

ACC A159/PWU

10000/150/469

DRA
JAN

10000/150/469

DRAINAGE OF MARSHES
JAN. - JULY 1945

SECRET

A159/PWU DRAINAGE OF MARSHES

REF ID: A159/PWU

REF ID: A159/PWU

REF ID: A159/PWU

5. 8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

DATE

10000 / 150 / 1469

THIS FOLDER

CONTAINS PAPERS

FROM JAN - 45

TO JULY - 45

Declassified E.O. 12356 Section 3.3/NND No.

785019

14161

Declassified E.O. 12356 Section 3.3/NND No. 785019

10000 150 / 1469

THIS FOLDER

CONTAINS PAPERS

FROM JAN - 45

TO JULY - 45

CATALOGUE.

10

CATALOGUE.

159 A 10000 150

SECRET

78-12

MINISTERO DELLE CORPORAZIONI

SERVIZIO DELL'INDUSTRIA

DIV.

852

78-12

Commissio Agorio Provinciale per la Provincia

n. Perugia

acquistato macchine contabili chere

78-12

16-11

Commissio Agensio Provisionis per la Provincia

n' Peripia

Acquisito machine contabili there

Spare

O 7506
JULY 21 1328B

P/756
JULY 22 0930B
PRIORITY

see to file lb

AFHQ
ALCON HOME

IN CLEAR.

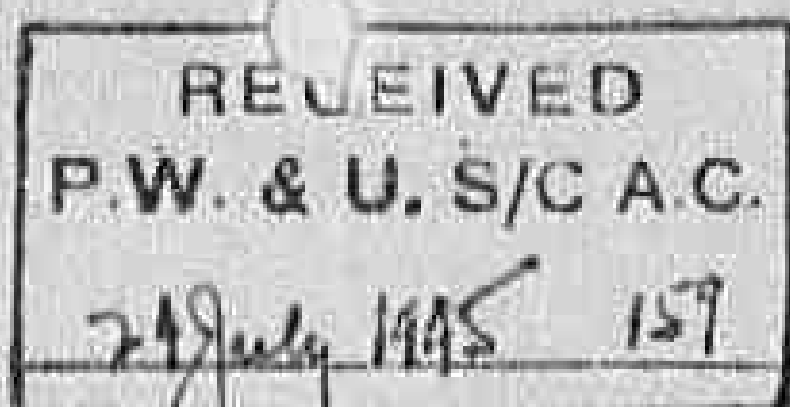
Following in the clear message received from TROOPERS.
"Ref clear message requisition AC/ENG/119/45, MES-288-BMS,
subject: program on essential Italian imports 1945, land reclamation.
Reference item No 4 centrifugal pumps. Verify capacity of pumps
and length of pipe to go with each pump."
2. Please furnish info direct TROOPERS in PAT/TAP series.

DEST
ACTION REQ DIV 4
INFO CHIEF COMMISSIONER
ECOH SEC
CO TO BE
FINANCE
FILE 2
FLOAT

2 JUL 1945
A. C.

R.B. Dist.:
P.W.V. S/C - For Action
R.B. Files

2178



31 July 1945

16

File 16
L.C. 7508 - Code
from AFNR
M 58788 EAS

Returned to Requisition Branch at
their request - 27/7/45

2177

CONFIDENTIAL

15

RECEIVED
Hq. & U. S/C A.C.
14 MAY 1945 151A

ALLIED FORCE HEADQUARTERS
G-5 Section
APO 512

Ref. P-20

11 May 1945

SUBJECT: Pumping Equipment - MGS-260-ENG

TO : Headquarters, Allied Commission, APO 394

1. In accordance with conversation Mr. Berealow - Maj. Carson on 7 May, procurement on 200 trailer pumps with special ejectors from U.K. has been with-held pending investigation of conditions in the North of ITALY. Relevant correspondence on this is as follows:

LAC Airgram 97 - 26 January 45.
Letter P-20 of 10 April to Hq. A.C. Attn: Econ Sect.
MEP 469, rptd ALCOM ROME
Letter P-20 of 13 April to Hq. A.C. Attn: Econ Sect.
Letter 159/PSU of 16 April to AFHQ from
Public Works & Utilities Sub-Commission.
GEM 544 rptd ALCOM ROME
Letter P-20 of 20 April to Hq. A.C.
Cable from Hq. ALCOM 5761 cite ACPHU of 20 April
to AFHQ.
Letter P-20 of 2 May to Hq. A.C. Attn: Econ Sect.
Cable from Hq. ALCOM 6935 cite ACPHU of 4 May
to AFHQ.

For the Assistant Chief of Staff, G-5:

R. C. Carson
R. C. CARSON
Major, G.S.C.
Economics & Supply Division

RB-400/169

1st. Ind.

EOQ:144

HQ ALCOM, Economic Section, Requisition Branch, 14, May 1945

2176

TO: Public Works and Utilities Sub-Commission

1. Attention is invited to contents of basic communication.

CONFIDENTIAL

R. C. Carson
R. C. CARSON
Major, G.S.C.
Economics & Supply Division

AFHQ G-5

6935

4 May 45

ROUTINE

CONFIDENTIAL PD

SUBJECT IS PUMPING PLANT NORTH ITALY PD

PAREN TO AFHQ FOR GEORGE FIVE FROM HQ ALCOM CITE ACPNU PAREN

PARA ONE PD REFERENCE OUR FIVE SEVEN SIX ONE OF TWENTY APRIL PD

PARA TWO PD WITHOLD TWO HUNDRED TRAILER PUMPS WITH SPECIAL

EJECTORS PENDING INVESTIGATION OF NORTH ITALY

Distribution by hand

Dep Vice Presidents Econ Sec (2)

Requisition Division

PUBLIC WORKS

2175

RECEIVED
P.W. & U. SEC. A.C.
7 MAY 1945 159-A

SECRET

13

1st Ind. to Ltr P-20 dtd 2 May 45 - Pumping Units for Northern Italy.

RE-400/169-ES

1st Ind.

HCQ:cl

Hq, AICOM, Economic Section, Requisition Branch, 5 May 1945.

TO: Public Works & Utilities Subcommittee, AICOM.

1. Forwarded for necessary action.
2. Copy of your answer to AFHQ should be sent for info to this office.

[Signature]
H. G. QUARTLEY
Lt. Col., Q. M. G.
Economic Section

7/13/45

See Folio 11

This matter has already
been covered by our
cable Folio # 11
dated 4 May 45

[Signature]

2174

SECRET

SECRET

13A

ALLIED FORCE HEADQUARTERS
G-5 Section
APO 512

Ref. F-20

2 May 1945

SUBJECT: Pumping Units for Northern Italy

TO : Headquarters, Allied Commission, APO 394
(Attn: Economic Section)

Reference Hq ALCOM cable 5V61 cite ACPWS of 20 April.

1. Action on reference cable was taken in LAG 1124 dated 26 April paraphrased below:

"1. Confirmation of approval is requested so that 200 pumps and ejectors may be requisitioned on TROOPERS.

2. TROOPERS will not initiate special procurement for the ejectors which are required for use with the pumps without approval of the requirement by CCAC. GEM's 544 and 533 refer.

3. For TROOPERS. Request procurement and shipment subject to the approval of CCAC."

3. CCAC has answered above cable in CAL 1327 dated 1 May paraphrased as follows:

"There is no information here that the flooding of the Po Valley is in process. Therefore a firm need is not established. Please advise."

3. In connection with cable in para 2, may we draw your attention to our letter F-20 of 10 April, paras 3 and 5. It is quite apparent that even though pumps are available they will not be released without full justification.

For the Assistant Chief of Staff, G-5:

R. G. Carson
R. G. CARSON,
Major, GSC.,
Economics & Supply.

2178

SECRET

12

AND EMILIA REGION

7666

2 MAY 45

ROUTINE

SECRET PD

SUBJECT IS PUMPING STATION PD

PARA TO AND EMILIA REGION FOR REGIONAL ENGINEER FROM HQ ALCON SITE
ASPERU TAREN

PARA ONE PD GEORGE FIVE AFHQ REQUEST LATEST INFORMATION CONCERNING
CONDITION OF BONIFICA PUMPING STATION AT CODIGORO ABOUT FORTY FIVE
KILOMETERS EAST OF FERRARA PD

PARA TWO PD LATEST INFORMATION HERE IS FIFTEEN ARMY GROUP FOUR APRIL
INDICATING PUMPING STATION ROOF DAMAGED AND TWO PUMPS WORKING

2172

PUBLIC WORKS

478907

AFHQ G-5

6935

4 May 45

ROUTINE

CONFIDENTIAL PD

SUBJECT IS PUMPING PLANT NORTH ITALY PD

PAREN TO AFHQ FOR GEORGE FIVE FROM HQ ALCON CITE ACPWU PAREN

PARA ONE PD REFERENCE OUR FIVE SEVEN SIX ONE OF TWENTY APRIL PD

PARA TWO PD WITHOLD TWO HUNDRED TRAILER PUMPS WITH SPECIAL
EJECTORS PENDING INVESTIGATION OF NORTH ITALY

Distribution by hand

Dep Vice Presidents Econ Sec (2)

Requisition Division

PUBLIC WORKS

317

2171

RECEIVED
W. & U. S/C A.C.
22 APR 1945 159

CONFIDENTIAL

ALLIED FORCE HEADQUARTERS
G-5 Section
APO 512

P. WORKS S/C

8039

Ref. P-20

20 April 1945

SUBJECT: Pumping Units for Northern Italy

TO : Headquarters, Allied Commission, APO 394

Reference your 159/PWU of 16 April, para 4 of our P-20 of 10 April and further to our P-20 of 13 April.

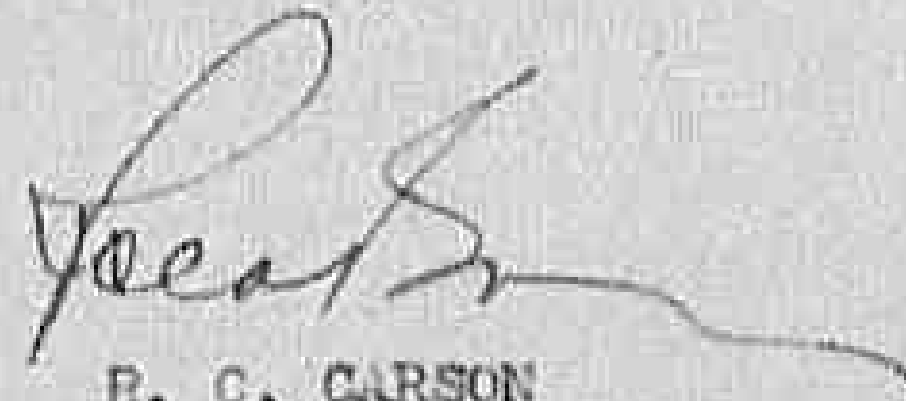
1. Troopers have communicated the following as GEN 544:

"It is impossible to quote the availability of items except against a requirement approved by C.C.A.C. for planning purposes. It is suggested that you consider few hundred trailer pumps rated at 350/500 imperial gallons per minute at 100 lbs pressure."

2. The cable also refers to the ejectors for use with these pumps as advised in our P-20 of 13 Apr.

3. AC-ENG-119 is part of the overall program that has not as yet been submitted to the C.C.A.C. The information requested in para 1 should be furnished as quickly as possible so that arrangements can be made to initiate appropriate procurement action in the event of approval being granted.

For the Assistant Chief of Staff, G-5:



R. C. CARSON
Major, G.S.C.

Economics & Supply Division

*Folio 9
Refers -
telegram dated
same date -
crossed in mail to the*

2179

CONFIDENTIAL

SECRET

159A

04 file

9

AFHQ G-5

5761

20 April 45

Routine

SECRET

Ref fol 248

SUBJECT IS PUMPING PLANT NORTH ITALY PD

PAREN TO AFHQ FOR GEORGE FIVE FROM HQ ALCON CITE ACPWU PAREN

PARA ONE PD REFERENCE TROOPERS GEORGE EASY MIKE FIVE FOUR FOUR OF SEVENTEEN APRIL AND MIKE EASY GEORGE FOUR SIX NINE OF TEN APRIL PD

PARA TWO PD RECOMMEND SEND THIS THEATRE TWO HUNDRED FIRE TRAILER PUMPS WITH SPECIAL EJECTORS TO DELIVER TWO THOUSAND GALLONS PER MINUTE FOR EMERGENCY USE IN NORTH ITALY PD

PARA THREE PD IN VIEW AVAILABILITY THIS EQUIPMENT RECOMMEND NO FURTHER ACTION ON EQUIPMENT CALLED FOR ON LOVE ABLE CHARLIE AIRGRAM NINE SEVEN OF TWENTY SIX JANUARY AND MIKE GEORGE SUGAR TWO EIGHT EIGHT EASY NAN GEORGE DATED TWENTY FOUR MARCH UNTIL DEFINITE INFORMATION AVAILABLE ON NEND.

MCS 288 - ENA

~~XXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXX~~Distribution by hand

Requisition Branch

PUBLIC WORKS

317

11 refers

Folio 10

Refers, crossed

in mail

2169

14 refers

13 refers

RECEIVED
P.W. & U.S./C.A.C.
19 APR 1945 159A

RESTRICTED

000544
APR 17 1600Z

FOR INFORMATION ONLY PW-40

01 5081
APR 19 1610Z
BOSTON

INFO: 06145 CALB

ACTION: TRANSFER INFO WASHINGTON, ALONG RISE

RESTRICTED.

Reference: 000549 16 April 45.

Subject: Pumping plant in ITALY. Impossible quote available item except against requirement approved by COMSEC for planning purposes suggest you consider few hundred trailer pumps rated at 350/500 imperial gallons per minute at 100 lbs pressure. See 000533 11 April re erecitors for use with these pumps.

HEADQUARTERS
19 APR 1945

INFO

INFO: ACTION: Requisition Div
INFO: A/President
Chief Commissioner
Room 200
1. Works
Industry 5/0 2
Plant
File 2

Guferis

2168

RESTRICTED

100
400
1000

7

6000
46,000
18,000

150
500

Reg Doled

24 March 43 - 64,000

3000
18000

Land Reclamation 111 - e

16 refs

AC - E-W-H - 119 - 43 -
MKS - 288 - E-W-H

50 kw portable generating sets
34 - 42 ft 220 volt.

120 - 100 kw portable generating sets.

400 - 34 - 42 ft - 220 volt.

120 - 150 kw portable generating sets.
34 - 42 ft - 220 volt.

420 - pumps - gas engine driven - capacity
400 w.m. per sec. - head 6 meters -
each unit to be provided with
10,000 meters pipe and 45° Bends, 2167
Bucket Dragger - 3/4 cu yd.
Bucket - diesel driven -

WKS - 288 - K-1400

120 — 50 1000 ports b/c generating sets
22 - 42 ft 220 volt.

607 0000 11
cc 1/2

400 - 100 new parts - 220 volts.
34 - 42 ~~new~~ - 220 volts.

34 - 42 ~~to~~ - 119.

150 kcal part 2012 171

30-428-

420 - pumps - gas engine driven - capacity -
400 cu. m. per sec. - head 6 meters -
each unit to be provided with 45° Bends,
2457

10,000 meters per 1000 cu. yd.
Bucket & Dredges - $\frac{3}{4}$ cu. yd.
Bucket & Dredges - $\frac{3}{4}$ cu. yd.

capacity - clams shell worn -
depth -

to 6 meters deep, with 30 w.m. per hour

Capacity 20 lbs
Excess - drag line on top of line

Co. H. 1st Reg. U.S. Cavalry
and digging for the
1st Reg. U.S. Cavalry

from 0.3 to 0.5 c.c.m. capillary

pairs rubber 0001.

	30	100	20	120	7	4	1000	July-Dec.	43
UNIF.	90	100	100	100	100	100	100	100	100
DUKO-	30	100	20	120	7	4	1000	July-Dec.	43

[illegible]

	30	100	20	120	7	4	1000	July-Dec.	43
UNIF.	90	100		300	24				
DUKO-	30	100	20	120					

6

Reg dated 26 Dec 44

ACE/ENR/67/45

MSS-260-Eng.

LAC Argon 97-26 Jan 45

200 - pumping units - 50 HP -
13,000 gal. per min - 10' head.

11	120	210
60	13,000	
	1,200	
	1,100	
	200	

RECEIVED
P.W. & U.S. A.C.
16 APR 1945 159

SECRET

ALLIED FORCE HEADQUARTERS
G-5 Section
APO 512

13 April 1945

Ref. P-20

SUBJECT: Pumping Units for Northern Italy

TO : Headquarters, Allied Commission, APO 394
(Attn: Economic Section)

Reference para 4 of our P-20 of 10 April.

1. Troopers have advised as follows:

"When considering use part worn trailer fire pumps, consider also use ejectors designed here for use with them in dewatering HOLLAND. These increase output 350/500 to 2000 gallons per minute at 15 feet head. Ejectors would require special procurement which impossible without approval firm requirement by CCAC. But quicker than procurement new pumps."

2. Your comments and recommendations are requested.

For the Assistant Chief of Staff, G-5:

R. V. Grady
R. V. GRADY
Major, T.C.
Economics & Supply Division

RB-400/169-ES

1st Ind.

HCQ/cl

HQ, ALCON, Economic Sec, Requisition Branch, 16 April 1945.

TO: Public Works & Utilities Subcommittee
Attn: Maj. Laughlin

1. Forwarded for your action. Ltr referred to above was passed on to you on 12 Apr '45.

2. Request that a copy of your answer be sent to Requisition Branch.

2165
H. C. Martin
H. C. MARTIN
Lt. Col., Q.M.C.
Economic Section

SECRET

Tel. 489081
Ext. 317

S-E-C-R-E-T SECRET
HEADQUARTERS ALLIED COMMISSION
APO 394

LWL/ac

Public Works and Utilities Sub-Commission

Reference : 159/PWU

16 April 1945

Subject : Pumping units for Northern Italy

To : A.F.H.Q. (Att G-5 Section)

Reference P-20/10 April 45 and MEG 469/11 April 45.

1. We are interested in the fire and trailer mounted pumping equipment referred to in para 2) and 3) - Ref. P-20 for use in present liberated Italy and future use in Northern Italy.

2. As soon as a reply is received from cable MEG-469 to troopers giving number, capacity and condition we will be in position to determine how the units can be utilized to the best advantage.

3. Reference P-20 para 5) (AC/ENG/119/45) all information known at the time the requisition was prepared was incorporated in justification.

4. Definite information will be obtained as soon as the area is liberated at which time more complete justification can be submitted.

For the Chief Commissioner,

cc : REQUISITION BRANCH
cc : AGRICULTURE B/O

W.M. LAPPER
Lieut-Colonel,
Chief Elec. Div.

SECRET

SECRET
ECONOMIC SECTION

Date 12 Apr '45

Internal

External

Fr.	To	Fr.	To
Vice President		ECONOMIC SECTION	
		AGRICULTURE SUBCOMMISSION	
Col. Densmore		COMMERCE " "	
		FINANCE " "	
Maj. Doe		FOOD " "	
Maj. Murtagh		INDUSTRY " "	
Maj. Tooby		LABOR " "	
Maj. Green		P.W. & U. " <i>9388 174</i>	
		TRANSPORTATION " "	
Capt. Macnamara		CHIEF COMMISSIONER	
		<i>Requisition Branch</i>	
		EXECUTIVE COMMISSIONER	
Capt. Atkins			
		CIVIL AFFAIRS SECTION	
Mr. Bakken		ESTABLISHMENT SECTION	
Mr. Stauffen			
Mr. Lehman			
Chief Clerk			

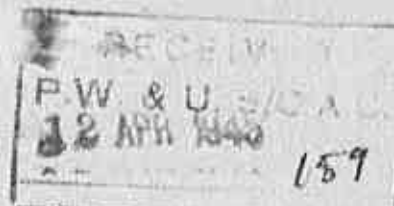
For Appropriate Action	Noting & Retention
Remarks/Recommendation	Signature
Dispatch	Investigation & Report
Information	File Copy
Circulation & Return	Noting & Return

Remarks:

*Kindly answer direct to AFHQ and
send a copy to Requisition Br for info.*

NOTE: When the attached piece of correspondence is ready for file -
Please write the word "FILE" and initial the correspondence *2163* NOT the
Buck-Slip. It is suggested that pertinent remarks showing continuity
of action should be noted on the letter itself, i.e. the margins, rather
than on the Buck Slip which will be destroyed when letter is filed.

SECRET

ALLIED FORCE HEADQUARTERS
G-5 Section
APO 512

Ref. P-20

10 April 1945

SUBJECT: Pumping Units for Northern Italy

TO : Headquarters, Allied Commission, APO 394
(Attn: Economic Section)

1. LAC Airgram 97 (MIS-260-ENGUS) was referred to the CCAC for consideration on 26 January 1945.

2. Following is a paraphrase of a signal from the CCAC to AFHQ received in reply:

Reference LAC Airgram 97.

Pumping Units for Northern Italy.

Validity requirement pumping units agreed. New production required minimum lead time of 12 months. Procurement is not to be instituted. There is a possibility of supply to meet your needs through diversion of programmed production in light of comparative urgency of your demand and competing demands will be determined at time your firm needs develop.

There are available in UK part worn fire and other trailer mounted pumps excess to other known needs. Consideration should be given to the possible use of this equipment.

3. It is apparent the CCAC is not aware that:

a. The pumps could now be usefully employed in presently liberated Italy.

b. There is no doubt pumps will be required when the North is uncovered.

4. We are signalling TROOPERS to enquire as to the number, capacity, and condition of the pumps stated to be available. Your comments are requested as to the usefulness of such units.

5. It appears likely that your supplementary land reclamation requisition (AG-ENG-119-48) will receive similar consideration to that of LAC Airgram 97, unless it can be strongly established that the need is now known to exist.

2162

SECRET

SECRET

6. It is requested that we be advised of your views, and of any further information as to your existant needs.

For the Assistant Chief of Staff, G-5:

Copy to:

H. V. GRADY,
Major, T.C.,
Economics & Supply.

AC Public Works & Utilities Sub-Commission.

SECRET

2161

CONFIDENTIAL

FX 58105
APR 101900B

RECEIVED
P.W. & U.S./C.A.C.
12 APR 1945 167

D/7346
APR 110840B
ROUTINE

AFHQ SIGNED ALEXANDER CITE FROG
TROOPERS REQUESTED FOR INFORMATION TO ASSESS FOR CDS POROCAS, ALCON HOME

CONFIDENTIAL

This is MRQ 469.

Pumping units NORTH ITALY. CAL 1274 stated DE had available worn fire and other trailer mounted pumps in excess. Request advise as to number, capacity, condition. Possible usefulness being investigated and will be notified to you.

*4 refers
8 refers
9 refers*

DIS

ACTION: Requisition 2
INFO: A/President
Chief Commissioner
Kson
File 2
Float
PW + V ✓

HEADQUARTERS
11 APR 1945
A.C.

2160

CONFIDENTIAL

SECRET

29 JAN 1945 159

124

ALLIED FORCE HEADQUARTERS

SECRET

LAC AIRMAIL 97, 26 January 1945

FROM : FMHQ (Concurred: FMHQ)

TO : Combined Civil Affairs Committee,
3C - 886 Pentagon Building,
Washington, D.C.

Subject : Pumping Units for Northern Italy

Requisition No: MGS-260-ENG.

Ship to : ANCONA for Public Works & Utilities Sub-Commission,
Allied Commission or to Port of Venice if available
at time of shipment, by 1 APRIL 1945. (The serial
number of each consignment must include the letters
TCG. Packages must be marked with standard approved
markings of green dots on crossed white tape.

Weight : (A) type: 9,700 lbs and 9 Meas. tons each
(B) type: 12,700 lbs and 9 Meas. tons each.

It is requested that following requirement be approved, allocated
and procurement initiated, and that AFHQ cite FMHQ be advised of action
taken.

Item	Article	Unit	Required
1	PUMPING UNITS, 50 Horse Power, approximate discharge 13,000 gallons per minute: total head in feet 10: (See details under headings "Note" and "Specifications" below).	ea	200

NOTE:

The pumps may be either (a) directly driven by the prime mover, or
(b) alternatively, driven by electric motors, the prime movers being
used to drive alternators, each power unit being coupled with an
alternator on a single transportable bed to form an independent
generator set. The latter arrangement (b) would present the following
advantages:-

1. The actual pumping units (with electric motors) would be
smaller overall, more manoeuvrable, and could therefore
be more readily designed for general ease of installation
in diverse situations.
2. The independent transportable generator sets could

HEADQUARTERS

(15 copies)

28 JAN 1945

A. C.

Noted Day 29/1
HQR
30p

2159

Allied Commission or to Port of Venice if available at time of shipment, by 1 APRIL 1945. (The serial number of each consignment must include the letters TCG. Packages must be marked with standard approved markings of green dots on crossed white tape.

Weight : (A) type: 9,700 lbs and 9 Meas. tons each
(B) type: 12,700 lbs and 9 Meas. tons each.

It is requested that following requirement be approved, allocated and procurement initiated, and that AFHQ cite FPMG be advised of action taken.

<u>Item</u>	<u>Article</u>	<u>Unit</u>	<u>Required</u>
1	PUMPING UNITS. 50 Horse Power, approximate discharge 13,000 Gallons per minute: total head in feet 10: (See details under headings "Notes" and "Specifications" below).	ea	200

Noted by 29/1
49R 30/1

NOTE:

The pumps may be either (a) directly driven by the prime mover, (b) alternatively, driven by electric motors, the prime movers being used to drive alternators, each power unit being coupled with an alternator on a single transportable bed to form an independent generator set. The latter arrangement (b) would present the following advantages:-

1. The actual pumping units (with electric motors) would be smaller overall, more maneuverable, and could therefore be more readily designed for general ease of installation in diverse situations.
 2. The independent transportable generator sets could ultimately be used to furnish electric power for other purposes.
- Against these advantages it is to be noted that such an arrangement would be more costly, would involve the production of more machinery, and would have a lower overall efficiency, thus necessitating a somewhat greater fuel consumption. Nevertheless, it is considered preferable.

SECRET

SECRET

If this "diesel-electric" alternative (b) be decided upon, in preference to pumps directly driven by oil engines, it is recommended that the electrical system adopted should be of 3 phase, 42 cycle.

Suitable specifications for both of the above alternatives, (a) and (b), have already been offered by the S. Morlan Smith Company of York, Pennsylvania, U.S.A. Copies of plans of that Company are in the hands of the International Division of C.C.A.C. and of the Utilities Division of the War Production Board, however, these plans were made for a frequency of 50 cycles which now must be revised to a 42-cycles frequency.

SPECIFICATIONS:

1. The plant which is requested represents no more than approximately ten per cent of the total pumping capacity at present installed in the extensive artificially drained areas of the Po Valley and the Northern Adriatic coastal plains. This percentage is very small in comparison with the conditions that were found in the Pontino Marshes area, where ninety per cent of the pumping plant had been rendered entirely unusable.

2. In deciding upon the type of emergency equipment required, the following facts have been borne in mind:-

- a. Less than half of the existing pumping installations in the Po Valley and Northern Adriatic coastal plains are operated by electricity, the remainder being driven by oil or steam power.
- b. Electric power lines and generating stations must be expected to be largely destroyed.
- c. It can, therefore, be assumed (on the basis of existing knowledge and experience already gained) that little or no electric power will be available for drainage pumping during at least the first twelve months.

3. In view of the foregoing factors it is recommended that the motive power of all the required emergency plant should be derived locally from heavy-oil engines.

4. For ease and rapidity of installation, the pumping units should be of the "transportable" kind, and each should be equipped with at least thirty feet of delivery piping. It is believed that pumps of the axial-flow "screw" type would be most suitable, and in order to avoid the necessity for mechanical priming it is suggested that they could advantageously be of "submersible" pattern.

All the pumps should be designed to pass small solids and weeds, such as might drain through coarse screens, and it is also suggested that the mouths of the suction pipes should be fitted with substantial strainers. Needless to say, the power units should be provided with all necessary auxiliaries, such as fuel oil tanks and apparatus for forced circulation of cooling water.

approximately ten per cent of the total pumping capacity at present installed in the extensive artificially drained areas of the Po Valley and the Northern Adriatic coastal plains. This percentage is very small in comparison with the conditions that were found in the Pontine Marshes area, where ninety per cent of the pumping plant had been rendered entirely unusable.

2. In deciding upon the type of emergency equipment required, the following facts have been borne in mind:-

- a. Less than half of the existing pumping installations in the Po Valley and Northern Adriatic coastal plains are operated by electricity, the remainder being driven by oil or steam power.
- b. Electric power lines and generating stations must be expected to be largely destroyed.
- c. It can, therefore, be assumed (on the basis of existing knowledge and experience already gained) that little or no electric power will be available for drainage pumping during at least the first twelve months.

3. In view of the foregoing factors it is recommended that the motive power of all the required emergency plant should be derived locally from heavy-oil engines.

4. For ease and rapidity of installation, the pumping units should be of the "transportable" kind, and each should be equipped with at least thirty feet of delivery piping. It is believed that pumps of the axial-flow "screw" type would be most suitable, and in order to avoid the necessity for mechanical priming it is suggested that they could advantageously be of "submersible" pattern.

All the pumps should be designed to pass small solids and weeds, such as might drain through coarse screens, and it is also suggested that the mouths of the suction pipes should be fitted with substantial strainers. Needless to say, the power units should be provided with all necessary auxiliaries, such as fuel oil tanks and apparatus for forced circulation of cooling water.

5. The pumps should be designed to operate at best efficiency against a total head (from all causes: suction lift, delivery head and friction losses) of ten feet. It is expected, however, that greater heads will in many cases be encountered, and in order to make it possible to contend with such greater heads, it is requested that one of the following modifications be adopted in the manufacture of the pumps:

SECRET

- (a) Incorporation of variable-pitch impellers;
- (b) Provision of alternative impellers, designed for twenty feet head. (These should be easily interchangeable with the standard 10 ft. head impellers).
- (c) Provision for easily coupling two standard pumps in series, to operate as a two-stage installation.

BASIS: It is considered that the diesel-powered pumps being requisitioned represent one of the vital import requirements for civil relief in Italy.

That these pumps are of important military significance is supported by the following facts.

A. General.

- (1) They will be used as emergency equipment to counteract the otherwise disastrous effects of war damaged and flooded reclaimed and irrigated areas of Northern Italy.
- (2) The critical provinces which demand attention number 20 and are located in the Lombardia, Emilia and the south central portion of Veneto.
- (3) The 20 provinces are:-

LOMBARDIA: (irrigated areas) Milano, Pavia, Cremona, Brescia.
LOMBARDIA: (irrigated and reclaimed areas) Cremona, Brescia, Mantova.
VENETO : (Venetia Euganea): Verona, Rovigo, Padova, Venezia, Treviso, Udine.
EMILIA : Piacenza, Parma, Reggio, Modena, Bologna, Ferrara, Ravenna, Forli.

(4) Since from about 80 to 95% of the plains of these provinces are either irrigated or reclaimed land, it is reasonable to discuss the area of the plains as a whole.

(5) The larger parts of these plains can be inundated or damaged with disastrous consequences to the entire country.

(6) The most critical provinces are: Ravenna, Ferrara, Rovigo, Venice, and Udine, in which provinces approximately 1,250,000 acres are under sea level.

(7) Also, it is an important fact that according to the 1936 census the above mentioned plains had the following respective populations:

LOMBARDIA: 3,546,334
VENETO (Venetia Euganea): 2,987,244
EMILIA: 1,995,775

and a density of population per square kilometer of:-

LOMBARDIA: 353
VENETO (Venetia Euganea): 240

(1) Italy will be used as a negative example of countries that otherwise disastrous effects of war damaged and flooded reclaimed and irrigated areas of Northern Italy.

(2) The critical provinces which demand attention number 20 and are located in the Lombard, Emilia and the south central portion of Veneto.

(3) The 20 provinces are:-

LOMBARDIA: (irrigated areas) Milano, Pavia, Cremona, Brescia.
 LIGURIA: (irrigated and reclaimed areas) Genoa, Brescia, Mantova.
 VENETO: (Venetia Euganea): Verona, Rovigo, Padova, Venezia, Treviso, Udine.
 EMILIA: Piacenza, Parma, Reggio, Modena, Bologna, Ferrara, Ravenna, Forli.

(4) Since from about 80 to 95% of the plains of these provinces are either irrigated or reclaimed land, it is reasonable to discuss the area of the plains as a whole.

(5) The larger parts of these plains can be inundated or damaged with disastrous consequences to the entire country.

(6) The most critical provinces are: Ravenna, Ferrara, Rovigo, Venice, and Udine, in which provinces approximately 1,250,000 acres are under sea level.

(7) Also, it is an important fact that according to the 1936 census the above mentioned plains had the following respective populations:

LOMBARDIA: 3,546,334
 VENETO (Venetia Euganea): 2,987,244
 EMILIA: 1,995,775

and a density of population per square kilometer of:-

LOMBARDIA: 353
 VENETO (Venetia Euganea): 240
 EMILIA: 195

as contrasted with 16 in the United States.

(8) The agricultural production required to meet the needs of so dense a population is seriously impressive. Max. it is recognized that the area of the above said reclaimed and irrigated regions comprises only 10.5% of the Kingdom and yet in 1938 produced the following percentages of food, the priority of attention which is deserved begins to establish itself.

SECRET

Wheat 23.4%
 Corn 47.3%
 Rice 50.5%
 Sugar of Beets 87.0%
 Cows milk 38.1%
 Beef 33.45%

(9) Large areas of the central and lower Po and of other rivers (especially of Adige and Reno) are susceptible to total inundation. This threat extends beyond agricultural production of food products and raw materials and includes all other forms of economic activity, housing including lines of communications of all types and industries. Housing and employment problems are paramount because this area contains millions of farmers and workers in towns ranging in size from the greatest industrial and commercial centre of the Kingdom (Milano) to middle size (Piacenza, Parma, Reggio, Modena, Ferrara, Rovigo, Padova, Mestre, etc.) and small boroughs and villages. Some of these towns are included in the reclaimed or irrigated areas and could be inundated while others could be isolated by overflooded territories. Consequently, the populations of these areas now enjoying excellent sanitary conditions quite conceivably could become seriously afflicted with malaria and malnutrition as has occurred, for example in recent months at Fondi and Formia (Sessa Aurunca).

(10) THEREFORE, FROM ALL POINTS OF VIEW (agriculture, industry, public health, unemployment and forced migration) IT CAN PROBABLY BE SAID THAT THE PLAINS OF LIGURIA, VENETO AND EMILIA CONSTITUTE THE KEY CANCER ZONE IN ITALY.

(11) Enormous difficulties to the advance of the Allied Armies or to the Allies' supply lines and paralysis of "behind the line" military supporting activity along with the economy could result if pumping equipment were not made available for emergency use.

B. Food Fiber Production.

(1) Notwithstanding the fact that the 20 provinces comprise only 10.5% of the total area of the Kingdom, the following essential food and fiber productions were realized in 1938:-

PRODUCT	Percentage of Total Italian Production	Weights in Tons	Dollar Value F.O.B. Naples
Wheat	23.4	1,917,698	220,057,000
Corn	47.3	1,249,460	106,250,000
Rice	50.5	412,506	61,875,000
Potatoes	9.4	242,014	29,040,000
Sugar Beets	87.3 (Sugar)	408,000	81,160,000
Cows milk	38.1	2,040,000	306,000,000
Beef	33.45	165,500	66,600,000
Pigs	29.65	52,200	36,540,000
Wool	60.1	70,293	
Silk Cocoons	54.0	10,777	
Perages (of all kinds)		320,000	907,522,000

(2) Although not included in the above list, this area

produces important quantities of vegetables, wines, fruits, poultry

Moore, etc.) and small boroughs and villages. Some of these towns are included in the reclaimed or irrigated areas and could be inundated while others could be isolated by overflooded territories. Consequently, the populations of these areas now enjoying excellent sanitary conditions quite conceivably could become seriously afflicted with malaria and malnutrition as has occurred, for example in recent months at Fondi and Formia (Sessa Surtees).

(10) THEREFORE, FROM ALL POINTS OF VIEW (agriculture, industry, public health, unemployment and forced emigration) IT CAN PROPERLY BE SAID THAT THE PLAINS OF LUCANIA, VENETO AND EMILIA CONSTITUTE THE KEY DANGER ZONE IN ITALY.

(11) Enormous difficulties to the advances of the Allied Armies or to the Allies' supply lines and paralysis of "behind the line" military supporting activity along with the economy could result if pumping equipment were not made available for emergency use.

B. Food Fiber Production.

(1) Notwithstanding the fact that the 20 provinces comprise only 10.5% of the total area of the Kingdom, the following essential food and fiber productions were realized in 1938:-

PRODUCT	Percentage of Total Italian Production	Weights in Tons	Dollar Value F.O.B. Naples
Wheat	23.4	1,917,698	220,057,000
Corn	47.3	1,249,460	166,250,000
Rice	50.5	412,506	61,875,000
Potatoes	9.4	242,014	29,040,000
Sugar Beets	87.3 (Sugar)	408,000	81,160,000
Cows milk	38.1	2,040,000	306,000,000
Beef	33.45	166,500	66,600,000
Hogs	29.65	52,200	36,540,000
Sheep	60.1	70,293	
Silk Cocoons	54.0	10,777	
Forages (of all kinds)		320,000	907,522,000

(2) Although not included in the above list, this area produces very important quantities of vegetables, wines, fruits, poultry and poultry products (especially eggs).

C. Shipping Space and Dollar Value.

(1) Translating the tonnage of the 8 major food items produced in the 20 provinces into terms of shipping space results in a piece of conclusive evidence that this productive area must be kept in cultivation. Using a Liberty ship average capacity figure of 9,000 tons, 721 shiploads of food would have to be imported, assuming total crop loss and total replacement. The dollar value of this food in very approximate terms would be \$907,000,000.

SECRET

SECRET

D. Possibility of Damage or Destruction.

(1) Based on current knowledge of enemy destruction to reclamation works in Central Italy and on meager advice received from the North, it must be assumed that a number of the important areas will be seriously damaged and flooded. Information has been received in the last days that the plain south of Ravenna (in the Po Valley) has been flooded by the destruction of river embankments, and that other larger inundations are being effected northwest of Ravenna to the centre of the Po Valley.

(2) The area which stretches from Pontelagoscuro on the right bank of Po near Ferrara, to the left bank of the river Reno and the lagoon of Comacchio, is susceptible to flooding (500,000 acres) and includes Ferrara with a population of 130,000 inhabitants and all the industrial plants of Pontelagoscuro and Ferrara (especially sugar refineries, hemp manufactures, chemical industries).

(3) In such an eventuality military equipment, including pumps must be available.

(4) Also, it should be pointed out that some areas of Emilia and Veneto can be inundated with salt water and if they are not drained without delay they will remain unproductive for years.

(5) North of the Pisa-Rimini line the enemy has had months to scientifically prepare for the damage or destruction of vital points in the canal, dike and pumping systems. The enemy's withdrawal from Southern and Central Italy was considerably more rapid than its withdrawal is proving to be in the North. Notwithstanding, almost 400,000 acres of such important bonifiche as Littoria, Pontine Marshes, Fandi and Sasep wurmen were flooded and are still under water. Therefore, there can be little doubt of the enemy's planned pattern of destruction for the North.

E. Ratio of Recommended Emergency Requirements to Normal Pumping Capacity.

(1) Our estimated emergency pumping equipment requirements have been developed with great care and have been reduced to a minimum. The conservation of our figure will be borne out by the attached Table (b) which compares the emergency needs with normal pumping capacity in the area. It will be seen that the pumps being requisitioned represent only 10% of normal pumping capacity. Actually, it is expected that destruction and removal of equipment will far exceed the replacement capacity of the 200 emergency pumps. However, they should be of significant assistance in counteracting the effect of the major destructive activities of the enemy when supplemented with maximum canalization and repair of local equipment left behind (providing there is sufficient electric power to operate the reconstructed pumps).

F. Other Considerations.

(1) It will be noted that this statement does not take into consideration such aspects as civilian physical economic rehabilitation,

the industrial plants of Pontelagoscuro and Ferrara (especially sugar refineries, soap manufactures, chemical industries).

(3) In such an eventuality military equipment, including pumps must be available.

(4) Also, it should be pointed out that some areas of Emilia and Veneto can be inundated with salt water and if they are not drained without delay they will remain unproductive for years.

(5) North of the Pisa-Rimini line the enemy has had months to scientifically prepare for the damage or destruction of vital points in the canal, dike and pumping systems. The enemy's withdrawal from Southern and Central Italy was considerably more rapid than its withdrawal is proving to be in the North. Notwithstanding, almost 400,000 acres of such important bonifacio as Littoria, Portine Marshes, Fendi and Sessa Aurunca were flooded and are still under water. Therefore, there can be little doubt of the enemy's planned pattern of destruction for the North.

E. Ratio of Recommended Emergency Requirements to Normal Pumping Capacity.

(1) Our estimated emergency pumping equipment requirements have been developed with great care and have been reduced to a minimum. The conservation of our figure will be borne out by the attached Table (b) which compares the emergency needs with normal pumping capacity in the area. It will be seen that the pumps being requisitioned ²¹⁵⁷ represent only 10% of normal pumping capacity. Actually, it is expected that destruction and removal of equipment will far exceed the replacement capacity of the 200 emergency pumps. However, they should be of significant assistance in counteracting the effect of the major destructive activities of the enemy when supplemented with maximum cannibalization and repair of local equipment left behind (providing there is sufficient electric power to operate the reconstructed pumps).

F. Other Considerations.

(1) It will be noted that this statement does not take into consideration such aspects as civilian physical economic rehabilitation, the effect on Italy's financial position; production for export, etc. These aspects have not been inadvertently overlooked, but were consciously divorced in preparing this bill of emergency military pumping requirements to clearly avoid confusion with the civilian requirements program which is now being developed separately.

(2) The region of the Po Valley is one of the most densely populated in all of Italy and the anticipated flooding will therefore, cause the utmost misery and suffering to an enormous number of the Italian civilian population.

SECRET

Conditions will be suited to the outbreak of epidemic of typhoid and possibly even typhus, while diseases of the respiratory system will undoubtedly increase. It is further anticipated that conditions conducive to the outbreak of infectious disease will result, and the incidence of malaria during the coming season will be exceptionally high.

(3) The most expeditious action possible is urgently recommended in the procurement and delivery of these pumps to assure their maximum military contribution.

RATING: ONE

LANDED COSTS: It is requested landed costs be despatched to arrive before receipt of shipment.

AGENCY: M & TN

ATTACHMENTS: 1 copy of each of the following to CCAC only:

TABLE 'A' - Comparison of Agricultural Production and Population of the Plains of Lombardy - Veneto - Emilia with total Kingdom.

TABLE 'B' - Pumping Stations in the Regions, Lombardy - Veneto - Emilia.

TABLE 'C' - Motors of Pumping Stations in the Regions, Lombardy - Veneto - Emilia.

TABLE 'D' - Map of N. Italy.

Information: Copies to: The Directorate of Civil Affairs, War Office, Whitehall, London, S.W.1. (4 copies)

Director of Freight Movements, War Office, S.W.9, London.

N.Y.P.L. (4 copies)

SHARP, G-5 (2 copies)

Allied Commission, APO 394 (8 copies)

G-4, AFHQ

M & TN, AFHQ

MEMO, AFHQ

L. H. T. AFHQ

LANDED COSTS: It is requested landed costs be despatched to arrive before receipt of shipment.

AGENCY: M & TN

ATTACHMENTS: 1 copy of each of the following to CCAC only:

TABLE 'A' - Comparison of Agricultural Production and Population of the Plains of Lombardy - Veneto - Emilia with total Kingdom.

TABLE 'B' - Pumping Stations in the Regions, Lombardy - Veneto - Emilia.

TABLE 'C' - Motors of Pumping Stations in the Regions, Lombardy - Veneto - Emilia.

TABLE 'D' - Map of N. Italy.

Information Copies to:

The Directorate of Civil Affairs,
War Office, Whitehall, London, S.W.1. (4 copies)

Director of Freight Movements,
War Office, Q.M. 9, London.

N.Y.P.E. (4 copies)

SHAEP, G-5 (2 copies)

Allied Commission, APO 394 (8 copies)

G-4, AFHQ

M & TN, AFHQ

IGMS/JFHQ

A. W. T. AFHQ.

"THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENCE OF THE UNITED STATES WITHIN THE MEANING OF THE ESPIONAGE ACT, U.S.C. 50, 31 and 32. THE TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW."

1451