

RAINWATER HARVESTING SYSTEM

YOUR - RAINWATER HARVESTING

YOUR ADDRESS

CLEAN FLO WATER TECHNOLOGIES DESIGNED THE SYSTEM TO MEET THE CSA B805 STANDARDS TO PROVIDE A POTABLE RAINWATER HARVESTING WATER SYSTEM.

IF THE INSTALLTION IS IN ACCORDENCE WITH CLEANFLO WRITTEN INSTRUCTION THIS SYSTEM WILL PROVIDE POTABLE WATER. IT IS THE OWNER / OPERATORS RESPONSIBLITY TO ENSURE THE RAINWATER HARVESTING SYSTEM IS INSTALLED AND OPERATING PROPERLY. INITIAL AND ONGOING MAINTENANCE AND MONITORING IS REQUIRED AND MUST BE PERFORMED BY THE OWNER OR UNDER THE OWNER'S DIRECTION.

IF INSTRUCTIONS ARE NOT FOLLWED OR MAINTIANCE IS NOT PERFORMED OR UNKOWN SUBSTANCES ARE INTRUDCED INTO THE RAINWATER SYSTEM THE SYSTEM MAY NOT BE SAFE AND THERFORE REGULAR WATER TESTING IS REQUIRED. CLEANFLO IS NOT RESPONSIBLE FOR THE WATER QUALITY THIS SYSTEM PRODUCES. USE WATER AT YOUR OWN RISK.

TIERS	EQUIPMENT SCHEDULE
RSM	RAINSEEKER MAXIMUS 1500 USG SYSTEM - UNDERGROUND
EXT1	ADDITIONAL 1500 USG RAINWATER TANK - UNDERGROUND
EXT2	ADDITIONAL 1500 USG RAINWATER TANK - UNDERGROUND
EXT3	ADDITIONAL 1500 USG RAINWATER TANK - UNDERGROUND
SUG	SUGE SYSTEM - UNDERGROUND
VIDA	VIDA RAIN REUSE SYSTEM - PUMPING, TREATMENT AND CONTROL

TIERS	WATER USES
R1	NON-POTABLE, TRAP PRIMERS, FIRE SUPPRESSION, IRRIGATION
R2	NON-POTABLE, TOILETS/URINALS, LAUNDRY MACHINE
R3	NON-POTABLE, HOSE BIBS, PRESSURE WASHING, VEHICLE WASHING
R4	POTABLE, HUMAN CONSUMPTION, ORAL CARE, FOOD PREPARATION, DISHWASHING, BATHING/SHOWERING, POOL/HOT TUBS

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DESCRIPTION

THIS SYSTEM IS DESIGN TO MEET CANADIAN PLUMBING CODES AND CSA STANDARDS FOR RAINWATER HARVESTING CSA B805.

THE OVERALL SYSTEM DESIGN EMPLOYS A MULTI BARRIER APPROACH TO WATER QUALITY. THE FIRST STEP IS THE PRE-FILTER. THE SECOND STEP IS THE RAINWATER TANK DESIGN. THE THIRD STEP IS THE WATER TREATMENT SYSTEM.

CLEAN FLO SYSTEMS ARE DESIGNED FROM "ROOF TO TAP" ! WITH ATTENTION TO EVERY DETAIL OF YOUR RAINWATER HARVESTING SYSTEM. WHEN YOU PURCHASE THE COMPLETE SYSTEM FROM CLEAN FLO, IT IS PART OF A COMPLETE PACKAGE THAT WE WILL PROVIDE SUPPORT AND SERVICE FOR THE LIFE OF THE SYSTEM

THIS RAINWATER HARVESTING SYSTEM IS DESIGNED AS A PRIMARY SOURCE OF WATER FOR POTABLE PURPOSES, SUCH AS DRINKING, COOKING, BATHING, TOILETS, LAUNDRY. WITH BACK-UP WATER SOURCE FROM HAULED BULK POTBALE WATER IF THE RAINWATER TANK IS EMPTY.

THE SYSTEM WILL PROVIDE WATER FOR WATER USES TIER: R4 - POTABLE DOMESTIC

ROOF

THE SYSTEM WILL BE HARVESTING RAIN FROM ONE BUILDING THE ROOF IS ASPHALT. WHEN USING THE RAINWATER FOR POTABLE WATER THE ROOF SHOULD BE NSF P151 APPROVED OR COATED WITH A NSF P151 APPROVED COATING.

GUTTER, DOWNPIPES AND CONVEYANCE PIPING

THE GUTTERS, DOWNPIPES, AND CONVEYANCE PIPING IS SIZED BASED ON SPECIFICATIONS FROM THE DESIGNS. WHEN USING THE RAINWATER FOR POTABLE WATER THE GUTTER, DOWNPIPE AND CONVEYANCE PIPING SHOULD BE NSF P151 APPROVED OR COATED WITH A NSF P151 APPROVED COATING.

PREFILTER

THE SYSTEM WILL REQUIRE TWO (2) PRE-FILTER. THESE PRE-FILTERS OPERATE AS BOTH A FIRST FLUSH DIVERter AND PREFILTER, WITH A FILTER MESH SIZE OF 320 MICRONS. THE FULL CROSS-SECTION (PIPE DIAMETER) OF THE RAINWATER DRAINAGE SYSTEM REMAINS CONTINUOUSLY OPEN, AND THERE ARE NO REDUCTION IN THE CROSS-SECTION OF THIS APPLIANCE IN WHICH DIRT OR WATER CAN COLLECT.

RAINWATER TANK / CISTERN

THIS SYSTEM WILL PROVIDE A TOTAL OF 6000 USG OF RAINWATER STORAGE. WITH A TOTAL OF FOUR (4) BELOW GROUND TANK(S), MADE OF POLYETHYLENE. EACH TANK IS 1500 USG.

THE RAINWATER TANK IS DESIGNED TO PROVIDE SAFE STORAGE OR RAINWATER, WHICH IMPROVES WATER QUALITY BECAUSE OF IT'S DESIGN AND FUNCTION. THE CALMING INLET PREVENTS AGITATION OF SETTLED FINE DUST, THE SKIMMING OVERFLOW REMOVES FLOATING PARTICLES AND THE FLOATING FILTER ENSURES WATER IS DRAWN INTO THE PUMP FROM APPROXIMATELY 150 mm (6.0") BELOW THE SURFACE OF THE WATER.

WATER PUMPING AND TREATMENT SYSTEM

CLEAN FLO DETERMINED THE WATER DEMAND TO BE 10 GPM @ 60 PSI. THIS WILL BE PUMPED BY MULTI STAGE BOOSTER PUMP POWERED BY VFD. THE TREATMENT WILL BE THREE STAGES TO ENSURE WATER IS SAFE AND NO STAINING ON FIXTURES. STAGE ONE IS A SEDIMENT FILTER OF 15 MICRONS WHICH PROVIDES A SELF CLEANING FLUSH TO DRAIN. STAGE TWO A 10 CARBON FILTER. STAGE THREE A 1 MICRON SEDIMENT FILTER. STAGE FOUR IS ULTRAVIOLET SANITATION SYSYEM NSF 55 CLASS A.

WATER QUALITY AND TREATMENT

CLEAN FLO DESIGNED THIS SYSTEM TO PRODUCE WATER THAT IS SAFE FOR CSA B805 R4 USES; NAMELY POTABLE DOMESTIC.

A1

CLEAN FLO
WATER TECHNOLOGIES

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SYSTEM NAME:your- RAINWATER
HARVESTING**SYSTEM TYPE:**

R4-POTABLE

OWNERS:

You

LOCATION:

123 abc st

EMERGENCY CONTACT**FIRST POINT - INSTALLERS**

Contractor

SECOND POINT - DESIGNERCLEANFLO WATER TECHNOLOGIES, CANADA
1-877-306-2146**MAINTENANCE PERSONS**

OWNER

SCOPE OF SYSTEM SUPPLY**WATER USES TEIR:**

R1 NON POTBALE

PRIMARY WATER SOURCE:

RAINWATER

SECONDARY WATER SOURCE:

HAULED BULK POTABLE WATER

NUMBER OF PEOPLE SERVED:

2 / DAY

ANNUAL WATER DEMAND:

~123, 735 LITERS

ANNUAL WATER HARVESTED:

~191, 637 LITERS

NUMBER OF FIXTURES**HOSE BIBS:**

2

YARD HYDRANT:

0

FAUCETS:

6

LAUNDRY:

1

TOILETS:

5

DISHWASHER:

1

BATH/SHOWER:

3

MECH. EQUIPMENT:

4

FIRE SUPPRESSION:

0

SECONDARY WATER SOURCE**TYPE:**

HAULED BULK POTABLE WATER

AUTOMATIC TOP-UP SYSTEM

NA

DESCRIPTION / COMMENTS:SYSTEM DOSE NOT HAVE AN AUTOMATIC MAKE UP
SYSTEM BULK WATER IS DELIVERED.**SYSTEM DESIGN AND SPECS.****DESIGNER:**CLEANFLO WATER TECHNOLOGIES, CANADA, 1-877-306-
2146**DATE COMPLETED:**

APRIL 7, 2021

SYSTEM SPECIFICATIONS**ROOF COLLECTION AREA:**

~ 2000 SQFT

ROOF MATERIAL:

ASPHALT

GUTTER MATERIAL:

PAINTED STEEL

DOWNSPOUT MATERIAL:ALUMINUM, PVC SDR 35, PVC DRAIN PIPE (NSF
61 OR NSF P151 INTERIOR COATING)**CONVEYANCE PIPING MATERIAL:**ALUMINUM, PVC SDR 35, PVC DRAIN PIPE (NSF
61 OR NSF P151 INTERIOR COATING)**STORAGE TANK SPECIFICATIONS****TOTAL VOLUME:**

6000 USG

NUMBER OF TANKS:

4

VOLUME OF EACH TANK:

1500 USG

TANK TYPE:

BELOW GROUND

TANK MATERIAL:

POLYETHYLENE

TANK DIMENSIONS**LENGTH:**

177"

WIDTH:

62"

HIEGHT:

51 "

DIAMETER:

NA

PRE-FILTER SPECIFICATIONS**TYPE OF PREFILTER:**

WISY VORTEX 150

NUMNER OF PRE-FILTERS:

2 (MAIN TANK AND SURGE TANK)

PRE-FILTRATION MESH SIZE:

320 MICRONS

MAXIMUM INLET FLOW RATE:

12 LITERS PER SECOND

PUMP SPECIFICATIONS**BRAND:**

CLEANFLO VFD CONSTANT PRESSURE SYSTEM

MODEL:

DABS ESYBOX DIVER

DESIGN FLOW RATE:

10 USGPM

MAXIMUM PSI @ 10 GPM:

74 PSI

POWER SPECIFICATIONS**HORSE POWER:**

1.1 HP

VOLTAGE:

230 VAC

AMPS:

~ 7.5 A

WATTS:

1500 W

WATER TREATMENT SPECIFICATIONS**TYPE:**

CLEANFLO

BRAND:

VIDA REUSE

MODEL:

COMR3

AGE OF EQUIPMENT:

NEW

TOTAL DYNAMIC HEAD**DESIGN FLOW RATE:**

10 GPM

SUPPLY PIPE1.25" @ 100FT (0.7 PSI LOSS/100FT)
(NPSH MUST BE MET FOR BOOSTER PUMP)

0.7 PSI / 1.6 FT HEAD

TREATMENT SKIDPSI LOSS VARIES AS WATER FILTERS BECOME
CLOGGED

10 PSI / 35 FT HEAD

DISTRIBUTION PIPE

10GPM - 1.0" @ 20FT (2.6 PSI LOSS/100FT)

10GPM - 0.75" @ 50FT (8.7 PSI LOSS/100FT)

5GPM - 0.5" @ 50FT (10.5 PSI LOSS/100FT)

TOTAL 0.52 + 4.4 + 5.3 = 10.2

10.2 PSI / 24 FT HEAD

MINOR LOSSES: VALVES, FITTINGS

~ 20FT (10.5 PSI LOSS/100FT)

2.1 PSI / 4.9 FT HEAD

ELEVATION HEAD

2.5FT (1.0 PSI LOSS/2.33FT)

10.7 PSI / 25 FT HEAD

STATIC PSI

40 PSI

40 PSI / 116.5 FT HEAD

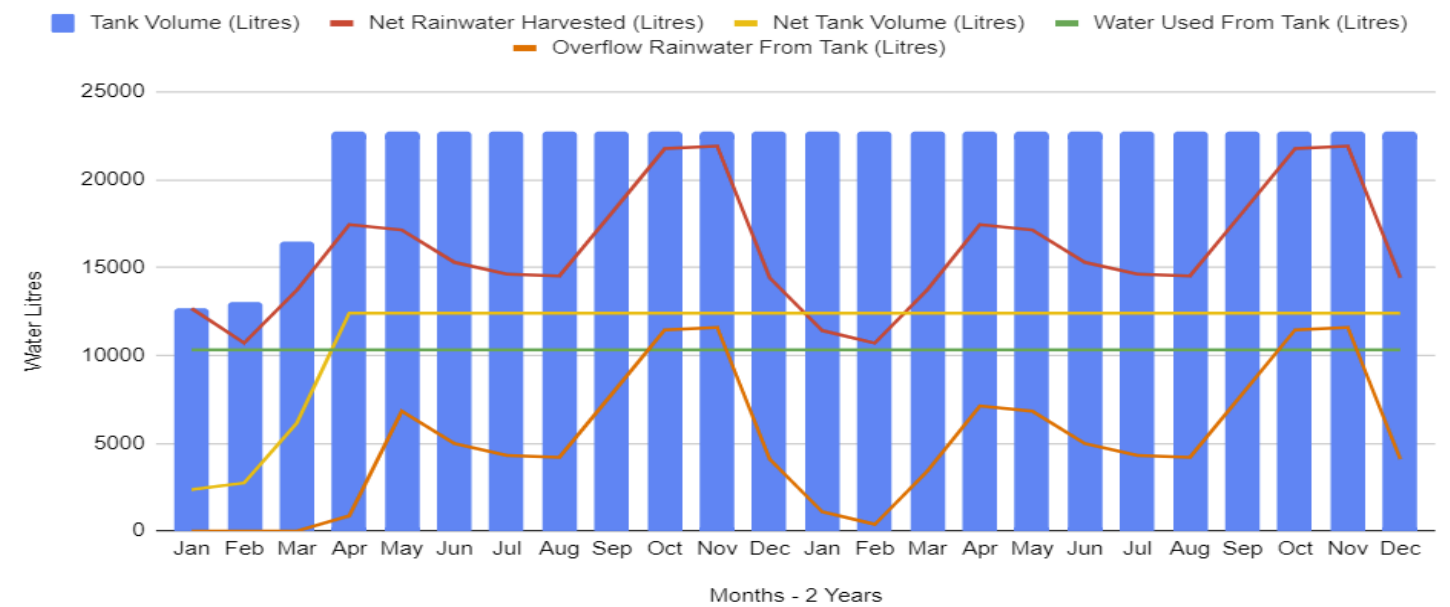
TOTAL

73.7 PSI/171 FT HEAD

A2**CLEAN FLO**
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Number of Full Time Occupance	2				
Parameter	Litres / Use	Total Litres / Person	Roof Material	ASPHALT	
Toilet Flushes Per Day (5 uses)	6	30	Initial Loss (mm)	0.5	
Clothes Washer (2.5 loads/week)	56	20	Continuous Loss (%)	10%	
Bath/Shower (9L /min)	8	72			
Faucets (5L / min)	8	40	Prefilter Loss (%)	10%	
Dishwasher (2 loads/week)	16	4.5	First Flush Loss (mm/m2)	0.05	
Leaks	3	3			
			Roof Area (sq m)	190	
			(sq ft)	2045	
Per Capita Daily Water Demand		170			
			Total Tank Volume (Litres)	22710	
			(US Gallons)	6000	
Total Daily Water Demand	339				
Monthly Water Demand (30 days)	10170				
			Bulk Water Delivery (Litres)	13600	
			(US Gallons)	3593	
Annual Water Demand	123735				

Table 1: Monthly Water Balance



	Rainfall (mm)	Average # of Days With Rainfall	Initial Loss From Roofing (mm)	Gross Rainwater Harvested (Litres)	Continuous Loss From Roofing (Litres)	Loss From First Flush (Litres)	Loss From Prefilter (Litres)	Net Rainwater Harvested (Litres)	Tank Top Up Fill (Litres)	Tank Volume (Litres)	Proposed Monthly Water Demand (Litres)	Net Tank Volume (Litres)	End of Month Tank Volume (Litres)	Water Used From Tank (Litres)	Alternative Water Required (Litres)	Overflow Rainwater From Tank (Litres)
Jan	83.4	2	1	15656	1566	19	1407	12664		12664	10311	2353	2353	10311	0	0
Feb	77.9	15	8	13366	1337	144	1189	10697		13050	10311	2739	2739	10311	0	0
Mar	100.1	20	10	17138	1714	188	1524	13712		16451	10311	6140	6140	10311	0	0
Apr	127.9	26	13	21803	2180	250	1937	17435		22710	10311	12399	12399	10311	0	865
May	126.9	28	14	21451	2145	266	1904	17136		22710	10311	12399	12399	10311	0	6825
Jun	113.1	25	12	19137	1914	235	1699	15289		22710	10311	12399	12399	10311	0	4978
Jul	108.4	24	12	18297	1830	230	1624	14614		22710	10311	12399	12399	10311	0	4302
Aug	107.8	24	12	18174	1817	231	1613	14513		22710	10311	12399	12399	10311	0	4202
Sep	133	27	14	22667	2267	260	2014	18126		22710	10311	12399	12399	10311	0	7815
Oct	158.3	30	15	27189	2719	289	2418	21763		22710	10311	12399	12399	10311	0	11452
Nov	160.7	33	17	27389	2739	314	2434	21902		22710	10311	12399	12399	10311	0	11590
Dec	106.3	23	11	18037	1804	216	1602	14415		22710	10311	12399	12399	10311	0	4104
Jan	83.4	17	8	14257	1426	159	1267	11405		22710	10311	12399	12399	10311	0	1094
Feb	77.9	15	8	13366	1337	144	1189	10697		22710	10311	12399	12399	10311	0	386
Mar	100.1	20	10	17138	1714	188	1524	13712		22710	10311	12399	12399	10311	0	3401
Apr	127.9	26	13	21803	2180	250	1937	17435		22710	10311	12399	12399	10311	0	7124
May	126.9	28	14	21451	2145	266	1904	17136		22710	10311	12399	12399	10311	0	6825
Jun	113.1	25	12	19137	1914	235	1699	15289		22710	10311	12399	12399	10311	0	4978
Jul	108.4	24	12	18297	1830	230	1624	14614		22710	10311	12399	12399	10311	0	4302
Aug	107.8	24	12	18174	1817	231	1613	14513		22710	10311	12399	12399	10311	0	4202
Sep	133	27	14	22667	2267	260	2014	18126		22710	10311	12399	12399	10311	0	7815
Oct	158.3	30	15	27189	2719	289	2418	21763		22710	10311	12399	12399	10311	0	11452
Nov	160.7	33	17	27389	2739	314	2434	21902		22710	10311	12399	12399	10311	0	11590
Dec	106.3	23	11	18037	1804	216	1602	14415		22710	10311	12399	12399	10311	0	4104
								191637	0					123735	0	61702

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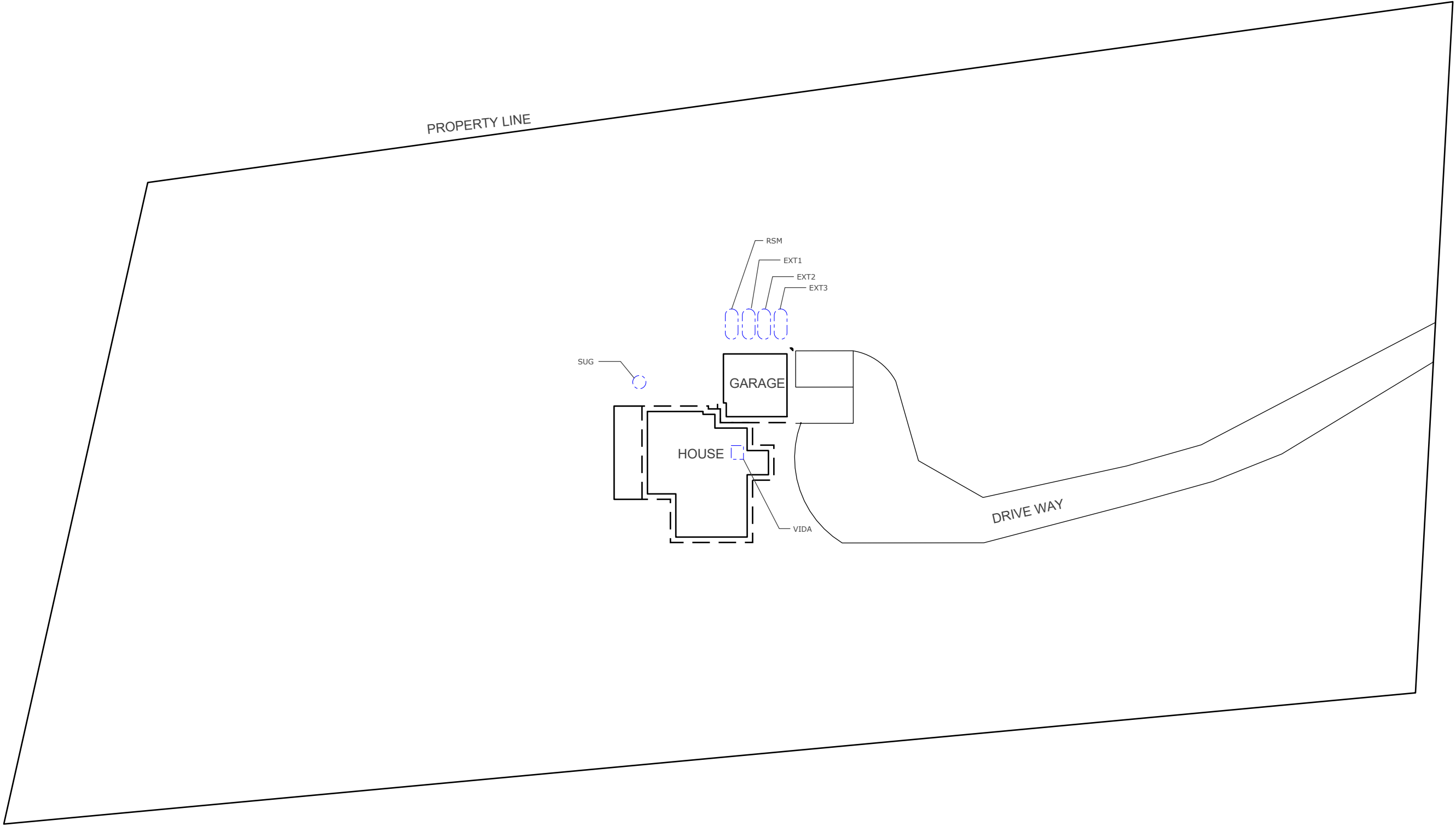
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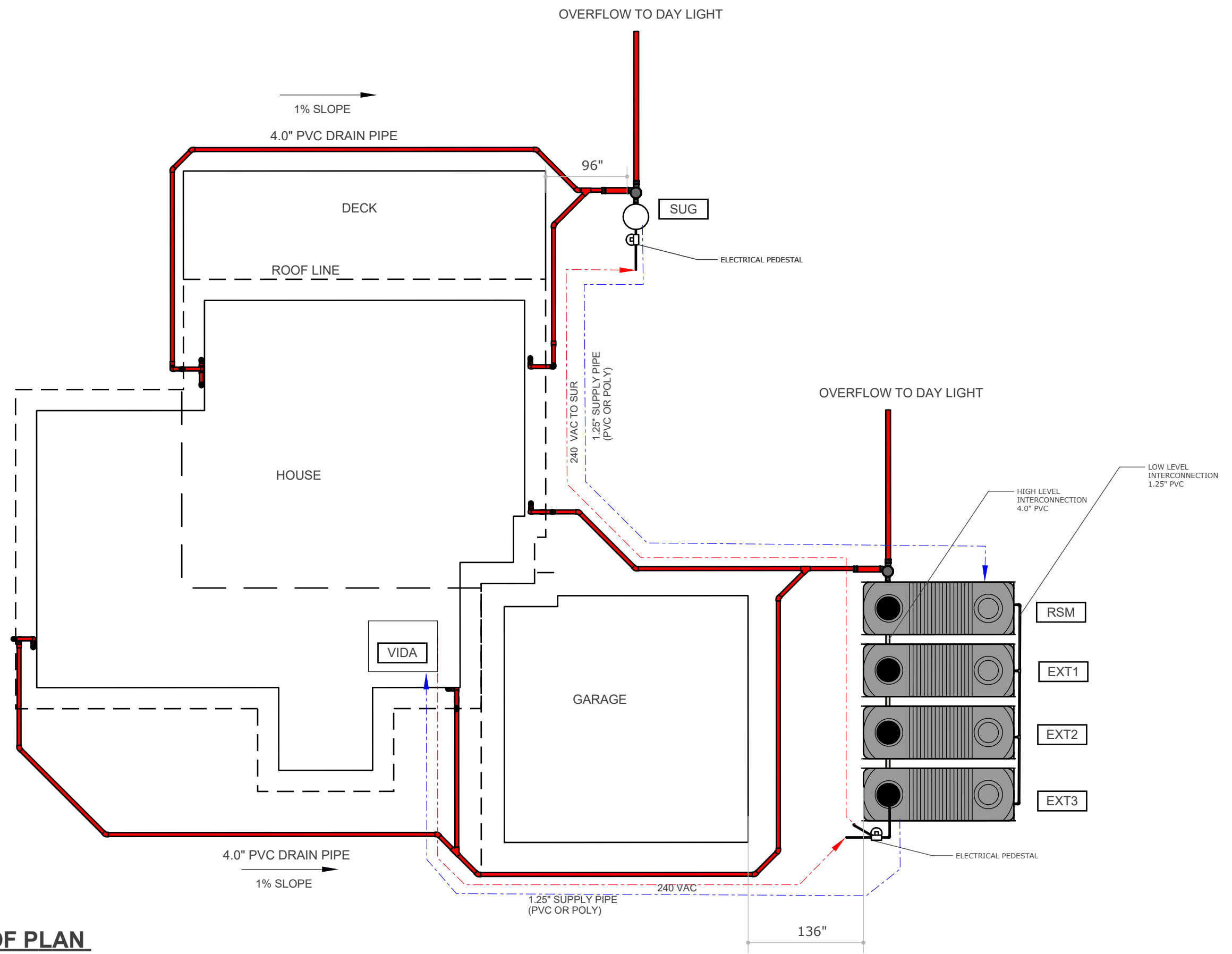
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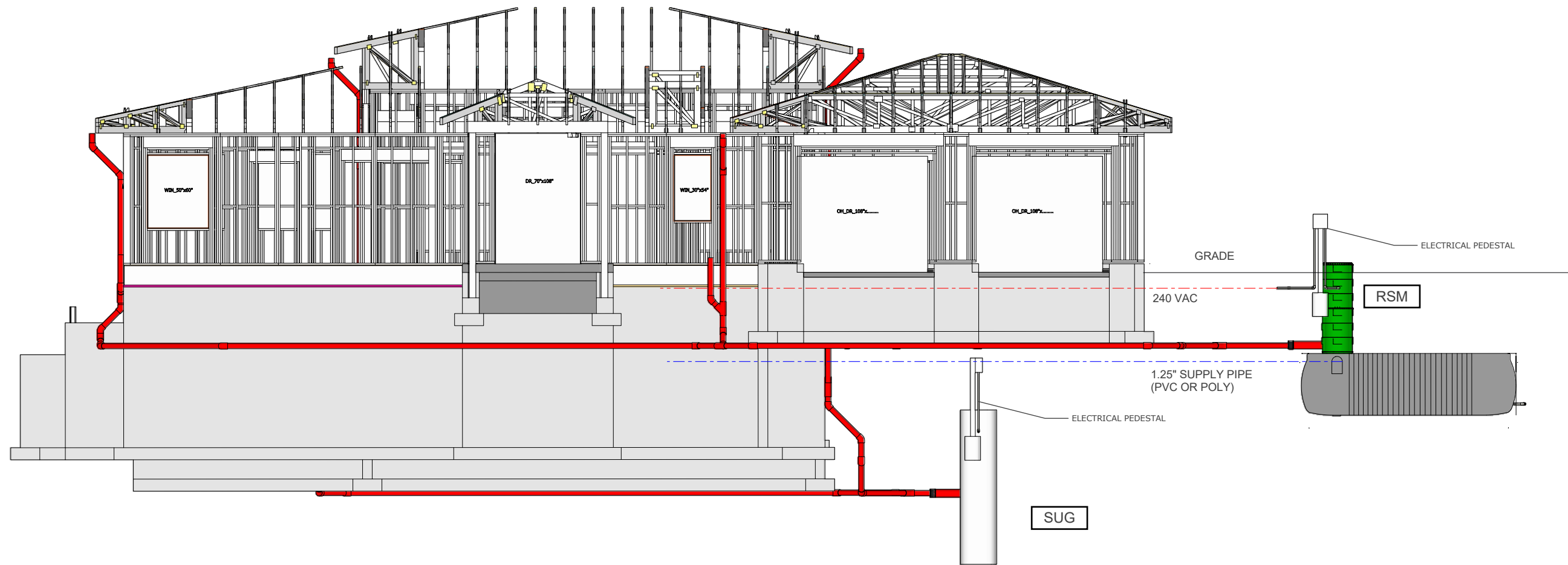
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SITE PLAN
(SCALE 1:480)



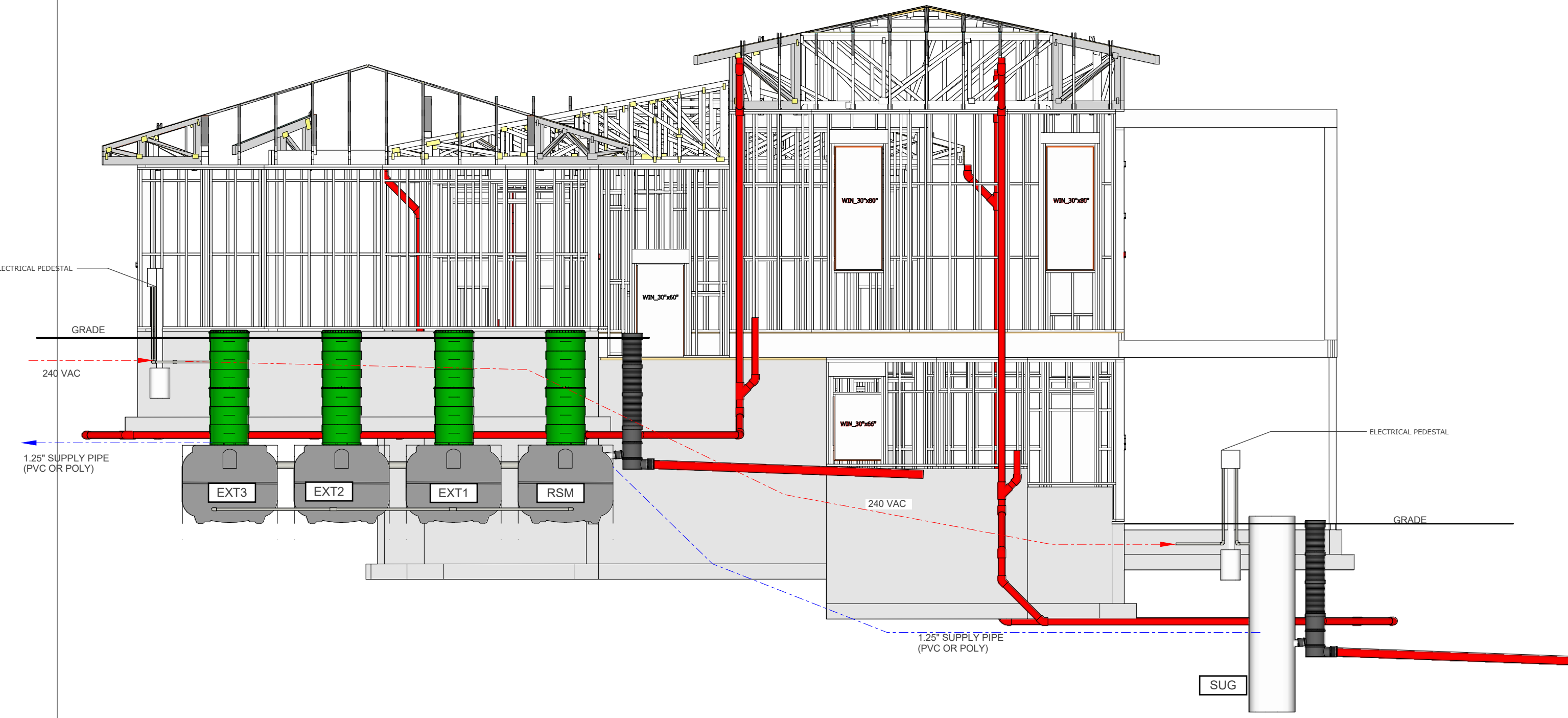
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ROOF PLAN
(SCALE 1:120)



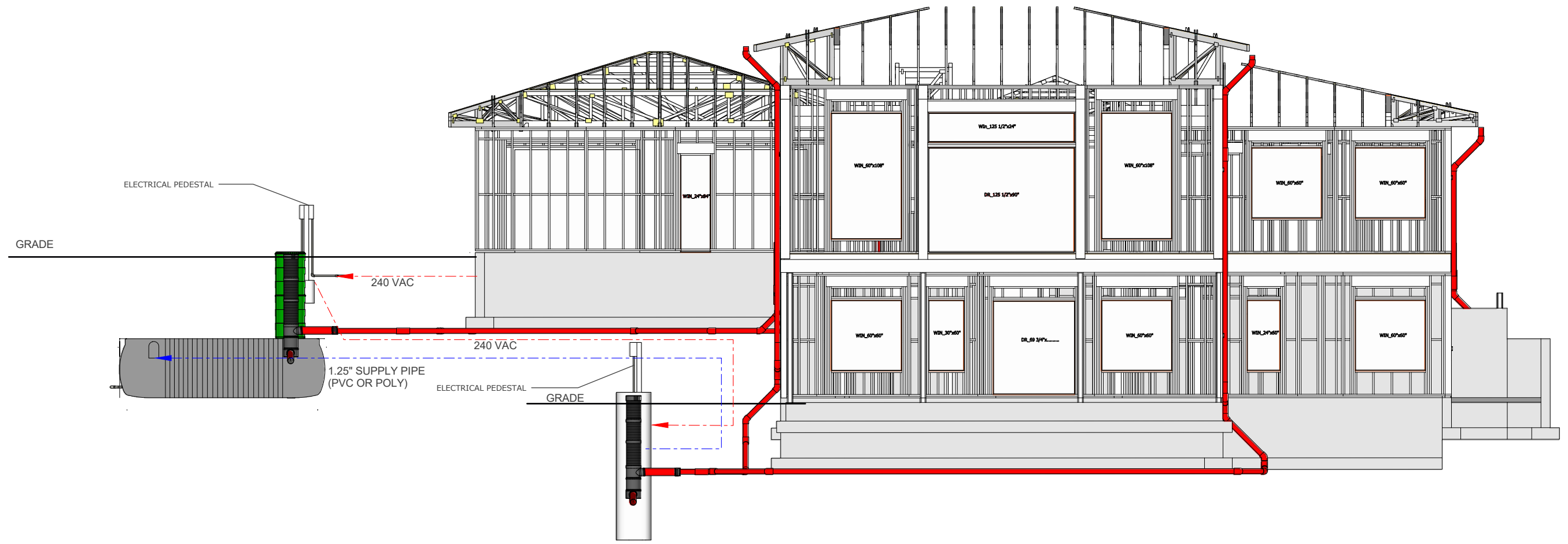
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FRONT VIEW
(SCALE 1:96)



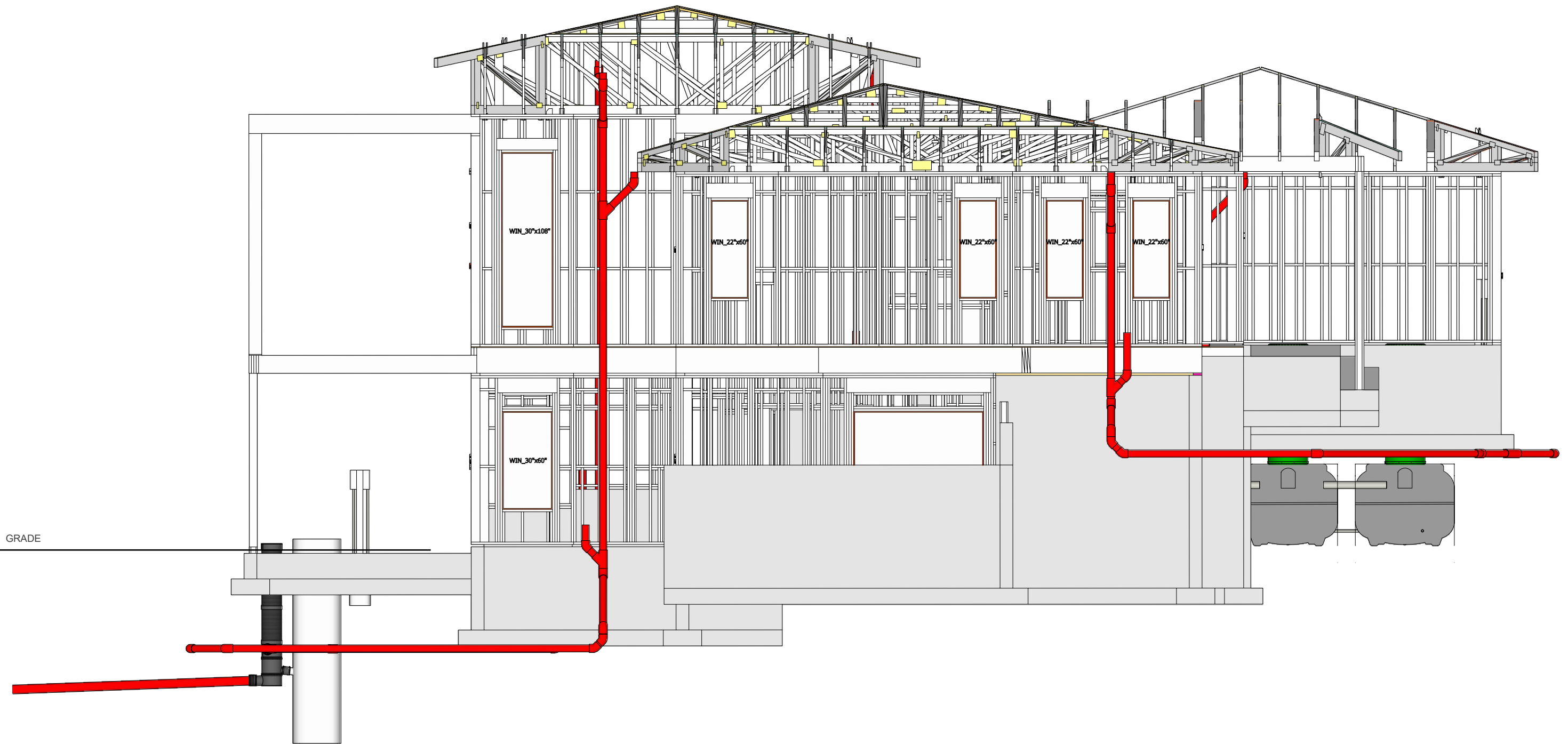
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RIGHT VIEW
(SCALE 1:64)



A8

BACK VIEW
(SCALE 1:96)



A9

LEFT VIEW
(SCALE 1:64)