

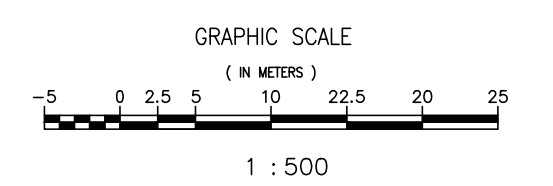


LEGEND - SERVICES		
DESCRIPTION	SYMBOLS	
	PROPOSED	EXISTING
PROPERTY LINE	---	---
RIGHT-OF-WAY	---	---
EASEMENT	---	---
WATERMAIN	---	---
FIRE HYDRANT	+	+
GATE VALVE	+	+
AIR VALVE	+	+
BLOW-OFF	+	+
SANITARY SEWER	200 SAN D9	EX. 250 SAN
STORM SEWER	300 STM D9	EX. 250 STM
CULVERT	---	---
CATCH BASIN	+	+
SIDE INLET CATCH BASIN	+	+
SODDED SWALE ON-LOT	---	---
DETENTION POND	---	---
BIOSWALE	---	---
GAS	63 GAS	EX. 63 GAS
HYDRO	---	---
TEL	---	---
STREET LIGHT CONDUIT	---	---
STREET LIGHT	*	*

FOR CONCEPTUAL SITE SERVICING PLAN INFORMATION
SEE DWG. SSERV-1
FOR CONCEPTUAL SITE GRADING PLAN INFORMATION
SEE DWG. SG-1

LEGAL DESCRIPTION
PLAN SHOWING SITE PLAN OF LOT A, DISTRICT LOT 202, LILLOET DISTRICT, PLAN KAP73119

BENCHMARK
ELEVATIONS ARE IN METERS AND ARE REFERRED TO GEODETIC DATUM CVD28.
THE GRID COORDINATES ARE UTM ZONE 10, NAD83 (CSRS) AND ARE DERIVED FROM DUAL FREQUENCY GPS DIFFERENTIAL CARRIER PHASE OBSERVATIONS.



no.	date	revision	chk'd	no.	date	revision	chk'd
0	JUN.24.22	REZONING SUBMISSION	HKG				

client
SANCTUARY TOWNHOMES LTD.

project
**SANCTUARY PEMBERTON TOWNHOMES (59 UNITS)
PEMBERTON, BRITISH COLUMBIA**

PROFESSIONAL ENGINEERS

WEBSTER ENGINEERING LTD

212 - 828 HARBOURSIDE DRIVE, NORTH VANCOUVER, BC V7P 3R9 604-983-0458

LAND DEVELOPMENT CONSULTANTS

EGBC PERMIT No. 1001444

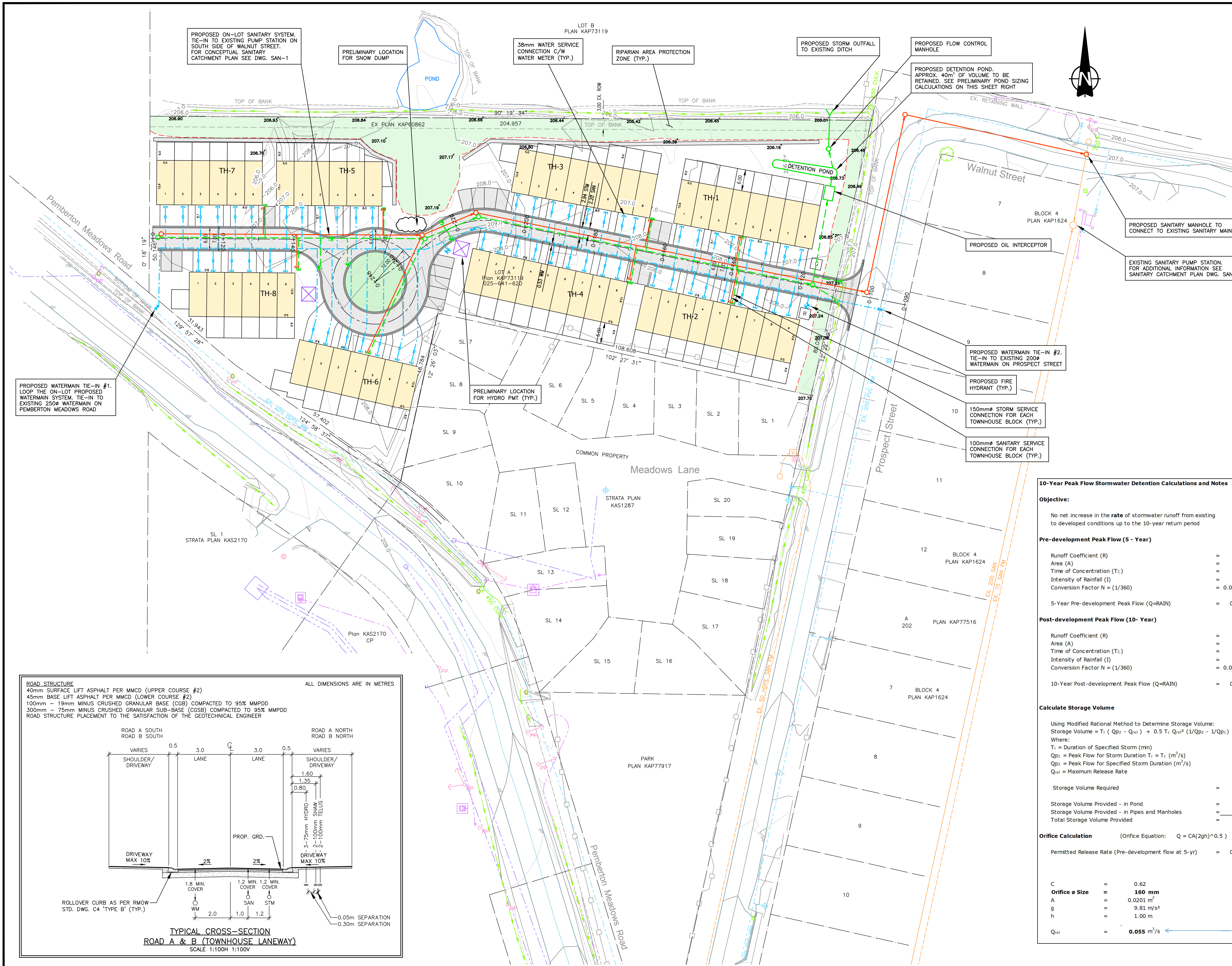
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approved
H. GUNAWARDANA
PROFESSIONAL ENGINEER
2022-06-24

designed by **H.K.G.** title
drawn by **P.B.B.**
checked by **J.A.T.**
date **APR.16.21**

EXISTING SURVEY PLAN

scale hor: 1:500 vert: -
file no. **3962**
drawing no. **EX-1** rev. **0**



DESCRIPTION	SYMBOLS	
	PROPOSED	EXISTING
PROPERTY LINE	---	---
RIGHT-OF-WAY	---	---
EASEMENT	---	---
WATERMAIN	---	---
FIRE HYDRANT	⊕	⊕
GATE VALVE	⊕	⊕
AIR VALVE	⊕	⊕
BLOW-OFF	⊕	⊕
SANITARY SEWER	200 SAN D9	EX. 250 SAN
STORM SEWER	300 STM D9	EX. 250 STM
CULVERT	---	---
CATCH BASIN	⊕	⊕
SIDE INLET CATCH BASIN	⊕	⊕
SODDED SWALE ON-LOT	---	---
DETENTION POND	---	---
BIOSWALE	---	---
GAS	63 GAS	EX. 63 GAS
HYDRO	---	---
TEL	---	---
STREET LIGHT CONDUIT	---	---
STREET LIGHT	⊕	⊕

FOR EXISTING SURVEY PLAN SEE DWG. EX-1
 FOR CONCEPTUAL SANITARY CATCHMENT PLAN SEE DWG. SAN-1
 FOR SITE-SECTIONS SEE DWG. SS-1

LEGAL DESCRIPTION

PLAN SHOWING SITE PLAN OF LOT A, DISTRICT LOT
 202, LILLOEET DISTRICT,
 PLAN KAP73119

BENCHMARK

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 DIFFERENTIAL CARRIER PHASE OBSERVATIONS.

FOR LEGAL INFORMATION REFER
 TO McELHANNEY LAND
 SURVEYORS DWGS

10-Year Peak Flow Stormwater Detention Calculations and Notes

Objective:
 No net increase in the rate of stormwater runoff from existing
 to developed conditions up to the 10-year return period

Pre-development Peak Flow (5 - Year)
 Runoff Coefficient (R) = 0.30
 Area (A) = 1.39 ha
 Time of Concentration (Tc) = 25 min
 Intensity of Rainfall (I) = 18 mm/h
 Conversion Factor N = (1/360)
 5-Year Pre-development Peak Flow (Q=RAIN) = 0.021 m³/s

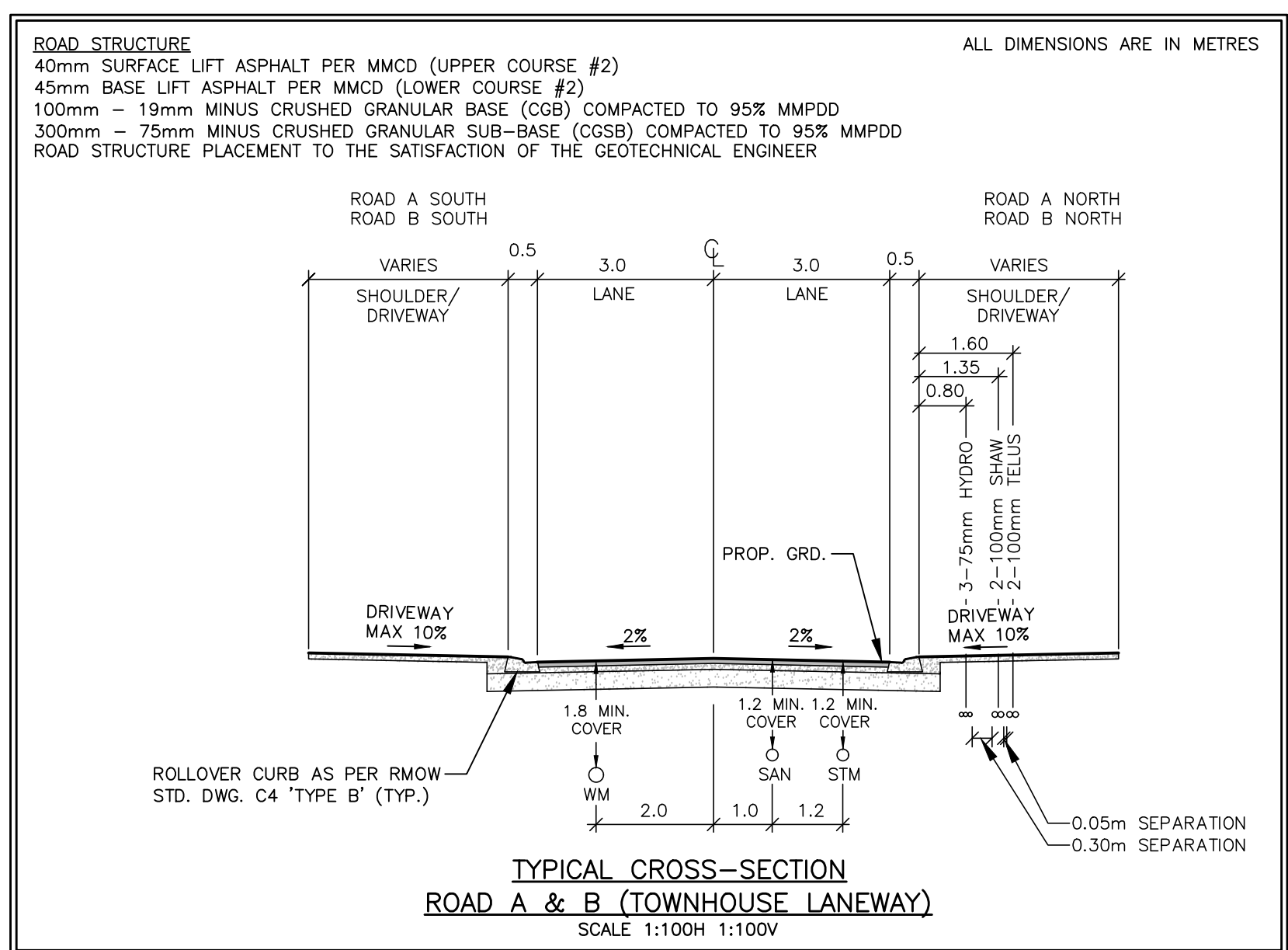
Post-development Peak Flow (10- Year)
 Runoff Coefficient (R) = 0.55
 Area (A) = 1.39 ha
 Time of Concentration (Tc) = 15 min
 Intensity of Rainfall (I) = 26.5 mm/h
 Conversion Factor N = (1/360)
 10-Year Post-development Peak Flow (Q=RAIN) = 0.056 m³/s

Calculate Storage Volume

Using Modified Rational Method to Determine Storage Volume:
 Storage Volume = $T_r (Q_{p2} - Q_{rel}) + 0.5 T_r Q_{rel}^2 (1/Q_{p2} - 1/Q_{p1})$
 Where:
 T_r = Duration of Specified Storm (min)
 Q_{p1} = Peak Flow for Storm Duration $T_r = T_c$ (m³/s)
 Q_{p2} = Peak Flow for Specified Storm Duration (m³/s)
 Q_{rel} = Maximum Release Rate
 Storage Volume Required = 37 m³
 Storage Volume Provided - in Pond = 40 m³
 Storage Volume Provided - in Pipes and Manholes = 0 m³
 Total Storage Volume Provided = 40 m³

Orifice Calculation (Orifice Equation: $Q = C A (2gh)^{0.5}$)
 Permitted Release Rate (Pre-development flow at 5-yr) = 0.021 m³/s

C = 0.62
 Orifice ϕ Size = 160 mm
 A = 0.0201 m²
 g = 9.81 m/s²
 h = 1.00 m
 $Q_{rel} = 0.055$ m³/s



client		SANCTUARY TOWNHOMES LTD.		EGBC PERMIT No. 1001444	
project		SANCTUARY PEMBERTON TOWNHOMES (59 UNITS) PEMBERTON, BRITISH COLUMBIA		PROFESSIONAL ENGINEERS	
no.		date		revision	
0	JUN.24.22	REZONING SUBMISSION	HKG		
		revision	chk'd	no.	date



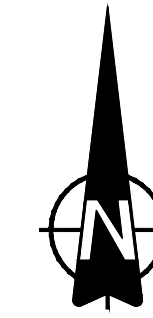
designed by H.K.G.
 drawn by P.B.B.
 checked by J.A.T.
 date APR.16.21

CONCEPTUAL SITE SERVICING PLAN
 (REZONING)

scales hor: 1:500 vert: -
 file no. 3962
 drawing no. SSERV-1
 rev. 0

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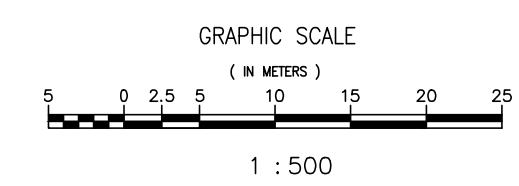
202
NO_PLAN
026-742-209
MP



GRADING LEGEND	
PROP. ELEVATION	X 3.85
PROP. ELEVATION (MEET)	X 3.85(M)
PROP. ELEVATION (LOW POINT)	X 3.85(L.P.)
PROP. ELEVATION (HIGH POINT)	X 3.85(H.P.)
PROP. ROAD CENTERLINE SLOPE	1.0%



FOR LEGAL INFORMATION REFER TO McELHANNEY LAND SURVEYORS DWGS



no.	date	revision	chk'd	no.	date	revision	chk'd
0	JUN.24.22	REZONING SUBMISSION	HKG				

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PROFESSIONAL ENGINEERS

WEBSTER ENGINEERING LTD

212-828 HARBOURSIDE DRIVE, NORTH VANCOUVER, BC V7P 3R9 604-983-0458

EGBC PERMIT No. 1001444

LAND DEVELOPMENT CONSULTANTS

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approved
PL. GUNAWARDANA
8810

designed by H.K.G.
drawn by P.B.B.
checked by J.A.T.
date APR.16.21

**CONCEPTUAL SITE GRADING PLAN
(REZONING)**

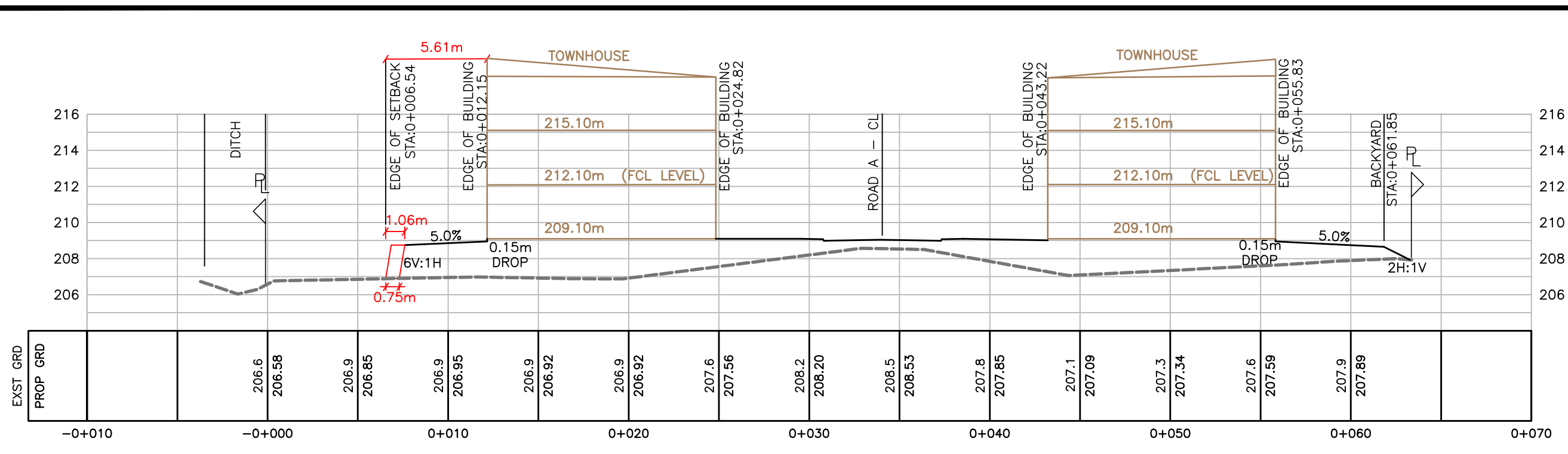
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file no.
3962

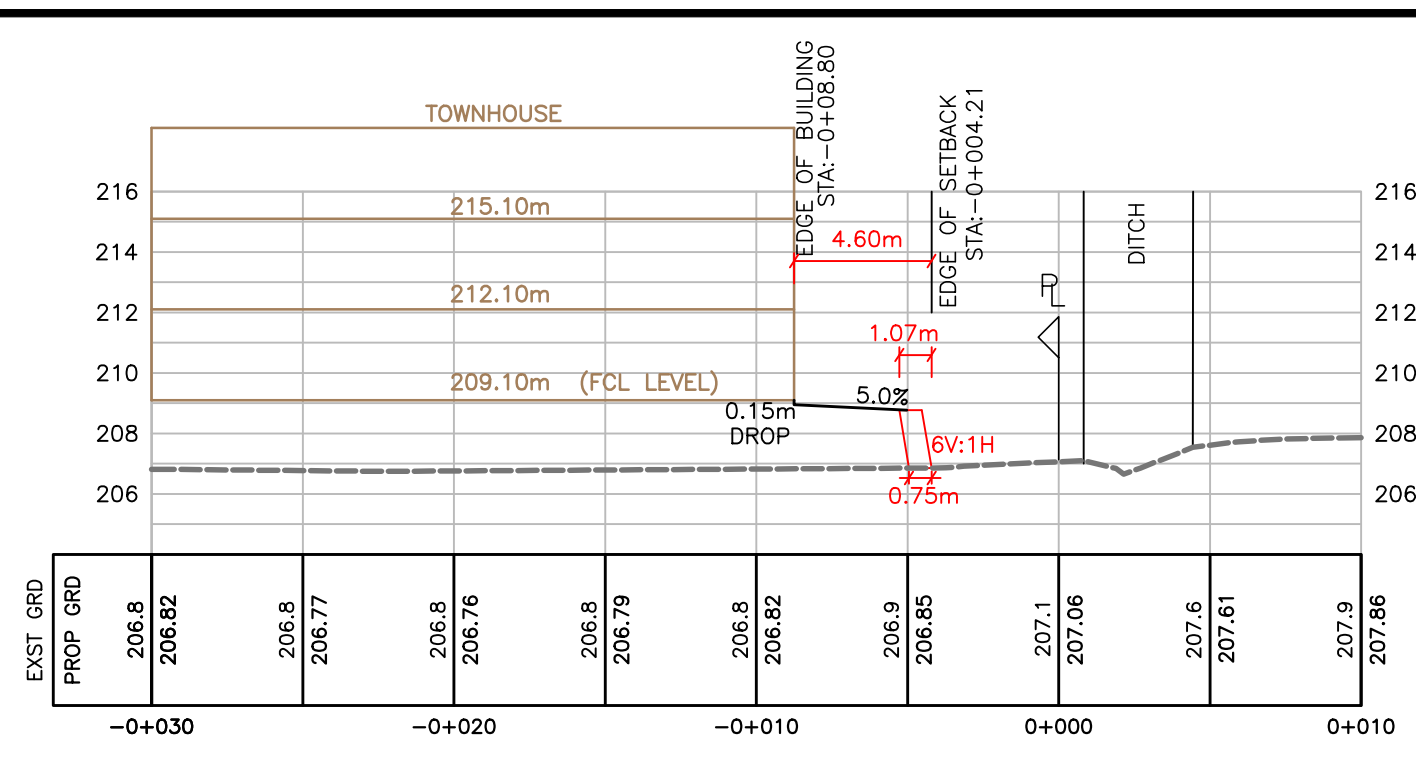
drawing no.
SG-1

rev.
0

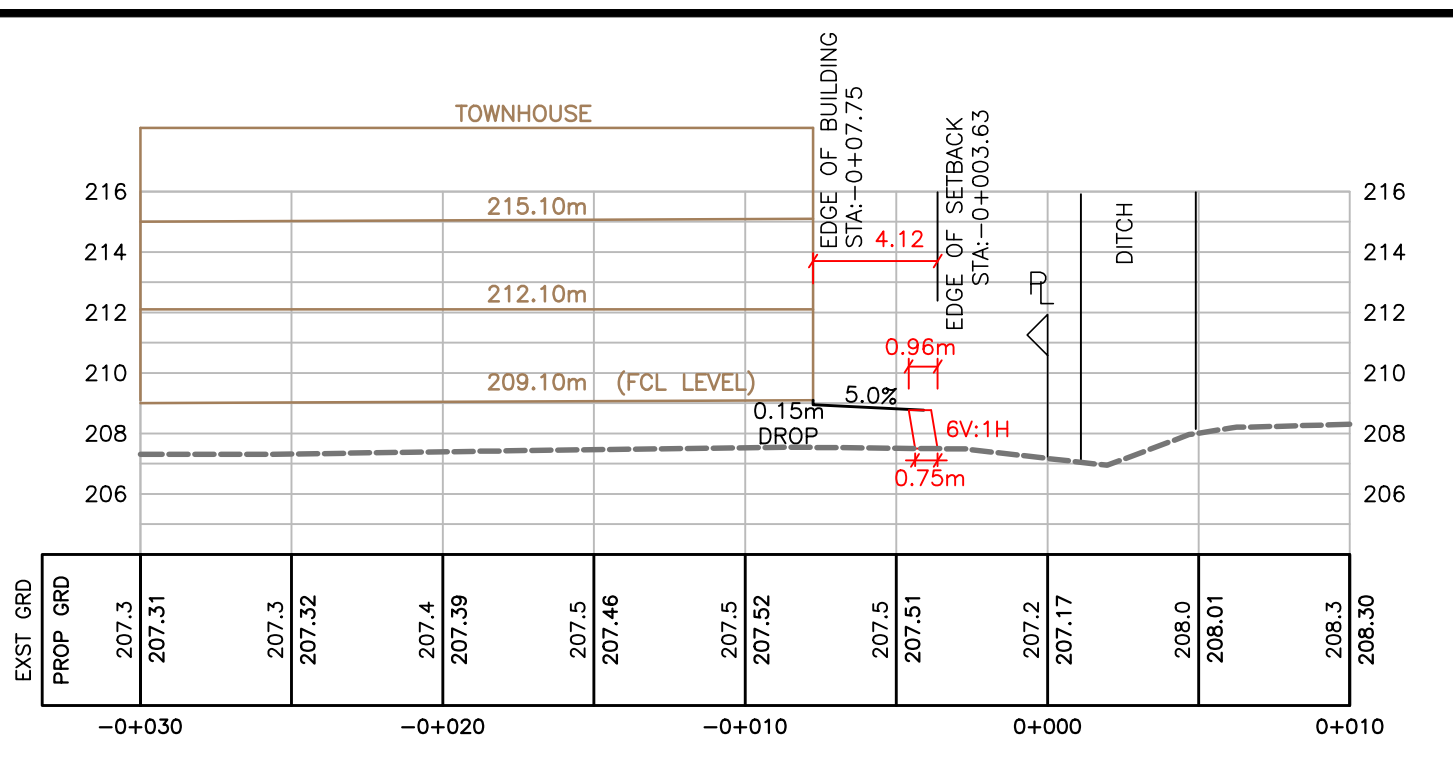
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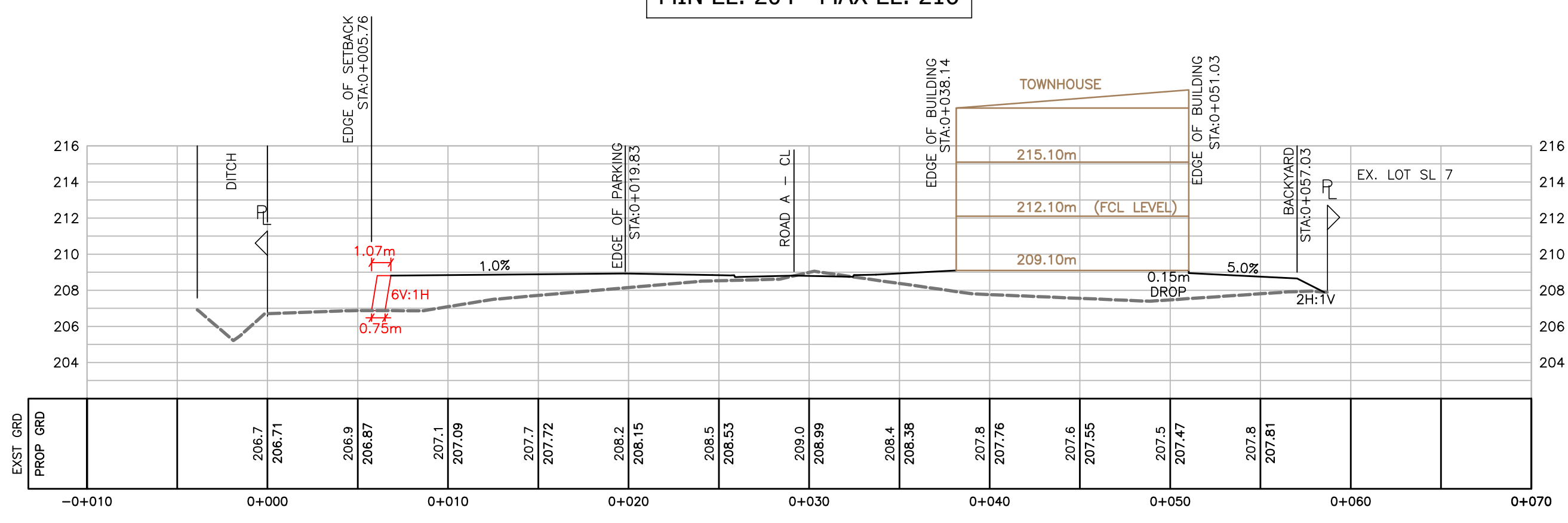
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STA -0+010 - 0+070
MIN EL: 204 - MAX EL: 216



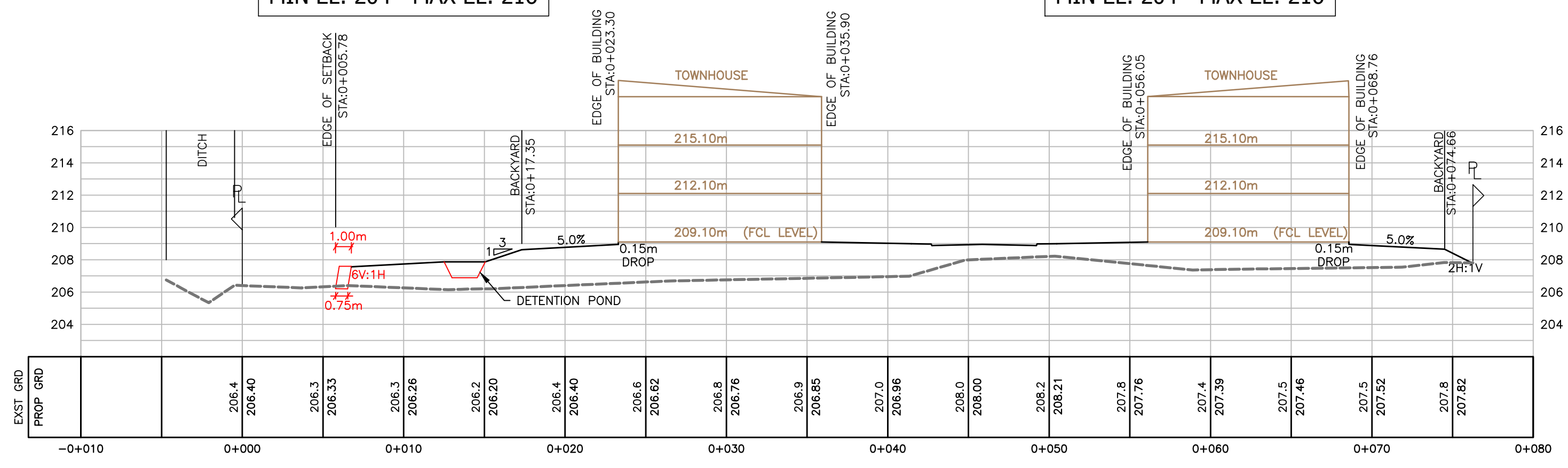
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STA -0+030 - 0+010
MIN EL: 204 - MAX EL: 216



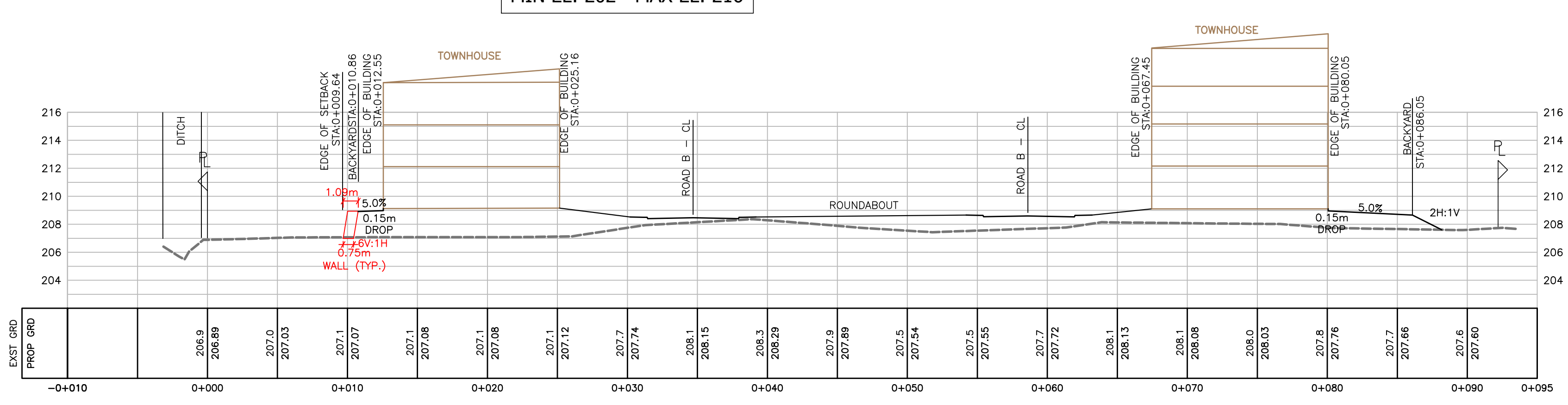
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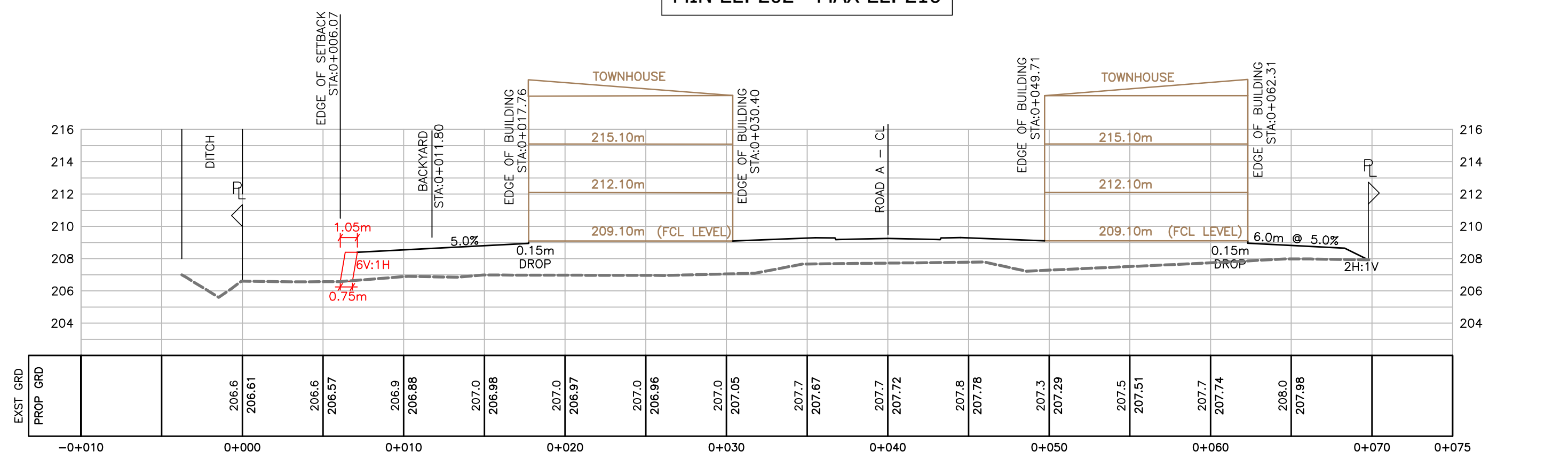
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STA -0+010 - 0+070
MIN EL: 202 - MAX EL: 216



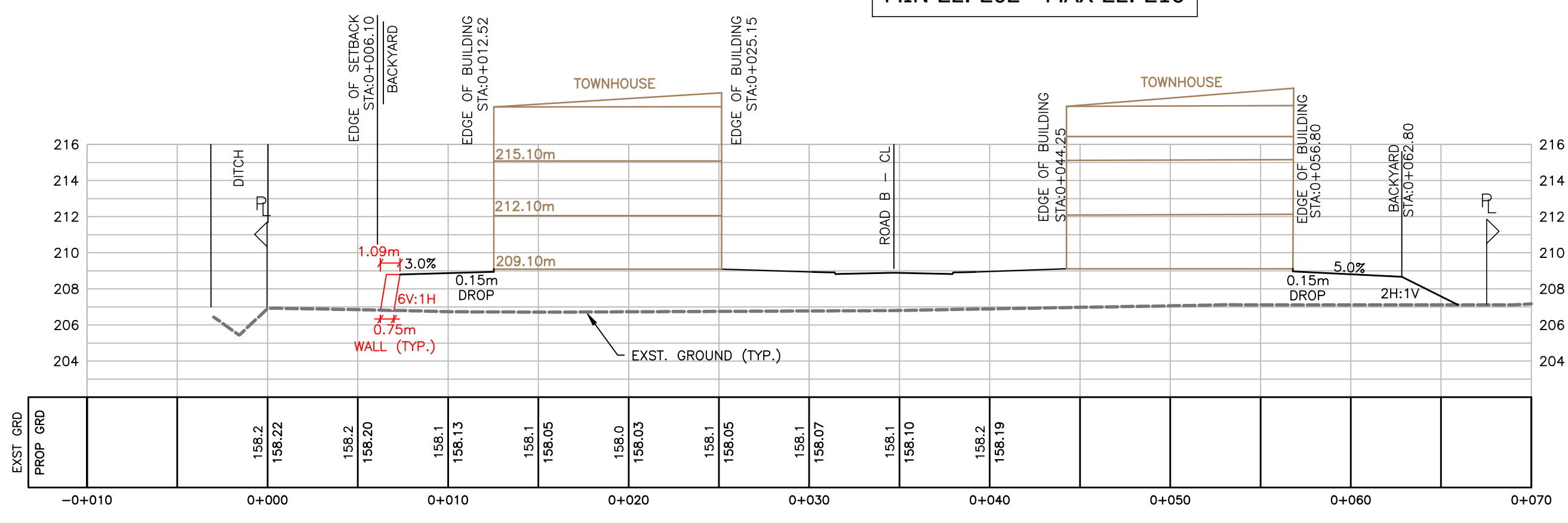
SEC-F
STA -0+010 - 0+080
MIN EL: 202 - MAX EL: 216



SEC-B
STA -0+010 - 0+095
MIN EL: 202 - MAX EL: 216



SEC-E
STA -0+010 - 0+075
MIN EL: 202 - MAX EL: 216



SEC-A
STA -0+010 - 0+070
MIN EL: 202 - MAX EL: 216

no.	date	revision	chk'd	no.	date	revision	chk'd
0	JUN.24.22	REZONING SUBMISSION	HKG				

client
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212 - 828 HARBOURSIDE DRIVE, NORTH VANCOUVER, BC V7P 3R9 604-983-0458

EGBC PERMIT No. 1001444

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approved

designed by H.K.G. title

drawn by P.B.B.

checked by J.A.T.

date APR.16.21

PRELIMINARY SITE-SECTIONS
(REZONING)

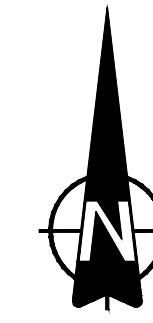
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file no. 3962

drawing no. SS-1 rev. 0

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202
NO_PLAN
026-742-209
MP



LEGEND - SERVICES		
DESCRIPTION	SYMBOLS	
	PROPOSED	EXISTING
PROPERTY LINE	---	---
RIGHT-OF-WAY	---	---
EASEMENT	---	---
WATERMAIN	---	---
FIRE HYDRANT	+	+
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AIR VALVE	+	+
BLOW-OFF	+	+
SANITARY SEWER	200 SAN D9	EX. 250 SAN
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CULVERT	---	---
CATCH BASIN	+	+
SIDE INLET CATCH BASIN	+	+
SODDED SWALE ON-LOT	---	---
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BIOSWALE	---	---
GAS	63 GAS	EX. 63 GAS
HYDRO	---	---
TEL	---	---
STREET LIGHT CONDUIT	---	---
STREET LIGHT	*	*

FOR CONCEPTUAL SITE SERVICING & GRADING INFORMATION
SEE DWG. SSG-1

LEGAL DESCRIPTION
PLAN SHOWING SITE PLAN OF LOT A, DISTRICT LOT
202, LILLOOET DISTRICT,
PLAN KAP73119

BENCHMARK
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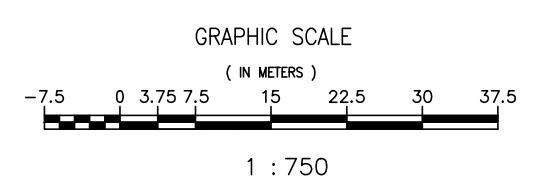


SANITARY DESIGN FLOW
#3962 - Sanctuary Development

Use MMCD Parameters

As per Village of Pemberton Subdivision and Development Bylaw No. 677, 2011 use MMCD methodology for design flow calculations. Use MMCD Design Guidelines 2014.

- 1) Population**
- | | | | |
|--------------------------------------|------------------|------------------------|---------------------------|
| Land Use: | Units | Pop. Equiv. (cap/unit) | |
| Multi-Family Residential (Townhouse) | 59 | 3 | (from SLRD Bylaw No. 741) |
| Population | = 177 cap | | |
- 2) Average Dry Weather Flow (ADWF)**
- | | | |
|---------------------------------|----------------------|---------------------|
| Average Daily Demand | 410 L/cap/day | (VOP Bylaw No. 677) |
| Total Population | 177 cap | (as above) |
| Average Dry Weather Flow | = 72570 L/day | |
| | = 0.84 L/s | |
- 3) Peak Dry Weather Flow (PDWF)**
- PDWF = ADWF x Peaking Factor
- | | | |
|----------------|--|--------|
| Peaking Factor | = 3.2 / population in thousands ^{0.105} | (MMCD) |
| | = 3.2 / 1 ^{0.105} | |
| | = 3.20 | |
- | | | |
|------------------------------|-------------------|------------|
| Average Dry Weather Flow | 0.84 L/s | (as above) |
| Peaking Factor | 3.20 | (as above) |
| Peak Dry Weather Flow | = 2.69 L/s | |
- 4) Design Flow = Peak Wet Weather Flow (PWWF)**
- PWWF = PDWF + Infiltration Allowance
- | | | |
|------------------------------|-------------------|---------------------------|
| Catchment Area | 1.4 ha | |
| Unit Infiltration Rate | 0.17 L/s/ha | |
| Infiltration Allowance | 0.24 L/s | (VOP Bylaw No. 677, 2011) |
| Peak Dry Weather Flow | 2.69 L/s | (as above) |
| Infiltration Allowance | 0.24 L/s | (as above) |
| Peak Wet Weather Flow | = 2.93 L/s | |



client SANCTUARY TOWNHOMES LTD.		EGBC PERMIT No. 1001444		designed by H.K.G.		title CONCEPTUAL SANITARY CATCHMENT PLAN	
project SANCTUARY PEMBERTON TOWNHOMES (59 UNITS) PEMBERTON, BRITISH COLUMBIA		PROFESSIONAL ENGINEERS WEBSTER ENGINEERING LTD 212-828 HARBOURSIDE DRIVE, NORTH VANCOUVER, BC V7P 3R9 604-963-0458		approved PL. GUNAWARDANA # 38110 2022-06-24		checked by J.A.T.	
no. date		revision		date		drawing no. SAN-1	
0 JUN.24.22		REZONING SUBMISSION		APR.16.21		rev. 0	

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