



LEE'S SUMMIT MISSOURI

DESIGN AND CONSTRUCTION MANUAL DESIGN MODIFICATION REQUEST

PROJECT NAME: Middle School #4

PREMISE ADDRESS: SE Corner of Country Lane and SE Bailey Road

PERMIT NUMBER: TBD

OWNER'S NAME: Lee's Summit School District

TO: The City Engineer

In accordance with the Lee's Summit Design and Construction Manual (DCM) Section 1002.A, I wish to apply for a modification to one or more specification (s). The following articulates my request for your review and action. (NOTE: Cite specific code sections and engineering justification and drawings.)
5605.3 Stream Preservation and Buffer Zones – we are requesting a waiver/modification to this section to encroach on the prescribed stream buffer widths in specific areas as identified on the attached drawings. Our encroachment is needed due to the nature of the site being narrow in the east/west direction and meeting the program requirements for all of the components needed on site by the school district. The grade of the site falls from west to east towards the existing streamway. Again, with the narrow site it is difficult grade out the site for buildings, fields, and parking and not have the slope embankment encroach into the buffer. To accommodate this request Olsson has prepared a design memorandum and Natural Channel Assessment to demonstrate the minimal impact the development. The memorandum and exhibits are attached to this submittal.

SUBMITTED BY:

NAME: Terry Parsons - Olsson () OWNER (X) OWNER'S AGENT
ADDRESS: 7301 W. 133rd St. Tel.# 913.381.1170
CITY, STATE, ZIP: Overland Park, KS, 66213
Email: tparsons@olsson.com SIGNATURE: _____

FORWARDING MANAGER: _____ RECOMMENDATION () APPROVAL () DENIAL

SIGNATURE: _____ DATE: _____

GEORGE BINGER III, P.E. – CITY ENGINEER: () APPROVED () DENIED

SIGNATURE: _____ DATE: _____

Development Services

220 SE Green Street | Lee's Summit, MO 64063 | P: 816.969.1200 | F: 816.969.1221 | cityofLS.net

COMMENTS:

Please reference attached design memorandum and Natural Channel Assessment Exhibits (3 total)

A COPY MUST BE ATTACHED TO THE APPROVED PLANS

Development Services

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City of Lee's Summit, MO

August 18, 2020

Attn: Mike Weisenborn
220 SE Green Street
Lee's Summit, MO 64063

Re: LSR7 Middle School #4 Stream Buffer Variance - PL2020209

Dear Mike:

This letter is being sent in response to your email dated July 7th, 2020 requesting more information for the waiver request on LSR7 Middle School #4 to perform construction activities within the proposed stream buffer for the site.

As requested in your email, Olsson has performed a Stream Assessment to demonstrate that the proposed construction activities within the stream buffer will not adversely affect the natural condition of the existing stream.

The stream assessment was performed in accordance with Section 5605 of the APWA KC Metro Design Criteria and Specifications. Information for the stream assessment was based on field survey data and field site visits by Olsson.

Per Section 5605.4 a Plan-Form Analysis was performed on the stream. The existing stream information and the plan-form analysis have been shown are the attached Stream Assessment Drawings. The Plan-Form Ratio lies with the typical range with the exception of meander length/full bank width.

This could be explained in the outfall from the enclosed storm system coming under Bailey Road. The north end of the stream where the outfall is located shows a lower sinuosity than the south end of the stream. There two concrete flumes or checks (Sta. 13+05, Sta. 23+80) constructed in the stream. The checks are immediately downstream of locations where natural swales enter the channel. Finally, a structure has been constructed in the stream at the south end of the property. The structure consists of riprap bank protection on each side of the stream and concrete channel walls. These structures would tend to anchor the stream in its current location.

Based on the plan-form analysis, general stream corridor limits have been shown on the Stream Assessment Plans. The stream corridor limits show that the proposed construction will not interfere with the natural meandering of the stream.

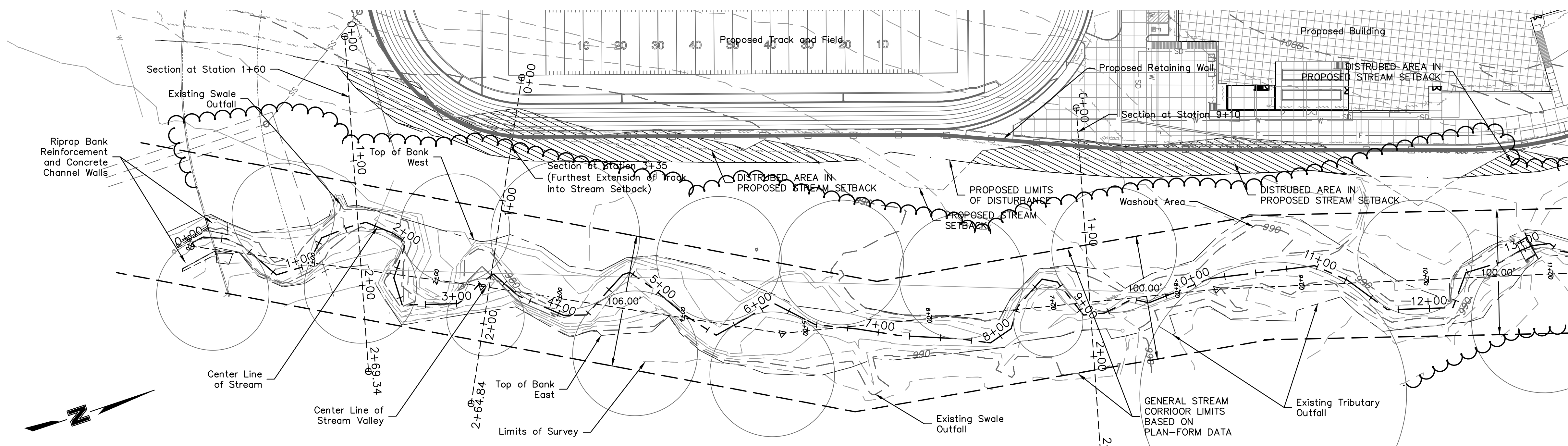
In regards, to flow in the stream, no increase in the flow is anticipated. The area north of Bailey Road is a fully developed residential area. The proposed middle school development will not increase flows because detention basins will limit runoff rates to pre-construction levels. This is also true for the are to east of the stream. Detention will also be required for that development.

Flow rates for the fully-developed watershed were calculated for the 2 and 100 year storm events using the Rational Method. Water surface elevations for each section were calculated and added to the stream assessment drawing. The sections show the proposed development will not interfere with the flow in the channel.

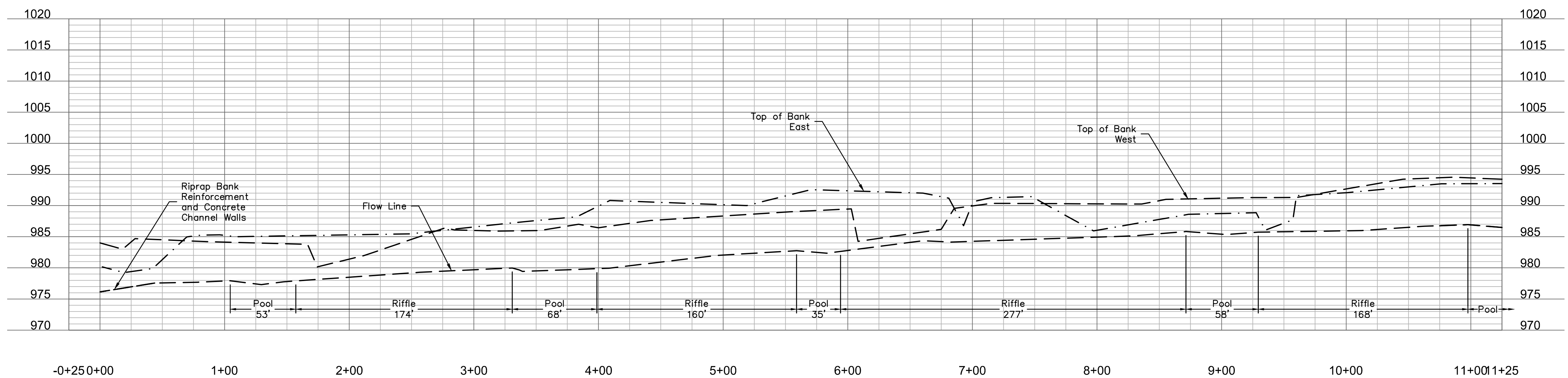
In conclusion, the purpose of the stream setback is to ensure there is sufficient space for the stream to meander in a natural manner. The Plan-Form Analysis demonstrates that the proposed construction will not interfere with the natural movement of the stream channel. In addition the proposed construction will also not cause any channel constrictions within the flow level of the 100-year storm.

Thank you,

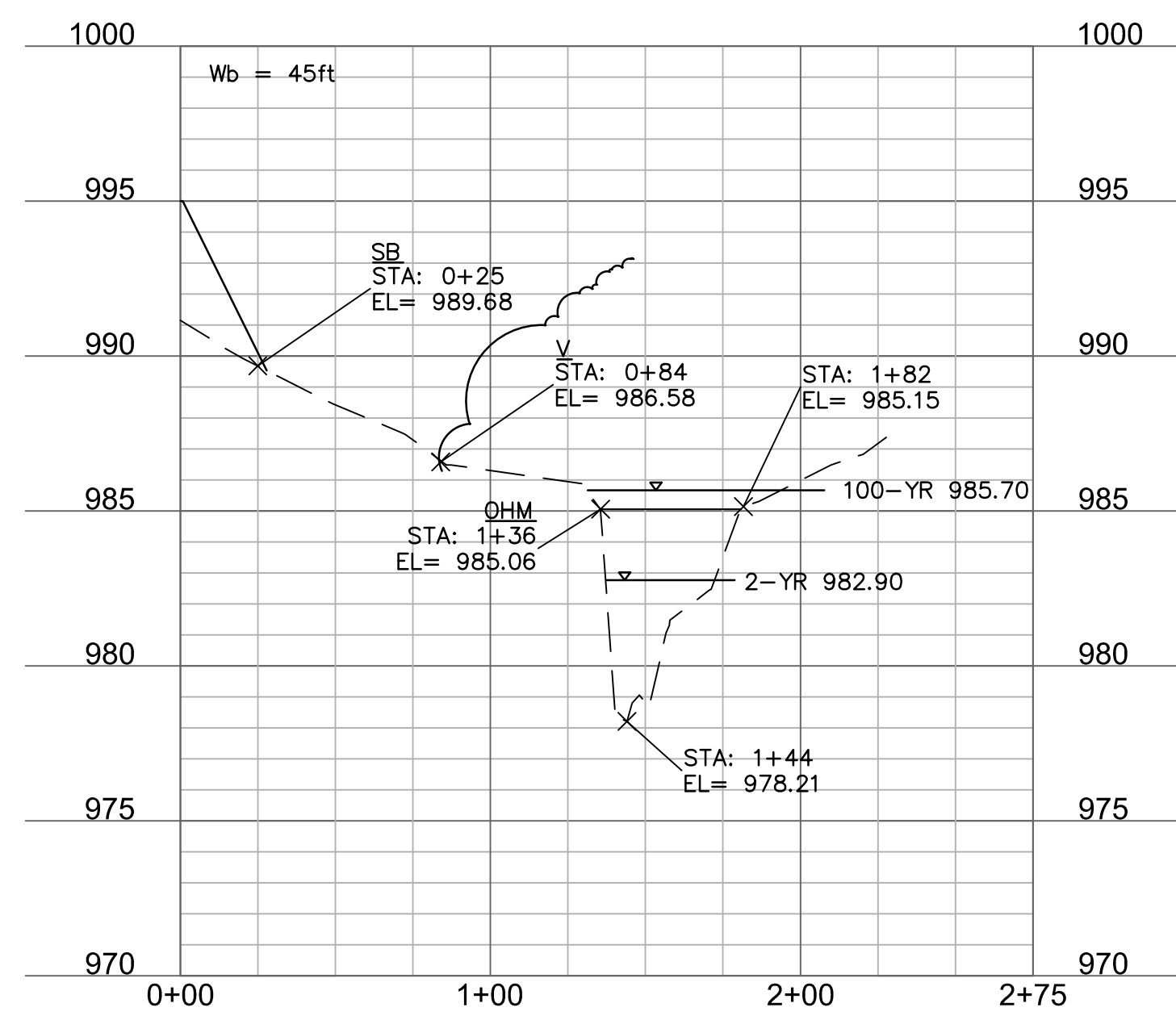
Terry Parsons
Olsson



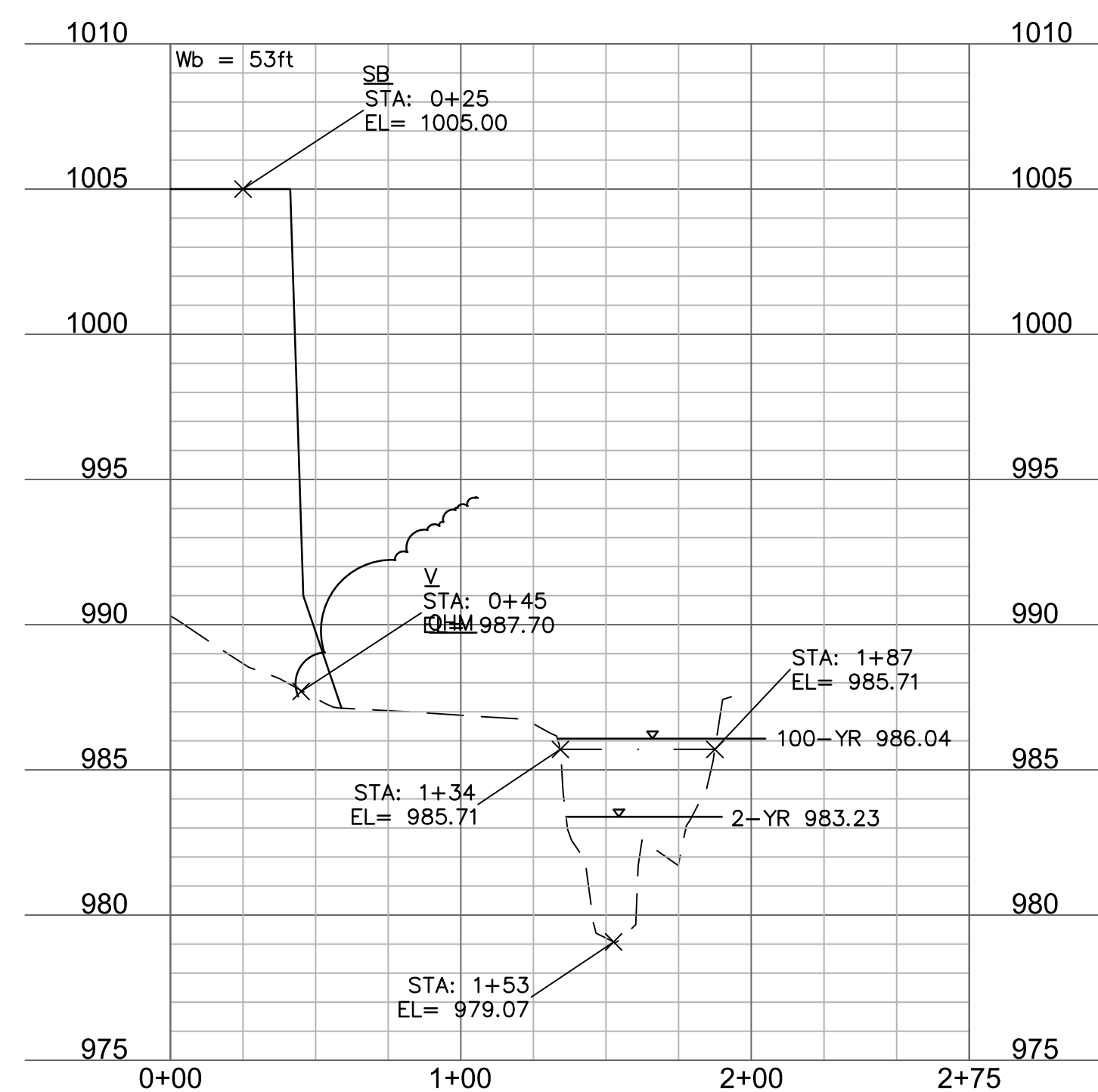
STREAM CENTERLINE (-0+25 - 11+25)



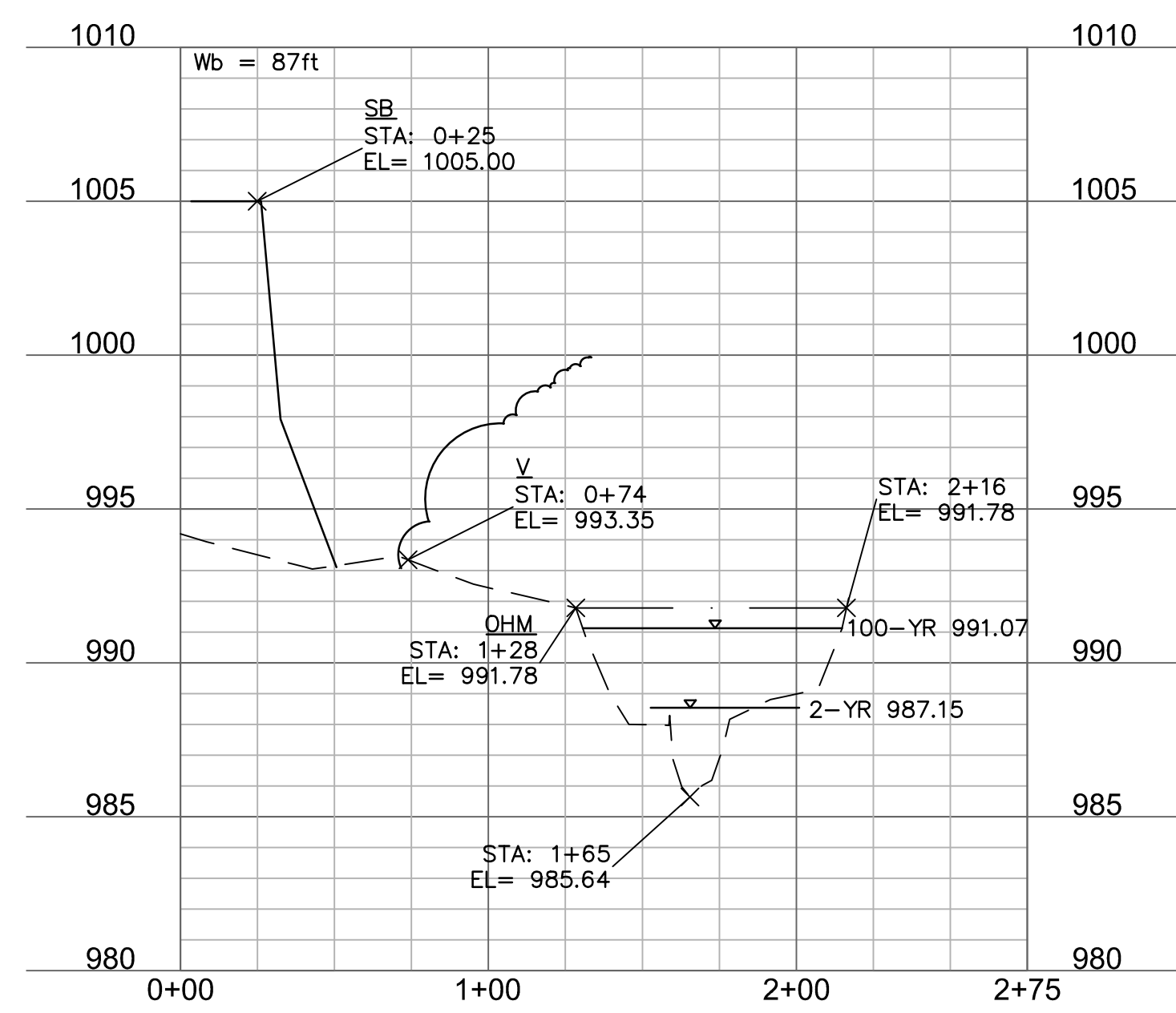
STATION 1+60 (0+00 - 2+75)



STATION 3+35 (0+00 - 2+75)



STATION 9+10 (0+00 - 2+75)

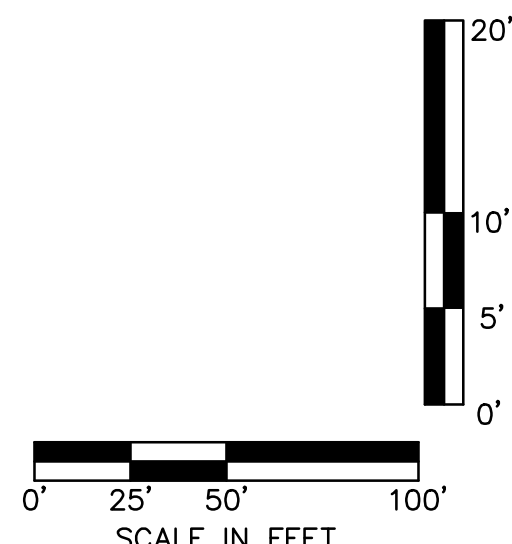


LEGEND

SB EDGE OF SETBACK

V EDGE OF VEGETATION

OHM ORDINARY
HIGHWATER MARK



Sinuosity Channel Length/Valley Length	$2700 \div 2400 = 1.13$
Average Bank Full Width (Wb)	34 ft
Average Rc	72 ft
Rc/Wb	2.1
Average Pool/Riffle Spacing	221 ft
Riffle Spacing/Wb	6.5
Average Wavelength	132 ft
Wavelength/Wb	3.9
Average Meander Amplitude	28 ft
Meander Length/Wb	8.7

STREAMWAY CENTERLINE PROFILE
NATURAL CHANNEL ASSESSMENT

LEE'S SUMMIT, MISSOURI

2020

REVISIONS

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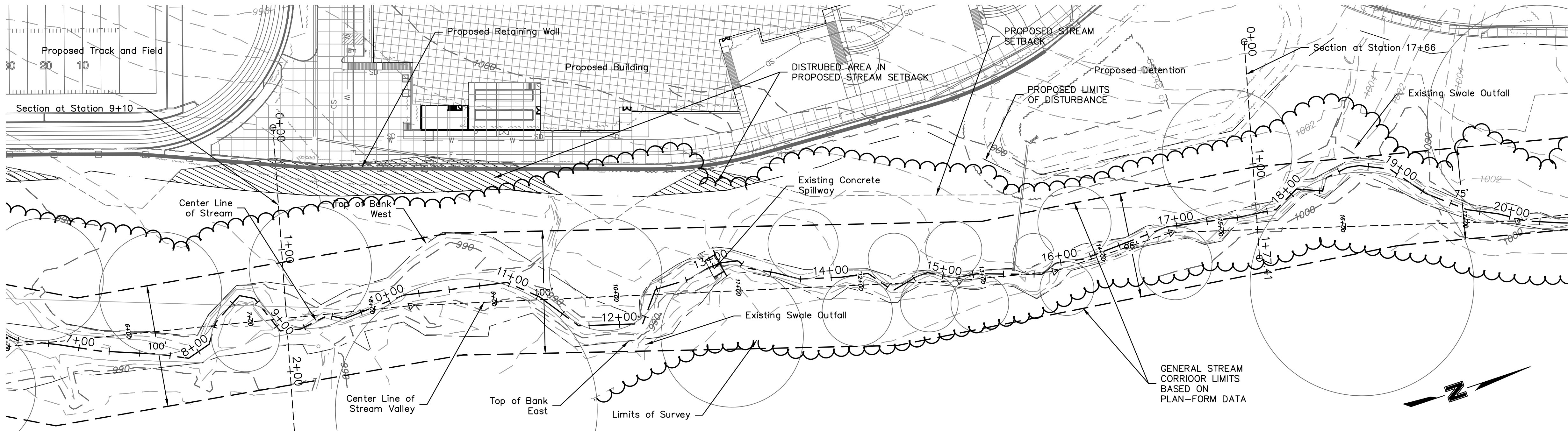
olsson

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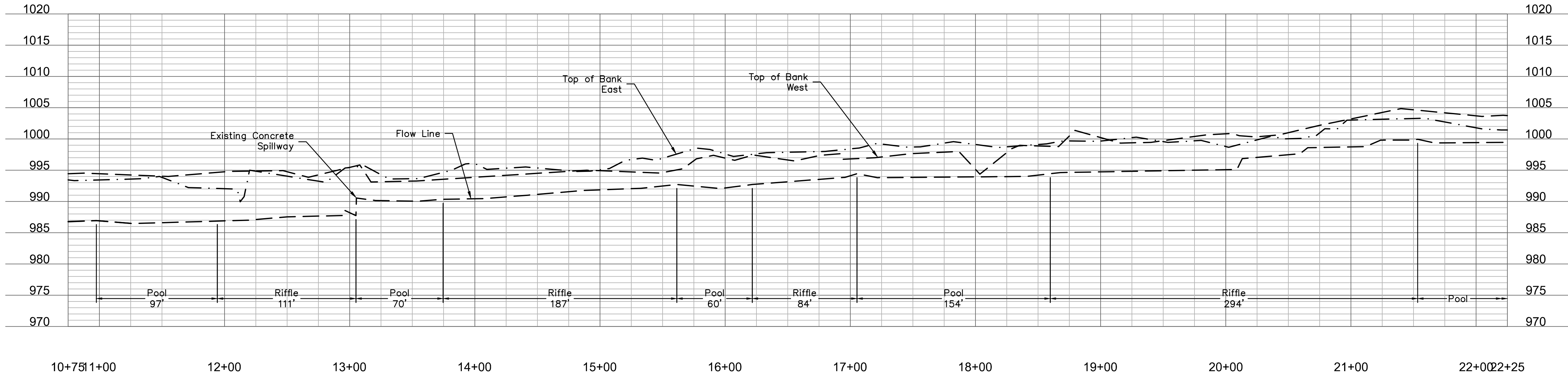
SHEET
1 of 3

drawn by:	TP
checked by:	ENG
approved by:	ENG
QA/QC by:	ENG
project no.:	020-0103
drawing no.:	ABC.DWG
date:	08.07.2020

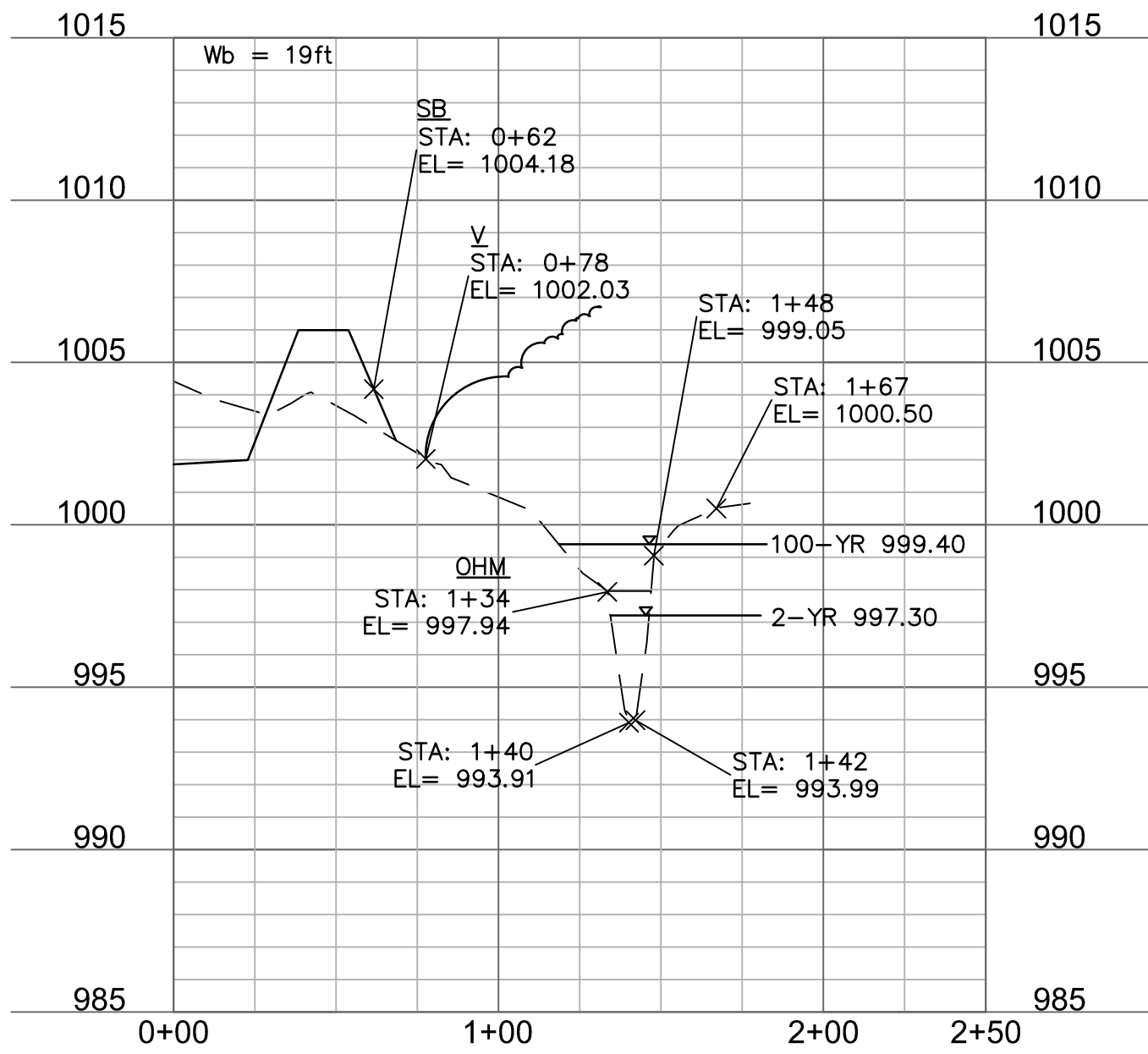
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STREAM CENTERLINE (10+75 - 22+25)

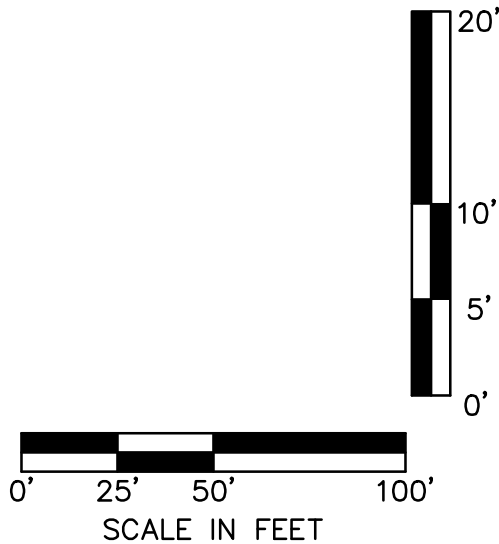


STATION 17+66 (0+00 - 2+50)



LEGEND

- SB EDGE OF SETBACK
- V EDGE OF VEGETATION
- OHM ORDINARY HIGHWATER MARK



STREAMWAY CENTERLINE PROFILE
NATURAL CHANNEL ASSESSMENT
LEE'S SUMMIT MIDDLE SCHOOL NO. 4

drawn by: TP
checked by: ENG
approved by: ENG
QA/QC by: ENG
project no.: 020-0103
drawing no.: ABC-DWG
date: 08.07.2020

SHEET
2 of 3

REVISIONS

2020

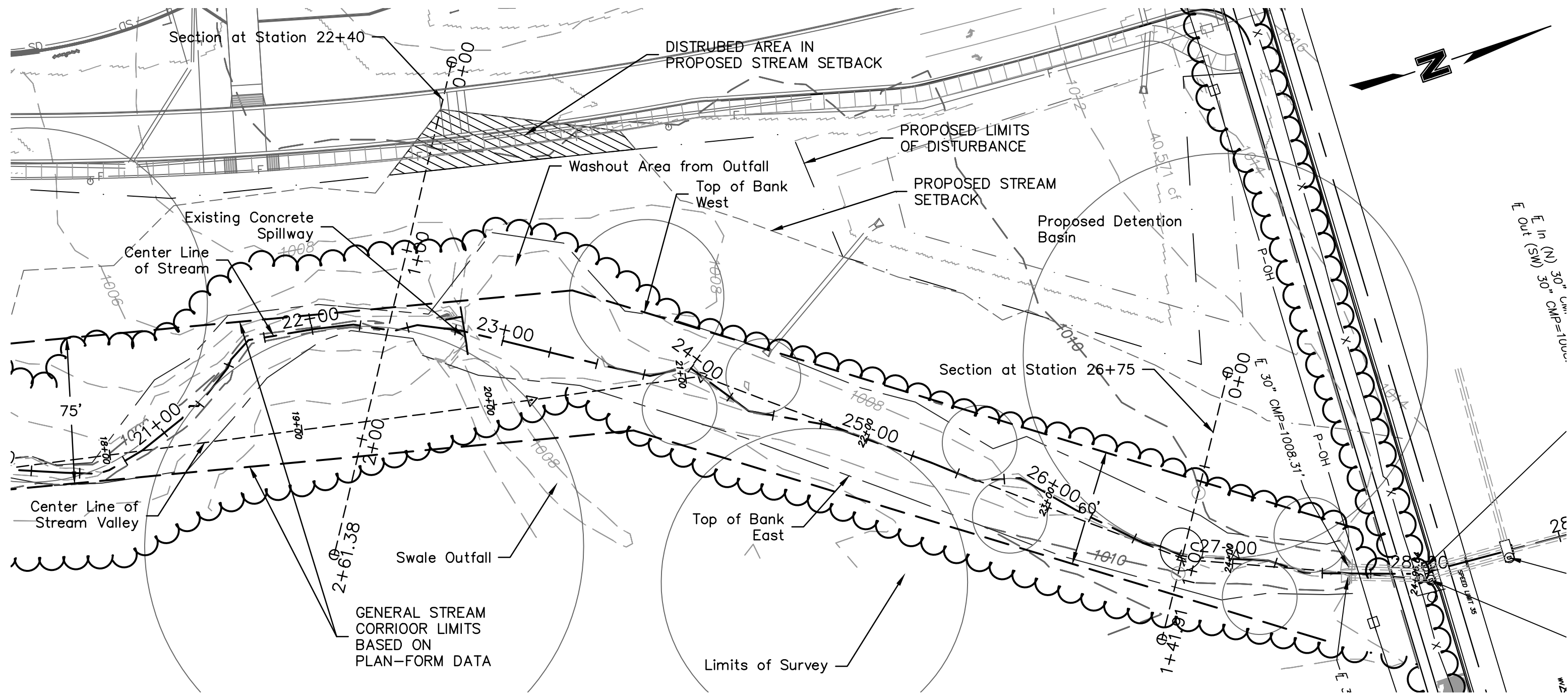
LEE'S SUMMIT, MISSOURI

REV. NO.	DATE	REVISIONS DESCRIPTION	BY

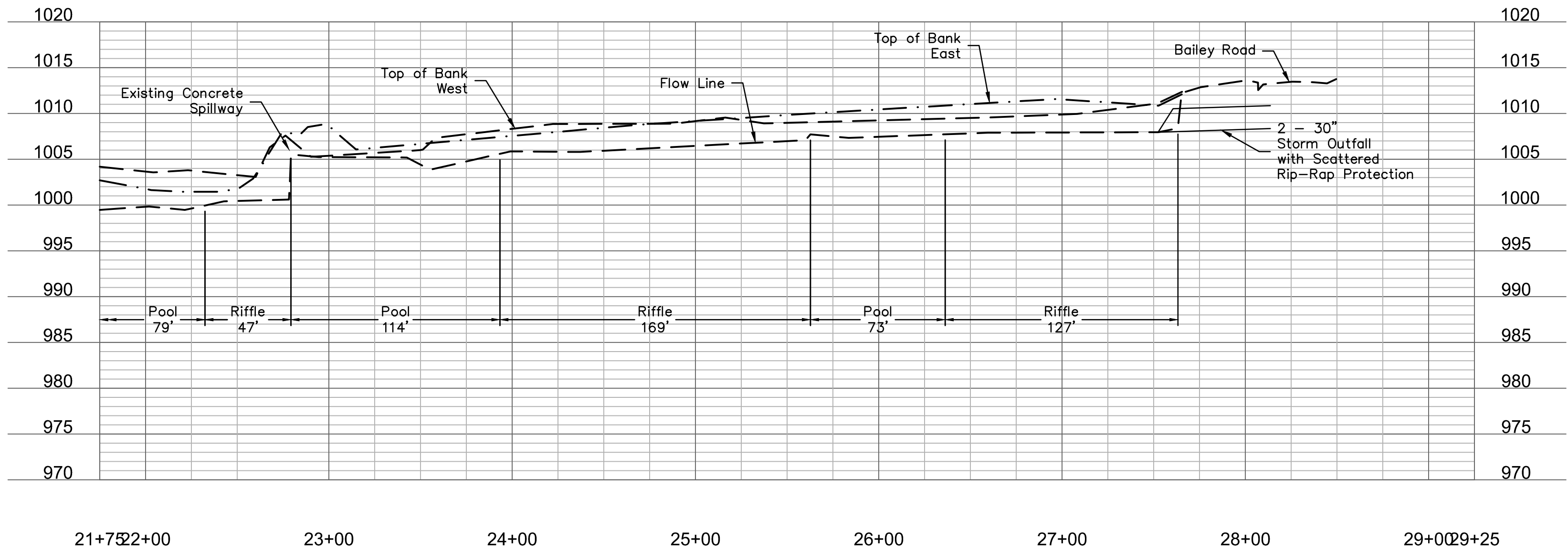
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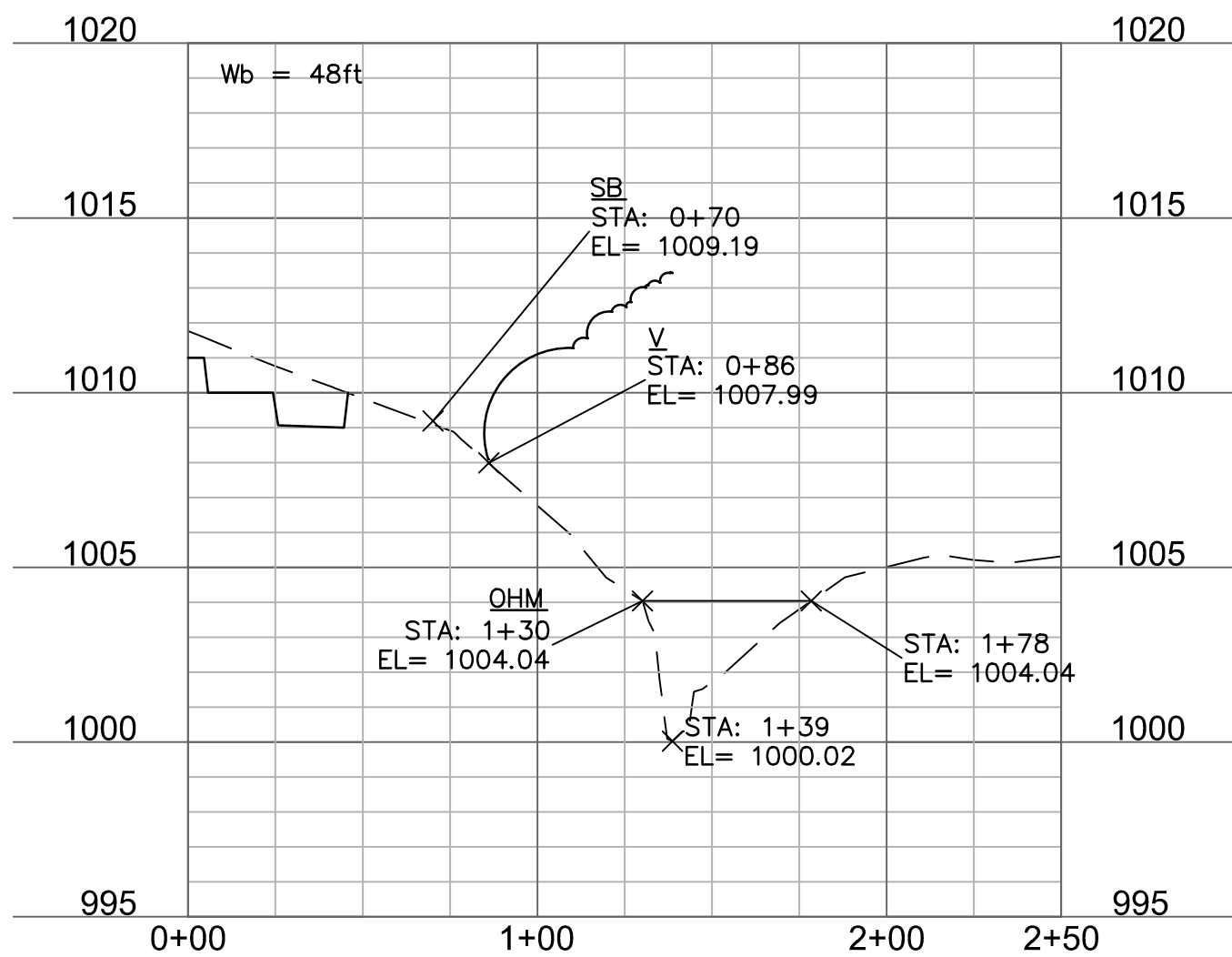
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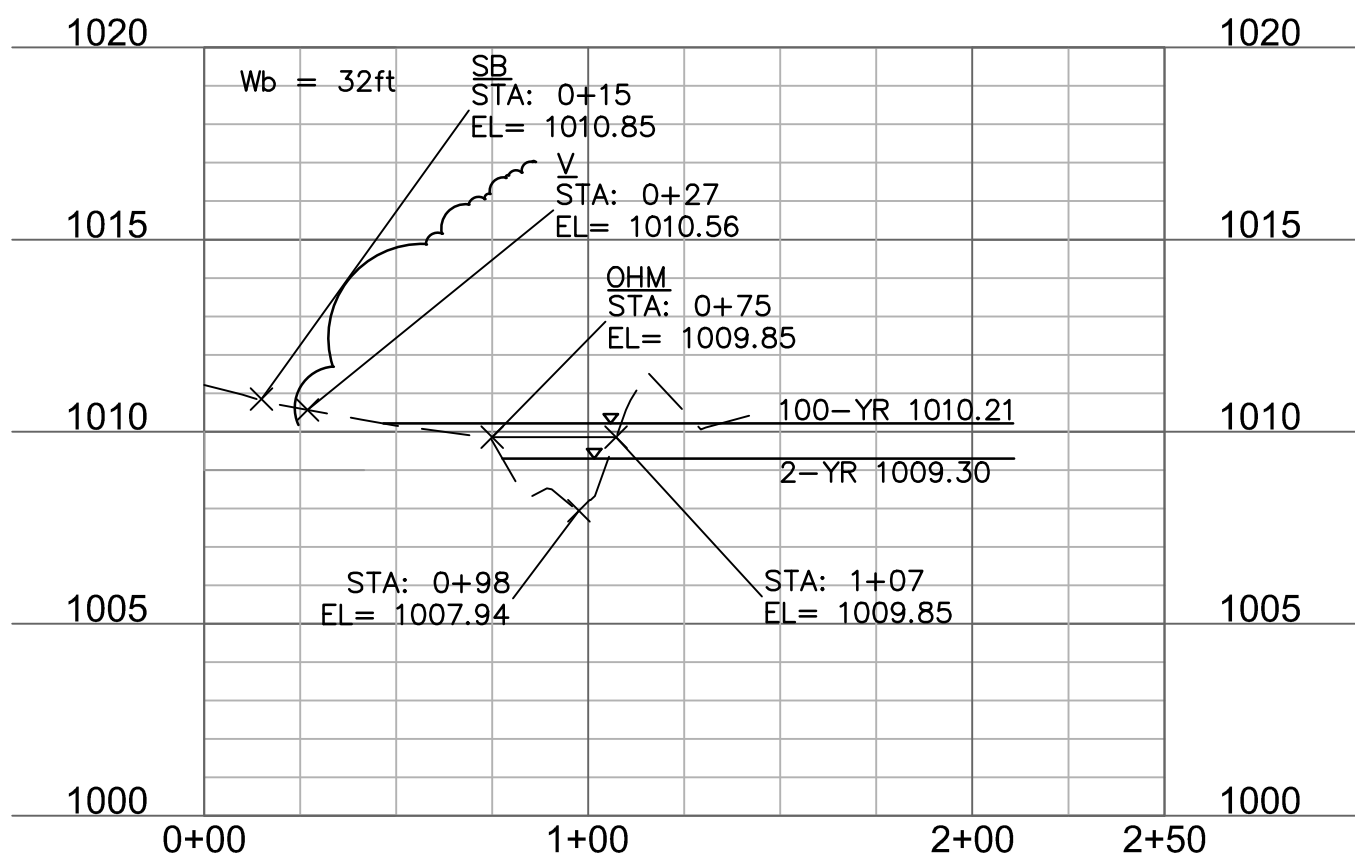
STREAM CENTERLINE (21+75 - 29+25)



STATION 22+40 (0+00 - 2+50)

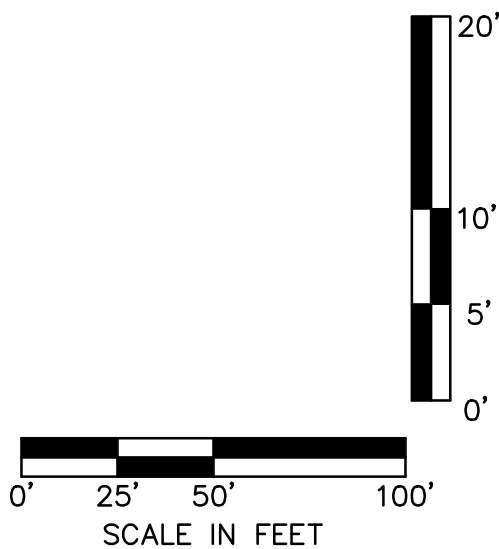


STATION 26+75 (0+00 - 2+50)



LEGEND

- SB EDGE OF SETBACK
- V EDGE OF VEGETATION
- OHM ORDINARY HIGHWATER MARK



STREAMWAY CENTERLINE PROFILE
NATURAL CHANNEL ASSESSMENT

LEE'S SUMMIT MIDDLE SCHOOL NO. 4

LEE'S SUMMIT, MISSOURI

2020

drawn by: _____ TP
checked by: _____ ENG
approved by: _____ ENG
QA/QC by: _____ ENG
project no.: 020-0103
drawing no.: ABC-DWG
date: 08.07.2020

SHEET
3 of 3

REV. NO. DATE REVISIONS DESCRIPTION

REVISIONS

BY

olsson

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