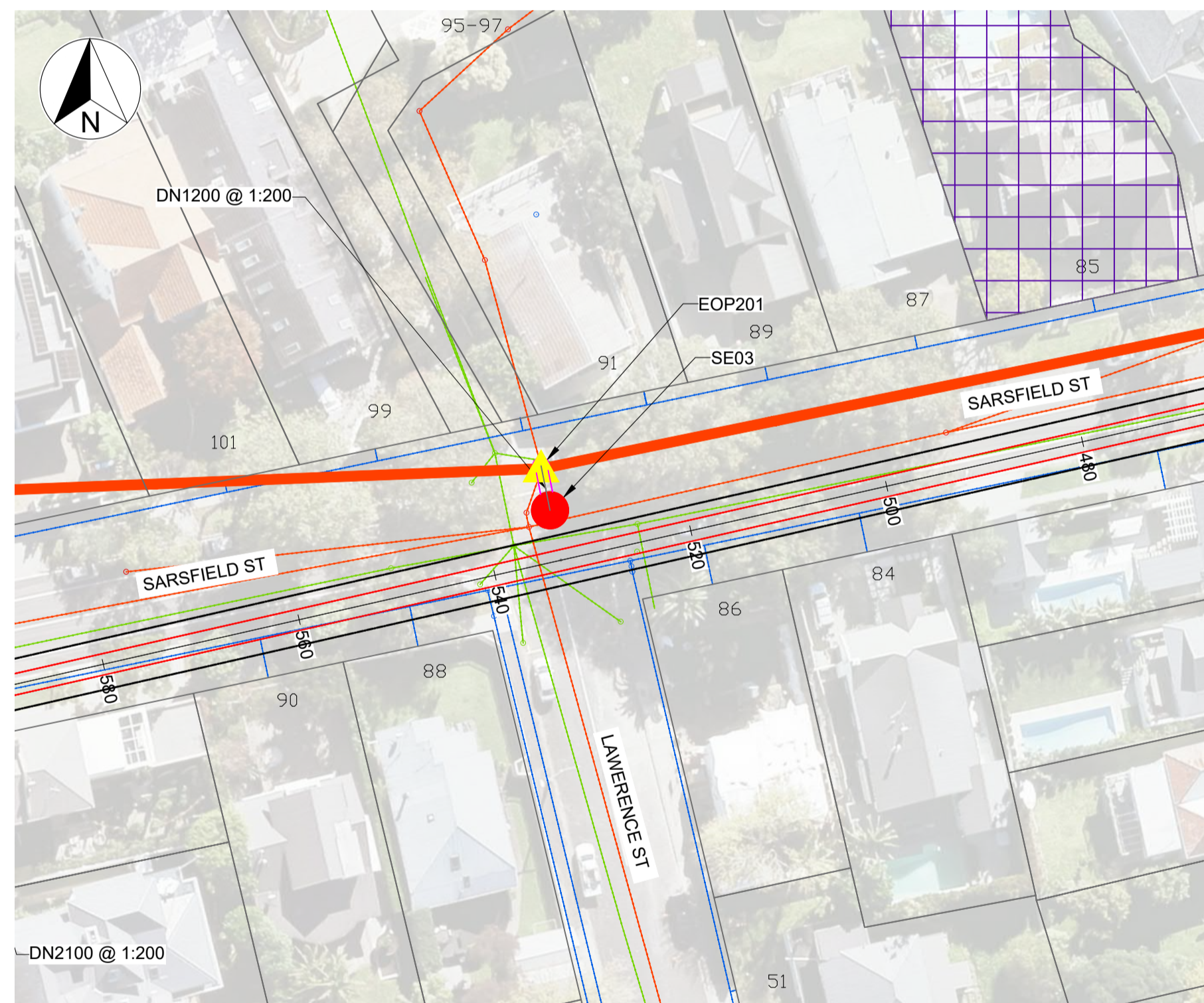
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REF. No.	W-SL007.01		
DWG. No.	W-SL007.007	ISSUE	1



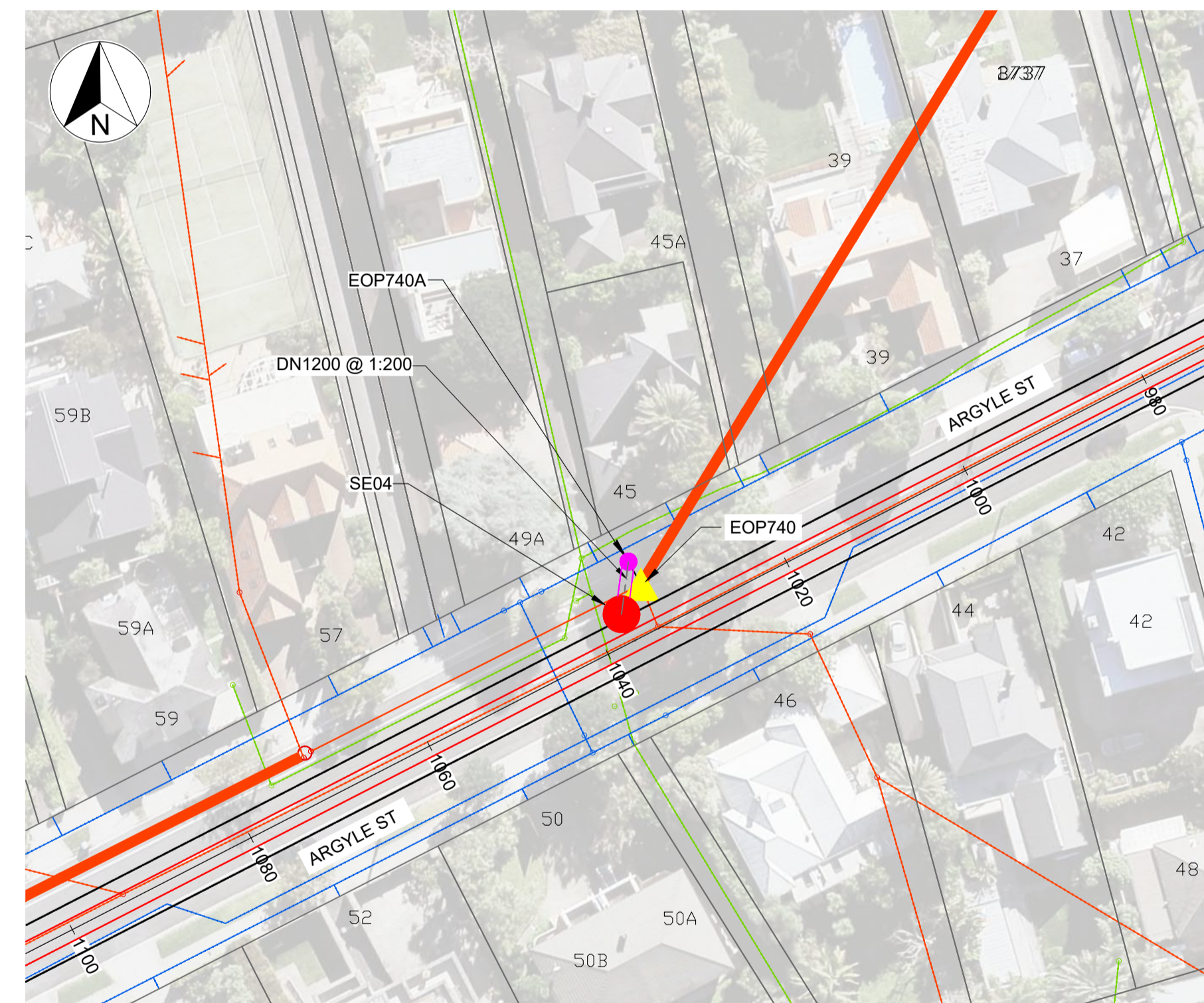
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SCALE 1:500 @ A1



SHAFT SE02
SCALE 1:500 @ A1



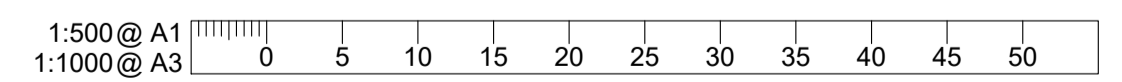
SHAFT SE03
SCALE 1:500 @ A1



SHAFT SE04
SCALE 1:500 @ A1

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EXISTING LOCAL SEWER	— WSL —
EXISTING TRANSMISSION SEWER	— SW —
EXISTING STORMWATER	— SW —
EXISTING GROUND PROFILE	—
EXISTING EOP	▲
PROPOSED LOCAL SEWER	—
PROPOSED TUNNEL SEWER	—
PROPOSED SEWER MANHOLE	●
PROPOSED SHAFT	●
PROPOSED HERITAGE BUILDING	▨
PROPOSED NOTABLE TREE	▨
TUNNEL 2.5m WIDE CORRIDOR	—
PROPOSED CONSTRUCTION AREA	■

DESIGNED	G.I.P	02-23		
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BY	APPD.	BY	DATE	
1	16.02.23	DRAFT ISSUED FOR CONSENT APPLICATION	GI	MK
ISSUE	DATE	AMENDMENT		

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HERNE BAY TRUNK SEWER UPGRADE
HAMILTON ROAD, HERNE BAY
CONSTRUCTION PLAN – INTERCEPTION SHAFT LOCATIONS

DRAFT

CAD FILE	W-SL007	DATE	16-02-2023
ORIGINAL SCALE	A1	CONTRACT No.	1
SCALE	1:2000		
REF. No.	W-SL007.01		
DWG. No.	W-SL007.008	ISSUE	1

Appendix B Contractors checklist

Contractor checklist

Summary of key GCSMP requirements for Herne Bay Tunnel Alignment Construction Support Areas
The Contractor shall undertake the following during earthworks

Timing	Key task	Details	Completed	
Prior to ground works commencing	Site set up	a Watercare to appoint a contaminated land specialist: Name:		
		b Contact		
		c Contaminated land specialist to conduct pre-works testing.		
		d Contaminated land specialist to review and update this GCSMP		
		e Watercare to advise Auckland Council of works commencing.		
		f If required, appoint a Licensed Asbestos Removalist and engage with WorkSafe NZ.		
		g Establish earthworks (dust, erosion, sediment, stormwater) controls and asbestos controls as per SMP Section 5.		
		h Hazard board to state contaminated soil may be present and indicating health and safety requirements for workers.		
		i Obtain PPE.		
		j Arrange disposal permits.		
During the works	General SMP Compliance	k Maintain earthworks (dust, erosion, sediment, stormwater) controls as per SMP Section 5		
		l Implement health and safety procedures in Section 6.		
		m Retain all weighbridge and disposal dockets and provide to Contractor.		
		n Ensure imported material meets requirements in Section 5.		
	o Undertake air monitoring if required for asbestos.			
	Alert Watercare and Contaminated Land Specialist	If any of the following situations arise:		
		p Contaminated soil is encountered that includes: - odours (petroleum, oil); and - Discolouration (black, green/blue staining most common).		
q Groundwater with an oil sheen, odour or discolouration.				
Within one month of completion of the relevant works	Provide contaminated land-related information to Watercare and contaminated land specialist	r Details of any complaints relating to odour or dust made during the works.		
		s Details of unexpected encounters/events and the action taken.		
		t Details of visits made by Council representatives.		
		u Summary of weighbridge information for disposal verification.		

