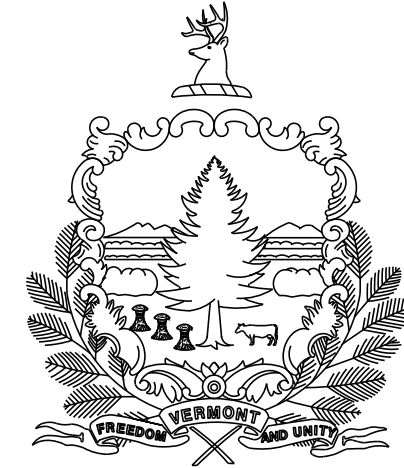


STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT

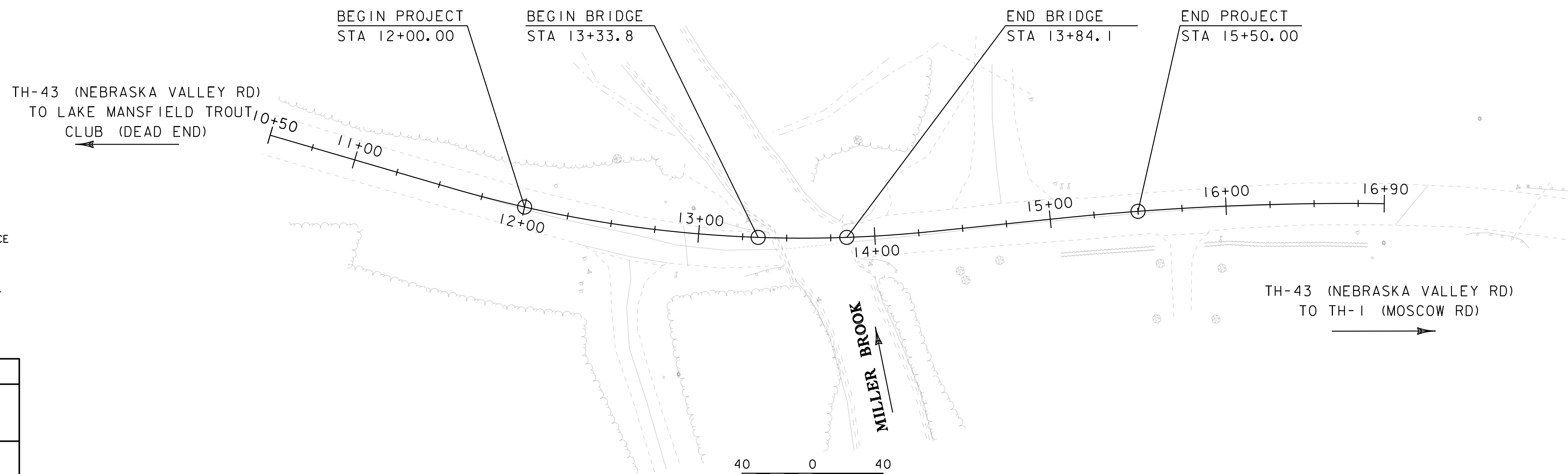
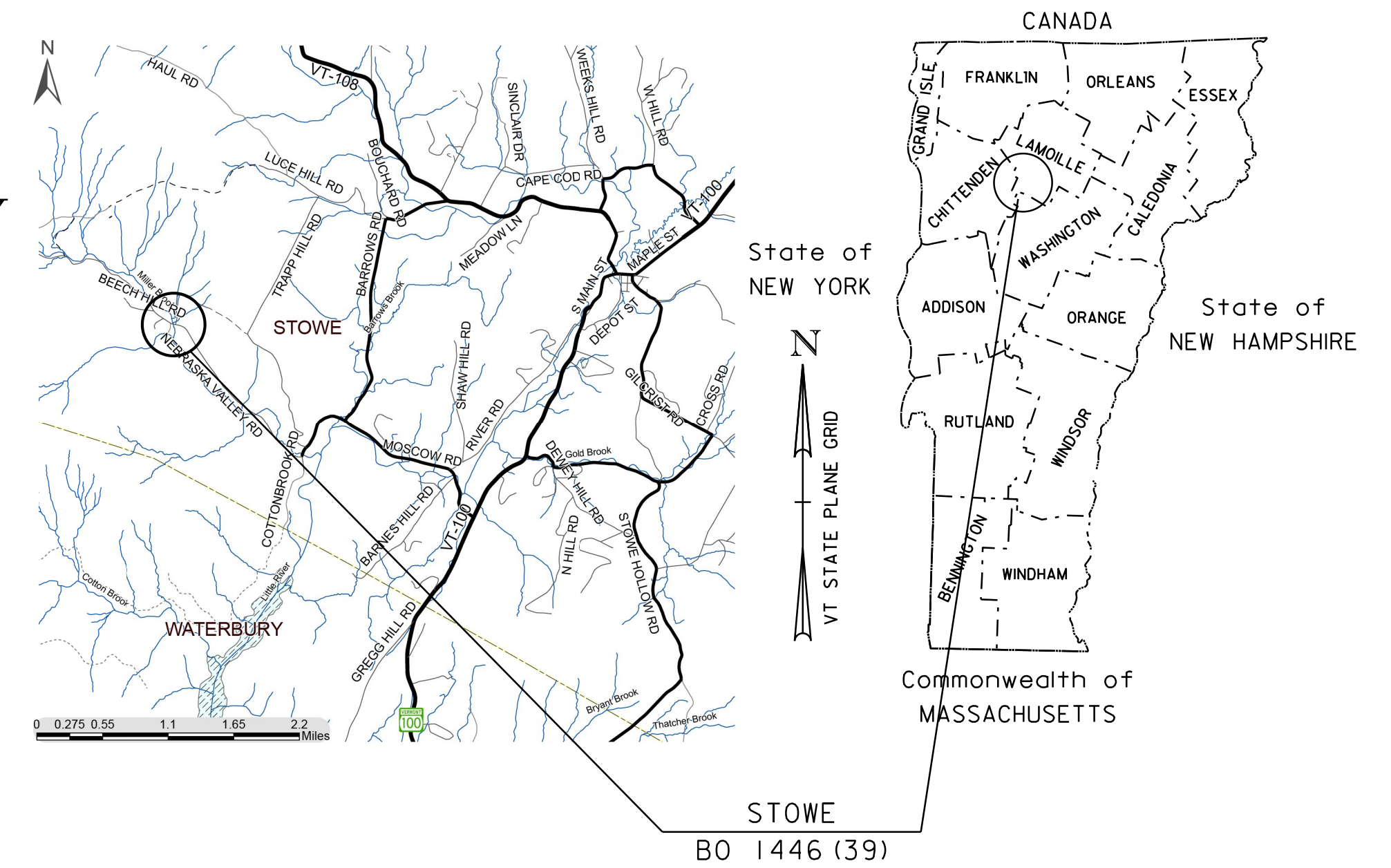
TOWN OF STOWE
COUNTY OF LAMOILLE

ROUTE NO : TOWN HIGHWAY 43 (CLASS 3 TOWN HIGHWAY)

PROJECT LOCATION : BRIDGE 48 IS LOCATED IN THE TOWN OF STOWE ON TH 43 (NEBRASKA VALLEY ROAD) APPROXIMATELY 1.5 MILES NORTHWEST FROM ITS INTERSECTION WITH TH 1 (MOSCOW ROAD) AND EXTENDING EASTERLY .047 MILES.

PROJECT DESCRIPTION : REPLACEMENT OF THE EXISTING BRIDGE TO INCLUDE SUPERSTRUCTURE, SUBSTRUCTURE, ROADWAY AND CHANNEL WORK.

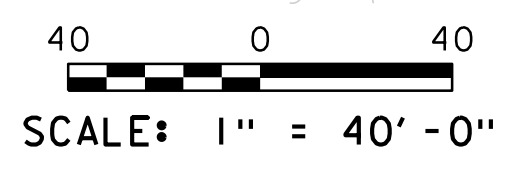
LENGTH OF STRUCTURE : 50.3 FEET.
LENGTH OF ROADWAY : 299.7 FEET.
LENGTH OF PROJECT : 350.00 FEET.



CONCEPTUAL PLANS

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2018, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON APRIL 13, 2018 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL 2	
SURVEYED BY :	R. GILMAN
SURVEYED DATE :	9/21/2009
DATUM	
VERTICAL	NAVD88
HORIZONTAL	NAD83 (96)



HIGHWAY DIVISION, CHIEF ENGINEER	
APPROVED _____	DATE _____
PROJECT MANAGER : CAROLYN COTA, P.E.	
PROJECT NAME : STOWE	
PROJECT NUMBER : BO 1446 (39)	
SHEET 1 OF 13 SHEETS	

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

INDEX OF SHEETS

PLAN SHEETS

- 1 TITLE SHEET
- 2 PRELIMINARY INFORMATION SHEET
- 3 TYPICAL SECTIONS
- 4 EXISTING CONDITIONS
- 5 LAYOUT SHEET
- 6 PROFILE SHEET
- 7 BORING INFORMATION SHEET
- 8 - 11 ROADWAY CROSS SECTIONS 1-4
- 12 - 13 CHANNEL CROSS SECTIONS 1-2

STANDARDS LIST

DETAIL SHEETS

FINAL HYDRAULIC REPORT

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN ONE-WAY TRAFFIC ON A TEMPORARY BRIDGE.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY
4. THE APPROACHES FOR THE TEMPORARY BRIDGE SHALL BE PAVED.

DESIGN VALUES

- | | |
|--|--------------|
| 1. DESIGN LIVE LOAD | HL-93 |
| 2. FUTURE PAVEMENT | dp: 2.5 INCH |
| 3. DESIGN SPAN | L: 48.00 FT |
| | |
| 4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) | Δ: --- |
| 5. PRESTRESSING STRAND | fy: --- |
| 6. PRESTRESSED CONCRETE STRENGTH | f'c: --- |
| 7. PRESTRESSED CONCRETE RELEASE STRENGTH | f'cr: --- |
| 8. HIGH PERFORMANCE CONCRETE, CLASS PCD | f'c: 4.0 KSI |
| 9. HIGH PERFORMANCE CONCRETE, CLASS PCS | f'c: 3.5 KSI |
| 10. CONCRETE HIGH PERFORMANCE, CLASS SCC | f'c: 4.0 KSI |
| 11. CONCRETE, CLASS C | f'c: 3.0 KSI |
| 12. REINFORCING STEEL | fy: 60 KSI |
| 13. STRUCTURAL STEEL AASHTO M270 | fy: 50 KSI |
| | |
| 14. NOMINAL BEARING RESISTANCE OF SOIL | qn: --- |
| 15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) | φ: --- |
| 16. NOMINAL BEARING RESISTANCE OF ROCK | qn: --- |
| 17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) | φ: --- |

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY							
POSTING							
OPERATING							
COMMENTS:							

18. PILE RESISTANCE FACTOR
19. LATERAL PILE DEFLECTION
20. BASIC WIND SPEED
21. MINIMUM GROUND SNOW LOAD
22. SEISMIC DATA
- 23.
- 24.
- 25.
- 26.

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2024	400	60	54	1.5	35
2044	440	70	54	2	50

20 year ESAL for flexible pavement from 2024 to 2044 : 0
 40 year ESAL for flexible pavement from 2024 to 2064 : 0
 Design Speed : 0 mph

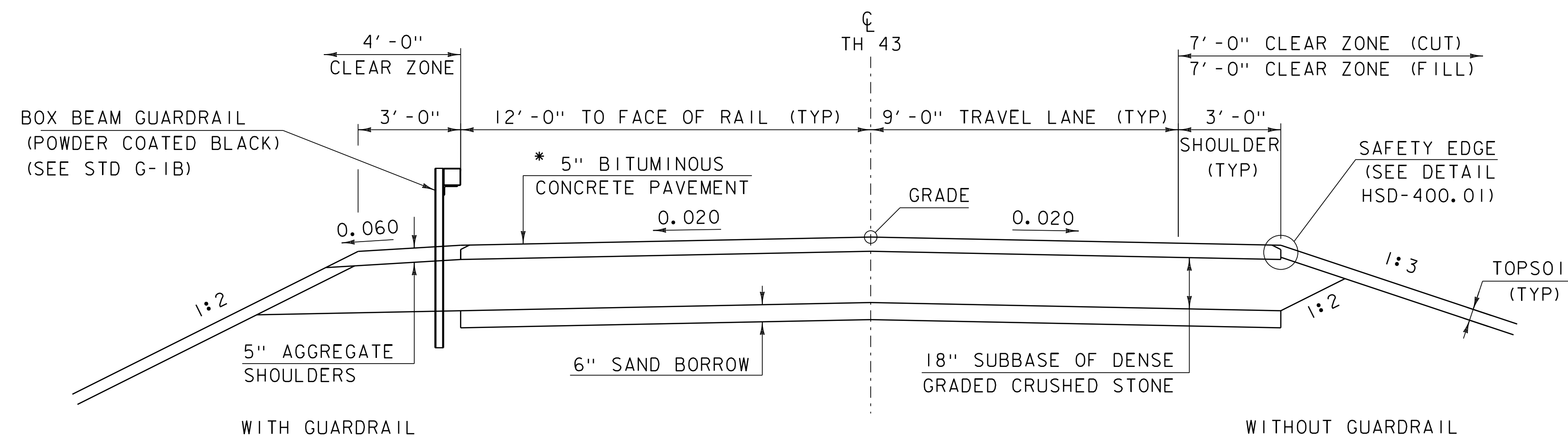
AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

PROJECT NAME: **STOWE**
 PROJECT NUMBER: **BO 1446(39)**

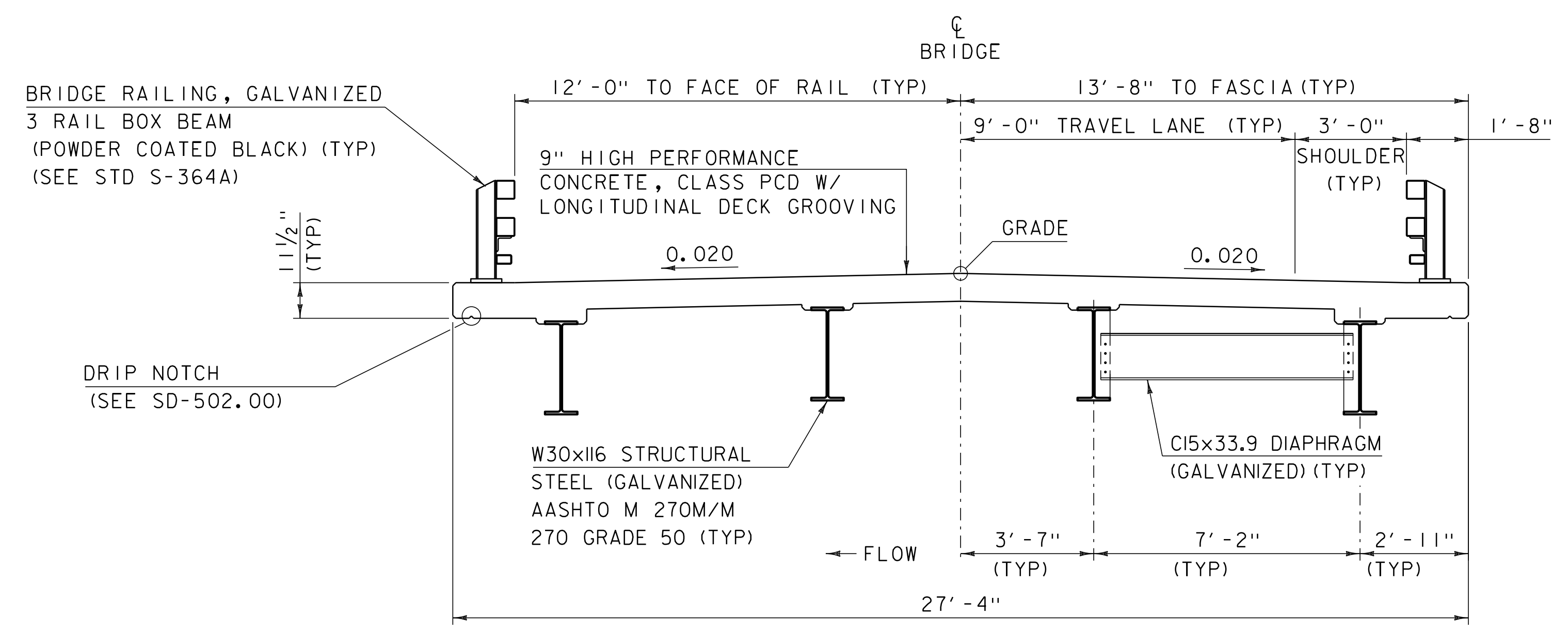
FILE NAME: s12j658forms.dgn
 PROJECT LEADER: C. COTA
 DESIGNED BY: M. LONGSTREET
 PRELIMINARY INFORMATION SHEET 1

PLOT DATE: 2/22/2021
 DRAWN BY: M. LONGSTREET
 CHECKED BY: C. BURRALL
 SHEET 2 OF 13



* 1 1/2" BCP, TYPE IVS OVER
 1 1/2" BCP, TYPE IVS OVER
 2" TYPE IIIS

TH 43 ROADWAY TYPICAL SECTION
 SCALE 3/8" = 1'-0"



BRIDGE TYPICAL SECTION
 SCALE 3/8" = 1'-0"

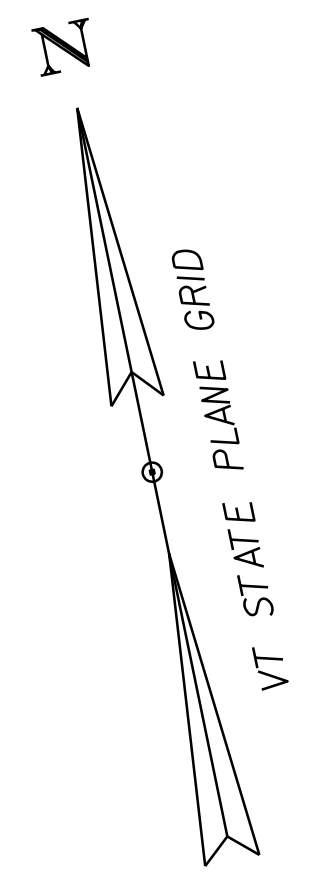
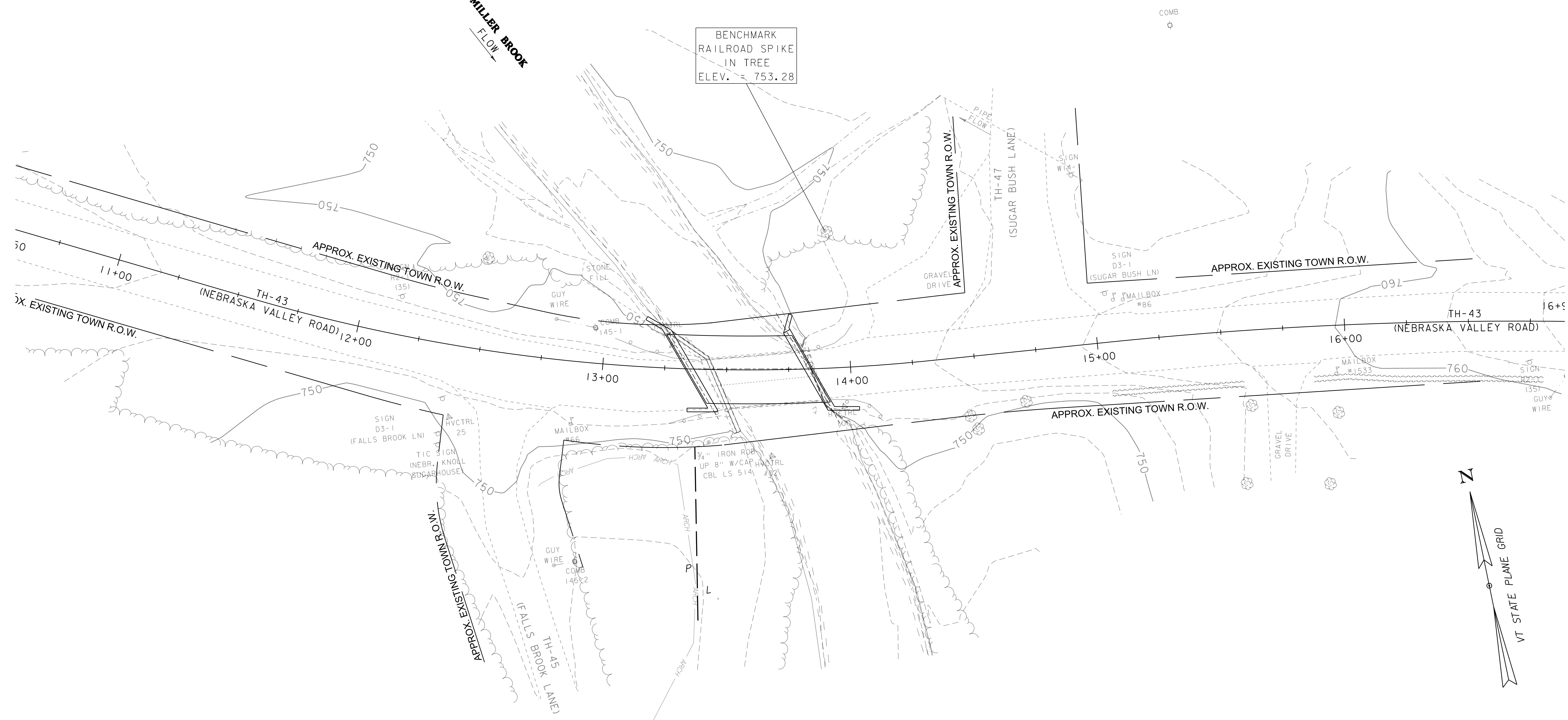
MATERIAL TOLERANCES (IF USED ON PROJECT)	
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	
SAND BORROW	+/- 1"

EMULSION SHALL BE APPLIED PER THE APPLICATION RATES IN TABLE 406.12A OF THE STANDARD SPECIFICATIONS.

PROJECT NAME: STOWE	
PROJECT NUMBER: BO 1446 (39)	
FILE NAME: sl2j658+yp.dgn	PLOT DATE: 22-FEB-2021
PROJECT LEADER: C. COTA	DRAWN BY: M. LONGSTREET
DESIGNED BY: C. BURRALL	CHECKED BY: C. BURRALL
TYPICAL SECTIONS 1	SHEET 3 OF 13

BENCHMARK
RAILROAD SPIKE
IN TREE
ELEV. = 753.28

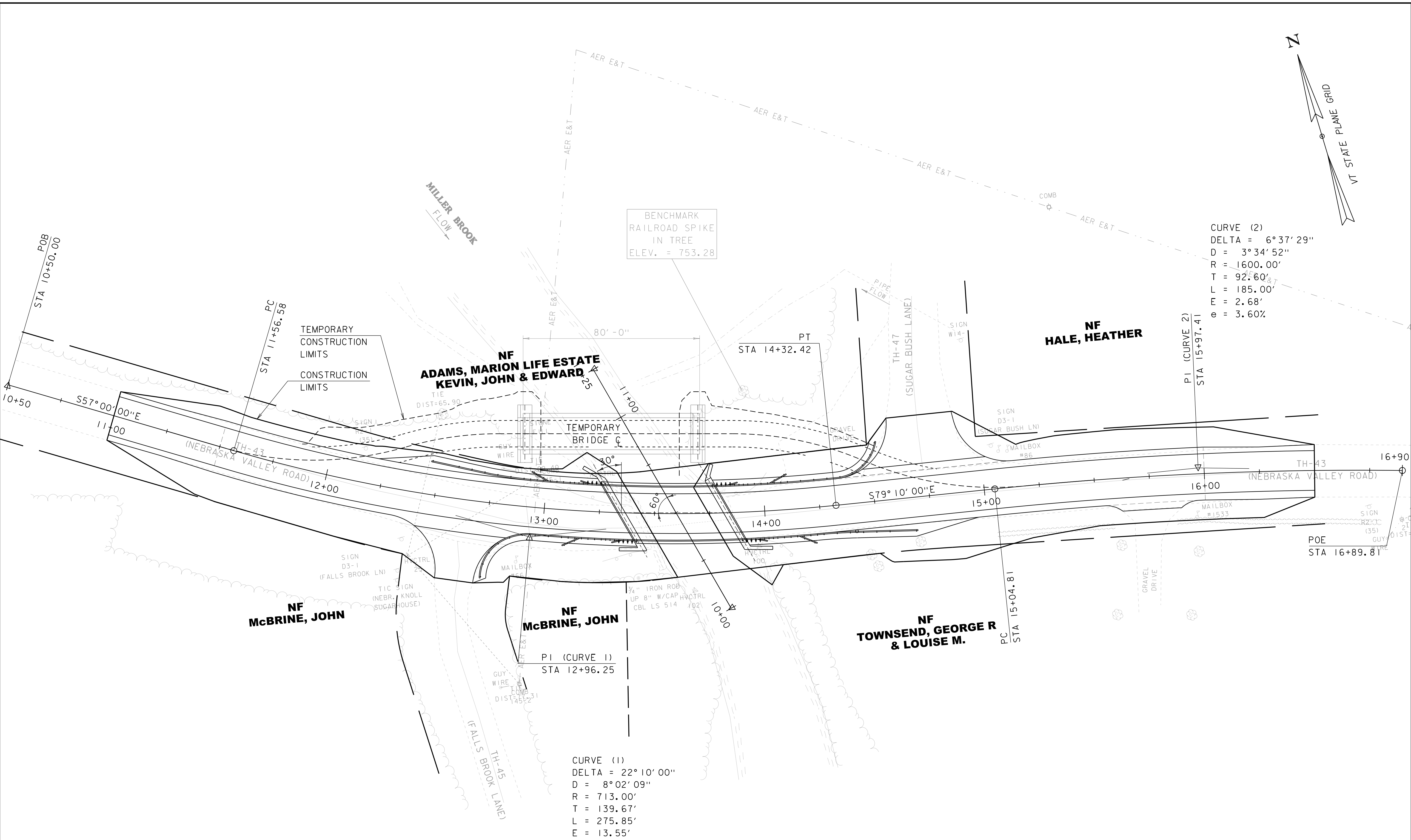
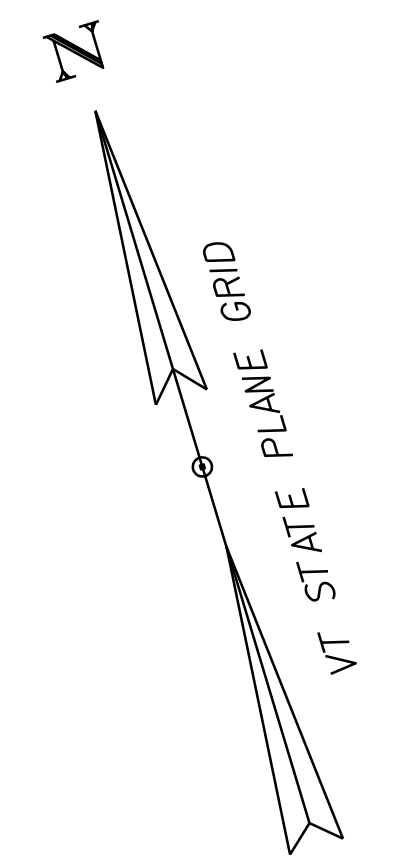
MILLER BROOK
FLOW



EXISTING BRIDGE INFORMATION
BUILT 1925 ROLLED I BEAM,
CONCRETE CIP DECK
SPAN LENGTH: 45'

SCALE 1" = 20' - 0"
20 0 20

PROJECT NAME:	STOWE	PLOT DATE:	22-FEB-2021
PROJECT NUMBER:	BO 1446(39)	DRAWN BY:	MCL
FILE NAME:	sl2j658nu4.dgn	CHECKED BY:	-----
PROJECT LEADER:	C.BURRALL	EXISTING CONTITIONS	SHEET 4 OF 13
DESIGNED BY:	MCL		



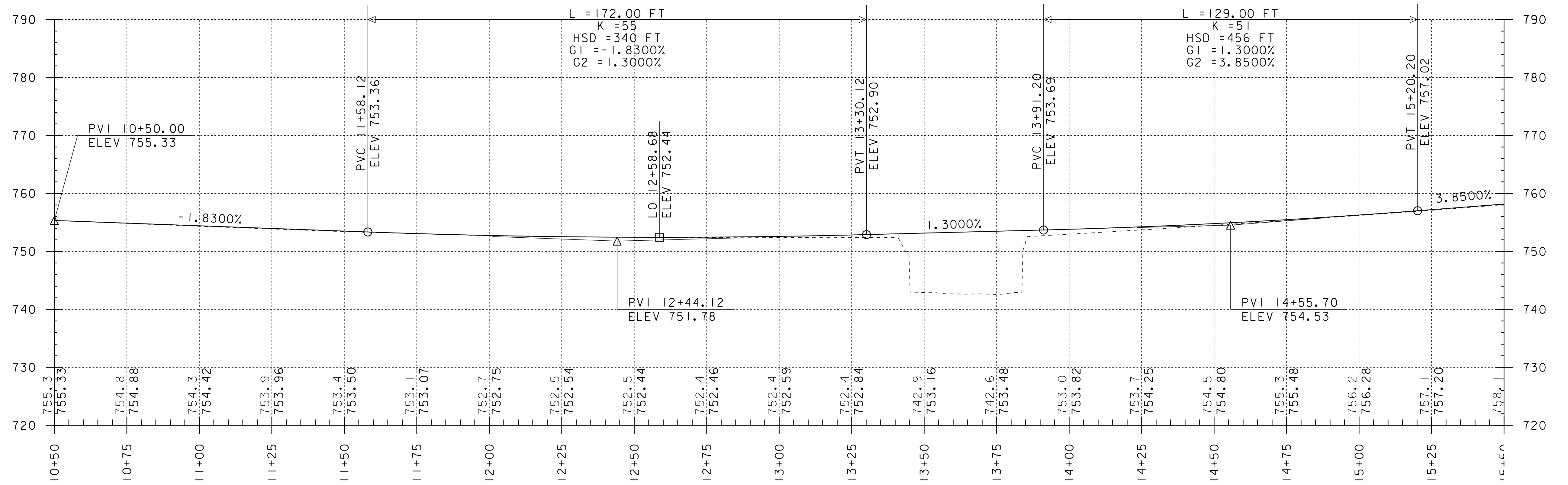
CURVE (2)
 DELTA = 6° 37' 29"
 D = 3° 34' 52"
 R = 1600.00'
 T = 92.60'
 L = 185.00'
 E = 2.68'
 e = 3.60%

CURVE (1)
 DELTA = 22° 10' 00"
 D = 8° 02' 09"
 R = 713.00'
 T = 139.67'
 L = 275.85'
 E = 13.55'
 e = 6.00%

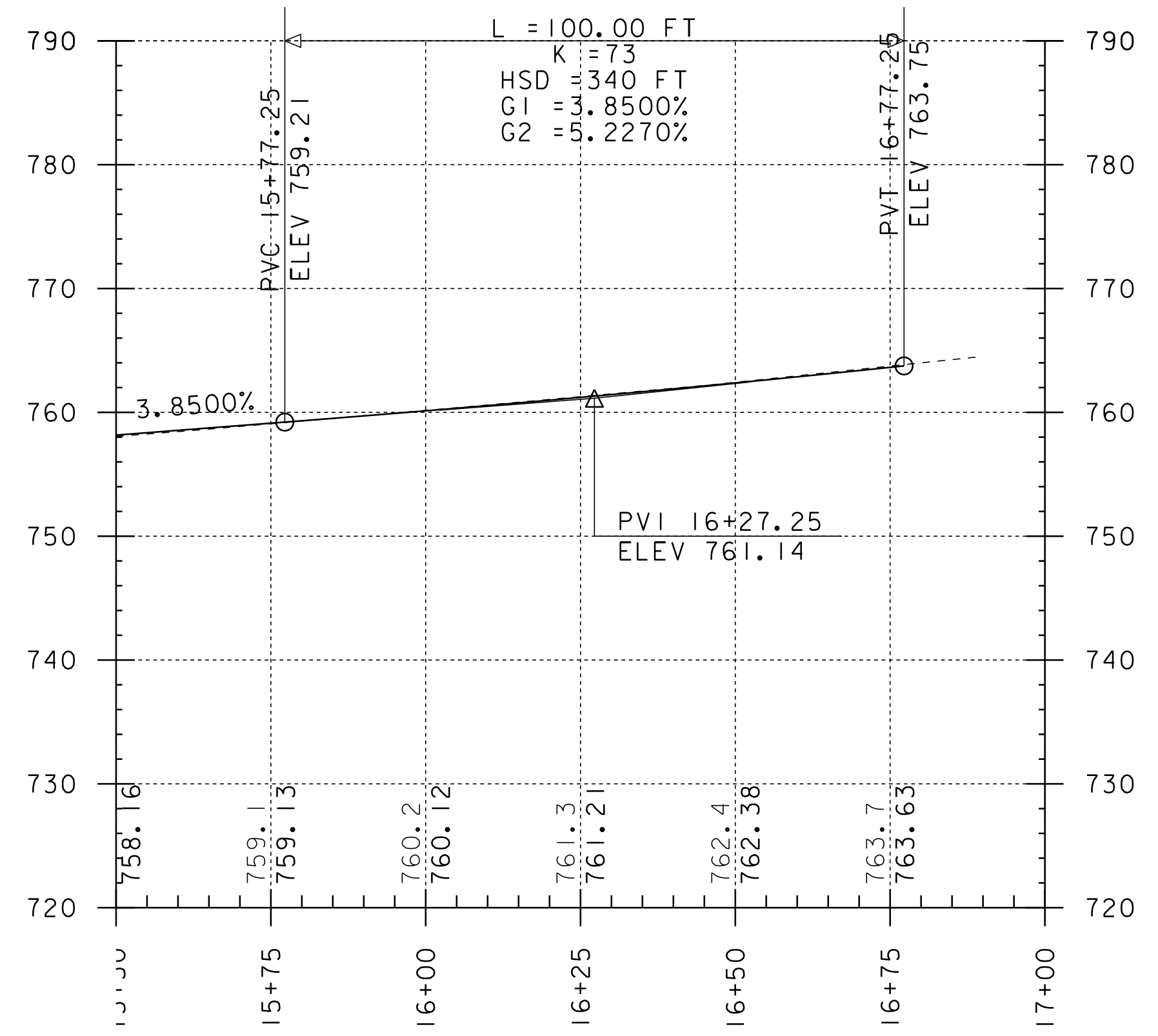
EXISTING BRIDGE INFORMATION
 BUILT 1925 ROLLED I BEAM,
 CONCRETE CIP DECK
 SPAN LENGTH: 45'

PROJECT NAME: STOWE	
PROJECT NUMBER: BO 1446(39)	
FILE NAME: sl2j658nu4.dgn	PLOT DATE: 22-FEB-2021
PROJECT LEADER: C.BURRALL	DRAWN BY: MCL
DESIGNED BY: MCL	CHECKED BY: -----
LAYOUT DESCRIPTION: 4	SHEET 5 OF 13

TH43



TH43



PROJECT NAME: STOWE	
PROJECT NUMBER: BO 1446(39)	
FILE NAME: sl2j658nu4.dgn	PLOT DATE: 22-FEB-2021
PROJECT LEADER: C.BURRALL	DRAWN BY: MCL
DESIGNED BY: MCL	CHECKED BY: -----
PROFILE OPTION 4	SHEET 6 OF 13

SOIL CLASSIFICATION

AASHTO

A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

ROCK QUALITY DESIGNATION

R.O.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

COMMONLY USED SYMBOLS

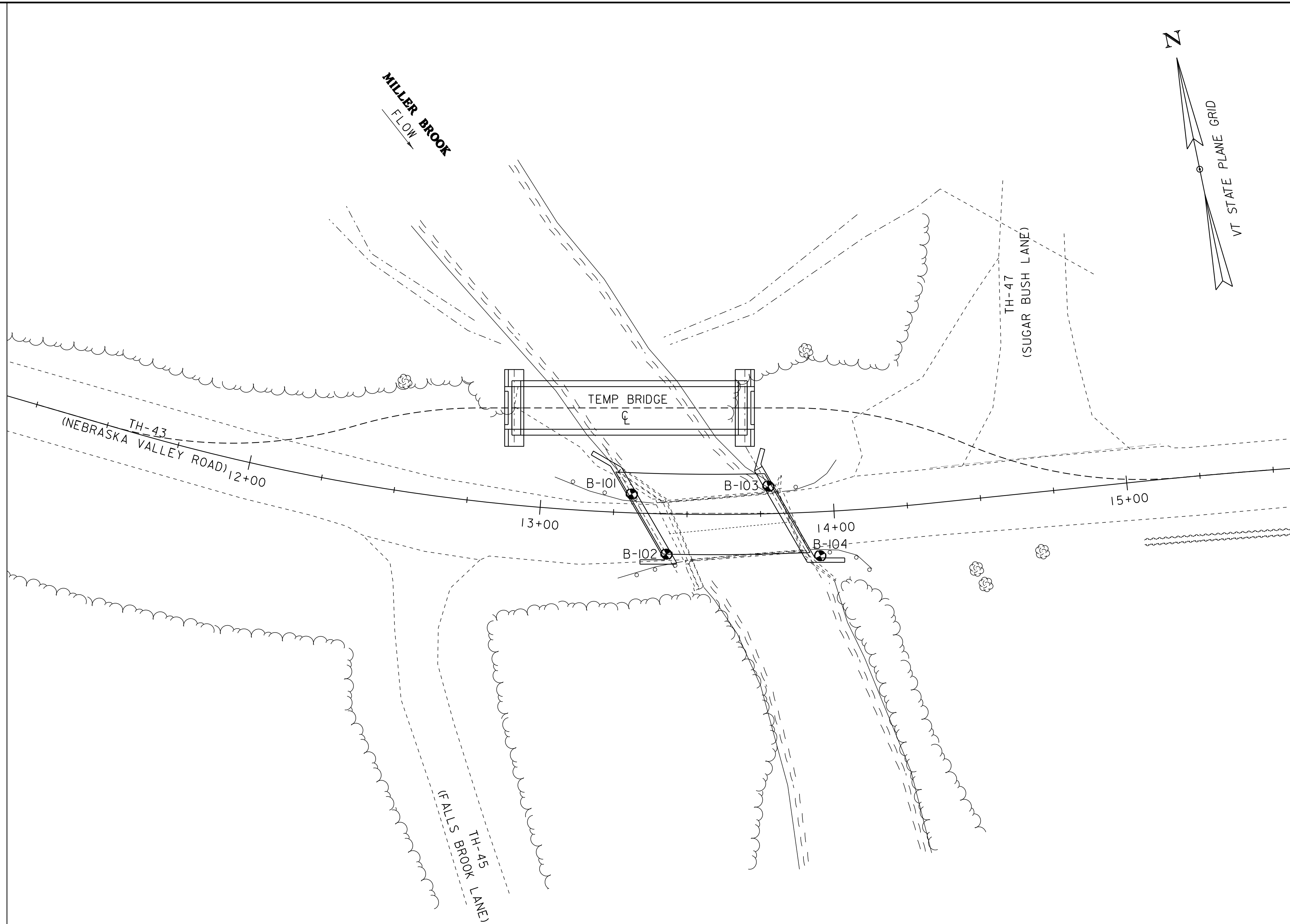
- ▼ Water Elevation
- ⊕ Standard Penetration Boring
- ⊕ Auger Boring
- ⊕ Rod Sounding
- Sample
- S Standard Penetration Test
- N Blow Count Per Foot For:
2" O. D. Sampler
1 3/8" I. D. Sampler
Hammer Weight Of 140 Lbs.
Hammer Fall Of 30"
- VS Field Vane Shear Test
- US Undisturbed Soil Sample
- B Blast
- DC Diamond Core
- MD Mud Drill
- WA Wash Ahead
- HSA Hollow Stem Auger
- AX Core Size 1 1/8"
- BX Core Size 1 3/8"
- NX Core Size 2 1/8"
- M Double Tube Core Barrel Used
- LL Liquid Limit
- PL Plastic Limit
- PI Plasticity Index
- NP Non Plastic
- w Moisture Content (Dry Wgt. Basis)
- D Dry
- M Moist
- MTW Moist To Wet
- W Wet
- Sat Saturated
- Bo Boulder
- Gr Gravel
- Sa Sand
- Si Silt
- Cl Clay
- HP Hardpan
- Le Ledge
- NLTD No Ledge To Depth
- CNPF Can Not Penetrate Further
- TLOB Top of Ledge Or Boulder
- NR No Recovery
- Rec. Recovery
- %Rec. Percent Recovery
- ROD Rock Quality Designation
- CBR California Bearing Ratio
- < Less Than
- > Greater Than
- R Refusal (N > 100)
- VTSPG NAD83 - See Note 7

COLOR

blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gr'y	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		

DEFINITIONS (AASHTO)

- BEDROCK (LEDGE)** - Rock in its native location of indefinite thickness.
- BOULDER** - A rock fragment with an average dimension > 12 inches.
- COBBLE** - Rock fragments with an average dimension between 3 and 12 inches.
- GRAVEL** - Rounded particles of rock < 3" and > 0.075" (#10 sieve).
- SAND** - Particles of rock < 0.075" (#10 sieve) and > 0.0025" (#200 sieve).
- SILT** - Soil < 0.0025" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.
- CLAY** - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.
- VARVED** - Alternate layers of silt and clay.
- HARDPAN** - Extremely dense soil, cemented layer, not softened when wet.
- MUCK** - Soft organic soil (containing > 10% organic material).
- MOISTURE CONTENT** - Weight of water divided by dry weight of soil.
- FLOWING SAND** - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.
- STRIKE** - Angle from magnetic north to line of intersection of bed with a horizontal plane.
- DIP** - Inclination of bed with a horizontal plane.



GENERAL NOTES

1. The subsurface explorations shown herein were made between 12/03/2014 and 02/11/2015 by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.
7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

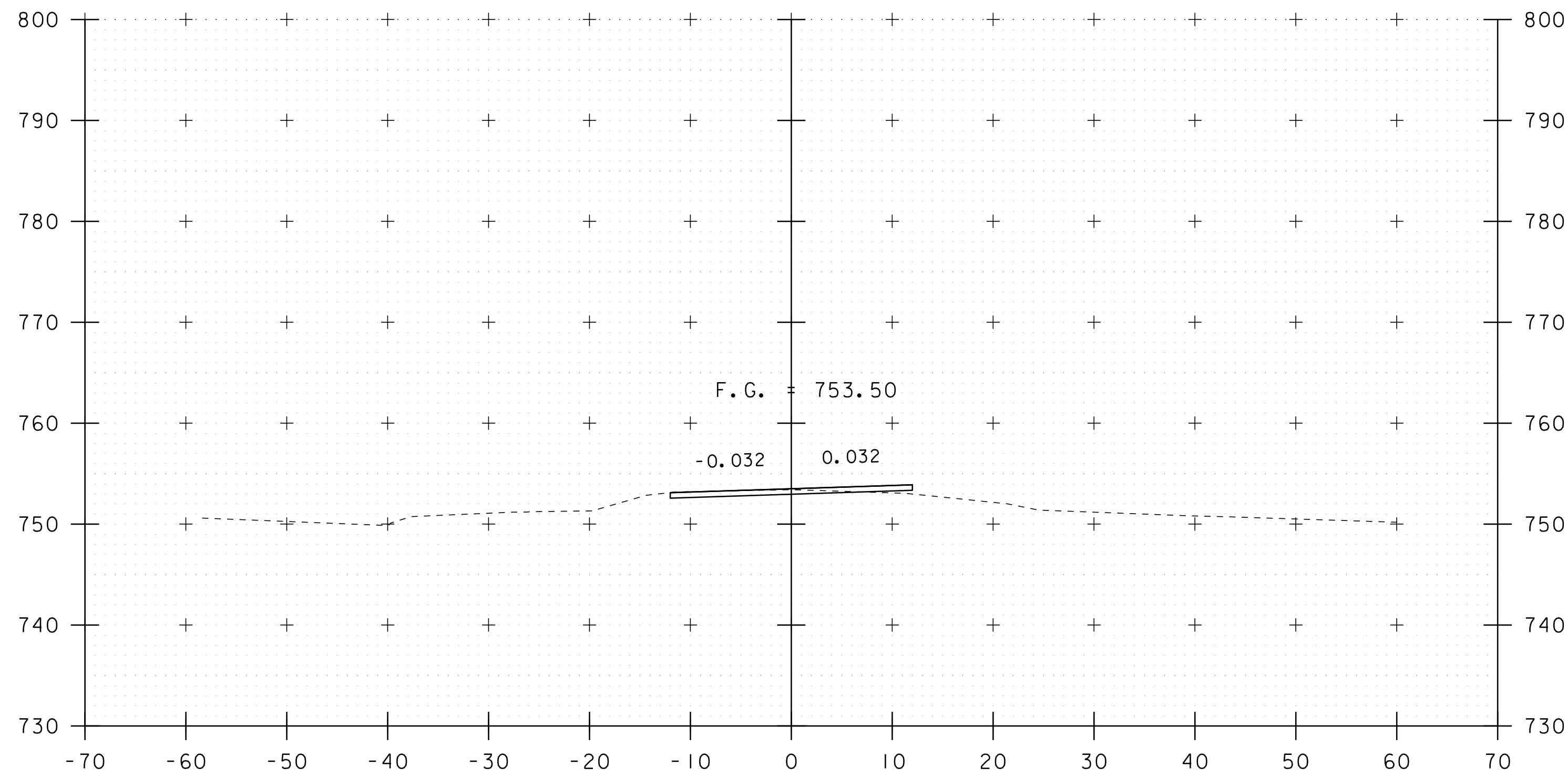
BORING CHART

HOLE NO.	STATION	OFFSET	NORTHING	EASTING
B-101	13+30.96	6.42 LT	714241.58	1571864.66
B-102	13+43.33	13.67 RT	714218.59	1571870.08
B-103	13+77.93	9.39 LT	714230.76	1571909.92
B-104	13+94.57	14.94 RT	714203.02	1571919.99

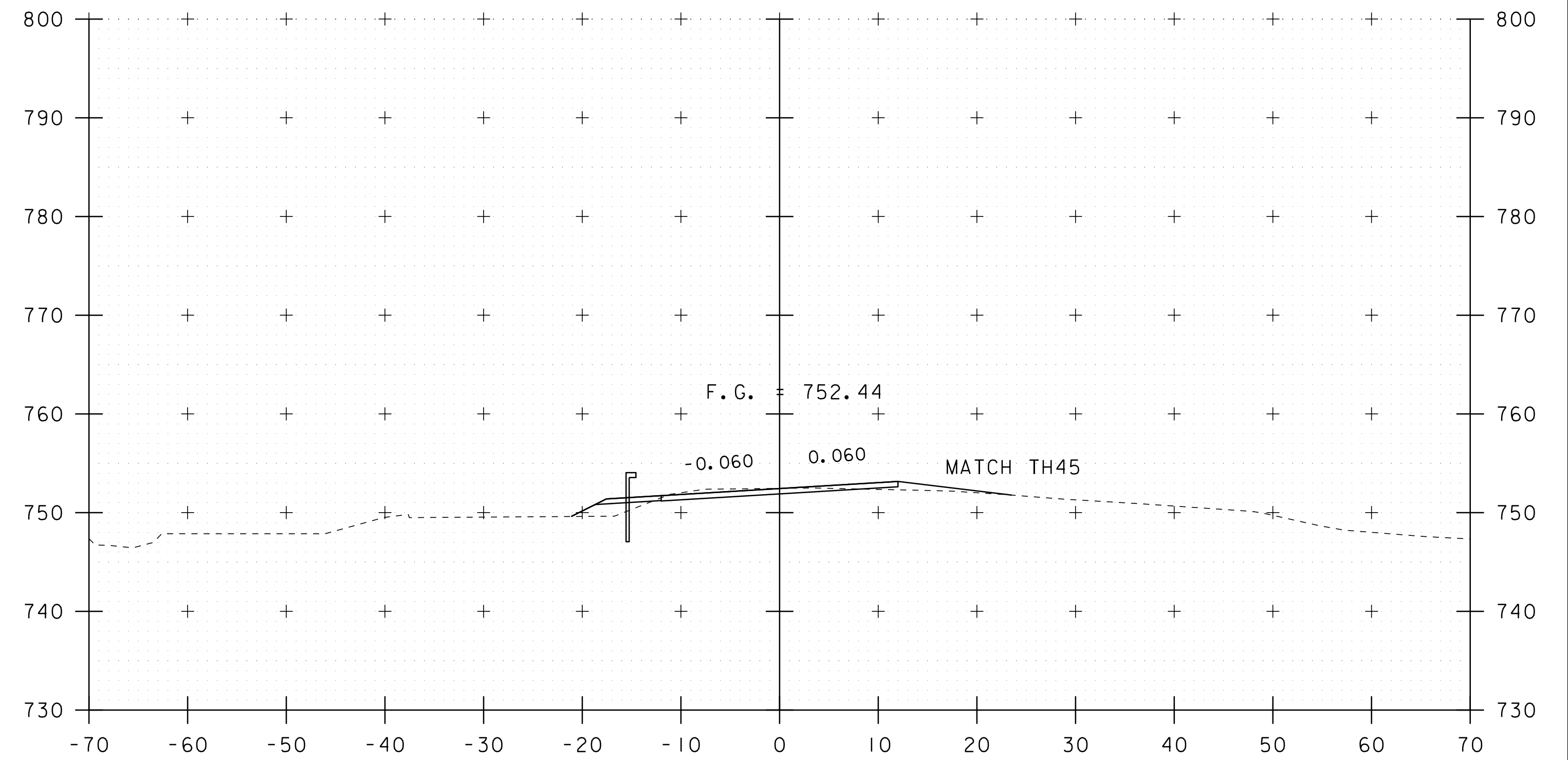
PROJECT NAME: STOWE
PROJECT NUMBER: BO 1446 (39)

FILE NAME: sl2j658bor.dgn
PROJECT LEADER: C. COTA
DESIGNED BY: C. BURRALL
BORING INFORMATION SHEET

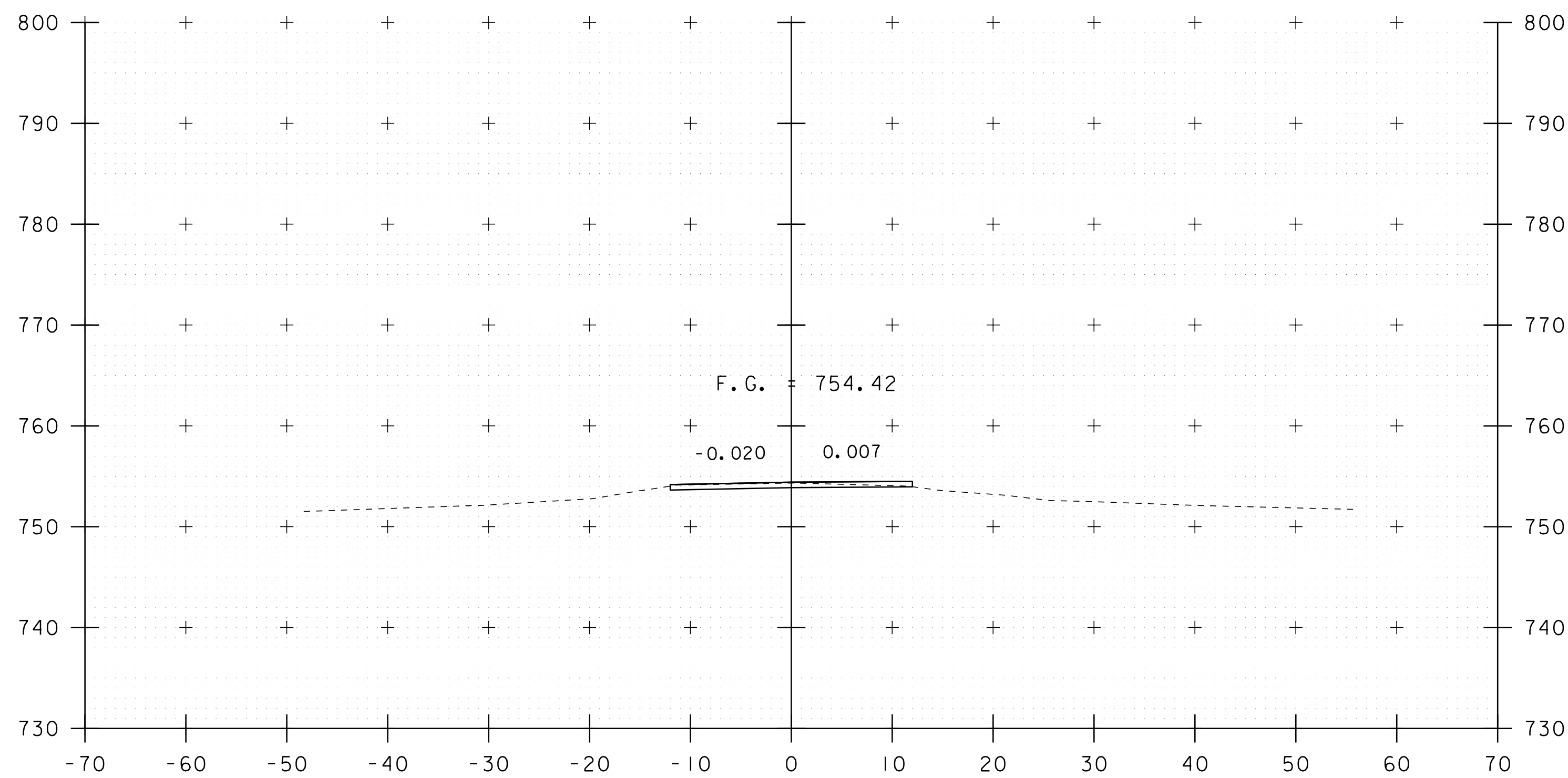
PLOT DATE: 22-FEB-2021
DRAWN BY: C. BURRALL
CHECKED BY: M. LONGSTREET
SHEET 7 OF 13



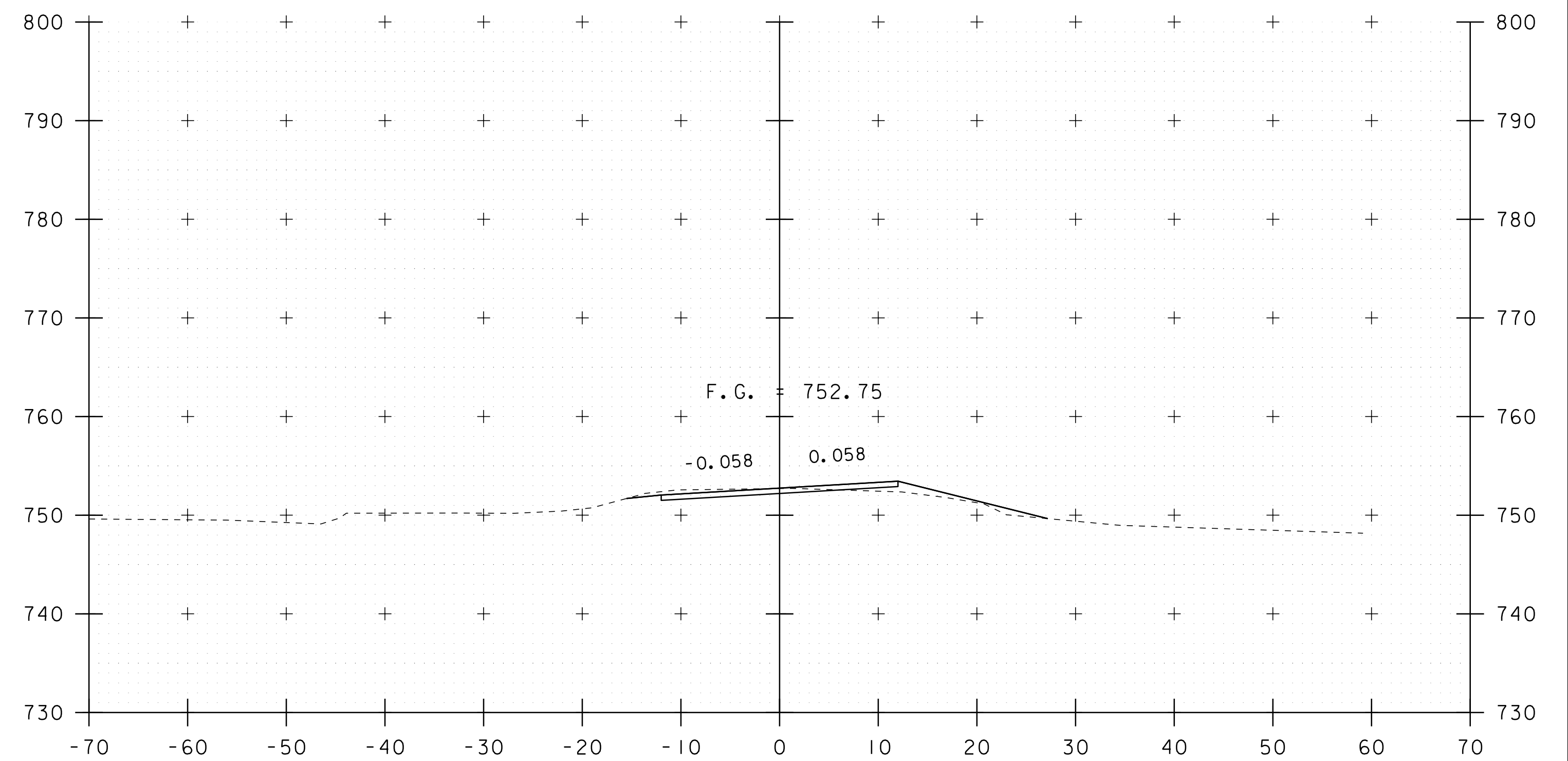
11+50



12+50



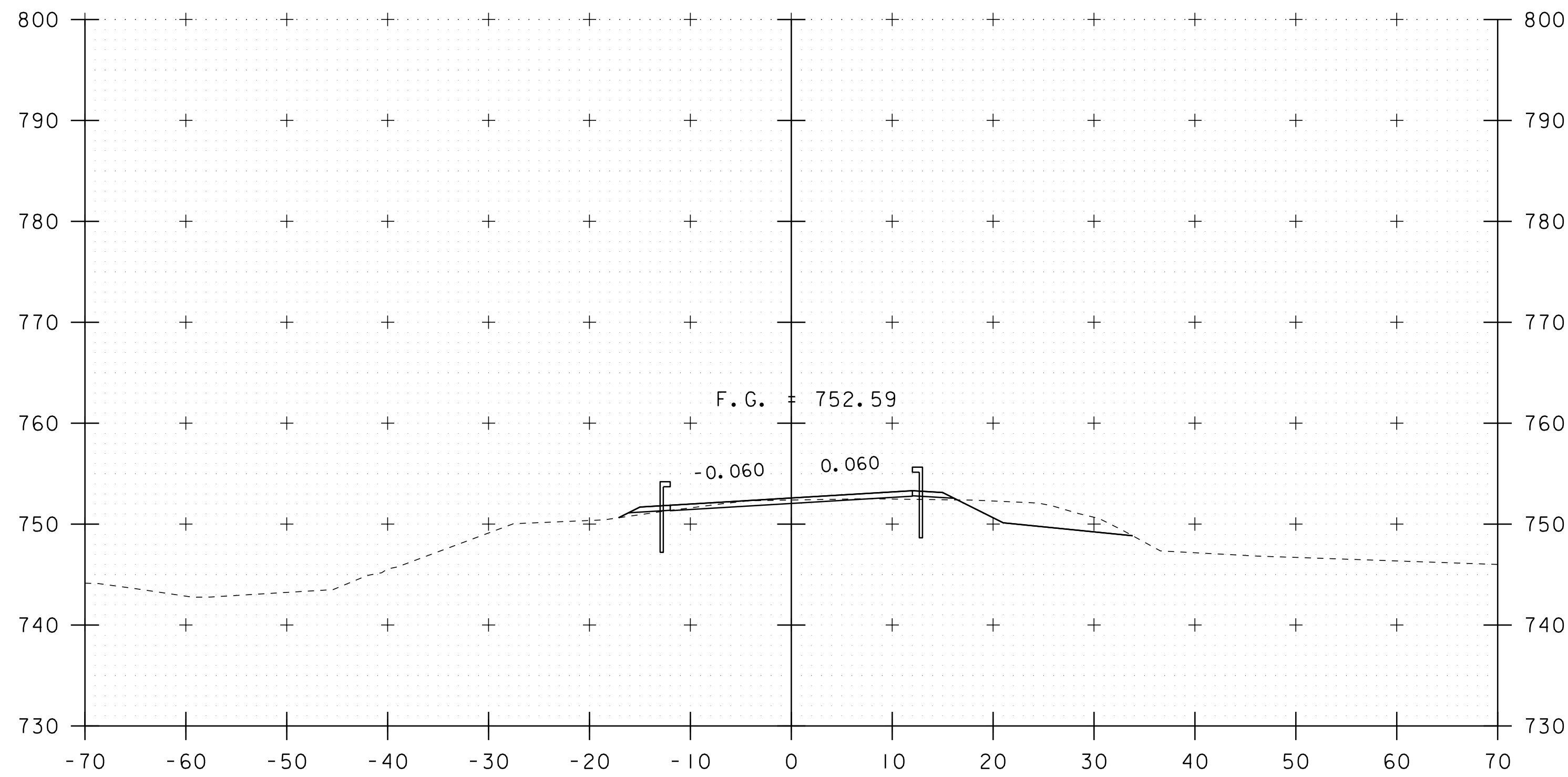
11+00



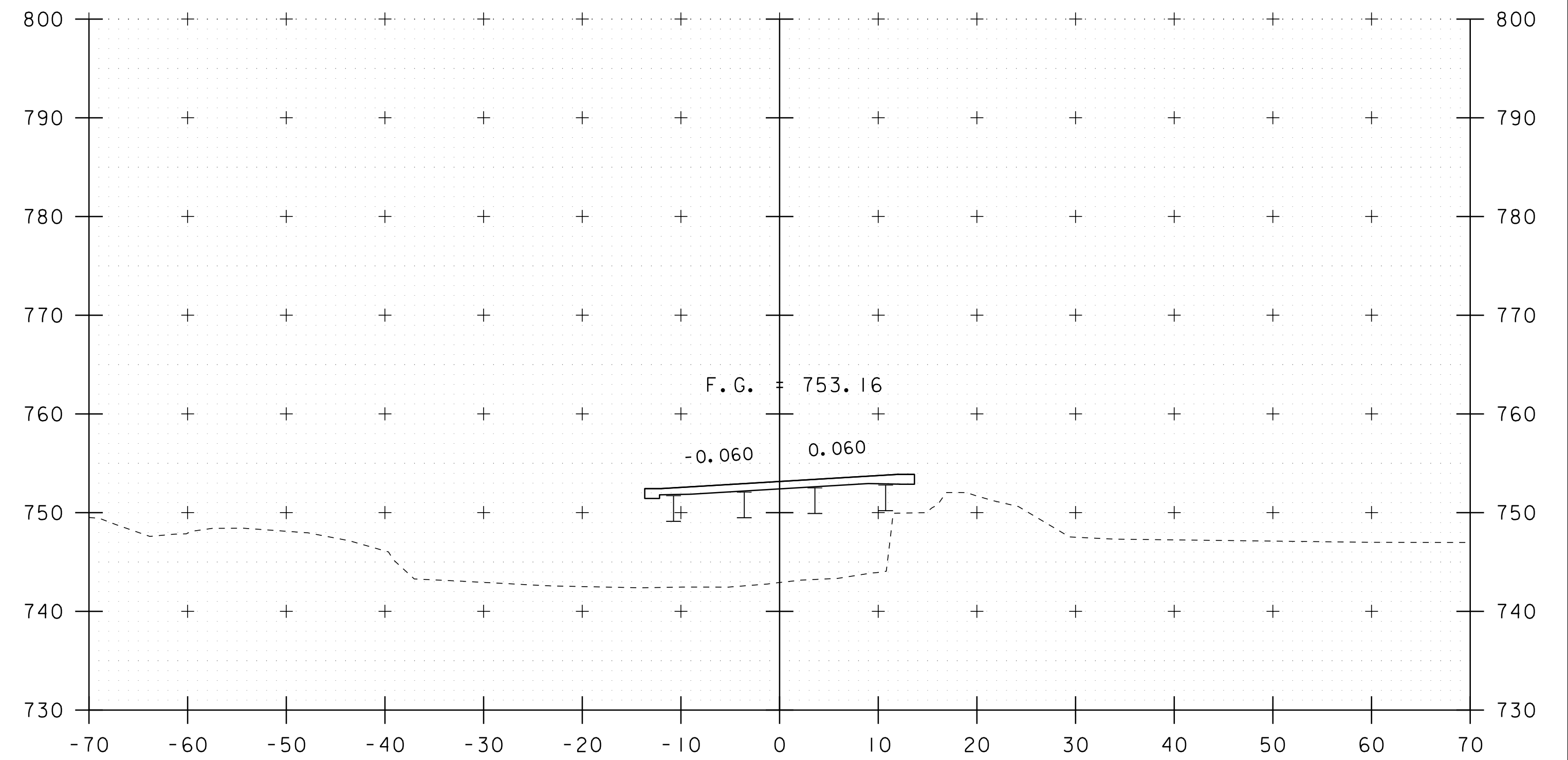
12+00

STA. 11+00 TO STA. 12+50

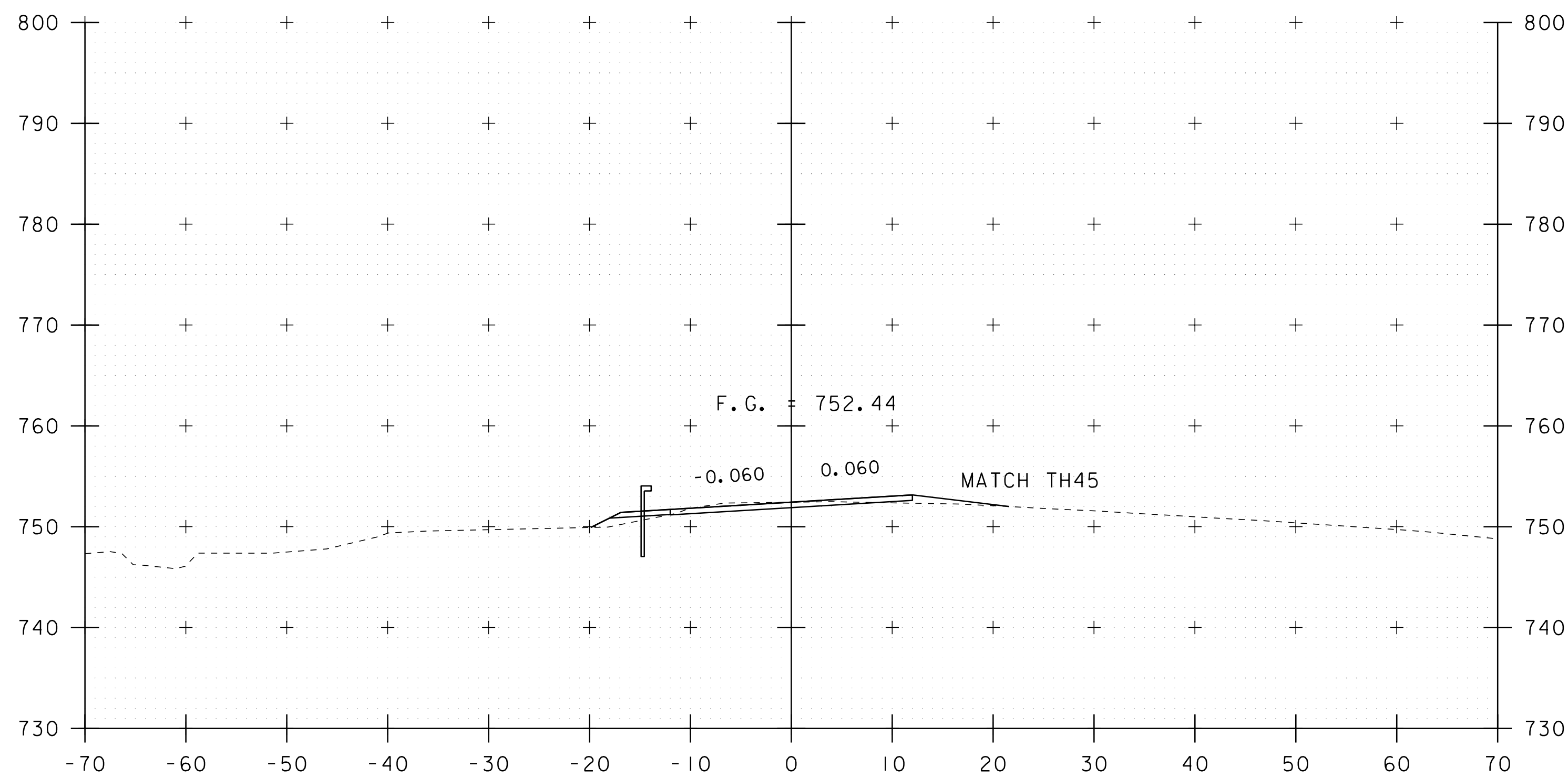
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PROJECT LEADER: C. COTA	DRAWN BY: M. LONGSTREET
DESIGNED BY: M. LONGSTREET	CHECKED BY: C. BURRALL
TH43 CROSS SECTIONS I	SHEET 8 OF 13



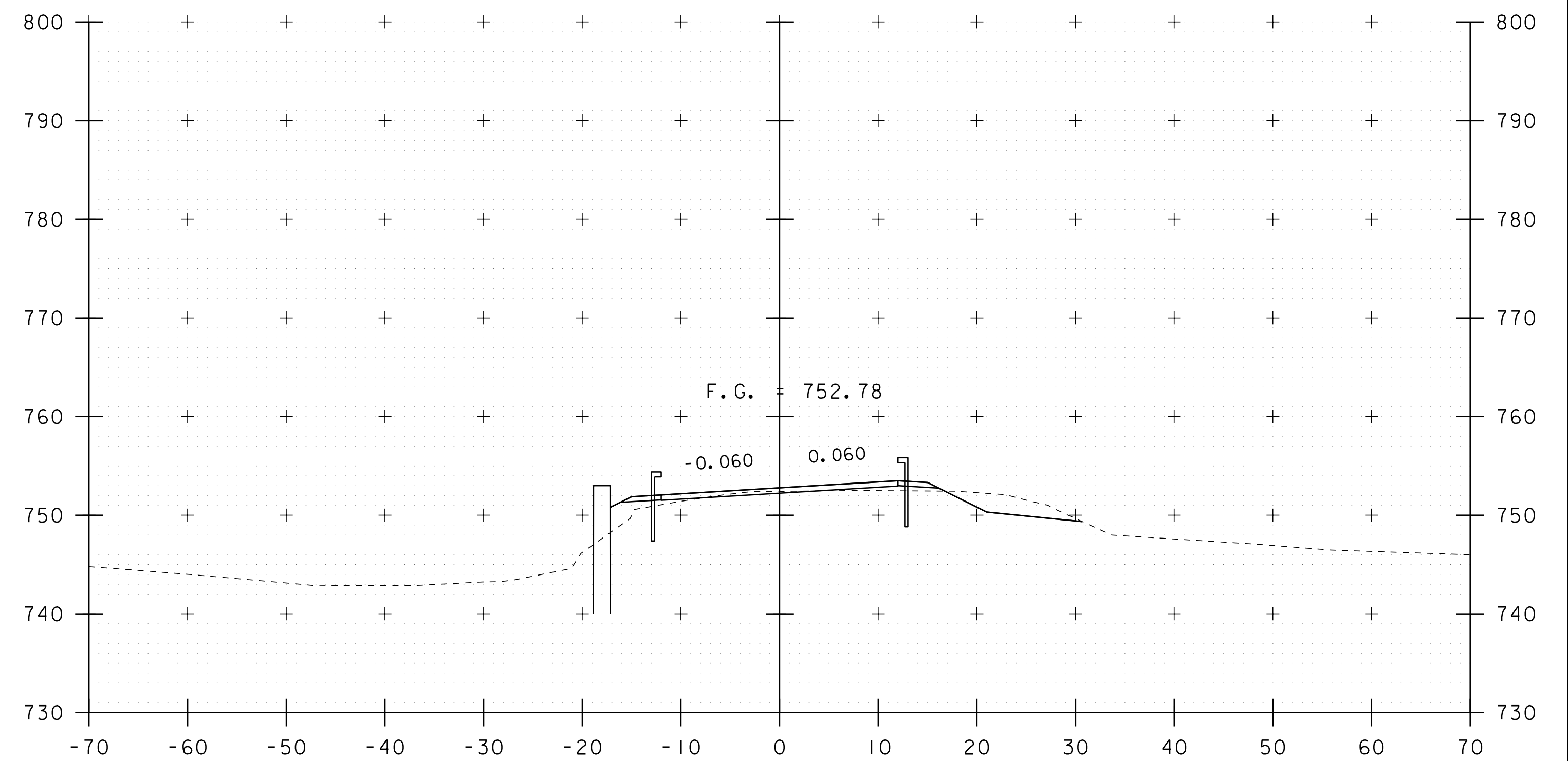
13+00



13+50



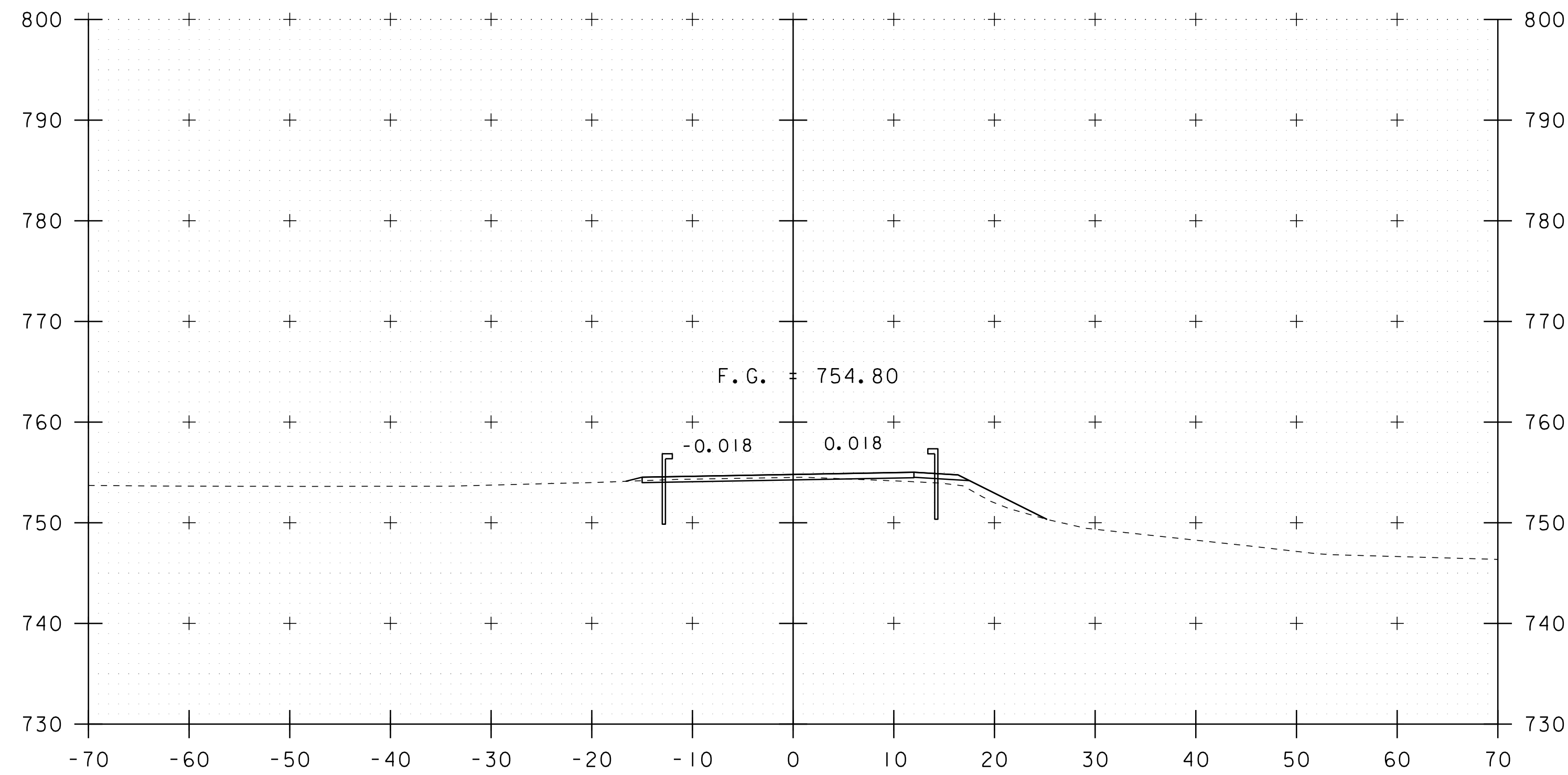
12+60



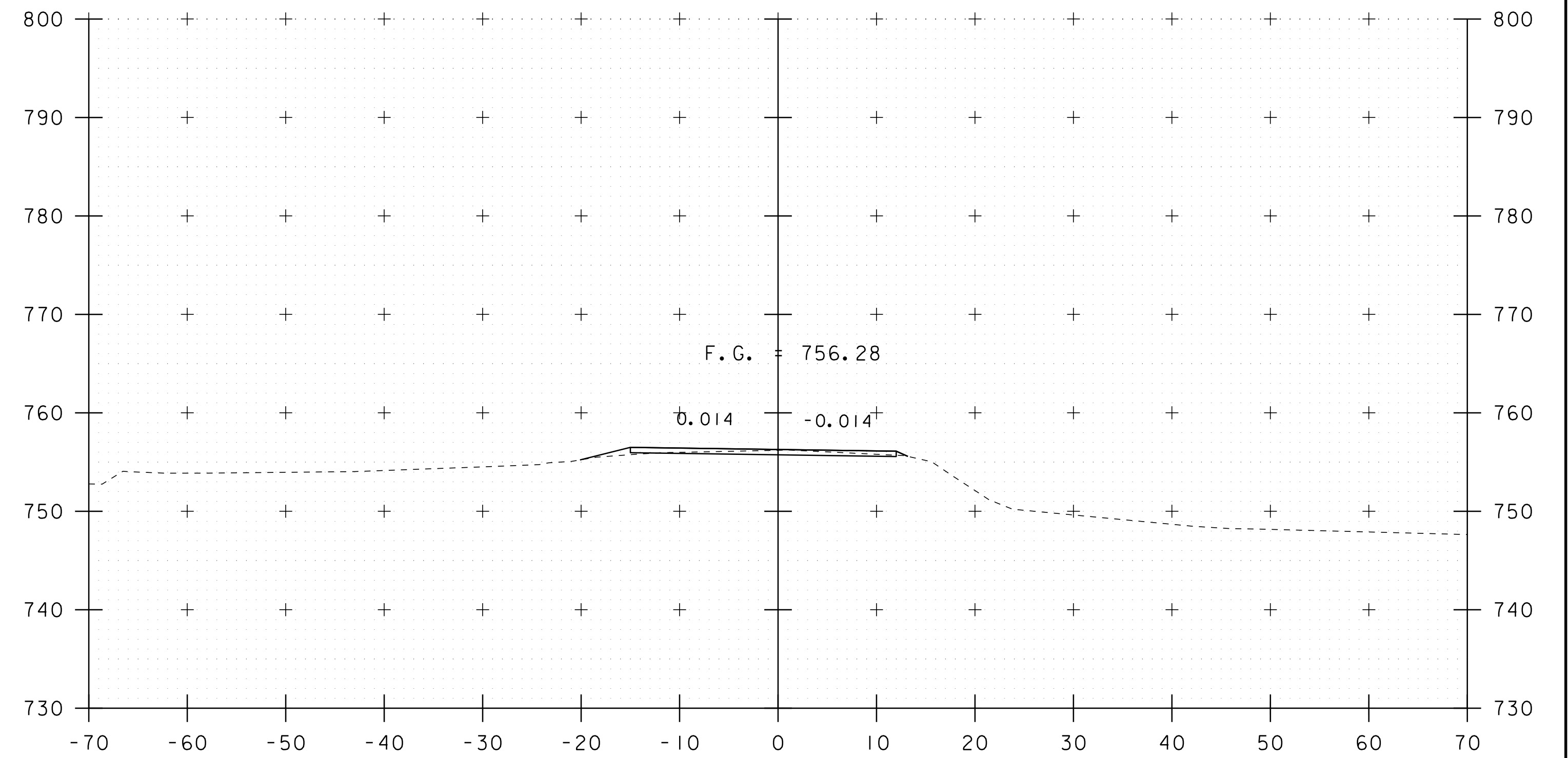
13+20

STA. 12+60 TO STA. 13+50

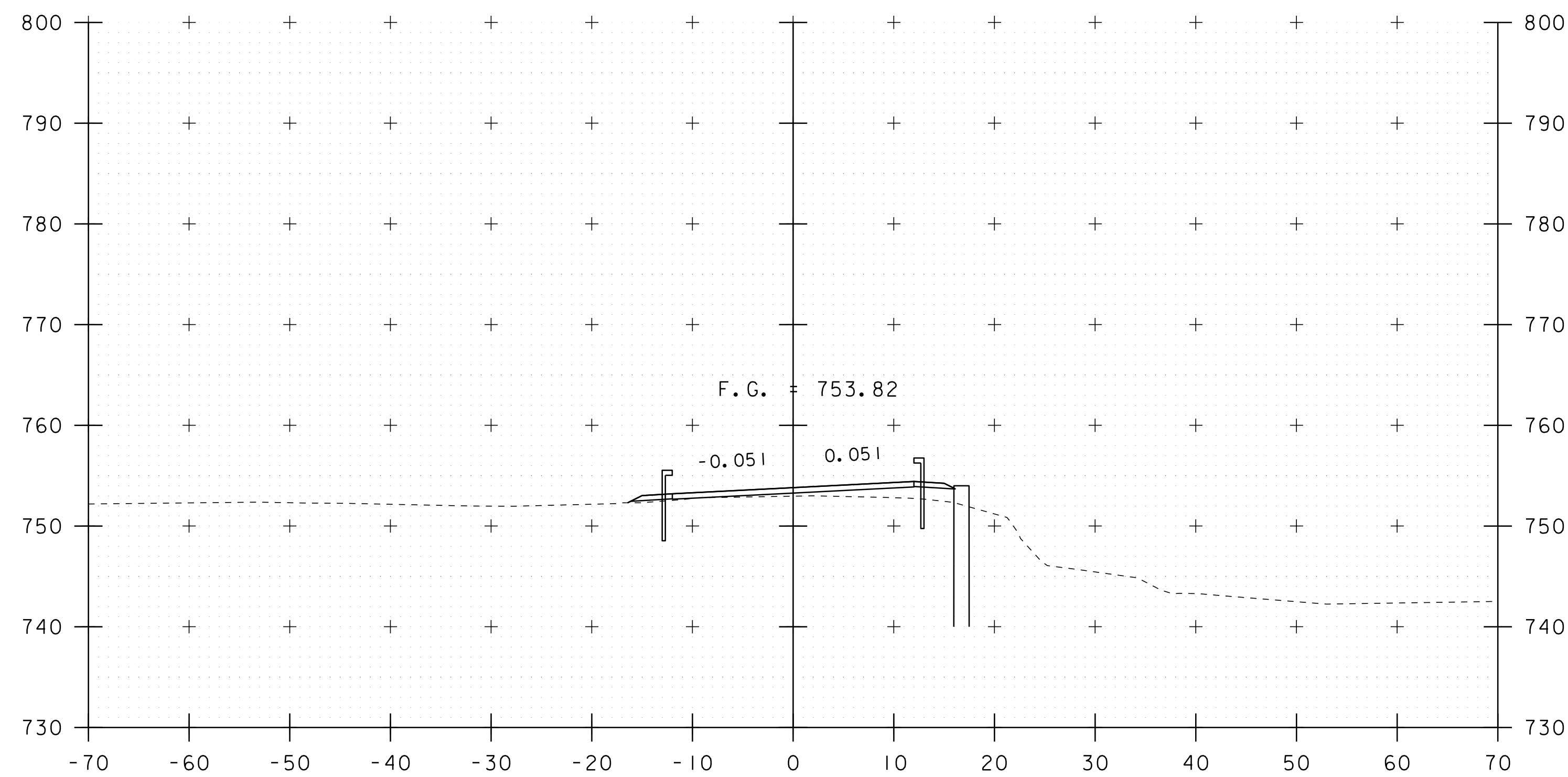
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PROJECT LEADER: C. COTA	DRAWN BY: M. LONGSTREET
DESIGNED BY: M. LONGSTREET	CHECKED BY: C. BURRALL
TH43 CROSS SECTIONS 2	SHEET 9 OF 13



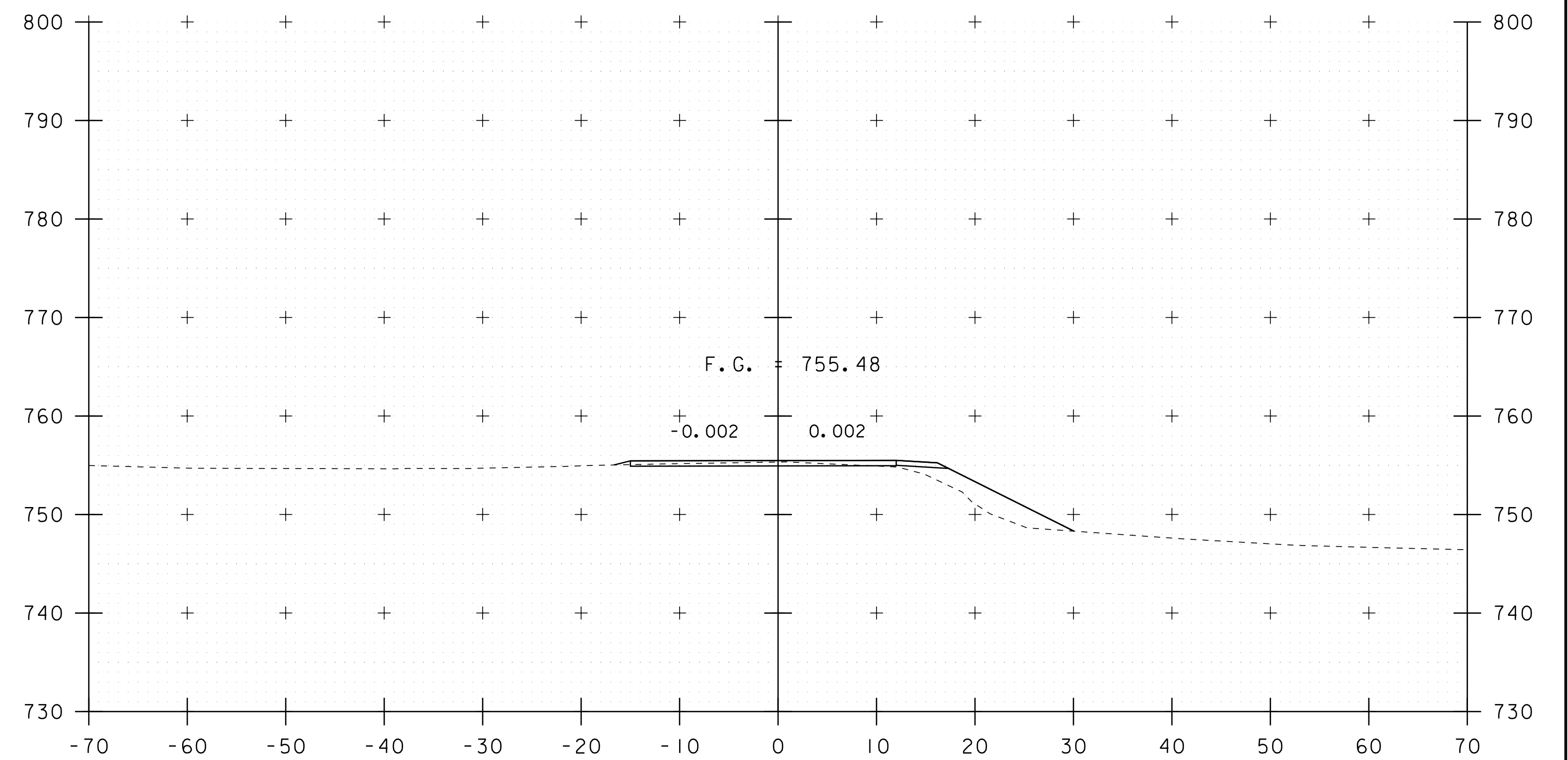
14+50



15+00



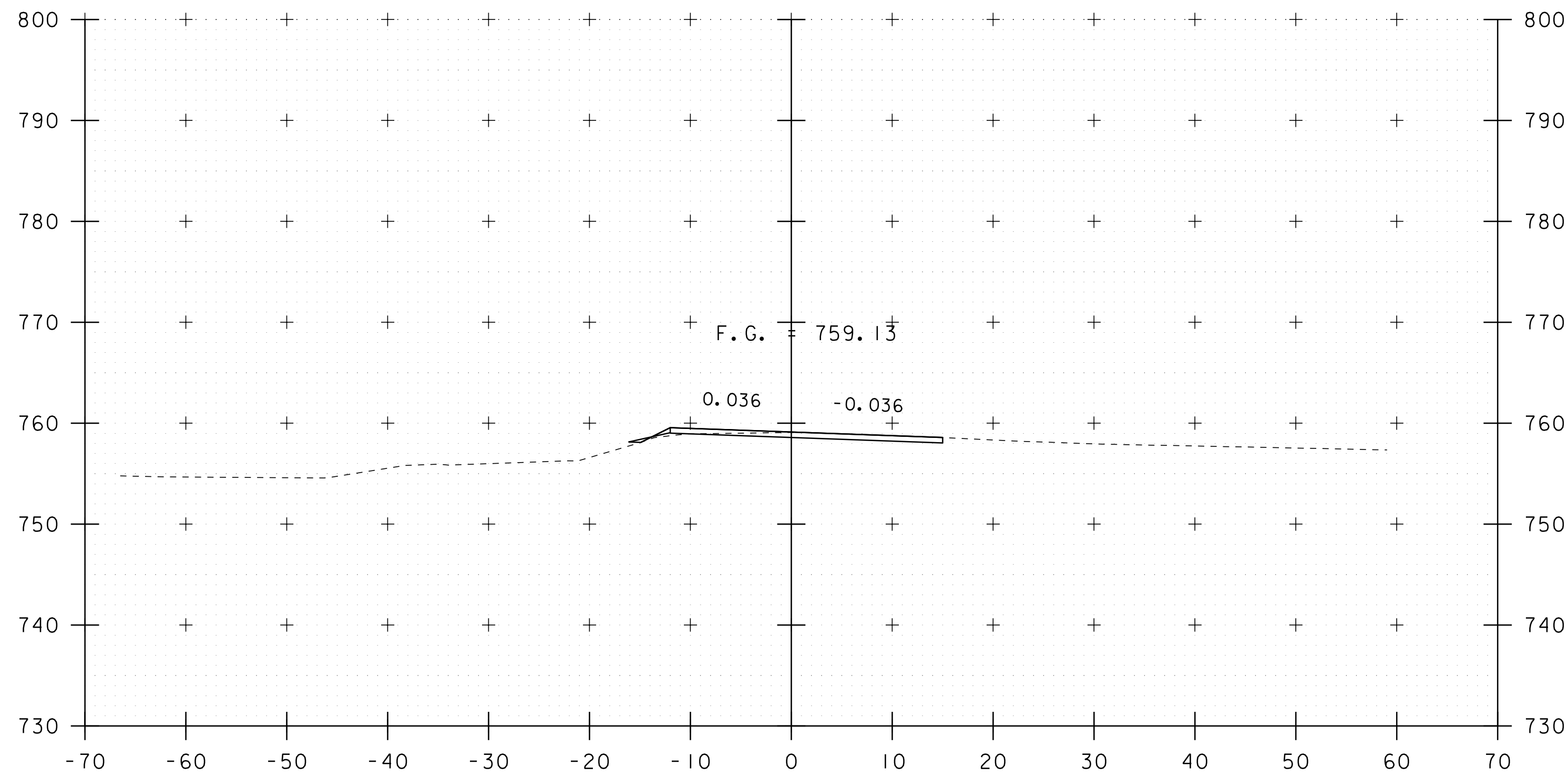
14+00



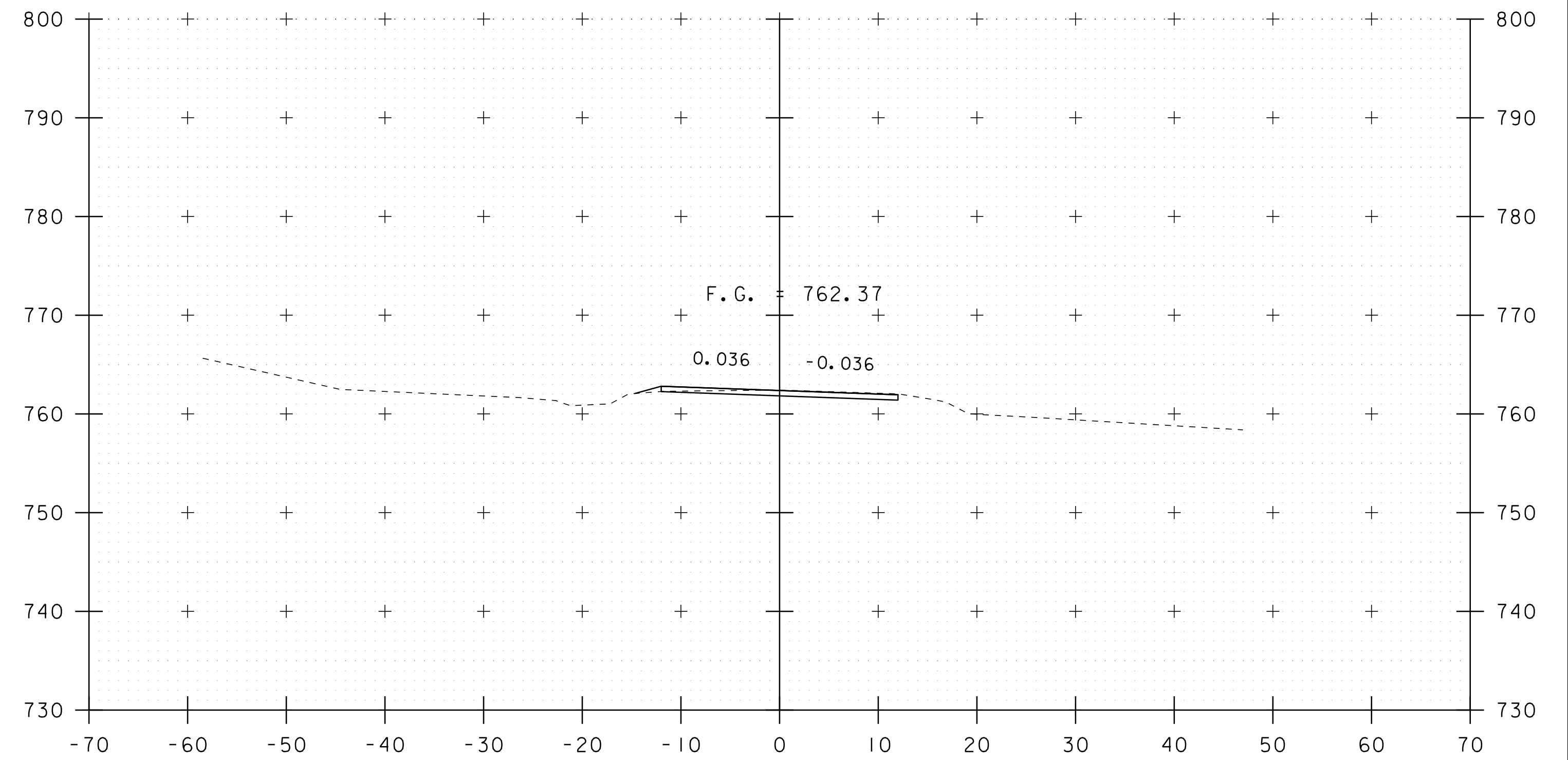
14+75

STA. 14+00 TO STA. 15+00

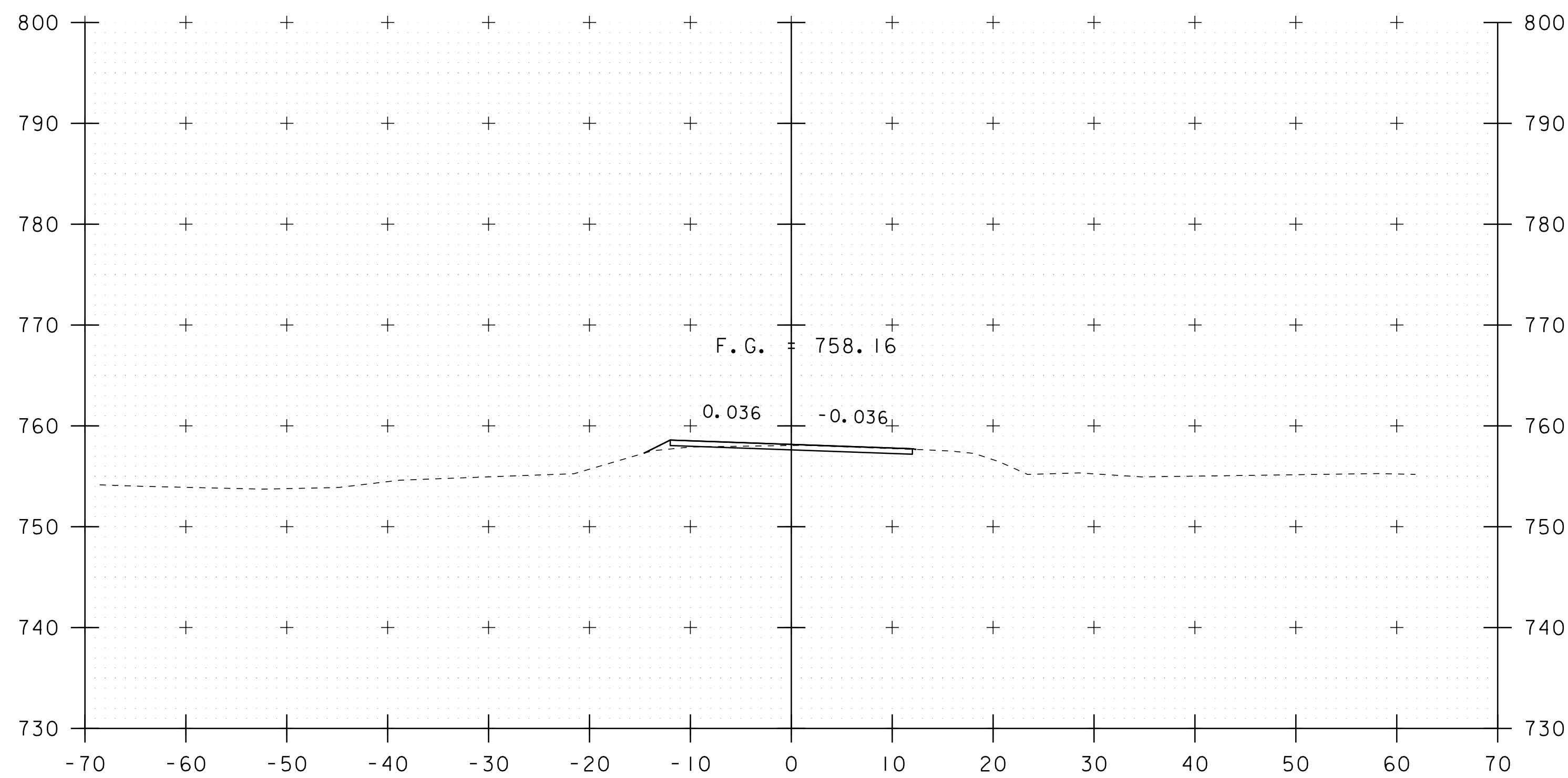
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PROJECT NUMBER: BO 1446(39)	
FILE NAME: I2J658/sI2J658xs.dgn	PLOT DATE: 22-FEB-2021
PROJECT LEADER: C. COTA	DRAWN BY: M. LONGSTREET
DESIGNED BY: M. LONGSTREET	CHECKED BY: C. BURRALL
TH43 CROSS SECTIONS 3	SHEET 10 OF 13



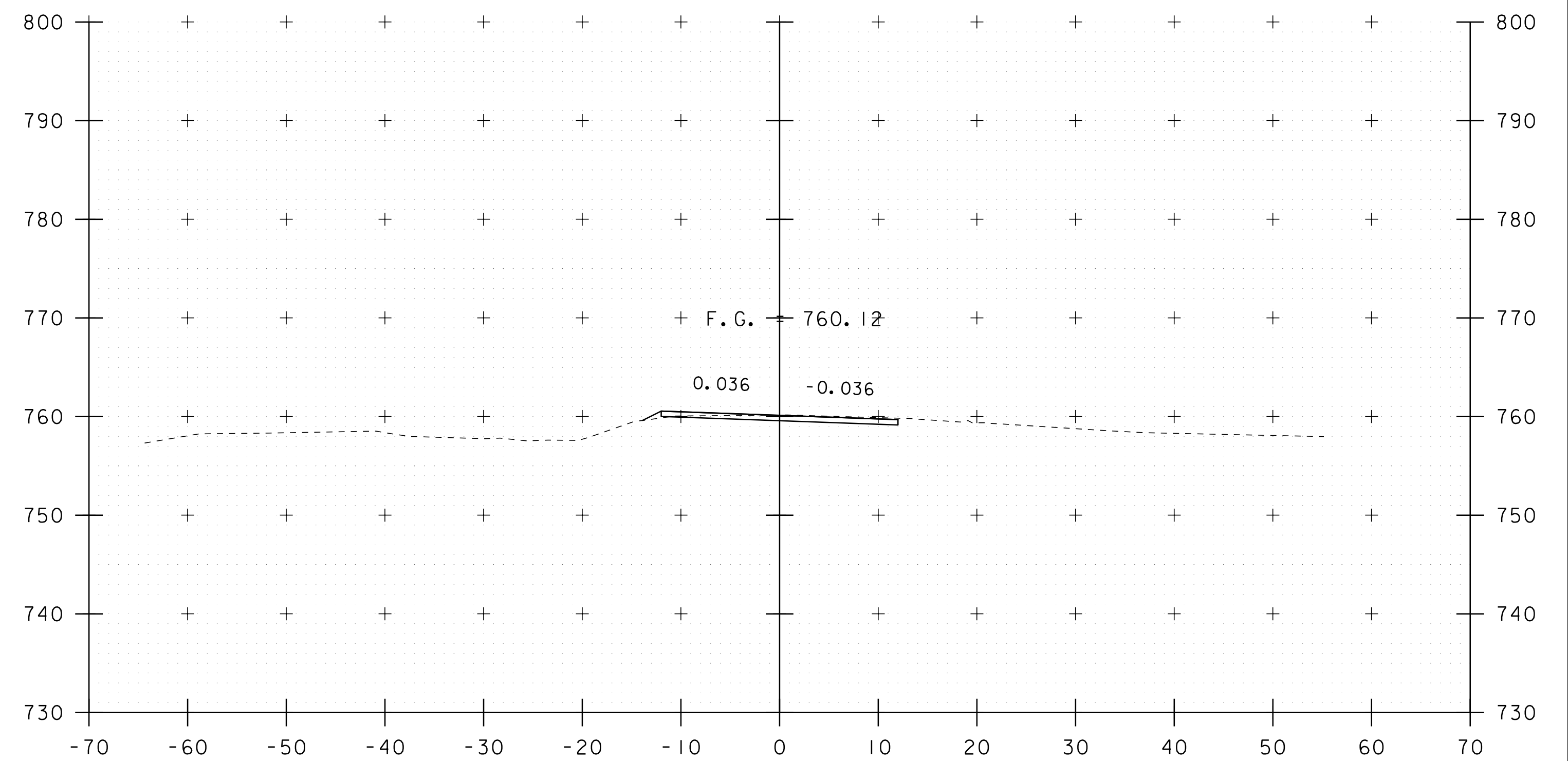
15+75



16+50



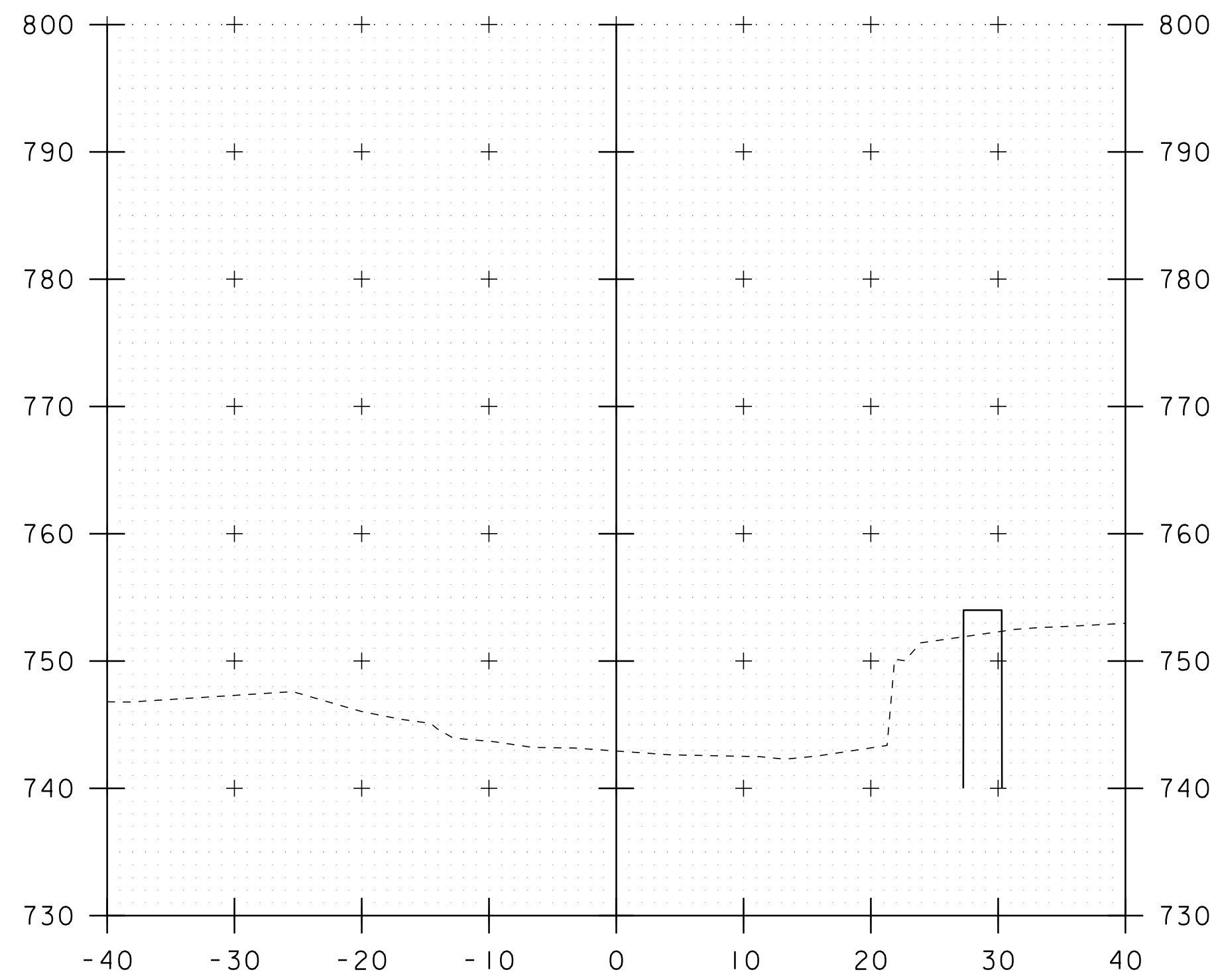
15+50



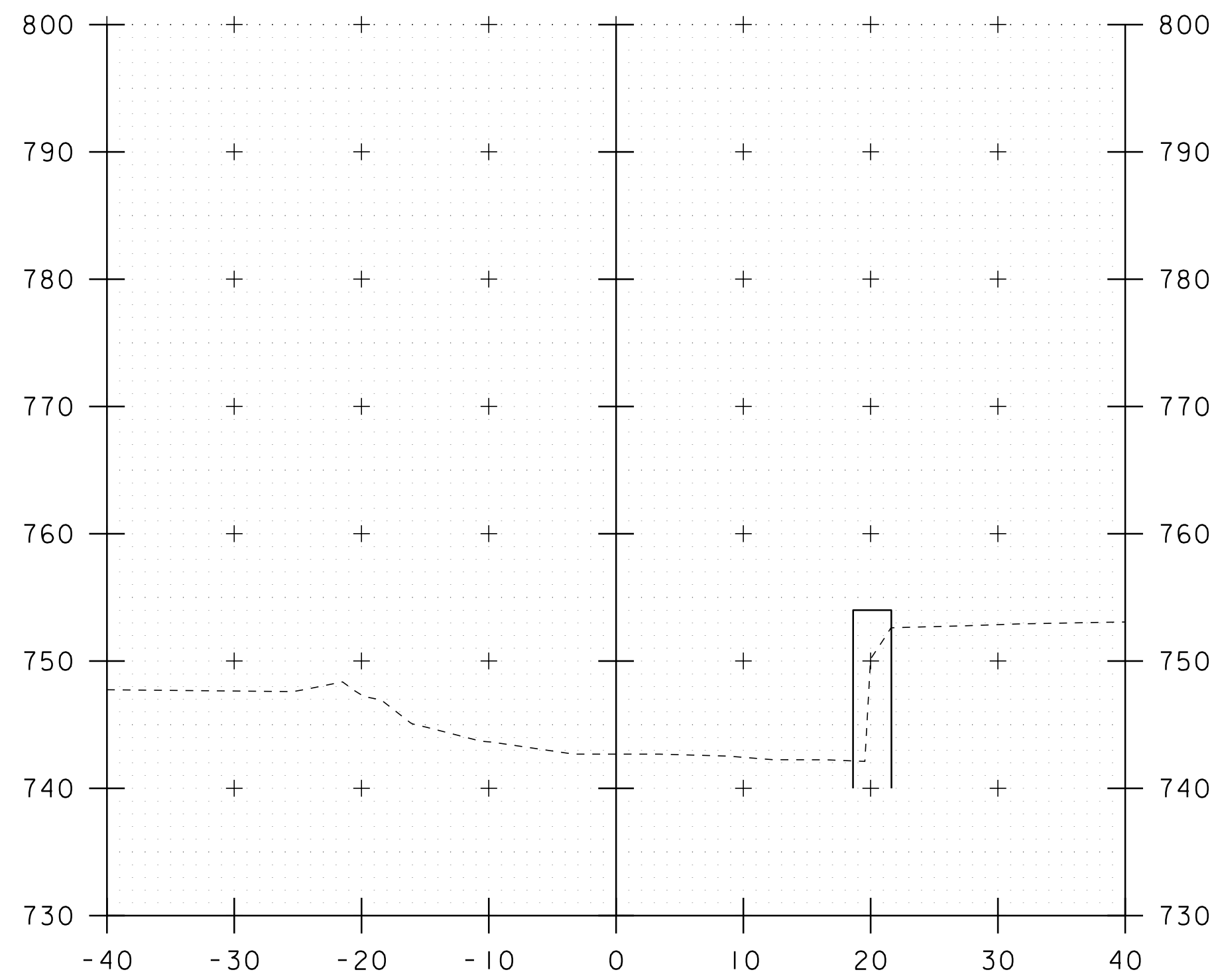
16+00

STA. 15+50 TO STA. 16+50

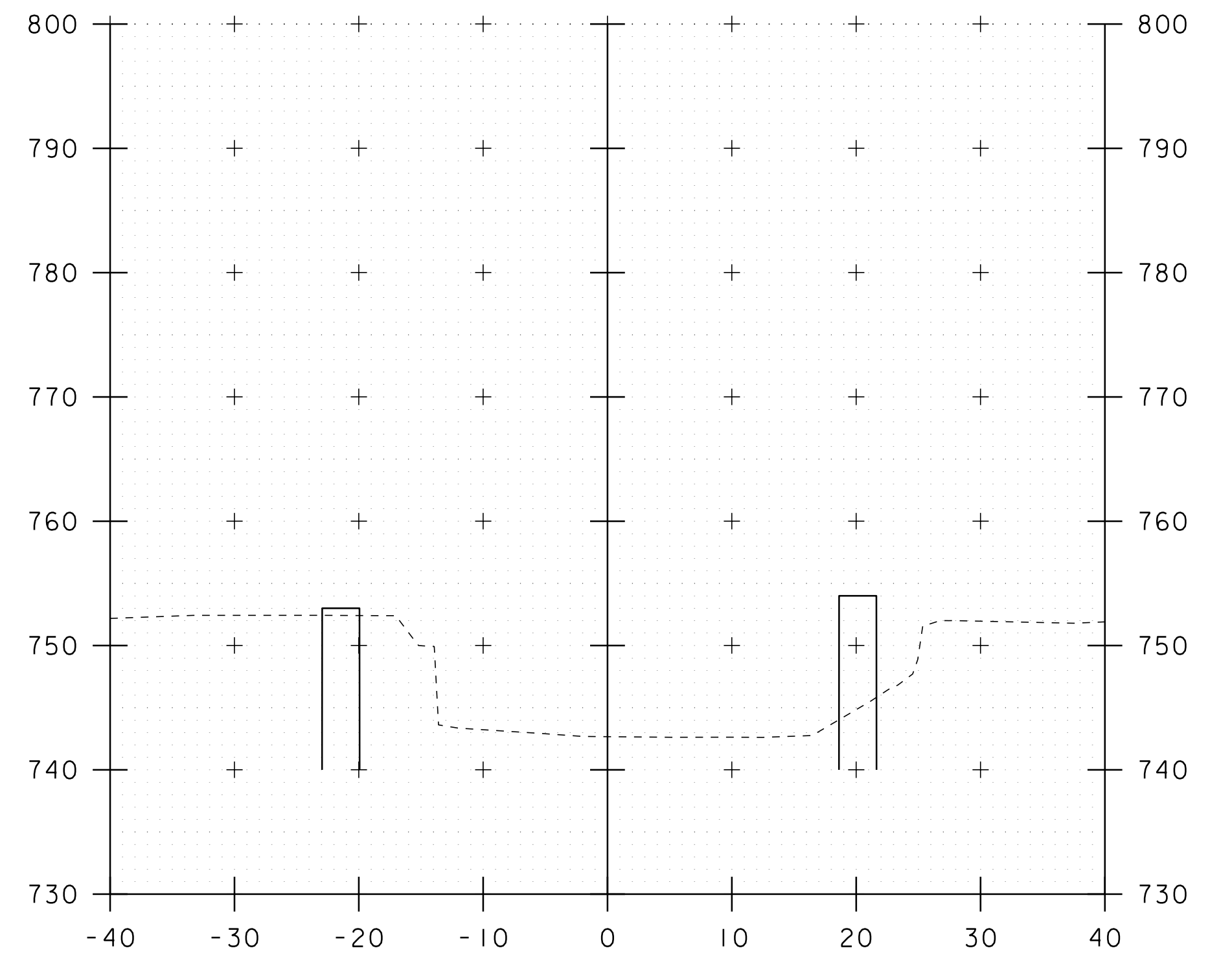
PROJECT NAME: STOWE	
PROJECT NUMBER: BO 1446(39)	
FILE NAME: I2J658/sI2J658xs.dgn	PLOT DATE: 22-FEB-2021
PROJECT LEADER: C. COTA	DRAWN BY: M. LONGSTREET
DESIGNED BY: M. LONGSTREET	CHECKED BY: C. BURRALL
TH43 CROSS SECTIONS 4	SHEET 11 OF 13



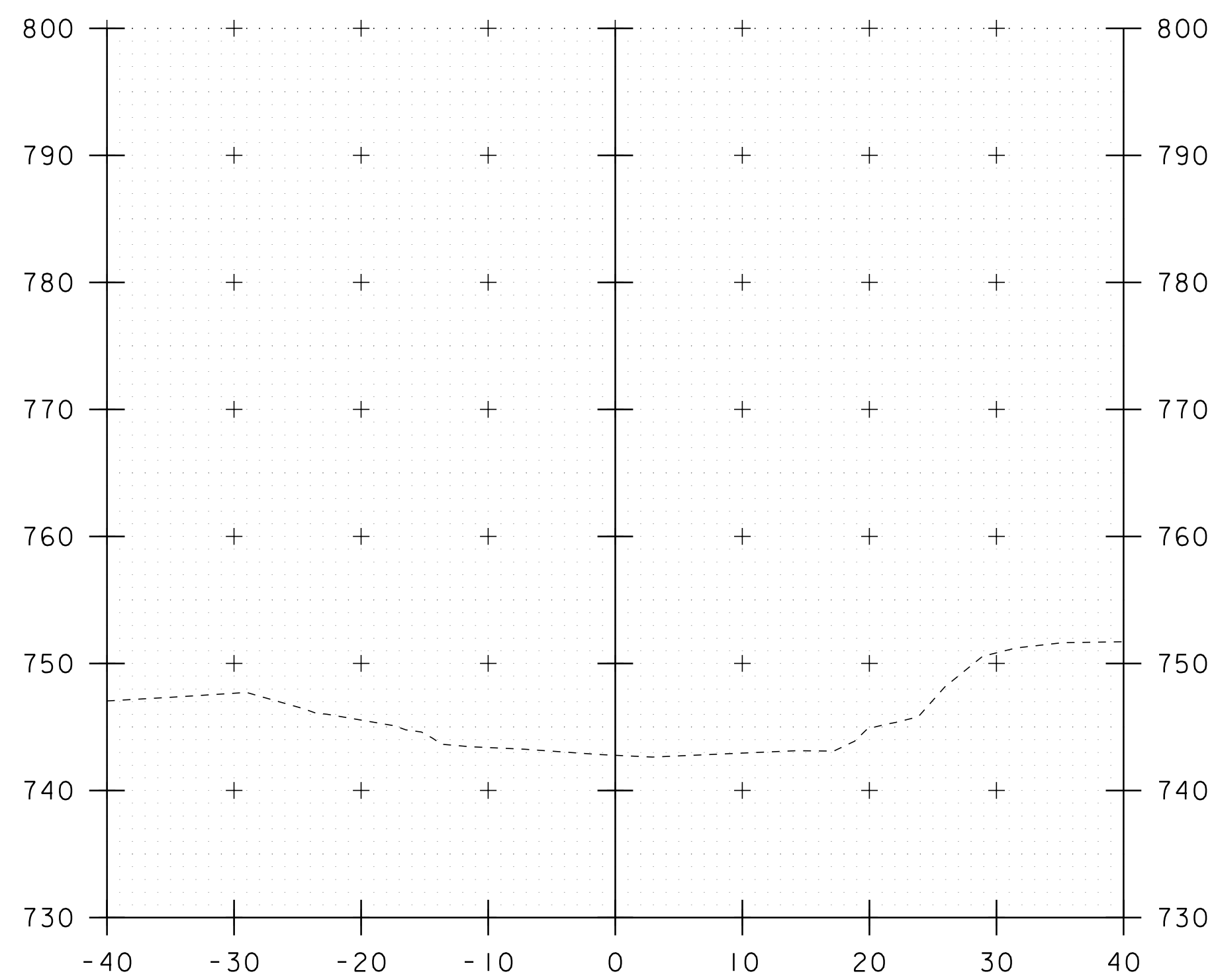
10+15



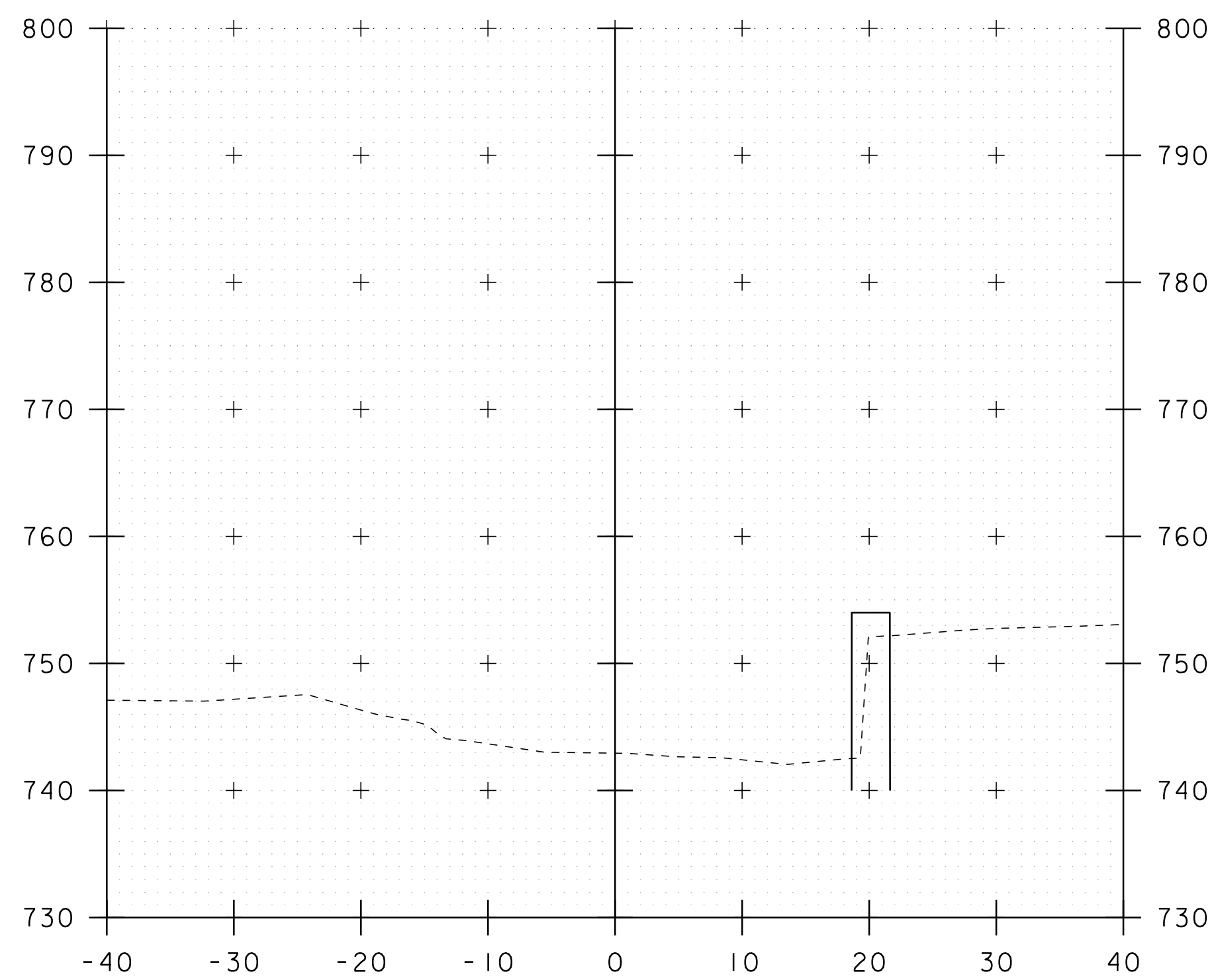
10+30



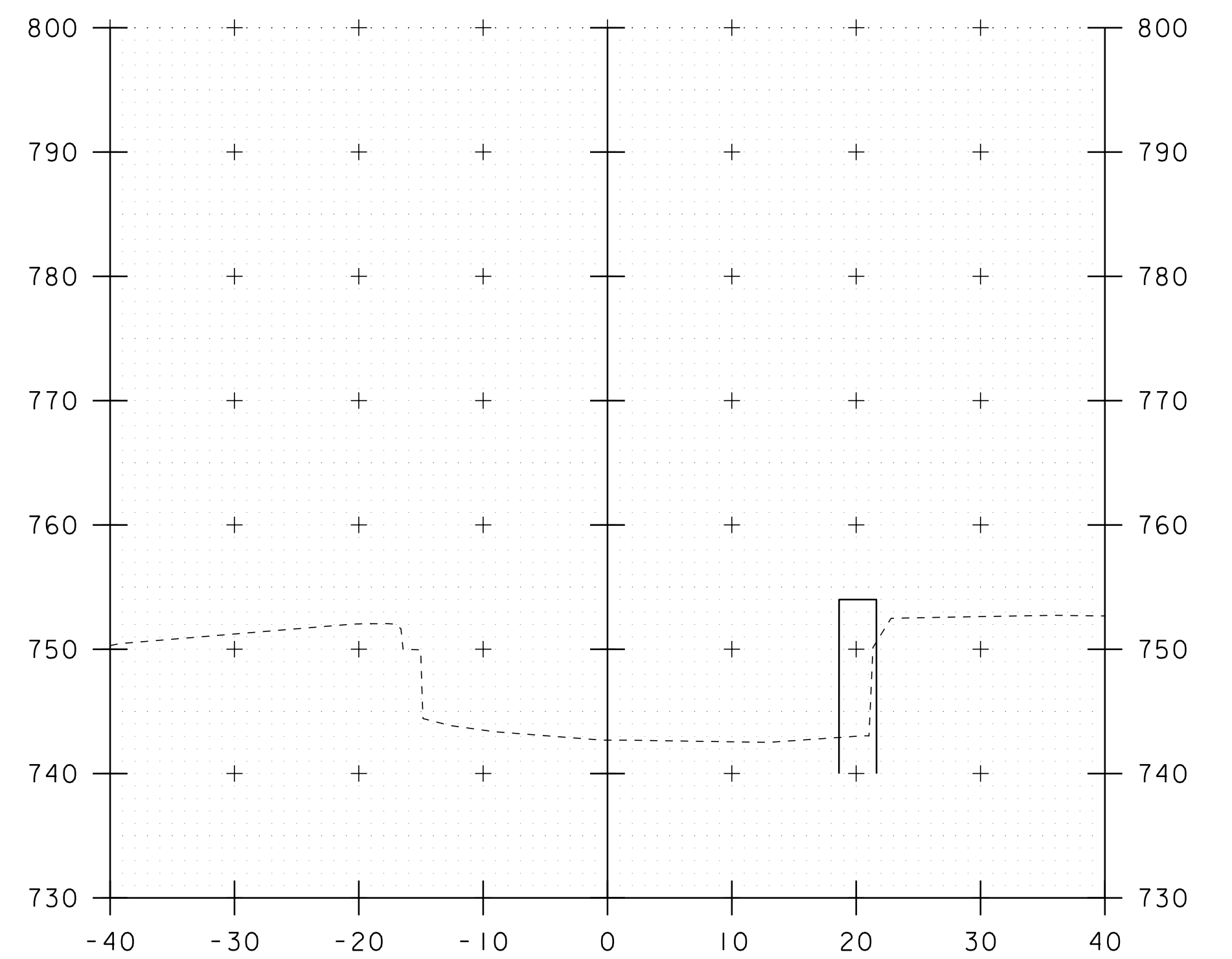
10+50



10+00



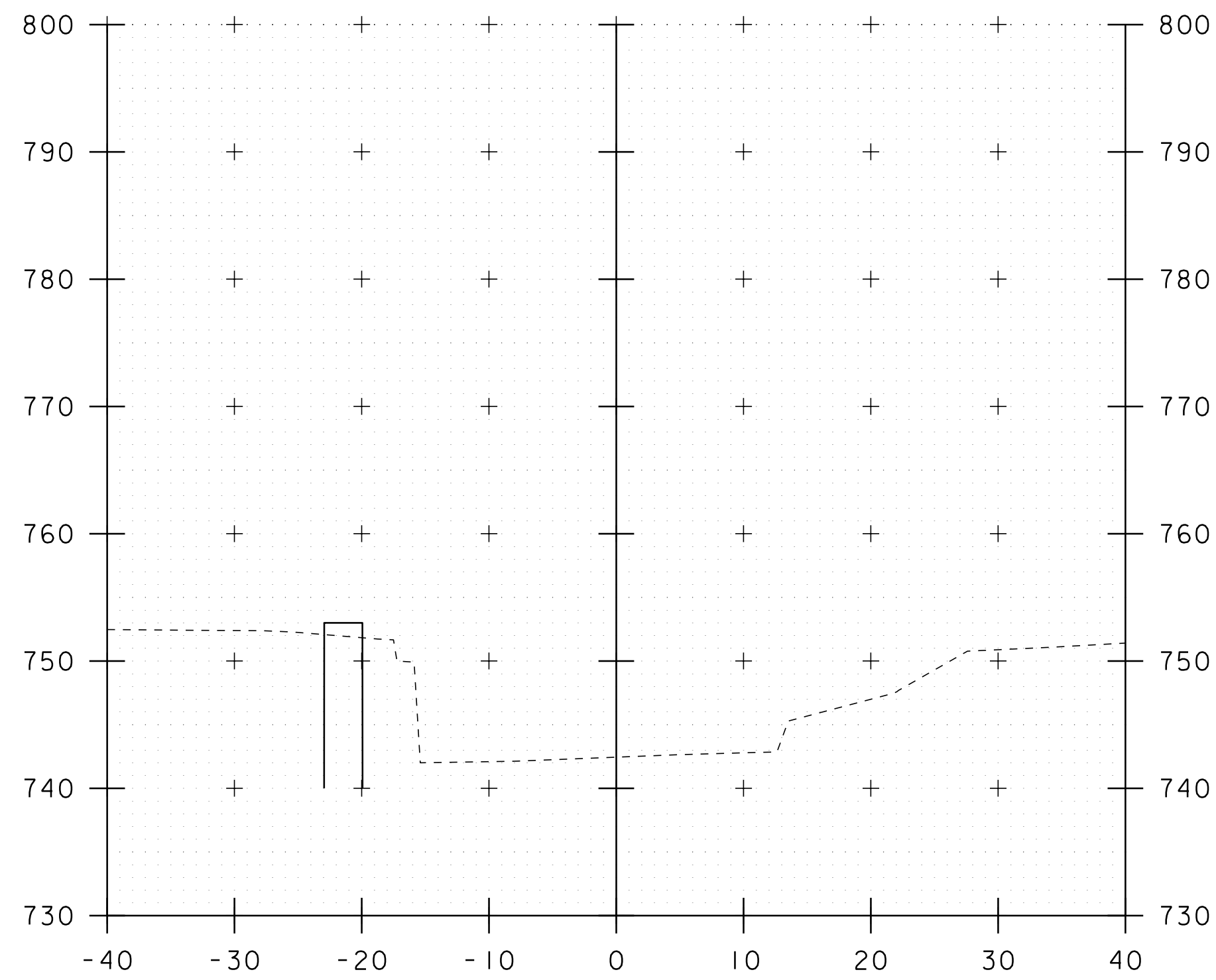
10+20



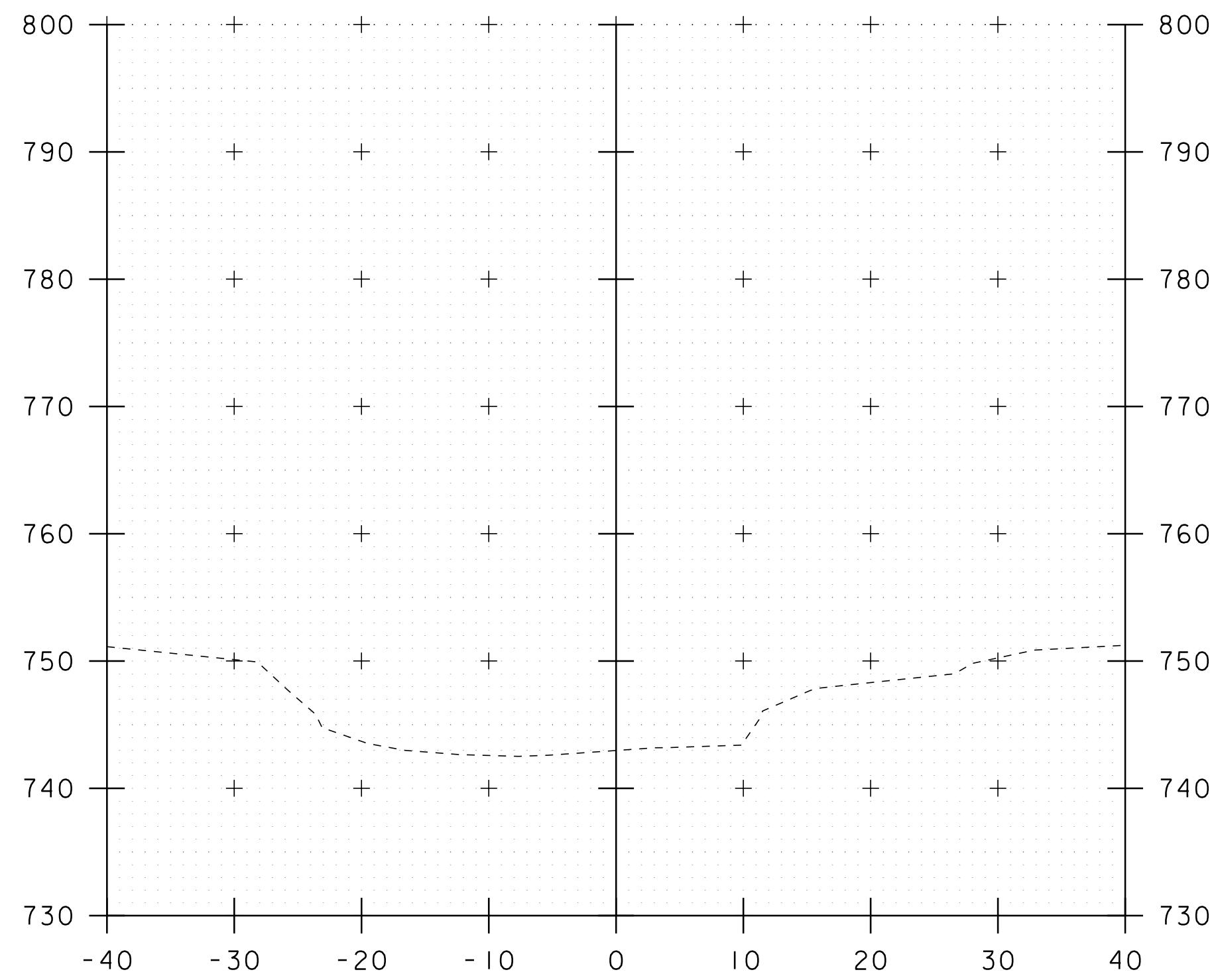
10+40

STA. 10+00 TO STA. 10+50

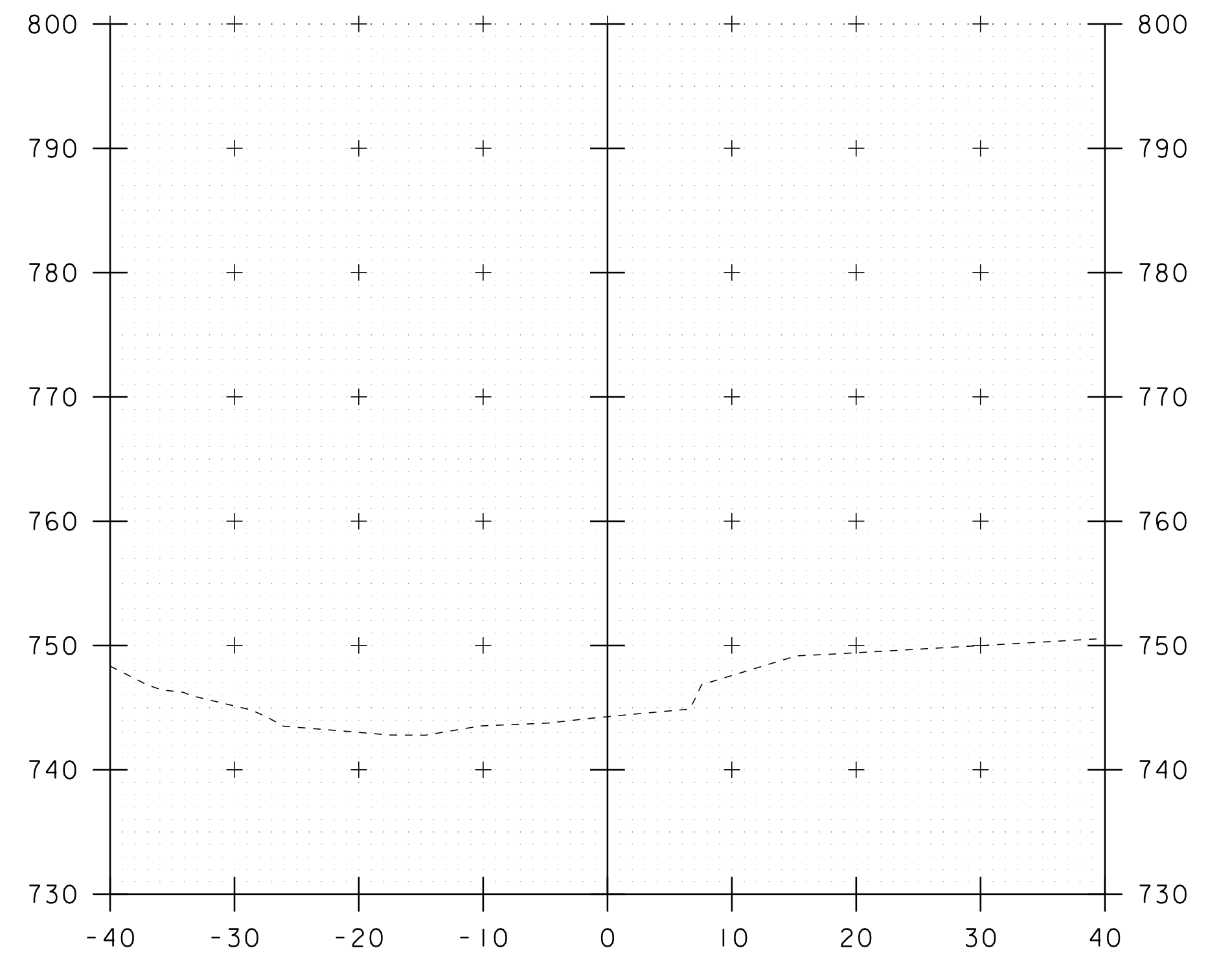
PROJECT NAME: STOWE	
PROJECT NUMBER: BO 1446(39)	
FILE NAME: I2J658/sI2J658xs.dgn	PLOT DATE: 22-FEB-2021
PROJECT LEADER: C. COTA	DRAWN BY: M. LONGSTREET
DESIGNED BY: M. LONGSTREET	CHECKED BY: C. BURRALL
CHANNEL CROSS SECTIONS 1	SHEET 12 OF 13



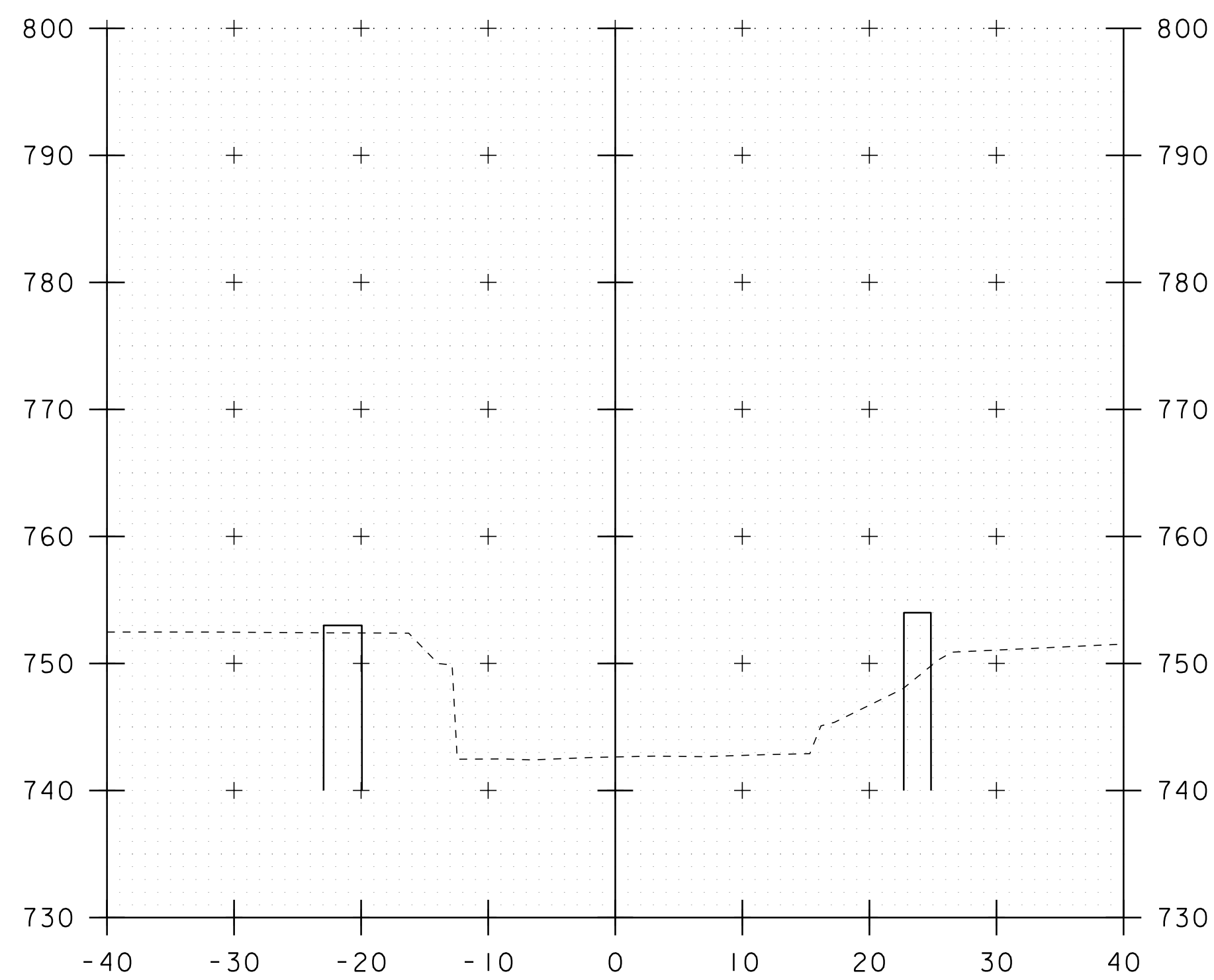
10+70



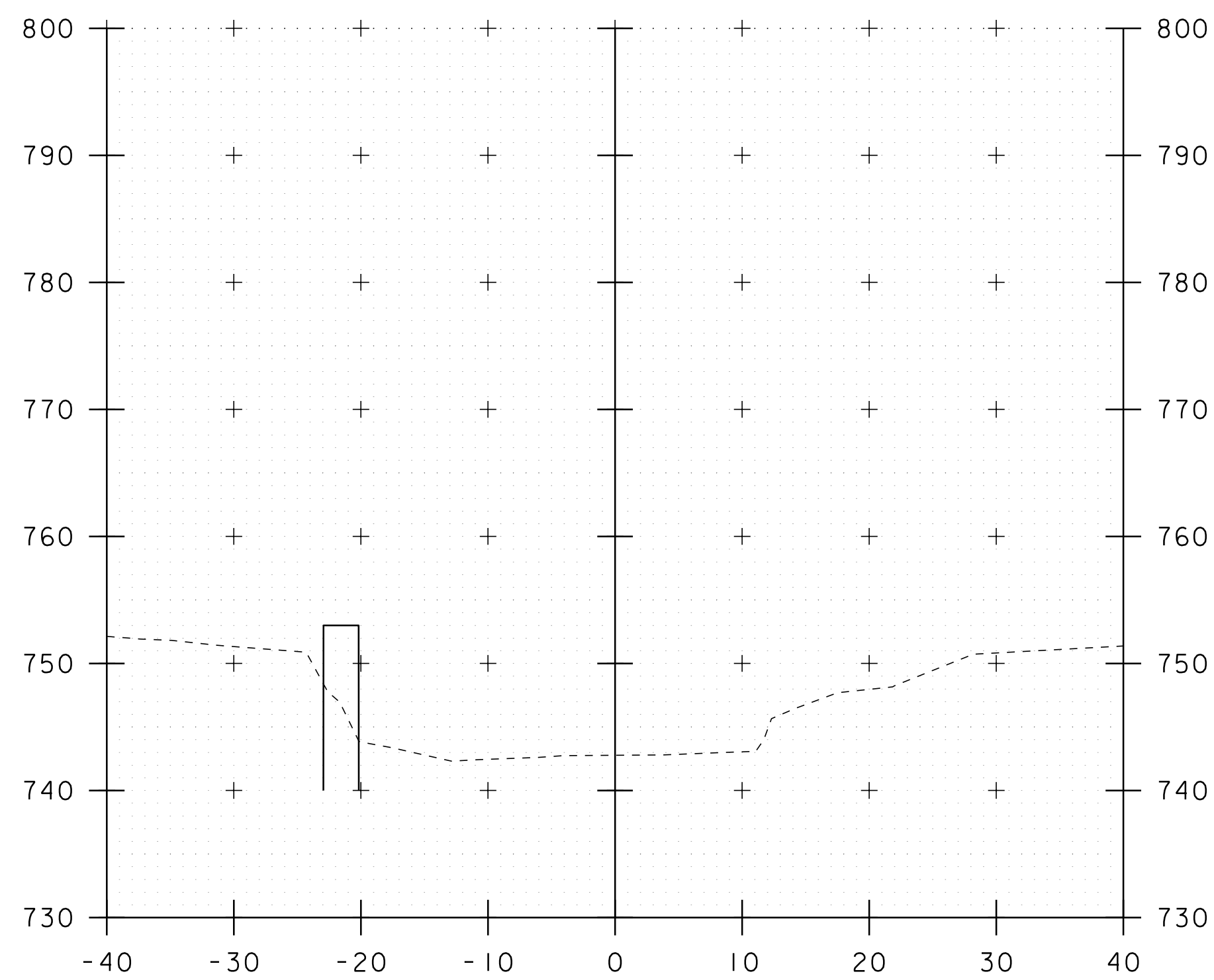
10+90



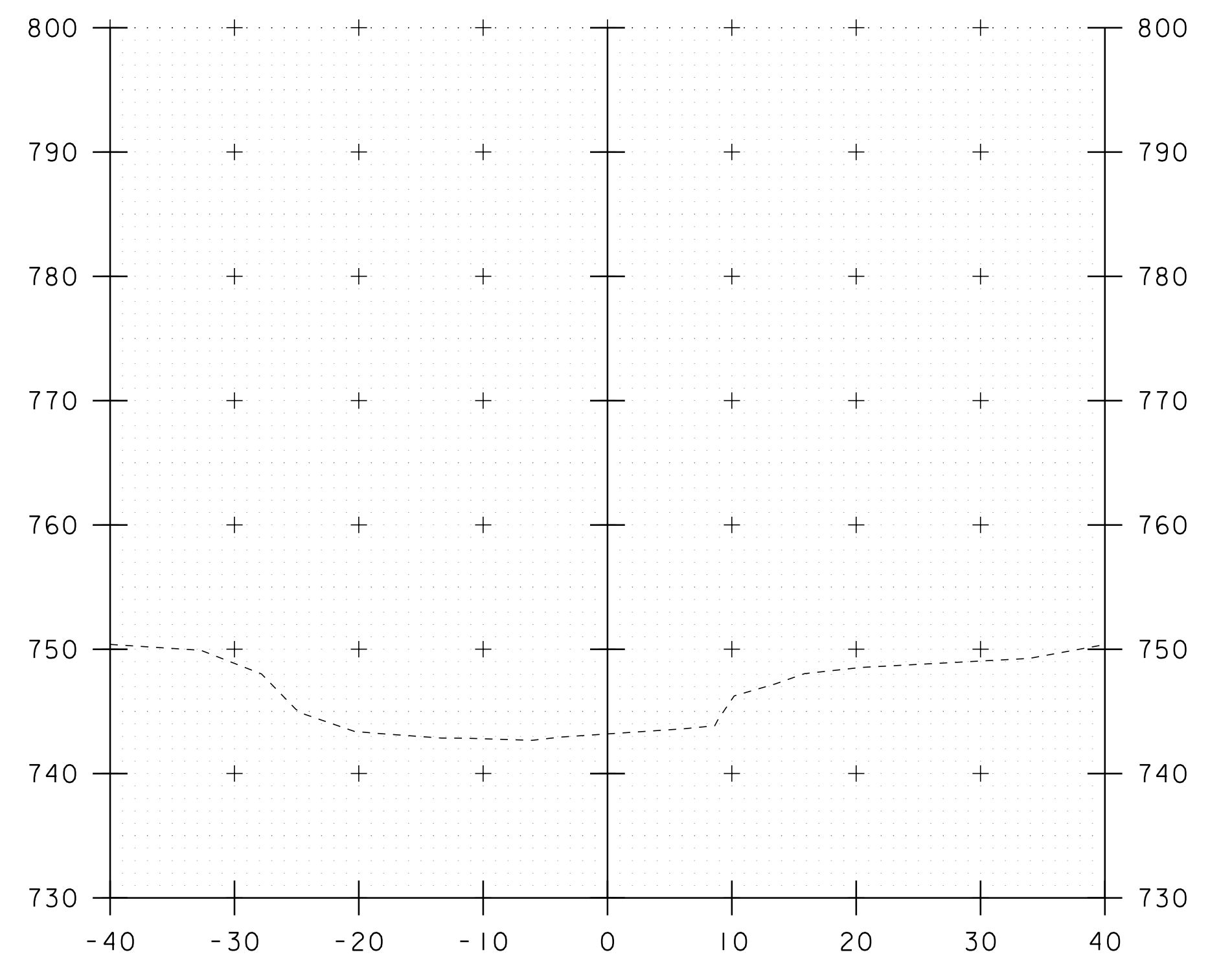
11+25



10+60



10+80



11+00

STA. 10+60 TO STA. 11+25

PROJECT NAME: STOWE	
PROJECT NUMBER: BO 1446(39)	
FILE NAME: I2J658/sI2J658xs.dgn	PLOT DATE: 22-FEB-2021
PROJECT LEADER: C. COTA	DRAWN BY: M. LONGSTREET
DESIGNED BY: M. LONGSTREET	CHECKED BY: C. BURRALL
CHANNEL CROSS SECTIONS 2	SHEET 13 OF 13