BLANCHARD LETENDRE
ENGINEERING

ADEQUACY OF SITE SERVICING REPORT

Project Address –1274 Marygrove Circle
Ottawa, ON

Client: **Oleksandr Patsukevych**

By Blanchard Letendre Engineering Ltd.
Date – July 25, 2023
Our File Reference: 23-172

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1. INTRODUCTION

Blanchard Letendre Engineering Ltd. (BLEL) was retained by Oleksandr Patsukevych to prepare a site servicing adequacy report for their proposed semi-detached building on the property located on 1274 Marygrove Circle in the City of Ottawa, Ontario.

This report will address the servicing (water, sanitary) requirements associated with the proposed development in response to the request of the City of Ottawa Planning department due to a rezoning application.

1.1. SITE DESCRIPTION

The existing site is located at 1274 Marygrove Circle, a short street ending with a cul-de-sac. The subject property measures a total area of approximately 0.05.ha.

Currently, the subject property features an existing single family home, which will be demolished and the proposed building will be constructed

1.2. PROPOSED DEVELOPMENT

The proposed development will be a 2-unit semi-detached building with a HIP roof and 2 regular garages, based on the site plan and conceptual floor plans by the owner's designer, Vince Catelli.

The site is fronting 225mm diameter concrete sanitary sewer, a 152mm diameter uncoated cast iron watermain and 300mm diameter concrete storm sewer on Marygrove Circle.

The site is proposed to be serviced from existing municipal water and sanitary services on Marygrove Circle Street.

2. WATER SUPPLY

2.1. Existing Residential Water Demand:

The water is distributed from the grid not far from the proposed development to Clyde Ave and runs from a feeder main on Maitland Ave, to Prom. Terrebonne Dr and finally to Marygrove circle.

The existing water demand is calculated based on the City of Ottawa Water Distribution Design Guidelines for an average house as follow:

- Residential occupancy = 3.4 persons per single family home unit (Table 4.1)

Total occupancy = 3.4 persons

- Residential Average Daily Demand = 280 L/c/d. (Table 4.2)
- Average daily demand of 280 L/c/day x 3.4 persons = 952 Liters/day or 0.011 L/s.
- Maximum Daily Demand (factor of 2.5) is 0.011 L/s x 2.5 = 0.028 L/s
- Peak hourly demand (factor of 2.2) = 0.028 L/s x 2.2 = 0.061 L/s

2.2. Proposed Residential Water Demand

The water demand is calculated based on the City of Ottawa Water Distribution Design Guidelines as follow:

- Residential occupancy = 2.7 persons per semi-detached unit (Table 4.1)
- 2x unit x 2.7pers./unit = 5.4 persons

Total occupancy = 5.4 persons rounded up to 6 persons

- Residential Average Daily Demand = 280 L/c/d. (Table 4.2)
- Average daily demand of 280 L/c/day x 6 persons = 1680 Liters/day or 0.019 L/s.
- Maximum Daily Demand (factor of 2.5) is 0.019 L/s x 2.5 = 0.049 L/s
- Peak hourly demand (factor of 2.2) = 0.049 L/s x 2.2 = 0.11 L/s

The difference in maximum daily demand = 0.11 L/s -0.061 L/s = 0.05 L/s is negligible.

2.3. Fire Fighting Requirements:

Water demand for firefighting was calculated using both the OBC method and the 2020 FUS method, though the 2020 FUS is proposed to govern the design. The proposed building is defined as two semi-detached units, with both units having two combustible storeys of 107 sq.m in area. The construction style is not defined, and despite the drawings being suggestive of an ICF type construction, fully combustible construction with a fire separation has been assumed.

The fire flow for one area was calculated as 7000L/m for each unit. A copy of the calculation can be found in Appendix A.

The proposed development is within 40m of a hydrant, in accordance with table 2, footnote a.

2.4. Water Boundary Conditions:

The above calculated residential water supply requirement and Fire Fighting Requirement were provided to the City of Ottawa for boundary conditions. The following are boundary conditions, (Provided by the City of Ottawa) HGL, for hydraulic analysis at 1274 Marygrove Circle assumed tobe connected to the 152 mm watermain on Marygrove Circle.

Minimum HGL = 126.7m
Maximum HGL = 133.0m
MaxDay + FireFlow (48 L/s) = 93.5m

The proposed development will have an underside of footing of 91.32m. The maximum and minimum HGL in the main at the proposed connection will be 41.68m (59.27 psi) and 35.38m (50.31 psi). The available pressure range exceeds the city's minimum 50psi, but does not exceed 70 psi and therefore pressure reducing valves are not required.

The building is proposed to be serviced with two 19mm diameter HDPE water service (1 for each unit) connecting to the water main on Marygrove Circle. Using the Hazen Williams Equation:

$$h_f = \frac{10.67 \times Q^{1.85} \times L}{C^{1.85} \times d^{4.87}}$$

Where:

hf	Head loss over the length of pipe (m)
Q	Volumetric flow rate (m3/s)
L	Length of pipe (m)
C	Pipe roughness coefficient
d	Pipe diameter (m)

The pressure loss as a result of servicing this development was determined to be 0.36psi, which is negligible.

2.5. Water Main Capacity

Fire hydrant flow and pressure tests were provided by the City of Ottawa for one hydrant. The Hydrant is located on the intersection of Marygrove Circle and Prom.Terrebone Dr. Available fire flow is at a pressure of 20psi with a flow of 48L/s (2880 L/m). There are at least one additional hydrant within 135m and another within 95m.

With a static pressure of 20psi, the available fire flow from the single nearest hydrant is not enough to meet the FUS 2020 recommended fire flow.

A copy of fire hydrant flow can be found in Appendix B.

The available fire flow is 2880 L/min, which exceeds the required 1800L/min by the OBC method. A recalculation of the city's boundary conditions to determine the elevation head under MaxDay+FireFlow, or reverting to the OBC method is recommended.

3. SANITARY SEWAGE

3.1. Existing Sanitary Sewage Calculation:

The existing sanitary sewer on Marygrove Circle discharges into the one in Prom. Terrebonne Dr. The existing sanitary sewer on Terrebonne Drive also receives effluent from Maitland Ave Prom. Cameo and Greyrock Cres. The total upstream resident count has been estimated at 502 people with an average daily sewage generation of 1.63L/s.

An infiltration allowance of 0.33L/s/Ha has been considered. With an approximate area of 7.61ha, the extraneous flow will be 2.51L/s. The total average flow was calculated as 4.14L/s.

A peaking factor of PF=3.97 was calculated using the Harmon Equation. The peak flow is therefore 16.44 L/s.

3.2. Proposed Sanitary Sewage Calculation:

The design population will be the same as determined in the domestic water servicing section above. The design population of the building was determined to be 6 people.

The sanitary sewage flows were calculated in accordance with Chapter 5 of the MOE's 2008 Design Guidelines for Sewage Works. A per capita sewage flow of 280L/person/day was assumed. The total domestic sewage flow for 6 people is 0.024L/s. The peak factor, using the Harmon Formula, was found to be 4.5* use 4 maximum, for a peak sewage flow of approximately 0.1 L/s.

An extraneous flow allowance of 0.33 L/s/ha was assumed. With a site 0.05ha in size, the extraneous flow is 0.017 L/s, for a total design flow of 0.117L/s.

The total average daily demand for the site plus upstream domestic sewage generation is 1.64L/s and a population of 505 residents. The infiltration allowance remains 2.51L/s.

The peak factor is not affected. The proposed peak flow is therefore still 16.48m, after rounding up.

3.3. Domestic Sanitary Service:

This building is proposed to be served by two 135mm diameter PVC sanitary services (1 for each unit). With a slope of 2%, the sanitary service for each unit will have a capacity of approximately 19 L/s.

A copy of the sanitary flows can be found in Appendix C.

3.4. City Sanitary Sewer Capacity:

The existing sanitary sewer on Terrbonne Drive is a 300mm concrete pipe with a slope of 0.65% which has a capacity of 81.33 L/s as per appendix 6A of the city's sewer design guidelines. The proposed development will therefore have negligible impact on the city's sanitary sewers.

4. STORM SEWAGE

Each unit is proposed to have foundation drainage outletting to the storm sewer using a private storm service.

The proposed development will increase the imperviousness of the island. It is assumed that the site storm will be dealt with using lot level controls, designed by others. Therefore, there will be no impact on nearby storm sewers.

The site grading has been designed by Fairhall Moffat & Woodland Limited, and demonstrates that the site drainage will be split between Marygrove Circle and an easement along the rear property line. No details of downspout locations are available at this time.

CONCLUSION

1. There is an adequate water supply for domestic use and firefighting.
2. The existing water pressure is adequate for the proposed development.
3. Since it is estimated that the water pressure is less than 80 psi, pressure reducing valves are not required.
4. The proposed water service connection is adequately sized to serve the development.
5. The expected sanitary sewage flow will be adequately handled by the proposed sanitary sewer service connection.
6. The expected sanitary sewage flow will be adequately handled by the by the existing sanitary sewers on Marygrove Circle
7. The increase in sanitary flows contributing to the existing municipal sanitary sewer on Prom. Terrebonne is expected to have a negligible impact.

For any comment or clarification please contact the undersigned.
Should you have any question, do not hesitate to let us know.

Yours truly,

Blanchard Letendre Engineering Ltd.,

Michael Jans, P.Eng.

APPENDIX A – FIRE FLOW CALCULATION

Fire Flow Calculations

Revision 01

BLE File No. 23-172
Project JLXMD
Date April 18, 2023
Method Fire Underwriters Survey (FUS)
Designed by A. ElHatimi

Semi-detached building	211	
	211	m^2

Step	Task	Term	Options	Multiplier	Choose:	Value	unit	Fire Flow
Structural Framing Material								
1	Choose frame used for building	Coefficient C related to the type of construction	Wood Frame	1.5	Wood Frame	1.5		
			Ordinary Construction	1.0				
			Non-combustible construction	0.8				
			Fire resistive construction <2 hrs	0.7				
			Fire resistive construction >2 hrs	0.6				
Floor Space Area								
2	Choose type of housing	Type of housing	Single family dwelling	0	Townhouse - no. of units	1	unit	
			Townhouse - no. of units	1				
			Building - no. of units per floor	0				
	Enter no. of storeys	Number of floors/storeys for the building (excluding the basement)				2	floor	
3	Enter area of a unit	Enter floor space area of one unit		1	107	214	sq.m.	
4	Obtain fire flow before reductions	Required fire flow	**Fire Flow = 220 x C x Area^0.5**				L/min	**4,827**
							L/s	80
Reductions or surcharge due to factors affecting burning								
5	Choose combustibility of contents	Occupancy hazard reduction or surcharge	Non-combustible	-0.25	Limited combustible	-0.15		
			Limited combustible	-0.15				
			Combustible	0				
			Free burning	0.15			L/min	**4,103**
			Rapid burning	0.25			L/s	68
6	Choose reduction for sprinklers	Sprinkler reduction	Sprinklers (NFPA13)	-0.30	False	0		
			Water supply is standard for both the system and fire department hose lines	-0.10	False	0	L/min	**4,103**
			Fully supervised system	-0.10	False	0	L/s	68
7	Choose separation	Exposure distance between units	North side	20.1 to 30m	0.25			
			East side	3.1 to 10m	0.2			
			South side	20.1 to 30m	0.1		L/min	**7,181**
			West side	3.1 to 10m	0.2	0.75	L/s	120
Net required fire flow								
8	Obtain fire flow, duration, and volume	Minimum required fire flow rate (rounded to nearest 100)					L/min	**7,200**
		Minimum required fire flow rate					L/s	**120**
		Required duration of fire flow					min	**120**
		Required volume stored on site					m^3	**864**

APPENDIX B – BOUNDARY CONDITIONS

Alae El Hatimi

From: Rathnasooriya, Shika <Thakshika.Rathnasooriya@ottawa.ca>
Sent: Tuesday, May 23, 2023 2:25 PM
To: Alae El Hatimi
Subject: RE: 23-172_1274 Marygrove Circle_Adequacy report
Attachments: 1274 Marygrove Circle May 2023.pdf

Hi Alae,

Please see boundary conditions below. As the required fire flow cannot be achieved, a multi-hydrant analysis will be required.

The following are boundary conditions, HGL, for hydraulic analysis at 1274 Marygrove Circle (zone 2W2C) with assumed to be connected to the 152 mm watermain on Marygrove Circle (see attached PDF for location).

All Connections:

Minimum HGL: 126.7 m

Maximum HGL: 133.0 m

Available fire flow at 20 psi: 48 L/s, assuming ground elevation of 93.5 m

These are for current conditions and are based on computer model simulation.

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation.

Regards,
Shika Rathnasooriya, P.Eng
Project Manager
Planning, Real Estate and Economic Development Department - West Branch
City of Ottawa
110 Laurier Avenue West Ottawa, ON
613.580.2424 ext. 23433

From: Alae El Hatimi <alae@blengineering.ca>
Sent: May 17, 2023 1:28 PM
To: Rathnasooriya, Shika <Thakshika.Rathnasooriya@ottawa.ca>
Cc: Damien Letendre <damien@blengineering.ca>; Michael Jans <michael@blengineering.ca>; sashaandco@hotmail.com; Vince Catalli <vincecatalli@hotmail.com>; Watson, Kieran <kieran.watson@ottawa.ca>
Subject: RE: 23-172_1274 Marygrove Circle_Adequacy report

APPENDIX C – SANITARY FLOW CALCULATION

Cumulative Sanitary Flow

Existing					
Street	nb. Units	nb.hectars	nb.ppl	average daily flow Litre/Day	L/s
Av.Maitland	28	3.74	224.4	62832	0.727222
Prom cameo	34	2.52	151.2	52416	0.606667
	20	0.6	36.0		
Marygrove Circle	17		45.9	12852	0.14875
grayrock cres	15	0.75	45	12600	0.145833
Total		7.61	502.5	140700	1.628472

Proposed					
Street	nb. Units	nb.hectars	nb.ppl	average daily flow Litre/Day	L/s
Av.Maitland	28	3.74	224.4	62832	0.727222
Prom cameo	34	2.52	151.2	52416	0.606667
	20	0.6	36.0		
Marygrove Circle	18		48.6	13608	0.1575
grayrock cres	15	0.75	45	12600	0.145833
Total			505.2	141456	1.637222

APPENDIX D – CIVIL DESIGN BY FAIRHALL MOFFAT WOODLAND

METRIC
DISTANCES AND ELEVATIONS SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

CAUTION
THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

Limit of Proposed Road Cuts
–Existing Water Service to be Confirmed to be Blanked at the Main at Time of Construction.
–40mm Lift of HMA Superpave 12.5mm PG 58–34 Level B Asphalt to be Placed to Cover the Extent of the Road Cuts if 3 or More Road Cuts are Located Within 12m of Each Other.
–The Extent of the Resurfacing Must Be to the Nearest Lane Line, Centreline, or Curb of Each Road Cut.

Approximate Area of Road Resurfacing Required =122m²

MH(Storm) Top=93.57 South Inv.=91.65 (Location Not To Scale)

MH(Sanitary) Top=93.68 South Inv.=90.64 (Location Not To Scale)

MH(Storm) Top=93.89 North Inv.=90.97 (Location Not To Scale)

MH(Sanitary) Top=93.77 North Inv.=90.40 (Location To Scale)

MH(Water)

Limit of Proposed Road Cut (Approximate area of road cut=25m²)

Limit of Proposed Road Cut (Approximate area of road cut=25m²)

300mm Dia. Concrete Storm Sewer (MH–MH ±87.6)

Storm Main Inv.=91.36± Spring Line Elev.=91.51± Connection Inv.=91.54±

Storm Main Inv.=91.28± Spring Line Elev.=91.43± Connection Inv.=91.46±

M A R Y G R O V E C I R C L E

P I N 0 3 9 9 5 – 0 1 0 8

Sanitary Main Inv.=90.52± Spring Line Elev.=90.63± Connection Inv.=90.66±

Sanitary Main Inv.=90.48± Spring Line Elev.=90.60± Connection Inv.=90.63±

225mm Dia. Concrete Sanitary Sewer (MH–MH ±69.8)

Crown of Travelled Portion of Road

Watermain Obvert=91.59± Watermain Invert=91.44± Sanitary Obv.=90.85± (under watermain) Storm Inv.=91.89± (over watermain) See Note 20.

New Depressed Curb To Be Installed As Per City Standard SC8.1

Existing Depressed Curb To Remain

Watermain Obvert=91.59± Watermain Invert=91.44± Sanitary Obv.=90.83± (under watermain) Storm Inv.=91.89± (over watermain) See Note 20.

150mm Dia. Uncoated Cast Iron Watermain

35mm Dia. Gasmain

Existing Depressed Curb To Be Reinstated To Full Height As Per City Standard SC1.1

Job Benchmark
Fire Hydrant – Top of Spindle Elevation=94.78

TOTAL SERVICING MATERIALS
– EACH UNIT –
(Minimum Lengths)

WATER SUPPLY – 16±m. 19mm dia. SOFT K COPPER
SANITARY SEWER – 19±m. 125mm dia. P.V.C. SDR 28
STORM SEWER –24±m. 100mm dia. P.V.C. SDR 28

Tree Shown For Reference Purposes Only

Underground Hydro (Street Lighting)

Asphalt

Depressed Curb

Barrier Curb

Sewer Service – Minimum 1.0% Slope

Driveway

Walkway (Interlock)

Install WSOV

N 31°58'38" W

15.24

0.20 Wide Interlock Retaining Wall

0.18 Wide Interlock Retaining Wall

Concrete Steps and Landing

Concrete Steps and Covered Landing

Eave

Porch

Garage

Min. Storm Inv. Elev. at Foundation Wall= 92.09 (See Note 11.)

Sump Pit and Pump To Be Installed (Install BWV –See Note 23.)

Sanitary Sewer Inv. Elev. =91.02 (Install BWV –See Notes 10. & 11.)

PROPOSED 2 STOREY SEMI–DETACHED DWELLING (HIP ROOF)

L O T 2 0 6

P I N 0 3 9 9 5 – 0 0 7 0

GFL = 94.47
TFW = SEE NOTE 1.
T/FTG = 91.52
USF = 91.32

Air Conditioning Unit (On Metal Wall Support)

#1274 2 Storey Split–Level Dwelling (Stucco, Brick, Stone & Vinyl Siding)

Patio (Interlock)

Deck

Chimney (Brick Noted)

Air Conditioning Unit (On Concrete Pad)

#1270 1 Storey Brick Dwelling (Brick Noted)

#1278 (Marygrove Circle) Stucco Dwelling 1 Storey at Front 2 Storey at Rear (Stucco Noted)

L O T 2 0 5

P I N 0 3 9 9 5 – 0 0 7 1

L O T 2 0 7

P I N 0 3 9 9 5 – 0 0 6 9

L O T 1 6 6

L O T 1 6 5

P I N 0 3 9 9 5 – 0 0 6 7

L O T 1 6 4

P I N 0 3 9 9 5 – 0 0 6 8

CR331318

Easement

Subject To

Overhead Utility Wires

Metal Fence

Board Fence

Gate

0.09 Wide BF

0.04 Wide Concrete Edging (For Garden)

Shed (Metal)

Shed (Vinyl)

Play Structure (Wooden)

Garden

Match To Existing Grades.

Street Lighting Disconnect Box (Attached To Utility Pole)

Pergola (Wooden)

0.14 Wide Wooden Retaining Wall

N 21°28'25" W

15.50

N 58°03'10" E

Terrebonne Drive

Registered Plan 204

SCALE 1 : 100
0 1 2 3 4 5 10 metres

NOTES

1. ONE – 2 STOREY SEMI–DETACHED DWELLING TO BE CONSTRUCTED. DWELLING TO BE CONSTRUCTED USING CONTINUOUS INSULATED CONCRETE FORMS (ICF) ON ALL FLOORS AND AS SUCH DOES NOT HAVE A DEFINED TOP OF FOUNDATION WALL.
2. LOT DIMENSIONS AND EXISTING CONDITIONS ARE AS SHOWN ON TOPOGRAPHIC SURVEY BY FAIRHALL, MOFFATT & WOODLAND LIMITED O.L.S., DATED JANUARY 25, 2023, REF. 28 – 330973.
3. EXCAVATE AND DISPOSE OF ALL EXCESS EXCAVATED MATERIAL, SUCH AS ASPHALT, CURBING AND DEBRIS, OFF SITE OR AS DIRECTED BY THE ENGINEER.
4. BUILDER TO VERIFY LOCATION OF ALL UNDERGROUND UTILITIES AND SERVICES PRIOR TO CONSTRUCTION AND TO VERIFY INVERT ELEVATIONS OF SEWER STUBS AND TO VERIFY MINIMUM SEPARATION DISTANCES.
5. EXISTING ASPHALT DRIVEWAY IS TO BE REMOVED AND REPLACED WITH SOFT SURFACE WHERE APPLICABLE.
6. ALL SERVICES ARE TO BE EXPOSED AND GRADES DETERMINED IN THE FIELD BEFORE COMMENCING NEW CONNECTIONS.
7. **INSTALL SEWER SERVICES PRIOR TO HOUSE EXCAVATION TO VERIFY PROPOSED UNDERSIDE OF FOOTING ELEVATION.**
8. WATER AND SEWER WORK AND MATERIALS TO BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS.
9. SANITARY/STORM SERVICE LATERAL TO CONNECT TO SANITARY/STORM MAIN IN ACCORDANCE WITH CITY STANDARD S11 FOR CONNECTION TO RIGID SEWER MAIN. CONNECTION VIA CORING IS REQUIRED, AS PER CITY STANDARD S11.2, WHERE SERVICE LATERAL DIAMETER IS GREATER THAN 50% OF THE DIAMETER OF THE RIGID SEWER MAIN.
10. INVERT ELEVATION FOR SANITARY SERVICE TO BE 300MM BELOW USF AT DWELLING OR SLEEVED.
11. PROPOSED SEWER LATERAL AND WATER SERVICE LATERAL TO BE SLEEVED UNDER EACH PORCH. PROPOSED STORM LATERAL TO BE SLEEVED THROUGH FOUNDATION WALL.
12. BACKWATER VALVES ARE TO BE INSTALLED AS PER CITY STANDARDS S14 AND S14.1 OR S14.2.
13. INSTALLATION OF REMOTE WATER METER PER CITY OF OTTAWA STANDARDS.
14. CONNECTION TO EXISTING WATER BY CITY OF OTTAWA FORCES.
15. MINIMUM COVERAGE FOR ALL SEWER LATERALS AND LEADS SHALL BE 2.0m FROM THE FINISHED GRADE UNLESS INSULATION IS PROVIDED AS PER CITY STANDARD W22.
16. EAVES TROUGHING WILL BE INSTALLED. EAVES TROUGH DOWNSPOUTS TO BE DISCHARGED TOWARD THE STREET AND SPLASH PAD TO BE INSTALLED WHEN DOWNSPOUT IS LESS THAN 1.5m FROM PROPERTY LIMIT.
17. GRADING IN GRASSED AREAS IS TO BE BETWEEN 2% AND 7% UNTERRACED. GRADES IN EXCESS OF 7% WILL REQUIRE TERRACING AT A MAXIMUM OF 3H:1V.
18. WATER SERVICE MUST HAVE A MINIMUM 2.4m OF COVER OR INSULATED AS PER CITY STANDARD W22.
19. ANY PROPOSED WINDOW WELLS ARE TO BE DRAINED THROUGH GRAVEL TOWARD WEEPING TILE. DIRECT CONNECTIONS TO WEEPING TILES ARE PROHIBITED.
20. WATERMAIN DEPTH IS TO BE VERIFIED IN THE FIELD. 0.30 MINIMUM SEPARATION BETWEEN EXISTING WATERMAIN AND PROPOSED SEWER LATERALS. IF 0.30 MINIMUM SEPARATION CANNOT BE MET BASED ON FINDINGS, UNSHRINKABLE FILL IS TO BE USED UPON COORDINATION WITH CITY INSPECTOR.
21. EXISTING WATER SERVICE TO BE BLANKED AT THE MAIN.
22. EXISTING SEWER LATERALS ARE TO BE DECOMMISSIONED AT THE PROPERTY LIMIT AS PER CITY OF OTTAWA STANDARD S11.4
23. **SUMP PIT AND PUMP TO BE INSTALLED FOR EACH UNIT.**
24. ANY PROPOSED SWALES ARE TO BE A MINIMUM 0.30m FROM ALL PROPERTY LINES.
25. GRADING TO MATCH EXISTING GRADES AROUND PERIMETER OF LOT. NO CHANGE TO EXISTING DRAINAGE PATTERNS ARE PROPOSED.
26. NO EXCESS DRAINAGE WILL BE DIRECTED TOWARD NEIGHBOURING PROPERTIES DURING OR AFTER CONSTRUCTION.
27. ALL CATCH BASINS AND MAINTENANCE HOLES ARE TO BE PROTECTED DURING CONSTRUCTION ACTIVITIES BY INSTALLING SEDIMENT BARRIERS.
28. THE CONTRACTOR WILL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES BY ANY APPLICABLE REGULATORY AGENCY.
29. PROPOSED SERVICES ARE TO BE LOCATED OUTSIDE OF A TREE'S CRITICAL ROOT ZONE (CRZ). THE RADIUS OF THE CRITICAL ROOT ZONE (CRZ) IS CALCULATED BY MULTIPLYING THE DIAMETER OF THE TREE TRUNK AT BREAST HEIGHT BY A FACTOR OF 10. THIS AREA, CENTRED AROUND THE BASE OF THE TREE, IS TO BE PROTECTED BEFORE AND AFTER CONSTRUCTION. PLEASE NOTE THAT A TREE PERMIT IS REQUIRED TO REMOVE ANY TREES LOCATED IN THE RIGHT–OF–WAY. VISIT OTTAWA.CA/URBANTREE OR PHONE 311 AND TO APPLY FOR A DISTINCTIVE TREE PERMIT OR FOR MORE INFORMATION REGARDING THE URBAN TREE CONSERVATION BY–LAW.
30. ALL TREES ON THE SUBJECT PROPERTY AND RIGHT–OF–WAY (STREET) SHALL BE PROTECTED AS PER THE 'MUNICIPAL TREES AND NATURAL AREAS PROTECTION BY–LAWS' AND THE 'URBAN TREES CONSERVATION BY–LAW', AS AMENDED FROM TIME TO TIME.
31. ALL TREES WITHIN THE STREET RIGHT OF WAY TO BE PROTECTED AND MAINTAINED BEFORE AND AFTER CONSTRUCTION.
32. ACCORDING TO THE URBAN TREE CONSERVATION BY–LAW, PROPERTIES THAT ARE ONE HECTARE OR LESS REQUIRE A TREE PERMIT TO REMOVE TREES WITH A DIAMETER OF 0.30m OR GREATER. Visit ottawa.ca/urbantree or phone 613–580–2401 for more information regarding the Urban Tree Conservation By–Law.
33. ALL TREES ON CITY PROPERTY ARE TO BE PROTECTED(eg. place protective fencing around the tree no closer than at the critical root zone) prior to and during construction as per the Protection Measures outlined in the Municipal Trees and Natural Protection By–law (2006–279); failure to do so may result in a fine or tree compensation.

Normal High Ground Water Table (NHGWT) Elevation relative to the Underside of Footing (USF) Elevation for Infill Projects

The relationship between the proposed Underside of Footing (USF) elevation and the Normal High Ground Water Table (NHGWT) elevation for the residential unit(s) has not been verified and is to be determined prior to or at the time of footing/foundation excavation as per the City of Ottawa – Building Code Services requirements.

If it is determined that the footing(s) will be below the NHGWT elevation, it is the responsibility of the owner to mitigate this situation by either raising the footing elevation above the NHGWT elevation or demonstrate the use of appropriate foundation water proofing methods as per current building code requirements, as amended. The owner must apply for and receive any applicable permits before proceeding with the aforementioned works.

Fairhall, Moffatt & Woodland Limited assumes no responsibility or liability for impact on footings and/or basement drainage or possible damages due to this design arrangement dated February 09, 2023.

LEGEND

⟵	– DIRECTION OF DRAINAGE
99.99	– PROPOSED GRADE
99.99	– EXISTING GRADE
99.99s	– SWALE GRADE
GFL	– GROUND FLOOR LEVEL
T/FTG	– TOP OF FOOTING
USF	– UNDERSIDE OF FOOTING
TBR	– TO BE REMOVED
TR	– TO REMAIN
BWV	– BACKWATER VALVE
WRW	– WOOD RETAINING WALL
TDC	– TOP OF DEPRESSED CURB
WSOV	– WATER SHUT OFF VALVE
DSL	– DOWNSPOUT LOCATION
PIN	– PROPERTY IDENTIFIER NUMBER
DIA.	– DIAMETER
OBV.	– OBVERT
INV.	– INVERT
EX.	– EXISTING
PROP.	– PROPOSED
FDN.	– FOUNDATION
U/S	– UNDERSIDE
C/L	– CENTRELINE
CITY	– CITY OF OTTAWA
MF	– METAL FENCE
BF	– BOARD FENCE
ASP	– ASPHALT
INTK	– INTERLOCK
● LS	– LAMP STANDARD
OHW	– OVERHEAD UTILITY WIRES
CB	– CATCH BASIN
MH	– MANHOLE
WV	– WATER VALVE
UP	– UTILITY POLE
⟵ A	– ANCHOR
GM	– GAS METER
—W—	– WATERMAIN
—OHW—	– OVERHEAD UTILITY WIRES
—G—	– GAS MAIN
—S—	– SANITARY SEWER
—ST—	– STORM SEWER
—UH—	– UNDERGROUND HYDRO
-x—x-	– FENCE
	– SWALE
	– DECIDUOUS TREE
FH	– FIRE HYDRANT
	TERRACE SLOPE – 3:1 MAX.

UTILITY NOTES

1. THIS DRAWING CANNOT BE ACCEPTED AS ACKNOWLEDGING ALL OF THE UNDERGROUND UTILITIES AND IT WILL BE THE RESPONSIBILITY OF THE USER TO CONTACT THE RESPECTIVE UTILITY AUTHORITIES FOR CONFIRMATION OR LOCATION.
2. UNDERGROUND UTILITIES, AS REPORTED ON THIS DRAWING, ARE NOT BASED ON AN ACTUAL 'FIELD LOCATE' BY THE RESPECTIVE UTILITY AGENCIES BUT HAVE BEEN COMPILED FROM DATA OBTAINED FROM THE FOLLOWING SOURCE:
   a) CITY OF OTTAWA PUBLIC UTILITIES REGISTRY
3. BEFORE ANY WORK INVOLVING PROBING, EXCAVATING, ETC., A FIELD LOCATION OF UNDERGROUND PLANT BY THE PERTINENT UTILITY AUTHORITY IS MANDATORY.

ELEVATION NOTES

1. ELEVATIONS SHOWN HEREON ARE REFERRED TO GEODETIC DATUM (CGVD28).
2. EXISTING ELEVATIONS SHOWN ALONG FACE OF CURB ARE TOP OF ASPHALT.
3. ELEVATIONS FOR MANHOLE COVERS AND CATCH BASINS HAVE TO BE INDEPENDENTLY CONFIRMED BEFORE THEY CAN BE ACCEPTED FOR FINAL DESIGN OR CONSTRUCTION PURPOSES.
4. IT IS THE RESPONSIBILITY OF THE USER OF THIS INFORMATION TO VERIFY THAT THE JOB BENCHMARK HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREE WITH THE INFORMATION SHOWN ON THIS DRAWING.

REVISIONS		
1.	FEB. 09, 2023	REVISED REAR DECK AS PER DESIGNER'S INSTRUCTIONS
2.		

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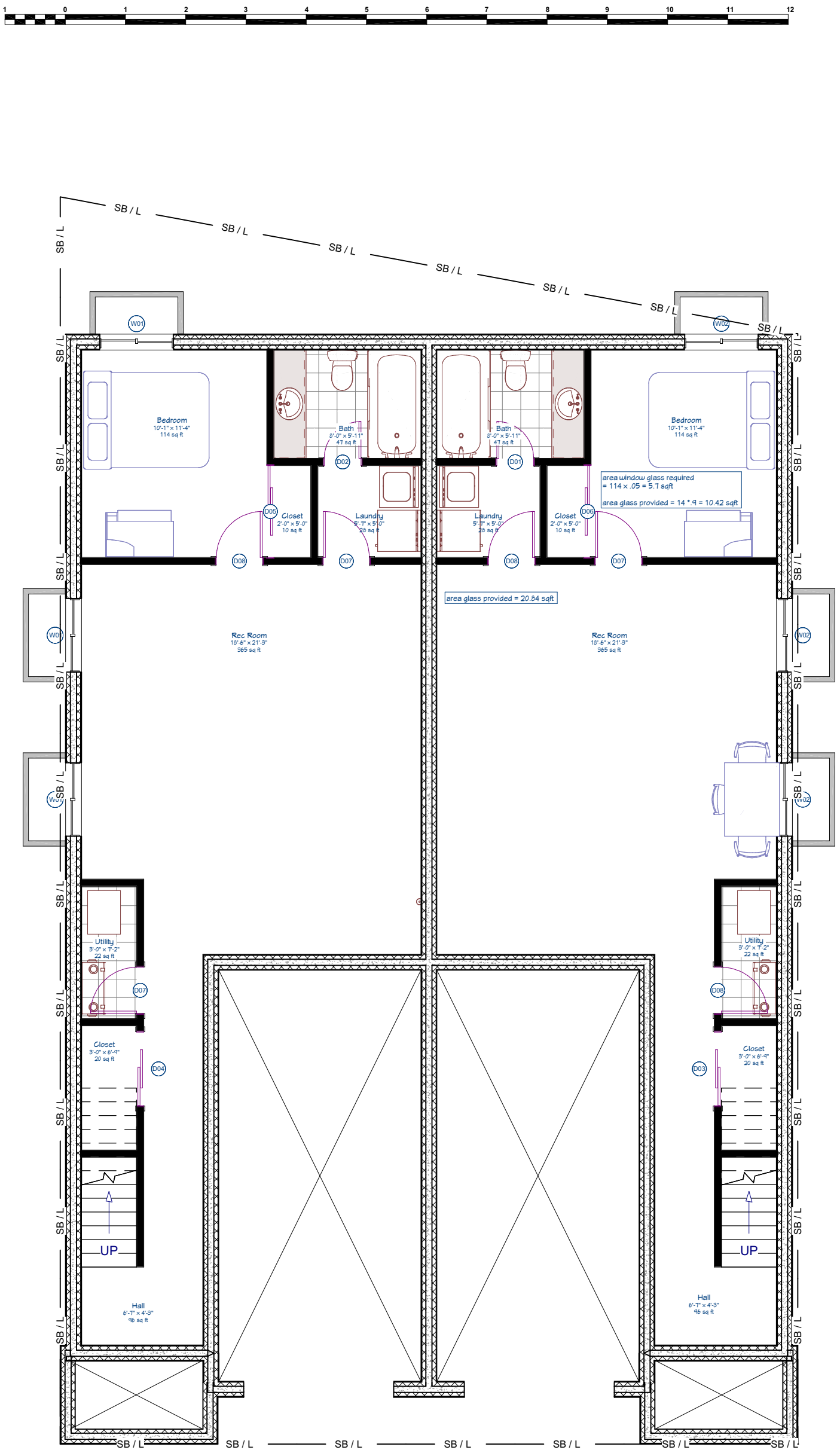
Job No.	AC28000
Date	January 25, 2023
Reference No.	28(a) – 330973
Drawing Name	S:\JOBS\AC28000\DWG sg280ac.dwg (cnr)

LOT 206
REGISTERED PLAN 330973
CITY OF OTTAWA
(#1274 Marygrove Circle)

GRADE AND SERVICES PLAN

THIS IS NOT A VALID COPY UNLESS EMBOSSED WITH SEAL

APPENDIX E – ARCHITECTURAL SKETCHES



1 BASEMENT PLAN
A4 1:75

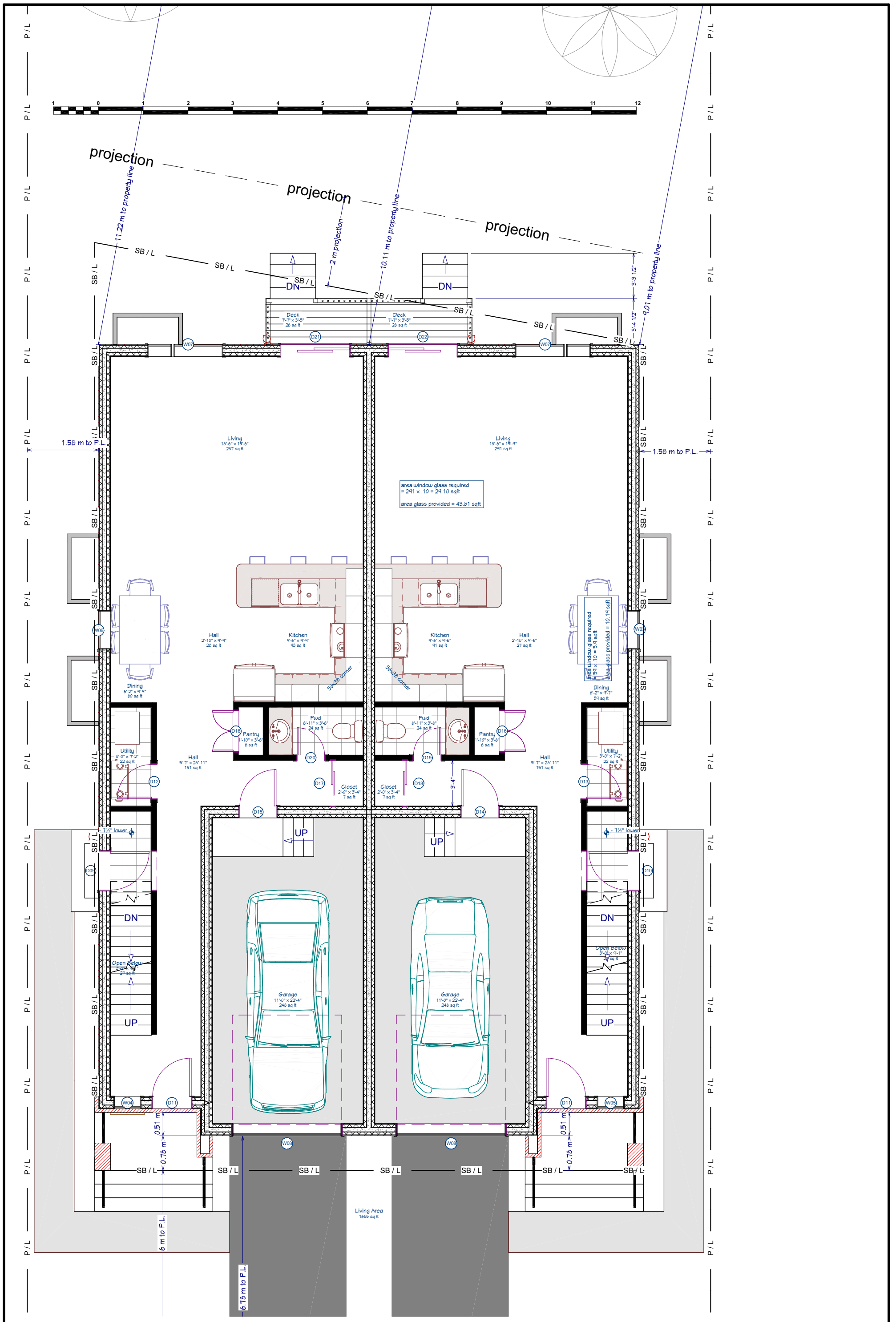
BASEMENT PLAN
1:75

TYPICAL ELEVATION
1:75

TYPICAL ELEVATION
1:75

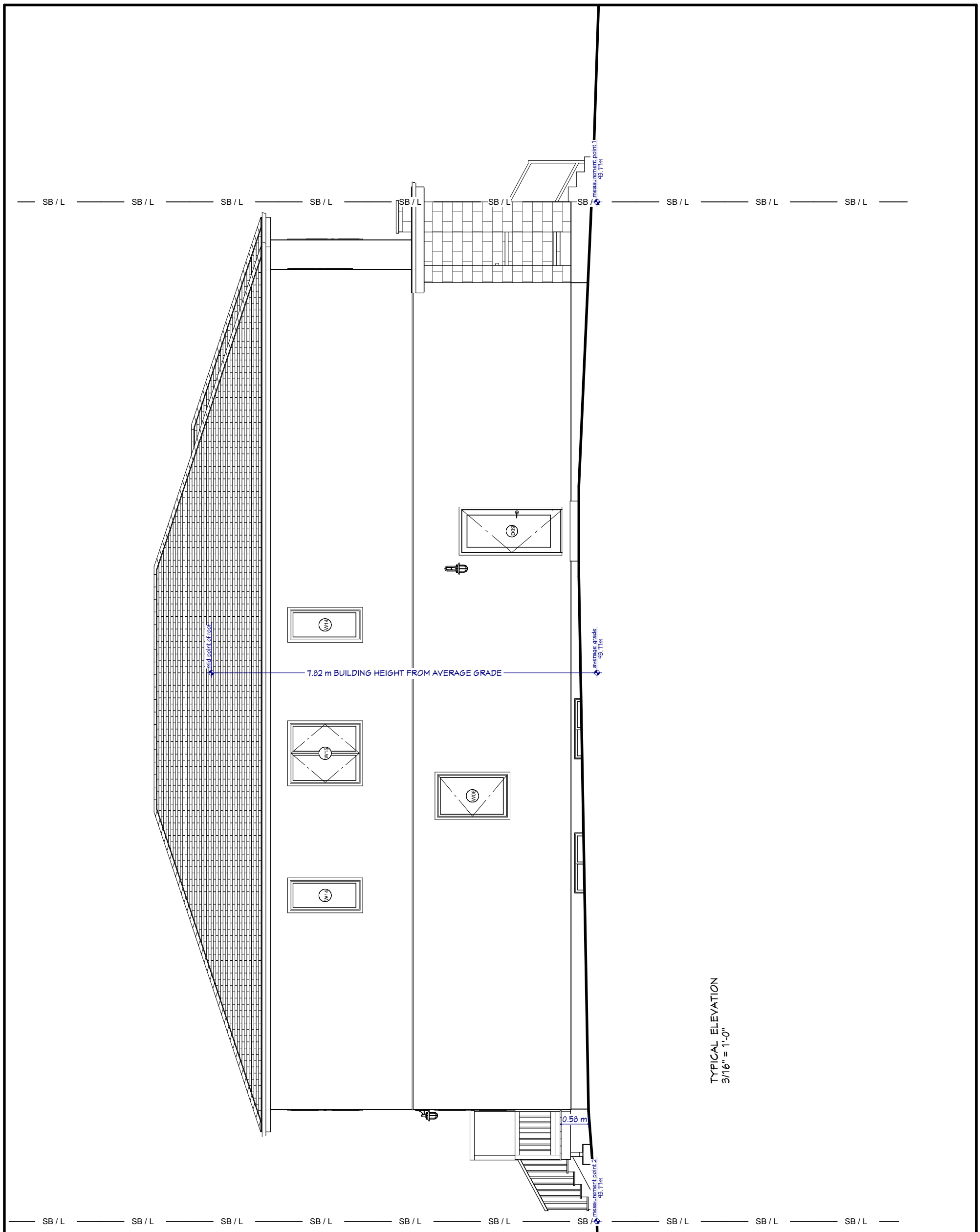
FRONT & REAR
ELEVATIONS
1:75

A7



1 / A5 GROUND LEVEL PLAN
1:75

GROUND LEVEL PLAN
1:75

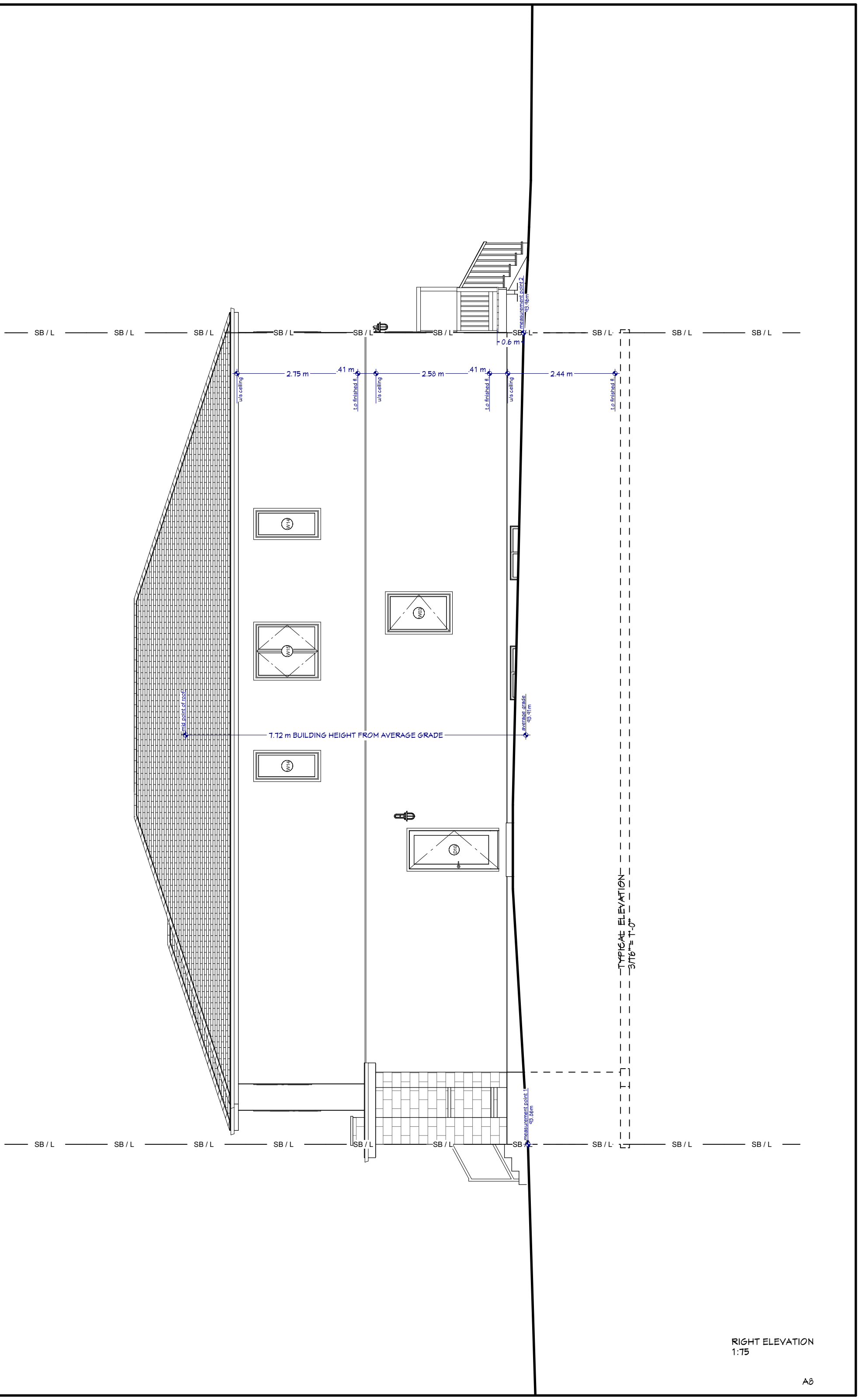


TYPICAL ELEVATION
3/16" = 1'-0"

LEFT ELEVATION
1:75

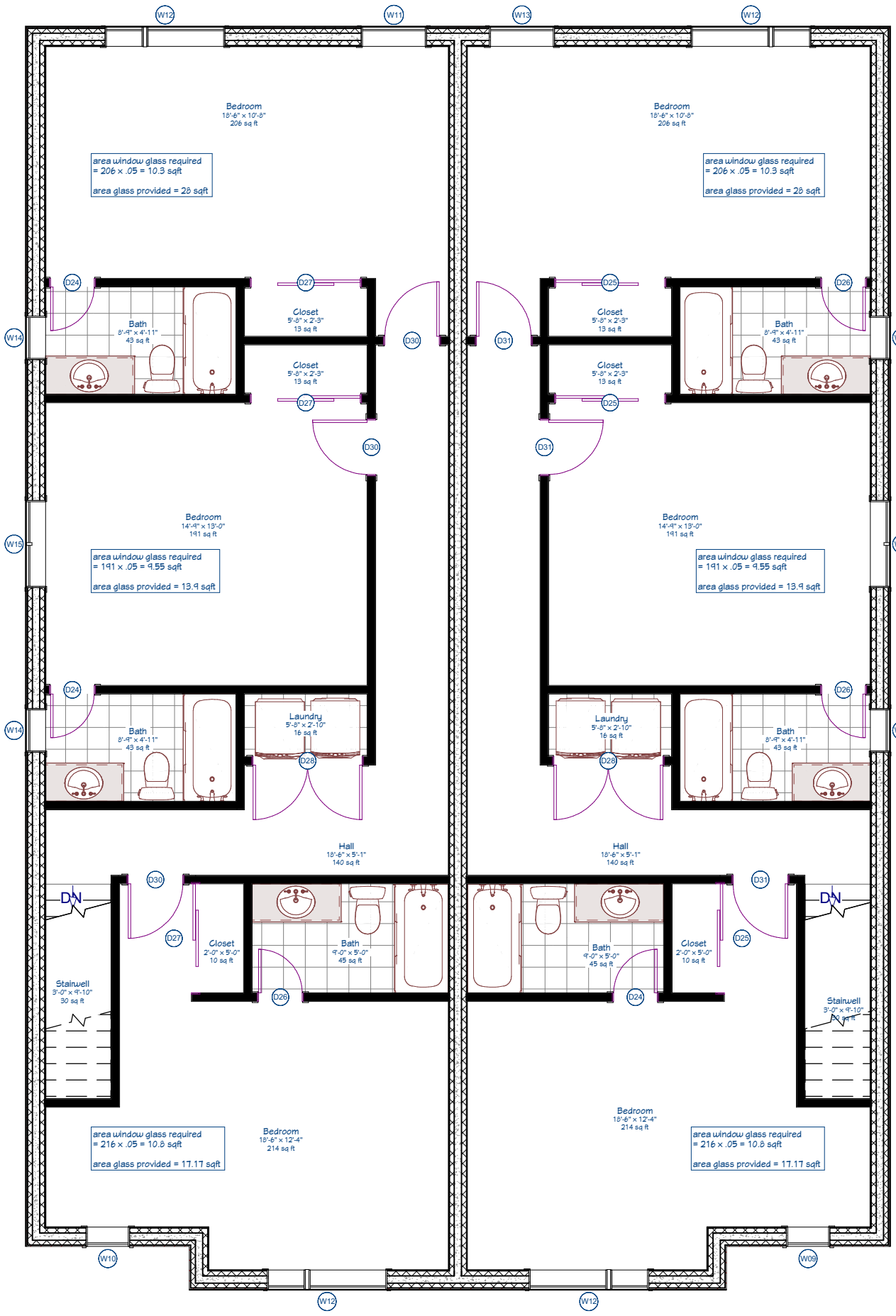
A9

PERSPECTIVES
NTS



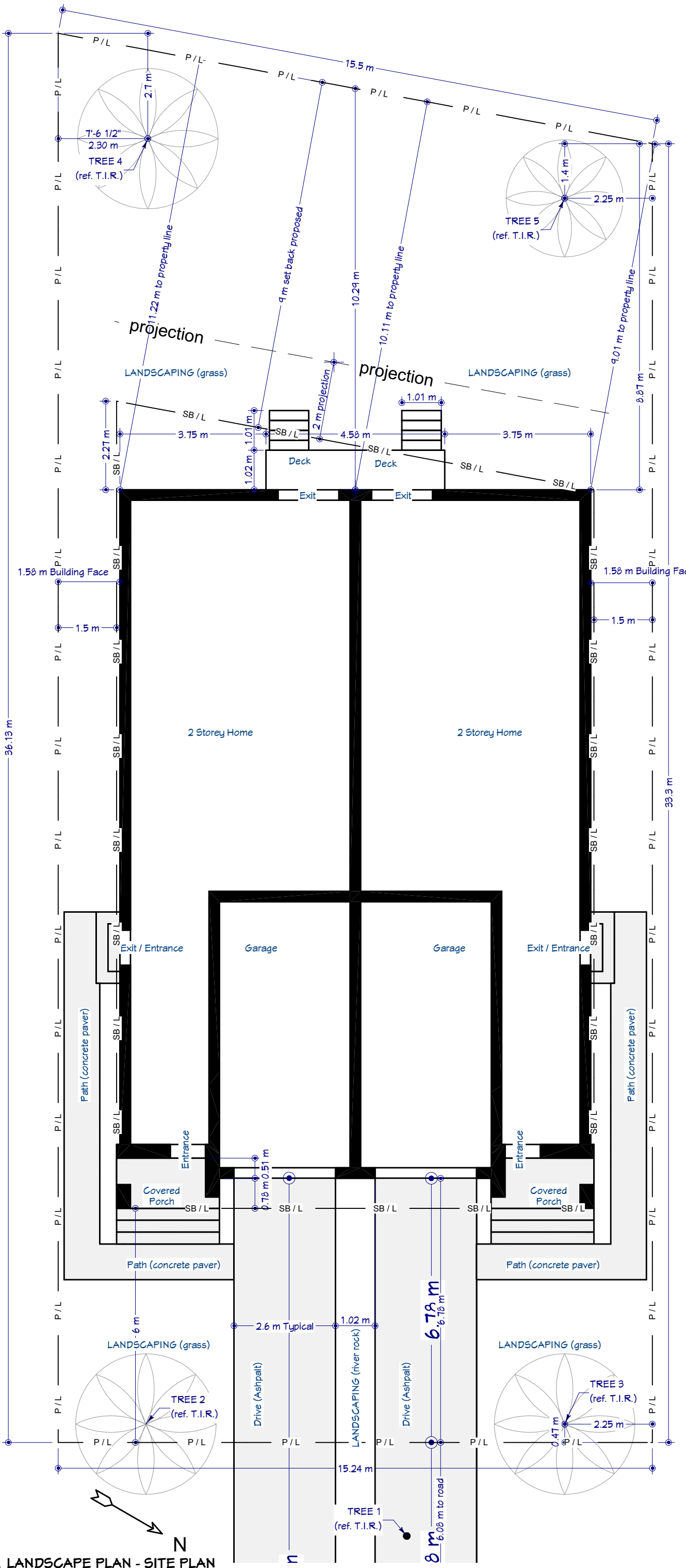
RIGHT ELEVATION
1:75

A8



1 A6 SECOND LEVEL PLAN
1:75

SECOND LEVEL PLAN
1:75



1274 Marygove Circle

2 / A1 DRIVEWAY DETAIL
1:200

1 / A1 LANDSCAPE PLAN - SITE PLAN
1:100

LOT DATA

AREA LOT	= 529 m²
AREA BUILDING FOOTPRINT	= 210.89 m²
AREA FRONT YARD	= 99.0 m²
AREA REAR YARD	= 156.81 m²
AREA DRIVEWAY	= 35.21 m²
FRONT YARD GREEN AREA	= 38.42 m²
REAR YARD COVERAGE	= 30 %
DRIVE WAY COVERAGE	= 36 %
FRONT YARD GREEN AREA COVERAGE	= 39 %

SEVERED LOT DATA "LOT LEFT"

AREA LOT	= 269.91 m²
AREA BUILDING FOOTPRINT	= 105.45 m²
AREA FRONT YARD	= 49.5 m²
AREA REAR YARD	= 83.94 m²
AREA DRIVEWAY	= 17.6 m²
FRONT YARD GREEN AREA	= 19.21 m²
REAR YARD COVERAGE	= 31 %
DRIVE WAY COVERAGE	= 36 %
FRONT YARD GREEN AREA COVERAGE	= 39 %

SEVERED LOT DATA "LOT RIGHT"

AREA LOT	= 259.13 m²
AREA BUILDING FOOTPRINT	= 105.45 m²
AREA FRONT YARD	= 50 m²
AREA REAR YARD	= 73.16 m²
AREA DRIVEWAY	= 17.6 m²
FRONT YARD GREEN AREA	= 19.21 m²
REAR YARD COVERAGE	= 28 %
DRIVE WAY COVERAGE	= 36 %
FRONT YARD GREEN AREA COVERAGE	= 39 %
DESIGNED BUILDING HEIGHT	= 7.72m (left) 7.82m (right)
average =7.72 + 7.82 / 2	= 7.77m

T.I.R. = TREE INFORMATION REPORT