DJ LAND DEVELOPMENT

FUNCTIONAL SERVICING REPORT

PROPOSED DEVELOPMENT
SADDLER STREET EAST
TOWN OF DURHAM
MUNICIPALITY OF WEST GREY

JANUARY 2024

COBIDE Engineering Inc
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COBIDE
ENGINEERING INC

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1. INTRODUCTION

Cobide Engineering Inc. was retained by DJ Land Development to complete a preliminary stormwater management report in support of a Draft Plan Approval Application. The application will be to subdivide the property into a residential subdivision development.

A copy of the proposed Draft Plan has been included in **Appendix A** as Drawing 01855-DP1.

1.1 LOCATION

The proposed subdivision development, herein referred to as the Site, is located on Part of Park Lots 13, 14 and 15 on the North Side of Saddler Street, Registered Plan 500, within the Town of Durham, Municipality of West Grey, County of Grey. The Site is located on the north side of Saddler Street East between Rock Street and Concession 1. A Site Location Map is included as **Figure 1**.

1.2 DEVELOPMENT PROPOSAL

The overall property area is approximately 2.66 hectares (6.57 acres) in size. The owner is proposing to subdivide the property into 26 residential lots with a mix of semi-detached, four-plex and six-plex style units and a condominium townhouse block consisting of 30 units. The subdivision will have two access points, one from Lambton Street East and one from Saddler Street East.

The development will consist of the following:

- Municipal Right-of-Way (Street A) providing access to Saddler Street East and Lambton Street East
- Lots 1 to 26 Semi-detached and Townhouse Units
- Block 28 Stormwater Management Facility
- Block 27 Condominium Townhouse Development
- Portion of land to be retained by owner to be sold to the adjacent landowner to the east due to existing encroachments

The Draft Plan showing the proposed development configuration has been included in **Appendix A** as Drawing 01855-DP1.

The Site is located on the southeast side of Durham and is currently zoned R1B and Future Development within the Municipality of West Grey's zoning. The property is within the primary settlement area in the current Grey County Official Plan.

It is proposed to service the site by extending the existing municipal services from Saddler Street East. The site is currently a mixture of grass and treed areas with a small portion adjacent to Saddler Street East being used for the storage of trailers.

For design purposes the following densities will be used:

Description/Type	Density
Semi-Detached Units	3.0 people per unit
Townhouse Units	2.5 people per unit
Condominium Townhouses	1.5 people per unit

MAP SOURCE - MTO ROAD MAP

COBIDE ENGINEERING INC
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Client/Project
PROPOSED RESIDENTIAL DEVELOPMENT
SADDLER STREET EAST, DURHAM
MUNICIPALITY OF WEST GREY
COUNTY OF GREY
FUNCTIONAL SERVICING REPORT

Figure No.
1

Title
REGIONAL LOCATION MAP

ORIGINAL SHEET – 8 x 11
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Figure 1 – Regional Location Map

2. WATER DISTRIBUTION SYSTEM

The water distribution system will be sized based on the existing conditions at the connection to the municipal system and the subdivisions demands which are determined by the Ministry of the Environment, Conservation and Parks (MECP) Design Guidelines for Drinking-Water Systems (2008).

2.1 DESIGN CRITERIA

The water distribution system will be design in accordance MECP guidelines which state the system *"should be designed to satisfy the greater of the following demands:*

- *Maximum day demand plus fire flow; or,*
- *Peak hour demand*

The maximum day demand and peak hour demand are based on the projected water consumption from the development and the fire flow is based on the type of the development.

Based on MECP guidelines, the minimum pressure at ground level at all points in the distribution system under maximum day demand plus fire flow conditions are to be 140 kPa (20 psi). The normal operation pressure should be between 350 kPa (50 psi) to 480 kPa (70 psi). There shall be no point in the distribution system that has a normal operating pressure of less than 275 kPa (40 psi). The maximum pressure in the pipe cannot exceed 700 kPa (100 psi).

2.2 WATER CONSUMPTION

The system will be designed based on a domestic water demand of 335 L/cap/day. This flow was provided by the Municipality of West Grey's capacity assessment for the Town of Durham. The peaking factors will be derived from Table 3-1 of the MECP Design Guidelines. Based on the projected population of 113 people the peaking factor for the maximum day demand will be 2.75 and the peaking factor for the peak hour demand will be 4.13.

Table 1 below summarizes the projected maximum day and peak hour demands of proposed subdivision development:

Table 1 - Proposed Water Demands

Demand	Population	Consumption (L/cap/day)	Peaking Factor	Peak Rate (L/day)	Peak Rate (L/s)
Maximum Day	113	335	2.75	104,101	1.20
Peak Hour	113	335	4.13	156,341	1.81

The system should be capable of supplying a minimum of 1.81 L/s of water to meet the peak hour demand of the entire proposed development.

2.3 WATERMAIN CONFIGURATION

The proposed watermain will be connected to the existing watermain on Saddler Street East. The existing watermain on Saddler Street East is 150mm diameter ductile iron. The new watermain for the development will be 150mm diameter PVC and will run north into the site and dead end at the Lambton Street entrance. A 150mm diameter PVC branch will be provided to service Block 27 on the east portion of the subject property. The watermain will follow the proposed road alignment within Block 27 and terminate at the end of the development roadway. Water valves will be provided at each intersection to allow for isolation. Each dead end will be complete with a 25mm self draining blow off.

A 150mm diameter watermain is required to provide adequate fire coverage. Fire hydrants will be placed throughout the development at a spacing no greater than 150m to provide fire department connections.

A 19mm diameter water service will be provided to each unit for domestic water distribution.

A drawing showing the proposed watermain distribution network has been included in **Appendix A** as Drawing 01855-MAP1.

3. SANITARY SERVICING

The sanitary sewer system will be sized based on the existing conditions at the connection to the municipal system and the demands of the proposed development which are determined by the MECP Design Guidelines for Sewage Works (2008).

3.1 DESIGN CRITERIA

The sanitary sewer system will be design in accordance MECP guidelines.

The sanitary sewer will be designed to convey the projected peak flow based upon the projected population of the development as well as extraneous flows.

3.2 DESIGN FLOW RATES

The sanitary sewer will be designed based on a peak flow of 250 L/cap/day. This flow was provided by the Municipality of West Grey's capacity assessment for the Town of Durham. A peaking factor of 4.0 for the size and type of the development. Based on a population of 113, the projected residential flow is 1.31 L/s. The development will contribute 2.66 ha of extraneous flows to the sanitary sewer. This will contribute 0.56 L/s to the flow. Therefore, the peak flow plus infiltration from the development is 1.87 L/s.

3.3 SANITARY SEWER CONFIGURATION

There is an existing 200mm diameter PVC sanitary sewer on Saddler Street East that flows west towards Rock Street and continues flowing west through the existing sanitary sewer on Saddler Street East. A new sanitary manhole will be installed at the centreline of Saddler Street East at the proposed entrance to the development. Approximately 56m of 200mm PVC sanitary sewer will be installed on Saddler Street that will connect into existing SAN MH 9. on Saddler Street.

The sanitary sewers within the development are proposed to be 200mm diameter PVC pipe. The minimum slope considered will be 0.50% to maintain a minimum velocity at full flow to prevent sediment deposition and blockages. The furthest section upstream will be installed a 1.0% for the same purpose where possible. Each unit will be serviced with a 125mm sanitary service including those within Block 27.

A drawing showing the proposed sanitary collection network has been included in **Appendix A** as Drawing 01855-MAP2.

4. STORMWATER MANAGEMENT AND SITE DRAINAGE

The preliminary Stormwater Management Report for this site is provided under separate cover. For existing and proposed drainage conditions including quality and quantity control provisions, please refer to the Preliminary Stormwater Management Report prepared by Cobide Engineering Inc. This section will pertain to the collection of the stormwater.

A new storm sewer system for the site will be designed and constructed in accordance with the Municipality and Conservation Authority guidelines including the MECP's Design Guidelines. The storm sewer system will be designed using the rationale method to size the storm sewer pipe in order to accommodate the 5-year peak flow from the development.

The majority of the runoff will be conveyed to the proposed stormwater management facility located in the southwest corner of the development within Block 28. The facility will be designed to provide both quantity and quality control.

A small portion of the north side of the property will be conveyed to the existing roadside ditch along Lambton Street East.

A control structure will be provided from the pond outlet before the stormwater enters the existing municipal system on Saddler Street East. As part of the development the storm sewer will be extended from the subject property across Saddler Street East and will run west to connect into existing CBMH 6 on the west side of the intersection of Rock Street and Saddler Street East.

A drawing showing the proposed stormwater collection network has been included in **Appendix A** as Drawing 01855-MAP3.

5. GRADING, EROSION & SEDIMENT CONTROL

Erosion and sediment controls shall meet the requirements of the most recent version of the MECP *Stormwater Management Planning and Design Manual* at the time of construction.

5.1 CONSTRUCTION STAGE

Prior to the start of construction, appropriate sediment control facilities are to be in place. Following are details regarding erosion and sediment control that are to be implemented:

- Placement of Light Duty Siltation fence will also be installed at any development grading limits where runoff may discharge from the site.
- It is proposed that the pond be constructed first to act as a sedimentation basin.
- Placement of temporary straw check dams within swales and any other locations where a concentrated flow of runoff may occur. All proposed drainage swales are to be seeded during construction;
- Installation of filter cloth under all new and existing catchbasin grates until paving of the subdivision streets is completed;
- Mud mats will be placed at construction accesses to keep public roadways free from debris during the construction period.
- Re-vegetate all disturbed areas after underground and surface works have been constructed.

Prior to removal of sediment control facilities, ensure that sediment that may have accumulated has been removed.

Once the area has been stabilized, the silt fencing can be removed.

5.2 LOT DEVELOPMENT

During individual construction of homes within the subdivision, silt barriers are to be constructed, as appropriate, to prevent the eroding of materials into the roadside drainage system. The sedimentation control can be in the form of siltation fences placed in the direction of flow from the construction site and shallow excavated sediment traps (moats) should be constructed around any stockpiled materials.

The responsibility for the individual lot sediment control is the landowner/builder constructing the dwelling.

The proposed development grading design will require some area grading. The area grading will allow for an overland flow route for drainage as well as allow for easier grading of the lots during construction of the houses. The proposed grading design will match all existing grades at the property lines and will not alter or affect the drainage patterns of the neighbouring properties. The proposed site grading will drain the stormwater through side yard swales and a storm sewer system. The majority of the slopes found on site are proposed to be between 2.0% and 6.0%.

6. TRAFFIC AND ROADS

Access to the subdivision will be via Saddler Street East and Lambton Street East.

Stop sign control at all intersections will provide adequate traffic control for these roads.

Street ‘A’ will be designed to meet the municipal standards and by-laws for an urban street. The following parameters are proposed:

- 20.0m road allowance
- 4.25m asphalt lanes with 2% cross fall
- 600.100 OPSD mountable curb and gutter
- Pavement design:
    - 300mm Granular B
    - 150mm Granular A
    - 50mm HL3
    - 40mm HL3

The development road throughout Block 27 will have a minimum paved width of 6.1m and provide adequate access and turn-around for a fire truck.

7. UTILITIES

7.1 STREETLIGHTS

The configuration of the streetlights and the proposed light fixtures will be designed and selected in accordance with the current municipal standards. Photometric design and calculations will be provided.

7.2 ELECTRICITY

Hydro One will be responsible for completing the design of the electrical distribution system. Underground distribution lines will be utilized for this development and each unit will be metered separately.

7.3 NATURAL GAS

Enbridge Gas will be responsible for completing the design of the natural gas distribution system. Underground distribution lines will be utilized for this development and each unit will be metered separately.

7.4 TELEPHONE/ CABLE TV/ INTERNET

Wightman, Eastlink and other utilities will be given the opportunity to provide telephone, cable TV and internet services to the development. They will complete their own design, based upon Hydro One's proposed design configuration along with trench locations dictated by the Municipality's standard cross section.

Based on the information provided in this report, it is concluded that the proposed development can be serviced and graded adequately as per the Municipality, Conservation Authority and County's standards. Therefore, it is recommended that the above Functional Servicing Report and associated attached documents for the proposed development be submitted to the Municipality of West Grey, Saugeen Valley Conservation Authority and Grey County in support of Draft Plan Approval.

If you have any questions regarding the above, please contact either of the undersigned at 519-506-5959 ext. 101.

Sincerely,

Cobide Engineering Inc.

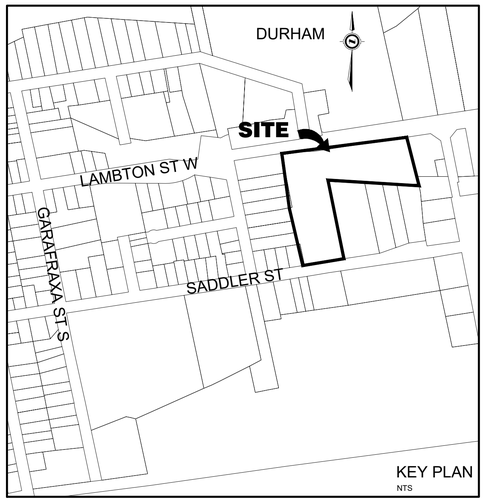
Travis Burnside, P. Eng.

Amy Hoffarth, E.I.T.

Appendix A

DRAWINGS

- **01855-DP1 – DRAFT PLAN OF SUBDIVISION**
- **01855-MAP1 – PROPOSED WATER DISTRIBUTION NETWORK**
- **01855-MAP2 – PROPOSED SANITARY SEWER NETWORK**
- **01855-MAP3 – PROPOSED STORM SEWER NETWORK**



RESIDENTIAL 'R2' ZONE PROVISIONS			RESIDENTIAL 'R3 ZONE PROVISIONS
	SEMI-DETACHED	STREET TOWNHOUSE	CLUSTER TOWNHOUSE
LOT AREA (MIN.)	275 sq.m.	280 sq.m.	(SEE NOTE 2 BELOW)
LOT FRONTAGE (MIN.)	9.0m	6.5m	20.1m
FRONT YARD (MIN.)	7.6m	7.5m	7.6m
REAR YARD (MIN.)	7.6m	7.5m	7.6m
EXT. SIDE YARD (MIN.)	7.6m	7.5m	7.6m
INT. SIDE YARD (MIN.)	1.2m & 1.8m & 3.7m (SEE NOTE 1 BELOW)	3.0m	6.0m
MAX. LOT COVERAGE	45.0%	-	-

NOTE:
1) INTERIOR SIDE YARD REQUIREMENTS FOR A ONE STOREY UNIT IS 1.2m. MORE THAN ONE STORY IS 1.8m. NO ATTACHED GARAGE IS 3.7m. EXCEPTING HOWEVER THAT THE SIDE YARD ALONG THE COMMON WALL DIVIDING THE ATTACHED UNITS SHALL BE 0m.
2) LOT AREA MINIMUM:
a) 1393.5 sq. m FOR THE FIRST FOUR UNITS.
b) 264.8 sq. m FOR EACH ADDITIONAL UNIT THEREAFTER

SOURCE: MUNICIPALITY OF WEST GREY,
ZONING BYLAW No. 37-2006 (INCLUDES AMENDMENTS IN FORCE AND EFFECT AS OF APRIL 1, 2017)

Lot Information			
Lot Number	Frontage (m) *(AS DEFINED IN ZONING BY-LAW)*	Area (sq.m)	Lot Coverage
1	17.8	659.1	24.2%
2	12.7	414.4	38.6%
3	12.7	387.4	41.2%
4	9.1	277	49.3%
5	9.1	277	49.3%
6	12.7	384	41.6%
7	12.7	384	41.6%
8	9.1	277	49.3%
9	9.1	301.7	45.4%
10	12.7	419.2	38.1%
11	19.8	656.3	38.4%
12	19.8	656.9	38.3%
13	18.5	570.9	28.0%
14	16.7	470.6	34.0%
15	16.7	512.2	31.2%
16	9.1	280.5	48.8%
17	9.1	280.2	48.8%
18	12.7	388	41.2%
19	12.7	387.5	41.2%
20	9.1	279.2	48.8%
21	9.1	278.9	48.8%
22	12.7	386.2	41.2%
23	12.7	385.7	41.2%
24	9.1	277.9	48.8%
25	9.1	277.7	48.8%
26	18.4	569.1	28.1%
BLOCK 27	-	11163.3	
BLOCK 28	-	1233.6	

DRAFT PLAN OF SUBDIVISION

SADDLER ST. TOWNHOUSES
PART OF PARK LOTS 13, 14 & 15
NORTH SIDE OF SADDLER STREET
REGISTERED PLAN 500
TOWN OF DURHAM
MUNICIPALITY OF WEST GREY
COUNTY OF GREY

RELEVANT SITE INFORMATION

SEMI-DETACHED RESIDENTIAL LOTS (6) (LOTS 1 TO 2, LOTS 11 TO 14)	0.331 ha.
STREET TOWNHOUSE RESIDENTIAL LOTS (20) (LOTS 3 TO 10, LOTS 15 TO 26)	0.696 ha.
MUNICIPAL STREET (STREET A)	0.393 ha.
BLOCK 27 (MULTI-FAMILY UNIT DWELLING)	1.018ha.
BLOCK 28 (STORM WATER MANAGEMENT)	0.123 ha.
TOTAL PROPOSED SUBDIVISION	2.563 ha.

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

a. AS SHOWN
b. AS SHOWN
c. AS SHOWN
d. MULTI-FAMILY RESIDENTIAL
e. AS SHOWN
f. AS SHOWN
g. AS SHOWN
h. MUNICIPAL WATER SUPPLY
i. SANDY SILT & GRAVEL
j. AS SHOWN
k. WATER, STORM SEWERS, SANITARY SEWERS, HYDRO, TELEPHONE
l. AS SHOWN

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:
THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE CORRECTLY SHOWN.

JAMES LAWS O.L.S.
VAN HARTEN SURVEYING INC.

DATE

OWNER'S CERTIFICATE

I, THE REGISTERED OWNER OF THESE LANDS, HEREBY AUTHORIZE COBIDE ENGINEERING INC. TO SUBMIT THIS DRAFT PLAN FOR APPROVAL.

DATE

OWNER

DRAFT APPROVAL SIGNATURE BLOCK

APPROVED IN ACCORDANCE WITH SECTION 51(31) OF THE PLANNING ACT, RSO, 1990, CHAPTER P.13, AS AMENDED,

THIS _____ DAY OF _____, 20___

SECRETARY-TREASURER OF THE LAND DIVISION COMMITTEE
COUNTY OF GREY

SCALE 1:500
5 0 2.5 5 10 15 25 METRES
30 20 10 0 25 50 100 FEET

No.	DATE	DESCRIPTION	BY	APPD
1	DEC 07/23	FIRST SUBMISSION	JHL	TLB

REVISION / ISSUE

COBIDE ENGINEERING INC
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Title:
PROPOSED SUBDIVISION
REGISTERED PLAN 500
TOWN OF DURHAM
MUNICIPALITY OF WEST GREY

Client: TREMBLE

Design:	TLB	Scale:	1:500
Drawn:	JHL	Approved:	
Checked:	TLB		
Date:	DEC 2023		Design Engineer

DRAWING No. 01855-DP1

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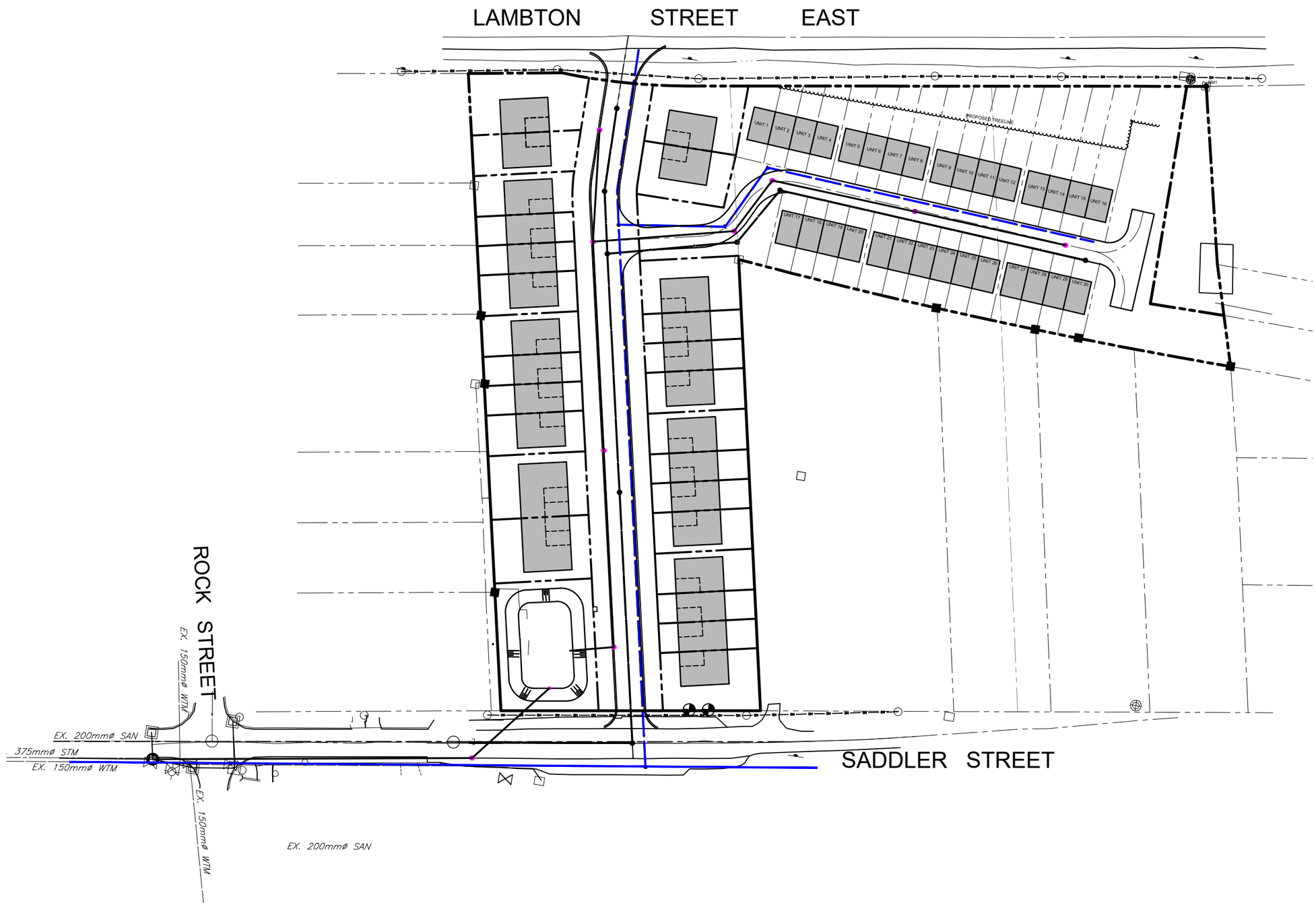

LEGEND

- PROPOSED SUBDIVISION BOUNDARY
- EXISTING PROPERTY / LOT LINE
- EDGE OF EXISTING PAVEMENT
- EXISTING TREE LINE
- EXISTING HYDRO GUY WIRE
- HP — EXISTING HYDRO POLE
- SIB — STANDARD IRON BAR
- IB — IRON BAR
- EXISTING WATERMAIN
- PROPOSED WATERMAIN

No.	DATE	DESCRIPTION	BY	APPD
0	JAN 05/24	FSR SUBMISSION	TLB	TLB

REVISION / ISSUE

Title:
SADDLER ST TOWNHOUSE DEVELOPMENT
TOWN OF DURHAM

WATER DISTRIBUTION NETWORK

Client:
TREMBLE

COBIDE ENGINEERING INC
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Design:	JHL	Scale:	1:1250
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Checked:	TLB		
Date:	JAN 2024		Design Engineer

DRAWING No. 01855-MAP1

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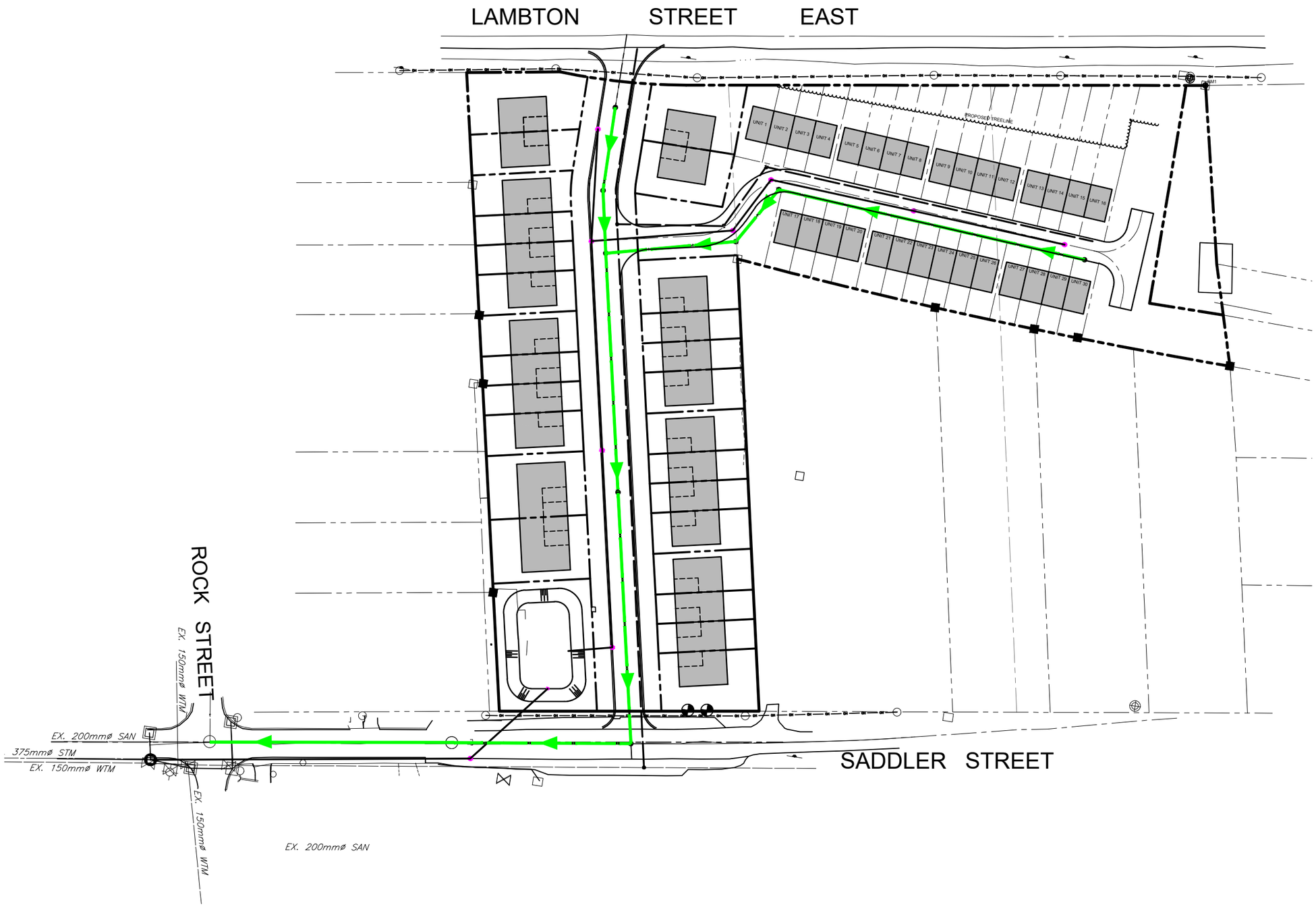

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- SIB — STANDARD IRON BAR
- IB — IRON BAR
- PROPOSED SANITARY SEWER & DIRECTION OF FLOW
- EXISTING SANITARY SEWER & DIRECTION OF FLOW

No.	DATE	DESCRIPTION	BY	APPD
0	JAN 05/24	FSR SUBMISSION	TLB	TLB

REVISION / ISSUE

Title:

SADDLER ST TOWNHOUSE DEVELOPMENT
TOWN OF DURHAM

SANITARY SEWER NETWORK

Client:

TREMBLE

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Checked:	TLB		
Date:	JAN 2024		Design Engineer

DRAWING No. 01855-MAP2

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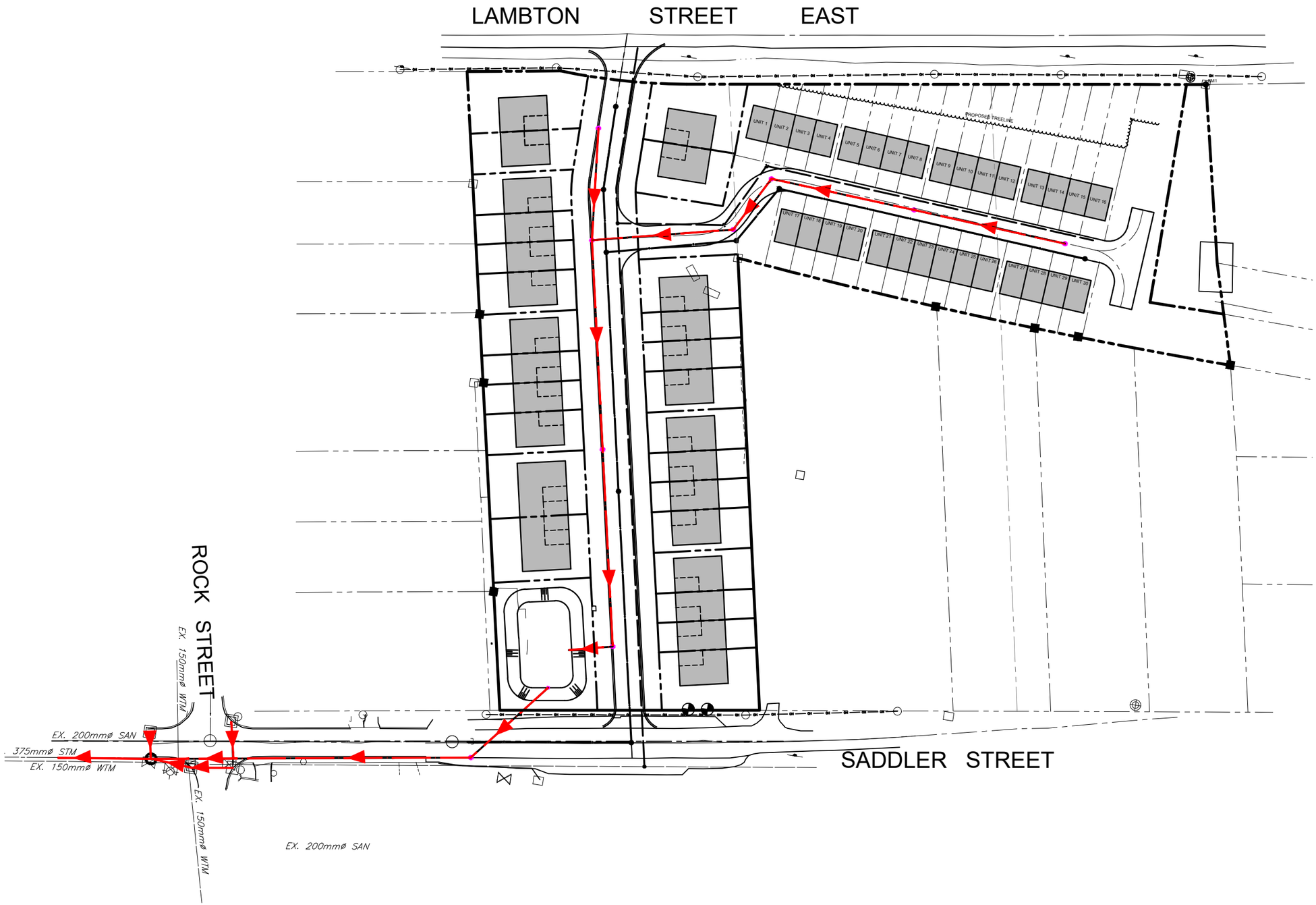

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- HP — EXISTING HYDRO POLE
- SIB — STANDARD IRON BAR
- IB — IRON BAR
- PROPOSED STORM SEWER & DIRECTION OF FLOW
- EXISTING STORM SEWER & DIRECTION OF FLOW

No.	DATE	DESCRIPTION	BY	APPD
0	JAN 05/24	FSR SUBMISSION	TLB	TLB

REVISION / ISSUE

Title:
SADDLER ST TOWNHOUSE DEVELOPMENT
TOWN OF DURHAM
STORM SEWER NETWORK

Client:
TREMBLE

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DRAWING No. 01855-MAP3

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