APPENDIX 7.2
Hydraulic Modelling Results

Agreement No. CE 68/2017 (CE)
Site Formation and Infrastructural Works for the Development at San Hing Road and Hong Po Road, Tuen Mun – Feasibility Study

Site Name	Population		Unit Flow Factor	Average DWF		Contributing Population	Peaking Factor for SPS	Peak Flow for SPS
			(l/d)	(m^3/s)	(m^3/day)			(m^3/s)
SHR SPS								
SHR Site	26,300	Residents	190	0.05784	4,997	20,349		
	1447	Employees	280	0.00469	405			
	2,304	Students	40	0.00107	92			
SHR Site Extension	4,700	Residents	190	0.01034	893	4,206		
	469	Employees	280	0.00152	131			
	2,784	Students	40	0.00129	111			
HPR Site	30,000	Residents	190	0.06597	5,700	22,559		
	1,319	Employees	280	0.00427	369			
	540	Students	40	0.00025	22			
			Subtotal	0.147	**12,721**	47,115	3.04	**0.45**
Subtotal (with 15% contingency)				0.169	**14,629**	54,182	3.01	**0.51**
Gravity to WIS								
Site 1 & 1A	12,000	Residents	190	0.026	2,280	8,617		
	141	Employees	280	0.00046	39			
	180	Students	40	0.00008	7			
Site 3/4 (West)	14,300	Residents	270	0.045	3,861	14,719		
	370	Employees	280	0.0012	104			
	240	Students	40	0.00011	10			
Site 5	3,100	Residents	190	0.0068	589	2,226		
	43	Employees	280	0.0001	12			
Area 54 SPS								
Site 2	13,000	Residents	190	0.029	2,470	9,417		
	234	Employees	280	0.00076	66			
	180	Students	40	0.00008	7			
Site 3/4 (East)	15,000	Residents	190	0.033	2,850	10,812		
	217	Employees	280	0.00070	61			
	210	Students	40	0.00010	8			
Site 4A (South)	4,200	Residents	190	0.009	798	3,002		
	19	Employees	280	0.00006	5			
	180	Students	40	0.00008	7			
Site 4A (East)	2,400	Students	40	0.001	96	538		
	176	Employees	280	0.00057	49			
Site 4A (West)	310	Employees	280	0.001	87	321		
Village Sewerage	-	Residents	-	0.029	2,477	9,174		
			Subtotal	0.104	**8,981**	33,265	3.00	**0.31**
Total (including the sewage from SHR SPS)				0.273	**23,611**	87,446	2.92	**0.80**

Area 54 SPS - Design Info

Design ADWF = 16,184 m^3/day
Pump Capacity = 589 l/s
= 0.589 m^3/s

Anticipated Flow to Area 54 SPS

Average DWF = 24,551 m^3/day
Peak Flow = 0.80 m^3/s
Upgrading of TM54 SPS = 0.82 m^3/s

Flow Collection:

Gravity to WIS: Area 54 - Site 1&1A, Site 3/4 (West) & Site 5
SHR SPS: SHR Site, SHR Site Extension & HPR Site
TM54 SPS: Area 54 - Site 2, Site 3/4 (East), Site 4A (South), Site 4A (East), Site 4A (West), Village Sewerage and flow from SHR SPS

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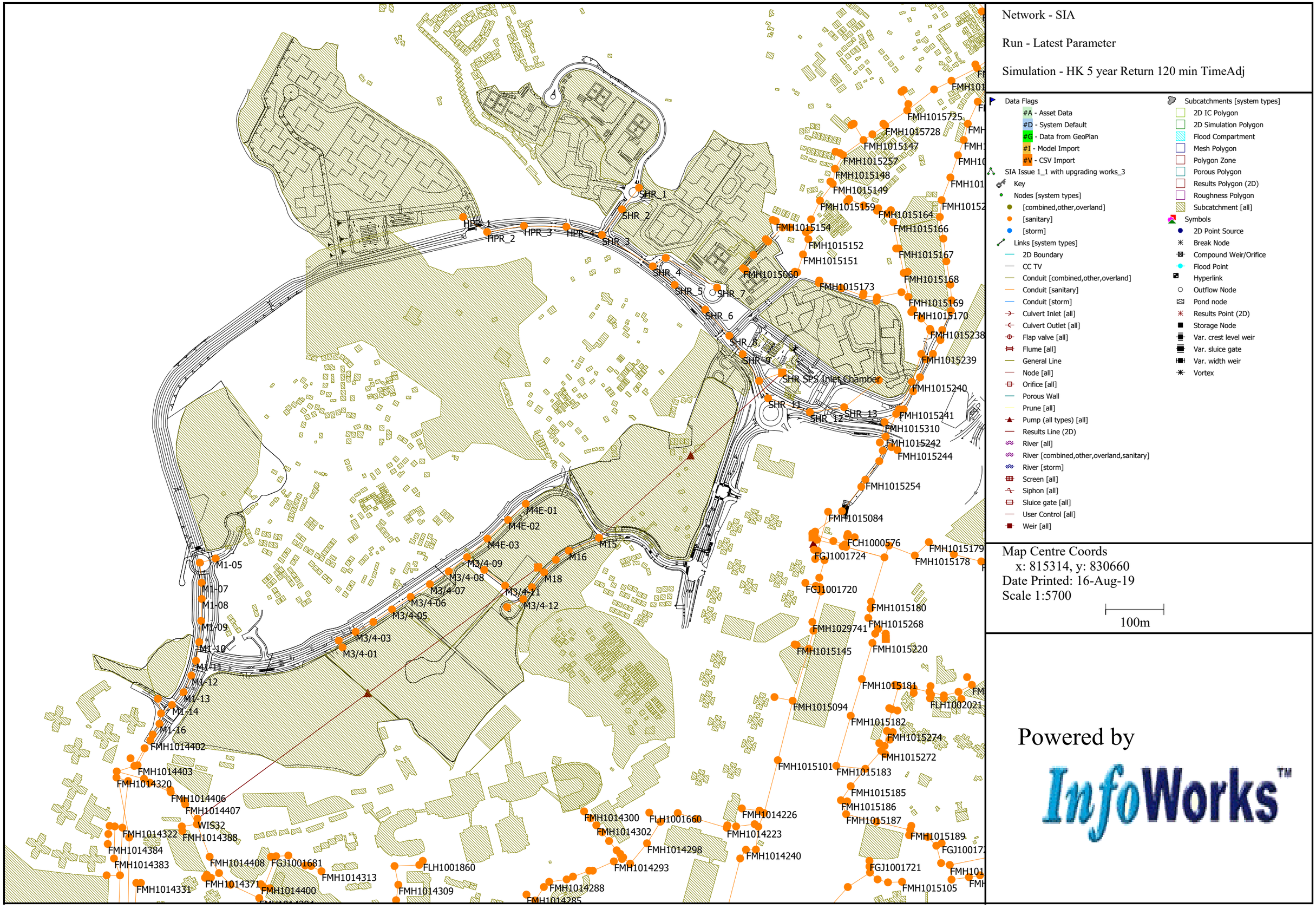
Node ID	Ground Level (mPD)	Width (mm)	Height (mm)	US Invert Level (mAD)	DS Invert Level (mAD)	Conduit Full Capacity (cu m/s)	Max. Level (mAD)	Max. DS Depth (m)	Max. DS Flow (cu m/s)	Max. Surcharge Rate	Max. US Depth (m)	Max. US Flow (cu m/s)	Max. US Velocity (m/s)	Freeboard (m)	Gradient (m/m)	Velocity
SHR_1	9.60	450	450	6.60	6.10	0.25	6.89	0.33	0.16	0.74	0.28	0.16	1.66	2.71	0.01	1.68
SHR_2	9.30	450	450	6.10	5.55	0.24	6.43	0.32	0.20	0.72	0.33	0.20	1.75	2.87	0.01	1.62
SHR_3	9.00	750	750	5.25	4.60	0.76	5.70	0.43	0.44	0.57	0.43	0.44	1.82	3.30	0.01	1.81
SHR_4	8.60	750	750	4.60	4.10	0.96	5.00	0.40	0.46	0.53	0.40	0.46	2.10	3.60	0.01	2.29
SHR_5	8.45	750	750	4.10	3.50	0.90	4.50	0.40	0.46	0.53	0.40	0.46	2.08	3.95	0.01	2.14
SHR_6	8.00	750	750	3.50	2.90	0.94	3.89	0.39	0.46	0.51	0.39	0.46	2.15	4.11	0.01	2.25
SHR_7	7.50	300	300	6.30	5.10	0.09	6.43	0.13	0.02	0.42	0.13	0.02	1.02	1.08	0.01	1.35
SHR_7A	8.00	300	300	5.10	4.80	0.09	5.23	0.20	0.02	0.66	0.13	0.02	0.99	2.77	0.01	1.32
SHR_8	7.82	750	750	2.75	2.45	0.81	3.18	0.43	0.45	0.57	0.42	0.46	1.96	4.64	0.01	1.99
SHR_9	7.20	750	750	2.45	2.00	0.85	2.88	0.52	0.45	0.70	0.42	0.45	1.97	4.32	0.01	2.08
SHR_10	7.80	750	750	2.00	1.60	0.91	2.52	0.44	0.54	0.58	0.44	0.54	2.21	5.28	0.01	2.22
SHR_11	8.40	450	450	2.70	2.30	0.24	2.93	0.23	0.09	0.51	0.23	0.09	1.44	5.47	0.01	1.78
SHR_12	8.15	450	450	3.40	2.70	0.21	3.64	0.24	0.09	0.53	0.24	0.09	1.39	4.51	0.01	1.57
SHR_13	7.42	450	450	4.00	3.40	0.22	4.24	0.24	0.09	0.53	0.24	0.09	1.37	3.18	0.01	1.64
SHR_14	8.00	450	450	4.50	4.00	0.18	4.76	0.25	0.09	0.57	0.26	0.09	1.24	3.24	0.01	1.32
HPR_1	13.00	600	600	8.00	7.20	0.68	8.28	0.32	0.25	0.53	0.28	0.25	2.13	4.72	0.02	2.52
HPR_2	12.00	600	600	7.20	6.60	0.50	7.52	0.33	0.25	0.54	0.31	0.25	1.81	4.48	0.01	1.90
HPR_3	11.40	600	600	6.60	6.00	0.47	6.92	0.32	0.25	0.54	0.32	0.25	1.73	4.48	0.01	1.79
HPR_4	10.50	600	600	6.00	5.40	0.51	6.31	0.31	0.24	0.51	0.31	0.25	1.83	4.19	0.01	1.92
M15	7.36	900	900	3.40	3.10	1.36	3.99	0.66	0.87	0.74	0.58	0.88	2.52	3.37	0.01	2.27
M16	7.25	900	900	3.10	2.90	1.25	3.76	0.73	0.87	0.81	0.65	0.87	2.18	3.49	0.01	2.09
M17	7.12	900	900	2.90	2.70	1.10	3.62	0.79	0.86	0.87	0.71	0.87	2.00	3.50	0.01	1.87
M18	7.07	900	900	2.70	2.63	1.19	3.48	0.65	1.05	0.73	0.65	1.05	2.29	3.59	0.01	2.03
M19	7.50	750	750	2.60	2.50	2.68	2.97	0.36	1.05	0.48	0.36	1.05	5.58	4.53	0.08	6.57

Note:
Hydraulic model is provided separately to relevant parties
Roughness (K) = 0.003
Kinemetic Viscosity (v) = 1.141E-06


SHR_1
SHR_2
SHR_3
SHR_4
SHR_5
SHR_6
SHR_7
SHR_8
SHR_9
SHR_11
SHR_12
SHR_13
SHR_SPS Inlet Chamber
HPR_1
HPR_2
HPR_3
HPR_4
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FMH1014302
FMH1014298
FMH1014293
FMH1014288
FMH1014285
FMH1014226
FMH1014223
FMH1014240
Network - SIA
Run - Latest Parameter
Simulation - HK 5 year Return 120 min TimeAdj
Data Flags
#A - Asset Data
#D - System Default
#G - Data from GeoPlan
#I - Model Import
#V - CSV Import
SIA Issue 1_1 with upgrading works_3
Key
Nodes [system types]
[combined,other,overland]
[sanitary]
[storm]
Links [system types]
2D Boundary
CC TV
Conduit [combined,other,overland]
Conduit [sanitary]
Conduit [storm]
Culvert Inlet [all]
Culvert Outlet [all]
Flap valve [all]
Flume [all]
General Line
Node [all]
Orifice [all]
Porous Wall
Prune [all]
Pump (all types) [all]
Results Line (2D)
River [all]
River [combined,other,overland,sanitary]
River [storm]
Screen [all]
Siphon [all]
Sluice gate [all]
User Control [all]
Weir [all]
Subcatchments [system types]
2D IC Polygon
2D Simulation Polygon
Flood Compartment
Mesh Polygon
Polygon Zone
Porous Polygon
Results Polygon (2D)
Roughness Polygon
Subcatchment [all]
Symbols
2D Point Source
Break Node
Compound Weir/Orifice
Flood Point
Hyperlink
Outflow Node
Pond node
Results Point (2D)
Storage Node
Var. crest level weir
Var. sluice gate
Var. width weir
Vortex
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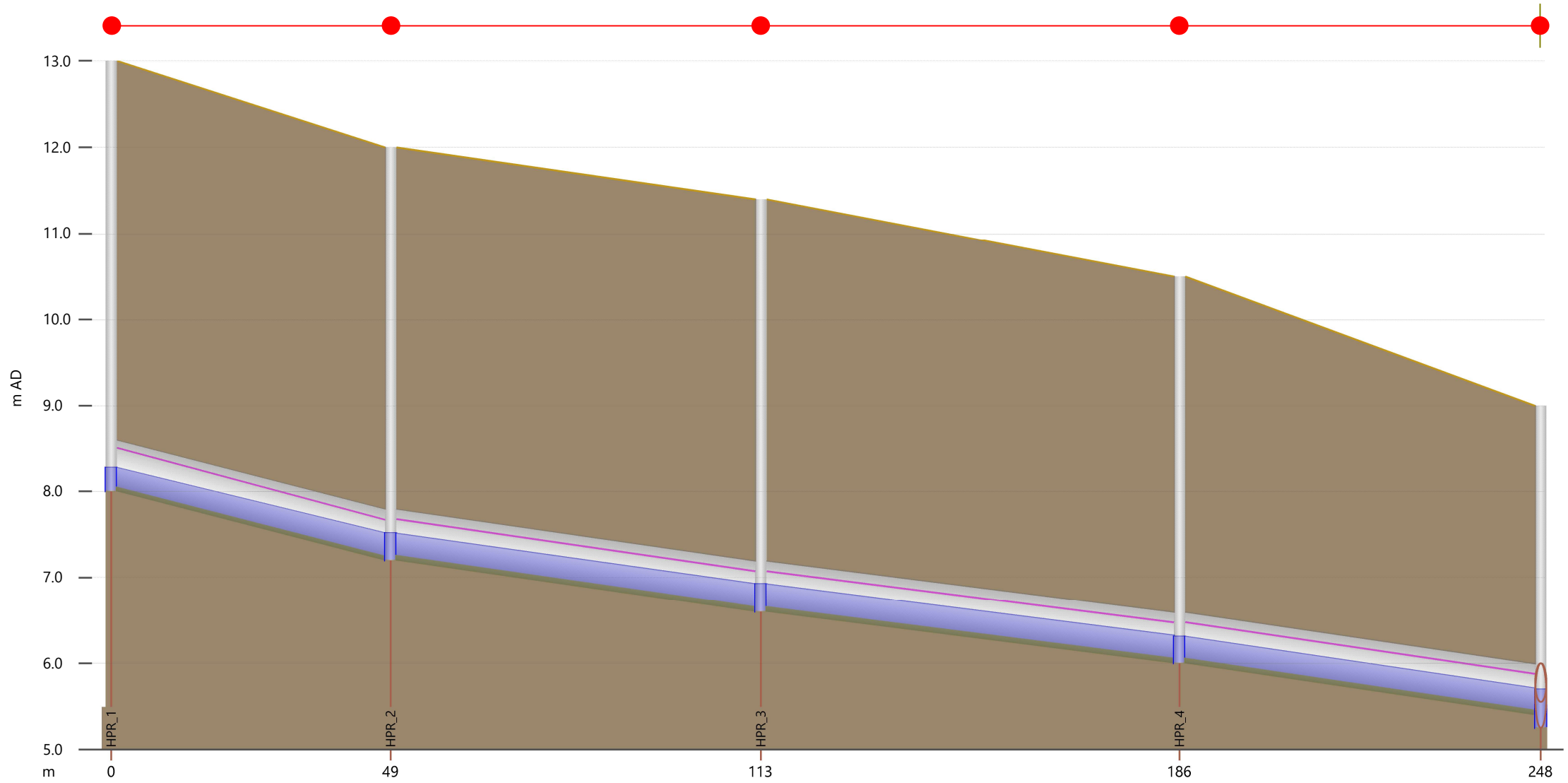

Link		HPR_1.1	HPR_2.1	HPR_3.1	HPR_4.1	
Node	HPR_1	HPR_2	HPR_3	HPR_4	SHR_3	

Long Section for Network - SIA

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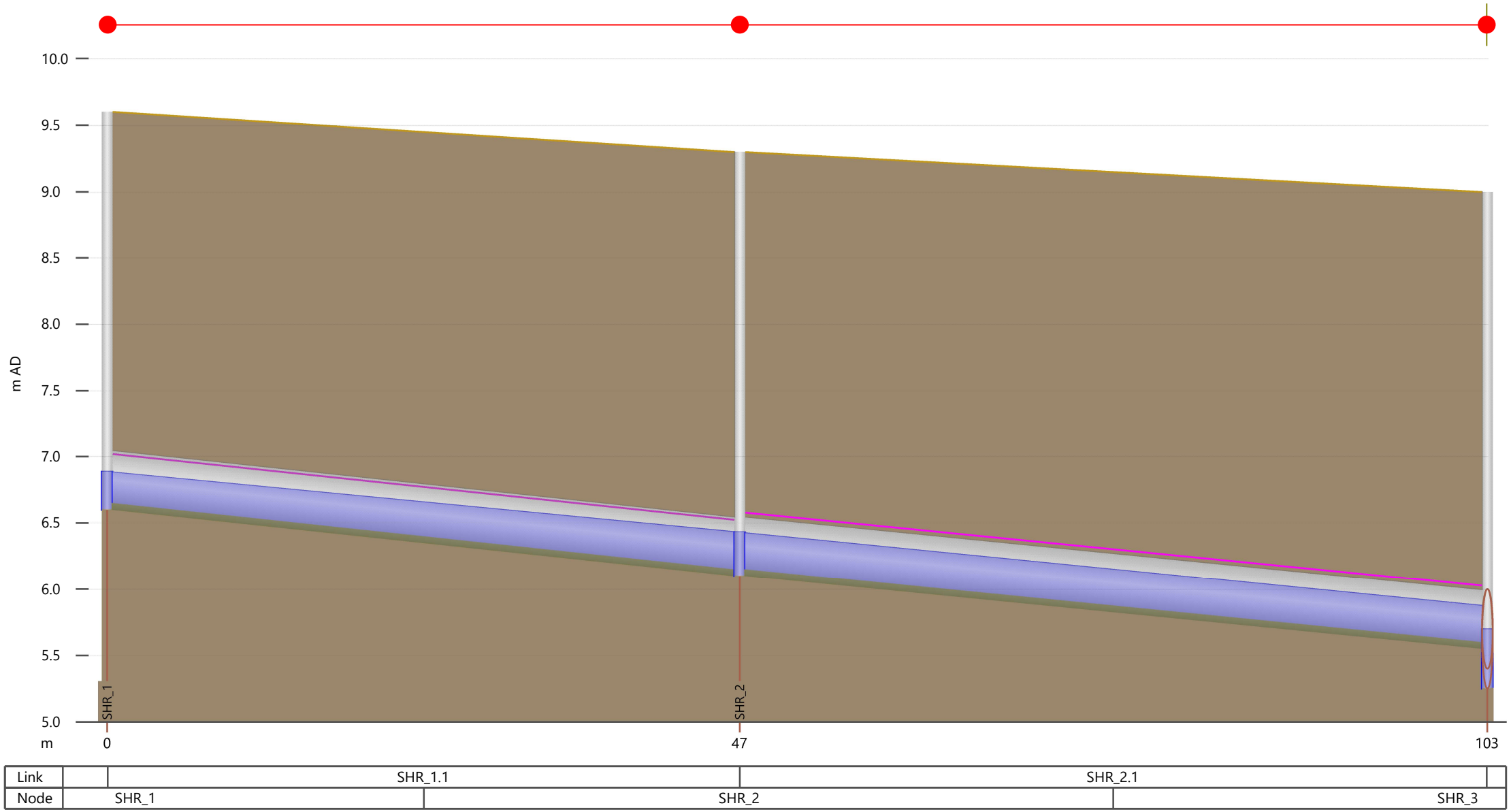

Long Section for Network - SIA

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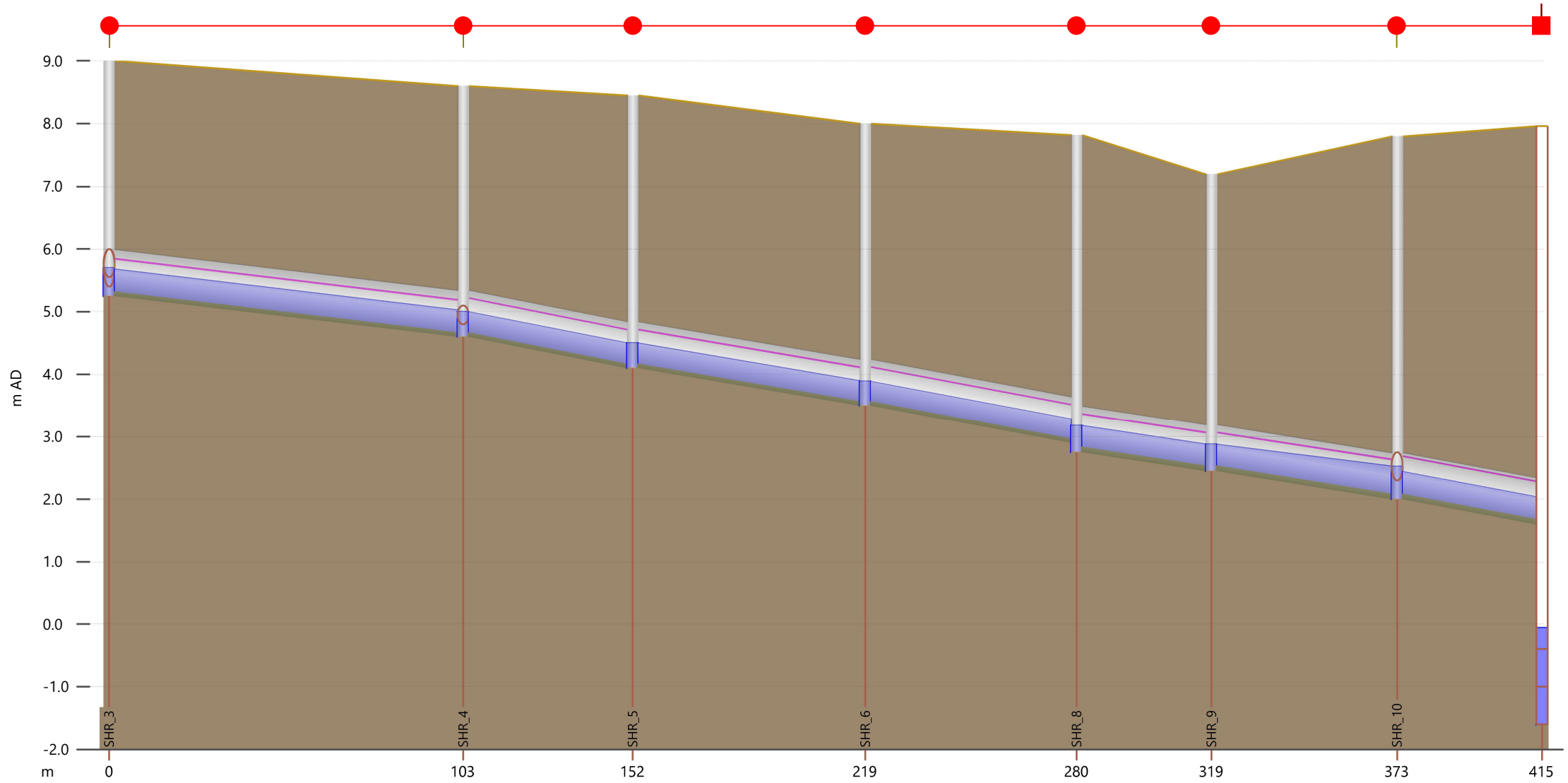

Link		SHR_3.1		SHR_4.1		SHR_5.1		SHR_6.1		SHR_8.1		SHR_9.1		SHR_10.2	
Node	SHR_3		SHR_4		SHR_5		SHR_6		SHR_8		SHR_9		SHR_10		-

Long Section for Network - SIA

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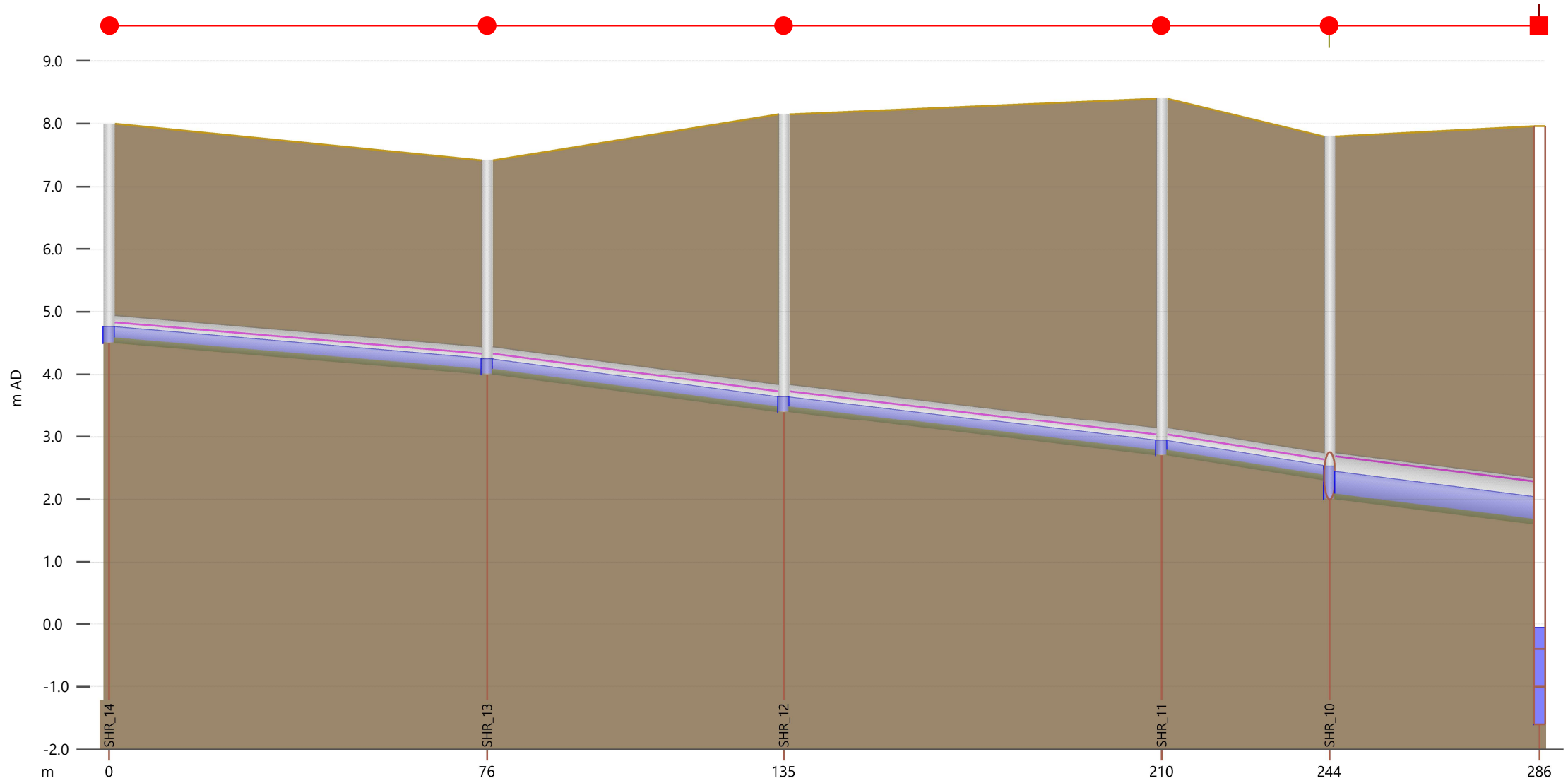

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Node	SHR_14		SHR_13		SHR_12		SHR_11		SHR_10		-

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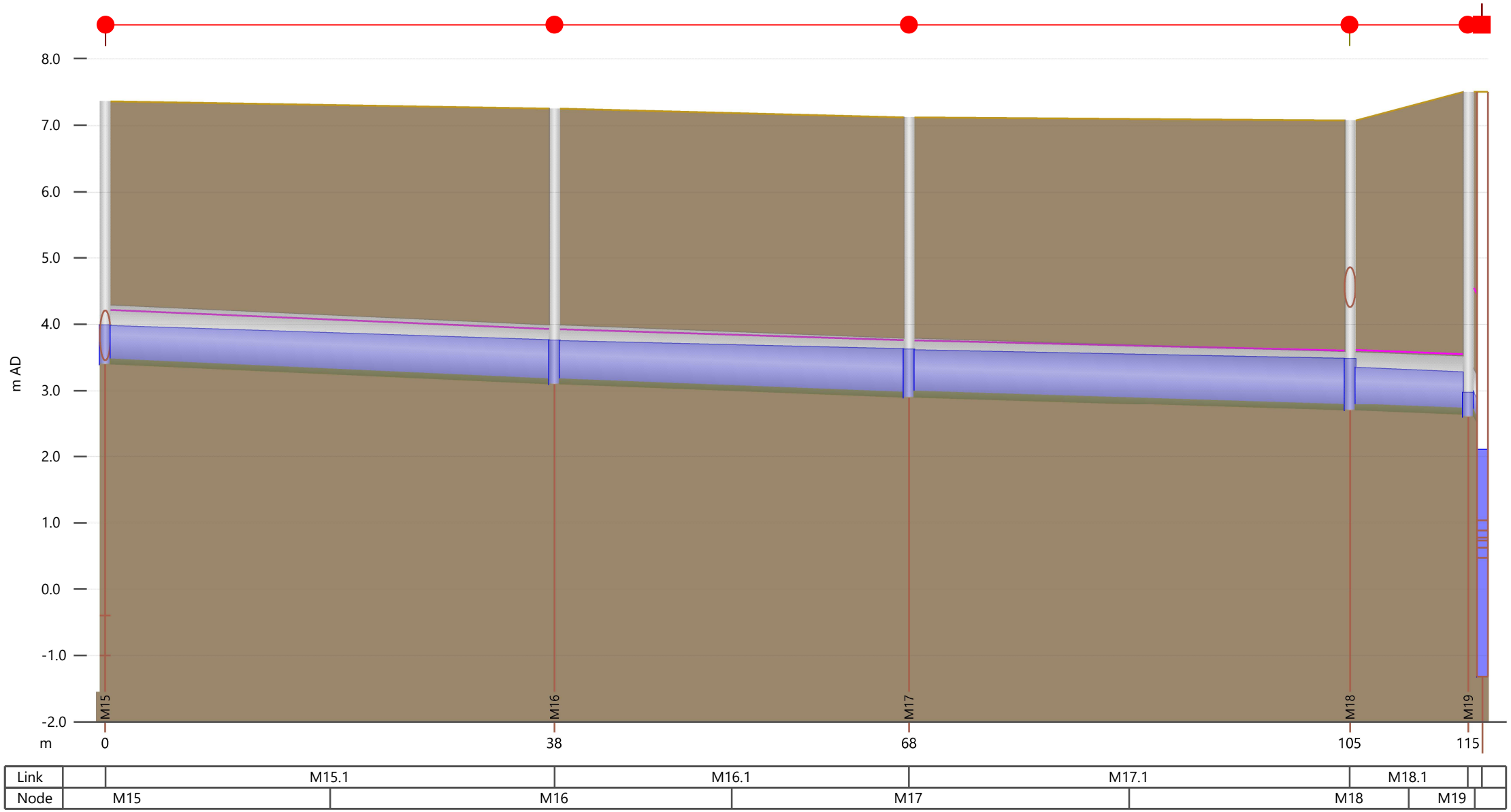

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