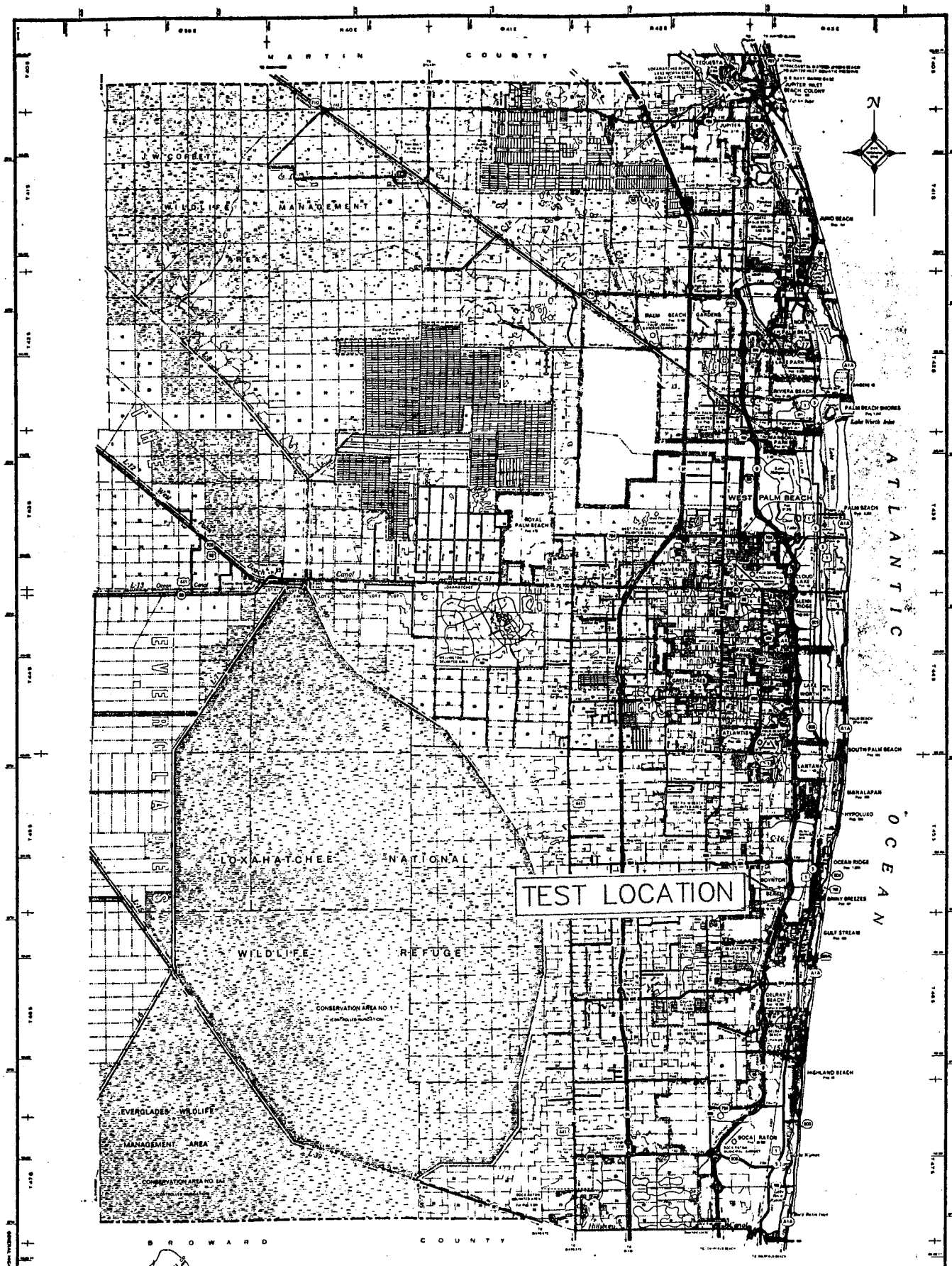


GENERAL HIGHWAY MAP

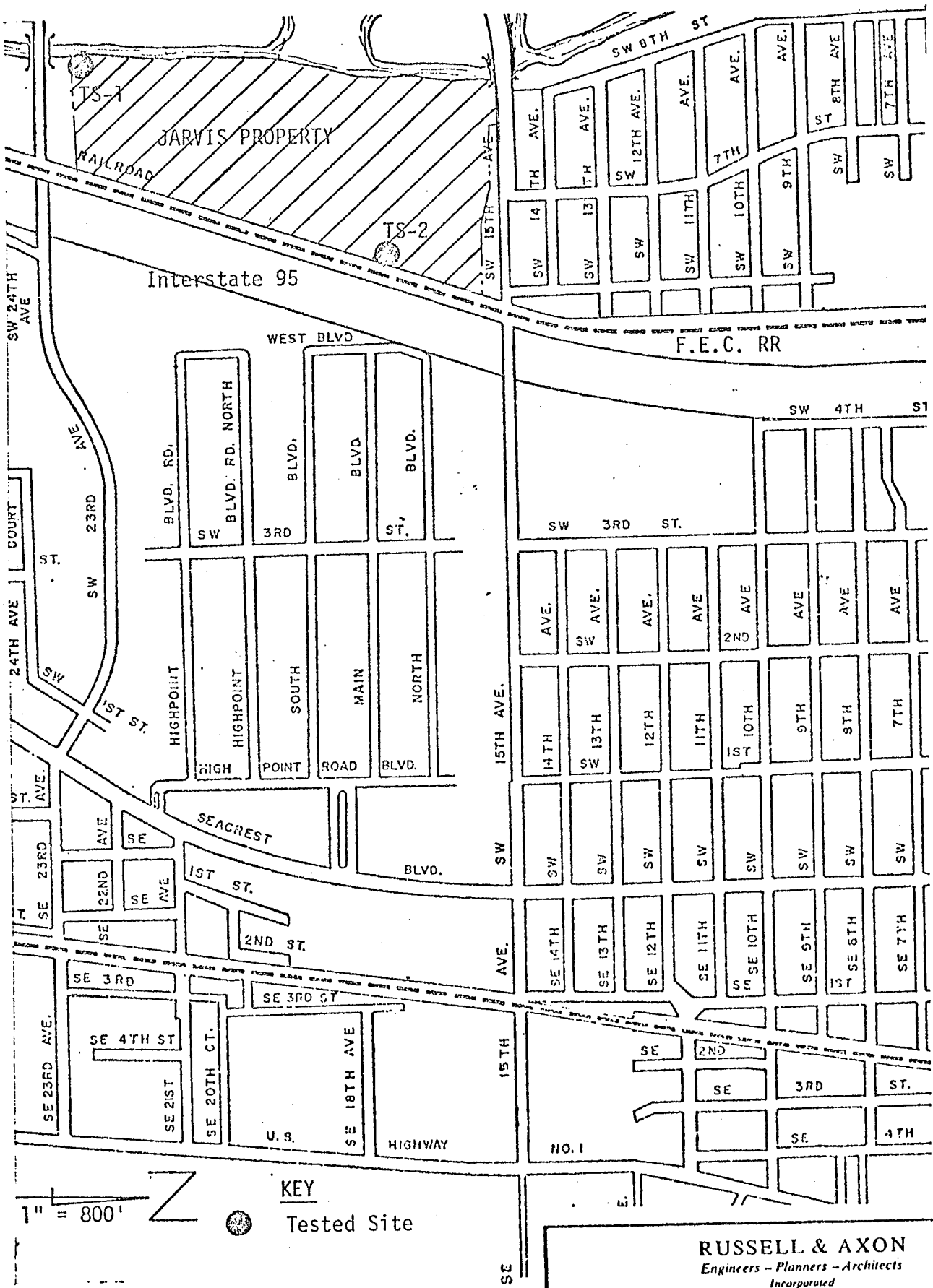
PALM BEACH COUNTY

FLORIDA

AUGUST, 1975

GENERAL HIGHWAY MAP PALM BEACH COUNTY FLORIDA

FIGURE 1 - LOCATION MAP



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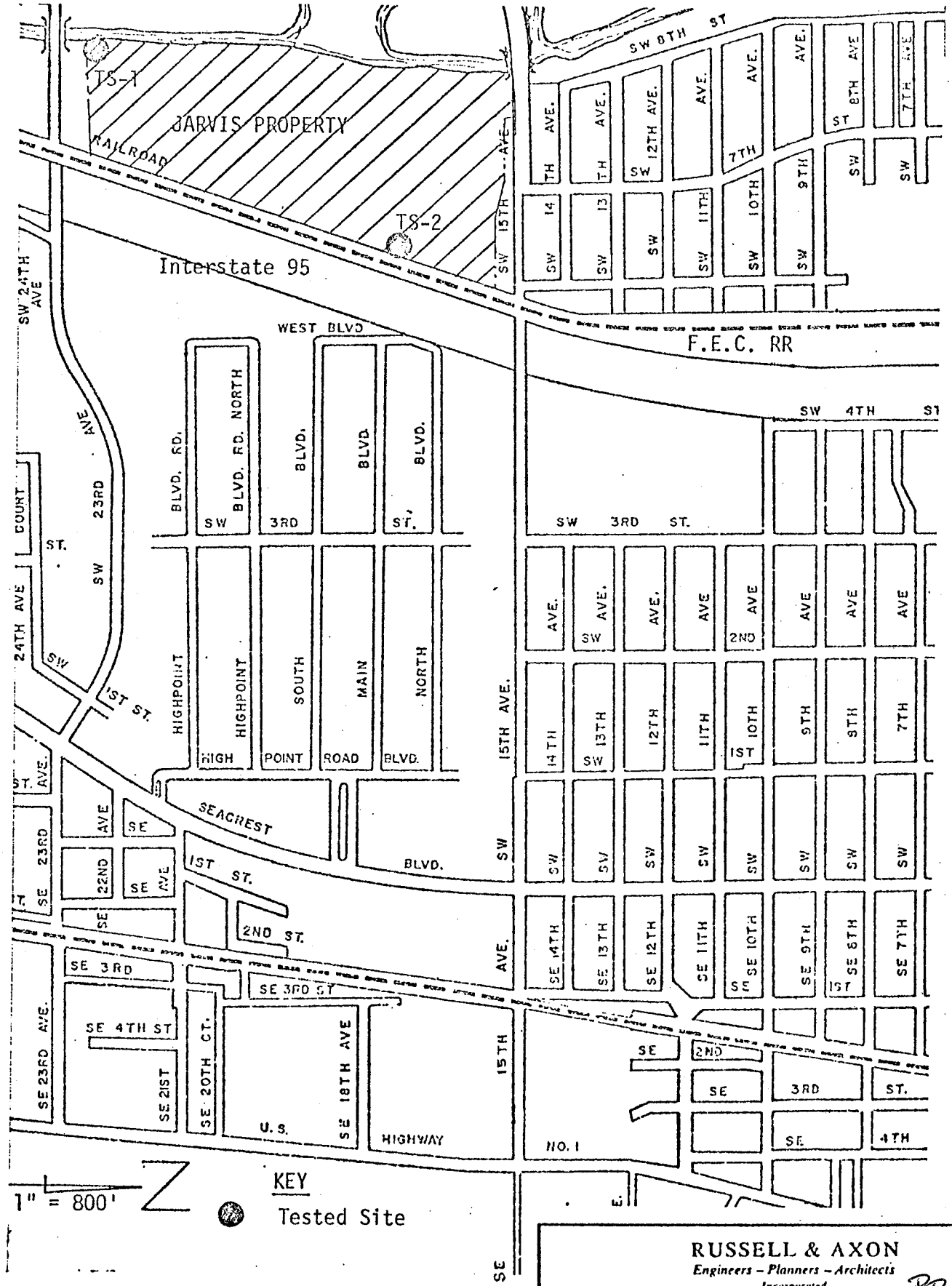
Incorporated

JARVIS PROPERTY HYDROGEOLOGICAL EVALUATION
BOYNTON BEACH, FLORIDA

DATE Dec 1976
626-681-0

FIGURE 1 - LOCATION MAP



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JARVIS PROPERTY HYDROGEOLOGICAL EVALUATION
BOYNTON BEACH, FLORIDA

DATE Dec. 1976
626-681-0

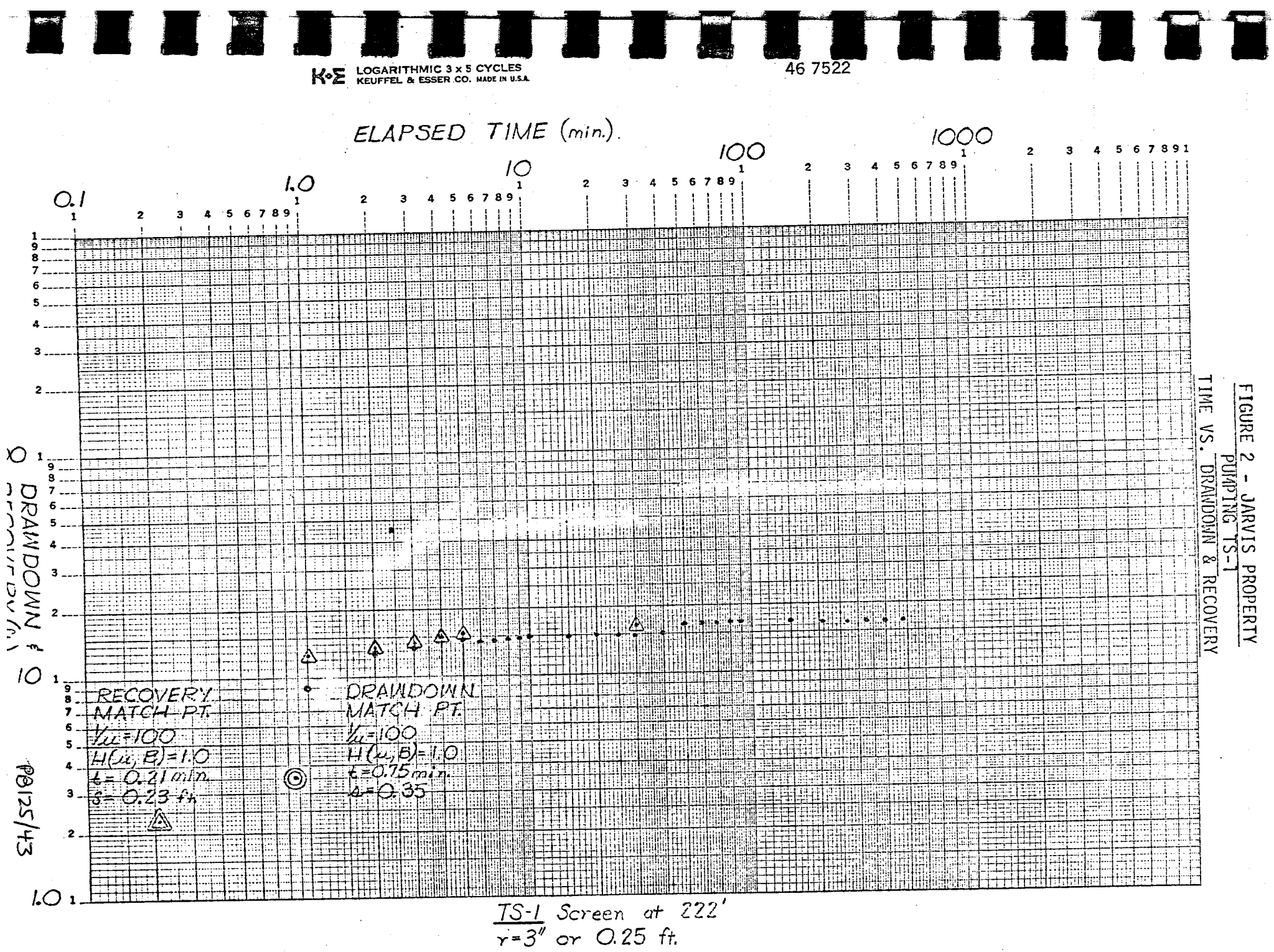
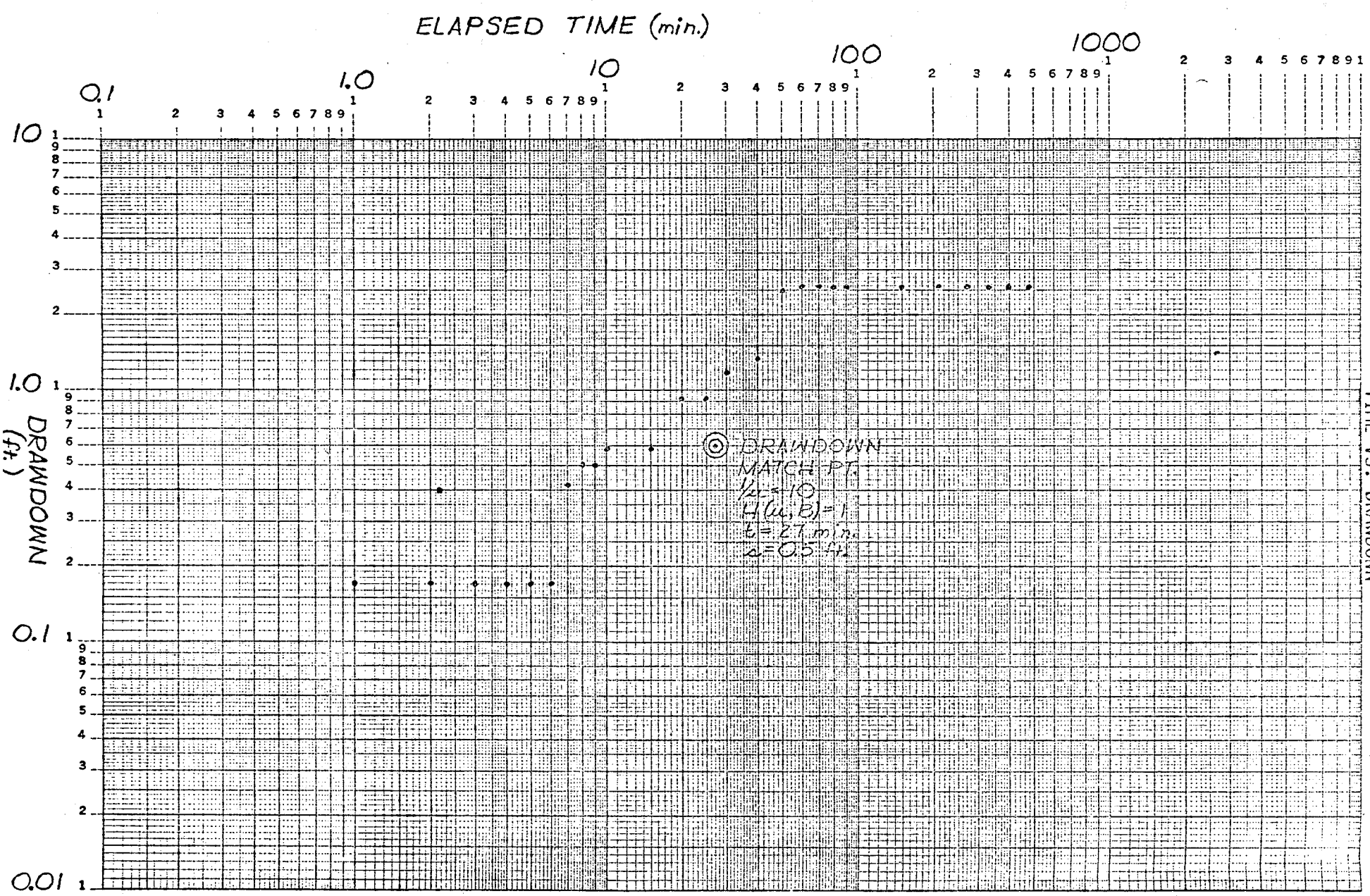


FIGURE 2 - JARVIS PROPERTY
PUMPING TS-1
TIME VS. DRAWDOWN & RECOVERY



TS-1 Screen at 222'
OBS #2 Screen at 215'
r = 75'

FIGURE 3 - JARVIS PROPERTY
OBS-2 WHILE PUMPING TS-1
TIME VS. DRAWDOWN

P0125/43

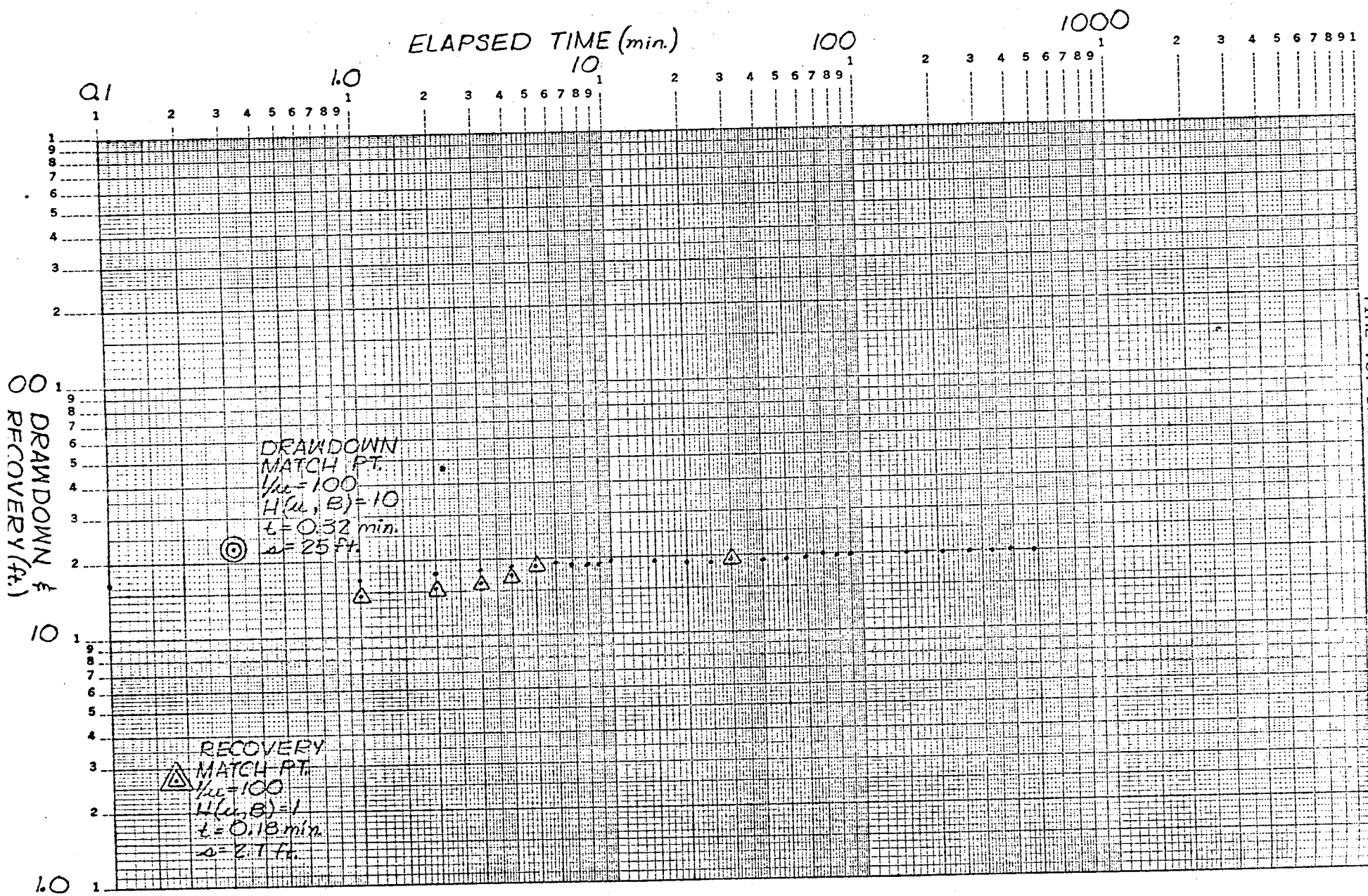


FIGURE 4 - JARVIS PROPERTY
PUMPING TS-2
TIME VS. DRAWDOWN & RECOVERY

TS-2 Screen at 231'
r = 3" or 0.25 ft.

PB 125/43

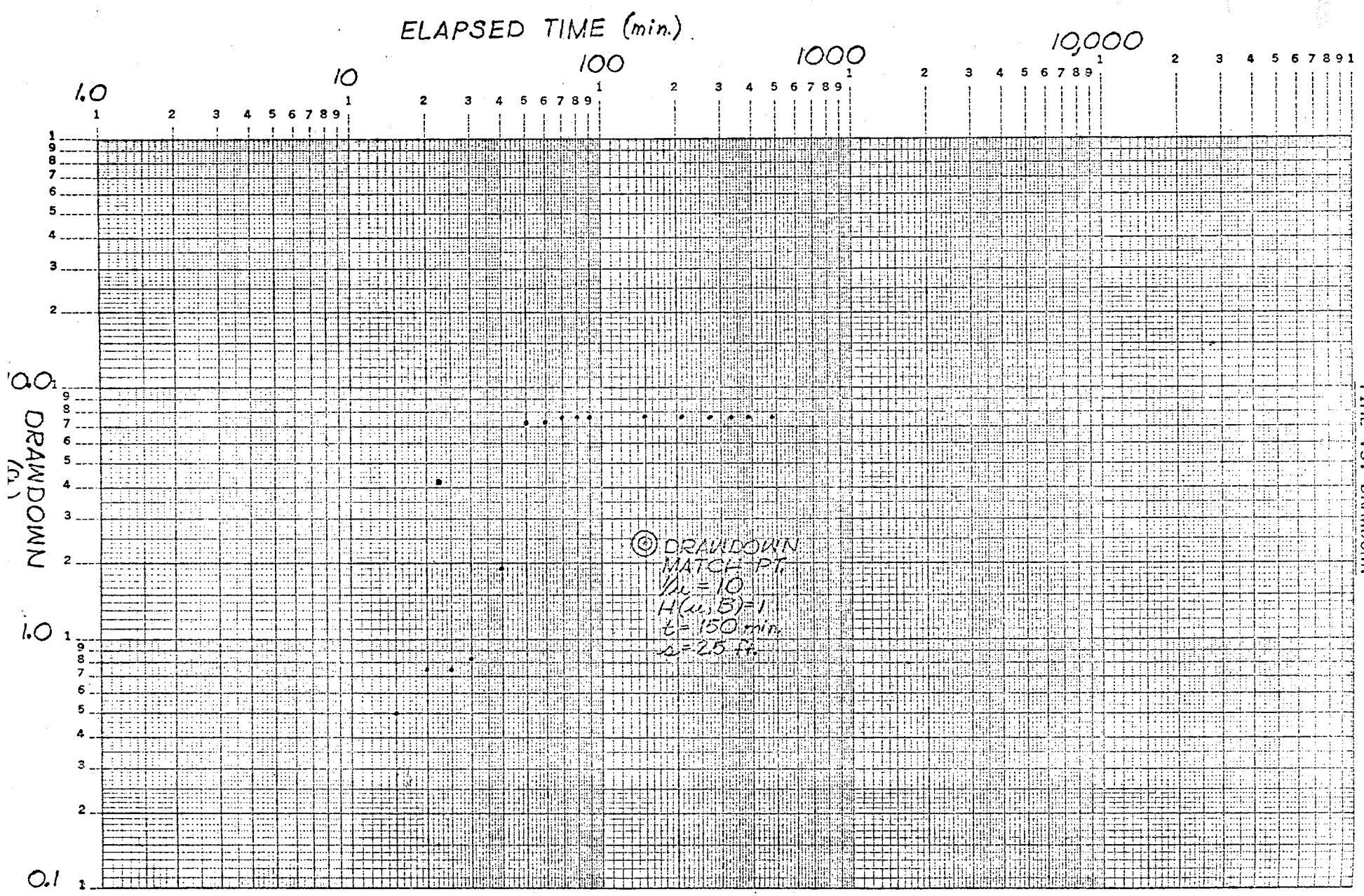


FIGURE 5 - JARVIS PROPERTY
OBS-2 WHILE PUMPING TS-2
TIME VS. DRAWDOWN

TS-2 Screen at 231'
OBS #2 Screen at 215'
r = 75'

PB
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FIGURE 6 - JARVIS PROPERTY
OBS-2 OF TS-1 & TS-2
TIME VS. DRAWDOWN
JACOB MODIFIED METHOD

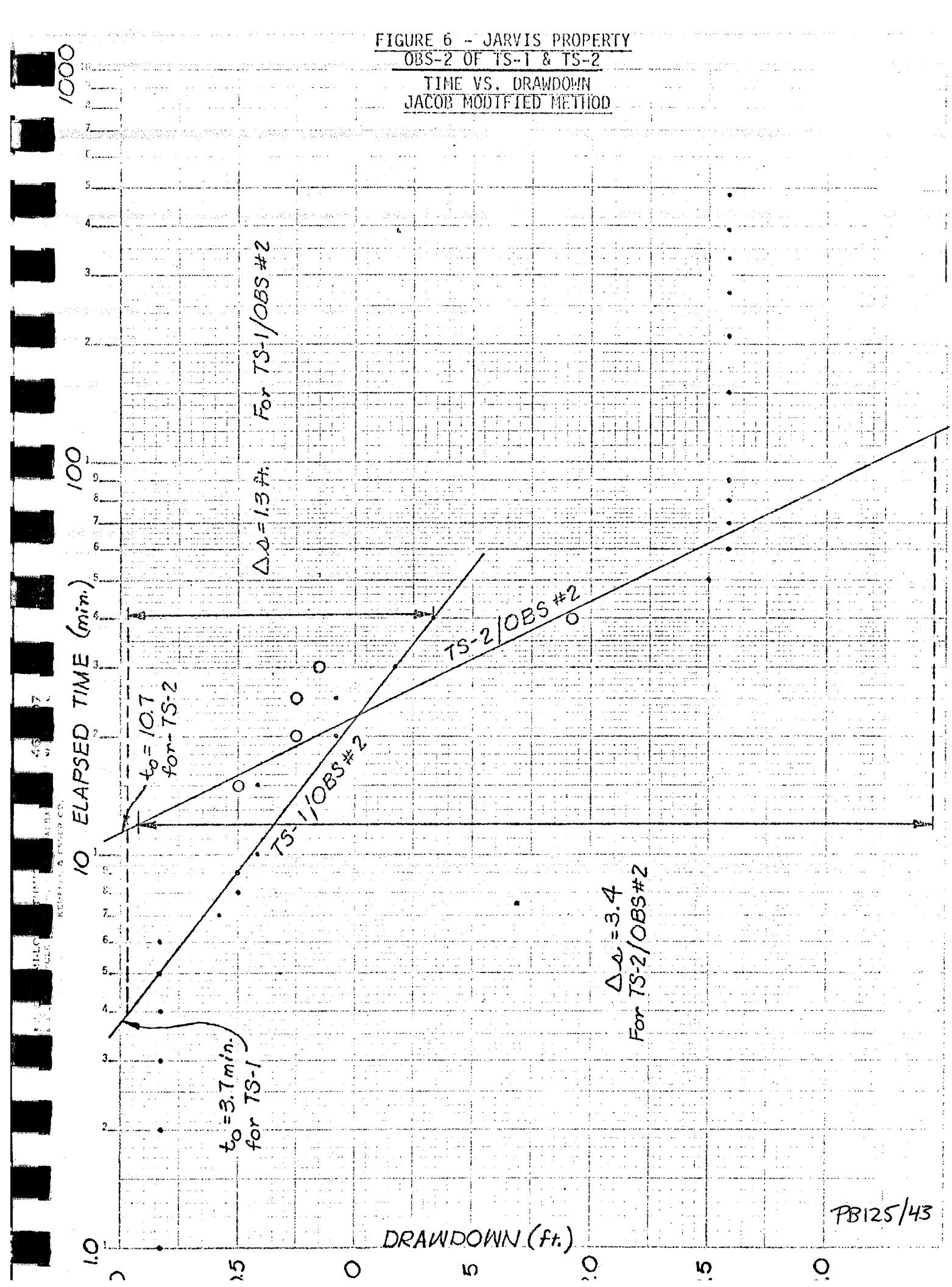
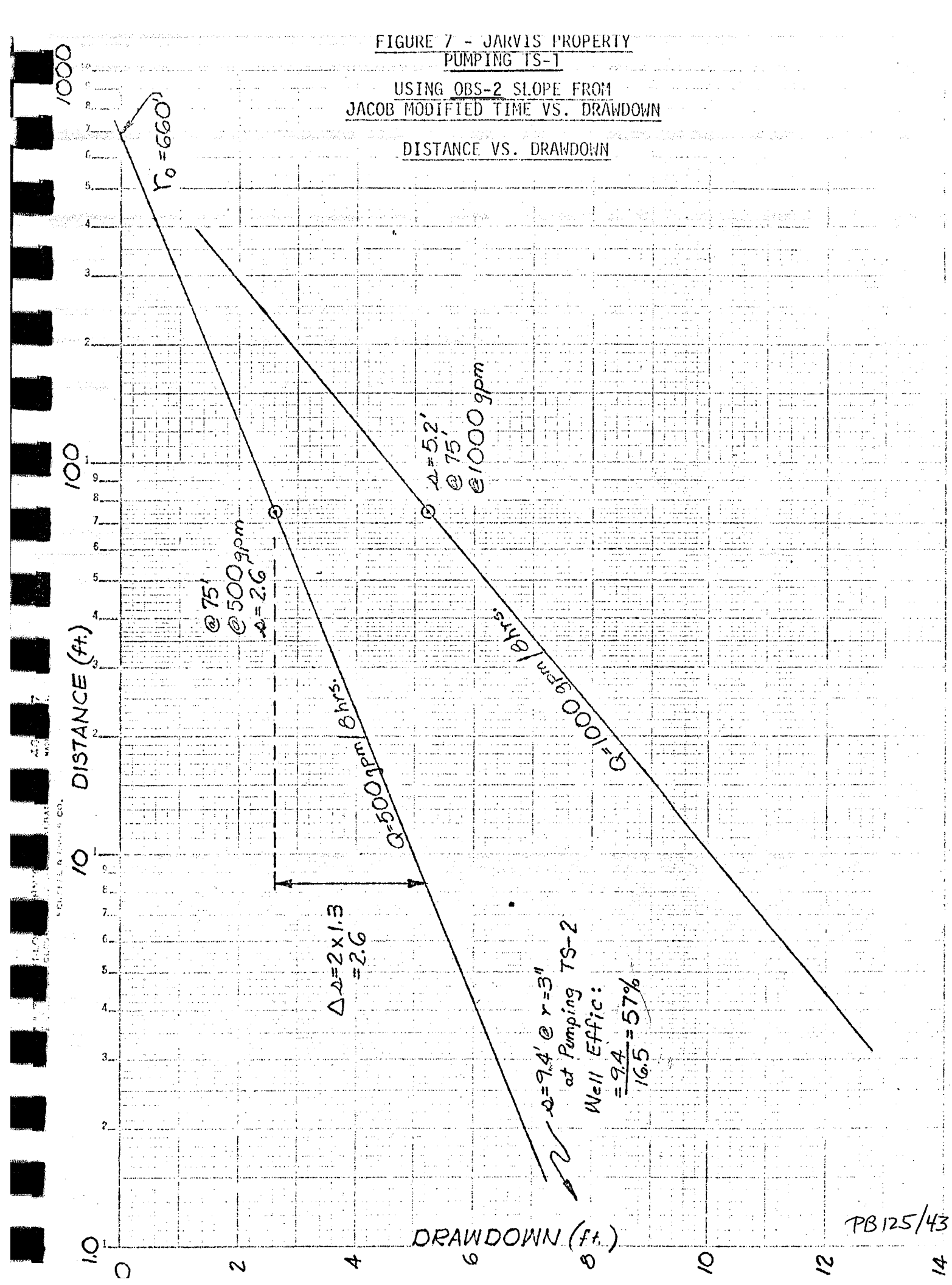


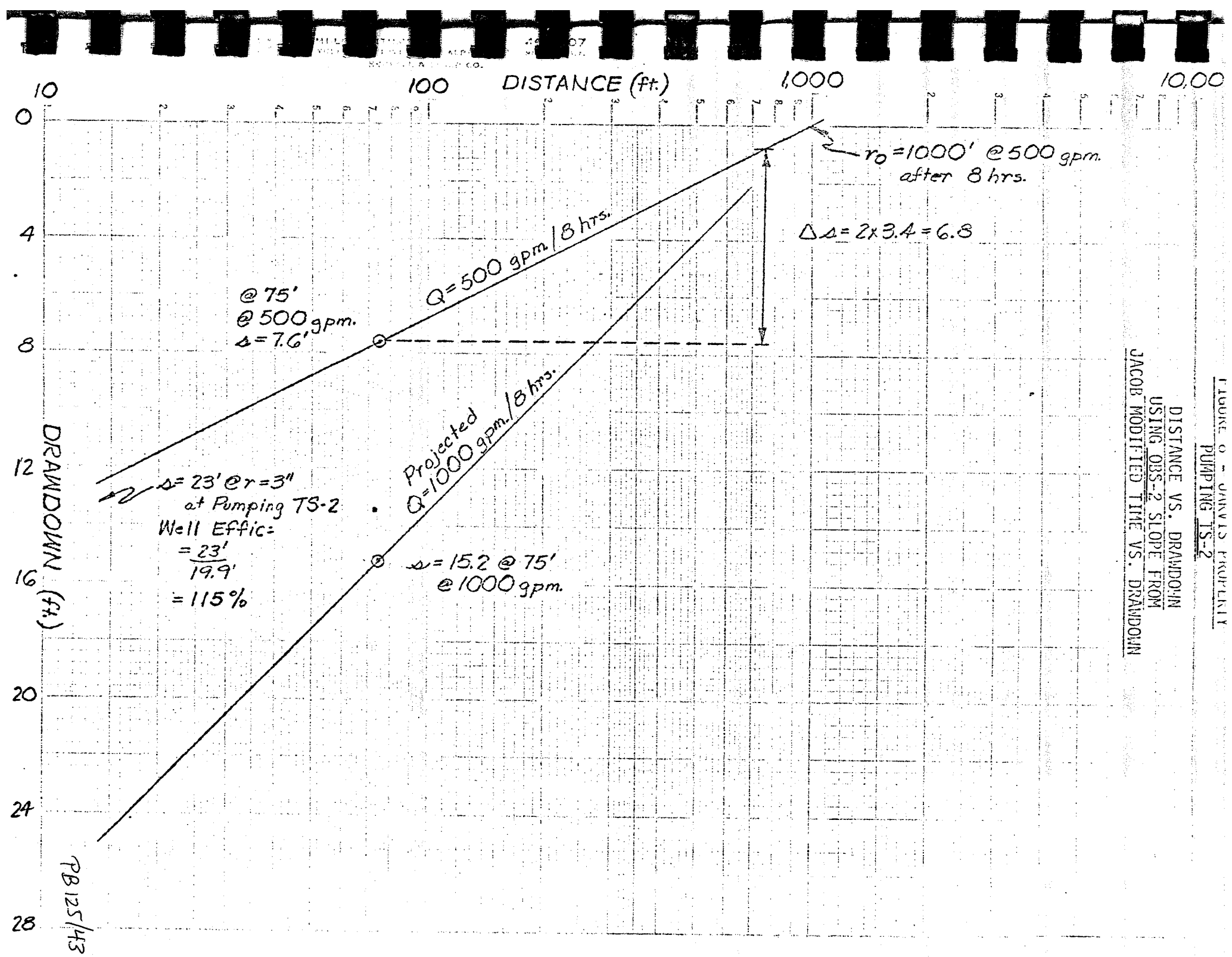
FIGURE 7 - JARVIS PROPERTY
PUMPING TS-1

USING OBS-2 SLOPE FROM
JACOB MODIFIED TIME VS. DRAWDOWN

DISTANCE VS. DRAWDOWN



PB125/43


DISTANCE (ft.)
10
100
1,000
10,00
DRAWDOWN (ft.)
0
4
8
12
16
20
24
28
r_o = 1000' @ 500 gpm. after 8 hrs.
Δs = 2x3.4 = 6.8
Q = 500 gpm / 8 hrs.
@ 75'
@ 500 gpm.
s = 7.6'
Projected
Q = 1000 gpm. / 8 hrs.
s = 23' @ r = 3" at Pumping TS-2
Well Effic:
= 23' / 19.9'
= 115%
s = 15.2 @ 75'
@ 1000 gpm.
FIGURE 6 - DRAWDOWN PROPERTY
PUMPING TS-2
DISTANCE VS. DRAWDOWN
USING OBS-2 SLOPE FROM
JACOB MODIFIED TIME VS. DRAWDOWN
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Hantush Modified / Jacob Modified Methods

SECTION III

AQUIFER ANALYSIS

SITE HYDROGEOLOGY

The Jarvis Property is underlain by surficial sands of the Pamlico Sand Formation and a series of sand, shell, marl, cemented shell, and calcareous sandstone strata belonging to the Anastasia Formation of Pleistocene age. These formations are collectively identified as the unconfined "shallow aquifer" in Palm Beach County as opposed to the deeper confined or artesian Floridan aquifer which contains high salinity water.

Recharge to the shallow aquifer is generally considered to be derived from the local rainfall and canal systems due to the aquifer's unconfined nature. However, some production zones within the Anastasia Formation in the Boynton Beach area are known to exhibit a semi-confined characteristic. Water initially withdrawn from wells cased into these zones is derived from compression of the aquifer and expansion of the water as well as from storage which leaks down through the overlying strata. This leakage from the shallower strata is, in turn, primarily recharged locally by rainfall and the canal system.

The test well program data indicates that the 200-foot depth production zones at the Jarvis Property are not unconfined. Since the 88-foot depth observation wells at both sites did not directly and proportionately respond to pumpage from the 200-foot zone, a restrictive

possibly also caused by partial pen.

PB125/43

layer, or aquitard, with limited vertical permeability must exist between the 88-foot and 200-foot depth. In fact, the water level in OBS-1 at test site 2 still had not responded after pumping the test well for 8 hours. However, it is believed that leakage from the shallower strata would eventually occur with continued pumpage as expected for a semi-confined aquifer.

HYDRAULIC CHARACTERISTICS OF AQUIFER

The log-log and semi-log data plots from the pumping tests (see Figures 2 through 5) were analyzed using both the Hantush Modified Method and the Jacob Modified Method, respectively, to determine the hydraulic characteristics of the aquifer. Taking into consideration the affects of partial penetration, boundary influences, well inefficiencies, and pumping duration, the following average transmissivity and storage coefficient values were calculated for the two test sites:

	Test Site 1	Test Site 2
Transmissivity	98,000 gpd/ft.	32,000 gpd/ft.
Storage Coefficient	0.016	0.019

Despite the fact that the 6-inch test wells at site 1 and site 2 had relatively similar drawdowns of 16'-6" and 19'-11", respectively, after 8 hours of pumping at 500 gpm, there was a substantial difference in the transmissivity values at the two sites. Analysis of the pumping

Boynton Beach Area due to the lack of isotropic/homogeneous aquifer conditions. The average transmissivity and storage coefficient values at the Jarvis property were calculated as 65,000 gallons/day/foot and 0.017, respectively. The low storage coefficient calculation reflects the short-term semi-confined response of the aquifer. However, long-term pumpage and leakage is expected to reveal a storage coefficient of at least 0.25, which is still lower than the 0.36 storage coefficient quoted for the same aquifer in the adjacent City of Delray Beach in the USGS Report of Investigations No. 67.

Short-term pumping test data available from the well field where Wells 12, 13 and 14 are located also indicates variability from well to well and average transmissivity and storage coefficient values of 63,000 gallons/day/foot and 0.11, respectively, which are fairly comparable to the Jarvis well field. Long-term pumpage here is also expected to show a stoage coefficient of at least 0.25. The only aquifer analysis data available for Wells 6 through 11 is an earlier transmissivity estimation of 80,000 gallons/day/foot by USGS Representative Harry Rodis. In addition, reported specific capacity values for Wells 6 through 14 are shown below in Table 5.

TABLE 5

SPECIFIC CAPACITY OF CITY WELLS

Well No.	Specific Capacity (GPM/Ft.)
6	88
7	88
8	94
9	36
10	50
11	90 Est.
12	38
13	61
14	20

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WATER & SEWER MAINS
SEPTIC TANK SERVICE

WATER WELLS
SIZE 6" TO 36"
8/10/76

PUMPING TEST DATA

Project: Jarvis Property Test Wells

Well: TS-2

Location: R.R. R/W

Date of Test: July 27, 1976

Equipment: Aurora Test Pump, 10AC6 Discharge Head, 2-Stage 6RH Bowl Assembly, 40' - 4" x 1" Column & Shaft 3450 RPM

Amarillo S40 Gear Drive - 1:2 Ratio

Failing CF-15 Drill Rig

Cook Well Strainer Water Level Indicators

Method of Determining Flow: 6" Pipe - 5" Orifice

Measurements: Top of 6" Casing Located 18" Above Ground Elevation
Top of 2" Obs. Wells located 18" Above Ground Elevation

Static Water Level: 8' 7"

Average Pumping Rate: 503 G.P.M.

Water Temperature: 72°

Depth of Well: 231' w/ 205' of 6" Casing & 26' of Stainless Steel Screen
Obs. #1 - 225' w/ 88' of 2" casing w/ screen
Obs. #2 - 215' w/ 215' of 2" casing w/ screen

Remarks: Sunny & Hot - Full Sun all day. 86° @ 8:30 AM
3 to 5 M.P.H. East Wind

Discharged Water into Open Ditch (Open Ditch where??

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WATER WELLS
SIZE 6" TO 36"

8/10/76

PUMPING TEST - TS-2

TIME	BBTS2P WATER LEVEL	DRAWDOWN	G.P.M.	BBTS21 WATER LEVEL OBS. #1	BBTS22 WATER LEVEL OBS. #2
				8.57	8.5
7:30 AM	8' 7" 8.58 Static			→ 8' 7" 8.58 →	8' 7" 8.5
8:00	25' 0" 25.0	16' 5" 16.41	495	8' 7" 8.58	8' 7" 8.5
8:01 1	25' 6" 25.50	16' 11" 16.91	500	8' 7" 8.58	8' 7" 8.5
8:02 2	26' 0" 26.0	17' 5" 17.41	503	8' 7" 8.58	8' 7" 8.5
8:03 3	26' 10" 26.83	18' 3" 18.25	"	8' 7" 8.58	8' 7" 8.5
8:04 4	26' 11" 26.91	18' 4" 18.33	"	8' 7" 8.58	8' 7" 8.5
8:05 5	27' 3" 29.25	18' 8" 18.66	"	8' 7" 8.58	8' 7" 8.5
8:06 6	27' 8" 27.66	19' 1" 19.08	"	8' 7" 8.58	8' 7" 8.5
8:07 7	27' 3" 27.25	18' 8" 18.66	"	8' 7" 8.58	8' 7" 8.5
8:08 8	27' 3" 27.25	18' 8" 18.66	"	8' 7" 8.58	8' 7" 8.5
8:09 9	27' 3" 27.25	18' 8" 18.66	"	8' 7" 8.58	8' 7" 8.5
8:10 10	27' 9" 27.75	19' 2" 19.16	"	8' 7" 8.58	8' 7" 8.5
8:15 15	27' 10" 27.83	19' 3" 19.25	"	8' 6" 8.50	9' 1" 9.0
8:20 20	27' 5" 27.41	18' 10" 18.83	495	8' 7" 8.58	9' 4" 9.3
8:25 25	27' 4" 27.33	18' 9" 18.75	488	8' 7" 8.58	9' 4" 9.3
8:30 30	27' 3" 27.25	18' 8" 18.66	488	8' 8" 8.66	9' 5" 9.4
8:40 40	27' 8" 27.66	19' 1" 19.08	503	8' 7" 8.58	10' 6" 10.5
8:50 50	27' 9" 27.75	19' 2" 19.16	"	8' 8" 8.66	15' 9" 15.1
9:00 1:00	27' 11" 27.91	19' 4" 19.33	510	8' 6" 8.50	15' 11" 15.9
9:10 1:10	28' 6" 28.50	19' 11" 19.91	"	8' 7" 8.58	16' 2" 16.1
9:20 1:20	28' 2" 28.16	19' 7" 19.58	503	8' 7" 8.58	16' 2" 16.1
9:30 1:30	28' 3" 28.25	19' 8" 19.66	"	8' 6" 8.50	16' 2" 16.1
10:30 2:30	28' 4" 28.33	19' 9" 19.75	"	8' 6" 8.50	16' 2" 16.1
11:30 3:30	28' 5" 28.41	19' 10" 19.83	"	8' 5" 8.41	16' 2" 16.1
12:30 PM 4:30	28' 6" 28.50	19' 11" 19.91	"	8' 5" 8.41	16' 2" 16.1
1:30 5:30	28' 6" 28.50	19' 11" 19.91	"	8' 5" 8.41	16' 2" 16.1
2:30 6:30	28' 6" 28.50	19' 11" 19.91	"	8' 5" 8.41	16' 2" 16.1
3:30 7:30	28' 6" 28.50	19' 11" 19.91	"	8' 5" 8.41	16' 2" 16.1
4:00 8:00	28' 6" 28.50	19' 11" 19.91	"	8' 5" 8.41	16' 2" 16.1
4:01 8:01	14' 0"				
4:02 8:02	13' 0"				
4:03 8:03	12' 5"				
4:04 8:04	10' 10"				
4:05 8:05	9' 6"				
4:30 8:30	9' 4"				

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WATER & SEWER MAINS
SEPTIC TANK SERVICE

WATER WELLS
SIZE 6" TO 36"

PUMPING TEST DATA

Project: Jarvis Property Test Wells

Well: TS-1

Location: E4 Canal

Date of Test: July 28, 1976

Equipment: Aurora Test Pump, 10AC6 Discharge Head, 2-Stage 6RH Bowl Assembly, 40' - 4" x 1" Column & Shaft 3450 RPM

Amarillo S40 Gear Drive - 1:2 Ratio

Failing CF-15 Drill Rig

Cook Well Strainer Water Level Indicators

Method of Determining Flow: 6" Pipe - 5" Orifice

Measurements: Top of Casing - All casings 18" Above Ground Elevation

Static Water Level: 5' 0"

Water Temperature: 73°

Depth of Wells: 237' w/ 202' 6" Casing & 20' Stainless Steel Well Screen
Obs. #1 - 150' w/ 88' 2" casing & Screen
Obs. #2 - 215' w/ 215' of 2" casing & Screen

Remarks: East wind with Rain in West - Rain & Showers from 9:00 AM 12:00 PM Hot and Sunny from Noon On

Discharged Water into E4 Canal

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WATER & SEWER MAINS
SEPTIC TANK SERVICE

WATER WELLS
SIZE 6" TO 36"

PUMPING TEST - TS-1

TIME	BBTS1P WATER LEVEL	DRAWDOWN	G.P.M.	BBTS11 WATER LEVEL OBS. #1	BBTS12 WATER LEVEL OBS. #2
7:30 AM 8:00	5' 0" 5.0	-	-	6' 4" 6.33	8' 0" 8.0
8:01 1	14' 0" 14.0	9' 0" 9.0	450	6' 8" 6.66	8' 2" 8.16
8:02 2	18' 0" 18.0	13' 0" 13.0	488	6' 9" 6.75	8' 2" 8.16
8:03 3	18' 9" 18.75	13' 9" 13.75	488	6' 9" 6.75	8' 2" 8.16
8:04 4	20' 0" 20.0	15' 0" 15.0	510	6' 9" 6.75	8' 2" 8.16
8:05 5	19' 6" 19.50	14' 6" 14.50	503	8' 4" 8.33	8' 2" 8.16
8:06 6	19' 3" 19.25	14' 3" 14.25	"	8' 4" 8.33	8' 2" 8.16
8:07 7	19' 4" 19.33	14' 4" 14.33	"	8' 5" 8.41	8' 5" 8.41
8:08 8	19' 6" 19.50	14' 6" 14.50	"	8' 5" 8.41	8' 6" 8.50
8:09 9	19' 8" 19.66	14' 8" 14.66	"	8' 5" 8.41	8' 6" 8.50
8:10 10	19' 10" 19.83	14' 10" 14.83	"	8' 5" 8.41	8' 7" 8.58
8:15 15	19' 10" 19.83	14' 10" 14.83	"	8' 5" 8.41	8' 7" 8.58
8:20 20	19' 11" 19.91	14' 11" 14.91	"	8' 5" 8.41	8' 11" 8.91
8:25 25	19' 11" 19.91	14' 11" 14.91	"	8' 5" 8.41	8' 11" 8.91
8:30 30	19' 10" 19.83	14' 10" 14.83	"	7' 6" 7.50	9' 2" 9.16
8:40 40	20' 1" 20.08	15' 1" 15.08	"	7' 6" 7.50	9' 4" 9.33
8:50 50	21' 6" 21.50	16' 6" 16.50	"	7' 6" 7.50	10' 6" 10.50
9:00 1:00	21' 8" 21.66	16' 8" 16.66	"	7' 6" 7.50	10' 7" 10.58
9:10 1:10	21' 8" 21.66	16' 8" 16.66	"	7' 6" 7.50	10' 7" 10.58
9:20 1:20	21' 8" 21.66	16' 8" 16.66	"	7' 5" 7.41	10' 7" 10.58
9:30 1:30	21' 8" 21.66	16' 8" 16.66	"	7' 2" 7.16	10' 7" 10.58
10:30 2:30	21' 6" 21.50	16' 6" 16.50	"	7' 0" 7.0	10' 7" 10.58
11:30 3:30	21' 5" 21.41	16' 5" 16.41	"	7' 0" 7.0	10' 7 10.58
12:30 4:30	21' 5" 21.41	16' 5" 16.41	"	7' 0" 7.0	10' 7" 10.58
1:30 5:30	21' 6" 21.50	16' 6" 16.50	"	7' 0" 7.0	10' 7" 10.58
2:30 6:30	21' 6" 21.50	16' 6" 16.50	"	7' 0" 7.0	10' 7" 10.58
3:30 7:30	21' 6" 21.50	16' 6" 16.50	"	7' 0" 7.0	10' 7" 10.58
4:00 8:00	21' 6" 21.50	16' 6" 16.50	"	7' 0" 7.0	10' 7" 10.58
4:01 8:01	9' 0" 9.0				
4:02 8:02	8' 2" 8.16				
4:03 8:03	7' 5" 7.41				
4:04 8:04	6' 7" 6.58				
4:05 8:05	6' 0" 6.0				
4:30 8:30	5' 2" 5.16				

SECTION II

TEST WELL DRILLING PROGRAM

TEST SITES

Since economics restricted testing to only two locations on the Jarvis Property, the test sites were selected in the northeast and southwest areas of the property to optimize the hydrogeologic coverage. At each site one 6-inch screened test well and two 2-inch screened observation wells were constructed. Combined with existing drilling and pumping test data from other wells, the results of the test program at the two sites were used to project the total capabilities of the proposed well field.

WELL DRILLING PROCEDURES

To facilitate selection of a final depth for the 6-inch test well in this relatively unexplored area of Boynton Beach, one of the 2-inch observation wells was drilled first. At both test sites a relatively permeable shell and sandstone strata was encountered between a depth of 70 feet and 90 feet. Screens were set at 82-88 feet in the OBS-1 at sites 1 and 2 to afford monitoring of this zone whether it was used for the production zone or to investigate leakage to deeper production zones if such were found.

The results of the pilot hole drilling for the 6-inch test well did, in fact, suggest that a higher permeability zone existed at a depth

of 200-230 feet. After installing the screens at that depth and confirming a good potential yield, the OBS-2 at both sites was completed at 215 feet to provide water level measurements within this production zone.

Rotary drilling equipment was used to construct both the 6-inch test wells and all the 2-inch observation wells. The screens were attached directly to the end of the 2-inch and 6-inch casings and set into the formations without gravel packing. The essentially sand-free 500 gpm water yield from both test wells suggested the possibility of a similar tubular screen construction for the proposed production wells. Further consideration should be given to this cost saving construction technique when final production well specifications are prepared.

PUMPING TESTS

Following the completion of well construction at both test sites, a temporary vertical turbine pump was installed in each 6-inch test well for conducting pumping tests. During each 8-hour test, the discharge rate was maintained at 500 gpm. Water levels at each site were measured in the test well in addition to OBS-1 and OBS-2, which were located at distances from the test well of 25 feet and 75 feet, respectively.

Water level measurements during the 8-hour test were taken every minute for the first 10 minutes, followed by every 5 minutes for the next 20 minutes, every 10 minutes for the next hour, and every hour thereafter. The drawdown data from the four deep wells was plotted on log-log and semi-log paper (see attached Figures 2 through 8) in preparation for the aquifer analysis performed on each test site.

B

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WATER & SEWER MAINS
SEPTIC TANK SERVICE

WATER WELLS
SIZE 6" TO 36"

FORMATION LOG

Project: Jarvis Property Test Wells

Well: 6" Test Well - TS-1

Location: E4 Canal

Drilling Date: June 10, 1976

Casing: 6" Casing to 202' w/ 20' Stainless steel Screen

Total Depth of Well: 237'

DEPTH	DESCRIPTION
0' - 21'	Sand
21' - 42'	"
42' - 58'	"
58' - 73'	Shell & Cemented Sand
73' - 88'	" " "
88' - 92'	Small Sand Rock & Shell, Unconsolidated
92' - 98'	" " " " " "
98' - 103'	Shell and Sand
103' - 108'	Sand w/ Shell
108' - 113'	Sand w/ Trace of White Shell fragments
113' - 118'	Black Sand w/ Trace of Shell Fragments
118' - 122'	" " " " "
122' - 127'	" " " " "
127' - 132'	" " " " "
132' - 137'	" " " " "
137' - 142'	" " " " "
142' - 147'	" " " " "
147' - 152'	Black Sand and Black Shell
152' - 157'	Sand and Black Shell
157' - 162'	Shell and Sand w/ Trace of Cemented Rock
162' - 167'	Gray Rock (Sand) w/ Shell Unconsolidated
	(More Sand Rock than Shell)
167' - 172'	" " " " " "
172' - 177'	" " " " " "
177' - 182'	" " " " " "
182' - 189'	" " " " " "
189' - 192'	" " " " " "
192' - 197'	" " " " " "

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SEPTIC TANK SERVICE

WATER WELLS
SIZE 6" TO 36"

6" Test Well - TS-1

FORMATION LOG CONT.

DEPTH	DESCRIPTION
197' - 202'	Shell & Gray Sand Rock
202' - 207'	Shell & Gray Sand Rock/ Trace of Solid Rock
207' - 212'	Light Gray Sand Rock w/ More Solid Rock
212' - 217'	Light Gray Sand Rock w/ Brown Solid Rock
217' - 222'	" " " " " " "
222' - 227'	Light Gray Sand Rock w/ Brown Rock & Shell
227' - 232'	Shell & Gray Sand Rock
232' - 237'	" " " "

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WATER & SEWER MAINS
SEPTIC TANK SERVICE

WATER WELLS
SIZE 6" TO 36"

FORMATION LOG

Project: Jarvis Property Test Wells

Well: Observation Well #1 - TS-1

Location: E4 Canal

Drilling Date: May 27, 1976

Casing: 2" Casing to 82' - Well Screen from 82' to 88'

Total Depth of Well: 150'

DEPTH	DESCRIPTION
0' - 5'	White Sand - Brown Sand @ 3'
5' - 11'	Sand
11' - 21'	"
21' - 41'	"
41' - 53'	"
53' - 57'	Coarse Sand
57' - 62'	Coarse Sand w/ Light Shell
62' - 67'	" " " " "
67' - 72'	Shell w/ Small Sand Rock and Sand
72' - 79'	" " " " " "
79' - 92'	" " " " " "
92' - 93'	Gray Marl w/ Shell, Small Sand Rock & Sand
93' - 97'	Shell, Sand Rock and Sand
97' - 100'	Shell and Sand
100' - 102'	Dark Shell w/ Sand
102' - 107'	" " "
107' - 112'	" " "
112' - 117'	Sand w/ Light Shell
117' - 122'	Dark Gray Sand
122' - 127'	" " "
127' - 132'	" " "
132' - 137'	" " "
137' - 142'	" " "
142' - 147'	" " "
147' - 152'	" " "

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A

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WATER & SEWER MAINS
SEPTIC TANK SERVICE

WATER WELLS
SIZE 6" TO 36"

FORMATION LOG

Project: Jarvis Property Test Wells

Well: Observation Well #1 - TS-2

Location: 725' + or - 14' N. of R.R. R/W

Drilling Date: May 26, 1976

Casing: 2" Casing to 82' - Well Screen from 82' to 88'

DEPTH	DESCRIPTION
0' — 20'	Sand
20' - 41'	"
41' - 45'	"
45' - 57'	Green Marl and Sand
57' - 62'	Sand and Shell some Green Marl
62' - 67'	Sand, Small Shell w/ Green Marl
67' - 72'	Sand and Small Gray Rock
72' - 74'	Sand and Trace of Gray Rock
74' - 76'	Ledge Rock
76' - 79'	Sand and Trace of Gray Rock
79' - 83'	" " " " "
83' - 84'	Ledge Rock, Gray
84' - 87'	Sand and Shell, Trace of Gray Rock
87' - 92'	Sand, Shell and Sand Rock (Unconsolidated)
92' - 97'	Shell w/ Trace of White Marl
97' - 102'	Sand and Shell w/ Gray Marl
102' - 107'	Sand and Shell
107' - 112'	" " "
112' - 117'	" " "
117' - 122'	" " "
122' - 127'	" " "

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WATER & SEWER MAINS
SEPTIC TANK SERVICE

WATER WELLS
SIZE 6" TO 36"

Observation Well #1 -
TS-2
FORMATION LOG CONT.

DEPTH	DESCRIPTION
127' - 129'	Gray Marl w/ Shell
129' - 132'	Shell and Sand
132' - 137'	" " "
137' - 142'	Shell and Blue Marl
142' - 147'	" " " "
147' - 152'	" " " "
152' - 157'	" " " "
157' - 164'	Shell & Sand
164' - 170'	Rock very small, Light Sand Rock, Shell Some Ma
170' - 175'	" " " " " " " "
175' - 187'	Shell, Sand, Light Marl
187' - 192'	Shell, very Light Marl, Gray Rock & Sand
192' - 194'	Shell, Shell, No Marl
194' - 200'	Shell, Small Gray Rock w/ Sand
200' - 210'	Small Gray Rock, Shell, More Rock than Shell
210' - 220'	" " " " " " " "
220' - 225'	" " " " " " " "

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WATER & SEWER MAINS
SEPTIC TANK SERVICE

WATER WELLS
SIZE 6" TO 36"

FORMATION LOG

Project: Jarvis Property Test Wells

Well: Observation Well #2, TS-1

Location: E4 Canal

Casing: 2" Casing w/ Screen to 215'

Total Depth: 215'

DEPTH	DESCRIPTION
0' - 10'	Sand
10' - 20'	"
20' - 40'	"
40' - 60'	"
60' - 65'	"
65' - 75'	Sand & Cemented Shell
75' - 80'	" " " "
80' - 90'	Sand & Small Shell
90' - 95'	" " "
95' - 105'	Sand w/ Shell (Hard @ 98')
105'- 115'	Small Shell w/ Sand
115'- 125'	Black Sand and Shell
125'- 135'	" " " "
135'- 145'	" " " "
145'- 155'	" " " "
155'- 160'	" " " "
160'- 170'	Unconsolidated Gray Sand Rock w/ Shell
170'- 180'	" " " " " "
180'- 190'	" " " " " "
190'- 200'	Shell and Gray Sand Rock
200'- 210'	" " " " "
210'- 215'	" " " " "

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WATER & SEWER MAINS
SEPTIC TANK SERVICE

WATER WELLS
SIZE 6" TO 36"

FORMATION LOG

Project: Jarvis Property Test Wells

Well: Observation Well #2- TS-2

Location: R. R. R/W

Drilling Date: June 8, 1976

Casing: 2" w/ Screen - Total Depth-215'

DEPTH	DESCRIPTION
0' - 20'	Sand
20' - 42'	"
42' - 58'	"
58' - 63'	Sand w/ Trace of Rock
63' - 68'	Sand and Green Marl
68' - 73'	Sand Rock w/ Trace of Marl
73' - 78'	Unconsolidated Sand Rock
78' - 83'	" " " "
83' - 88'	" " " "
88' - 93'	" " " "
93' - 103'	" " " "
103' - 113'	" " " "
113' - 132'	" " " "
132' - 153'	" " " "
153' - 158'	Sand & Shell
153' - 163'	" "
163' - 167'	Sand & Shell, Trace
167' - 173'	Sand, Trace of Shell
173' - 178'	" " "
178' - 183'	" " "
183' - 188'	" " "
188' - 193'	Sand & Shell, Gray Rock w/ Trace of Marl
193' - 198'	" " " " " " "
198' - 203'	Gray Rock and Shell
203' - 208'	" " " "
208' - 213'	Gray Rock w/ Trace of Shell
213' - 215'	" " " " "

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C

WATER & SEWER MAINS
SEPTIC TANK SERVICE

WATER WELLS
SIZE 6" TO 36"

FORMATION LOG

Project: Jarvis Property Test Wells

Well: 6" Test Well - TS-2

Location: 700' + or - N. E. Corner R.R. R/W

Drilling Date: May 31, 1976

DEPTH	DRILLING TIME	DESCRIPTION
0' - 20'	8 Minutes	White Sand
20' - 42'	9 " "	" "
42' - 58'	6 " "	" "
58' - 63'	4.5 " "	" "
63' - 65'	5 " "	White Sand w/ Trace of Green Marl
65' - 66'	7 " "	" " " " " "
66' - 67'	7 " "	Ledge Rock
67' - 73'	3 " "	Unconsolidated Sand Rock
73' - 78'	2.5 " "	" " " "
78' - 83'	2 " "	" " " "
83' - 88'	2.5 " "	" " " "
88' - 93'	2 " "	" " " "
93' - 98'	2 " "	Unconsolidated Sand Rock w/ Trace of White Marl
98' - 103'	2 " "	Unconsolidated Sand Rock
103'- 108'	3 " "	Small Shell and Sand
108'- 113'	4 " "	" " " "
113'- 118'	5 " "	Large Shell & Sand, Trace of Rock
118'- 123'	5 " "	Small Shell & Sand
123'- 128'	4 " "	" " "
128'- 133'	5.5 " "	" " "
133'- 138'	5.5 " "	" " "
138'- 143'	5.5 " "	" " "
143'- 148'	5.5 " "	" " "
148'- 150'	2.5 " "	" " "

Started Drilling w/ 200 Gallons of Drilling Fluid Mixed back to 200 Gallons @ 42', 85' and 118'

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WATER & SEWER MAINS
SEPTIC TANK SERVICE

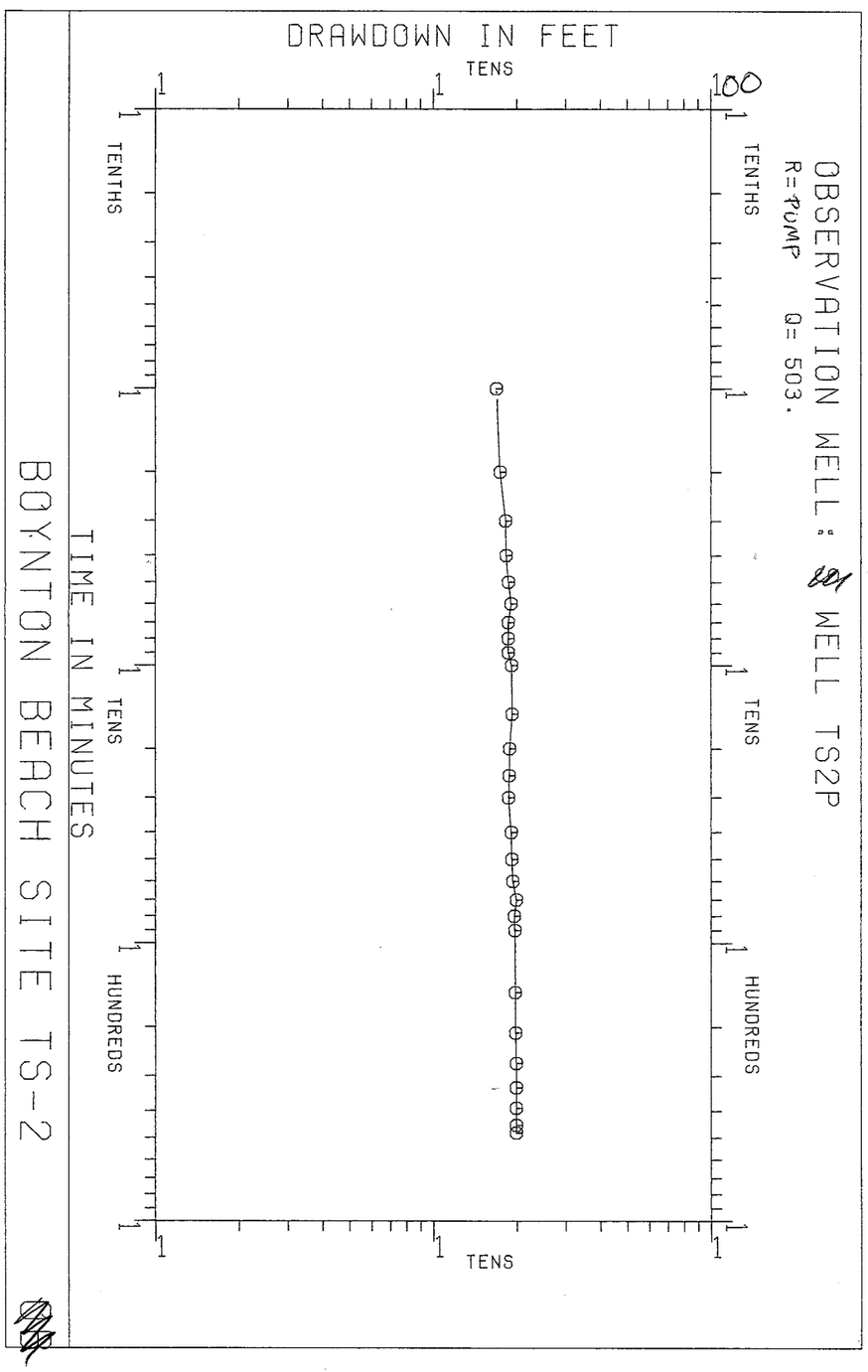
WATER WELLS
SIZE 6" TO 36"

FORMATION LOG CONT.

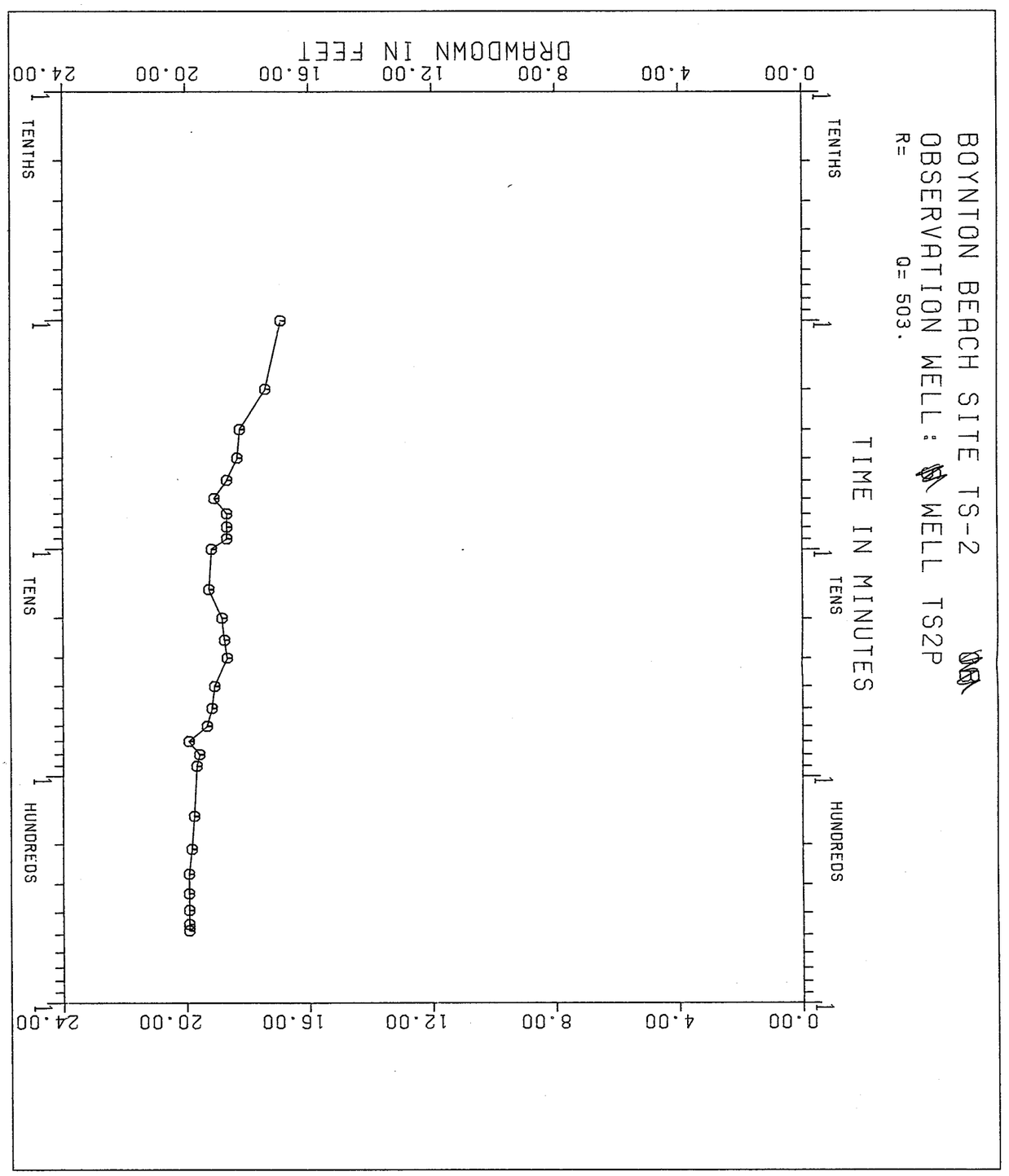
6" Test Well - TS-2

DEPTH	DRILLING TIME	DESCRIPTION
150' - 153'	3 Minutes	Small Shell & Sand
153' - 158'	7 " "	Sand & Shell
158' - 163'	7 " "	" "
163' - 168'	8 " "	Sand, Trace of Shell
168' - 172'	8 " "	" " "
172' - 177'	6 " "	Sand, Shell Light Marl (Blue)
177' - 182'	5 " "	" " " " "
182' - 187'	4 " "	" " " " "
187' - 192'	5 " "	Shell, Light Marl w/ Gray Rock, Ligh Sand
192' - 194'	4 " "	Shell w/ Small Gray Rock & Sand (More rock than sand)
194' - 200'	3 " "	" " " " "
200' - 205'	6.5 " "	Shell w/ Small Gray Rock & Sand (More rock than shell)
205' - 210'	8.5 " "	" " " " " "
210' - 215'	7 " "	" " " " " "
215' - 220'	6.5 " "	" " " " " "
220' - 225'	7.5 " "	" " " " " "
225' - 231'	8 " "	" " " " " "

WMD TAPENO 6364 PLOT NO 0062
USER NO SHINE DATE 87/05/05 TIME 13:31



WMD TAPENO 6153 PLOT NO 0010
USER NO SHINE DATE 87/07/31 TIME 08:53



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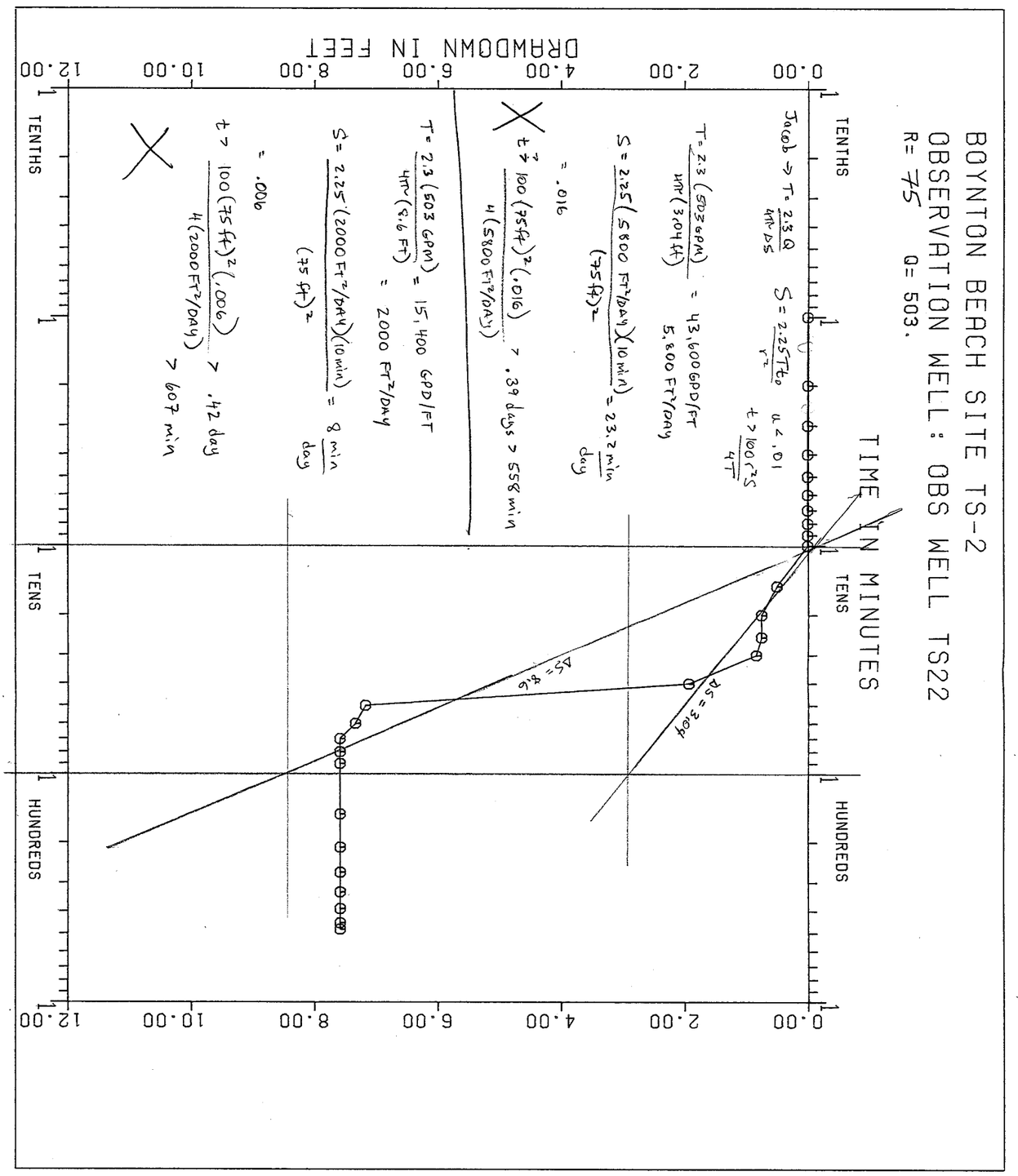
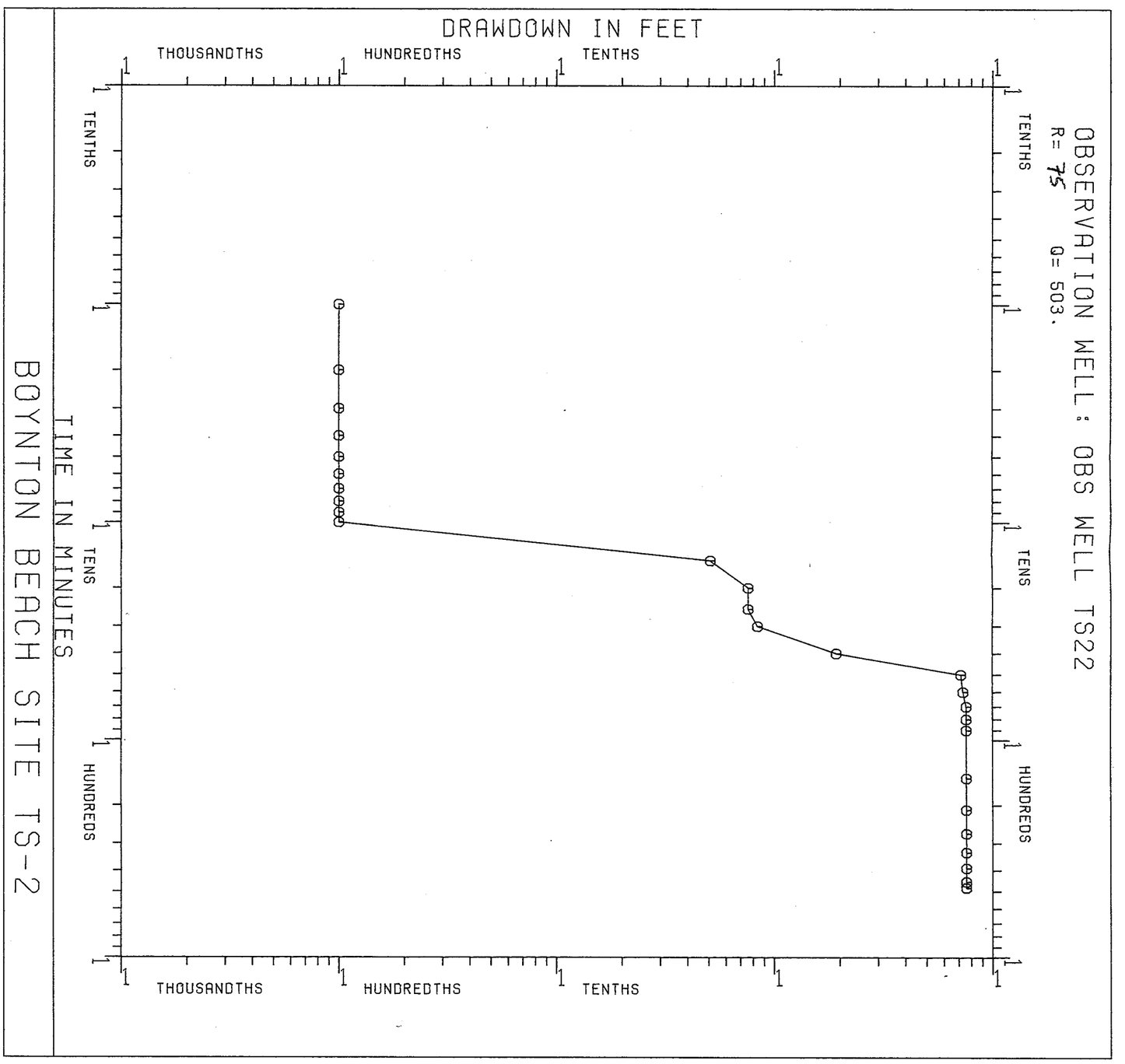
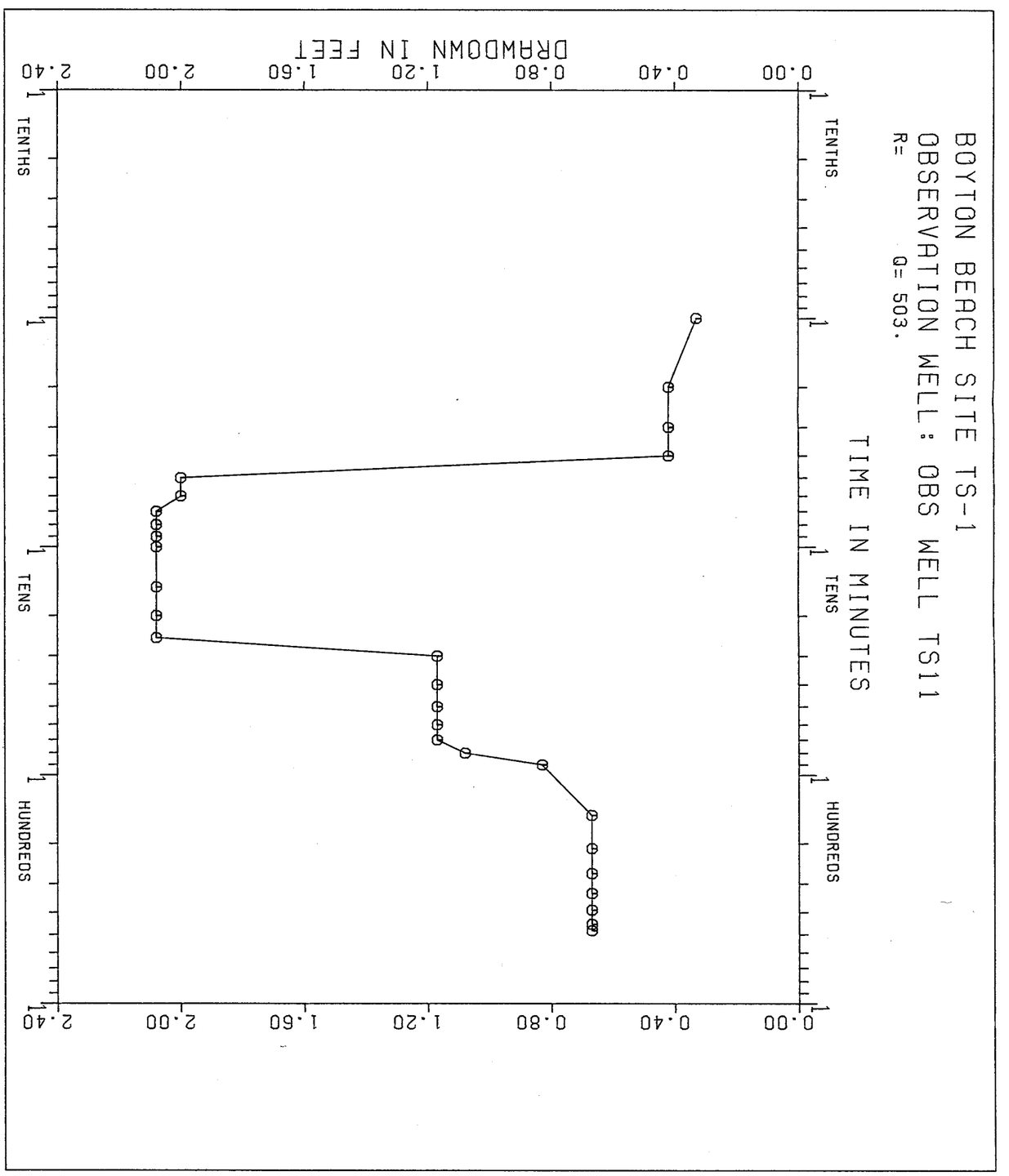
USER NO SHINE DATE 87/07/31 TIME 09:03



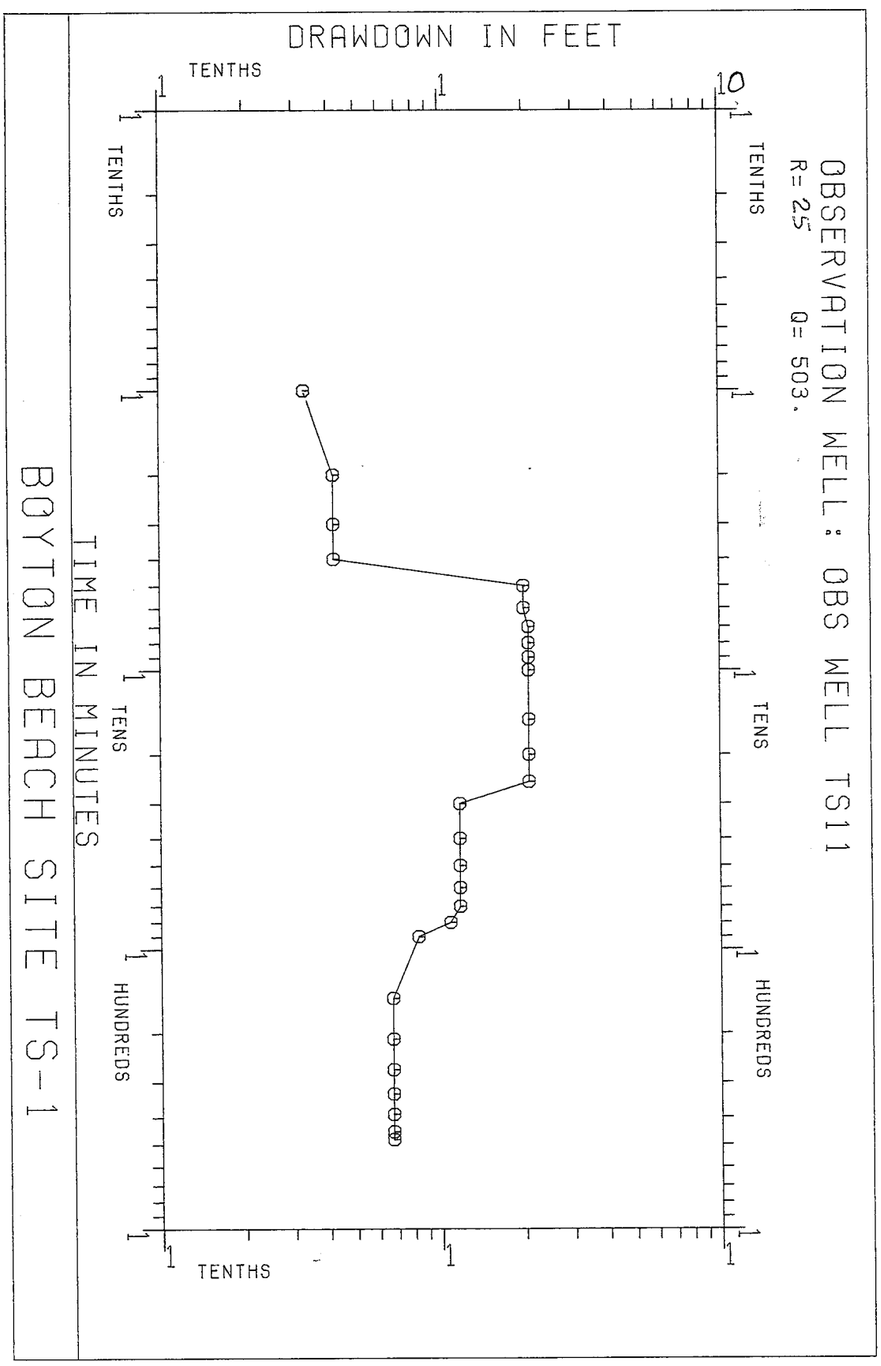
WMD TAPENO 6355 PLOT NO 0083
USER NO SHINE DATE 87/06/11 TIME 13:49



WMD TAPENO 6153 PLOT NO 0004
USER NO SHINE DATE 87/07/31 TIME 08:50



WMD TAPENO 6364 PLOT NO 0056
USER NO SHINE DATE 87/05/05 TIME 13:29

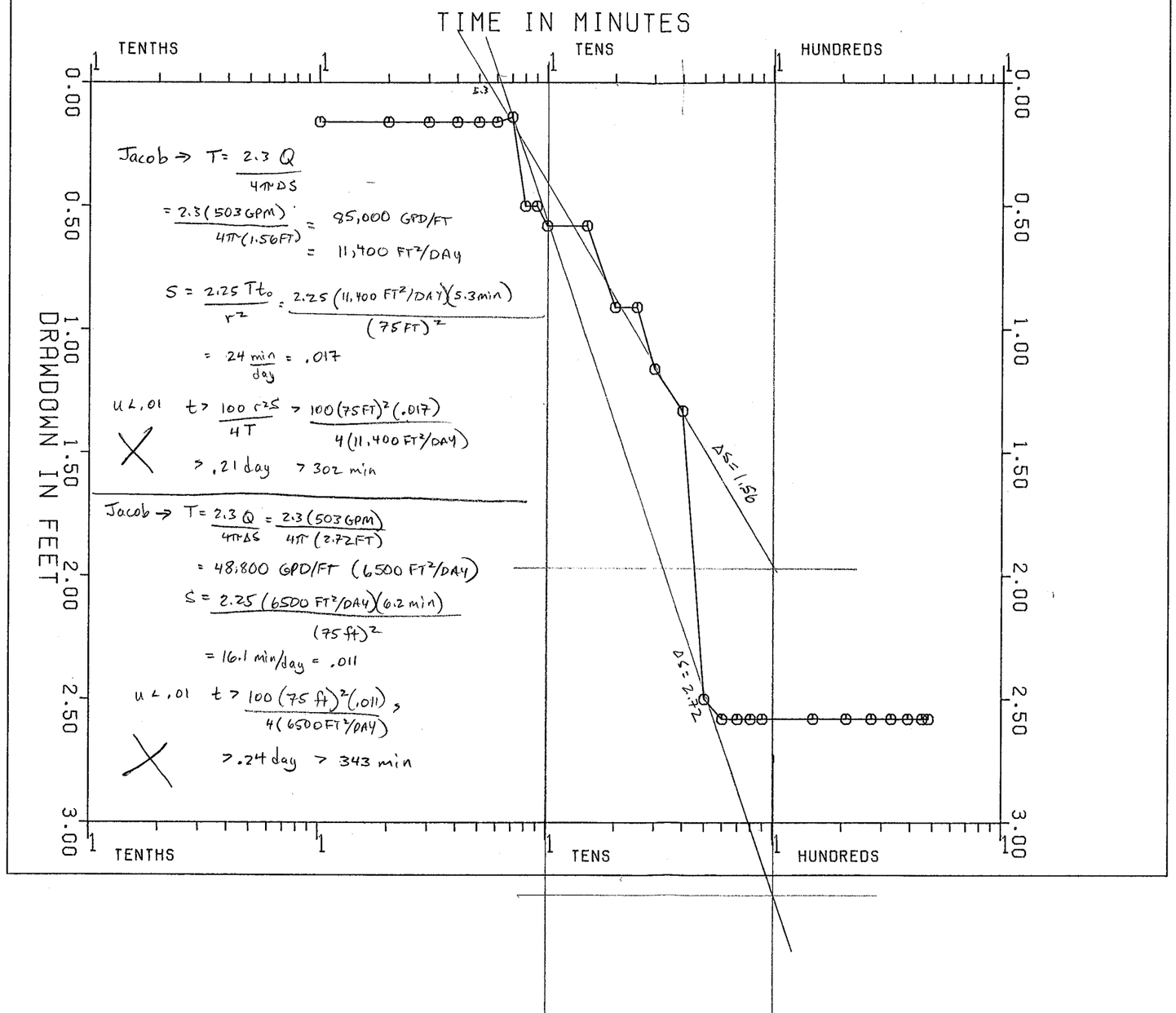


WMD TAPENO 6153 PLOT NO 0007
USER NO SHINE DATE 87/07/31 TIME 08:52

BOYTON BEACH SITE TS-1

OBSERVATION WELL: OBS WELL TS12

R= 75 Q= 503.



Jacob → $T = \frac{2.3\,Q}{4\pi\Delta s}$

$= \frac{2.3(503\,GPM)}{4\pi(1.56FT)} = 85{,}000\ GPD/FT$

$= 11{,}400\ FT^2/DAY$

$S = \frac{2.25\,Tt_o}{r^2} = \frac{2.25\,(11{,}400\ FT^2/DAY)(5.3\,min)}{(75FT)^2}$

$= 24\ \frac{min}{day} = .017$

u<.01 $t > \frac{100\,r^2S}{4T} > \frac{100(75FT)^2(.017)}{4(11{,}400\ FT^2/DAY)}$

> .21 day > 302 min

Jacob → $T = \frac{2.3\,Q}{4\pi\Delta s} = \frac{2.3(503\,GPM)}{4\pi(2.72FT)}$

$= 48{,}800\ GPD/FT\ (6500\ FT^2/DAY)$

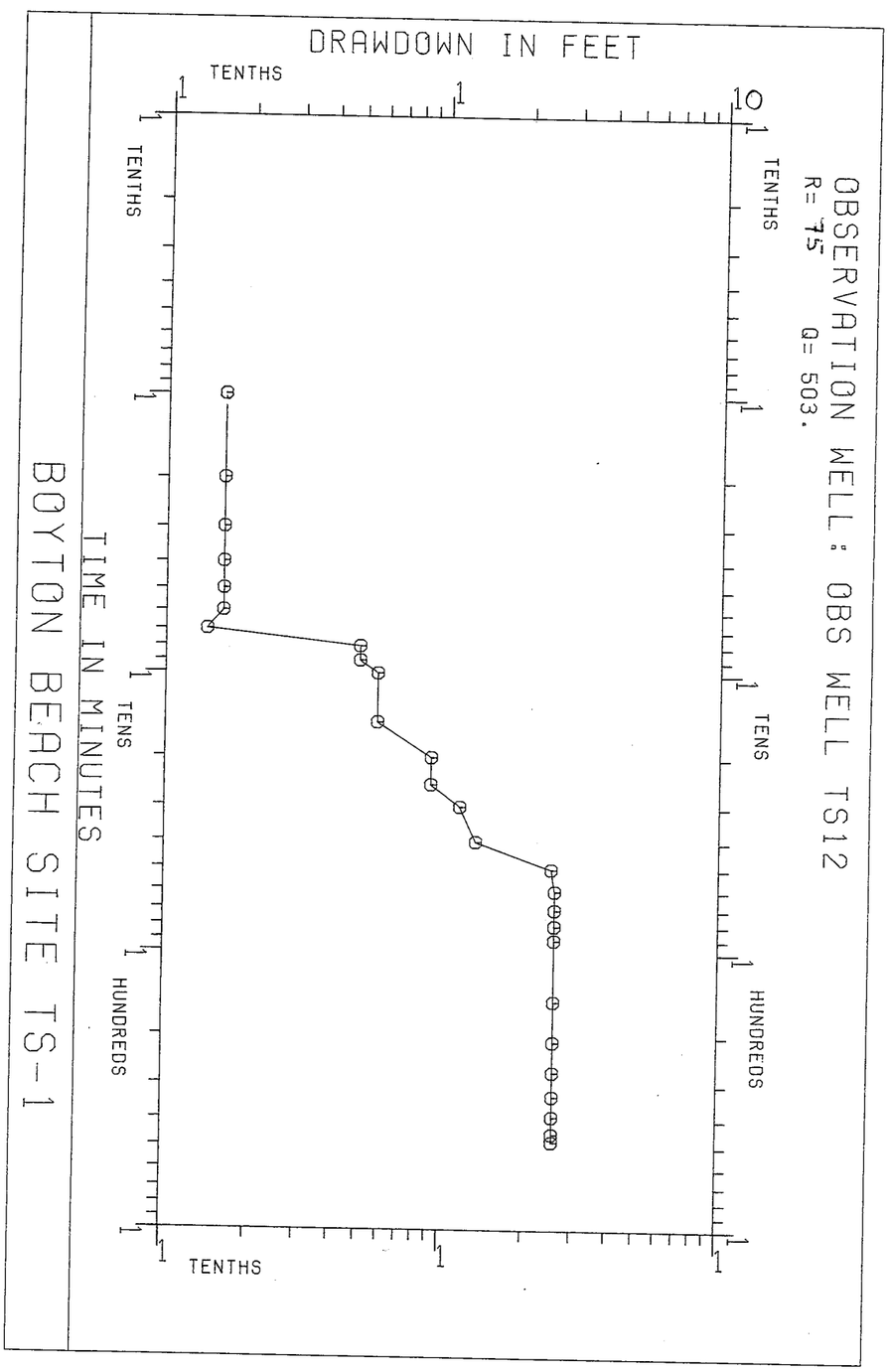
$S = \frac{2.25\,(6500\ FT^2/DAY)(6.2\,min)}{(75\,ft)^2}$

$= 16.1\ min/day = .011$

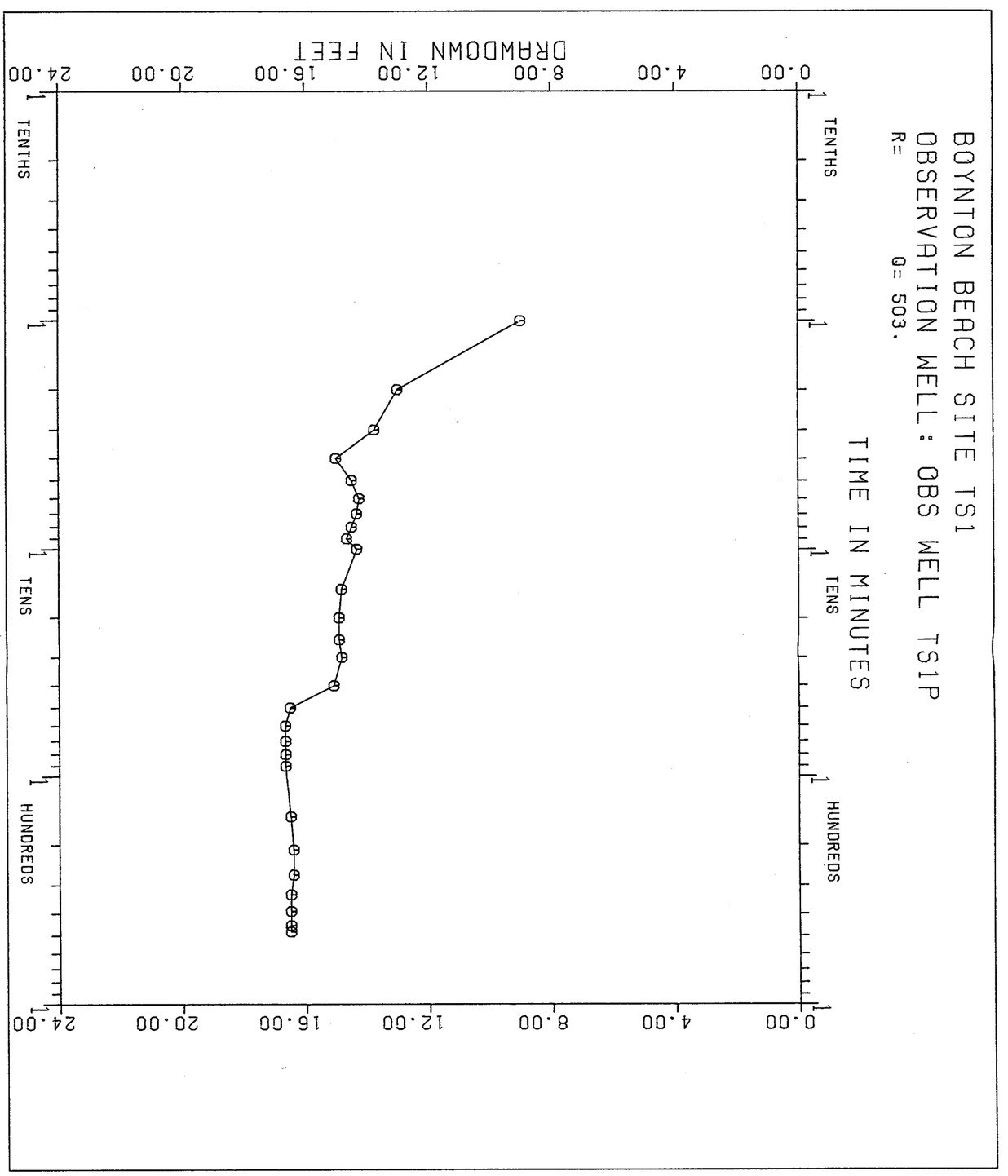
u<.01 $t > \frac{100\,(75\,ft)^2(.011)}{4(6500\,FT^2/DAY)}$,

> .24 day > 343 min

WMD TAPENO 6364 PLOT NO 0059
USER NO SHINE DATE 87/05/05 TIME 13:29



WMD TAPENO 6153 PLOT NO 0001
USER NO SHINE DATE 87/07/31 TIME 08:42



WMD TAPENO 6158 PLOT NO 0120
USER NO SHINE DATE 87/05/11 TIME 16:02