



**COUNTY OF ORANGE
OC PUBLIC WORKS DEPARTMENT
SANTA ANA, CALIFORNIA**

JAMES TREADAWAY, DIRECTOR

**2023
ORCHARD ESTATES CANYON RETARDING BASIN
SCOUR STUDY**

Prepared by:

**KEVIN HILLS, COUNTY SURVEYOR
COUNTY OF ORANGE PUBLIC WORKS
SURVEY FIELD UNIT**

ORANGE COUNTY BOARD OF SUPERVISORS

ANDREW DO, Vice Chair

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Fifth District**

2023
SCOUR STUDY

ORCHARD ESTATES RETARDING BASIN
(F26B02)

STATION 10+00 TO 20+00

AS-BUILT PLANS: F16B02

NOTE: BASIS OF SPILLWAY CREST ELEVATION WAS
DERIVED FROM O&M MANUAL DATED MAY 2003 ALL
ELEVATIONS HAVE BEEN ADJUSTED FROM NGVD29
DATUM TO NAVD88 DATUM, WITH AN ADDITIONAL
+0.15' ADJUSTMENT FOR MSL (MEAN SEA LEVEL).

VERTICAL DATUM
NAVD 1988/O.C.S. 1995 ADJUSTMENT

Office Check by:	Michael LaFontaine, PLS, Deputy County Surveyor Elliott Medina, PLS, Senior Land Surveyor
Field Data Provided by:	OCS, UAV Unit
Survey Party Chief:	Kevin Martinez, Surveyor III
Computer processing done by:	Kevin Martinez, Surveyor III

COUNTY of ORANGE
OC PUBLIC WORKS DEPARTMENT

OC SURVEY SERVICE AREA
FIELD UNIT

2023 SCOURS STUDY - (AS-BUILT) - VOLUME REPORT

ORCHARD ESTATES RETARDING BASIN (F26B02), STATION 10+00 to 20+00

ALIGNMENT: ORCHARD ESTATES BASIN CONTROL LINE

SURFACE 1: EG_ORCHARD BASIN_UAV_LIDAR_2023 (2023 Ground NAVD88)

SURFACE 2: OrchardBasin_AsBuilt NAVD88(As-Built Plan Template, NAVD88)

BASELINE STATION NUMBER	STATION CUT AREA	STATION CUT VOLUME	STATION FILL AREA	STATION FILL VOLUME	MASS ORDINATE VOLUME
10+00	35.69	0.00	36.76	0.00	35.69
10+50	76.54	101.54	34.41	65.88	46.35
11+00	86.85	151.19	29.89	59.48	73.72
11+50	157.93	223.4	41.83	66.09	165.56
12+00	310.94	426.22	81.49	112.16	364.34
12+50	233.76	502.66	128.36	192.67	405.43
13+00	138.19	340.54	304.26	389.04	154.58
13+50	176.21	290.4	295.45	555.26	-224.47
14+00	189.44	338.49	436.7	673.67	-708.7
14+50	300.12	449.38	490.46	858	-1266.58
15+00	283.29	540.12	95.52	495.33	-1478.62
15+50	460.46	682.05	18.33	96.11	-1114.27
16+00	524.83	911.65	8.52	24.29	-613.73
16+50	571.04	1014.39	10.62	17.69	-60.38
17+00	578.56	1064.44	12.49	21.38	496.8
17+50	585.21	1077.56	4.67	15.31	1066.7
18+00	495.34	999.36	9.55	12.9	1549.14
18+50	597.98	1010.84	19.91	26.7	2120.42
19+00	628.5	1135.52	32.97	48.46	2700.46

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BASELINE STATION NUMBER	STATION CUT AREA	STATION CUT VOLUME	STATION FILL AREA	STATION FILL VOLUME	MASS ORDINATE VOLUME
19+50	208.96	740.66	10.61	38.44	2870.98
20+00	43.06	214.12	31.33	37.14	2876.9

CUT: 12,214.53 Cu.Yds. FILL: 3,806.00 Cu.Yds. NET: 8,408.53 Cu.Yds.					

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2023 SCOURS STUDY – % OF MAX. CAPACITY -VOLUME REPORT

ORCHARD ESTATES RETARDING BASIN (F26B02) , STATION 10+00 to 20+00

STATION	CUT AREA	CUT VOLUME	FILL AREA	FILL VOLUME	% of CAPACITY
10+00	35.69	0.00	126144	0.00	0%
10+50	76.54	101.54	2930.98	3774.81	2.69%
11+00	86.85	151.19	3644.86	6076.74	2.49%
11+50	157.93	223.4	5823.33	8688.44	2.57%
12+00	310.94	426.22	8138.53	12867.98	3.31%
12+50	233.76	502.66	8592.69	15489.97	3.25%
13+00	138.19	340.54	7980.59	15342.14	2.22%
13+50	176.21	290.4	7408.16	14245.56	2.04%
14+00	189.44	338.49	7093.35	13426.26	2.52%
14+50	300.12	449.38	7308.55	13334.59	3.37%
15+00	283.29	540.12	9524.02	15540.52	3.48%
15+50	460.46	682.05	11634.66	19558.79	3.49%
16+00	524.83	911.65	10954.97	20913.17	4.36%
16+50	571.04	1014.39	9647.81	19063.84	5.32%
17+00	578.56	1064.44	8449.91	16744.9	6.36%
17+50	585.21	1077.56	7581.62	14836.75	7.26%
18+00	495.34	999.36	6929.11	13431.33	7.44%
18+50	597.98	1010.84	6519.01	12450.04	8.12%

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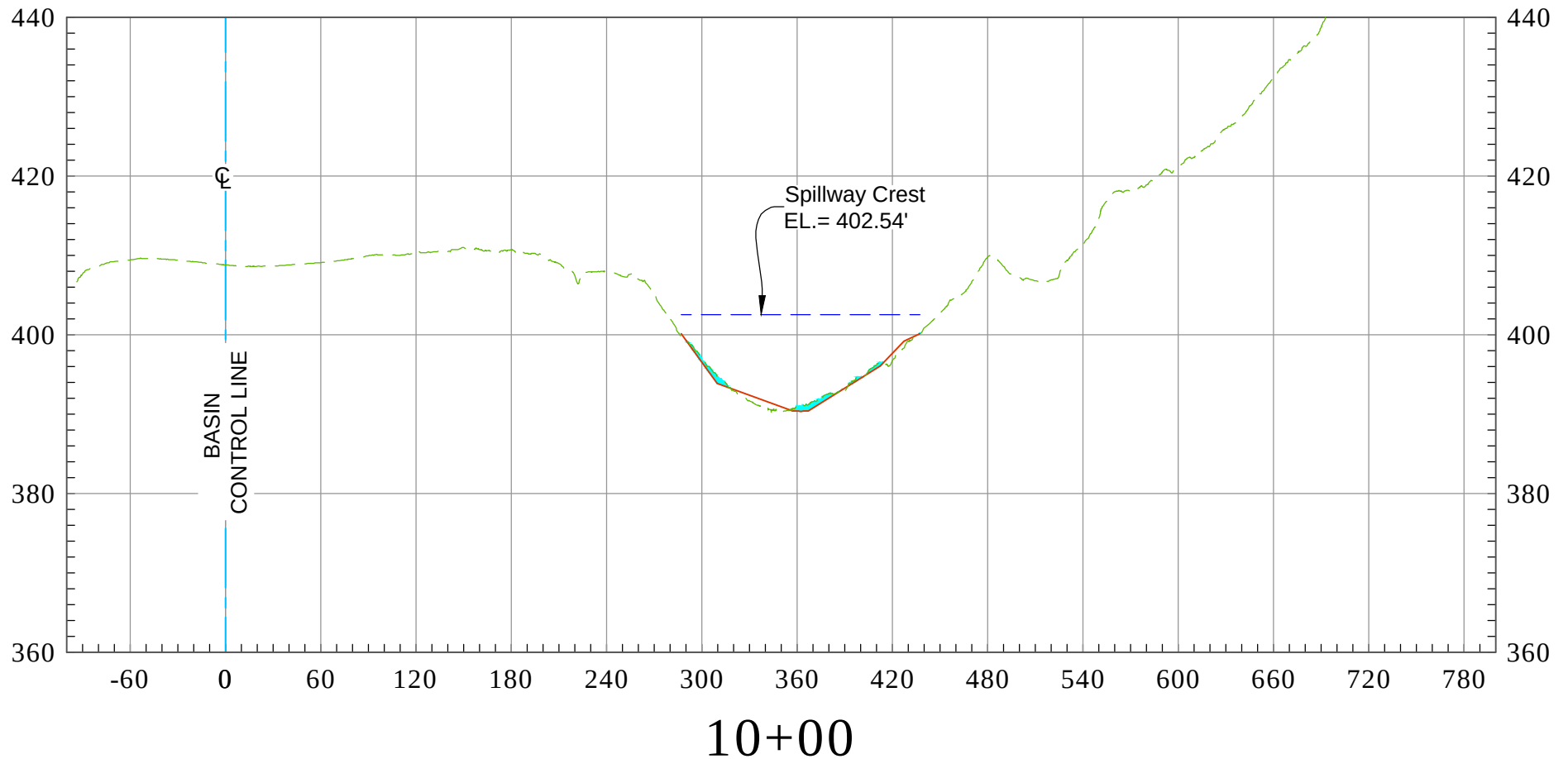
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ORCHARD ESTATES RETARDING BASIN (F26B02) , STATION 10+00 to 20+00

19+00	628.5	1135.52	5619.77	11229.32	10.11%
19+50	208.96	740.66	3375.96	8241.62	8.99%
20+00	43.06	214.12	979.90	3811.53	5.62%
		TOTAL CUT VOLUME		TOTAL MODIFIED BASIN 1 VOLUME	PERCENT of CAPACITY
	Cu.Yds.	12,214.53		259,068.28	4.71%

NOTE: NO STATIONS ARE FILLED BEYOND 50% OF THE MAXIMUM MODIFIED BASIN CAPACITY

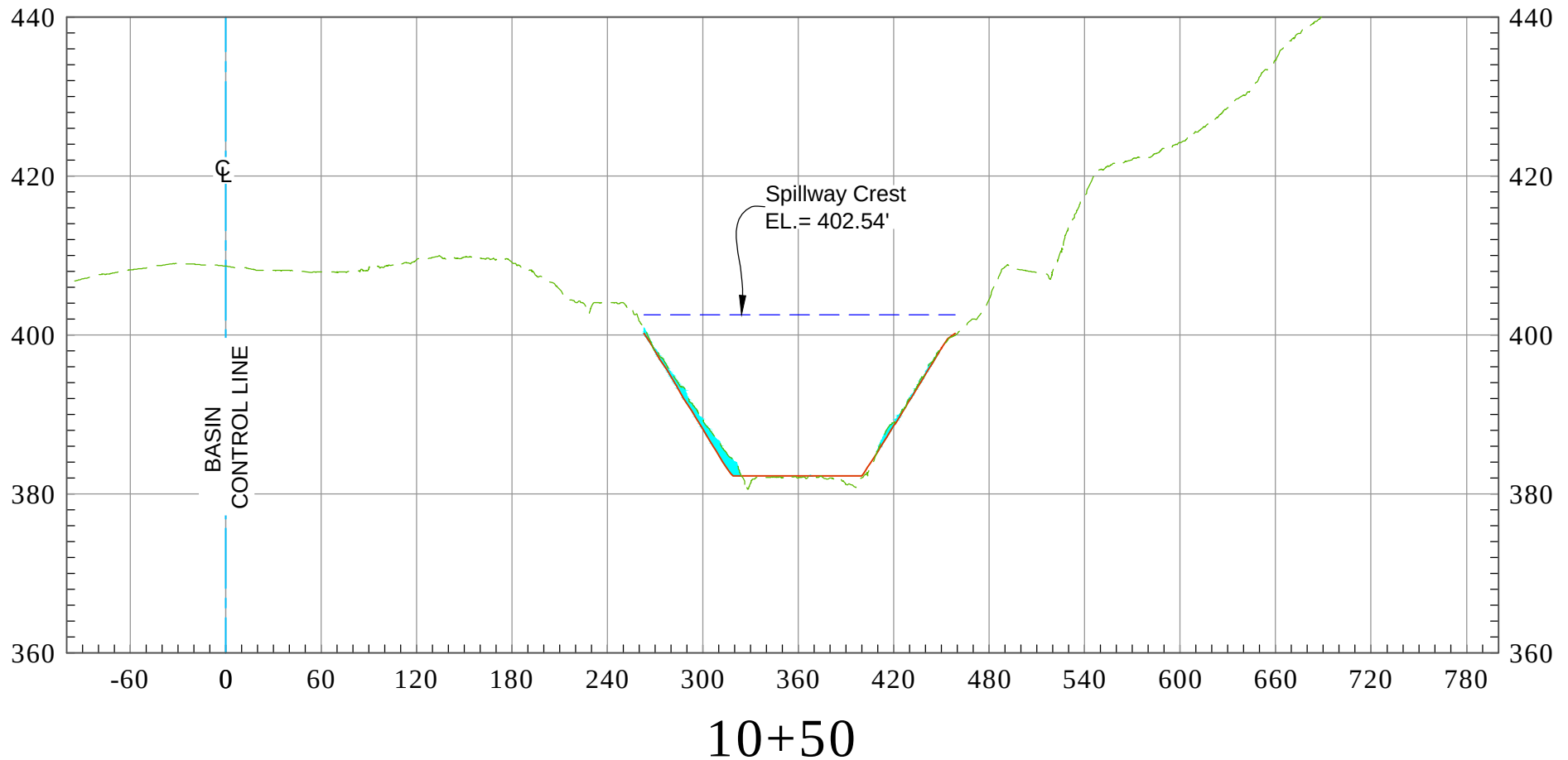
ORCHARD ESTATES RETARDING BASIN (F26B02) - 2023 SCOURS



As-Built Plan ——— 2023 Ground ———
 Max Cap Line - - - - - Sediment [Cyan Box]

Vert. Scale: 1" = 40'
 Horiz. Scale: 1" = 100'

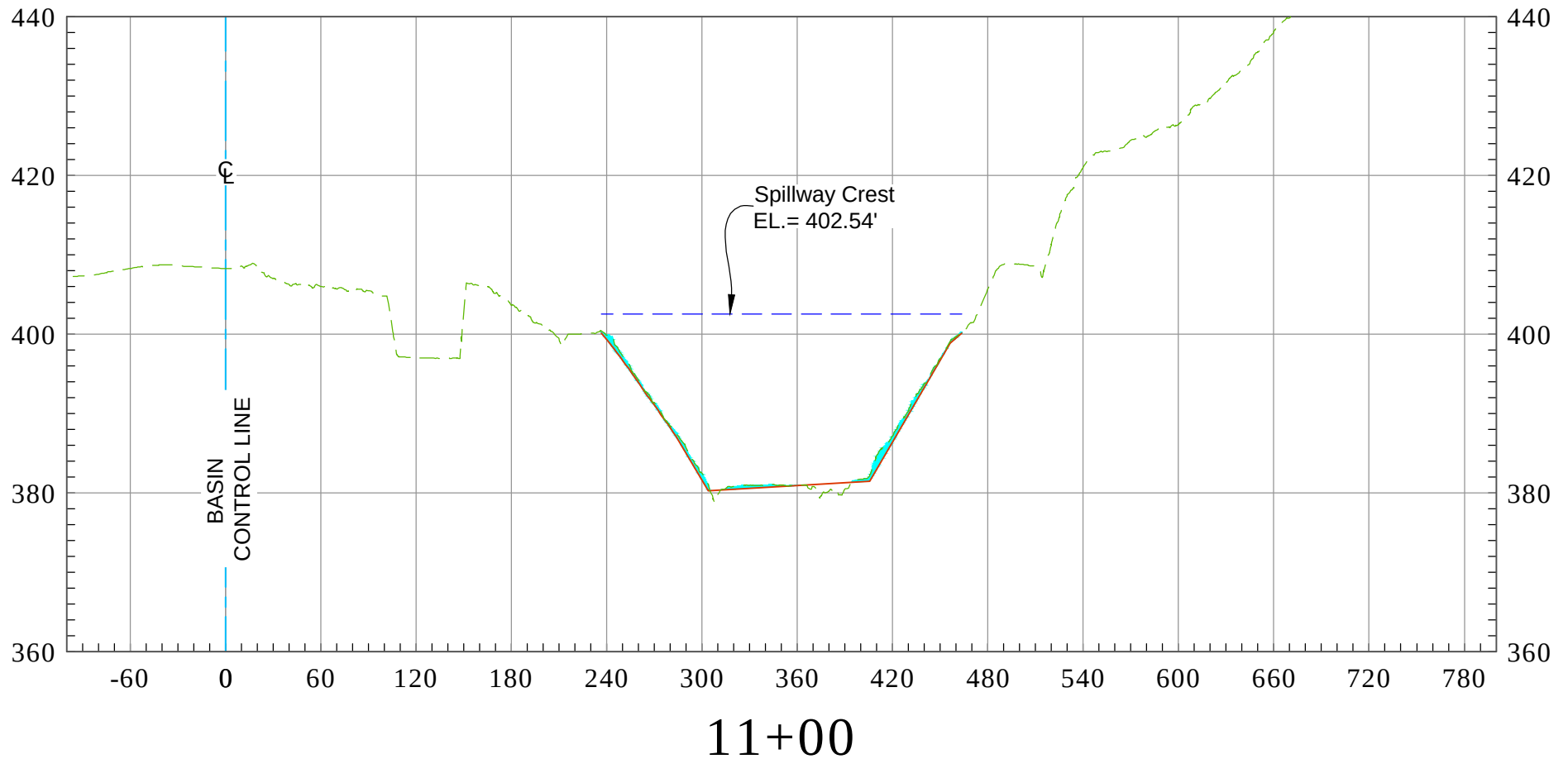
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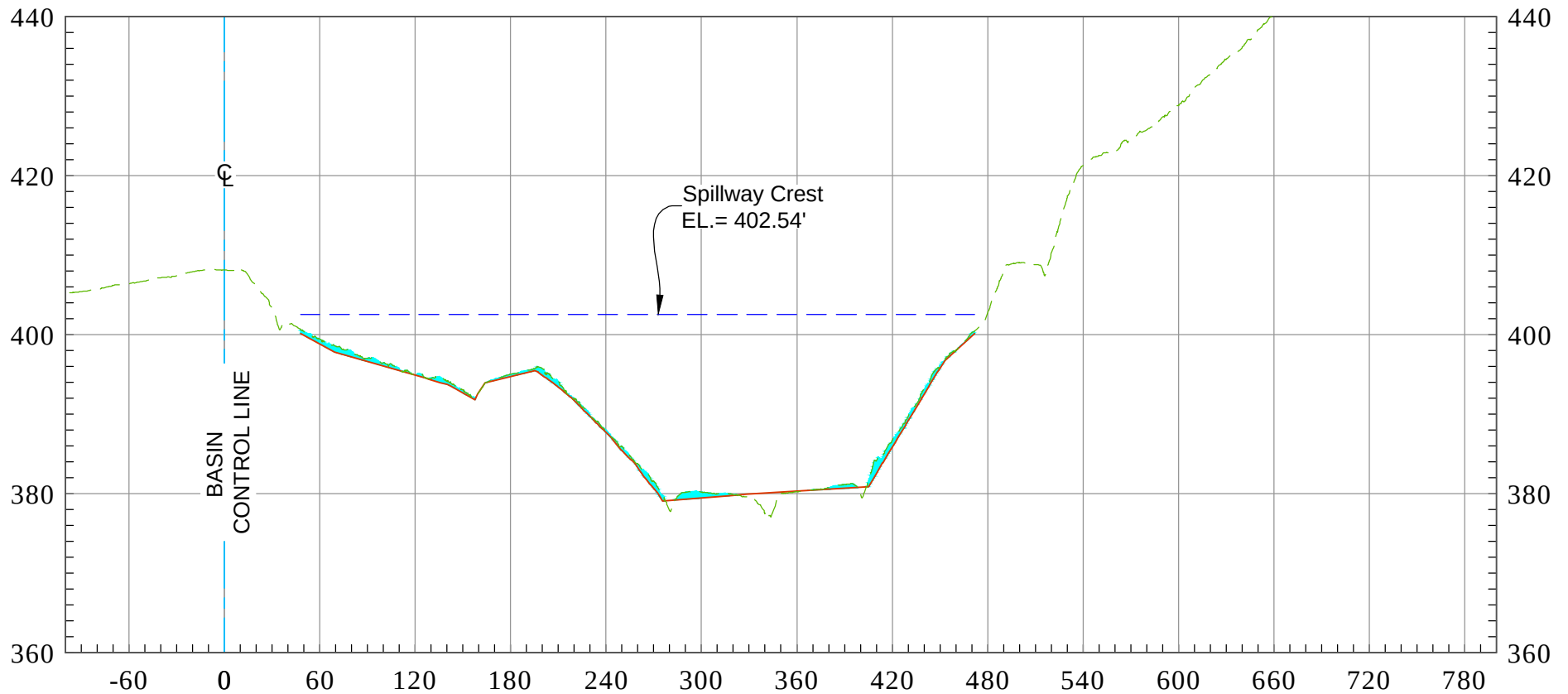
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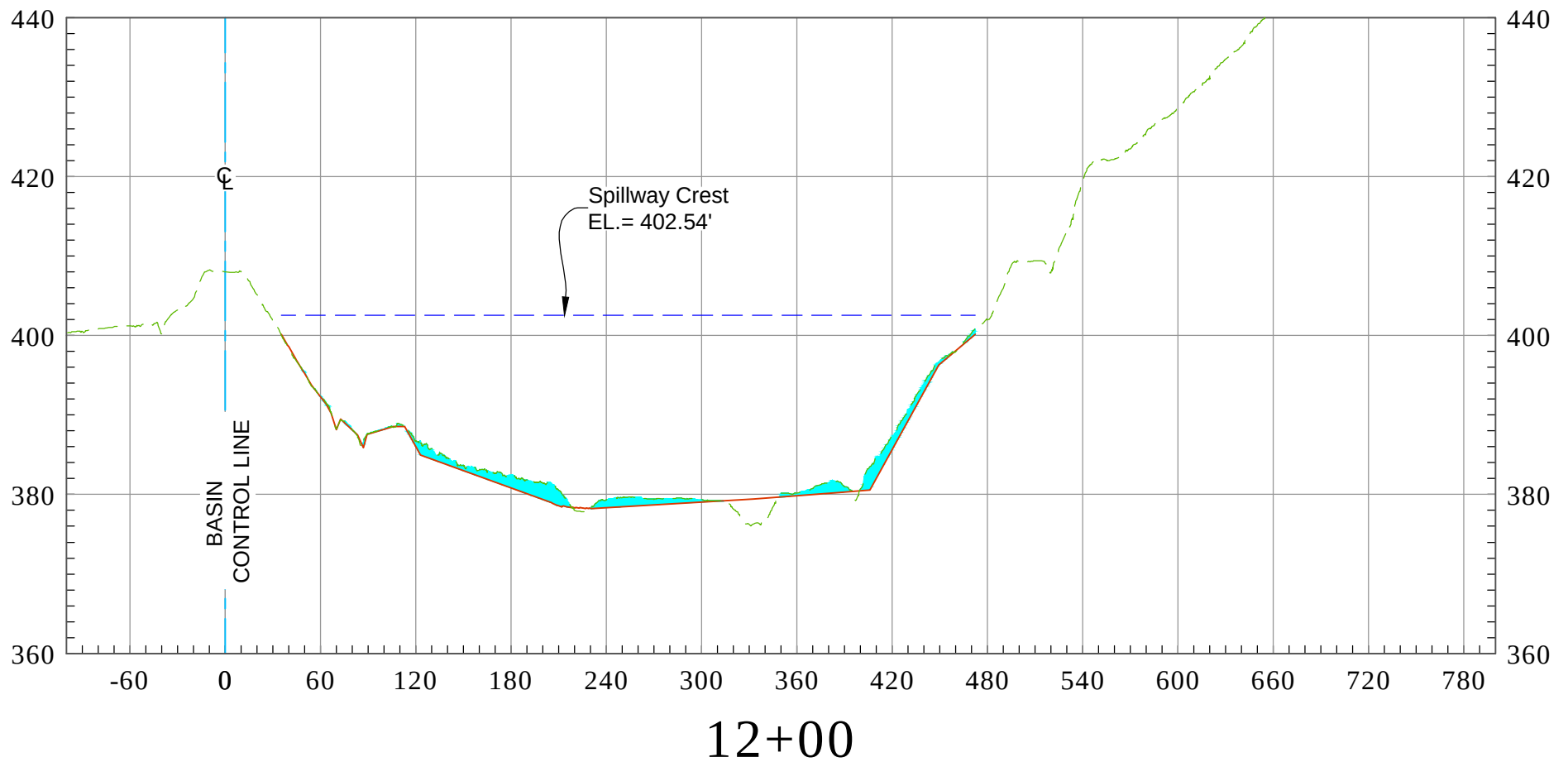


11+50

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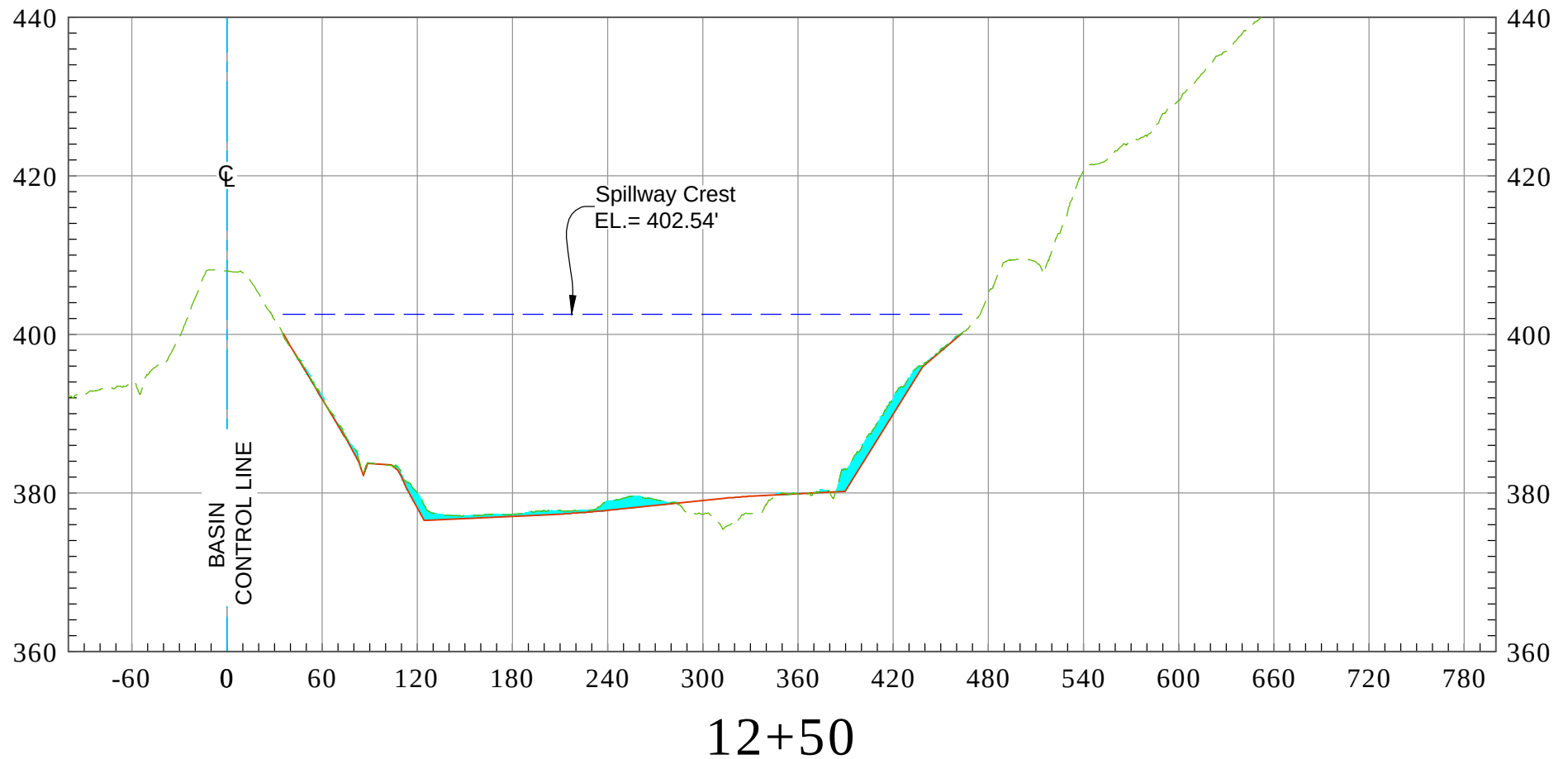
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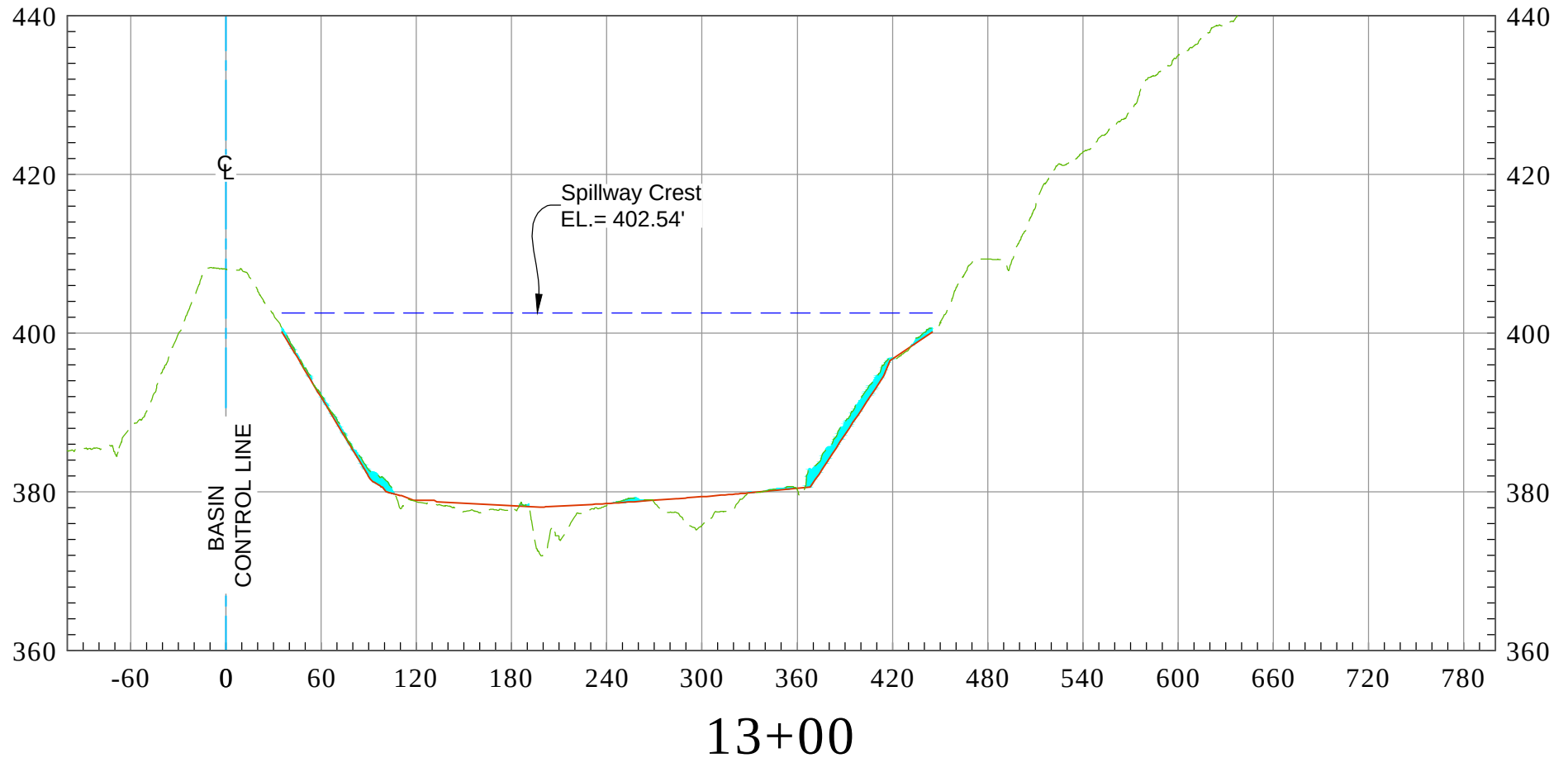
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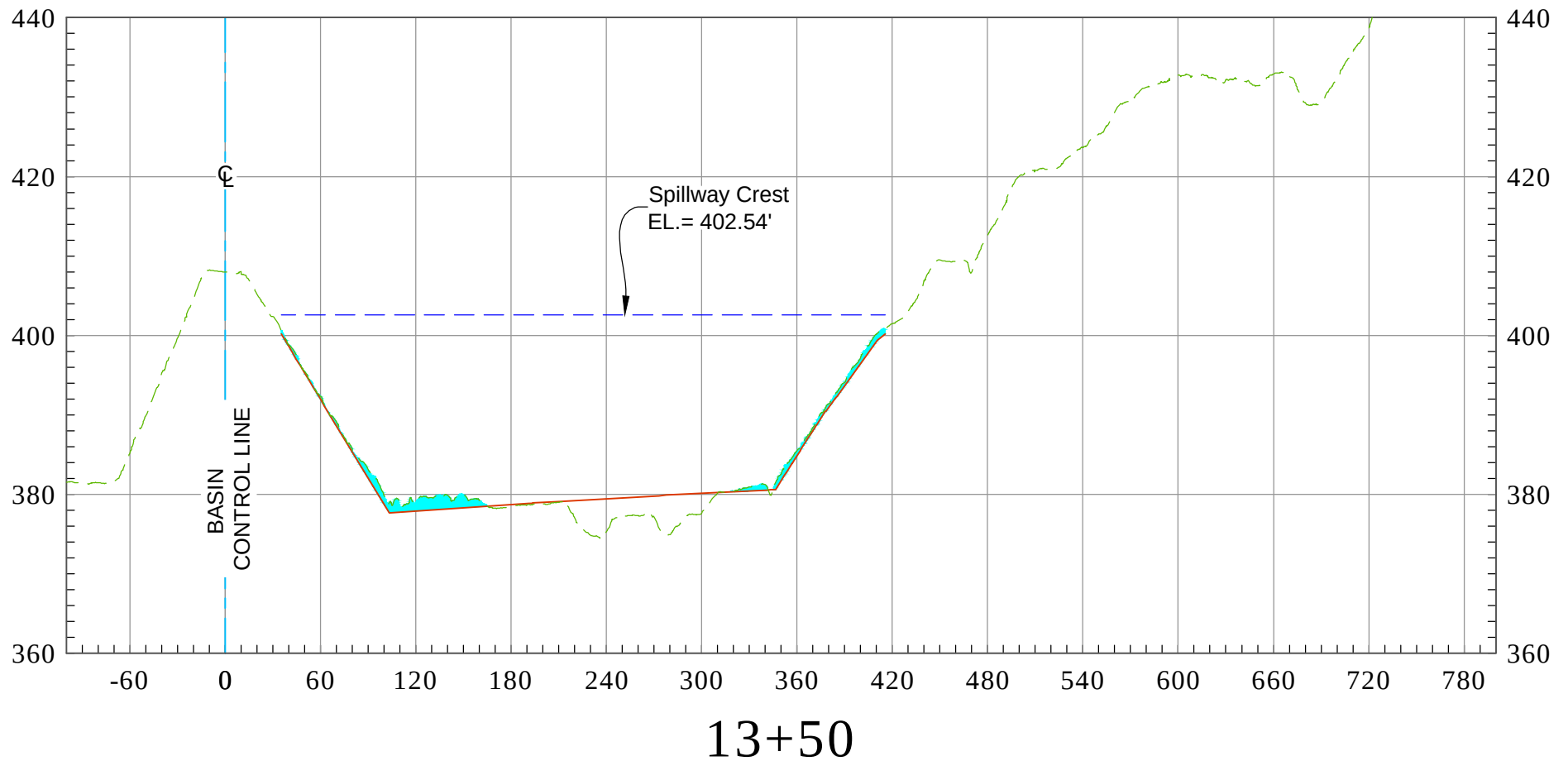
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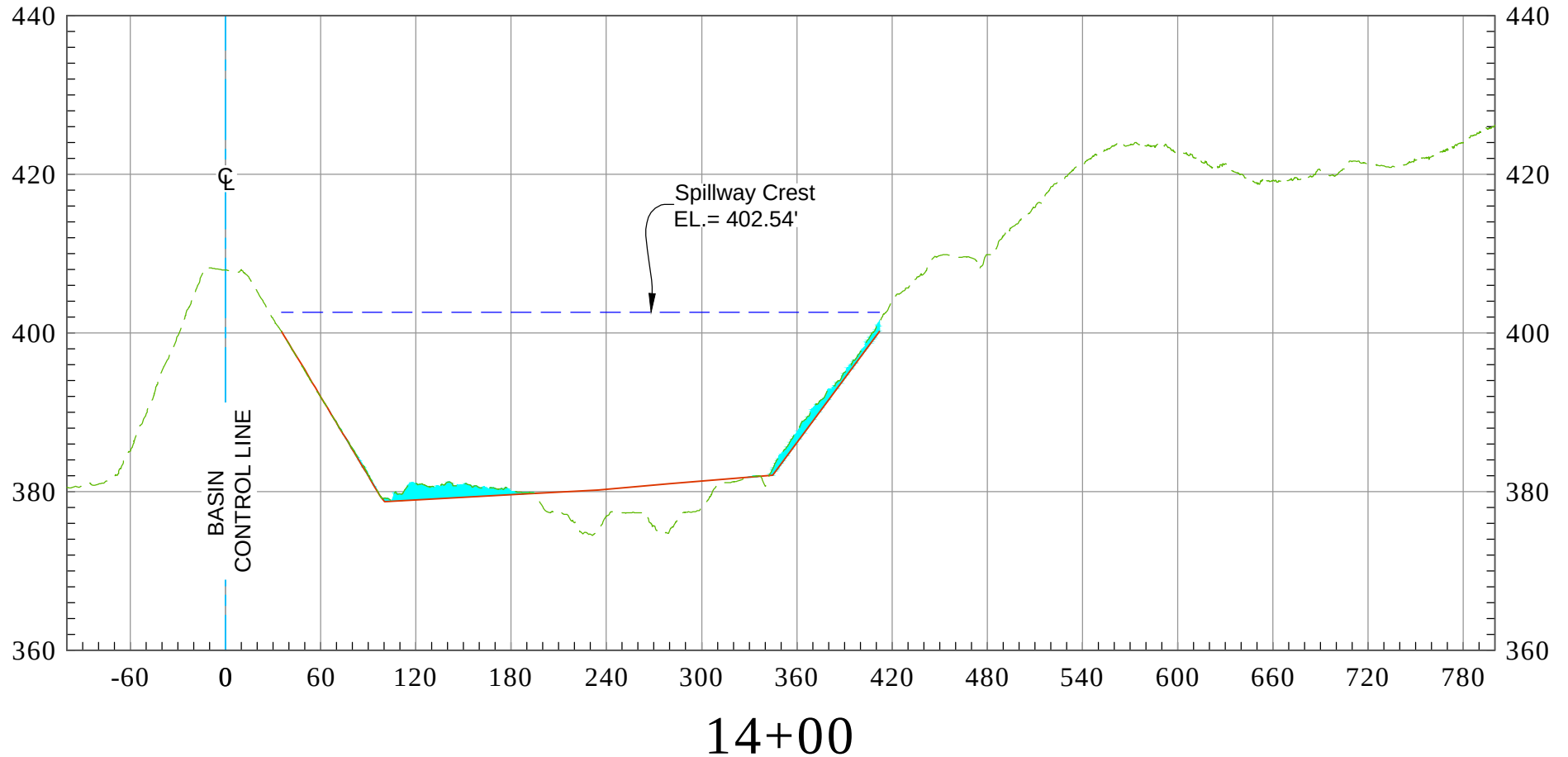
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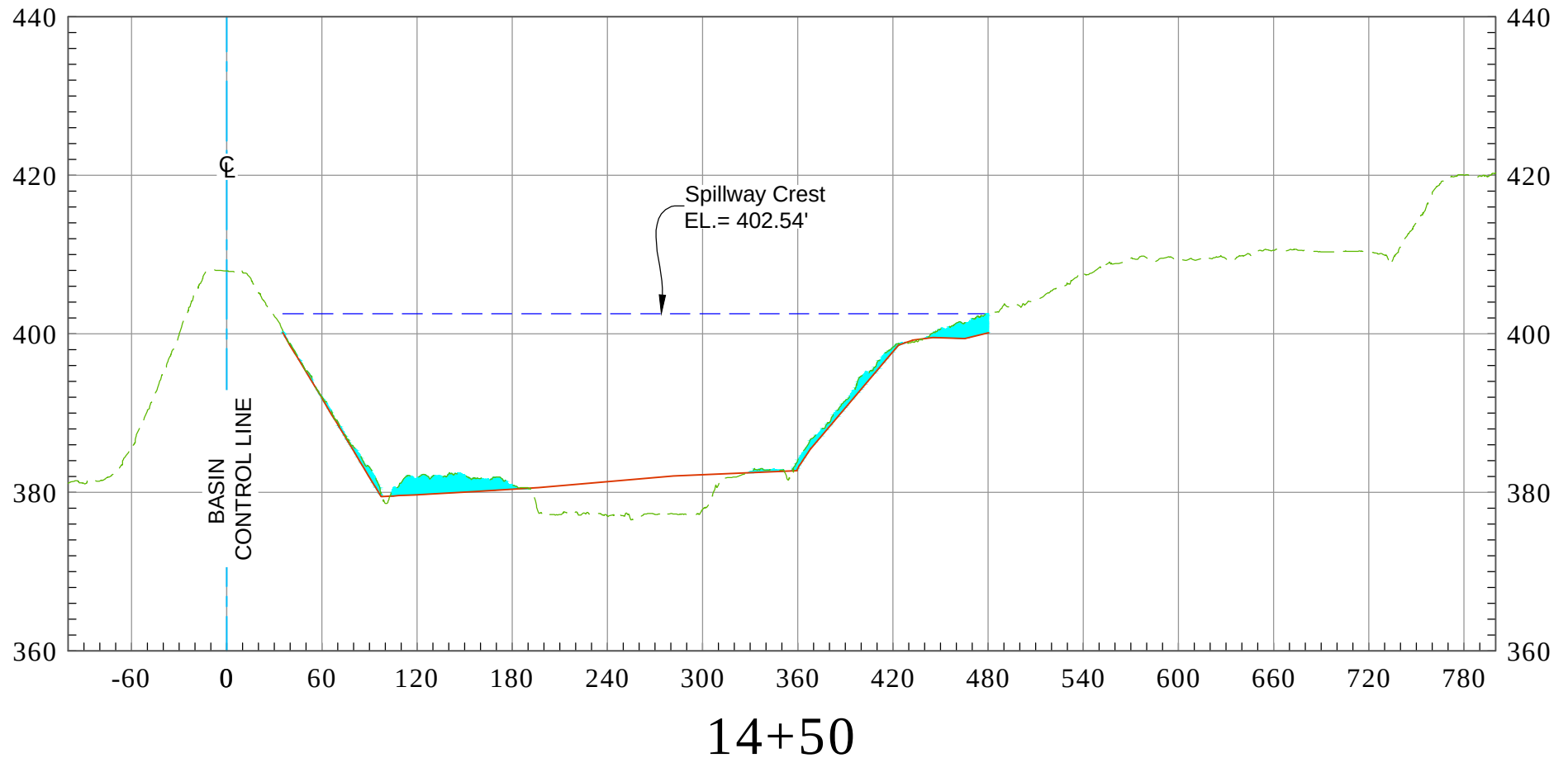
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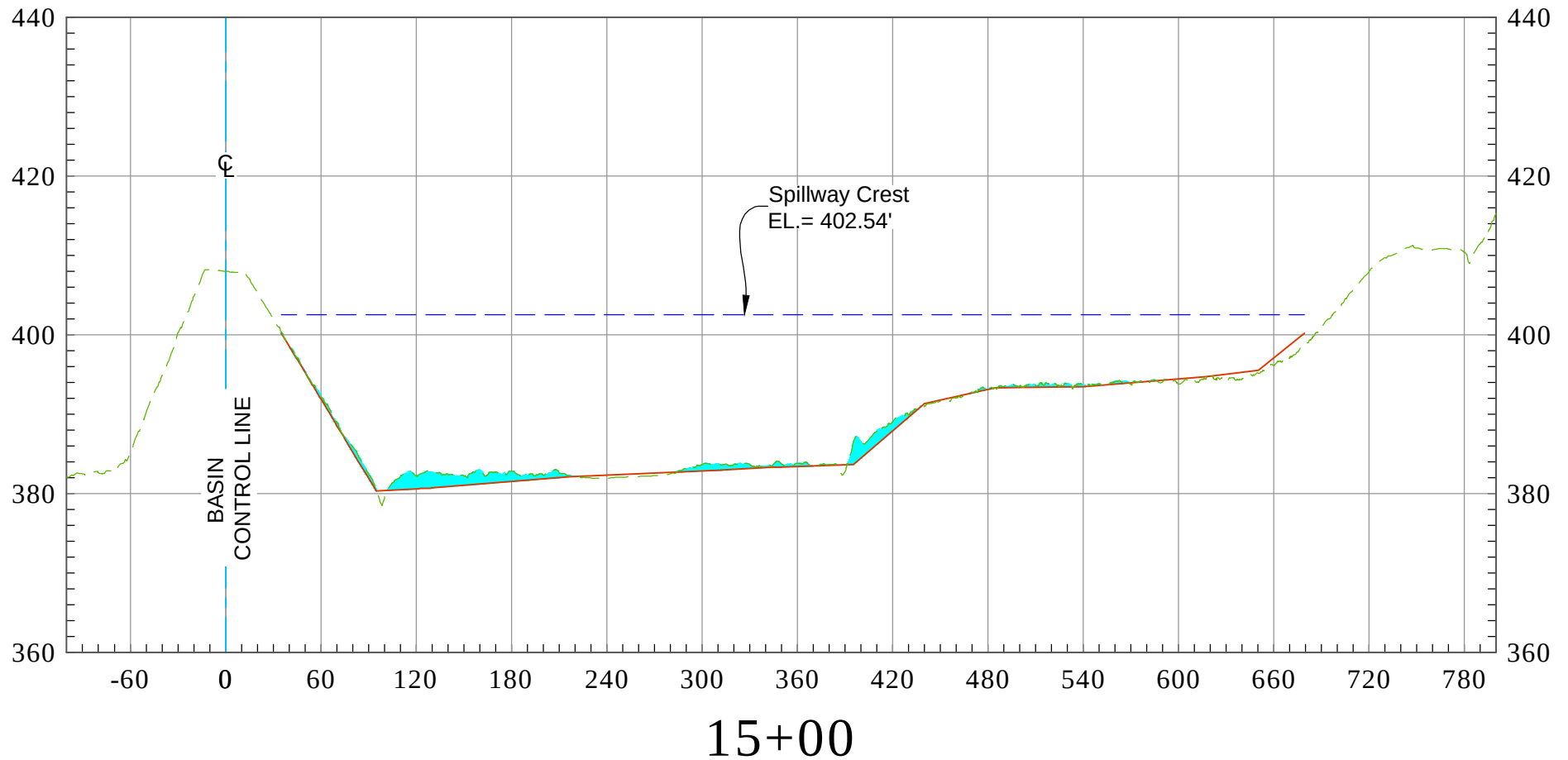
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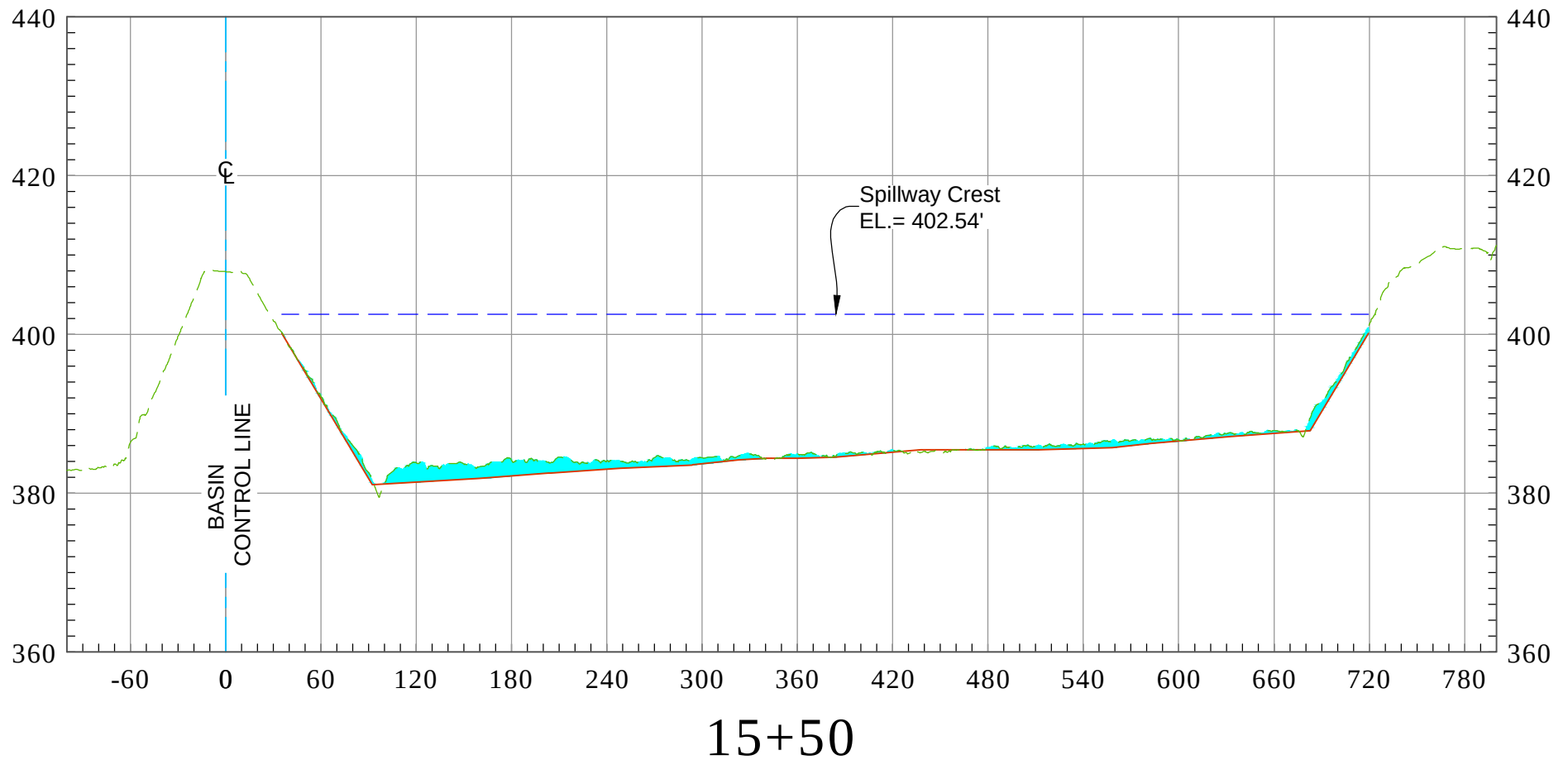
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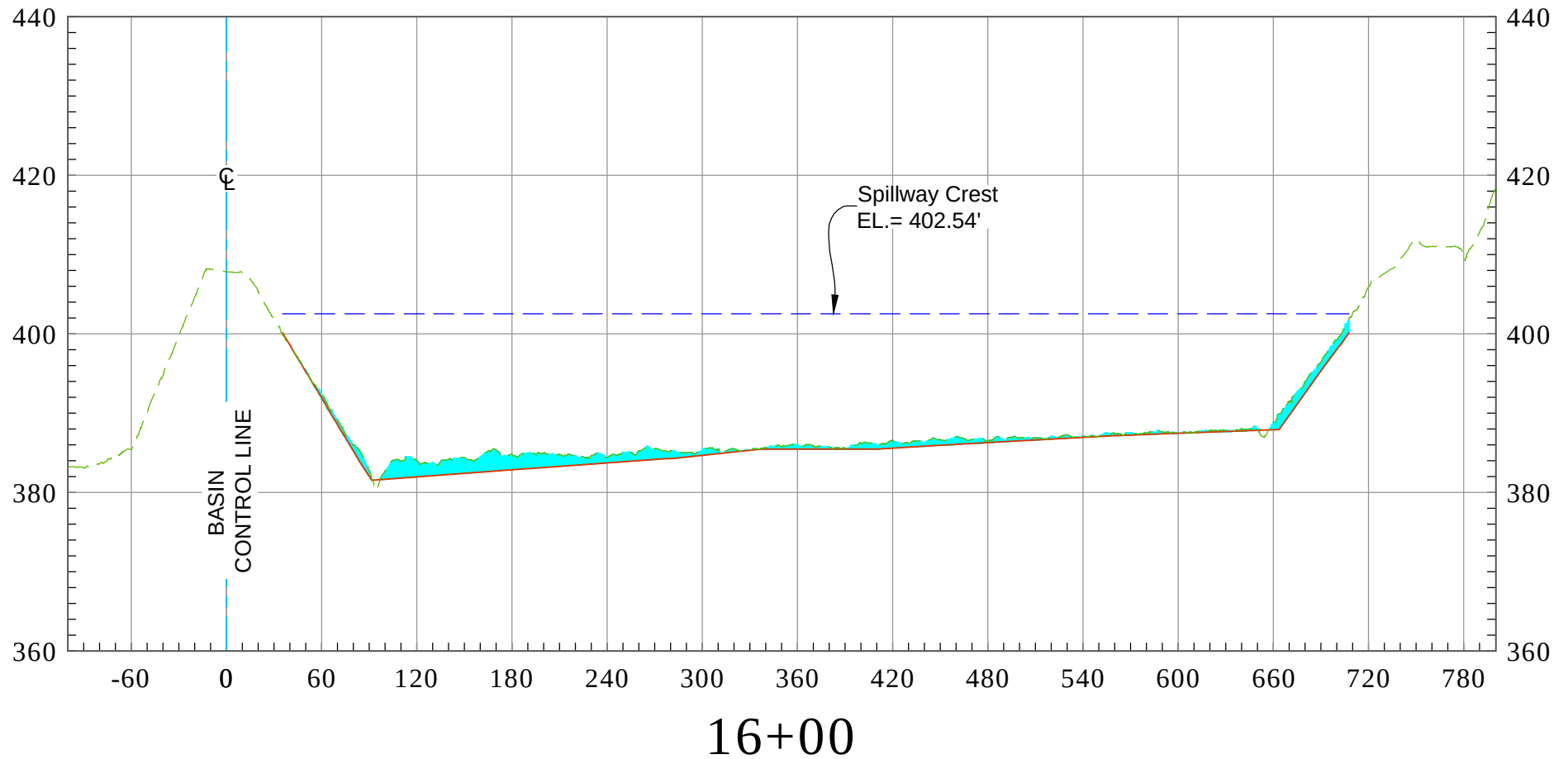
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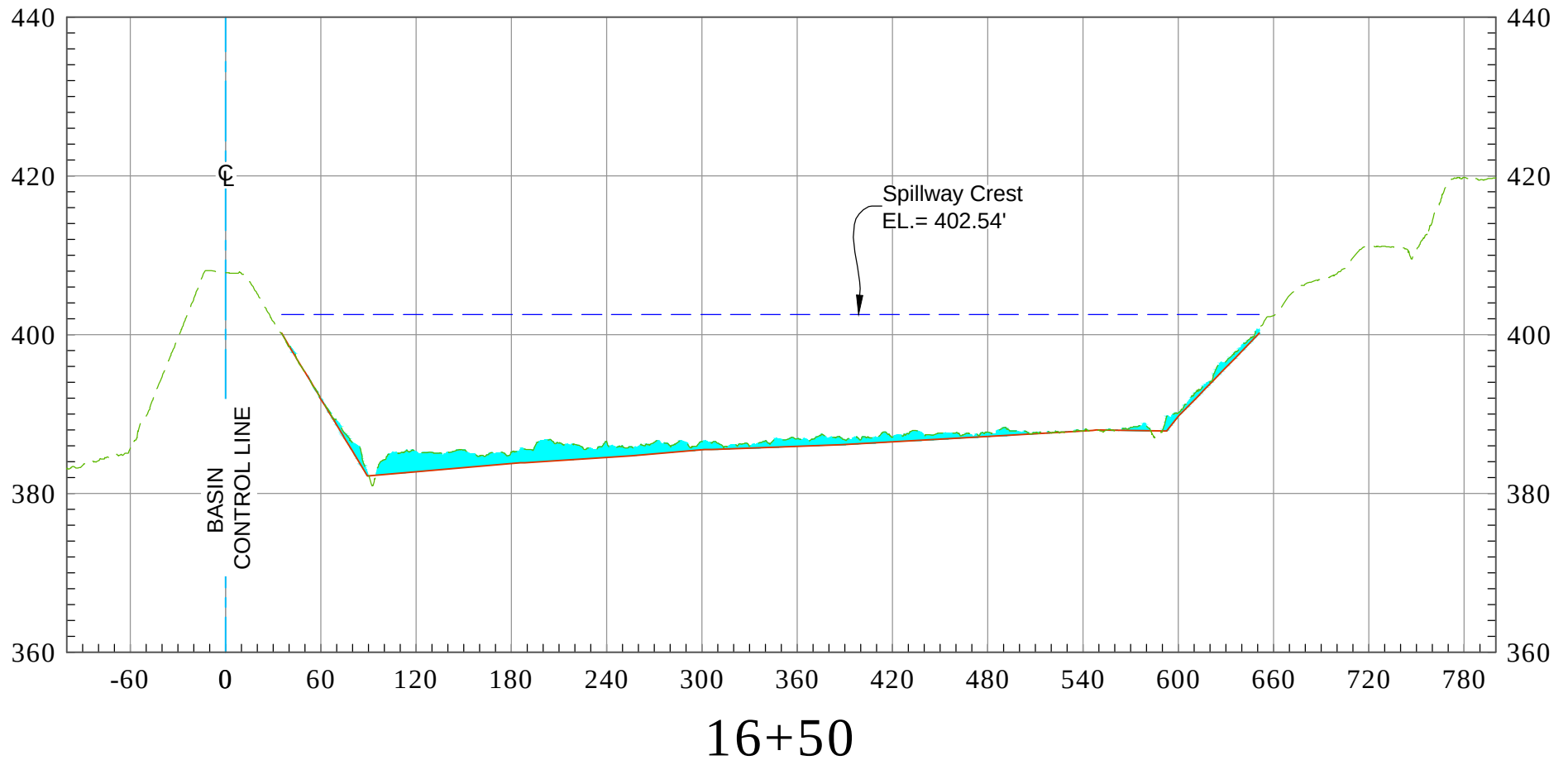
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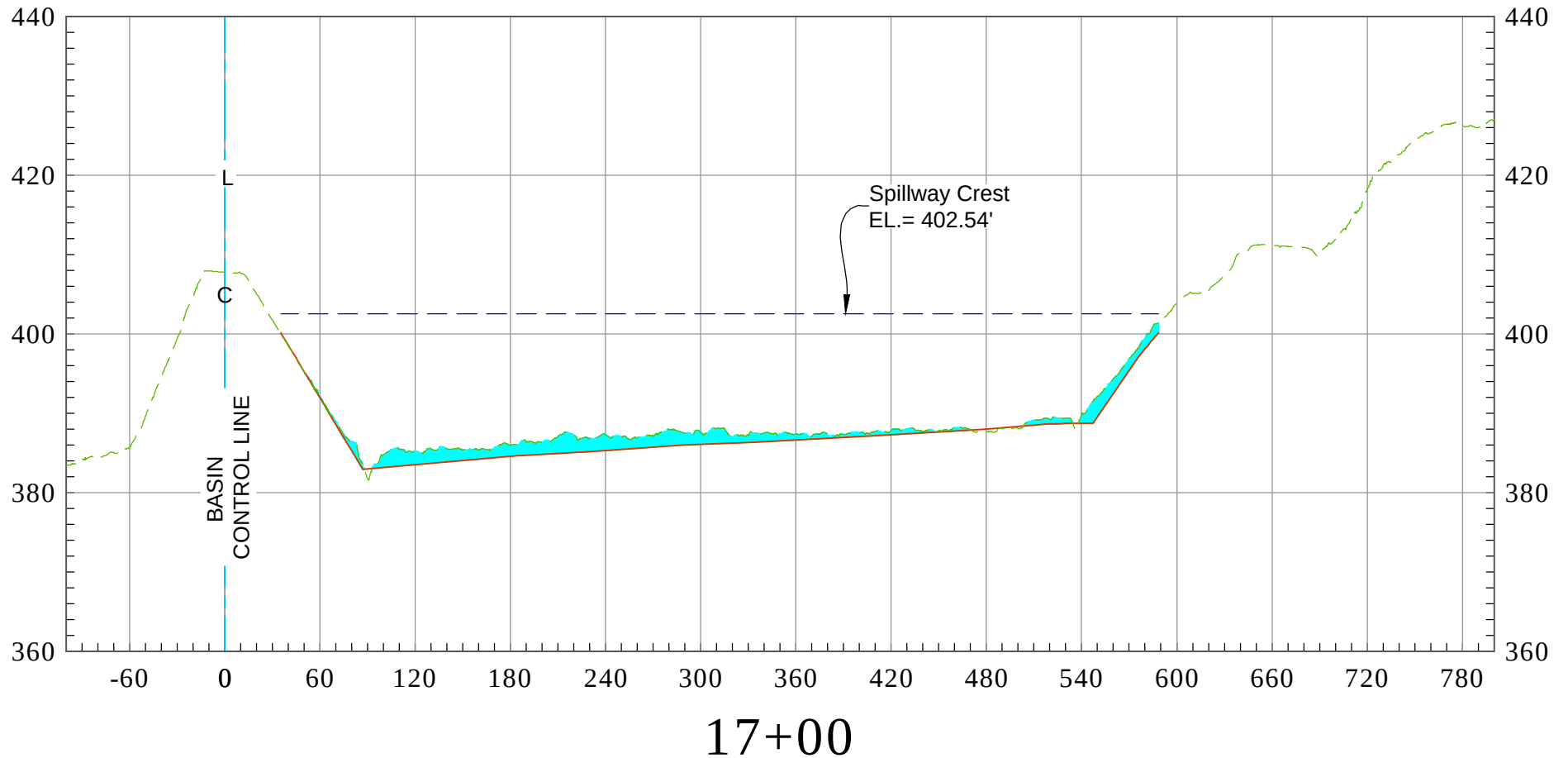
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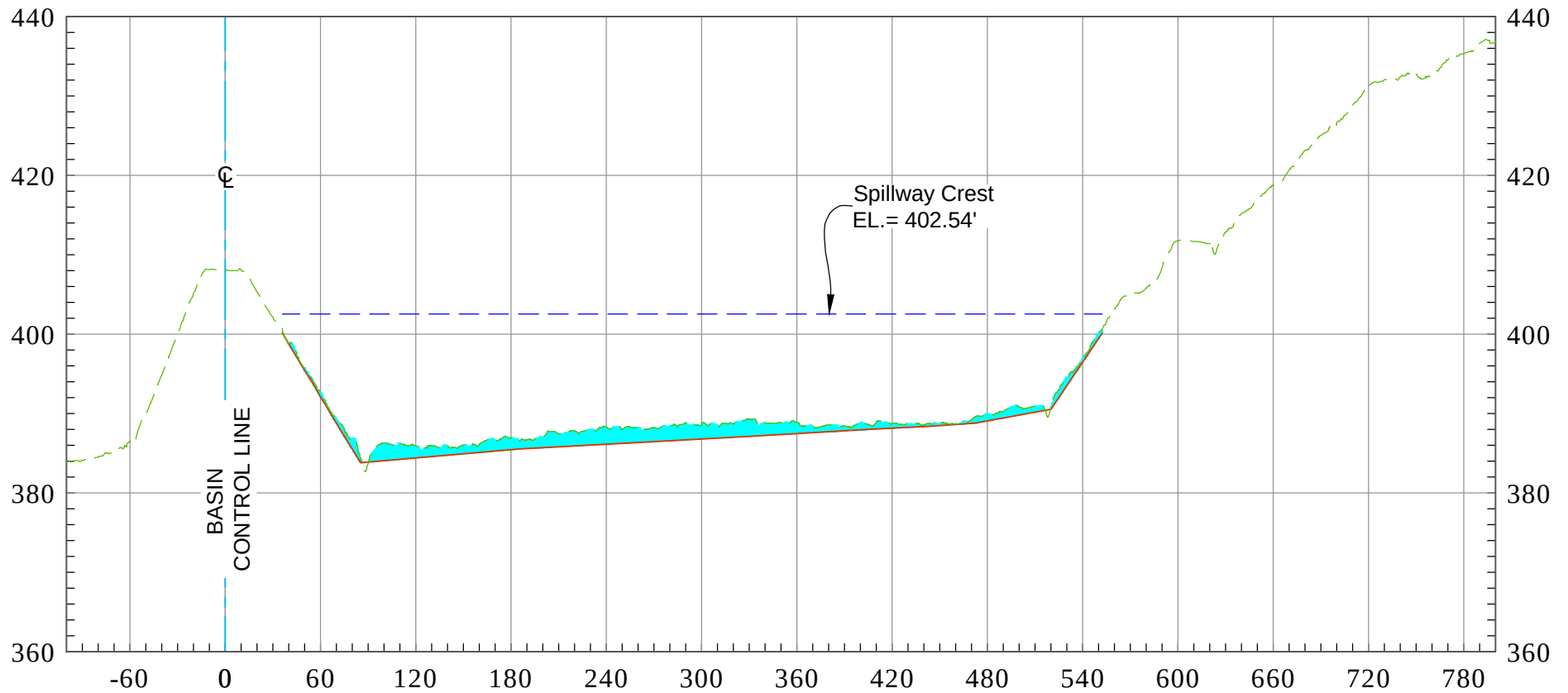
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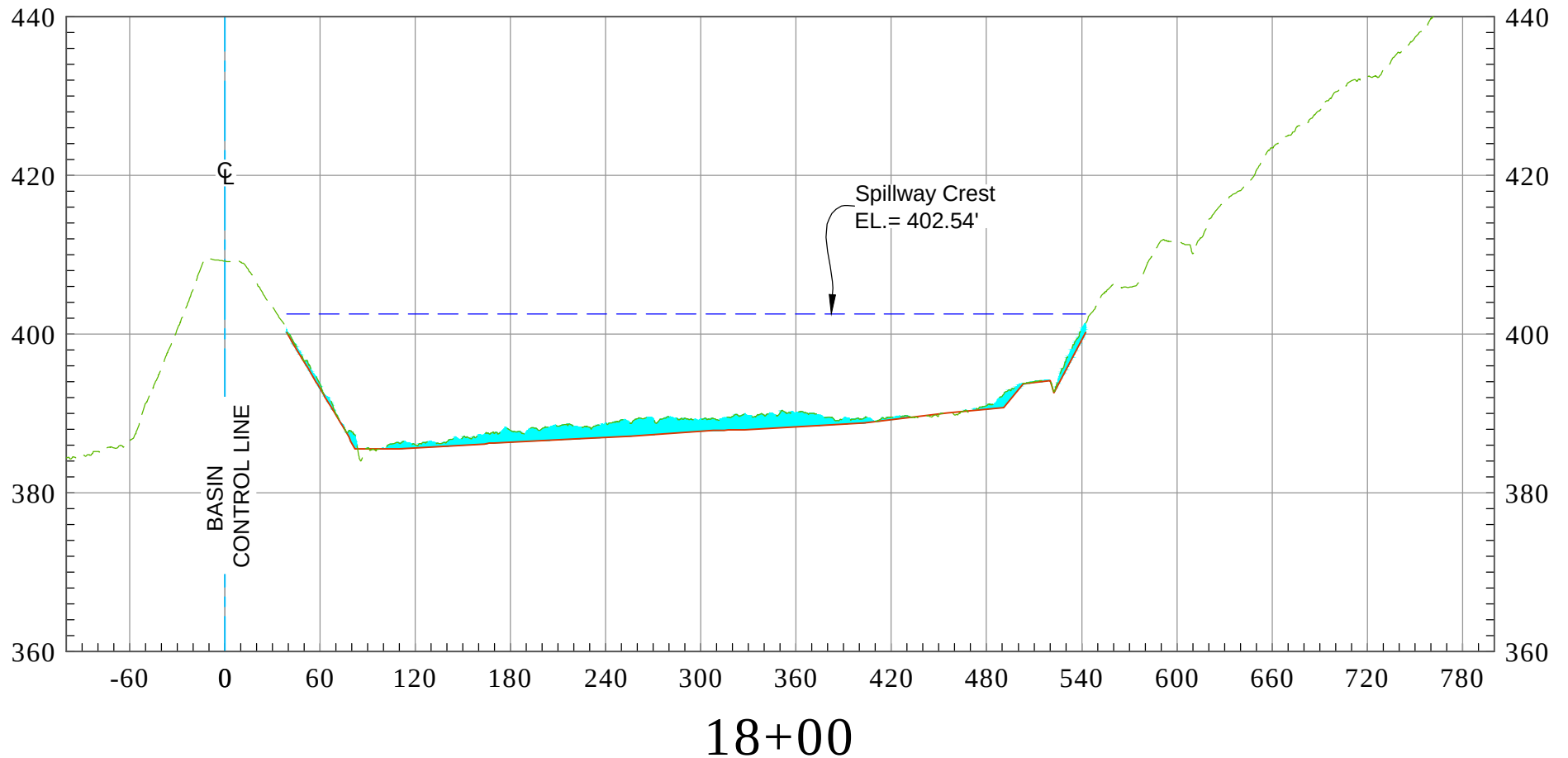


17+50

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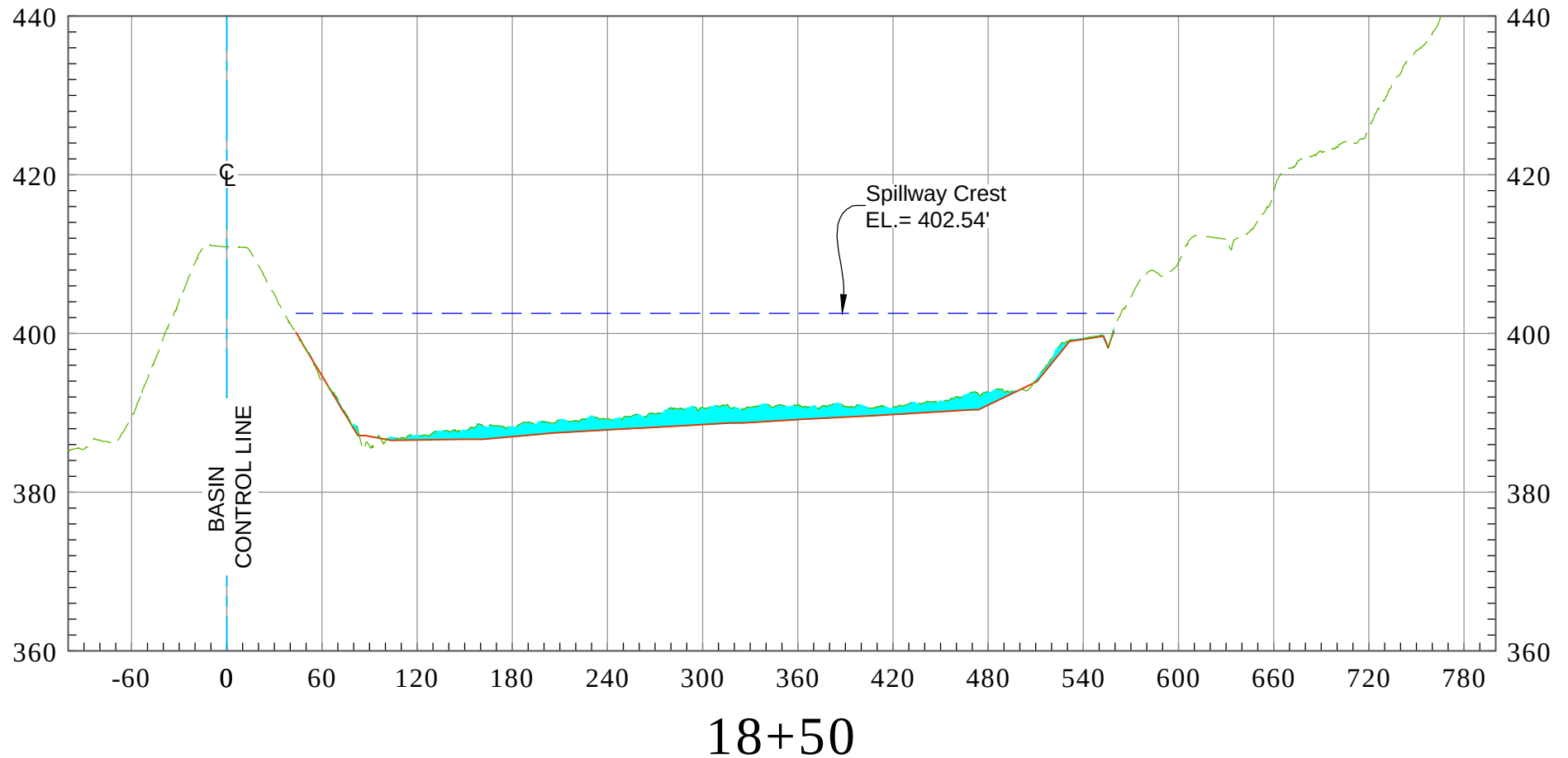
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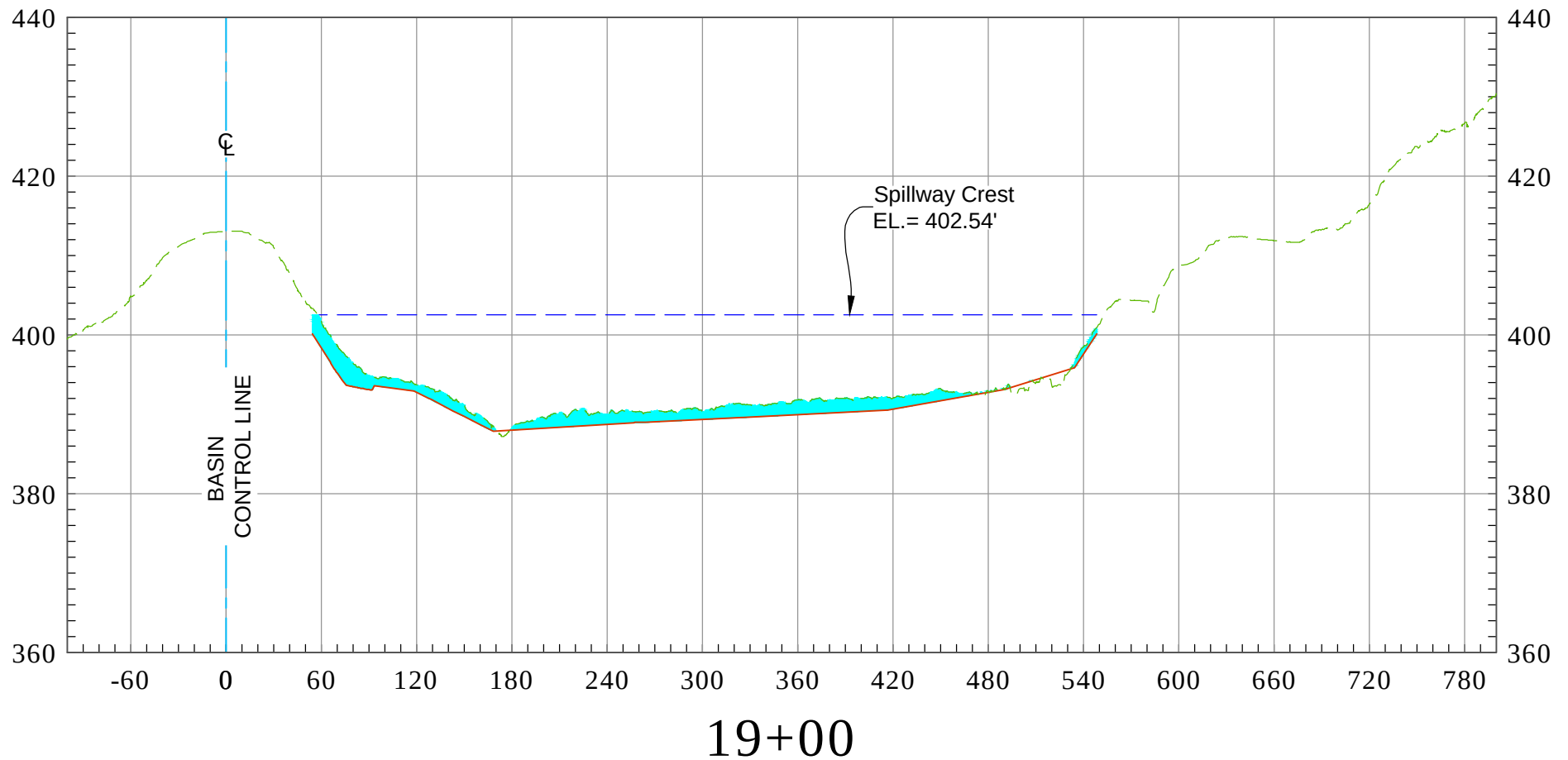
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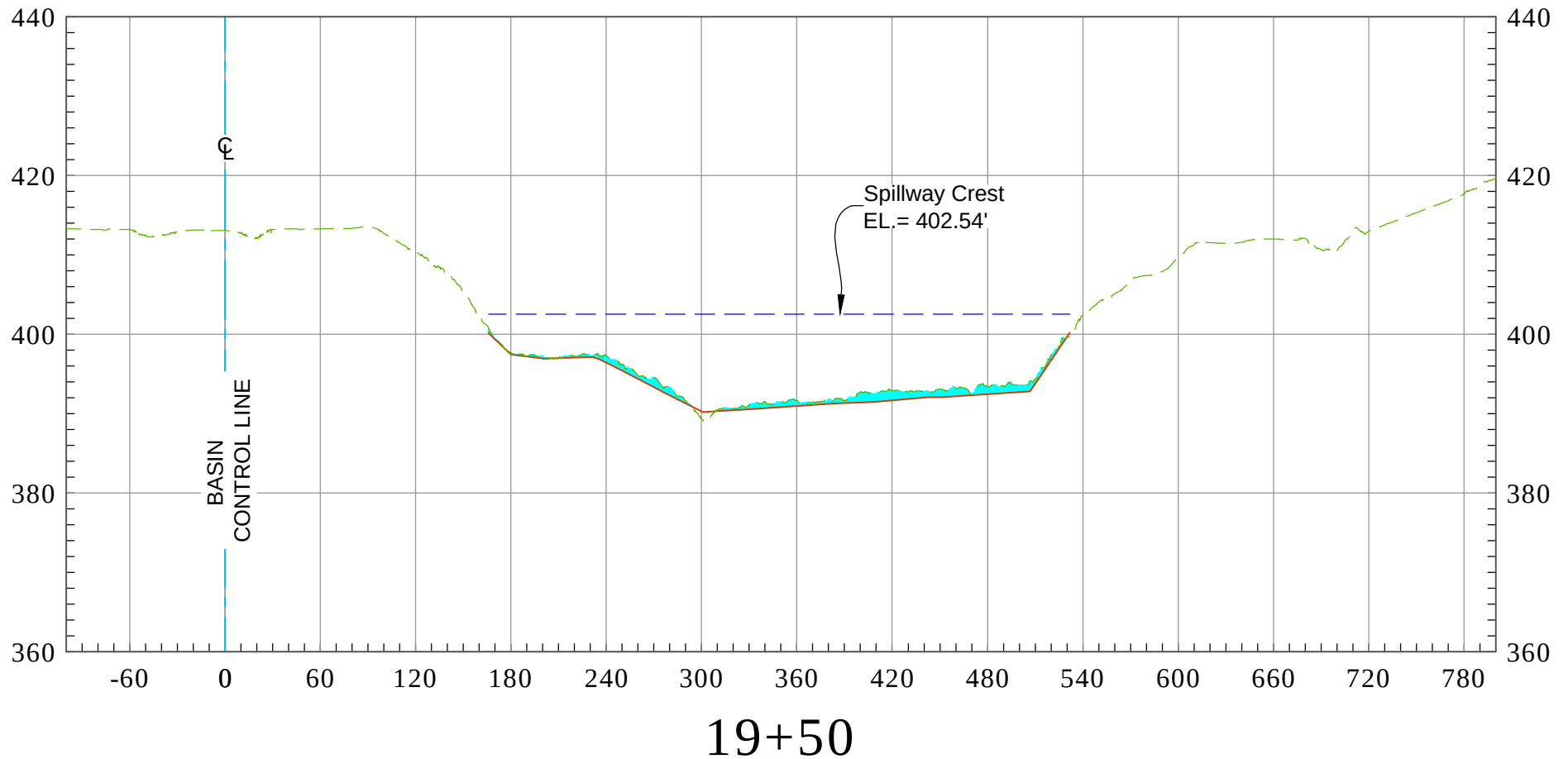
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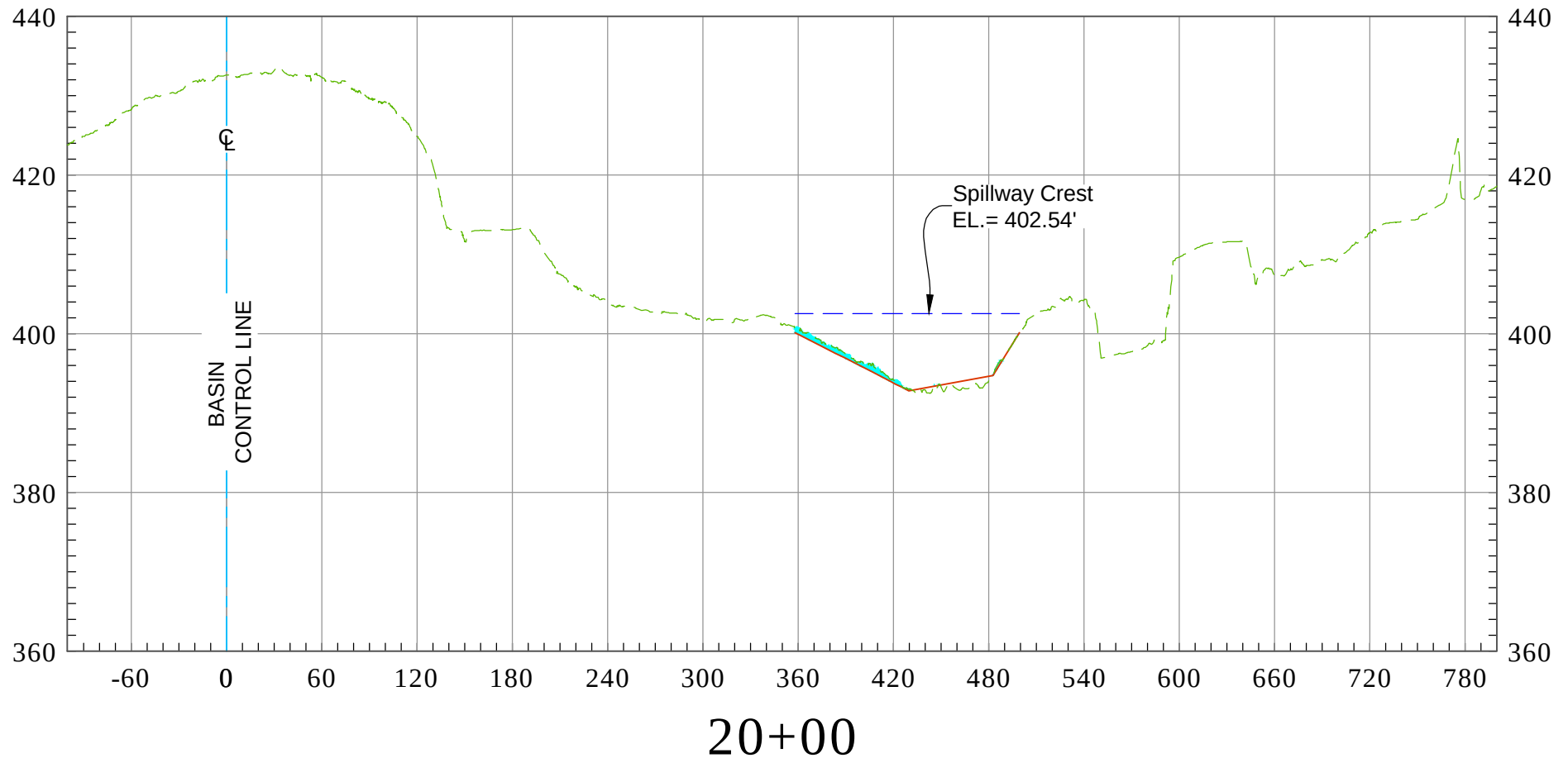
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