

AD-A167 731

GUANTANAMO NAVAL STATION SEWER OUTFALL INVESTIGATION
(U) NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON DC
CHESAPEAKE DIV 1 J O'BOYLE JUN 81

1/1

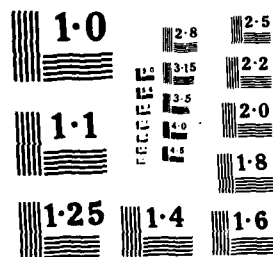
UNCLASSIFIED

CHES/NAUFAC-FPO-1-81 (13)

F/G 13/2

NL

END
NAFAC
6-81





AD-A167 731

GUANTANAMO
NAVAL STATION
SEWER OUTFALL
INVESTIGATION

DTIC
SELECTE
MAY 02 1986
S D

BY
T. J. O'BOYLE

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

FP0-1-81 (13)
JUNE 1981

DTIC FILE COPY

OCEAN ENGINEERING
AND CONSTRUCTION PROJECT OFFICE
CHESAPEAKE DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
WASHINGTON, D.C. 20374

86 4 22 053

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE

AD-A167731

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION

Unclassified

1b. RESTRICTIVE MARKINGS

2a. SECURITY CLASSIFICATION AUTHORITY

3. DISTRIBUTION AVAILABILITY OF REP.
Approved for public release;
distribution is unlimited

2b. DECLASSIFICATION/DOWNGRADING SCHEDULE

4. PERFORMING ORGANIZATION REPORT NUMBER
FPO-1-81(13)

5. MONITORING ORGANIZATION REPORT #

6a. NAME OF PERFORM. ORG. 6b. OFFICE SYM
Ocean Engineering
& Construction
Project Office
CHESNAVFACENGCOM

7a. NAME OF MONITORING ORGANIZATION

6c. ADDRESS (City, State, and Zip Code)
BLDG. 212, Washington Navy Yard
Washington, D.C. 20374-2121

7b. ADDRESS (City, State, and Zip)

8a. NAME OF FUNDING ORG. 8b. OFFICE SYM

9. PROCUREMENT INSTRUMENT INDENT #

8c. ADDRESS (City, State & Zip)

10. SOURCE OF FUNDING NUMBERS

PROGRAM	PROJECT	TASK	WORK UNIT
ELEMENT #	#	#	ACCESS #

11. TITLE (Including Security Classification)

Guantanamo Naval Station Sewer Outfall Investigation

12. PERSONAL AUTHOR(S)

T.J. O'Boyle

13a. TYPE OF REPORT

13b. TIME COVERED
FROM TO

14. DATE OF REP. (YYMMDD)
81-06

15. PAGES
48

16. SUPPLEMENTARY NOTATION

17. COSATI CODES
FIELD GROUP SUB-GROUP

18. SUBJECT TERMS (Continue on reverse if nec.)
Sewage, Guantanamo Bay, Cuba.

19. ABSTRACT (Continue on reverse if necessary & identify by block number)

This report deals with the investigatin and recommendations for extending
some/all of 30 to 50 raw sewage outfalls to deeper water in Guantanamo Bay.

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT
SAME AS RPT.

21. ABSTRACT SECURITY CLASSIFICATION

22a. NAME OF RESPONSIBLE INDIVIDUAL
Jacqueline B. Riley
DD FORM 1473, 84MAR

22b. TELEPHONE 22c. OFFICE SYMBOL
202-433-3881
SECURITY CLASSIFICATION OF THIS PAGE

GUANTANAMO NAVAL STATION
SEWER OUTFALLS INVESTIGATION

JUNE 1981

By T. J. O'Boyle

Approved: S. Ling, Director
Engineering Analysis
Division

S. Ling (acting)

Approved: E. Spencer
Technical Director

E. Spencer

Accession For	
NTIS CRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution /	
Availability Codes	
Dist	Avail and/or Special
A-1	24



Ocean Engineering and Construction Project Office
Chesapeake Division
Naval Facilities Engineering Command
Washington, DC 20374

21 July 1981

TRIP REPORT

From: FPO-1EA6
To: FPO-1EA

Subj: Guantanamo Naval Station Sewer Outfalls Investigation

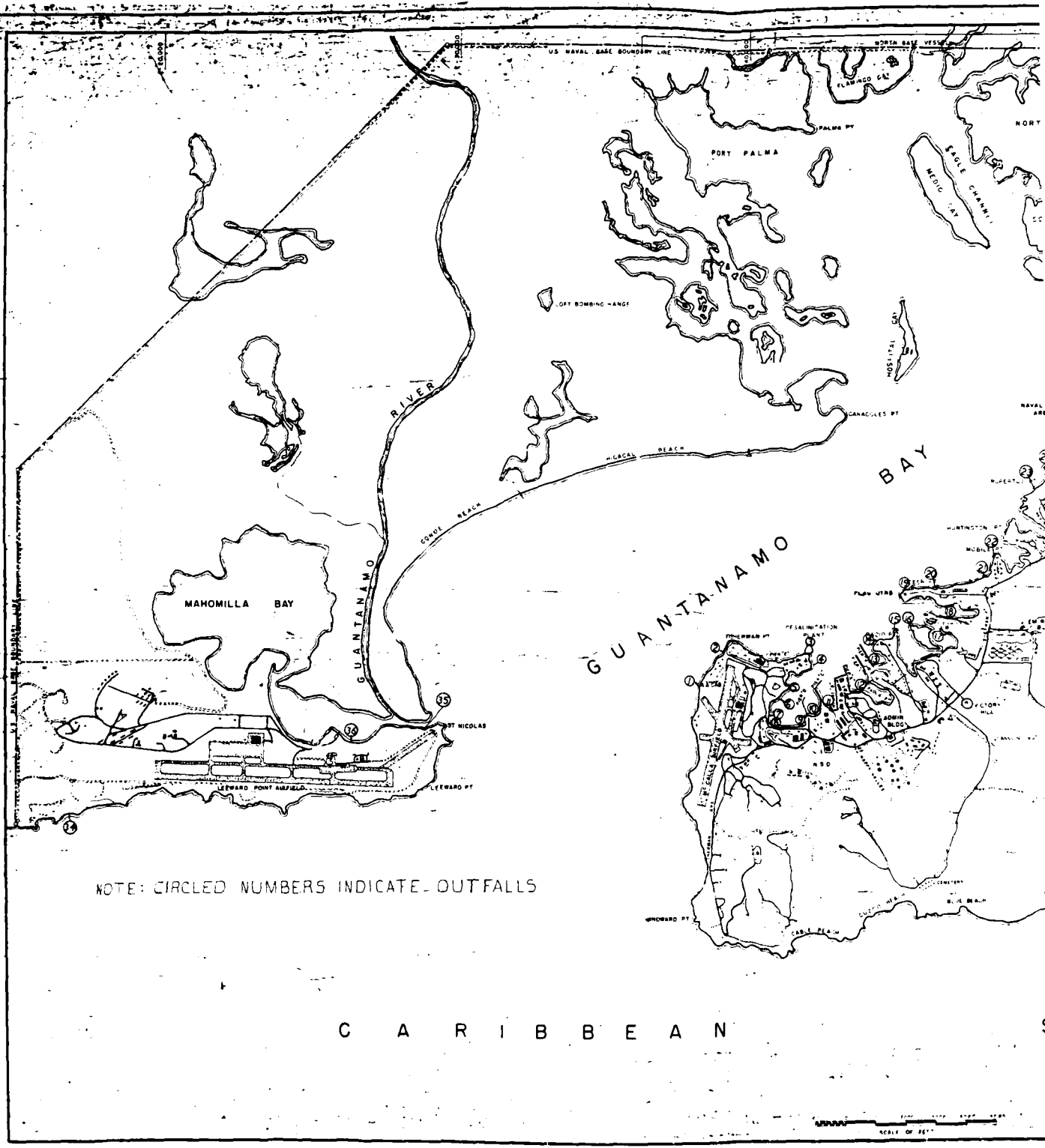
Ref: (a) Engineering Service Request (ESR) Number 81-03 of 2 Mar 1981
(b) Phonecon between S. Ling, CHESDIV and LCDR T. Best, Guantanamo on 8 May 1981

Encl: (1) Copy of reference (a)
(2) Copy of reference (b)
(3) Detailed location of the sewage outfalls
(4) Drawings of the repairs made to the outfalls
(5) Photos taken during the inspections

1. On 23 March 1981, CHESDIV (FPO-1), received an Engineering Service Request (reference (a); enclosure (1)), to investigate and make recommendations for extending some/all of the 30 to 50 raw sewage outfalls at Guantanamo Naval Station. During reference (b) it was agreed that a fact-finding visit would be necessary to ascertain the extent of the problem. To perform the aforementioned fact-finding investigation, Mr. T. O'Boyle, from CHESDIV (FPO-1) arrived at the Guantanamo (GTMO) Naval Station on 15 June 1981, to depart on 19 June 1981.

2. On Monday, 15 June 1981, I arrived at the Guantanamo Naval Air Station and was met by Mr. Manning Trewitt from the Public Works Department's Engineering Office. After registering at the BOQ and signing out my vehicle, we returned to the Engineering Office where I met with LCDR Tom Best and discussed the job. I explained what I wanted to do while I was there, and I requested that a funding document, in the amount of \$3,000 to cover the cost of this trip and preparation of the ESR response be prepared so I could hand carry it back. I explained that I planned to look at and photograph all the outfalls first by land and then look at them by water. The necessary arrangements were made so I could start the inspections the next morning.

3. The next morning, Tuesday, 16 June 1981, after arriving at the office, I asked Mr. Trewitt if the set of drawings his office sent me included everything I was to look at. After comparing my drawings with a set of utility drawings showing the sewer system, it was realized that all the outfalls of interest were not indicated in my set of prints. Therefore, on a clean set of these utility drawings showing the sanitary sewerage system, Mr. Trewitt and I decided on and numbered all the outfalls of interest. All 36 outfalls can be seen on Figure 1. For a more detailed location of these outfalls refer to the figures in enclosure (3). Table 1 lists the outfalls by number, location and size for identification purposes.



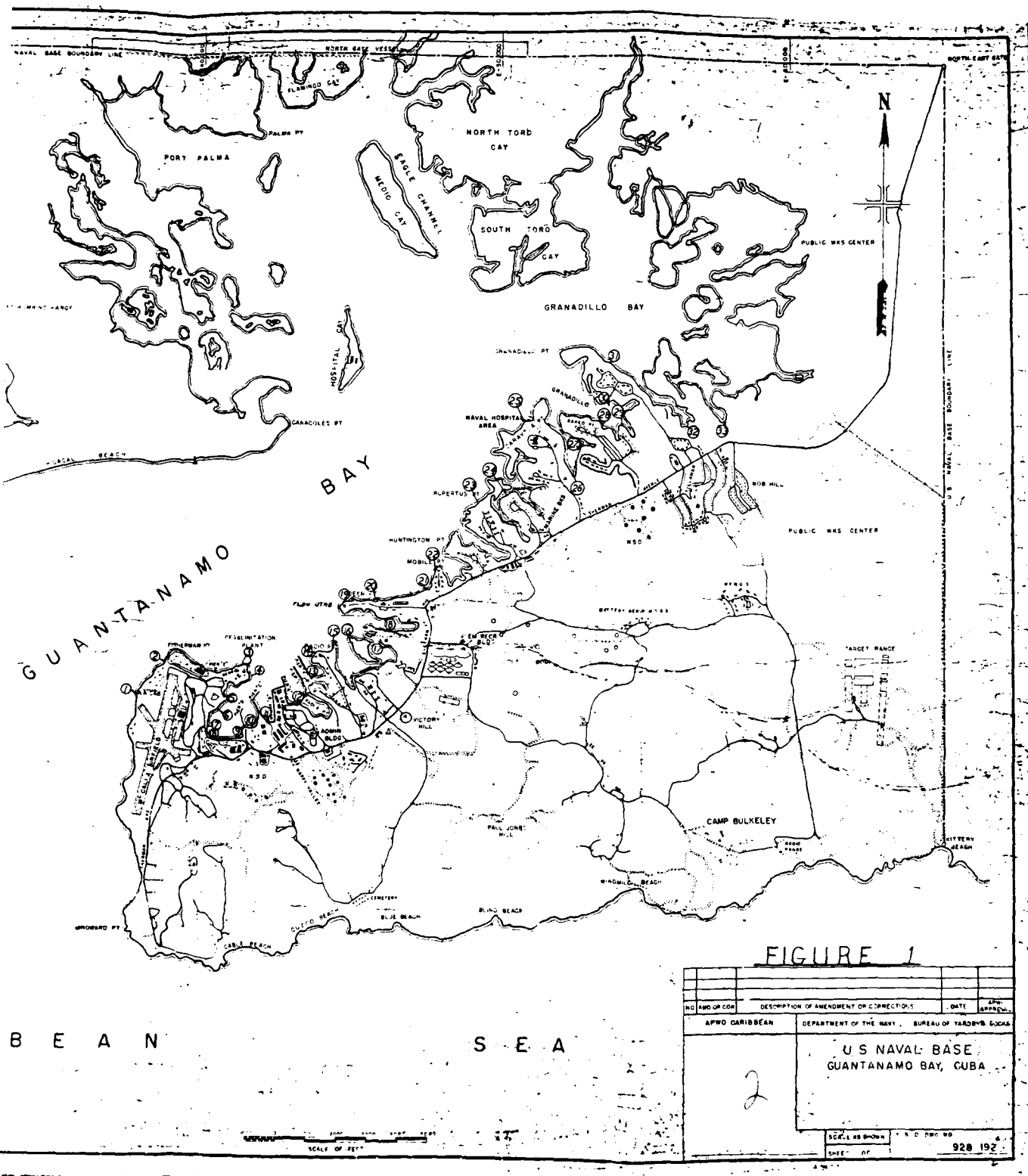


TABLE 1
GUANTANAMO NAVAL STATION
EXISTING SEWER OUTFALLS
FOR INVESTIGATION UNDER ESR 81-03

<u>NUMBER</u>	<u>LOCATION</u>	<u>SIZE</u>
1.	McCalla Airfield	10" Clay
2.	Desalinization Plant, Bldg 1650	Not Located
3.	Corinaso Point Housing (Old #3 not used)	8" (New #3)
4.	Corinaso Point, Bldg AV-102	10" Not used anymore
5.	Corinaso Point, Bldg RB-22	10"
6.	Corinaso Point, Bldg AV-72	10"
7.	Corinaso Point, Bldg AV-109	6"
8.	Wharf 40	8"
9.	Landing No. 38	10"
10.	Landing No. 37, Bldg 715	12" to a new 8"
11.	Wharf "U"	6"
12.	Wharf "X"	4"
13.	Wharf "W"	a. 12" b. 6"
14.	Radio Point, Bldg 1396	8" Broken
15.	Radio Point, Bldg 720	8"
16.	Lizard Island, Bldg 1658	10"
17.	Evans Point Landing No. 11	6"
18.	Evans Point Landing No. 8	8"
19.	Deer Point, Bldg 1101	10"
20.	Deer Point, Bldg 932	12"
21.	Yacht Club/Teen Club, Bldg 687	14"
22.	Mobile Point, Bldg 399	8"
23.	Rupertus Point, Bldg M-227	8"
24.	Marina Point, Bldg N-303	8"
25.	Caravela Point, Bldg H-1	8"
26.	Caravela Point, Bldg CP-5	1½"
26a.	Caravela Point	8"
28.	Center Bargo Point, Bldg CB-1218	10"
29.	East Bargo Point, Bldg EB-6	12"
30.	Granadillo Point, Bldg 1035	8"
31.	Granadillo Point, Bldg GP-3	6"
32.	Granadillo Point, Bldg GP-11	10" Clay
33.	Villamar/Nob Hill Housing	18"
34.	Leeward Point, Housing & Flightline	20"
35.	Leeward Point, Bldg 596	6"
36.	Leeward Point, Bldg AV-530	8"

21 July 1981

Subj: Guantanamo Naval Station Sewer Outfalls Investigation

4. EAL Jim Strickland assisted me in the location and inspection of all the outfalls. Jim knew the base well and using the set of prints showing the outfalls of interest was able to drive to where the outfalls should be. We were able to locate and inspect 27 of the 36 outfalls on Tuesday, 16 June 1981. The results of this part of the investigation are summarized in Table 2. The drawings of the repairs that show the added new plastic pipe can be found in enclosure (4). The photos taken during the inspections can be found in enclosure (5).

5. On Wednesday, 17 June 1981, Jim Strickland and I finished the land inspection of the outfalls on the main side of the base. The three outfalls on the Leeward Point side would be inspected by land on Thursday. A small boat was reserved for Wednesday afternoon so the water inspection could be conducted.

6. Wednesday afternoon was dedicated to the water inspection, but only outfalls 3-30 could be inspected. We could not go out of the Bay past Corinaso Point and could not go any further back than Granadillo Point because of the live firing. The water inspection indicated that the offshore ends of the outfalls, that could be seen were clear of obstructions. The results of the water inspection are also summarized in Table 2.

7. At the conclusion of the water inspection, I returned to the Engineering Office to meet with Mr. Bill Slone. Bill is a Mechanical Engineer and has done a lot of work concerning the sewers at GTMO. Bill agreed that I was doing everything I could for this investigation. Bill had no suggestions for additional work that I should be doing.

8. Prior to getting on the ferry Thursday morning, 18 June 1981, to cross over to Leeward Point, I tried to locate the outfall that was reported to be by the intake of the desalinization plant. All that was found was a section of plastic repair pipe on the beach that appeared to have had its coupling broken off of an outfall, but I could not tell where the actual outfall was. There were barges tied up in the area and at some time this could have been the cause of the separation of the plastic pipe from the original outfall.

9. The three outfalls on the Leeward Point side were inspected from the land only. This took the entire morning with the time needed for the ferry crossings.

10. Thursday afternoon I first debriefed Mr. Trewitt and then we met with CAPT C. Gibowicz and LCDR T. Best. At this meeting I explained what I had done and what was found from the land and water inspections. I explained that from my observations of the large deposits of silt and sludge at the ends of most of the outfalls, there did not appear to be any current flushing of the areas. I also said that I felt a current study should be conducted before/if the outfalls were extended. The data from such a study would aid the engineer in deciding

TABLE 2

SUMMARY OF THE GUANTANAMO NAVAL STATION
SEWER OUTFALL INVESTIGATION (ESR 81-03)

OUTFALL NUMBER	FINDINGS FROM THE LAND INSPECTION	FINDINGS FROM THE WATER INSPECTION
1.	There is sewage flowing out of a 10" clay pipe at the top of a cliff.	N/A
2.	Could not locate.	N/A
3.	Looked at the old outfall that is not used.	Looked at the new repair but is not connected to outfall.
4.	Outfall looks good but there is no building AV-102.	Outfall okay but building AV-102 is gone.
5.	Shore end looks good with new plastic pipe added. Also, there is an old 10" C.I. outfall in same area with no plastic pipe added.	End of plastic outfall looks clear. End of C.I. outfall out of water.
6.	Shore end looks good with new plastic pipe added.	End of outfall looks clear.
7.	Shore end looks good with new plastic pipe added.	End of outfall looks clear.
8.	Shore end looks good with new plastic pipe added.	Leaking at plastic/C.I. flange, could not see end.
9.	Could only find one 10" outfall.	The end is approximately half out of the water.
10.	The outfall is entirely under water and could not see.	The water was too deep and cloudy to see the end.
11.	The outfall is entirely under water and could not see.	The water was too deep and cloudy to see the end.
12.	The end of the outfall is at the water line.	No flow was evident.
13.	The outfalls end at the bulkhead, could not actually see them.	There are two outfalls flush with the bulkhead.
14.	The C.I. pipe is broken prior to going into the water.	There is no evidence that this outfall is now used.
15.	Looks good as it enters the water.	End of the outfall looks clear.

16.	Looks good as it enters the water.	Water too cloudy to see the end.
17.	Looks good as it enters the water.	Water very dirty, cannot see end but see a disturbance from outfall discharge.
18.	New plastic pipe connection is broken at the C.I. pipe.	No flow evident, could not see end.
19.	Shore end looks good with new plastic pipe added.	End of outfall looks clear.
20.	The new plastic pipe came apart from the C.I. pipe at the connection.	End of outfall looks clear.
21.	New pipe added but there is a section cut out of plastic pipe at the shore	Could not see end because there was a barge in the way.
22.	Shore end looks good with new plastic pipe added.	End of outfall looks clear.
23.	New C.I. outfall.	End of outfall clear but just below the waterline.
24.	Could not get to the outfall because of thick brush.	Can see new plastic pipe as it enters the water but can not see the end.
25.	New C.I. outfall.	End of outfall at the waterline at low tide.
26.	Small 1½" steel pipe outfall that comes from a manhole below the brig and ends above water.	N/A
26a.	New plastic pipe outfall near #26.	Water too deep to see the end.
27.	Can not find the outfall by land.	Outfall is in a different location than shown on the drawings. New plastic pipe. Can not see end because the water is too deep.
28.	Outfall at the water looks good but a tank up the line is overflowing.	Water is too dirty to see the end.
29.	Pipe is separated before it enters the water.	The end is just below the water line.
30.	The coupling between the plastic pipe and the C.I. looks like it is about to come apart.	The end is around some submerged branches.

- | | | |
|-----|--|-----|
| 31. | The outfall and new plastic pipe look good but a tank up the line is overflowing. | N/A |
| 32. | The outfall is a 10" clay pipe that is separated and ends prior to entering the water. | N/A |
| 33. | Long 18" steel outfall that ends above water. Large accumulations of black sludge. | N/A |
| 34. | 24" steel pipe, cracked just before entering water. | N/A |
| 35. | Could not get close, looks like 12" new plastic pipe added. | N/A |
| 36. | Shore end looks good with new plastic pipe added. | N/A |

21 July 1981

Subj: Guantanamo Naval Station Sewer Outfalls Investigation

how far and in what direction the outfalls should be extended, if at all. I also mentioned that prior to this trip, I had contacted various agencies, (NAVOCEANO, NORDA, NOAA, NCSC & Army Corps of Engineers) in search of current studies that may have been done on Guantanamo Bay. This search had proved futile but I did learn that NCSC had the equipment and would be available to do a current study after the middle of July 1981. I did not have a cost estimate for NCSC to do this work but I said, upon my return to CHESDIV, I would contact NCSC and ask them for a cost estimate for such a study. LCDR Best said he would contact me so I could give him this information. During this meeting, I agreed with LCDR Best that immediate attention should be directed to maintaining all their septic tanks. This would include locating, pumping, repairing and cleaning them. After this immediate action, a regular maintenance schedule should be established. This action may help to reduce their problem but the consultation of a sanitary engineer is recommended.

11. I departed Guantanamo Naval Air Station, Friday, 19 June 1981.


Thomas J. O'Boyle

Copy to:
PWO, Guantanamo Bay, Cuba
CDR R. N. Endebrock, LANTDIV
FPO-1A
FPO-1EA ✓
FPO-1EA6
Daily

ENGINEERING SERVICE REQUEST (ESR)
 NAVFAC 11000/1 (4/78)
 Supersedes NAVFAC 1038
 5-A-11-11-01-01-0035

Instructions to Requester

Copy to:

FROM (Address and location)
 U. S. Naval Station, Guantanamo Bay, Cuba
 Commanding Officer, Chesapeake Division, Naval Facilities Engineering Command,
 Ocean Engineering Division, Washington Navy Yard, Washington D.C. 20374

5. ENCLOSURE (check)

☐ NAVCOMP 140
☐ NAVCOMP 208
☐ NAVCOMP 372

☐ OTHER (specify)

6. TYPE OF FUNDING (check)

☒ O&MN ☐ OTHER (specify)
☐ NIF
☐ NAF

7. TYPE OF SERVICES REQUESTED

ENGINEERING INVESTIGATION

8. DESIRED COMPLETION DATE

JULY 81

9. DESCRIPTION OF WORK

Investigate and make recommendations for extending some/all of 30 to 50 raw sewage outfalls to deeper water in Bay. Recommendations must be sufficient detail to submit Step II Facilities Special Project (or MILCON Project as necessary) to Commander-in-Chief, U. S. Atlantic Fleet, Norfolk, VA 23511. Shallow diving may be necessary. LCDR T. Brandenburg of UCT One has additional information. This request to CHES DIV has been discussed with CDR R. N. Endebrock at LANTDIV.

10. FOR INFORMATION CONSULT (Name and phone)

L. H. DODD-AV723-3960 8203

11. OFFICIAL REPRESENTATIVE (Signature)

LCDR T. D. BEST

12. DATE

2 MAR 81

1. SCOPE OF SERVICES CHESDIV (FPO-1) will send a representative, Mr. T. O'Boyle to conduct an investigation of all the sewer outfalls of interest. Mr. O'Boyle will prepare a trip report that will include his findings and recommendations of how far (if at all) to extend the outfalls. Also, the report will include any additional studies that are recommended.

2. DATE RECEIVED
 21 MAR 81

3. ESR NUMBER
 81-03

1. REMARKS

2. EST. COMPLETION DATE

24 JUL 81

3. AUTHORIZED REPRESENTATIVE (Signature)

[Signature]

4. DATE

24 Sept. 81

1. ENCLOSURE(S)

☐ DRAWINGS AND MAPS
☐ OTHER (specify)

☐ SPECIFICATIONS

☒ REPORT

2. EST. COST (if applicable)

N/A

3. AUTHORIZED REPRESENTATIVE (Signature)

4. DATE OF COMPLETION

COPY TO

LANTNAVFACENGCOM

INSTRUCTIONS

Legible hand written copy acceptable
This paper does not require carbon. Tear off
number of copies required BEFORE writing.

1041

5-2-81

LOCAL TIME

074-5

ORGANIZATION (if any)	(Name)	(Title)	(Location)
	Shun Ling	Pr. Mgr.	
PERSON (called)	(Name)	(Title)	(Location)
	Lcdr. Tom Best		

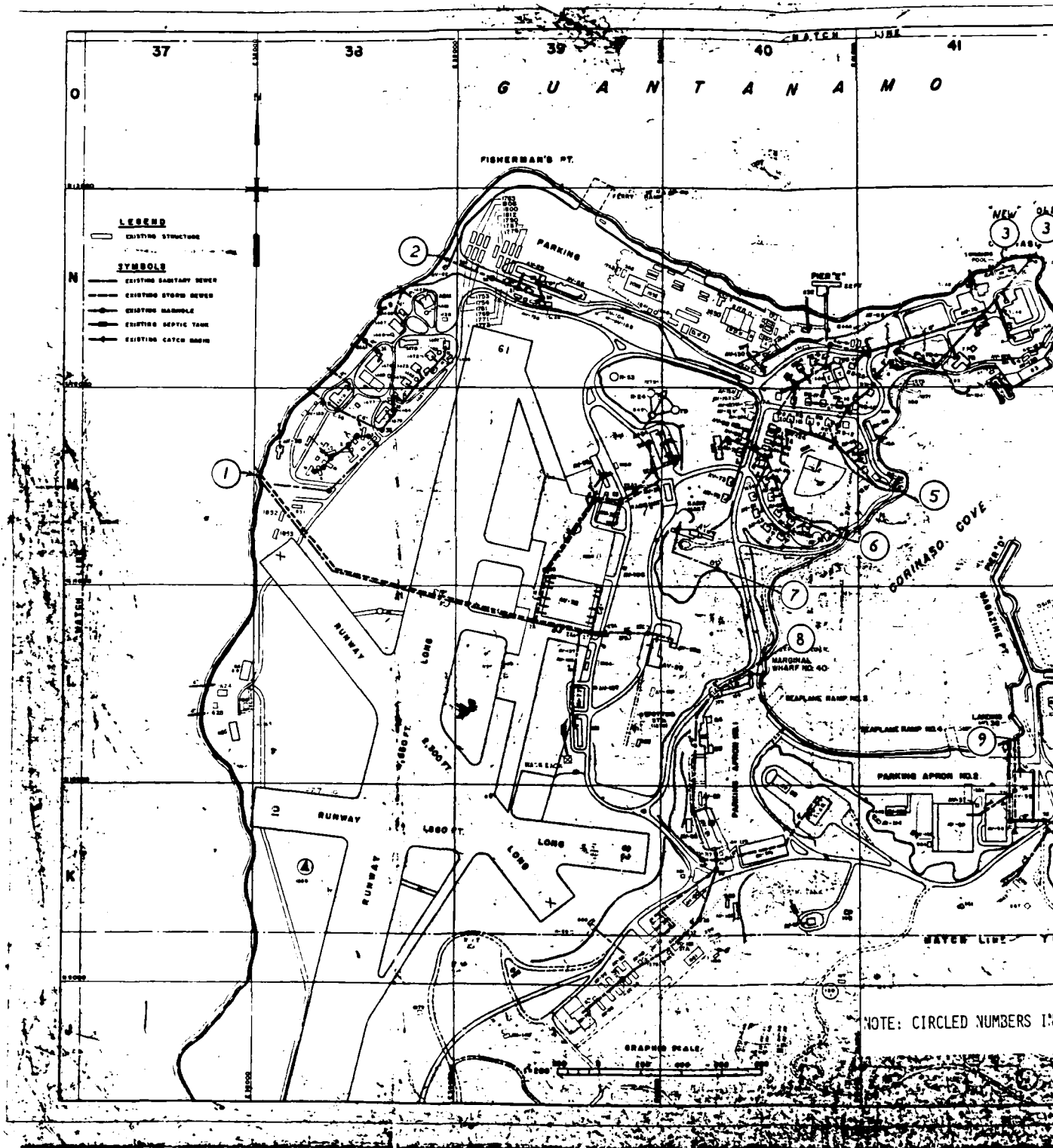
SUBJECT: EOR for Investigation of Sewer Outfall S21n.

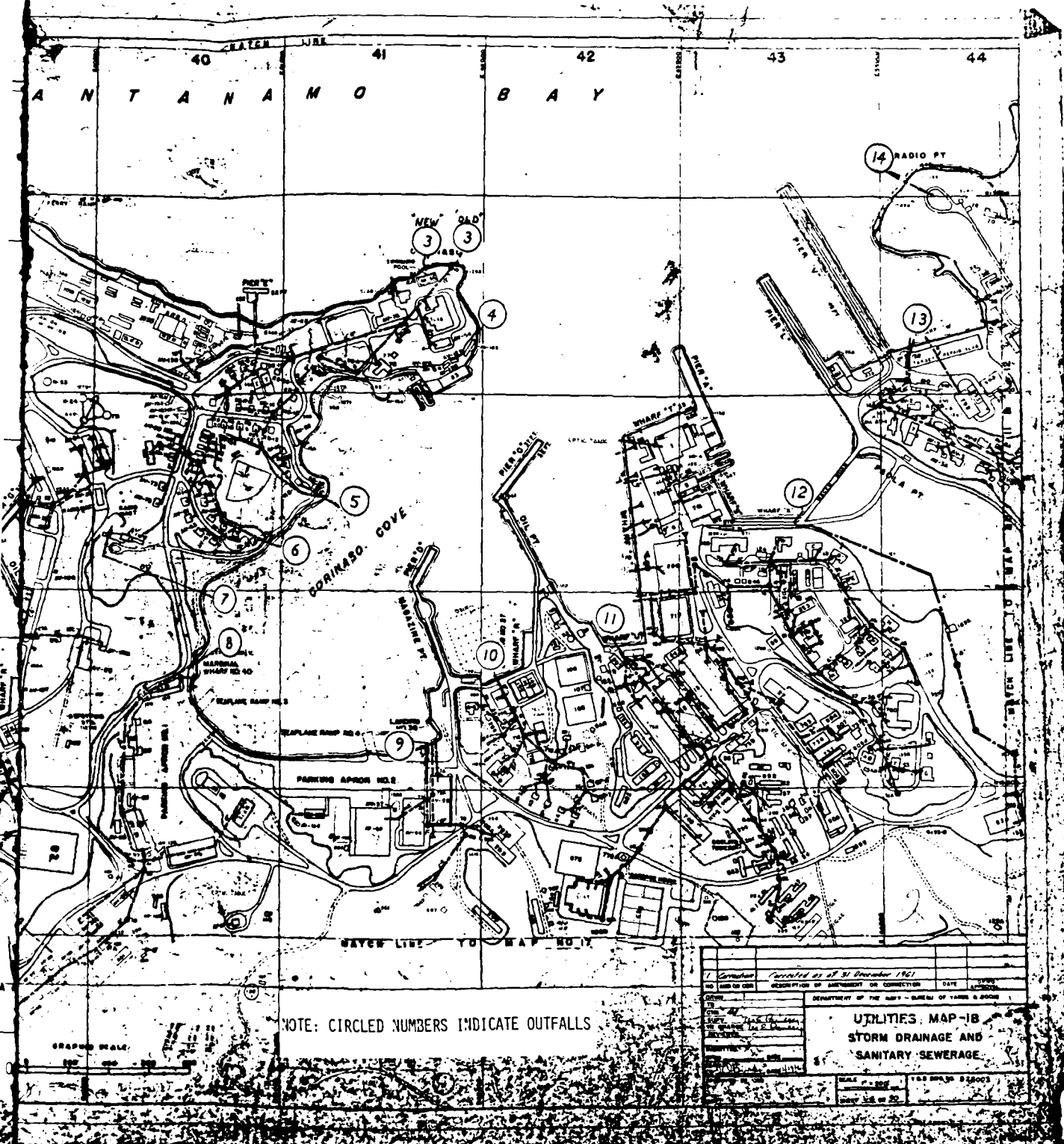
FIELD OF CONTRIBUTION

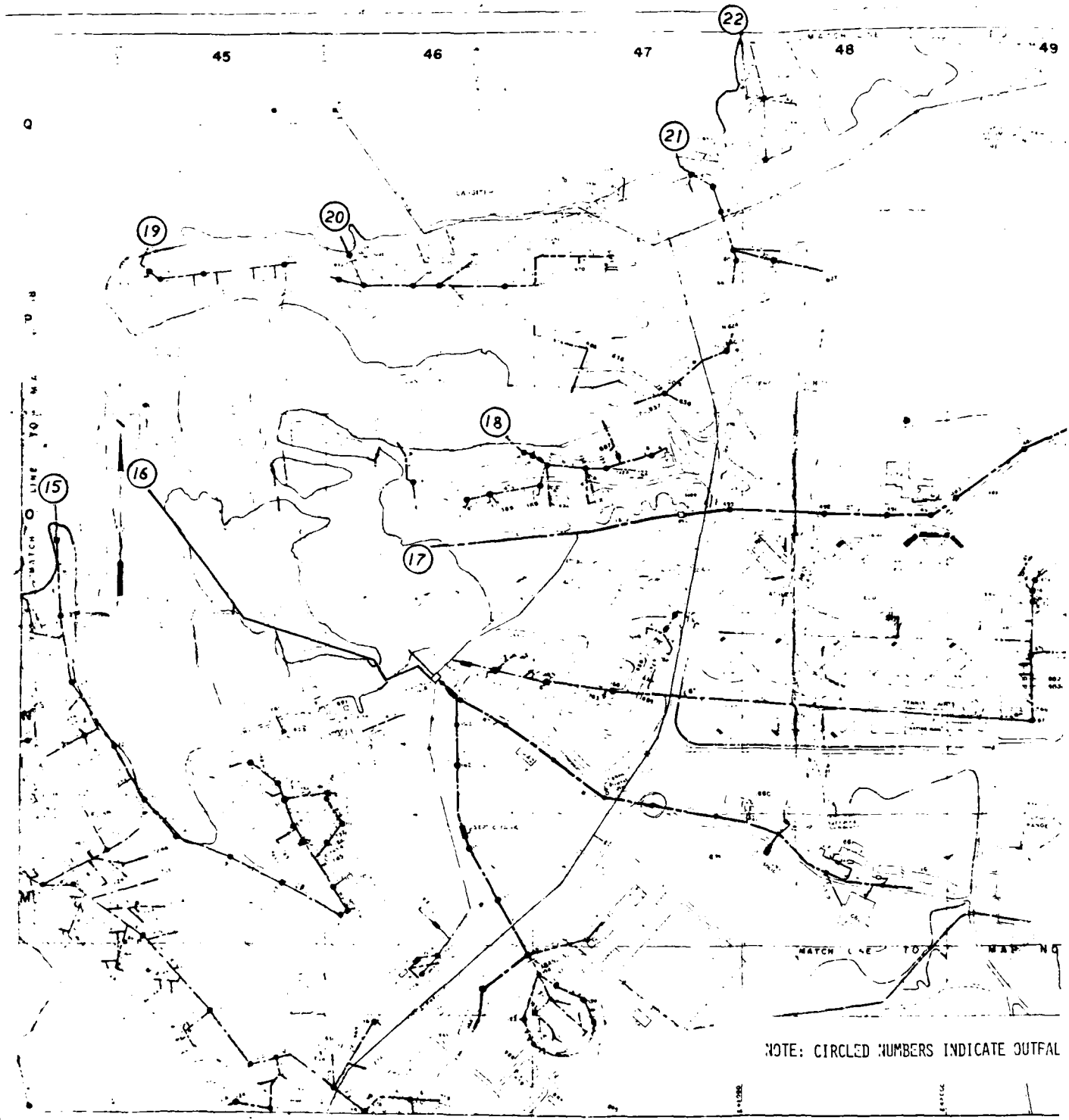
1. Tom notes there is an MCON submitted for \$17M for full low solution to outfall problem - includes sewage treatment. Low in priority. Odds of occurrence are nil.
2. His ESR request to us is seeking a much lower magnitude solution, e.g. \$100K plus with use of CB labor.
3. With his experience at LANTDIV, Tom is not in favor of model studies per se. Sounds like he'd would proceed w/ a practical recommendation that had a likelihood of resolving part of their problem.
4. Discussed approach would involve an on-site visit to see ^(smell) full extent of problem, agree on priority areas for initial resolution, possibility of some current profile measurements in select areas, brainstorm some technical options, develop proposal & estimate of cost and time.
5. Tom was agreeable to us coming back to him with request for seed money to undertake travel to G17MO for initial visit. Also agreeable to more than one visit in case we wanted a biologist, etc. with us. He is concerned about health aspects. A lab for decontamination plant site in ~~potable water~~ ^{potable water} related.

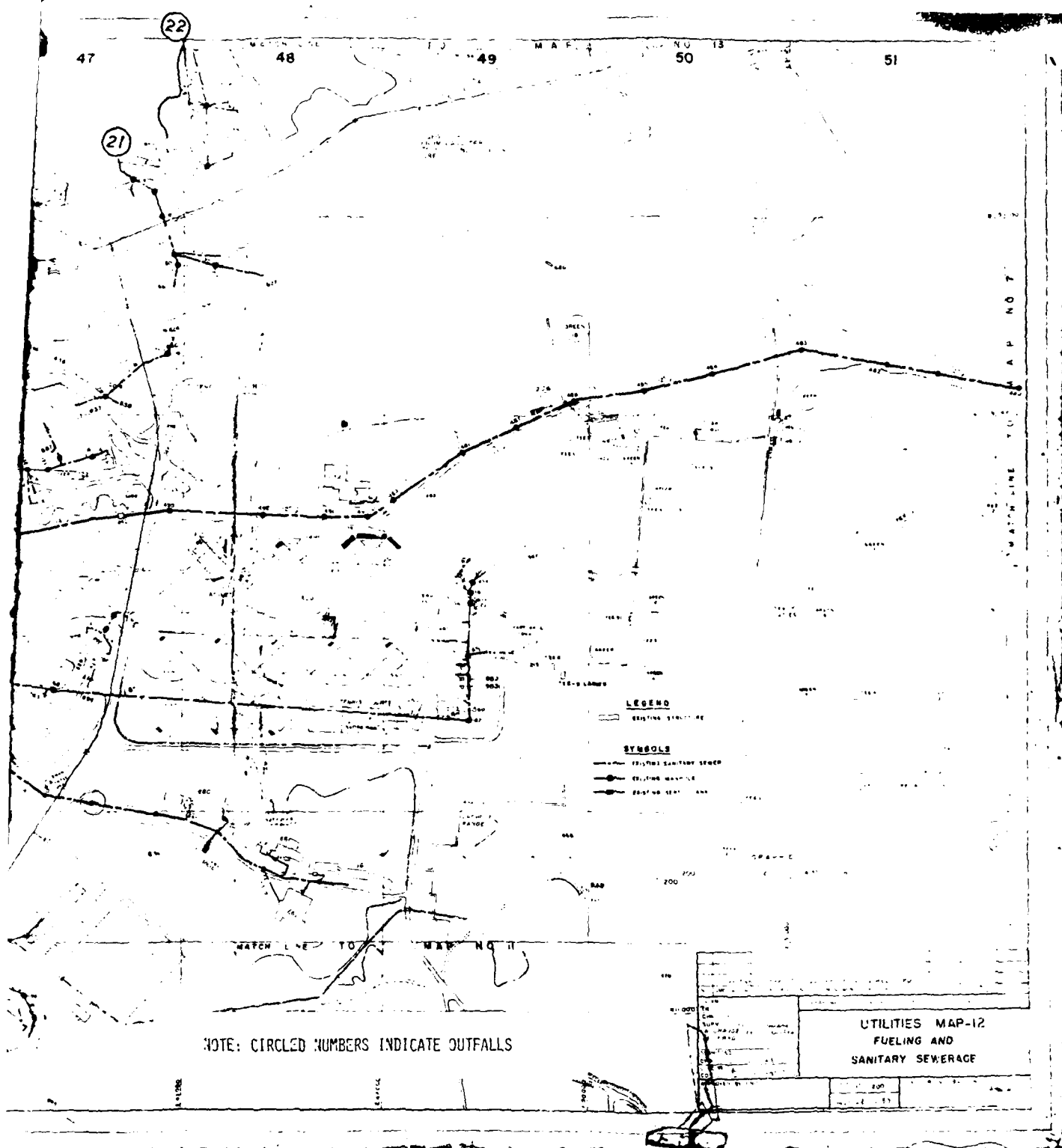
SIGNATURE OF PARTY ORIGINATING/RECEIVING CALL

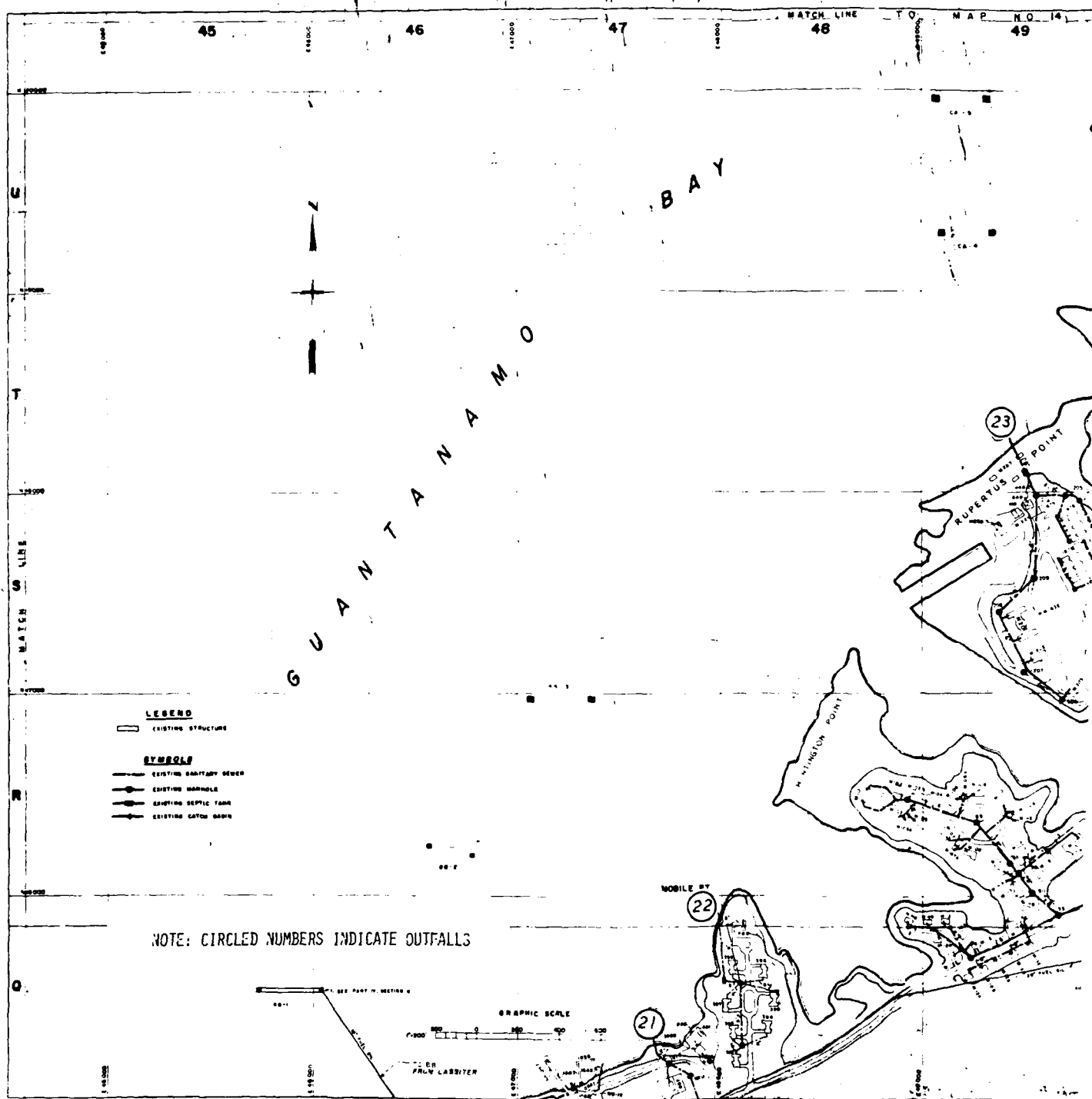
John L.

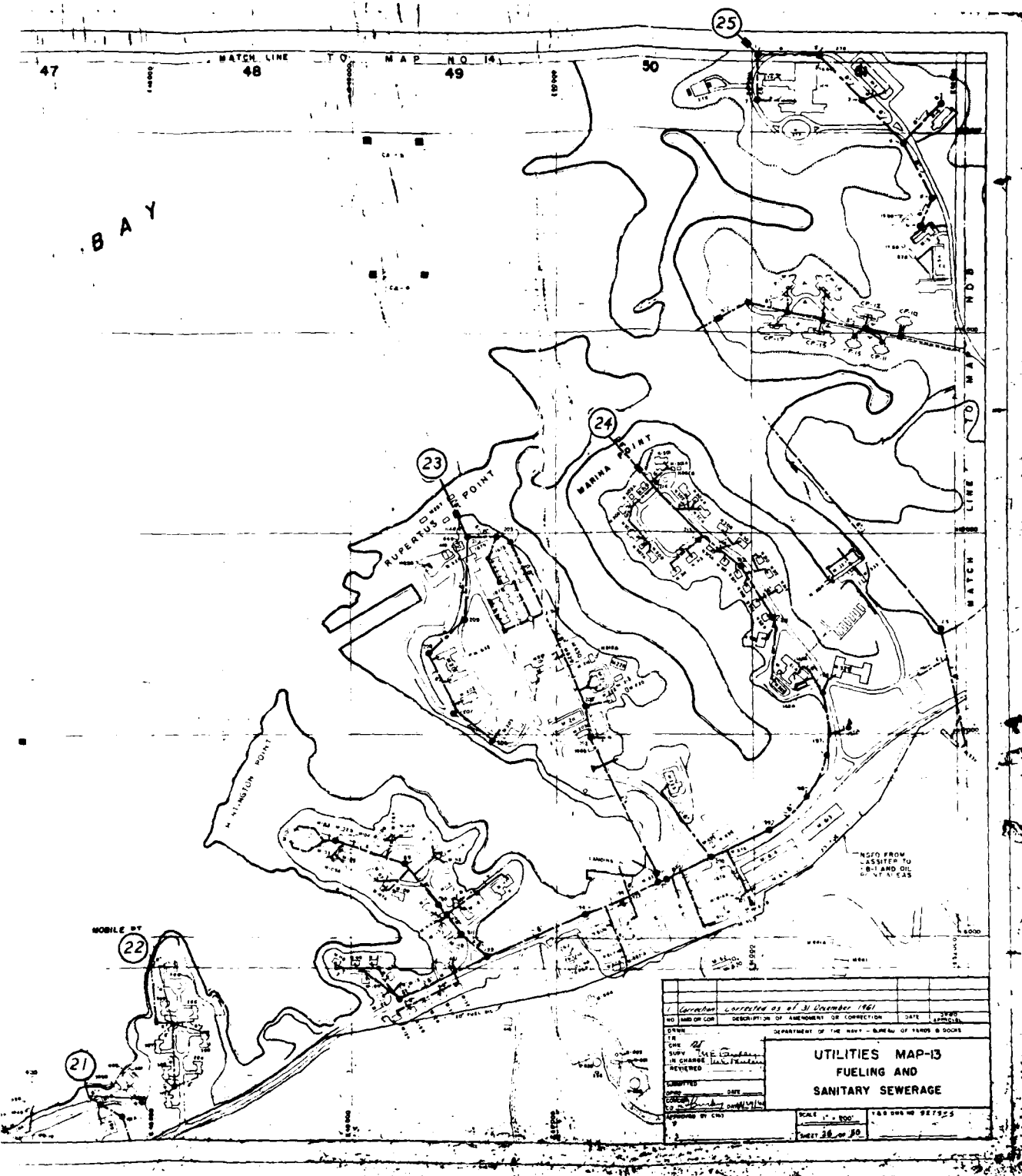


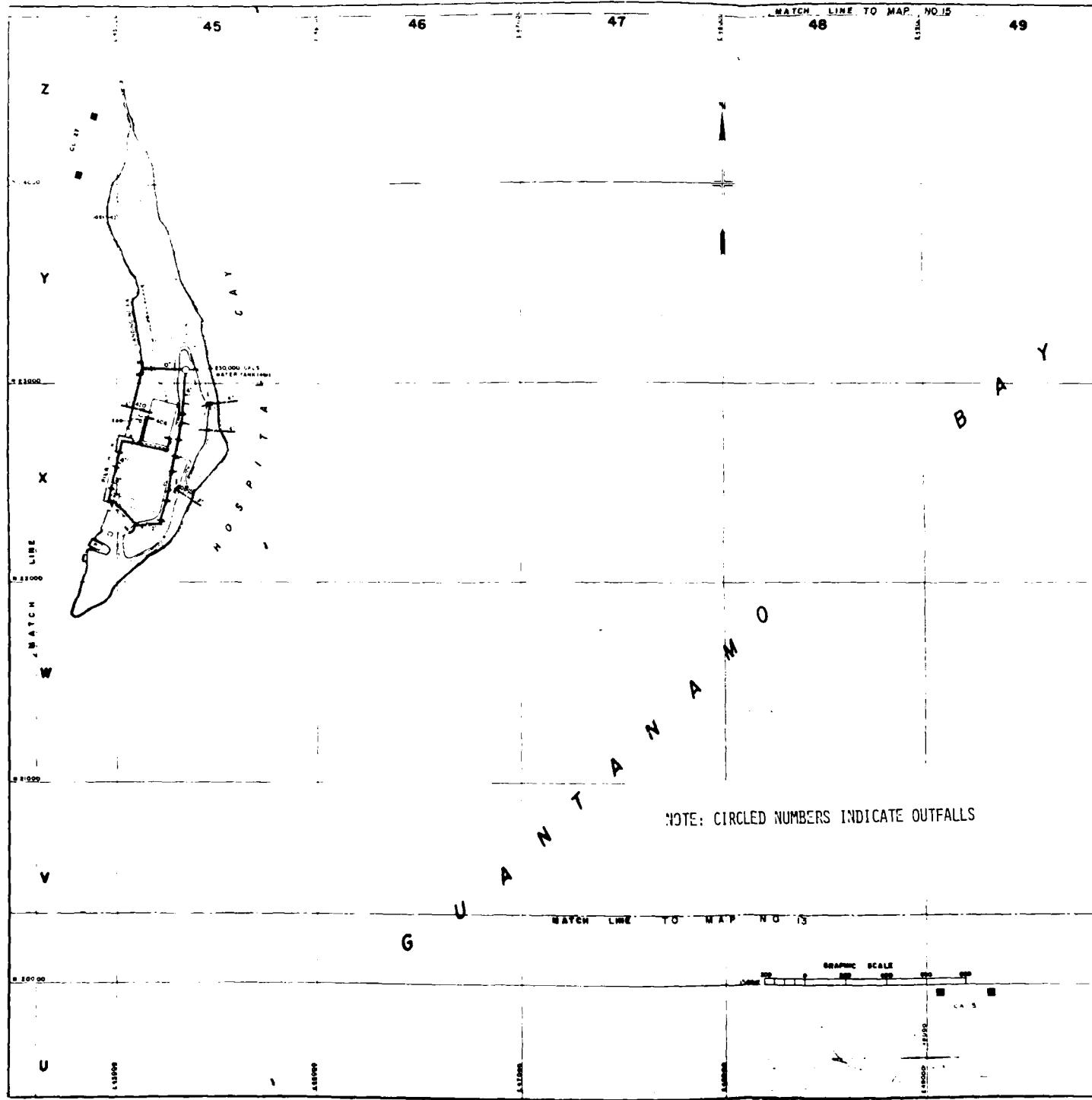


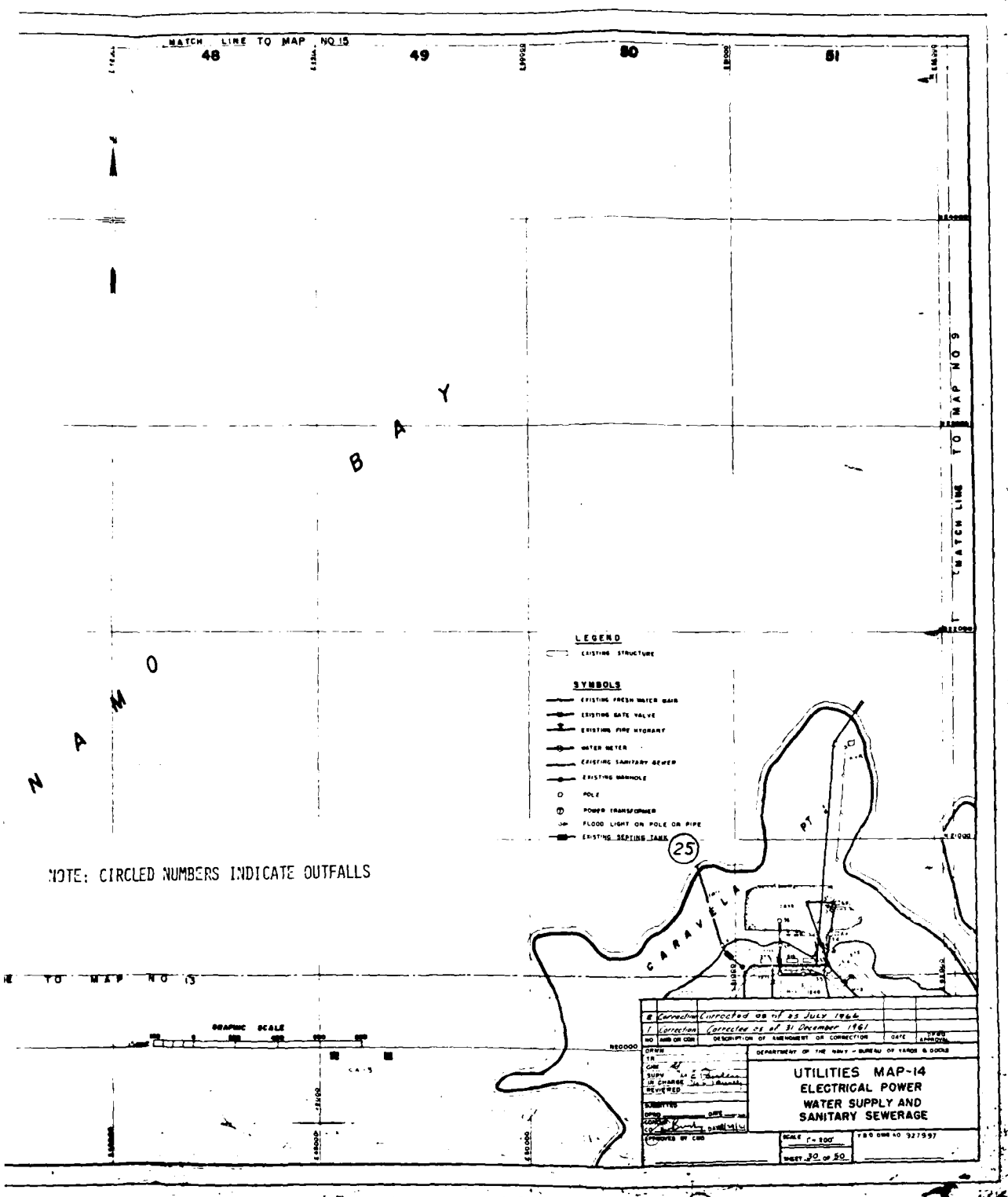


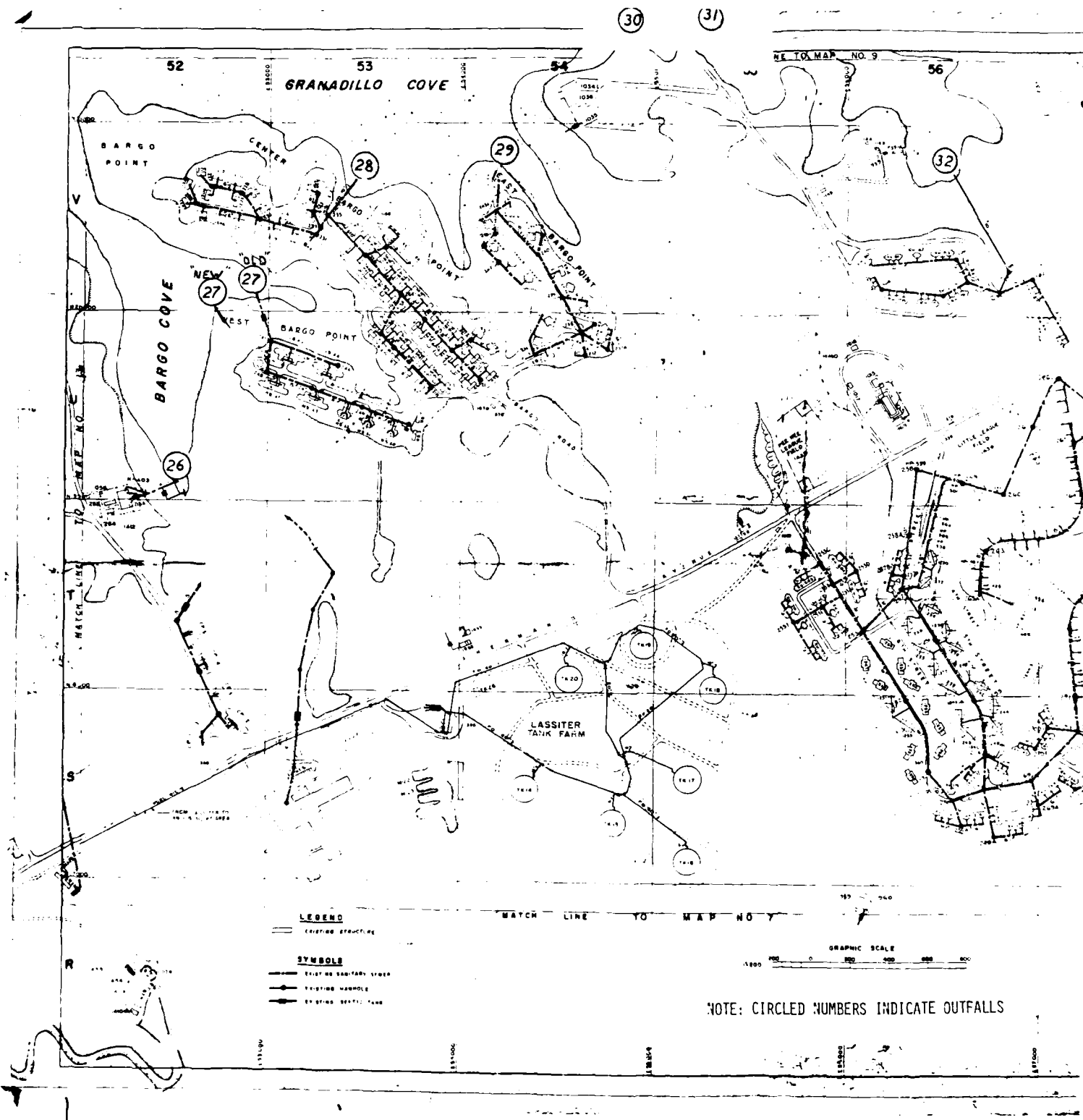




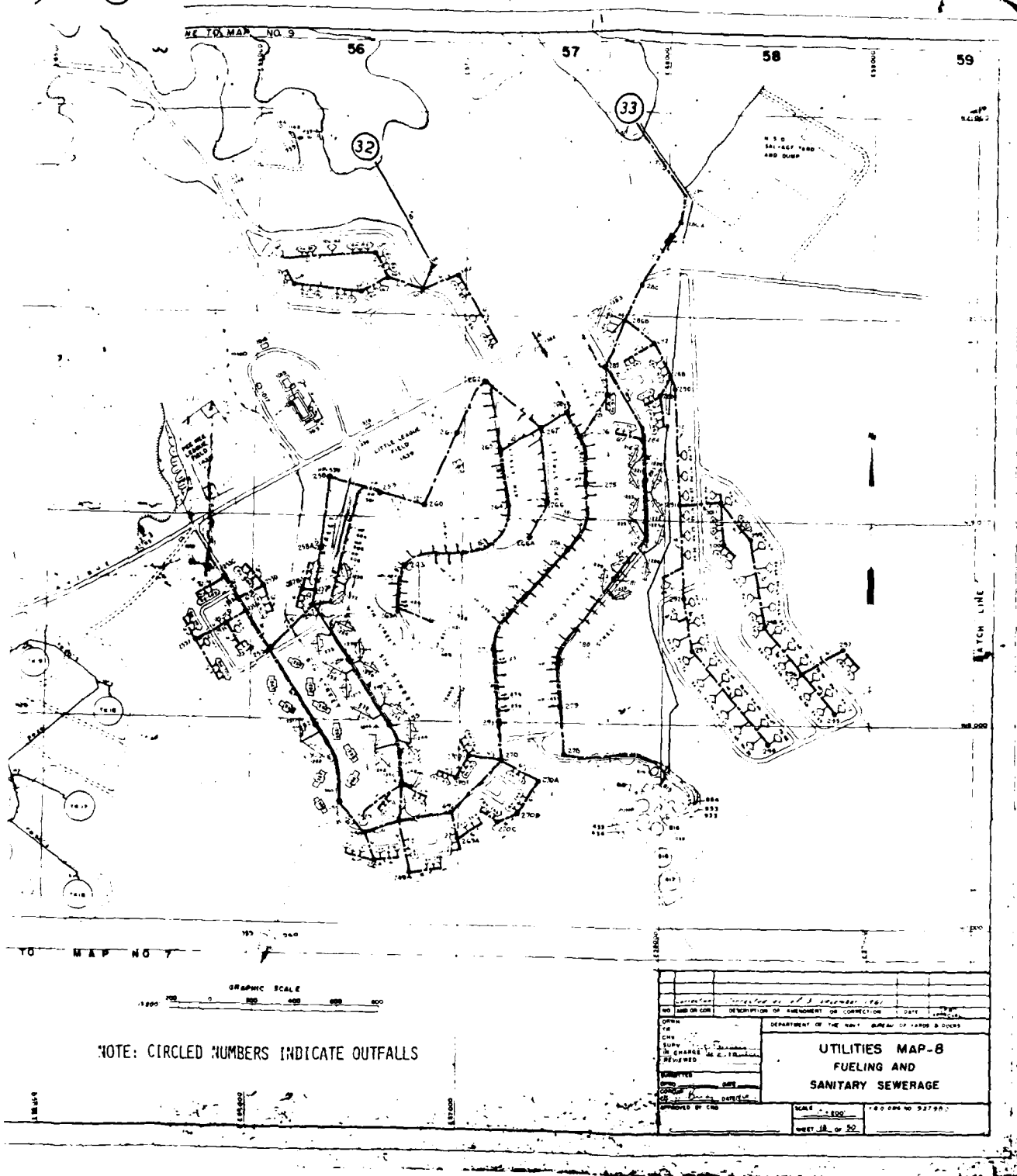








(31)



GRANADILLO BAY

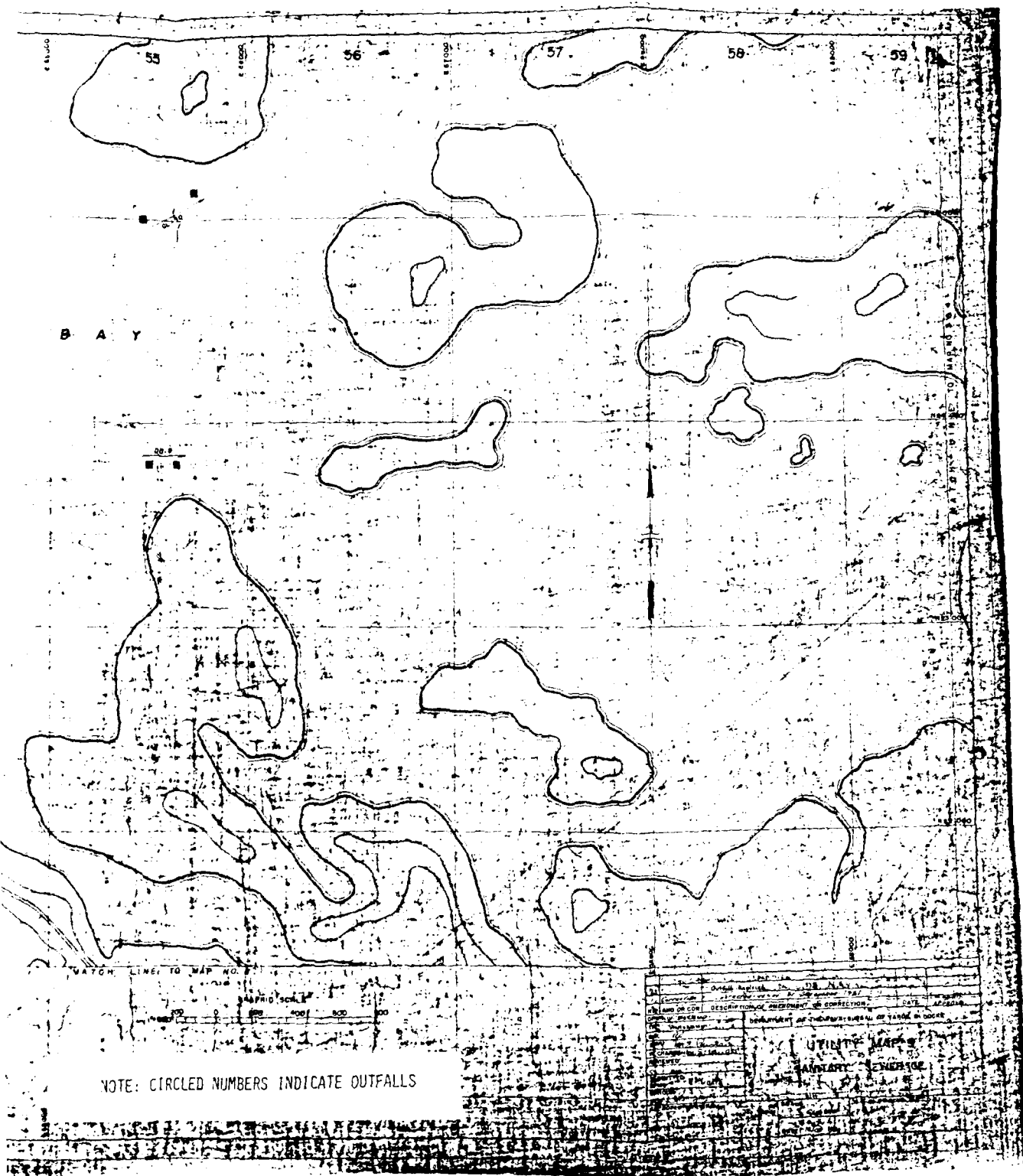
GRANADILLO POINT

LEGEND

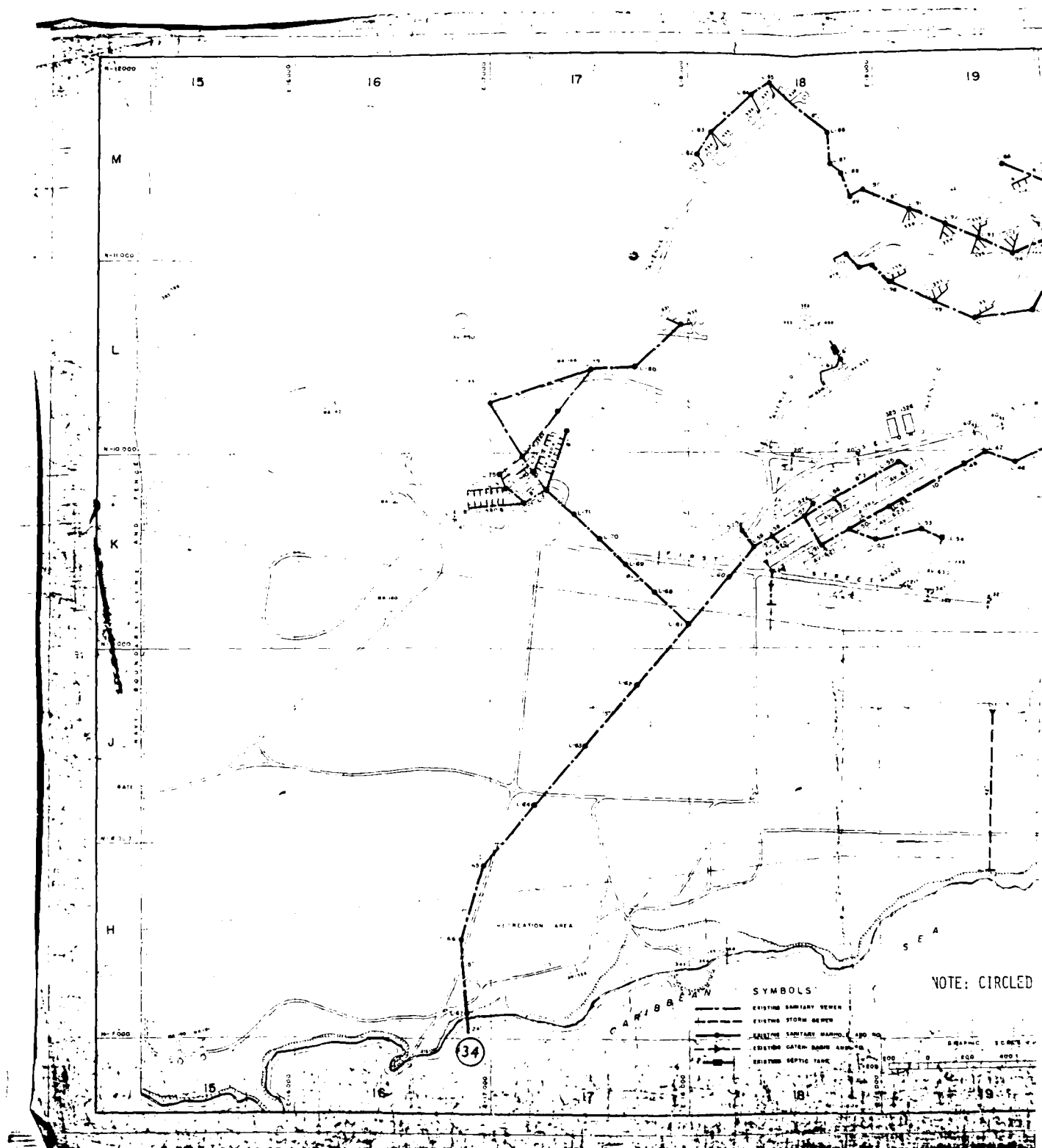
- EXISTING STRUCTURE
- PROPOSED IN FUTURE
- SYMBOLS
- EXISTING SANITARY SEWER
- EXISTING MANHOLE
- EXISTING SEPTIC TANK
- WOODPILES

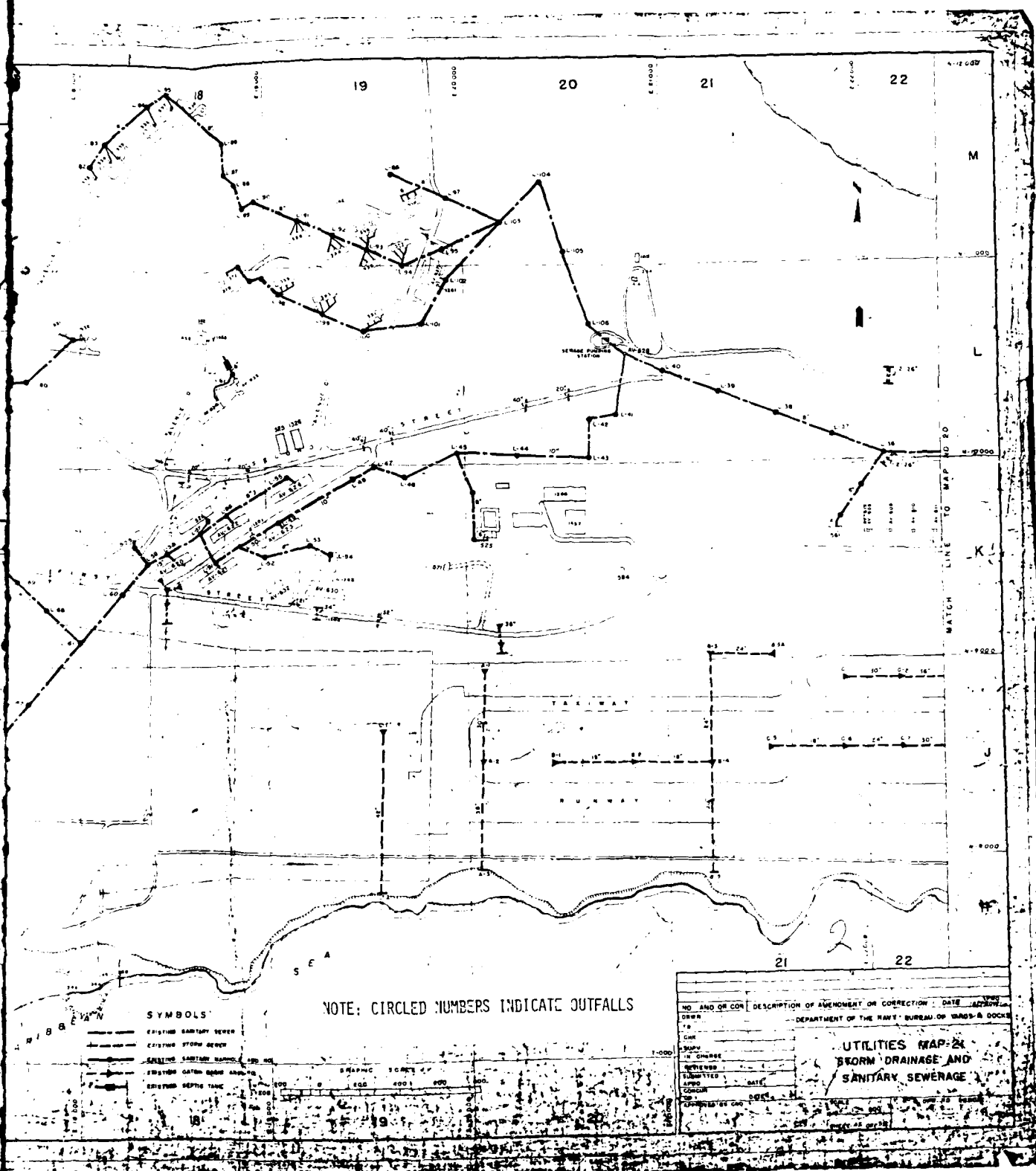
MATCH LINE TO MAP NO. 1

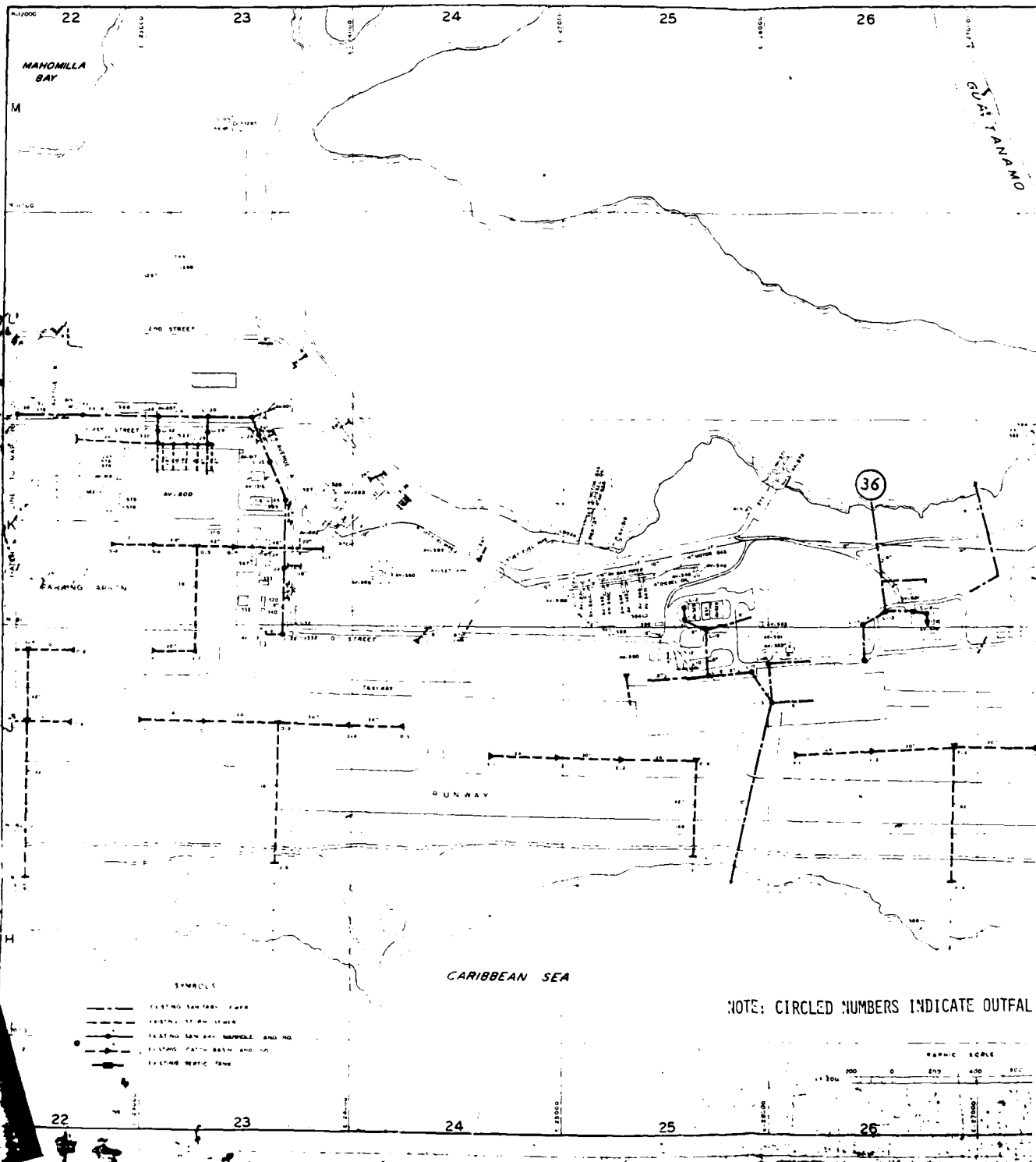
NOTE: CIRCLED NUMBERS INDICATE OUTFALLS



DATE		10-1-59	
BY		J. D. MAY	
CHECKED BY		J. D. MAY	
APPROVED BY		J. D. MAY	
DESCRIPTION OF WORK		UTILITY MAPS	
DATE OF WORK		JANUARY 1959	
LOCATION OF WORK		BAY AREA	
SHEET NO.		1	
TOTAL SHEETS		1	
PROJECT NO.		1	
DRAWN BY		J. D. MAY	
CHECKED BY		J. D. MAY	
APPROVED BY		J. D. MAY	



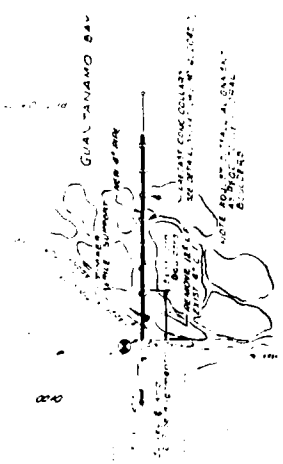
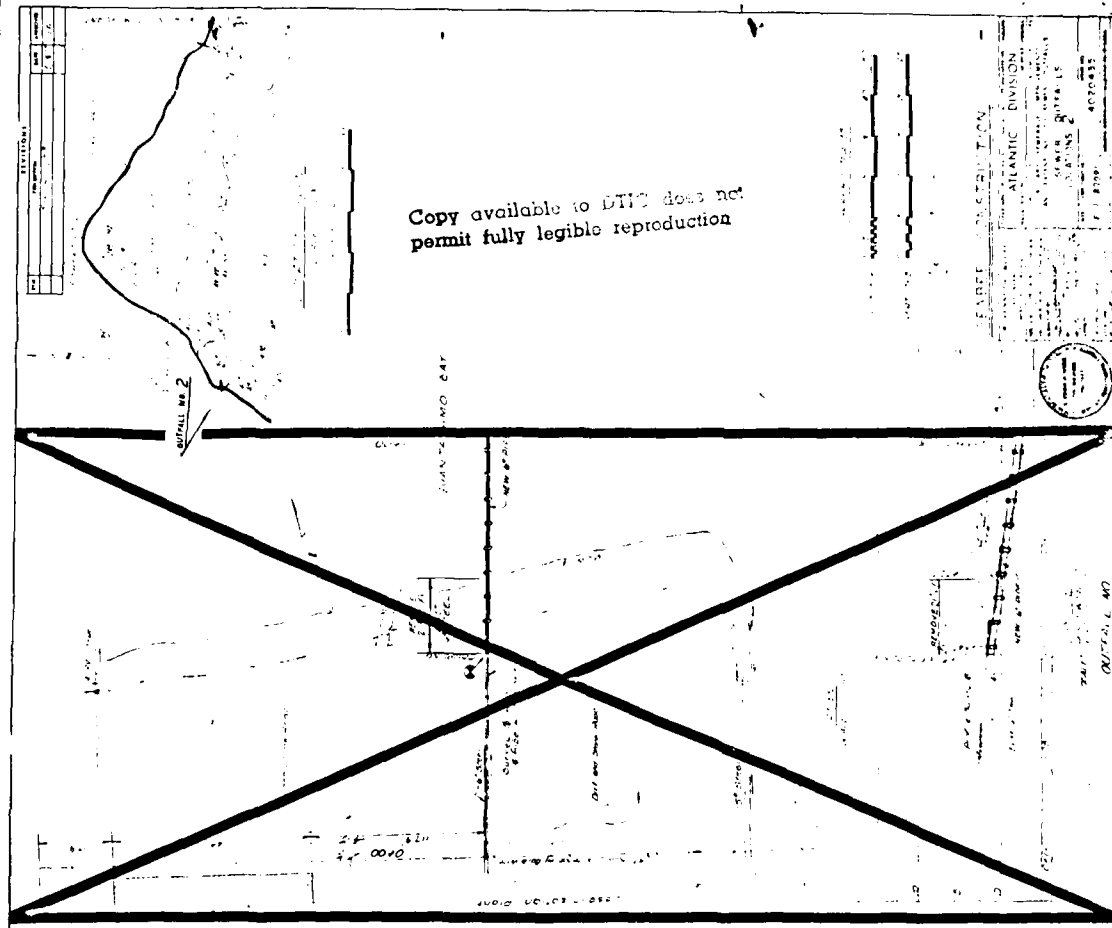




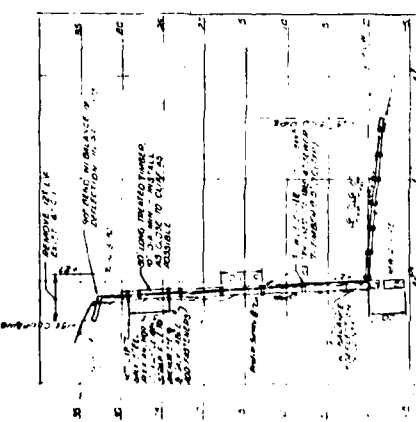
NO.	DATE	BY	CHKD.
1	10/1/50	J. H. B.	J. H. B.
2	10/1/50	J. H. B.	J. H. B.
3	10/1/50	J. H. B.	J. H. B.

Copy available to DTIC does not
 permit fully legible reproduction

ENGINEERING DIVISION	
PROJECT NO.	1000000
DESIGN NO.	1000000
DATE	10/1/50
BY	J. H. B.
CHKD.	J. H. B.



SCALE 1:10



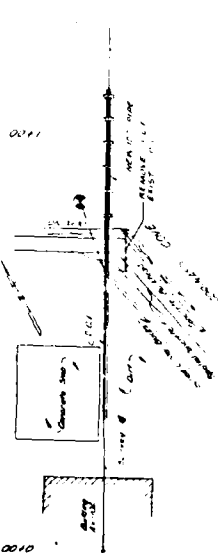
SCALE 1:10

NOTE: THIS IMPROVEMENT WAS OMITTED

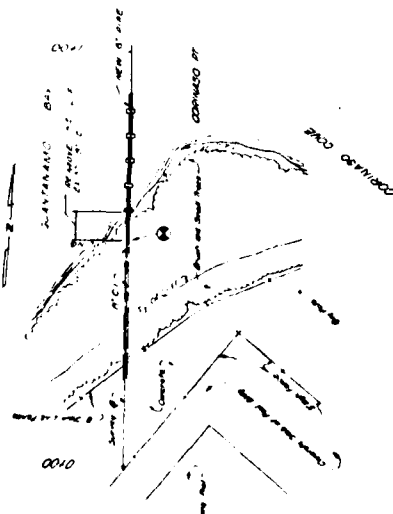
SECTION	DATE	BY
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		
76		
77		
78		
79		
80		
81		
82		
83		
84		
85		
86		
87		
88		
89		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		
100		



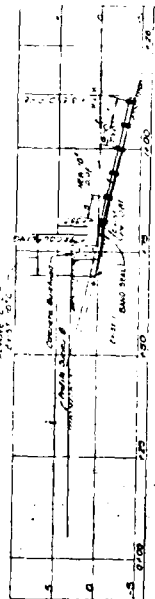
1:25,000



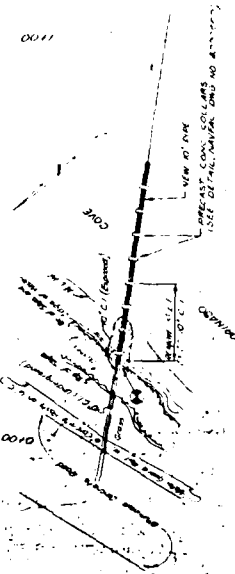
0010



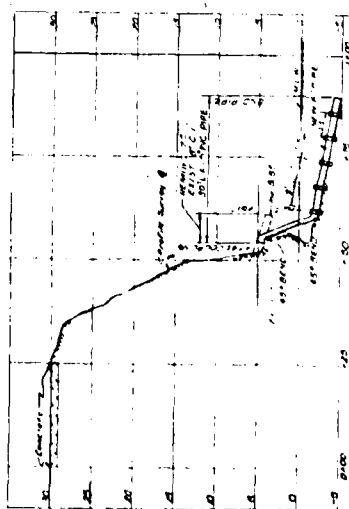
0010



0010



0011



0010



0010

SEWER CONSTRUCTION

SECTION	DATE	BY
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		
76		
77		
78		
79		
80		
81		
82		
83		
84		
85		
86		
87		
88		
89		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		
100		



OUTFALL NO. 2

OUTFALL NO. 5

ATLANTIC DIVISION

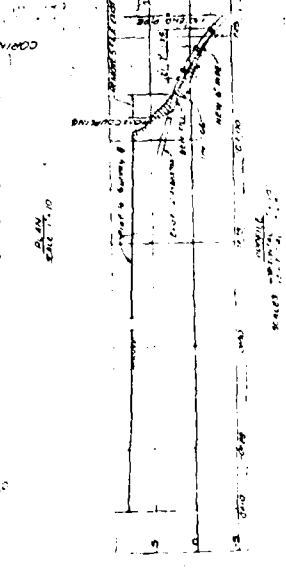
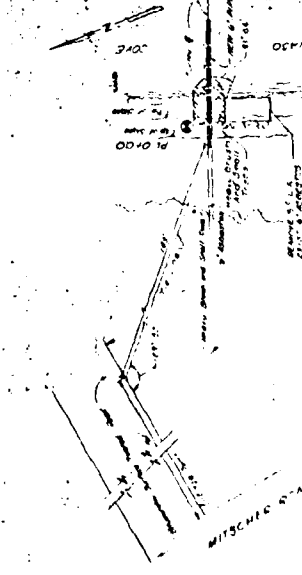
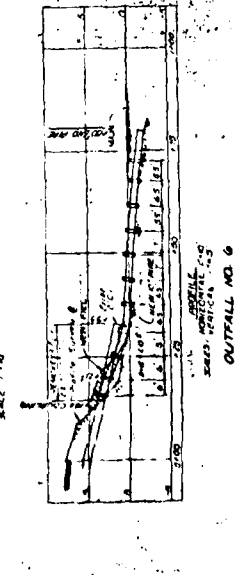
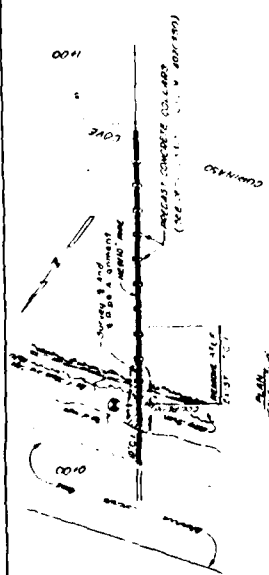
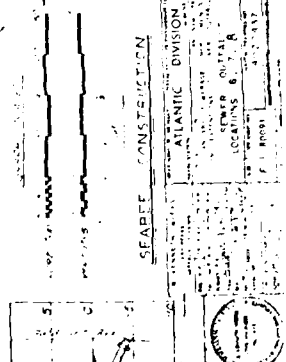
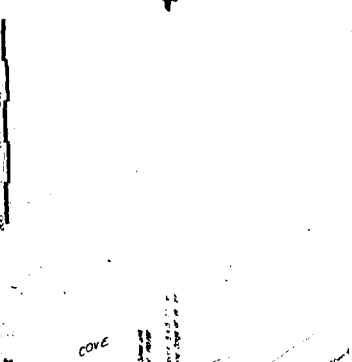
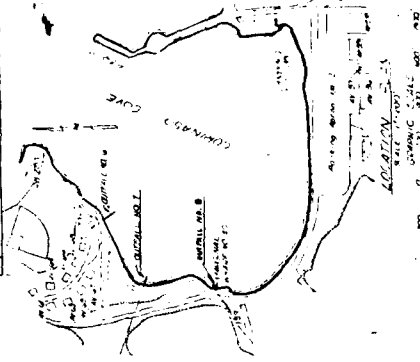
SEWER OUTFALLS

LOCATIONS 1, 2, 3, 4, 5

DATE

BY

NO.	SECTION	DATE	BY	CHKD.
1	SECTION 1	10/1/50	J. E. B.	J. E. B.
2	SECTION 2	10/1/50	J. E. B.	J. E. B.
3	SECTION 3	10/1/50	J. E. B.	J. E. B.
4	SECTION 4	10/1/50	J. E. B.	J. E. B.
5	SECTION 5	10/1/50	J. E. B.	J. E. B.
6	SECTION 6	10/1/50	J. E. B.	J. E. B.
7	SECTION 7	10/1/50	J. E. B.	J. E. B.
8	SECTION 8	10/1/50	J. E. B.	J. E. B.
9	SECTION 9	10/1/50	J. E. B.	J. E. B.
10	SECTION 10	10/1/50	J. E. B.	J. E. B.



SEAPORT CONSTRUCTION

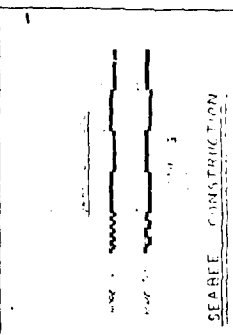
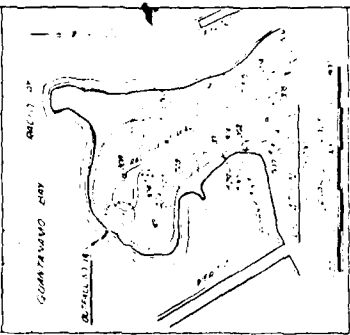
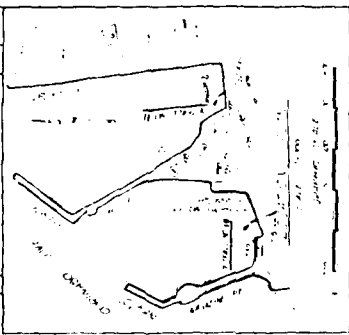
ATLANTIC DIVISION
LOCATIONS 8, 9, 10



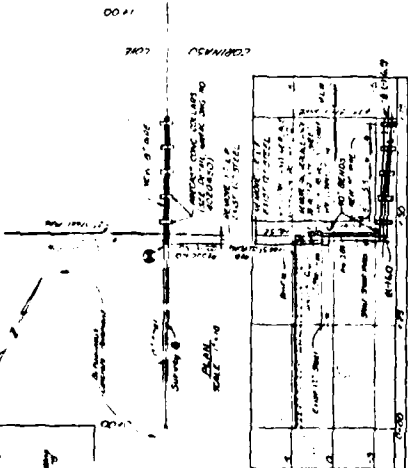
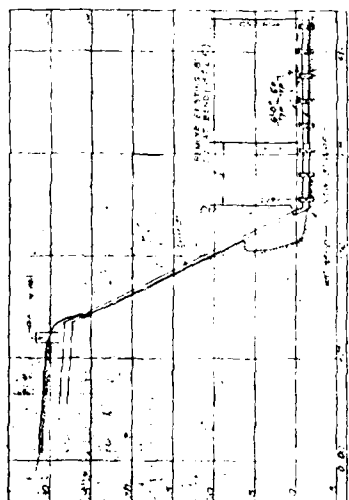
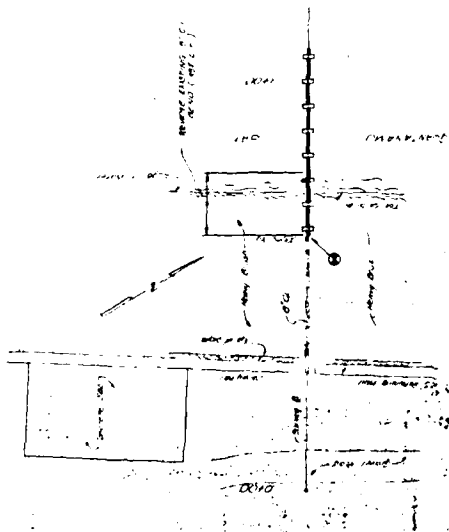
OUTFALL NO. 6

OUTFALL NO. 7

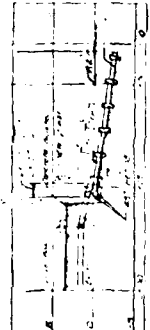
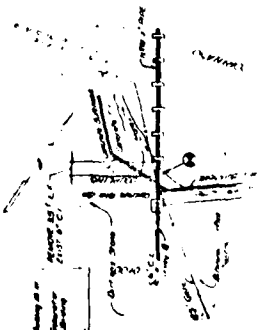
DATE	10/14/44
BY	W. J. H. J.
CHECKED BY	
APPROVED BY	



DATE	10/14/44
BY	W. J. H. J.
CHECKED BY	
APPROVED BY	



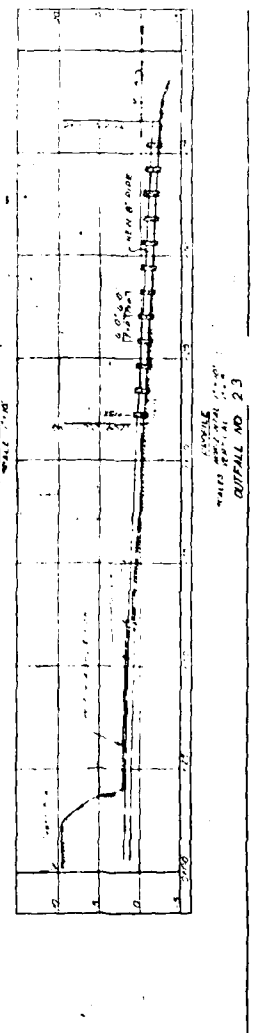
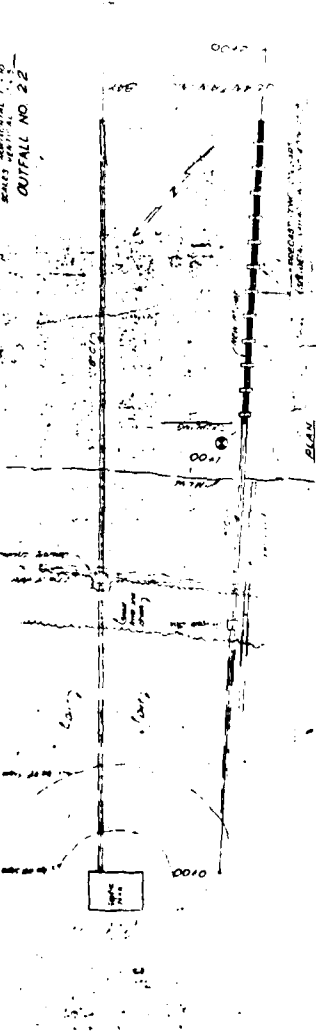
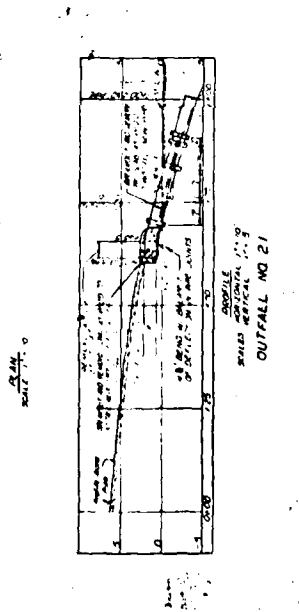
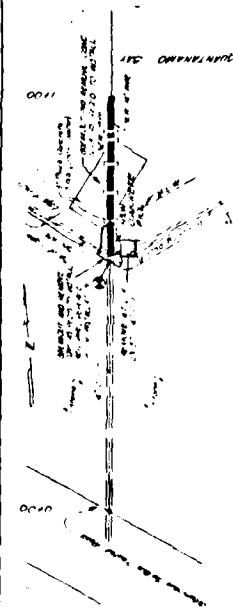
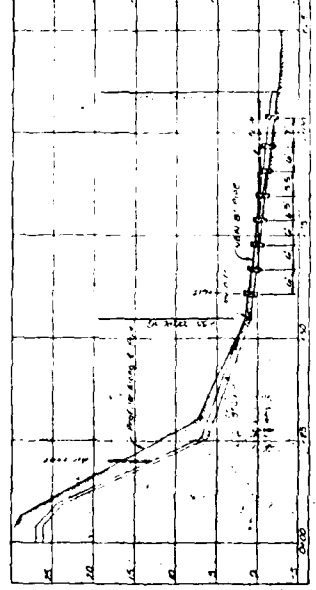
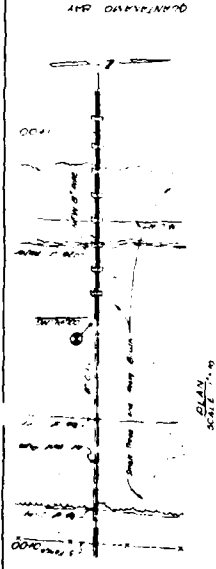
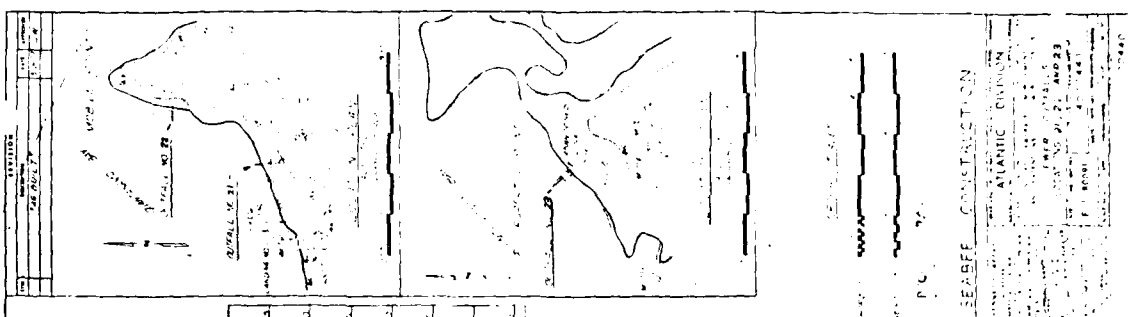
OUTFALL NO. 10

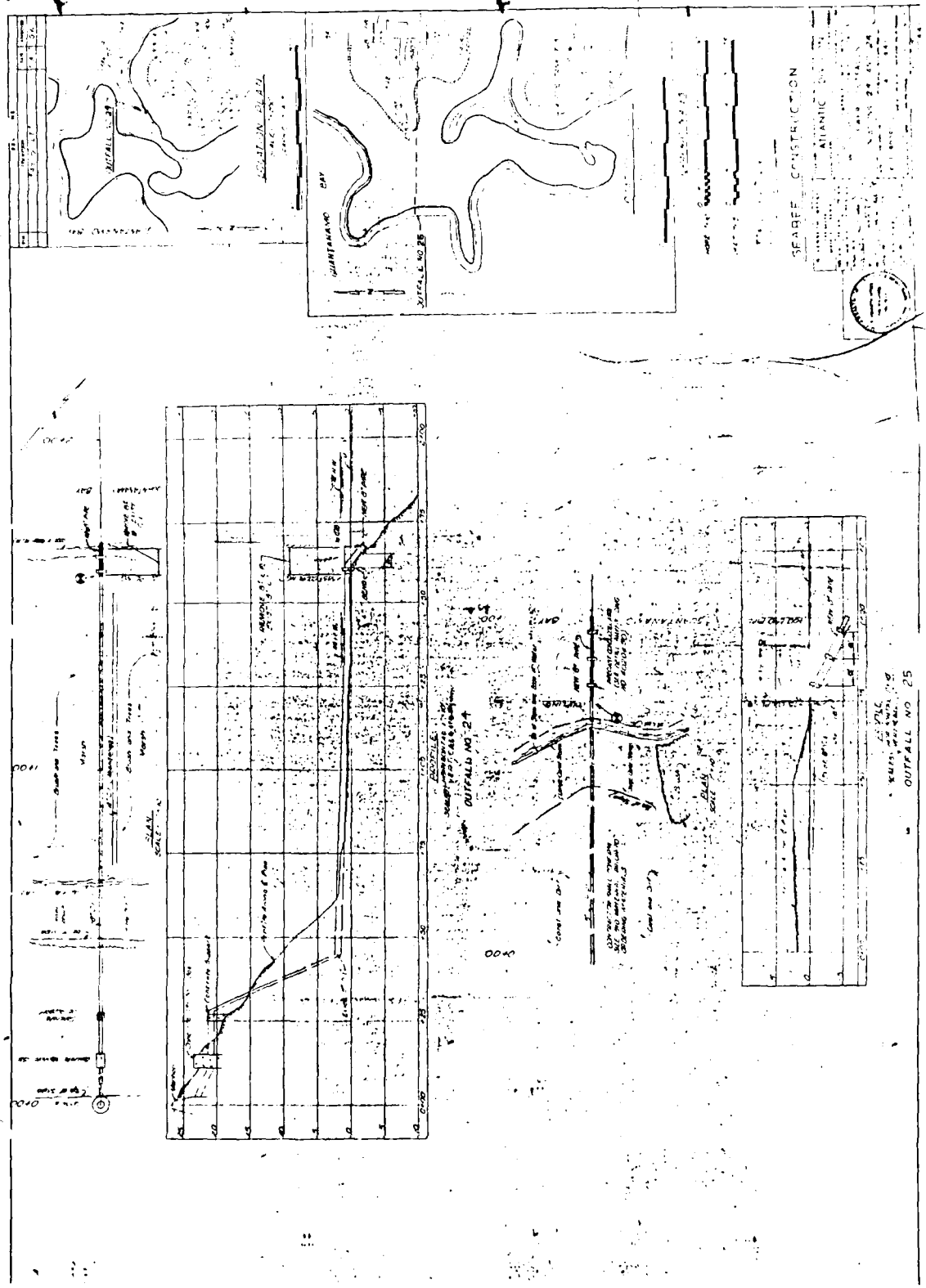


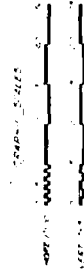
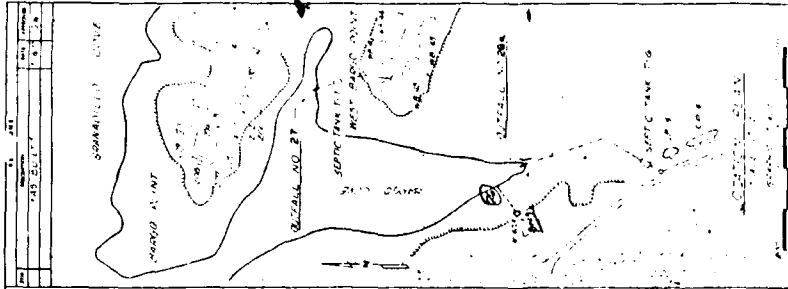
OUTFALL NO. 11



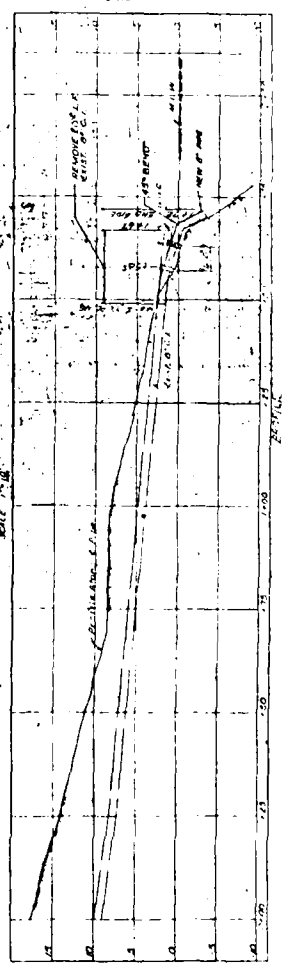
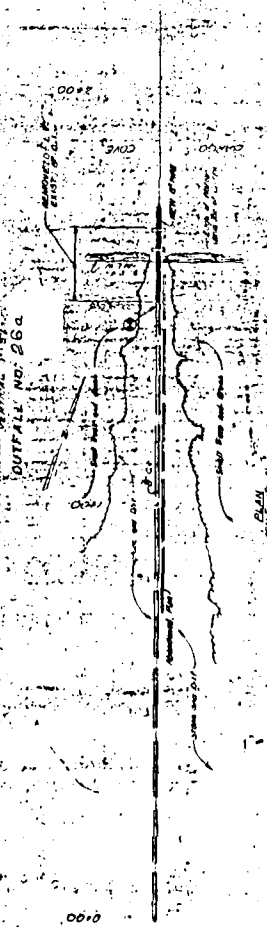
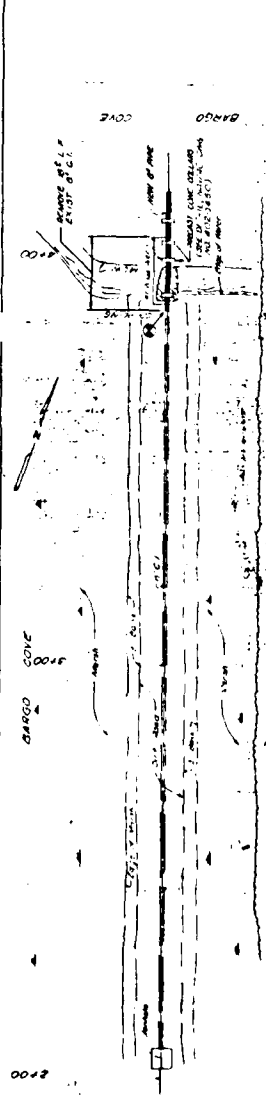
OUTFALL NO. 14



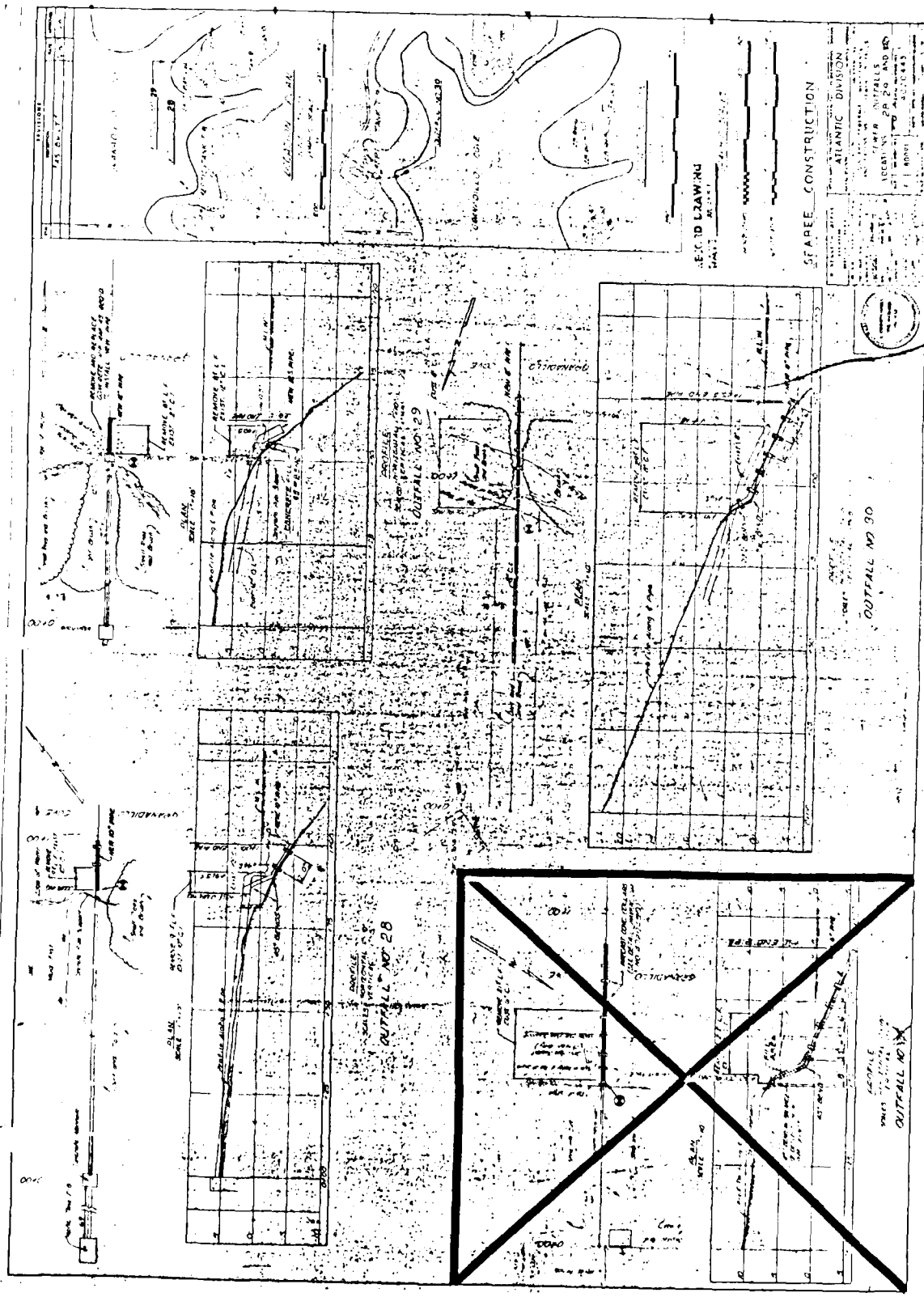




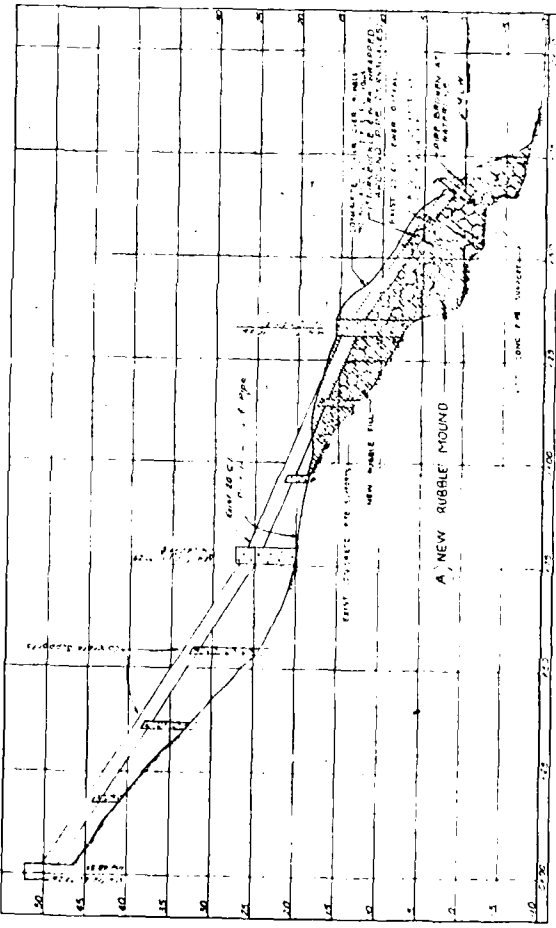
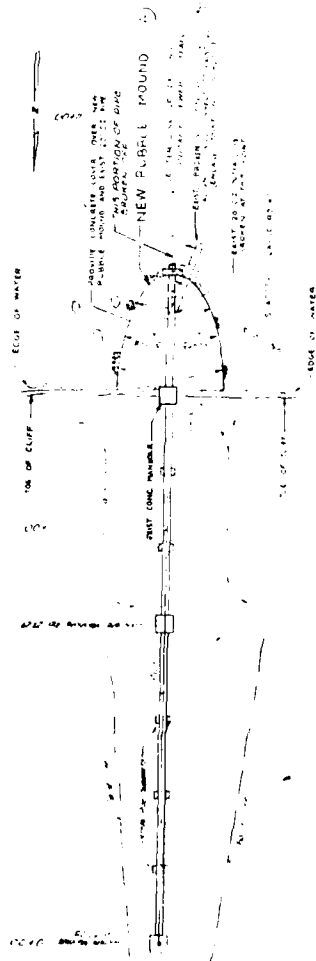
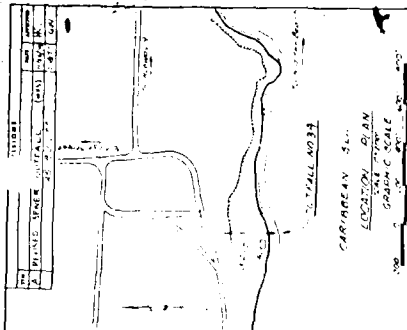
SEAPORT CONSTRUCTION
ATLANTIC DIVISION
U.S. NAVY
WASHINGTON, D.C.



OUTFALL NO. 27







NEW RUBBLE MOUND



NEW RUBBLE MOUND

DATE

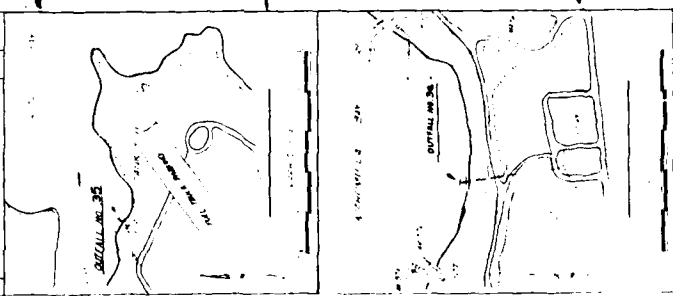
RECORD DRAWING

DATE

NO.	DATE	BY	CHECKED
1	10/1/50	J. H. BROWN	J. H. BROWN
2	10/1/50	J. H. BROWN	J. H. BROWN
3	10/1/50	J. H. BROWN	J. H. BROWN
4	10/1/50	J. H. BROWN	J. H. BROWN
5	10/1/50	J. H. BROWN	J. H. BROWN
6	10/1/50	J. H. BROWN	J. H. BROWN
7	10/1/50	J. H. BROWN	J. H. BROWN
8	10/1/50	J. H. BROWN	J. H. BROWN
9	10/1/50	J. H. BROWN	J. H. BROWN
10	10/1/50	J. H. BROWN	J. H. BROWN

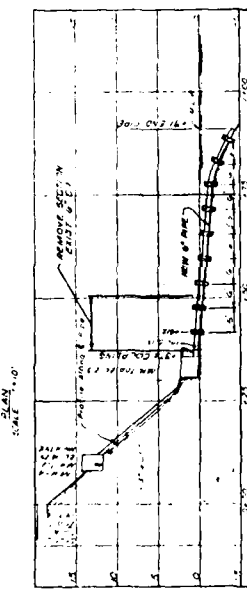
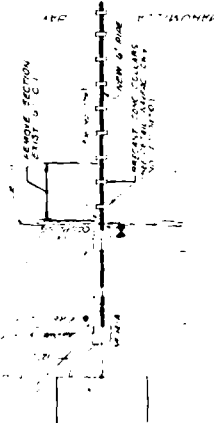
OUTFALL NO 34

NO.	REVISION	DATE	BY	CHKD.
1		4.15.75		
2		4.15.75		

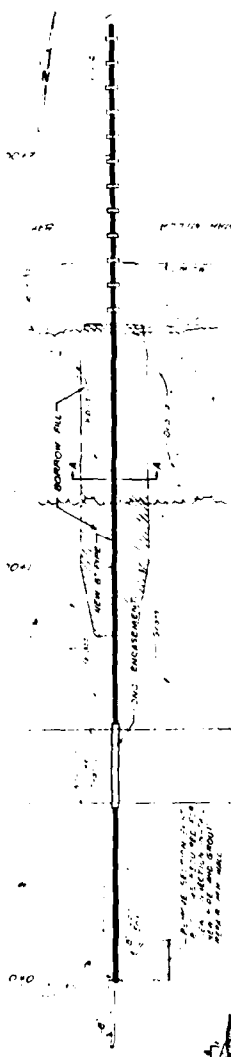


PEARCE CONSTRUCTION

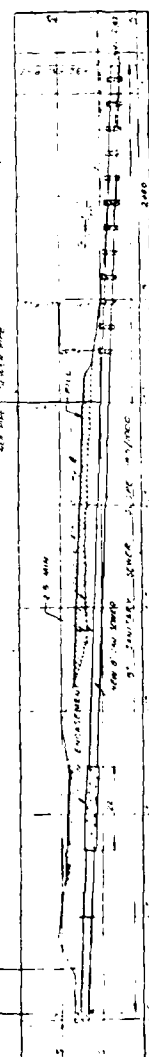
ATLANTIC DIVISION	
PROJECT NO.	100-100-100
DATE	4.15.75
BY	J. J. JONES
CHKD.	J. J. JONES



OUTFALL NO. 35



SECTION



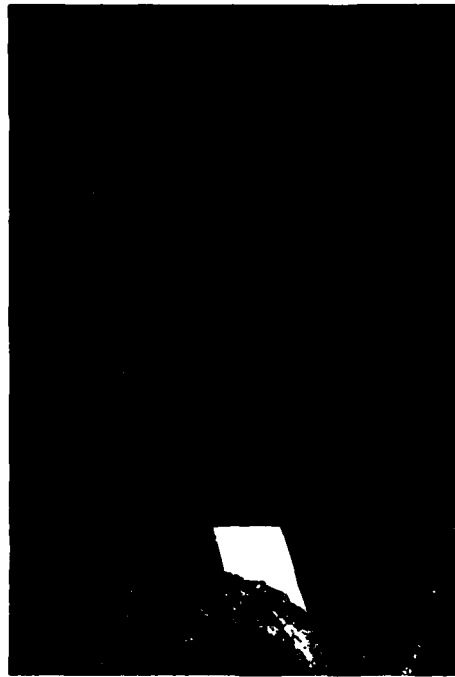
OUTFALL NO. 36



Outfall No. 1



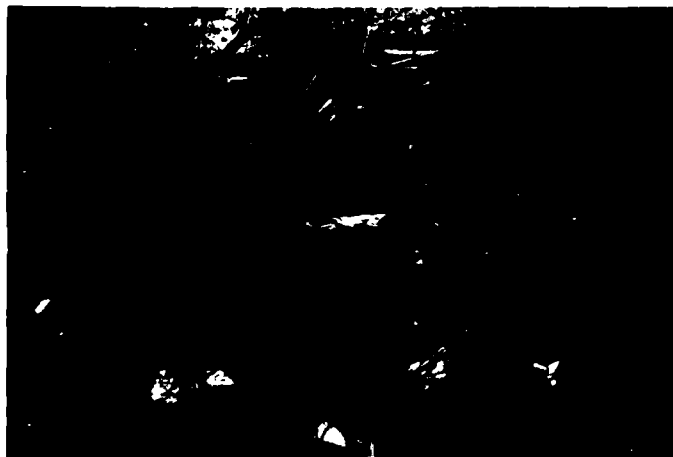
Outfall No. 3



Outfall No. 4 is not used because the building
is not there anymore



This is another outfall in vicinity of outfall No. 5



Outfall No. 6



Outfall No. 7



Outfall No. 8



Outfall No. 9
only this one was
found and the end is
just below the water
surface



Outfall No. 12



Outfall No. 14
does not appear to be used



Outfall No. 15



Outfall No. 18

the connection of the
plastic pipe to the
C.I. has failed

These two pictures are of outfall No. 19

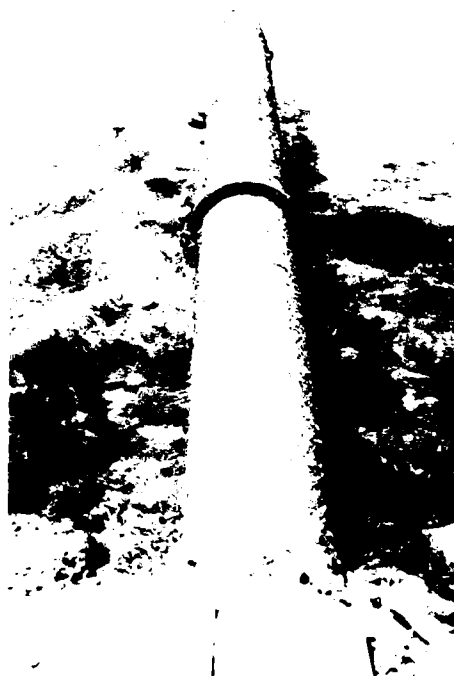




Outfall No. 20
is disconnected at the plastic pipe and leaking



Outfall No. 21
has a section cut out of the plastic pipe



Outfall No. 23
is a new C.I. outfall



Outfall No. 25
this outfall ends where
the small wave is
breaking



Outfall No. 26
is from the brig



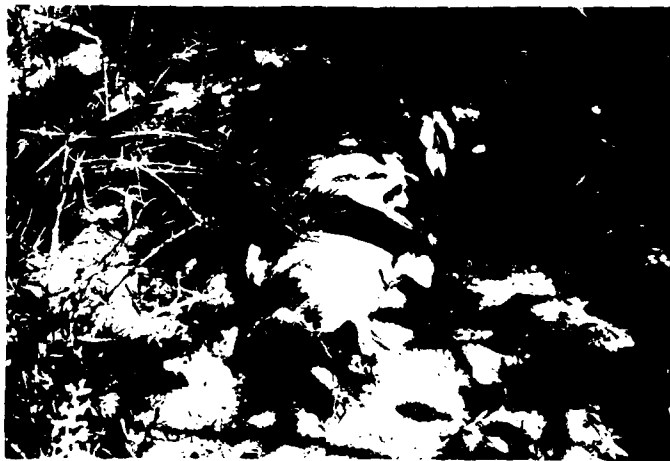
Outfall No. 26a



Outfall No. 28



Outfall No. 29



this separation occurs just before outfall No. 29

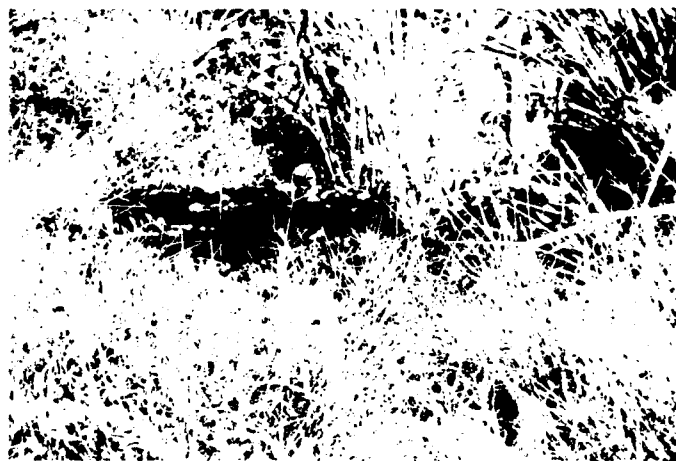


Outfall No. 30

as can be seen, this coupling of the plastic pipe
to the C.I. pipe is going to slip apart soon



Outfall No. 31
the outfall is intact



but this tank up the line is overflowing



Outfall No. 32
the outfall does not
reach the water



Outfall No. 33
the outfall ends above the
water and there is a very large deposit of sludge

Outfall No. 34



The pipe is broken prior to entering the water





Outfall No. 35



Outfall No. 36



END

DATE
FILMED

6 - 86

DTI