

FINAL HYDRAULICS REPORT

TOWN: WILLISTON COUNTY: CHITTENDEN
 PROJECT NO.: WILLISTON STP BIKE (9) STREAM: ALLEN BROOK
 HIGHWAY NO.: STRUCTURE NO.:

HYDROLOGIC DATA
 CHARACTER OF TERRAIN: OPEN, WOODED & DEVELOPED, SLOPES MAINLY 0-15%, MAX. 50%
 CHARACTER TYPE OF STREAM: SMALL PERENNIAL SILT/SAND INCISED, ALLUVIAL SINUOUS,
 NATURE OF STREAMBED: NOT BRAIDED, NOT ANABRANCHED, RANDOM WIDTH VARIATION,
 MINIMAL POINT BAR DEVELOPMENT, NARROW FLOOD PLAIN, LOW
 RELIEF VALLEY, LITTLE TO NO NATURAL LEVEE, < 50% TREE
 COVER ON BANKS.

Q2.33 = 8.2 cms Q25 = 18.0 cms Q100 = 26.8 cms
 Q10 = 13.6 cms Q50 = 23.6 cms Q500 = 45.3± cms

DATE OF FLOOD RECORD: UNKNOWN
 WATER SURFACE ELEVATION: -
 ESTIMATED DISCHARGE: -
 NATURAL STREAM VELOCITY: ● Q2.33 = 2.11± mps (6.9± FPS), TAKEN AT FULLY SECTION
 ICE CONDITIONS: AVERAGE
 DEBRIS: AVERAGE

DOES THE STREAM REACH MAXIMUM HIGHWATER ELEVATION RAPIDLY? NO
 IS ORDINARY RISE RAPID? NO LIKELY, SLOWER THAN AVERAGE DUE TO
 UPSTREAM STORAGE/DETENTION NATURAL FEATURES.

IS STAGE EFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? NO
 IF YES, DESCRIBE -

WATERSHED STORAGE: ±1%
 HEADWATERS: ±0%
 UNIFORM THROUGHOUT WATERSHED: ±1%
 IMMEDIATELY ABOVE SITE: ±1%

EXISTING STRUCTURE (NO EXISTING STRUCTURE)

UPSTREAM STRUCTURE: TOWN: WILLISTON DISTANCE: 1200± m
 HIGHWAY NO.: NORTH WILLISTON ROAD STRUCTURE NO.: UNKNOWN
 STRUCTURE TYPE: CONCRETE BOX SPAN
 CLEAR SPAN: 4.18 m CLEAR HEIGHT: 1.31 m UPSTM, 1.89 m DNSTM
 YEAR BUILT: UNKNOWN FULL WATERWAY: 5± sm UPSTM, 7± sm DNSTM

DOWNSTREAM STRUCTURE: TOWN: WILLISTON DISTANCE: 610± m
 HIGHWAY NO.: OLD STAGE ROAD STRUCTURE NO.: UNKNOWN
 STRUCTURE TYPE: STEEL PLATE CULVERT, 3.96 m DIAMETER ELLIPTICAL
 CLEAR SPAN: CLEAR HEIGHT: 3.96 m MAX.
 YEAR BUILT: UNKNOWN FULL WATERWAY: 11.7± sm

PROPOSED STRUCTURE
 STRUCTURE TYPE: 3.0 m WIDE STEEL BRIDGE FOR TRANSPORTATION PATH
 CLEAR SPAN (NORMAL TO STREAM): 14.40 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 1.98 m
 WATERWAY OF FULL OPENING: 21.8 sm

WATER SURFACE ELEVATION: ● Q2.33 = 141.63 m VELOCITY = 2.11 mps
 Q10 = 142.04 m VELOCITY = 2.46 mps
 Q25 = 142.21 m VELOCITY = 2.48 mps
 Q50 = 142.38 m VELOCITY = 2.58 mps
 Q100 = 142.48 m VELOCITY = 2.66 mps
 AT 1.5 m RT

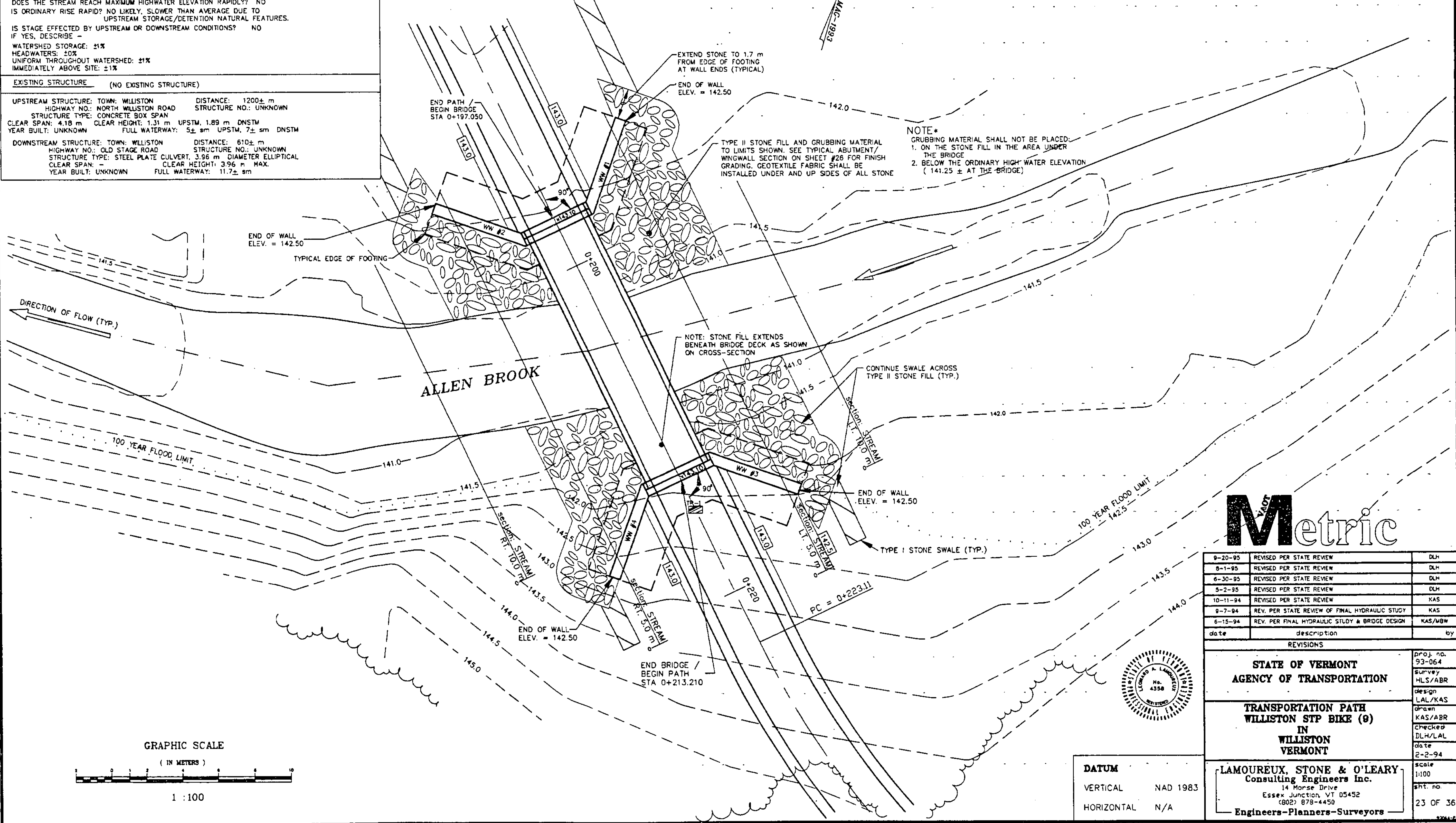
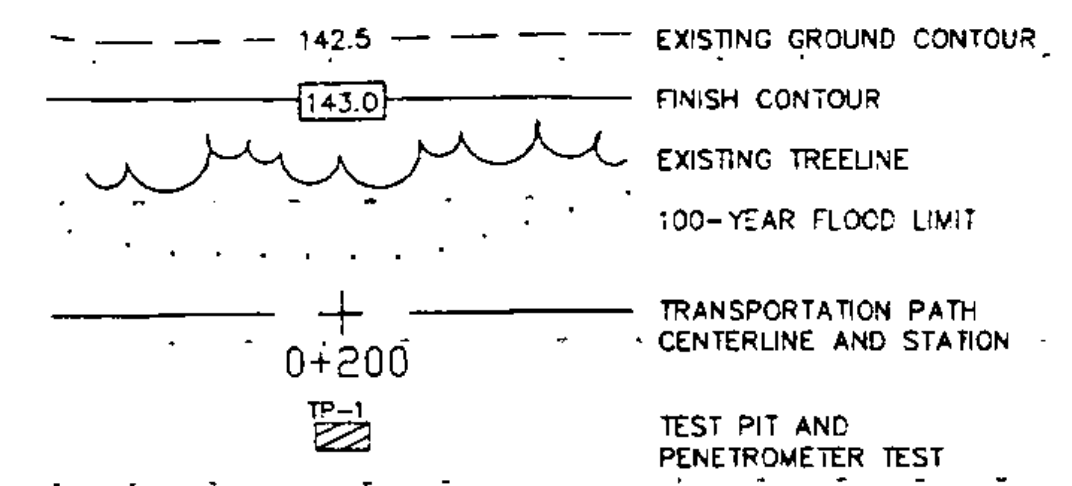
IS THE ROADWAY OVERTOPPED BELOW THE Q100? NO - FREQUENCY: -
 RELIEF ELEVATION: - DISCHARGE OVER ROAD ● Q100: -

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 142.82 m (LOW CHORD OF BRIDGE)
 VERTICAL CLEARANCE ● Q25 = 0.61 m, ● Q100 = 0.33 m

SCOUR: 0.3± m CONTRACTION SCOUR
 REQUIRED CHANNEL PROTECTION: STONE AS SHOWN ON PLANS

PERMIT INFORMATION
 AVERAGE DAILY FLOW: 0.42 cms DEPTH: 0.12± m
 ORDINARY LOW WATER: 0.20 cms DEPTH: 0.43± m
 ORDINARY HIGH WATER: 3.54 cms

LEGEND



NOTE*
 GRUBBING MATERIAL SHALL NOT BE PLACED:
 1. ON THE STONE FILL IN THE AREA UNDER
 THE BRIDGE
 2. BELOW THE ORDINARY HIGH WATER ELEVATION
 (141.25 ± AT THE BRIDGE)

GRAPHIC SCALE
 (IN METERS)

1 : 100



date	description	by
9-20-95	REVISED PER STATE REVIEW	DLH
8-1-95	REVISED PER STATE REVIEW	DLH
6-30-95	REVISED PER STATE REVIEW	DLH
5-2-95	REVISED PER STATE REVIEW	DLH
10-11-94	REVISED PER STATE REVIEW	KAS
9-7-94	REV. PER STATE REVIEW OF FINAL HYDRAULIC STUDY	KAS
6-15-94	REV. PER FINAL HYDRAULIC STUDY & BRIDGE DESIGN	KAS/ABW

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRANSPORTATION PATH
WILLISTON STP BIKE (9)
IN
WILLISTON
VERMONT

LAMOUREUX, STONE & O'LEARY
 Consulting Engineers Inc.
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Engineers-Planners-Surveyors

PROJ. NO. 93-064
 SURVEY HLS/ABR
 DES'GN LAL/KAS
 DRAWN KAS/ABR
 CHECKED DLH/LAL
 DATE 2-2-94
 SCALE 1/100
 SHEET NO. 23 OF 36

DATUM
 VERTICAL NAD 1983
 HORIZONTAL N/A

