

**NOTES:**

A. Datum Line (D.L.) = 10.00m. below MLLW.  
 B. MLLW = 0.462m. below MSL.  
 C. Bench Marks used

B.M.	D.ELEV.	B.M.	D.ELEV.
1. PBM-1	11.428	14. IBM-8	26.549
2. PBM-2	17.306	15. IBM-9	30.136
3. PBM-3	28.002	16. IBM-10	33.172
4. PBM-4	37.429	17. IBM-11	36.993
5. PBM-5	43.455	18. IBM-12	38.937
6. PBM-6	52.489	19. IBM-13	42.537
7. IBM-1	11.242	20. IBM-14	43.466
8. IBM-2	11.447	21. IBM-15	46.601
9. IBM-3	11.729	22. IBM-16	49.311
10. IBM-4	12.909	23. TBM G-4	25.074
11. IBM-5	17.294	24. BM GM-36	33.547
12. IBM-6	18.164	25. BM RI-3	27.484
13. IBM-7	21.811		

D. Bench Mark Descriptions:  
 BM GM-36: Old BC & GS BM located in Bainton, Quezon City, on the conc. sidewalk near the W end of S banister of Edutown overpass-underpass interchange. Mark is a 5/8" brass rod embedded in the sidewalk protruding about 4mm. from its surface, with inscriptions "BC GS GM-36".  
 BM RI-3: Old BC & GS BM in Caloocan City at the intersection of Rizal Ave. & Somson Road on the E side of Bonifacio monument at the SE corner of the pool. Mark is a GHO-3" brass disc with Japanese characters, set flush with the concrete surface stamped "RI-3 Philippine Survey".

UNIVERSAL TRANSVERSE MERCATOR PROJECTION  
 ZONE 51 CL THE SPHEROID 1986 LUCAS DATUM  
 VERTICAL DATUM: MSL FOR HEIGHTS MLLW FOR DEPTHS  
 CONTOUR INTERVAL 4 METERS

SCALE 1:10,000

JICA  
 JAPAN INTERNATIONAL  
 COOPERATION AGENCY

DEPARTMENT OF PUBLIC WORKS & HIGHWAYS  
 DIVISION OF SURVEYING

PROJECT ENGINEER  
 PROJECT MANAGER

INDEX MAP  
 TULLAHAN RIVER

CONSULTANTS SIGNATURE  
 DATE

SURVEYED BY  
 CHECKED BY

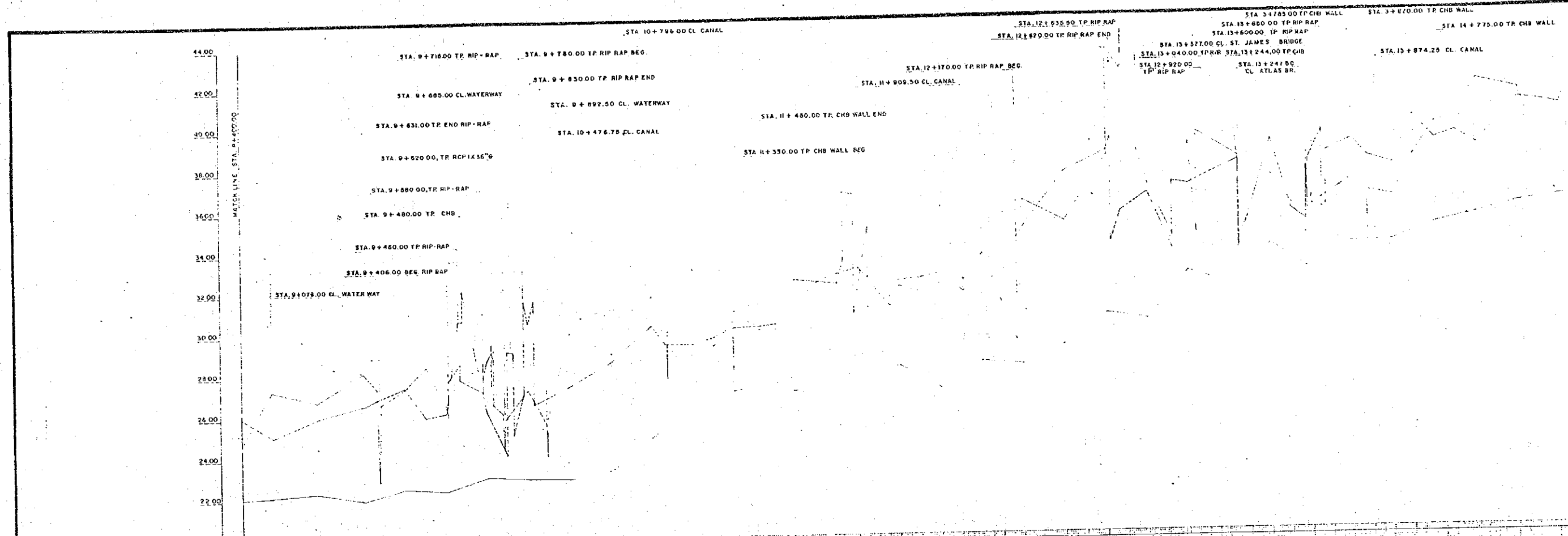
SHEET NO.  
 1/1

**ACRE SURVEYING  
 & DEVELOPMENT**

A-9-1



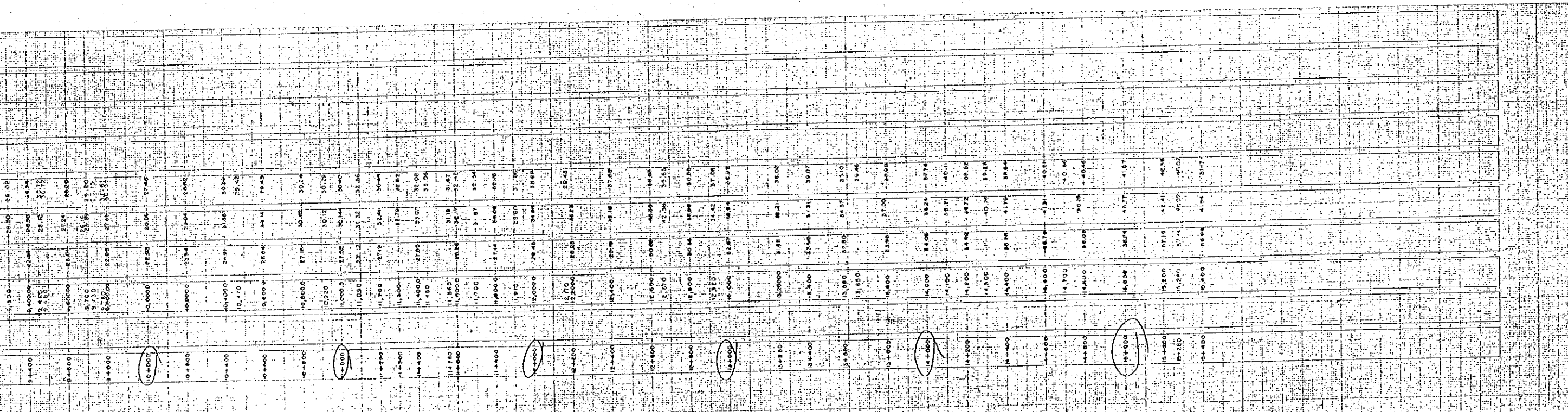
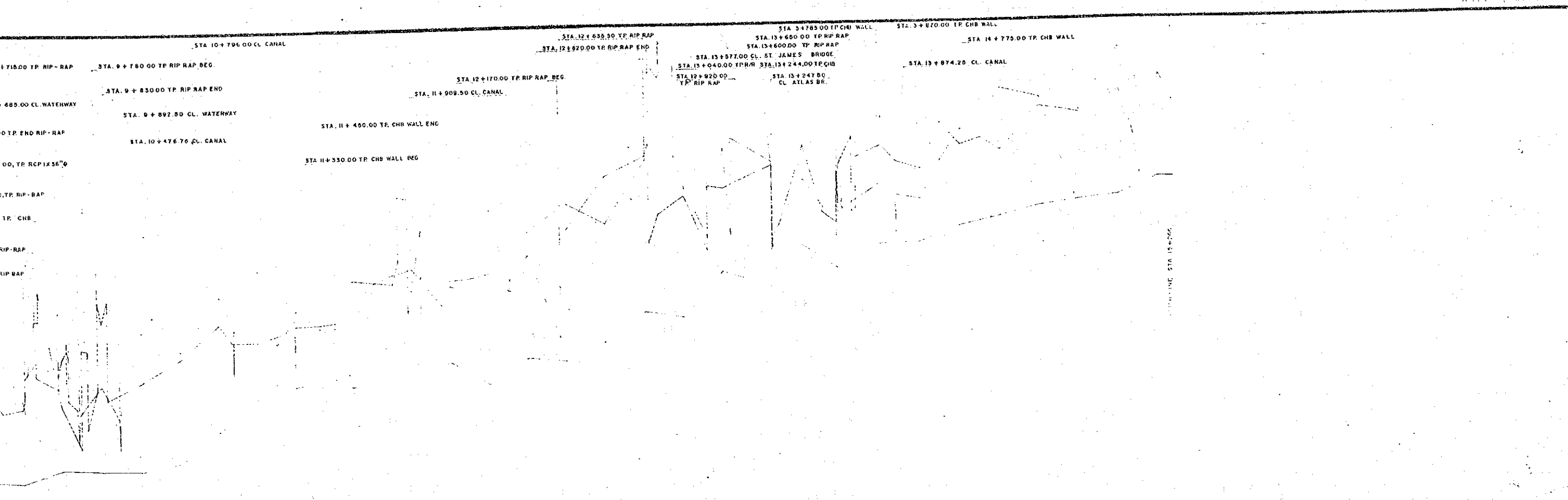




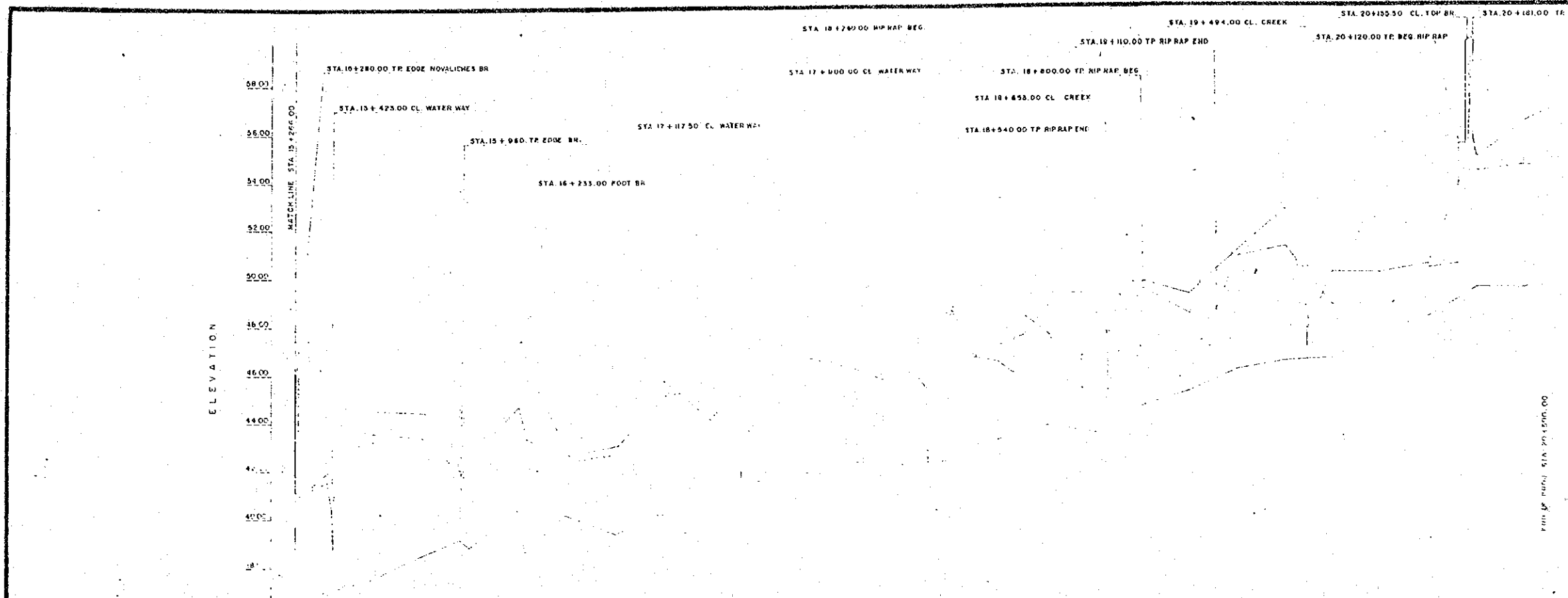
STATION NO.	EXISTING ELEVATION			PROPOSED ELEVATION		
	RIVER BED	LEFT LEVÉE	RIGHT LEVÉE	RIVER BED	HIGH WATER LEVEL	BANK LEVEL
8+400	25.50	27.50	28.50	25.50	27.50	28.50
8+500	25.50	27.50	28.50	25.50	27.50	28.50
8+600	25.50	27.50	28.50	25.50	27.50	28.50
8+700	25.50	27.50	28.50	25.50	27.50	28.50
8+800	25.50	27.50	28.50	25.50	27.50	28.50
8+900	25.50	27.50	28.50	25.50	27.50	28.50
9+000	25.50	27.50	28.50	25.50	27.50	28.50
9+100	25.50	27.50	28.50	25.50	27.50	28.50
9+200	25.50	27.50	28.50	25.50	27.50	28.50
9+300	25.50	27.50	28.50	25.50	27.50	28.50
9+400	25.50	27.50	28.50	25.50	27.50	28.50
9+500	25.50	27.50	28.50	25.50	27.50	28.50
9+600	25.50	27.50	28.50	25.50	27.50	28.50
9+700	25.50	27.50	28.50	25.50	27.50	28.50
9+800	25.50	27.50	28.50	25.50	27.50	28.50
9+900	25.50	27.50	28.50	25.50	27.50	28.50
10+000	25.50	27.50	28.50	25.50	27.50	28.50
10+100	25.50	27.50	28.50	25.50	27.50	28.50
10+200	25.50	27.50	28.50	25.50	27.50	28.50
10+300	25.50	27.50	28.50	25.50	27.50	28.50
10+400	25.50	27.50	28.50	25.50	27.50	28.50
10+500	25.50	27.50	28.50	25.50	27.50	28.50
10+600	25.50	27.50	28.50	25.50	27.50	28.50
10+700	25.50	27.50	28.50	25.50	27.50	28.50
10+800	25.50	27.50	28.50	25.50	27.50	28.50
10+900	25.50	27.50	28.50	25.50	27.50	28.50
11+000	25.50	27.50	28.50	25.50	27.50	28.50
11+100	25.50	27.50	28.50	25.50	27.50	28.50
11+200	25.50	27.50	28.50	25.50	27.50	28.50
11+300	25.50	27.50	28.50	25.50	27.50	28.50
11+400	25.50	27.50	28.50	25.50	27.50	28.50
11+500	25.50	27.50	28.50	25.50	27.50	28.50
11+600	25.50	27.50	28.50	25.50	27.50	28.50
11+700	25.50	27.50	28.50	25.50	27.50	28.50
11+800	25.50	27.50	28.50	25.50	27.50	28.50
11+900	25.50	27.50	28.50	25.50	27.50	28.50
12+000	25.50	27.50	28.50	25.50	27.50	28.50
12+100	25.50	27.50	28.50	25.50	27.50	28.50
12+200	25.50	27.50	28.50	25.50	27.50	28.50
12+300	25.50	27.50	28.50	25.50	27.50	28.50
12+400	25.50	27.50	28.50	25.50	27.50	28.50
12+500	25.50	27.50	28.50	25.50	27.50	28.50
12+600	25.50	27.50	28.50	25.50	27.50	28.50
12+700	25.50	27.50	28.50	25.50	27.50	28.50
12+800	25.50	27.50	28.50	25.50	27.50	28.50
12+900	25.50	27.50	28.50	25.50	27.50	28.50
13+000	25.50	27.50	28.50	25.50	27.50	28.50
13+100	25.50	27.50	28.50	25.50	27.50	28.50
13+200	25.50	27.50	28.50	25.50	27.50	28.50
13+300	25.50	27.50	28.50	25.50	27.50	28.50
13+400	25.50	27.50	28.50	25.50	27.50	28.50
13+500	25.50	27.50	28.50	25.50	27.50	28.50
13+600	25.50	27.50	28.50	25.50	27.50	28.50
13+700	25.50	27.50	28.50	25.50	27.50	28.50
13+800	25.50	27.50	28.50	25.50	27.50	28.50
13+900	25.50	27.50	28.50	25.50	27.50	28.50
14+000	25.50	27.50	28.50	25.50	27.50	28.50
14+100	25.50	27.50	28.50	25.50	27.50	28.50
14+200	25.50	27.50	28.50	25.50	27.50	28.50
14+300	25.50	27.50	28.50	25.50	27.50	28.50
14+400	25.50	27.50	28.50	25.50	27.50	28.50
14+500	25.50	27.50	28.50	25.50	27.50	28.50
14+600	25.50	27.50	28.50	25.50	27.50	28.50
14+700	25.50	27.50	28.50	25.50	27.50	28.50
14+800	25.50	27.50	28.50	25.50	27.50	28.50

<p><b>ACRE SURVEYING &amp; DEVELOPMENT</b></p>	CONSULTANTS		REPUBLIC OF THE PHILIPPINES		DATE: _____	SIGNATURE: _____
	SURVEYED BY: <i>R. M. P.</i>	DATE: <i>12/11/88</i>	SIGNATURE: <i>[Signature]</i>	DEPARTMENT OF	PROJECT ENGINEER	NO. _____
	CHECKED BY: <i>R. M. P.</i>			PUBLIC WORKS AND HIGHWAYS	PROJECT MANAGER	EUGENIO M. GONZALEZ
	PROJECT MANAGER: <i>R. M. P.</i>					

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CONSULTANTS		REPUBLIC OF THE PHILIPPINES		DATE	SIGNATURE	PROJECT ENGINEER	PROJECT MANAGER	<p>PLAN AND PROFILE</p> <p>TULLAHAN RIVER STA 8+000 - STA 15+200</p>	SCALE	DHWG. NO.
DATE	SIGNATURE	DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS							HORIZONTAL	VERTICAL
8-13-88	<i>[Signature]</i>	DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			<i>[Signature]</i>			1:10,000	1:100	2/3



STATION NO.	DISTANCE		EXISTING ELEVATION			PROPOSED ELEVATION		
	START	END	RIVER BED	LEFT CEVEE	RIGHT CEVEE	RIVER BED	HIGH WATER LEVEL	BANK LEVEL
15+000	15+000	15+000	40.00	41.50	43.00	40.00	41.50	43.00
15+200	15+200	15+200	40.00	41.50	43.00	40.00	41.50	43.00
15+400	15+400	15+400	40.00	41.50	43.00	40.00	41.50	43.00
15+600	15+600	15+600	40.00	41.50	43.00	40.00	41.50	43.00
15+800	15+800	15+800	40.00	41.50	43.00	40.00	41.50	43.00
16+000	16+000	16+000	40.00	41.50	43.00	40.00	41.50	43.00
16+200	16+200	16+200	40.00	41.50	43.00	40.00	41.50	43.00
16+400	16+400	16+400	40.00	41.50	43.00	40.00	41.50	43.00
16+600	16+600	16+600	40.00	41.50	43.00	40.00	41.50	43.00
16+800	16+800	16+800	40.00	41.50	43.00	40.00	41.50	43.00
17+000	17+000	17+000	40.00	41.50	43.00	40.00	41.50	43.00
17+200	17+200	17+200	40.00	41.50	43.00	40.00	41.50	43.00
17+400	17+400	17+400	40.00	41.50	43.00	40.00	41.50	43.00
17+600	17+600	17+600	40.00	41.50	43.00	40.00	41.50	43.00
17+800	17+800	17+800	40.00	41.50	43.00	40.00	41.50	43.00
18+000	18+000	18+000	40.00	41.50	43.00	40.00	41.50	43.00
18+200	18+200	18+200	40.00	41.50	43.00	40.00	41.50	43.00
18+400	18+400	18+400	40.00	41.50	43.00	40.00	41.50	43.00
18+600	18+600	18+600	40.00	41.50	43.00	40.00	41.50	43.00
18+800	18+800	18+800	40.00	41.50	43.00	40.00	41.50	43.00
19+000	19+000	19+000	40.00	41.50	43.00	40.00	41.50	43.00
19+200	19+200	19+200	40.00	41.50	43.00	40.00	41.50	43.00
19+400	19+400	19+400	40.00	41.50	43.00	40.00	41.50	43.00
19+600	19+600	19+600	40.00	41.50	43.00	40.00	41.50	43.00
19+800	19+800	19+800	40.00	41.50	43.00	40.00	41.50	43.00
20+000	20+000	20+000	40.00	41.50	43.00	40.00	41.50	43.00

**M**  
**ACRE SURVEYING & DEVELOPMENT**

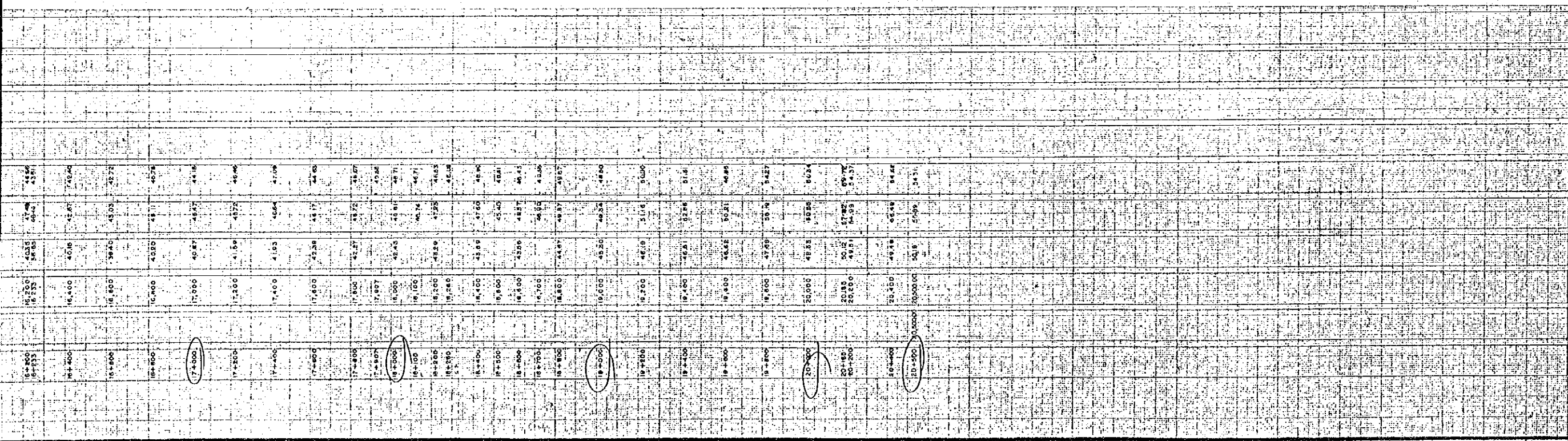
**CONSULTANTS**

DATE	SIGNATURE
12-15-88	<i>[Signature]</i>
12-28-88	<i>[Signature]</i>
1-14-88	<i>[Signature]</i>

**REPUBLIC OF THE PHILIPPINES**  
**DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS**

DATE	SIGNATURE
	<i>[Signature]</i>
	<i>[Signature]</i>

STA 18+265.00 RIP RAP BEG  
 STA 17+900.00 CL WATERWAY  
 STA 17+117.50 CL WATERWAY  
 STA 16+233.00 FOOT BR  
 STA 19+494.00 CL CREEK  
 STA 19+110.00 TP RIP RAP END  
 STA 19+853.00 CL CREEK  
 STA 18+540.00 TP RIP RAP END  
 STA 20+155.50 CL TOP BR  
 STA 20+120.00 YR BEG RIP RAP  
 STA 20+181.00 IR



CONSULTANTS		REPUBLIC OF THE PHILIPPINES		DATE	SIGNATURE
DATE	SIGNATURE	PROJECT ENGINEER	PROJECT MANAGER	DATE	SIGNATURE
11-11-88	<i>Charles...</i>				<i>MONTE...</i>
12-12-88	<i>...</i>				<i>EUGENIO...</i>
1-11-88	<i>...</i>				



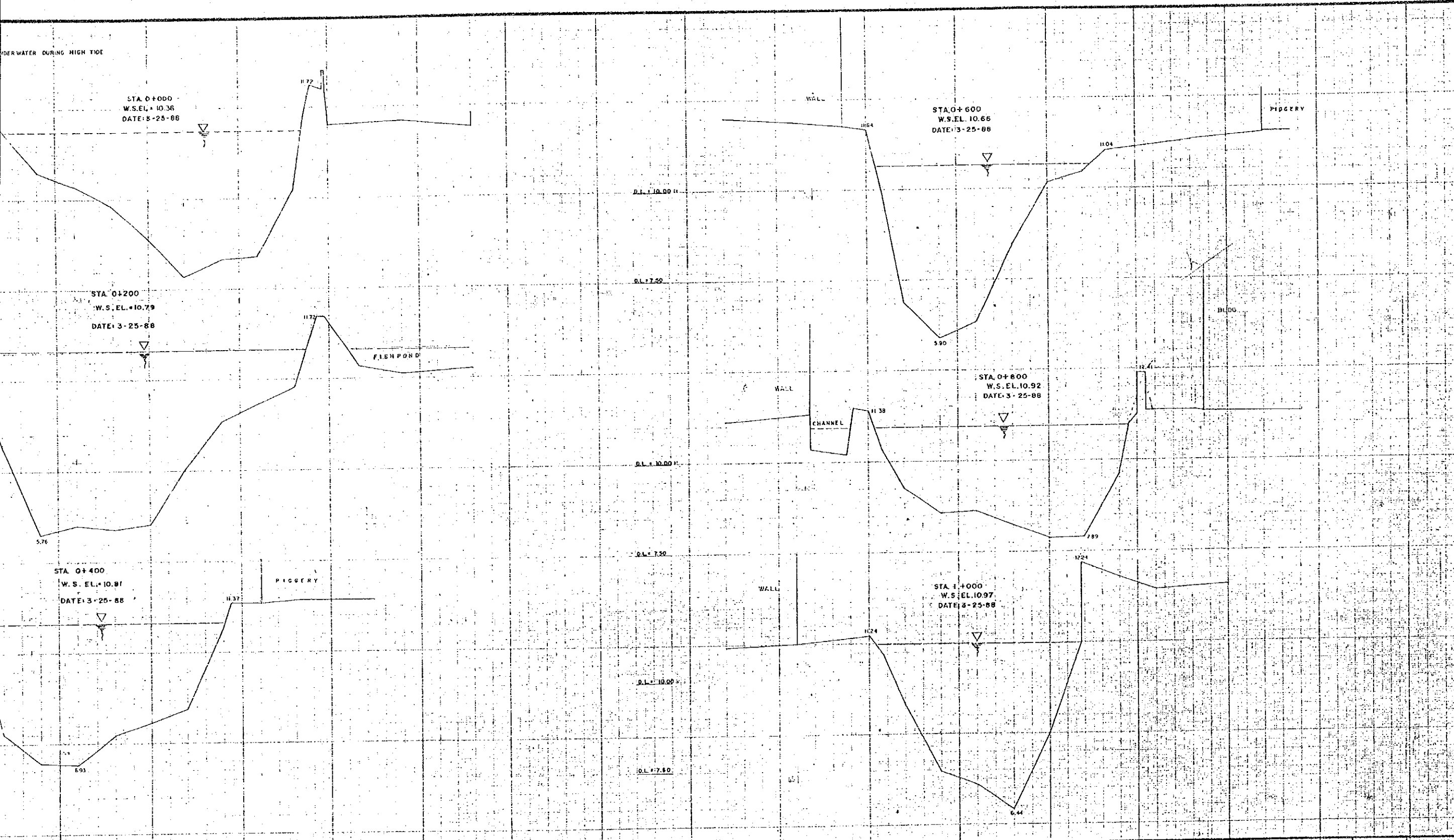
DEPARTMENT OF  
 PUBLIC WORKS AND HIGHWAYS

PLAN AND PROFILE  
 TULLAHAN RIVER  
 STA 18+265.00 - STA 20+500


SCALE	DRWG NO.
HORIZONTAL 1" = 100'	373
VERTICAL 1" = 10'	





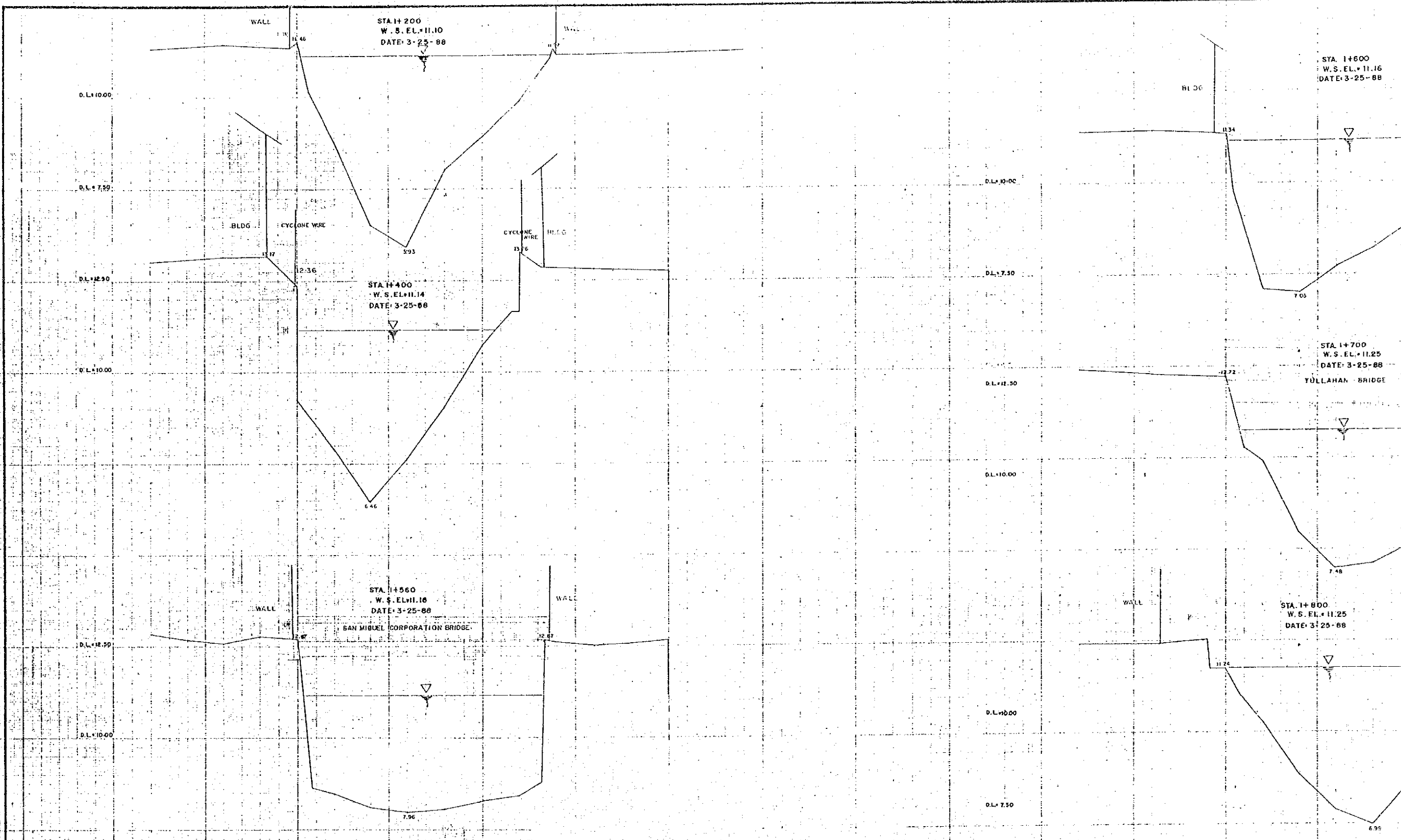


CONSULTANTS	
DATE	SIGNATURE
8-13-88	<i>[Signature]</i>
8-14-88	<i>[Signature]</i>

REPUBLIC OF THE PHILIPPINES		DATE	SIGNATURE
 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT ENGINEER		<i>[Signature]</i> MONTE FANO
	PROJECT MANAGER		<i>[Signature]</i> EUGENIO MARIAL

STA 0+000 W.S. EL. 10.36 DATE: 8-25-88	STA 0+200 W.S. EL. 10.79 DATE: 3-25-88	STA 0+400 W.S. EL. 10.81 DATE: 3-25-88	STA 1+000 W.S. EL. 10.92 DATE: 3-25-88
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CROSS SECTION TULLAHAN RIVER STA 0+000 - STA 1+000	SCALE	DRWG. NO.
	HORIZONTAL 1" = 250'	17/15
	VERTICAL 1" = 50'	



**ACRE SURVEYING  
& DEVELOPMENT**

CONSULTANTS		DATE	SIGNATURE
SURVEYED BY:	<i>[Signature]</i>	8/16/88	<i>[Signature]</i>
CHECKED BY:	<i>[Signature]</i>	8/16/88	<i>[Signature]</i>
PROJECT MANAGER	<i>[Signature]</i>	8/14/88	<i>[Signature]</i>



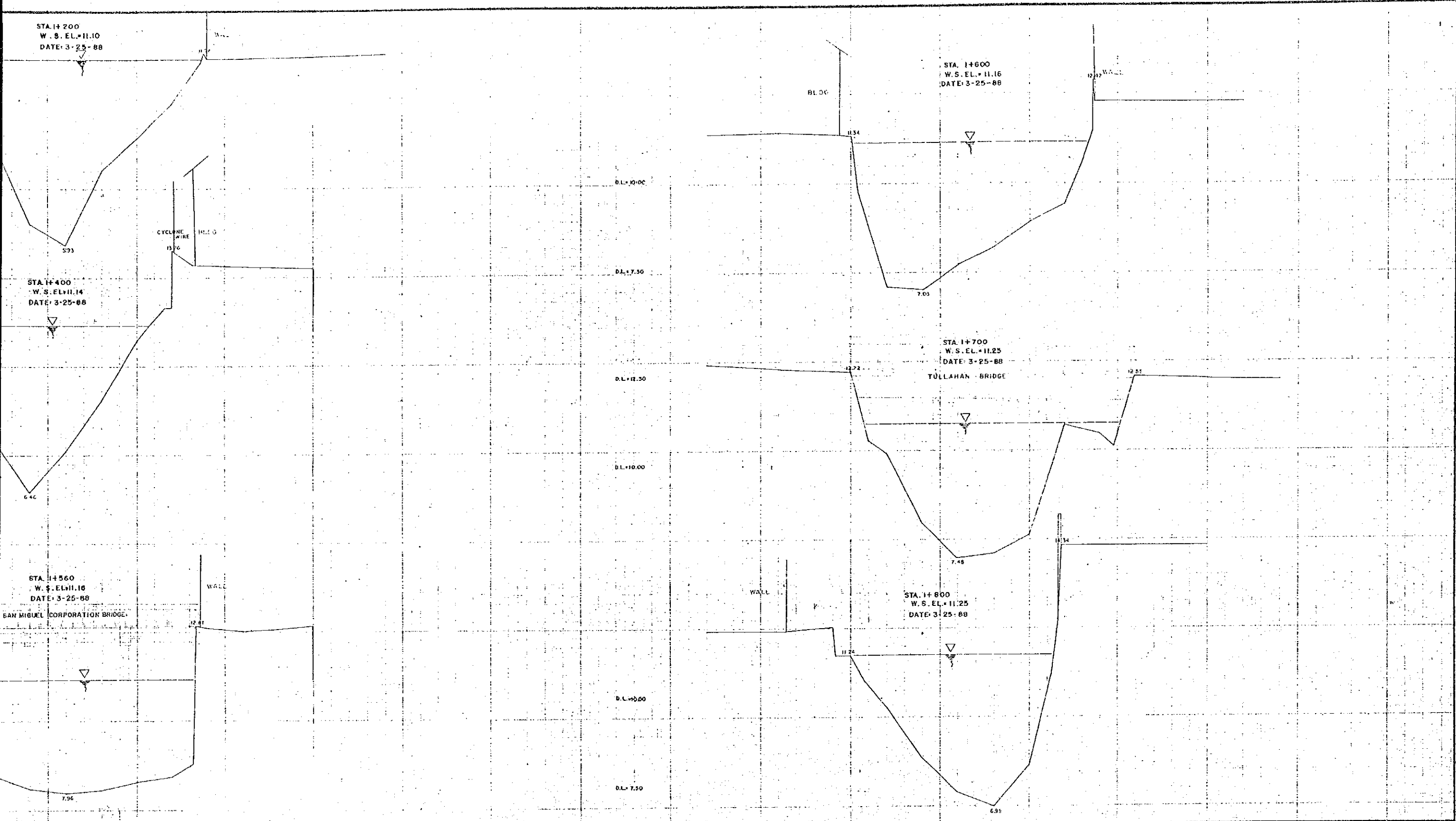
DEPARTMENT OF  
**PUBLIC WORKS AND HIGHWAYS**


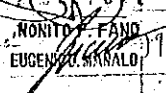
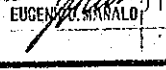
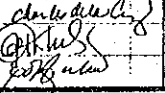
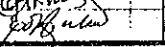
REPUBLIC OF THE PHILIPPINES

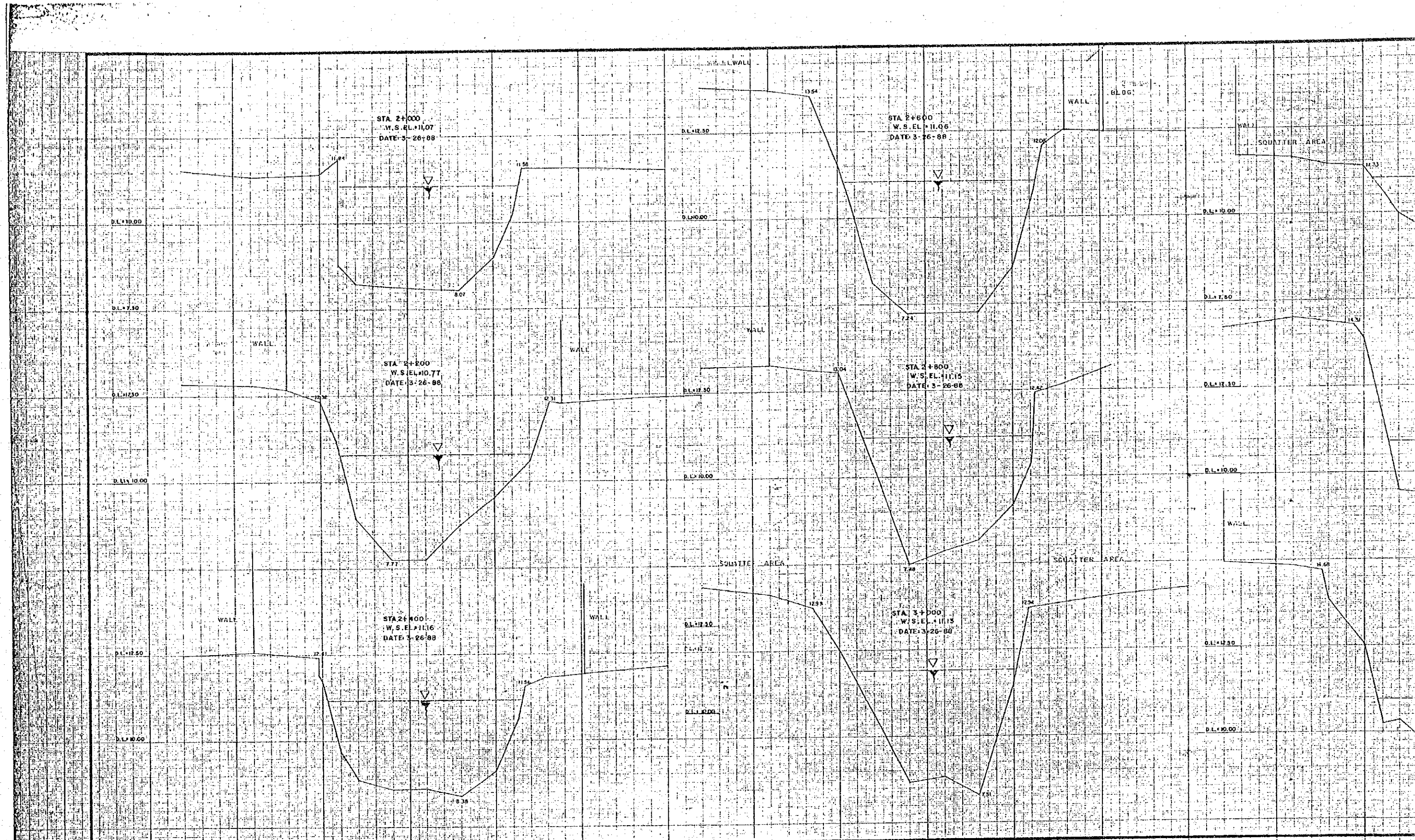
PROJECT ENGINEER  
 PROJECT MANAGER

*[Signature]*  
 MONTE FANDU  
 EUGENIO R. RINALDO

115



CONSULTANTS		REPUBLIC OF THE PHILIPPINES		 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS		PROJECT ENGINEER  NONITO FAND PROJECT MANAGER  EUGENIO ARNALDO		CROSS SECTION TULLAHAN RIVER STA. 1+200 - STA. 1+800		SCALE HORIZONTAL 1:250 VERTICAL 1:50	DRWG. NO. 2/15
BY:	DATE	SIGNATURE									
BY:	8-12-88										
AGER:	8-14-88										



**ACRE SURVEYING & DEVELOPMENT**

CONSULTANTS	
DATE	SIGNATURE
SURVEYED BY: July 1988	<i>[Signature]</i>
CHECKED BY: 8-12-88	<i>[Signature]</i>
PROJECT MANAGER: 8-14-88	<i>[Signature]</i>

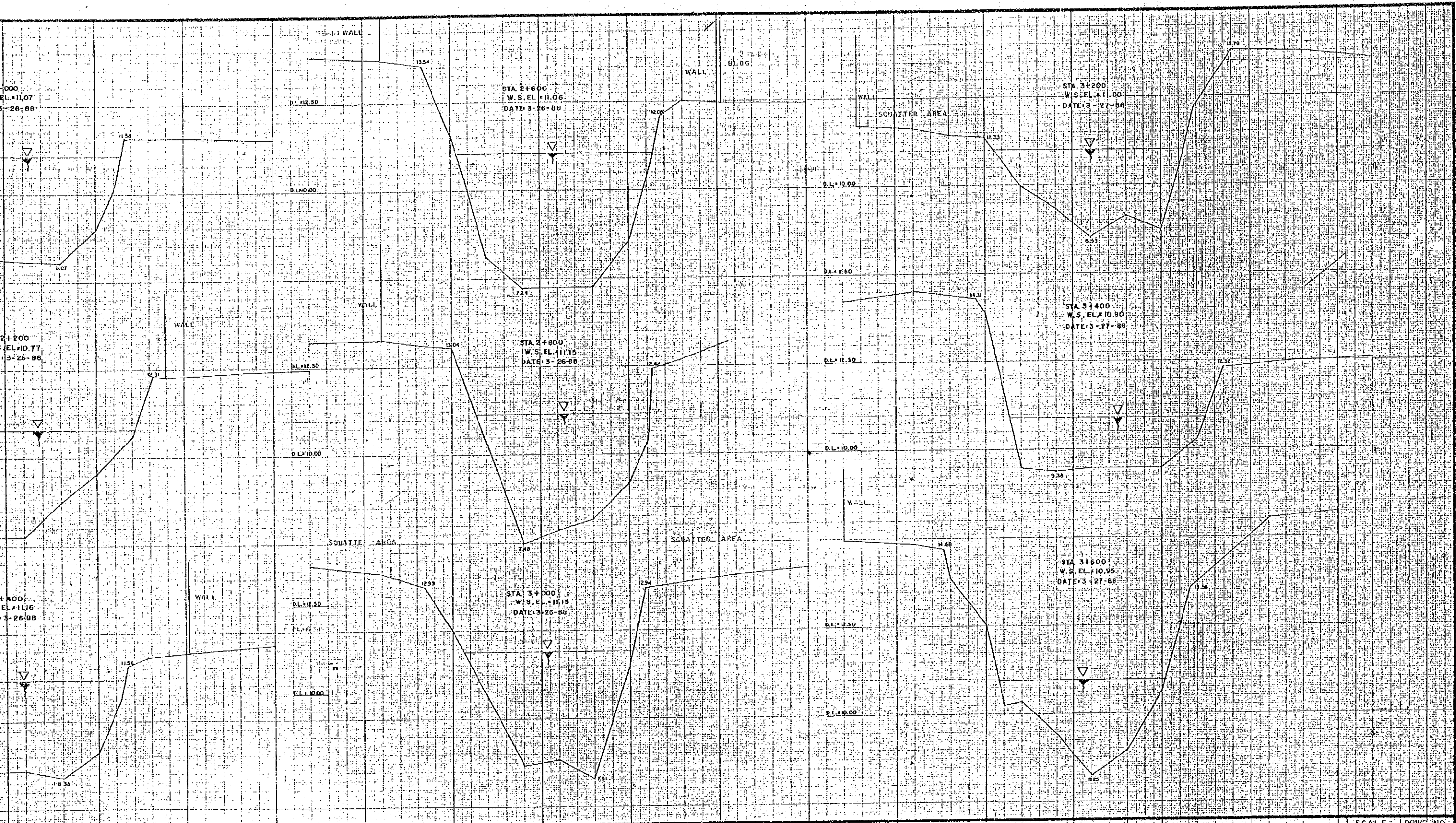
REPUBLIC OF THE PHILIPPINES  
**DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS**

PROJECT ENGINEER  
 PROJECT MANAGER  
*[Signature]*  
 MONTE P. PANG  
 EUGENIO B. BUNALO

4/6

Masterpiece  
 Frank J. Jones

Masterpiece  
 Frank J. Jones



CONSULTANTS		
DATE	SIGNATURE	
July 1988	<i>[Signature]</i>	
8-13-88	<i>[Signature]</i>	
8-14-88	<i>[Signature]</i>	

REPUBLIC OF THE PHILIPPINES  
 DEPARTMENT OF PUBLICWORKS AND HIGHWAYS

PROJECT ENGINEER: *[Signature]* NORTON P. FANLO  
 PROJECT MANAGER: EUGENIO BRADALO

CROSS SECTION  
 YULLAWAN RIVER  
 STA. 2+000 - STA. 3+600

SCALE	DRWS. NO.
HORIZONTAL: 1:250	3/B
VERTICAL: 1:50	

Masterpiece  
 Printed in Japan

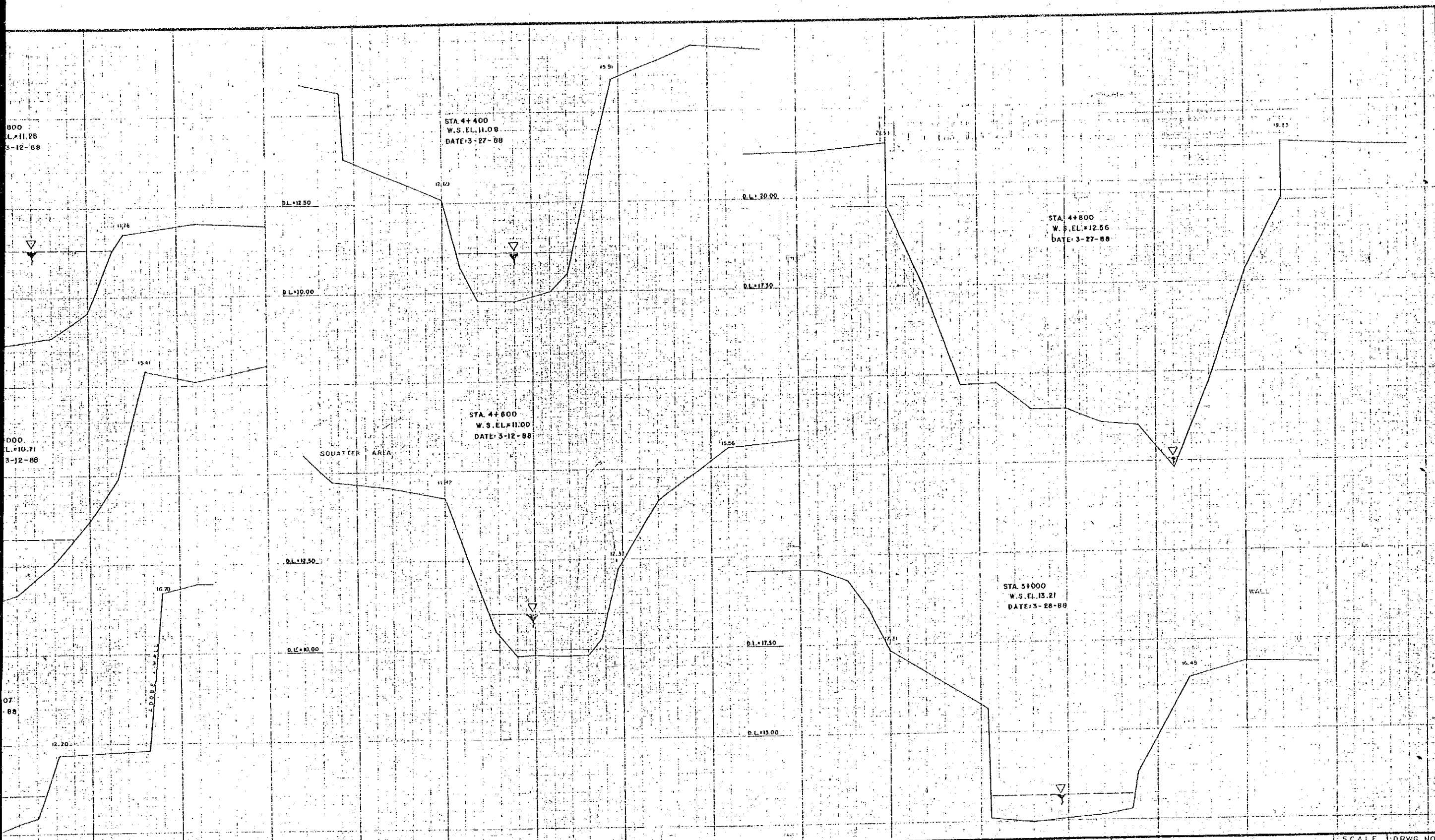
Masterpiece  
 Printed in Japan



800  
L.S. EL. 11.08  
DATE: 3-12-88

000  
L.S. EL. 10.71  
DATE: 3-12-88

07  
88

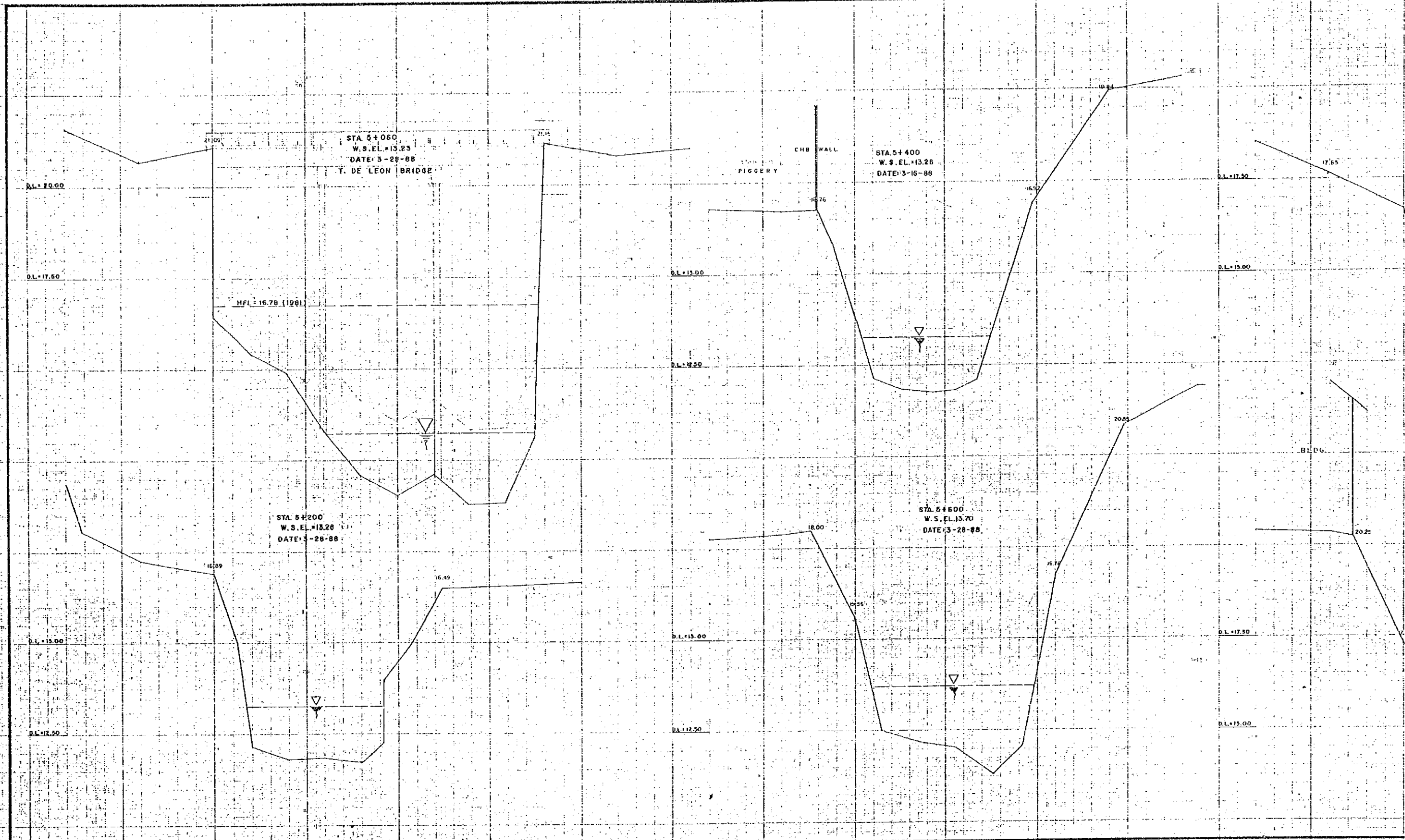


CONSULTANTS	DATE	SIGNATURE
	8-12-88	<i>[Signature]</i>
	8-14-88	<i>[Signature]</i>

REPUBLIC OF THE PHILIPPINES  
**DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS**

PROJECT ENGINEER  
 PROJECT MANAGER  
 DATE: *[Signature]*  
 SIGNATURE: *[Signature]*  
 MONITOR: *[Signature]*  
 ENGINEER: *[Signature]*

CROSS SECTION  
 TULLAHAN RIVER  
 STA. 3+800 - STA 5+000  
 SCALE: HORIZONTAL 1:250, VERTICAL 1:50  
 DRWG. NO. 4/15



**ACRE SURVEYING  
& DEVELOPMENT**

CONSULTANTS	
DATE	SIGNATURE
SURVEYED BY: July 26, 88	<i>Charles Leblond</i>
CHECKED BY: R. P. B.	<i>[Signature]</i>
PROJECT MANAGER: 8-14-88	<i>[Signature]</i>



REPUBLIC OF THE PHILIPPINES  
**DEPARTMENT OF  
PUBLIC WORKS AND HIGHWAYS**

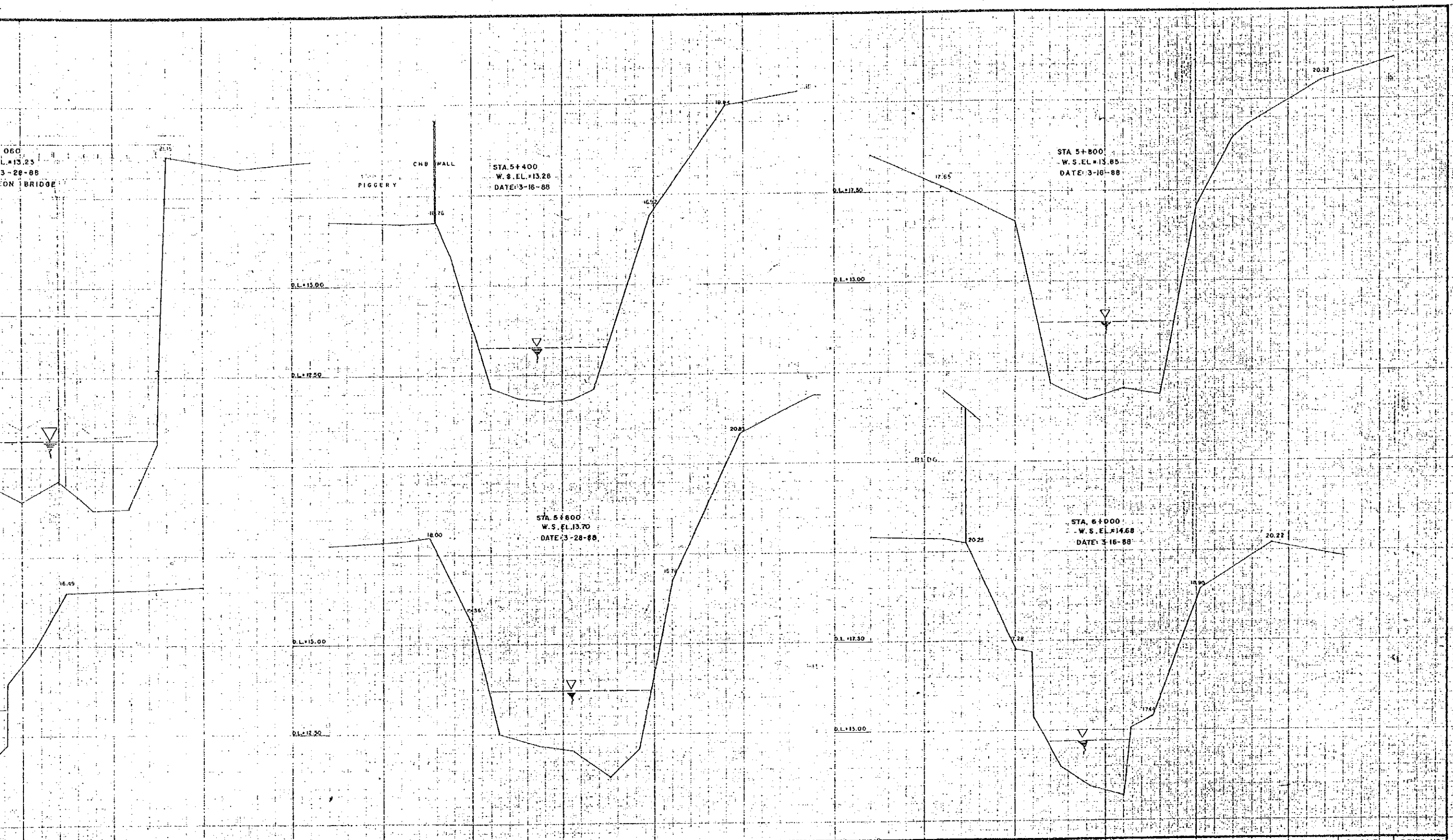
DATE	SIGNATURE
PROJECT ENGINEER	<i>NONITO P. PANO</i>
PROJECT MANAGER	<i>EUGENIO MANALO</i>

Masterpiece  
Printed in Japan

Masterpiece  
Printed in Japan



060  
L. 13.23  
3-28-88  
ON BRIDGE



CONSULTANTS		REPUBLIC OF THE PHILIPPINES		DATE		SIGNATURE		SCALE		DRWG. NO.	
DATE	SIGNATURE	DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS		PROJECT ENGINEER	PROJECT MANAGER	DATE	SIGNATURE	HORIZONTAL		VERTICAL	
July 25, 88	<i>Chen W. M. Chiu</i>	DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS		PROJECT ENGINEER	PROJECT MANAGER	3-28-88	<i>Nonito P. Pano</i>	1:250		5/15	
8-10-88	<i>Attilio S.</i>	DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS		PROJECT ENGINEER	PROJECT MANAGER	3-28-88	<i>Eugenio P. Pano</i>	1:50		5/15	
8-10-88	<i>Edgardo S.</i>	DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS		PROJECT ENGINEER	PROJECT MANAGER	3-28-88	<i>Eugenio P. Pano</i>	1:50		5/15	

CROSS SECTION  
TULLAHAN RIVER  
STA. 5+040 - STA. 6+000

Masterpiece  
Printed in Japan



