PROPOSED DEVELOPMENT OF PORTION 24 AND 28 OF 567 MOHLABA, DAN, LIMPOPO

1:100 RETURN PERIOD FLOODLINE DETERMINATION REPORT

May 2022, Rev0

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1.0 INTRODUCTION

1.1 Study Request

Dalimede Projects (PTY) LTD was appointed by Vaxumi Consulting Town Planners to undertake floodline assessment relating to the proposed township on portions 24 and 28 of 567 Mohlaba, Dan, Limpopo.

1.2 Locality

The portions 24 and 28 of 567 Mohlaba, are located 30km east of Tzaneen town CBD along the R36 road, Limpopo Province. The area is administered by Tzaneen Local Municipality, under the Mopani District Municipality. GPS coordinates of site are 23°52'42.38"S 30°15'34.16"E.

The locality map is shown on the figures below.

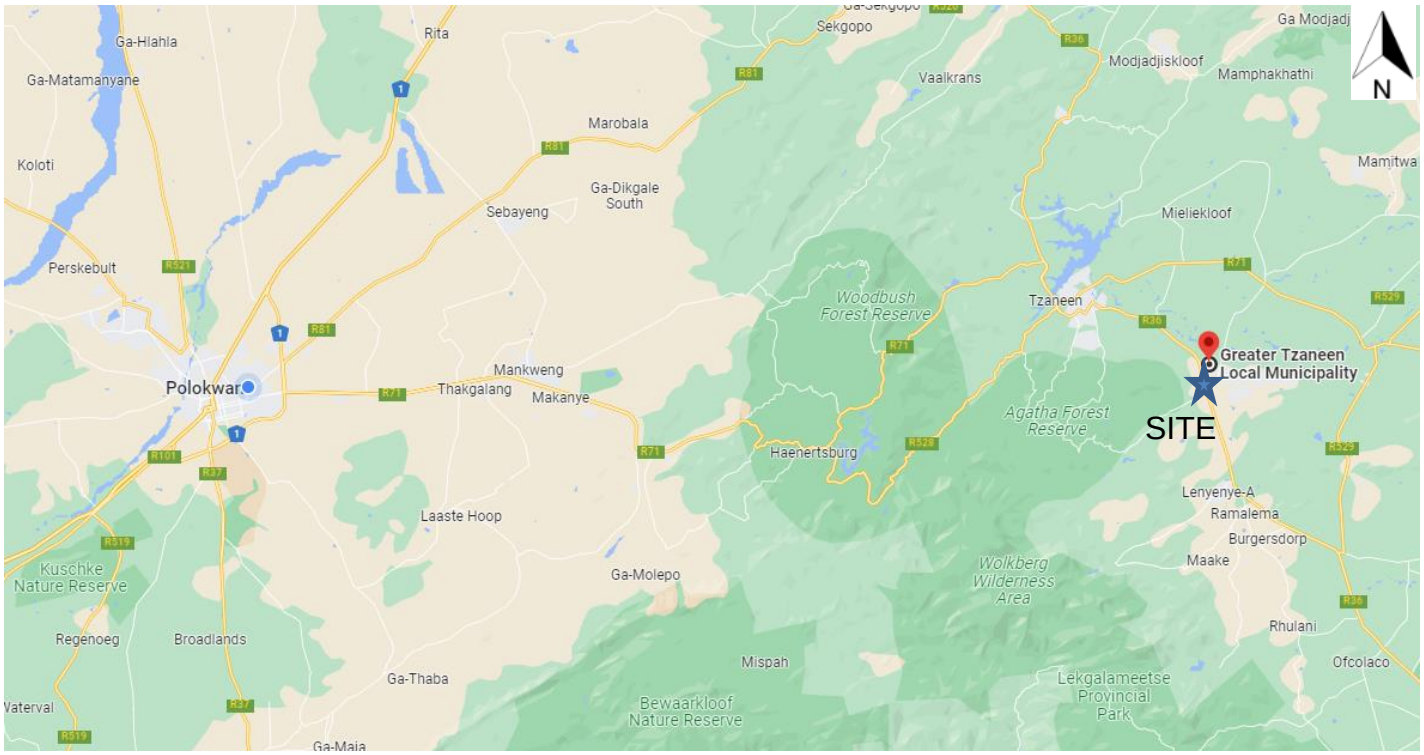

Figure 1 Location of development site

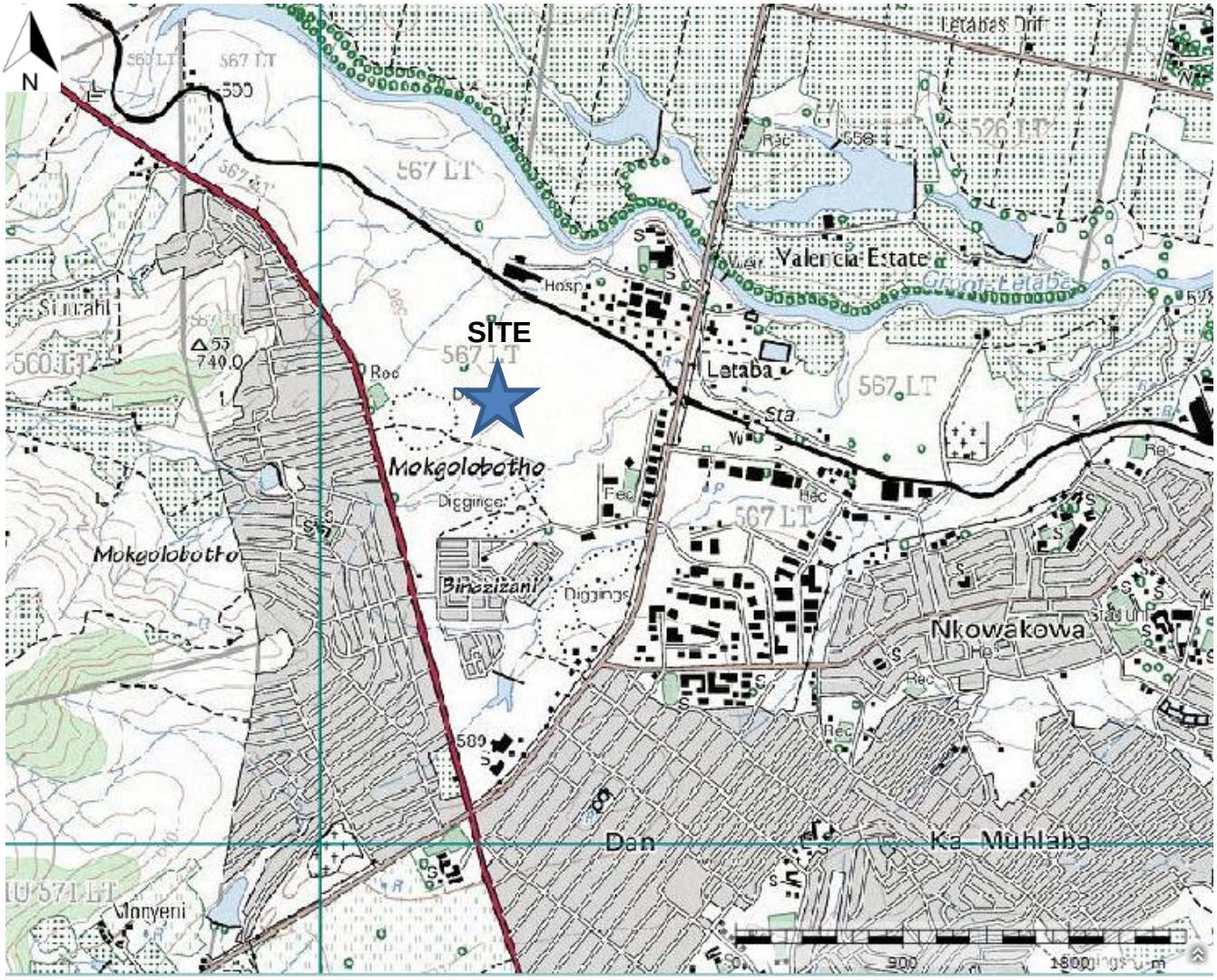

Figure 2 Project site

1.3 Borrow-pits onsite

Site visit revealed numerous sand mining borrow-pits dotted within the proposed development site.

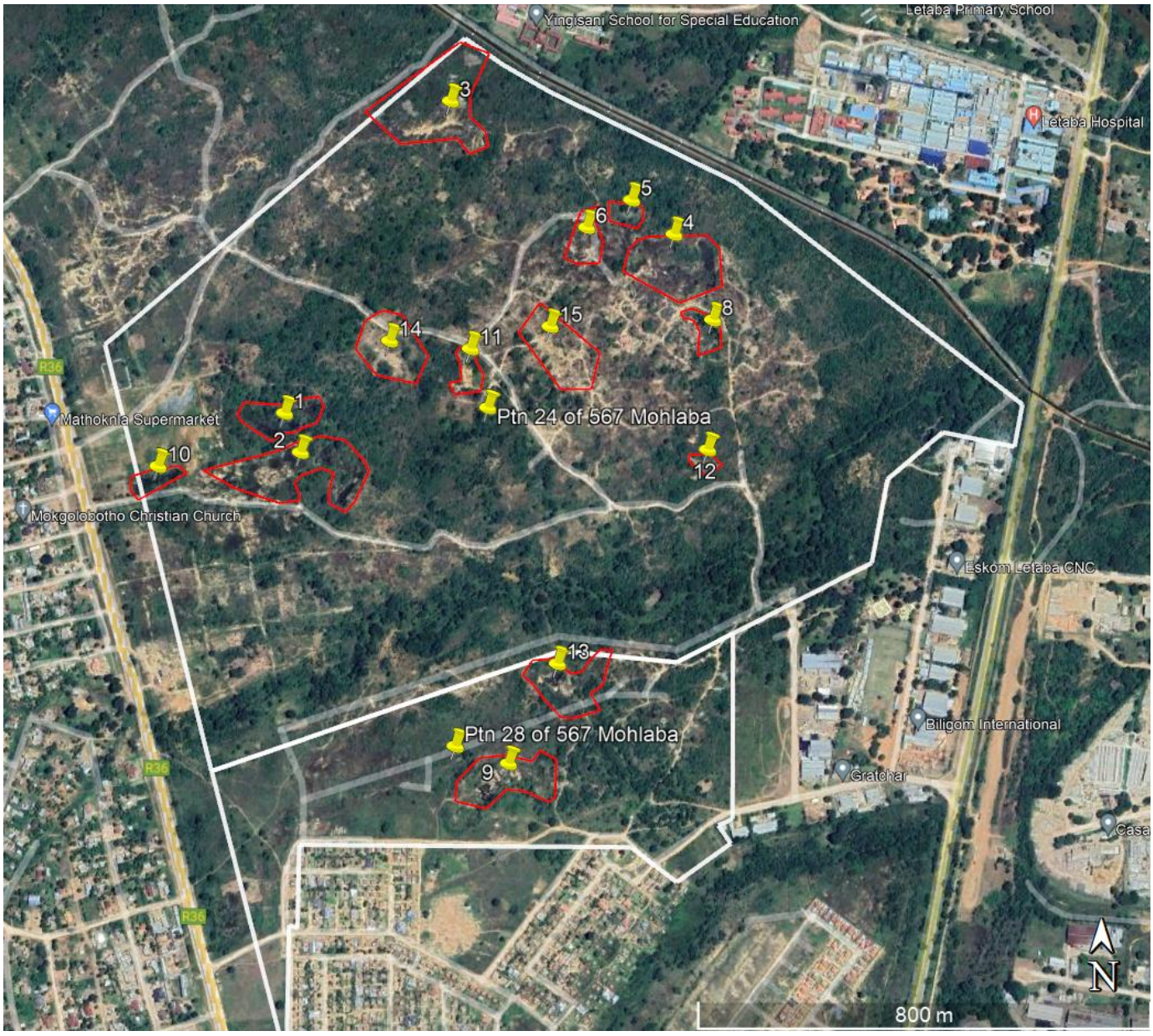

Figure 3 Sand mining borrow-pits

Figure 4 Typical borrow-pit onsite

1.4 Background

A flood line analysis must be conducted along the stream / river traversing or in proximity of the site of proposed development.

See the figures below for the streams in catchment area in proximity to the site.

Figure 5 Streams (blue line)

Figure 6 Stream onsite

1.4 Methodology

1.4.1 general

The study consists of 2 major components:

- a flood analysis to determine the flood peak flow and,
- a surface water profile analysis to determine the flood line.

The magnitude of a flood is dependent on many factors, such as catchment size, slope and rainfall intensity. There are several different methods for determining floods and in general, different methods arrive at different estimates of the peak flow rate. The accepted approach is therefore to use several methods and then make a judgment call as to which method is the most applicable to the catchment under consideration. For this study, the Rational, Alternative Rational, Standard Design Flood (SDF) methods were used to determine the peak flow rate for the 1:100 return flood.

The reason for choosing these methods was because they are applicable to the catchment and to show the variance in the flood line between the method that

produced the highest flood peak and the method that produced the lowest flood peak. Hence a flood line has been produced to take cognisance of the uncertainty related to estimating floods and flood lines.

The area of the catchment in which the adjacent stream is located was determined using GIS software as were additional properties applicable to the catchment, such as the length of the watercourse and the centroid of the catchment. The flood peak flows provide the flow used in the flood line analysis using the *HEC-RAS* software.

Other input required for *HEC-RAS* is channel geometry and roughness parameters. Channel cross-sections were taken at points along the river / stream course, within the area that contour lines were provided. The stream reaches that were analysed are in a natural state.

1.4.2 Flood Modelling Methodology

Flood peaks for the catchments selected for flood modelling were estimated by the following methods using the Utility Programs for Drainage (UPD) software, 2007 with the methods detailed in SANRAL, 2013:

- Rational Method (RM).
- Alternative Rational Method (ARM).
- Standard Design Flood (SDF).

1.4.2.1 Rational Method

This method is based on the conservation of mass and is applicable for catchment areas below 15 km^2. Aerial and time distributions of rainfall in this method are assumed to be uniform throughout the catchment. Flood peaks and empirical hydrographs can be determined by this method.

Where: The peak flow is obtained from the following relationship:

$$Q = \frac{CIA}{3.6}$$

Where: Q = peak flow (m^3/s)
C = runoff coefficient (dimensionless)
I = average rainfall intensity over the catchment (mm/hour)
A = effective runoff area of the catchment (km^2)
3.6 = conversion factor

1.4.2.2 Alternative Rational Method

This method is based on the rational method with the point precipitation being adjusted using the Design Rainfall Estimation Methodology developed by Smithers and Schulze (2003) to consider local South African conditions.
Design rainfall values for the study area were extracted from the database of six closest to site South African Weather Service stations, using the Design Rainfall Utility developed by Smithers and Schulze (2000).

Table 1 Design Rainfall Values for the site

Duration		**Return Period (Years) Design Rainfall Depth (mm)**						
		1:2	**1:5**	**1:10**	**1:20**	**1:50**	**1:100**	**1:200**
5	m	7.8	11.4	14	16.7	20.5	23.6	27
10	m	13.6	19.7	24.2	28.9	35.5	40.9	46.8
15	m	18.7	27.1	33.3	39.8	48.9	56.4	64.5
30	m	27.4	39.8	48.9	58.3	71.7	82.7	94.5
45	m	34.3	49.8	61.1	73	89.7	103.4	118.2
1	h	40.2	58.3	71.6	85.5	105.1	121.2	138.5
1.5	h	50.2	73	89.6	106.9	131.5	151.6	173.3
2	h	58.9	85.5	105	125.3	154.1	177.7	203.1
4	h	70.1	101.8	125.1	149.2	183.5	211.6	241.8
6	h	77.7	112.8	138.5	165.3	203.3	234.4	267.8
8	h	83.5	121.2	148.9	177.7	218.5	252	288
10	h	88.3	128.3	157.5	188	231.2	266.6	304.6
12	h	92.5	134.3	164.9	196.8	242	279.1	318.9
16	h	99.4	144.4	177.3	211.6	260.2	300.1	342.9
20	h	105.2	152.7	187.6	223.9	275.3	317.4	362.7
24	h	110.1	159.9	196.4	234.4	288.2	332.3	379.8
1	d	91.4	132.7	162.9	194.4	239.1	275.7	315.1
2	d	116.3	168.8	207.4	247.5	304.3	350.9	401
3	d	133.9	194.4	238.8	285	350.4	404.1	461.8
4	d	147.4	214	262.8	313.6	385.7	444.7	508.2
5	d	158.7	230.5	283.1	337.8	415.4	479	547.4
6	d	168.7	244.9	300.8	359	441.5	509	581.7
7	d	177.6	257.8	316.7	377.9	464.7	535.9	612.4

2.0 PROPOSED DEVELOPMENT

2.1 Flood Analysis

To make the analysis possible, properties of the catchments that influence the runoff relating to the 1:100 return flood event need to be determined. These properties are described in the following sections.

2.1.1 Catchment Properties

The catchment topography is composed of mainly flat areas. The topographic elevation ranges from 559m to 642m above sea level. The landscape soils are mostly with high to moderate infiltration rates with rapid to slightly restricted permeability (Schulze, 2010). The soils are classified to have a low to moderately low runoff potential.

The Mean Annual Precipitation (MAP) of the catchment was determined from weather stations gridded from in the vicinity of the site. The MAP for the catchment is estimated to be 967mm.

Table 2 Rainfall data

Station Name	**SAWS**	**Distance**	**Record**	**Latitude**		**Longitude**		**MAP**
	Number	(km)	(Years)	(°)	(')	(°)	(')	(mm)
VALENCIA ESTATES	0679441_W	4	65	23	52	30	16	792
LETABA ESTATES	0679532_W	6.5	66	23	51	30	17	754
TZANEEN	0679290_A	9	51	23	50	30	10	925
LEEUWFONTEIN	0679592_W	9.7	57	23	51	30	19	719
PUSELLA	0679289_A	10.2	40	23	49	30	10	1015
THABINA	0679508_W	10.5	93	23	58	30	17	751

The climate is characterised by hot and rainy summers for a long period as well as cold and dry winters over a short period.

2.1.2 Catchment Delineation

There were seven catchments that were delineated.
The catchment area is within the Luvuvhu and Letaba Water Management Area.

Catchment in the table below was delineated to cover the stream nearest to the project boundary and was utilised to determine the flood peaks for 1:100 return extreme events. The catchment information is listed in the table below.

Table 3 Catchment area

Catchment Site	Catchment area (km^2)	Remark	Quaternary catchment
C1	4.619	Rural / Urban	B81C
C2	4.022	Rural / Urban	B81C
C3	0.299	Rural / Urban	B81C
C4	0.134	Rural / Urban	B81C
C5	0.095	Rural / Urban	B81C
C6	0.309	Rural / Urban	B81C
C7	0.277	Rural	B81C

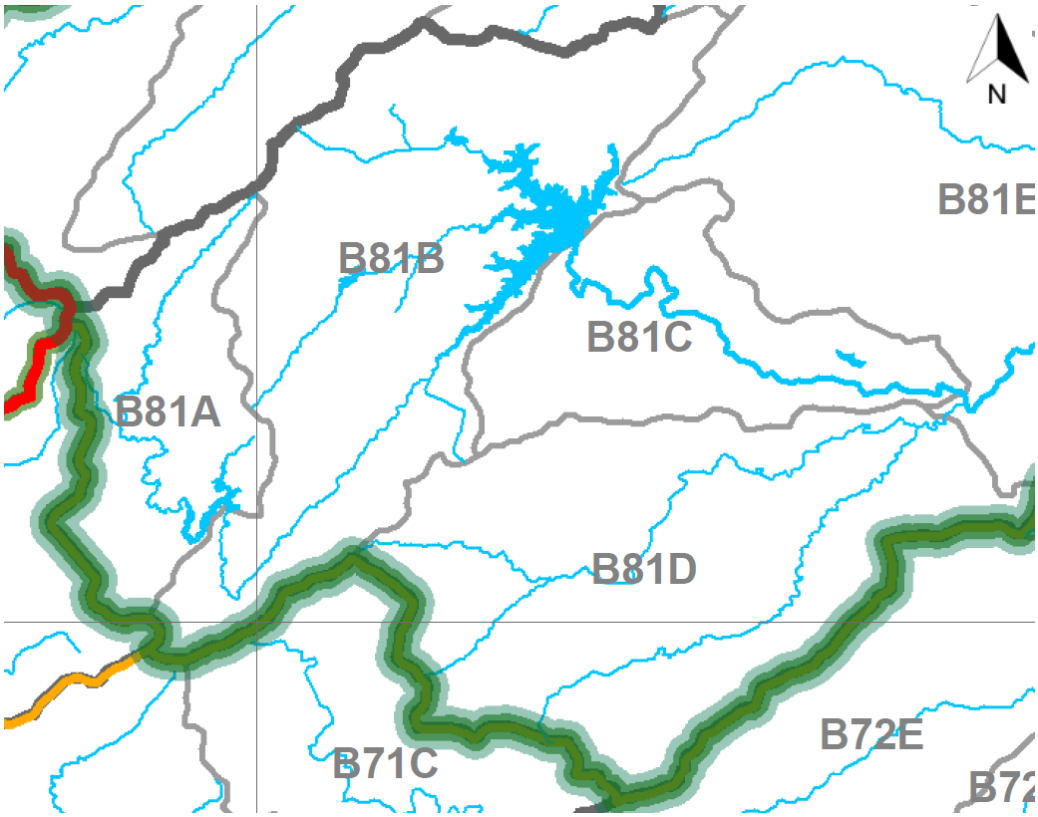

Figure 7 Quaternary catchments

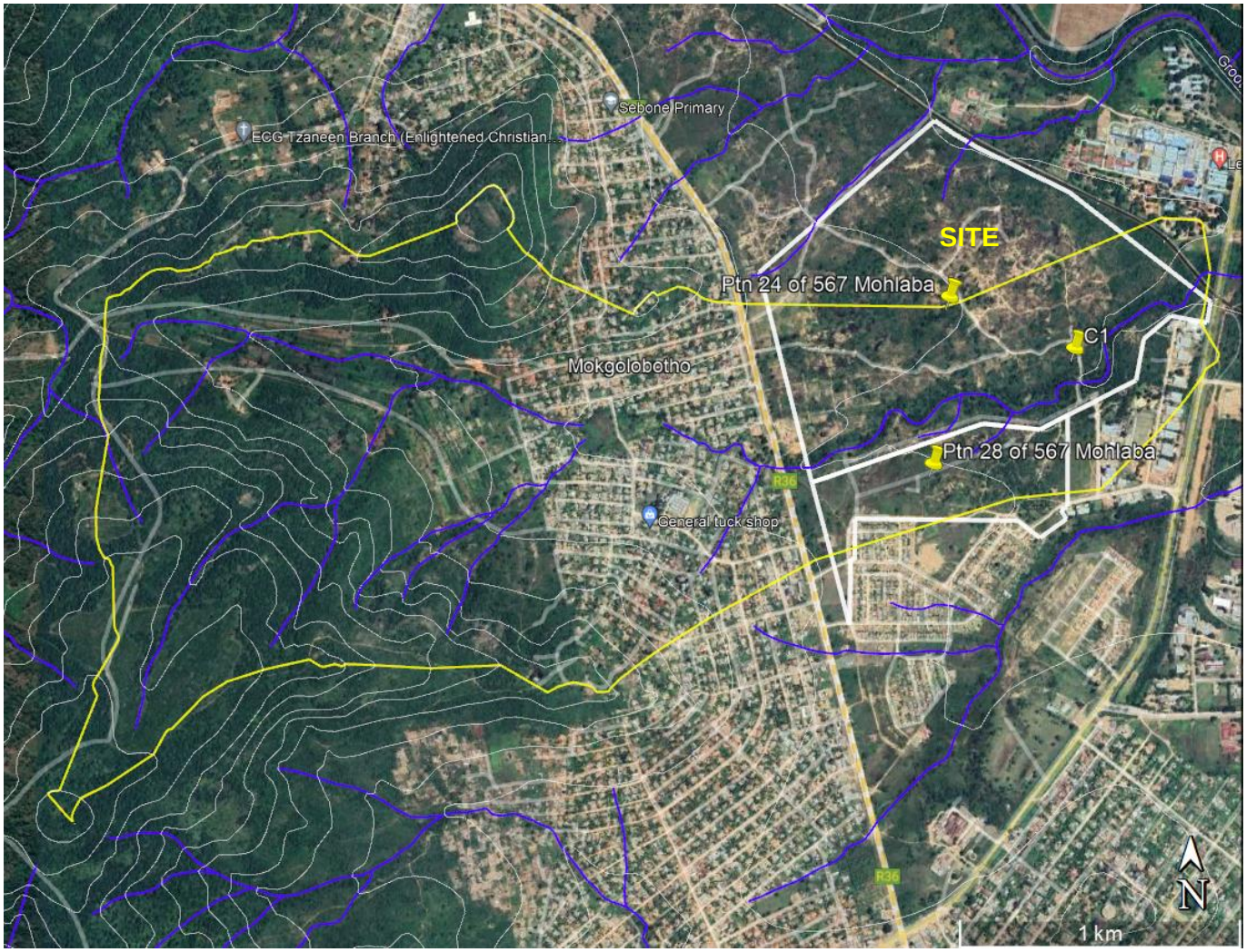

Figure 8 Catchment C1 delineation (yellow line boundary)

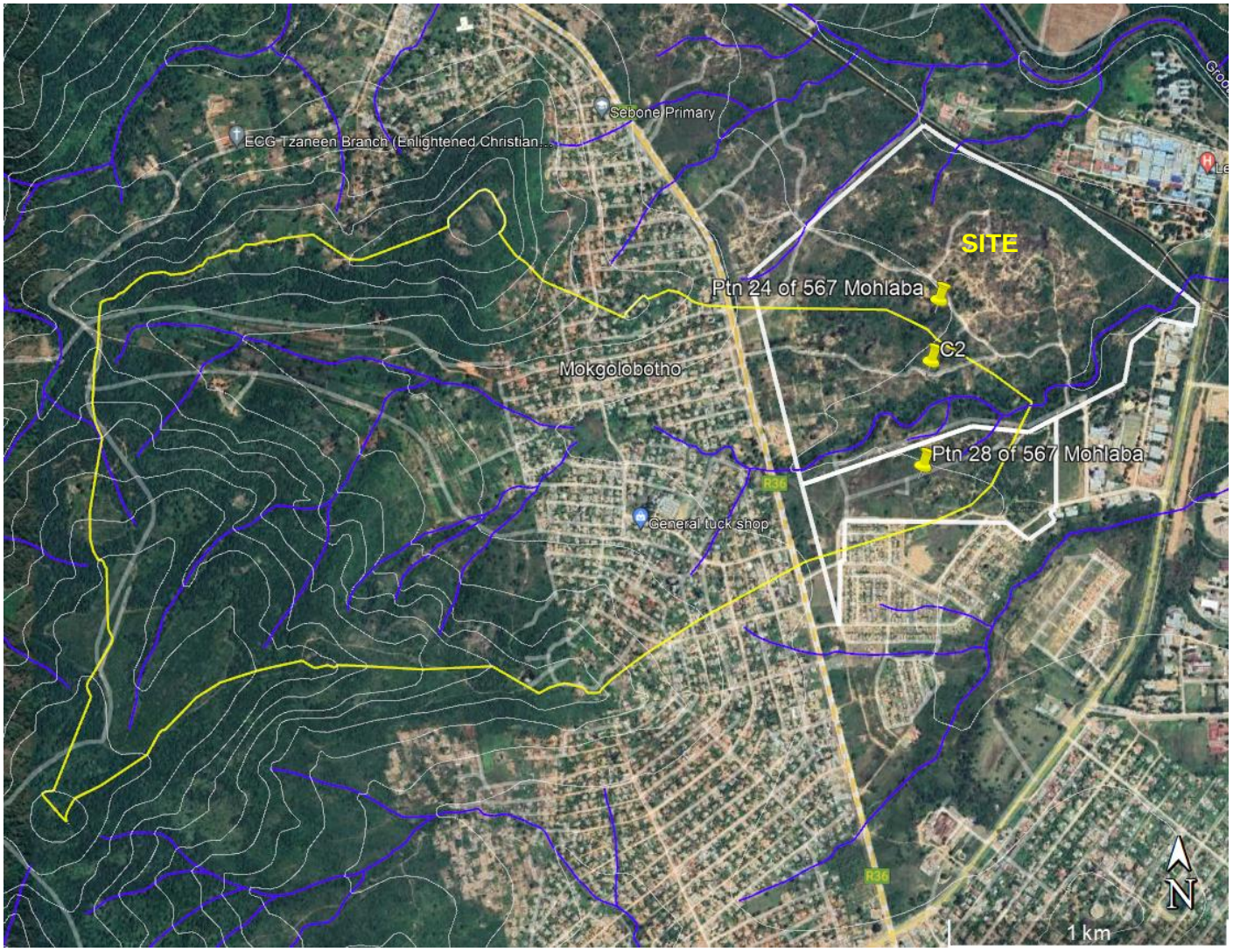

Figure 9 Catchment C2 (yellow line boundary)

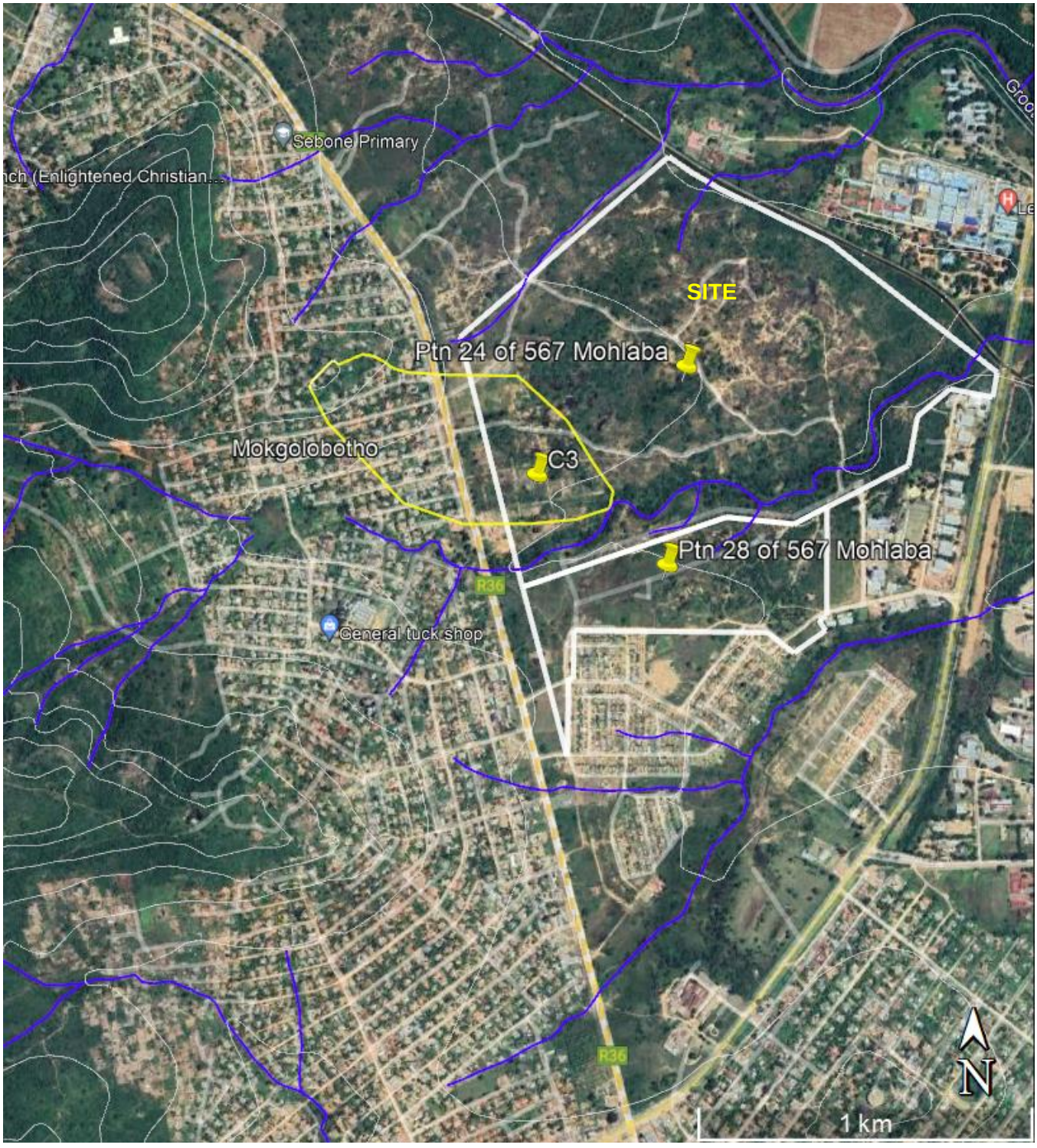

Figure 10 Catchment C3 (yellow line boundary)

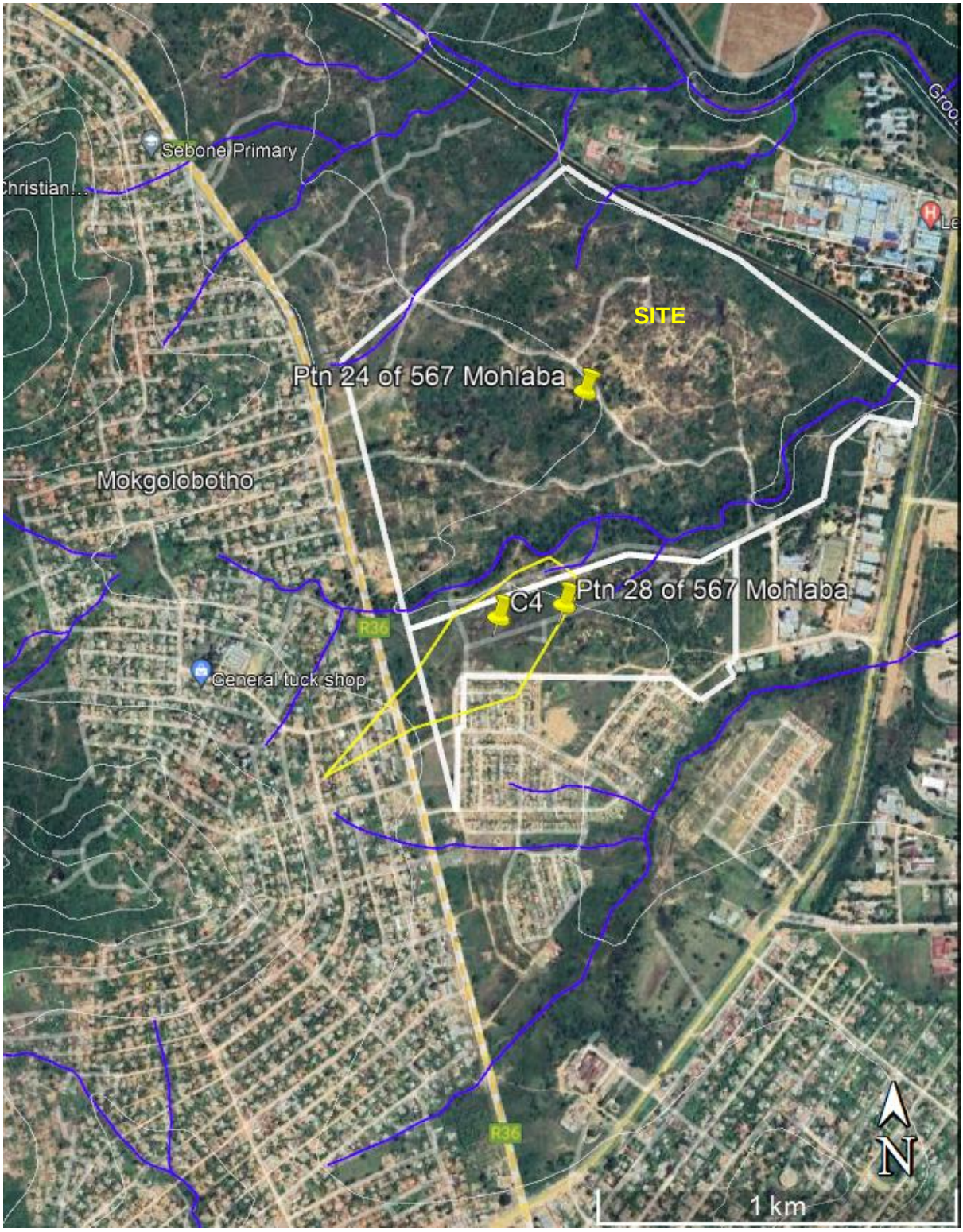

Figure 11 Catchment C4 (yellow line boundary)

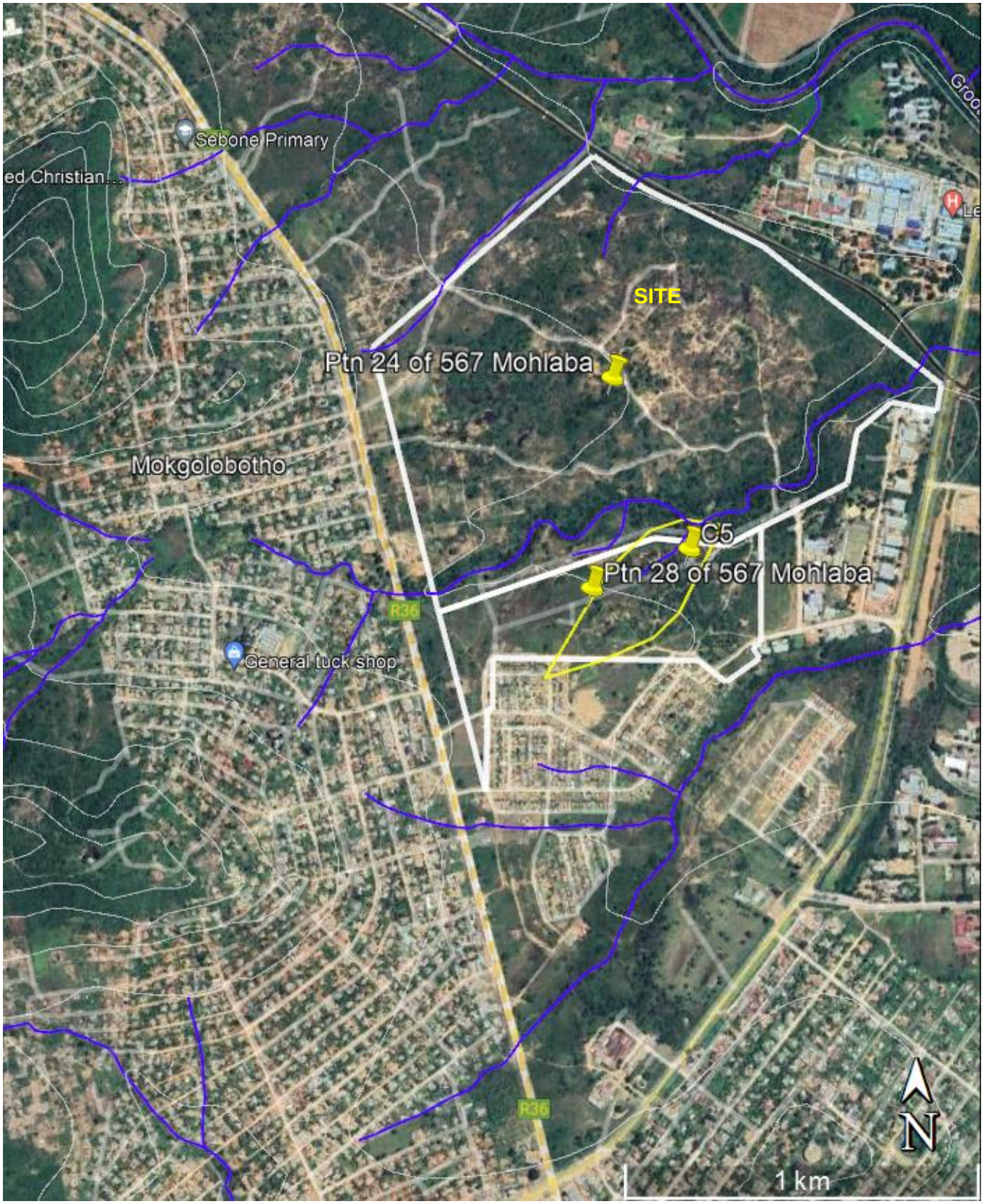

Figure 12 Catchment C5 (yellow line boundary)

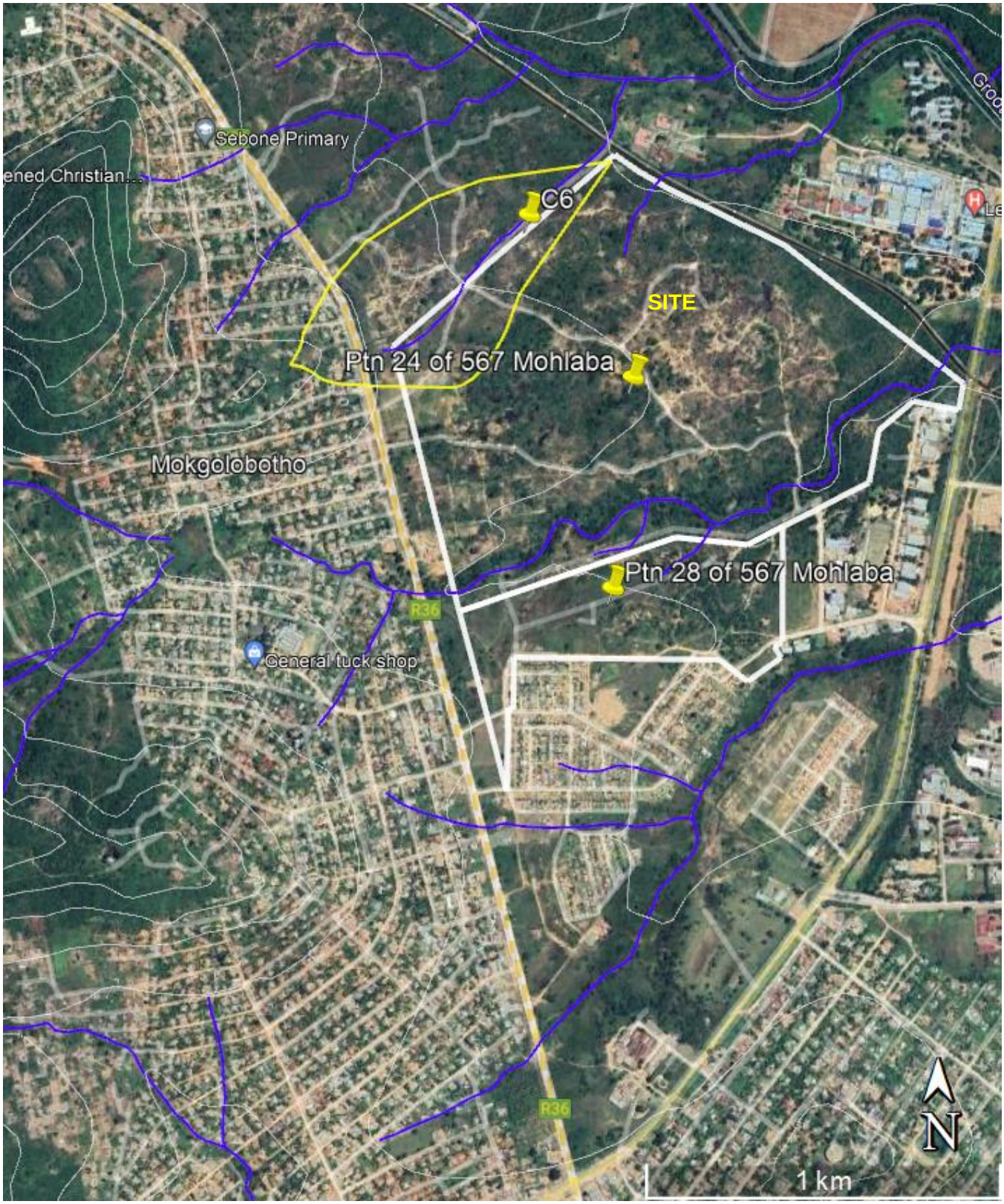

Figure 13 Catchment C6 (yellow line boundary)

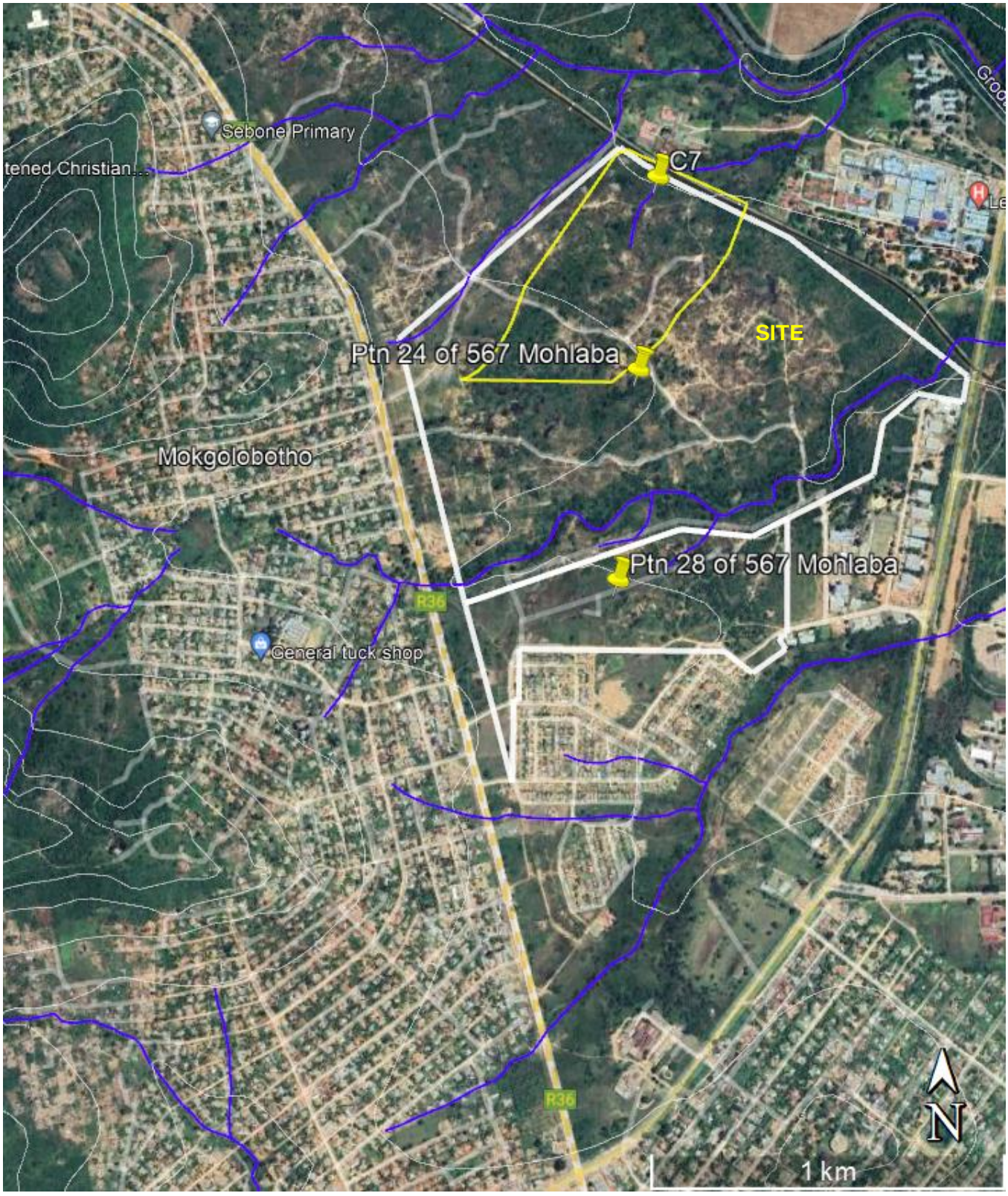

Figure 14 Catchment C7 (yellow line boundary)

Table 4 Catchment Characteristic

Characteristic	Rural	Urban	Lakes	Total
	Distribution	Distribution	Distribution	
Catchment	%	%	%	(%)
C1	75%	25%	0%	100.0%
C2	73%	27%	0%	100.0%
C3	50%	50%	0%	100.0%
C4	70%	30%	0%	100.0%
C5	92%	8%	0%	100.0%
C6	85%	15%	0%	100.0%
C7	100%	0%	0%	100.0%

Table 5 Rural area - Surface slope

Rural area - Surface slope	Lakes and pans (<3%)	Flat area (3 to 10%)	Hilly (10 to 30%)	Steep areas (>30%)	Total
	Distribution	Distribution	Distribution	Distribution	
Catchment	(%)	(%)	(%)	(%)	(%)
C1	10%	44%	38%	8%	100.0%
C2	6%	42%	43%	9%	100.0%
C3	4%	78%	18%	0%	100.0%
C4	3%	97%	0%	0%	100.0%
C5	15%	85%	0%	0%	100.0%
C6	0%	87%	13%	0%	100.0%
C7	2%	98%	0%	0%	100.0%

Table 6 Rural area – Permeability

Rural area - Permeability	Very permeable	Permeable	Semi-permeable	Impermeable	Total
	Distribution	Distribution	Distribution	Distribution	
Catchment	(%)	(%)	(%)	(%)	(%)
C1	38%	62%	0%	0%	100.0%
C2	43%	57%	0%	0%	100.0%
C3	50%	50%	0%	0%	100.0%
C4	50%	50%	0%	0%	100.0%
C5	50%	50%	0%	0%	100.0%
C6	50%	50%	0%	0%	100.0%
C7	50%	50%	0%	0%	100.0%

Table 7 Rural area - Vegetation

Rural area - Vegetation	Thick bush & forests	Light bush & cultivated land	Grasslands	Bare	Total
	Distribution	Distribution	Distribution	Distribution	
Catchment					(%)
C1	36%	23%	29%	12%	100.0%
C2	47%	35%	15%	3%	100.0%
C3	0%	45%	40%	15%	100.0%
C4	0%	50%	42%	8%	100.0%
C5	0%	45%	44%	11%	100.0%
C6	0%	35%	50%	15%	100.0%
C7	0%	50%	34%	16%	100.0%

Table 8 Urban

Urban	Houses	Business: Suburban	Streets	Total
	Distribution	Distribution	Distribution	
Catchment				(%)
C1	70%	3%	27%	100.0%
C2	70%	3%	27%	100.0%
C3	70%	0%	30%	100.0%
C4	70%	0%	30%	100.0%
C5	70%	0%	30%	100.0%
C6	70%	0%	30%	100.0%
C7	70%	3%	27%	100.0%

Table 9 Run-off factors

Catchment	Run-off factor			
	Rural (C_R)	Urban (C_U)	Lakes (C_L)	Combined (C)
C1	0.395	0.628	0	**0.453**
C2	0.363	0.628	0	**0.435**
C3	0.411	0.635	0	**0.523**
C4	0.387	0.635	0	**0.462**
C5	0.387	0.635	0	**0.406**
C6	0.419	0.635	0	**0.452**
C7	0.392	0	0	**0.392**

Table 10 Hydrological input data

Catchment	Catchment Area (km^2)	Longest water course (km)	Height difference 1085 method (m)	Days thunder was heard (No.)	Area Dolomite (%)	Mean Annual Precipitation (mm)	SDF Basin no. (No.)
C1	4.619	4.403	75.7	40	0	967	5
C2	4.022	3.529	68.8	40	0	967	5
C3	0.299	0.893	35.2	40	0	967	5
C4	0.134	0.466	15.0	40	0	967	5
C5	0.095	0.481	15.1	40	0	967	5
C6	0.309	1.097	37.5	40	0	967	5
C7	0.277	0.817	28.4	40	0	967	5

Table 11 Catchment characteristics

Catchment Site	Catchment area (km^2)	Longest water course, L (km)	Height difference along 10-85 slope (m)	Average slope S_{av} (m/m)	Time of concentration, Tc (hours)	% Slope	MAP (mm)	Run-off factor C
C1	4.619	4.403	75.7	0.02292310	0.888544927	2.29%	967	0.453
C2	4.022	3.529	68.8	0.02599286	0.713986087	2.60%	967	0.435
C3	0.299	0.893	35.2	0.05255377	0.188936367	5.26%	967	0.523
C4	0.134	0.466	15.0	0.04304712	0.123681378	4.30%	967	0.462
C5	0.095	0.481	15.1	0.04178160	0.12828681	4.18%	967	0.406
C6	0.309	1.097	37.5	0.04554199	0.233941861	4.55%	967	0.452
C7	0.277	0.817	28.4	0.04627433	0.185387673	4.63%	967	0.392

Flood magnitudes

The flood magnitudes from the 1:2 return up to 1:100 return floods are presented in the Tables below.

Table 12 Estimated stormwater flow (m^3/s)

	Rational method						Alternative rational method					
Return	**1:2**	**1:5**	**1:10**	**1:20**	**1:50**	**1:100**	**1:2**	**1:5**	**1:10**	**1:20**	**1:50**	**1:100**
Catchment												
C1	23.12	32.65	42.78	54.59	73.17	92.74	19.05	33.39	45.31	58.02	75.18	89.55
C2	22.68	31.92	41.71	53.09	70.98	89.76	18.81	32.88	44.50	56.83	73.46	87.31
C3	4.40	6.11	7.90	9.95	13.20	16.56	4.08	7.04	9.40	11.86	15.15	17.81
C4	1.90	2.68	3.50	4.46	5.98	7.58	1.84	3.22	4.35	5.54	7.16	8.50
C5	1.08	1.55	2.06	2.67	3.64	4.69	1.04	1.85	2.55	3.31	4.35	5.24
C6	3.20	4.57	6.05	7.80	10.57	13.53	2.90	5.13	7.02	9.06	11.83	14.19
C7	2.56	3.71	4.99	6.52	8.94	11.58	2.38	4.28	5.95	7.79	10.29	12.48

Table 13 Estimated stormwater flow (m^3/s)

	Standard design flood method					
Return	**1:2**	**1:5**	**1:10**	**1:20**	**1:50**	**1:100**
Catchment						
C1	5.10	19.97	33.91	49.77	73.54	98.57
C2	5.19	20.31	34.49	50.63	74.81	95.18
C3	0.88	3.44	5.84	8.58	12.67	16.13
C4	0.48	1.86	3.16	4.64	6.86	8.72
C5	0.33	1.30	2.21	3.25	4.80	6.10
C6	0.81	3.18	5.40	7.92	11.70	14.89
C7	0.82	3.22	5.47	8.03	11.86	15.09

The applications and limitation of flood calculation methods are shown in the table below.

Table 14 Applications and limitation of flood calculation methods

Method	Recommended maximum area (km^2)	Return period of floods that could be determined
Statistical method	No limitation (larger areas)	1:2 to 1:200
Rational method	Usually less than $15km^2$	1:2 to 1:200
Unit Hydrograph method	$15km^2$ to $5,000km^2$	1:2 to 1:100
Standard Design Flood method	No limitation	1:2 to 1:200
SCS-SA method	Less than $30km^2$	1:2 to 1:100
Empirical methods	No limitation (larger areas)	1:10 to 1:100

Flood magnitudes for the 1:100-year floods

The Rational, Alternative Rational (AR), and Standard Design Flood (SDF) methods were used to select the flood peak.

The flow results were similar, therefore, the method with the highest magnitude of the peak flow was used for the 1:100 return flood for a sub-catchment.

The selected maximum peak flow is shown in the table below.

Table 15 Catchment generated estimated 1:100 peak flow

C1	Catchment, estimated 100year peak flow =	98.57	m^3/s
C2	Catchment, estimated 100year peak flow =	95.18	m^3/s
C3	Catchment, estimated 100year peak flow =	17.81	m^3/s
C4	Catchment, estimated 100year peak flow =	8.72	m^3/s
C5	Catchment, estimated 100year peak flow =	6.10	m^3/s
C6	Catchment, estimated 100year peak flow =	14.89	m^3/s
C7	Catchment, estimated 100year peak flow =	15.09	m^3/s

The estimated 1:100 stream flow is listed in the table below.

Table 16 Stream Peak flows estimates

Stream - Reach	Flow (m^3/s)
Stream 1	98.57
Stream 2	95.18
Stream 3	17.81
Stream 4	8.72
Stream 5	6.10
Stream 6	14.89
Stream 7	15.09
Stream 2U	68.65

2.2 Flood line Modelling

The HEC-RAS model was used to determine the flood line during the event of a flood for any return period, and in this case the 1:100-year floods were modelled.

2.2.1 Cross section profile

Cross sectional data was generated using GIS and CAD software, as well as the 0.5m contour lines that were obtained from the Client appointed surveyor, DME Geomatics. Sections shown in Annexure 5 were used to approximate the geometry for the river.

2.2.2 Flood profiles

Annexure 4 shows the longitudinal profile for the 1:100 return peak flow.

3.0 CONCLUSION

The determination of the 1:100 return period floodlines was undertaken for the site of the proposed development. The results of this determination provide an indication as to the extent of the areas that will be inundated by the 1:100 return design flood.

It is recommended that a buffer zone of 20m should be provided between the 1:100 flood line and any proposed development.

The lateral extent of the 1:100 return flood line is shown in Annexure 2. These flood lines have also been provided as Gauss Conform WGS84 LO31 coordinated CAD dwg softcopy files.

4.0 REFERENCES

- Smithers J.C. and Schulze R.E. (2002): Drainage rainfall and flood estimation in South Africa, WRC project KS/1060.

- The South African National Roads Agency Limited (2013): Drainage manual, 6th Edition.

ANNEXURE 1: FLOODLINE CERTIFICATE

Reg. No: 2014 / 233383 / 07

Branch Offices
Polokwane, Limpopo

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E-mail: admin@dalimede.com

FLOOD LINE CERTIFICATE

Dalimede Projects (PTY) LTD was appointed by Vaxumi Consulting Town Planners to undertake floodline assessment relating to the proposed township on portions 24 and 28 of 567 Mohlaba, Tzaneen, Limpopo.

This will entail to delineate the 1:100 return flood line.

Site: *Portions 24 and 28 of 567 Mohlaba, are located 30km east of Tzaneen town CBD along the R36 road, Limpopo Province*

Township Name: *Mohlaba*

Co-ordinates: *23°52'42.38"S 30°15'34.16"E*

Municipality: *Tzaneen Local Municipality, in the Mopani District Municipality*

In terms of section 114 of the National Water Act, Act 36 of 1998 the above-mentioned property is affected by flood water within the 1:100 period from the stream / river as indicated in the floodline report. Development must be done outside of the floodline.

It is recommended that a buffer zone of 20m should be provided between the 1:100 flood line and any proposed development.

Thus, done and signed in ……..…… on this day……..……..

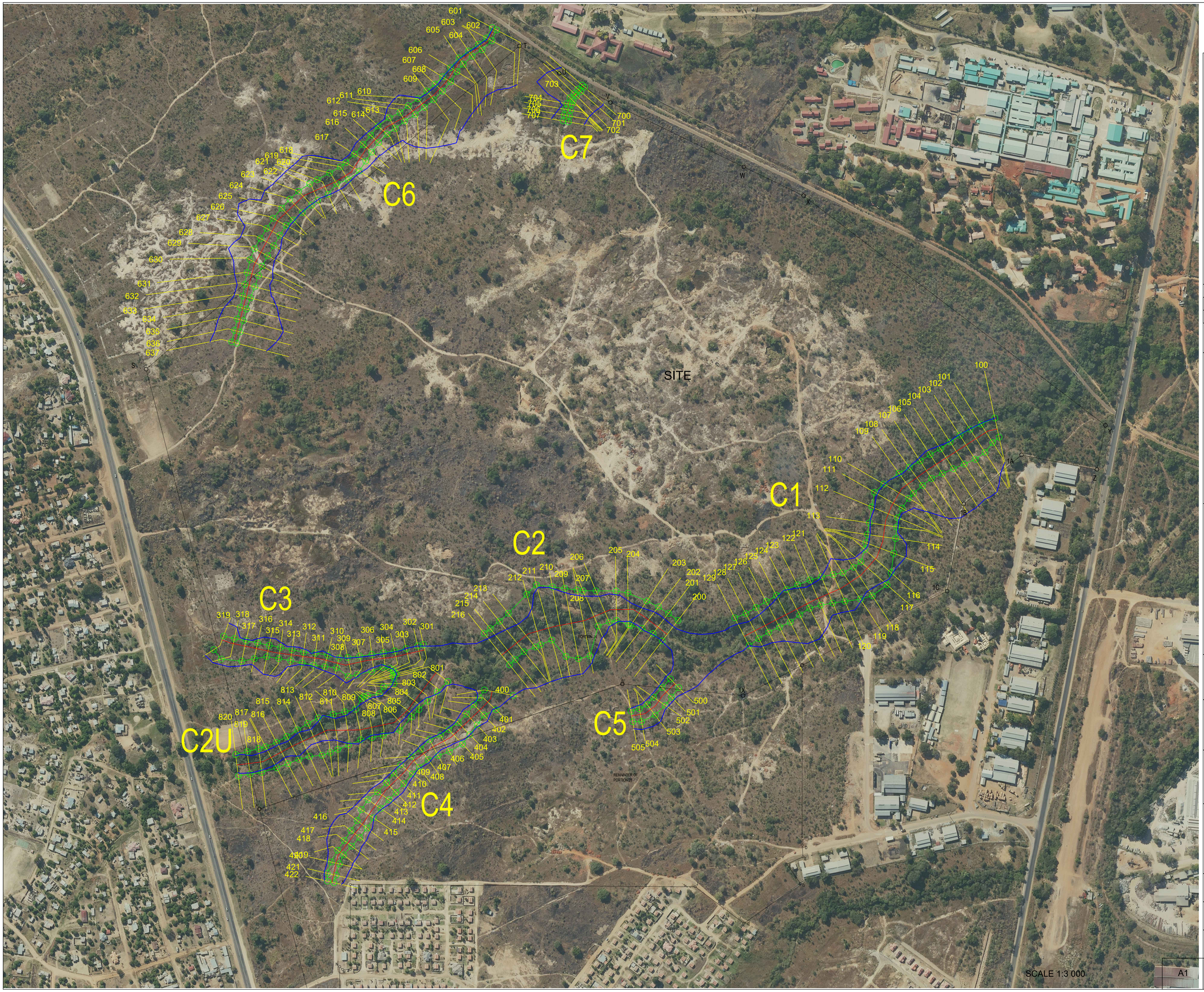
Signature: ……..

Engineer: Litmos Mthunzi

Pr Tech Eng

Pr no.: ……

ANNEXURE 2: FLOODLINE DELINEATION



NOTES

KEY

FLOODLINE 1:100

100 CROSS SECTION

STREAM / RIVER

REVISIONS

REV	DATE	SIGN	DESCRIPTION
0	.../.../...	....	.....

CLIENT

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DRAWING STATUS

FOR INFORMATION

PROJECT TITLE

Proposed township on portions 24 and 28 of 567 Mohlaba, Dan, Limpopo.

PROJECT LOCATION

The portions 24 and 28 of 567 Mohlaba, are located 30km east of Tzaneen town CBD along the R36 road, Limpopo Province. GPS coordinates 23°52'42.38"S 30°15'34.16"E.

DRAWING DESCRIPTION

FLOODLINE DELINEATION 1:100 RETURN PERIOD

SCALE	DATE	DESIGNED	DRAWN	CHECKED
As Shown	May 2022	LM	WK	BM

DRAWING No.

MOHLABA/FL/01

REVISION A

ANNEXURE 3: HEC-RAS PROGRAMME MODELLING RESULTS

HEC-RAS Plan: Current mode River: Stream 1 Reach: 1 Profile: 1:100yr

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
1	129	1:100yr	98.57	557.50	558.91	558.91	559.36	0.025946	2.98	33.06	36.99	1.01
1	128	1:100yr	98.57	557.13	558.39	558.39	558.80	0.024029	2.92	36.24	44.75	0.97
1	127	1:100yr	98.57	556.00	558.37		558.47	0.002583	1.52	71.57	47.54	0.36
1	126	1:100yr	98.57	556.00	558.32		558.42	0.002645	1.48	74.93	55.67	0.36
1	125	1:100yr	98.57	556.00	558.32		558.37	0.001276	1.02	110.96	84.58	0.25
1	124	1:100yr	98.57	556.31	558.27		558.33	0.003697	1.04	90.34	91.95	0.37
1	123	1:100yr	98.57	556.00	558.10		558.21	0.008472	1.15	67.57	83.98	0.52
1	122	1:100yr	98.57	556.00	557.63	557.58	557.92	0.027152	2.48	41.87	62.28	0.98
1	121	1:100yr	98.57	556.00	557.48		557.63	0.006984	1.80	58.55	57.82	0.54
1	120	1:100yr	98.57	556.00	557.45		557.52	0.002916	1.24	89.80	89.38	0.36
1	119	1:100yr	98.57	556.00	557.00	557.00	557.36	0.025314	2.66	38.10	57.61	0.97
1	118	1:100yr	98.57	555.22	556.34	556.34	556.72	0.025612	2.74	36.57	51.59	0.98
1	117	1:100yr	98.57	554.37	555.42	555.42	555.78	0.027132	2.65	37.59	55.87	1.00
1	116	1:100yr	98.57	553.49	554.85		555.12	0.018060	2.31	42.66	53.98	0.83
1	115	1:100yr	98.57	553.17	554.47	554.38	554.76	0.017292	2.47	43.31	58.31	0.83
1	114	1:100yr	98.57	552.74	553.92	553.92	554.33	0.025351	2.85	35.16	44.03	0.99
1	113	1:100yr	98.57	551.99	553.35	553.35	553.78	0.025725	2.91	34.09	41.17	1.00
1	112	1:100yr	98.57	551.18	553.05		553.27	0.008749	2.10	47.09	40.40	0.61
1	111	1:100yr	98.57	550.49	553.08		553.16	0.001933	1.24	79.49	49.54	0.31
1	110	1:100yr	98.57	550.34	553.04		553.12	0.001713	1.20	85.61	75.82	0.29
1	109	1:100yr	98.57	550.00	553.03		553.09	0.001117	1.13	96.73	69.83	0.24
1	108	1:100yr	98.57	550.00	553.02		553.06	0.000736	0.94	134.26	99.81	0.20
1	107	1:100yr	98.57	550.00	553.02		553.05	0.000613	0.85	153.38	106.26	0.18
1	106	1:100yr	98.57	550.00	553.00		553.03	0.000544	0.84	154.46	117.98	0.17
1	105	1:100yr	98.57	550.64	552.91		553.01	0.002905	1.42	86.55	113.02	0.37
1	104	1:100yr	98.57	552.08	552.61	552.61	552.85	0.040576	1.96	45.52	95.61	1.07
1	103	1:100yr	98.57	551.39	552.15		552.27	0.013362	1.59	65.04	104.29	0.67
1	102	1:100yr	98.57	551.08	551.56	551.56	551.83	0.034831	1.90	43.36	77.69	1.01
1	101	1:100yr	98.57	549.10	550.40	550.40	550.68	0.025752	2.64	45.24	76.28	0.97
1	100	1:100yr	98.57	548.50	549.75	549.75	550.06	0.018396	2.66	45.02	70.41	0.86

HEC-RAS Plan: Current mode River: Steam 2 Reach: 2 Profile: 1:100yr

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
2	216	1:100yr	95.18	561.50	565.19		565.21	0.000220	0.59	160.79	57.31	0.11
2	215	1:100yr	95.18	561.50	565.19		565.21	0.000262	0.64	148.13	53.94	0.12
2	214	1:100yr	95.18	561.67	565.14		565.19	0.000986	1.05	90.85	41.40	0.23
2	213	1:100yr	95.18	562.92	564.59	564.59	565.09	0.024703	3.15	30.21	29.85	1.00
2	212	1:100yr	95.18	562.23	564.03		564.38	0.014800	2.61	36.44	32.46	0.79
2	211	1:100yr	95.18	561.78	564.03		564.17	0.004336	1.67	62.33	59.38	0.44
2	210	1:100yr	95.18	561.50	564.03		564.09	0.002044	1.05	94.14	94.13	0.30
2	209	1:100yr	95.18	561.50	564.02		564.05	0.001033	0.81	122.30	100.16	0.22
2	208	1:100yr	95.18	561.50	564.00		564.03	0.001058	0.82	116.64	86.77	0.22
2	207	1:100yr	95.18	561.50	563.93		564.00	0.001430	1.21	84.97	50.52	0.27
2	206	1:100yr	95.18	561.84	563.63		563.92	0.011283	2.39	40.58	37.52	0.70
2	205	1:100yr	95.18	561.01	563.03	563.03	563.58	0.024265	3.26	29.15	26.85	1.00
2	204	1:100yr	95.18	560.32	562.48	562.48	563.08	0.024191	3.43	27.74	23.53	1.01
2	203	1:100yr	95.18	559.60	561.74	561.57	562.23	0.016484	3.11	30.62	22.48	0.85
2	202	1:100yr	95.18	559.39	561.69		561.95	0.007384	2.26	42.14	27.43	0.58
2	201	1:100yr	95.18	559.24	561.56		561.80	0.006544	2.15	44.36	28.52	0.55
2	200	1:100yr	95.18	559.09	561.30		561.63	0.010513	2.52	37.82	27.37	0.68

HEC-RAS Plan: Current mode River: Stream 3 Reach: 3 Profile: 1:100yr

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
3	319	1:100yr	17.81	580.43	580.84		580.91	0.019965	1.27	15.03	49.17	0.74
3	318	1:100yr	17.81	579.73	580.39		580.49	0.022599	1.48	12.85	41.91	0.80
3	317	1:100yr	17.81	579.41	580.08		580.16	0.011237	1.32	14.55	35.45	0.60
3	316	1:100yr	17.81	579.10	579.65	579.65	579.81	0.030495	1.76	10.76	39.03	0.94
3	315	1:100yr	17.81	578.35	578.88	578.88	579.03	0.027228	1.83	11.80	43.45	0.91
3	314	1:100yr	17.81	576.96	577.52	577.52	577.70	0.031428	1.97	10.04	29.29	0.98
3	313	1:100yr	17.81	575.64	576.28	576.28	576.48	0.030701	2.03	9.40	25.22	0.98
3	312	1:100yr	17.81	574.26	575.01	575.01	575.22	0.030735	2.11	9.06	21.86	0.99
3	311	1:100yr	17.81	573.03	573.69	573.69	573.90	0.033060	2.03	8.80	22.25	1.00
3	310	1:100yr	17.81	572.00	572.69	572.69	572.90	0.030425	2.03	9.06	22.81	0.97
3	309	1:100yr	17.81	571.05	571.68	571.68	571.89	0.030994	2.11	9.30	23.35	0.99
3	308	1:100yr	17.81	570.20	571.01		571.10	0.011030	1.32	13.52	27.14	0.60
3	307	1:100yr	17.81	569.68	570.55	570.55	570.73	0.035003	1.88	9.46	26.38	1.00
3	306	1:100yr	17.81	568.63	569.33	569.33	569.56	0.032896	2.12	8.40	18.73	1.01
3	305	1:100yr	17.81	566.26	566.98	566.98	567.23	0.032021	2.20	8.09	16.64	1.01
3	304	1:100yr	17.81	564.04	565.20		565.24	0.002039	0.82	21.65	24.66	0.28
3	303	1:100yr	17.81	562.52	565.22		565.22	0.000051	0.21	85.87	48.71	0.05
3	302	1:100yr	17.81	562.49	565.22		565.22	0.000016	0.13	140.61	68.81	0.03
3	301	1:100yr	17.81	562.49	565.22		565.22	0.000009	0.10	175.69	80.18	0.02

HEC-RAS Plan: Current mode River: Stream 4 Reach: 4 Profile: 1:100yr

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
4	422	1:100yr	8.72	583.12	583.47	583.47	583.58	0.043883	1.68	6.09	28.43	1.06
4	421	1:100yr	8.72	582.26	582.61	582.61	582.72	0.041046	1.64	6.00	26.71	1.03
4	420	1:100yr	8.72	581.34	581.62	581.62	581.71	0.046535	1.51	6.75	35.95	1.06
4	419	1:100yr	8.72	580.48	580.79	580.79	580.89	0.032614	1.58	7.17	37.18	0.94
4	418	1:100yr	8.72	579.83	580.06	580.06	580.14	0.038729	1.43	8.31	57.46	0.97
4	417	1:100yr	8.72	578.78	578.97	578.97	579.04	0.050361	1.06	7.29	49.08	1.00
4	416	1:100yr	8.72	577.28	577.59	577.59	577.69	0.032064	1.46	6.69	39.30	0.91
4	415	1:100yr	8.72	575.76	576.10	576.10	576.20	0.043029	1.53	6.16	29.12	1.03
4	414	1:100yr	8.72	574.48	574.80	574.79	574.91	0.033105	1.46	6.26	27.22	0.92
4	413	1:100yr	8.72	573.86	574.31	574.26	574.39	0.020137	1.27	7.40	30.02	0.74
4	412	1:100yr	8.72	573.38	573.74	573.74	573.85	0.036572	1.52	5.92	28.09	0.97
4	411	1:100yr	8.72	572.54	572.93	572.93	573.05	0.040618	1.53	5.72	25.71	1.01
4	410	1:100yr	8.72	571.39	571.83	571.83	571.95	0.039071	1.59	5.50	21.60	1.00
4	409	1:100yr	8.72	570.40	570.90	570.90	571.04	0.037996	1.67	5.24	18.72	1.01
4	408	1:100yr	8.72	569.62	569.99	569.99	570.12	0.038331	1.61	5.41	20.77	1.00
4	407	1:100yr	8.72	568.80	569.37		569.41	0.007977	0.96	9.11	23.19	0.49
4	406	1:100yr	8.72	568.50	569.03		569.14	0.026021	1.46	5.99	19.74	0.84
4	405	1:100yr	8.72	568.31	568.83		568.87	0.007500	0.89	9.85	26.92	0.47
4	404	1:100yr	8.72	568.06	568.57		568.64	0.018117	1.19	7.33	25.04	0.70
4	403	1:100yr	8.72	567.82	568.36	568.20	568.40	0.007985	0.94	9.53	27.50	0.49
4	402	1:100yr	8.72	567.58	567.97	567.97	568.10	0.037222	1.59	5.59	22.92	0.99
4	401	1:100yr	8.72	566.98	567.45	567.25	567.48	0.005525	0.78	11.12	28.96	0.40
4	400	1:100yr	8.72	566.93	567.15	567.15	567.24	0.044644	1.32	6.58	37.50	1.01

HEC-RAS Plan: Current mode River: Stream 5 Reach: 5 Profile: 1:100yr

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
5	505	1:100yr	6.10	567.58	567.97		568.03	0.014508	1.09	5.78	22.56	0.63
5	504	1:100yr	6.10	567.25	567.59	567.59	567.69	0.041019	1.39	4.44	23.89	0.99
5	503	1:100yr	6.10	566.43	566.82	566.77	566.89	0.023957	1.20	5.08	21.65	0.78
5	502	1:100yr	6.10	565.89	566.19	566.18	566.28	0.039794	1.36	4.52	23.52	0.97
5	501	1:100yr	6.10	565.31	565.74		565.80	0.015542	1.10	5.79	21.73	0.65
5	500	1:100yr	6.10	564.93	565.22	565.22	565.32	0.040909	1.40	4.71	28.62	0.99

HEC-RAS Plan: Current mode River: Stream 2U Reach: 2 Profile: 1:100yr

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
2	820	1:100yr	68.65	570.01	571.62	571.62	572.05	0.025967	2.92	23.49	27.00	1.00
2	819	1:100yr	68.65	569.62	570.93	570.93	571.34	0.026337	2.85	24.11	29.20	1.00
2	818	1:100yr	68.65	568.34	569.84	569.84	570.30	0.026097	3.01	22.84	25.22	1.01
2	817	1:100yr	68.65	567.22	568.75	568.75	569.20	0.025776	2.99	22.99	25.42	1.00
2	816	1:100yr	68.65	566.66	567.97	567.97	568.42	0.025806	2.95	23.25	26.17	1.00
2	815	1:100yr	68.65	565.81	567.31	567.31	567.79	0.025798	3.06	22.45	23.94	1.01
2	814	1:100yr	68.65	565.43	566.98		567.25	0.010642	2.26	30.35	26.09	0.67
2	813	1:100yr	68.65	565.27	566.85		567.05	0.007409	1.95	35.18	28.77	0.56
2	812	1:100yr	68.65	565.11	566.49		566.82	0.017739	2.53	27.17	29.22	0.84
2	811	1:100yr	68.65	564.66	565.97	565.97	566.38	0.026974	2.81	24.45	30.81	1.01
2	810	1:100yr	68.65	564.00	565.63		565.72	0.003782	1.33	51.77	46.02	0.40
2	809	1:100yr	68.65	564.00	565.60		565.65	0.002179	1.07	64.41	53.76	0.31
2	808	1:100yr	68.65	564.00	565.55		565.61	0.002129	1.06	64.98	52.82	0.30
2	807	1:100yr	68.65	564.00	565.35		565.52	0.010194	1.84	37.29	42.72	0.63
2	806	1:100yr	68.65	563.50	565.32		565.38	0.002119	1.08	63.72	50.07	0.30
2	805	1:100yr	68.65	563.48	565.29		565.33	0.001372	0.95	72.11	49.09	0.25
2	804	1:100yr	68.65	563.38	565.22		565.30	0.002569	1.22	56.39	42.56	0.34
2	803	1:100yr	68.65	562.92	565.21		565.25	0.001027	0.87	78.94	49.68	0.22
2	802	1:100yr	68.65	562.50	565.22		565.24	0.000235	0.47	145.51	75.90	0.11
2	801	1:100yr	68.65	562.49	565.22		565.23	0.000125	0.35	193.81	99.46	0.08

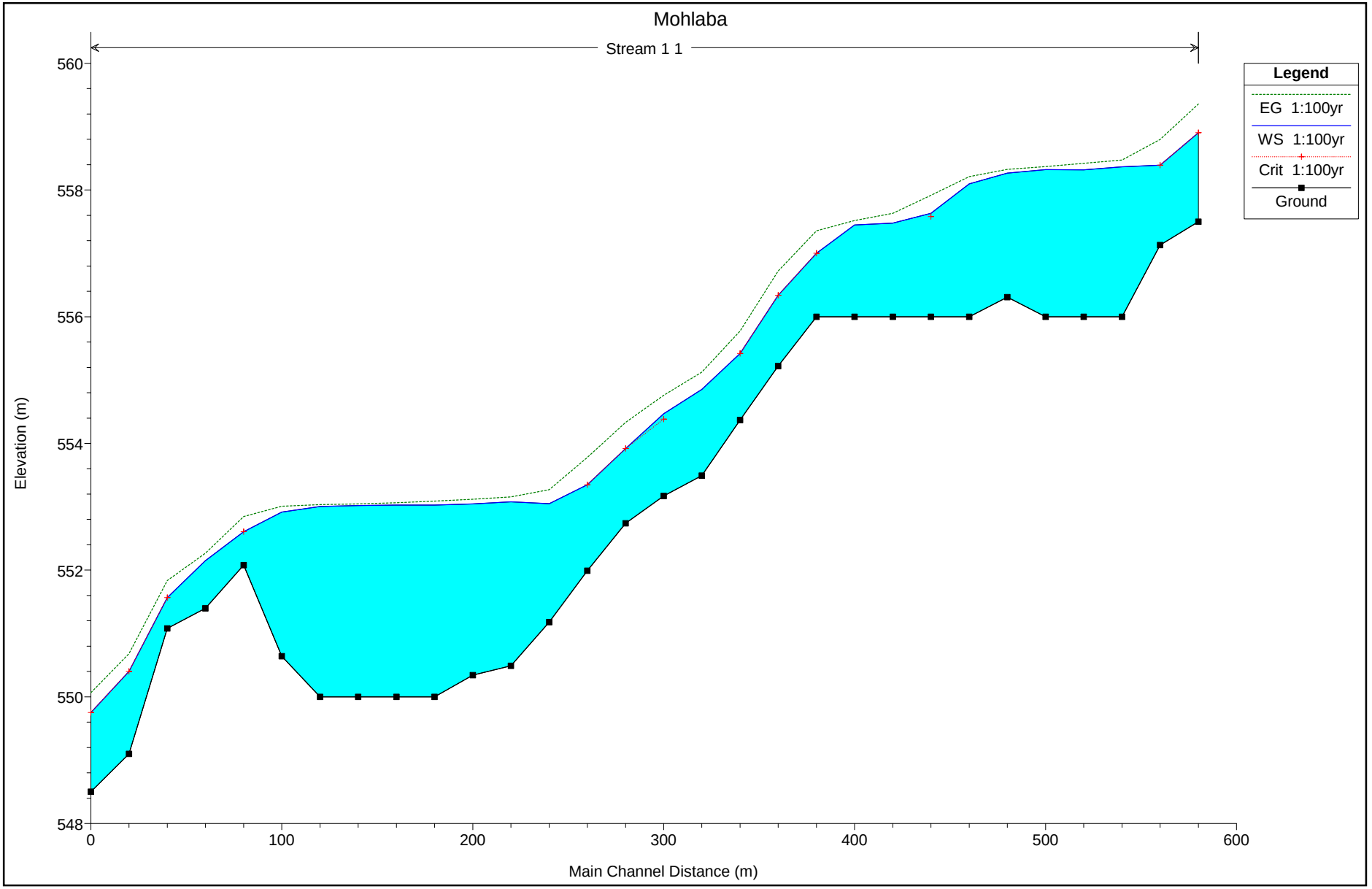
HEC-RAS Plan: Current mode River: Stream 6 Reach: 6 Profile: 1:100yr

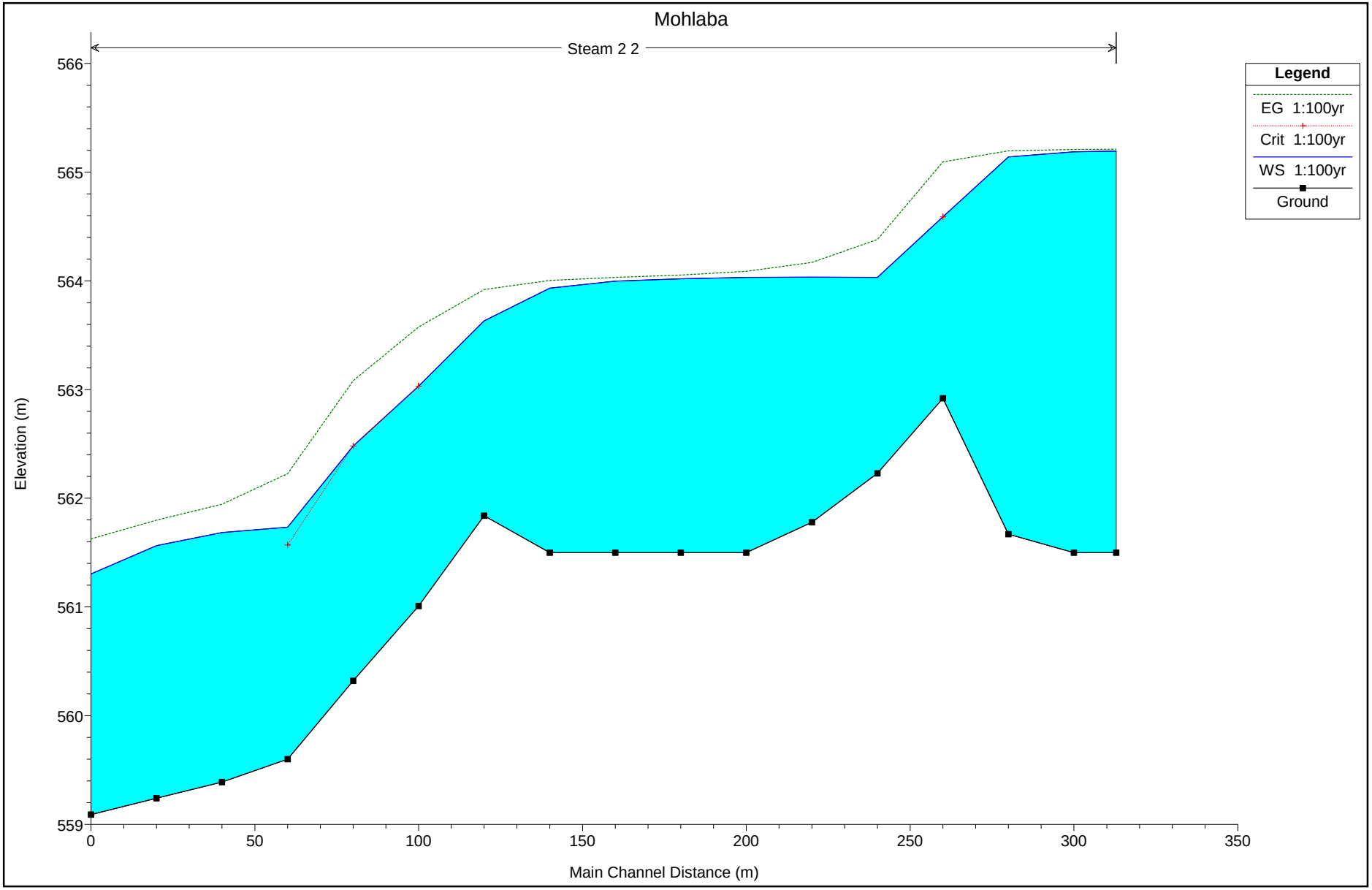
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
6	637	1:100yr	14.89	577.46	577.76	577.76	577.85	0.040945	1.77	12.39	70.63	1.05
6	636	1:100yr	14.89	576.55	576.83	576.83	576.90	0.034609	1.55	14.29	87.82	0.95
6	635	1:100yr	14.89	575.82	576.02	576.01	576.10	0.047383	1.35	12.44	71.70	1.04
6	634	1:100yr	14.89	574.82	575.09	575.09	575.18	0.044444	1.65	11.87	66.21	1.07
6	633	1:100yr	14.89	573.80	574.20	574.20	574.33	0.032188	1.85	10.37	42.00	0.97
6	632	1:100yr	14.89	572.89	573.29	573.29	573.43	0.031129	1.82	9.68	34.25	0.96
6	631	1:100yr	14.89	572.27	572.56	572.56	572.67	0.046131	1.67	10.93	55.06	1.08
6	630	1:100yr	14.89	571.48	571.79		571.86	0.027974	1.15	12.79	58.94	0.82
6	629	1:100yr	14.89	570.81	571.22	571.22	571.32	0.025783	1.50	12.68	71.86	0.85
6	628	1:100yr	14.89	570.12	570.43	570.43	570.54	0.042077	1.60	10.80	51.89	1.04
6	627	1:100yr	14.89	569.00	569.26	569.26	569.36	0.050847	1.53	10.89	56.00	1.10
6	626	1:100yr	14.89	568.46	568.67	568.61	568.71	0.020879	0.69	16.72	82.44	0.65
6	625	1:100yr	14.89	567.48	567.98	567.98	568.13	0.035311	1.73	8.71	30.76	0.99
6	624	1:100yr	14.89	566.37	566.81	566.81	566.97	0.032291	1.74	8.91	32.14	0.96
6	623	1:100yr	14.89	565.62	566.00	566.00	566.14	0.038340	1.69	9.21	34.48	1.01
6	622	1:100yr	14.89	564.61	565.18		565.25	0.017290	1.18	13.79	46.73	0.69
6	621	1:100yr	14.89	564.48	564.91		564.96	0.013625	1.13	15.11	54.41	0.62
6	620	1:100yr	14.89	563.89	564.38	564.38	564.54	0.033392	1.86	8.79	27.88	0.99
6	619	1:100yr	14.89	562.59	563.13	563.13	563.30	0.035650	1.83	8.15	24.21	1.00
6	618	1:100yr	14.89	561.68	562.26	562.26	562.44	0.034020	1.87	8.06	24.11	0.99
6	617	1:100yr	14.89	560.87	561.44	561.38	561.57	0.020650	1.60	9.54	26.59	0.79
6	616	1:100yr	14.89	560.39	560.91	560.91	561.08	0.029093	1.84	8.97	30.77	0.93
6	615	1:100yr	14.89	559.31	559.95		560.04	0.011271	1.41	11.64	27.69	0.61
6	614	1:100yr	14.89	558.90	559.51	559.51	559.68	0.031103	1.89	8.58	27.07	0.96
6	613	1:100yr	14.89	558.00	558.60	558.60	558.78	0.032841	1.89	8.06	24.60	0.98
6	612	1:100yr	14.89	557.99	558.53		558.55	0.003677	0.79	24.70	62.47	0.35
6	611	1:100yr	14.89	558.00	558.49		558.50	0.001349	0.46	40.35	93.36	0.21
6	610	1:100yr	14.89	559.24	558.42		558.45	0.006967		21.14	66.13	0.00
6	609	1:100yr	14.89	558.40	558.16	558.07	558.22	0.020691		14.15	48.61	0.00
6	608	1:100yr	14.89	557.71	557.40	557.40	557.55	0.054653		8.82	30.93	0.00
6	607	1:100yr	14.89	556.88	556.13	556.13	556.30	0.052624		8.22	25.19	0.00
6	606	1:100yr	14.89	555.41	555.74		555.77	0.009401	0.71	19.28	61.62	0.48
6	605	1:100yr	14.89	555.02	555.33	555.33	555.44	0.053746	1.40	9.80	43.16	1.10
6	604	1:100yr	14.89	554.66	554.34	554.31	554.48	0.041481		8.99	26.37	0.00
6	603	1:100yr	14.89	554.00	553.37	553.37	553.53	0.052989		8.40	26.76	0.00
6	602	1:100yr	14.89	553.42	552.11		552.17	0.017300		13.39	37.02	0.00
6	601	1:100yr	14.89	553.69	551.72	551.60	551.79	0.020004		12.19	32.68	0.00

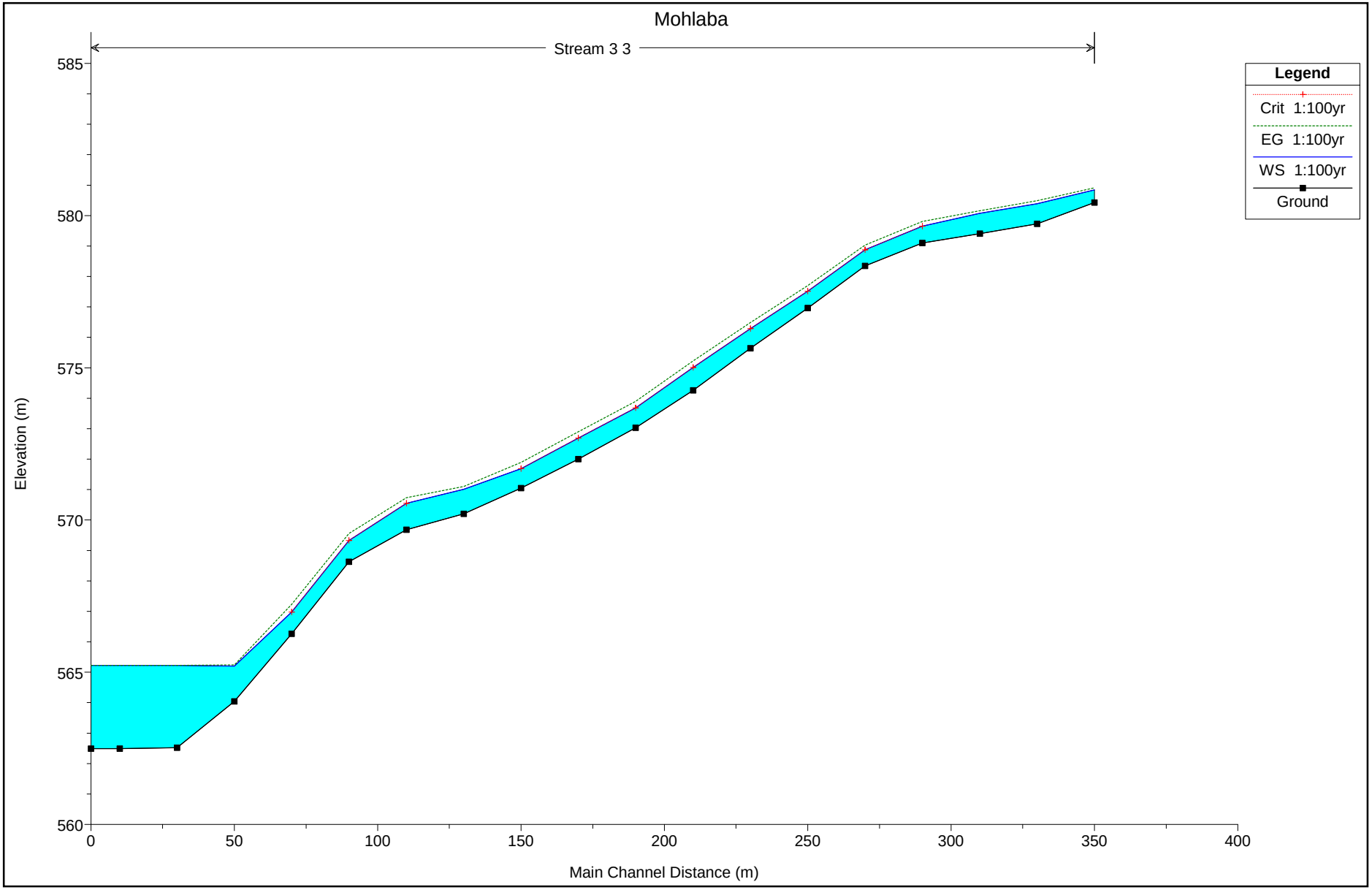
HEC-RAS Plan: Current mode River: Stream 7 Reach: 7 Profile: 1:100yr

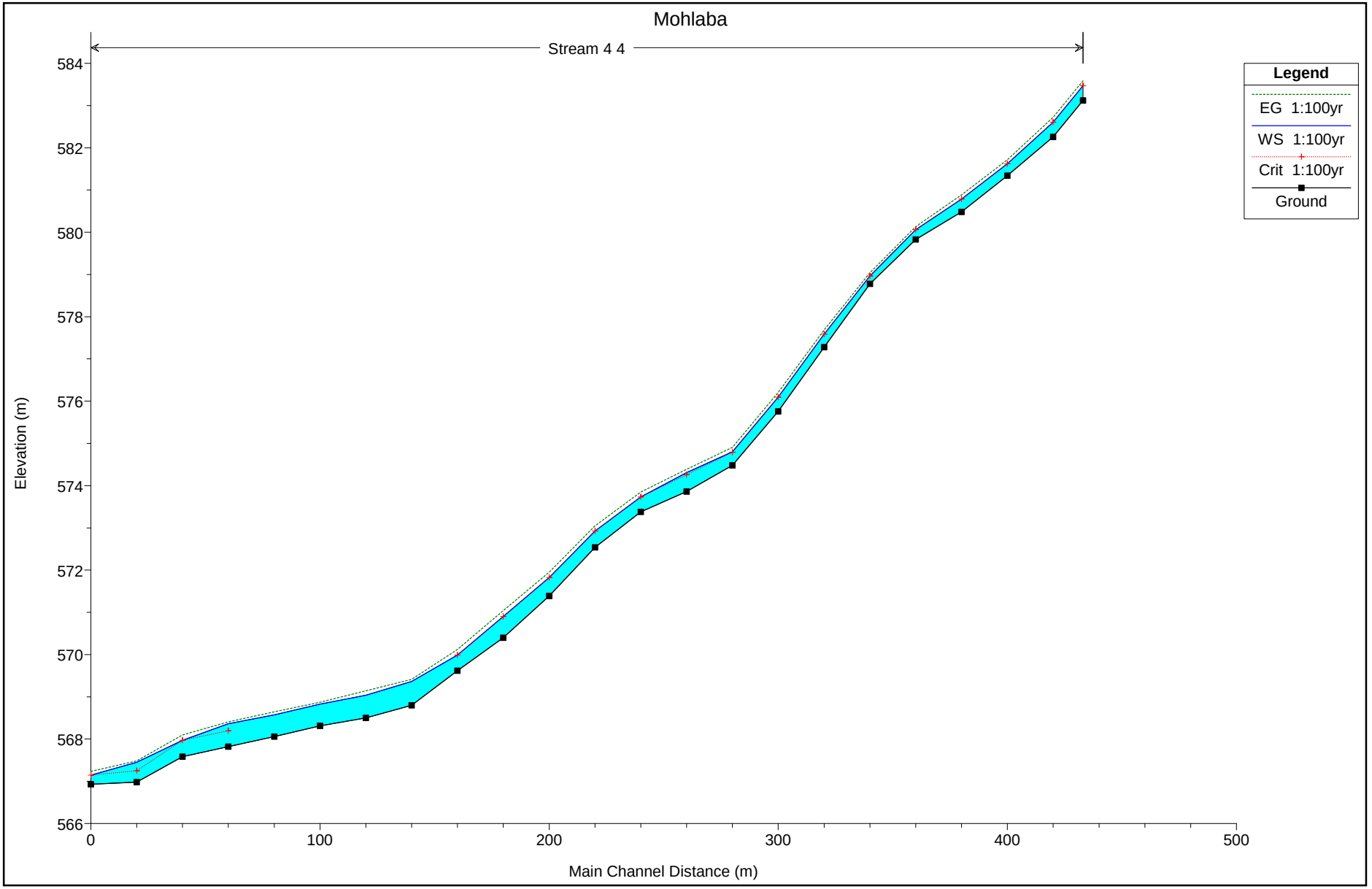
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
7	707	1:100yr	15.09	551.74	551.98	551.98	552.06	0.048869	1.58	12.72	74.30	1.09
7	706	1:100yr	15.09	551.38	551.55	551.53	551.62	0.039621	1.09	13.40	70.91	0.92
7	705	1:100yr	15.09	550.97	551.12	551.11	551.21	0.041941	1.13	11.54	56.53	0.95
7	704	1:100yr	15.09	550.47	550.79		550.86	0.028204	1.49	13.04	53.77	0.87
7	703	1:100yr	15.09	550.26	550.57	550.54	550.62	0.023777	1.38	17.03	93.35	0.81
7	702	1:100yr	15.09	550.05	550.22	550.22	550.30	0.045157	1.24	13.11	88.72	1.00
7	701	1:100yr	15.09	549.69	549.71	549.70	549.80	0.051827	0.30	11.31	56.77	0.74
7	700	1:100yr	15.09	549.27	549.27	549.24	549.35	0.039065		12.57	57.13	0.00

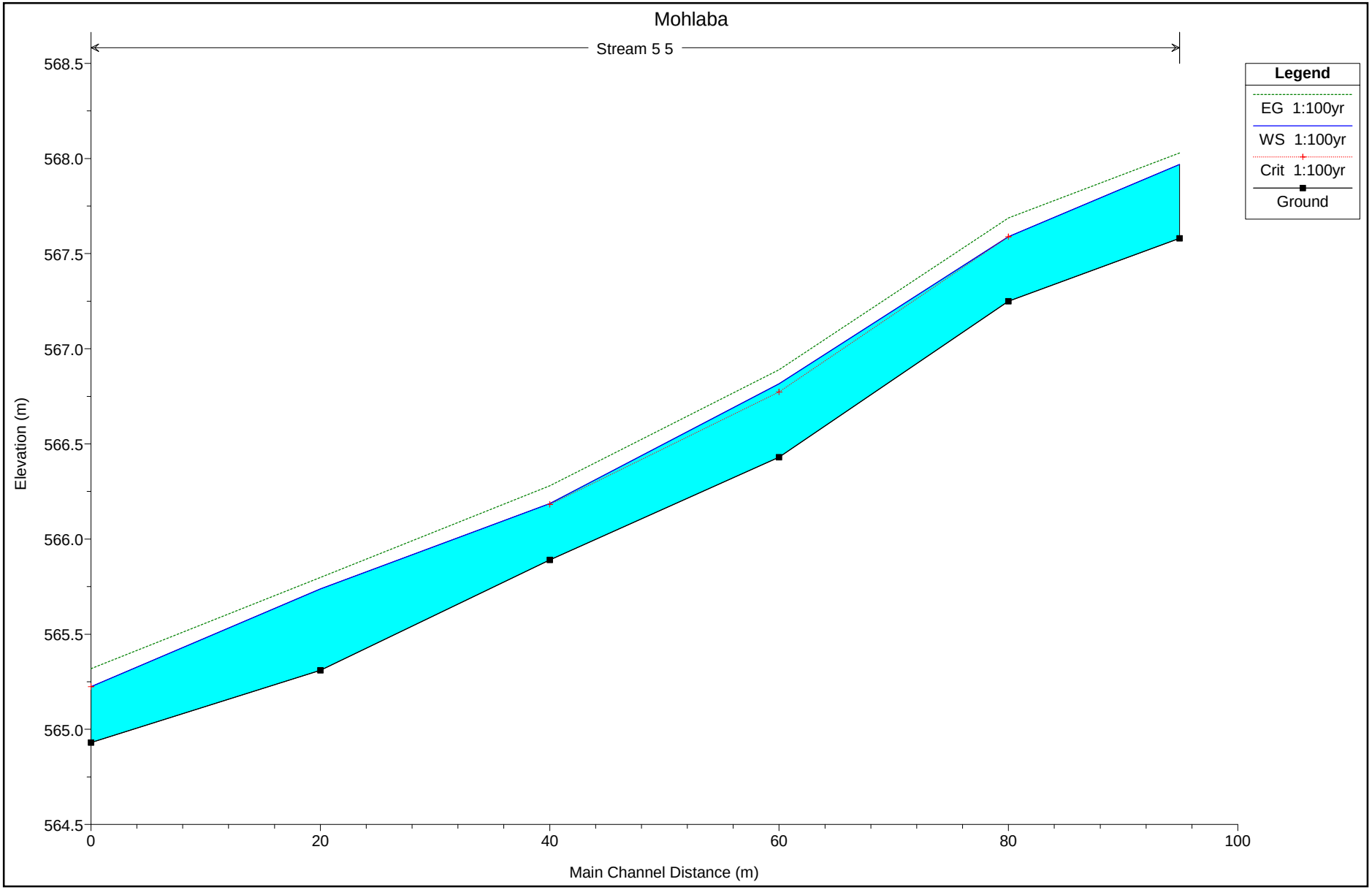
ANNEXURE 4: LONGITUDINAL FLOW PROFILE FOR THE FLOOD PEAK

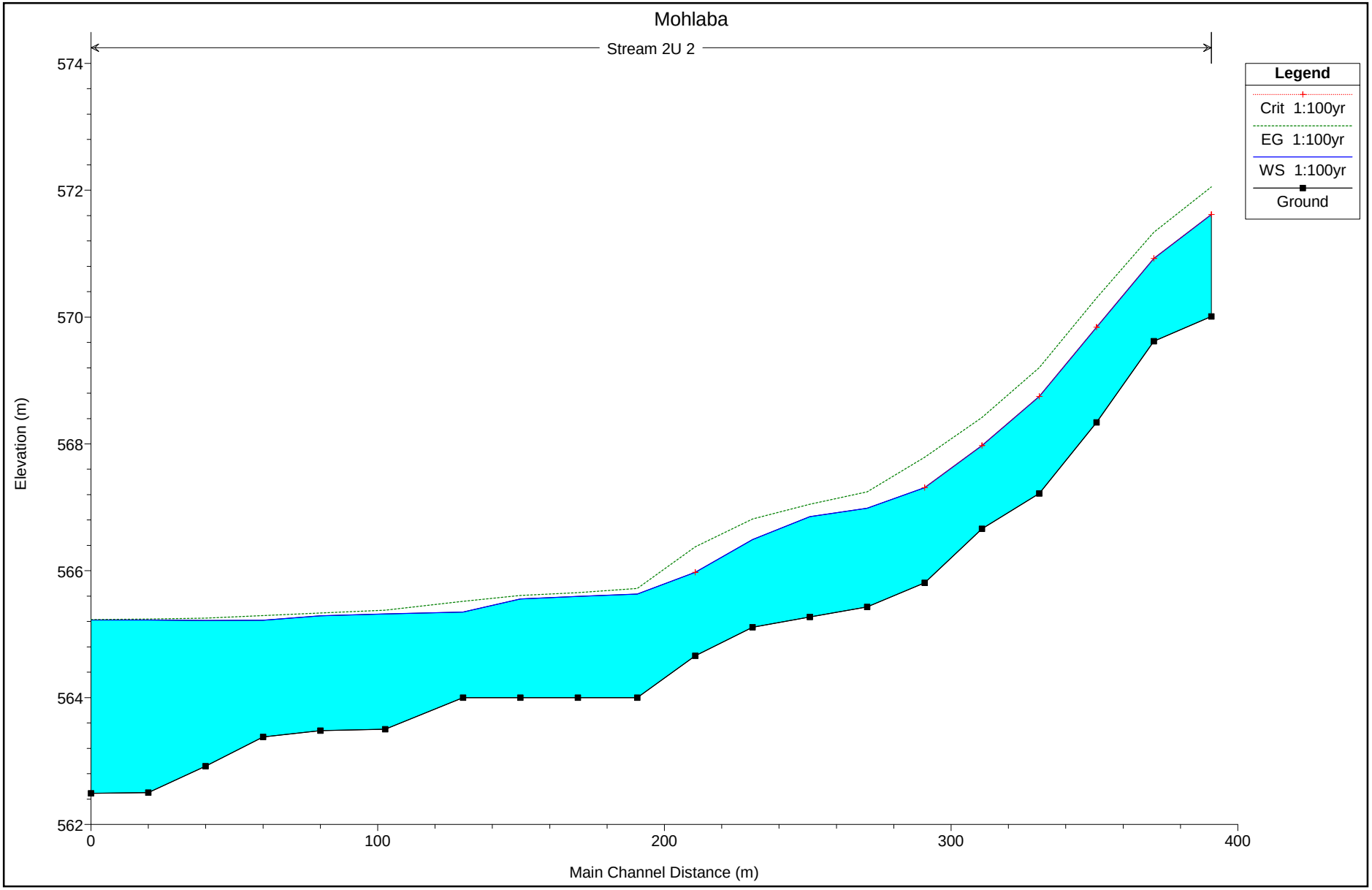

Mohlaba
Stream 1 1
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Elevation (m)
560
558
556
554
552
550
548
0
100
200
300
400
500
600
Main Channel Distance (m)

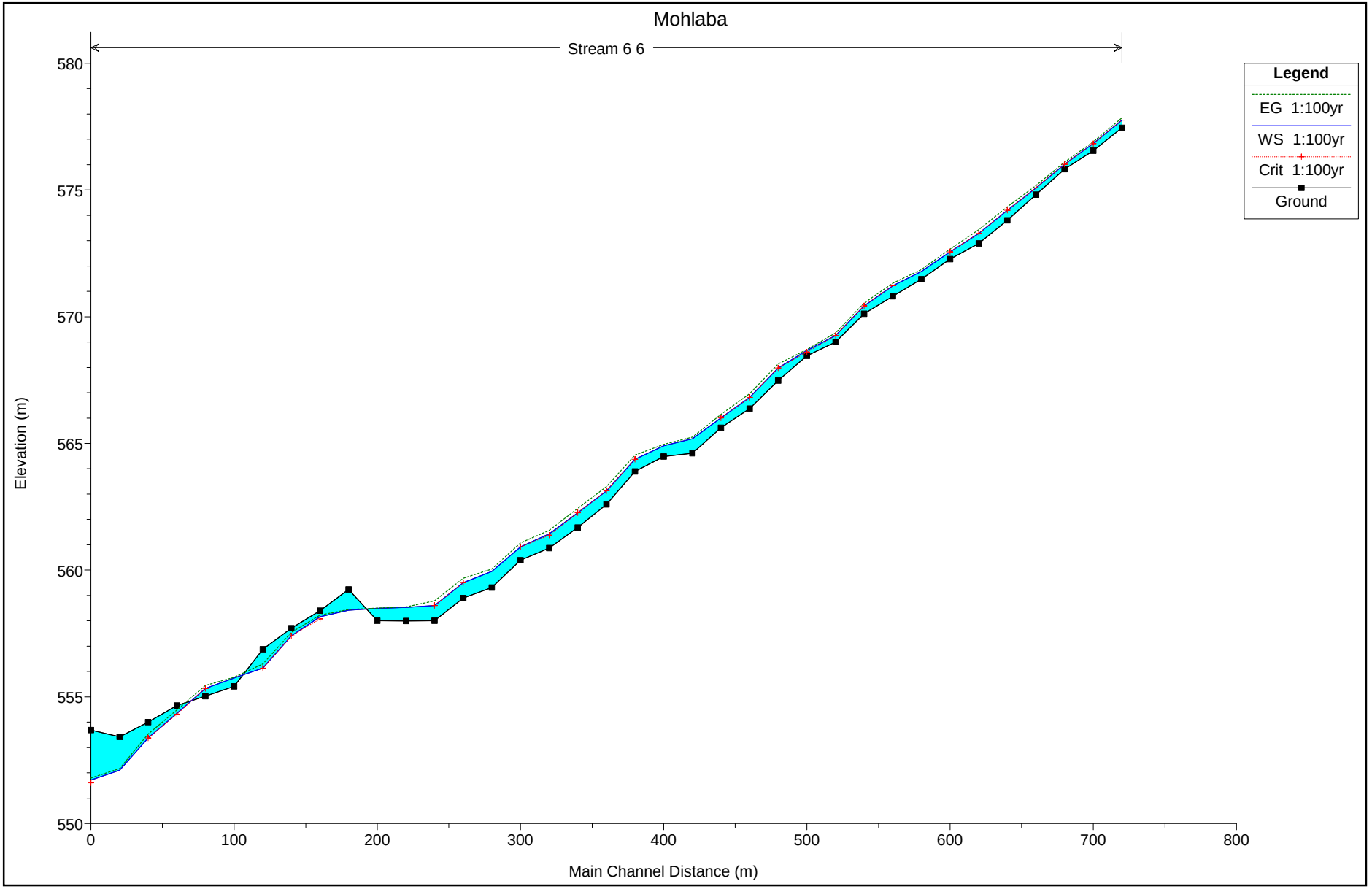

Mohlaba
Steam 2 2
Legend
EG 1:100yr
Crit 1:100yr
WS 1:100yr
Ground
Elevation (m)
566
565
564
563
562
561
560
559
0
50
100
150
200
250
300
350
Main Channel Distance (m)

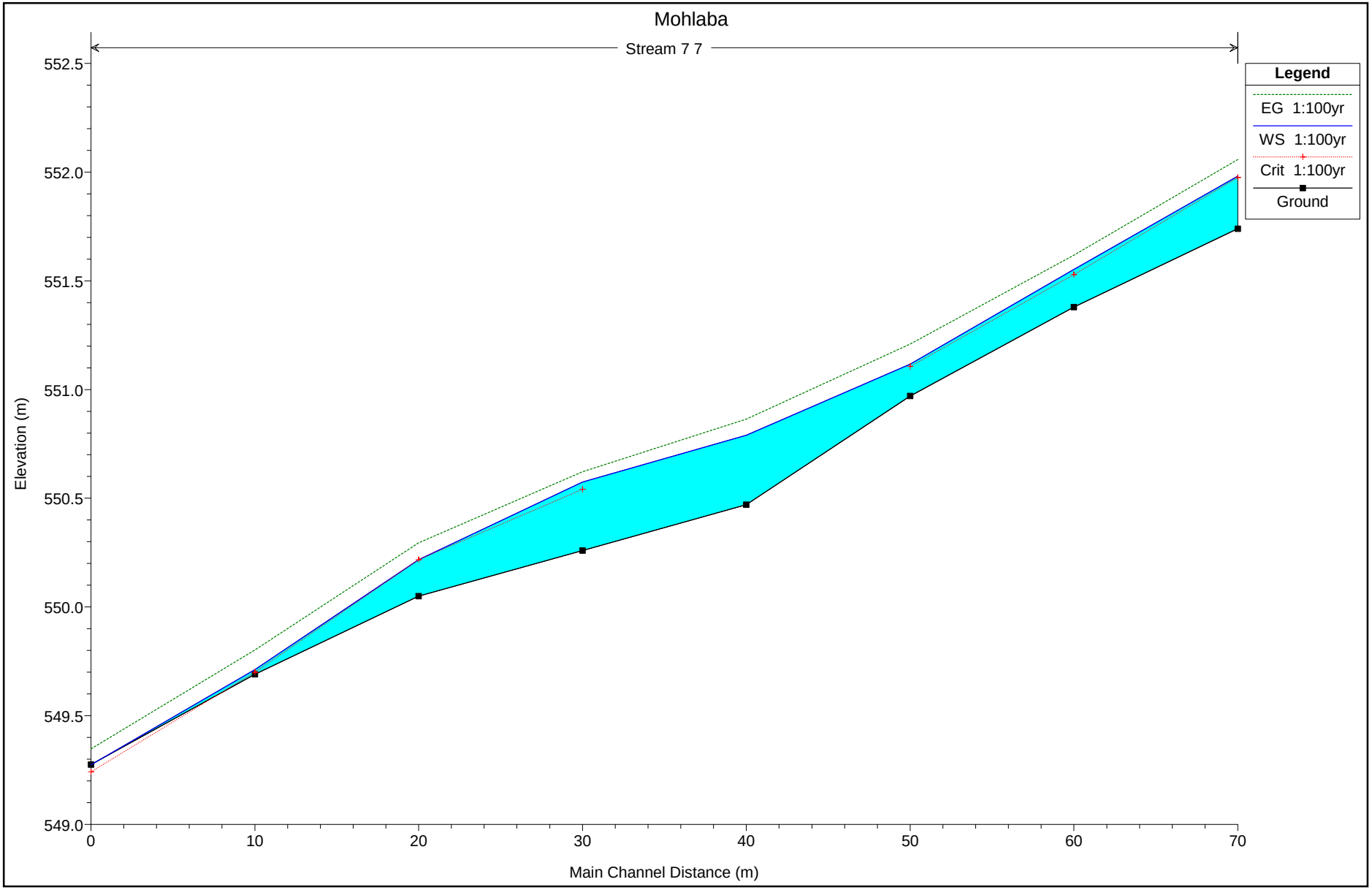

Mohlaba
Stream 3 3
Legend
Crit 1:100yr
EG 1:100yr
WS 1:100yr
Ground
Elevation (m)
585
580
575
570
565
560
0
50
100
150
200
250
300
350
400
Main Channel Distance (m)


Mohlaba
Stream 4 4
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Elevation (m)
584
582
580
578
576
574
572
570
568
566
0
100
200
300
400
500
Main Channel Distance (m)

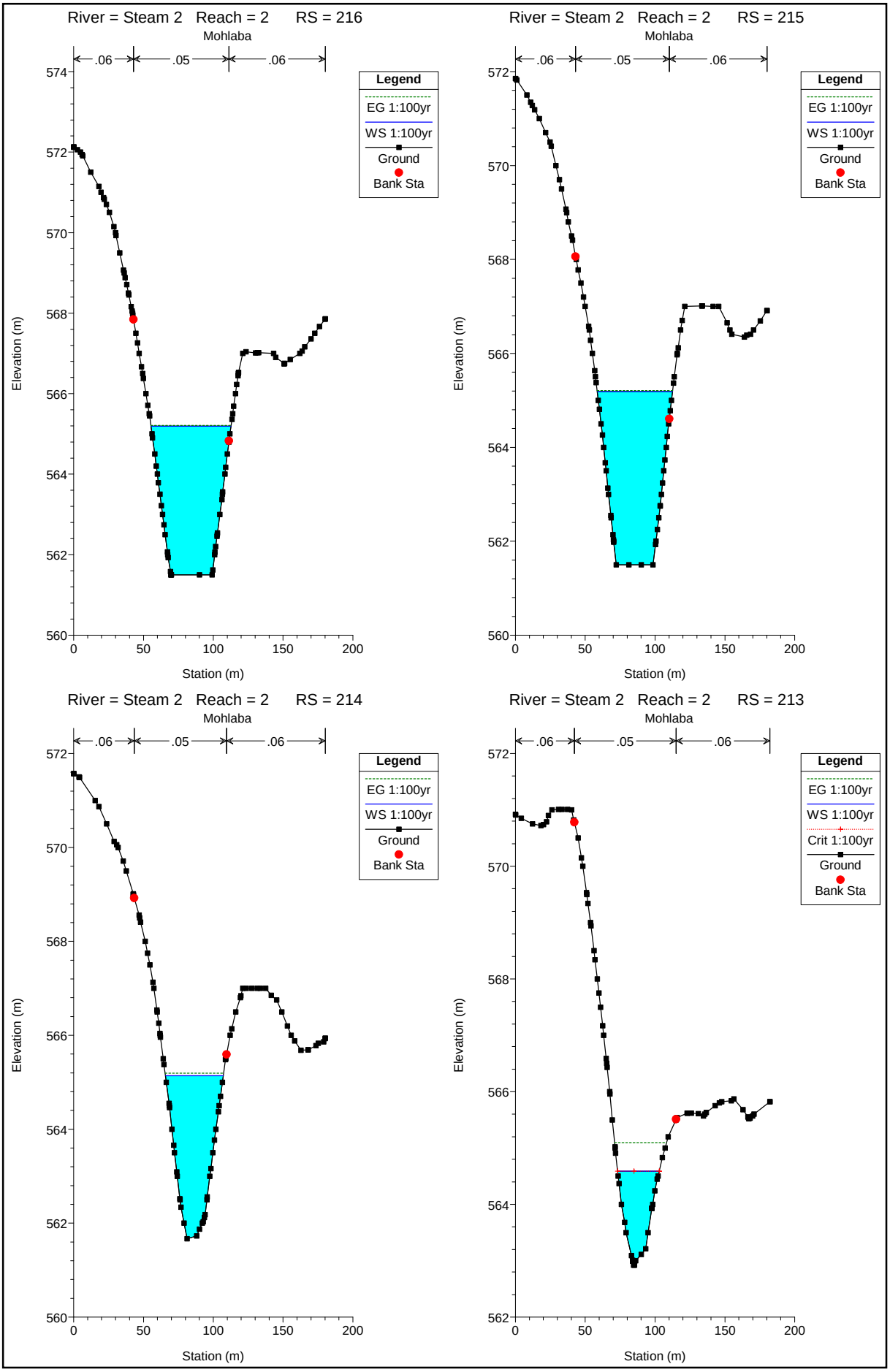

Mohlaba
Stream 5 5
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Elevation (m)
568.5
568.0
567.5
567.0
566.5
566.0
565.5
565.0
564.5
0
20
40
60
80
100
Main Channel Distance (m)

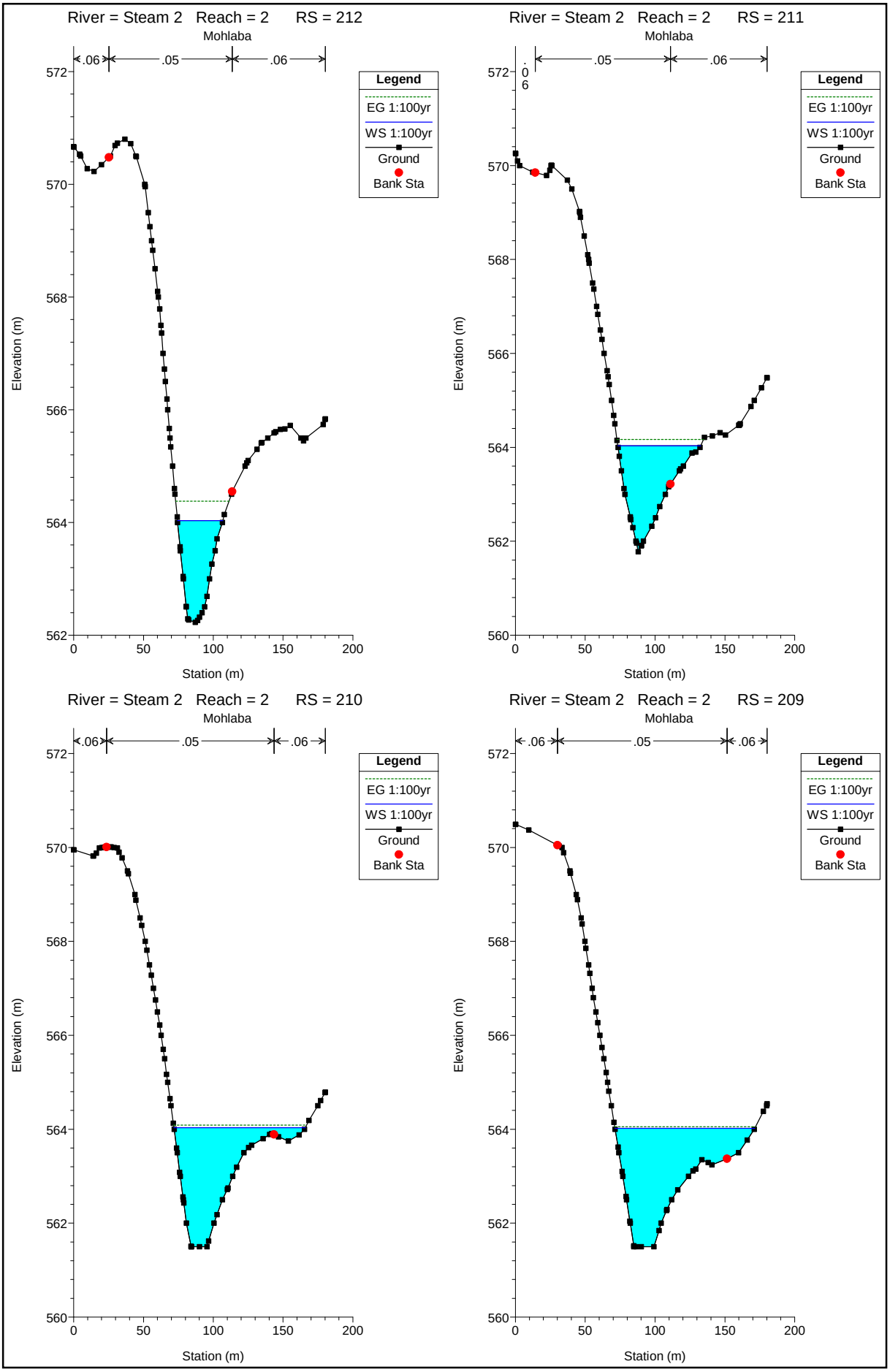

Mohlaba
Stream 2U 2
Legend
Crit 1:100yr
EG 1:100yr
WS 1:100yr
Ground
Elevation (m)
574
572
570
568
566
564
562
0
100
200
300
400
Main Channel Distance (m)

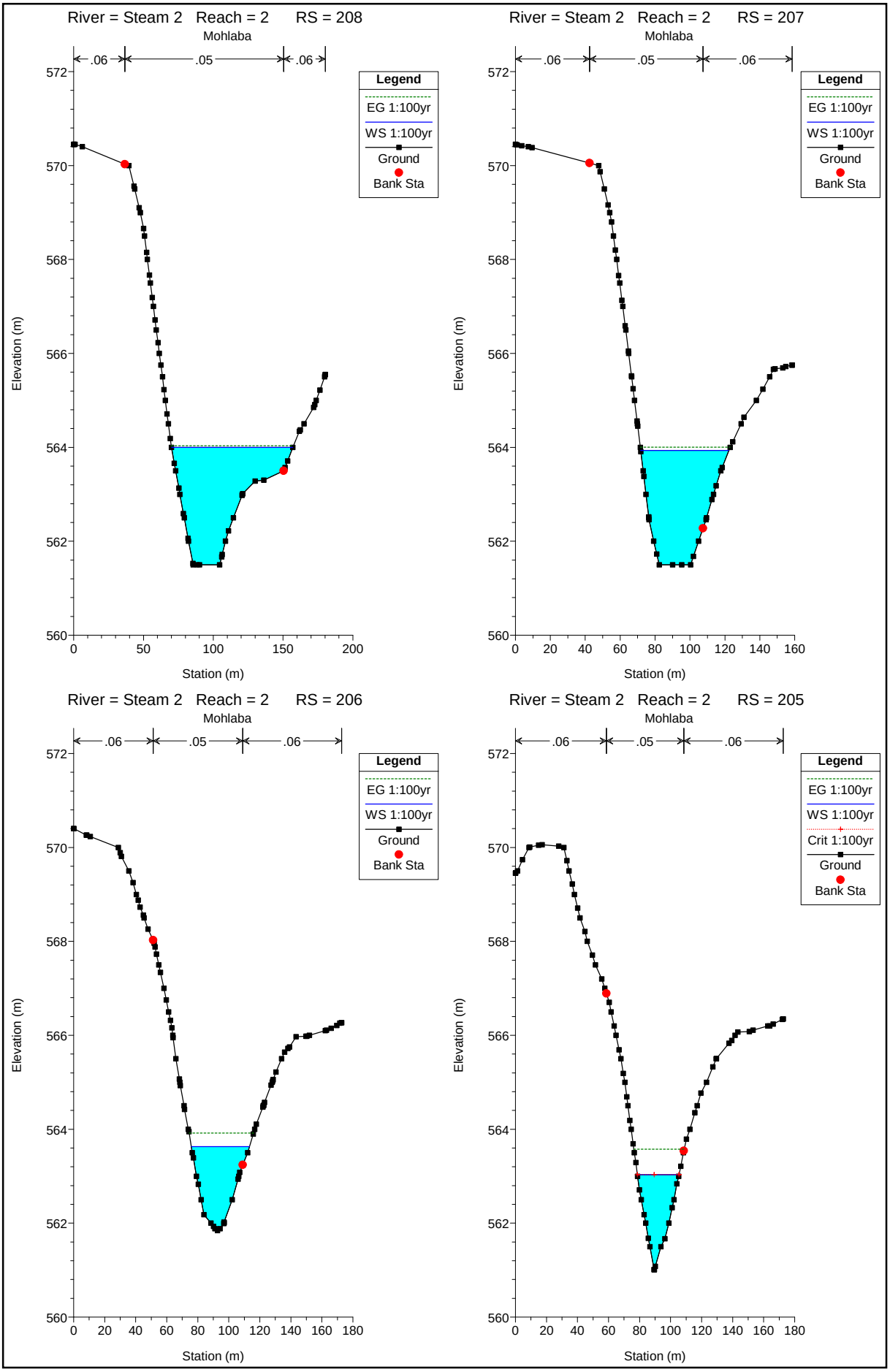

Mohlaba
Stream 6 6
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Elevation (m)
580
575
570
565
560
555
550
0
100
200
300
400
500
600
700
800
Main Channel Distance (m)

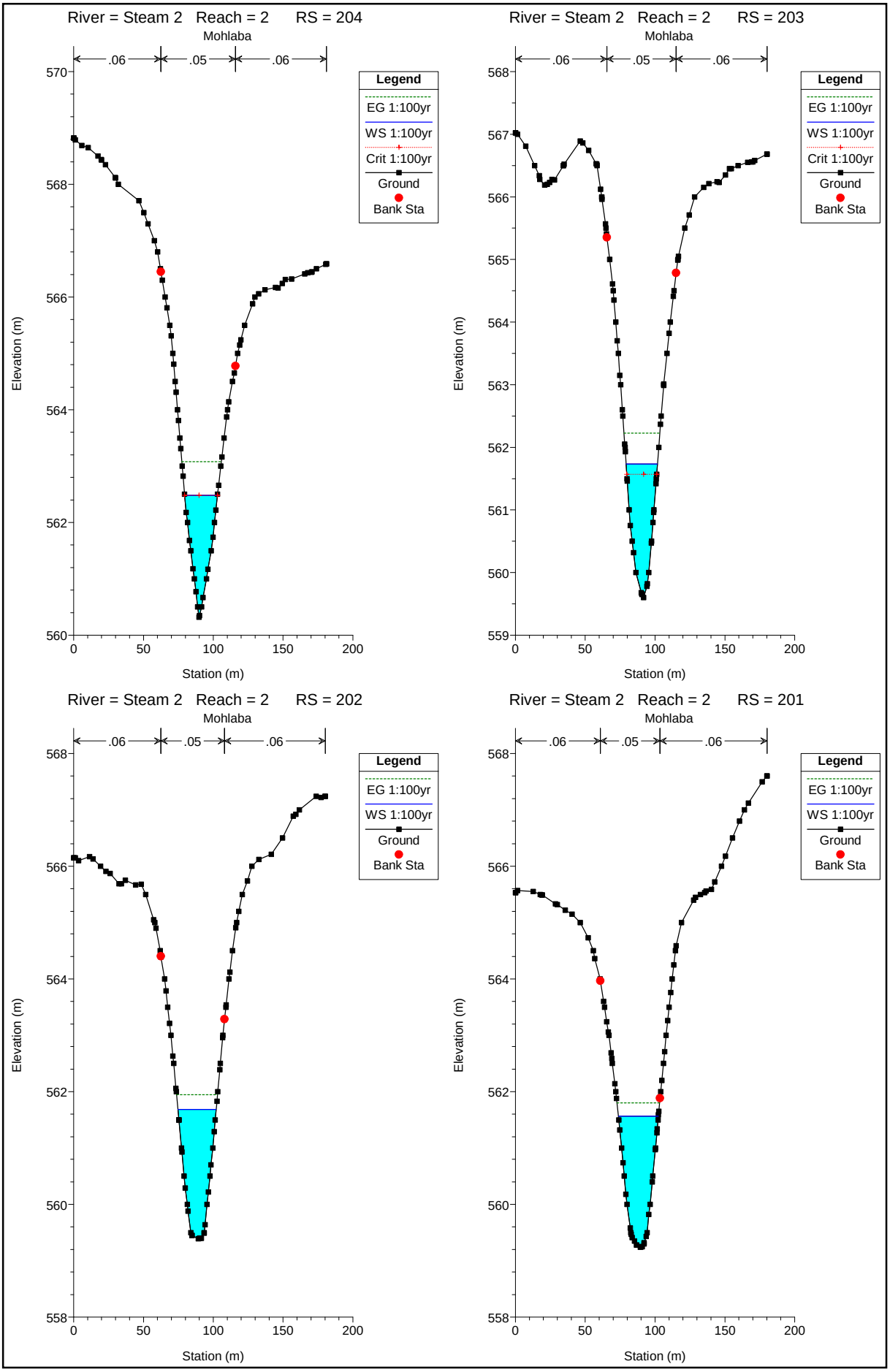

Mohlaba
Stream 7 7
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Elevation (m)
552.5
552.0
551.5
551.0
550.5
550.0
549.5
549.0
0
10
20
30
40
50
60
70
Main Channel Distance (m)

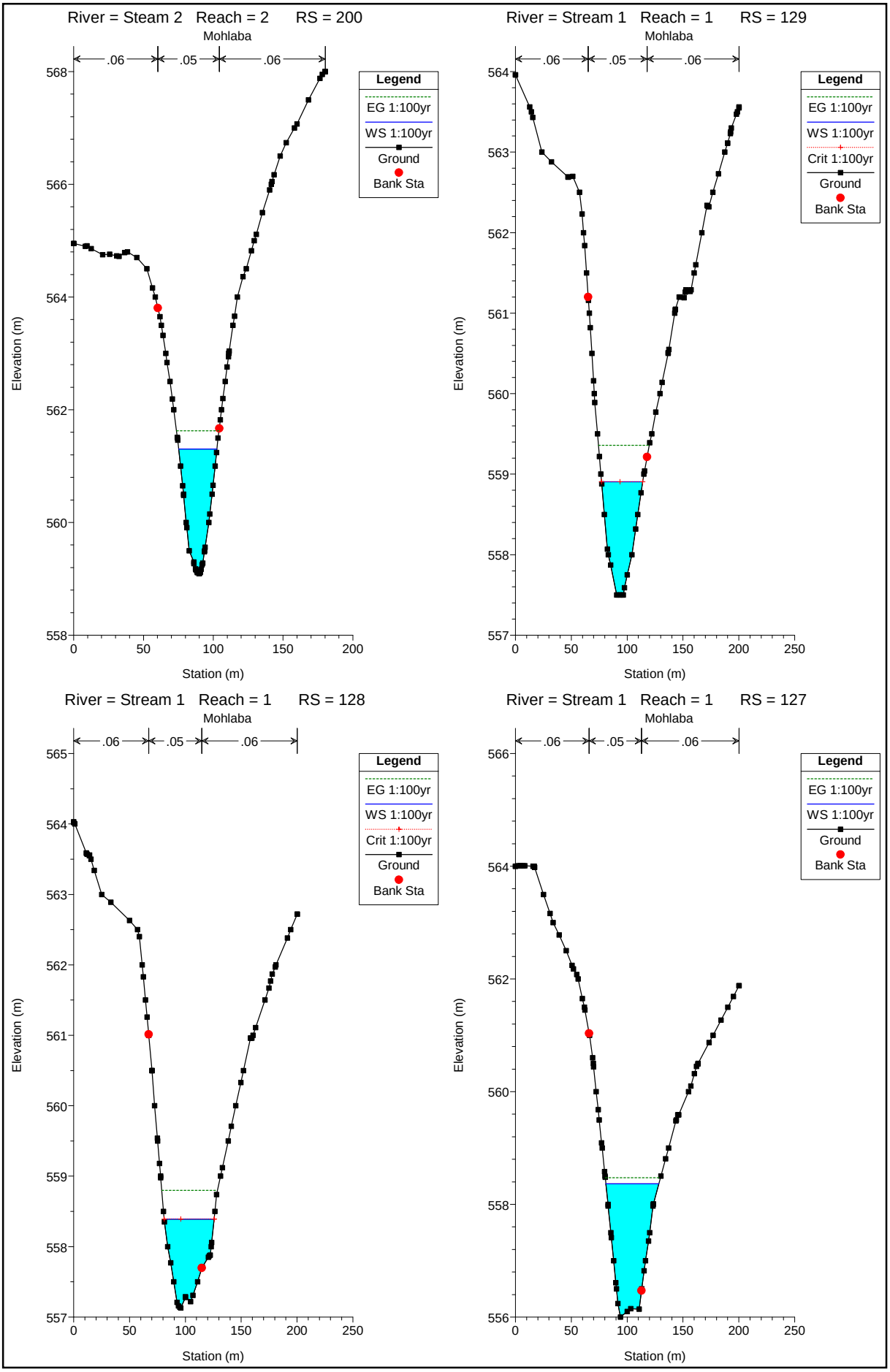
ANNEXURE 5: FLOW CROSS SECTIONS FOR THE FLOOD PEAK

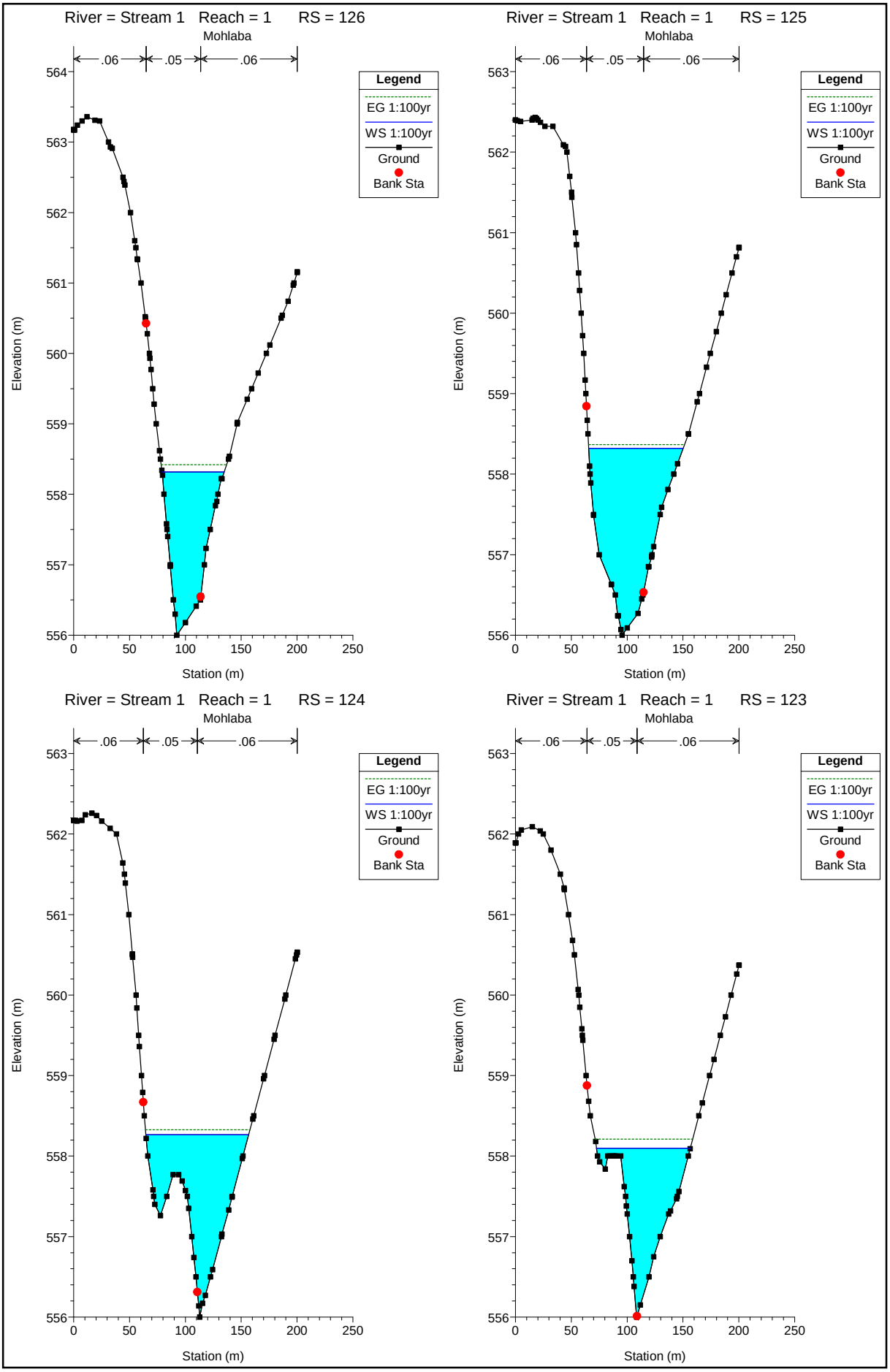

River = Steam 2 Reach = 2 RS = 216
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Steam 2 Reach = 2 RS = 215
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Steam 2 Reach = 2 RS = 214
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Steam 2 Reach = 2 RS = 213
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

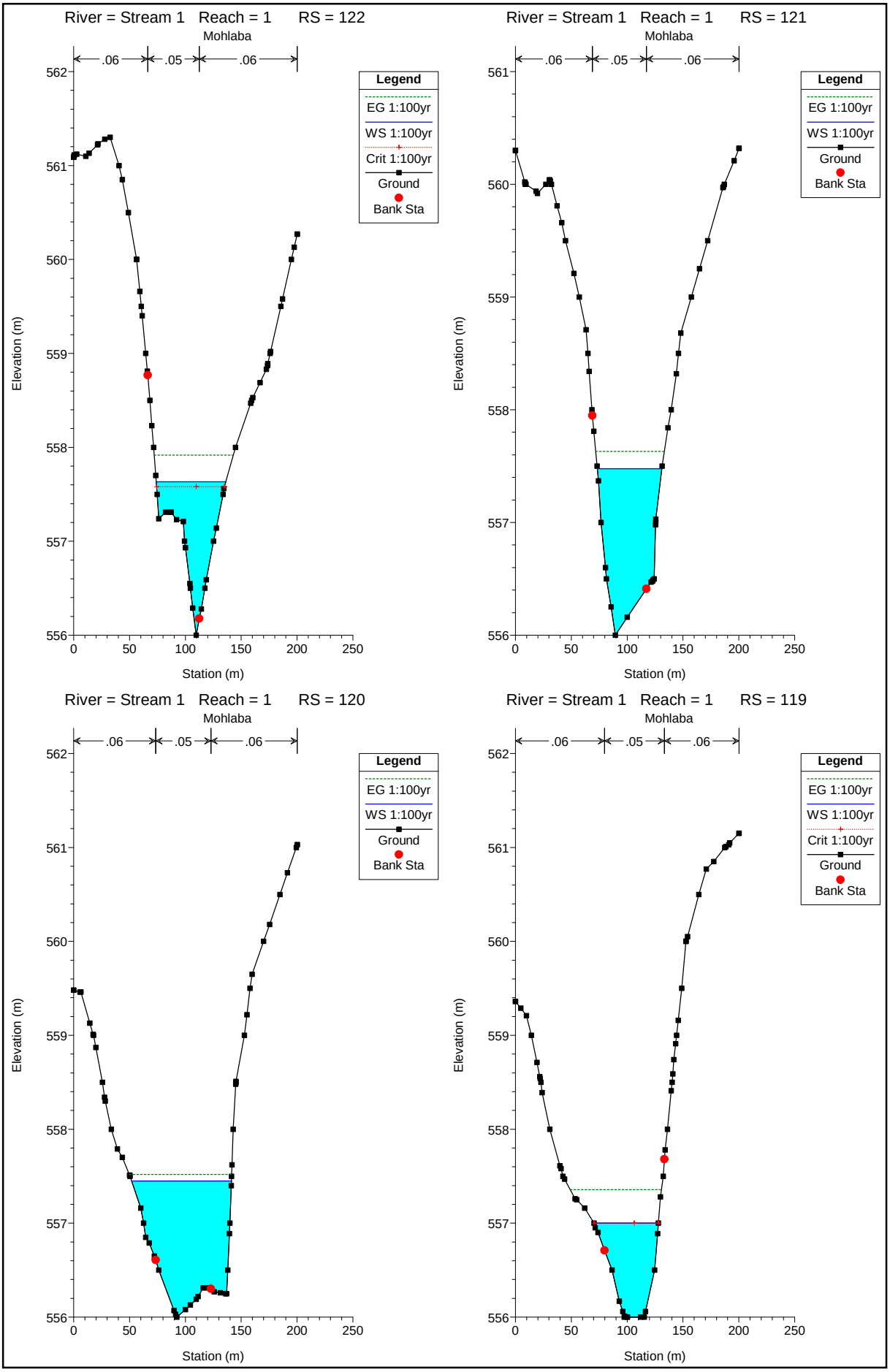

River = Steam 2 Reach = 2 RS = 212
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Steam 2 Reach = 2 RS = 211
Mohlaba
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Steam 2 Reach = 2 RS = 210
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Steam 2 Reach = 2 RS = 209
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

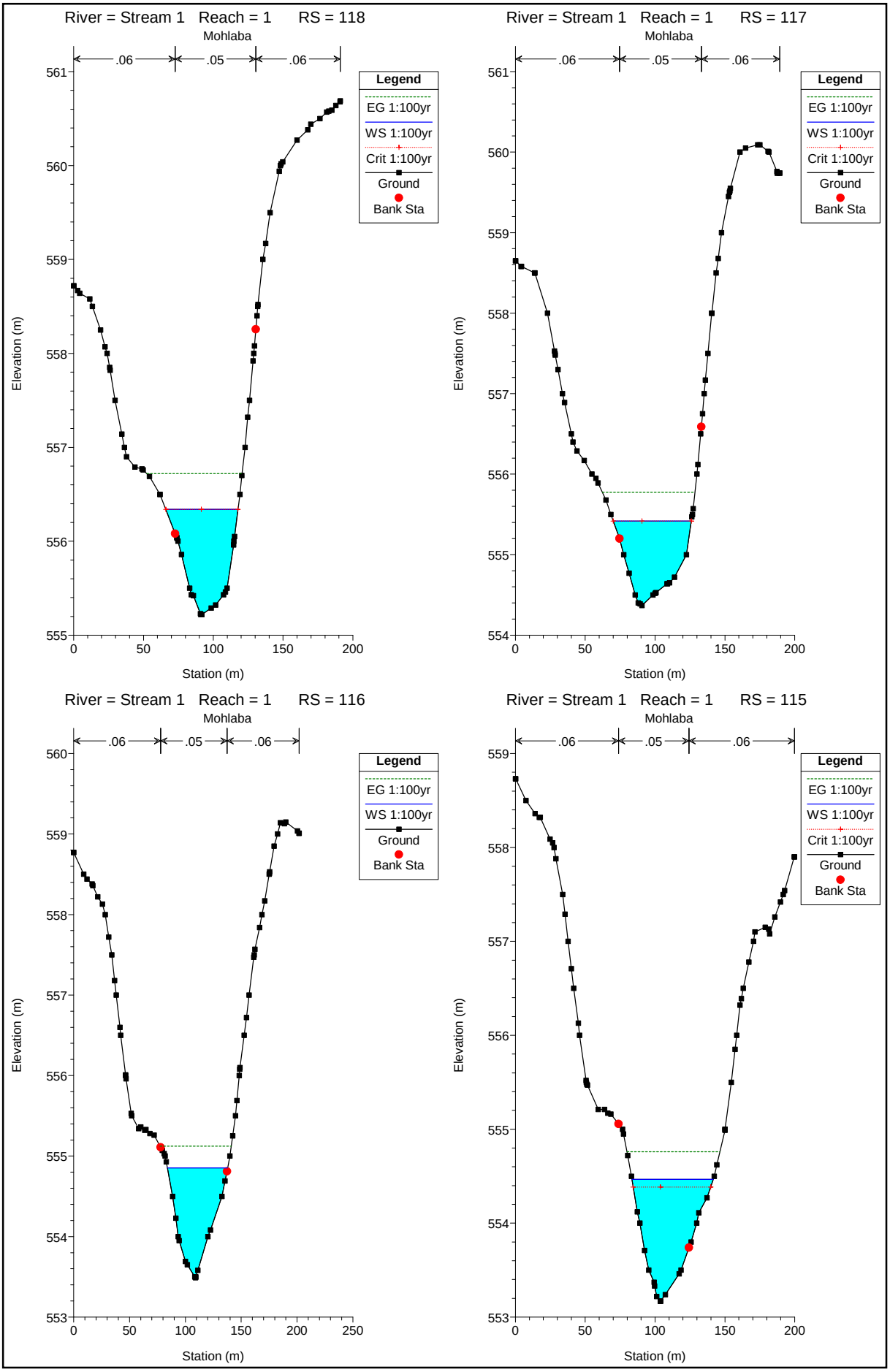

River = Steam 2 Reach = 2 RS = 208
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Steam 2 Reach = 2 RS = 207
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Steam 2 Reach = 2 RS = 206
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Steam 2 Reach = 2 RS = 205
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

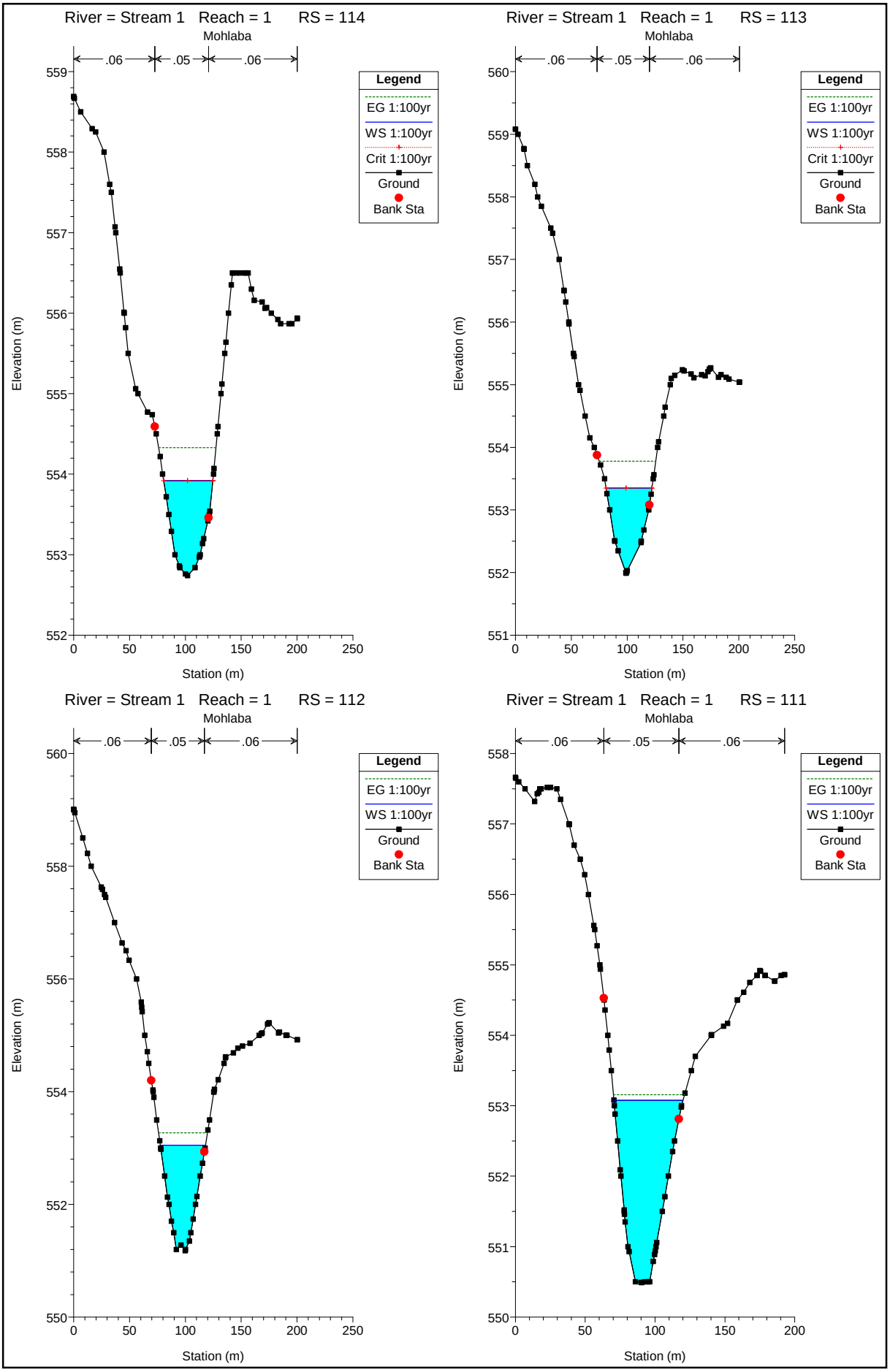

River = Steam 2 Reach = 2 RS = 204
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Steam 2 Reach = 2 RS = 203
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Steam 2 Reach = 2 RS = 202
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Steam 2 Reach = 2 RS = 201
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

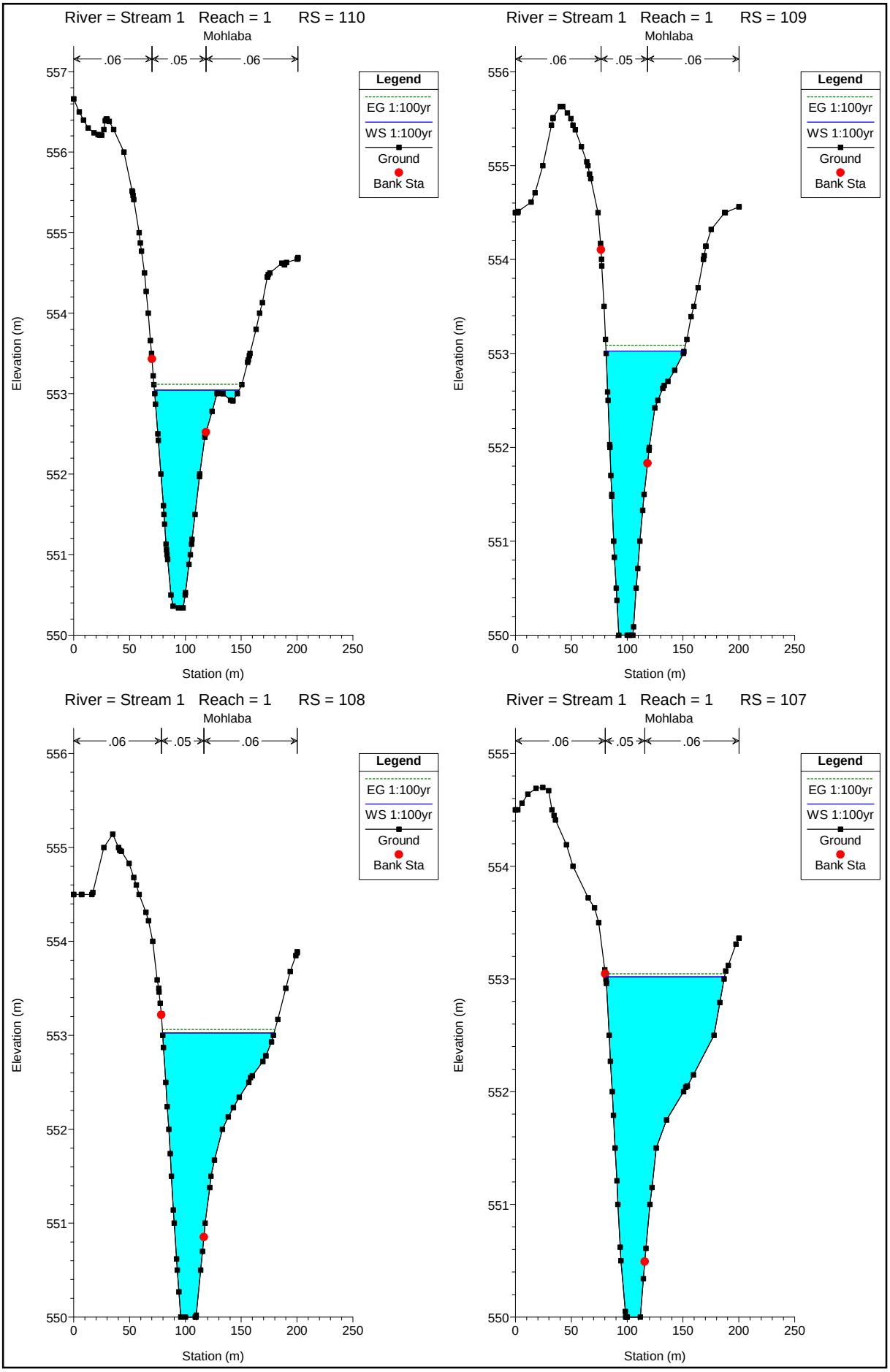

River = Steam 2 Reach = 2 RS = 200
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 129
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 128
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 127
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

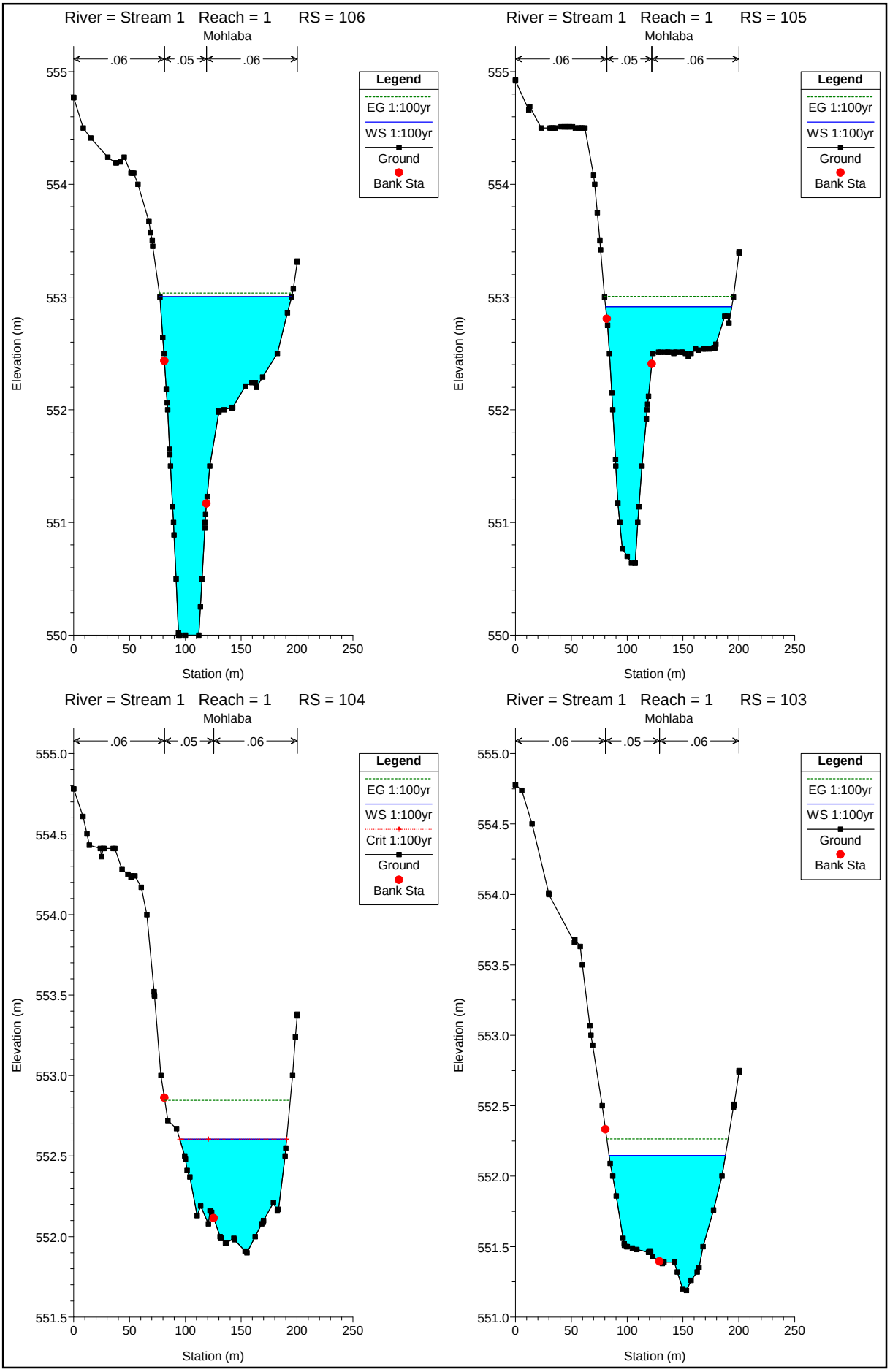

River = Stream 1 Reach = 1 RS = 126
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 125
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 124
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 123
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

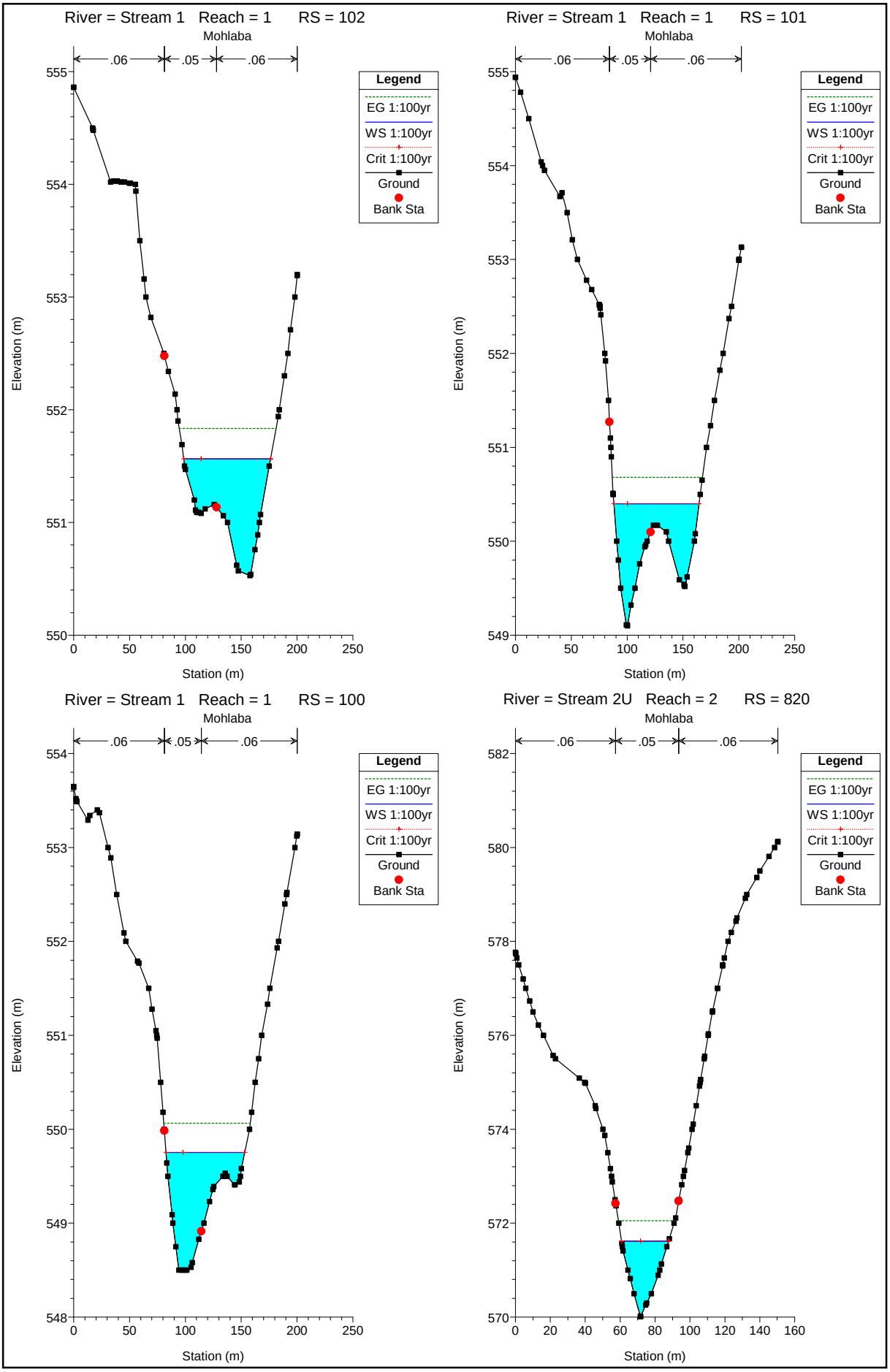

River = Stream 1 Reach = 1 RS = 122
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 121
Mohlaba
River = Stream 1 Reach = 1 RS = 120
Mohlaba
River = Stream 1 Reach = 1 RS = 119
Mohlaba

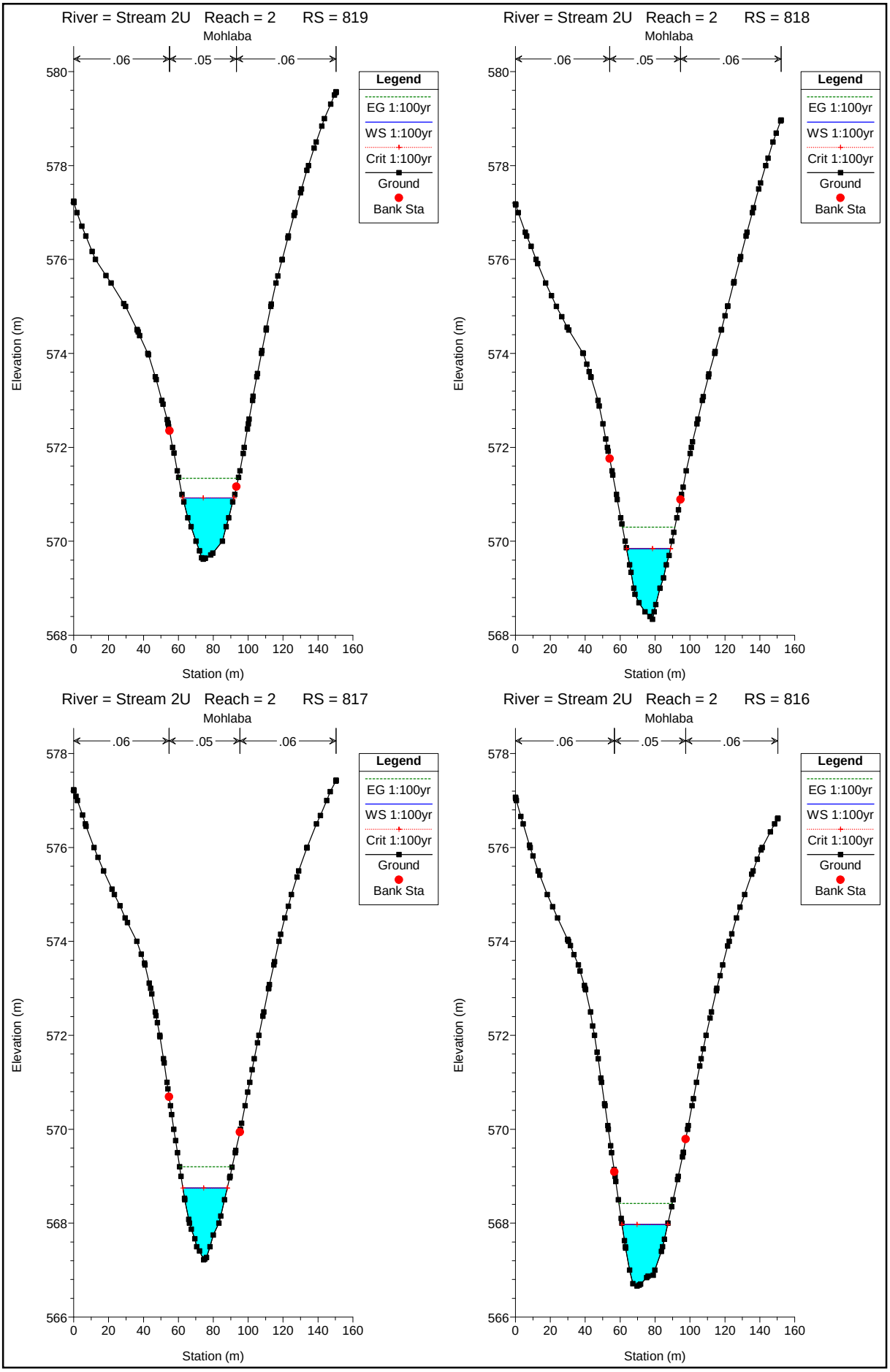

River = Stream 1 Reach = 1 RS = 118
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 117
Mohlaba
River = Stream 1 Reach = 1 RS = 116
Mohlaba
River = Stream 1 Reach = 1 RS = 115
Mohlaba

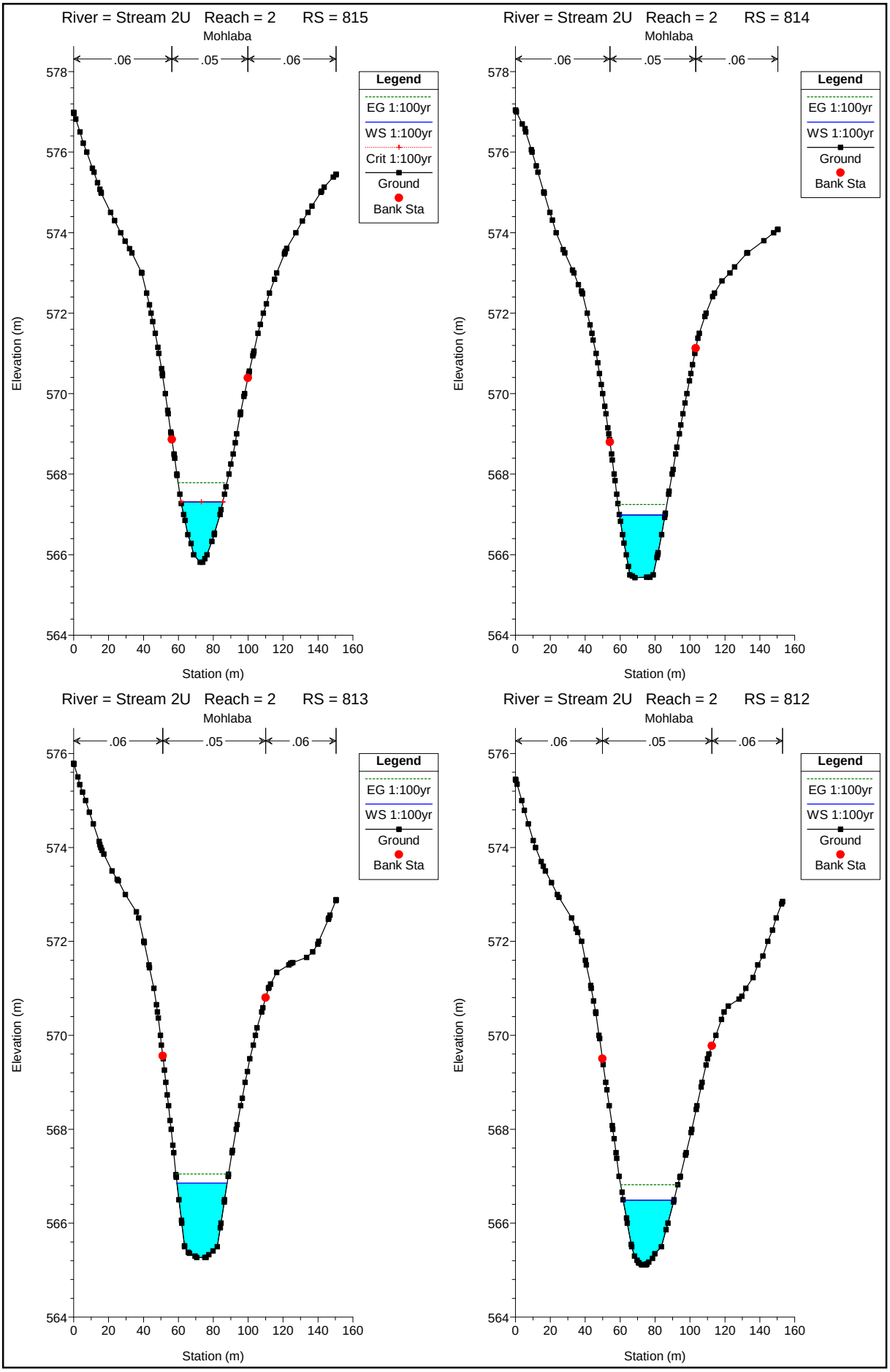

River = Stream 1 Reach = 1 RS = 114
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 113
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 112
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 111
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

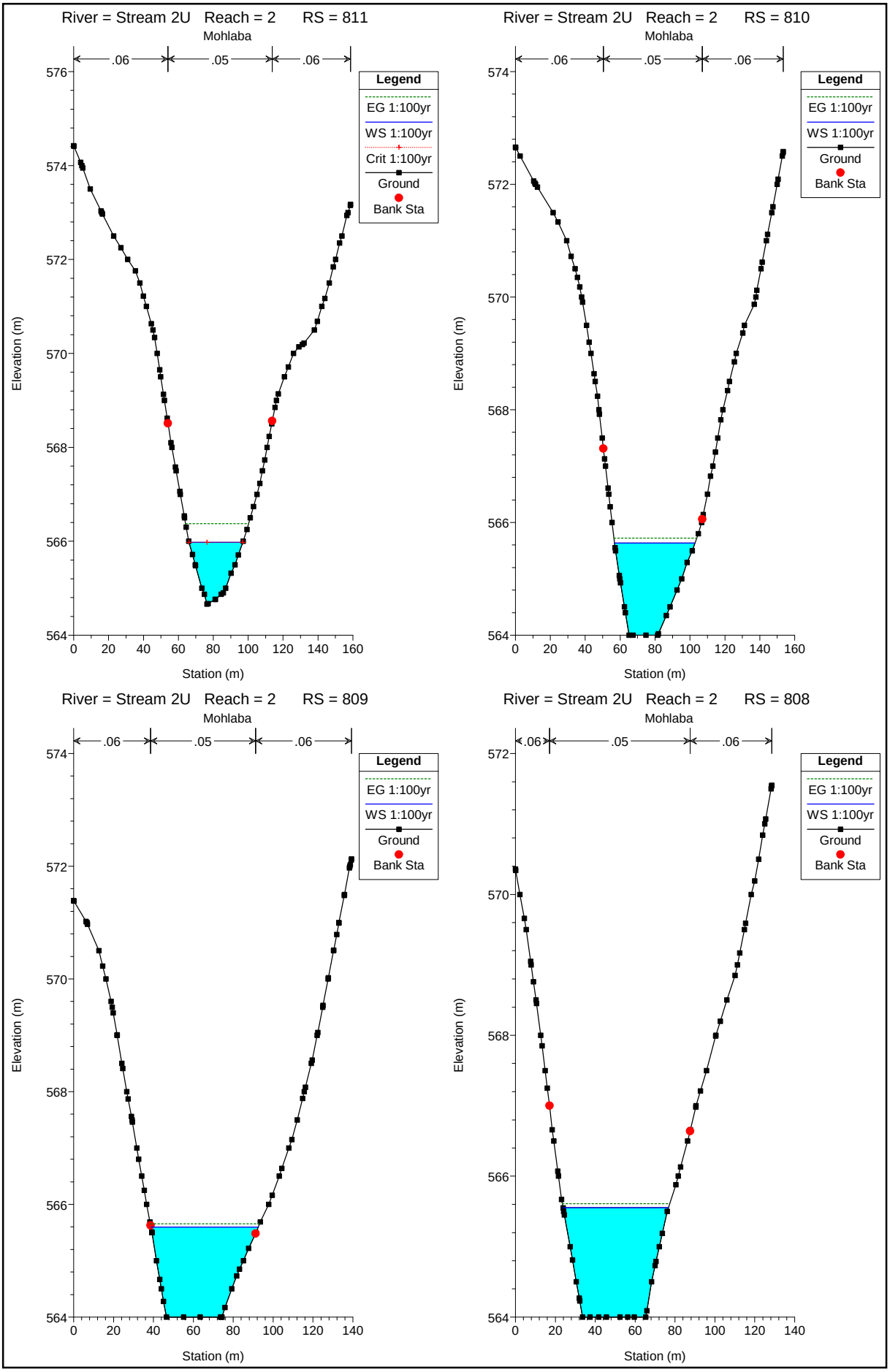

River = Stream 1 Reach = 1 RS = 110
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 109
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 108
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 107
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

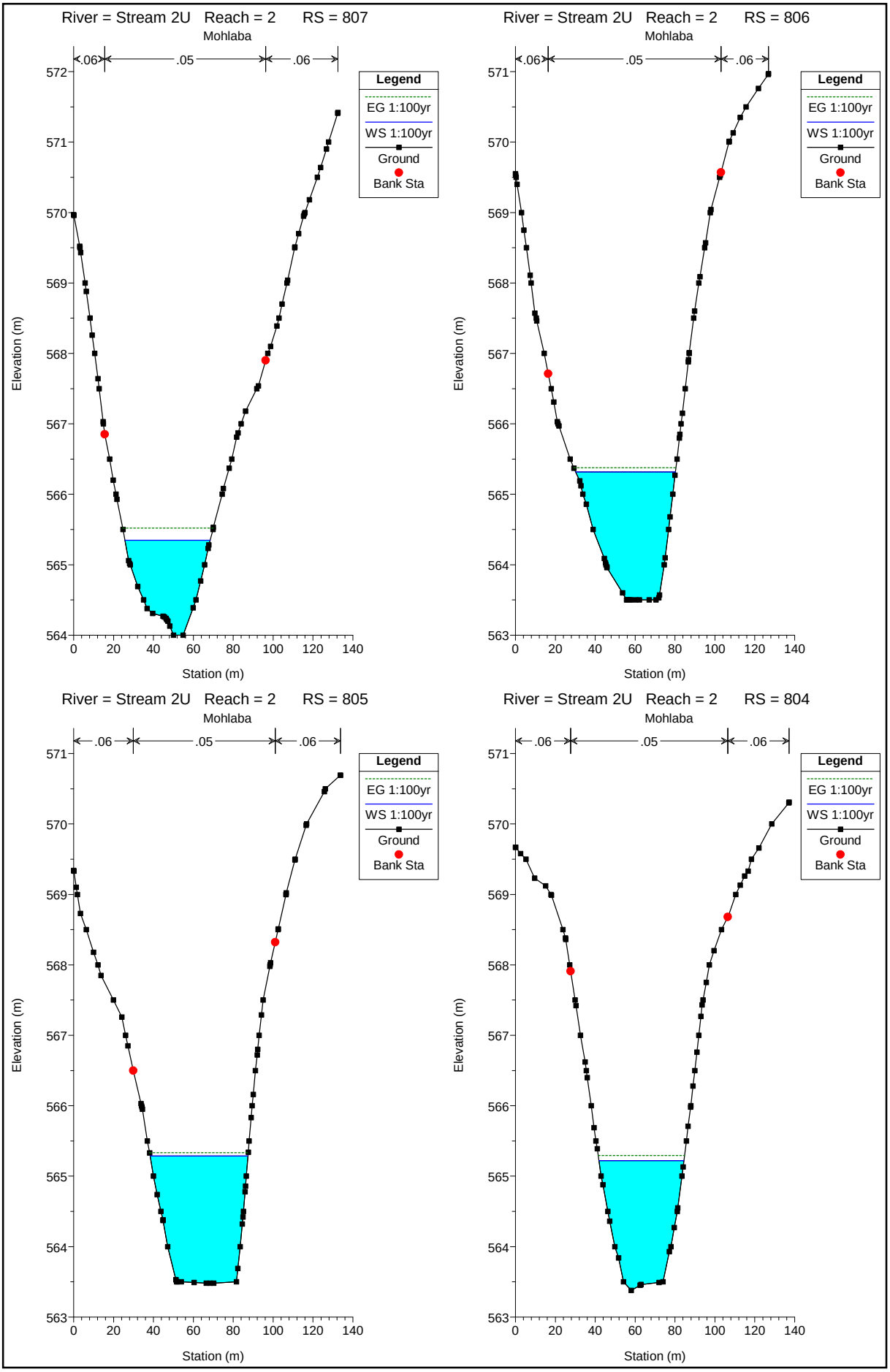

River = Stream 1 Reach = 1 RS = 106
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 105
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 104
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 103
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

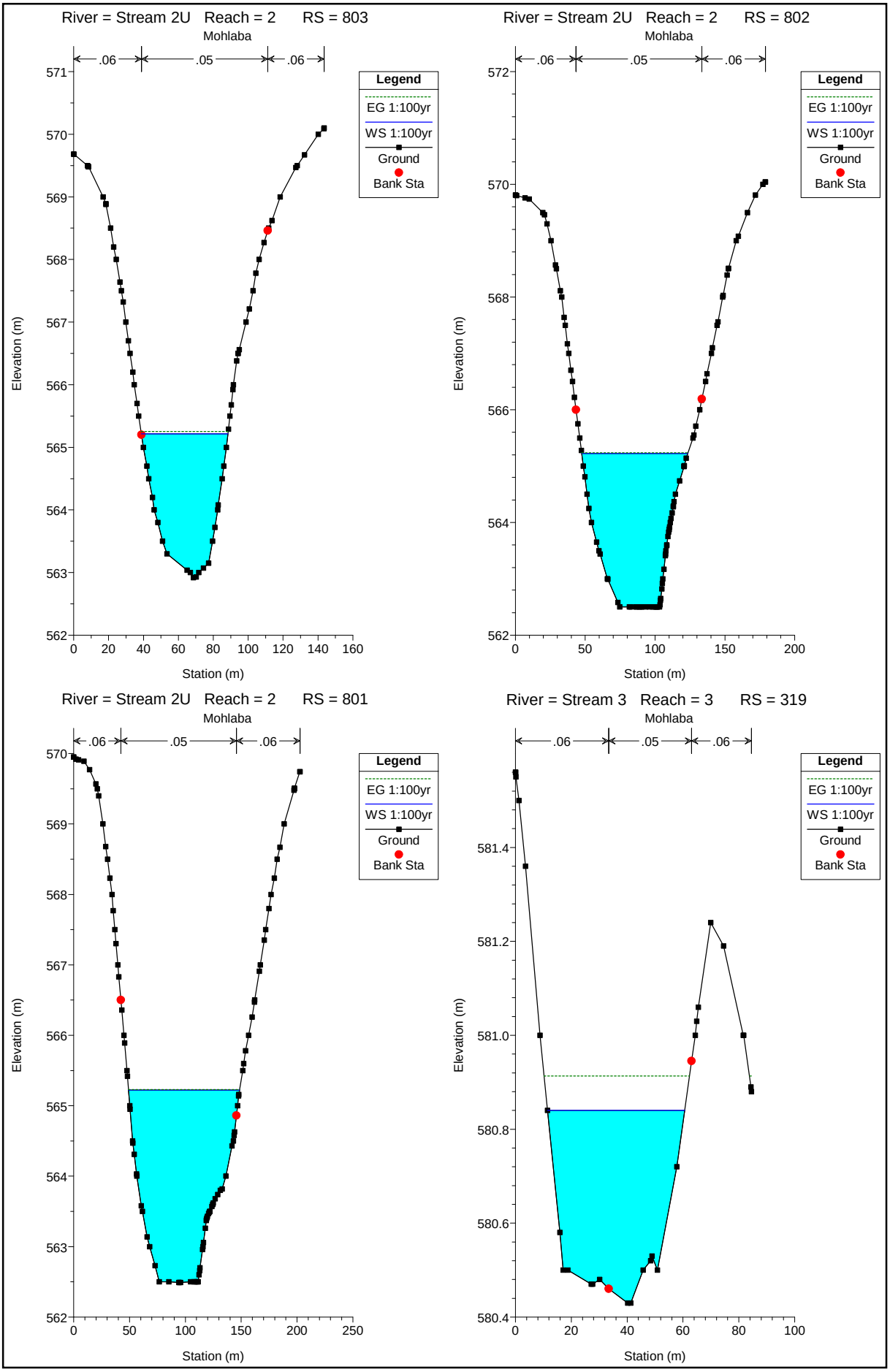

River = Stream 1 Reach = 1 RS = 102
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 1 Reach = 1 RS = 101
Mohlaba
River = Stream 1 Reach = 1 RS = 100
Mohlaba
River = Stream 2U Reach = 2 RS = 820
Mohlaba

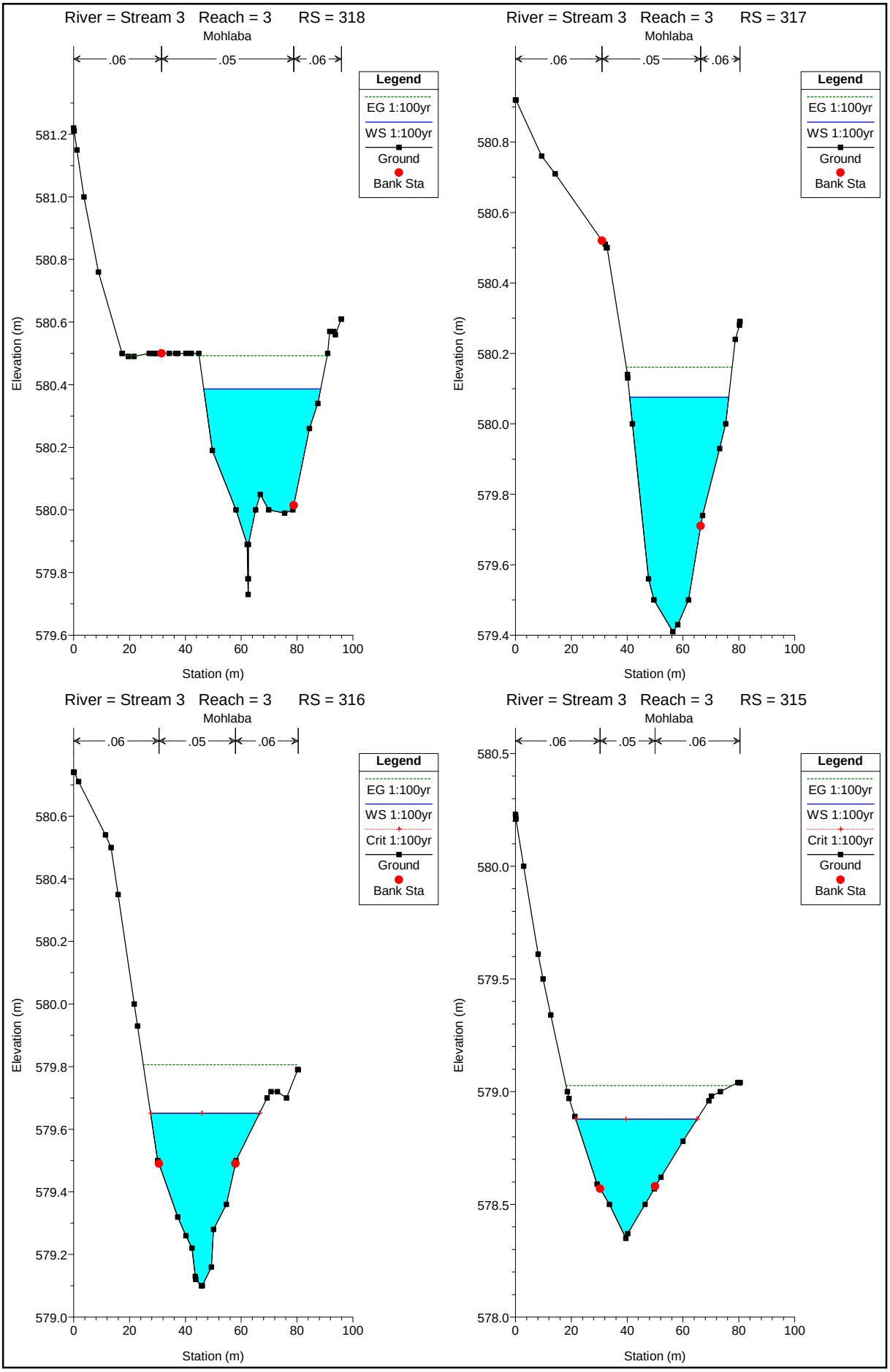

River = Stream 2U Reach = 2 RS = 819
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 2U Reach = 2 RS = 818
Mohlaba
River = Stream 2U Reach = 2 RS = 817
Mohlaba
River = Stream 2U Reach = 2 RS = 816
Mohlaba

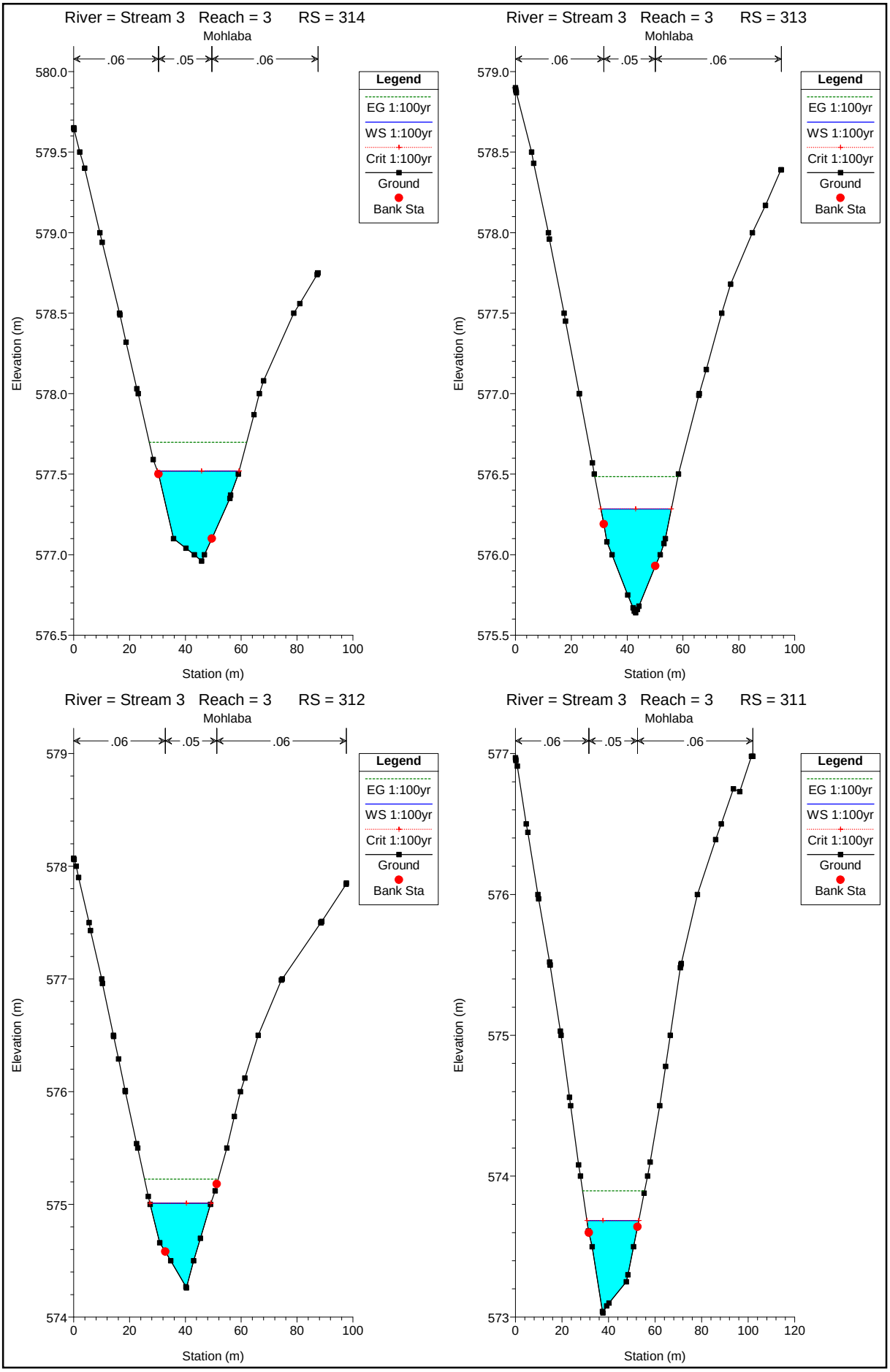

River = Stream 2U Reach = 2 RS = 815
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 2U Reach = 2 RS = 814
Mohlaba
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 2U Reach = 2 RS = 813
Mohlaba
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 2U Reach = 2 RS = 812
Mohlaba
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

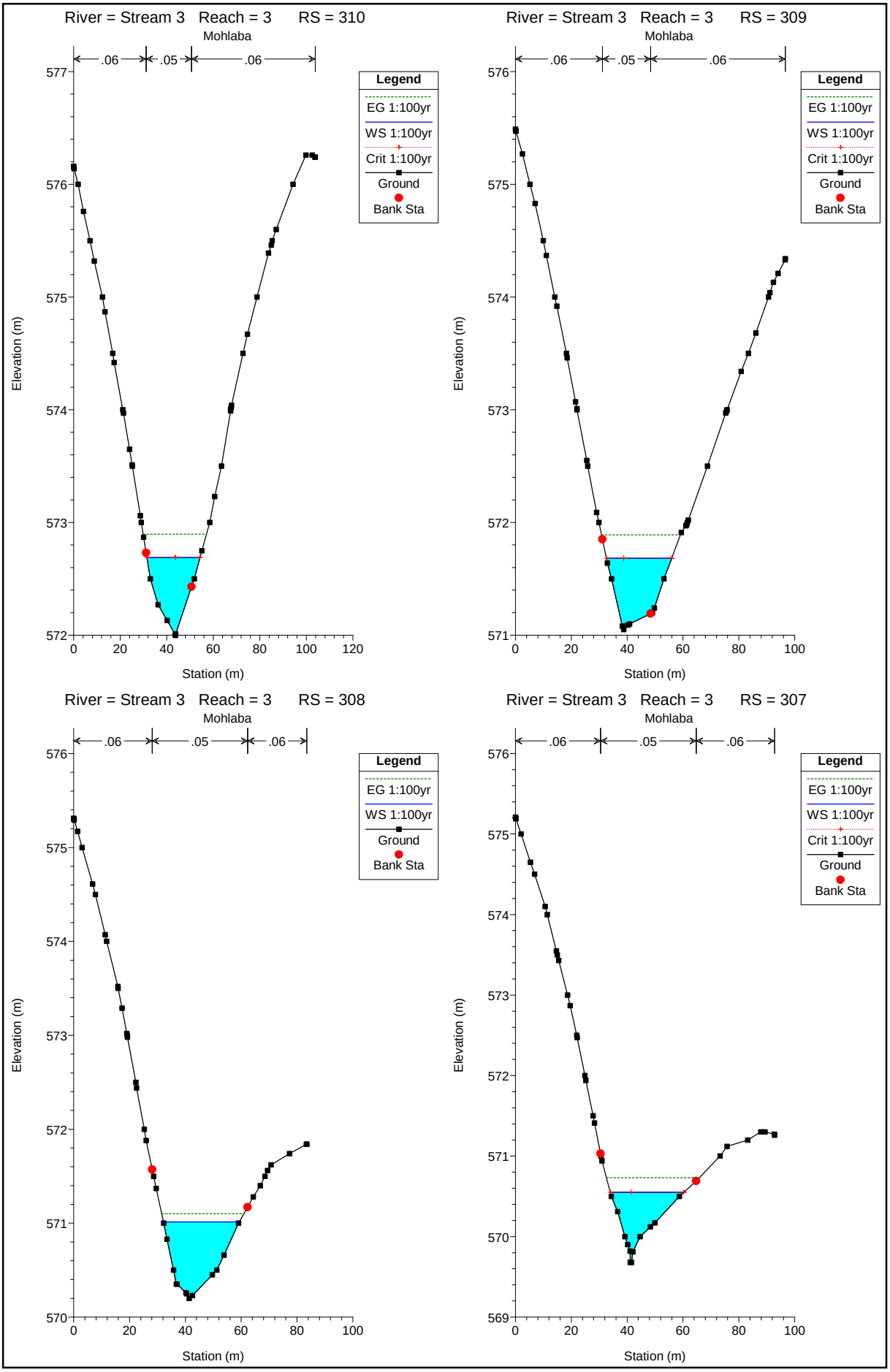

River = Stream 2U Reach = 2 RS = 811
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 2U Reach = 2 RS = 810
Mohlaba
River = Stream 2U Reach = 2 RS = 809
Mohlaba
River = Stream 2U Reach = 2 RS = 808
Mohlaba

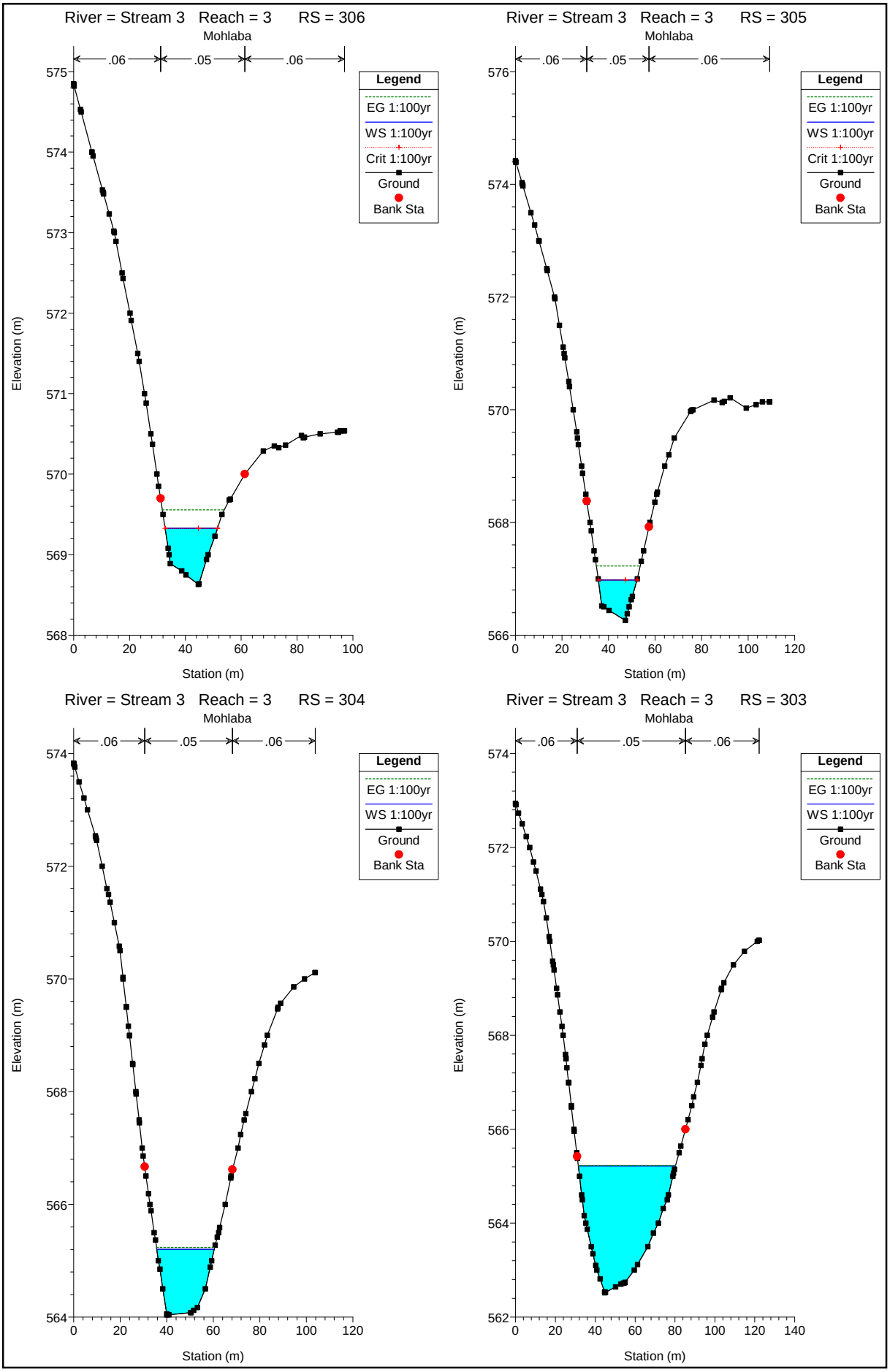

River = Stream 2U Reach = 2 RS = 807
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 2U Reach = 2 RS = 806
Mohlaba
River = Stream 2U Reach = 2 RS = 805
Mohlaba
River = Stream 2U Reach = 2 RS = 804
Mohlaba

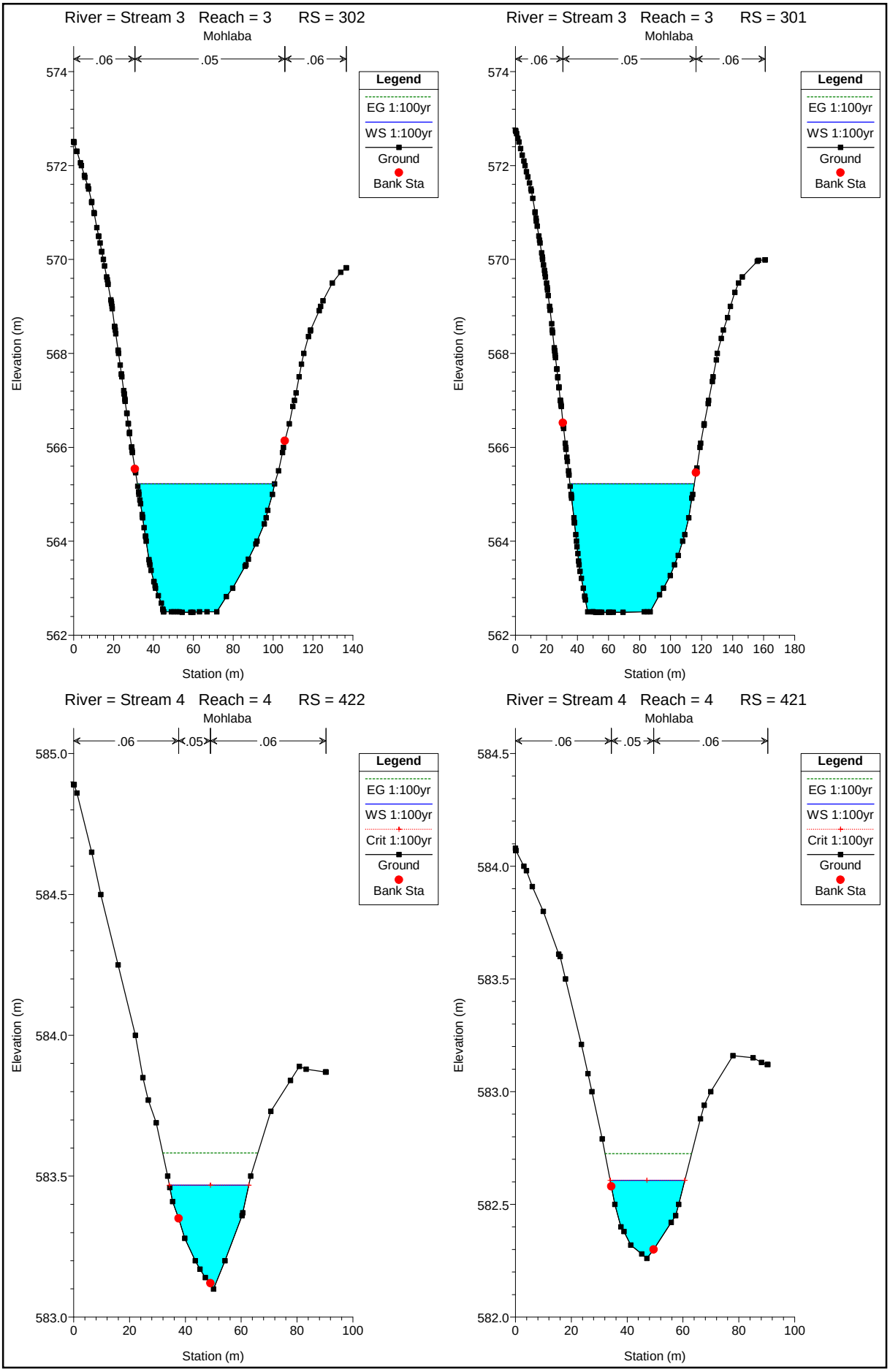

River = Stream 2U Reach = 2 RS = 803
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 2U Reach = 2 RS = 802
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 2U Reach = 2 RS = 801
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 3 Reach = 3 RS = 319
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

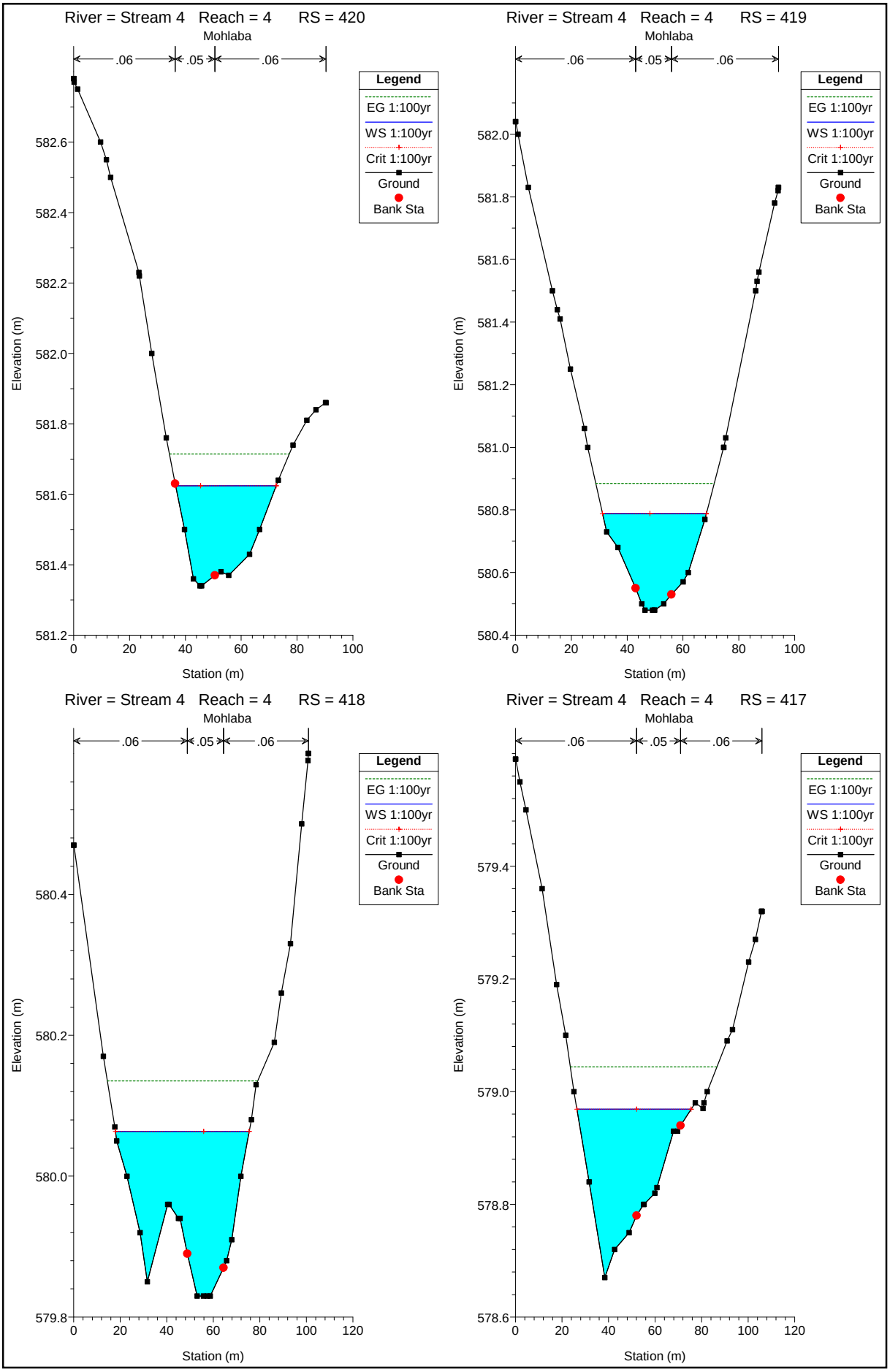

River = Stream 3 Reach = 3 RS = 318
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 3 Reach = 3 RS = 317
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 3 Reach = 3 RS = 316
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 3 Reach = 3 RS = 315
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

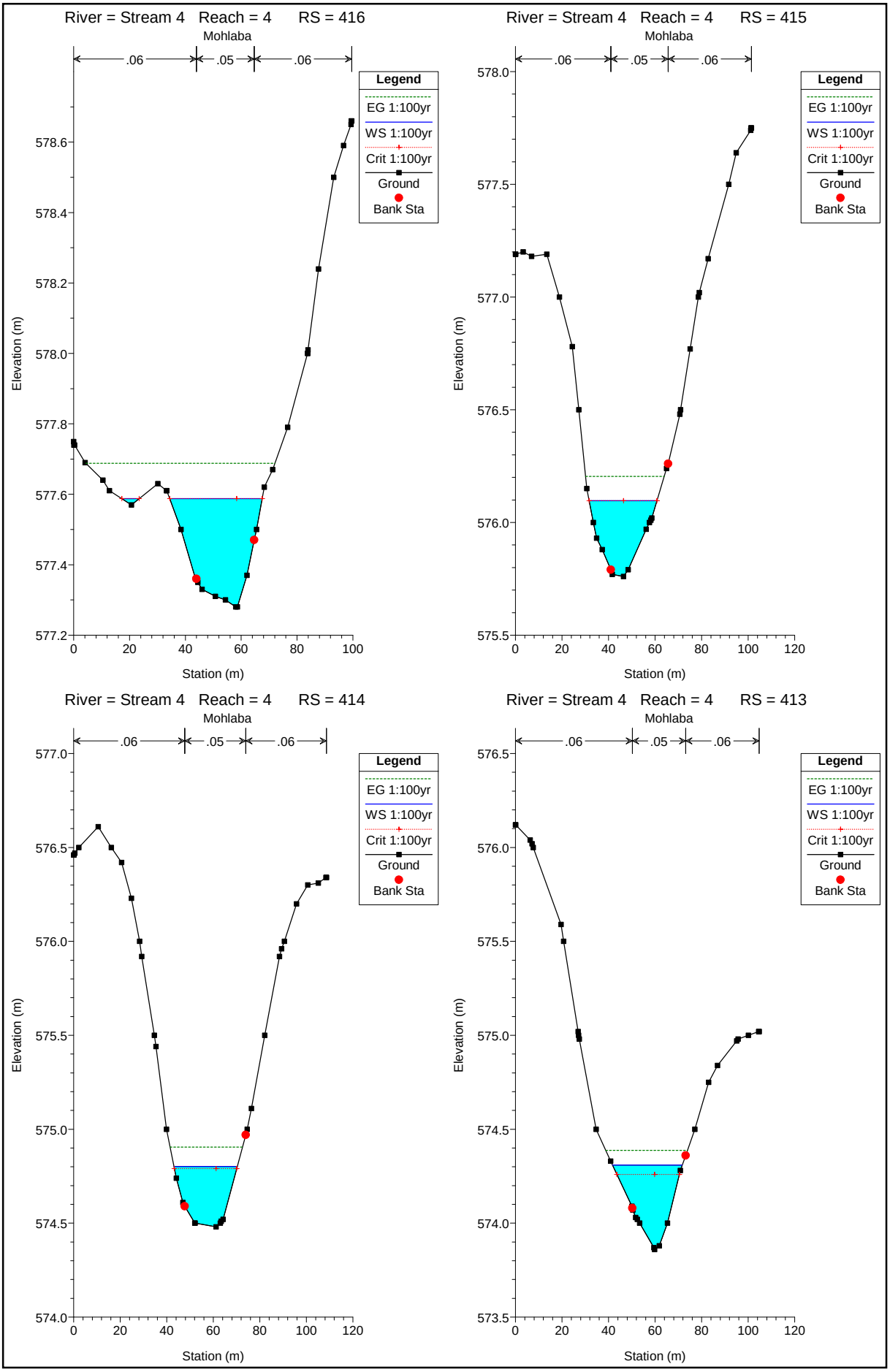

River = Stream 3 Reach = 3 RS = 314
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 3 Reach = 3 RS = 313
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 3 Reach = 3 RS = 312
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 3 Reach = 3 RS = 311
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

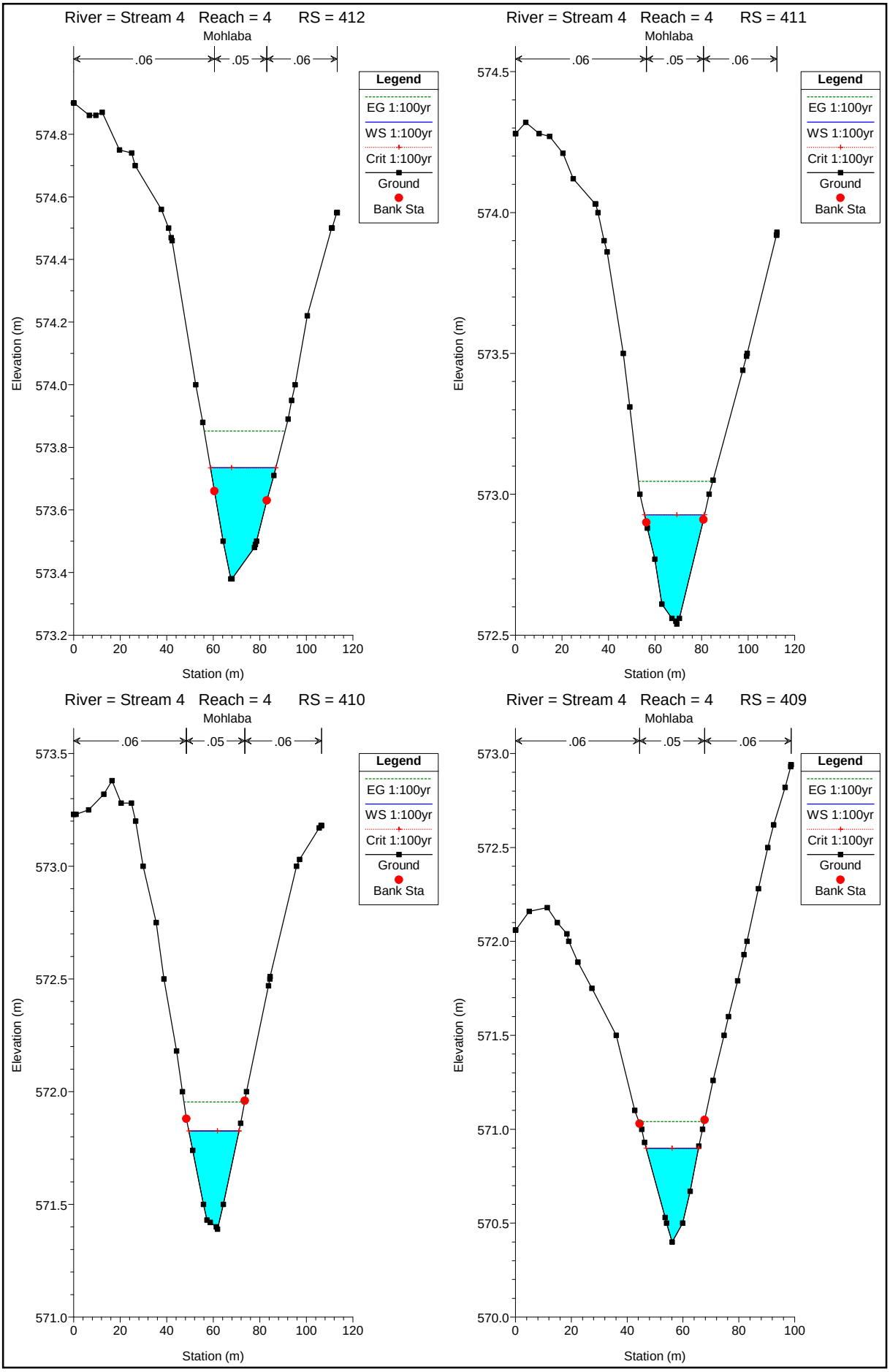

River = Stream 3 Reach = 3 RS = 310
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 3 Reach = 3 RS = 309
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 3 Reach = 3 RS = 308
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 3 Reach = 3 RS = 307
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

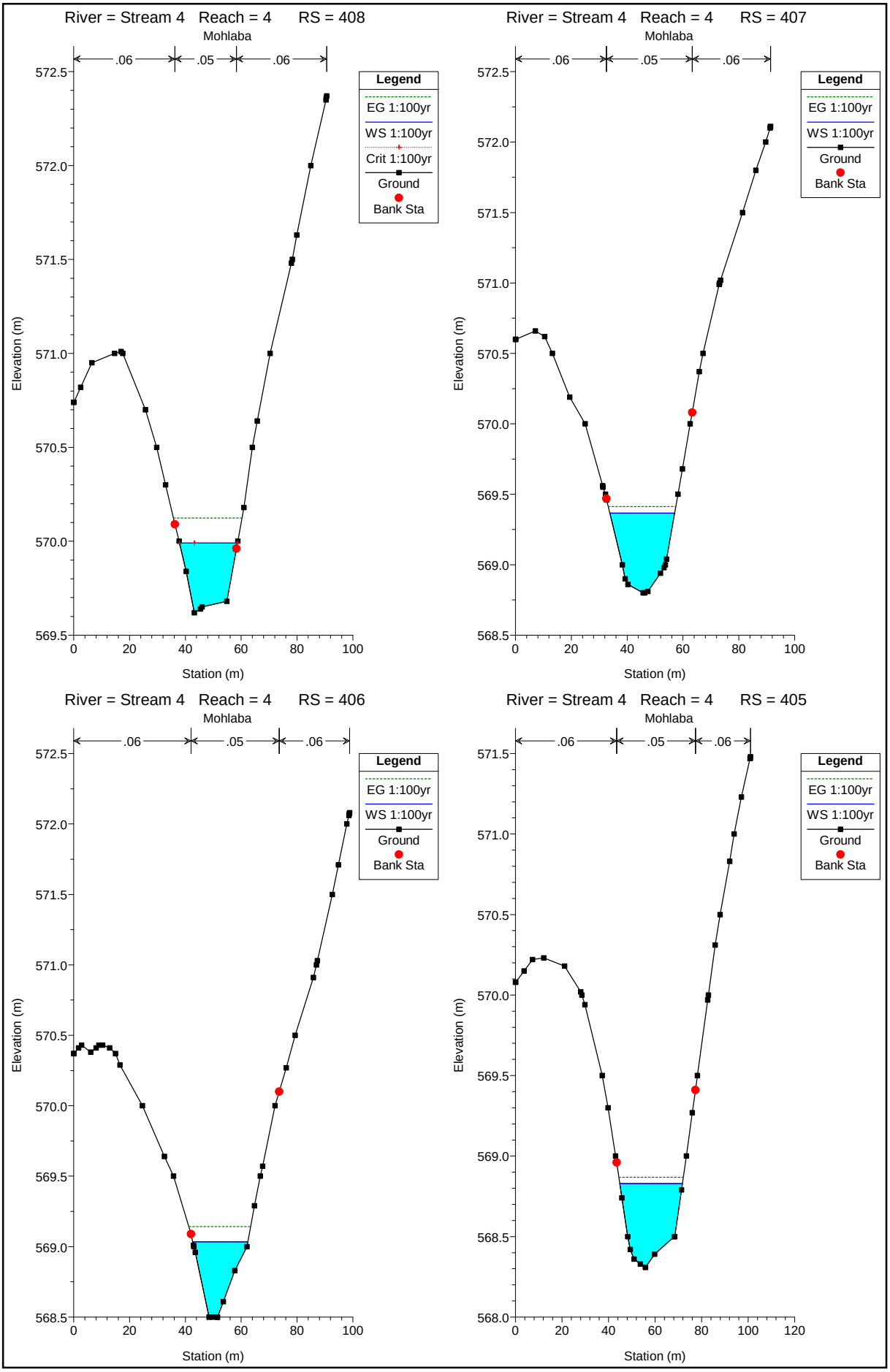

River = Stream 3 Reach = 3 RS = 306
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 3 Reach = 3 RS = 305
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 3 Reach = 3 RS = 304
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 3 Reach = 3 RS = 303
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

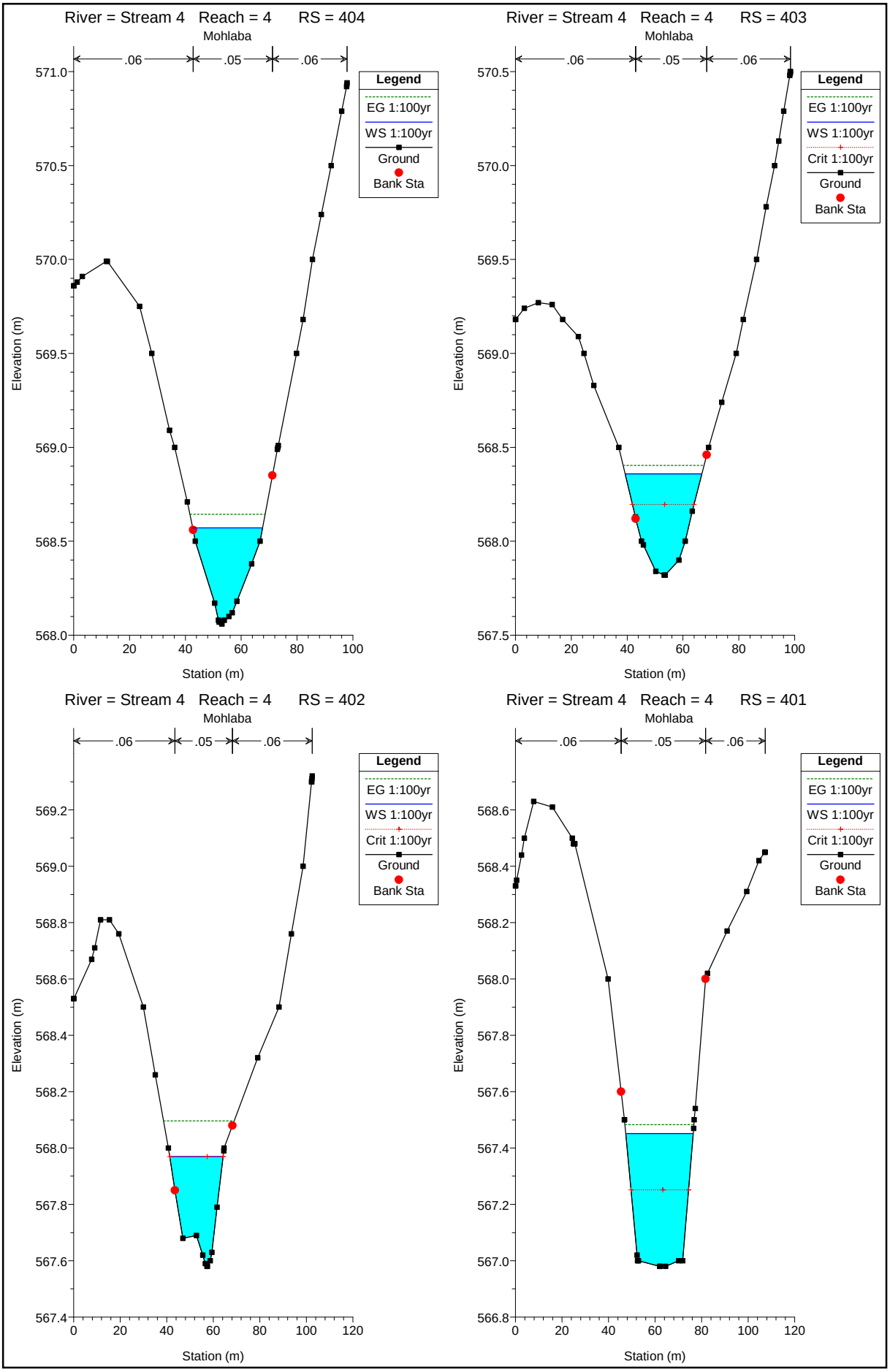

River = Stream 3 Reach = 3 RS = 302
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 3 Reach = 3 RS = 301
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 4 Reach = 4 RS = 422
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 4 Reach = 4 RS = 421
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

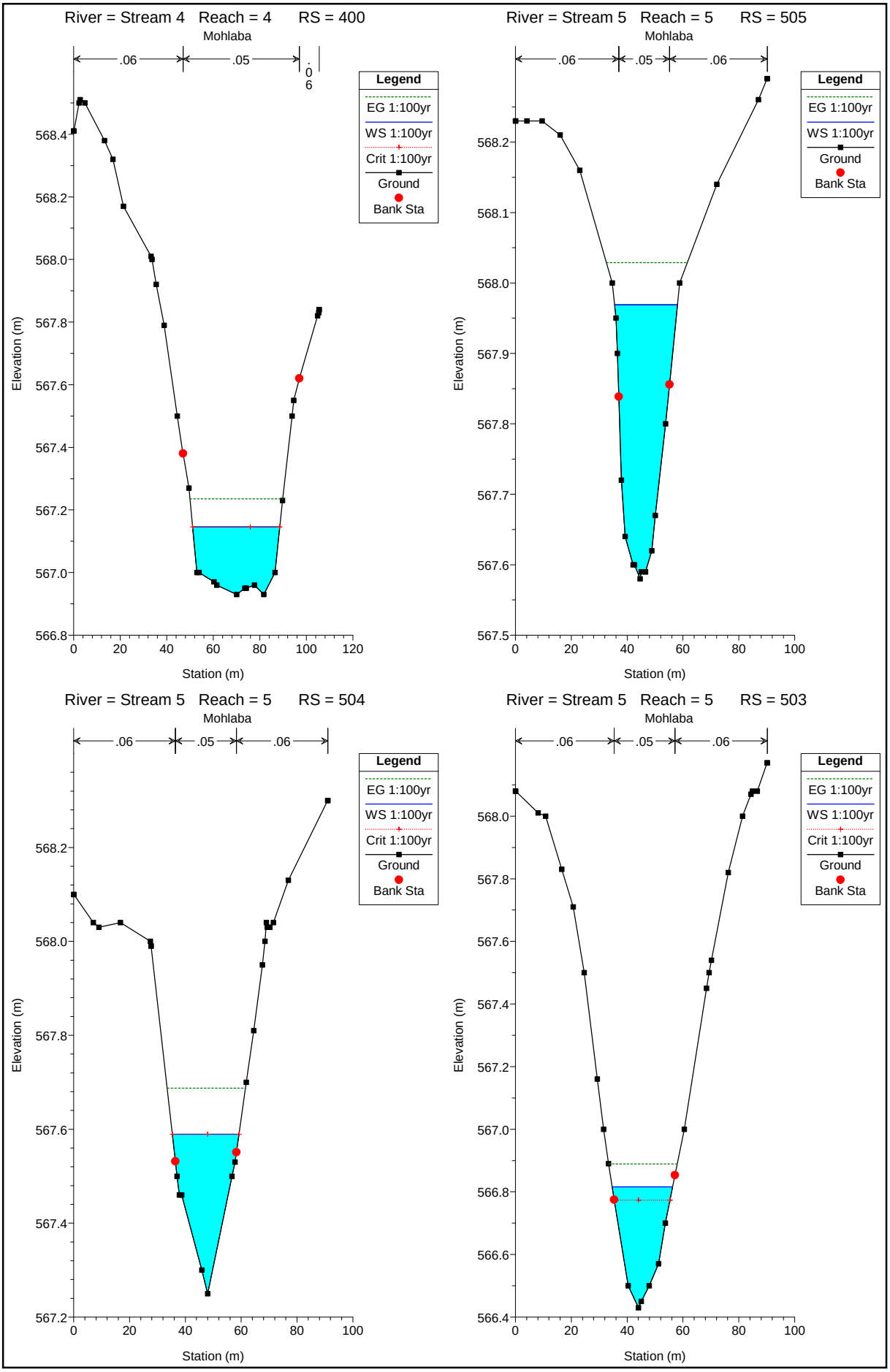

River = Stream 4 Reach = 4 RS = 420
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
582.6
582.4
582.2
582.0
581.8
581.6
581.4
581.2
0
20
40
60
80
100
Station (m)
River = Stream 4 Reach = 4 RS = 419
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
582.0
581.8
581.6
581.4
581.2
581.0
580.8
580.6
580.4
0
20
40
60
80
100
Station (m)
River = Stream 4 Reach = 4 RS = 418
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
580.4
580.2
580.0
579.8
0
20
40
60
80
100
120
Station (m)
River = Stream 4 Reach = 4 RS = 417
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
579.4
579.2
579.0
578.8
578.6
0
20
40
60
80
100
120
Station (m)


River = Stream 4 Reach = 4 RS = 416
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 4 Reach = 4 RS = 415
Mohlaba
River = Stream 4 Reach = 4 RS = 414
Mohlaba
River = Stream 4 Reach = 4 RS = 413
Mohlaba

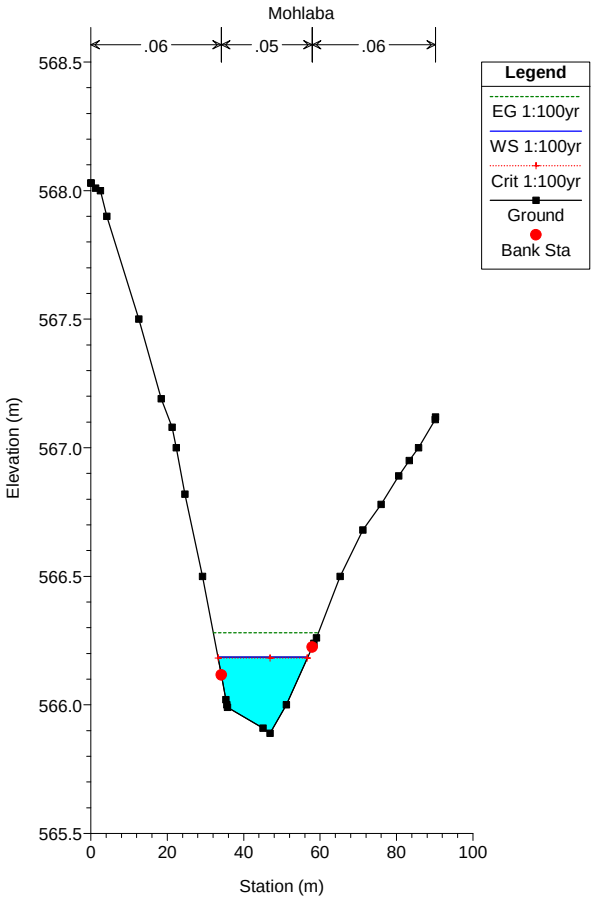

River = Stream 4 Reach = 4 RS = 412
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 4 Reach = 4 RS = 411
Mohlaba
River = Stream 4 Reach = 4 RS = 410
Mohlaba
River = Stream 4 Reach = 4 RS = 409
Mohlaba


River = Stream 4 Reach = 4 RS = 408
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 4 Reach = 4 RS = 407
Mohlaba
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 4 Reach = 4 RS = 406
Mohlaba
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 4 Reach = 4 RS = 405
Mohlaba
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

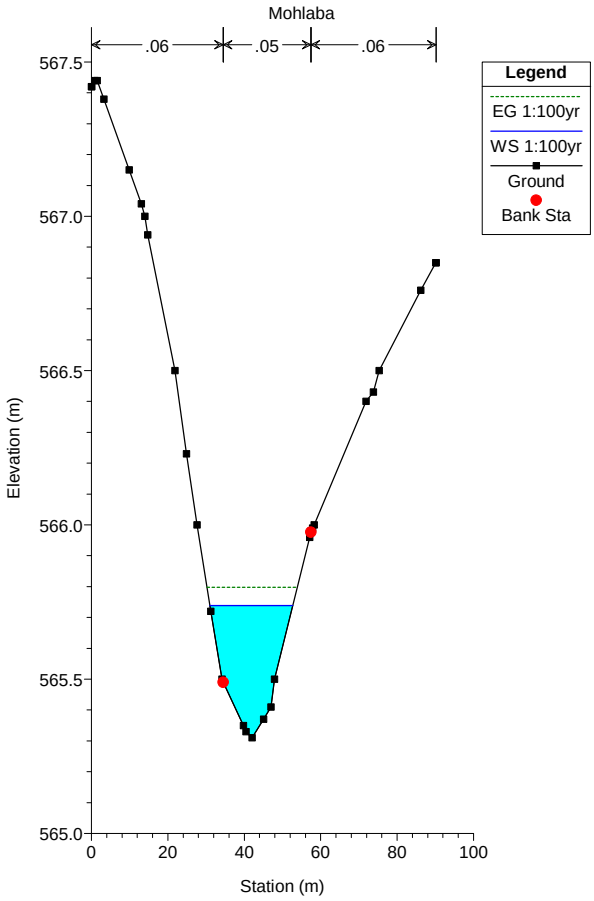

River = Stream 4 Reach = 4 RS = 404
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 4 Reach = 4 RS = 403
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 4 Reach = 4 RS = 402
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 4 Reach = 4 RS = 401
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)


River = Stream 4 Reach = 4 RS = 400
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 5 Reach = 5 RS = 505
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 5 Reach = 5 RS = 504
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 5 Reach = 5 RS = 503
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

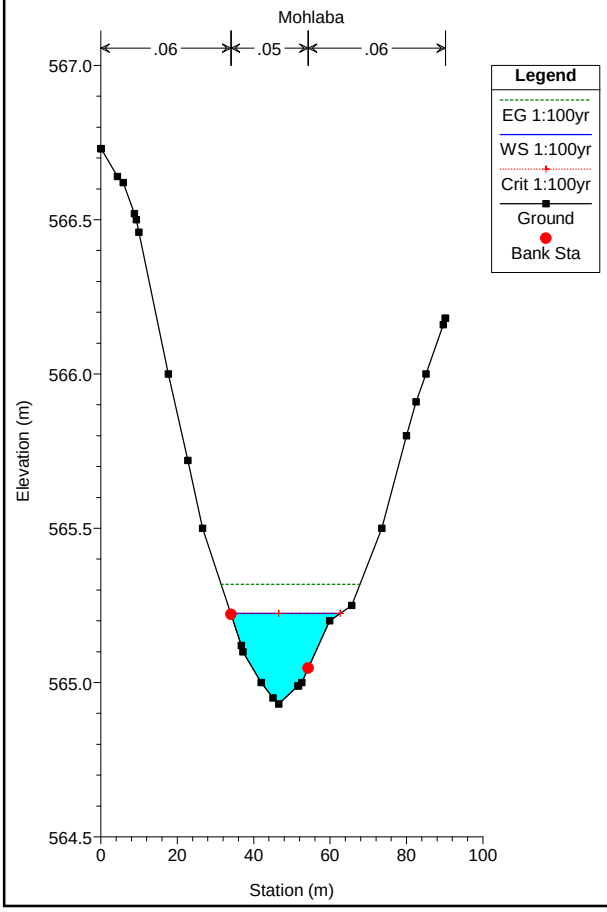
River = Stream 5 Reach = 5 RS = 502

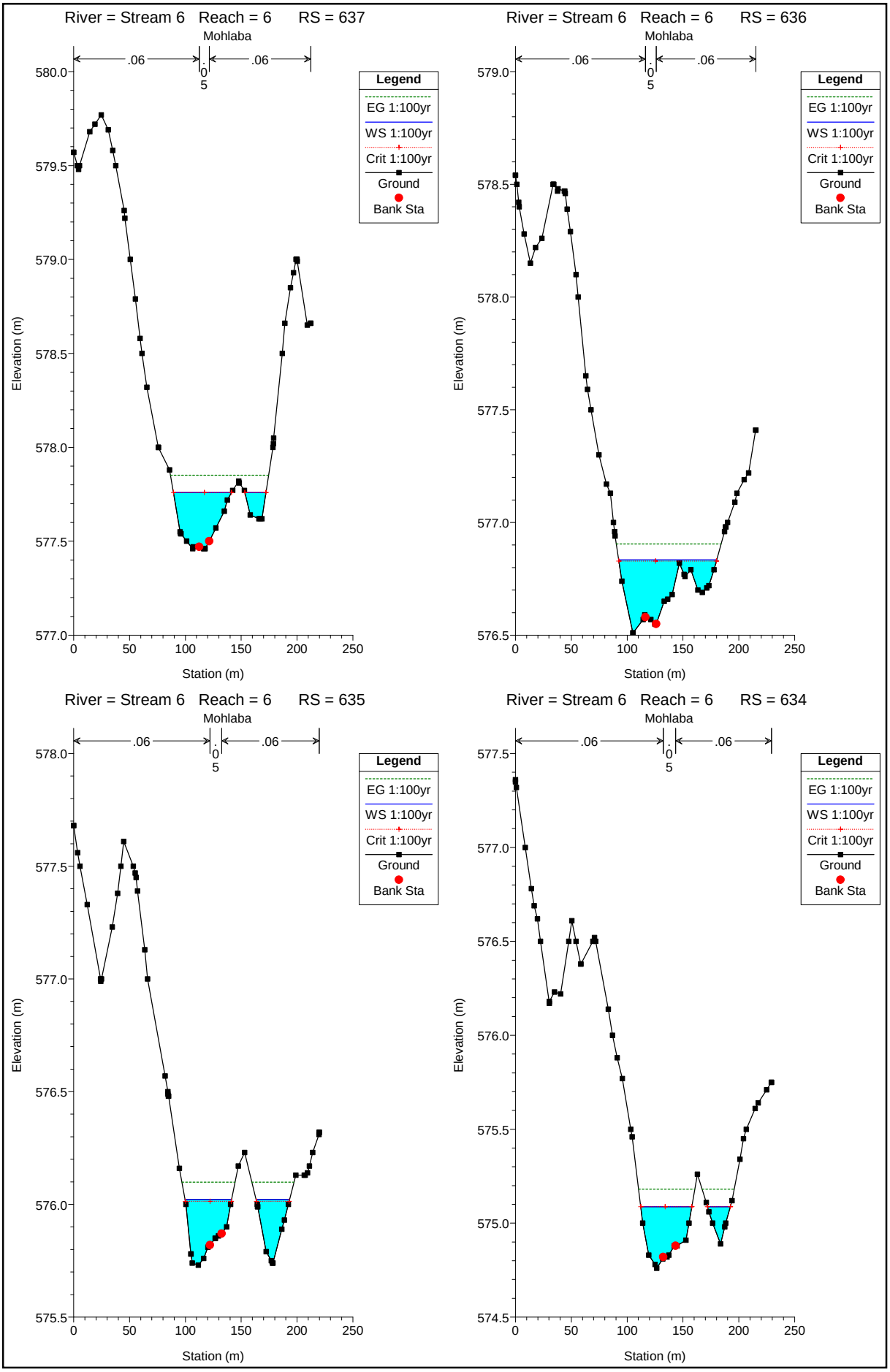


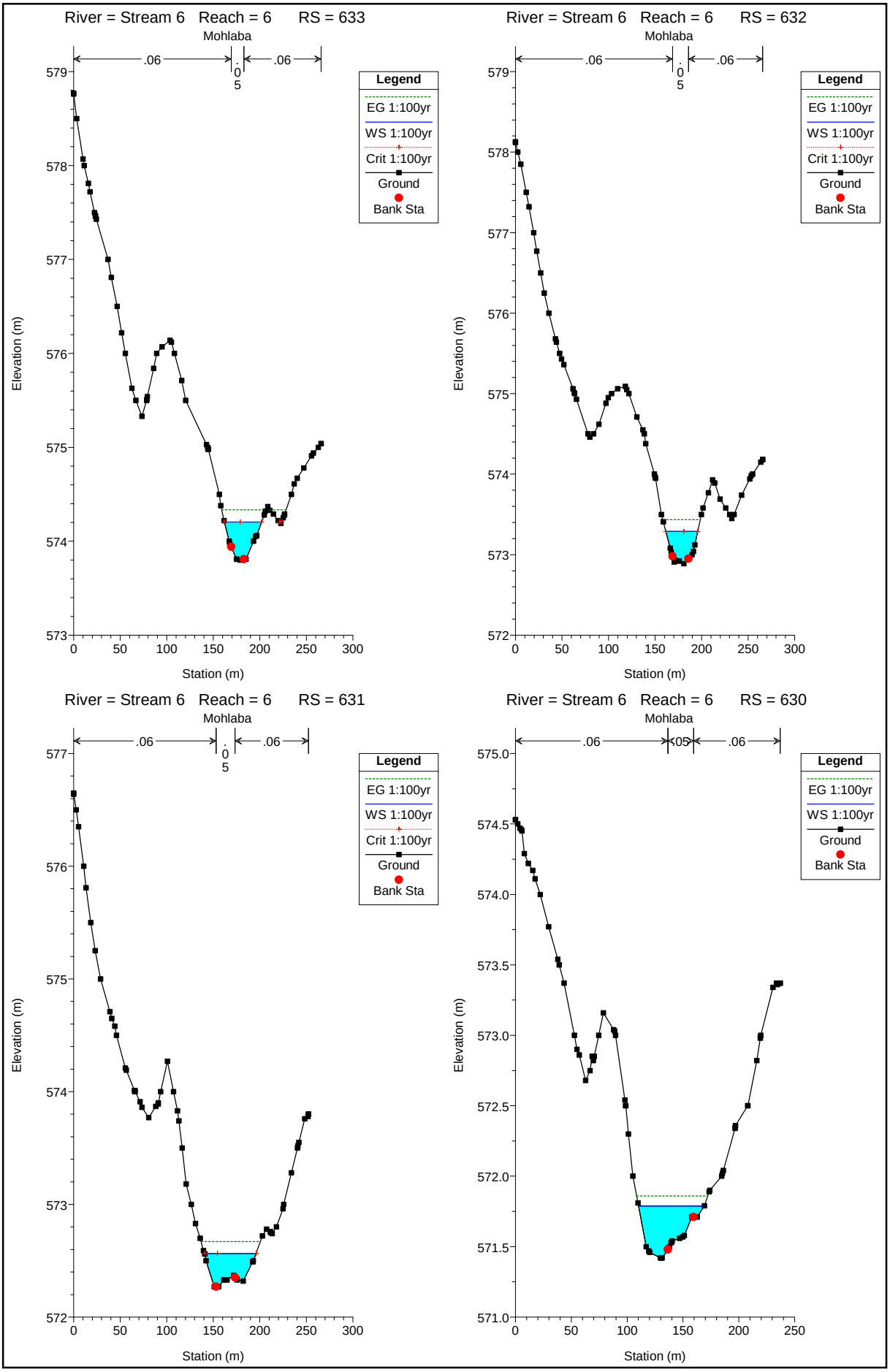
River = Stream 5 Reach = 5 RS = 501

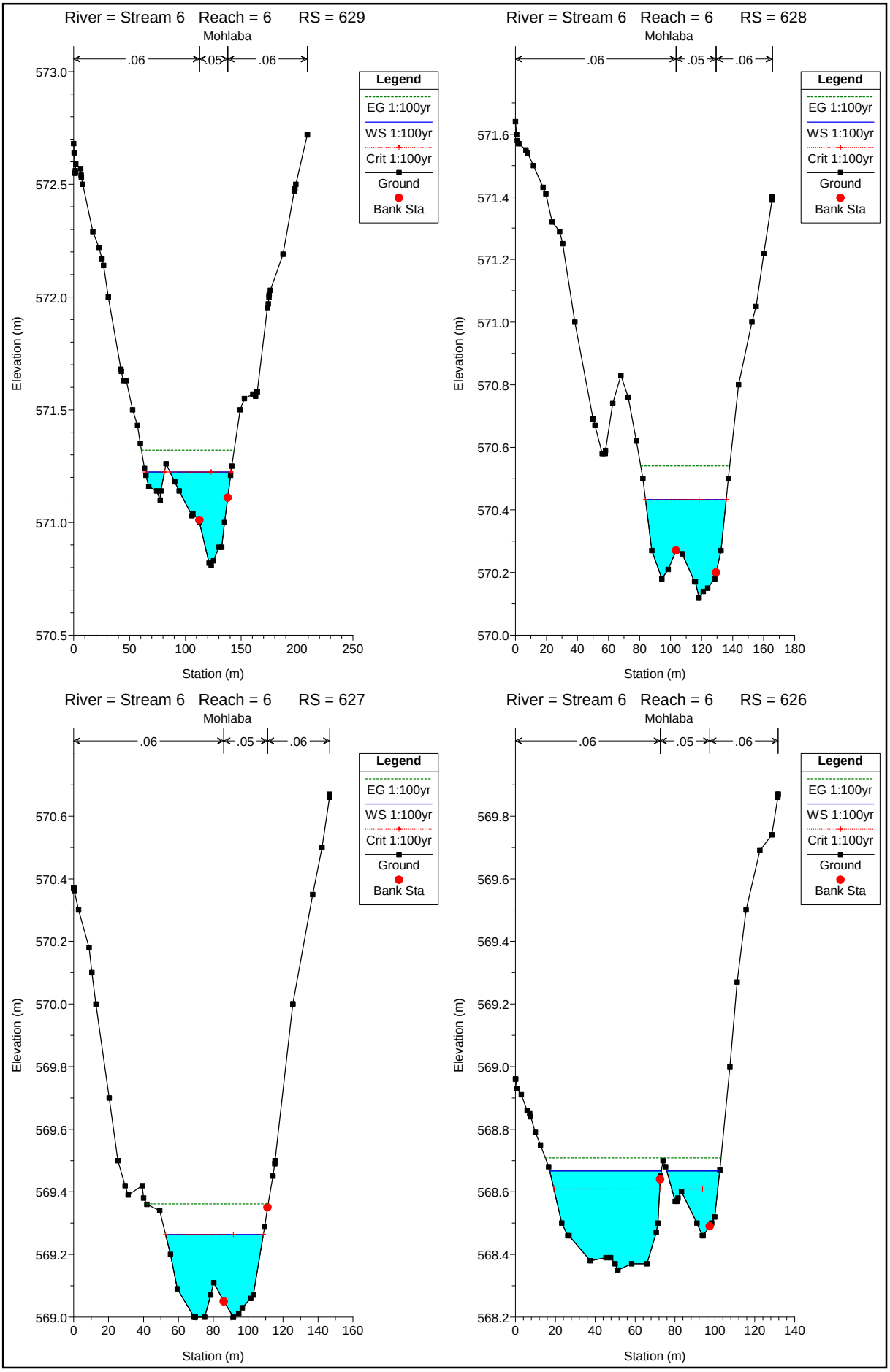


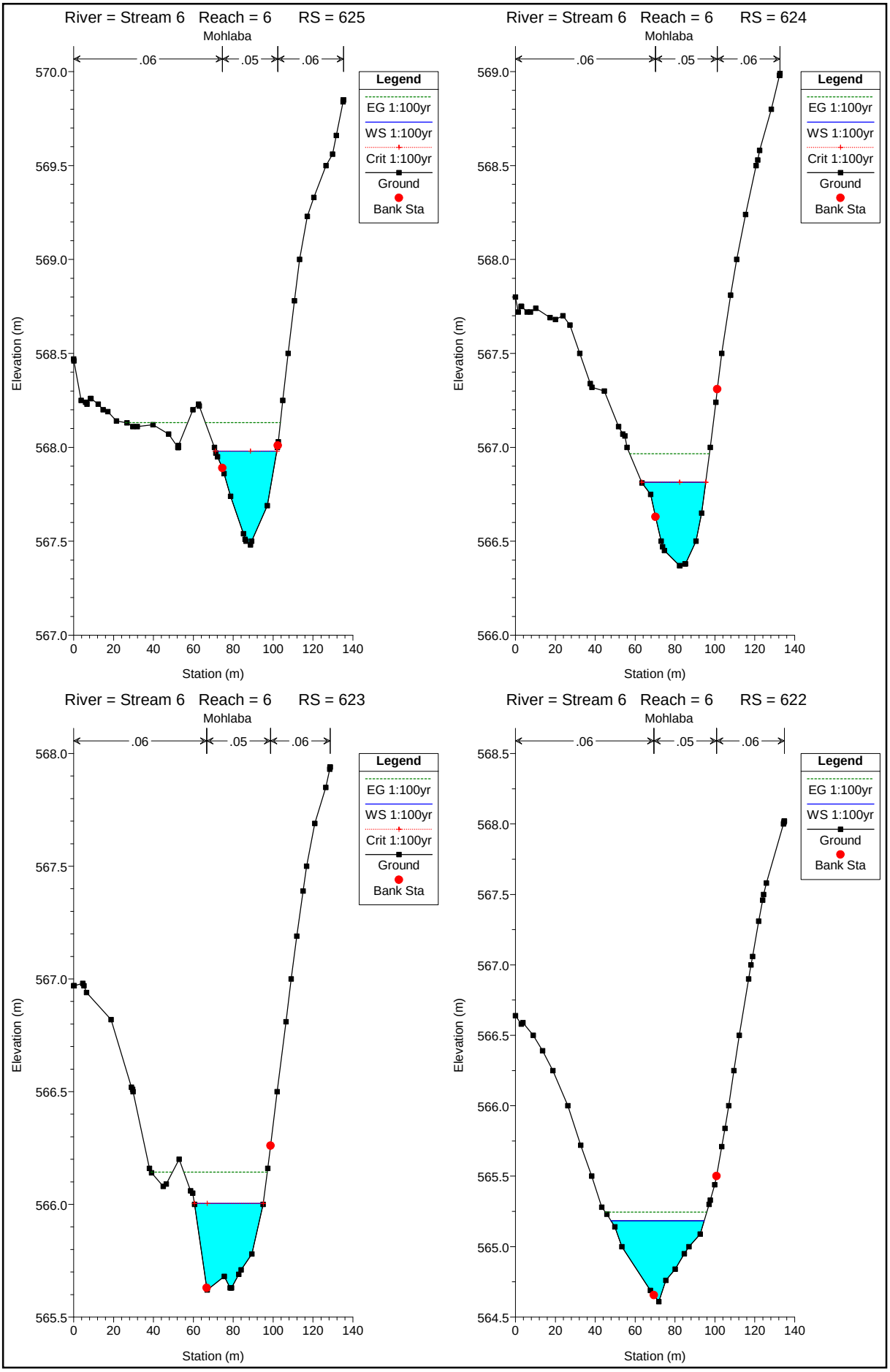
River = Stream 5 Reach = 5 RS = 500

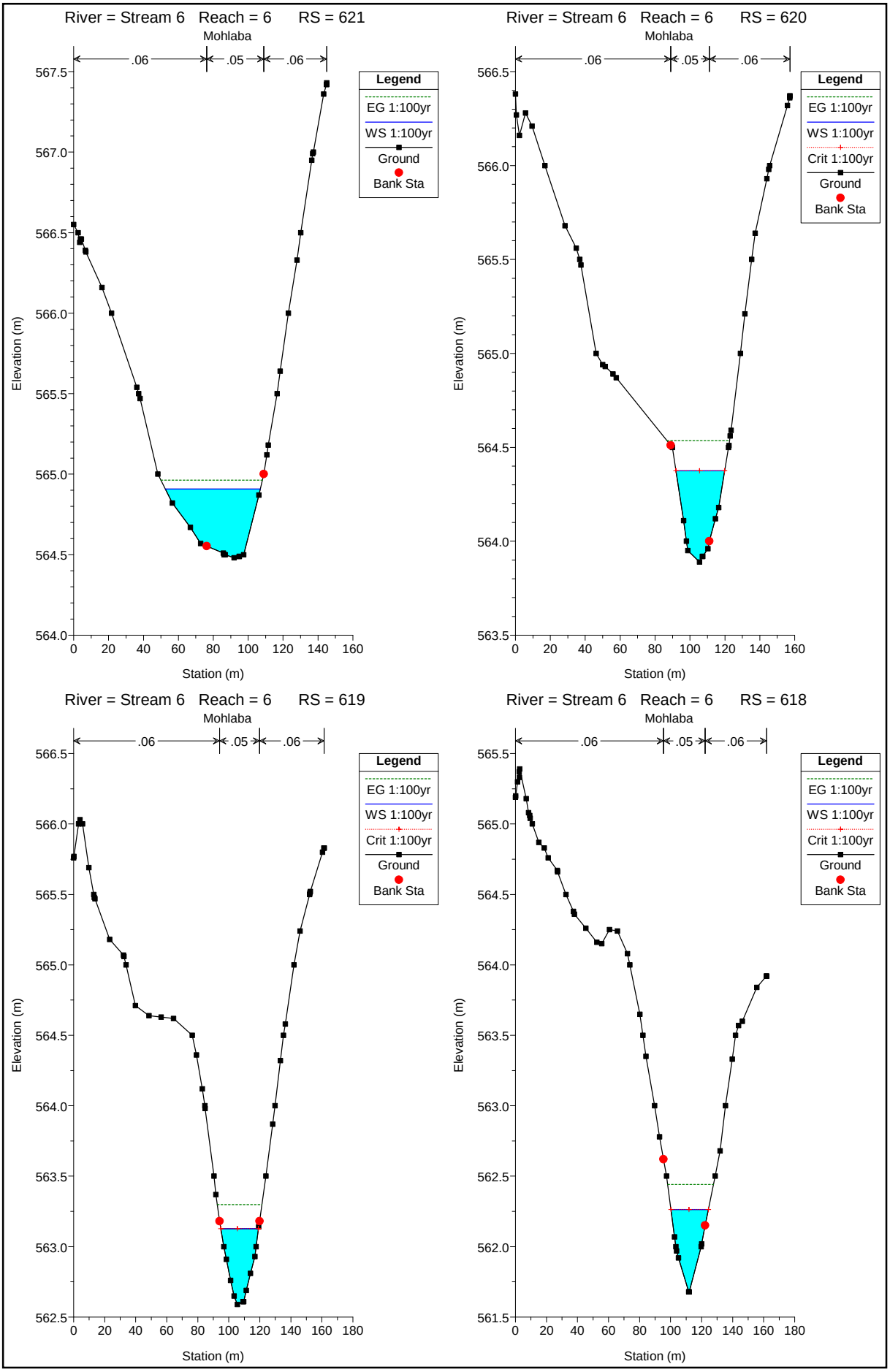


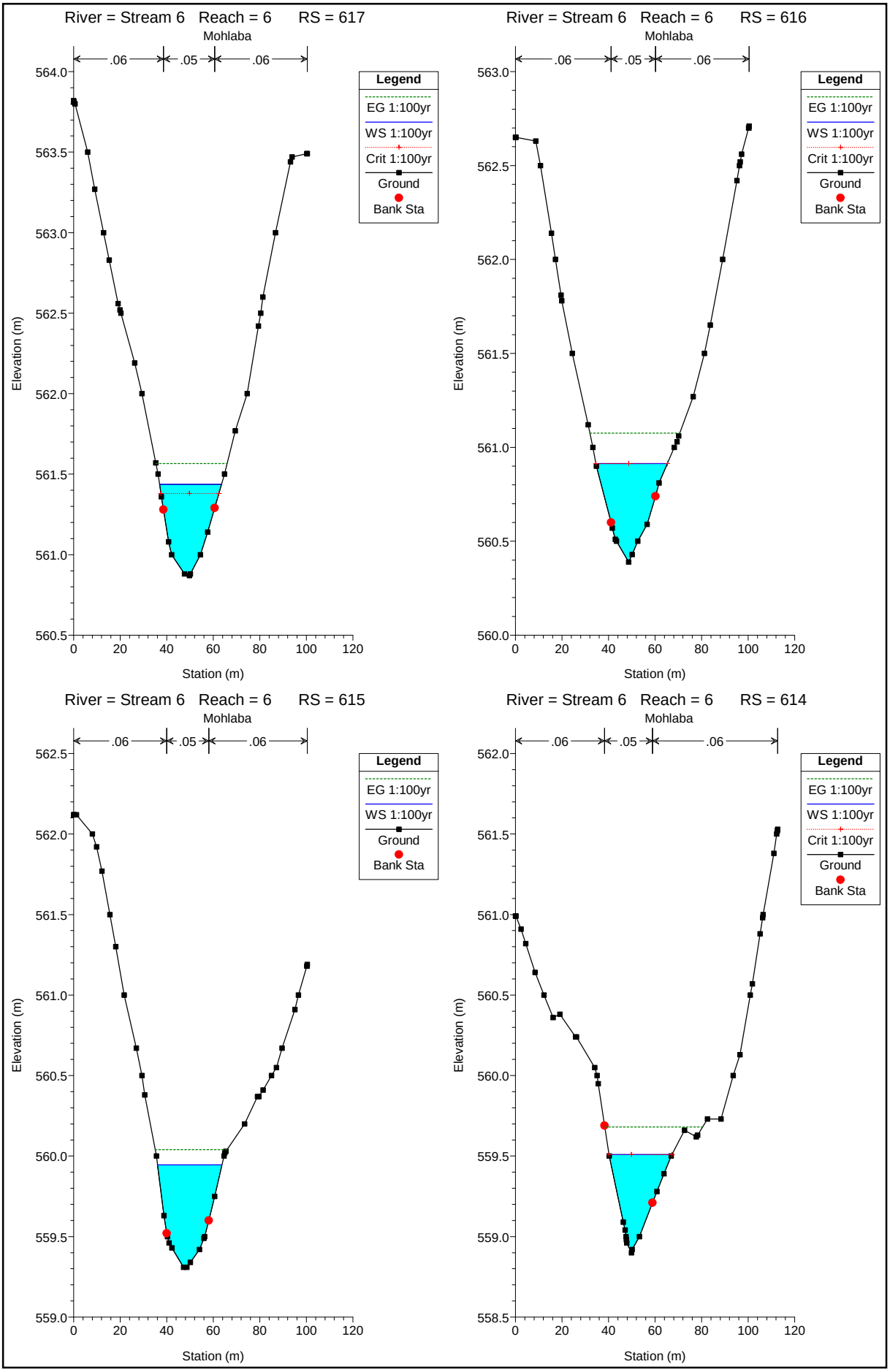

River = Stream 6 Reach = 6 RS = 637
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 636
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 635
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 634
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

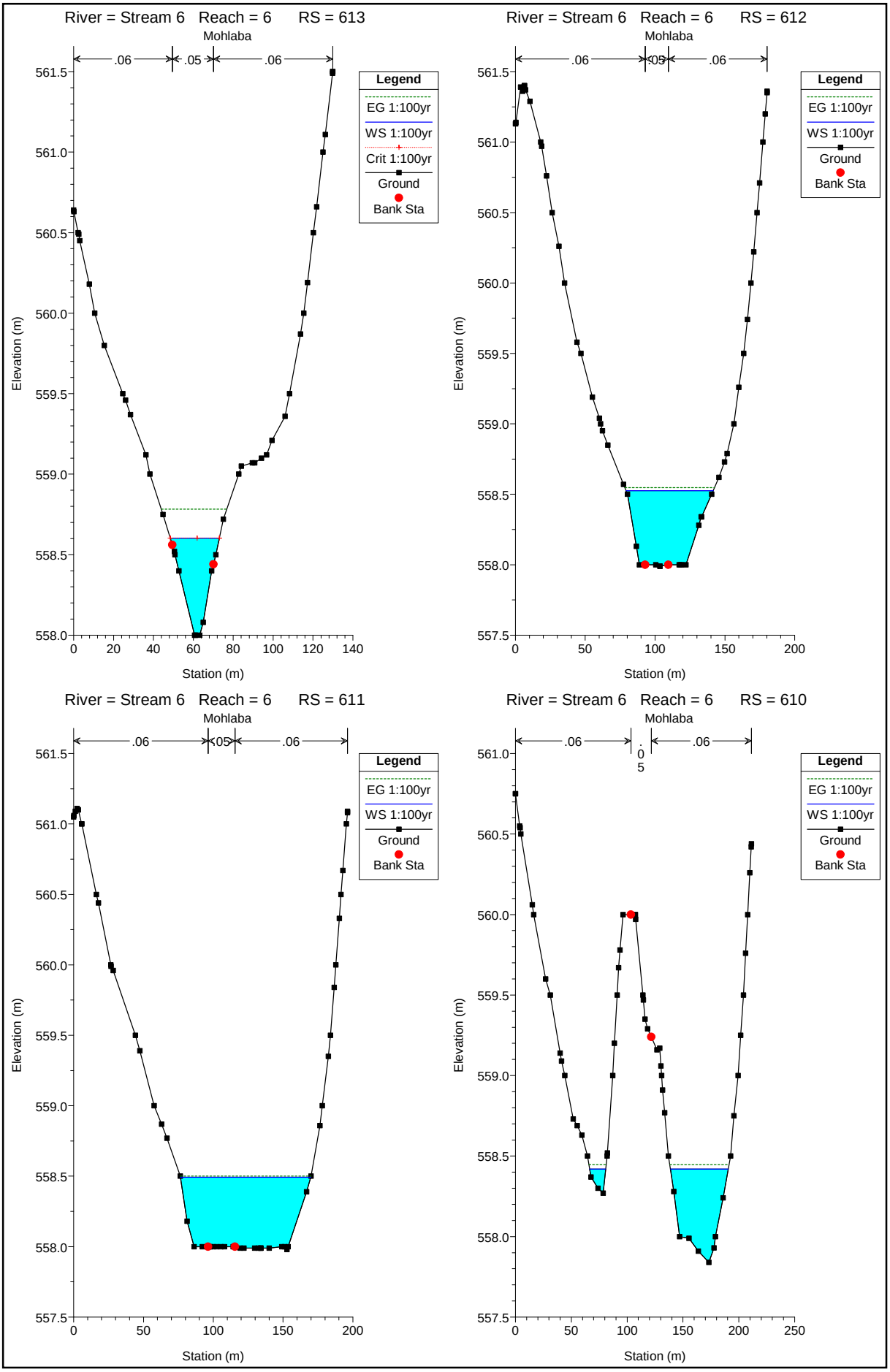

River = Stream 6 Reach = 6 RS = 633
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 632
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 631
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 630
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

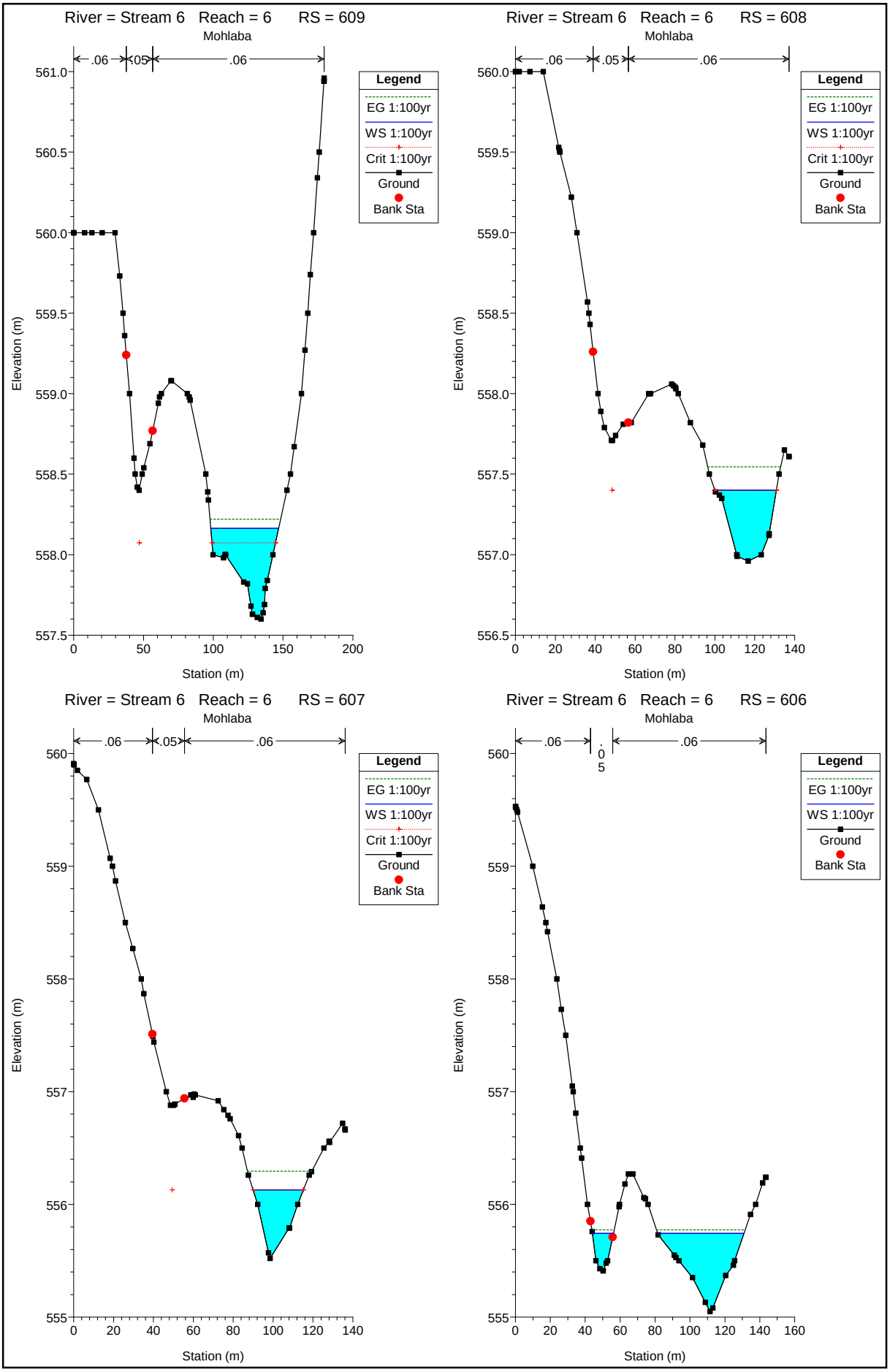

River = Stream 6 Reach = 6 RS = 629
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 628
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 627
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 626
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

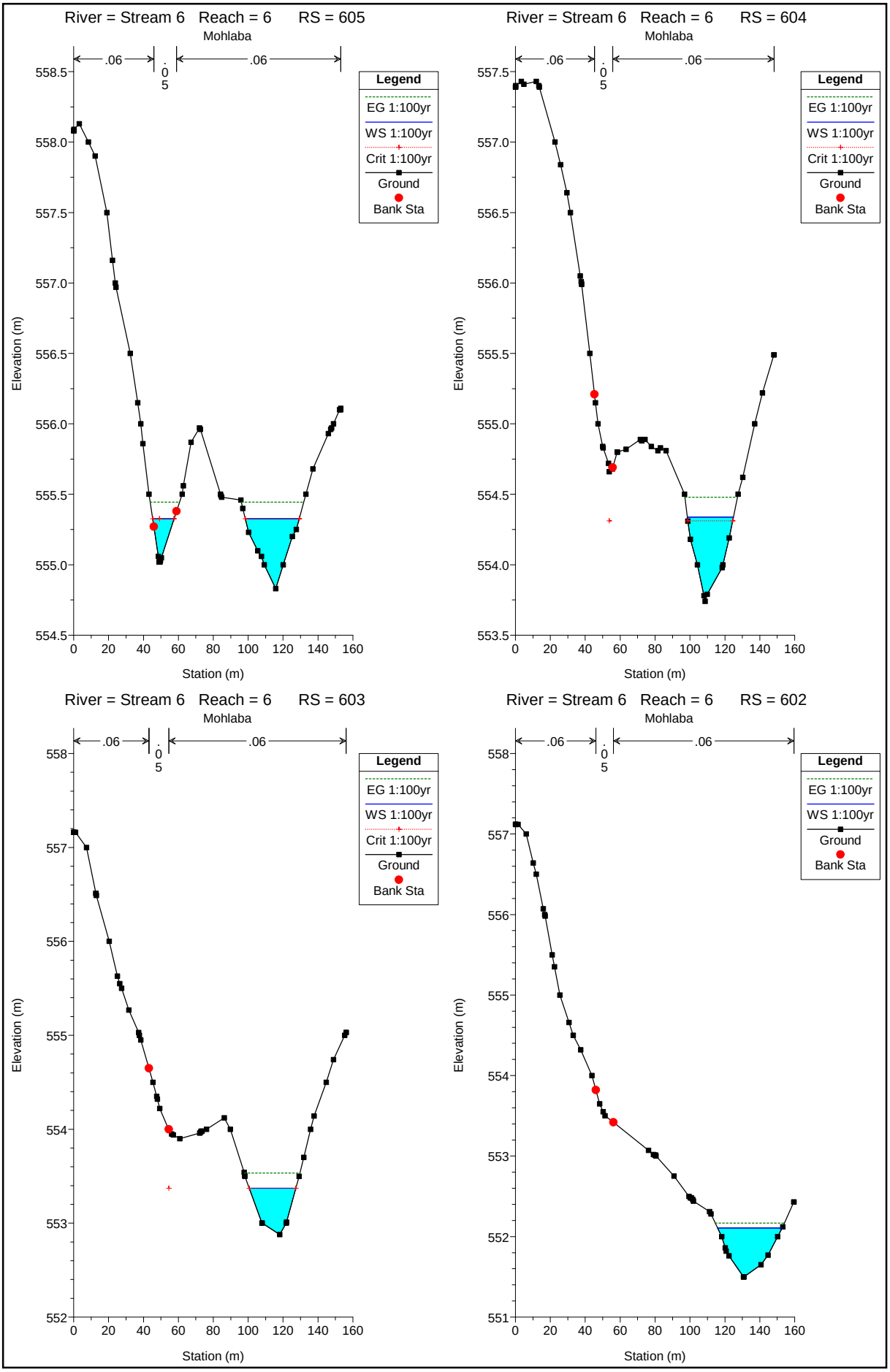

River = Stream 6 Reach = 6 RS = 625
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 624
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 623
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 622
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

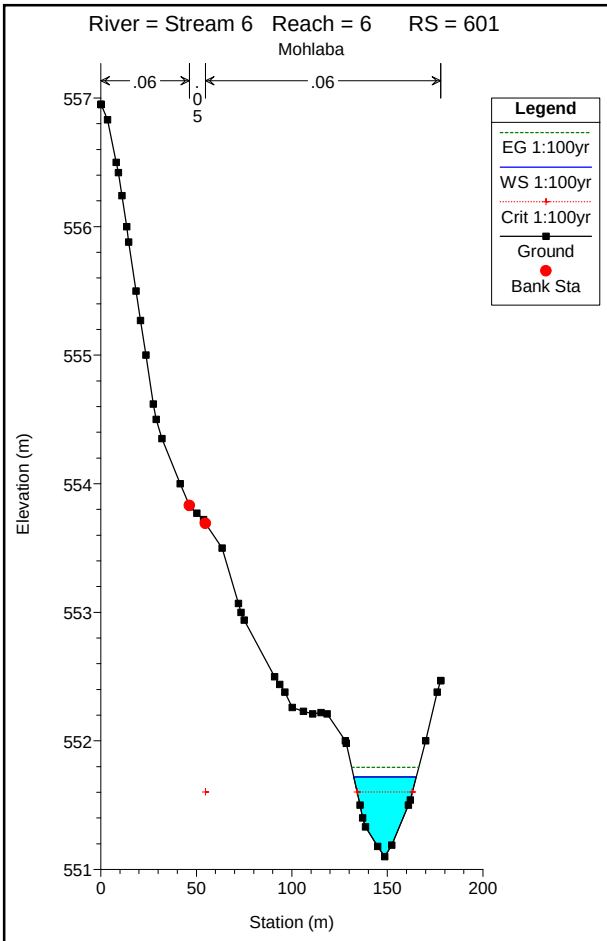

River = Stream 6 Reach = 6 RS = 621
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 620
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 619
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 618
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

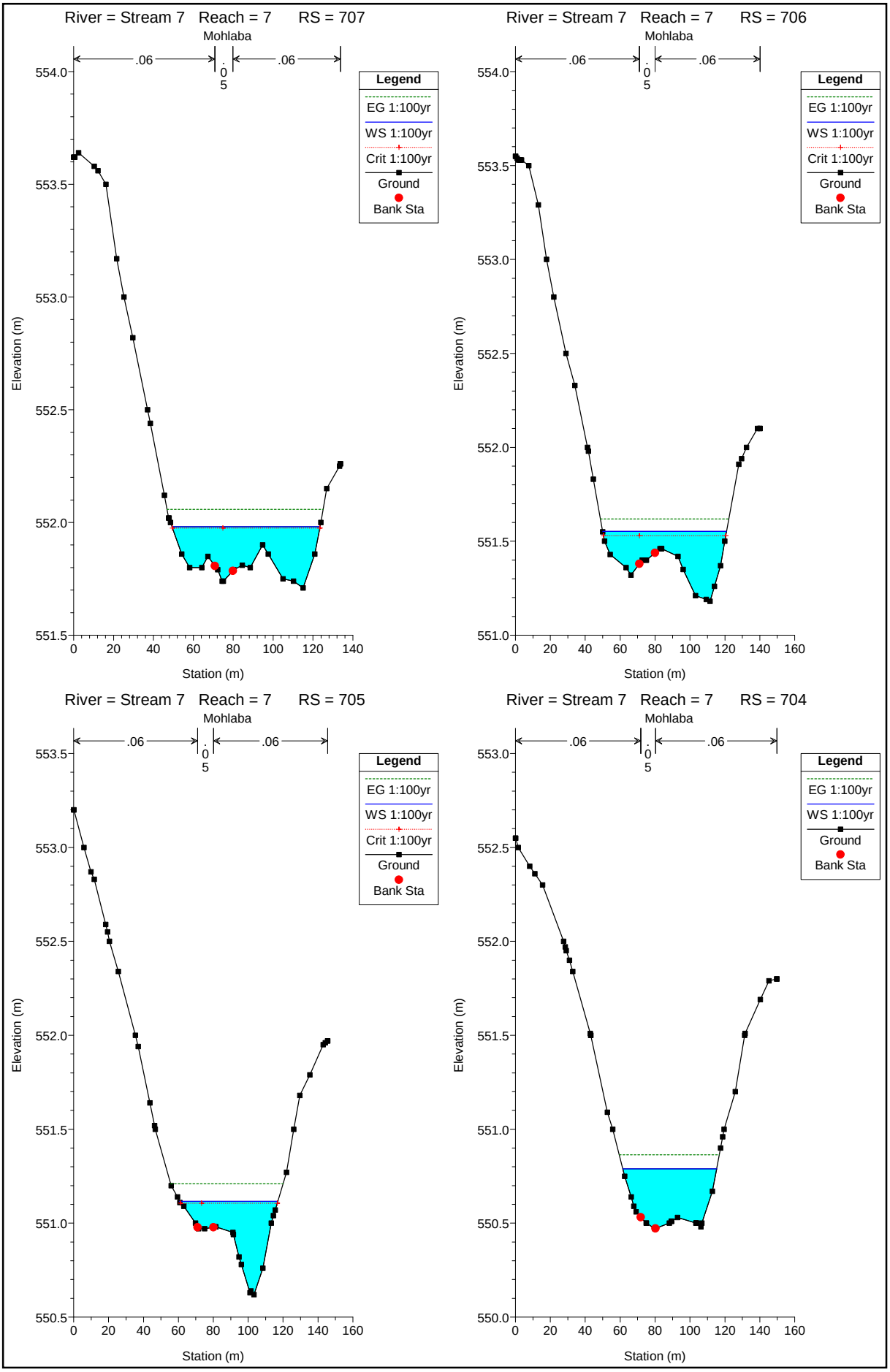

River = Stream 6 Reach = 6 RS = 617
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 616
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 615
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 614
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)

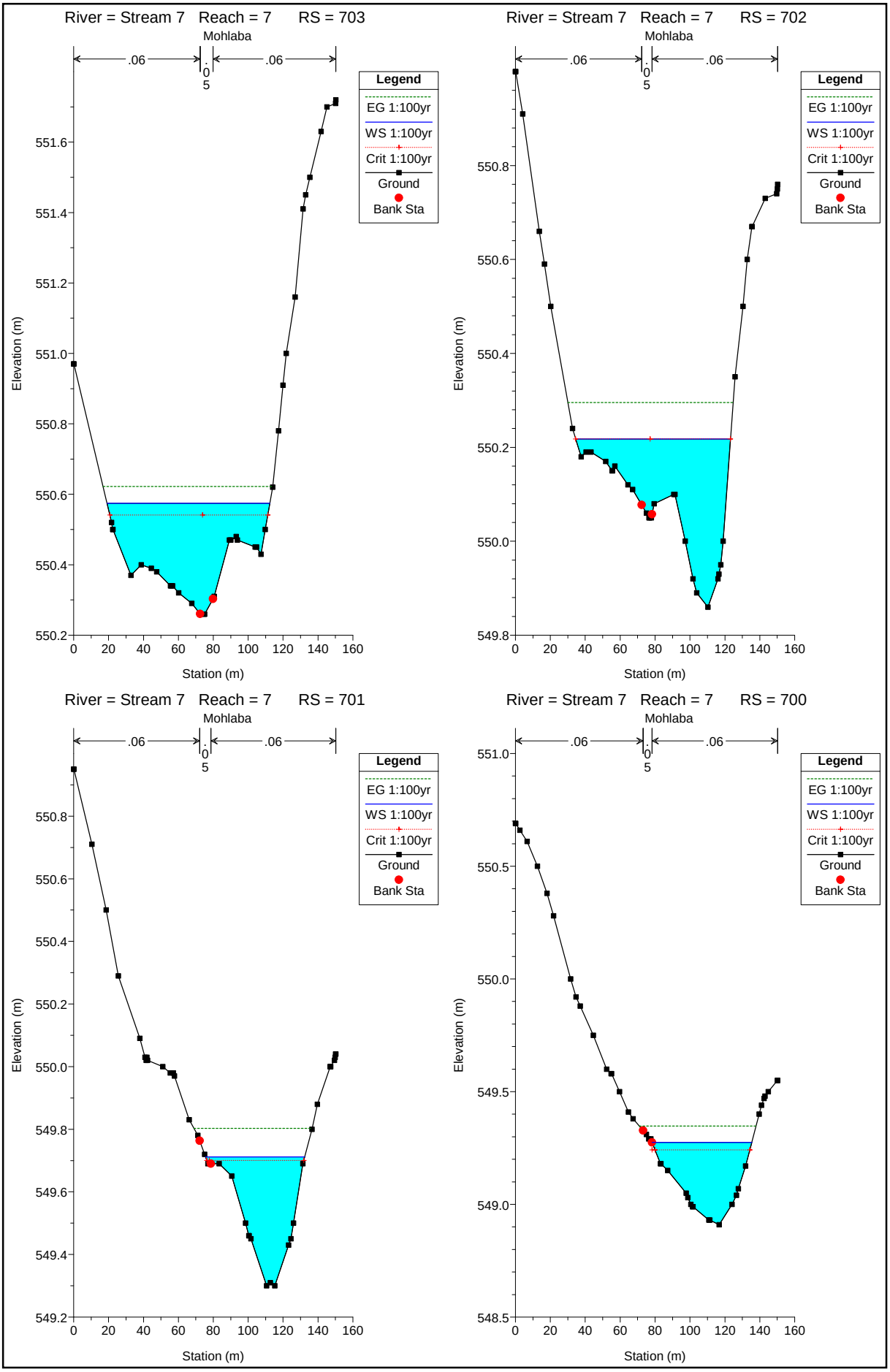

River = Stream 6 Reach = 6 RS = 613
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 612
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 611
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 610
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)


River = Stream 6 Reach = 6 RS = 609
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 608
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 607
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 606
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)


River = Stream 6 Reach = 6 RS = 605
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 6 Reach = 6 RS = 604
Mohlaba
River = Stream 6 Reach = 6 RS = 603
Mohlaba
River = Stream 6 Reach = 6 RS = 602
Mohlaba


River = Stream 6 Reach = 6 RS = 601
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
557
556
555
554
553
552
551
0
50
100
150
200


River = Stream 7 Reach = 7 RS = 707
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 7 Reach = 7 RS = 706
River = Stream 7 Reach = 7 RS = 705
River = Stream 7 Reach = 7 RS = 704


River = Stream 7 Reach = 7 RS = 703
Mohlaba
.06
.05
.06
Legend
EG 1:100yr
WS 1:100yr
Crit 1:100yr
Ground
Bank Sta
Elevation (m)
Station (m)
River = Stream 7 Reach = 7 RS = 702
River = Stream 7 Reach = 7 RS = 701
River = Stream 7 Reach = 7 RS = 700