HIGHWAY FEASIBILITY STUDIES, LATTAKIA REGION

TECHNICAL AND ECONOMIC FINAL REPORT

Lattakia to Kassab
Volume II

prepared for the
SYRIAN ARAB REPUBLIC
and the
U.S. AGENCY for INTERNATIONAL DEVELOPMENT

LYON associates, inc.

in association with
MORRISON - MAIERLE, INC. and
JAMES R. SNITZLER ASSOCIATES, INC.

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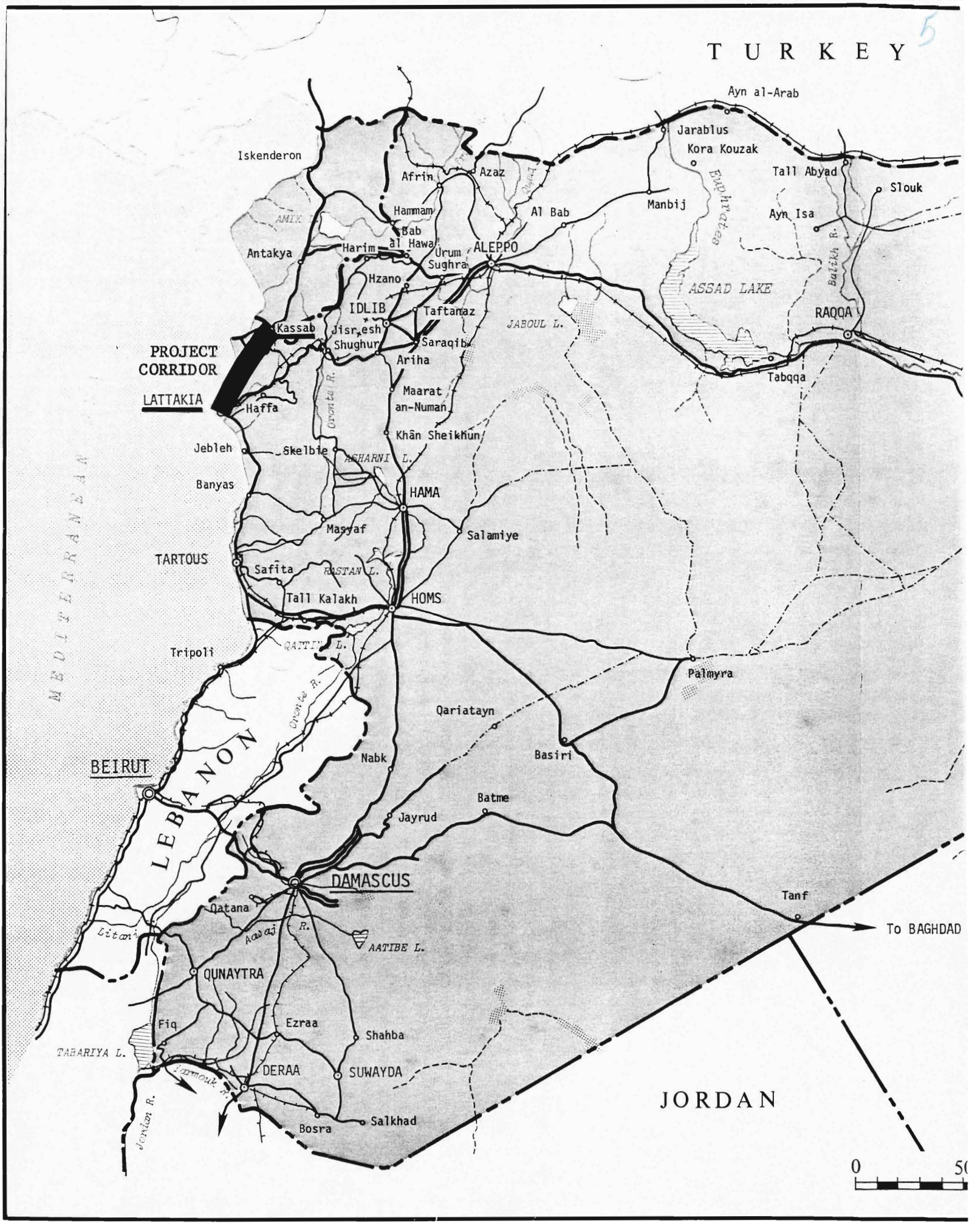
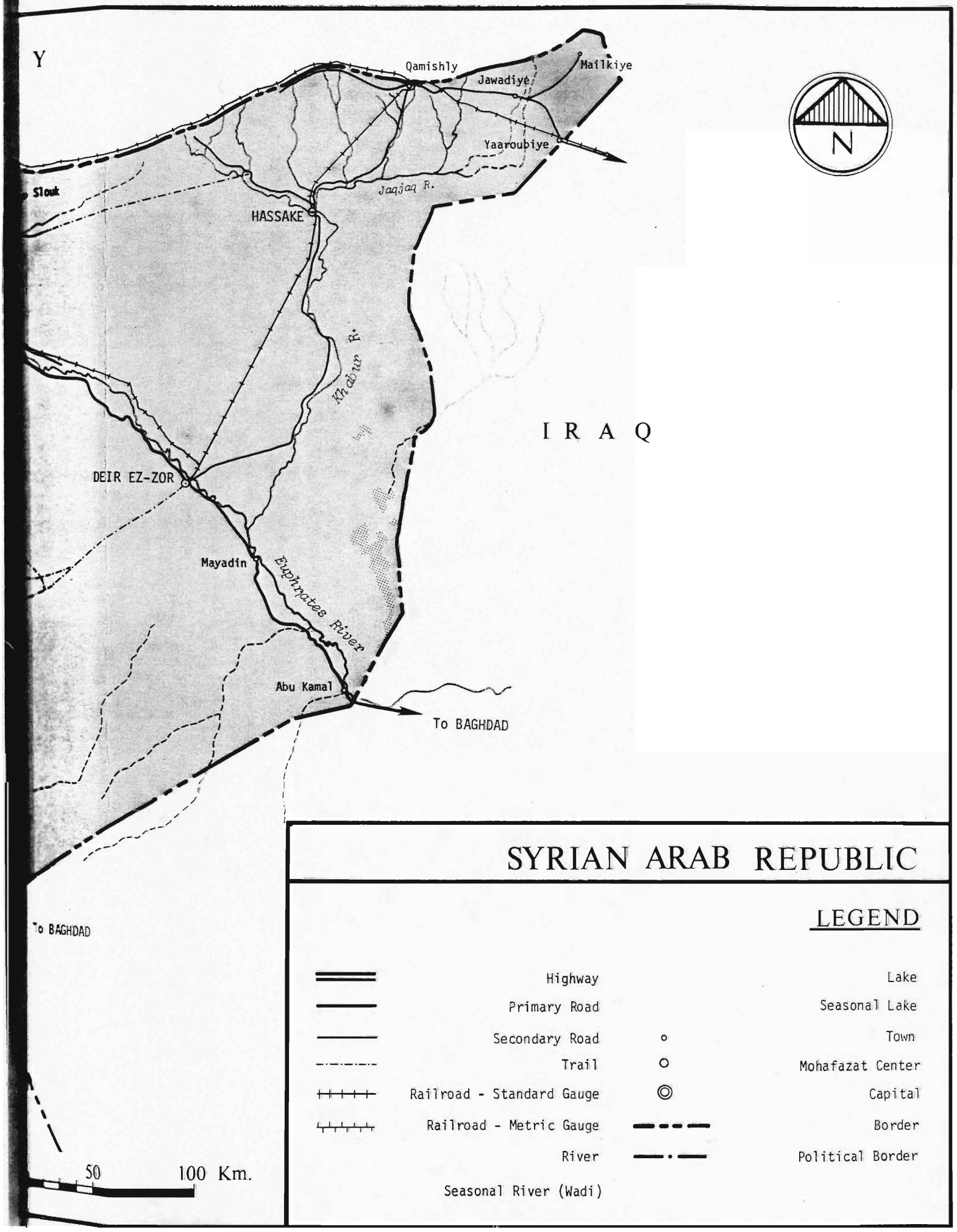
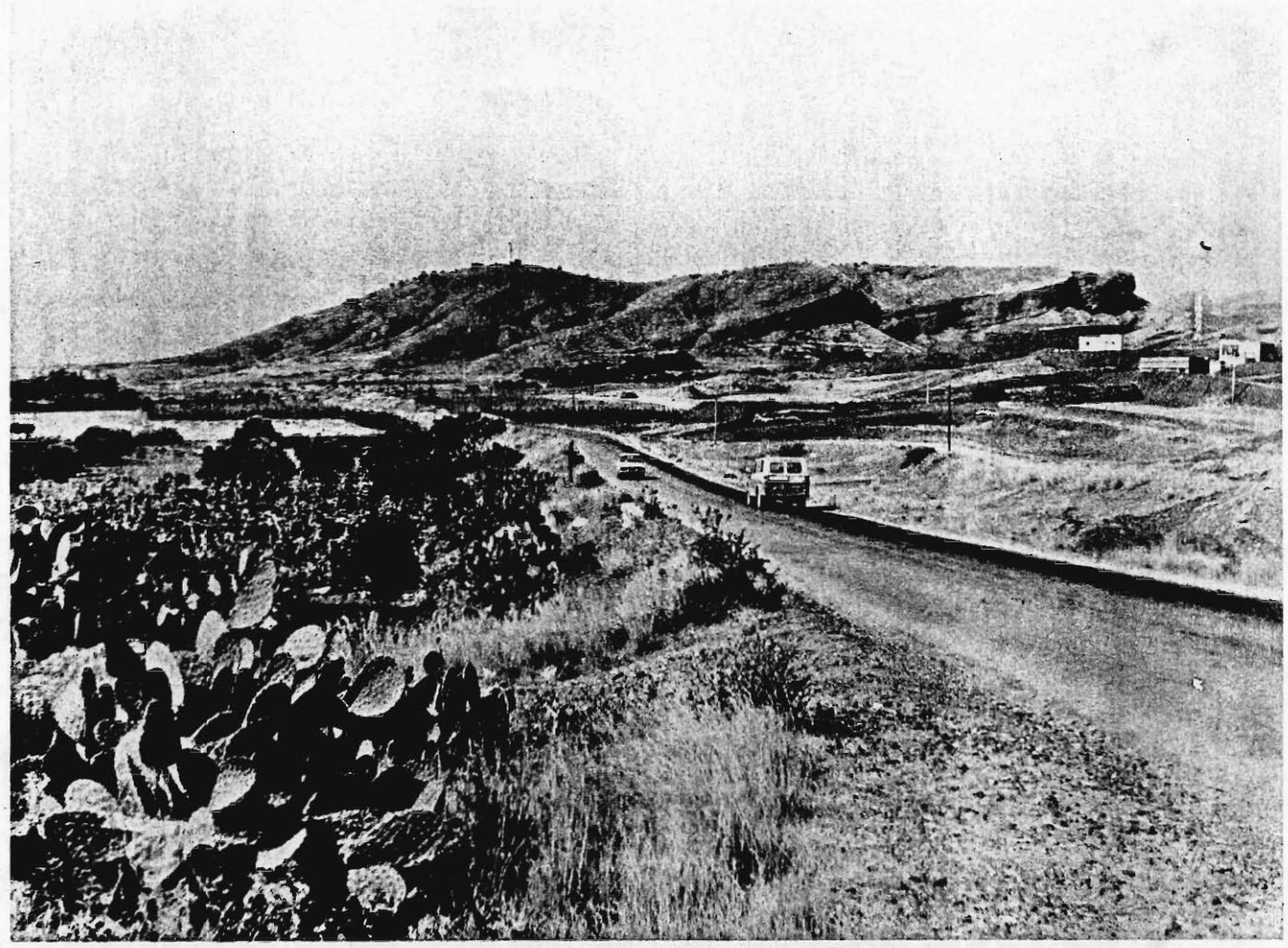

TURKEY
Ayn al-Arab
Jarablus
Kora Kouzak
Tall Abyad
Slouk
Iskenderon
Afrin
Azaz
Manbij
Al Bab
Ayn Isa
Euphrates
Balikh R.
AMIK
Hammam
Bab al Hawa
Antakya
Harim
Urum Sughra
ALEPPO
Hzano
ASSAD LAKE
IDLIB
Taftanaz
RAQQA
Kassab
Jisr esh Shughur
Saraqib
JABOUL L.
PROJECT CORRIDOR
Ariha
Tabqqa
LATTAKIA
Haffa
Orontes R.
Maarat an-Numan
Khân Sheikhun
Jebleh
Skelbie
AGHARNI L.
Banyas
HAMA
Masyaf
Salamiye
TARTOUS
Safita
RASTAN L.
Tall Kalakh
HOMS
MEDITERRANEAN
Tripoli
QATTIN L.
Palmyra
Qariatayn
LEBANON
Nabk
Basiri
BEIRUT
Batme
Jayrud
DAMASCUS
Tanf
Qatana
Litani
Aawaj R.
AATIBE L.
To BAGHDAD
QUNAYTRA
Fiq
Ezraa
Shahba
TABARIYA L.
DERAA
SUWAYDA
Yarmouk R.
Jordan R.
JORDAN
Bosra
Salkhad
0
50


Y
Qamishly
Mailkiye
Jawadiye
Yaaroubiye
Slouk
Jaqjaq R.
HASSAKE
Khabur R.
IRAQ
DEIR EZ-ZOR
Mayadin
Euphrates River
Abu Kamal
To BAGHDAD
To BAGHDAD
N
SYRIAN ARAB REPUBLIC
LEGEND
Highway
Primary Road
Secondary Road
Trail
Railroad - Standard Gauge
Railroad - Metric Gauge
River
Seasonal River (Wadi)
Lake
Seasonal Lake
Town
Mohafazat Center
Capital
Border
Political Border
50
100 Km.



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APPENDIX A

LYON

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LEGEND

PLAN

EXISTING

- CONTOUR
- PAVED ROAD
- UNPAVED ROAD
- FOOTPATH
- IRRIGATION CHANNEL
- DRAINAGE COURSE
- TERRACE
- RIVER
- BUILDING OR STRUCTURE

PROPOSED

- ℄ OF CONSTRUCTION
- INTERSECTION
- VIADUCT
- RIVER CROSSING
- POINT OF INTERSECTION
- PC OR PT STATION

PROFILE

EXISTING

- EXISTING GROUND LINE

PROPOSED

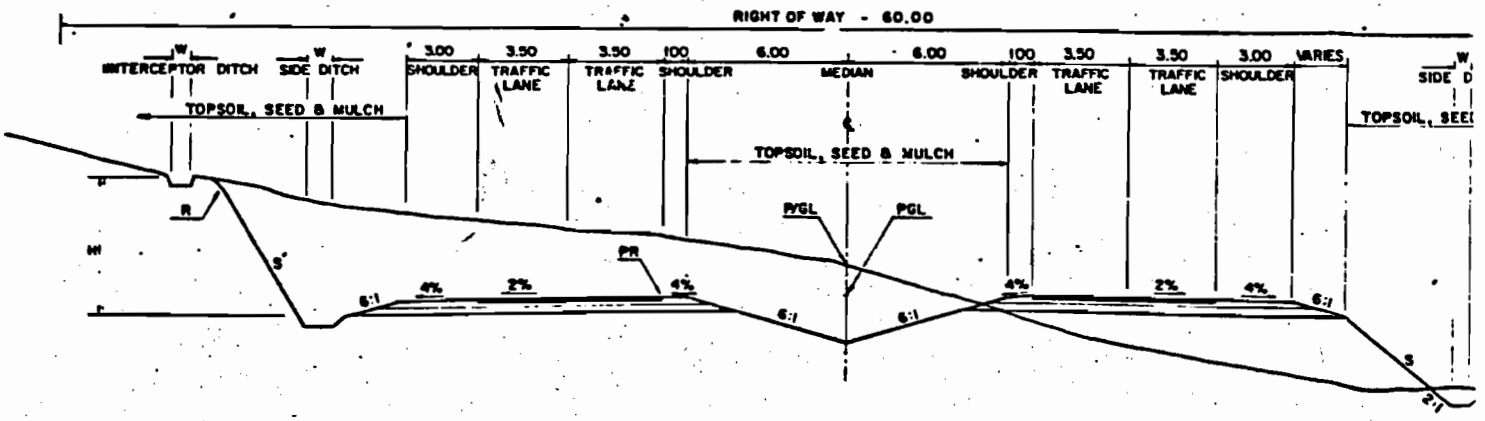
- PROFILE GRADE LINE
- PVC OR PVT STATION
- POINT OF INTERSECTION

ABBREVIATIONS

PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
PI	POINT OF INTERSECTION
Δ	DELTA (CURVE CENTRAL ANGLE)
T	TANGENT LENGTH
R	RADIUS
L	LENGTH OF HORIZONTAL CURVE
PVC	POINT OF VERTICAL CURVATURE
PVT	POINT OF VERTICAL TANGENCY
PVI	POINT OF VERTICAL INTERSECTION
LVC	LENGTH OF VERTICAL CURVE
CORR.	VERTICAL OFFSET FROM PVI TO MIDDLE OF CURVE

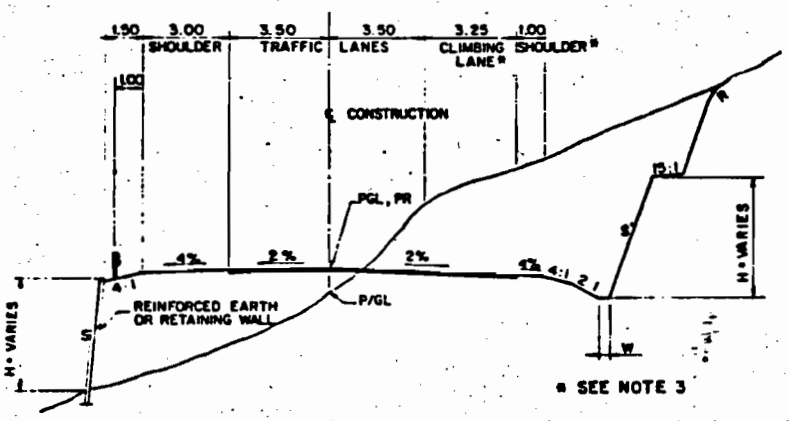
NOTES

1. ALL DIMENSIONS SHOWN ON THE DRAWINGS ARE IN METERS.
2. THE VERTICAL DATUM FOR THE SURVEY IS MEAN SEA LEVEL IN METERS.
3. TOPOGRAPHY SHOWN ON THE PLANS FROM KM 100+000 TO KM 128+400± IS OBTAINED FROM 1:5000 AERIAL MAPPING FURNISHED BY THE MINISTRY OF COMMUNICATIONS. KM 128+400± TO KM 130+800± IS OBTAINED FROM A 1:50000 TOPOGRAPHIC MAP AND FROM KM 130+800± TO KM 149+300± IS OBTAINED FROM 1:10000 MAPS OF THE MINISTRY OF AGRICULTURE.



TYPICAL SECTION

KM 100± TO KM 114±
NOT TO SCALE



TYPICAL SECTION

KM 114± TO KM 132±
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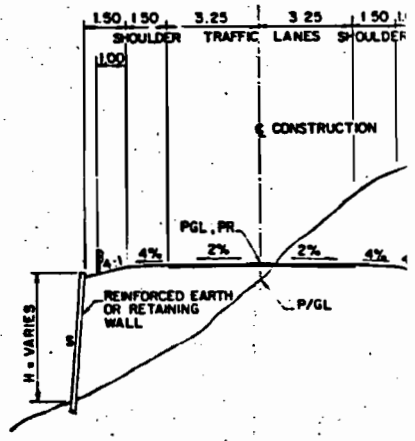

TYPICAL SECTION

KM 132± TO KM 149±
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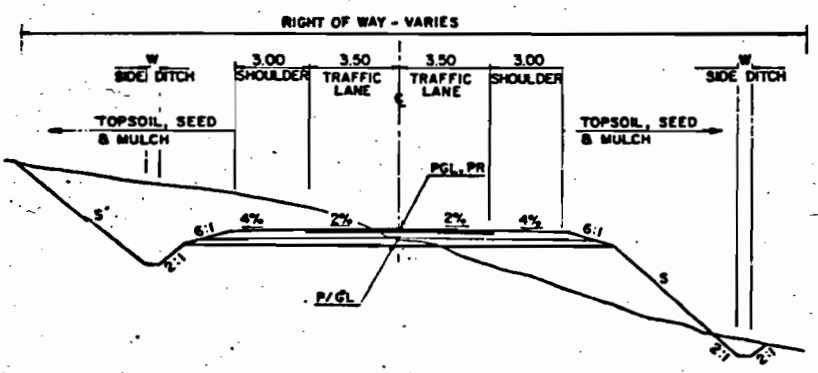
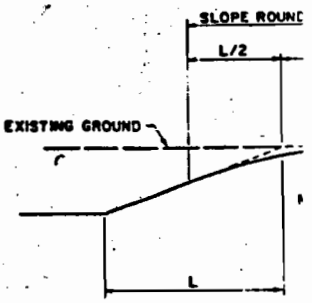


TYPICAL CROSSROAD

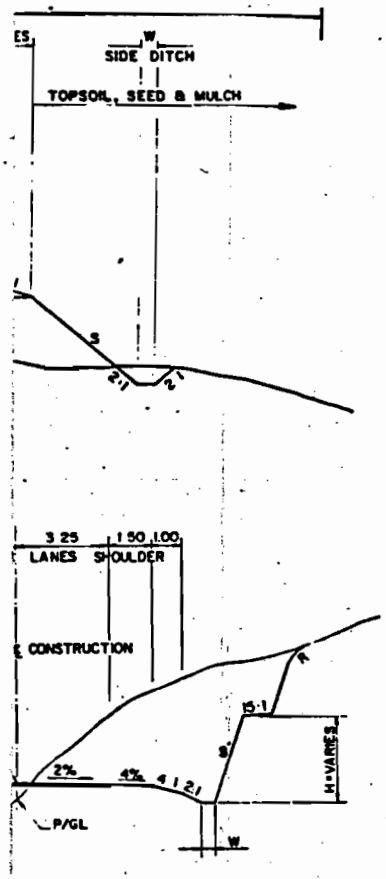
NOT TO SCALE



SLOPE ROUND

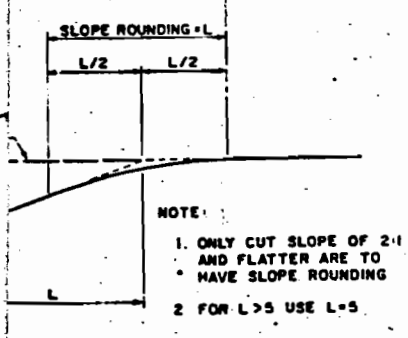
NOT TO SCALE

NOT TO SCALE.	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGH Preliminary Engineering ROADWAY SECTIONS



SECTION

O KM 149±
O SCALE



NOTE:

1. ONLY CUT SLOPE OF 2:1 AND FLATTER ARE TO HAVE SLOPE ROUNDING
2. FOR L>5 USE L=5

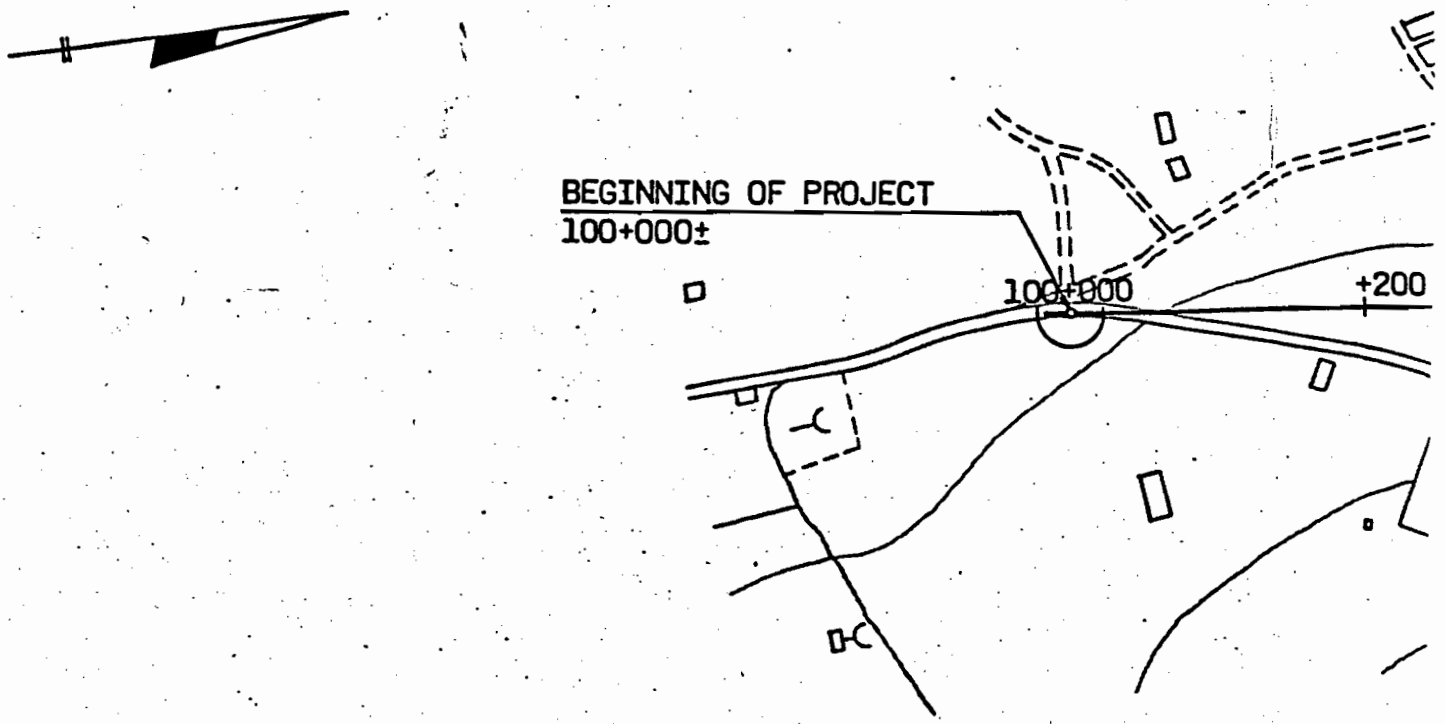
PE ROUNDING
NOT TO SCALE

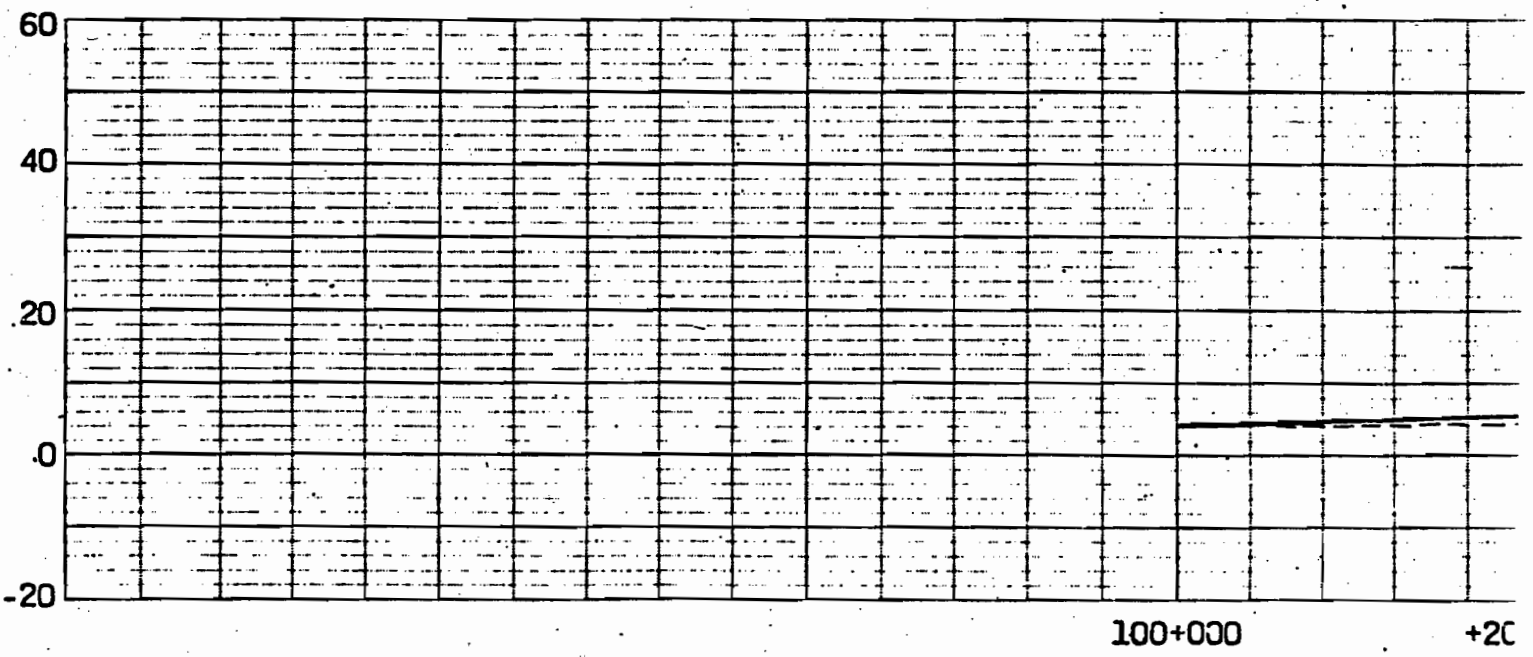
LEGEND

P/GL	PROFILE GROUND LINE
PGL	PROFILE GRADE LINE
PR	POINT OF ROTATION
W	DITCH WIDTH VARIES
H	HEIGHT OF SLOPE
S'	CUT SLOPE VARIES, BENCH REQUIRED FOR H > 4.00
S	FILL SLOPE VARIES
R	SLOPE ROUNDING

NOTES

1. ALL DIMENSIONS ARE IN METERS.
2. SUBGRADE DRAINAGE WILL BE PROVIDED AS REQUIRED BY GROUND WATER CONDITIONS.
3. CLIMBING LANES WILL BE PROVIDED AS REQUIRED BY GRADES AND TRAFFIC. ONE METER WIDE SHOULDERS WILL BE USED ONLY ADJACENT TO CLIMBING LANES.

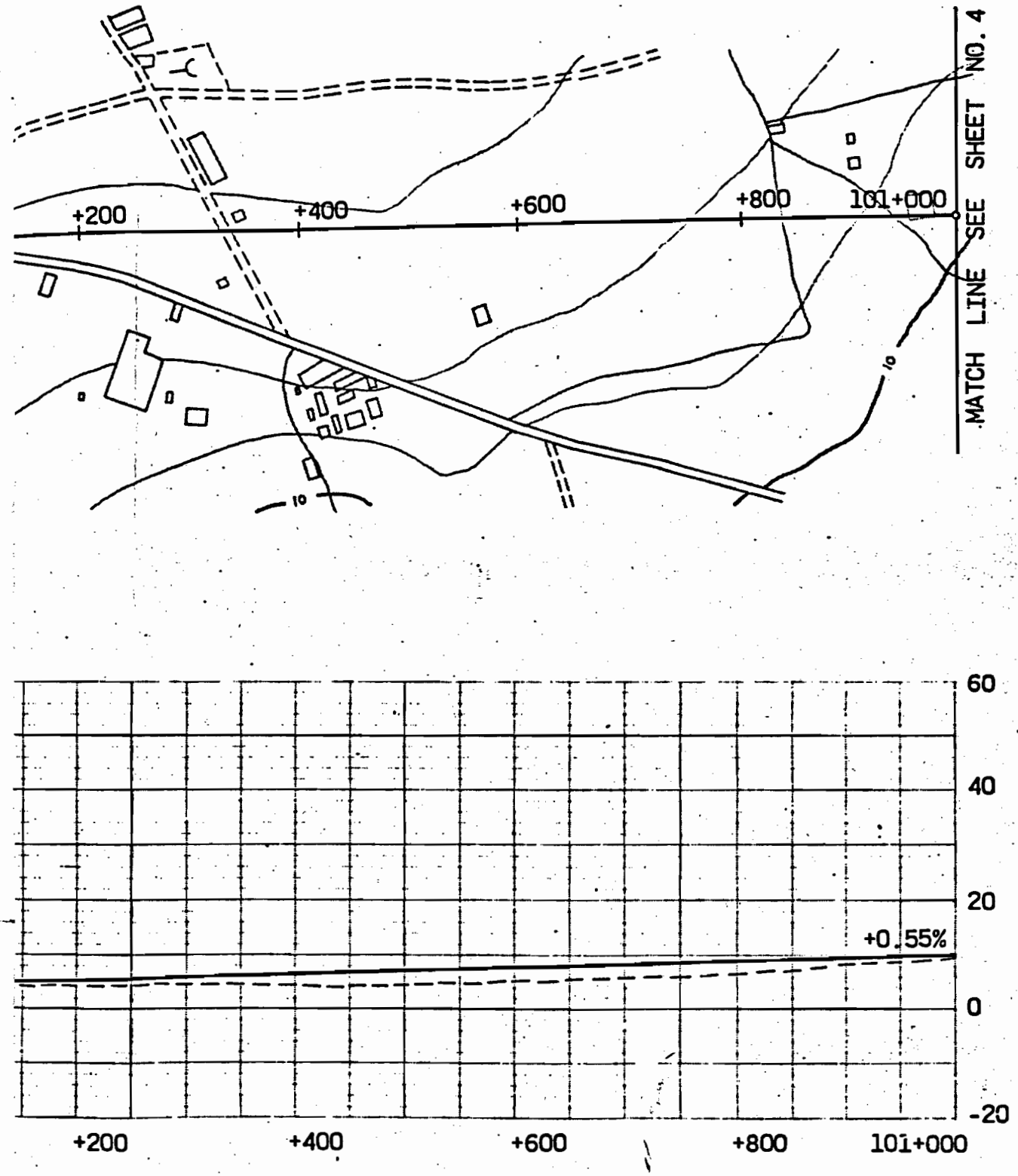




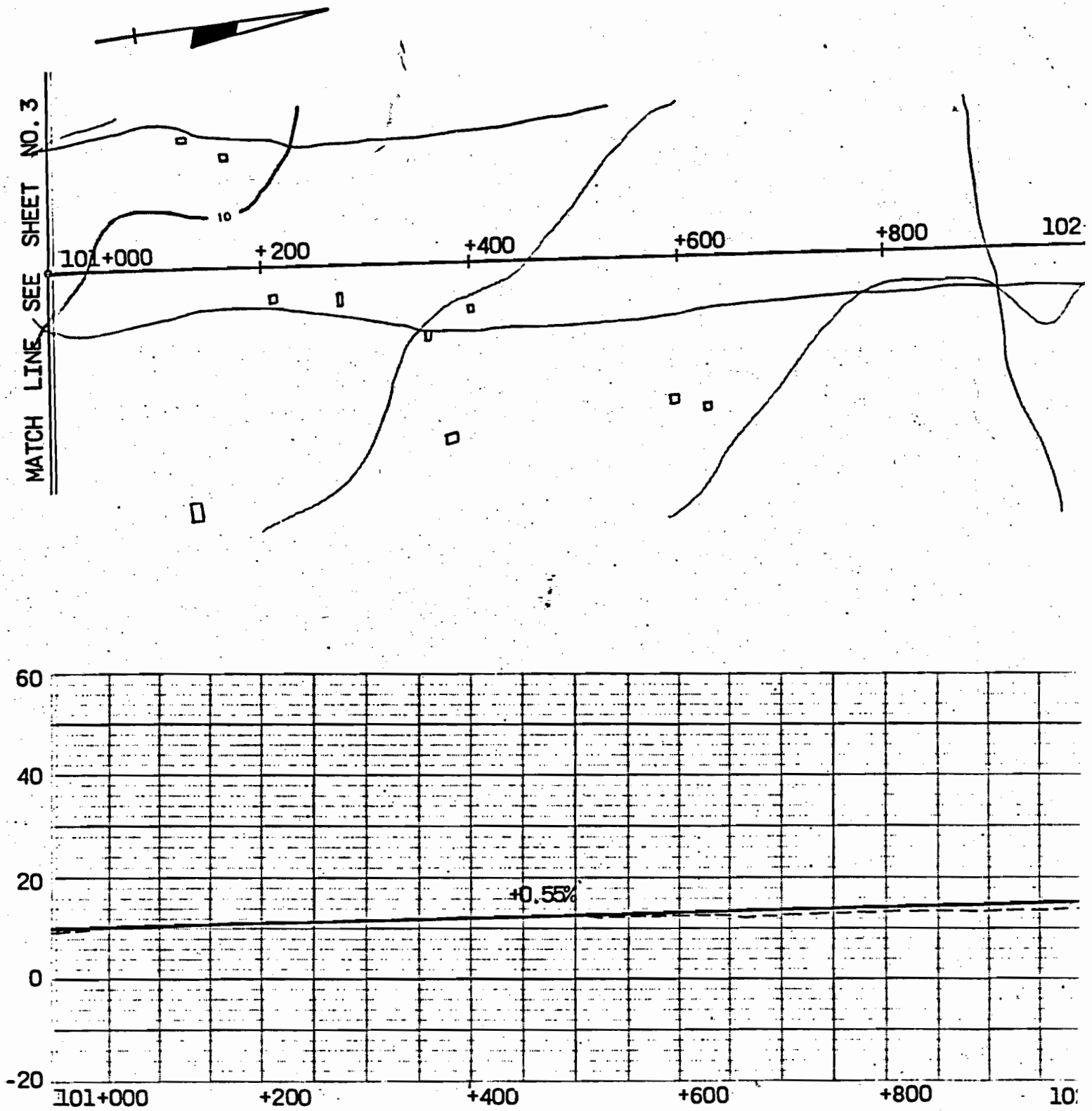
Horiz. 0 100 200m
1:5000
Vert. 0 10 20 30 40m
1:1000

SYRIAN ARAB REPUBLIC
Ministry of Communications

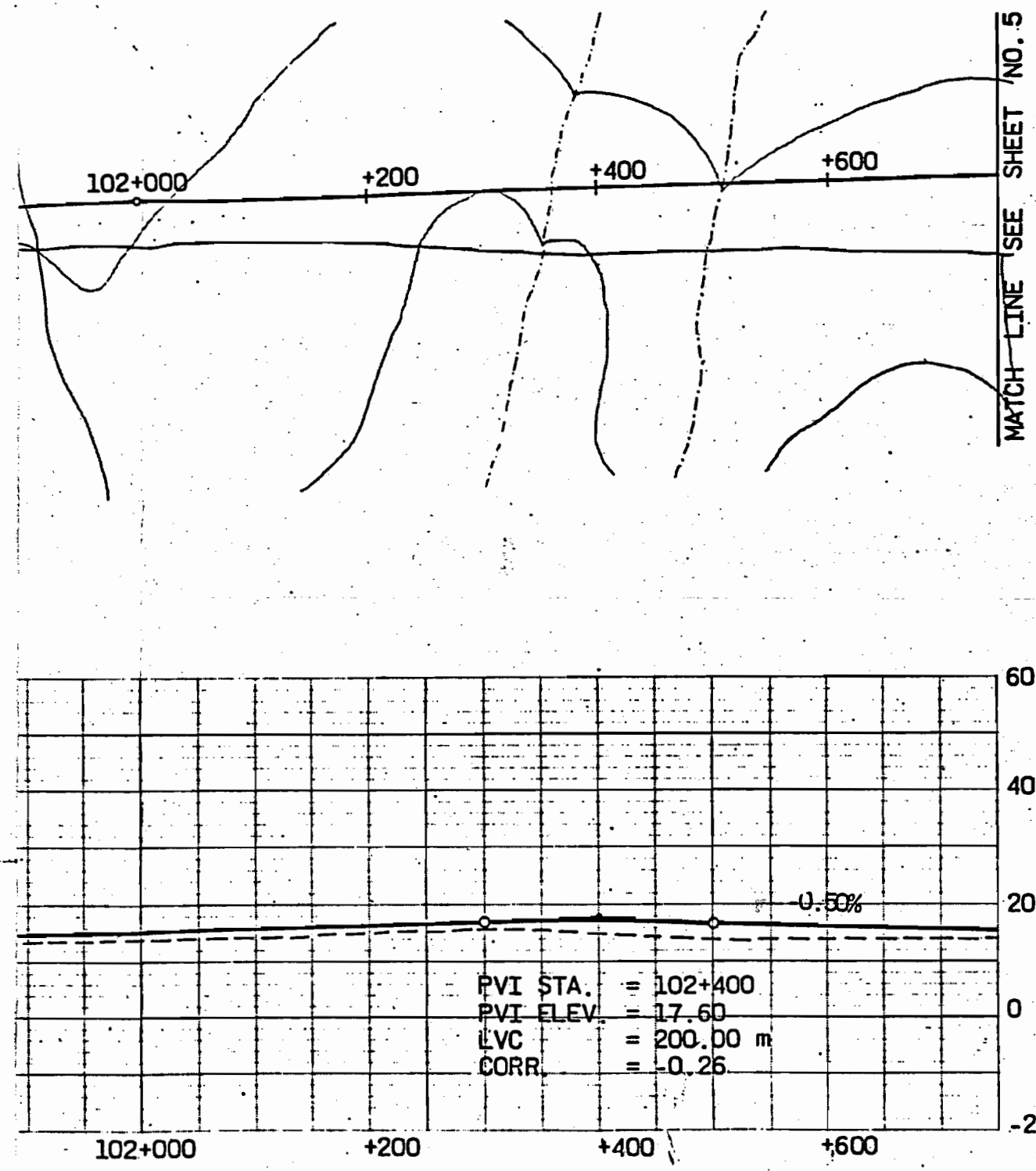
LATTAKIA TO KASSAB HIG
Preliminary Engineerin
PLAN AND PROFILE KM 100+000 T



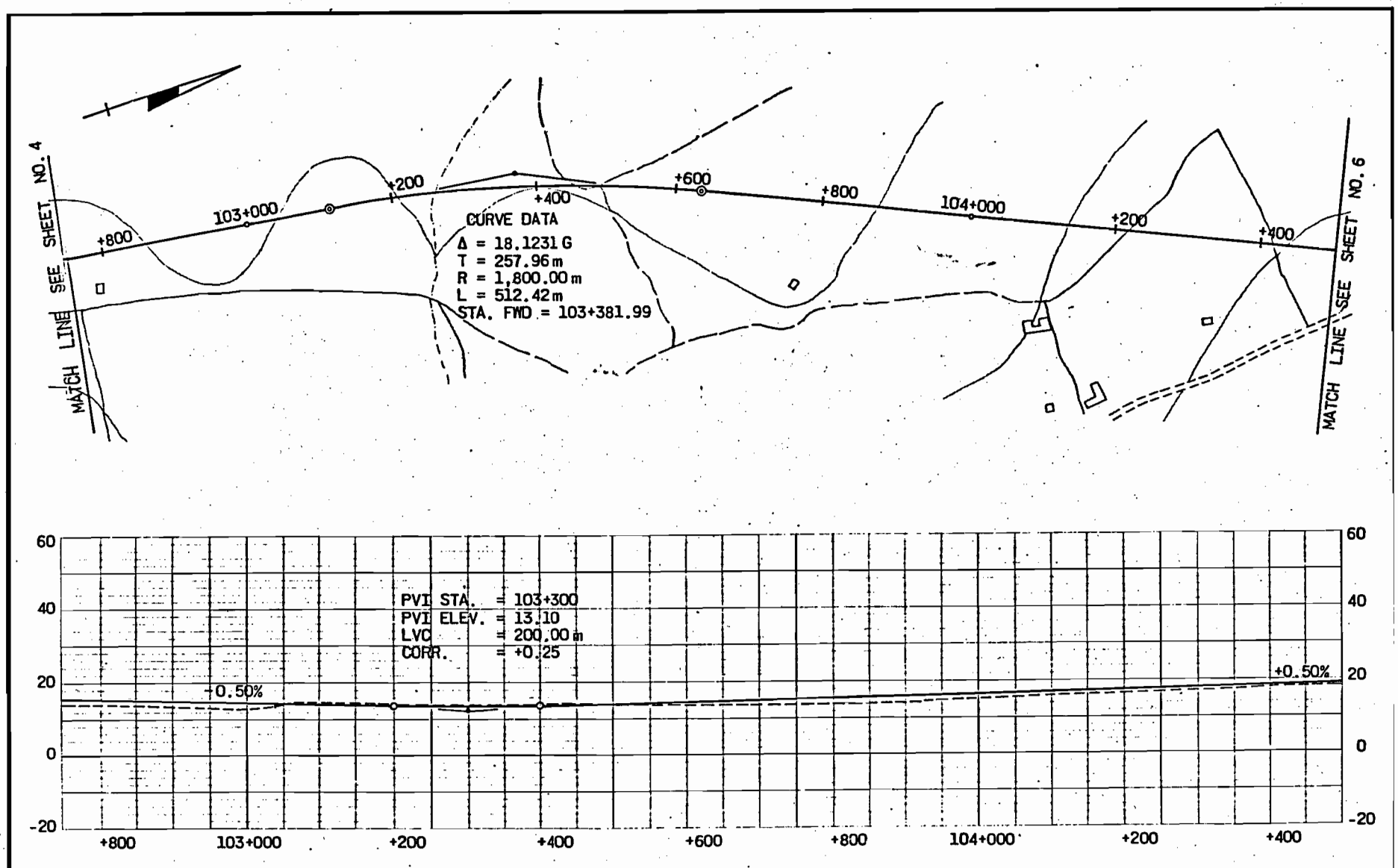
SSAB HIGHWAY Engineering 100+000 TO KM 101+000	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-3 SHEET NO. 3 OF 36



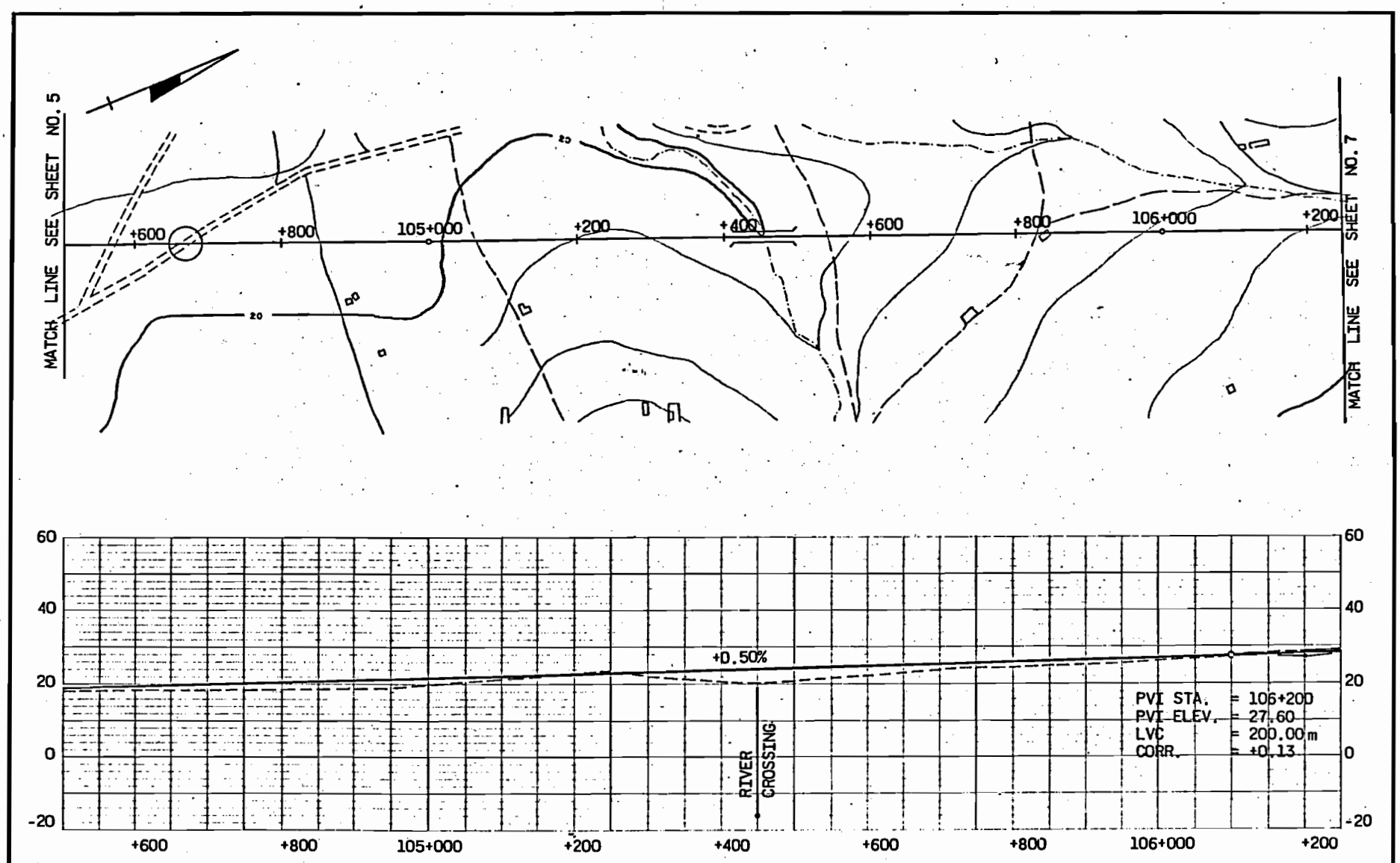
Horiz. 0 100 200m 1:5000 Vert. 0 10 20 30 40m 1:1000	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIG Preliminary Engineering PLAN AND PROFILE KM 101+000 T



SSAB HIGHWAY Engineering 101+000 TO KM 102+750	LYON associates, inc. in association with Morrison-Maierle, Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-4 SHEET NO. 4 OF 36



Horiz. 1:5000 0 100 200m Vert. 1:1000 0 10 20 30 40m	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 102+750 TO KM 104+500	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-5 SHEET NO. 5 OF 36



Horiz. 1:5000 0 100 200m
Vert. 1:1000 0 10 20 30 40m

SYRIAN ARAB REPUBLIC
Ministry of Communications

LATTAKIA TO KASSAB HIGHWAY
Preliminary Engineering
PLAN AND PROFILE KM 104+500 TO KM 106+250

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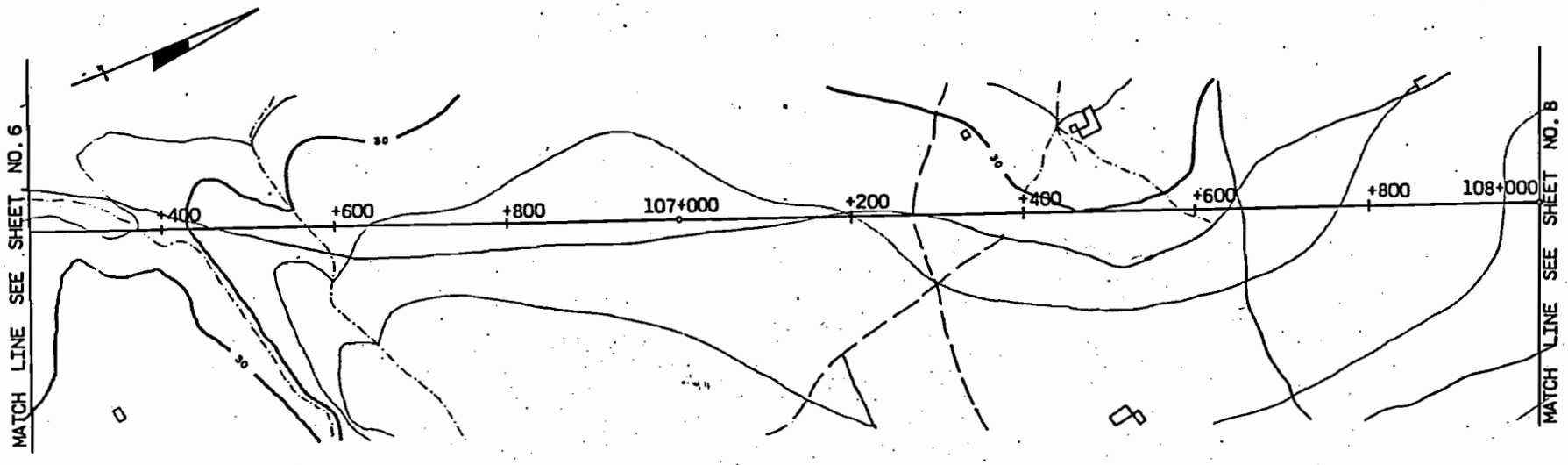
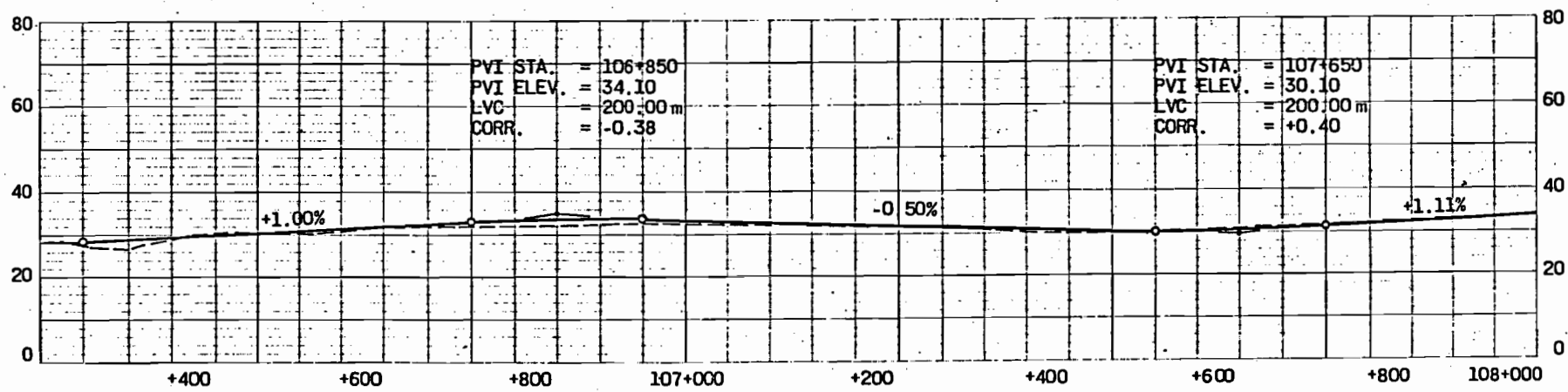
PLATE NO. A-6

SHEET NO. 6 OF 36





Horiz. 1:5000 — 0 100 200m
Vert. 1:1000 — 0 10 20 30 40m

SYRIAN ARAB REPUBLIC
Ministry of Communications

LATTAKIA TO KASSAB HIGHWAY
Preliminary Engineering
PLAN AND PROFILE KM 106+250 TO KM 108+000

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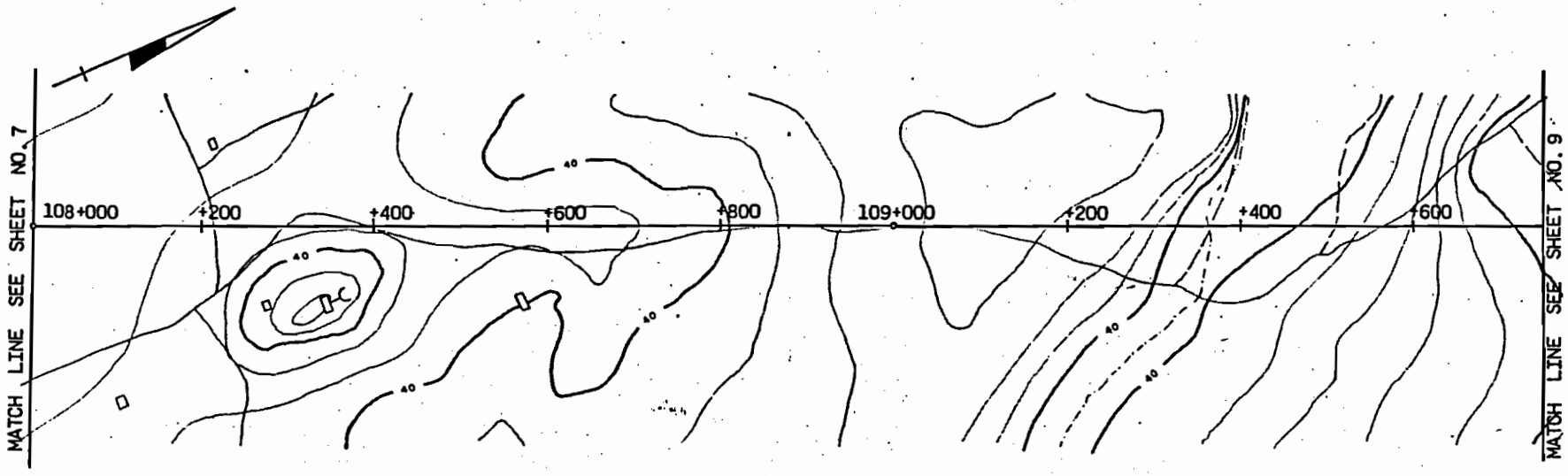
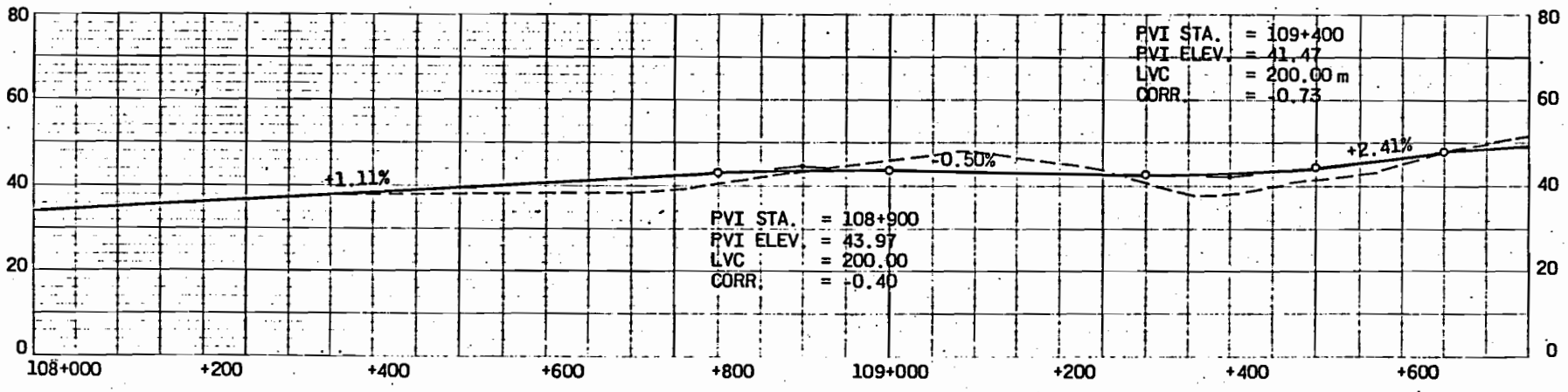
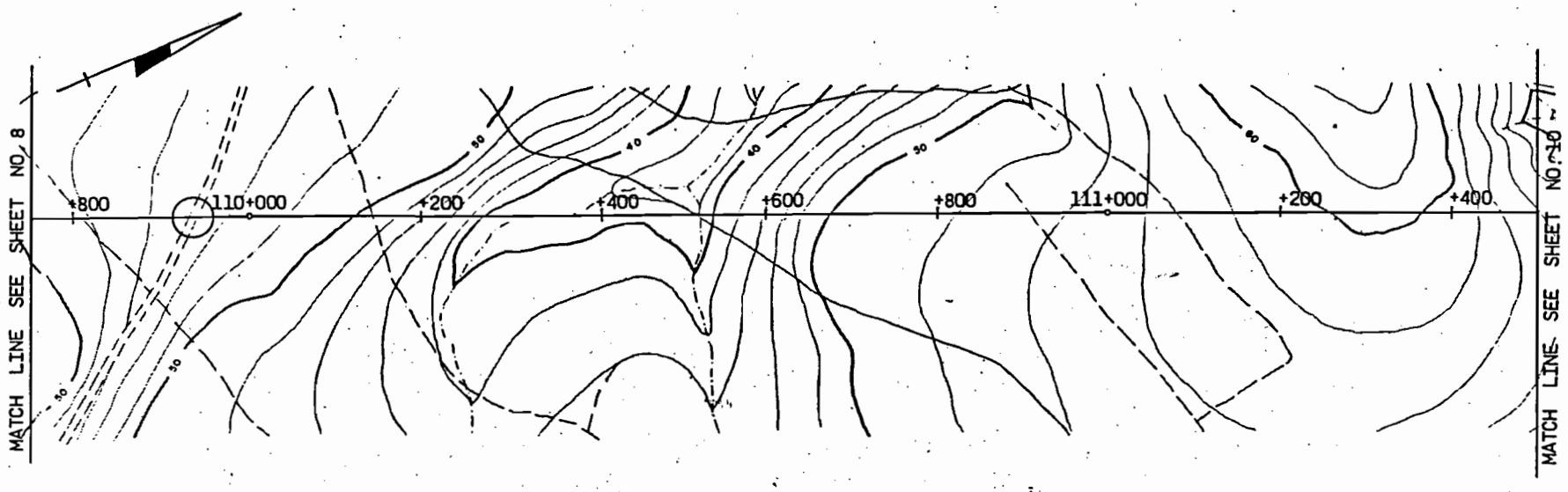
PLATE NO. A-7

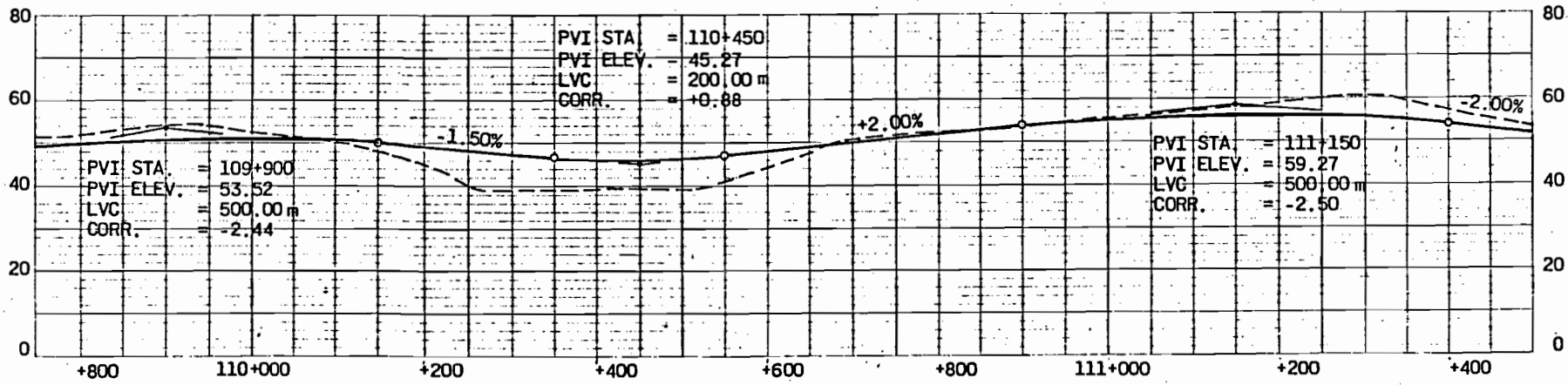
SHEET NO. 7 OF 36



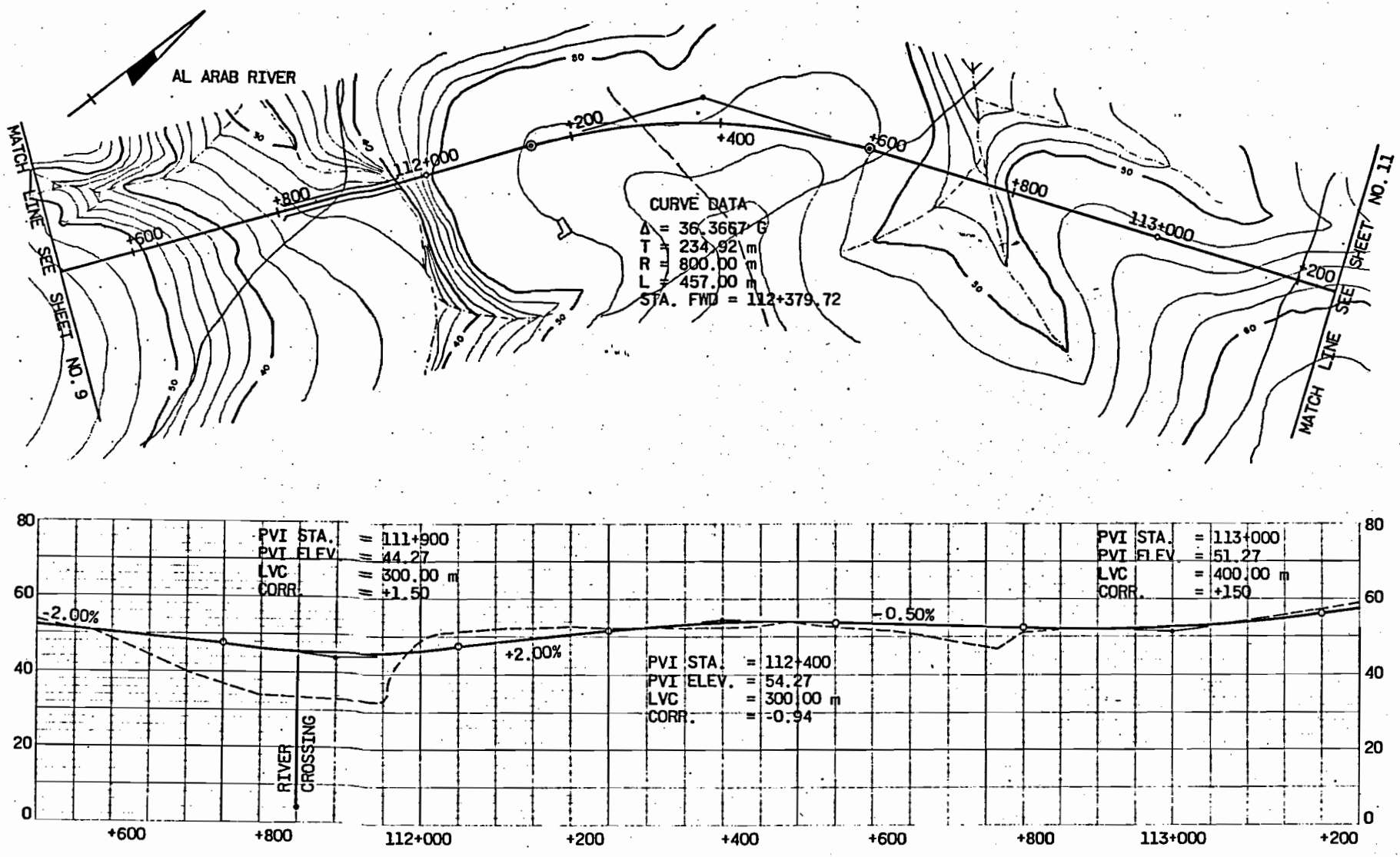


Horiz 1:5000 0 100 200m Vert 1:1000 0 10 20 30 40m	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 108+000 TO KM 109+750	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-8 SHEET NO. 8 OF 36





Horiz. 0 100 200m 1:5000 Vert. 0 10 20 30 40m 1:1000	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 109+750 TO KM 111+500	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-9 SHEET NO. 9 OF 36



Horiz. 1:5000 0 100 200m
Vert. 1:1000 0 10 20 30 40m

SYRIAN ARAB REPUBLIC
Ministry of Communications

LATTAKIA TO KASSAB HIGHWAY
Preliminary Engineering
PLAN AND PROFILE KM 111+500 TO KM 113+250

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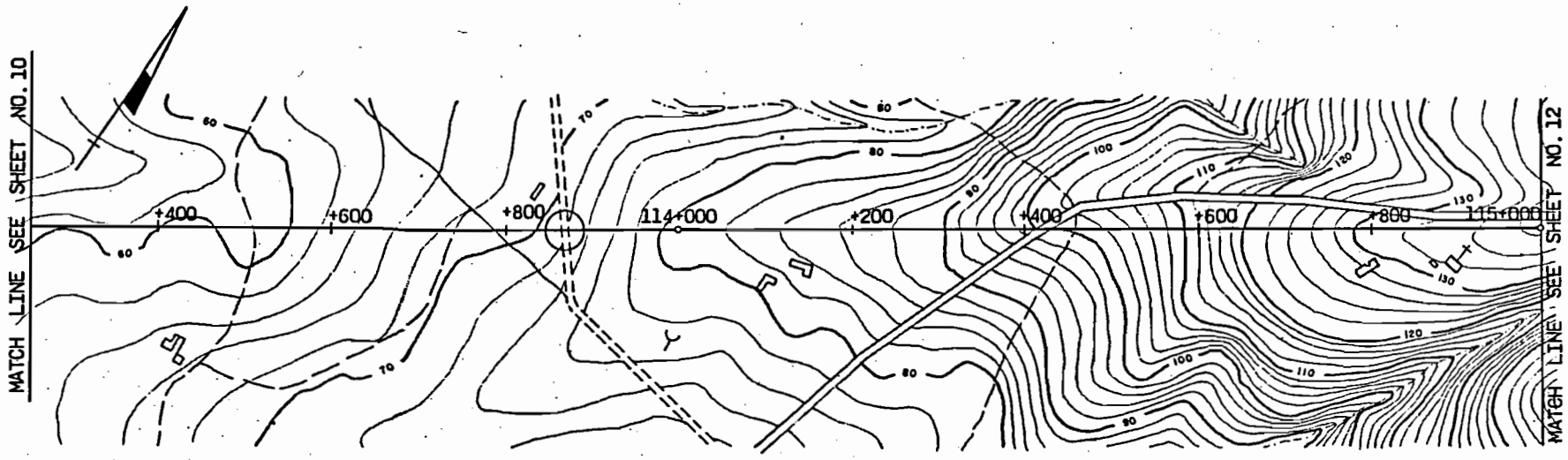
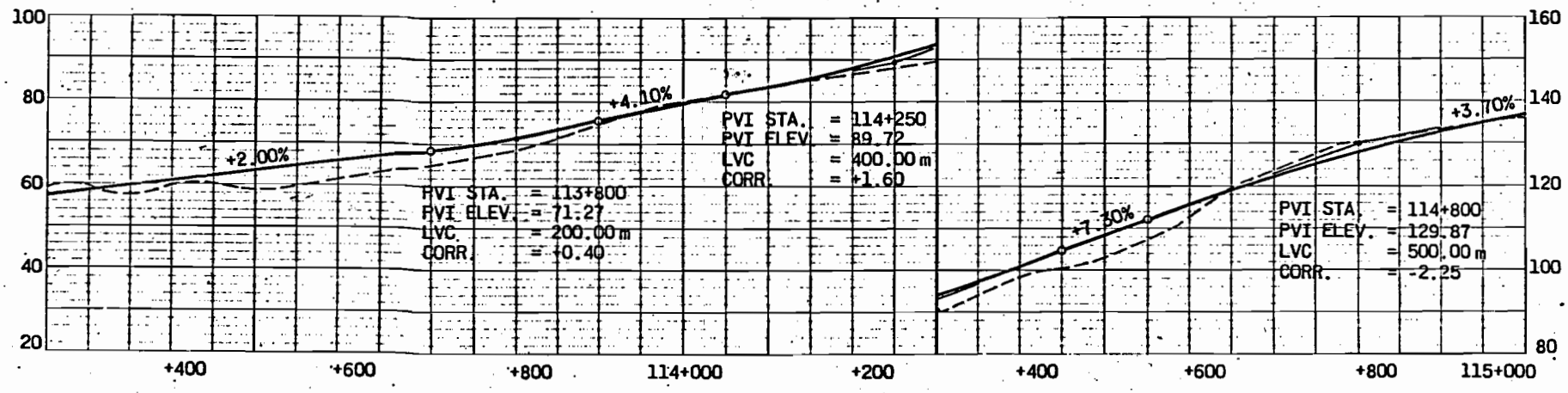
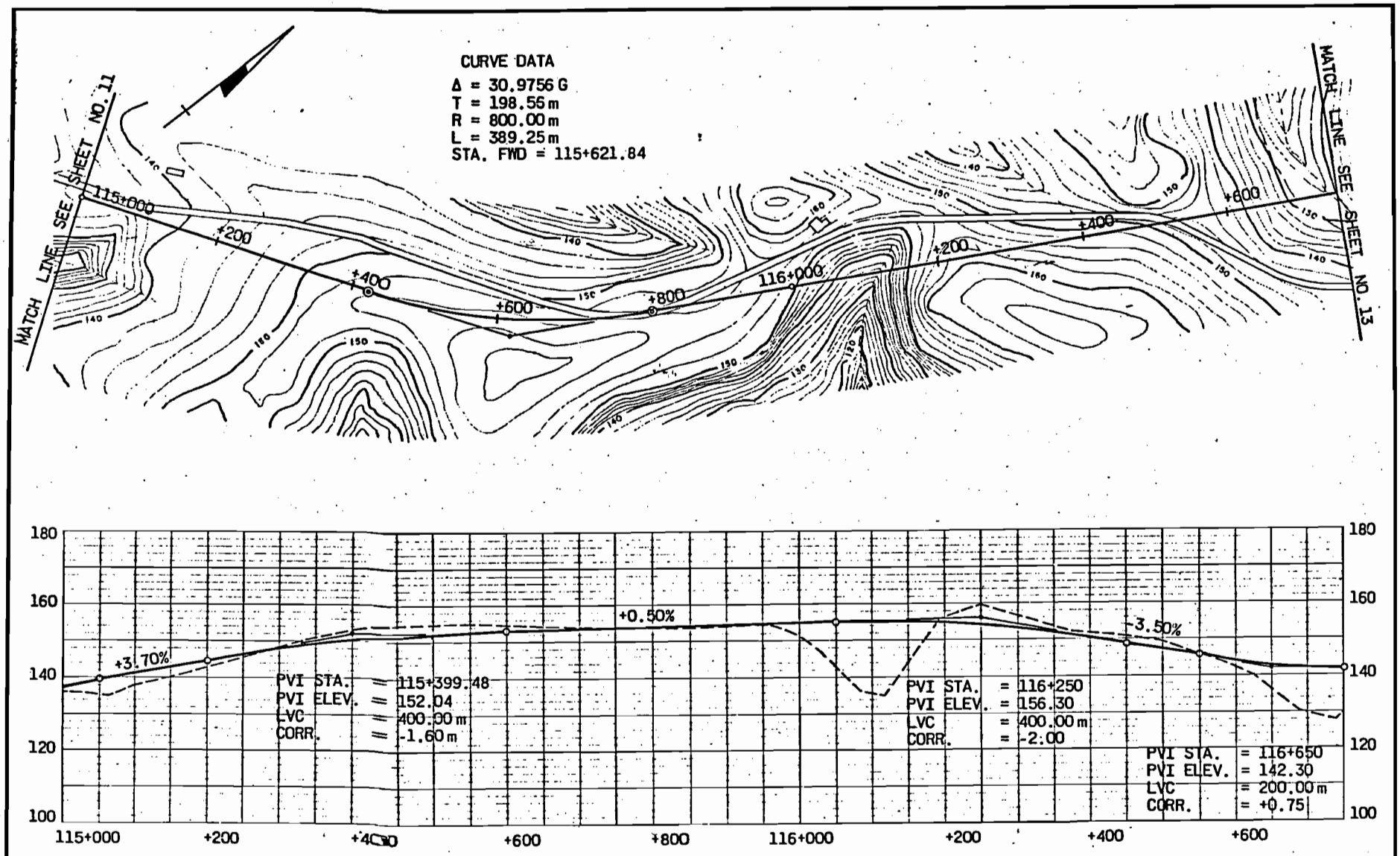
PLATE NO. A-10

SHEET NO. 10 OF 36





Horiz. 0 100 200m 1:5000 Vert. 0 10 20 30 40m 1:1000	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 113+250 TO KM 115+000	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-11 SHEET NO. 11 OF 36



Horiz. 1:5000 0 100 200m
Vert. 1:1000 0 10 20 30 40m

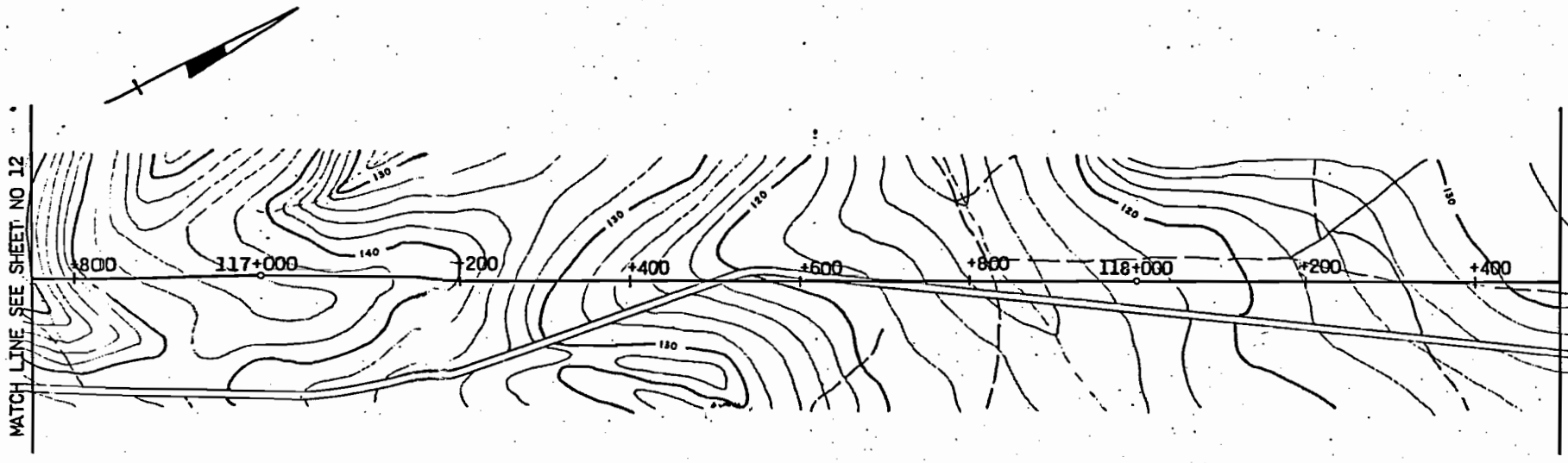
SYRIAN ARAB REPUBLIC
Ministry of Communications

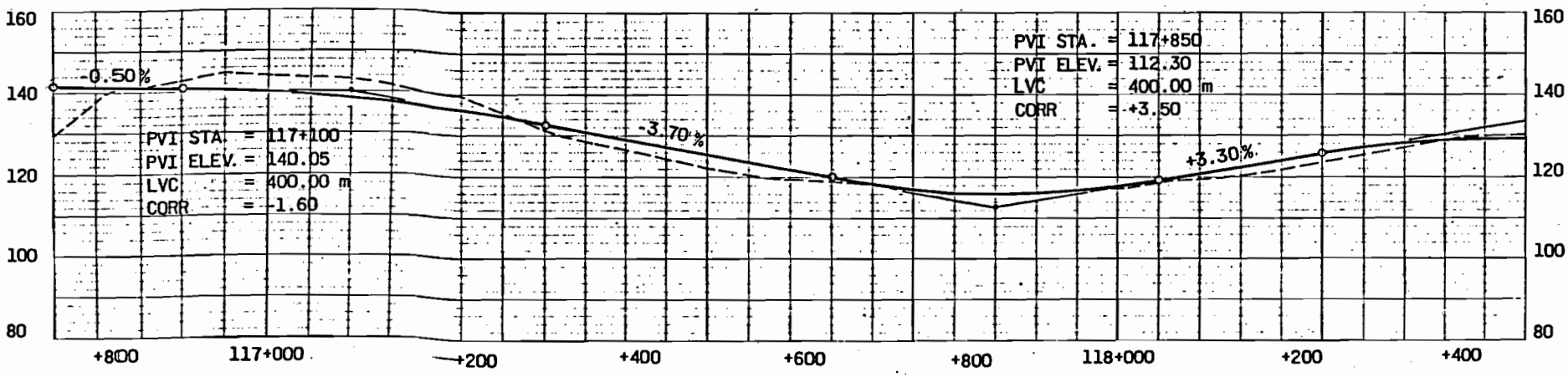
LATTAKIA TO KASSAB HIGHWAY
Preliminary Engineering
PLAN AND PROFILE KM 115+000 TO KM 116+750

LYON associates, inc.
in association with
Morrison-Maierle Inc. and
James R. Snitzler Associates, Inc.

PLATE NO. A-12

SHEET NO. 12 OF 36





Horiz. 1:5000 0 100 200m
Vert. 1:1000 0 10 20 30 40m

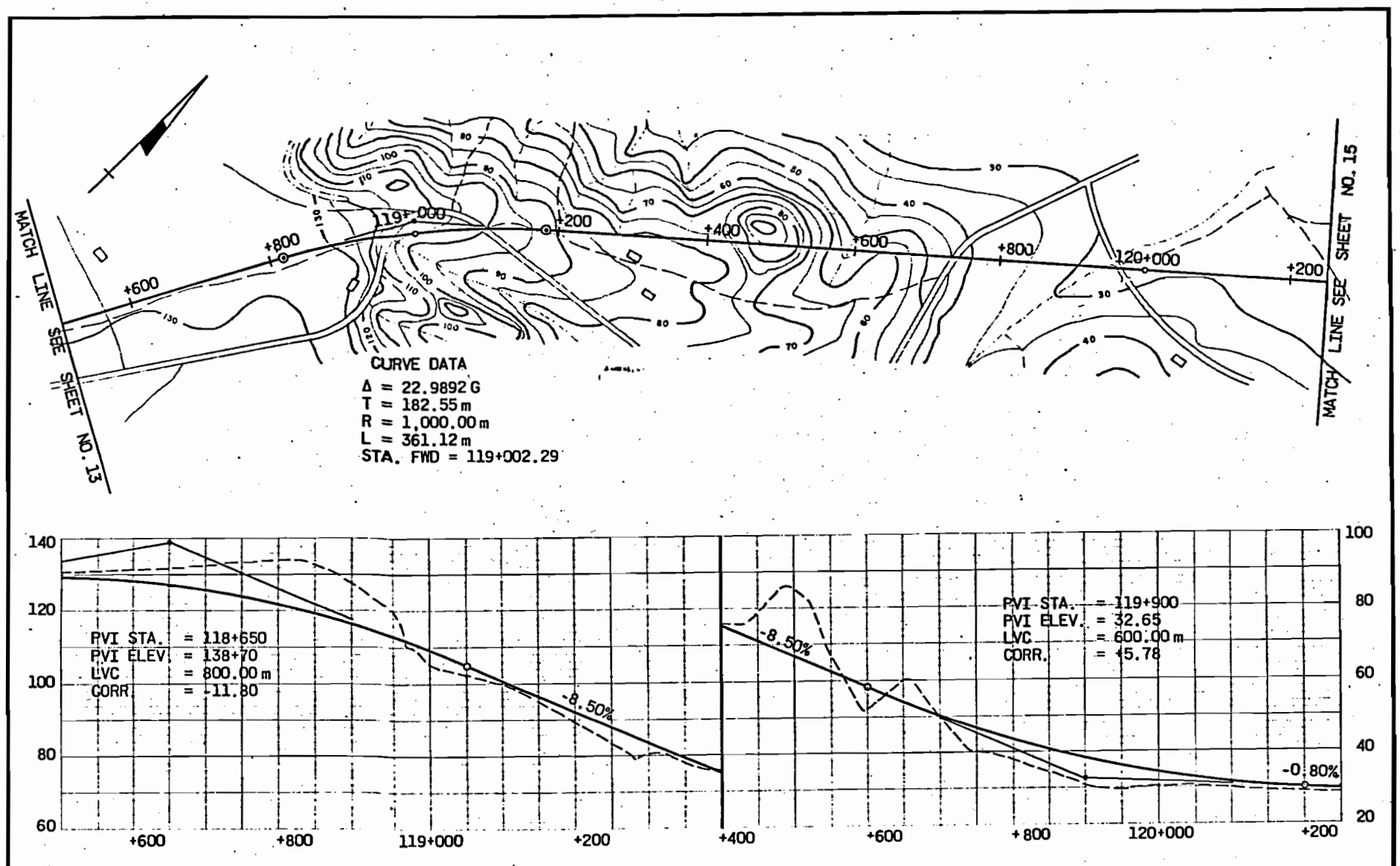
SYRIAN ARAB REPUBLIC
Ministry of Communications

LATTAKIA TO KASSAB HIGHWAY
Preliminary Engineering
PLAN AND PROFILE KM 116+750 TO KM 118+500

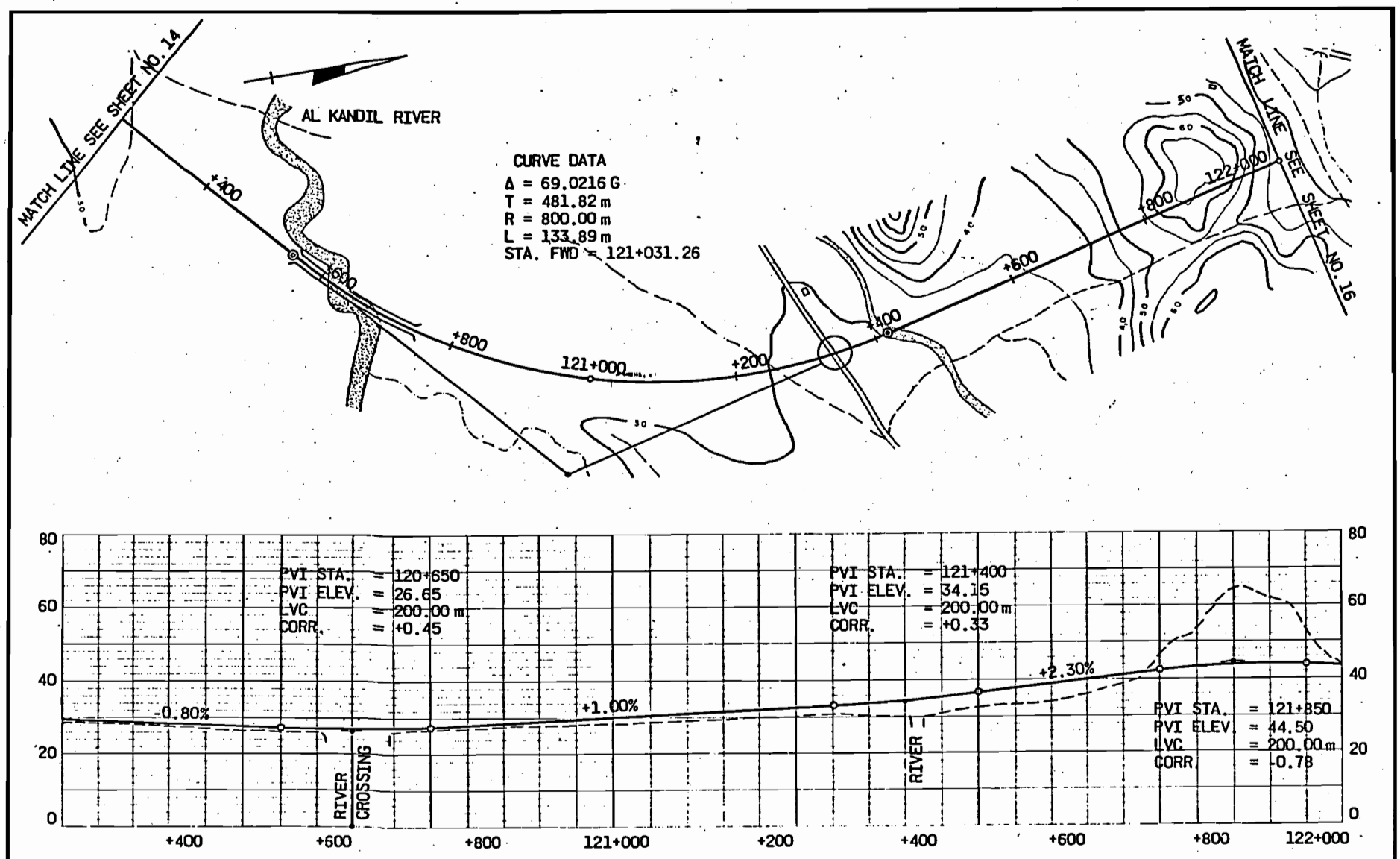
LYON associates, inc.
in association with
Morrison-Maierle Inc. and
James R. Snitzler Associates, Inc.

PLATE NO. A-13

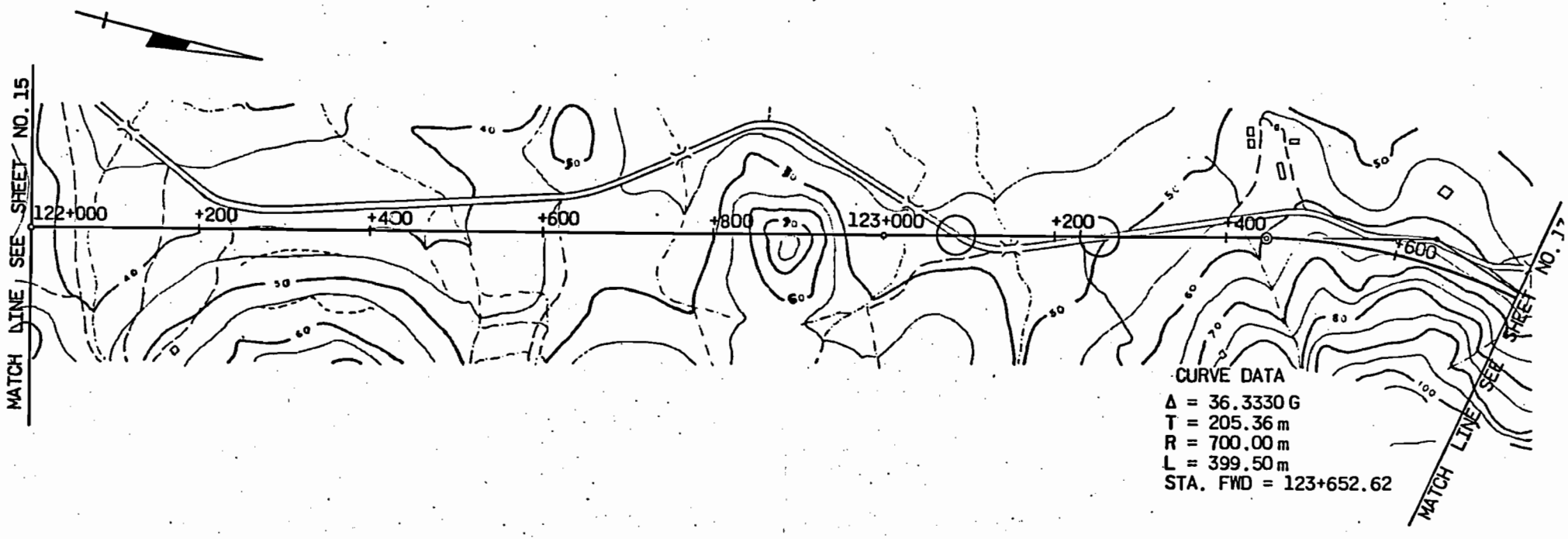
SHEET NO. 13 OF 36

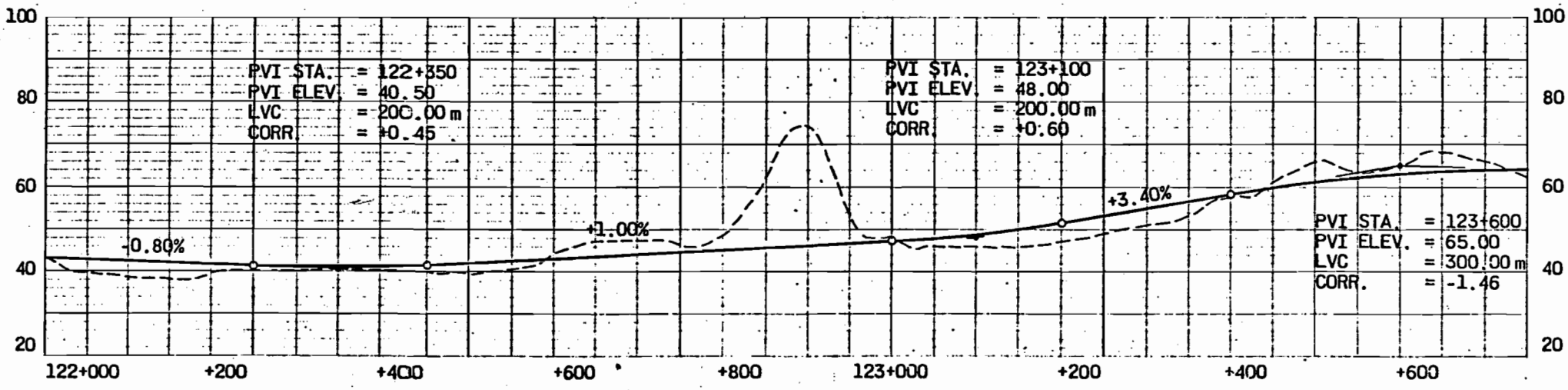


Horiz 1:5000 0 100 200m Vert 1:1000 0 10 20 30 40m	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 118+500 TO KM 120+250	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-14 SHEET NO. 14 OF 36

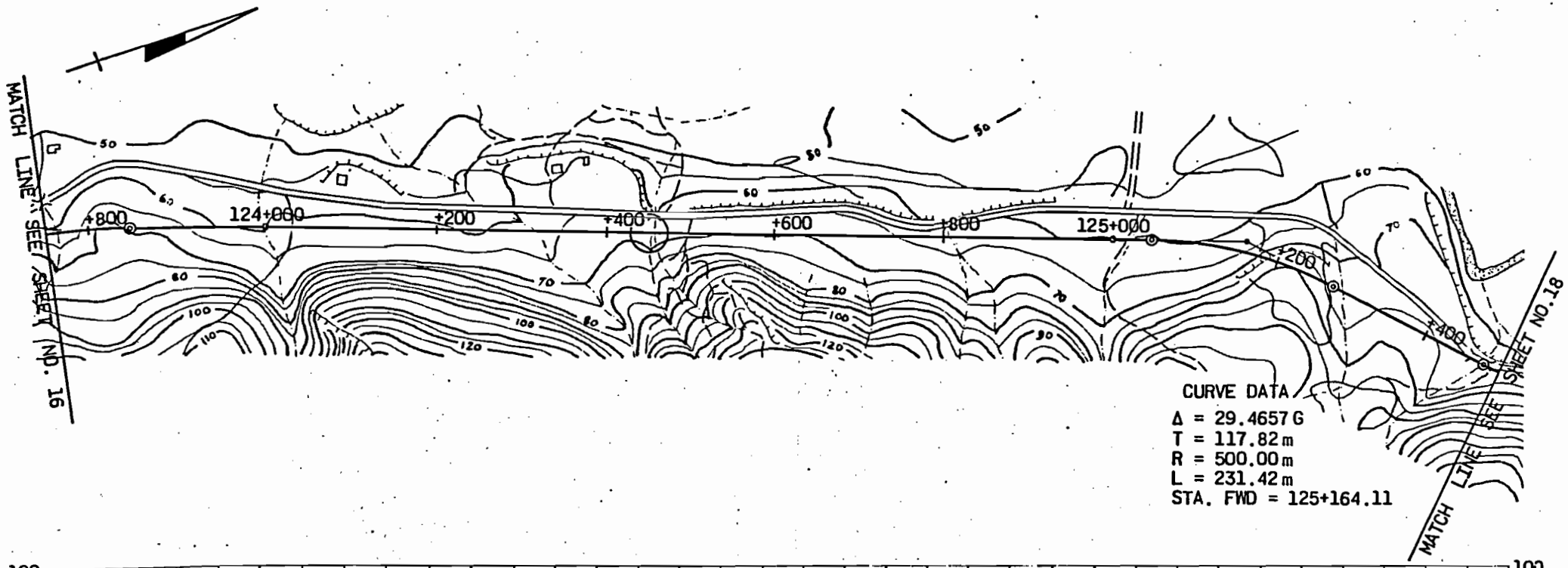


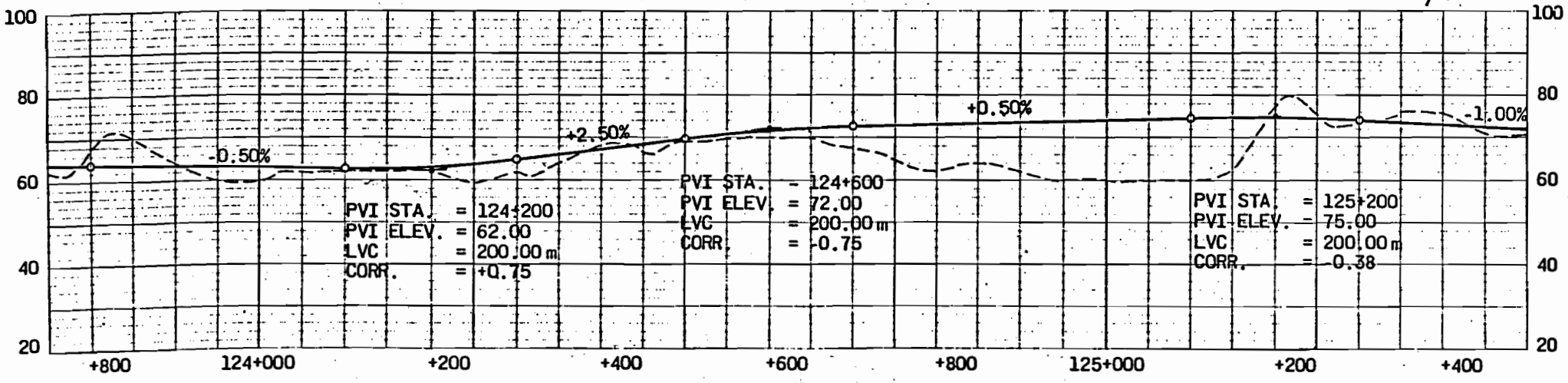
Horiz. 1:5000 0 100 200m Vert. 1:1000 0 10 20 30 40m	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 120+250 TO KM 122+000	LYON associates, inc. in association with Morrison-Maierle-Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-15 SHEET NO. 15 OF 36



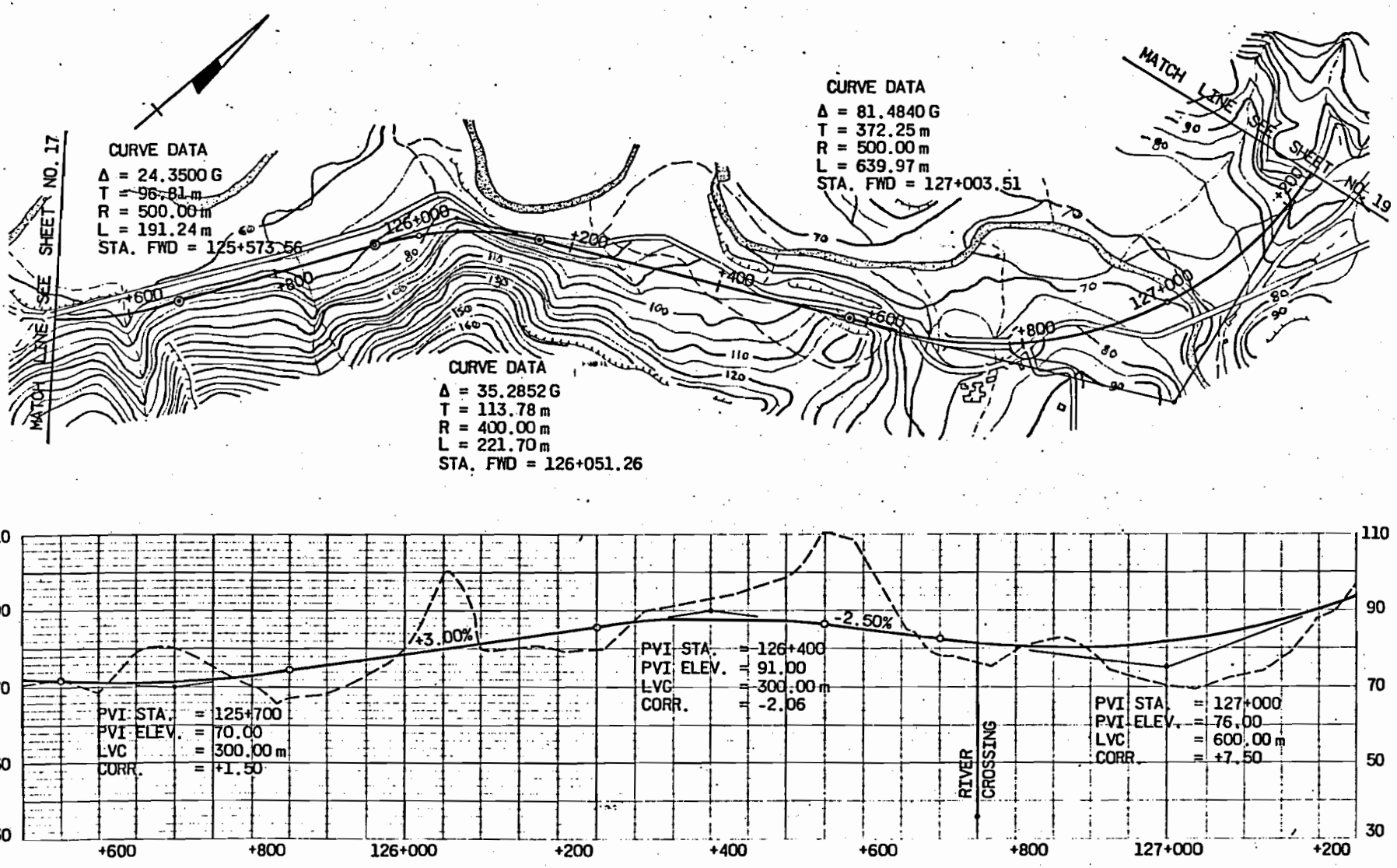


Horiz. 1:5000 0 100 200m Vert. 1:1000 0 10 20 30 40m	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 122+000 TO KM 123+750	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-16 SHEET NO. 16 OF 36

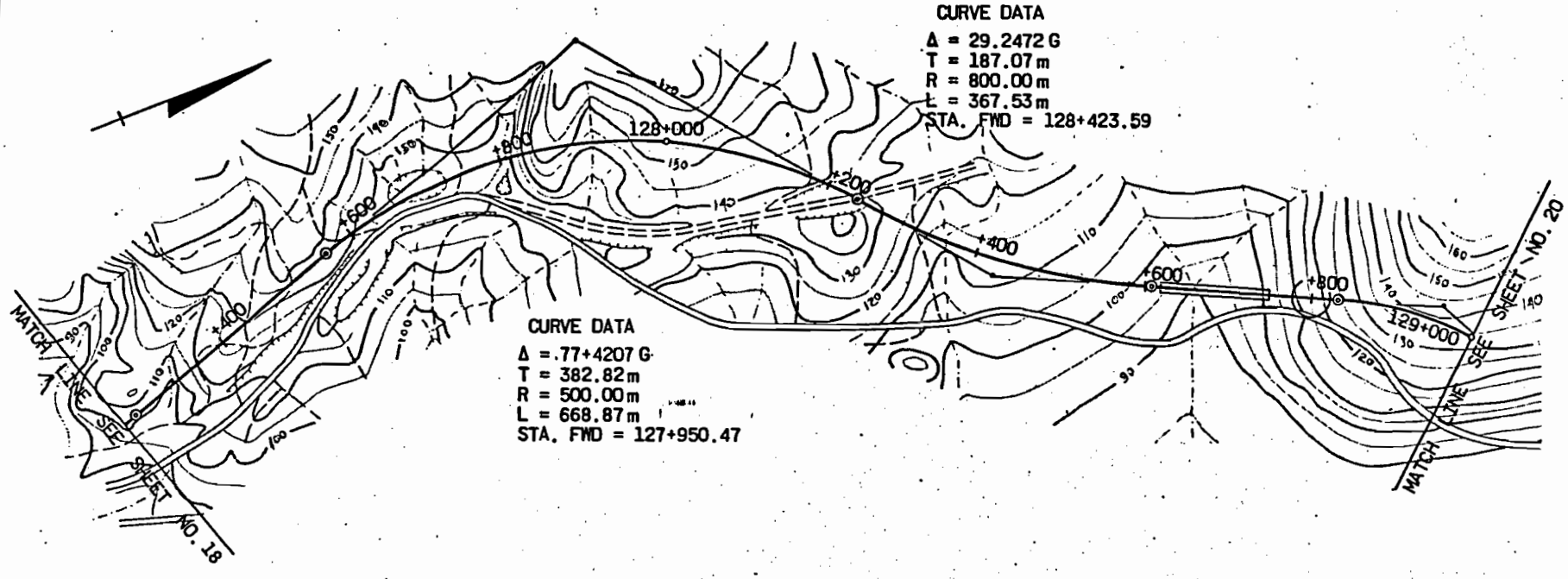


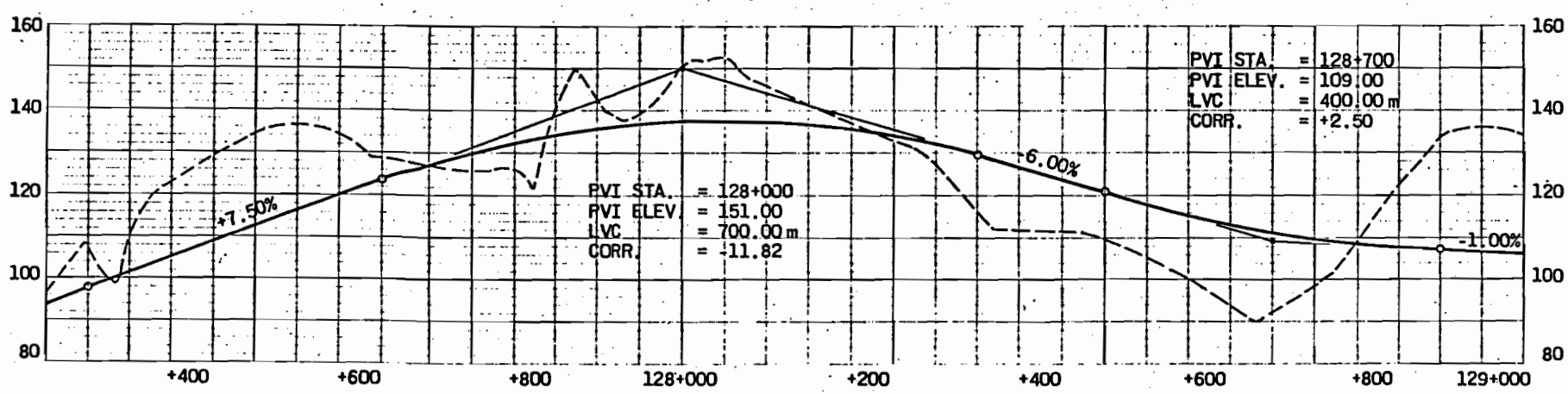


Horiz. 1:5000 0 100 200m Vert. 1:1000 0 10 20 30 40m	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 123+750 TO KM 125+500	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A – 17 SHEET NO. 17 OF 36

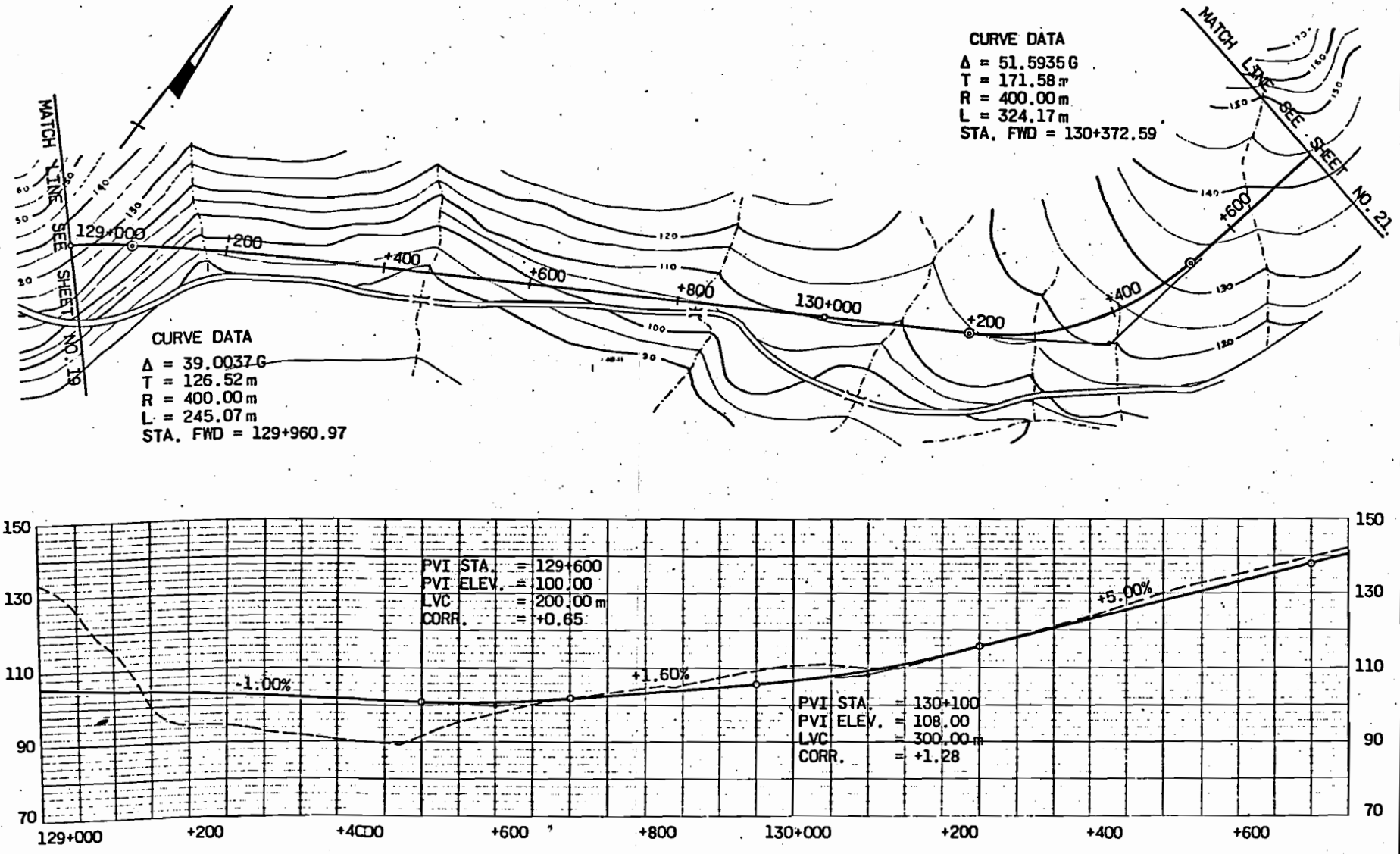


Horiz. 0 100 200m 1:5000 Vert. 0 10 20 30 40m 1:1000	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 125+500 TO KM 127+250	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-18 SHEET NO. 18 OF 36

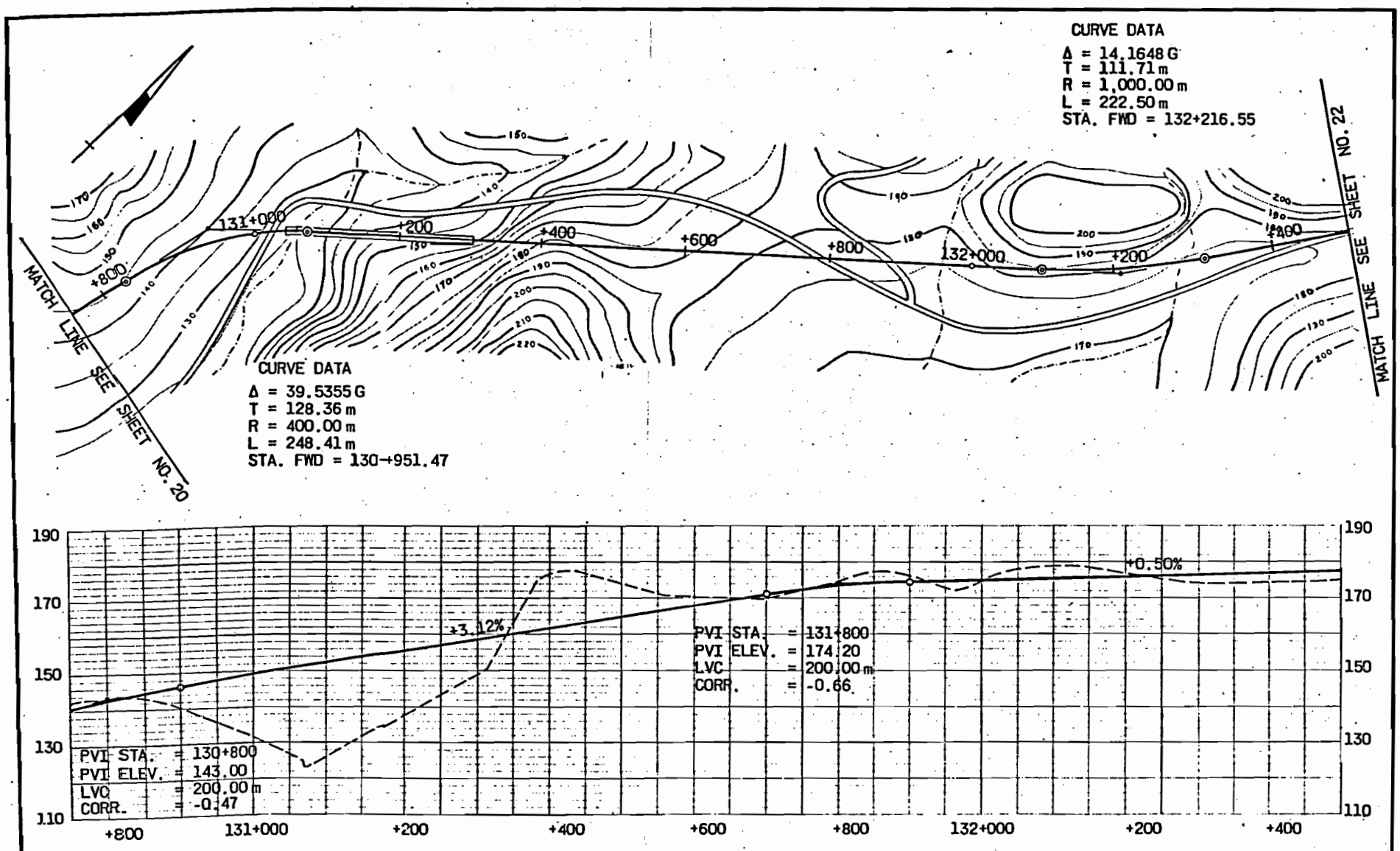




Horiz. 1:5000 0 100 200m Vert. 1:1000 0 10 20 30 40m	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 127+250 TO KM 129+000	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-19 SHEET NO. 19 OF 36



Horiz. 1:5000 0 100 200m Vert. 1:1000 0 10 20 30 40m	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 129+000 TO KM 130+750	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-20 SHEET NO. 20 OF 36



Horiz. 1:5000 — 0 100 200m
Vert. 1:1000 — 0 10 20 30 40m

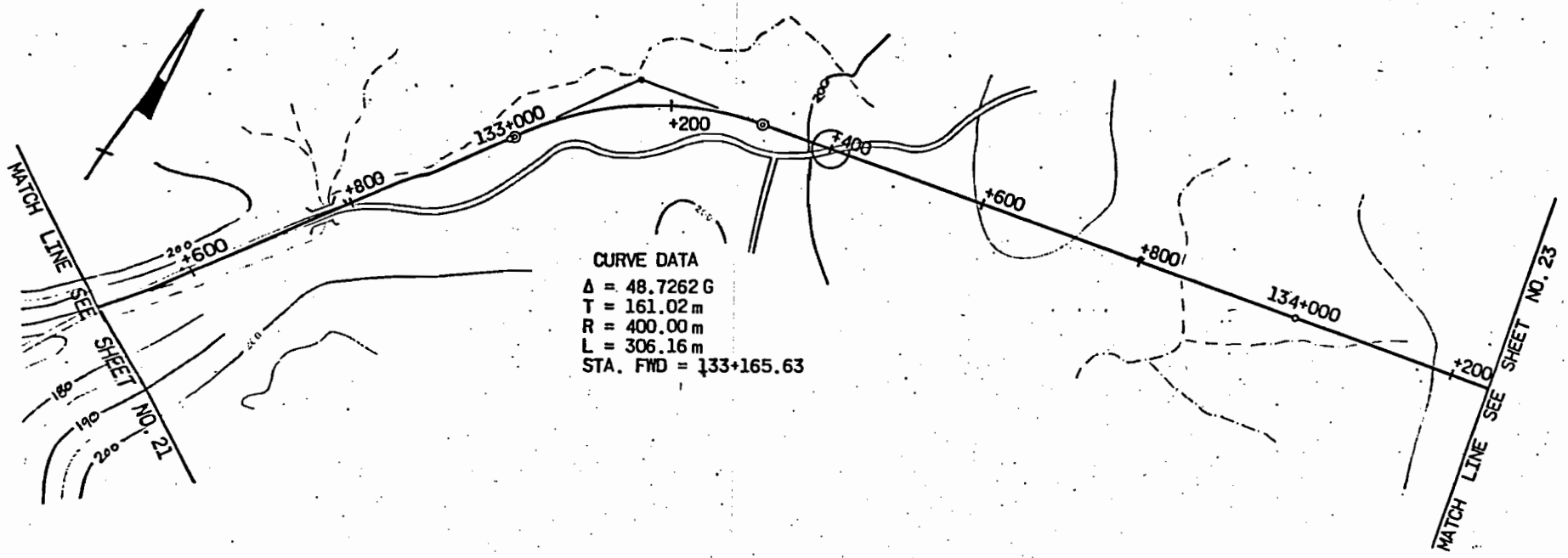
SYRIAN ARAB REPUBLIC
Ministry of Communications

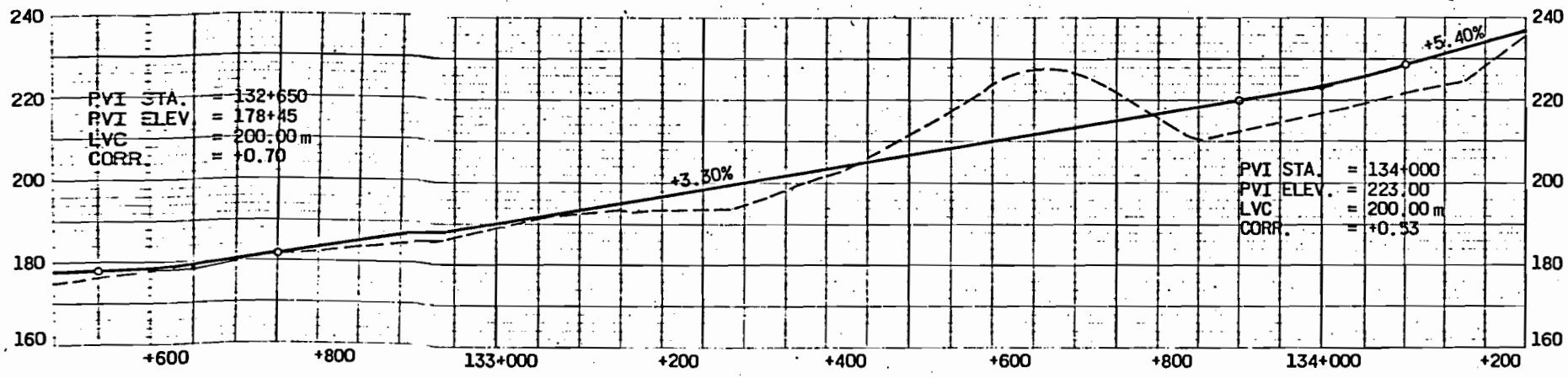
LATTAKIA TO KASSAB HIGHWAY
Preliminary Engineering
PLAN AND PROFILE KM 130+750 TO KM 132+500

LYON associates, inc.
in association with
Morrison-Maierle Inc. and
James R. Snitzler Associates, Inc.

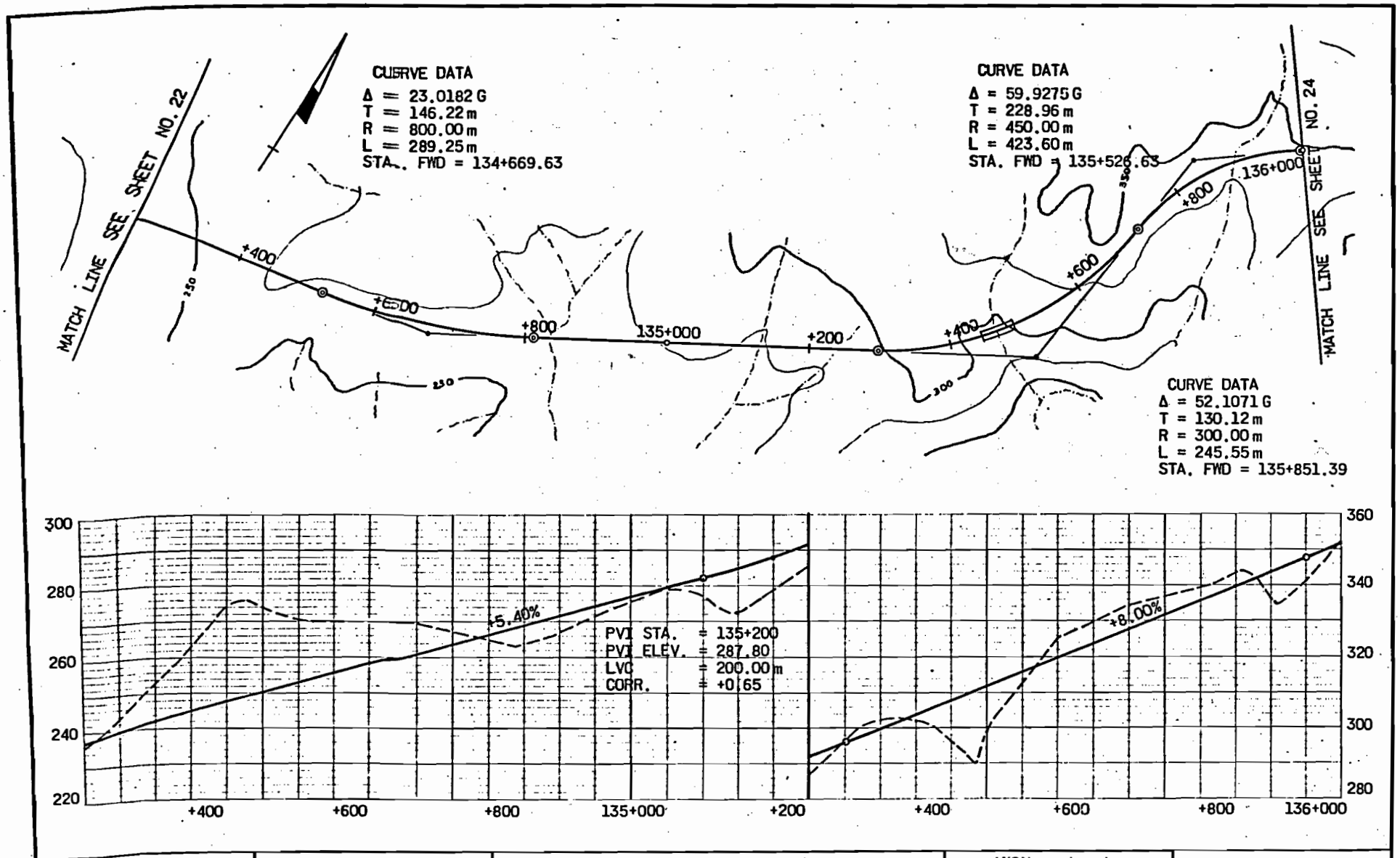
PLATE NO. A-21

SHEET NO. 21 OF 36





Horiz. 1:5000 Vert. 1:1000	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 132+500 TO KM 134+250	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-22 SHEET NO. 22 OF 36



Horiz. 1:5000 0 100 200m
Vert. 1:1000 0 10 20 30 40m

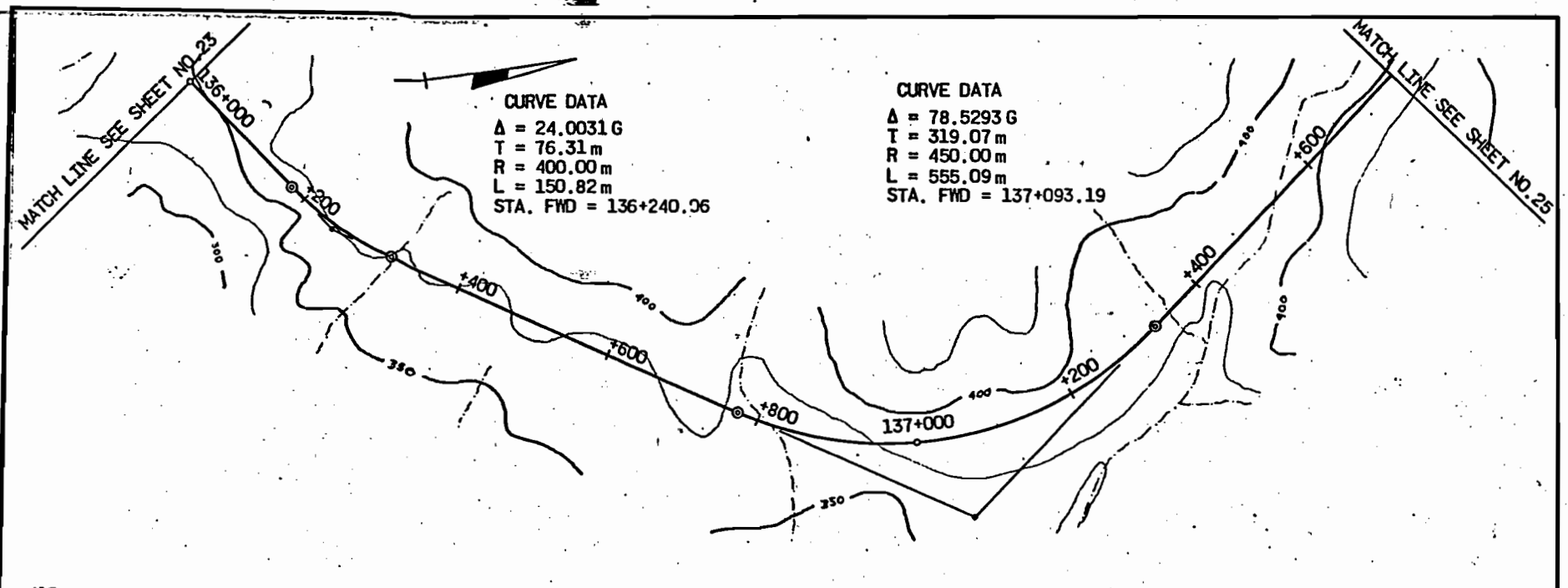
SYRIAN ARAB REPUBLIC
Ministry of Communications

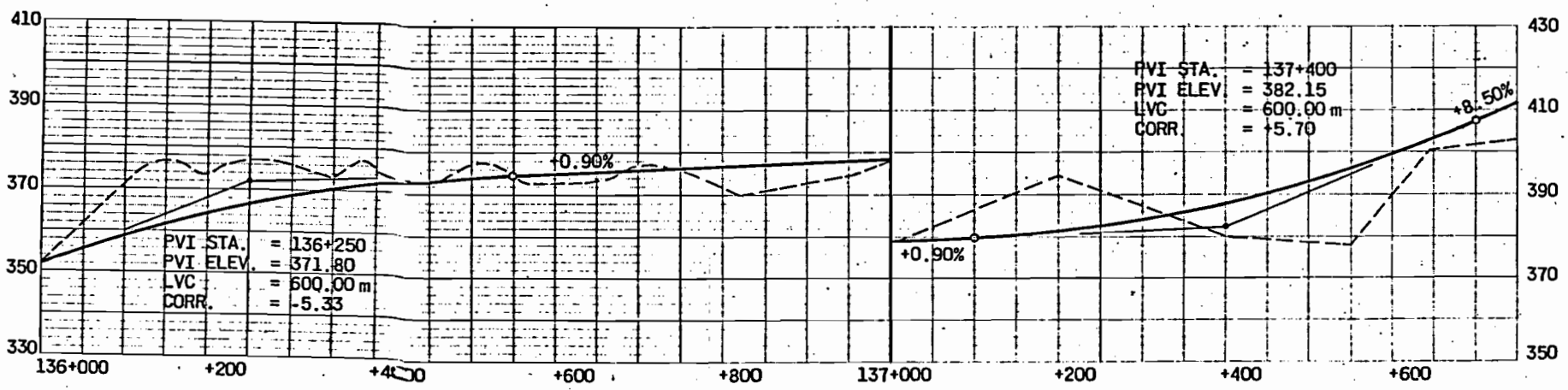
LATTAKIA TO KASSAB HIGHWAY
Preliminary Engineering
PLAN AND PROFILE KM 134+250 TO KM 136+000

LYON associates, inc.
in association with
Morrison-Maierle Inc. and
James R. Snitzler Associates, Inc.

PLATE NO. A-23

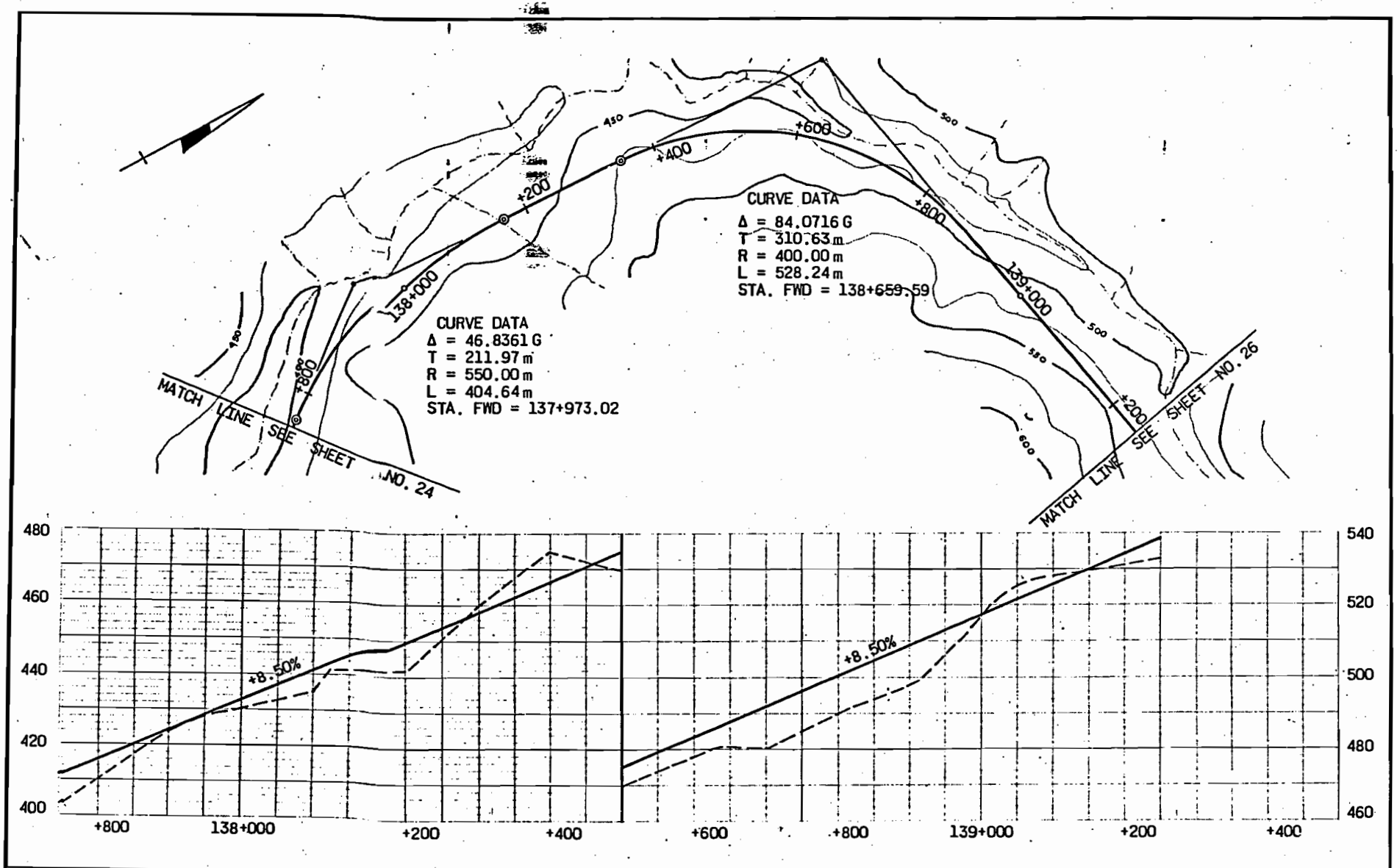
SHEET NO. 23 OF 36



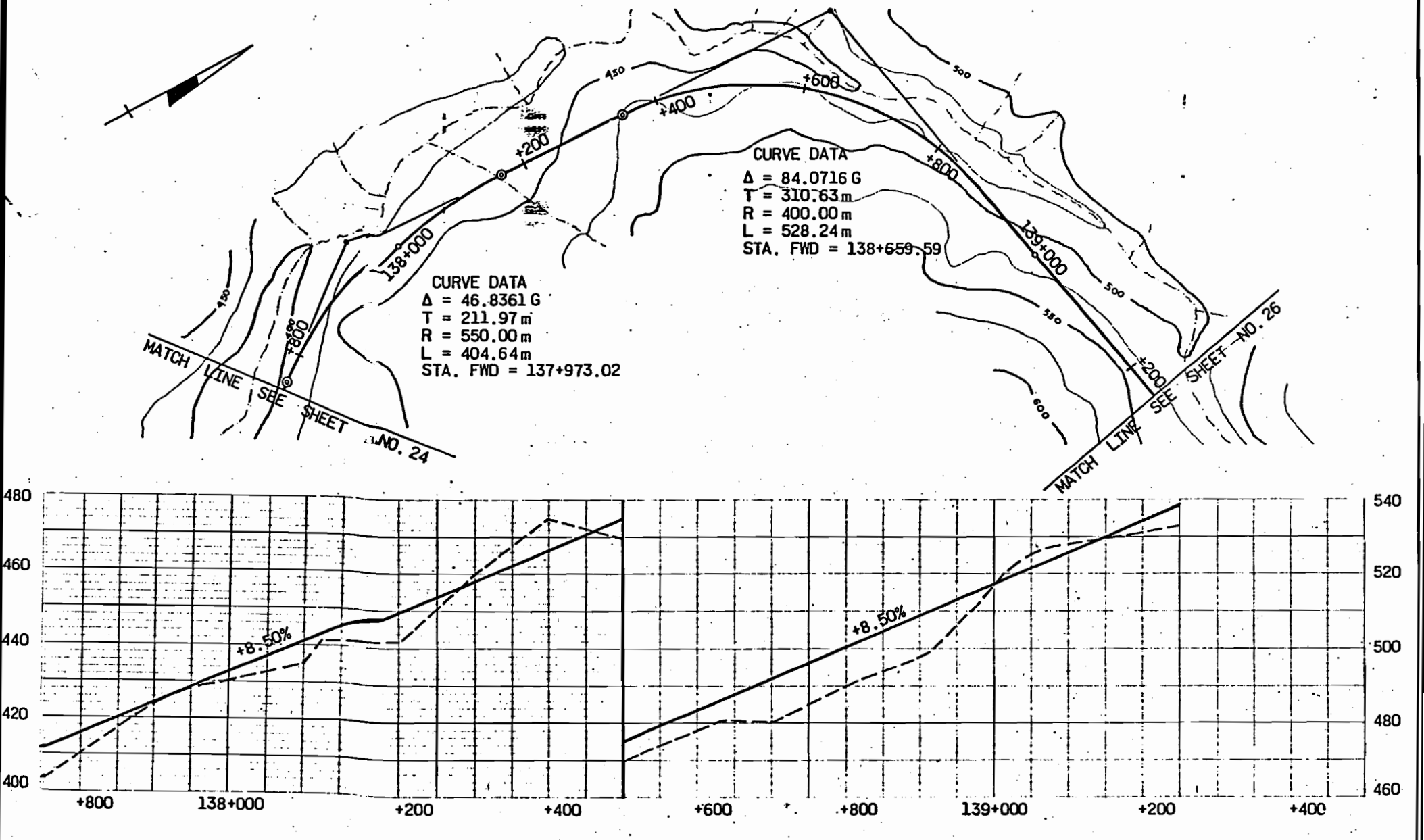


Horiz. 0 100 200m 1:5000 Vert. 0 10 20 30 40m 1:1000	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 136+000 TO KM 137+750	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A - 24 SHEET NO. 24 OF 36

BEST AVAILABLE DOCUMENT

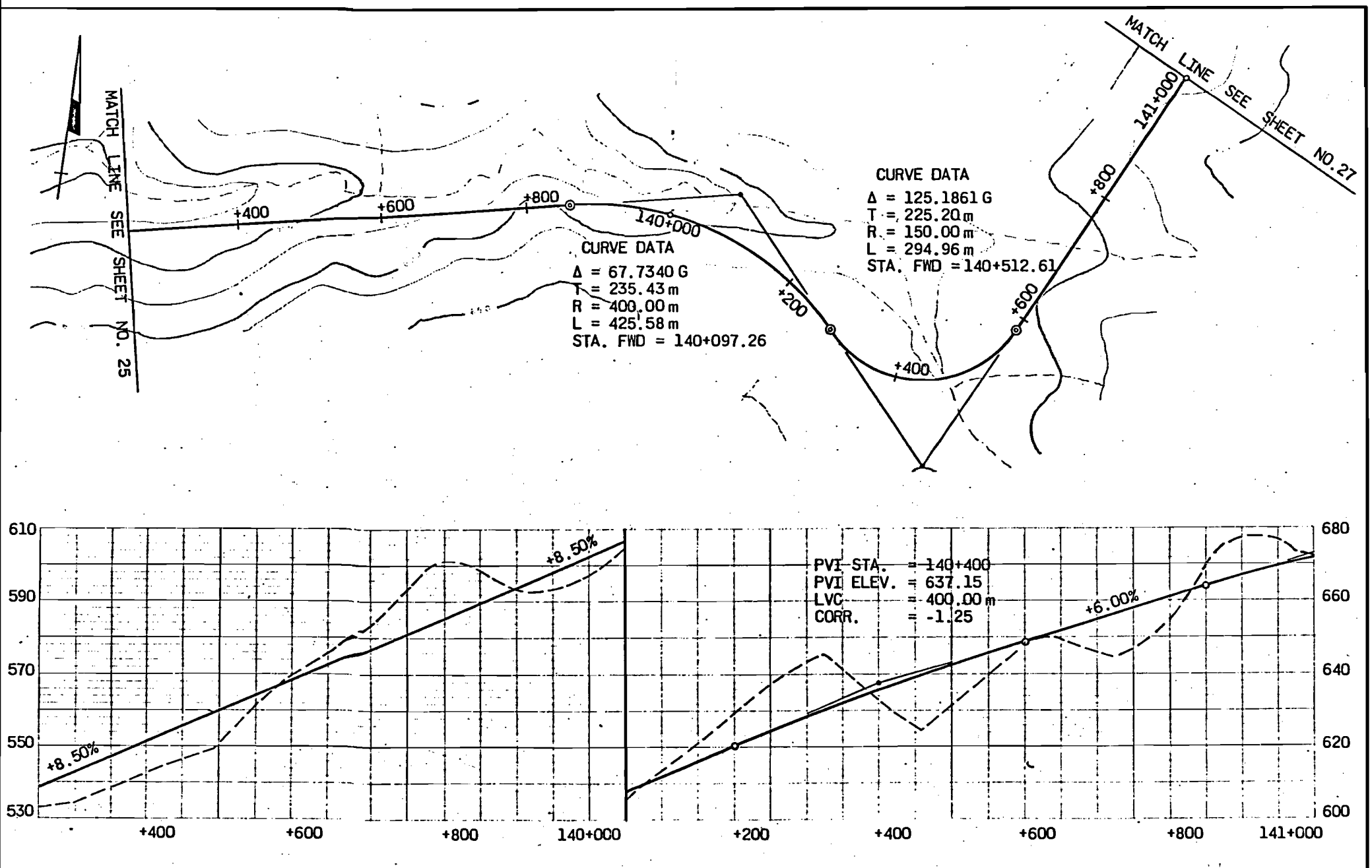


Horiz. 1:5000 0 100 200m Vert. 1:1000 0 10 20 30 40m	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 137+750 TO KM 139+250	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-25 SHEET NO. 25 OF 36



Horiz. 0 100 200m 1:5000 Vert. 0 10 20 30 40m 1:1000	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 137+750 TO KM 139+250	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-25 SHEET NO. 25 OF 36

BEST AVAILABLE DOCUMENT



Horiz. 0 100 200m
1:5000
Vert. 0 10 20 30 40m
1:1000

SYRIAN ARAB REPUBLIC
Ministry of Communications

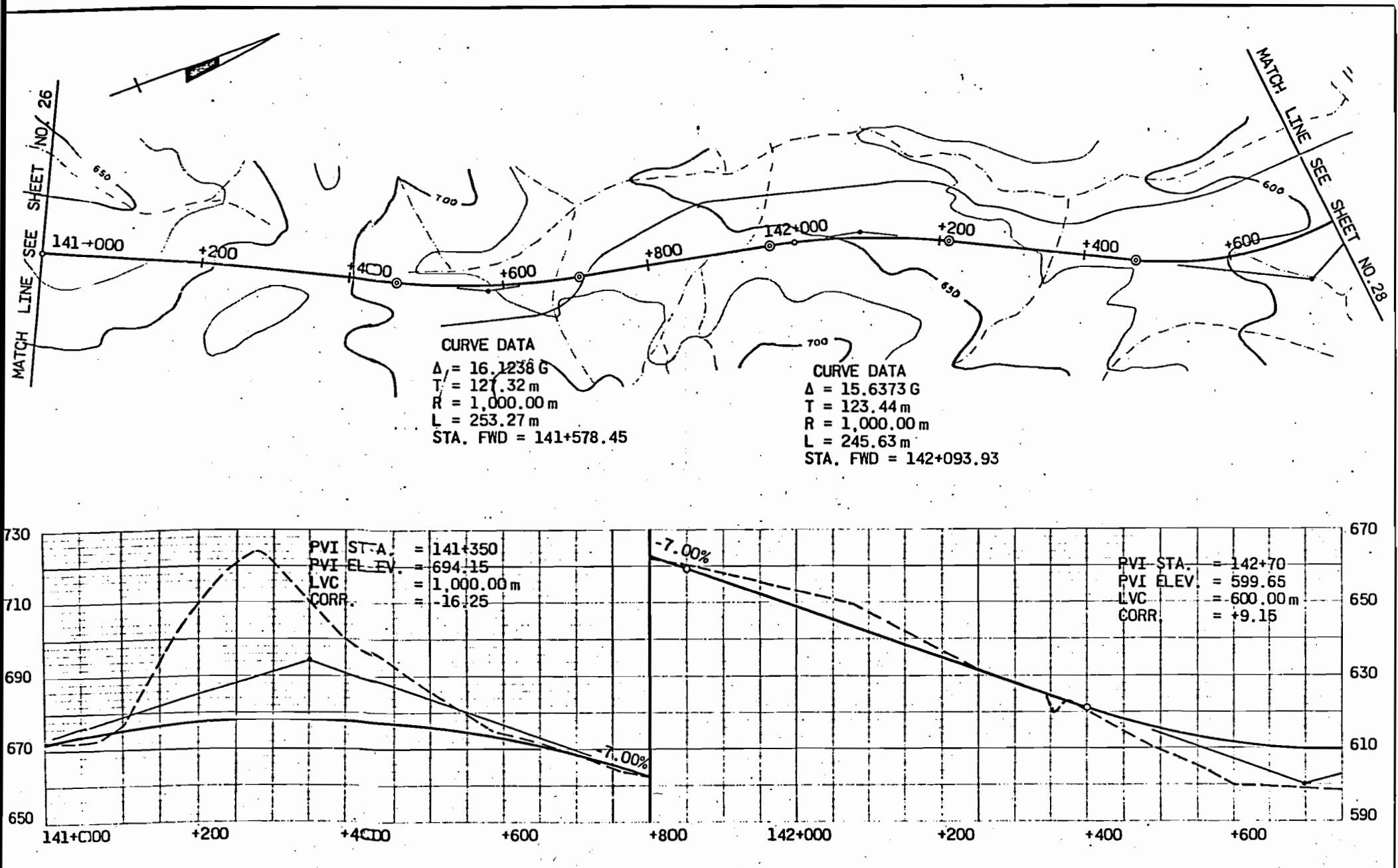
LATTAKIA TO KASSAB HIGHWAY
Preliminary Engineering
PLAN AND PROFILE KM 139+250 TO KM 141+000

LYON associates, inc.
in association with
Morrison-Maierle Inc. and
James R. Snitzler Associates, Inc.

PLATE NO. A - 26

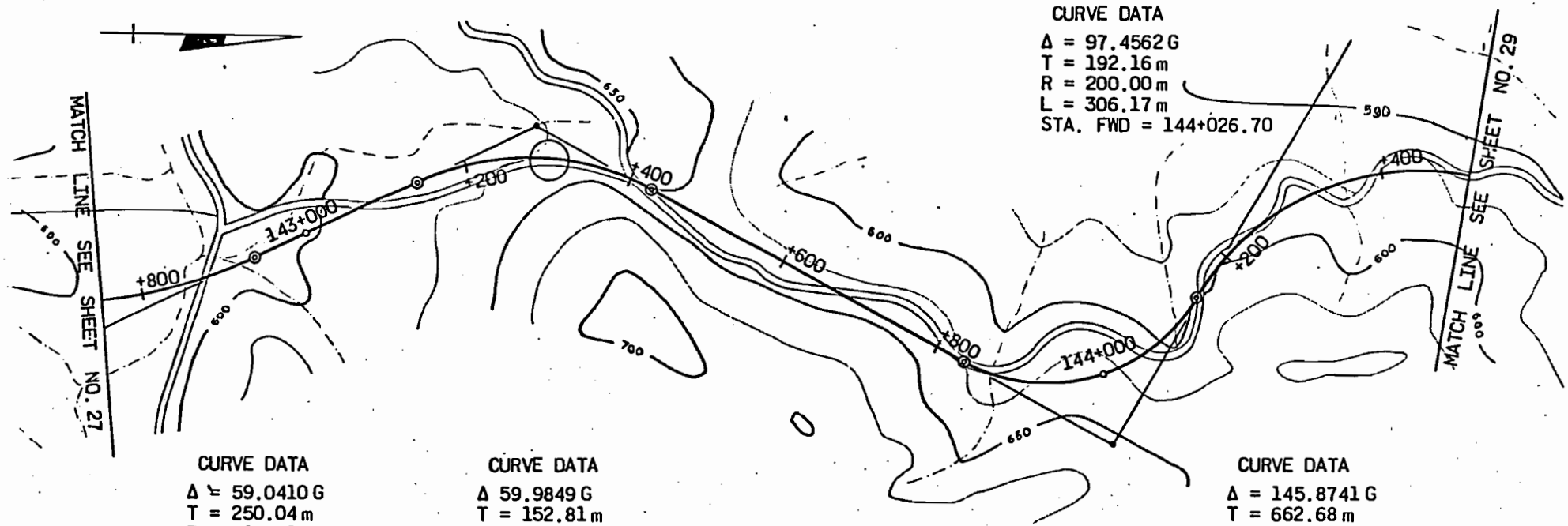
SHEET NO. 26 OF 36

BEST AVAILABLE DOCUMENT



Horiz 1:5000 0 100 200m Vert 1:1000 0 10 20 30 40m	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 141+000 TO KM 142+750	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-27 SHEET NO. 27 OF 36

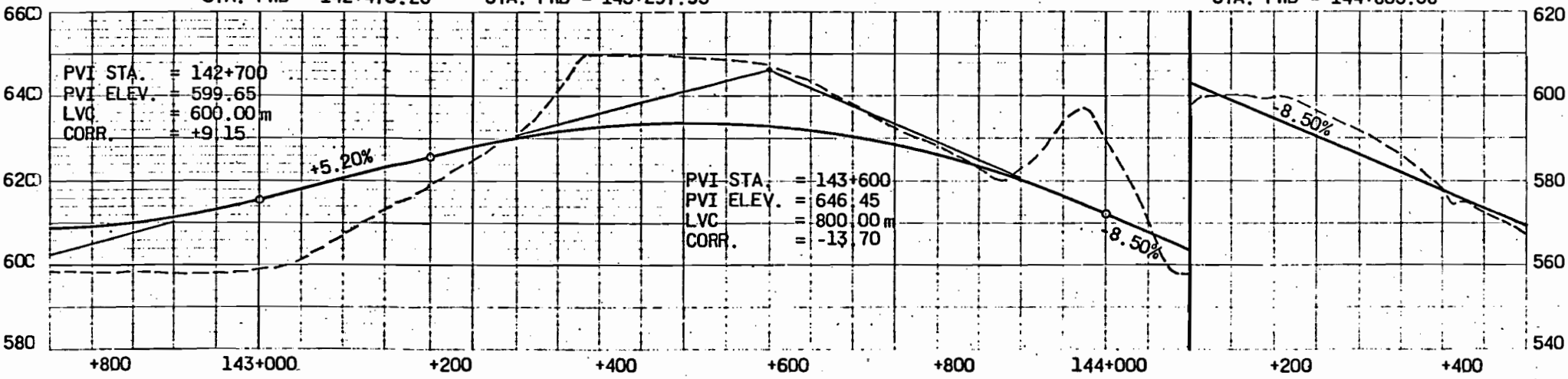
BEST AVAILABLE DOCUMENT



CURVE DATA
Δ = 59.0410 G
T = 250.04 m
R = 500.00 m
L = 463.71 m
STA. FWD = 142+473.26

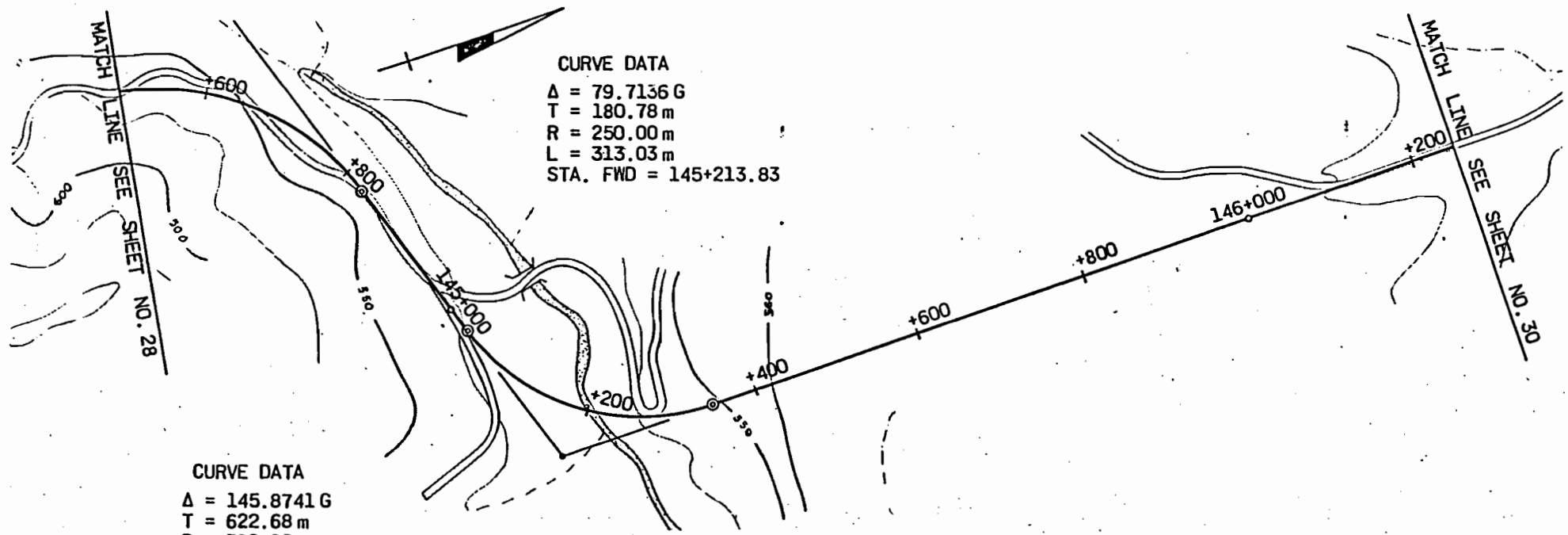
CURVE DATA
Δ 59.9849 G
T = 152.81 m
R = 300.00 m
L = 282.67 m
STA. FWD = 143+297.35

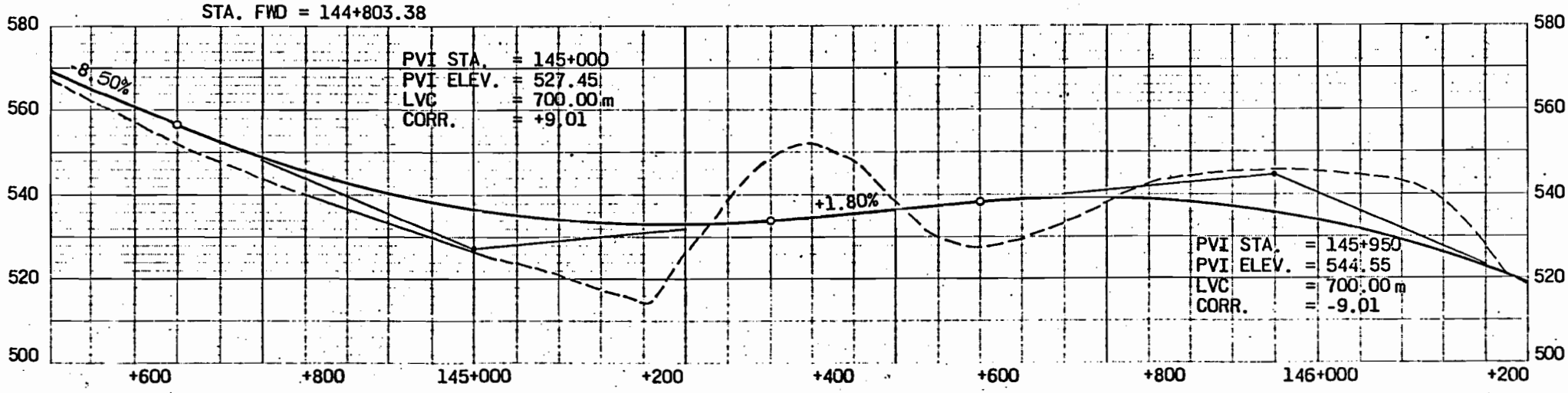
CURVE DATA
Δ = 145.8741 G
T = 662.68 m
R = 300.00 m
L = 687.42 m
STA. FWD = 144+803.38



Horiz. 1:5000 0 100 200m Vert. 1:1000 0 10 20 30 40m	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 142+750 TO KM 144+500	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-28 SHEET NO. 28 OF 36

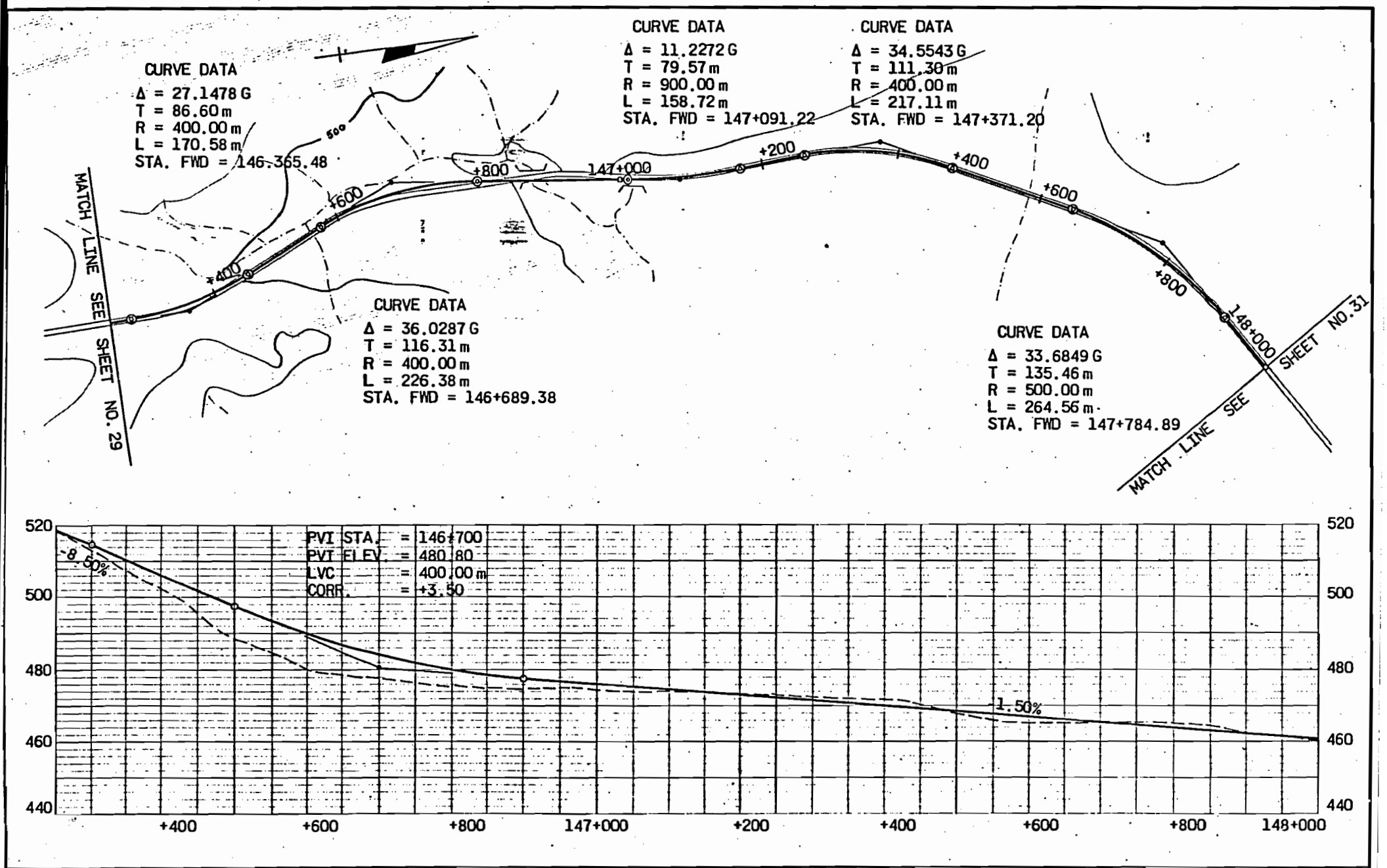
BEST AVAILABLE DOCUMENT





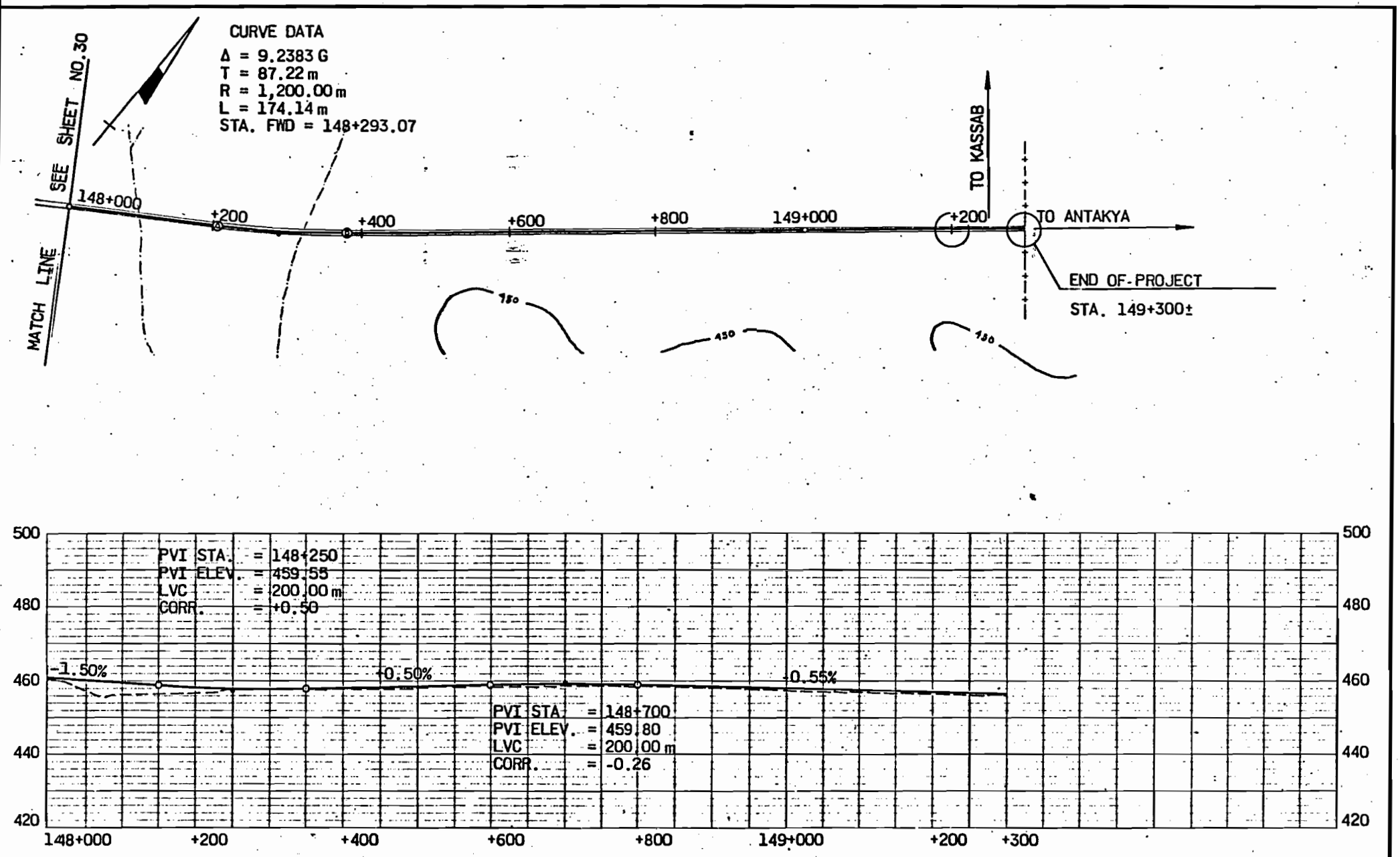
Horiz. 1:5000 0 100 200m Vert. 1:1000 0 10 20 30 40m	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 144+500 TO KM 146+250	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A – 29 SHEET NO. 29 OF 36

BEST AVAILABLE DOCUMENT



Horiz. 0 100 200m 1:5000 Vert. 0 10 20 30 40m 1:1000	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering PLAN AND PROFILE KM 146+250 TO KM 148+000	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-30 SHEET NO. 30 OF 36

BEST AVAILABLE DOCUMENT



Horiz. 1:5000 0 100 200m
Vert. 1:1000 0 10 20 30 40m

SYRIAN ARAB REPUBLIC
Ministry of Communications

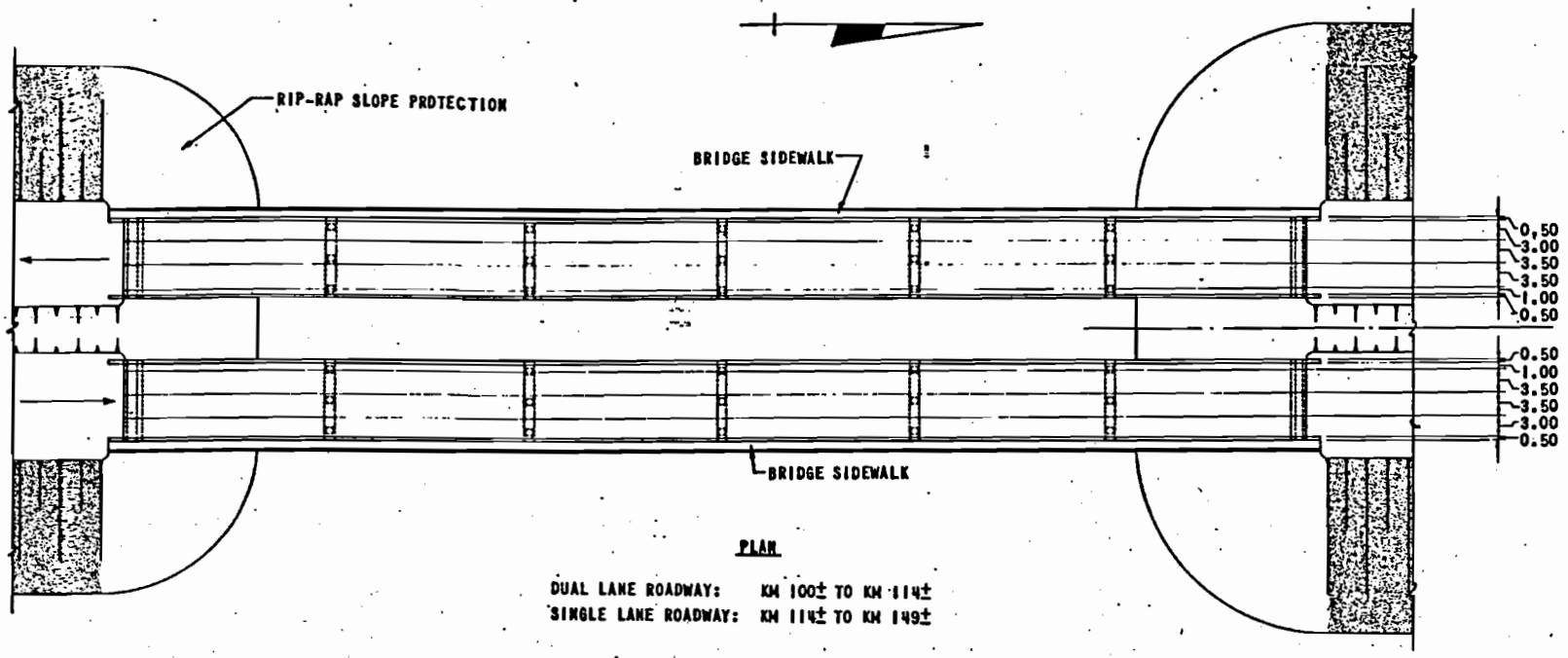
LATTAKIA TO KASSAB HIGHWAY
Preliminary Engineering
PLAN AND PROFILE KM 148+000 TO KM 148+300

LYON associates, inc.
in association with
Morrison-Maierle Inc. and
James R. Snitzler Associates, Inc.

PLATE NO. A-31

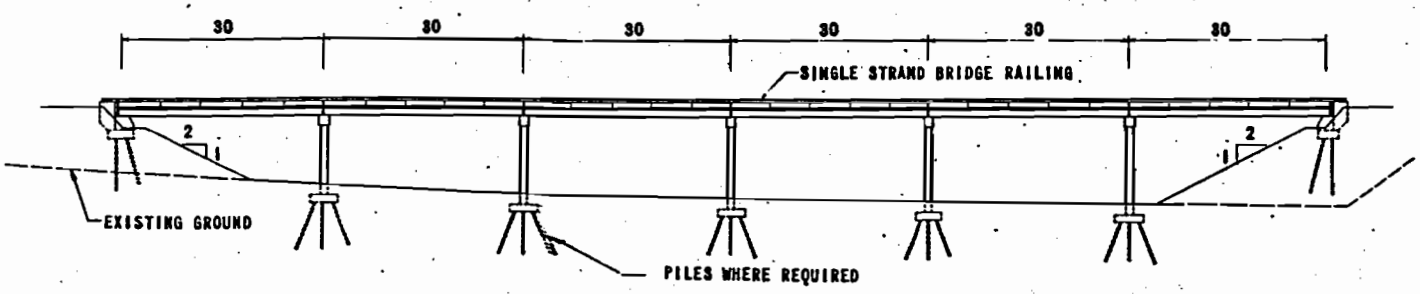
SHEET NO. 31 OF 36

BEST AVAILABLE DOCUMENT

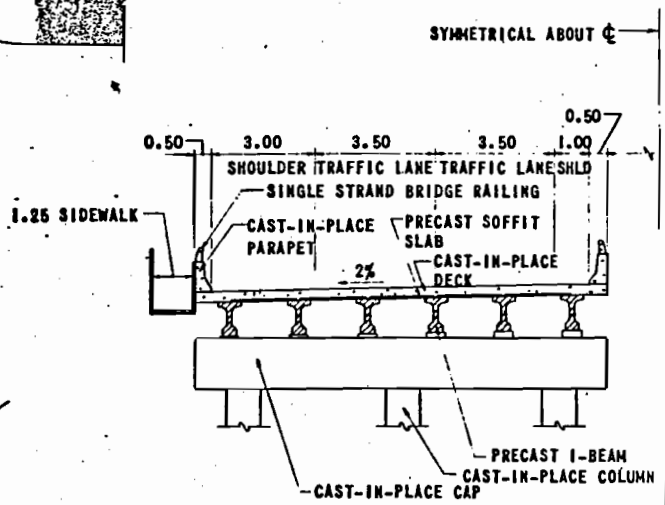


PLAN

DUAL LANE ROADWAY: KM 100± TO KM 114±
SINGLE LANE ROADWAY: KM 114± TO KM 149±

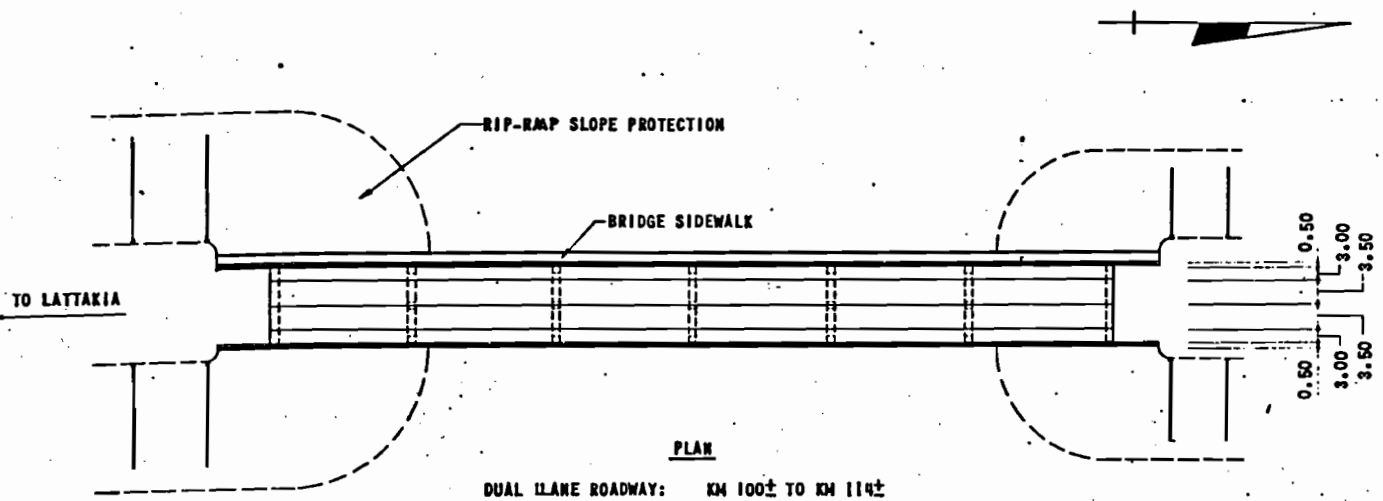


ELEVATION



TYPICAL DECK SECTION

	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering DUAL BRIDGE STRUCTURE	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-32 SHEET NO. 32 OF 36



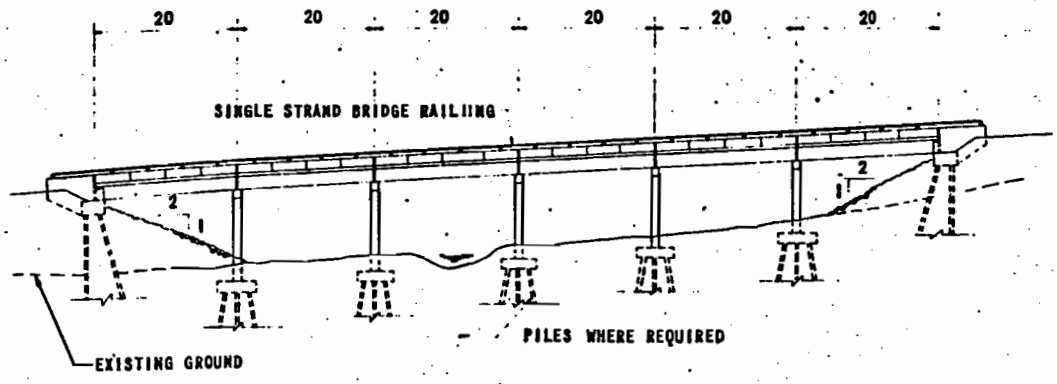
PLAN

DUAL LANE ROADWAY: KM 100± TO KM 114±

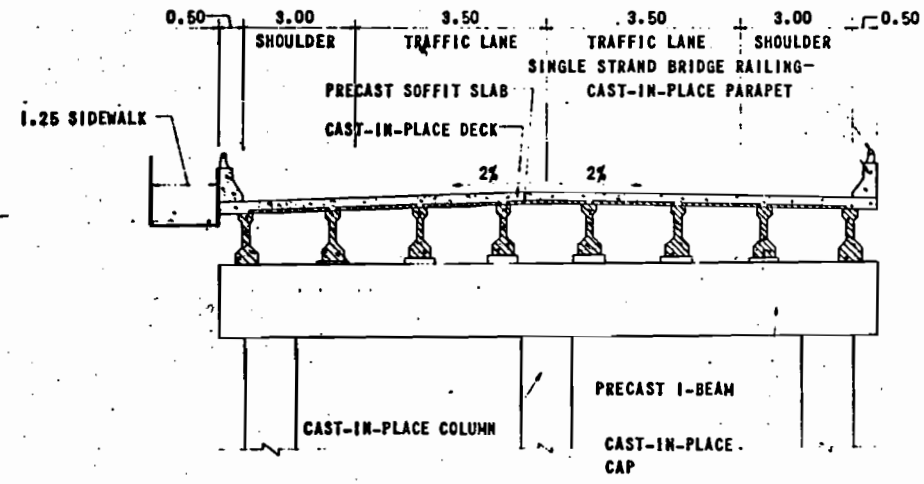
SINGLE LANE ROADWAY: KM 114± TO KM 149±

NOTE: 1. SINGLE BRIDGE STRUCTURE SHOWN AT KM 120+650 OTHER SINGLE BRIDGE STRUCTURES SIMILAR.

2. RIVER CROSSING SHOWN, VIADUCT SIMILAR EXCEPT AS NOTED.



ELEVATION



TYPICAL DECK SECTION

	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering SINGLE BRIDGE STRUCTURE	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-33 SHEET NO. 33 OF 36

LEGAL LOADING INCLUDING ROCK TRUCKS FOR PORT EXPANSION

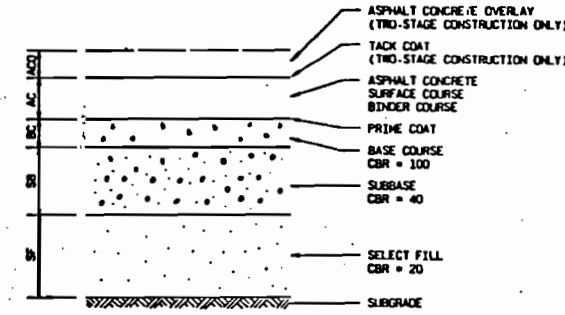
	TRAFFIC DIRECTION	SINGLE STAGE CONSTRUCTION 20 YEAR LIFE 20 YEAR DESIGN				TWO STAGE CONSTRUCTION 20 YEAR LIFE 7 YEAR DESIGN/OVERLAY IN 7th YEAR					TWO STAGE CONSTRUCTION 20 YEAR LIFE 10 YEAR DESIGN/OVERLAY IN 10th YEAR					TWO STAGE CONSTRUCTION 20 YEAR LIFE 15 YEAR DESIGN/OVERLAY IN 15th YEAR				
		AC	BC	SB	SF	AC	BC	SB	SF	ACO	AC	BC	SB	SF	ACO	AC	BC	SB	SF	ACO
100+000 TO 114+000	NB	5	15	10	10	5	10	5	20	5	5	15	-	20	2.5	5	15	-	20	2.5
	SB	10	15	25	-	10	15	20	-	2.5	10	15	20	-	2.5	10	15	20	-	2.5
114+000 TO 132+000	NB/SB	5	15	15	5	5	15	-	20	2.5	5	15	-	20	2.5	5	15	10	10	2.5
132+000 TO 149+300	NB/SB	5	15	-	20	5	10	5	20	2.5	5	10	5	20	2.5	5	15	-	20	-

PRESENT OR LEGAL LOADING EXCLUDING ROCK TRUCKS FOR PORT EXPANSION

	TRAFFIC DIRECTION	SINGLE STAGE CONSTRUCTION 20 YEAR LIFE 20 YEAR DESIGN				TWO STAGE CONSTRUCTION 20 YEAR LIFE 7 YEAR DESIGN/OVERLAY IN 7th YEAR					TWO STAGE CONSTRUCTION 20 YEAR LIFE 10 YEAR DESIGN/OVERLAY IN 10th YEAR					TWO STAGE CONSTRUCTION 20 YEAR LIFE 15 YEAR DESIGN/OVERLAY IN 15th YEAR				
		AC	BC	SB	SF	AC	BC	SB	SF	ACO	AC	BC	SB	SF	ACO	AC	BC	SB	SF	ACO
100+000 TO 114+000	NB	5	15	10	10	5	10	5	20	5	5	10	5	20	5	5	15	-	20	2.5
	SB	5	15	15	5	5	15	-	20	2.5	5	15	-	20	2.5	5	15	10	10	2.5

PRESENT LOADING INCLUDING ROCK TRUCKS FOR PORT EXPANSION

	TRAFFIC DIRECTION	SINGLE STAGE CONSTRUCTION 20 YEAR LIFE 20 YEAR DESIGN				TWO STAGE CONSTRUCTION 20 YEAR LIFE 7 YEAR DESIGN/OVERLAY IN 7th YEAR					TWO STAGE CONSTRUCTION 20 YEAR LIFE 10 YEAR DESIGN/OVERLAY IN 10th YEAR					TWO STAGE CONSTRUCTION 20 YEAR LIFE 15 YEAR DESIGN/OVERLAY IN 15th YEAR				
		AC	BC	SB	SF	AC	BC	SB	SF	ACO	AC	BC	SB	SF	ACO	AC	BC	SB	SF	ACO
100+000 TO 114+000	NB	5	15	10	10	5	15	-	20	2.5	5	15	-	20	2.5	5	15	-	20	2.5
	SB	15	10	25	-	15	10	20	-	2.5	15	10	20	-	2.5	15	10	20	-	2.5



PAVEMENT SECTION
NOT TO SCALE

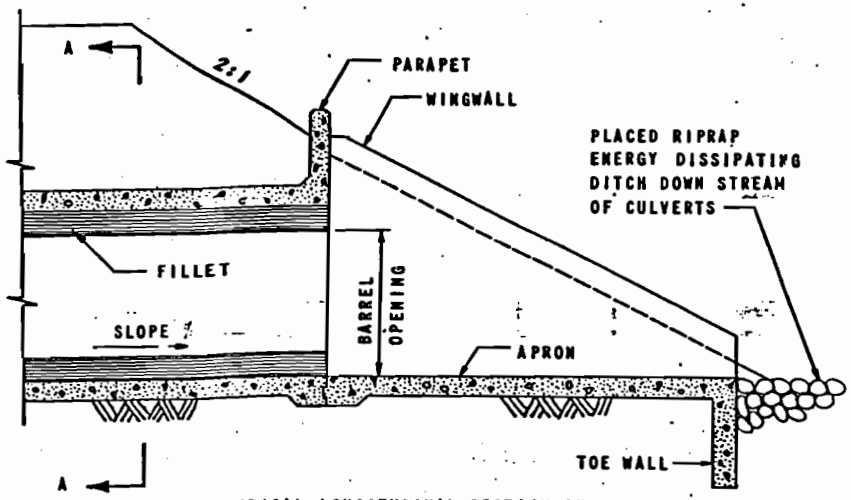
ABBREVIATIONS

ACO	ASPHALT CONCRETE OVERLAY (TWO-STAGE CONSTRUCTION)
AC	ASPHALT CONCRETE
BC	BASE COURSE
SB	SUBBASE
SF	SELECT FILL
CBR	CALIFORNIA BEARING RATIO
NB	NORTHBOUND
SB	SOUTHBOUND

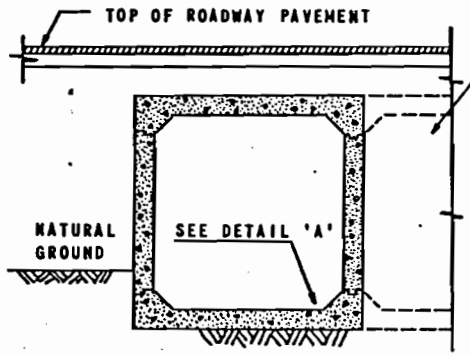
NOTES

1. ALL PAVEMENT SECTION VALUES ARE GIVEN IN CENTIMETERS THICKNESS.
2. SEE PLATE A-2 FOR TYPICAL SECTIONS.

NOT TO SCALE	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering DETAIL 1 – PAVING	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A – 34 SHEET NO. 34 OF 36

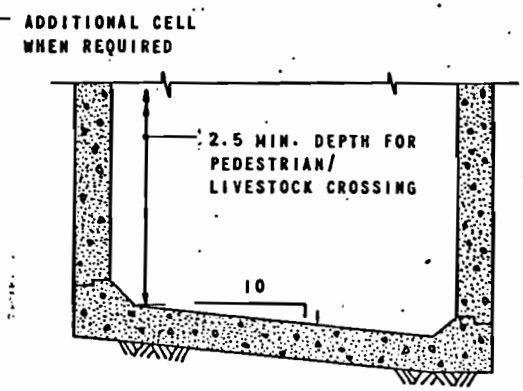


TYPICAL LONGITUDINAL SECTION IN REINFORCED CONCRETE BOX CULVERT



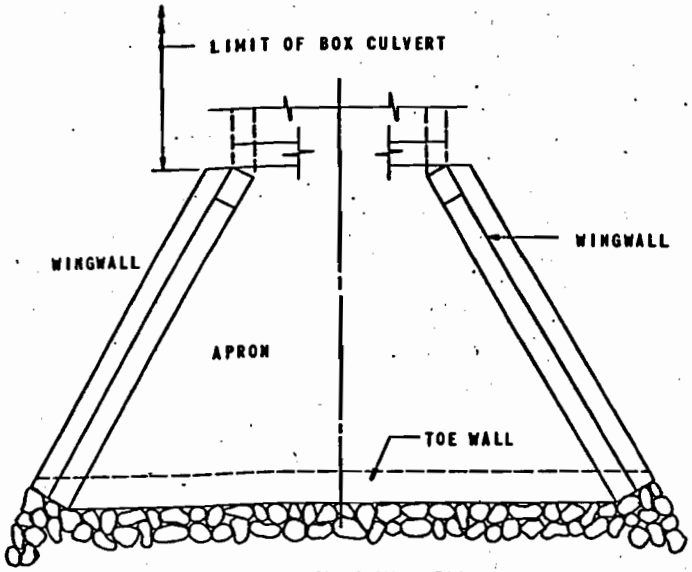
SECTION A-A

SINGLE CELL R.C. BOX CULVERT

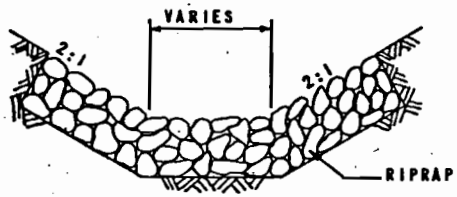


DETAIL 'A'

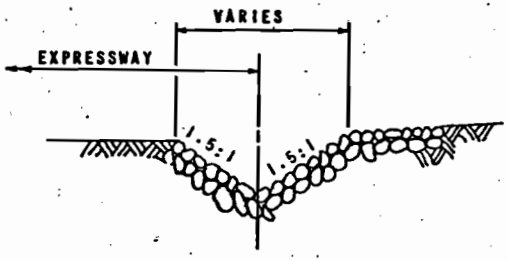
ALTERNATE SHAPE OF PEDESTRIAN/LIVESTOCK CROSSING WHEN USED AS SECONDARY DRAINAGE STRUCTURE



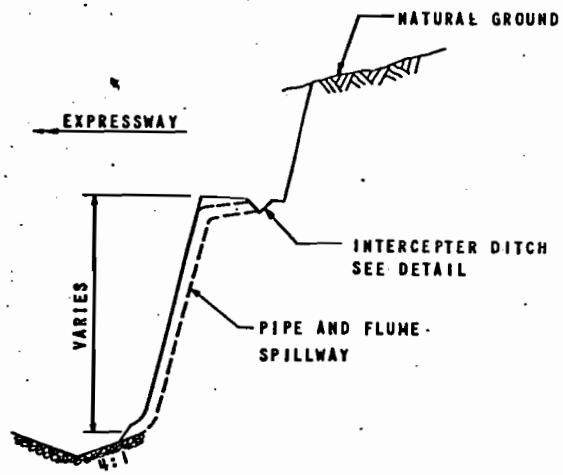
BOX CULVERT WING WALL PLAN



ENERGY DISSIPATING DITCH

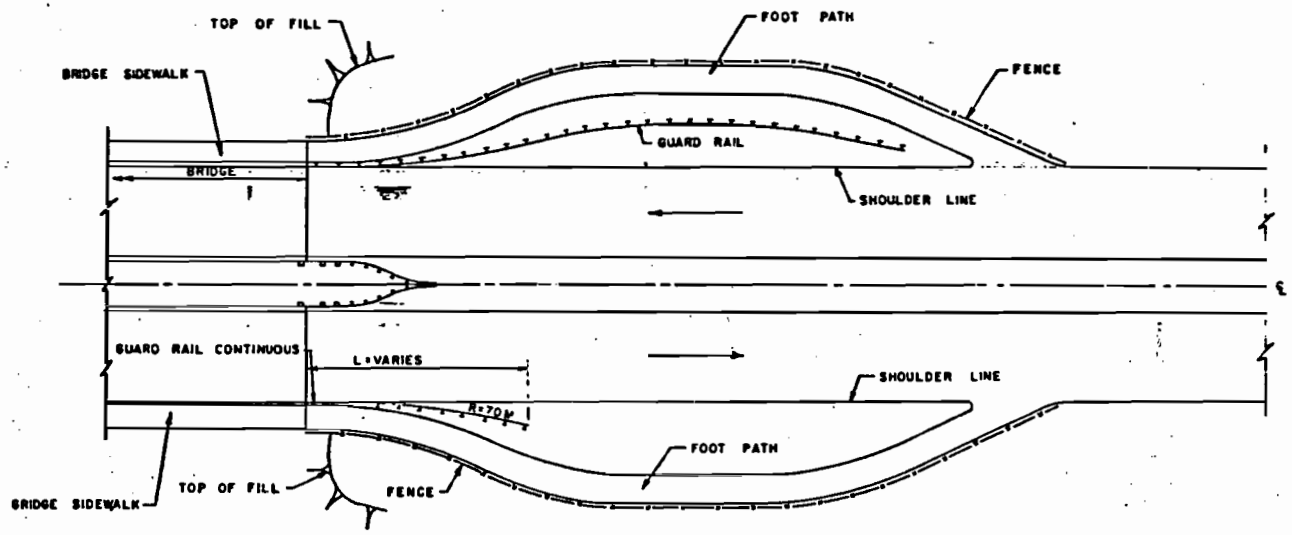


INTERCEPTER DITCH



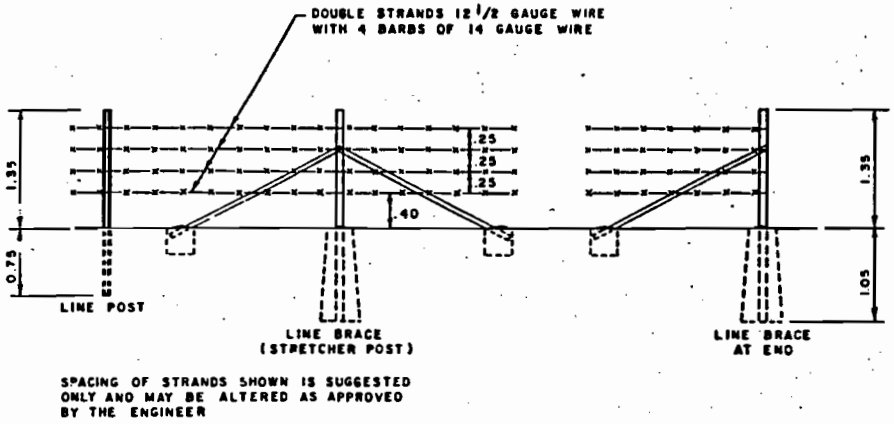
SLOPE BENCH

NOT TO SCALE	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering DETAIL 2-DRAINAGE	LYON associates, inc. in association with Morrison-Maierle Inc. and James R Snitzler Associates, Inc.	PLATE NO. A-35 SHEET NO. 35 OF 36



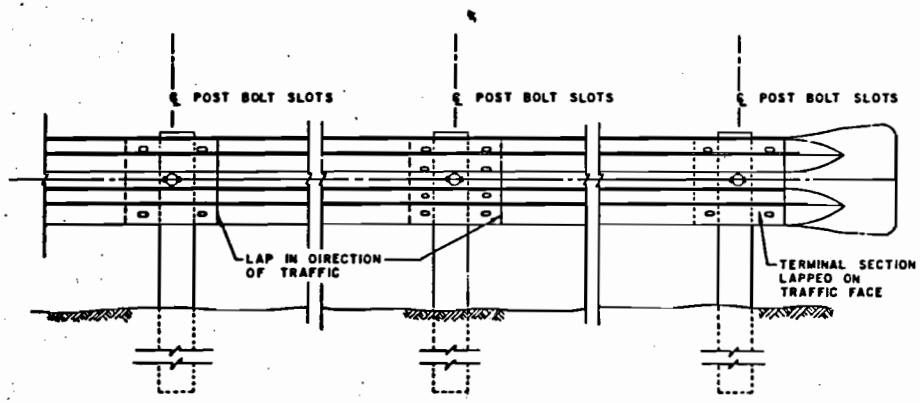
TYPICAL GUARD RAIL AND FENCE LAYOUT AT BRIDGE APPROACH

NOT TO SCALE



BARBED WIRE FENCE

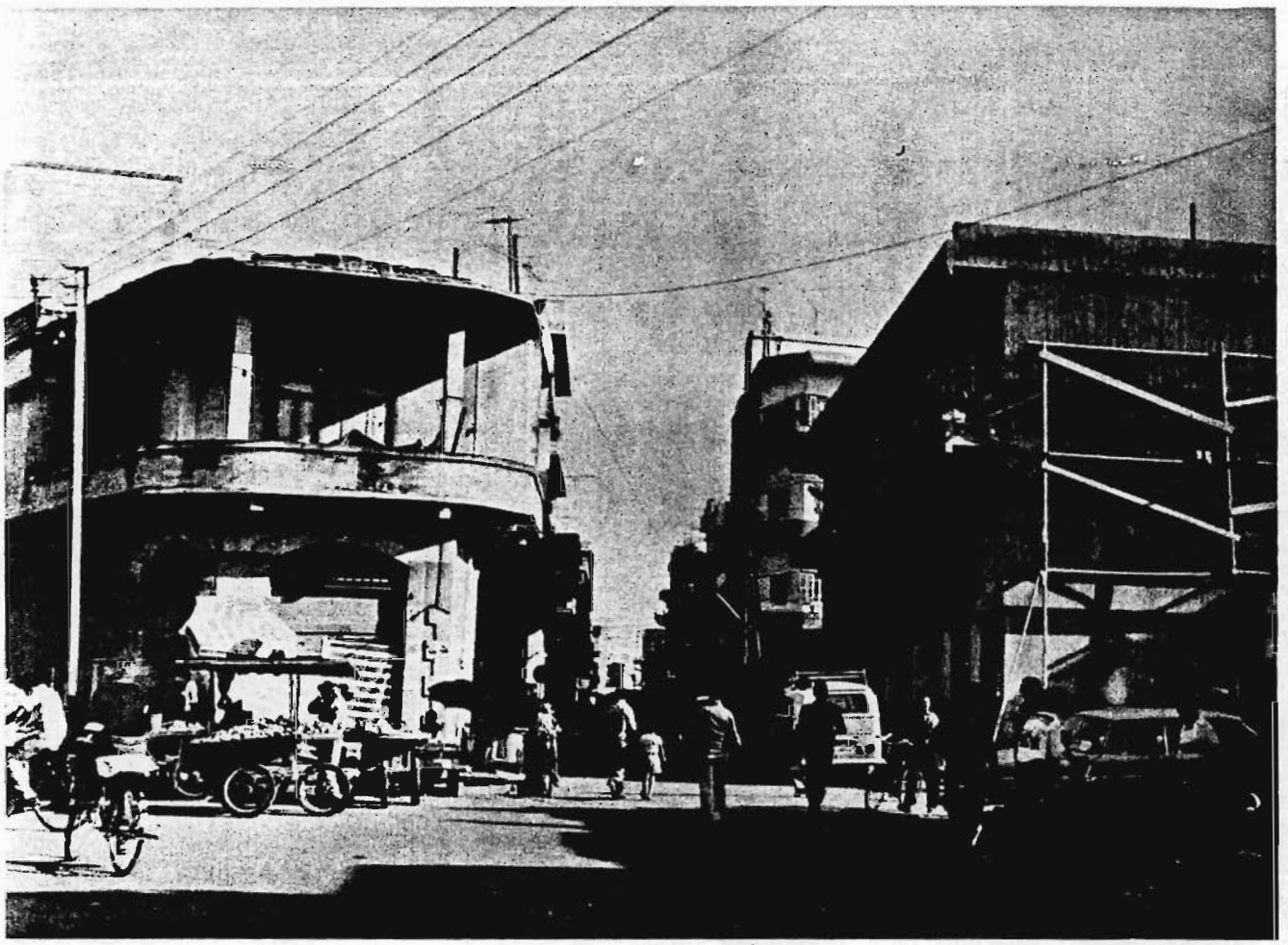
NOT TO SCALE



GUARD RAIL

NOT TO SCALE

NOT TO SCALE	SYRIAN ARAB REPUBLIC Ministry of Communications	LATTAKIA TO KASSAB HIGHWAY Preliminary Engineering DETAIL 3-INCIDENTAL	LYON associates, inc. in association with Morrison-Maierle Inc. and James R. Snitzler Associates, Inc.	PLATE NO. A-36 SHEET NO. 36 OF 36



General Economics

APPENDIX B

LYON

TABLE 1

SHARE OF THE AGRICULTURAL SECTOR IN GROSS DOMESTIC PRODUCT AT MARKET PRICES, SAR (MILLION SL)

	1976p	1975r	1974	1973	1972	1971	1971-76[1/]
	. . . . . at current prices						
GDP	22,956	18,816	14,870	9,413	8,891	7,448	25.0
Agriculture	5,069	3,623	3,045	1,709	2,352	1,627	26.0
Agric. % GDP	22.1	19.3	20.5	18.2	26.5	21.8	-
	. . . . . at constant 1963 prices						
GDP	10,103	9,323	8,255	6,938	6,787	6,186	10.3
Agriculture	1,891	1,669	1,535	1,107	1,524	1,187	9.8
Agric. % GDP	18.7	17.9	18.5	15.9	22.5	19.2	-

Source: Statistical Abstract, 1977, Central Bureau of Statistics; Quarterly Bulletin, 1976, Central Bank of Syria, p. 43.

1/ Annual average growth rate.

TABLE 2

VALUE OF AGRICULTURAL EXPORTS, SAR, 1970-1976 (MILLION SL)

Commodities	1970	1971	1972	1973	1974	1975	1976
Cotton, raw	309.8	313.9	373.1	448.3	715.0	439.4	637.7
Tobacco	17.6	14.0	20.3	45.2	67.0	81.5	93.2
Lentils	6.4	19.8	21.3	17.4	10.9	18.3	43.2
Fruits and vegetables	24.6	27.4	38.9	28.7	38.9	37.1	37.8
Wool	10.7	18.5	36.5	77.2	57.0	29.7	34.5
Raw hides and leather	8.8	7.7	17.0	34.0	19.3	23.4	28.5
Oil-cake	20.8	11.6	29.3	9.9	8.7	4.4	8.8
Live animals and meats	71.4	25.7	60.5	50.3	12.3	13.1	4.1
Wheat	-	0.1	84.2	45.0	0.1	-	2.7
Sub-total, Agriculture	470.1	438.7	681.1	756.0	929.2	646.9	890.5
Crude oil	128.8	176.0	200.2	291.2	1607.5	2376.9	2585.7
Other	176.4	174.2	259.4	294.1	377.3	417.1	665.1
Total	775.3	788.9	1140.7	1341.3	2914.0	3440.9	4141.3
Agric. % Total	60.6	55.6	59.7	56.4	31.9	18.8	21.5
Agric. % Total less crude oil	72.7	71.6	72.4	72.0	71.1	60.8	57.2
Cotton % Agric.	65.9	71.6	54.8	59.3	76.9	67.9	71.6
Cotton % Total	40.0	39.8	32.7	33.4	24.5	12.8	15.4

Source: Central Bureau of Statistics and General Directorate of Customs, in Quarterly Bulletin, Central Bank of Syria, 1976, Vol. XIV, No. 4, Tables 49 and 50.

TABLES 1 & 2
GENERAL ECONOMICS

LYON

TABLE 3

VALUE OF AGRICULTURAL (FOOD) IMPORTS, SAR, 1970–1976 (MILLION SL)

Commodities	1970	1971	1972	1973	1974	1975	1976
Fruits and vegetables	60.1	81.3	81.1	102.9	122.8	124.4	196.8
Live animals and meats	22.4	30.0	33.4	44.2	126.7	82.7	27.1
Sugar, raw and refined	39.9	99.4	113.0	137.3	360.7	427.1	315.2
Other foodstuffs	236.0	376.7	258.4	284.8	581.3	520.3	559.7
Total, food	358.4	587.4	485.9	569.2	1,191.5	1,154.5	1,098.8
Total, all imports	1,374.6	1,703.5	2,081.9	2,342.0	4,571.0	6,236.2	9,203.3
Food, % all imports	26.1	34.5	23.3	24.3	26.1	18.5	11.9

Source: Central Bureau of Statistics and General Directorate of Customs, in Quarterly Bulletin, Central Bank of Syria, 1976, Vol. XIV, No. 4, Table 49 and 51.

TABLE 4

VALUE OF AGRICULTURAL PRODUCTION, SAR, 1963-1976, AT CONSTANT 1963 PRICES (MILLION SL)

Year	Plant Production	Animal Production	Total
1963	983.6	417.1	1,400.7
1964	1,109.8	461.7	1,571.5
1965	1,061.5	442.3	1,503.8
1966	794.9	489.8	1,248.7
1967	1,024.7	445.2	1,469.9
1968	951.8	355.2	1,307.0
1969	1,052.0	573.4	1,625.4
1970	846.7	526.2	1,372.9
1971	994.2	400.6	1,394.8
1972	1,411.3	352.5	1,763.8
1973	919.3	501.8	1,421.1
1974	1,466.4	404.0	1,870.4
1975	1,536.5	477.7	2,014.2
1976	1,723.7	550.1	2,273.8

Source: Statistical Abstracts, 1971-77, Central Bureau of Statistics.

BEST AVAILABLE DOCUMENT

TABLE 5

LAND USE, 1976, SAR AND SELECTED MOHAFAZATS

Land Use	Syria Total	Mohafazats			
		Lattakia	Tartous	Idlib	Hama
	000 hectares				
Total area	18,518	230	189	610	888
Uncultivable	12,636	123	59	269	378
Steppe/pasture	8,549	3	1	77	115
Forests	457	83	31	47	129
Other[1]	3,630	37	27	145	134
Cultivable but unused[2]	338	12	-	-	1
Cultivated	5,544	95	130	341	509
Fallow	1,295	4	-	42	124
Cropped	4,249	91	130	299	385
of which: irrigated	547	17	16	13	75
rainfed	3,702	74	114	286	310
	percent of total				
Total area	100.0	100.0	100.0	100.0	100.0
Uncultivable	68.2	53.5	31.2	44.1	42.6
Steppe/pasture	46.2	1.3	.5	12.6	13.0
Forests	2.4	36.1	16.4	7.7	14.5
Other[1]	19.6	16.1	14.3	23.8	15.1
Cultivable but unused[2]	1.8	5.2	-	-	0.1
Cultivated	30.0	41.3	68.8	55.9	57.3
Fallow	7.0	1.7	-	6.9	14.0
Cropped	23.0	39.6	68.8	49.0	43.3
of which: irrigated	3.0	7.4	8.5	2.1	8.4
rainfed	20.0	32.2	60.3	46.9	34.9

Source: Central Bureau of Statistics, Statistical Abstract, 1977.

1/ Rocky and sandy lands, marshes, lakes, roads and buildings.

2/ Primarily land cultivable under good rainfall conditions.

TABLE 5
GENERAL ECONOMICS
LYON

TABLE 6

ANNUAL AVERAGE GROWTH RATES IN CROP AREA, PRODUCTION AND YIELDS, SAR, BASED ON 3-YEAR AVERAGES, 1970/1972-1974/1976 1/

Crop		Three-Year Average Growth Rate		
		1970/72	1974/76	Rate (%)
Cereals Total	A	2,080	2,610	5.8
	P	1,421	2,479	14.9
	Y	0.68	0.95	8.7
Wheat	A	1,323	1,606	5.0
	P	1,032	1,657	12.6
	Y	0.78	1.03	7.2
Barley	A	718	960	7.5
	P	356	771	21.0
	Y	0.50	0.80	12.5
Dry Legumes Total	A	227	263	3.8
	P	159	211	7.3
	Y	0.70	0.80	3.4
Lentils	A	122	110	-2.1
	P	72	95	7.1
	Y	0.59	0.86	9.9
Vegetables Total	A	134	210	11.9
	P	1,146	2,177	17.4
	Y	8.55	10.37	4.9
Tomatoes	A	19	29	11.1
	P	252	429	8.3
	Y	1,326	14.79	2.2
Cucumbers	A	10	14	8.8
	P	68	167	25.0
	Y	6.8	11.93	15.1
Squash	A	4	7	15.0
	P	43	99	23.0
	Y	10.75	14.14	7.1
Industrial Crops Total	A	302	285	-1.4
	P	680	649	-1.2
	Y	2.25	2.28	0.3
Cotton	A	246	198	-5.3
	P	403	403	-
	Y	1.64	2.04	5.6
Sugar Beets	A	9	8	-3.0
	P	236	190	-5.3
	Y	26.22	23.75	-2.4

Continued--

TABLE 6
(Continued)

ANNUAL AVERAGE GROWTH RATES IN CROP AREA, PRODUCTION AND YIELDS, SAR, BASED ON 3-YEAR AVERAGES, 1970/1972-1974/1976 1/

Crop		Three-Year Average Growth Rate		
		1970/72	1974/76	Rate (%)
Tobacco	A	13	17	6.9
	P	9	11	5.1
	Y	0.69	0.65	-1.5
Peanuts	A	11	13	4.2
	P	20	21	1.2
	Y	1.82	1.62	-2.6
Fruits 2/ Total	A	270	369	8.1
	P	517	742	9.4
	Y	7.20	8.40	3.9
Olives 2/	A	133	194	9.9
	P	121	202	13.6
	Y	9.07	12.31	7.9
Apples 2/	A	8.3	16.7	19.1
	P	31	5.7	16.4
	Y	17.35	21.54	5.6
Citrus 2/ (Oranges)	A	1.6	2.4	10.7
	P	7.2	17.60	25.0
	Y	19.78	35.99	16.1

1/ Area (A) = 1,000 hec.; Production (P) - 1,000 MT; Yield (Y) = MT/hec.

2/ Yield = kg/bearing tree.

Source: Statistical Abstracts, 1971-77, Central Bureau of Statistics.

TABLE 6
GENERAL ECONOMICS
LYON

TABLE 7

LAND DISTRIBUTED UNDER THE AGRARIAN REFORM UP TO 1975, SYRIA AND SELECTED MOHAFAZATS (000 HEC.)

	Syria	Lattakia	Tartous	Idlib	Hama
Distributed Land					
Total	466.1	4.8	7.6	53.8	82.9
Rainfed	405.4	1.9	5.3	49.9	80.6
Irrigated and planted with trees	60.7	2.9	2.3	3.9	2.3
Excluded and sold land	329.8	1.0	2.6	2.2	25.7
Allocated land[1/]	254.0	0.5	0.5	17.8	2.9
Non-distributed land	351.4	-	-	9.9	3.2
Total Expropriated land					
Total	1,401.3	6.3	10.7	83.7	114.7
Uncultivated	185.5	1.0	1.6	18.6	22.5
Rainfed	1,147.8	2.3	6.6	61.2	89.5
Irrigated and planted with trees	68.0	3.0	2.5	3.9	2.7

Source: Statistical Abstract, 1977, CBS, p. 193.

1/ Allocated to cooperatives or various Ministries, etc.

TABLE 9

AREA OF CULTIVATED LAND BY PUBLIC, COOPERATIVE AND PRIVATE SECTORS, SYRIA AND SELECTED MOHAFAZATS, 1976 (000 HEC.)

	Syria	Lattakia	Tartous	Idlib	Hama
Cultivable area					
Total	5,882.0	107.0	130.0	341.0	510.0
Private	4,512.8	73.7	66.0	209.0	347.8
Cooperative	1,317.0	33.0	64.0	132.0	162.0
Public	52.2	0.3	-	-	0.2
Cultivated area					
Total	4,249.0	91.0	130.0	299.0	385.0
Private	3,370.2	65.7	61.5	214.7	277.2
Cooperative	826.9	25.1	68.5	84.3	107.6
Public	51.9	0.2	-	-	0.2

Source: Statistical Abstract, 1977, CBS p. 192.

TABLE 8

NUMBER AND SIZE OF AGRICULTURAL LAND HOLDINGS, SYRIA AND SELECTED MOHAFAZATS, 1970

	Syria	Lattakia	Tartous	Idlib	Hama
No. of families	1,064,486	68,283	50,381	68,477	82,441
No. of land holding families	476,636	34,857	33,978	42,188	47,861
Percentage	45	51	67	62	58
No. of agricultural holders	527,301	44,803	42,165	44,602	52,706
Average area of holding					
Cultivable land (dunums)	97	19	33	60	82
Uncult. land (dunums)	5.7	1.2	8.7	4.1	15.2
Total (dunums)	102.7	20.2	41.7	64.1	97.2
Total (hectares)	10.3	2.0	4.2	6.4	9.7

Source: Statistical Abstract, 1977, CBS, p. 181, from Agricultural Census of 1970-71.

TABLE 10

NUMBER, MEMBERSHIP AND AREA OF COOPERATIVES, SYRIA AND SELECTED MOHAFAZATS, 1976

	Syria	Lattakia	Tartous	Idlib	Hama
Number of cooperatives	3,413	260	283	380	318
Number of members	256,036	13,155	25,772	27,117	34,855
Area (000 hec)					
Total	1,317	33	64	132	162
Irrigated	204	5	8	5	43
Rainfed	1,007	20	29	105	114
Planted with trees	106	8	27	22	5

Source: Statistical Abstract, 1977, CBS, pp. 224-6.

TABLES 7,8,9 & 10
GENERAL ECONOMICS
LYON

TABLE 11

STATE FARMS FOR PLANT PRODUCTION, SYRIA AND LATTAKIA MOHAFAZAT, 1976

	Syria (13 farms) 1/				Lattakia (1 farm)	
	Area		Production		Area	Prod.
	Hec.	%2/	Tons	%2/		
Total area	91,102	2	-	-	238	-
Total harvested area	50,429	1	-	-	128	-
Cereals	36,698	1	24,345	1	-	-
Legumes	8,536	3	1,621	1	-	-
Vegetables	-	-	-	-	-	-
Industrial Crops	209	0	268	0	19	19
Fastore Crops	4,486	19	87,799	25	-	-
Fruit	500	0	2,382	0	109	1,603
Animals	-	-	-	-	-	-

Source: Statistical Abstract, 1977, CBS, p. 222.

1/ Area and production data for 11 only.

2/ Percent of national total.

BEST AVAILABLE

TABLE 12

STATE FARMS FOR ANIMAL PRODUCTION, SYRIA AND LATTAKIA MOHAFAZAT, 1976

	Units	Syria (7 farms)		Lattakia
		Total	%1/	(1 farm-total)
Total area				
Total	hec	1,644	0	74
Rainfed	hec	749	0	35
Irrigated	hec	895	0	39
Pastoral Crops				
Area	hec	1,438	5	54
Production	tons	19,478	7	2,081
Animals				
Total cows	No.	4,602	1	248
Milking cows	No.	3,145	1	150
Sheep and goats	No.	-	-	-
Milk Production	Tons	7,655	1	433

Source: Statistical Abstract, 1977, CBS, p. 223.

1/ Percent of national total.

DOCUMENT

TABLES 11 & 12
GENERAL ECONOMICS

LYON

TABLE 13

OUTSTANDING LOANS OF THE AGRICULTURAL COOPERATIVE BANK, 1970-1976, SAR (MILLION SL) AND SELECTED MOHAFAZATS (THOUSAND SL) 1/ 2/

End of Period	Syria Total	Lattakia				Tartous			
		Ind.	Co-op.	Public	Total	Ind.	Co-op.	Public	Total
1970	209.0	57	51	-	108	71	52	-	123
1971	234.0	1,824	1,946	-	3,770	1,321	4,455	3	5,779
1972	236.0	1,840	1,715	-	3,555	1,316	3,143	-	4,459
1973	285.0	1,545	1,370	-	2,915	1,741	4,942	41	6,724
1974	266.8	1,863	1,483	-	3,346	1,703	5,557	-	7,260
1975	349.5	4,101	1,698	-	5,799	3,724	10,502	-	14,226
1976	458.1	3,258	3,990	100	7,348	2,472	12,843	6	15,321

End of Period	Idlib				Hama			
	Ind.	Co-op.	Public	Total	Ind.	Co-op.	Public	Total
1970	135	61	2	198	287	33	19	339
1971	3,693	4,229	-	7,922	11,769	5,391	100	17,260
1972	2,856	3,220	1,600	7,676	8,520	5,403	1,677	15,600
1973	3,785	4,121	1,115	9,021	7,844	4,114	1,191	13,149
1974	6,236	3,417	300	9,953	10,330	5,080	1,444	16,754
1975	8,968	6,055	298	15,321	15,753	12,442	1,974	30,169
1976	8,945	7,667	332	16,944	13,429	16,833	2,332	32,594

1/ Ind. = Individuals; Co-op. = Cooperatives.

2/ Location of branch banks as follows:
Lattakia Mohafazat: Lattakia; Jebleh; Al Hafeh; and Kirdaha.
Tartous Mohafazat: Sheikh Badr; Safita; Banyas; and (to be established) Tartous.
Idlib Mohafazat: Idlib; Harim; Ma'arra' Jisr esh Shughur; and Saraqib.
Hama Mohafazat: Homa; Al Ghab; Salamiye ; Masyaf; and (to be established) Mhardeh.

Source: Agricultural Cooperative Bank, Main Office, Damascus.

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TABLE 15

PRODUCTION AND IMPORT OF AGRICULTURAL FERTILIZERS AND INSECTICIDES, SAR, 1970-1976

Year	Fertilizer (000 MT)						Insecticides Imported (MT)
	Manufactured 1/	Imported					
		Compound	Potassium	Phosphatic	Nitrogen	Total	
1970	-	25	2/	34	95	154	1.2
1971	-	30	-	42	98	170	0.6
1972	56	29	1	13	74	117	2.0
1973	33	13	-	5	26	44	1.9
1974	53	-	2	34	80	116	1.2
1975	86	13	2/	51	113	177	1.6
1976	82	2	-	16	3	21	2.0

Source: Statistical Abstract, 1977, Central Bureau of Statistics, Pp. 247 & 371.

1/ Azotic

2/ Less than 500 MT.

TABLE 14, 15 & 16
GENERAL ECONOMICS
LYON

TABLE 14

OUTSTANDING LOANS OF SPECIALIZED BANKS BY ECONOMIC SECTOR, SAR, 1970-1976 (MILLION SL)

End of Period	Agriculture[1/]	Commerce[1/]	Industry[1/]	Construction	Services/ Misc.	Total
1970	277.9	938.8	113.6	47.1	14.0	1,391.4
1971	298.1	1,053.4	110.6	58.2	15.2	1,535.5
1972	301.8	1,393.5	142.6	77.0	10.5	1,925.4
1973	347.5	1,782.1	165.2	92.2	10.0	2,397.0
1974	328.0	3,007.0	236.0	133.2	16.2	3,720.4
1975	407.5	4,557.5	299.3	238.6	26.3	5,529.2
1976[2/]	514.7	6,250.7	708.1	444.4	31.2	7,949.1

Source: Quarterly Bulletin, Central Bank of Syria, 1976, Vol. XIV, No. 4, Table 11.

1/ The Quarterly Bulletin notes that "a significant part of commercial credit is actually utilized to finance the agricultural and industrial sectors.

2/ Preliminary

TABLE 16

UTILIZATION OF FERTILIZER IN SYRIA, 1969/1970-1975/1976, AND BY SELECTED MOHAFAZATS, 1975/1976 (000 MT)

Year	Total	Potassium	Phosphatic	Nitrogen
1969/70	28.9	0.9	7.8	20.2
71	40.4	1.4	12.9	26.1
72	53.2	1.3	17.0	34.9
73	49.4	1.6	14.9	32.9
74	42.5	1.8	7.5	33.2
75	52.7	1.6	13.4	37.7
1975/76	70.5	1.6	21.7	47.2
Mohafazats				
Lattakia	4.6	0.4	0.8	3.4
Tartous	3.6	0.2	0.8	2.6
Idlib	3.7	-	1.6	2.1
Hama	7.0	0.2	1.8	5.0

Source: Annual Agricultural Statistical Abstract, 1976, MOA, Table 91.

TABLE 17

AGRICULTURAL MACHINERY USED IN CULTIVATION, SAR, AND BY SELECTED MOHAFAZATS, 1970 AND 1976
(NUMBER OF UNITS)

Item	Syria		Lattakia		Tartous		Idlib	
	1970	1976	1970	1976	1970	1976	1970	1976
Tractors	9,031	18,567	685	768	691	816	1,528	1,929
Ploughs, modern	11,797	23,714	592	625	450	435	2,434	2,698
Disk harrow & pulverizer	929	2,486	5	11	-	-	64	34
Seeders	1,838	2,020	5	4	-	-	41	61
Threshers	474	1,448	137	119	122	141	130	167
Combines (harvester/ thresher)	1,455	2,146	4	6	16	25	119	141
Water raising pumps	29,042	40,500	1,517	1,760	1,657	1,822	1,031	1,212

Item	Al Ghab	
	1970	1976
Tractors	608	751
Ploughs, modern	606	722
Disk harrow & pulverizer	364	424
Seeders	14	50
Threshers	19	41
Combines (harvester/ thresher)	98	159
Water raising pumps	553	759

Source: Annual Agricultural Statistical Abstract, 1976, MOTA, Tables 88 and 89.

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TABLE 18

OFFICIAL PRODUCER PRICES ESTABLISHED FOR AGRICULTURAL COMMODITIES, 1968-1977 (SL PER MT)

Crop Year	Wheat		Barley		Lentils		Seed	Sugar Beets		Peanuts	
	Hard	Soft	Light	Dark	Golden	Red	Cotton	Summer	Autumn	Light	Dark
1968	300	290	160	155	-	-	800	-	-	-	-
1969	300	290	160	155	370	360	800	-	-	-	-
1970	300	290	130	125	450	440	800	65	70	-	-
1971	300	290	180	175	400	400	800	65	70	-	-
1972	330	320	230	225	440	430	840	65	70	-	-
1973	380	370	280	275	500	490	900	80	88	900	850
1974	460	440	350	345	600	590	1,150	115	130	1,250	1,200
1975	520	500	410	400	1,250	1,150	1,350	140	125	1,600	1,500
1976	520	500	410	400	1,350	1,250	1,450	140	125	1,600	1,500
1977	630	600	450	440	1,100	1,000	1,700	145	130	1,800	350

Source: Annual Agricultural Statistical Abstract, 1976, MOA Table 94.

TABLE 19

NUMBER AND DISTRIBUTION OF BRANCH BANKS IN SYRIA AND SELECTED MOHAFAZATS AS OF JANUARY 1, 1977

Name of bank	Syria	Mohafazat and city 1/		
		Lattakia	Tartous	Idlib
Central Bank of Syria	10	Lattakia	Tartous	Idlib
Commercial Bank of Syria	27	Lattakia	Tartous	Idlib
Industrial Bank	6	Lattakia	-	-
Agricultural Cooperative Bank	54	Lattakia Jebleh	Tartous Sahta	Idlib Jisr esh Shughur
		Kirdaha Al Hafeh	Banyas Al Sheikh Badr	Harim Ma'arra Saraqib
Real Estate Bank	10	Lattakia	Tartous	Idlib
Popular Credit Bank	30	Lattakia Jebleh	Tartous Banyas	Idlib Jisr esh Shughur
				Ma'arra Al Bab Salheen
Total	137	10	9	13

1/Each city shown contains one branch of the bank for which it is listed.

Source: Central Bank of Syria, Quarterly Bulletin, 1976.

TABLES 18 & 19
GENERAL ECONOMICS
LYON

TABLE 20

STRUCTURE OF SPECIALIZED BANKS' INTEREST RATES, SYRIA

1. Commercial Bank of Syria

Its discount rate to the public sector is 7 per cent, and 8 per cent to the private sector. On loans and advances, its rates are as follows (per cent):

	Public Sector	Private Sector
Against export contracts or export documentary credits	5-1/4	6-3/4
Against storage of agricultural products and goods to be exported	5-1/2	7
Against other mortgages	7	8-1/2
On overdrafts	7-1/2	9

2. Industrial Bank

Rates in effect since July 1970 (per cent):

	Producer & Professional Cooperatives	Public Sector	Private Sector
Discounts:			
Industrial bills	4	5-1/2	6-1/2
Commercial bills	4	6	7
Loans & advances:			
Short-term	4-1/2	5-1/2	6-1/2
Medium-term	4-1/2	6	7
Overdrafts:	7	7	8

3. Agricultural Cooperative Bank

Rates in effect since July 1970. Interest charged on loans to cooperatives in 4 per cent, and to individuals, 5-1/2 per cent. On loans to individuals, in excess of 50,000 Syrian pounds, the rate is 7-1/2 per cent per year.

Continued--

TABLE 20
(Continued)

4. Real Estate Bank

Rates in effect since July 1970 (per cent):

	Up to 1 Year	Up to 5 Years	Up to 10 Years
Discounts to:			
building tradesmen	7	7-1/2	-
Loans & Advances to:			
cooperatives & housing institutions	5-1/2	6	6-1/2
Individuals, hotels & tourist establishments	6	6-1/2	7
Building tradesmen & companies	7	7-1/2	-

5. Popular Credit Bank

Rates in effect since July 1974 (per cent):

		Loans & Allowances		
Borrower	Discounts	Short-term	Medium-term	Long-term
Consumer cooperatives	6-1/2	7	7-1/2	-
Producer cooperatives	6	6-1/4	6-1/2	-
Hospitals, labs, & medical institutions	-	7	7-1/4	7-1/2
Small merchants & tradesmen	7-1/2	8	8-1/2	-
Small industries & artisans	6-1/4	6-1/2	7-1/2	-
Limited-income groups	-	8	9	-

On overdrawn current accounts backed by collateral, the interest charge is 8 per cent. Loans to owners of housing savings accounts is 7-1/2 per cent.

Source: Central Bank of Syria, Quarterly Bulletin, 1976.

TABLE 21

DIRECTION OF FOREIGN TRADE, SAR, 1968, 1972 AND 1976 (SL MILLION)

Destination or Origin	1968		1972		1976	
	Value	%	Value	%	Value	%
A. Exports (FOB)						
Arab Common Market & Arab Economic Unity Council 1/	112.7	16.7	90.7	8.2	221.3	5.3
Other Arab Countries 2/	167.3	24.9	184.4	16.8	231.1	5.6
Socialist Countries 3/	156.6	23.3	423.5	38.6	1046.2	25.3
European Common Market Countries 4/	128.3	19.0	80.8	7.4	2016.2	48.7
Other European Countries 4/	45.0	6.7	124.7	11.3	409.9	9.9
U.S.A. and Canada	3.7	0.6	8.4	0.8	43.3	1.0
Rest of the World	59.4	8.8	185.1	16.9	173.3	4.2
Total	673.0	100.0	1097.6	100.0	4141.3	100.0
B. Imports (CIF)						
Arab Common Market & Arab Economic Unity Council 1/	105.4	8.8	150.2	7.3	384.9	4.2
Other Arab Countries 2/	61.8	5.2	140.5	6.8	780.3	8.5
Socialist Countries 3/	401.3	33.7	424.0	20.6	942.3	10.2
European Common Market Countries 4/	354.9	29.8	659.4	32.0	3076.3	33.4
Other European Countries 5/	84.2	7.0	195.5	9.5	2234.0	24.3
U.S.A. and Canada	87.5	7.3	136.2	6.6	548.6	6.0
Rest of the World	97.5	8.2	354.9	17.2	1236.9	13.4
Total	1192.6	100.0	2060.7	100.0	9203.3	100.0

1/ Comprises Jordan, Iraq, Kuwait, Egypt, Yemen, Sudan, and from January 1975 also includes Libya, Somalia, Yemen Democratic Republic and Arab Emirates.

2/ Algeria, Bahrein, Qatar, Lebanon, Morocco, Palestine, Tunisia, Saudi Arabia. It also includes Libya and Yemen Democratic Republic up to January 1975.

3/ Bulgaria, People's Republic of China, Czechoslovakia, German Democratic Republic, Hungary, Poland, Romania, USSR and Yugoslavia.

4/ Belgium, France, Federal Republic of Germany, Netherlands, Italy, Luxembourg, United Kingdom, Ireland and Denmark.

5/ Spain, Sweden, Portugal, Greece, Turkey, Finland, Austria, Switzerland, and Norway.

Source: Central Bureau of Statistics and the General Directorate of Customs.

TABLE 22

COMPOSITION OF SYRIAN EXPORTS, 1968, 1972, AND 1976 (000 MT)

Items	1968		1972		1976	
	Quantity	%	Quantity	%	Quantity	%
Crude petroleum	833	56.9	4,197	81.7	9,662	88.2
Phosphate	-	-	62	1.2	422	3.9
Raw cotton	100	6.8	116	2.3	118	1.1
Textiles	17	1.2	36	0.7	36	0.3
Fruits, vegetables	105	7.2	104	2.0	25	0.2
Lentils	28	1.9	29	0.6	22	0.2
Oilcake	89	6.1	79	1.5	13	0.3
Wool	6	0.4	10	0.2	6	0.3
Tobacco	2	0.1	4	0.1	4	0.3
Wheat	5	0.3	278	5.4	3	0.3
Raw Hides & leather[1/]	2	0.1	3	0.1	3	0.3
Meat (fresh & canned)	1	-	[2/]	-	0	0
Live animals (1,000 head)	(763)	-	(234)	-	(30)	-
All other	277	18.9	216	4.2	635[3/]	5.8
Total	1,465	100.0	5,134	100.0	10,949	100.0

[1/] Excluding furs.

[2/] Less than 500 metric tons.

[3/] Includes 389,000 tons of petroleum products.

Source: Quarterly Bulletin 1976, Central Bank of Syria.

TABLE 23

COMPOSITION OF SYRIAN IMPORTS, 1968, 1972, AND 1976 (000 MT)

Items	1968		1972		1976	
	Quantity	%	Quantity	%	Quantity	%
Fuel	1,738	57.5	721	26.2	2,828	45.2
Metals & metal products	212	7.0	365	13.2	813	13.0
Foodstuffs 1/	401	13.3	443	16.1	308	4.9
Fruits & vegetables	161	5.3	167	6.1	266	4.3
Sugar (raw & refined)	59	2.0	152	5.5	184	2.9
Chemicals & chemical products	178	5.9	186	6.7	107	1.7
Wood & wood products	65	2.2	98	3.6	103	1.6
Machinery & equipment	37	1.2	50	1.8	98	1.6
Transport equipment	17	0.6	17	0.6	97	1.6
Resins & artificial rubber	13	0.4	34	1.2	60	1.0
Textiles & textile products	30	1.0	44	1.6	57	0.9
Paper & paper products	22	0.7	30	1.1	25	0.4
Live animals, meats, & canned meats	6	0.2	5	0.2	6	0.1
Cement	-	-	362	13.1	1,125	18.0
All other	83	2.7	82	3.0	174	2.8
Total	3,022	100.0	2,756	100.0	6,251	100.0

1/ Other than fruits and vegetables; live animals, meat and canned meat; and sugar.

Source: Quarterly Bulletin 1976, Central Bank of Syria.

TABLE 24

SYRIA'S EXPENDITURES ON THE GROSS DOMESTIC PRODUCT, 1969, 1972 AND 1976 (MILLION SL AT 1963 PRICES)

Type of Expenditure	1969	1972	1976
Consumption, private	3,809	4,569	6,094
Gross domestic investment	932	1,012	2,494
Private	391	412	786
Public	541	600	1,708
Government purchases of goods and services	1,003	1,427	2,583
Net foreign sector	-258	-222	-1,068
Exports 1/	1,180	1,186	1,442
Imports 1/	1,438	1,408	2,510
Gross domestic product at market prices	5,486	6,786	10,103

1/Of goods and services.

Source: Central Bank of Syria, Quarterly Bulletin, 1976, p. 39.

TABLE 25

SYRIAN EXPENDITURES IN THE CONSOLIDATED BUDGET ESTIMATES, 1970-1977 1/ (IN MILLIONS OF SYRIAN POUNDS)

Year	Ordinary	%	Development	%	Total
1970	1383.5	49.8	1396.5	50.2	2780.0
1971	1442.7	50.3	1426.3	49.7	2869.0
1972	1593.6	50.0	1594.4	50.0	3188.0
1973	1670.0	48.9	1743.0	51.1	3413.0
1974	2882.1	44.5	3598.4	55.5	6480.5
1975	4594.8	44.0	5850.7	56.0	10445.6
1976	5895.6	35.6	10668.4	64.4	16564.0
1977	6644.5	39.0	10403.9	61.0	17048.4

Source: Statistical Abstract, 1977, p. 625.

1/ The fiscal year is the same as the calendar year for the period shown.

TABLE 26

ESTIMATED EXPENDITURES IN THE CONSOLIDATED BUDGET, 1970 AND 1977
(IN MILLIONS OF SYRIAN POUNDS)

Type of Expenditure	1970		1977	
	Amount	% of Total	Amount	% of Total
Industry & Mining[1/]	443.6	16.0	4794.3	28.2
National security	679.3	24.4	4160.0	24.4
Communication utilities and public works	371.6	13.4	1675.5	9.8
Culture & Information	293.4	10.6	1578.1	9.3
Agriculture and land reclamation	554.5	19.9	1422.1	8.3
Executive, legislative, and judicial	45.8	1.6	1351.2	7.9
Economy & Finance	276.2	9.9	1144.4	6.7
Social welfare	58.7	2.1	133.6	0.8
Other outlays	56.9	2.1	789.6	4.6
Total	2780.0	100.0	17048.4	100.0

Source: Statistical Abstract, 1977, pp. 626-641; 1971, pp. 286-291.

1/Includes petroleum activities.

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TABLE 27

MOTOR VEHICLE REGISTRATIONS BY TYPE OF VEHICLE FOR THE MOHAFAZATS OF LATTAKIA, TARTOUS, IDLIB AND HAMA, 1971 AND 1976

Type of Vehicles 1/	Lattakia		Tartous		Idlib		Hama	
	1971	1976	1971	1976	1971	1976	1971	1976
Automobiles	1,745	2,781	219	1,335	141	426	937	4,589
Taxis	889	879	131	550	48	202	358	1,299
Private	856	1,902	88	785	93	224	579	3,290
Government	-	-	-	-	-	-	-	-
Buses	90	231	7	100	4	135	109	382
Public	50	228	2	99	4	134	108	362
Private	27	3	4	1	-	1	1	20
Government	13	-	1	-	-	-	-	-
Goods Vehicles	622	1,045	64	424	77	298	596	3,075
Public	461	866	62	371	65	278	504	1,516
Private	161	179	2	53	12	20	92	1,559
Government	-	-	-	-	-	-	-	-
Tankers	24	129	2	-	4	6	77	299
Public	23	128	2	-	4	6	75	272
Private	1	1	-	-	-	-	2	27
Government	-	-	-	-	-	-	-	-
Pickups 2/	168	418	8	771	40	1,018	651	1,975
Public	167	269	6	219	26	241	175	952
Private	1	149	2	552	14	777	476	1,023
Land Rovers (4-wheel drive)	250	212	97	163	-	-	18	8
Total	2,899	4,816	397	2,793	266	1,883	2,388	10,328
Annual Average Increase, 1976 over 1971	10.7		48.0		48.0		34.0	

1/ Excludes "transit" vehicles, "temporary entrance" vehicles and two-wheel motorcycles.

2/ Includes four-wheel and three-wheel motorcycle pickups.

Source: Statistical Abstract, 1973 and 1977, pp. 276-277.

TABLE 27
GENERAL ECONOMICS

LYON

TABLE 28

FREIGHT TONNAGE BY RAILWAY AND COMMODITY, SAR, 1971-1976

Commodity	Northern Railways (tons) 1971	1972	1973	1974	1975	1976
Fruits and vegetables	5,380	710	2,688	-	-	-
Rice	-	-	-	-	-	11,977
Flour	-	-	-	-	-	133,841
Wheat	7,398	42,565	-	-	-	-
Other Cereals	-	27,751	6,900	18,416	14,570	-
Livestock (live)	54,246	43,725	39,247	29,624	34,549	19,833
Animal products	12,389	4,432	10,473	-	12,070	-
Sugar	23,650	58,581	1,891	10,190	22,186	38,530
Wood	1,250	3,730	4,627	2,900	23,932	42,248
Straw	-	-	-	-	-	3,298
Cotton, lint and seed	252	6,751	10,773	9,142	30,100	26,586
Phosphates	-	-	-	-	-	-
Rubber tires	355	220	-	-	7,702	-
Paper and Paper board	-	-	-	-	10,478	1,608
Cement	172,914	168,670	141,851	113,025	110,787	118,446
Iron bars	200	64,348	20,083	-	28,307	136,245
Iron sheets	-	-	-	-	-	-
Iron	5,630	-	62,737	56,338	105,542	-
Petroleum	349,261	264,024	-	-	-	384,227
Water	-	-	-	-	-	-
Glassware	82	-	-	-	108	-
Fuel oil	150,234	145,477	178,630	156,613	120,805	122,612
Clothing and textiles	9,694	10,475	12,192	35	23,954	-
Refrigerators and washing machines	-	-	-	-	-	-
Motor cars and locomotives	5,950	30,825	28,325	-	107,798	2,890
Machines and tools	102,520	16,351	77,361	-	116,821	-
Empty vessels	-	-	-	-	-	-
Carpets	10,355	10,915	-	43,839	-	71,838
Miscellaneous	124,959	173,122	125,216	472,415	222,935	536,201
Total	1,036,719	1,072,672	722,994	912,537	992,644	1,650,380

Source: Ministry of Transport, Annual Statistical Report, 1977.

TABLE 28

FREIGHT TONNAGE BY RAILWAY AND COMMODITY, SAR, 1971-1976

Commodity	Both Railways Combined (tons) 1971	1972	1973	1974	1975	1976
Fruits and vegetables	5,583	1,085	3,048	209	179	62
Rice	833	4,265	247	652	-	11,977
Flour	20,058	23,836	15,041	36,715	19,554	138,738
Wheat	12,969	42,565	-	-	-	-
Other Cereals	465	27,836	7,979	19,517	18,551	16
Livestock (live)	55,983	43,797	39,636	32,476	36,300	20,036
Animal products	12,289	5,042	10,934	-	12,070	124
Sugar	30,426	64,319	19,354	19,661	23,191	39,149
Wood	1,916	3,945	5,927	4,498	23,934	42,248
Straw	74	126	210	262	174	3,338
Cotton, lint and seed	252	6,751	10,773	9,142	30,370	27,007
Phosphates	38,372	48,428	43,972	51,798	16,289	11
Rubber tires	427	254	165	268	7,751	35
Paper and Paper board	3,898	726	1,085	6,700	10,988	1,608
Cement	172,914	168,886	141,884	113,399	111,036	118,468
Iron bars	200	64,348	20,579	-	28,307	136,245
Iron sheets	768	-	-	-	-	-
Iron	6,236	340	62,748	57,207	105,542	-
Petroleum	399,261	264,230	202	-	206	393,618
Water	242	2,917	8,407	7,334	22,824	-
Glassware	82	67	27	1,845	108	190
Fuel oil	150,234	145,477	178,696	156,786	120,913	122,612
Clothing and textiles	11,440	10,813	15,019	2,617	24,366	19
Refrigerators and washing machines	504	8	492	1,338	111	28
Motor cars and locomotives	5,950	30,882	28,355	268	108,020	2,890
Machines and tools	102,520	16,412	80,094	2,146	116,956	-
Empty vessels	292	1,668	653	1,197	93	167
Carpets	10,355	10,915	-	43,839	-	71,838
Miscellaneous	138,833	182,574	132,929	485,779	227,433	541,883
Total	1,134,830	1,172,512	828,456	1,055,653	1,065,266	1,672,307

Source: Ministry of Transport, Annual Statistical Report, 1977.

TABLE 28

FREIGHT TONNAGE BY RAILWAY AND COMMODITY, SAR, 1971-1976

Commodity	Hedjaz Railways (tons) 1971	1972	1973	1974	1975	1976
Fruits and vegetables	203	375	360	209	179	62
Rice	833	4,265	247	652	-	-
Flour	20,058	23,836	15,041	36,715	19,554	4,897
Wheat	5,565	-	-	-	-	-
Other Cereals	465	85	1,079	1,101	3,981	16
Livestock (live)	1,737	72	389	2,852	1,751	203
Animal products	-	610	461	-	-	124
Sugar	6,776	5,738	17,463	9,471	1,005	619
Wood	666	215	1,300	1,598	2	-
Straw	74	126	210	262	174	40
Cotton, lint and seed	-	-	-	-	270	421
Phosphates	38,372	48,428	43,972	51,798	16,289	11
Rubber tires	72	34	165	268	49	35
Paper and Paper board	3,898	726	1,085	6,700	510	-
Cement	-	216	33	374	249	22
Iron bars	-	-	496	-	-	-
Iron sheets	768	-	-	-	-	-
Iron	606	340	11	869	-	-
Petroleum	-	206	202	-	206	9,391
Water	242	2,917	8,407	7,334	22,824	-
Glassware	-	67	27	1,845	-	-
Fuel oil	-	-	66	173	108	-
Clothing and textiles	2,746	338	2,827	2,582	412	19
Refrigerators and washing machines	504	8	492	1,338	111	24
Motor cars and locomotives	-	57	30	268	222	-
Machines and tools	-	61	2,733	2,146	135	-
Empty vessels	292	1,668	653	1,197	93	167
Carpets	-	-	-	-	-	-
Miscellaneous	13,874	9,452	7,713	13,364	4,498	5,682
Total	98,111	99,840	105,462	143,116	72,622	21,734

Source: Ministry of Transport, Annual Statistical Report, 1977.

TABLE 29

LATTAKIA MANTIKA POPULATION BY NAHIA AND TYPE, 1960 AND 1970

Lattakia Mantika	1960[1/]	1970[2/]
Population by Nahia		
Lattakia Nahia		
City of Lattakia	67,604	125,716
Balance of Nahia	30,961	39,593
Total of Nahia	98,565	165,309
Ein al Beida Nahia	20,994	23,114
Kastal Mu-af of Nahia	9,622	10,856
Kabalieh Nahia	3,433	6,861
Kassab Nahia	3,838	3,048
Total of Lattakia Mantika	136,452	209,188
Total of Lattakia Mohafazat	274,810	389,552
Population by Type		
Urban	67,604	125,716
Rural	68,848	83,472
Total of Mantika	136,452	209,188

1/ Source: Central Bureau of Statistics, Census of Population, 1960, Lattakia Mohafazat. Data adjusted by the Consultant to reflect changes in administrative boundaries between 1960 and 1970.

2/ Source: Central Bureau of Statistics, Population Census, 1970, Vol. 8, Lattakia Governate.

TABLE 31

NUMBER OF MEDICAL PROFESSIONALS IN LATTAKIA MOHAFAZAT, 1971, 1972, 1975 AND 1976

Profession	Number of Professionals				Number of persons per professional			
	1971	1972	1975	1976	1971	1972	1975	1976
Physicians	65	95	103	116	6,154	4,357	4,311	3,905
Dentists	25	29	29	33	16,000	14,207	15,310	13,727
Pharmacists	30	25	37	45	13,333	16,480	12,000	10,067
Nurses	59	83	63	63	6,780	4,987	7,048	7,190
Midwives	34	48	64	64	11,765	8,623	6,938	7,078

Source: Statistical Abstracts, 1973 and 1977.

TABLE 30

EDUCATIONAL FACILITIES AND ENROLLMENTS IN LATTAKIA MOHAFAZAT, 1970-1971 AND 1975-1976 1/

Type of school	1970-1971	1975-1976
Primary:		
No. of schools	370	446
No. of students	68,682	90,697
No. of teachers	1,583	2,733
No. of classrooms	2,363	2,850
No. of students per teacher	43	33
Intermediate and secondary:		
No. of schools	86	119
No. of students	29,094	45,937
No. of teachers	1,137	2,141
No. of classrooms	548	758
No. of students per teacher	26	21

1/ Partial data for more recent school years are as follows:

		1976-1977	1977-1978
Primary schools:	No. of students	91,396	95,270
	No. of teachers	2,695	3,006
	No. of students per teacher	34	32
Intermediate and secondary schools:	No. of students	44,720	53,055

Source: Statistical Abstracts, 1973 and 1977 and Ministry of Education.

TABLE 32

ANNUAL AVERAGE GROWTH RATES IN CROP AREA, PRODUCTION AND YIELDS, LATTAKIA MOHAFAZAT, BASED ON THREE-YEAR AVERAGES, 1970-1972 AND 1974-1976 1/ 2/

Crop		1970-1972	1974-1976	Growth Rate (%)
Cereals Total	A	25.2	29.6	4.1
	P	26.4	33.2	5.9
	Y	1.05	1.12	1.6
Wheat	A	18.3	23.3	6.2
	P	21.0	27.3	6.8
	Y	1.15	1.17	0.4
Barley	A	4.0	4.0	0.0
	P	3.3	4.0	4.9
	Y	0.83	1.00	4.8
Dry Legumes Total	A	3.0	2.8	-1.8
	P	2.8	2.4	-3.8
	Y	0.93	0.85	-2.3
Lentils	A	0.6	0.6	0.0
	P	0.3	0.5	13.6
	Y	0.50	0.83	13.6
Vegetables Total	A	11.2	14.8	7.2
	P	113.4	118.1	13.5
	Y	10.13	12.71	5.9
Tomatoes	A	3.5	4.5	6.7
	P	46.4	74.8	12.7
	Y	13.26	16.62	5.8
Cucumbers	A	1.2	0.9	-7.0
	P	8.6	9.8	3.3
	Y	7.17	10.89	11.0
Squash	A	1.7	2.4	9.0
	P	19.4	37.1	17.6
	Y	11.41	15.45	7.9
Industrial Crops Total	A	15.4	14.3	-1.9
	P	15.1	13.1	-3.5
	Y	0.98	0.92	-1.6
Tobacco	A	8.2	9.6	4.0
	P	5.8	6.9	4.4
	Y	0.71	0.72	0.4
Peanuts	A	4.1	3.4	-4.6
	P	7.4	5.7	-6.3
	Y	1.80	1.68	-1.7
Fruit Total	A	24.3	28.2	3.8
	P	55.1	68.3	5.5
	Y	13.90	16.74	4.8
Olives	A	15.7	18.0	3.5
	P	21.0	15.7	-7.0
	Y	12.57	8.72	-8.8
Apples	A	1.3	3.0	24.0
	P	7.7	14.40	17.0
	Y	22.06	24.16	2.3
Oranges	A	1.0	1.4	8.8
	P	2.9	12.50	44.0
	Y	12.39	40.58	39.0

1/ Area (A) = 1,000 hec.; Production (P) = 1,000 MT; Yield (Y) = MT/hec.

2/ Fruit yields = kg. per bearing tree.

Source: Statistical Abstracts, 1971-1977, Central Bureau of Statistics.

TABLE 33

ANNUAL AVERAGE GROWTH RATES OF LIVESTOCK PRODUCTS, LATTAKIA MOHAFAZAT, 1970-1972 AND 1974-1976

Product	1970-1972	1974-1976	Growth Rate (%)
Production (000 MT)			
Milk	27.00	21.70	-5.3
Animals 1/	2.19	2.32	1.4
Eggs 2/	0.58	0.58	0.0
Poultry 3/	0.23	0.23	0.0
Yield (MT per milked animal 4/)			
Cow milk	1.14	0.82	-7.9
Sheep milk	0.09	0.11	5.2
Goat milk	0.12	0.11	-2.2

1/ Live weight of animals for slaughter based on number of animals slaughtered (Statistical Abstracts) and average carcass weights (Animal Health Service, MOA). Carcass weights assumed at 50 percent of live weight. Adjustments made in number of slaughtered animals because the Animal Health Service estimates 70 percent of the sheep and 20 percent of the goats slaughtered are not locally produced (imported from Aleppo), but essentially all cows slaughtered are locally produced.

2/ Number of eggs converted to MT on bases of 1 lb./dozen.

3/ Number of chickens converted to MT on basis of 2 kg./chicken; 50 per cent of chickens on hand slaughtered annually.

4/ Milk production divided by number of animals milked.

Source: Statistical Abstracts, 1971-1977, Central Bureau of Statistics.

TABLE 34

POTENTIALS FOR AGRICULTURAL IMPORT SUBSTITUTION WITHIN THE ZONES OF INFLUENCE OF PROJECTED ROADS

1. Vegetable crops. The introduction of soil management practices, by growth of soil-improving crops in the rotation to improve soil structure and contribute nitrogen, warrants attention. Present systems invite soil degradation. Benefits may amount to 10 to 20 percent yearly. Such soil-improving crops are excellent feed to use in support of ruminant livestock enterprises.

2. Potatoes. The present national imports of SL 9 million of potatoes yearly may be replaced by local production. This is feasible by growing potatoes in midsummer plantings on lands that were cropped to wheat and barley in winter wherever pump irrigation in summer from local wells is practiced. It is probable that such supplemental irrigation is possible wherever grains are grown on lands of the coastal plain that are imperfectly drained in the winter rainy season.

3. Tomatoes. The present national imports of SL 18.7 million may be replaced by expansion of winter production of tomatoes in plastic greenhouses, as demonstrated by the FAO project in the coastal plain region. Production of cucumbers, eggplant, and similar crops may provide winter supplies of fresh vegetables that are now imported.

4. Tobacco. At least SL 40 million of national imports of cigarette types of tobacco may readily be replaced by local production in the coastal plain. To achieve this substitution, it will be necessary to introduce suitable varieties, to adopt cultural practices designed to produce the desired quality of leaf, and to install suitable new tobacco curing facilities. There must be appropriate economic rewards to individual producers, to stimulate adoption of the necessary innovations.

5. Apples. The climate is favorable for economic production of apples on well-drained soils of the coastal plain, and on alluvial soils in the hill regions. The present national import costs of SL 20 million may be replaced by local production. Stony soils of the coastal plain and alluvial soils of stream basins in hill lands are preferred. To provide income from newly planted orchards, the interplanting of perennial forages for support of ruminant livestock should be introduced. Milk and meat production may be sharply increased within existing farms without adding to farm size.

6. Barley and Wheat. These crops are grown in the road zones of influence, primarily on lands that tend to become waterlogged during the winter rainy season. A practical inexpensive development program for such soils should be based on improvement of surface drainage. This requires smoothing of the soil surface, and creation of enough slope, field by field, to insure excess water runoff. An inexpensive, permanent practice is so-called "bedding," by which topsoil is moved toward the higher crest of each field, and away from the surface lower border ditches at the side of each bed. For this a moldboard plow, or offset disk, is needed. Some additional channeling of the side ditches may be needed, to deliver surface water to natural drainage channels. This method is particularly useful on heavy textured soils. There appear to be no examples of this practice in the coastal plain at present. Grain yields should be substantially higher on bedded lands, and the opportunities for growing a second crop on the same land (such as sunflowers, sesame or groundnuts) then becomes feasible. Total productivity per year may be greatly enhanced.

   Research is needed to identify improved varieties of cereal grains for these soils, particularly naked barley varieties that are suitable for local supplies of feed for poultry.

7. Oilseed Crops. Present national imports of vegetable oil crops and oilseed cake amount to more than SL 10 million yearly; and these may be replaced by growing sunflowers, sesame and groundnuts as summer crops on lands of the coastal plain that have produced a winter crop of barley, wheat or broad beans. An alternative cropping pattern would consist of a cool-season forage crop harvested in March, and prompt seed bed preparation and planting of sunflowers or the shatter-resistant type of sesame. Where supplemental irrigation in summer is feasible, groundnuts may be grown on loamy soils. A livestock enterprise for production of meat and/or milk should be a component of the farming system, for effective utilization of the forage.

8. Production of Milk and Meat from ruminant livestock is undoubtedly the greatest undeveloped potential of the zones of influence for the projected roads. National imports of meat and meat animals totaled about SL 34 million in 1976, and imports of dairy products (milk powder, cheese and butter) amounted to SL 172 million in the same year. The import bill has increased substantially in recent years, despite efforts to establish state dairy farms. There are opportunities to move strongly toward national self-sufficiency in such livestock products by decentralization of production to the great mass of small farmers, by stimulating expansion beyond local subsistence needs, to commercial levels. Not only are there opportunities to introduce forage production into present farming systems, but there is urgent need to revise cropping patterns to improve soil structure and provide nitrogen from leguminous crops, as a means of improving vegetable crop production. The apparent opportunities for increasing effective land use and augmenting farm incomes, by development of livestock production, has received little attention to date.

The most important undeveloped opportunity is the reclamation of extensive limestone hills and uplands. This would require establishment of perennial ground cover of adapted forage legumes and grasses, to halt the present and long-continued sheet erosion losses of soil, to increase the infiltration of rainfall, and thereby provide high quality forage for support to cattle, sheep and goats. Such preliminary trials as have been made indicate that the reclamation procedure would include some initial scarification of the land surface, broadcasting substantial amounts of superphosphate, followed by surface seeding to vetches, clovers, and medics in mixture with perennial ryegrass, harding grass and fescue grasses, at the start of the rainy season. These lands are producing almost no products at present. An exception is the establishment of low yielding olives; and in such orchards, the proposed interplanting with perennial forages would strengthen the olives as well as provide feed for ruminant livestock.

One of the enterprises that would provide immediate supplemental income would be the establishment of milk collection systems along existing roads to pick up the morning milk for prompt transport to central milk processing plants for production of milk powder, butter and cheese to replace these commodities now being imported. The operation of such collection systems and processing plants has been highly successful and profitable in such dissimilar countries as Chad and Nicaragu. Small, individual producers are the most ardent supporters of such systems.

9. Wool. Syria now imports SL 26 million of wool to meet domestic demand. Sheep may provide a suitable utilization of forages in the Orontes River basin, and in the limestone hills and uplands in all three zones of influence for the projected roads. Such sheep enterprises would also serve as important sources of milk for commercial processing. Sheep milk is produced in quantity in other sections of Syria.

TABLE 34 (con'd)

10. Poultry Production. Poultry enterprises, for either broilers or eggs, must be based on adequate supplies of concentrate feeds, such as wheat, naked barley, and maize, and these may be produced on lands of the coastal plain that are not well suited for vegetable production. Wheat and barley as preferred cool-season crops on lands that are imperfectly drained in winter, and maize, may be grown as a summer crop on the same lands wherever supplemental irrigation is feasible. The inclusion of grains grown at lower costs would permit expansion of local poultry enterprises by many small farmers. The necessary animal proteins needed to balance rations for poultry may be meat meal (a by-product of slaughter houses), whey from cheesemaking, or dried fish meal. These may be supplied to farmers for their use in supplementing feed grains. National egg imports amounted to SL 9 million in 1976, and such income would be important to small farmers.

TABLE 35

INDUSTRIAL PRODUCTION TARGETS, FOURTH FIVE-YEAR PLAN, 1976-1980, SAR

Commodity	Unit	Base Year 1975	Target Year 1980	Annual Growth Rate (%)
Cotton yarns	000 MT	15	84	41.0
Cotton textiles	000 MT	14	22	9.5
Ready-made garments	000 doz.	16	150	58.6
Underwear	000 dox.	1,028	2,023	14.5
Metal products	SL million	13	141	61.5
Electric motors	SL million	5	13	21.0
Cable	000 ST	12	36	25.1
Refrigerators	000's	49	200	32.5
Television sets	000's	38	250	45.8
Billets	000 MT	-	100	-
Cement	000 MT	1,000	5,500	41.0
Nitrogen fertilizers	000 MT	100	450	35.2
Phosphate fertilizers	000 MT	-	700	-
Glass	000 MT	18	103	41.9
Tires	000's	-	598	-
Paper	000 MT	-	60	-
Medicines	SL million	5	35	47.9
Baby food	MT	-	1,500	-
Sugar	000 MT	136	275	15.1
Vegetable oil	000 MT	33	35	1.2
Preserves	000 MT	9	25	22.8

Source: Fourth Five-Year Economic and Social Development Plan of the Syrian Arab Republic, 1976-1980, P. 15.

TABLE 36

CALCULATIONS OF AVERAGE DAILY TRAFFIC ASSOCIATED WITH NEW TOURIST FACILITIES, LATTAKIA-KASSAB ZONE OF INFLUENCE, 1990 AND 2000

YEAR 1990

a. 28,800/4 = 7,200 x .90 = 6,480

b. Estimated number of Syrians versus non-Syrians equals:

6,480 x .61 = 3,953 Syrians

6,480 x .39 = 2,527 non-Syrians

c. Number of Syrians and non-Syrian bus and car passengers:

Syrian bus passengers = 3,953 x .75 = 2,965

Syrian car passengers = 3,953 x .25 = 988

non-Syrian bus passengers = 2,527 x .45 = 1,137

non-Syrian car passengers = 2,527 x .55 = 1,390

d. Number of buses and cars required for Syrian and non-Syrian passengers:

Syrian - 2,965 bus passengers/38 = 78

Syrian - 988 car passengers/4 = 247

non-Syrian - 1,137 bus passengers/38 = 30

non-Syrian - 1,390 car passengers/4 = 348

e. Total ADT of tourism associated with the new facilities in 1990 equals:

Buses - (78 + 30) =	108
Cars - (247 + 348) =	595
Total	703

Continued . . . .

TABLE 36
(CONTINUED)

CALCULATIONS OF AVERAGE DAILY TRAFFIC ASSOCIATED WITH NEW TOURIST FACILITIES, LATTAKIA-KASSAB ZONE OF INFLUENCE, 1990 AND 2000

YEAR 2000

a. 6,800/4 equals 1,700 x .90 = 1,530

b. Estimated number of Syrians versus non-Syrians equals:

1,530 x .61 = 933 Syrians

1,530 x .39 = 597 non-Syrians

c. Number of Syrians and non-Syrian bus and car passengers:

Syrian bus passengers = 933 x .75 = 700

Syrian car passengers = 933 x .25 = 233

non-Syrian bus passengers = 597 x .45 = 269

non-Syrian car passengers = 597 x .55 = 328

d. Number of buses and cars required for Syrian and non-Syrian passengers:

Syrian - 700 bus passengers/38 = 19 buses

Syrian - 233 car passengers/4 = 58 cars

non-Syrian - 269 bus passengers/38 = 7 buses

non-Syrian - 328 car passengers/4 = 82 cars

e. Total ADT of tourism associated with the new facilities in the year 2000 equals:

Buses - (19 + 7) =	26
Cars - (58 + 82) =	140
Total	166

Transport Economics

APPENDIX C

LYON

TABLE 1
TRAFFIC PROJECTIONS
EXISTING ROAD,EXCLUDING PORT EXP. TRAFFIC
LATTAKIA-BURJ ISLAM ROAD JCT.,BOTH DIRECTIONS

GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	11.30	9.10	7.50
PICK-UP	7.50	6.40	5.00
BUS	10.60	10.50	8.10
TRUCK(SINGLE-UNIT)	7.50	6.40	5.00
TRUCK(COMB.)	7.50	6.40	5.00

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR+P.U.	BUS+S.U.T.	TRUCK COMB.
1978	559.	498.	332.	62.	0.	1451.	73.	27.	0.
1979	622.	535.	367.	67.	0.	1591.	73.	27.	0.
1980	692.	575.	406.	72.	0.	1745.	73.	27.	0.
1981	770.	618.	449.	77.	0.	1914.	73.	27.	0.
1982	857.	664.	497.	83.	0.	2101.	72.	28.	0.
1983	954.	714.	550.	89.	0.	2307.	72.	28.	0.
1984	1041.	760.	608.	95.	0.	2504.	72.	28.	0.
1985	1136.	809.	672.	101.	0.	2718.	72.	28.	0.
1986	1239.	861.	743.	107.	0.	2950.	71.	29.	0.
1987	1352.	916.	821.	114.	0.	3203.	71.	29.	0.
1988	1475.	975.	907.	121.	0.	3478.	70.	30.	0.
1989	1609.	1037.	1002.	129.	0.	3777.	70.	30.	0.
1990	1755.	1103.	1107.	137.	0.	4102.	70.	30.	0.
1991	1915.	1174.	1223.	146.	0.	4458.	69.	31.	0.
1992	2089.	1249.	1351.	155.	0.	4844.	69.	31.	0.
1993	2279.	1329.	1493.	165.	0.	5266.	69.	31.	0.
1994	2450.	1395.	1614.	173.	0.	5632.	68.	32.	0.
1995	2634.	1465.	1745.	182.	0.	6026.	68.	32.	0.
1996	2832.	1538.	1886.	191.	0.	6447.	68.	32.	0.
1997	3044.	1615.	2039.	201.	0.	6899.	68.	32.	0.
1998	3272.	1696.	2204.	211.	0.	7383.	67.	33.	0.
1999	3517.	1781.	2383.	222.	0.	7903.	67.	33.	0.
2000	3781.	1870.	2576.	233.	0.	8460.	67.	33.	0.
2001	4065.	1964.	2785.	245.	0.	9059.	67.	33.	0.
2002	4370.	2062.	3011.	257.	0.	9700.	66.	34.	0.
2003	4698.	2165.	3255.	270.	0.	10388.	66.	34.	0.

TABLE 2
TRAFFIC PROJECTIONS
EXISTING AND PROPOSED ROAD
BURJ ISLAM RD JCT - RAS EL BASSIT RD JCT

GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	11.30	9.10	7.50
PICK-UP	7.50	6.40	5.00
BUS	10.60	10.50	8.10
TRUCK(SINGLE-UNIT)	7.50	6.40	5.00
TRUCK(COMB.)	7.50	6.40	5.00

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR+P.U.	BUS+S.U.T.	TRUCK COMB.
1978	274.	112.	74.	62.	0.	522.	74.	26.	0.
1979	305.	120.	82.	67.	0.	574.	74.	26.	0.
1980	339.	129.	91.	72.	0.	631.	74.	26.	0.
1981	377.	139.	101.	77.	0.	694.	74.	26.	0.
1982	420.	149.	112.	83.	0.	764.	74.	26.	0.
1983	467.	160.	124.	89.	0.	840.	75.	25.	0.
1984	509.	170.	137.	95.	0.	911.	75.	25.	0.
1985	555.	181.	151.	101.	0.	988.	74.	26.	0.
1986	606.	193.	167.	107.	0.	1073.	74.	26.	0.
1987	661.	205.	185.	114.	0.	1165.	74.	26.	0.
1988	721.	218.	204.	121.	0.	1264.	74.	26.	0.
1989	787.	232.	225.	129.	0.	1373.	74.	26.	0.
1990	859.	247.	249.	137.	0.	1492.	74.	26.	0.
1991	937.	263.	275.	146.	0.	1621.	74.	26.	0.
1992	1022.	280.	304.	155.	0.	1761.	74.	26.	0.
1993	1115.	298.	336.	165.	0.	1914.	74.	26.	0.
1994	1199.	313.	363.	173.	0.	2048.	74.	26.	0.
1995	1289.	329.	392.	182.	0.	2192.	74.	26.	0.
1996	1386.	345.	424.	191.	0.	2346.	74.	26.	0.
1997	1490.	362.	456.	201.	0.	2511.	74.	26.	0.
1998	1602.	380.	495.	211.	0.	2688.	74.	26.	0.
1999	1722.	399.	535.	222.	0.	2878.	74.	26.	0.
2000	1851.	419.	578.	233.	0.	3081.	74.	26.	0.
2001	1990.	440.	625.	245.	0.	3300.	74.	26.	0.
2002	2139.	462.	676.	257.	0.	3534.	74.	26.	0.
2003	2299.	485.	731.	270.	0.	3785.	74.	26.	0.

TABLE 1 & 2
TRAFFIC PROJECTIONS

LYON

TABLE 3
TRAFFIC PROJECTIONS
EXISTING AND PROPOSED ROAD
RAS EL BASSIT RD JCT - SYRIA BORDER

GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	4.90	3.90	3.00
PICK-UP	5.20	3.80	3.70
BUS	5.80	5.10	4.30
TRUCK(SINGLE-UNIT)	5.20	3.80	3.70
TRUCK(COMB.)	5.20	3.80	3.70

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR+P.U.	BUS+S.U.T.	TRUCK COM
1978	194.	62.	30.	29.	0.	315.	81.	19.	0.
1979	204.	65.	32.	31.	0.	332.	81.	19.	0.
1980	214.	68.	34.	33.	0.	349.	81.	19.	0.
1981	224.	72.	36.	35.	0.	367.	81.	19.	0.
1982	235.	76.	38.	37.	0.	386.	81.	19.	0.
1983	247.	80.	40.	39.	0.	406.	81.	19.	0.
1984	257.	83.	42.	40.	0.	422.	81.	19.	0.
1985	267.	86.	44.	42.	0.	439.	80.	20.	0.
1986	277.	89.	46.	44.	0.	456.	80.	20.	0.
1987	288.	92.	48.	46.	0.	474.	80.	20.	0.
1988	299.	95.	50.	48.	0.	492.	80.	20.	0.
1989	311.	99.	53.	50.	0.	513.	80.	20.	0.
1990	323.	103.	56.	52.	0.	534.	80.	20.	0.
1991	336.	107.	59.	54.	0.	556.	80.	20.	0.
1992	349.	111.	62.	56.	0.	578.	80.	20.	0.
1993	363.	115.	65.	58.	0.	601.	80.	20.	0.
1994	374.	119.	68.	60.	0.	621.	79.	21.	0.
1995	385.	123.	71.	62.	0.	641.	79.	21.	0.
1996	397.	128.	74.	64.	0.	663.	79.	21.	0.
1997	409.	133.	77.	66.	0.	685.	79.	21.	0.
1998	421.	138.	80.	68.	0.	707.	79.	21.	0.
1999	434.	143.	83.	71.	0.	731.	79.	21.	0.
2000	447.	148.	87.	74.	0.	756.	79.	21.	0.
2001	460.	153.	91.	77.	0.	781.	78.	22.	0.
2002	474.	159.	95.	80.	0.	808.	78.	22.	0.
2003	488.	165.	99.	83.	0.	835.	78.	22.	0.

TABLE 4
TRAFFIC PROJECTIONS
PROPOSED ROAD,DIVERTED TRF,EXCL PORT EXP TRFC
LATTAKIA-BURJ ISLAM RD JCT.,BOTH DIRECTIONS

GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	11.30	9.10	7.50
PICK-UP	7.50	6.40	5.00
BUS	10.60	10.50	8.10
TRUCK(SINGLE-UNIT)	7.50	6.40	5.00
TRUCK(COMB.)	7.50	6.40	5.00

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR+P.U.	BUS+S.U.T.	TRUCK COMB.
1978	404.	434.	150.	52.	0.	1040.	81.	19.	0.
1979	450.	467.	166.	56.	0.	1139.	81.	19.	0.
1980	501.	502.	184.	60.	0.	1247.	80.	20.	0.
1981	558.	540.	204.	65.	0.	1367.	80.	20.	0.
1982	621.	581.	226.	70.	0.	1498.	80.	20.	0.
1983	691.	625.	250.	75.	0.	1641.	80.	20.	0.
1984	754.	665.	276.	80.	0.	1775.	80.	20.	0.
1985	823.	708.	305.	85.	0.	1921.	80.	20.	0.
1986	898.	753.	337.	90.	0.	2078.	79.	21.	0.
1987	980.	801.	372.	96.	0.	2249.	79.	21.	0.
1988	1069.	852.	411.	102.	0.	2434.	79.	21.	0.
1989	1166.	907.	454.	109.	0.	2636.	79.	21.	0.
1990	1272.	965.	502.	116.	0.	2855.	78.	22.	0.
1991	1388.	1027.	555.	123.	0.	3093.	78.	22.	0.
1992	1514.	1093.	613.	131.	0.	3351.	78.	22.	0.
1993	1652.	1163.	677.	139.	0.	3631.	78.	22.	0.
1994	1776.	1221.	732.	146.	0.	3875.	77.	23.	0.
1995	1909.	1282.	791.	153.	0.	4135.	77.	23.	0.
1996	2052.	1346.	855.	161.	0.	4414.	77.	23.	0.
1997	2206.	1413.	924.	169.	0.	4712.	77.	23.	0.
1998	2371.	1484.	999.	177.	0.	5031.	77.	23.	0.
1999	2549.	1558.	1080.	186.	0.	5373.	76.	24.	0.
2000	2740.	1636.	1167.	195.	0.	5738.	76.	24.	0.
2001	2945.	1718.	1262.	205.	0.	6130.	76.	24.	0.
2002	3166.	1804.	1364.	215.	0.	6549.	76.	24.	0.
2003	3403.	1894.	1474.	226.	0.	6997.	76.	24.	0.

TABLE 3 & 4
TRAFFIC PROJECTIONS

LYON

TABLE 5
TRAFFIC PROJECTIONS
PROPOSED ROAD.DIVERTED TRF.EXCL PORT EXP TRFC
LATTAKIA-BURJ ISLAM RD JCT..N BND/S BND

GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	11.30	9.10	7.50
PICK-UP	7.50	6.40	5.00
BUS	10.60	10.50	8.10
TRUCK(SINGLE-UNIT)	7.50	6.40	5.00
TRUCK(COMB.)	7.50	6.40	5.00

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR+P.U.	BUS+S.U.T.	TRUCK COMB
1978	202.	217.	75.	26.	0.	520.	81.	19.	0.
1979	225.	233.	83.	28.	0.	569.	80.	20.	0.
1980	250.	250.	92.	30.	0.	622.	80.	20.	0.
1981	278.	269.	102.	32.	0.	681.	80.	20.	0.
1982	309.	289.	113.	34.	0.	745.	80.	20.	0.
1983	344.	311.	125.	37.	0.	817.	80.	20.	0.
1984	375.	331.	138.	39.	0.	883.	80.	20.	0.
1985	409.	352.	152.	41.	0.	954.	80.	20.	0.
1986	446.	375.	168.	44.	0.	1033.	79.	21.	0.
1987	487.	399.	186.	47.	0.	1119.	79.	21.	0.
1988	531.	425.	206.	50.	0.	1212.	79.	21.	0.
1989	579.	452.	228.	53.	0.	1312.	79.	21.	0.
1990	632.	481.	252.	56.	0.	1421.	78.	22.	0.
1991	690.	512.	278.	60.	0.	1540.	78.	22.	0.
1992	753.	545.	307.	64.	0.	1669.	78.	22.	0.
1993	822.	580.	339.	68.	0.	1809.	78.	22.	0.
1994	884.	609.	366.	71.	0.	1930.	77.	23.	0.
1995	950.	639.	396.	75.	0.	2060.	77.	23.	0.
1996	1021.	671.	428.	79.	0.	2199.	77.	23.	0.
1997	1098.	705.	463.	83.	0.	2349.	77.	23.	0.
1998	1180.	740.	501.	87.	0.	2508.	77.	23.	0.
1999	1269.	777.	542.	91.	0.	2679.	76.	24.	0.
2000	1364.	816.	586.	96.	0.	2862.	76.	24.	0.
2001	1466.	857.	633.	101.	0.	3057.	76.	24.	0.
2002	1576.	900.	684.	106.	0.	3266.	76.	24.	0.
2003	1694.	945.	739.	111.	0.	3489.	76.	24.	0.

TABLE 6
TRAFFIC PROJECTIONS
EXISTING ROAD,REMAINING TRAFFIC
LATTAKIA-BURJ ISLAM RD JCT.,BOTH DIRECTIONS

GROWTH RATES

	1978-83	1983-93	1993-2003
CAR	11.30	9.10	7.50
PICK-UP	7.50	6.40	5.00
BUS	10.60	10.50	8.10
TRUCK(SINGLE-UNIT)	7.50	6.40	5.00
TRUCK(COMB.)	7.50	6.40	5.00

YEAR	CAR	PICKUP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	P.C. OF TOTAL CAR+P.U.	BUS+S.U.T.	TRUCK COMB.
1978	155.	64.	182.	10.	0.	411.	53.	47.	0.
1979	173.	69.	201.	11.	0.	454.	53.	47.	0.
1980	193.	74.	222.	12.	0.	501.	53.	47.	0.
1981	215.	80.	246.	13.	0.	554.	53.	47.	0.
1982	239.	86.	272.	14.	0.	611.	53.	47.	0.
1983	266.	92.	301.	15.	0.	674.	53.	47.	0.
1984	290.	98.	333.	16.	0.	737.	53.	47.	0.
1985	316.	104.	368.	17.	0.	805.	52.	48.	0.
1986	345.	111.	407.	18.	0.	881.	52.	48.	0.
1987	376.	118.	450.	19.	0.	963.	51.	49.	0.
1988	410.	126.	497.	20.	0.	1053.	51.	49.	0.
1989	447.	134.	549.	21.	0.	1151.	50.	50.	0.
1990	488.	143.	607.	22.	0.	1260.	50.	50.	0.
1991	532.	152.	671.	23.	0.	1378.	50.	50.	0.
1992	580.	162.	741.	24.	0.	1507.	49.	51.	0.
1993	633.	172.	819.	26.	0.	1650.	49.	51.	0.
1994	680.	181.	885.	27.	0.	1773.	49.	51.	0.
1995	731.	190.	957.	28.	0.	1906.	48.	52.	0.
1996	786.	200.	1035.	29.	0.	2050.	48.	52.	0.
1997	845.	210.	1119.	30.	0.	2204.	48.	52.	0.
1998	908.	221.	1210.	32.	0.	2371.	48.	52.	0.
1999	976.	232.	1308.	34.	0.	2550.	47.	53.	0.
2000	1049.	244.	1414.	36.	0.	2743.	47.	53.	0.
2001	1128.	256.	1529.	38.	0.	2951.	47.	53.	0.
2002	1213.	269.	1653.	40.	0.	3175.	47.	53.	0.
2003	1304.	282.	1787.	42.	0.	3415.	46.	54.	0.

TABLE 5 & 6
TRAFFIC PROJECTIONS

LYON

TABLE 7
TRAFFIC PROJECTIONS
EXISTING ROAD, INCLUDING PORT EXP. TRAFFIC
LATTAKIA-BURJ ISLAM ROAD JCT., BOTH DIRECTIONS
PRESENT TRUCK LOADING PRACTICES

	GROWTH RATES		
	1978-83	1983-93	1993-2003
CAR	11.30	9.10	7.50
PICK-UP	7.50	6.40	5.00
BUS	10.60	10.50	8.10
TRUCK (SINGLE-UNIT)	7.50	6.40	5.00
TRUCK (COMB.)	7.50	6.40	5.00

YEAR	CAR	PICK-UP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	CAR+P.U.	P.C. OF TOTAL BUS+S.U.T.
1978	559.	498.	332.	854.	32.	2275.	47.	52.
1979	622.	535.	367.	859.	32.	2415.	48.	51.
1980	692.	575.	406.	864.	32.	2569.	50.	49.
1981	770.	618.	449.	869.	32.	2738.	51.	48.
1982	857.	664.	497.	875.	32.	2925.	52.	47.
1983	954.	714.	550.	89.	0.	2307.	72.	28.
1984	1041.	760.	608.	95.	0.	2504.	72.	28.
1985	1136.	809.	672.	893.	32.	3542.	55.	44.
1986	1239.	861.	743.	899.	32.	3774.	55.	44.
1987	1352.	916.	821.	906.	32.	4027.	56.	43.
1988	1475.	975.	907.	913.	32.	4302.	57.	42.
1989	1609.	1037.	1002.	921.	32.	4601.	57.	42.
1990	1755.	1103.	1107.	137.	0.	4102.	70.	30.
1991	1915.	1174.	1223.	146.	0.	4458.	69.	31.
1992	2089.	1249.	1351.	155.	0.	4844.	69.	31.
1993	2279.	1329.	1493.	165.	0.	5266.	69.	31.
1994	2450.	1395.	1614.	173.	0.	5632.	68.	32.
1995	2634.	1465.	1745.	182.	0.	6026.	68.	32.
1996	2832.	1538.	1886.	191.	0.	6447.	68.	32.
1997	3044.	1615.	2039.	201.	0.	6899.	68.	32.
1998	3272.	1696.	2204.	211.	0.	7383.	67.	33.
1999	3517.	1781.	2383.	222.	0.	7903.	67.	33.
2000	3781.	1870.	2576.	233.	0.	8460.	67.	33.
2001	4065.	1964.	2785.	245.	0.	9059.	67.	33.
2002	4370.	2062.	3011.	257.	0.	9700.	66.	34.
2003	4698.	2165.	3255.	270.	0.	10388.	66.	34.

TABLE 8
TRAFFIC PROJECTIONS
EXISTING ROAD, INCLUDING PORT EXP. TRAFFIC
LATTAKIA-BURJ ISLAM ROAD JCT., BOTH DIRECTIONS
LEGAL TRUCK LOADING PRACTICES

	GROWTH RATES		
	1978-83	1083-93	1993-2003
CAR	11.30	9.10	7.50
PICK-UP	7.50	6.40	5.00
BUS	10.60	10.50	8.10
TRUCK (SINGLE-UNIT)	7.50	6.40	5.00
TRUCK (COMB.)	7.50	6.40	5.00

YEAR	CAR	PICK-UP	BUS	TRUCK SINGLE-UNIT	TRUCK COMB.	TOTAL	CAR+P.U.	P.C. OF TOTAL BUS+S.U.T.	TRUCK COMB.
1978	559.	498.	332.	1020.	40.	2449.	43.	55.	2.
1979	622.	535.	367.	1025.	40.	2589.	44.	54.	2.
1980	692.	575.	406.	1030.	40.	2743.	47.	52.	1.
1981	770.	618.	449.	1035.	40.	2912.	48.	51.	1.
1982	857.	664.	497.	1041.	40.	3099.	49.	50.	1.
1983	954.	714.	550.	89.	0.	2307.	72.	28.	0.
1984	1041.	760.	608.	95.	0.	2504.	72.	28.	0.
1985	1136.	809.	672.	1059.	40.	3716.	52.	47.	1.
1986	1239.	861.	743.	1065.	40.	3948.	53.	46.	1.
1987	1352.	916.	821.	1072.	40.	4201.	54.	45.	1.
1988	1475.	975.	907.	1079.	40.	4476.	55.	44.	1.
1989	1609.	1037.	1002.	1087.	40.	4775.	55.	44.	1.
1990	1755.	1103.	1107.	137.	0.	4102.	70.	30.	0.
1991	1915.	1174.	1223.	146.	0.	4458.	69.	31.	0.
1992	2089.	1249.	1351.	155.	0.	4844.	69.	31.	0.
1993	2279.	1329.	1493.	165.	0.	5266.	69.	31.	0.
1994	2450.	1395.	1614.	173.	0.	5632.	68.	32.	0.
1995	2634.	1465.	1745.	182.	0.	6026.	68.	32.	0.
1996	2832.	1538.	1886.	191.	0.	6447.	68.	32.	0.
1997	3044.	1615.	2039.	201.	0.	6899.	68.	32.	0.
1998	3272.	1696.	2204.	211.	0.	7383.	67.	33.	0.
1999	3517.	1781.	2383.	222.	0.	7903.	67.	33.	0.
2000	3781.	1870.	2576.	233.	0.	8460.	67.	33.	0.
2001	4065.	1964.	2785.	245.	0.	9059.	67.	33.	0.
2002	4370.	2062.	3011.	257.	0.	9700.	66.	34.	0.
2003	4698.	2165.	3255.	270.	0.	10388.	66.	34.	0.

TABLE 7 & 8
TRAFFIC PROJECTIONS
LYON

TABLE 9
LATTAKIA TO SYRIA BORDER-PRESENT PRACTICES
LATTAKIA TO BURJ ISLAM ROAD JUNCTION
BOTH DIRECTIONS - EXCLUDING ROCK TRUCKS FOR PORT EXPANSION
EQUIVALENT AXLE LOADS (EAL)
(EAL TOTALS IN THOUSANDS)

GROWTH RATES

	1978-83	1983-93	1993-2003
TRUCK	7.50	6.40	5.00
BUS	10.60	10.50	8.10

*	TRUCK(F= 2.09)			* BUS (F=0.05)			* TRUCK + BUS *	
YEAR*	VOLUME	ANNUAL EAL	CUMUL. EAL	*VOLUME	ANNUAL EAL	CUMUL. EAL	*ANNUAL EAL	CUMUL.* EAL
1978	62.	47.	47.	332.	6.	6.	53.	53.
1979	67.	51.	98.	367.	7.	13.	57.	110.
1980	72.	55.	153.	406.	7.	20.	62.	172.
1981	77.	59.	212.	449.	8.	28.	66.	239.
1982	83.	63.	275.	497.	9.	37.	72.	312.
1983	89.	68.	343.	549.	10.	47.	77.	390.
1984	95.	72.	415.	607.	11.	59.	83.	473.
1985	101.	77.	492.	671.	12.	71.	89.	562.
1986	107.	82.	574.	741.	14.	84.	95.	657.
1987	114.	87.	661.	819.	15.	99.	101.	759.
1988	121.	93.	753.	905.	17.	116.	109.	868.
1989	129.	99.	852.	1000.	18.	134.	116.	985.
1990	137.	105.	956.	1105.	20.	154.	124.	1110.
1991	146.	112.	1068.	1221.	22.	176.	133.	1244.
1992	156.	119.	1187.	1350.	25.	201.	143.	1387.
1993	166.	126.	1313.	1491.	27.	228.	153.	1541.
1994	174.	133.	1446.	1612.	29.	258.	161.	1703.
1995	182.	139.	1585.	1743.	32.	290.	171.	1874.
1996	192.	146.	1731.	1884.	34.	324.	180.	2054.
1997	201.	153.	1884.	2036.	37.	361.	190.	2245.
1998	211.	161.	2046.	2201.	40.	401.	201.	2446.
1999	222.	169.	2215.	2380.	43.	445.	212.	2659.
2000	233.	178.	2392.	2572.	47.	492.	224.	2884.
2001	245.	187.	2579.	2781.	51.	542.	237.	3121.
2002	257.	196.	2775.	3006.	55.	597.	250.	3372.
2003	270.	206.	2981.	3249.	59.	657.	264.	3637.

TABLE 10
LATTAKIA TO SYRIA BORDER
BURJ ISLAM ROAD JCT TO RAS EL BASSIT ROAD JCT
BOTH DIRECTIONS
EQUIVALENT AXLE LOADS (EAL)
(EAL TOTALS IN THOUSANDS)

GROWTH RATES

	1978-83	1983-93	1993-2003
TRUCK	7.50	6.40	5.00
BUS	10.60	10.50	8.10

YEAR	TRUCK (F= 2.09) VOLUME	ANNUAL EAL	CUMUL. EAL	BUS (F=0.05) VOLUME	ANNUAL EAL	CUMUL. EAL	TRUCK + BUS ANNUAL EAL	CUMUL. EAL
1978	62.	47.	47.	74.	1.	1.	48.	48.
1979	67.	51.	98.	82.	1.	3.	52.	100.
1980	72.	55.	153.	91.	2.	4.	56.	157.
1981	77.	59.	212.	100.	2.	6.	60.	217.
1982	83.	63.	275.	111.	2.	8.	65.	283.
1983	89.	68.	343.	122.	2.	11.	70.	353.
1984	95.	72.	415.	135.	2.	13.	74.	427.
1985	101.	77.	492.	150.	3.	16.	79.	507.
1986	107.	82.	574.	165.	3.	19.	84.	592.
1987	114.	87.	661.	183.	3.	22.	90.	682.
1988	121.	93.	753.	202.	4.	26.	96.	778.
1989	129.	99.	852.	223.	4.	30.	102.	881.
1990	137.	105.	956.	246.	4.	34.	109.	990.
1991	146.	112.	1068.	272.	5.	39.	116.	1107.
1992	156.	119.	1187.	301.	5.	45.	124.	1231.
1993	166.	126.	1313.	332.	6.	51.	132.	1363.
1994	174.	133.	1446.	359.	7.	57.	139.	1502.
1995	182.	139.	1585.	388.	7.	65.	146.	1649.
1996	192.	146.	1731.	420.	8.	72.	153.	1803.
1997	201.	153.	1884.	454.	8.	80.	161.	1964.
1998	211.	161.	2046.	491.	9.	89.	170.	2134.
1999	222.	169.	2215.	530.	10.	99.	178.	2313.
2000	233.	178.	2392.	573.	10.	110.	188.	2502.
2001	245.	187.	2579.	620.	11.	121.	197.	2699.
2002	257.	196.	2775.	670.	12.	133.	208.	2907.
2003	270.	206.	2981.	724.	13.	146.	218.	3126.

TABLE 11
LATTAKIA TO SYRIA BORDER
RAS EL BASSIT ROAD JCT TO SYRIA/TURKEY BORDER
BOTH DIRECTIONS
EQUIVALENT AXLE LOADS (EAL)
(EAL TOTALS IN THOUSANDS)

GROWTH RATES

	1978-83	1983-93	1993-2003
TRUCK	5.20	3.80	3.70
BUS	5.80	5.10	4.30

YEAR	TRUCK (F= 2.09) VOLUME	ANNUAL EAL	CUMUL. EAL	BUS (F=0.05) VOLUME	ANNUAL EAL	CUMUL. EAL	TRUCK + BUS ANNUAL EAL	CUMUL. EAL
1978	29.	22.	22.	30.	1.	1.	22.	22.
1979	31.	23.	45.	32.	1.	1.	23.	46.
1980	32.	24.	70.	34.	1.	2.	25.	71.
1981	34.	26.	96.	36.	1.	2.	26.	98.
1982	36.	27.	123.	38.	1.	3.	27.	125.
1983	37.	29.	151.	40.	1.	4.	29.	155.
1984	39.	30.	181.	42.	1.	5.	30.	185.
1985	40.	31.	212.	44.	1.	5.	31.	216.
1986	42.	32.	243.	46.	1.	6.	32.	249.
1987	43.	33.	277.	49.	1.	7.	33.	283.
1988	45.	34.	311.	51.	1.	8.	35.	318.
1989	47.	36.	347.	54.	1.	9.	36.	355.
1990	49.	37.	384.	56.	1.	10.	38.	393.
1991	50.	38.	422.	59.	1.	11.	39.	433.
1992	52.	40.	462.	62.	1.	12.	41.	474.
1993	54.	41.	503.	65.	1.	13.	42.	516.
1994	56.	43.	546.	68.	1.	15.	44.	560.
1995	58.	45.	591.	71.	1.	16.	45.	606.
1996	61.	46.	637.	74.	1.	17.	47.	654.
1997	63.	48.	685.	77.	1.	19.	49.	703.
1998	65.	50.	734.	81.	1.	20.	51.	754.
1999	67.	51.	786.	84.	2.	22.	53.	807.
2000	70.	53.	839.	88.	2.	23.	54.	862.
2001	73.	55.	894.	92.	2.	25.	57.	919.
2002	75.	57.	952.	96.	2.	27.	59.	978.
2003	78.	60.	1011.	100.	2.	29.	61.	1039.

TABLES 9, 10 & 11
AXLE LOADING PROJECTIONS

LYON

TABLE 12
LATTAKIA TO BURJ ISLAM ROAD JUNCTION
BOTH DIRECTIONS - INCLUDING ROCK TRUCKS FOR PORT EXPANSION - PRESENT LOADINGS
EQUIVALENT AXLE LOADS (EAL)
(EAL TOTALS IN THOUSANDS)

GROWTH RATES[1/]

	1978-83	1983-93	1993-2003
TRUCK	7.5	6.4	5.0
BUS	10.6	10.5	8.1

	TRUCK (F=[2/])			BUS (F=0.05)			TRUCK + BUS	
YEAR	VOLUME[3/]	ANNUAL EAL	CUMUL. EAL	VOLUME	ANNUAL EAL	CUMUL. EAL	ANNUAL EAL	CUMUL. EAL
1978	886	2302	2302	332	6	6	2308	2308
1979	891	2305	4607	367	7	13	2312	4620
1980	896	2310	6917	406	7	20	2317	6937
1981	901	2314	9231	449	8	28	2322	9259
1982	907	2318	11549	497	9	37	2327	11586
1983	89	106	11655	550	10	47	116	11702
1984	95	111	11766	608	11	58	122	11824
1985	925	2332	14098	672	12	70	2344	14168
1986	931	2337	16435	743	14	84	2351	16519
1987	938	2342	18777	821	15	99	2357	18876
1988	945	2347	21124	907	17	116	2364	21240
1989	953	2353	23477	1002	18	134	2371	23611
1990	137	105	23582	1107	20	154	125	23736
1991	146	111	23693	1223	22	176	133	23869
1992	155	118	23811	1351	25	201	143	24012
1993	165	126	23937	1493	27	228	153	24165
1994	173	132	24069	1614	29	257	161	24326
1995	182	139	24208	1745	32	289	171	24497
1996	191	146	24354	1886	34	323	180	24677
1997	201	153	24507	2039	37	360	190	24867
1998	211	161	24668	2204	40	400	201	25068
1999	222	168	24836	2383	43	443	211	25279
2000	233	177	25013	2576	47	490	224	25503
2001	245	186	25199	2785	51	541	237	25740
2002	257	196	25395	3011	55	596	251	25991
2003	270	205	25600	3255	59	655	264	26255

1/ Truck Growth Rates for General Cargo Trucks Only.

2/ Truck Factors Used:

	Southbound	Northbound
General Cargo Trucks	2.75	1.42
Rock Trucks	14.74	0.25

3/ 824 Rock Trucks Included During Years 1978-1982 and 1985-1989.

TABLE 13

LATTAKIA TO BURJ ISLAM ROAD JUNCTION
BOTH DIRECTIONS - INCLUDING ROCK TRUCKS FOR PORT EXPANSION - LEGAL LOADINGS
EQUIVALENT AXLE LOADS (EAL)
(EAL TOTALS IN THOUSANDS)

	GROWTH RATES[1]		
	1978-83	1983-93	1993-2003
TRUCK	7.5	6.4	5.0
BUS	10.6	10.5	8.1

	TRUCK (F=[2])			BUS (F=0.05)			TRUCK + BUS	
YEAR	VOLUME[3]	ANNUAL EAL	CUMUL. EAL	VOLUME	ANNUAL EAL	CUMUL. EAL	ANNUAL EAL	CUMUL. EAL
1978	1060	1069	1069	332	6	6	1075	1075
1979	1065	1072	2141	367	7	13	1079	2154
1980	1070	1077	3218	406	7	20	1084	3238
1981	1075	1081	4299	449	8	28	1089	4327
1982	1081	1085	5384	497	9	37	1094	5421
1983	89	68	5452	550	10	47	78	5499
1984	95	73	5525	608	11	58	84	5583
1985	1099	1099	6624	672	12	70	1111	6694
1986	1105	1104	7728	743	14	84	1118	7812
1987	1112	1109	8837	821	15	99	1124	8936
1988	1119	1114	9951	907	17	116	1131	10067
1989	1127	1120	11071	1002	18	134	1138	11205
1990	137	105	11176	1107	20	154	125	11330
1991	146	111	11287	1223	22	172	133	11463
1992	155	118	11405	1351	25	201	143	11606
1993	165	126	11531	1493	27	228	153	11759
1994	173	132	11663	1614	29	257	161	11920
1995	182	139	11802	1745	32	289	171	12091
1996	191	146	11948	1886	34	323	180	12271
1997	201	153	12101	2039	37	360	190	12461
1998	211	161	12262	2204	40	400	201	12662
1999	222	168	12430	2383	43	443	211	12873
2000	233	177	12607	2576	47	490	224	13097
2001	245	186	12793	2785	51	541	237	13334
2002	257	196	12989	3011	55	596	251	13585
2003	270	205	13194	3255	59	655	264	13849

1/ Truck Growth Rates for General Cargo Trucks Only.

2/ Truck Factors Used:

	Southbound	Northbound
General Cargo Trucks	2.75	1.42
Rock Trucks	5.49	0.12

3/ 998 Rock Trucks Included During Years 1978-1982 and 1985-1989.

TABLE 12 & 13
AXLE LOADING PROJECTIONS

LYON

TABLE 14
LATTAKIA TO SYRIA BORDER-PRESENT PRACTICES
LATTAKIA TO BURJ ISLAM ROAD JUNCTION
SOUTHBOUND - EXCLUDING ROCK TRUCKS FOR PORT EXPANSION
EQUIVALENT AXLE LOADS (EAL)
(EAL TOTALS IN THOUSANDS)

GROWTH RATES

	1978-83	1983-93	1993-2003
TRUCK	7.50	6.40	5.00
BUS	10.60	10.50	8.10

*	TRUCK(F= 2.75)		*	BUS (F=0.05)			* TRUCK + BUS *	
YEAR*	VOLUME	ANNUAL EAL	CUMUL. EAL	*VOLUME	ANNUAL EAL	CUMUL. EAL	*ANNUAL EAL	CUMUL.* EAL
1978	31.	31.	31.	166.	3.	3.	34.	34.
1979	33.	33.	65.	184.	3.	6.	36.	70.
1980	36.	36.	101.	203.	4.	10.	39.	110.
1981	39.	39.	139.	225.	4.	14.	42.	153.
1982	41.	42.	181.	248.	5.	19.	46.	199.
1983	45.	45.	225.	275.	5.	24.	49.	249.
1984	47.	48.	273.	304.	6.	29.	53.	302.
1985	50.	51.	324.	335.	6.	35.	56.	358.
1986	54.	54.	377.	371.	7.	42.	60.	419.
1987	57.	57.	435.	410.	7.	50.	64.	484.
1988	61.	61.	495.	453.	8.	58.	69.	553.
1989	65.	65.	560.	500.	9.	67.	73.	627.
1990	69.	69.	629.	553.	10.	77.	79.	706.
1991	73.	73.	703.	611.	11.	88.	84.	790.
1992	78.	78.	781.	675.	12.	101.	90.	881.
1993	83.	83.	864.	746.	14.	114.	96.	977.
1994	87.	87.	951.	806.	15.	129.	101.	1079.
1995	91.	92.	1043.	871.	16.	145.	107.	1187.
1996	96.	96.	1139.	942.	17.	162.	113.	1300.
1997	101.	101.	1240.	1018.	19.	181.	119.	1420.
1998	106.	106.	1346.	1101.	20.	201.	126.	1546.
1999	111.	111.	1457.	1190.	22.	222.	133.	1679.
2000	116.	117.	1574.	1286.	23.	246.	140.	1819.
2001	122.	123.	1697.	1390.	25.	271.	148.	1967.
2002	128.	129.	1826.	1503.	27.	299.	156.	2124.
2003	135.	135.	1961.	1625.	30.	328.	164.	2289.

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TABLE 15
LATTAKIA TO SYRIA BORDER-PRESENT PRACTICES
LATTAKIA TO BURJ ISLAM ROAD JUNCTION
NORTHBOUND - EXCLUDING ROCK TRUCKS FOR PORT EXPANSION
EQUIVALENT AXLE LOADS (EAL)
(EAL TOTALS IN THOUSANDS)

GROWTH RATES

	1978-83	1983-93	1993-2003
TRUCK	7.50	6.40	5.00
BUS	10.60	10.50	8.10

YEAR	TRUCK (F= 1.42) VOLUME	ANNUAL EAL	CUMUL. EAL	BUS (F=0.05) VOLUME	ANNUAL EAL	CUMUL. EAL	TRUCK + BUS ANNUAL EAL	CUMUL. EAL
1978	31.	16.	16.	166.	3.	3.	19.	19.
1979	33.	17.	33.	184.	3.	6.	20.	39.
1980	36.	19.	52.	203.	4.	10.	22.	61.
1981	39.	20.	72.	225.	4.	14.	24.	86.
1982	41.	21.	93.	248.	5.	19.	25.	112.
1983	45.	23.	116.	275.	5.	24.	28.	140.
1984	47.	25.	141.	304.	6.	29.	30.	170.
1985	50.	26.	167.	335.	6.	35.	32.	202.
1986	54.	28.	195.	371.	7.	42.	34.	236.
1987	57.	30.	224.	410.	7.	50.	37.	274.
1988	61.	31.	256.	453.	8.	58.	39.	313.
1989	65.	33.	289.	500.	9.	67.	42.	356.
1990	69.	36.	325.	553.	10.	77.	45.	402.
1991	73.	38.	363.	611.	11.	88.	49.	451.
1992	78.	40.	403.	675.	12.	101.	52.	503.
1993	83.	43.	446.	746.	14.	114.	56.	560.
1994	87.	45.	491.	806.	15.	129.	59.	619.
1995	91.	47.	538.	871.	16.	145.	63.	683.
1996	96.	50.	588.	942.	17.	162.	66.	749.
1997	101.	52.	640.	1018.	19.	181.	70.	820.
1998	106.	55.	695.	1101.	20.	201.	74.	895.
1999	111.	57.	752.	1190.	22.	222.	79.	974.
2000	116.	60.	813.	1286.	23.	246.	83.	1058.
2001	122.	63.	876.	1390.	25.	271.	88.	1147.
2002	128.	67.	943.	1503.	27.	299.	93.	1241.
2003	135.	70.	1013.	1625.	30.	328.	99.	1340.

TABLE 14 & 15
AXLE LOADING PROJECTIONS

LYON

TABLE 16

LATTAKIA TO BURJ ISLAM ROAD JUNCTION
SOUTHBOUND - INCLUDING ROCK TRUCKS FOR PORT EXPANSION - PRESENT LOADINGS
EQUIVALENT AXLE LOADS (EAL)
(EAL TOTALS IN THOUSANDS)

	GROWTH RATES[1]		
	1978-83	1983-93	1993-2003
TRUCK	7.5	6.4	5.0
BUS	10.6	10.5	8.1

	TRUCK (F=[2])			BUS (F=0.05)			TRUCK + BUS	
YEAR	VOLUME[3]	ANNUAL EAL	CUMUL. EAL	VOLUME	ANNUAL EAL	CUMUL. EAL	ANNUAL EAL	CUMUL. EAL
1978	443	2248	2248	166	3	3	2251	2251
1979	445	2250	4498	184	3	6	2253	4504
1980	448	2253	6751	203	4	10	2257	6761
1981	451	2256	9007	225	4	14	2260	9021
1982	453	2259	11266	248	5	19	2264	11285
1983	45	45	11311	275	5	24	50	11335
1984	47	48	11359	304	6	29	54	11389
1985	462	2268	13627	335	6	35	2274	13663
1986	466	2271	15898	371	7	42	2278	15941
1987	469	2274	18172	410	7	50	2281	18222
1988	473	2278	20450	453	8	58	2286	20508
1989	477	2282	22732	500	9	67	2291	22799
1990	69	69	22801	553	10	77	79	22878
1991	73	73	22874	611	11	88	84	22962
1992	78	78	22952	675	12	101	90	23052
1993	83	83	23035	746	14	114	97	23149
1994	87	87	23122	806	15	129	102	23251
1995	91	92	23214	871	16	145	108	23359
1996	96	96	23310	942	17	162	113	23472
1997	101	101	23411	1018	19	181	120	23592
1998	106	106	23517	1101	20	201	126	23718
1999	111	111	23628	1190	22	222	133	23851
2000	116	117	23745	1286	23	246	140	23991
2001	122	123	23868	1390	25	271	148	24139
2002	128	129	23997	1503	27	299	156	24295
2003	135	135	24132	1625	30	328	165	24460

1/ Truck Growth Rates for General Cargo Trucks Only.

2/ Truck Factors Used: General Cargo Trucks = 2.75
Rock Trucks = 14.74

3/ 412 Rock Trucks Included During Years 1978-1982 and 1985-1989.

TABLE 17

LATTAKIA TO BURJ ISLAM ROAD JUNCTION
NORTHBOUND - INCLUDING ROCK TRUCKS FOR PORT EXPANSION - PRESENT LOADINGS
EQUIVALENT AXLE LOADS (EAL)
(EAL TOTALS IN THOUSANDS)

	GROWTH RATES[1]		
	1978-83	1983-93	1993-2003
TRUCK	7.5	6.4	5.0
BUS	10.6	10.5	8.1

	TRUCK (F=[2])			BUS (F=0.05)			TRUCK + BUS	
YEAR	VOLUME[3]	ANNUAL EAL	CUMUL. EAL	VOLUME	ANNUAL EAL	CUMUL. EAL	ANNUAL EAL	CUMUL. EAL
1978	443	54	54	166	3	3	57	57
1979	445	55	109	184	3	6	58	115
1980	448	57	166	203	4	10	61	176
1981	451	58	224	225	4	14	62	238
1982	453	59	283	248	5	19	64	302
1983	45	23	306	275	5	24	28	330
1984	47	25	331	304	6	29	31	361
1985	462	64	395	335	6	35	70	431
1986	466	66	461	371	7	42	73	504
1987	469	68	529	410	7	50	75	579
1988	473	69	598	453	8	58	77	656
1989	477	71	669	500	9	67	80	736
1990	69	36	705	553	10	77	46	782
1991	73	38	743	611	11	88	49	831
1992	78	40	783	675	12	101	52	883
1993	83	43	826	746	14	114	57	940
1994	87	45	871	806	15	129	60	1000
1995	91	47	918	871	16	145	63	1063
1996	96	50	968	942	17	162	67	1130
1997	101	52	1020	1018	19	181	71	1201
1998	106	55	1075	1101	20	201	75	1276
1999	111	57	1132	1190	22	222	79	1355
2000	116	60	1192	1286	23	246	83	1438
2001	122	63	1255	1390	25	271	88	1526
2002	128	67	1322	1503	27	299	94	1620
2003	135	70	1392	1625	30	328	100	1720

1/ Truck Growth Rates for General Cargo Trucks Only.

2/ Truck Factors Used: General Cargo Trucks = 1.42
Rock Trucks = 0.25

3/ 412 Rock Trucks Included During Years 1978-1982 and 1985-1989.

TABLE 16 & 17
AXLE LOADING PROJECTIONS

LYON

TABLE 18

LATTAKIA TO BURJ ISLAM ROAD JUNCTION
SOUTHBOUND - INCLUDING ROCK TRUCKS FOR PORT EXPANSION - LEGAL LOADINGS
EQUIVALENT AXLE LOADS (EAL)
(EAL TOTALS IN THOUSANDS)

GROWTH RATES[1]

	1978-83	1983-93	1993-2003
TRUCK	7.5	6.4	5.0
BUS	10.6	10.5	8.1

	TRUCK (F=[2])			BUS (F=0.05)			TRUCK + BUS	
YEAR	VOLUME[3]	ANNUAL EAL	CUMUL. EAL	VOLUME	ANNUAL EAL	CUMUL. EAL	ANNUAL EAL	CUMUL. EAL
1978	530	1031	1031	166	3	3	1034	1034
1979	532	1033	2064	184	3	6	1036	2070
1980	535	1036	3100	203	4	10	1040	3110
1981	538	1039	4139	225	4	14	1043	4153
1982	540	1042	5181	248	5	19	1047	5200
1983	45	45	5226	275	5	24	50	5250
1984	47	48	5274	304	6	29	54	5304
1985	549	1051	6325	335	6	35	1057	6361
1986	553	1054	7379	371	7	42	1061	7422
1987	556	1057	8436	410	7	50	1064	8486
1988	560	1061	9497	453	8	58	1069	9555
1989	564	1065	10562	500	9	67	1074	10629
1990	69	69	22801	553	10	77	79	10708
1991	73	73	22874	611	11	88	84	10792
1992	78	78	22952	675	12	101	90	10882
1993	83	83	23035	746	14	114	97	10979
1994	87	87	23122	806	15	129	102	11081
1995	91	92	23214	871	16	145	108	11189
1996	96	96	23310	942	17	162	113	11302
1997	101	101	23411	1018	19	181	120	11422
1998	106	106	23517	1101	20	201	126	11548
1999	111	111	23628	1190	22	222	133	11681
2000	116	117	23745	1286	23	246	140	11821
2001	122	123	23868	1390	25	271	148	11969
2002	128	129	23997	1503	27	299	156	12125
2003	135	135	24132	1625	30	328	165	12290

1/ Truck Growth Rates for General Cargo Trucks Only.

2/ Truck Factors Used: General Cargo Trucks = 2.75
Rock Trucks = 5.49

3/ 499 Rock Trucks Included During Years 1978-1982 and 1985-1989.

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TABLE 19

LATTAKIA TO BURJ ISLAM ROAD JUNCTION
NORTHBOUND - INCLUDING ROCK TRUCKS FOR PORT EXPANSION - LEGAL LOADINGS
EQUIVALENT AXLE LOADS (EAL)
(EAL TOTALS IN THOUSANDS)

GROWTH RATES[1/]

	1978-83	1983-93	1993-2003
TRUCK	7.5	6.4	5.0
BUS	10.6	10.5	8.1

	TRUCK (F=[2/])			BUS (F=0.05)			TRUCK + BUS	
YEAR	VOLUME[3/]	ANNUAL EAL	CUMUL. EAL	VOLUME	ANNUAL EAL	CUMUL. EAL	ANNUAL EAL	CUMUL. EAL
1978	530	38	38	166	3	3	41	41
1979	532	39	77	184	3	6	42	83
1980	535	41	118	203	4	10	45	128
1981	538	42	160	225	4	14	46	174
1982	540	43	203	248	5	19	48	222
1983	45	23	226	275	5	24	28	250
1984	47	25	251	304	6	29	31	281
1985	549	48	299	335	6	35	54	335
1986	553	50	349	371	7	42	57	392
1987	556	52	401	410	7	50	59	451
1988	560	53	454	453	8	58	61	512
1989	564	55	509	500	9	67	64	576
1990	69	36	545	553	10	77	46	622
1991	73	38	583	611	11	88	49	671
1992	78	40	623	675	12	101	52	723
1993	83	43	666	746	14	114	57	780
1994	87	45	711	806	15	129	60	840
1995	91	47	758	871	16	145	63	903
1996	96	50	808	942	17	162	67	970
1997	101	52	860	1018	19	181	71	1041
1998	106	55	915	1101	20	201	75	1116
1999	111	57	972	1190	22	222	79	1195
2000	116	60	1032	1286	23	246	83	1278
2001	122	63	1095	1390	25	271	88	1366
2002	128	67	1162	1503	27	299	94	1460
2003	135	70	1232	1625	30	328	100	1560

1/ Truck Growth Rates for General Cargo Trucks Only.

2/ Truck Factors Used: General Cargo Trucks = 1.42
Rock Trucks = 0.12

3/ 499 Rock Trucks Included During Years 1978-1982 and 1985-1989.

TABLE 18 & 19
AXLE LOADING PROJECTIONS

LYON

TABLE 20

VEHICLE OPERATING COSTS ON LEVEL TANGENT ROAD *
PER 1000 VEHICLE KILOMETERS

VEHICLE: PASSENGER CAR
TAX STATUS: WITHOUT TAXES
MONETARY UNIT: SYRIAN POUNDS

COST ITEM	BASIS COST	UNIT VALUE	UNIFORM SPEED (KM PER HOUR) 20	30	40	50	60	70	80
VEHICLE RUNNING COSTS									
FUEL	LITER	0.653	102.39	90.96	80.44	63.41	64.58	66.15	68.17
TIRES	TIRE & TUBE	90.000	1.19	1.85	2.74	3.37	4.24	5.19	6.13
OIL	LITER	0.544	1.14	1.21	0.91	0.82	0.81	0.77	0.71
MAINTENANCE: PARTS	% OF VEH.	17,470.	12.23	13.98	15.72	15.72	17.47	17.47	19.22
LABOR	HOUR	2.88	1.27	1.35	1.53	1.53	1.64	1.76	1.90
DEPRECIATION	% OF VEH.	17,020.	54.46	45.95	39.15	34.04	30.64	27.23	25.53
SUB - TOTAL	-	-	172.98	155.30	140.49	118.89	119.38	118.57	121.84
RELATED COSTS									
OCCUPANTS TIME:									
OPERATORS	HOUR	10.50	525.00	350.00	262.50	210.00	175.00	150.00	131.25
PASSENGERS	HOUR								
ACCIDENTS	% OF VEH.	17,470.	83.86	55.90	41.93	33.54	27.95	23.96	20.96
VEHICLE INVESTMENT	% OF VEH.	17,470.	98.27	65.51	49.13	39.31	32.76	28.08	24.57
TIME DEPRECIATION	% OF VEH.	17,020.	54.75	34.43	24.04	18.54	14.75	11.72	9.71
SUB - TOTAL	-	-	761.88	505.84	377.60	301.39	250.46	213.76	186.49
MANAGEMENT	% OF ABOVE	5%	46.74	33.06	25.90	21.01	18.49	16.62	15.42
SUB- TOTAL	-	-	808.62	538.90	403.50	322.40	268.95	230.38	201.91
GRAND TOTAL	-	-	981.60	694.20	543.99	441.29	388.33	348.95	323.75

* ON HIGH TYPE SURFACE IN GOOD CONDITION

TABLE 22

VEHICLE OPERATING COSTS ON LEVEL TANGENT ROAD *
PER 1000 VEHICLE KILOMETERS

VEHICLE: BUS
TAX STATUS: WITHOUT TAXES
MONETARY UNIT: SYRIAN POUNDS

COST ITEM	BASIS OF COST	UNIT VALUE	UNIFORM SPEED (KM PER HOUR) 20	30	40	50	60	70	80
VEHICLE RUNNING COSTS									
FUEL	LITER	0.641	140.76	157.69	107.50	117.30	129.42	142.94	157.05
TIRES	TIRE & TUBE	264.000	3.59	5.73	8.24	10.88	13.75	16.87	20.33
OIL	LITER	0.553	3.17	3.43	2.25	3.03	2.37	2.22	2.15
MAINTENANCE: PARTS	% OF VEH.	82,710	165.42	173.69	190.23	215.05	239.86	264.67	297.76
LABOR	HOUR	2.880	6.36	6.77	7.52	8.50	9.71	11.06	12.53
DEPRECIATION	% OF VEH.	80,870	121.30	97.04	88.96	72.78	64.70	56.61	48.52
SUB - TOTAL	-	-	440.60	444.35	404.70	427.54	459.81	494.37	538.34
RELATED COSTS									
OCCUPANTS TIME:									
OPERATORS	HOUR	23.97	1198.50	799.00	599.25	479.40	399.50	342.43	299.63
PASSENGERS	HOUR								
ACCIDENTS	% OF VEH.	82,710	134.40	89.60	67.20	53.76	44.80	38.40	33.60
VEHICLE INVESTMENT	% OF VEH.	82,710	155.08	103.39	77.54	62.03	51.69	44.31	38.77
TIME DEPRECIATION	% OF VEH.	80,870	39.47	22.73	17.72	12.77	10.62	9.22	8.31
SUB - TOTAL	-	-	1527.45	1014.72	761.71	607.96	506.61	434.36	380.31
MANAGEMENT	% OF ABOVE	10%	196.81	145.91	116.64	103.55	96.64	92.87	91.87
SUB - TOTAL	-	-	1724.26	1160.63	878.35	711.51	603.25	527.23	472.18
GRAND TOTAL	-	-	2164.86	1604.98	1283.05	1139.05	1063.06	1021.60	1010.52

* ON HIGH TYPE SURFACE IN GOOD CONDITION

TABLE 21

VEHICLE OPERATING COSTS ON LEVEL TANGENT ROAD *
PER 1000 VEHICLE KILOMETERS

VEHICLE: PICK-UP TRUCK
TAX STATUS: WITHOUT TAXES
MONETARY UNIT: SYRIAN POUNDS

COST ITEM	BASIS OF COST	UNIT VALUE	UNIFORM SPEED (KM PER HOUR) 20	30	40	50	60	70	80
VEHICLE RUNNING COSTS									
FUEL	LITER	0.653	134.71	94.55	67.39	70.26	74.38	78.88	84.17
TIRES	TIRE & TUBE	160.000	1.82	2.83	3.92	5.14	6.48	7.95	9.65
OIL	LITER	0.544	1.66	1.11	0.76	0.77	0.75	0.71	0.61
MAINTENANCE: PARTS	% OF VEH.	16,200.	14.58	16.20	16.20	17.82	19.44	19.44	21.06
LABOR	HOUR	2.860	1.56	1.67	1.79	1.90	2.02	2.16	2.30
DEPRECIATION	% OF VEH.	15,4000.	77.00	64.68	55.44	47.74	43.12	38.50	35.42
SUB- TOTAL	-	-	231.33	181.04	145.50	143.50	146.19	147.64	153.21
RELATED COSTS									
OCCUPANTS TIME:									
OPERATORS	HOUR	3.33	166.50	111.00	83.25	66.60	55.50	47.57	41.63
PASSENGERS	HOUR	-	-	-	-	-	-	-	-
ACCIDENTS	% OF VEH.	16,200.	103.68	69.12	51.84	41.47	34.56	29.62	25.92
VEHICLE INVESTMENT	% OF VEH.	16,200.	121.50	81.00	60.75	48.60	40.50	34.71	30.38
TIME DEPRECIATION	% OF VEH.	15,400.	57.16	36.65	25.96	19.66	15.32	12.73	10.25
SUB - TOTAL	-	-	448.84	297.77	221.80	176.33	145.88	124.63	103.18
MANAGEMENT	% OF ABOVE	10%	68.02	47.88	36.73	32.00	29.21	27.33	26.14
SUB- TOTAL	-	-	516.86	345.65	258.53	208.33	175.09	151.86	134.32
GRAND TOTAL	-	-	748.19	526.69	404.03	351.96	321.28	299.50	287.53

* ON HIGH TYPE SURFACE IN GOOD CONDITION

TABLES 20, 21 & 22
VEHICLE RUNNING COSTS

LYON

TABLE 23

VEHICLE OPERATING COSTS ON LEVEL TANGENT ROAD *
PER 1000 VEHICLE KILOMETERS

VEHICLE: SINGLE UNIT TRUCK (DIESEL)
TAX STATUS: WITHOUT TAXES
MONETARY UNIT: SYRIAN POUNDS

COST ITEM	BASIS OF COST	UNIT VALUE	UNIFORM SPEED (KM PER HOU					
			20	30	40	50	60	70
VEHICLE RUNNING COSTS								
FUEL	LITER	0.641	264.80	165.31	188.39	128.78	137.24	147.30
TIRES	TIRE & TUBE	520.000	6.29	9.67	13.62	17.84	22.46	27.51
OIL	LITER	0.553	6.07	3.62	3.98	2.58	2.54	2.34
MAINTENANCE: PARTS	% OF VEH.	109.040.	141.75	141.75	152.66	163.56	174.46	196.27
LABOR	HOUR	2.880	4.06	4.29	4.61	5.04	5.56	6.13
DEPRECIATION	% OF VEH.	104,990.	209.98	178.48	146.99	125.99	115.49	104.99
SUB - TOTAL	-	-	632.95	503.12	510.25	443.79	457.75	484.54
RELATED COSTS								
OCCUPANTS TIME:								
OPERATORS	HOUR	7.69	384.50	256.33	192.25	153.80	128.17	109.86
PASSENGERS	HOUR	-	-	-	-	-	-	-
ACCIDENTS	% OF VEH.	109,040.	174.46	116.31	87.23	69.79	58.15	49.85
VEHICLE INVESTMENT	% OF VEH.	109,040.	272.60	181.73	136.30	109.04	90.87	77.89
TIME DEPRECIATION	% OF VEH.	104,990.	189.86	109.69	76.55	56.67	43.62	36.03
SUB- TOTAL	-	-	1021.42	664.06	492.33	389.30	320.81	273.63
MANAGEMENT	% OF ABOVE	10 %	165.44	116.72	100.26	83.31	77.86	75.82
SUB - TOTAL	-	-	1186.86	780.78	592.59	472.61	398.67	349.45
GRAND TOTAL	-	-	1819.81	1283.90	1102.84	916.40	856.41	833.99

* ON HIGH TYPE SURFACE IN GOOD CONDITION

TABLE 24

VEHICLE OPERATING COSTS ON LEVEL TANGENT ROAD *
PER 1000 VEHICLE KILOMETERS

VEHICLE; TRUCK COMBINATION
TAX STATUS: WITHOUT TAXES
MONETARY UNIT: SYRIAN POUNDS

COST ITEM	BASIS OF COST	UNIT VALUE	UNIFORM SPEED (KM PER HOUR) 20	30	40	50	60	70	80
VEHICLE RUNNING COSTS									
FUEL	LITER	0.641	397.23	248.00	282.62	193.20	205.89	220.95	237.04
TIRES	TIRE & TUBE	520.000	6.81	10.76	15.18	20.23	26.21	33.33	41.96
OIL	LITER	0.553	4.56	3.36	4.36	3.15	3.32	3.13	2.84
MAINTENANCE: PARTS	% OF VEH.	172,820.	86.41	103.69	103.69	103.69	120.97	120.97	138.26
LABOR	HOUR	2.880	6.57	6.88	7.37	8.06	8.90	9.85	10.83
DEPRECIATION	% OF VEH.	164,810.	412.02	329.62	280.18	247.21	214.25	197.77	181.29
SUB- TOTAL	-	-	913.60	702.31	693.40	575.54	579.54	586.00	612.22
RELATED COSTS									
OCCUPANTS TIME:									
OPERATORS	HOUR	7.69	384.50	256.33	192.25	153.80	128.17	109.86	96.13
PASSENGERS	HOUR	-	-	-	-	-	-	-	-
ACCIDENTS	% OF VEH.	172,820.	253.47	168.98	126.73	101.39	84.49	72.42	63.37
VEHICLE INVESTMENT	% OF VEH.	172.820	432.05	288.03	216.03	172.82	144.02	123.44	108.01
TIME DEPRECIATION	% OF VEH.	164,810	132.04	75.10	48.31	36.83	29.27	24.41	22.26
SUB - TOTAL	-	-	1202.06	788.44	583.32	464.84	385.95	330.13	289.77
MANAGEMENT	% OF ABOVE		211.57	149.08	127.67	104.04	96.55	91.61	90.20
SUB - TOTAL	-	-	1413.63	937.52	710.99	568.88	482.50	421.74	379.97
GRAND TOTAL	-	-	2327.23	1639.83	1404.39	1144.42	1062.04	1007.74	992.19

* ON HIGH TYPE SURFACE IN GOOD CONDITION

TABLES 23 & 24
VEHICLE RUNNING COSTS
LYON

*** S Y R I A N F E A S I B I L I T Y S T U D Y ***

TABLE 25 VEHICLE RUNNING COSTS ON VERTICAL GRADE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES
VEHICLE TYPE = PASSENGER CAR

UNIT = SYRIAN POUNDS PER 1.000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	MINUS GRADE, PERCENT. -8	-7	-6	-5	-4	-3	-2	-1	LEVEL
10.	226.19	224.07	222.06	220.13	219.99	219.77	219.64	251.78	265.71
15.	167.47	165.35	163.37	163.19	163.01	161.06	160.94	194.37	208.02
20.	134.26	132.17	130.10	129.92	129.76	129.62	134.67	160.09	172.98
25.	119.09	116.99	114.90	114.69	116.26	114.37	125.61	146.90	160.45
30.	109.12	107.08	106.74	104.68	109.06	104.30	122.19	141.11	155.30
35.	90.34	90.03	89.70	89.49	89.29	91.47	104.99	118.16	129.37
40.	86.08	83.82	83.67	83.43	83.21	89.40	102.44	114.33	125.86
45.	80.50	78.41	78.13	77.87	78.00	87.36	99.49	112.73	124.44
50.	75.61	73.49	73.15	72.90	75.44	84.68	95.63	105.87	118.88
55.	72.69	72.30	71.99	71.74	77.18	86.19	96.93	106.91	118.23
60.	69.97	69.62	69.28	68.99	77.13	85.97	96.32	107.98	119.37
65.	67.35	66.94	66.58	68.34	77.01	85.89	95.93	107.46	118.89
70.	64.81	64.40	63.98	68.18	76.75	87.22	97.46	107.25	118.56
75.	64.34	63.86	63.44	69.91	78.40	87.18	97.43	107.25	118.46
80.	64.00	63.45	63.80	71.68	80.13	88.91	100.82	110.73	121.83
85.	61.85	61.20	63.81	71.52	81.65	90.76	100.83	110.96	121.99
90.	59.99	59.26	64.18	71.54	81.69	91.01	101.13	111.49	122.44
95.	59.94	61.97	68.21	75.33	83.73	93.33	103.40	115.81	126.72
100.	59.94	62.43	68.47	75.58	84.25	93.98	104.18	116.78	127.84
105.	59.94	62.43	68.47	79.48	88.63	98.27	108.60	119.74	130.96
110.	59.94	62.43	68.47	79.48	94.28	102.75	113.38	124.64	136.21

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

*** S Y R I A N F E A S I B I L I T Y S T U D Y ***

TABLE 27 VEHICLE RUNNING COSTS ON VERTICAL GRADE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES
VEHICLE TYPE = PICK-UP TRUCK

UNIT = SYRIAN POUNDS PER 1.000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	MINUS GRADE, PERCENT. -8	-7	-6	-5	-4	-3	-2	-1	LEVEL
10.	304.47	300.79	300.54	298.69	298.47	302.03	320.46	338.89	360.31
15.	202.86	199.16	198.92	198.68	196.85	200.74	215.33	231.17	247.82
20.	178.56	176.49	174.51	174.30	172.41	176.80	195.31	212.39	231.32
25.	142.20	141.83	139.80	139.58	139.36	146.09	159.21	171.12	185.89
30.	132.72	130.69	130.33	128.37	128.14	137.26	151.57	165.51	181.03
35.	109.02	108.73	106.73	106.48	106.21	114.49	129.13	133.92	147.14
40.	104.01	103.62	101.65	101.39	102.84	111.57	124.40	133.50	145.49
45.	99.65	97.56	97.25	96.94	101.14	109.46	122.76	132.33	144.49
50.	95.07	93.02	92.68	92.28	99.23	107.37	119.37	131.27	143.62
55.	91.02	90.63	88.61	88.85	97.50	107.53	119.79	129.96	143.31
60.	85.66	88.17	87.78	90.05	99.11	107.56	120.24	131.42	146.18
65.	84.78	84.36	83.92	88.40	97.50	106.09	119.18	130.89	145.86
70.	82.50	82.05	81.67	87.89	97.08	106.59	121.75	133.80	147.64
75.	82.01	79.66	80.17	89.25	98.61	109.15	123.13	135.25	151.08
80.	80.16	79.31	80.05	88.89	100.38	112.00	126.23	138.78	153.20
85.	80.16	79.31	80.85	89.74	100.15	113.43	129.14	142.26	156.93
90.	80.16	79.31	80.85	89.09	100.20	114.77	134.24	144.25	159.28
95.	80.16	79.31	80.85	89.09	100.20	117.69	131.51	146.35	163.51
100.	80.16	79.31	80.85	89.09	100.20	117.69	134.62	150.28	166.23
105.	80.16	79.31	80.85	89.09	100.20	117.69	134.62	156.78	172.42
110.	80.16	79.31	80.85	89.09	100.20	117.69	134.62	162.41	177.32

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

TABLE 26 VEHICLE RUNNING COSTS ON VERTICAL GRADE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES
VEHICLE TYPE = PASSENGER CAR

UNIT = SYRIAN POUNDS PER 1.000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	PLUS GRADE . PERCENT. LEVEL	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8
10.	265.71	282.09	299.50	317.93	323.89	359.21	379.57	402.68	430.26
15.	208.02	223.75	240.68	258.54	269.78	293.43	315.98	340.30	366.46
20.	172.98	189.54	205.78	222.35	239.25	255.58	276.39	297.74	322.05
25.	160.45	175.62	192.35	211.15	228.54	247.21	266.96	288.98	315.64
30.	155.30	170.92	188.36	205.77	225.50	244.46	264.88	288.03	315.42
35.	129.37	141.87	155.48	169.55	183.62	200.55	216.54	235.03	254.94
40.	125.86	140.48	154.32	168.58	182.95	198.27	214.72	235.80	256.12
45.	124.44	137.36	151.33	165.69	180.30	195.77	214.54	233.96	254.56
50.	118.88	131.01	143.99	157.42	171.16	187.57	203.48	222.06	243.28
55.	118.23	132.05	144.87	158.33	172.09	188.56	204.74	223.34	243.03
60.	119.37	131.15	143.78	157.01	170.84	185.56	203.43	222.12	242.12
65.	118.89	130.30	142.78	155.68	171.19	185.88	202.00	220.43	242.30
70.	118.56	129.57	143.73	156.26	169.71	184.16	200.40	218.86	240.66
75.	118.46	129.28	141.21	155.25	168.45	182.59	198.66	218.87	239.19
80.	121.83	132.36	143.87	157.51	170.42	184.39	200.19	218.46	240.37
85.	121.99	132.17	143.33	154.73	169.16	182.94	198.57	218.44	238.46
90.	122.44	132.26	144.71	155.92	168.22	181.81	199.03	216.84	236.92
95.	126.72	136.31	146.60	157.51	169.60	183.07	204.08	217.67	237.87
100.	127.84	137.19	147.14	157.51	171.20	184.58	199.98	217.23	237.87
105.	130.96	141.99	151.50	161.78	173.32	186.63	199.98	217.23	237.87
110.	136.21	146.91	156.10	166.26	177.41	186.63	199.98	217.23	237.87

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

TABLE 28 VEHICLE RUNNING COSTS ON VERTICAL GRADE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES
VEHICLE TYPE = PICK-UP TRUCK

UNIT = SYRIAN POUNDS PER 1.000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	PLUS GRADE . PERCENT. LEVEL	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8
10.	360.31	381.04	402.90	426.92	454.38	488.39	526.69	571.90	624.45
15.	247.82	263.95	281.54	301.10	323.13	348.34	377.85	412.61	453.84
20.	231.32	249.44	269.56	291.79	316.88	347.27	384.46	420.62	466.47
25.	185.89	200.48	216.41	235.91	255.83	278.47	304.78	335.77	373.11
30.	181.03	196.92	213.56	232.93	254.44	278.59	308.45	341.53	381.65
35.	147.14	158.80	171.59	185.82	203.42	221.38	242.36	266.96	298.45
40.	145.49	157.68	171.03	187.68	204.26	223.51	245.41	271.15	304.14
45.	144.49	157.25	171.37	187.10	204.41	225.79	248.67	275.50	309.73
50.	143.62	156.93	171.59	189.42	207.40	227.83	251.46	280.89	314.72
55.	143.31	157.07	173.93	190.62	209.33	232.09	256.43	285.11	320.20
60.	146.18	160.51	176.28	193.39	212.47	234.10	260.74	290.28	328.22
65.	145.86	160.67	176.70	194.20	215.18	237.20	262.57	294.60	332.40
70.	147.64	162.87	180.96	198.83	218.42	240.92	268.47	299.74	339.32
75.	151.08	166.72	183.58	201.79	221.94	244.60	272.77	305.23	347.64
80.	153.20	169.20	186.25	206.51	226.92	250.08	279.07	313.44	360.06
85.	156.93	173.14	190.48	210.88	231.42	255.08	279.07	313.44	360.06
90.	159.28	175.48	192.96	213.48	234.22	258.15	279.07	313.44	360.06
95.	163.51	179.85	197.41	216.53	234.22	258.15	279.07	313.44	360.06
100.	166.23	182.69	202.19	216.53	234.22	258.15	279.07	313.44	360.06
105.	172.42	186.86	202.19	216.53	234.22	258.15	279.07	313.44	360.06
110.	177.32	194.06	202.19	216.53	234.22	258.15	279.07	313.44	360.06

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

TABLES 25, 26, 27 & 28
VEHICLE RUNNING COSTS

LYON

*** S Y R I A N F E A S I B I L I T Y S T U D Y ***

TABLE 29 VEHICLE RUNNING COSTS ON VERTICAL GRADE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES
VEHICLE TYPE = BUS (DIESEL)

UNIT = SYRIAN POUNDS PER 1.000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	MINUS GRADE, PERCENT. - 8	- 7	- 6	- 5	- 4	- 3	- 2	- 1	LEVE
10.	478.76	478.49	478.30	477.12	476.27	476.00	475.70	486.73	516.
15.	445.21	444.85	444.49	442.99	441.84	441.40	441.01	454.36	502.
20.	378.70	378.45	377.71	376.34	375.02	366.25	382.94	400.72	440.
25.	364.02	363.20	354.14	352.38	350.84	350.63	370.02	391.79	440.
30.	350.70	342.60	341.86	339.79	337.85	341.36	361.95	386.89	444.
35.	314.15	313.29	312.68	302.11	302.00	306.57	325.46	350.24	390.
40.	320.33	311.16	310.27	308.05	308.61	315.61	335.50	362.99	404.
45.	320.27	310.93	311.46	308.47	311.16	311.50	340.09	369.11	411.
50.	318.43	308.79	308.75	300.78	305.29	314.76	345.96	375.79	427.
55.	326.25	316.13	317.07	319.19	324.55	328.11	360.41	390.73	442.
60.	326.10	317.32	318.64	314.90	320.13	341.42	367.11	397.29	459.
65.	325.79	325.88	320.97	325.59	332.27	354.96	372.59	412.22	476.
70.	325.79	328.93	324.63	330.18	337.61	360.85	388.19	429.06	494.
75.	325.79	328.93	353.09	351.64	365.53	375.57	412.47	454.94	520.
80.	325.79	328.93	360.69	358.32	366.19	384.28	422.43	466.51	538.
85.	325.79	328.93	360.69	383.34	394.08	411.40	451.21	496.21	564.
90.	325.79	328.93	360.69	383.34	404.60	431.23	472.05	526.40	591.
95.	325.79	328.93	360.69	383.34	404.60	454.10	502.02	555.98	619.
100.	325.79	328.93	360.69	383.34	404.60	481.15	514.52	574.94	654.
105.	325.79	328.93	360.69	383.34	404.60	481.15	535.48	601.28	674.
110.	325.79	328.93	360.69	383.34	404.60	481.15	555.39	627.20	711.

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

*** S T R I A N F E A S I B I L I T Y S T U D Y ***

TABLE 31 VEHICLE RUNNING COSTS ON VERTICAL GRADE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES
VEHICLE TYPE = 2-AXLE TRUCK (DIESEL)

UNIT = SYRIAN POUNDS PER 1.000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	MINUS GRADE, PERCENT. - 8	- 7	- 6	- 5	- 4	- 3	- 2	- 1	LEVE
10.	693.37	692.33	692.21	691.62	685.35	718.76	764.07	802.41	839.
15.	612.55	611.45	610.94	610.21	624.15	666.09	709.89	756.34	819.
20.	461.37	460.53	460.53	467.78	482.89	509.98	540.22	583.50	632.
25.	455.85	454.82	453.45	452.88	474.55	494.39	539.49	578.14	634.
30.	389.38	388.17	387.10	377.45	391.76	408.80	429.21	464.23	503.
35.	367.96	366.62	365.22	371.13	374.85	392.42	425.64	452.82	505.
40.	368.56	367.21	354.88	366.10	381.19	399.72	423.73	465.46	510.
45.	368.56	336.24	337.75	334.06	343.69	355.39	370.75	403.16	448.
50.	368.56	325.28	329.46	325.93	335.56	348.10	374.85	406.99	443.
55.	368.56	319.14	323.43	330.57	340.03	353.10	369.14	403.96	450.
60.	368.56	319.14	341.25	336.55	345.95	358.69	385.78	410.24	457.
65.	368.56	319.14	341.25	344.01	353.79	365.74	381.91	428.46	465.
70.	368.56	319.14	341.25	344.81	360.74	372.07	400.25	435.53	484.
75.	368.56	319.14	341.25	344.81	360.74	380.98	408.90	443.26	482.
80.	368.56	319.14	341.25	344.81	360.74	401.41	428.86	461.85	502.
85.	368.56	319.14	341.25	344.81	360.74	413.07	439.39	459.26	511.
90.	368.56	319.14	341.25	344.81	360.74	413.07	450.82	478.64	532.
95.	368.56	319.14	341.25	344.81	360.74	413.07	473.90	498.19	553.
100.	368.56	319.14	341.25	344.81	360.74	413.07	487.23	507.64	564.
105.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
110.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

*** S Y R I A N F E A S I B I L I T Y S T U D Y ***

TABLE 30 VEHICLE RUNNING COSTS ON VERTICAL GRADE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES
VEHICLE TYPE = BUS (DIESEL)

UNIT = SYRIAN POUNDS PER 1,000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	PLUS GRADE, PERCENT. LEVEL	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8
10.	516.32	555.40	610.22	649.21	697.95	764.53	822.60	884.25	945.69
15.	502.39	567.71	636.77	701.72	779.77	870.37	948.30	1038.98	1136.62
20.	440.60	493.75	556.56	615.20	681.93	762.45	842.87	919.06	1005.06
25.	440.81	510.78	579.13	648.65	724.09	825.57	917.79	1013.87	1121.01
30.	444.35	522.98	598.55	676.02	778.15	881.23	1003.50	1118.90	1246.24
35.	390.51	447.59	502.16	575.48	645.20	726.75	826.33	923.49	1030.01
40.	404.70	472.91	538.76	607.01	680.45	788.98	894.18	1003.63	1123.20
45.	411.32	482.71	550.66	638.54	723.68	844.94	952.03	1082.02	1205.64
50.	427.54	500.82	570.65	661.16	766.17	906.65	1007.75	1141.61	1293.67
55.	442.91	527.69	607.58	708.48	824.01	949.21	1087.38	1232.73	1396.15
60.	459.80	546.18	636.65	739.33	866.19	1001.56	1149.97	1298.22	1396.15
65.	476.71	564.23	664.37	777.18	923.50	1085.55	1243.90	1298.22	1396.15
70.	494.36	592.19	694.12	816.72	991.68	1180.84	1357.65	1298.22	1396.15
75.	520.26	619.43	730.91	872.05	1075.09	1299.35	1486.28	1298.22	1396.15
80.	538.34	647.09	776.79	919.38	1142.19	1392.44	1486.28	1298.22	1396.15
85.	564.63	675.26	814.64	983.69	1234.47	1392.44	1486.28	1298.22	1396.15
90.	591.63	712.73	853.45	1032.28	1318.85	1392.44	1486.28	1298.22	1396.15
95.	619.06	750.82	909.39	1106.03	1318.85	1392.44	1486.28	1298.22	1396.15
100.	654.74	796.97	965.00	1171.40	1318.85	1392.44	1486.28	1298.22	1396.15
105.	674.84	828.18	1014.06	1171.40	1318.85	1392.44	1486.28	1298.22	1396.15
110.	711.29	867.45	1062.53	1171.40	1318.85	1392.44	1486.28	1298.22	1396.15

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

*** S Y R I A N F E A S I B I L I T Y S T U D Y ***

TABLE 32 VEHICLE RUNNING COSTS ON VERTICAL GRADE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES
VEHICLE TYPE = 2-AXLE TRUCK (DIESEL)

UNIT = SYRIAN POUNDS PER 1,000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	PLUS GRADE, PERCENT. LEVEL	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8
10.	839.91	876.25	914.07	955.89	1001.57	1063.28	1120.88	1196.25	1280.75
15.	819.57	867.06	927.68	983.24	1043.53	1121.38	1196.55	1291.61	1398.78
20.	632.95	666.51	702.44	743.20	797.23	845.50	910.38	981.10	1071.90
25.	634.20	673.90	727.14	775.65	837.62	905.31	979.53	1071.58	1173.81
30.	503.12	539.13	565.72	607.17	650.19	696.54	758.26	834.59	928.56
35.	505.67	533.32	573.91	618.95	665.70	726.85	804.00	896.35	1006.27
40.	510.24	551.82	595.54	645.64	706.20	782.93	864.91	995.49	1006.27
45.	448.19	480.44	514.30	563.07	612.22	697.52	764.60	995.49	1006.27
50.	443.78	477.01	522.90	572.96	634.70	732.48	812.02	995.49	1006.27
55.	450.65	484.95	531.82	594.35	668.22	778.52	812.02	995.49	1006.27
60.	457.75	503.82	551.96	615.67	713.27	835.80	812.02	995.49	1006.27
65.	465.82	513.32	573.30	649.42	770.44	835.80	812.02	995.49	1006.27
70.	484.53	532.95	594.16	671.12	770.44	835.80	812.02	995.49	1006.27
75.	482.31	542.50	615.57	704.46	770.44	835.80	812.02	995.49	1006.27
80.	502.01	574.12	647.73	748.81	770.44	835.80	812.02	995.49	1006.27
85.	511.50	584.32	669.78	748.81	770.44	835.80	812.02	995.49	1006.27
90.	532.12	616.47	669.78	748.81	770.44	835.80	812.02	995.49	1006.27
95.	553.24	638.08	669.78	748.81	770.44	835.80	812.02	995.49	1006.27
100.	564.31	649.39	669.78	748.81	770.44	835.80	812.02	995.49	1006.27
105.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

TABLES 29,30,31 & 32
VEHICLE RUNNING COSTS

LYON

*** S Y R I A N F E A S I B I L I T Y S T U D Y ***

TABLE 33 VEHICLE RUNNING COSTS ON VERTICAL GRADE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES

VEHICLE TYPE = TRUCK-TRAILER

UNIT = SYRIAN POUNDS PER 1.000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	MINUS GRADE, PERCENT.									
	- 8	- 7	- 6	- 5	- 4	- 3	- 2	- 1	LEVEL	
10.	1166.43	1145.18	1119.21	1096.33	1062.06	1055.89	1103.65	1148.70	1257.65	
15.	1062.28	1038.36	1003.78	968.12	921.86	910.70	984.63	1050.37	1208.97	
20.	792.19	787.89	759.82	730.92	680.71	669.72	740.69	797.46	913.60	
25.	792.19	734.73	695.68	658.11	606.65	593.40	671.76	746.65	897.07	
30.	792.19	734.73	550.93	526.45	507.40	500.37	533.54	584.19	702.31	
35.	792.19	734.73	526.75	499.47	483.41	473.53	507.44	568.31	704.25	
40.	792.19	734.73	487.74	458.32	445.85	441.84	467.14	556.45	693.39	
45.	792.19	734.73	487.74	414.96	410.59	408.77	437.28	457.04	583.31	
50.	792.19	734.73	487.74	414.96	396.77	394.70	403.09	475.16	575.54	
55.	792.19	734.73	487.74	414.96	396.77	379.87	407.43	465.18	585.68	
60.	792.19	734.73	487.74	414.96	396.77	383.38	397.81	458.59	579.54	
65.	792.19	734.73	487.74	414.96	396.77	368.68	391.46	470.73	574.33	
70.	792.19	734.73	487.74	414.96	396.77	370.52	404.56	465.03	586.00	
75.	792.19	734.73	487.74	414.96	396.77	370.52	402.71	478.60	599.12	
80.	792.19	734.73	487.74	414.96	396.77	370.52	436.50	491.06	612.21	
85.	792.19	734.73	487.74	414.96	396.77	370.52	454.15	503.42	626.69	
90.	792.19	734.73	487.74	414.96	396.77	370.52	454.15	529.90	641.55	
95.	792.19	734.73	487.74	414.96	396.77	370.52	454.15	519.94	657.75	
100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
105.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
110.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

*** S Y R I A N F E A S I B I L I T Y S T U D Y ***

TABLE 35 VEHICLE RUNNING COSTS ON HORIZONTAL CURVE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES

VEHICLE TYPE = PASSENGER CAR

UNIT = SYRIAN POUNDS PER 1.000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	RADIUS OF HORIZONTAL CURVE, METERS														
	1500	900	600	450	370	300	275	240	210	180	150	120	90	75	60
5.0	0.79	1.14	1.36	1.70	2.01	2.37	2.57	2.84	3.28	3.90	4.86	5.53	6.46	8.28	10.08
10.0	1.59	2.29	2.73	3.40	4.02	4.74	5.15	5.68	6.56	7.81	9.73	11.06	12.93	16.56	20.17
15.0	2.17	3.09	3.65	4.56	5.30	6.13	6.56	7.11	8.41	10.20	13.01	15.00	16.07	22.14	27.81
20.0	2.58	3.62	4.24	5.21	5.97	6.96	7.60	8.54	10.18	12.41	15.93	18.63	22.12	29.49	36.69
25.0	2.23	3.97	4.62	5.67	6.45	7.46	8.58	9.90	11.87	14.47	18.67	22.10	27.92	37.55	46.31
30.0	2.75	3.82	4.53	5.81	6.90	8.44	9.52	10.97	13.18	16.10	21.17	25.05	34.62	46.75	57.84
35.0	2.73	3.75	4.57	6.10	7.37	9.14	10.33	11.94	14.39	17.70	23.55	28.52	41.76	57.54	71.92
40.0	2.75	3.76	4.69	6.52	7.88	9.75	11.05	12.79	15.51	19.22	25.83	32.38	49.24	69.54	88.03
45.0	2.94	4.23	5.19	6.93	8.37	10.39	11.80	13.65	16.67	21.35	33.20	45.36	68.25	108.75	156.67
50.0	3.13	4.60	5.60	7.28	8.81	10.97	12.48	14.62	18.73	25.36	42.68	59.87	89.12	150.39	156.67
55.0	3.27	4.75	5.78	7.52	9.14	11.44	13.09	15.80	22.48	33.00	55.65	76.57	112.43	188.94	156.67
60.0	3.41	4.98	6.20	8.44	10.74	14.18	16.66	20.92	29.73	43.22	70.98	96.32	141.98	188.94	156.67
65.0	3.73	5.44	6.96	9.90	13.10	18.01	21.65	27.65	38.44	54.61	87.51	117.63	141.98	188.94	156.67
70.0	5.10	7.66	9.74	13.57	17.63	23.74	28.16	35.54	48.51	67.78	106.66	143.34	141.98	188.94	156.67
75.0	6.68	10.08	12.71	17.53	22.53	29.44	35.24	44.06	59.37	82.03	127.42	175.95	141.98	188.94	156.67
80.0	8.46	12.72	15.92	21.75	27.74	36.44	42.82	53.18	71.02	97.31	151.50	215.29	141.98	188.94	156.67
85.0	10.54	15.78	19.68	26.76	32.74	43.19	51.82	64.06	84.84	115.68	178.99	215.29	141.98	188.94	156.67
90.0	12.75	19.00	23.68	32.09	38.79	51.82	61.48	75.71	99.79	135.53	178.99	215.29	141.98	188.94	156.67
95.0	15.21	22.59	28.08	37.95	47.40	61.72	72.27	88.72	118.62	160.01	178.99	215.29	141.98	188.94	156.67
100.0	17.97	26.63	33.07	44.60	56.07	72.74	84.51	103.65	137.99	160.01	178.99	215.29	141.98	188.94	156.67
105.0	20.94	30.97	38.39	51.76	64.93	84.11	97.70	121.50	137.99	160.01	178.99	215.29	141.98	188.94	156.67
110.0	24.52	36.24	44.91	60.46	75.74	98.87	113.87	141.26	137.99	160.01	178.99	215.29	141.98	188.94	156.67

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

*** S Y R I A N F E A S I B I L I T Y S T U D Y ***

TABLE 34 VEHICLE RUNNING COSTS ON VERTICAL GRADE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES
VEHICLE TYPE = TRUCK-TRAILER

UNIT = SYRIAN POUNDS PER 1.000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	PLUS GRADE, PERCENT. LEVEL	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8
10.	1257.65	1287.21	1321.58	1364.03	1415.39	1479.40	1565.11	1689.15	1903.69
15.	1208.97	1260.37	1320.29	1390.38	1474.24	1580.92	1715.17	1925.31	2245.22
20.	913.60	960.54	1014.56	1078.55	1172.74	1267.81	1389.18	1561.31	1855.09
25.	697.07	966.09	1060.78	1156.03	1271.62	1412.38	1618.32	1890.97	1855.09
30.	702.31	756.00	813.22	888.09	998.52	1113.68	1290.90	1890.97	1855.09
35.	704.25	776.23	869.74	972.46	1123.92	1300.93	1560.97	1890.97	1855.09
40.	693.39	788.73	905.45	1043.63	1252.94	1579.38	1560.97	1890.97	1855.09
45.	583.31	677.62	757.66	888.29	1073.65	1579.38	1560.97	1890.97	1855.09
50.	575.54	686.56	802.18	940.31	1196.99	1579.38	1560.97	1890.97	1855.09
55.	585.68	697.57	834.15	1017.59	1196.99	1579.38	1560.97	1890.97	1855.09
60.	579.54	729.57	891.00	1101.29	1196.99	1579.38	1560.97	1890.97	1855.09
65.	574.33	746.51	936.75	1101.29	1196.99	1579.38	1560.97	1890.97	1855.09
70.	586.00	783.14	1019.05	1101.29	1196.99	1579.38	1560.97	1890.97	1855.09
75.	599.12	827.15	1070.84	1101.29	1196.99	1579.38	1560.97	1890.97	1855.09
80.	612.21	872.07	1156.23	1101.29	1196.99	1579.38	1560.97	1890.97	1855.09
85.	626.69	912.79	1156.23	1101.29	1196.99	1579.38	1560.97	1890.97	1855.09
90.	641.55	962.38	1156.23	1101.29	1196.99	1579.38	1560.97	1890.97	1855.09
95.	657.75	962.38	1156.23	1101.29	1196.99	1579.38	1560.97	1890.97	1855.09
100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

*** S Y R I A N F E A S I B I L I T Y S T U D Y ***

TABLE 36 VEHICLE RUNNING COSTS ON HORIZONTAL CURVE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES
VEHICLE TYPE = PICK-UP TRUCK

UNIT = SYRIAN POUNDS PER 1.000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	RADIUS OF HORIZONTAL CURVE, METERS 1500	900	600	450	370	300	275	240	210	180	150	120	90	75	60
5.0	1.17	1.67	1.97	2.45	2.82	3.26	3.48	3.78	4.36	5.19	6.57	7.60	9.20	12.18	14.71
10.0	2.34	3.35	3.95	4.90	5.65	6.52	6.97	7.57	8.73	10.38	13.15	15.20	18.41	24.37	29.43
15.0	3.50	4.63	5.42	6.67	7.67	8.71	9.21	9.93	11.76	14.26	18.35	21.44	26.00	36.21	44.54
20.0	3.68	5.39	6.30	7.69	8.68	10.04	10.95	12.27	14.66	17.87	23.15	27.27	33.48	47.66	58.46
25.0	4.25	5.86	6.84	8.37	9.46	11.20	12.55	14.48	17.39	21.27	27.65	32.86	41.25	59.12	72.39
30.0	4.13	5.61	6.70	8.61	10.23	12.49	14.08	16.24	19.56	24.01	31.53	37.75	50.89	71.21	88.05
35.0	4.12	5.57	6.80	9.12	11.06	13.66	15.41	17.79	21.56	26.57	35.36	43.20	62.21	85.94	109.32
40.0	4.17	5.70	7.09	9.84	11.92	14.71	16.60	19.23	23.39	29.05	39.18	49.11	74.84	102.74	134.94
45.0	4.47	6.42	7.87	10.52	12.69	15.73	17.82	20.66	25.27	32.34	50.35	68.66	103.08	161.70	232.01
50.0	4.76	6.99	8.51	11.08	13.39	16.65	18.89	22.18	28.41	38.48	64.63	90.45	133.92	222.58	232.01
55.0	4.99	7.22	8.77	11.46	13.92	17.35	19.73	23.94	34.06	49.98	84.10	115.26	169.35	278.35	232.01
60.0	5.19	7.53	9.39	12.82	16.33	21.53	25.25	31.75	45.07	65.44	107.15	144.79	211.19	278.35	232.01
65.0	5.60	8.25	10.55	15.03	19.91	27.37	32.85	41.98	58.33	82.73	132.14	176.91	211.19	278.35	232.01
70.0	7.77	11.69	14.83	20.64	26.80	36.08	42.82	54.05	73.64	102.72	162.00	217.07	211.19	278.35	232.01
75.0	10.21	15.47	19.47	26.75	34.33	45.62	53.76	67.18	90.43	125.00	196.72	268.38	211.19	278.35	232.01
80.0	13.01	19.53	24.49	33.35	42.45	55.94	65.58	81.36	108.64	149.43	232.83	331.66	211.19	278.35	232.01
85.0	16.23	24.27	30.27	41.07	50.25	66.33	79.63	98.44	130.96	179.43	278.00	331.66	211.19	278.35	232.01
90.0	19.70	29.31	36.48	49.41	59.81	78.77	94.93	117.03	157.14	214.24	278.00	331.66	211.19	278.35	232.01
95.0	23.60	35.05	43.55	58.88	73.67	96.14	112.64	138.51	186.00	253.56	278.00	331.66	211.19	278.35	232.01
100.0	28.16	41.76	51.92	70.14	88.44	115.55	135.01	166.28	222.68	253.56	278.00	331.66	211.19	278.35	232.01
105.0	33.12	49.10	61.01	82.50	103.97	136.46	160.20	199.47	222.68	253.56	278.00	331.66	211.19	278.35	232.01
110.0	39.29	58.31	72.43	97.89	123.32	163.35	195.26	241.44	222.68	253.56	278.00	331.66	211.19	278.35	232.01

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

TABLES 33,34,35 & 36
VEHICLE RUNNING COSTS

LYON

*** S T R I A N F E A S I B I L I T Y S T U D Y ***

TABLE 37 VEHICLE RUNNING COSTS ON HORIZONTAL CURVE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES
VEHICLE TYPE = BUS (DIESEL)

UNIT = STRIAN POUNDS PER 1,000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	RADIUS OF HORIZONTAL CURVE, METERS 1500	900	600	450	370	300	275	240	210	180	150	120	90	75	60
5.0	3.36	4.61	5.38	6.59	7.48	8.61	9.31	10.23	11.33	12.93	16.12	20.49	25.70	32.66	42.02
10.0	6.72	9.23	10.76	13.18	14.97	17.22	18.62	20.47	22.67	25.87	32.25	40.98	47.41	65.32	84.05
15.0	8.99	12.79	14.87	17.97	20.25	22.49	24.58	26.83	30.60	36.20	46.91	56.17	71.50	100.52	130.73
20.0	10.31	14.39	16.80	20.62	23.34	26.63	28.66	31.77	38.21	46.67	60.36	73.23	94.42	132.50	163.45
25.0	11.16	15.42	18.18	22.89	26.09	30.91	32.44	38.23	46.29	56.78	73.97	90.30	120.21	168.65	206.68
30.0	11.58	15.76	18.80	24.35	28.33	33.87	37.75	43.59	52.69	65.04	85.84	107.50	154.09	208.86	252.51
35.0	11.54	15.62	19.06	25.66	30.35	37.12	42.00	48.51	58.89	73.49	100.83	131.20	191.72	254.41	301.14
40.0	11.63	15.88	19.72	27.34	32.91	40.46	45.82	53.37	66.12	83.43	120.76	160.55	236.10	306.72	366.89
45.0	12.20	17.26	21.40	29.21	35.28	44.48	51.21	60.01	75.30	97.38	147.18	197.12	288.97	374.69	366.89
50.0	13.18	19.22	23.61	31.30	38.79	49.40	57.92	68.18	86.62	114.66	181.87	243.59	353.57	374.69	366.89
55.0	14.34	21.40	26.36	35.06	44.17	57.40	66.48	79.11	100.72	139.06	228.33	310.55	442.60	374.69	366.89
60.0	16.27	24.34	30.19	40.54	51.16	66.79	77.91	93.50	126.26	175.78	266.35	392.55	544.22	374.69	366.89
65.0	19.22	28.81	35.73	47.96	60.49	79.63	93.72	113.72	156.48	219.72	358.76	477.27	544.22	374.69	366.89
70.0	23.39	34.82	43.01	57.49	73.23	97.43	115.50	142.46	201.36	276.76	430.92	566.79	544.22	374.69	366.89
75.0	28.71	42.38	52.67	71.40	91.52	122.72	145.87	186.44	244.33	332.24	509.39	566.79	544.22	374.69	366.89
80.0	35.51	52.50	65.43	89.02	113.68	149.33	182.57	221.66	291.91	394.83	595.57	566.79	544.22	374.69	366.89
85.0	43.67	64.87	80.89	109.92	147.30	188.42	216.61	262.80	345.75	465.03	595.57	566.79	544.22	374.69	366.89
90.0	52.94	78.96	97.94	131.76	170.93	219.52	256.53	312.60	407.27	465.03	595.57	566.79	544.22	374.69	366.89
95.0	63.28	94.18	116.50	164.40	202.01	260.30	304.00	369.14	407.27	465.03	595.57	566.79	544.22	374.69	366.89
100.0	74.91	111.68	139.22	196.63	240.49	307.49	358.57	369.14	407.27	465.03	595.57	566.79	544.22	374.69	366.89
105.0	87.13	136.30	170.65	229.40	240.49	307.49	358.57	369.14	407.27	465.03	595.57	566.79	544.22	374.69	366.89
110.0	100.07	157.67	196.41	263.03	240.49	307.49	358.57	369.14	407.27	465.03	595.57	566.79	544.22	374.69	366.89

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

*** S T R I A N F E A S I B I L I T Y S T U D Y ***

TABLE 39 VEHICLE RUNNING COSTS ON HORIZONTAL CURVE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES
VEHICLE TYPE = TRUCK-TRAILER

UNIT = STRIAN POUNDS PER 1,000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	RADIUS OF HORIZONTAL CURVE, METERS 1500	900	600	450	370	300	275	240	210	180	150	120	90	75	60
5.0	5.03	7.32	8.92	11.77	14.08	16.44	18.65	20.82	24.29	28.82	35.06	39.09	44.80	55.64	65.09
10.0	10.07	14.64	17.85	23.54	28.16	33.49	37.30	41.65	48.58	57.65	70.12	78.19	89.61	111.28	130.19
15.0	13.03	18.33	22.20	29.08	34.07	39.48	43.41	47.69	36.48	67.91	84.93	95.61	104.08	138.11	162.54
20.0	15.23	21.25	25.25	32.65	36.87	43.41	47.87	54.00	64.46	77.88	98.50	113.33	132.12	171.16	201.67
25.0	16.73	23.29	27.35	33.97	38.91	46.83	52.09	60.18	72.13	87.52	111.85	130.97	158.11	206.50	244.52
30.0	16.14	22.36	26.72	34.39	40.90	50.53	56.69	65.48	79.75	96.05	125.34	147.64	186.01	244.46	295.31
35.0	16.03	22.09	26.92	36.00	43.70	54.90	61.21	70.74	85.44	105.04	139.41	168.31	217.74	286.31	350.54
40.0	16.22	22.28	27.74	38.37	46.81	58.10	65.68	76.01	92.22	114.32	153.78	192.06	252.42	332.54	426.45
45.0	17.56	25.31	31.04	41.34	50.09	62.15	70.43	81.83	100.04	128.03	199.31	271.88	392.50	332.54	426.45
50.0	18.79	27.78	33.76	44.02	53.19	66.15	75.11	88.54	113.59	153.87	258.50	362.51	556.16	332.54	426.45
55.0	20.00	29.18	35.45	46.18	56.10	70.68	79.71	96.83	137.92	202.34	340.75	468.47	705.02	332.54	426.45
60.0	21.17	30.96	38.58	52.66	67.00	88.40	104.01	130.76	185.76	269.85	460.37	618.65	705.02	332.54	426.45
65.0	23.42	34.53	44.15	62.77	82.96	114.14	137.14	175.44	243.89	346.56	573.62	618.65	705.02	332.54	426.45
70.0	32.87	48.64	62.49	87.71	113.90	153.43	182.41	235.20	331.61	457.36	730.62	618.65	705.02	332.54	426.45
75.0	44.00	66.70	84.01	115.71	148.61	197.47	233.36	292.10	412.00	565.28	730.62	618.65	705.02	332.54	426.45
80.0	56.75	85.39	107.10	146.55	186.96	246.80	289.66	377.91	501.77	686.77	730.62	618.65	705.02	332.54	426.45
85.0	72.49	108.47	135.69	185.09	226.59	299.84	378.17	465.44	501.77	686.77	730.62	618.65	705.02	332.54	426.45
90.0	89.71	133.48	166.83	227.03	226.59	299.84	378.17	465.44	501.77	686.77	730.62	618.65	705.02	332.54	426.45
95.0	109.44	162.65	202.91	275.31	226.59	299.84	378.17	465.44	501.77	686.77	730.62	618.65	705.02	332.54	426.45
100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

TABLE 38 VEHICLE RUNNING COSTS ON HORIZONTAL CURVE
ON HIGH TYPE PAVEMENT IN GOOD CONDITION
COMPUTED EXCLUDING TAXES
VEHICLE TYPE = 2-AXLE TRUCK (DIESEL)

UNIT = SYRIAN POUNDS PER 1,000 VEHICLE-KMS.

UNIFORM SPEED KM/HOUR	RADIUS OF HORIZONTAL CURVE, METERS															
	1500	900	600	450	370	300	275	240	210	180	150	120	90	75	60
5.0	3.92	5.49	6.44	7.94	9.04	10.91	10.83	11.59	13.14	15.57	20.12	23.70	29.47	39.25	47.27
10.0	7.85	10.99	12.88	15.88	18.08	20.42	21.66	23.18	26.28	31.15	40.25	47.41	58.95	78.46	94.54
15.0	11.13	15.41	17.96	22.00	24.93	27.98	29.53	31.46	37.09	44.98	58.41	69.21	88.21	122.28	149.85
20.0	15.13	18.14	21.10	25.64	28.72	32.44	35.80	39.87	47.58	58.11	75.98	90.50	119.16	167.71	205.88
25.0	14.46	19.58	23.19	28.17	31.65	37.20	41.62	47.94	57.66	70.59	92.74	111.03	151.72	213.91	261.71
30.0	14.09	19.33	22.94	29.14	34.44	41.40	47.16	54.37	65.58	80.70	106.72	128.46	189.73	241.22	315.71
35.0	14.03	19.19	23.32	31.01	37.41	46.13	52.85	60.15	72.93	90.23	120.57	147.67	236.47	329.19	369.71
40.0	14.22	19.39	24.11	33.44	40.45	50.03	56.59	65.53	79.75	99.29	134.23	168.23	290.01	393.72	470.72
45.0	15.26	21.94	26.26	35.79	43.25	53.60	60.69	70.45	86.20	110.49	172.10	234.09	374.69	393.72	470.72
50.0	16.25	23.97	27.09	37.76	45.63	56.71	64.37	75.70	96.98	131.17	219.84	317.56	461.34	393.72	470.72
55.0	16.98	24.75	27.99	39.09	47.35	59.07	67.15	81.40	115.65	169.80	295.16	398.60	592.57	393.72	470.72
60.0	17.55	25.59	31.88	43.51	55.33	72.49	85.65	107.50	163.35	231.57	369.29	502.49	592.57	393.72	470.72
65.0	18.92	27.82	35.64	50.73	67.18	92.41	110.90	141.74	207.05	287.76	459.12	502.49	592.57	393.72	470.72
70.0	26.08	39.32	49.85	69.48	90.13	121.17	154.64	191.92	256.27	350.78	569.30	502.49	592.57	393.72	470.72
75.0	34.71	51.75	65.08	89.53	125.59	162.46	189.86	233.84	319.82	440.16	569.30	502.49	592.57	393.72	470.72
80.0	43.21	64.54	81.26	110.81	151.73	195.87	227.27	289.20	386.52	522.77	569.30	502.49	592.57	393.72	470.72
85.0	53.68	80.11	99.76	146.22	175.42	227.16	281.23	340.65	386.52	522.77	569.30	502.49	592.57	393.72	470.72
90.0	64.74	96.11	119.40	172.20	175.42	227.16	281.23	340.65	386.52	522.77	569.30	502.49	592.57	393.72	470.72
95.0	76.91	124.73	151.42	200.75	175.42	227.16	281.23	340.65	386.52	522.77	569.30	502.49	592.57	393.72	470.72
100.0	90.46	144.46	176.11	243.69	175.42	227.16	281.23	340.65	386.52	522.77	569.30	502.49	592.57	393.72	470.72
105.0	104.88	165.56	201.92	277.78	175.42	227.16	281.23	340.65	386.52	522.77	569.30	502.49	592.57	393.72	470.72
110.0	122.23	191.03	233.10	318.94	175.42	227.16	281.23	340.65	386.52	522.77	569.30	502.49	592.57	393.72	470.72

NOTE -- REPEATED COSTS INDICATE VEHICLE SPEEDS BEYOND MAXIMUM SPEED CONSIDERED IN ANALYSIS

TABLES 37, 38 & 39
VEHICLE RUNNING COSTS

LYON

TABLE 40

*** *** HIGHWAY FEASIBILITY STUDIES - LATTAKIA REGION *** ***

ROADWAY EVALUATION
(COSTS SHOWN IN DOLLARS)

DATE 9 JANUARY 1979

SECTION CODE NUMBER
COMPUTER CODE NUMBER 51 - 59

PROJECT - LATTAKIA - KASSAB FEASIBILITY STUDY
PROVINCE - LATTAKIA
ROAD SECTION LATT-KASSAB,W/RK TR,PR LD,ALL IN,W/ROW

IMPROVEMENT - RESURFACE AND WIDEN

FROM CODE NO.	51	52	53	54	55	56	57	58	59
BEFORE OR BASE SITUATION =	1								
VARIATION NO.	1	1	1	0	0	0	0	0	0
SURFACE TYPE	2	2	2	0	0	0	0	0	0
COND	3	3	3	0	0	0	0	0	0
WIDTH	6.0	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0
SHOULDER TYPE	4	4	4	0	0	0	0	0	0
COND.	3	3	3	0	0	0	0	0	0
WIDTH	3.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
AFTER OR ALTERNATE SITUATION =	1								
VARIATION NO.	0	9	9	9	9	0	9	0	0
SURFACE TYPE	0	1	1	1	1	0	2	0	0
COND	0	1	1	1	1	0	3	0	0
WIDTH	0.0	7.0	6.5	7.0	7.0	0.0	7.0	0.0	0.0
SHOULDER TYPE	0	3	3	3	3	0	4	0	0
COND.	0	1	1	1	1	0	3	0	0
WIDTH	0.0	6.0	3.0	4.0	4.0	0.0	2.0	0.0	0.0

CONSTRUCTION COSTS

YEAR		R-W/UT.REL (** YRS)	PAVEMENT (20 YRS)	EARTHWORK (75 YRS)	SM DRN/MISC. (25 YRS)	STRUCTURES (50 YRS)	START-UP (30 YRS)	INCIDENTAL (5 YRS)	TOTAL
1981	BEFORE/BASE	0.	0.	0.	0.	0.	0.	0.	
	AFTER/ALTER.	3390500.	1798870.	5098050.	522920.	3775690.	6660000.	0.	
	DIFFERENCE	3390500.	1798870.	5098050.	522920.	3775690.	6660000.	0.	21246030.
1982	BEFORE/BASE	0.	0.	0.	0.	0.	0.	0.	
	AFTER/ALTER.	3390500.	2046990.	4758180.	430639.	5064950.	0.	0.	
	DIFFERENCE	3390500.	2046990.	4758180.	430639.	5064950.	0.	0.	15691260.
1983	BEFORE/BASE	0.	0.	0.	0.	0.	0.	0.	
	AFTER/ALTER.	0.	2357140.	1472769.	584440.	368360.	0.	340000.	
	DIFFERENCE	0.	2357140.	1472769.	584440.	368360.	0.	340000.	5122710.
1993	BEFORE/BASE		0.						
	AFTER/ALTER.		1310000.						
	DIFFERENCE		1310000.						1310000.
	UNDISCOUNTED TOTALS	6781000.	7513000.	11329000.	1538000.	9209000.	6660000.	340000.	43370000.

TABLE 41

*** *** HIGHWAY FEASIBILITY STUDIES - LATTAKIA REGION *** ***

VEHICLE OPERATING COSTS
(SHOWN IN 000 U.S. DOLLARS)

PROJECT = LATTAKIA - KASSAB FEASIBILITY STUDY
PROVINCE = LATTAKIA
ROAD SECTION LATT-KASSAB,W/RK TR,PR LD,ALL IN,W/ROW

CAR AND PICK-UP

YEAR	BEFORE					AFTER					SAVING				
	RUNN. COSTS	OCCUP. TIME	ACCID-ENTS	** OTHERS	TOTAL	RUNN. COSTS	OCCUP. TIME	ACCID-ENTS	** OTHERS	TOTAL	RUNN. COSTS	OCCUP. TIME	ACCID-ENTS	** OTHERS	TOTAL
1978	636.4	427.6	98.2	288.6	1450.9	462.5	324.9	46.9	207.5	1042.0	173.8	102.6	51.2	81.0	408.8
1979	690.7	465.6	106.4	312.7	1575.5	502.5	354.2	50.9	225.0	1132.8	188.1	111.4	55.4	87.6	442.6
1980	751.5	520.6	118.2	347.6	1738.0	546.3	387.4	55.6	244.7	1234.1	205.1	133.1	62.6	102.8	503.8
1981	817.7	618.5	139.0	408.1	1983.5	594.1	423.0	60.4	265.6	1343.2	223.5	195.5	78.5	142.5	640.2
1982	888.9	634.9	142.6	418.5	2085.0	647.7	470.7	67.0	293.9	1479.4	241.2	164.2	75.6	124.5	605.6
1983	967.4	693.2	154.7	454.5	2270.0	705.6	517.3	73.5	321.1	1617.6	261.7	175.9	81.2	133.4	652.3
1984	1038.4	764.8	170.2	499.3	2472.8	756.7	554.9	78.5	342.9	1733.2	281.6	209.8	91.7	156.4	739.6
1985	1130.3	925.7	204.0	598.3	2858.5	812.3	598.0	84.2	367.9	1862.5	318.0	327.6	119.8	230.4	996.0
1986	1197.7	910.3	200.8	588.3	2897.2	873.9	656.0	92.1	401.9	2024.1	323.7	254.2	108.6	186.3	873.0
1987	1287.0	981.4	215.4	631.9	3115.8	938.4	706.6	98.8	431.1	2174.9	348.6	274.7	116.6	200.8	940.8
1988	1386.1	1088.8	237.9	697.5	3410.5	1008.4	763.8	106.6	463.7	2342.7	377.7	325.0	131.3	233.7	1067.8
1989	1554.2	1379.5	298.8	877.1	4109.8	1089.8	836.0	116.6	505.3	2547.9	464.3	543.4	182.2	371.8	1561.8
1990	1612.5	1314.8	285.0	836.5	4048.9	1170.1	909.3	126.0	547.3	2752.8	442.3	405.5	159.0	289.2	1296.1
1991	1741.5	1435.8	310.4	910.8	4398.7	1258.8	981.5	135.5	588.3	2964.2	482.7	454.2	174.9	322.5	1434.4
1992	1886.2	1596.6	343.1	1008.8	4834.8	1355.4	1062.8	146.2	634.1	3198.8	530.7	533.7	196.8	374.6	1636.0
1993	2227.7	2118.4	451.4	1331.0	6128.7	1465.3	1186.8	162.2	705.4	3519.9	762.3	931.5	289.2	625.6	2608.8
1994	2199.4	1909.7	407.3	1200.5	5717.1	1554.7	1249.0	170.4	738.9	3713.2	644.6	660.6	236.8	461.6	2003.8
1995	2358.3	2050.7	436.7	1285.4	6131.2	1658.6	1353.3	185.7	797.6	3995.3	699.6	697.4	250.9	487.7	2135.8
1996	2532.5	2267.9	480.6	1417.7	6698.8	1758.6	1427.0	194.1	837.6	4217.5	773.8	840.8	286.4	580.0	2481.3
1997	2917.4	3094.0	651.2	1916.3	8579.0	1869.3	1523.1	206.4	890.2	4489.2	1048.0	1570.8	444.7	1026.0	4089.8
1998	2916.5	2741.6	576.4	1702.4	7937.0	2001.6	1667.9	225.2	970.8	4865.5	914.8	1073.6	351.2	731.6	3071.4
1999	3104.1	2927.4	614.4	1811.6	8457.5	2128.6	1781.8	240.1	1033.6	5184.2	975.5	1145.5	374.2	777.9	3273.2
2000	3374.0	3282.9	666.6	2026.8	9370.4	2265.5	1911.4	257.2	1104.3	5538.5	1108.5	1371.5	429.3	922.4	3831.9
2001	3890.4	4637.1	962.8	2817.6	12308.0	2435.6	2102.9	284.6	1211.3	6034.5	1454.7	2534.2	678.2	1606.2	6273.5
2002	3897.4	3924.2	813.0	2403.4	11038.2	2596.8	2237.9	299.4	1283.9	6418.2	1300.5	1686.3	513.6	1119.4	4619.9
2003	4233.0	4514.7	936.4	2762.4	12446.7	2824.3	2489.7	331.6	1426.0	7071.7	1408.7	2025.0	604.7	1336.3	5374.9

** INCLUDES COSTS FOR VEHICLE INVESTMENT, TIME DEPRECIATION AND MANAGEMENT (WHEN APPLICABLE)

TABLES 40 & 41
DETAILS OF ANALYSIS

LYON

TABLE 42

*** *** HIGHWAY FEASIBILITY STUDIES - LATTAKIA REGION *** ***

VEHICLE OPERATING COSTS
(SHOWN IN 000 U.S. DOLLARS)

PROJECT = LATTAKIA - KASSAB FEASIBILITY STUDY
PROVINCE = LATTAKIA
ROAD SECTION LATT-KASSAB.W/RK TR.PR LD.ALL IN.W/ROW

B U S

YEAR	BEFORE RUNN. COSTS	BEFORE OCCUP. TIME	BEFORE ACCID-ENTS	BEFORE ** OTHERS	BEFORE TOTAL	AFTER RUNN. COSTS	AFTER OCCUP. TIME	AFTER ACCID-ENTS	AFTER ** OTHERS	AFTER TOTAL	SAVING RUNN. COSTS	SAVING OCCUP. TIME	SAVING ACCID-ENTS	SAVING ** OTHERS	SAVING TOTAL
1978	556.9	329.9	36.8	166.1	1069.9	459.9	278.0	23.3	138.8	900.1	97.0	51.8	13.5	27.3	189.8
1979	614.5	362.6	40.4	182.9	1200.6	506.7	306.1	25.7	152.9	991.5	107.8	56.4	14.7	30.0	209.1
1980	675.5	409.2	45.6	204.5	1335.1	557.9	339.8	28.6	169.2	1095.6	117.6	69.3	17.0	35.3	239.4
1981	734.3	485.9	54.3	235.3	1510.1	614.8	374.2	31.6	186.4	1207.1	119.5	111.7	22.6	48.9	302.9
1982	820.6	507.0	56.8	251.5	1636.1	677.2	420.6	35.5	207.8	1341.2	143.3	86.4	21.2	43.7	294.8
1983	907.4	557.6	62.1	277.1	1804.4	745.2	471.7	40.1	231.4	1488.5	162.1	85.9	22.0	45.6	315.8
1984	996.9	629.7	70.3	310.0	2007.0	821.3	514.3	43.6	253.4	1632.7	175.5	115.3	26.7	56.6	374.3
1985	1112.2	772.6	86.2	368.5	2339.6	904.4	566.7	48.1	279.1	1798.6	207.7	205.8	38.1	89.3	541.0
1986	1213.2	783.2	87.3	382.8	2466.6	996.2	636.5	54.1	311.2	1998.3	216.9	146.6	33.2	71.5	468.3
1987	1342.6	863.3	96.3	422.7	2725.0	1097.5	700.9	59.7	342.7	2201.1	245.0	162.4	36.5	79.9	523.9
1988	1482.9	981.8	109.8	475.8	3050.4	1207.9	779.0	66.6	379.5	2433.2	274.9	202.7	43.1	96.3	617.2
1989	1703.1	1253.8	140.0	589.7	3686.8	1338.4	887.9	76.5	430.8	2733.8	364.6	365.8	63.5	158.8	952.9
1990	1832.4	1241.4	138.8	598.1	3810.9	1471.5	968.7	83.0	469.4	2992.7	360.9	272.7	55.7	128.6	818.1
1991	2050.8	1394.2	155.7	671.8	4272.7	1622.5	1069.3	91.7	517.9	3301.5	428.3	324.9	64.0	153.9	971.2
1992	2311.5	1587.5	177.4	762.7	4839.2	1791.6	1190.2	102.3	576.1	3660.4	519.8	397.2	75.1	186.5	1178.7
1993	2574.1	2100.5	235.4	959.1	5869.3	1979.3	1344.7	115.1	645.5	4084.7	594.8	755.7	120.3	313.5	1784.5
1994	2813.2	1979.9	221.5	944.2	5958.9	2137.6	1449.6	124.8	698.1	4410.3	675.5	530.2	96.7	246.0	1548.5
1995	3050.4	2165.7	241.8	1030.5	6488.6	2314.9	1643.4	143.8	781.9	4884.1	735.5	522.3	97.9	248.6	1604.5
1996	3316.0	2441.5	273.1	1149.6	7160.4	2495.4	1712.4	148.1	822.6	5178.7	820.6	729.0	125.0	326.9	2001.6
1997	3619.4	3393.9	379.2	1481.5	8874.2	2693.9	1852.7	160.4	889.7	5596.8	925.4	1541.2	218.7	591.8	3277.3
1998	3890.4	3078.7	344.4	1414.3	8728.0	2916.8	2059.2	178.7	982.0	6136.8	973.6	1019.5	165.6	432.3	2591.2
1999	4230.1	3330.3	372.2	1532.6	9465.4	3148.9	2231.2	194.1	1062.9	6637.2	1081.2	1099.1	178.0	469.7	2828.2
2000	4591.5	3823.7	427.3	1729.2	10571.8	3418.0	2446.1	213.5	1161.3	7239.1	1173.4	1377.5	213.7	567.9	3332.7
2001	5214.1	5275.8	591.4	2244.4	13325.9	3751.6	2864.8	255.7	1330.7	8203.0	1462.4	2411.0	335.7	913.7	5122.8
2002	5424.9	4732.7	530.3	2108.7	12796.8	4023.9	2961.5	259.2	1393.8	8638.6	1401.0	1771.1	271.1	714.8	4158.2
2003	6220.7	5643.2	631.0	2471.9	14967.0	4358.3	3340.7	291.9	1552.8	9543.8	1862.4	2302.5	339.1	919.1	5423.2

** INCLUDES COSTS FOR VEHICLE INVESTMENT, TIME DEPRECIATION AND MANAGEMENT (WHEN APPLICABLE)

TABLE 43

*** *** HIGHWAY FEASIBILITY STUDIES - LATTAKIA REGION *** ***

VEHICLE OPERATING COSTS
(SHOWN IN 000 U.S. DOLLARS)

PROJECT = LATTAKIA - KASSAB FEASSIBILITY STUDY
PROVINCE = LATTAKIA
ROAD SECTION LATT-KASSAB.W/RK TR..PR LD.ALL IN.W/ROW

TRUCK

YEAR	BEFORE					AFTER					SAVING				
	RUNN. COSTS	OCCUP. TIME	ACCID-ENTS	** OTHERS	TOTAL	RUNN. COSTS	OCCUP. TIME	ACCID-ENTS	** OTHERS	TOTAL	RUNN. COSTS	OCCUP. TIME	ACCID-ENTS	** OTHERS	TOTAL
1978	268.5	47.6	21.5	107.7	445.6	181.8	35.4	9.6	73.1	300.1	86.7	12.2	11.8	34.6	145.4
1979	287.7	50.8	23.0	115.1	476.7	194.5	37.7	10.3	78.2	320.9	93.2	13.0	12.6	36.8	155.8
1980	309.4	55.9	25.4	126.6	517.4	208.0	40.5	11.0	83.7	343.2	101.4	15.4	14.3	42.9	174.1
1981	322.9	67.0	30.4	148.3	568.8	222.4	43.3	11.9	89.5	367.1	100.5	23.7	18.4	58.8	201.6
1982	353.5	65.7	29.6	148.1	597.1	238.9	47.1	12.9	97.7	396.7	114.6	18.5	16.7	50.3	200.4
1983	379.1	70.1	31.7	158.2	639.3	255.5	50.6	13.9	104.8	425.0	123.6	19.5	17.8	53.3	214.3
1984	399.7	76.6	34.6	171.7	682.7	270.3	53.4	14.6	110.6	449.0	129.4	23.1	19.9	61.0	233.6
1985	430.6	95.1	42.8	210.1	778.8	286.1	56.6	15.5	117.2	475.5	144.4	38.4	27.3	92.9	303.2
1986	449.4	88.5	39.9	197.5	775.5	304.1	61.2	16.6	126.7	508.8	145.3	27.2	23.2	70.8	266.6
1987	478.4	93.5	42.2	209.2	823.4	321.8	64.7	17.7	134.1	538.3	156.6	28.8	24.5	75.1	285.0
1988	507.4	102.2	46.5	228.0	884.2	340.6	68.5	18.9	142.0	570.2	166.7	33.7	27.5	86.0	314.0
1989	576.4	132.9	60.1	294.7	1064.2	364.0	73.6	20.3	152.4	610.4	212.3	59.3	39.8	142.2	453.8
1990	579.2	119.7	53.8	267.9	1020.7	384.9	79.1	21.7	163.9	649.8	194.2	40.5	32.1	104.0	370.9
1991	621.3	127.6	57.7	286.0	1092.7	407.9	83.8	22.9	173.6	688.2	213.4	43.8	34.7	112.3	404.5
1992	668.6	140.1	63.1	313.9	1185.8	432.8	88.8	24.3	183.9	729.9	235.7	51.3	38.7	130.0	455.8
1993	786.6	182.5	81.9	409.5	1460.6	464.6	98.3	27.0	203.7	793.8	321.9	84.1	54.8	205.7	666.8
1994	763.2	162.7	73.1	364.9	1364.1	484.5	101.1	27.9	209.6	823.3	278.6	61.5	45.2	155.3	540.8
1995	808.3	171.2	77.2	384.5	1441.4	509.8	106.7	29.3	221.3	867.3	298.5	64.4	47.8	163.1	574.0
1996	862.9	188.0	85.0	421.7	1557.8	534.5	111.1	30.5	231.1	907.4	328.3	76.9	54.4	190.5	650.3
1997	960.0	247.8	111.7	551.3	1871.0	560.3	116.8	31.9	241.9	951.1	399.7	131.0	79.8	309.3	919.9
1998	972.1	220.9	100.0	493.3	1786.4	598.6	126.2	34.4	262.4	1021.8	373.5	94.6	65.5	230.9	764.5
1999	1024.0	230.6	104.1	517.9	1876.7	627.5	132.3	36.4	275.6	1072.0	396.4	98.3	67.7	242.2	804.7
2000	1102.9	251.6	112.9	565.7	2033.2	657.0	138.6	37.6	288.9	1122.3	445.8	112.9	75.3	276.8	910.9
2001	1199.4	342.6	155.0	750.4	2447.6	692.8	147.7	40.8	308.7	1190.1	506.5	194.9	114.2	441.6	1257.4
2002	1250.8	268.6	130.2	648.7	2318.3	737.1	157.3	43.4	328.8	1266.8	513.6	131.2	86.8	319.8	1051.5
2003	1319.8	316.6	143.0	711.4	2490.9	794.5	172.9	47.4	364.8	1379.8	525.3	143.6	95.5	346.6	1111.1

** INCLUDES COSTS FOR VEHICLE INVESTMENT, TIME DEPRECIATION AND MANAGEMENT (WHEN APPLICABLE)

TABLES 42 & 43
DETAILS OF ANALYSIS

LYON

TABLE 44

*** *** HIGHWAY FEASIBILITY STUDIES - LATTAKIA REGION *** ***

VEHICLE OPERATING COSTS
(SHOWN IN 000 U.S. DOLLARS)

PROJECT = LATTAKIA - KASSAB FEASIBILITY STUDY
PROVINCE = LATTAKIA
ROAD SECTION LATT-KASSAB.W/RK TR.PR LD.ALL IN.W/ROW

ALL VEHICLES

YEAR	BEFORE RUNN. COSTS	BEFORE OCCUP. TIME	BEFORE ACCID-ENTS	BEFORE ** OTHERS	BEFORE TOTAL	AFTER RUNN. COSTS	AFTER OCCUP. TIME	AFTER ACCID-ENTS	AFTER ** OTHERS	AFTER TOTAL	SAVING RUNN. COSTS	SAVING OCCUP. TIME	SAVING ACCID-ENTS	SAVING ** OTHERS	SAVING TOTAL
1978	1461.9	805.2	156.7	562.6	2986.5	1104.3	638.4	80.0	419.6	2242.3	357.6	166.8	76.7	142.9	744.1
1979	1593.0	879.2	169.8	610.8	3252.9	1203.8	698.2	87.1	456.2	2445.3	389.2	181.0	82.7	154.5	807.6
1980	1736.5	985.8	189.3	678.8	3590.5	1312.3	767.9	95.2	497.6	2673.1	424.2	217.9	94.0	181.1	917.4
1981	1875.1	1171.6	223.7	791.9	4062.4	1431.3	840.6	104.0	541.6	2917.6	443.7	331.0	119.7	250.3	1144.8
1982	2063.2	1207.7	229.1	818.2	4318.3	1563.9	938.5	115.4	599.5	3217.4	499.2	269.2	113.6	218.7	1100.8
1983	2254.0	1321.1	248.7	889.8	4713.7	1706.4	1039.7	127.6	657.4	3531.2	547.6	281.3	121.0	232.4	1182.5
1984	2435.1	1471.2	275.2	981.1	5162.6	1848.4	1122.8	136.7	707.0	3815.0	586.6	348.4	138.4	274.0	1347.6
1985	2673.2	1793.5	333.2	1177.0	5977.0	2002.9	1221.4	147.9	764.3	4136.7	670.2	572.0	185.3	412.7	1840.3
1986	2860.3	1782.1	328.1	1168.7	6139.4	2174.3	1353.9	163.0	840.0	4531.3	686.0	428.2	165.1	328.7	1608.0
1987	3108.0	1938.3	354.0	1263.9	6664.4	2357.8	1472.3	176.3	908.0	4914.4	750.2	466.0	177.7	355.8	1749.9
1988	3376.5	2172.9	394.3	1401.5	7345.3	2557.1	1611.4	192.3	985.3	5346.2	819.4	561.4	202.0	416.1	1999.0
1989	3833.8	2766.3	499.1	1761.6	8860.9	2792.4	1797.6	213.5	1088.6	5892.2	1041.4	968.7	285.5	672.9	2968.6
1990	4024.1	2676.0	477.8	1702.6	8880.6	3026.6	1957.2	230.8	1180.6	6395.4	997.5	718.8	246.9	521.9	2485.2
1991	4413.7	2957.7	523.9	1868.7	9764.2	3289.2	2134.7	250.2	1279.8	6954.0	1124.5	823.0	273.7	588.8	2810.1
1992	4966.3	3324.3	583.6	2085.4	10859.9	3580.0	2341.9	272.9	1394.2	7589.2	1286.3	982.3	310.6	691.2	3270.6
1993	5588.4	4401.5	768.9	2699.7	13458.7	3909.3	2630.0	304.4	1554.7	8398.5	1679.1	1771.5	464.4	1144.9	5060.1
1994	5775.8	4052.3	702.0	2509.8	13040.2	4177.0	2799.9	323.2	1646.7	8946.9	1598.8	1252.4	378.8	863.1	4093.2
1995	6217.1	4387.7	755.8	2700.5	14061.2	4463.3	3103.5	358.9	1800.9	9746.8	1733.8	1284.1	396.8	899.6	4314.4
1996	6711.5	4897.5	838.8	2969.0	15437.1	4788.6	3250.6	372.9	1891.5	10303.7	1922.9	1646.9	465.9	1097.5	5133.3
1997	7496.9	6735.8	1142.2	3949.3	19324.3	5123.6	3492.7	398.8	2022.0	11037.2	2373.2	3243.1	743.4	1927.2	8287.1
1998	7779.1	6041.3	1020.9	3610.2	18451.6	5517.0	3853.3	438.4	2215.3	12024.2	2262.1	2187.9	582.4	1394.8	6427.3
1999	8358.3	6408.3	1090.8	3862.1	19799.7	5905.1	4145.3	470.7	2372.2	12893.4	2453.2	2343.0	620.0	1489.9	6906.2
2000	9068.5	7358.2	1226.9	4321.9	21975.6	6340.6	4496.2	508.4	2554.6	13900.0	2727.8	2862.0	718.4	1767.2	8075.5
2001	10303.9	10255.7	1709.4	5812.5	28081.6	6880.1	5115.5	581.2	2850.9	15427.8	3423.8	5140.1	1128.1	2961.6	12653.8
2002	10573.2	8945.5	1473.7	5160.9	26153.4	7358.0	5356.7	602.0	3006.7	16323.6	3215.2	3588.7	871.6	2154.1	9829.7
2003	11773.6	10474.6	1710.4	5945.9	29904.7	7977.1	6003.4	671.0	3343.7	17995.4	3796.5	4471.2	1039.4	2602.1	11909.3

** INCLUDES COSTS FOR VEHICLE INVESTMENT, TIME DEPRECIATION AND MANAGEMENT (WHEN APPLICABLE)

DOCUMENT

TABLE 45

*** *** HIGHWAY FEASIBILITY STUDIES - LATTAKIA REGION *** ***

ROADWAY EVALUATION
(COSTS SHOWN IN 000 U.S. DOLLARS

DATE 9 JANUARY 1979

PROJECT - LATTAKIA - KASSAB FEASIBILITY STUDY
PROVINCE - LATTAKIA
ROAD SECTION LATT-KASSAB,W/BK TR,PR LD,ALL IN,W/ROW

CHANGE IN CONSTRUCTION COSTS = 0 PERCENT
CHANGE IN VEHICLE OPERATING COSTS = 0 PERCENT

YEAR	CONST COSTS	ROAD MAINT COSTS BEFORE	ROAD MAINT COSTS AFTER	ROAD MAINT COSTS SAVINGS	VEHICLE OPER COSTS BEFORE	VEHICLE OPER COSTS AFTER	VEHICLE OPER COSTS SAVINGS	ADDED COSTS ECON	ADDED COSTS SOCIAL	ADDED SAVINGS ECON	ADDED SAVINGS SOCIAL	TOTAL SAVINGS	*** ANNUAL R-OF-R
1981	21246.							0.	0.	0.	0.	0.	
1982	15691.							0.	0.	0.	0.	0.	
1983	5123.							0.	0.	0.	0.	0.	
1984		158.	228.	-70.	5163.	3815.	1348.	0.	0.	0.	0.	1278.	3.0 0/0
1985		169.	244.	-75.	5977.	4137.	1840.	0.	0.	690.	0.	2455.	5.8 0/0
1986		181.	261.	-80.	6139.	4531.	1608.	0.	0.	690.	0.	2218.	5.2 0/0
1987		194.	279.	-85.	6664.	4914.	1750.	0.	0.	690.	0.	2355.	5.6 0/0
1988		207.	299.	-92.	7345.	5346.	1999.	0.	0.	690.	0.	2597.	6.1 0/0
1989		222.	320.	-98.	8861.	5892.	2969.	0.	0.	690.	0.	3561.	8.4 0/0
1990		238.	342.	-104.	8881.	6395.	2486.	0.	0.	0.	0.	2382.	5.6 0/0
1991		254.	366.	-112.	9764.	6954.	2810.	0.	0.	0.	0.	2698.	6.4 0/0
1992		272.	392.	-120.	10860.	7589.	3271.	0.	0.	0.	0.	3151.	7.4 0/0
1993	1310.	291.	419.	-128.	13459.	8399.	5060.	0.	0.	0.	0.	4932.	11.7 0/0
1994		311.	449.	-138.	13040.	8947.	4093.	0.	0.	0.	0.	3955.	9.4 0/0
1995		333.	480.	-147.	14061.	9747.	4314.	0.	0.	0.	0.	4167.	9.9 0/0
1996		357.	514.	-157.	15437.	10304.	5133.	0.	0.	0.	0.	4976.	11.8 0/0
1997		381.	550.	-169.	19324.	11037.	8287.	0.	0.	0.	0.	8118.	19.3 0/0
1998		408.	588.	-180.	18452.	12024.	6428.	0.	0.	0.	0.	6248.	14.8 0/0
1999		437.	629.	-192.	19800.	12893.	6907.	0.	0.	0.	0.	6715.	15.9 0/0
2000		467.	673.	-206.	21976.	13900.	8076.	0.	0.	0.	0.	7870.	18.7 0/0
2001		500.	720.	-220.	28082.	15428.	12654.	0.	0.	0.	0.	12434.	29.5 0/0
2002		535.	771.	-236.	26153.	16324.	9829.	0.	0.	0.	0.	9593.	22.8 0/0
2003		572.	825.	-253.	29905.	17995.	11910.	0.	0.	0.	0.	11657.	27.7 0/0
UNDIS-COUNTED TOTALS	43370.	6487.	9349.	-2862.	289343.	186571.	102772.	0.	0.	3450.	0.	103360.	

*** ANNUAL RATE OF RETURN DEFINED AS TOTAL SAVINGS DIVIDED BY TOTAL CONSTRUCTION COSTS

BENEFIT COST (P/C) ANALYSIS

DISCOUNT RATE	DISCOUNTED BENEFITS	DISCOUNTED COSTS	B/C RATIO
10 0/0	32151.	41646.	0.7720
15 0/0	20688.	48476.	0.4267
20 0/0	14416.	53337.	0.2702
25 0/0	10722.	57406.	0.1667
30 0/0	8393.	61198.	0.1371

INTERNAL RATE OF RETURN 8.23 0/0

TABLES 44 & 45
DETAILS OF ANALYSIS

LYON

الجمهورية العربية السورية
وزارة المواصلات
شركة النقل
الاستشاريون المتحدون
دمشق - سوريا

احصاء مرتب

التصنيف	01	02	03	04	05	06	07	08	09	10	11	12
	سيارة خاصة سيارة صالون تاكسي	بيك آب بيك آب مغلق	ميكرو باص	باص	٢ محور شاحنة صهريج	٣ محاور شاحنة صهريج	شاحنة مقطورة ٤ أو ٥ أو ٦ عدد المحاور الإجمالي	رأس (قاطر) ونصف مقطورة (٣) ٢ أو ٤ أو ٥ عدد المحاور الإجمالي	رأس (قاطر) (٥) أكثر من ٥ عدد المحاور الإجمالي	موتور سيكل موتور سيكل شاحنة بثلاث عجلات	تراكتور زراعي بمقطورة أو بدون	طنبر دراجات هوائية
الساعة												

اتجاه الحركة الى :

موقع مركز الاحصاء :

SYRIAN ARAB REPUBLIC
MINISTRY OF COMMUNICATIONS

LYON ASSOCIATES, INC.
UNICONSULT
DAMASCUS, SYRIA

TRAFFIC SURVEY - VOLUMES

CLASS	01	02	03	04	05	06	07	08	09	10	11	12
HOUR	SEDAN STATION WAGON TAXI	PICK-UP DELIVERY VAN	MICRO-BUS	BUS	2 AXLE: TRUCK TANKER	3 AXLE: TRUCK TANKER	TRUCK AND TRAILER 4.5 OR 5 TOTAL AXLES	TRACTOR & HALF TRAILER (a) 3.4 OR 5 TOTAL AXLES	(b) MORE THAN 5 TOTAL AXLES	MOTORCYCLE SCOOTER 3-WHEELER	FARM TRACTOR WITH/WITHOUT TRAILER	NON-MOTORIZED BICYCLE

ROAD: STATION LOCATION: DIRECTION OF FLOW: TO:

FORMS 1 & 2
TRANSPORT ECONOMICS
LYON

الجمهورية العربية السورية
وزارة المواصلات
شركة الهاتف
الدستشار الهاتفي المتحد
دمشق - سوريا

احصاء طرقي

التصنيف	1		2	3	4	5	6	7	8	9	10	11	12	المجموع
الساعة	سباعية خاصة / سباعية عادية / تلكس		بريد آلي / بريد كل مغلق	تيلكس باص	باص	٢ محور / شاحنة صغيرة	٣ محاور / شاحنة كبيرة	شاحنة ومقطورة ٥ أو ٦ محاور الاجمالي	راسيات تحمل ومقطورة ٤ أو ٥ محاور الاجمالي (٤)	راسيات تحمل ومقطورة ٥ محاور الاجمالي (٥)	موتور سيكل / موتور شاحنة بثلاث دواليب	قاطرة زراعية بمقطورة ٢ أو ٣ محاور	طنبر / دراجات نارية	
06 – 07														
07 – 08														
08 – 09														
09 – 10														
10 – 11														
11 – 12														
12 – 13														
13 – 14														
14 – 15														
15 – 16														
16 – 17														
17 – 18														
18 – 19														
19 – 20														
20 – 21														
21 – 22														
22 – 23														
23 – 24														
24 – 01														
01 – 02														
02 – 03														
03 – 04														
04 – 05														
05 – 06														
المجموع														

اتجاه الحركة الى

موقع مركز الاحصاء

حالة الطقس

القائم بالاحصاء

مقدم من قبل

SYRIAN ARAB REPUBLIC
MINISTRY OF COMMUNICATIONS

LYON ASSOCIATES, INC.
UNICONSULT
DAMASCUS, SYRIA

TRAFFIC SURVEY - SUMMARY

CLASS	1		2	3	4	5	6	7	8	9	10	11	12	TOTAL
HOUR	SEDAN / STATION WAGON / TAXI		PICK-UP / DELIVERY VAN	MICRO-BUS	BUS	2 AXLES TRUCK / TANKER	3 AXLES TRUCK / TANKER	TRUCK AND TRAILER 5.5 OR 6 TOTAL AXLES	TRACTOR & HALF TRAILER (a) 3,4 OR 5 TOTAL AXLES	TRACTOR & HALF TRAILER (b) MORE THAN 5 TOTAL AXLES	MOTORCYCLE / SCOOTER / 3-WHEELER	FARM TRACTOR WITH/WITHOUT TRAILER	NON-MOTORIZED BICYCLE	
06 – 07														
07 – 08														
08 – 09														
09 – 10														
10 – 11														
11 – 12														
12 – 13														
13 – 14														
14 – 15														
15 – 16														
16 – 17														
17 – 18														
18 – 19														
19 – 20														
20 – 21														
21 – 22														
22 – 23														
23 – 24														
24 – 01														
01 – 02														
02 – 03														
03 – 04														
04 – 05														
05 – 06														
TOTAL														

ROAD: STATION LOCATION:
DIRECTION OF FLOW: TO:
DATE: SURVEYOR: CHECKED BY:

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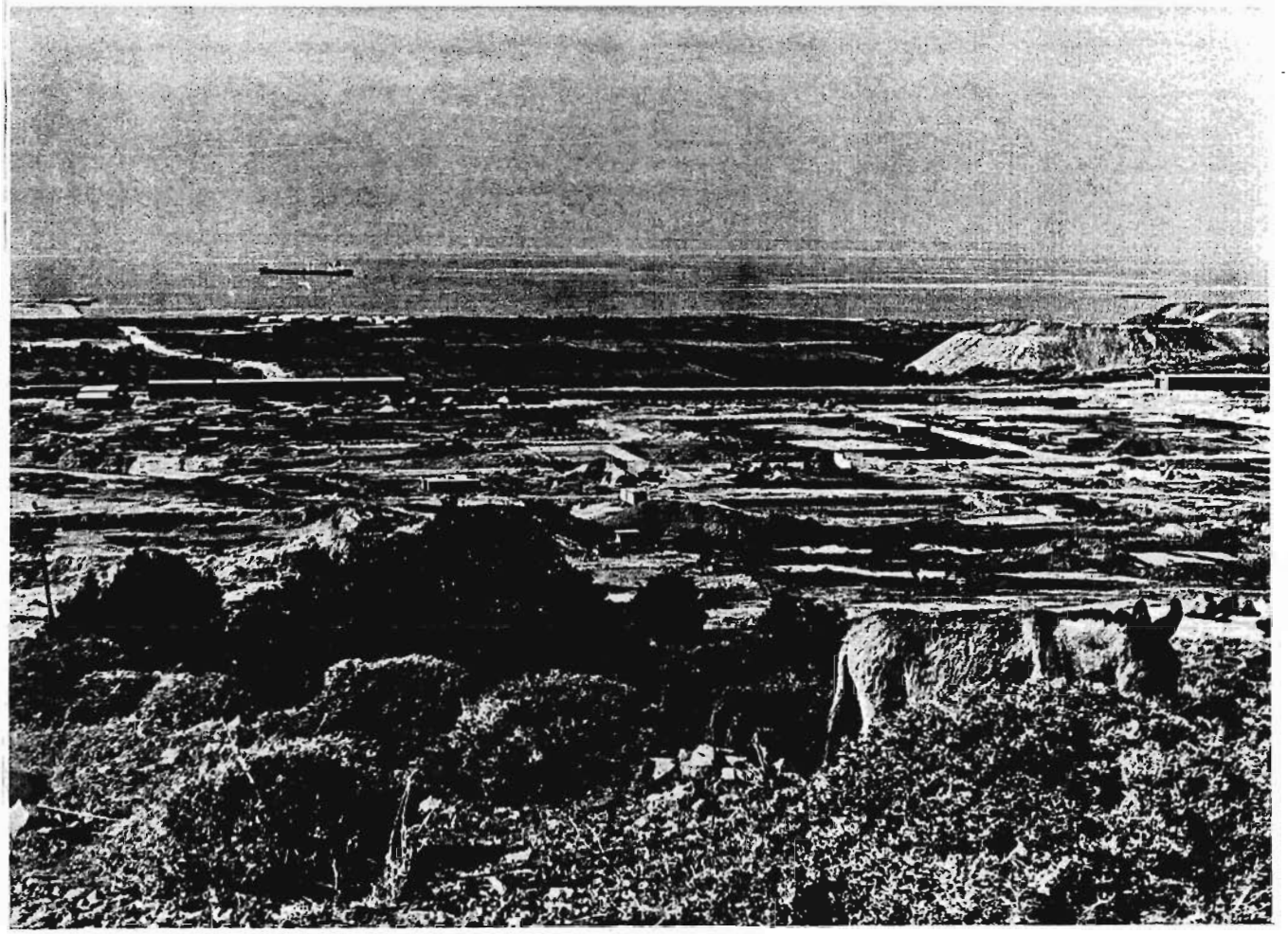
FORMS 3 & 4
TRANSPORT ECONOMICS
LYON



Technical Planning

APPENDIX D

LYON

LATTAKIA-KASSAB HIGHWAY PROJECT
SYRIA

SUMMARY: PRELIMINARY FEASIBILITY COST ESTIMATE

	-In 1978 U. S. Dollars -		
	U.S. $ Expenditure 66%	Syrian Expenditure 34%	Total Expenditure
Construction Cost Estimate	23,559,828	11,981,552	35,541,380
Engineering Design Estimate . . . . . (Includes, but not limited to, detailed survey and field investigation, soils investigation and testing, total engineering design and documentation, pre-qualification and tendering assistance.)	1,108,891	739,261	1,848,152
Construction Supervision	938,292	767,694	1,705,986
Appropriation of Land		2,852,180	2,852,180
Totals	25,607,011	16,340,687	41,947,698

(This Preliminary Feasibility Cost Estimate was prepared utilizing interim quantity estimates subsequently refined.)

LATTAKIA-KASSAB HIGHWAY PROJECT
SYRIA

SUMMARY: FEASIBILITY COST ESTIMATE

-In 1978 U. S. Dollars -

	U.S. $ Expenditure 66%	Syrian Expenditure 34%	Total Expenditure
Construction Cost Estimate	$23,559,828	$11,981,552	$35,541,380
Engineering Design Estimate . . . . . (Includes, but not limited to, detailed survey and field investigation, soils investigation and testing, total engineering design and documentation, pre-qualification and tendering assistance.)	1,108,891	739,261	1,848,152
Construction Supervision	938,292	767,694	1,705,986
Appropriation of Land		2,852,180	2,852,180
Totals	$25,607,011	16,340,687	41,947,698

(This Feasibility Cost Estimate is based on the application of unit prices developed in the Preliminary Feasibility Cost Estimate reflecting quantities in full accord with preliminary design.)

LATTAKIA-KASSAB HIGHWAY PROJECT
SYRIA

UMMARY: BUDGET COST ESTIMATE

- In U. S. Dollars -

	U. S. $ Expenditure	Syrian Expenditure	TTotal Expeenditure
onstruction Cost Estimate	33,957,441	23,271,684	57,2229,125
ngineering Design Estimate . . . . . (Includes, but not limited to, detailed survey and field investigation, soils investigation and testing, total engineering design and documentation, pre-qualification and tendering assistance.)	1,268,763	944,102	2,2212,865
onstruction Supervision	1,352,387	1,491,087	2,3843,474
ppropriation of Land		4,337,809	4,3337,809
Totals	36,578,591	30,044,682	66,6323,273

The feasibility cost estimate in 1978 dollars was required in economic analyses, wherein all costs and benefits are stated at 1978 value. Project financing, however, must be based on cost including escalation at prevailing rates, which tthe Consultant assumes to be eight percent for U.S. costs and 15 percent for Syrian costs. The Consultant further assumes that the design contract will be negotiated at mid-1979 and will be subject to one and three-quarters years of inflation; and that all other costs will be negotiated at mid-1981 and be subject to four and three-quarters years of inflation.

SUMMARY SHEET I
COST ESTIMATE

LYON

TYPICAL PRODUCTION ANALYSIS

Lattakia-Kassab Project
12-30-78

ITEM 303

BORROW = 734.000 M^3

= (734.00) (1.7) = 1,247,800 Metric Ton

1. Use Kolburg Loader W/42" Belt
2. Trap Load with D 9 Dozers
3. Haul with 37 MT Bottom Dump Trailers
4. Add 5 Percent Water with Spray Bar
5. Assume Average Haul 2 Kilometers

Haul Speed = 20 KPH = 330 Meters/Min.

Return Speed = 25 KPH = 416 Meters/Min.

Load Time = 1.50 Min.

Haul $\frac{2000}{333}$ = 6.00

Dump = 0.50

Return $\frac{2000}{416}$ = 4.80

Delay = 0.4

Cycle Time = 13.2 Min.

Trips/Hr. = $\frac{55}{13.2}$ = 4.16

Use 4 Haul Units:

Production = (4 units) (4.16 $\frac{\text{Trips}}{\text{Hr.}}$) (37 $\frac{\text{MT}}{\text{Trip}}$) = 616 $\frac{\text{MT}}{\text{Hr.}}$

Hours Required = $\frac{1,247,800}{616}$ = 2025 Hrs.

USE 2100 HOURS

ITEM ANALYSIS

Project: Lattakia - Kassab Location: Syria Item No. 303

Description: Borrow Estimator: KR Checked By: ____ Sheet No. ____

End Quantity: 734,000 M^3 Take Off Quantity: 1,247,800 MT Date: Dec. 30, 1978

DESCRIPTION				QUANTITY	EQUIPMENT RENTAL				OPERATING EXPENSE						SERVICE TOOLS & SUPPLIES	
					CO. OWNED		OTHER		TIRES & TRACKS		EQUIP REPAIR		FUEL OIL GREASE			
NO.	EQUIPMENT	NO	CREW		U.P	TOTAL	U.P	TOTAL	U.P	TOTAL	U.P	TOTAL	U.P	TOTAL	U.P.	TOTAL
								This	Operation		=	2100	Hours			
		1	A/M													
1	Kolburg Loader	1	Oper			9.						3.		.25		
1	125 KW Gen	1	Oper			2.70						1.		2.75		
2	D9 Dozer	2	Oper			81.50						30.		18.		4.
4	TK Tractors	4	Drivers			30.00				6.80		6.		7.20		
4	B.D. Trailers	1	Mech			16.00				6.80		2.		--		
1	#14 Grader	1	Oper			17.				2.30		4.50		3.00		
1	TK. Tractor	1	Driver			7.50				1.70		1.50		1.80		
1	H_2O Trailer	1	Labor			4.70				1.10		.60		.10		
1	4" Pump	1	Oper			1.00						.30		.85		
	Crew & Equipment Cost/Hour					169.40				18.70		48.90		33.95		7.
	Total Crew & Equip X 2100 Hrs.					355740				39,270		102,690		71,295		15,2
	Provision for Water															
	Traffic Control															
	Total Direct Cost Item 303					355740				39,270		102,690		71,295		15,2
	Unit Cost ÷ 734,000 M^3															
	TOTALS															

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	SERVICES TOOLS & SUPPLIES		LABOR EXPENSE				SUBTOTAL		PERMANENT MATERIALS		SUB CONTRACTS		TOTAL DIRECT COST	
			WAGES		ADD-ONS									
	U.P.	TOTAL	U.P.	TOTAL	U.P.	TOTAL	U.P.	TOTAL	U.P.	TOTAL	U.P.	TOTAL	U.P.	TOTAL
				6.15										
5		.30		3.24										
5		.30		2.60										
		4.		6.48										
0		.80		12.96										
		.40		3.00										
0		.90		4.20										
0		.20		3.24										
0		.30		1.90										
5		.05		2.60										
5		7.25		46.37										324.57
		15,225		97,377										681,597
									5,000		10,000		15,000	
									5,000		20,000		25,000	
		15,225		97,377					10,000		30,000		721,597	
														.95

SUMMARY SHEET 2
COST ESTIMATE

ITEM SUMMARY — Analysis

Project Lattakia – Kassab

Location Syria

Description Direct Cost Recap

ITEM NO.

Summary Sheet

Sheet No.

Date 1/5/79

Estimator KR

Bid Quantity

Est. Quantity

Operation	Move In	CO. Rent	Other Rent	Repairs	FOG	ST&S	Perm. Matl.	Lab.	Ins.	Sub. Conts.	Total
									Totals		
Equipment Rental									$ 9,667,545		
Equipment Write-Off									560,839		
Tire Replacement									1,069,211		
Repair Parts									2,237,921		
Fuel-Oil-Grease									1,625,852		
Small Tools & Supplies									401,168		
Syrian Wages									4,399,375		
U.S. Wages									760,900		
U.S. $ Permanent Materials									3,341,668		
Syrian Permanent Materials									1,723,868		
Sub Contracts									1,613,019		
Total Direct Cost									$27,401,366		
Total Cost per											

ITEM SUMMARY — Analysis

Project: Lattakia - Kassab

Location: Syria

Description: Indirect Cost Recap

ITEM NO.

Summary Sheet

Sheet No.

Date: 1/5/79

Estimator: KR

Bid Quantity

Est. Quantity

In Dollars

Operation	Move In	CO. Rent	Other Rent	Repairs	FOG	ST&S	Perm. Matl.	Lab.	Ins.	Sub. Conts.	Total
									Totals		
Equipment Rental									$ 333,140		
Equipment Write-Off									108,820		
Tire Replacement									38,860		
Repair Parts									59,790		
Fuel-Oil-Grease									76,480		
Small Tools & Supplies									370,484		
Syrian Wages									2,151,104		
U.S. Dollar Wages									2,258,444		
U.S. $ Permanent Materials									1,351,734		
S.P. Permanent Materials									360,000		
Sub-Contracts									54,650		
Total Indirect Costs									$7,163,406		
Total Cost per											

SUMMARY SHEET 3

COST ESTIMATE

LYON

Lattakia Kassab (Syria)

Summary: Horizontal Distribution of Currency Requirements B.J.B.

Item	Description	Unit	Quantity	Estimated Total Direct Cost F.C.	Estimated Total Direct Cost L.C.	Estimated Unit Cost F.C.	Estimated Unit Cost L.C.
101	Mobilization	L.S.		2,866,220	1,028,000		
201	Relocate Utilities	L.S.			294,000		
202	Clear & Grub	HA	250.50	77,563	36,375	309.63	145.
203	Stripping	CM	46,550	33,094	8,553	0.71	0.
301	Common Excavation	CM	3,479,000	2,639,680	1,032,192	0.76	0.
302	Rock Excavation	CM	51,000	101,213	60,393	1.99	1.
303	Borrow	CM	734,000	497,700	223,897	0.67	0.
304	Overhaul	STA-M	1,524,000	86,258	20,422	0.057	0.
305	Embankment	CM	1,034,000	1,309,620	644,396	0.43	0.
306	Remove Unsuitable Material	CM	41,800	29,260	7,942	0.70	0.
307	Select Fill	CM	127,600	1,415,576	469,262	11.09	3.
401	Sub base	CM	60,910	615,804	203,183	10.11	3.
402	Base	CM	116,000	1,433,168	460,548	12.35	3.
501	Prime Coat	S.M.	485,000	9,465	80,353	0.02	0.
502	Binder Course	MT	12,250	110,971	118,926	9.06	9.
503	Surface Course	MT	60,600	692,925	657,260	11.43	10.
601	Finish & Stabilize Shoulders	CM	14,450	173,960	70,932	12.04	4.
602	Erosion Control Seeding	HA	110.50	42,533	23,823	384.91	215.

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mated Unit Cost F.C.	mated Unit Cost L.C.	Indirect Cost Multiplier F.C.	Indirect Cost Multiplier L.C.	Estimated Direct and Indirect Unit Cost F.C.	Estimated Direct and Indirect Unit Cost L.C.	Balanced Estimated Cost in Dollars F.C.	Balanced Estimated Cost in Dollars L.C.	Total Contract Estimated Cost In Dollars	Unit Bid Price
		1.33	1.24			3,854,553	1,215,632	5,070,185	
							364,560	364,560	L.S.
.63	145.21			411.81	180.05	103,158	45,103	148,261	591.86
.71	0.18			0.94	0.22	43,757	10,241	53,998	1.16
.76	0.30			1.01	0.37	3,513,790	1,287,230	4,801,020	1.38
.99	1.18			2.65	1.46	135,150	74,460	209,610	4.11
.67	0.31			0.89	0.38	653,260	278,920	932,180	1.27
.057	0.013			0.08	0.02	121,920	30,480	152,400	0.10
.43	0.21			0.57	0.26	1,729,380	788,840	2,518,220	0.83
.70	0.19			0.93	0.24	38,874	10,032	48,906	1.17
.09	3.68			14.75	4.56	1,882,100	581,856	2,463,956	19.31
.11	3.33			13.45	4.13	819,240	251,558	1,070,798	17.58
.35	3.97			16.43	4.92	1,905,880	570,720	2,476,600	21.35
.02	0.17			0.03	0.21	14,350	101,850	116,400	0.24
.06	9.71			12.05	12.04	147,613	147,490	295,103	24.09
.43	10.85			15.20	13.45	921,120	815,070	1,736,190	28.65
.04	4.91			16.01	6.09	231,345	88,001	319,346	22.10
.91	215.59			511.93	267.33	56,568	29,540	86,108	779.26
					Sub-Total	16,172,258	6,691,583	22,863,841	

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SUMMARY SHEET 4
COST ESTIMATE

LYON

Lattakia Kassab (Syria)

Summary: Horizontal Distribution of Currency Requirements SJB

Item	Description	Unit	Quantity	Estimated Total Direct Cost F.C.	Estimated Total Direct Cost L.C.	Estimated Unit Cost F.C.	Estimated Unit Cost L.C.	Indirect Cost Multiplier F.C.	Indirect Cost Multiplier L.C.
								1.33	
701	Concrete Headwalls	CM	1,570	44,117	164,850	28.10	105.00		
702	Stone Riprap	CM	6,700	48,106	24,589	7.18	3.67		
703	R.C.P. 60 cm ø	ML	15	929	533	61.90	35.53		
704	R.C.P. 80 cm ø	ML	68	4,726	2,621	69.50	38.55		
705	R.C.P. 100 cm ø	ML	645	59,340	25,465	92.00	39.48		
706	R.C.P. 120 cm ø	ML	225	22,172	9,563	98.54	42.50		
707	Concrete Box Culverts	CM	3,920	496,664	197,960	126.70	50.50		
801	bridge Hand Rail	ML	1,900	32,964	18,810	17.35	9.90		
802	Structural Excavation	CM	3,567	11,102	7,741	3.11	2.17		
803	Rock Excavation	CM	1,050	6,668	4,042	6.35	3.85		
804	Concrete Footings	CM	2,830	72,701	138,250	25.69	48.85		
805	Concrete Substructure	CM	4,786	215,008	328,536	44.92	68.64		
806	Concrete Superstructure	CM	3,918	191,008	307,963	48.75	78.60		
807	Concrete Slope Protection	CM	1,250	114,750	136,500	91.80	109.20		
808	Gabion Retaining Wall	CM	3,000	153,280	36,254	51.09	12.09		
809	Stone Rip-rap	CM	5,500	39,516	20,187	7.18	3.67		
810	Prestressed I-Beams	CM	3,834	1,025,620	495,747	267.50	129.30		
811	Prestressed Piles 30 cm^2	ML	5,520	158,696	81,970	28.75	14.85		
812	Point Piles	ML	6,440	399,924	38,640	62.10	6.00		
813	Reinforcing Steel	Kg	2,114,355	1,437,792	613,176	0.68	0.29		
814	Footing Conc. Ret. Wall	CM	975	26,812	70,591	27.50	72.40		
815	Stem Conc. Ret. Wall	CM	1,110	49,506	86,469	44.60	77.90		
816	Structural Steel Tubing	ML	2,500	26,833	5,825	10.73	2.33		
817	Metal Grating	SM	1,200	39,234	2,796	32.70	2.33		
818	Close Wire Mesh (chain link)	ML	950	10,647	6,325	11.21	6.66		

BEST AVAILABLE DOCUMENT

Indirect Cost Multiplier F.C.	L.C.	Estimated Direct and Indirect Unit Cost F.C.	L.C.	Balanced Estimated Cost In Dollars F.C.	L.C.	Total Contract Estimated Cost In Dollars	Unit Bid Price
1.35	1.24	37.37	131.20	58,671	205,984	264,655	168.57
		9.55	4.55	63,985	30,485	94,470	14.10
		82.33	44.06	1,235	661	1,896	126.39
		92.44	47.80	6,286	3,250	9,536	140.24
		122.36	48.96	78,922	31,579	110,501	171.32
		131.06	52.70	29,489	11,857	41,346	183.76
		168.51	62.62	660,559	245,470	906,029	231.13
		23.08	12.28	43,852	23,332	67,184	35.36
		4.14	2.69	14,767	2,595	24,362	6.33
		8.45	4.77	8,873	5,008	13,881	13.22
		34.17	60.57	96,701	171,413	268,114	94.74
		59.74	85.11	285,916	407,336	693,252	144.85
		64.84	97.46	254,043	381,848	635,891	162.30
		122.09	135.41	152,613	169,262	321,875	257.50
		67.95	14.99	203,850	44,970	248,820-	82.94
		9.55	4.55	52,525	25,025	77,550	14.10
		355.78	160.33	1,364,061	614,705	1,978,766	516.11
		38.24	18.41	211,085	101,623	312,708	56.65
		82.59	7.44	531,880	47,914	579,794	90.03
		0.90	0.36	1,902,920	761,168	2,664,088	1.26
		36.58	89.78	35,666	87,535	123,201	126.36
		59.32	96.60	65,845	107,226	173,071	135.92
		14.27	2.89	35,675	7,225	42,900	17.16
		43.49	2.89	52,188	3,468	55,656	46.38
		14.91	8.26	14,165	7,847	22,012	23.17
		Sub-Total		4,225,772	3,505,786	2,731,558	

SUMMARY SHEET 5

COST ESTIMATE

LYON

Lattakia Kassab (Syria)

Summary: Horizontal Distribution of Currency Requirements SJB

Item	Description	Unit	Quantity	Estimated Total Direct Cost F.C.	Estimated Total Direct Cost L.C.	Estimated Unit Cost F.C.	Estimated Unit Cost L.C.	Indirect Cost Multiplier F.C.	Indirect Cost Multiplier L.C.
901	Fencing	KM	96	259,392	158,160	2,702.	1,647.50	1.33	1.24
902	Guard Rail	ML	9,700	230,763	48,015	23.79	4.95	"	"
903	Road Signs Small	Ea.	413	15,653	13,299	37.90	32.20	"	"
904	Road Signs Medium	Ea.	116	11,797	8,456	101.70	72.90	"	"
905	Road Signs Large	Ea.	44	9,756	4,179	221.70	95.00	"	"
1001	Housing Staff		L.S.	121,650	849,880			"	"
1101	Project Offices		L.S.	40,450	164,150			"	"
1102	Soil & Material Lab.		L.S.	60,000	30,240			"	"
1103	Vehicles for Engineers		L.S.	58,580				"	"
1104	Operate & Maintain Vehicles for Engineers	Veh. Mo.	170	19,074	132,770			"	"
1201	Truck Weighing Scales		L.S.	20,000					
1202	Paint Dashed Center Line	KM	64.40	6,169	8,475	95.80	131.60	"	"
1203	Paint Solid Edge Line	KM	128.20	20,256	21,217	158.00	165.50	"	"
									Sub-T
									Sub-Tot
									Sub-Tot
									Sub-Tot
									TOTAL E (Less L

BEST AVAILABLE DOCUMENT

ect Cost tiplier L.C.	Estimated Direct And Indirect Unit Cost F.C.	L.C.	Balanced Estimated Cost In Dollars F.C.	L.C.	Total Contract Estimated Cost In Dollars	Unit Bid Price
.33 1.24	3,593.66	2,042.90	344,991	196,118	541,109	5,636.55
"	31.64	6.14	306,908	59,558	366,466	37.78
"	50.41	39.93	20,818	16,490	37,308	90.33
"	135.26	90.40	15,690	10,486	26,176	225.66
"	294.86	117.80	12,974	5,183	18,157	412.66
"			161,795	1,053,851	1,215,646	L.S.
"			53,798	203,546	257,344	L.S.
"			79,800	37,498	117,298	L.S.
"			77,911	-	77,911	L.S.
"			25,368	164,635	190,003	1,117.66
			26,600	-	26,600	L.S.
"	127.41	163.18	8,205	10,509	18,714	290.59
"	210.14	205.22	26,940	26,309	53,249	415.36
Sub-Total			1,161,798	1,784,183	2,945,981	
Sub-Total - Sheet No. 1			16,172,258	6,691,583	22,863,841	
Sub-Total - Sheet No. 2			6,225,772	3,505,786	9,731,558	
Sub-Total - Sheet No. 3			1,161,798	1,784,183	2,945,981	
TOTAL ESTIMATED PROJECT COST (Less Land & Engineering)			23,559,828	11,981,552	35,541,380	

BEST AVAILABLE DOCUMENT

SUMMARY SHEET 6
COST ESTIMATE

LYON

ITEM SUMMARY — Analysis

ITEM NO.

Sheet No.

Project: Lattakia - Kassab Highway

Date: 1/4/79

Location: Syria

Estimator: KR

Description: Appropriation of Land & Buildings
Estimated Cost (In Syria Pounds)

Bid Quantity: USE 275 Ha.

Est. Quantity: 250.5 Ha.

Operation	Move In	CO. Rent	Other Rent	Repairs	FOG	ST&S	Perm. Matl.	Lab.	Ins.	Sub. Conts.	Total
				%		Ha.		Value		Total	
Cultivated Irrigated Land				8%		22		150,000		3,300,000	
Cultivated Non-Irrigated Land				6%		16.5		120,000		1,980,000	
Fruit & Olive Grove, Prime				5%		13.7		60,000		822,000	
Fruit & Olive Grove, Marginal				7%		19.3		40,000		772,000	
Timber Land				30%		82.5		25,000		2,062,500	
Uncultivated Land				14		38.5		15,000		577,500	
Waste Land & Grazing				30		82.5		5,000		412,500	
Buildings										1,197,000	
			Est. Total Syrian Pounds							11,121,500	
			Total U.S. Dollars							2,852,180	
Total Cost per											

Remarks: Estimated Total Buildings = 57

Estimated Average Area Per Building = $70m^2$

Estimated Average Value Per M^2 = S.P. 300

Therefore:

Building Value = 57 x 70 x 300 = S.P. 1,197,000

Note U.S. $1.00 = S.P. 3.90

ITEM SUMMARY — Analysis

ITEM NO.

Sheet No.

Project Lattakia - Kassab

Date 1/6/79

Location Syria

Summary

Estimator KR

Description Direct and Indirect Costs
Horizontal Balanced Bid Factors
Foreign and Syrian Currency

Bid Quantity

Est. Quantity

In Dollars

Operation	Move In	CO. Rent	Other Rent	Repairs	FOG	ST&S	Perm. Matl.	Lab.	Ins.	Sub. Conts.	Total
		Foreign			Syrian				Total		
Total Direct Cost		17,696,665			9,704,701				27,401,366		
Total Indirect Cost		4,150,788			3,012,618				7,163,406		
Sub-Total		21,847,453			12,717,319				34,564,772		
Less Mobilization (Item 101)		2,866,220			1,028,000				3,894,220		
Sub-Total		18,981,233			11,689,319				30,670,552		
Contingency											
1½% F.C.		284,718							284,718		
2½% L.C.					292,233				292,233		
Overhead & Margin											
14% (30, 670, 552)		4,293,877							4,293,877		
Total Construction Cost		23,559,828			11,981,552				35,541,380		
Less Land & Engineering)											
Total Cost per											

Balanced Bid Multipliers (By Currency)

Remarks:

U.S. Dollar Cost (F.C.) $= 1 + \frac{23,559,828 - 17,696,665}{17,696,665} = 1 + .33 = 1.33$

Syrian Pound Cost (L.C.) $= 1 + \frac{11,981,552 - 9,704,701}{9,704,701} = 1 + .24 = 1.24$

SUMMARY SHEET 7
COST ESTIMATE

LYON

L Y O N A S S O C I A T E S , I N C .

LATTAKIA-KASSAB, PRESENT LOAD PRACTICE

ROAD SECTION TOTAL

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
	CATEGORY NO. 10					
1001	RIGHT-OF-WAY	1.	LS	2852180.00	2852.180	
1002	RELOCATE UTILITIES	1.	LS	364560.00	364.560	
	CATEGORY NO. 10 SUB-TOTAL					3216.740
	CATEGORY NO. 20					
2001	SUB BASE	60910.	CM	17.56	1070.798	
2002	BASE	107000.	CM	21.35	2284.450	
2003	PRIME COAT	485000.	SM	0.24	116.400	
2004	BINDER COURSE	24500.	MT	24.09	590.205	
2005	SURFACE COURSE	60600.	MT	28.65	1736.190	
2006	FINISH AND STABILIZE SHOULDERS	14450.	CM	22.10	319.345	
2007	EROSION CONTROL SEEDING	110.	HA	779.26	86.108	
	CATEGORY NO. 20 SUB-TOTAL					6203.496
	CATEGORY NO. 30					
3001	CLEAR AND GRUB	250.	HA	591.86	148.281	
3002	STRIP	46550.	CM	1.16	53.953	
3003	COMMONEXCAVATION	3479000.	CM	1.38	4801.020	
3004	ROCK EXCAVATION	51000.	CM	4.11	209.610	
3005	BORROW	734000.	CM	1.27	932.180	
3006	OVER-HAUL	1524000.	ST.M	0.10	152.400	
3007	EMBANKMENT	3034000.	CM	0.83	2518.220	
3008	REMOVE UNSUITABLE MATERIAL	41850.	CM	1.17	48.906	
3009	SELECT FILL	127600.	CM	19.31	2463.956	
	CATEGORY NO. 30 SUB-TOTAL					11328.551
	CATEGORY NO. 40					
4001	CONCRETE HEAD WALLS	1570.	CM	168.57	264.655	
4002	STONE RIPRAP	6700.	CM	14.10	94.470	
4003	REINFORCED CONCRETE PIPE 60 CM	15.	ML	126.39	1.896	
4004	REINFORCED CONCRETE PIPE 80 CM	68.	ML	140.24	9.536	
4005	REINFORCED CONCRETE PIPE 100 CM	645.	ML	171.32	110.501	
4006	REINFORCED CONCRETE PIPE 120 CM	225.	ML	183.76	41.346	
4007	FENCING	96.	KM	5636.55	541.109	
4008	GUARD RAIL	9700.	ML	37.78	366.466	
4009	ROAD SIGNS SMALL	413.	EA	90.33	37.306	
4010	ROAD SIGNS MEDIUM	116.	EA	225.66	26.177	
4011	ROAD SIGNS LARGE	44.	EA	412.66	18.157	
4012	TRUCK WEIGHING SCALES	1.	LS	26600.00	26.600	
	CATEGORY NO. 40 SUB-TOTAL					1538.219

LYON ASSOCIATES, INC.

LATTAKIA-KASSAB, PRESENT LOAD PRACTICE

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
	CATEGORY NO. 50					
5001	BRIDGE HAND RAIL	1900.	LM	35.36	67.184	
5002	STRUCTURAL EXCAVATION	3567.	CM	6.83	24.363	
5003	STRUCTURAL EXCAVATION, ROCK	1050.	CM	13.22	13.881	
5004	CONCRETE-BRIDGE FOOTINGS	2830.	CM	94.74	268.114	
5005	CONCRETE-BRIDGE SUB STRUCTURE	4786.	CM	144.85	693.252	
5006	CONCRETE-BRIDGE SUPER STRUCTURE	3918.	CM	162.30	635.891	
5007	CONCRETE-SLOPE PROTECTION	1250.	CM	257.50	321.875	
5008	PRESTRESSED I-BEAMS	3834.	CM	516.11	1978.766	
5009	POINT PILES	6440.	ML	90.03	579.793	
5010	PRESTRESSED PILING 30 CM	5520.	ML	56.85	312.708	
5011	REINFORCING STEEL	2114355.	KG	1.26	2664.087	
5012	CONCRETE-BOX CULVERTS	3920.	CM	231.13	906.030	
5013	CONCRETE RETAINING WALL FOOTINGS	975.	CM	126.36	123.201	
5014	CONCRETE RETAINING WALL STEMS	1110.	CM	155.92	173.071	
5015	GABION RETAINING WALLS	3000.	CM	82.94	248.820	
5016	STONE RIPRAP	5500.	CM	14.10	77.550	
5017	STRUCT. STEEL TUBING	2500.	ML	17.16	42.900	
5018	METAL GRATING	1200.	SM	46.38	55.656	
5019	CLOSE WIRE MESH	950.	ML	23.17	22.012	
	CATEGORY NO. 50 SUB-TOTAL					9209.154
	CATEGORY NO. 60					
6001	CONSTRUCT PROJECT OFFICES	1.	LS	257344.00	257.344	
6002	CONSTRUCT AND EQUIP LABORATORY	1.	LS	117298.00	117.298	
6003	CONSTRUCT HOUSING	1.	LS	1215646.00	1215.646	
6004	MOBILIZATION	1.	LS	5070185.00	5070.185	
	CATEGORY NO. 60 SUB-TOTAL					6660.473
	CATEGORY NO. 70					
7001	PAINTING-DASHED CENTER LINE	64.	KM	290.59	18.714	
7002	PAINTING-SOLID EDGE LINE	128.	KM	415.36	53.249	
7003	VEHICLES FOR ENGINEERS	1.	LS	77911.00	77.911	
7004	OPERATE & MAINTAIN VEHICLES FOR ENGINEERS	1.	LS	190003.00	190.003	
	CATEGORY NO. 70 SUB-TOTAL					339.877
	GRAND TOTAL					38496.510

TABLE I
COST ESTIMATE

LYON

BEST AVAILABLE DOCUMENT

LYON ASSOCIATES, INC.

LATTAKIA-KASAAB PRESENT LOAD PRACTICE

ROAD SECTION 1

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)
	CATEGORY NO. 10				
1001	RIGHT-OF-WAY	1.	LS	810019.00	810.019
1002	RELOCATE UTILITIES	1.	LS	103535.00	103.535
	CATEGORY NO. 10 SUB-TOTAL				913.554
	CATEGORY NO. 20				
2001	SUB BASE	47960.	CM	17.58	843.137
2002	BASE	49600.	CM	21.35	1058.960
2003	PRIME COAT	218400.	SM	0.24	52.416
2004	BINDER COURSE	24500.	MT	24.09	590.205
2005	SURFACE COURSE	27300.	MT	28.65	782.145
2006	FINISH AND STA-BILIZE SHOULDERS	6000.	CM	22.10	132.600
2007	EROSION CONTROL SEEDING	41.	HA	779.26	32.106
	CATEGORY NO. 20 SUB-TOTAL				3491.569
	CATEGORY NO. 30				
3001	CLEAR AND GRUB	93.	HA	591.86	55.339
3002	STRIP	17350.	CM	1.16	20.126
3003	COMMONEXCAVATION	335500.	CM	1.38	462.990
3004	ROCK EXCAVATION	1000.	CM	4.11	4.110
3005	BORROW	460000.	CM	1.27	584.200
3006	OVER-HAUL	134000.	ST.M	0.10	13.400
3007	EMBANKMENT	851500.	CM	0.83	706.745
3008	REMOVE UNSUIT-ABLE MATERIAL	15600.	CM	1.17	18.252
3009	SELECT FILL	42000.	CM	19.31	811.020
	CATEGORY NO. 30 SUB-TOTAL				2676.182
	CATEGORY NO. 40				
4001	CONCRETE HEAD WALLS	230.	CM	168.57	38.771
4002	STONE RIPRAP	1900.	CM	14.10	26.790
4003	REINFORCED CONCRETE PIPE 40 CM	0.	ML	126.39	0.000
4004	REINFORCED CONCRETE PIPE 60 CM	50.	ML	140.24	7.012
4005	REINFORCED CONCRETE PIPE 100 CM	154.	ML	171.32	26.383
4006	REINFORCED CONCRETE PIPE 120 CM	0.	ML	183.76	0.000
4007	FENCING	27.	KM	5636.55	153.678
4008	GUARD RAIL	2750.	ML	37.78	103.895
4009	ROAD SIGNS SMALL	158.	EA	90.33	14.272
4010	ROAD SIGNS MEDIUM	44.	EA	225.66	9.929
4012	ROAD SIGNS LARGE	20.	EA	412.66	8.253
4012	TRUCK WEIGHING SCALES	1.	LS	7554.00	7.554
	CATEGORY NO. 40 SUB-TOTAL				396.737

LATTAKI

ITEM NO.	ITEM DESCRIPTI
	CATEGORY NO. 5
5001	BRIDGE HAND RA
5002	STRUCTURAL EXCAVATION
5003	STRUCTURAL EXCAVATION,ROC
5004	CONCRETE-BRIDG FOOTINGS
5005	CONCRETE-BRIDG SUB STRUCTURE
5006	CONCRETE-BRIDG SUPER STRUCTUR
5007	CONCRETE-SLOPE PROTECTION
5008	PRESTRESSED I-BEAMS
5009	PRESTRESSED PILING 30 CM
5010	POINT BEARING PILES
5011	REINFORCING STEEL
5012	CONCRETE-BOX CULVERTS
5013	CONCRETE RETAINING WALL FOOTINGS
5014	CONCRETE RETAINING WALL STEMS
5015	GABION RETAINI WALLS
5016	STONE RIPRAP
5017	STRUCT. STEEL TUBING
5018	METAL GRATING
5019	CLOSE WIRE MES
	CATEGORY NO. 6
6001	CONSTRUCT PROJECT OFFICE
6002	CONSTRUCT AND EQUIP LABORATO
6003	CONSTRUCT HOUSING
6004	MOBILIZATION
	CATEGORY NO. 7
7001	PAINTING-DASHE CENTER LINE
7002	PAINTING-SOLID EDGE LINE
7003	VEHICLES FOR ENGINEERS
7004	OPERATE & MAIN TAIN VEHICLES FOR ENGINEERS

L Y O N A S S O C I A T E S , I N C .

LATTAKIA-KASAAB PRESENT LOAD PRACTICE

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
CATEGORY NO. 50					
BRIDGE HAND RAIL	420.	LM	35.36	14.851	
STRUCTURAL EXCAVATION	1249.	CM	6.83	8.531	
STRUCTURAL EXCAVATION,ROCK	294.	CM	13.22	3.887	
CONCRETE-BRIDGE FOOTINGS	1164.	CM	94.74	110.277	
CONCRETE-BRIDGE SUB STRUCTURE	1240.	CM	144.85	179.614	
CONCRETE-BRIDGE SUPER STRUCTURE	1653.	CM	162.30	268.282	
CONCRETE-SLOPE PROTECTION	450.	CM	257.50	115.875	
PRESTRESSED -BEAMS	1144.	CM	516.11	590.430	
PRESTRESSED PILING 30 CM	3685.	ML	56.65	208.472	
POINT BEARING PILES	1840.	ML	90.03	165.655	
REINFORCING STEEL	531027.	KG	1.26	669.094	
CONCRETE-BOX CULVERTS	1871.	CM	231.13	432.444	
CONCRETE RETAINING WALL FOOTINGS	175.	CM	126.36	22.113	
CONCRETE RETAINING WALL STEMS	200.	CM	155.92	31.184	
GABION RETAINING WALLS	600.	CM	82.94	49.764	
STONE RIPRAP	1500.	CM	14.10	21.150	
STRUCT. STEEL TUBING	780.	ML	17.16	13.385	
METAL GRATING	375.	SM	46.38	17.393	
CLOSE WIRE MESH	350.	ML	23.17	8.110	
	CATEGORY NO. 50 SUB-TOTAL				2930.511
CATEGORY NO. 60					
CONSTRUCT PROJECT OFFICES	1.	LS	73086.00	73.086	
CONSTRUCT AND EQUIP LABORATORY	1.	LS	33313.00	33.313	
CONSTRUCT HOUSING	1.	LS	345243.00	345.243	
MOBILIZATION	1.	LS	1439933.00	1439.933	
	CATEGORY NO. 60 SUB-TOTAL				1891.575
CATEGORY NO. 70					
PAINTING-DASHED CENTER LINE	26.	KM	290.59	7.701	
PAINTING-SOLID EDGE LINE	57.		415.36	23.925	
VEHICLES FOR ENGINEERS	1.	LS	22127.00	22.127	
OPERATE & MAIN-TAIN VEHICLES FOR ENGINEERS	1.	LS	53961.00	53.961	
	CATEGORY NO. 70 SUB-TOTAL				107.714
	GRAND TOTAL				12407.842

TABLE 2

COST ESTIMATE

LYON

L Y O N A S S O C I A T E S , I N C .

LATTAKIA-KASSAB, PRESENT LOAD PRACTICE

ROAD SECTION 2

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
	CATEGORY NO. 10					
1001	RIGHT-OF-WAY	1.	LS	1041046.00	1041.046	
1002	RELOCATE UTILITIES	1.	LS	133064.00	133.064	
	CATEGORY NO. 10 SUB-TOTAL					1174.110
	CATEGORY NO. 20					
2001	SUB BASE	1900.	CM	17.58	33.402	
2002	BASE	38200.	CM	21.35	815.570	
2003	PRIME COAT	142900.	SM	0.24	34.296	
2004	BINDER COURSE	0.	MT	24.09	0.000	
2005	SURFACE COURSE	17850.	MT	28.65	511.403	
2006	FINISH AND STABILIZE SHOULDERS	5450.	CM	22.10	120.445	
2007	EROSION CONTROL SEEDING	35.	HA	779.26	27.508	
	CATEGORY NO. 20 SUB-TOTAL					1542.624
	CATEGORY NO. 30					
3001	CLEAR AND GRUB	80.	HA	591.86	47.349	
3002	STRIP	14900.	CM	1.16	17.284	
3003	COMMONEXCAVATION	1470500.	CM	1.38	2029.290	
3004	ROCK EXCAVATION	25000.	CM	4.11	102.750	
3005	BORROW	137000.	CM	1.27	173.990	
3006	OVER-HAUL	989000.	ST.M	0.10	98.900	
3007	EMBANKMENT	1190500.	CM	0.83	988.115	
3008	REMOVE UNSUITABLE MATERIAL	13350.	CM	1.17	15.620	
3009	SELECT FILL	50000.	CM	19.31	965.500	
	CATEGORY NO. 30 SUB-TOTAL					
	CATEGORY NO. 40					
4001	CONCRETE HEAD WALLS	914.	CM	168.57	154.157	
4002	STONE RIPRAP	2450.	CM	14.10	34.545	
4003	REINFORCED CONCRETE PIPE 60 CM	0.	ML	126.39	0.000	
4004	REINFORCED CONCRETE PIPE 80 CM	18.	ML	140.24	2.524	
4005	REINFORCED CONCRETE PIPE 100 CM	246.	ML	171.32	42.145	
4006	REINFORCED CONCRETE PIPE 120 CM	128.	ML	183.76	23.521	
4007	FENCING	35.	KM	5636.55	197.279	
4008	GUARD RAIL	3550.	ML	37.78	134.119	
4009	ROAD SIGNS SMALL	128.	EA	90.33	11.562	
4010	ROAD SIGNS MEDIUM	36.	EA	225.66	8.124	
4011	ROAD SIGNS LARGE	12.	EA	412.66	4.952	
4012	TRUCK WEIGHING SCALES	1.	LS	9709.00	9.709	
	CATEGORY NO. 40 SUB-TOTAL					

LYON ASSOCIATES, INC.

LATTAKIA-KASSAB, PRESENT LOAD PRACTICE

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
	CATEGORY NO. 50					
5001	BRIDGE HAND RAIL	1350.	LM	35.36	47.736	
5002	STRUCTURAL EXCAVATION	2098.	CM	6.83	14.329	
5003	STRUCTURAL EXCAVATION, ROCK	378.	CM	13.22	4.997	
5004	CONCRETE-BRIDGE FOOTINGS	1503.	CM	94.74	142.394	
5005	CONCRETE-BRIDGE SUB STRUCTURE	3205.	CM	144.85	464.244	
5006	CONCRETE-BRIDGE SUPER STRUCTURE	2084.	CM	162.30	338.233	
5007	CONCRETE-SLOPE PROTECTION	650.	CM	257.50	167.375	
5008	PRESTRESSED I-BEAMS	2400.	CM	516.11	1238.664	
5009	POINT PILES	3680.	ML	90.03	331.310	
5010	PRESTRESSED PILING 30CM	1840.	ML	56.65	104.236	
5011	REINFORCING STEEL	1339455.	KG	1.26	1687.713	
5012	CONCRETE-BOX CULVERTS	1156.	CM	231.13	267.186	
5013	CONCRETE RETAINING WALL FOOTINGS	500.	CM	126.36	63.180	
5014	CONCRETE RETAINING WALL STEMS	510.	CM	155.92	79.519	
5015	GABION RETAINING WALLS	1600.	CM	82.94	132.704	
5016	STONE RIPRAP	3000.	CM	14.10	42.300	
5017	STRUCTU. STEEL TUBING	1570.	ML	17.16	26.941	
5018	METAL GRATING	750.	SM	46.38	34.785	
5019	CLOSE WIRE MESH	500.	ML	23.17	11.585	
	CATEGORY NO. 50 SUB-TOTAL					5199.431
	CATEGORY NO. 60					
6001	CONSTRUCT PROJECT OFFICES	1.	LS	93931.00	93.931	
6002	CONSTRUCT AND EQUIP LABORATORY	1.	LS	42814.00	42.814	
6003	CONSTRUCT HOUSING	1.	LS	443711.00	443.711	
6004	MOBILIZATION	1.	LS	1850617.00	1850.617	
	CATEGORY NO. 60 SUB-TOTAL					2431.073
	CATEGORY NO. 70					
7001	PAINTING-DASHED CENTER LINE	20.	KM	290.59	5.986	
7002	PAINTING-SOLID EDGE LINE	36.	KM	415.36	14.953	
7003	VEHICLES FOR ENGINEERS	1.	LS	28437.00	28.437	
7004	OPERATE & MAINTAIN VEHICLES FOR ENGINEERS	1.	LS	69351.00	69.351	
	CATEGORY NO. 70 SUB-TOTAL					118.727
	GRAND TOTAL					13527.400

TABLE 3

COST ESTIMATE

LYON

LYON ASSOCIATES, INC.

LATTAKIA-KASSAB, PRESENT LOAD PRACTICE

ROAD SECTION 3

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
	CATEGORY NO. 10					
1001	RIGHT-OF-WAY	1.	LS	1001119.00	1001.119	
1002	RELOCATE UTILITIES	1.	LS	127961.00	127.961	
	CATEGORY NO. 10 SUB-TOTAL					1129.076
	CATEGORY NO. 20					
2001	SUB BASE	11030.	CM	17.58	194.239	
2002	BASE	19200.	CM	21.35	409.920	
2003	PRIME COAT	123700.	SM	0.24	29.688	
2004	BINDER COURSE	0.	MT	24.09	0.000	
2005	SURFACE COURSE	15450.	MT	28.65	442.643	
2006	FINISH AND STABILIZE SHOULDERS	3000.	CM	22.10	66.300	
2007	EROSION CONTROL SEEDING	34.	HA	779.26	26.495	
	CATEGORY NO. 20 SUB-TOTAL					1169.305
	CATEGORY NO. 30					
3001	CLEAR AND GRUB	77.	HA	591.86	45.573	
3002	STRIP	14300.	CM	1.16	16.588	
3003	COMMONEXCAVATION	1673000.	CM	1.38	2306.740	
3004	ROCK EXCAVATION	25000.	CM	4.11	102.750	
3005	BORROW	137000.	CM	1.27	173.990	
3006	OVER-HAUL	401000.	ST.M	0.10	40.100	
3007	EMBANKMENT	992000.	CM	0.83	823.360	
3008	REMOVE UNSUITABLE MATERIAL	12850.	CM	1.17	15.035	
3009	SELECT FILL	35600.	CM	19.31	687.436	
	CATEGORY NO. 30 SUB-TOTAL					4213.572
	CATEGORY NO. 40					
4001	CONCRETE HEAD WALLS	425.	CM	168.57	71.727	
4002	STONE RIPRAP	2350.	CM	14.10	33.135	
4003	REINFORCED CONCRETE PIPE 60 CM	15.	ML	126.39	1.896	
4004	REINFORCED CONCRETE PIPE 80 CM	0.	ML	140.24	0.000	
4005	REINFORCED CONCRETE PIPE 100 CM	245.	ML	171.32	41.973	
4006	REINFORCED CONCRETE PIPE 120 CM	97.	ML	183.76	17.825	
4007	FENCING	33.	KM	5636.55	189.952	
4008	GUARD RAIL	3400.	ML	37.78	128.452	
4009	ROAD SIGNS SMALL	127.	EA	90.33	11.472	
4010	ROAD SIGNS MEDIUM	36.	EA	225.66	8.124	
4011	ROAD SIGNS LARGE	12.	EA	412.66	4.952	
4012	TRUCK WEIGHING SCALES	1.	LS	9337.00	9.337	
	CATEGORY NO. 40 SUB-TOTAL					518.845

LYON ASSOCIATES, INC.

LATTAKIA-KASSAB, PRESENT LOAD PRACTICE

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
	CATEGORY NO. 50					
5001	BRIDGE HAND RAIL	130.	LM	35.36	4.597	
5002	STRUCTURAL EXCAVATION	220.	CM	6.83	1.503	
5003	STRUCTURAL EXCAVATION, ROCK	378.	CM	13.22	4.997	
5004	CONCRETE-BRIDGE FOOTINGS	163.	CM	94.74	15.443	
5005	CONCRETE-BRIDGE SUB STRUCTURE	341.	CM	144.85	49.394	
5006	CONCRETE-BRIDGE SUPER STRUCTURE	181.	CM	162.30	29.376	
5007	CONCRETE-SLOPE PROTECTION	150.	CM	257.50	38.625	
5008	PRESTRESSED I-BEAMS	290.	CM	516.11	149.672	
5009	POINT PILES	920.	ML	90.03	82.828	
5010	PRESTRESSED PILING 30 CM	0.	ML	56.65	0.000	
5011	REINFORCING STEEL	243873.	KG	1.26	307.280	
5012	CONCRETE-BOX CULVERTS	893.	CM	231.13	206.399	
5013	CONCRETE RETAINING WALL FOOTINGS	300.	CM	126.36	37.908	
5014	CONCRETE RETAINING WALL STEMS	400.	CM	155.92	62.368	
5015	GABION RETAINING WALLS	800.	CM	82.94	66.352	
5016	STONE RIPRAP	1000.	CM	14.10	14.100	
5017	STRUCT. STEEL TUBING	150.	ML	17.16	2.574	
5018	METAL GRATING	75.	SM	46.38	3.479	
5019	CLOSE WIRE MESH	100.	ML	23.17	2.317	
		CATEGORY NO. 50 SUB-TOTAL				1079.212
	CATEGORY NO. 60					
6001	CONSTRUCT PROJECT OFFICES	1.	LS	90327.00	90.327	
6002	CONSTRUCT AND EQUIP LABORATORY	1.	LS	41171.00	41.171	
6003	CONSTRUCT HOUSING	1.	LS	426692.00	426.692	
6004	MOBILIZATION	1.	LS	1779635.00	1779.635	
		CATEGORY NO. 60 SUB-TOTAL				2337.825
	CATEGORY NO. 70					
7001	PAINTING-DASHED CENTER LINE	17.	KM	290.59	5.027	
7002	PAINTING-SOLID EDGE LINE	34.	KM	415.36	14.371	
7003	VEHICLES FOR ENGINEERS	1.	LS	27347.00	27.347	
7004	OPERATE & MAINTAIN VEHICLES FOR ENGINEERS	1.	LS	66691.00	66.691	
		CATEGORY NO. 70 SUB-TOTAL				113.436
				GRAND TOTAL		10561.271

AVAILABLE DOCUMENT

TABLE 4

COST ESTIMATE

LYON

LYON ASSOCIATES, INC.

LATTAKIA-KASSAB, LEGAL LOAD LIMIT ENFORCED

ROAD SECTION TOTAL

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
	CATEGORY NO. 10					
1001	RIGHT-OF-WAY	1.	LS	2852180.00	2852.180	
1002	RELOCATE UTILITIES	1.	LS	364560.00	364.560	
	CATEGORY NO. 10 SUB-TOTAL					3216.740
	CATEGORY NO. 20					
2001	SUB BASE	60910.	CM	17.58	1070.798	
2002	BASE	116000.	CM	21.35	2476.600	
2003	PRIME COAT	485000.	SM	0.24	116.400	
2004	BINDER COURSE	12250.	MT	24.09	295.103	
2005	SURFACE COURSE	60600.	MT	28.65	1736.190	
2006	FINISH AND STABILIZE SHOULDERS	14450.	CM	22.10	319.345	
2007	EROSION CONTROL SEEDING	110.	HA	779.26	86.108	
	CATEGORY NO. 20 SUB-TOTAL					6100.544
	CATEGORY NO. 30					
3001	CLEAR AND GRUB	250.	HA	591.86	148.261	
3002	STRIP	46550.	CM	1.16	53.998	
3003	COMMONEXCAVATION	3479000.	CM	1.38	4801.020	
3004	ROCK EXCAVATION	51000.	CM	4.11	209.610	
3005	BORROW	734000.	CM	1.27	932.180	
3006	OVER-HAUL	1524000.	ST.M	0.10	152.400	
3007	EMBANKMENT	3034000.	CM	0.83	2518.220	
3008	REMOVE UNSUITABLE MATERIAL	41800.	CM	1.17	48.906	
3009	SELECT FILL	127600.	CM	19.31	2463.956	
	CATEGORY NO. 30 SUB-TOTAL					11328.531
	CATEGORY NO. 40					
4001	CONCRETE HEAD WALLS	1570.	CM	168.57	244.655	
4002	STONE RIPRAP	6700.	CM	14.10	94.470	
4003	REINFORCED CONCRETE PIPE 60 CM	15.	ML	126.39	1.896	
4004	REINFORCED CONCRETE PIPE 80 CM	68.	ML	140.24	9.536	
4005	REINFORCED CONCRETE PIPE 100 CM	645.	ML	171.32	110.501	
4006	REINFORCED CONCRETE PIPE 120 CM	225.	ML	183.76	41.346	
4007	FENCING	96.	KM	5636.55	541.109	
4008	GUARD RAIL	9700.	ML	37.78	366.446	
4009	ROAD SIGNS SMALL	413.	EA	90.33	37.306	
4010	ROAD SIGNS MEDIUM	116.	EA	225.66	26.177	
4011	ROAD SIGNS LARGE	44.	EA	412.66	18.157	
4012	TRUCK WEIGHING SCALES	1.	LS	26600.00	26.600	
	CATEGORY NO. 40 SUB-TOTAL					1538.219

BEST AVAILABLE DOCUMENT

LYON ASSOCIATES, INC.

LATTAKIA-KASSAB, LEGAL LOAD LIMIT ENFORCED

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)
	CATEGORY NO. 50				
5001	BRIDGE HAND RAIL	1900.	LM	35.36	67.184
5002	STRUCTURAL EXCAVATION	3567.	CM	6.83	24.363
5003	STRUCTURAL EXCAVATION, ROCK	1050.	CM	13.22	13.881
5004	CONCRETE-BRIDGE FOOTINGS	2830.	CM	94.74	268.114
5005	CONCRETE-BRIDGE SUB STRUCTURE	4786.	CM	144.85	693.252
5006	CONCRETE-BRIDGE SUPER STRUCTURE	3918.	CM	162.30	635.891
5007	CONCRETE-SLOPE PROTECTION	1250.	CM	257.50	321.875
5008	PRESTRESSED I-BEAMS	3834.	CM	516.11	1978.766
5009	POINT PILES	6440.	ML	90.03	579.793
5010	PRESTRESSED PILING 30 CM	5520.	ML	56.65	312.708
5011	REINFORCING STEEL	2114355.	KG	1.26	2664.087
5012	CONCRETE-BOX CULVERTS	3920.	CM	231.13	906.030
5013	CONCRETE RETAINING WALL FOOTINGS	975.	CM	126.36	123.201
5014	CONCRETE RETAINING WALL STEMS	1110.	CM	155.92	173.071
5015	GABION RETAINING WALLS	3000.	CM	62.94	248.820
5016	STONE RIPRAP	5500.	CM	14.10	77.550
5017	STRUCT. STEEL TUBING	2500.	ML	17.16	42.900
5018	METAL GRATING	1200.	SM	46.38	55.656
5019	CLOSE WIRE MESH	950.	ML	23.17	22.012
	CATEGORY NO. 50 SUB-TOTAL				9209.154
	CATEGORY NO. 60				
6001	CONSTRUCT PROJECT OFFICES	1.	LS	257344.00	257.344
6002	CONSTRUCT AND EQUIP LABORATORY	1.	LS	117298.00	117.298
6003	CONSTRUCT HOUSING	1.	LS	1215646.00	1215.646
6004	MOBILIZATION	1.	LS	5070185.00	5070.185
	CATEGORY NO. 60 SUB-TOTAL				6660.473
	CATEGORY NO. 70				
7001	PAINTING-DASHED CENTER LINE	64.	KM	290.59	18.714
7002	PAINTING-SOLID EDGE LINE	128.	KM	415.56	53.249
7003	VEHICLES FOR ENGINEERS	1.	LS	77911.00	77.911
7004	OPERATE & MAINTAIN VEHICLES FOR ENGINEERS	1.	LS	190003.00	190.003
	CATEGORY NO. 70 SUB-TOTAL				339.877
	GRAND TOTAL				5839[illegible].558

BEST AVAILABLE DOCUMENT

TABLE 5
COST ESTIMATE

LYON

L Y O N A S S O C I A T E S , I N C .

LATTAKIA-KASAAB LEGAL LOAD LIMIT ENFORCED

ROAD SECTION 1

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
	CATEGORY NO. 10					
1001	RIGHT-OF-WAY	1.	LS	810019.00	810.019	
1002	RELOCATE UTILITIES	1.	LS	103535.00	103.535	
		CATEGORY NO. 10 SUB-TOTAL				913.554
	CATEGORY NO. 20					
2001	SUB BASE	47960.	CM	17.58	843.137	
2002	BASE	58600.	CM	21.35	1251.110	
2003	PRIME COAT	218400.	SM	0.24	52.416	
2004	BINDER COURSE	12250.	MT	24.09	295.103	
2005	SURFACE COURSE	27300.	MT	28.65	782.145	
2006	FINISH AND STABILIZE SHOULDERS	6000.	CM	22.10	132.600	
2007	EROSION CONTROL SEEDING	41.	HA	779.26	32.106	
		CATEGORY NO. 20 SUB-TOTAL				3388.617
	CATEGORY NO. 30					
3001	CLEAR AND GRUB	93.	HA	591.86	55.339	
3002	STRIP	17350.	CM	1.16	20.126	
3003	COMMONEXCAVATION	335500.	CM	1.38	462.990	
3004	ROCK EXCAVATION	1000.	CM	4.11	4.110	
3005	BORROW	460000.	CM	1.27	584.200	
3006	OVER-HAUL	134000.	ST.M	0.10	13.400	
3007	EMBANKMENT	851500.	CM	0.83	706.745	
3008	REMOVE UNSUITABLE MATERIAL	15600.	CM	1.17	18.252	
3009	SELECT FILL	42000.	CM	19.31	811.020	
		CATEGORY NO. 30 SUB-TOTAL				2676.182
	CATEGORY NO. 40					
4001	CONCRETE HEAD WALLS	230.	CM	168.57	38.771	
4002	STONE RIPRAP	1900.	CM	14.10	26.790	
4003	REINFORCED CONCRETE PIPE 60 CM	0.	ML	126.39	0.000	
4004	REINFORCED CONCRETE PIPE 80 CM	50.	ML	140.24	7.012	
4005	REINFORCED CONCRETE PIPE 100 CM	154.	ML	171.32	26.383	
4006	REINFORCED CONCRETE PIPE 120 CM	0.	ML	183.76	0.000	
4007	FENCING	27.	KM	5636.55	153.878	
4008	GUARD RAIL	2750.	ML	37.78	103.895	
4009	ROAD SIGNS SMALL	158.	EA	90.33	14.272	
4010	ROAD SIGNS MEDIUM	44.	EA	225.66	9.929	
4012	ROAD SIGNS LARGE	20.	EA	412.64	8.253	
4012	TRUCK WEIGHING SCALES	1.	LS	7554.00	7.554	
		CATEGORY NO. 40 SUB-TOTAL				396.737

L Y O N A S S O C I A T E S , I N C .

LATTAKIA-KASAAB LEGAL LOAD LIMIT ENFORCED

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)
	CATEGORY NO. 50				
5001	BRIDGE HAND RAIL	420.	LM	35.36	14.851
5002	STRUCTURAL EXCAVATION	1249.	CM	6.83	8.531
5003	STRUCTURAL EXCAVATION,ROCK	294.	CM	13.22	3.887
5004	CONCRETE-BRIDGE FOOTINGS	1164.	CM	94.74	110.277
5005	CONCRETE-BRIDGE SUB STRUCTURE	1240.	CM	144.85	179.614
5006	CONCRETE-BRIDGE SUPER STRUCTURE	1653.	CM	162.30	268.282
5007	CONCRETE-SLOPE PROTECTION	450.	CM	257.50	115.875
5008	PRESTRESSED I-BEAMS	1144.	CM	516.11	590.430
5009	PRESTRESSED PILING 30 CM	3680.	ML	56.65	208.472
5010	POINT BEARING PILES	1840.	ML	90.03	165.655
5011	REINFORCING STEEL	531027.	KG	1.26	669.094
5012	CONCRETE-BOX CULVERTS	1871.	CM	231.13	432.444
5013	CONCRETE RETAINING WALL FOOTINGS	175.	CM	126.36	22.113
5014	CONCRETE RETAINING WALL STEMS	200.	CM	155.92	31.184
5015	GABION RETAINING WALLS	600.	CM	82.94	49.764
5016	STONE RIPRAP	1500.	CM	14.10	21.150
5017	STRUCT. STEEL TUBING	780.	ML	17.16	13.385
5018	METAL GRATING	375.	SM	46.38	17.393
5019	CLOSE WIRE MESH	350.	PL	23.17	8.110
	CATEGORY NO. 50 SUB-TOTAL				2930.511
	CATEGORY NO. 60				
6001	CONSTRUCT PROJECT OFFICES	1.	LS	73086.00	73.086
6002	CONSTRUCT AND EQUIP LABORATORY	1.	LS	33313.00	33.313
6003	CONSTRUCT HOUSING	1.	LS	345243.00	345.243
6004	MOBILIZATION	1.	LS	1439933.00	1439.933
	CATEGORY NO. 60 SUB-TOTAL				1891.575
	CATEGORY NO. 70				
7001	PAINTING-DASHED CENTER LINE	26.	KM	290.59	7.701
7002	PAINTING-SOLID EDGE LINE	57.		415.36	23.925
7003	VEHICLES FOR ENGINEERS	1.	LS	22127.00	22.127
7004	OPERATE & MAINTAIN VEHICLES FOR ENGINEERS	1.	LS	53961.00	53.961
	CATEGORY NO. 70 SUB-TOTAL				107.714
	GRAND TOTAL				12304.890

TABLE 6

COST ESTIMATE

LYON

LYON ASSOCIATES, INC.

LATTAKIA-KASSAB, LEGAL LOAD LIMIT ENFORCED

ROAD SECTION 2

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
	CATEGORY NO. 10					
1001	RIGHT-OF-WAY	1.	LS	1041046.00	1041.046	
1002	RELOCATE UTILITIES	1.	LS	133064.00	133.064	
	CATEGORY NO. 10 SUB-TOTAL					1174.110
	CATEGORY NO. 20					
2001	SUB BASE	1900.	CM	17.58	33.402	
2002	BASE	38200.	CM	21.35	815.570	
2003	PRIME COAT	142900.	SM	0.24	34.296	
2004	BINDER COURSE	0.	MT	24.09	0.000	
2005	SURFACE COURSE	17850.	MT	28.65	511.403	
2006	FINISH AND STABILIZE SHOULDERS	5450.	CM	22.10	120.445	
2007	EROSION CONTROL SEEDING	35.	HA	779.26	27.508	
	CATEGORY NO. 20 SUB-TOTAL					1542.624
	CATEGORY NO. 30					
3001	CLEAR AND GRUB	80.	HA	591.86	47.349	
3002	STRIP	14900.	CM	1.16	17.284	
3003	COMMONEXCAVATION	1470500.	CM	1.38	2029.290	
3004	ROCK EXCAVATION	25000.	CM	4.11	102.750	
3005	BORROW	137000.	CM	1.27	173.990	
3006	OVER-HAUL	989000.	ST.M	0.10	98.900	
3007	EMBANKMENT	1190500.	CM	0.83	988.115	
3008	REMOVE UNSUITABLE MATERIAL	13350.	CM	1.17	15.620	
3009	SELECT FILL	50000.	CM	19.31	965.500	
	CATEGORY NO. 30 SUB-TOTAL					4438.798
	CATEGORY NO. 40					
4001	CONCRETE HEAD WALLS	914.	CM	168.57	154.157	
4002	STONE RIPRAP	2450.	CM	14.10	34.545	
4003	REINFORCED CONCRETE PIPE 60 CM	0.	ML	126.39	0.000	
4004	REINFORCED CONCRETE PIPE 80 CM	18.	ML	140.24	2.524	
4005	REINFORCED CONCRETE PIPE 100 CM	246.	ML	171.32	42.145	
4006	REINFORCED CONCRETE PIPE 120 CM	128.	ML	183.76	23.521	
4007	FENCING	35.	KM	5636.55	197.279	
4008	GUARD RAIL	3550.	ML	37.78	134.119	
4009	ROAD SIGNS SMALL	128.	EA	90.33	11.562	
4010	ROAD SIGNS MEDIUM	36.	EA	225.66	8.124	
4011	ROAD SIGNS LARGE	12.	EA	412.66	4.952	
4012	TRUCK WEIGHING SCALES	1.	LS	9709.00	9.709	
	CATEGORY NO. 40 SUB-TOTAL					622.637

L Y O N A S S O C I A T E S , I N C .

LATTAKIA-KASSAB, LEGAL LOAD LIMIT ENFORCED

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)
	CATEGORY NO. 50				
5001	BRIDGE HAND RAIL	1350.	LM	35.36	47.736
5002	STRUCTURAL EXCAVATION	2098.	CM	6.83	14.329
5003	STRUCTURAL EXCAVATION, ROCK	378.	CM	13.22	4.997
5004	CONCRETE-BRIDGE FOOTINGS	1503.	CM	94.74	142.394
5005	CONCRETE-BRIDGE SUB STRUCTURE	3205.	CM	144.85	464.244
5006	CONCRETE-BRIDGE SUPER STRUCTURE	2084.	CM	162.30	338.233
5007	CONCRETE-SLOPE PROTECTION	650.	CM	257.50	167.375
5008	PRESTRESSED I-BEAMS	2400.	CM	516.11	1238.664
5009	POINT PILES	3680.	ML	90.03	331.310
5010	PRESTRESSED PILING 30CM	1840.	ML	56.65	104.236
5011	REINFORCING STEEL	1339455.	KG	1.26	1687.713
5012	CONCRETE-BOX CULVERTS	1156.	CM	231.13	267.186
5013	CONCRETE RETAINING WALL FOOTINGS	500.	CM	126.36	63.180
5014	CONCRETE RETAINING WALL STEMS	510.	CM	155.92	79.519
5015	GABION RETAINING WALLS	1600.	CM	82.94	132.704
5016	STONE RIPRAP	3000.	CM	14.10	42.300
5017	STRUCTU. STEEL TUBING	1570.	ML	17.16	26.941
5018	METAL GRATING	750.	SM	46.38	34.785
5019	CLOSE WIRE MESH	500.	ML	23.17	11.585
	CATEGORY NO. 50 SUB-TOTAL				5199.431
	CATEGORY NO. 60				
6001	CONSTRUCT PROJECT OFFICES	1.	LS	93931.00	93.931
6002	CONSTRUCT AND EQUIP LABORATORY	1.	LS	42814.00	42.814
6003	CONSTRUCT HOUSING	1.	LS	443711.00	443.711
6004	MOBILIZATION	1.	LS	1850617.00	1850.617
	CATEGORY NO. 60 SUB-TOTAL				2431.073
	CATEGORY NO. 70				
7001	PAINTING-DASHED CENTER LINE	20.	KM	290.59	5.986
7002	PAINTING-SOLID EDGE LINE	36.	KM	415.36	14.953
7003	VEHICLES FOR ENGINEERS	1.	LS	28437.00	28.437
7004	OPERATE & MAINTAIN VEHICLES FOR ENGINEERS	1.	LS	69351.00	69.351
	CATEGORY NO. 70 SUB-TOTAL				118.727
	GRAND TOTAL				15927.400

TABLE 7

COST ESTIMATE

LYON

L Y O N A S S O C I A T E S , I N C .

LATTAKIA-KASSAB, LEGAL LOADING ENFORCED

ROAD SECTION 3

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)
	CATEGORY NO. 10				
1001	RIGHT-OF-WAY	1.	LS	1001115.00	1001.115
1002	RELOCATE UTILITIES	1.	LS	127961.00	127.961
	CATEGORY NO. 10 SUB-TOTAL				1129.076
	CATEGORY NO. 20				
2001	SUB BASE	11050.	CM	17.58	194.259
2002	BASE	19200.	CM	21.35	409.920
2003	PRIME COAT	123700.	SM	0.24	29.688
2004	BINDER COURSE	0.	MT	24.09	0.000
2005	SURFACE COURSE	15450.	MT	28.65	442.643
2006	FINISH AND STABILIZE SHOULDERS	3000.	CM	22.10	66.300
2007	EROSION CONTROL SEEDING	34.	HA	779.26	26.495
	CATEGORY NO. 20 SUB-TOTAL				1169.305
	CATEGORY NO. 30				
3001	CLEAR AND GRUB	77.	HA	591.86	45.573
3002	STRIP	14300.	CM	1.16	16.588
3003	COMMONEXCAVATION	1673000.	CM	1.38	2308.740
3004	ROCK EXCAVATION	25000.	CM	4.11	102.750
3005	BORROW	137000.	CM	1.27	173.990
3006	OVER-HAUL	401000.	ST.M	0.10	40.100
3007	EMBANKMENT	992000.	CM	0.83	823.360
3008	REMOVE UNSUITABLE MATERIAL	12850.	CM	1.17	15.035
3009	SELECT FILL	35600.	CM	19.31	687.436
	CATEGORY NO. 30 SUB-TOTAL				4213.572
	CATEGORY NO. 40				
4001	CONCRETE HEAD WALLS	425.	CM	168.57	71.727
4002	STONE RIPRAP	2350.	CM	14.10	33.135
4003	REINFORCED CONCRETE PIPE 60 CM	15.	ML	126.39	1.896
4004	REINFORCED CONCRETE PIPE 80 CM	0.	ML	140.24	0.000
4005	REINFORCED CONCRETE PIPE 100 CM	245.	ML	171.32	41.973
4006	REINFORCED CONCRETE PIPE 120 CM	97.	ML	183.76	17.825
4007	FENCING	33.	KM	5636.55	189.952
4008	GUARD RAIL	3400.	ML	37.78	128.452
4009	ROAD SIGNS SMALL	127.	EA	90.33	11.472
4010	ROAD SIGNS MEDIUM	36.	EA	225.66	8.124
4011	ROAD SIGNS LARGE	12.	EA	412.66	4.952
4012	TRUCK WEIGHING SCALES	1.	LS	9337.00	9.337
	CATEGORY NO. 40 SUB-TOTAL				518.845

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LYON ASSOCIATES, INC.

LATTAKIA-KASSAB, LEGAL LOADING ENFORCED

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
	CATEGORY NO. 50					
5001	BRIDGE HAND RAIL	130.	LM	35.36	4.597	
5002	STRUCTURAL EXCAVATION	220.	CM	6.83	1.503	
5003	STRUCTURAL EXCAVATION, ROCK	378.	CM	13.22	4.997	
5004	CONCRETE-BRIDGE FOOTINGS	163.	CM	94.74	15.443	
5005	CONCRETE-BRIDGE SUB STRUCTURE	341.	CM	144.85	49.394	
5006	CONCRETE-BRIDGE SUPER STRUCTURE	181.	CM	162.30	29.376	
5007	CONCRETE-SLOPE PROTECTION	150.	CM	257.50	38.625	
5008	PRESTRESSED I-BEAMS	290.	CM	516.11	149.672	
5009	POINT PILES	920.	ML	90.03	82.828	
5010	PRESTRESSED PILING 30 CM	0.	ML	56.65	0.000	
5011	REINFORCING STEEL	243873.	KG	1.26	307.280	
5012	CONCRETE-BOX CULVERTS	893.	CM	231.13	206.399	
5013	CONCRETE RETAINING WALL FOOTINGS	300.	CM	126.36	37.908	
5014	CONCRETE RETAINING WALL STEMS	400.	CM	155.92	62.368	
5015	GABION RETAINING WALLS	800.	CM	82.94	66.352	
5016	STONE RIPRAP	1000.	CM	14.10	14.100	
5017	STRUCT. STEEL TUBING	150.	ML	17.16	2.574	
5018	METAL GRATING	75.	SM	46.38	3.479	
5019	CLOSE WIRE MESH	100.	ML	23.17	2.317	
	CATEGORY NO. 50 SUB-TOTAL					1079.212
	CATEGORY NO. 60					
6001	CONSTRUCT PROJECT OFFICES	1.	LS	90327.00	90.327	
6002	CONSTRUCT AND EQUIP LABORATORY	1.	LS	41171.00	41.171	
6003	CONSTRUCT HOUSING	1.	LS	426692.00	426.692	
6004	MOBILIZATION	1.	LS	1779635.00	1779.635	
	CATEGORY NO. 60 SUB-TOTAL					2337.825
	CATEGORY NO. 70					
7001	PAINTING-DASHED CENTER LINE	17.	KM	290.59	5.027	
7002	PAINTING-SOLID EDGE LINE	34.	KM	415.36	14.371	
7003	VEHICLES FOR ENGINEERS	1.	LS	27347.00	27.347	
7004	OPERATE & MAINTAIN VEHICLES FOR ENGINEERS	1.	LS	66691.00	66.691	
	CATEGORY NO. 70 SUB-TOTAL					113.436
	GRAND TOTAL					10561.271

TABLE 8
COST ESTIMATE

LYON

L Y O N A S S O C I A T E S , I N C .

LATTAKIA-KASSAB, LEGAL LOAD LIMIT ENFORCED & PRESENT LOAD PRACTICE

ROAD SECTION 1

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)
	CATEGORY NO. 80				
8001	MOBILIZATION	1	LS	56800.00	56.800
8002	AC OVERLAY	12250	MT	33.66	412.335
8003	TACK COAT	196000	SM	0.25	49.000
8004	MAINTENANCE OF TRAFFIC	1	LS	5680.00	5.680
	CATEGORY NO. 80 SUB-TOTAL				523.815
	GRAND TOTAL				523.815

L Y O N A S S O C I A T E S , I N C .

LATTAKIA-KASSAB, LEGAL LOAD LIMIT ENFORCED & PRESENT LOAD PRACTICE

ROAD SECTION 3

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)
	CATEGORY NO. 80				
8001	MOBILIZATION	1	LS	70200.00	70.200
8002	AC OVERLAY	7750	MT	33.66	260.865
8003	TACK COAT	123700	SM	0.25	30.925
8004	MAINTENANCE OF TRAFFIC	1	LS	7020.00	7.020
	CATEGORY NO. 80 SUB-TOTAL				369.010
	GRAND TOTAL				369.010

L Y O N A S S O C I A T E S , I N C .

LATTAKIA-KASSAB, LEGAL LOAD LIMIT ENFORCED & PRESENT LOAD PRACTICE

ROAD SECTION 2

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
	CATEGORY NO. 80					
8001	MOBILIZATION	1.	LS	73000.00	73.000	
8002	AC OVERLAY	8950.	MT	33.66	301.257	
8003	TACK COAT	142900.	SM	0.25	35.725	
8004	MAINTENANCE OF TRAFFIC	1.	LS	7300.00	7.300	
		CATEGORY NO. 80 SUB-TOTAL				417.282
				GRAND TOTAL		417.282

L Y O N A S S O C I A T E S , I N C .

LATTAKIA-KASSAB, LEGAL LOAD LIMIT ENFORCED & PRESENT LOAD PRACTICE

ROAD SECTION TOTAL

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
	CATEGORY NO. 80					
8001	MOBILIZATION	1.	LS	200000.00	200.000	
8002	AC OVERLAY	28950.	MT	33.66	974.457	
8003	TACK COAT	462600.	SM	0.25	115.650	
8004	MAINTENANCE OF TRAFFIC	1.	LS	20000.00	20.000	
		CATEGORY NO. 80 SUB-TOTAL				1310.107
				GRAND TOTAL		1310.107

TABLE 9
COST ESTIMATE

LYON

L Y O N A S S O C I A T E S , I N C .

LATTAKIA-KASSAB, LEGAL LOAD LIMIT ENFORCED

ROAD SECTION TOTAL

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
	CATEGORY NO. 1 MOBILIZATION					
101	MOBILIZATION	1.	LS	5070185.00	5070.185	
	CATEGORY NO. 1 SUB-TOTAL					5070.185
	CATEGORY NO. 2 SITE CLEARANCE					
201	RELOCATE UTILITIES	1.	LS	364560.00	364.560	
202	CLEAR AND GRUB	250.	HA	591.86	148.251	
203	STRIP	46950.	CM	1.16	53.998	
	CATEGORY NO. 2 SUB-TOTAL					566.819
	CATEGORY NO. 3 EARTHWORK					
301	COMMONEXCAVATION	3479000.	CM	1.38	4801.020	
302	ROCK EXCAVATION	51000.	CM	4.11	209.610	
303	BORROW	734000.	CM	1.27	932.180	
304	OVER-HAUL	1524000.	ST.M	0.10	152.400	
305	EMBANKMENT	3034000.	CM	0.83	2518.220	
306	REMOVE UNSUITABLE MATERIAL	41800.	CM	1.17	48.906	
307	SELECT FILL	127600.	CM	19.31	2463.956	
	CATEGORY NO. 3 SUB-TOTAL					11126.292
	CATEGORY NO. 4 SUB-BASE & BASE					
401	SUB BASE	60910.	CM	17.58	1070.798	
402	BASE	116000.	CM	21.35	2476.600	
	CATEGORY NO. 4 SUB-TOTAL					3547.398
	CATEGORY NO. 5 ASPHALT PAVING					
501	PRIME COAT	485000.	SM	0.24	116.400	
502	BINDER COURSE	12250.	MT	24.09	295.103	
503	SURFACE COURSE	60600.	MT	28.65	1736.190	
	CATEGORY NO. 5 SUB-TOTAL					2147.693
	CATEGORY NO. 6 SHLDRS&FINISHING					
601	FINISH AND STABILIZE SHOULDERS	14450.	CM	22.10	319.345	
602	EROSION CONTROL SEEDING	110.	HA	779.26	86.108	
	CATEGORY NO. 6 SUB-TOTAL					405.453
	CATEGORY NO. 7 DRAINAGE STRUCT.					
701	CONCRETE HEAD WALLS	1570.	CM	168.57	264.655	
702	STONE RIPRAP	6700.	CM	14.10	94.470	
703	REINFORCED CONCRETE PIPE 60 CM	15.	ML	126.39	1.896	
704	REINFORCED CONCRETE PIPE 80 CM	68.	ML	140.24	9.536	
705	REINFORCED CONCRETE PIPE 100 CM	643.	ML	171.32	110.501	
706	REINFORCED CONCRETE PIPE 120 CM	225.	ML	183.76	41.346	
707	CONCRETE-BOX CULVERTS	3920.	CM	231.13	906.030	
	CATEGORY NO. 7 SUB-TOTAL					1428.434

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LYON ASSOCIATES, INC.

LATTAKIA-KASSAB, LEGAL LOAD LIMIT ENFORCED

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)
	CATEGORY NO. 8 BRIDGES				
801	BRIDGE HAND RAIL	1900.	LM	35.36	67.184
802	STRUCTURAL EXCAVATION	3567.	CM	6.83	24.363
803	STRUCTURAL EXCAVATION, ROCK	1050.	CM	13.22	13.881
804	CONCRETE-BRIDGE FOOTINGS	2830.	CM	94.74	268.114
805	CONCRETE-BRIDGE SUB STRUCTURE	4786.	CM	144.85	693.252
806	CONCRETE-BRIDGE SUPER STRUCTURE	3918.	CM	162.30	635.891
807	CONCRETE-SLOPE PROTECTION	1250.	CM	257.50	321.875
808	GABION RETAINING WALLS	3000.	CM	82.94	248.820
809	STONE RIPRAP	5500.	CM	14.10	77.550
810	PRESTRESSED I-BEAMS	3834.	CM	516.11	1978.766
811	PRESTRESSED PILING 30 CM	5520.	ML	56.65	312.708
812	POINT PILES	6440.	ML	90.03	579.793
813	REINFORCING STEEL	2114359.	KG	1.26	2664.087
814	CONCRETE RETAINING WALL FOOTINGS	975.	CM	126.36	123.201
815	CONCRETE RETAINING WALL STEMS	1110.	CM	155.92	173.071
816	STRUCT. STEEL TUBING	2500.	ML	17.16	42.900
817	METAL GRATING	1200.	SM	46.38	55.656
818	CLOSE WIRE MESH	950.	ML	23.17	22.012
	CATEGORY NO. 8 SUB-TOTAL				8303.124
	CATEGORY NO. 9 FENCE,GDRL,SIGNS				
901	FENCING	96.	KM	5636.55	541.109
902	GUARD RAIL	9700.	ML	37.78	366.466
903	ROAD SIGNS SMALL	413.	EA	90.33	37.306
904	ROAD SIGNS MEDIUM	116.	EA	225.66	26.177
905	ROAD SIGNS LARGE	44.	EA	412.66	18.157
	CATEGORY NO. 9 SUB-TOTAL				989.215
	CATEGORY NO. 10 STAFF HOUSING				
1001	CONSTRUCT HOUSING	1.	LS	1215646.00	1215.646
	CATEGORY NO. 10 SUB-TOTAL				1215.646
	CATEGORY NO. 11 CONSULT.SUPPORT				
1101	CONSTRUCT PROJECT OFFICES	1.	LS	257344.00	257.344
1102	CONSTRUCT AND EQUIP LABORATORY	1.	LS	117298.00	117.298
1103	VEHICLES FOR ENGINEERS	1.	LS	77911.00	77.911
1104	OPERATE & MAINTAIN VEHICLES FOR ENGINEERS	1.	LS	190003.00	190.003
	CATEGORY NO. 11 SUB-TOTAL				642.556

L Y O N A S S O C I A T E S , I N C .

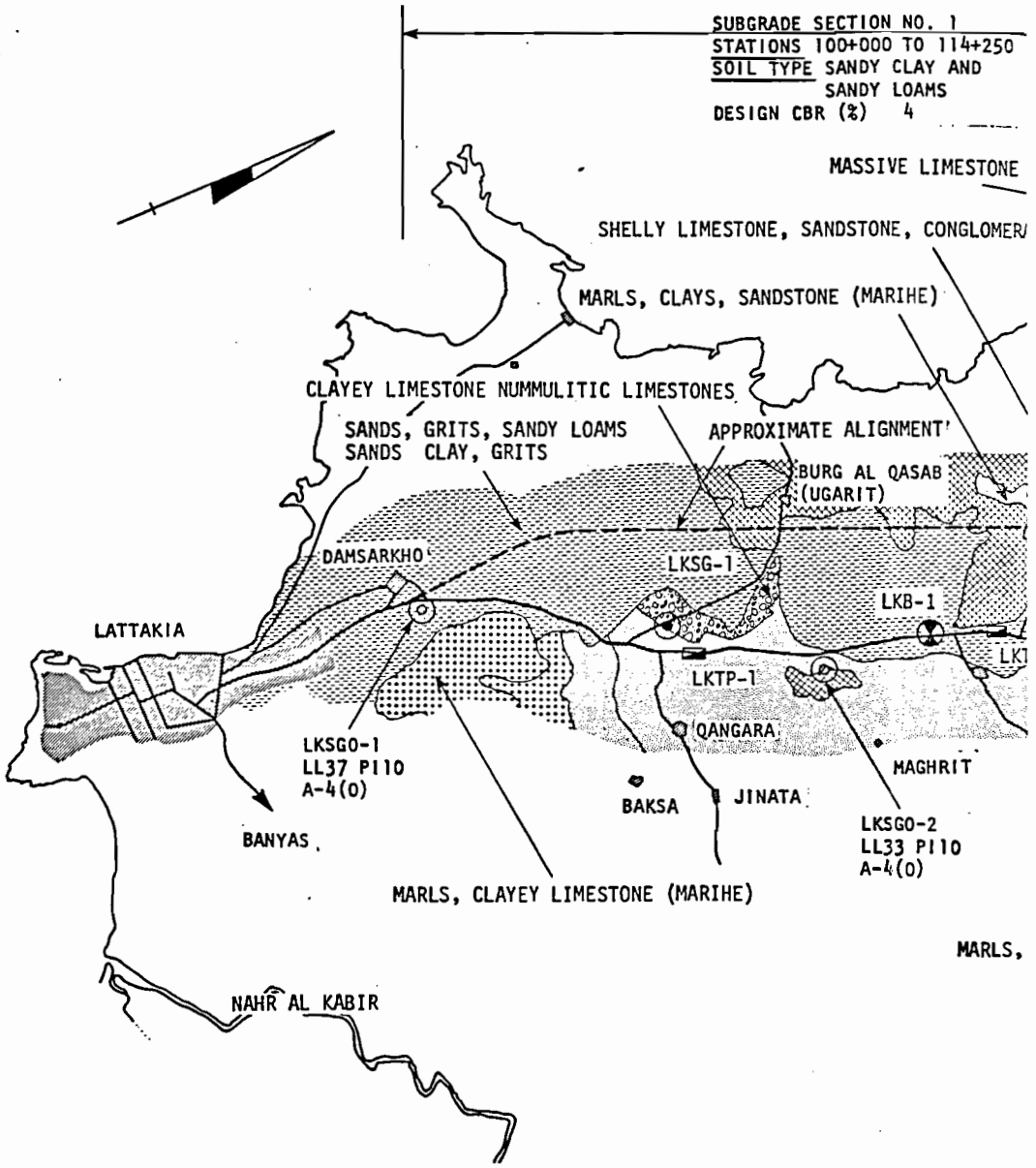
LATTAKIA-KASSAB, LEGAL LOAD LIMIT ENFORCED

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (DOLLARS)	COST (X $1,000)	
	CATEGORY NO. 12 MISC.ITEMS					
1201	TRUCK WEIGHING SCALES	1.	LS	26600.00	26.600	
1202	PAINTING-DASHED CENTER LINE	64.	KM	290.59	18.714	
1203	PAINTING-SOLID EDGE LINE	128.	KM	415.36	53.249	
		CATEGORY NO. 12 SUB-TOTAL				98.563

GRAND TOTAL 35541.378

TABLE 10
COST ESTIMATE

LYON


SUBGRADE SECTION NO. 1
STATIONS 100+000 TO 114+250
SOIL TYPE SANDY CLAY AND SANDY LOAMS
DESIGN CBR (%) 4
MASSIVE LIMESTONE
SHELLY LIMESTONE, SANDSTONE, CONGLOMER
MARLS, CLAYS, SANDSTONE (MARIHE)
CLAYEY LIMESTONE NUMMULITIC LIMESTONES
SANDS, GRITS, SANDY LOAMS
SANDS CLAY, GRITS
APPROXIMATE ALIGNMENT
BURG AL QASAB (UGARIT)
DAMSARKHO
LKSG-1
LKB-1
LATTAKIA
LKTP-1
QANGARA
LKSGO-1
LL37 PI10
A-4(0)
MAGHRIT
BAKSA
JINATA
BANYAS
LKSGO-2
LL33 PI10
A-4(0)
MARLS, CLAYEY LIMESTONE (MARIHE)
MARLS,
NAHR AL KABIR

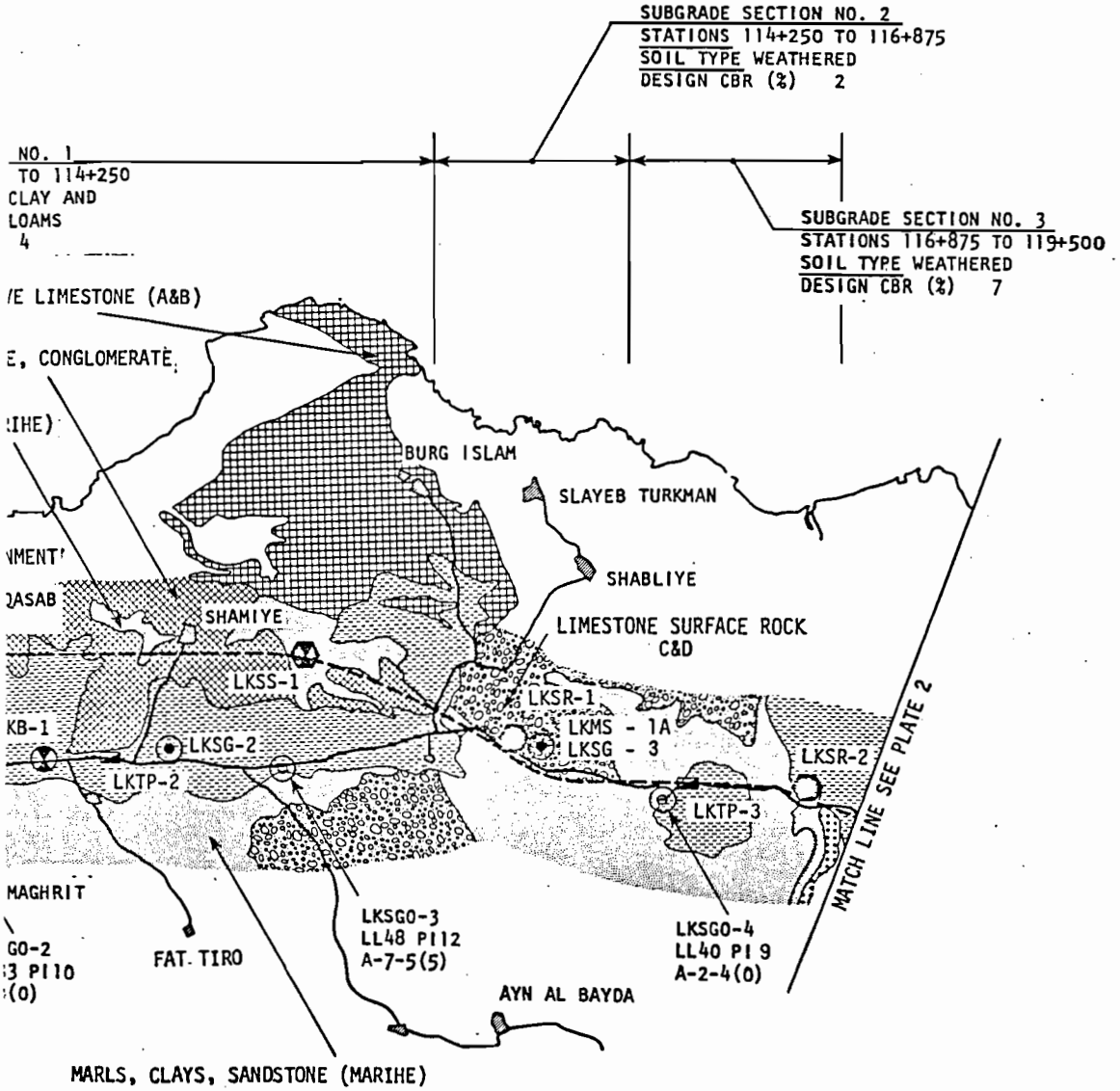
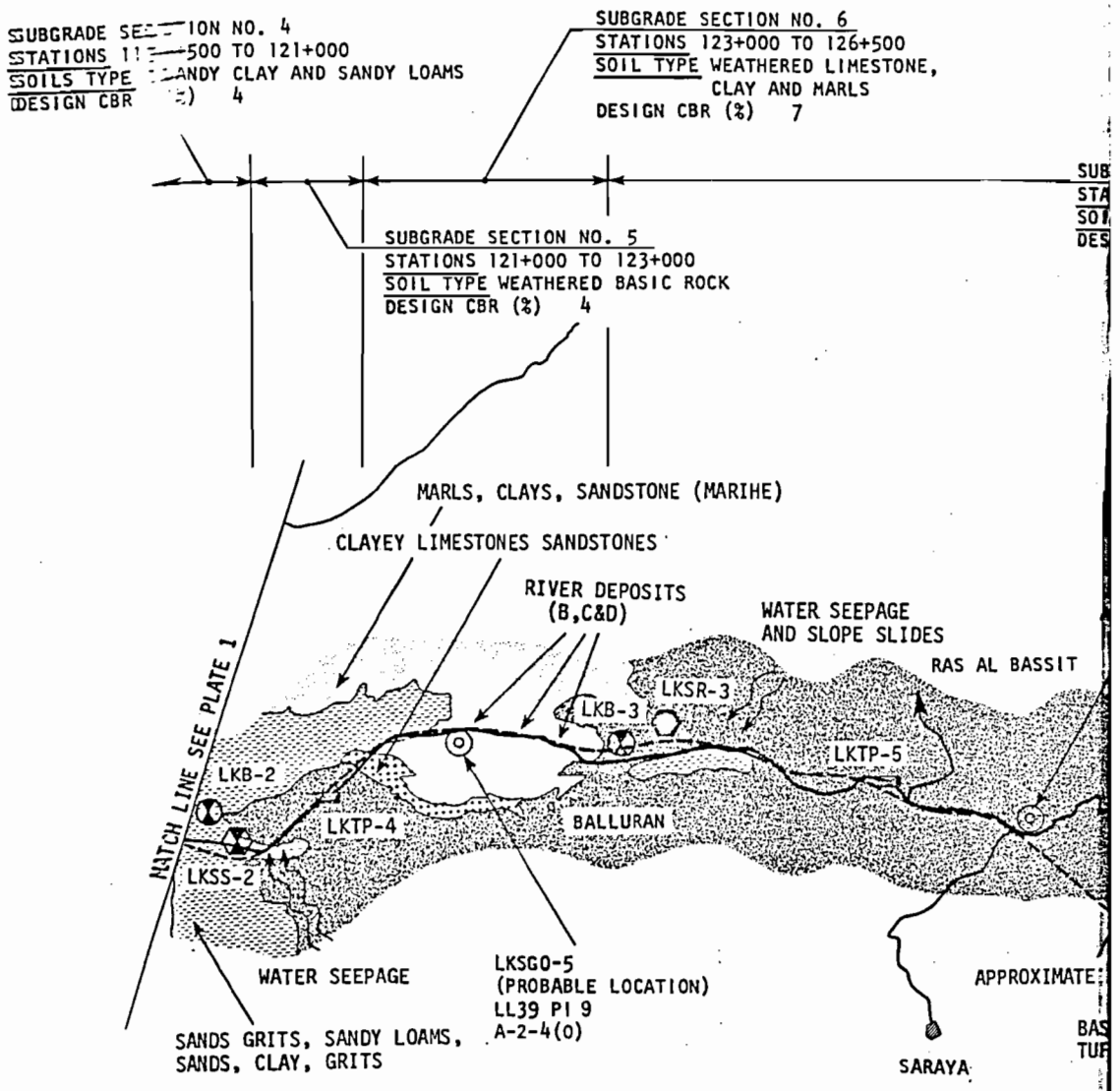


PLATE I

SOILS AND MATERIALS PLAN

LYON


SUBGRADE SECTION NO. 4
STATIONS 11[illegible]500 TO 121+000
SOILS TYPE [illegible]ANDY CLAY AND SANDY LOAMS
DESIGN CBR [illegible]) 4
SUBGRADE SECTION NO. 6
STATIONS 123+000 TO 126+500
SOIL TYPE WEATHERED LIMESTONE, CLAY AND MARLS
DESIGN CBR (%) 7
SUBGRADE SECTION NO. 5
STATIONS 121+000 TO 123+000
SOIL TYPE WEATHERED BASIC ROCK
DESIGN CBR (%) 4
MARLS, CLAYS, SANDSTONE (MARIHE)
CLAYEY LIMESTONES SANDSTONES
RIVER DEPOSITS (B,C&D)
WATER SEEPAGE AND SLOPE SLIDES
RAS AL BASSIT
LKSR-3
LKB-3
LKTP-5
LKB-2
LKTP-4
BALLURAN
LKSS-2
MATCH LINE SEE PLATE 1
WATER SEEPAGE
LKSGO-5 (PROBABLE LOCATION) LL39 PI 9 A-2-4(0)
APPROXIMATE
SANDS GRITS, SANDY LOAMS, SANDS, CLAY, GRITS
SARAYA

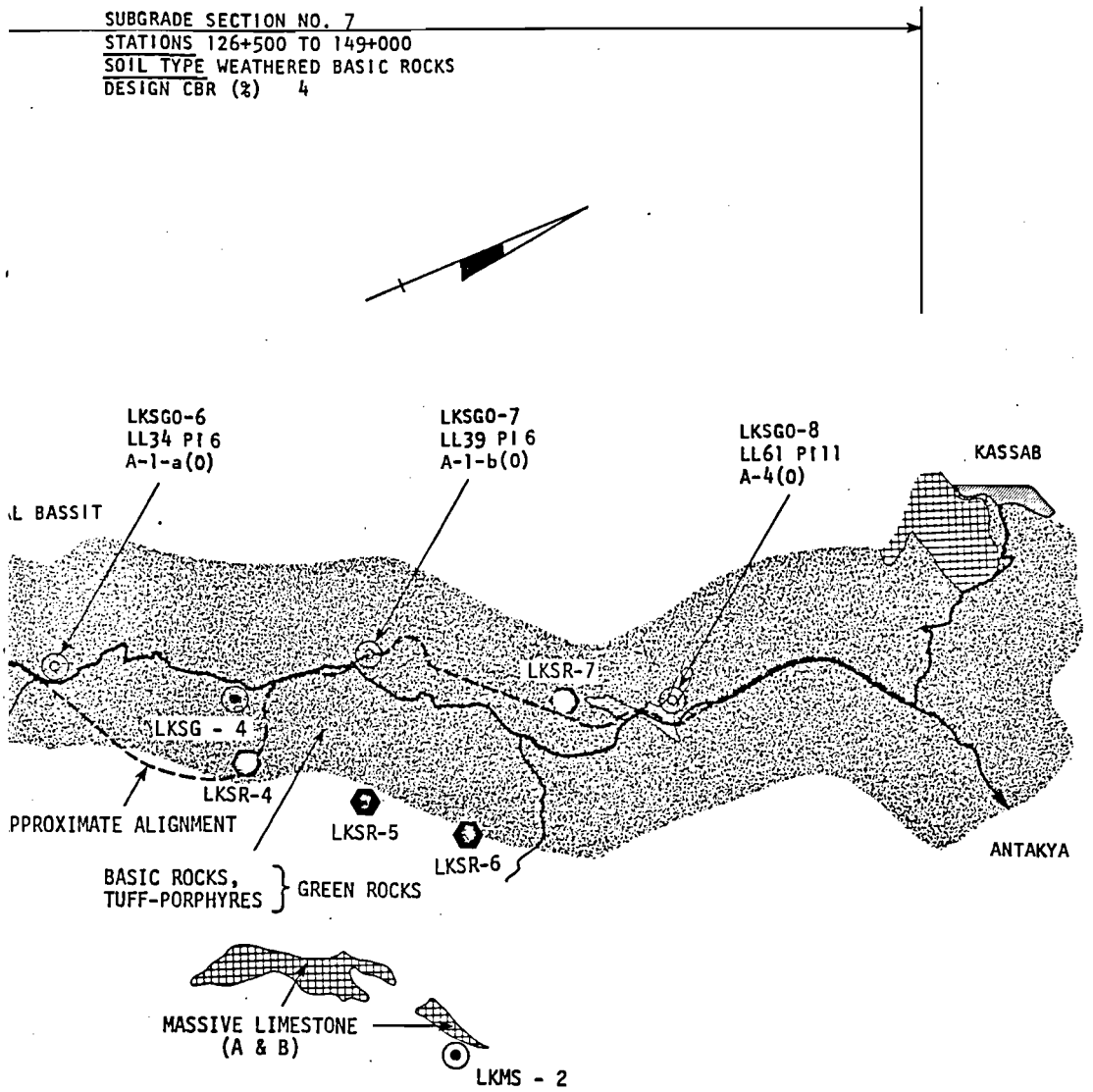
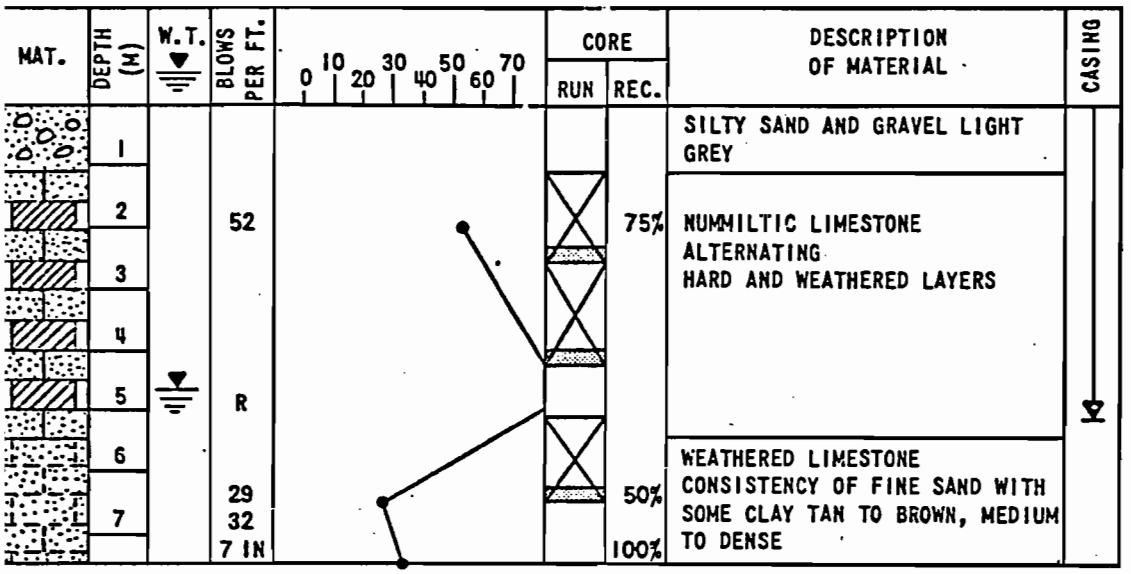


PLATE 2

SOILS AND MATERIALS PLAN

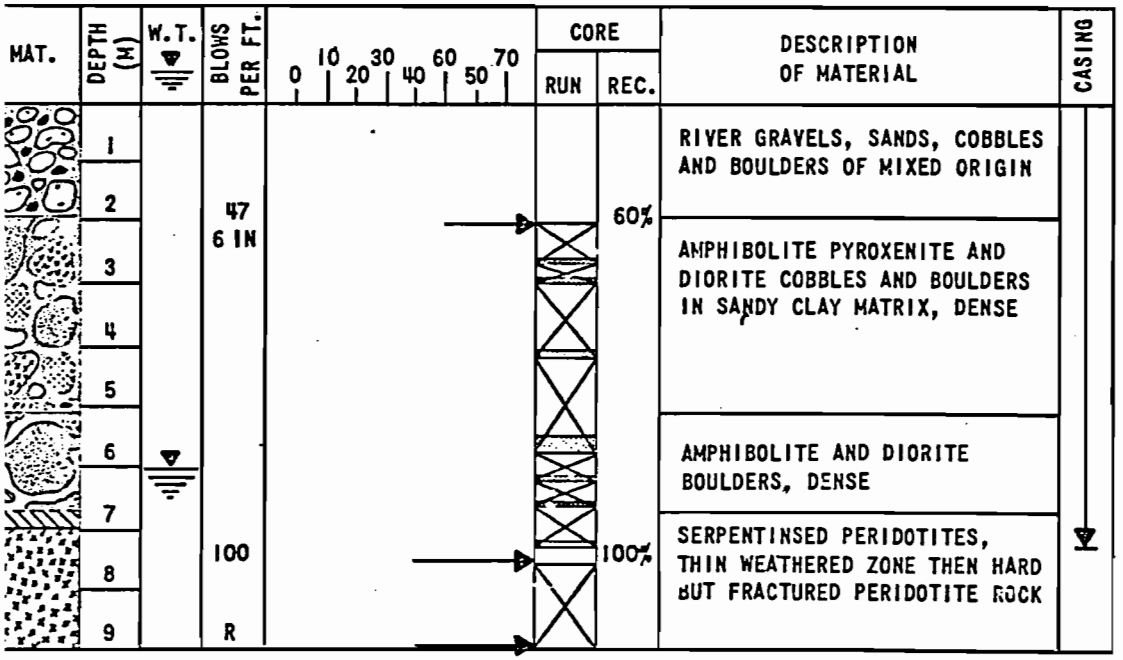
LYON

LKB-1



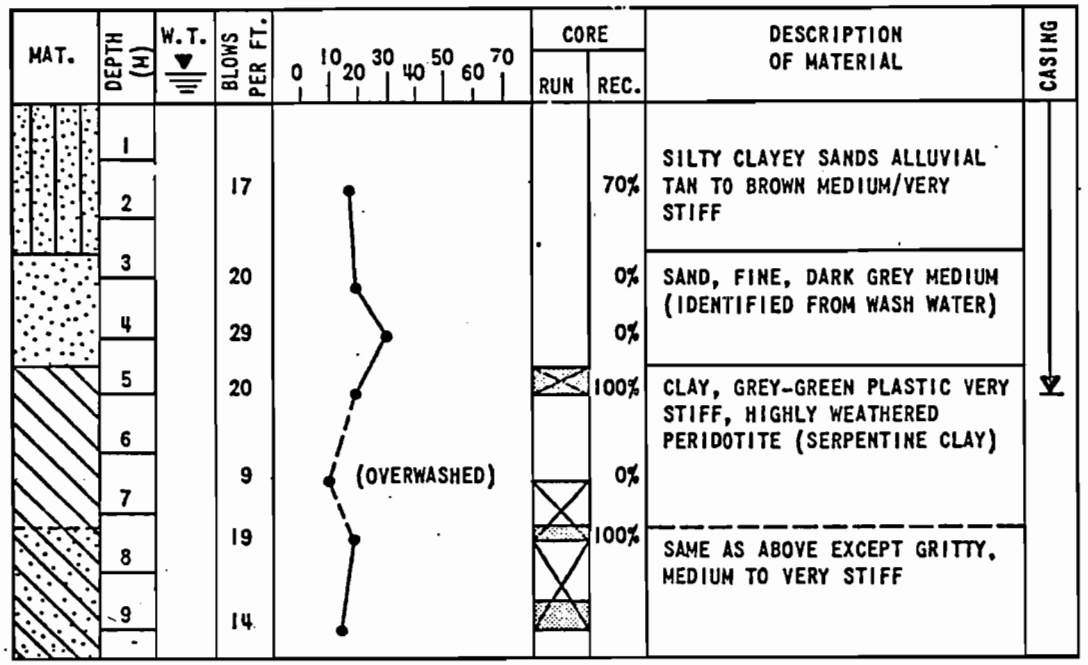
NOTE: 1. DOUBLE TUBE CORE BARREL AND NX CASING
2. WATER TABLE @ 4.75 M (OBSERVED)
3. WATER TABLE @ 17.0 M (WELLS IN AREA)

LKB-3



NOTE: DOUBLE TUBE CORE BARREL AND NX CASING

LKB - 2



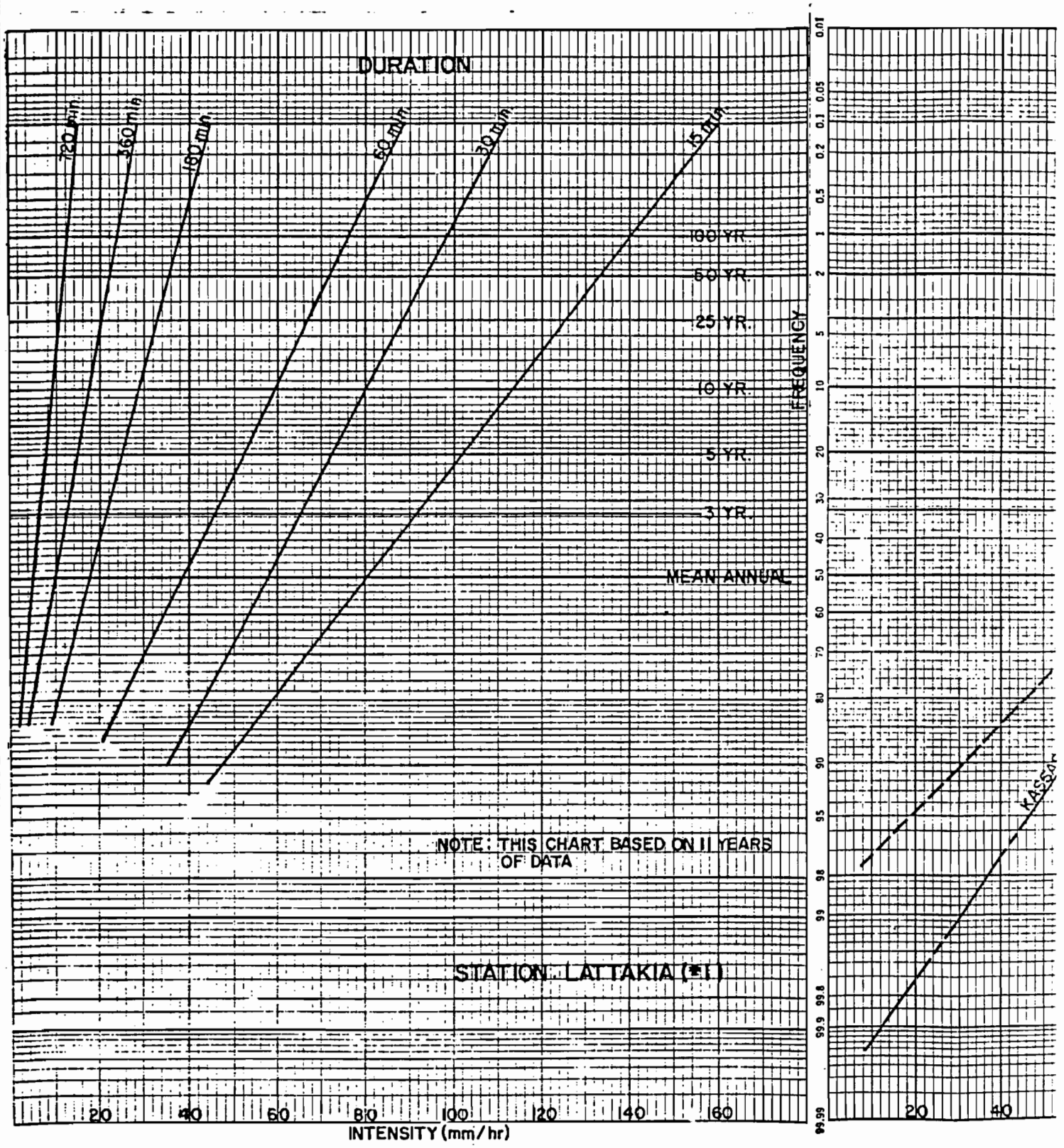
NOTE: DOUBLE TUBE CORE BARREL AND NX CASING

PLATE 3

BORING LOGS LKB-1 TO LKB-3

LYON

RAINFALL
INTENSITY - FREQUENCY - DURATIC



JRATION

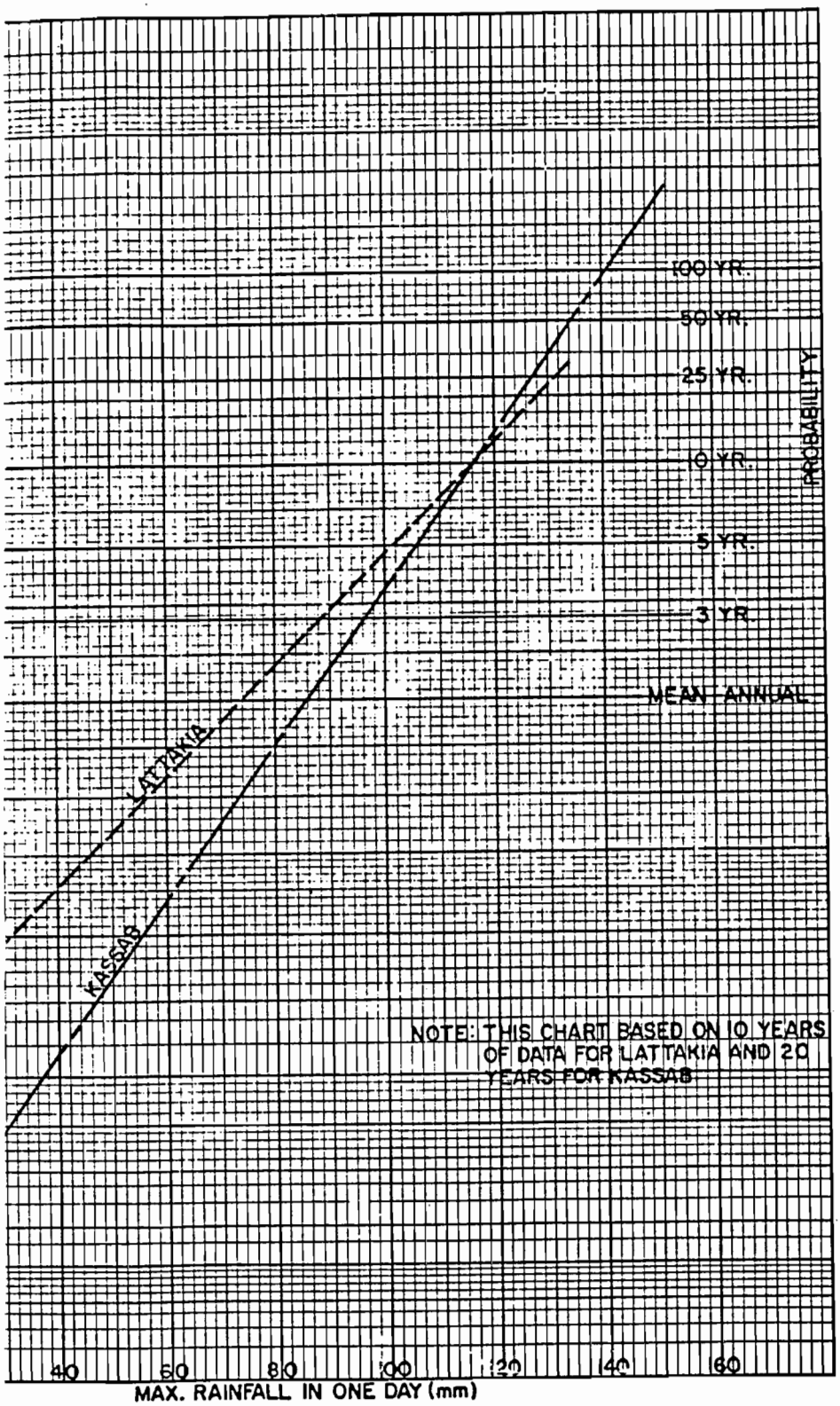
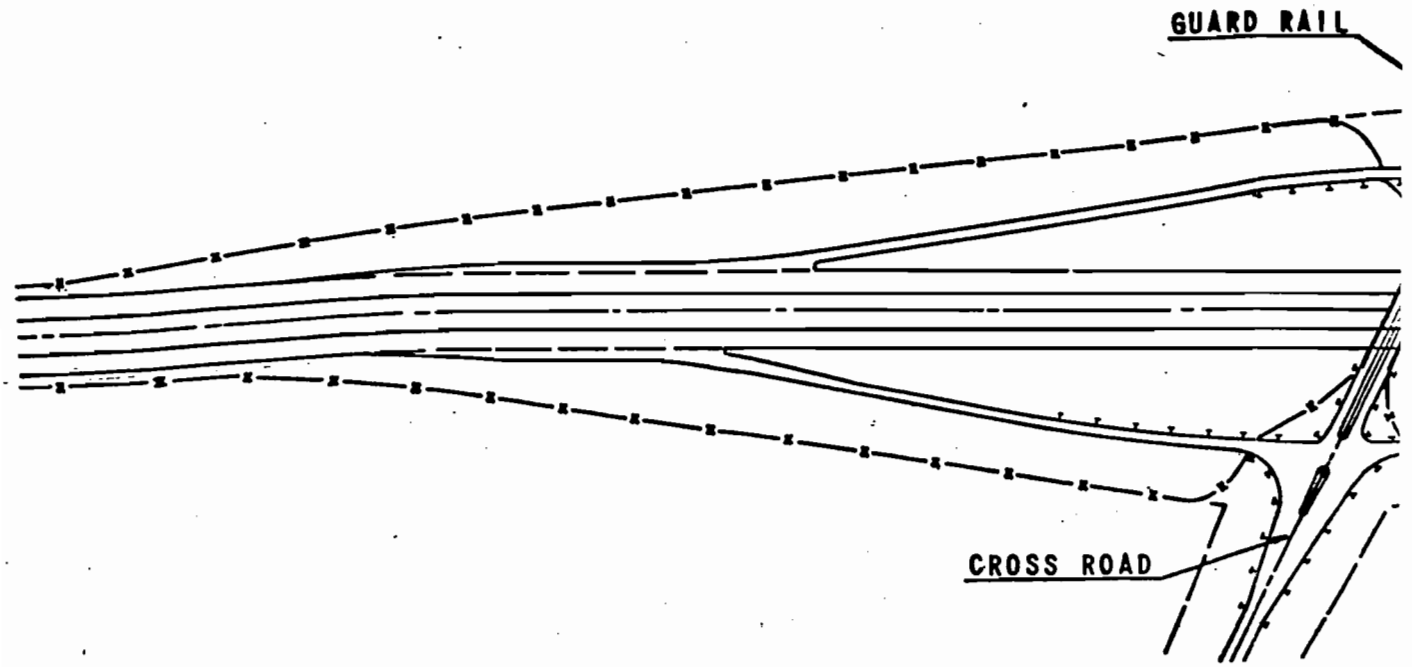


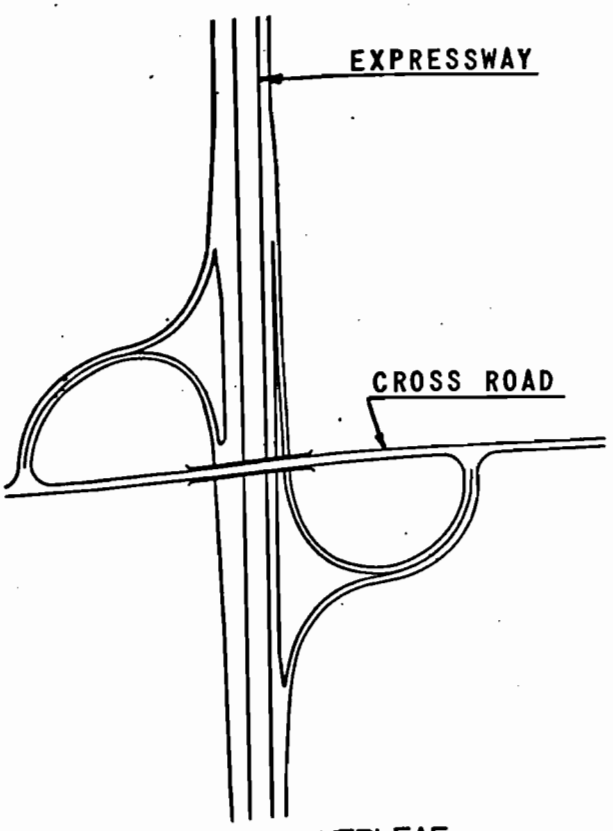
PLATE 4

RAINFALL CURVE

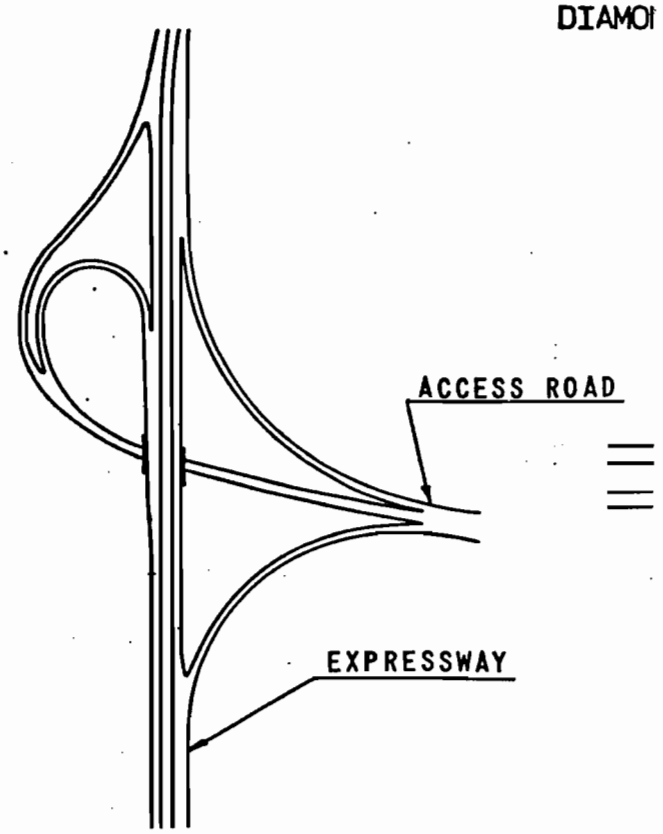
LYON



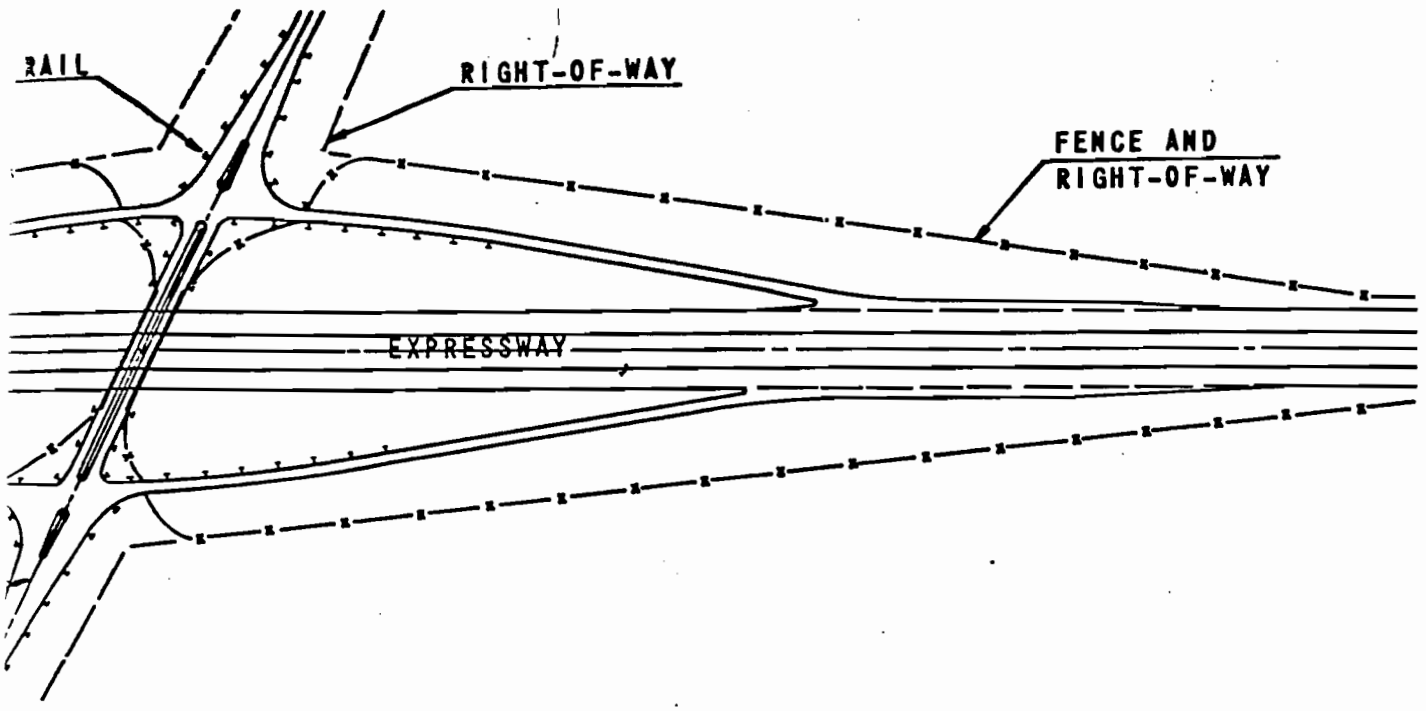
DIAMO



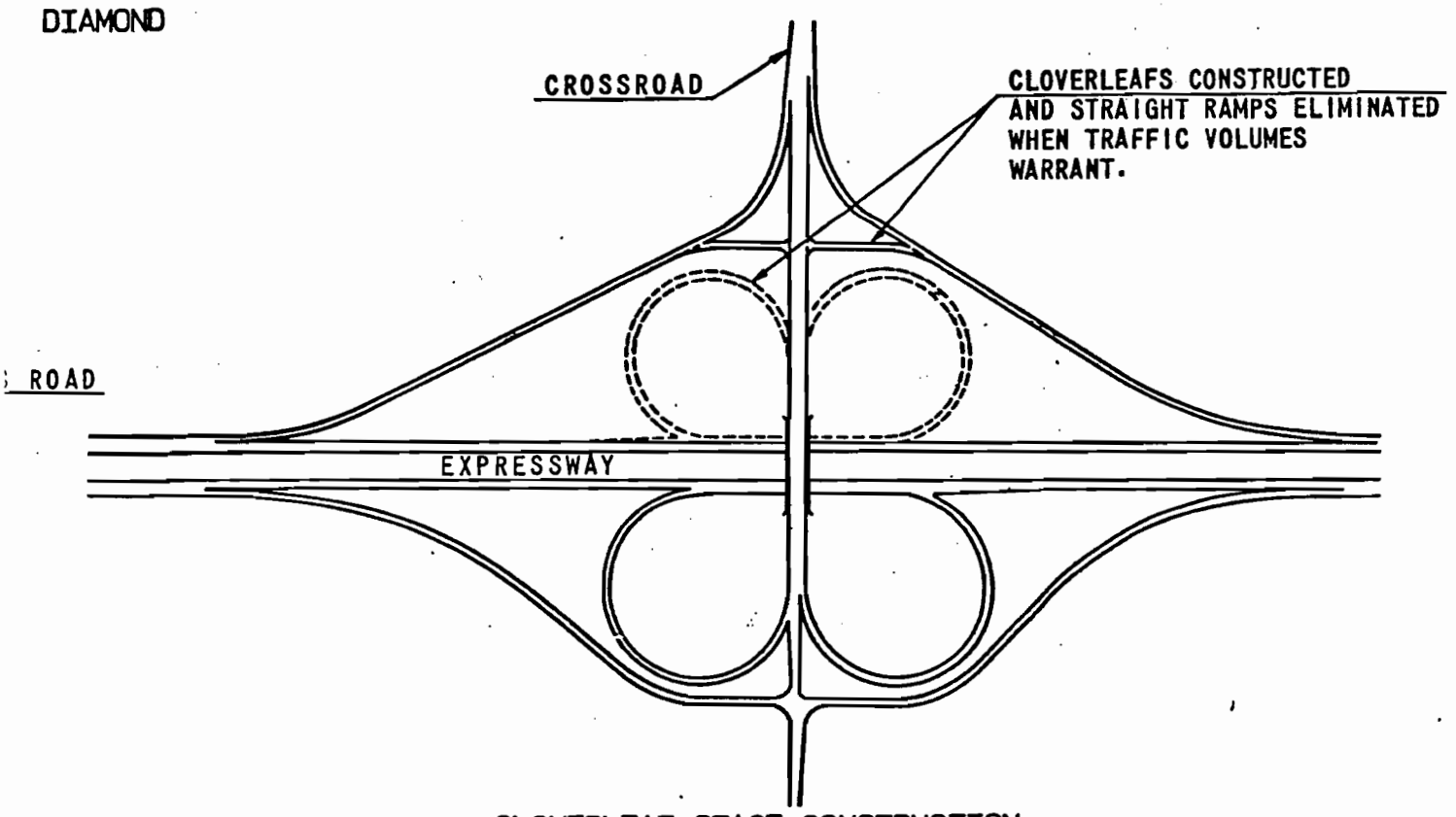
2-QUADRANT CLOVERLEAF



T-TYPE



DIAMOND

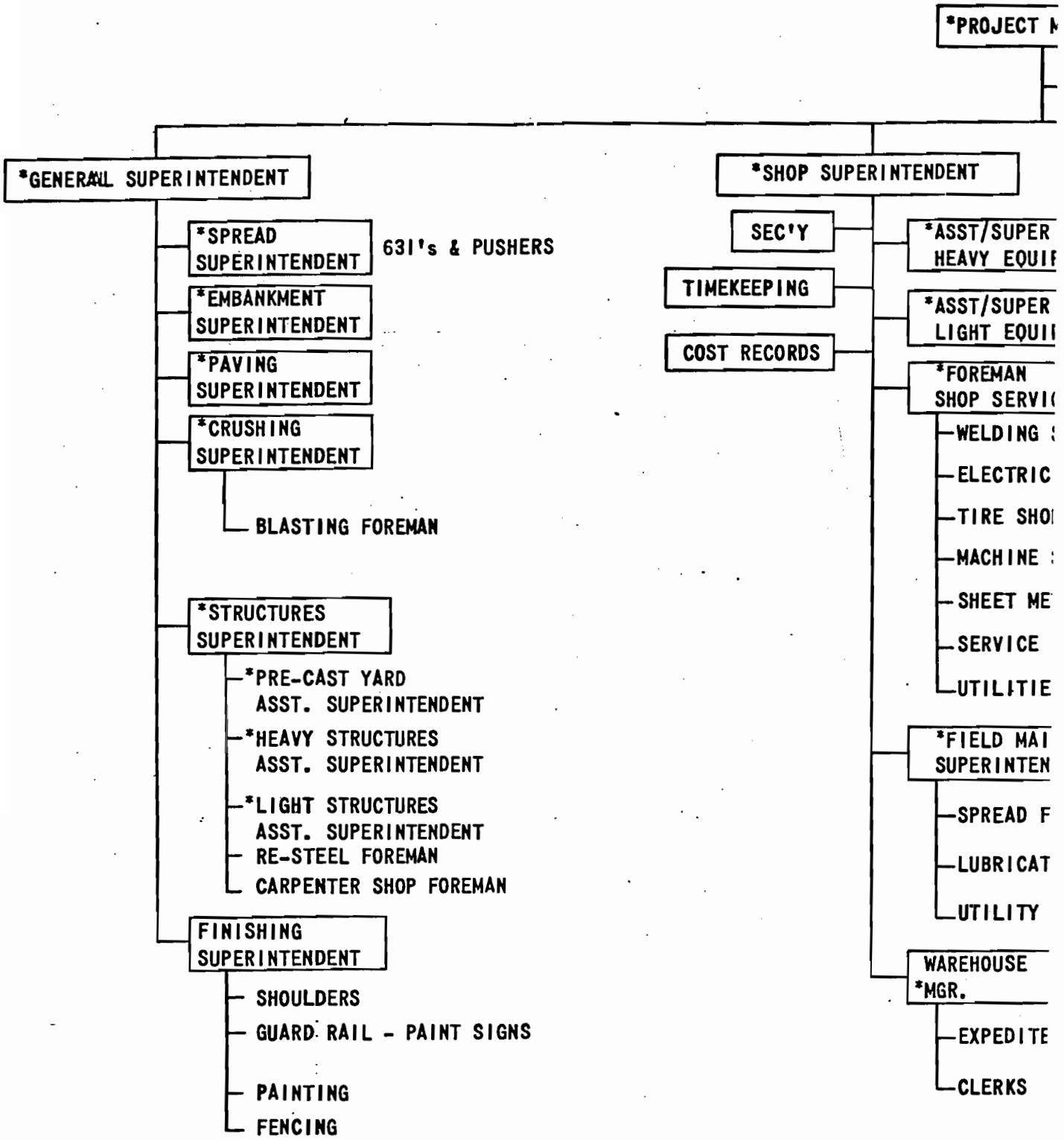


CLOVERLEAF-STAGE CONSTRUCTION

PLATE 5

INTERCHANGE CONFIGURATIONS

LYON



*EXPATRIATE PERSONNEL

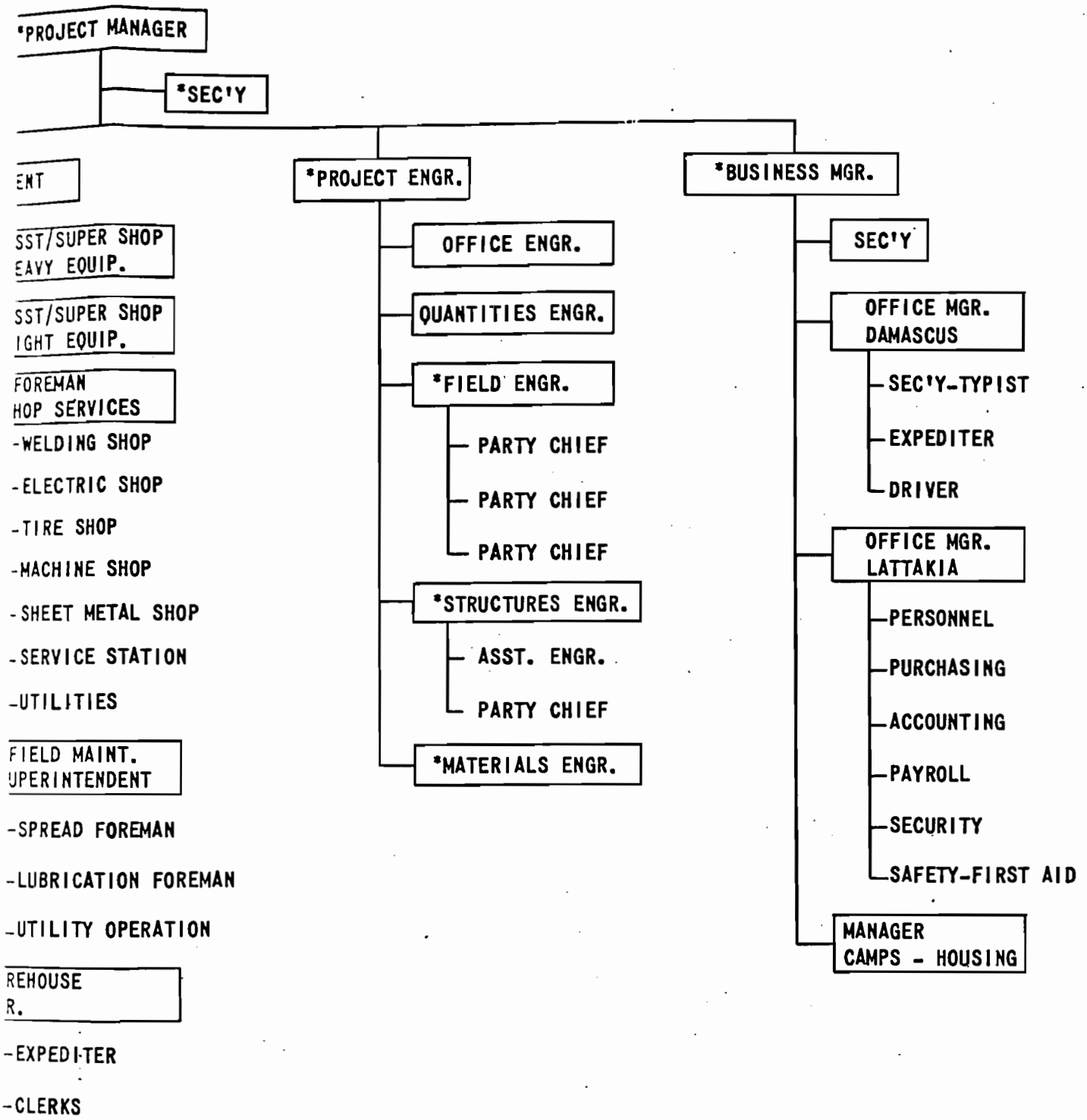
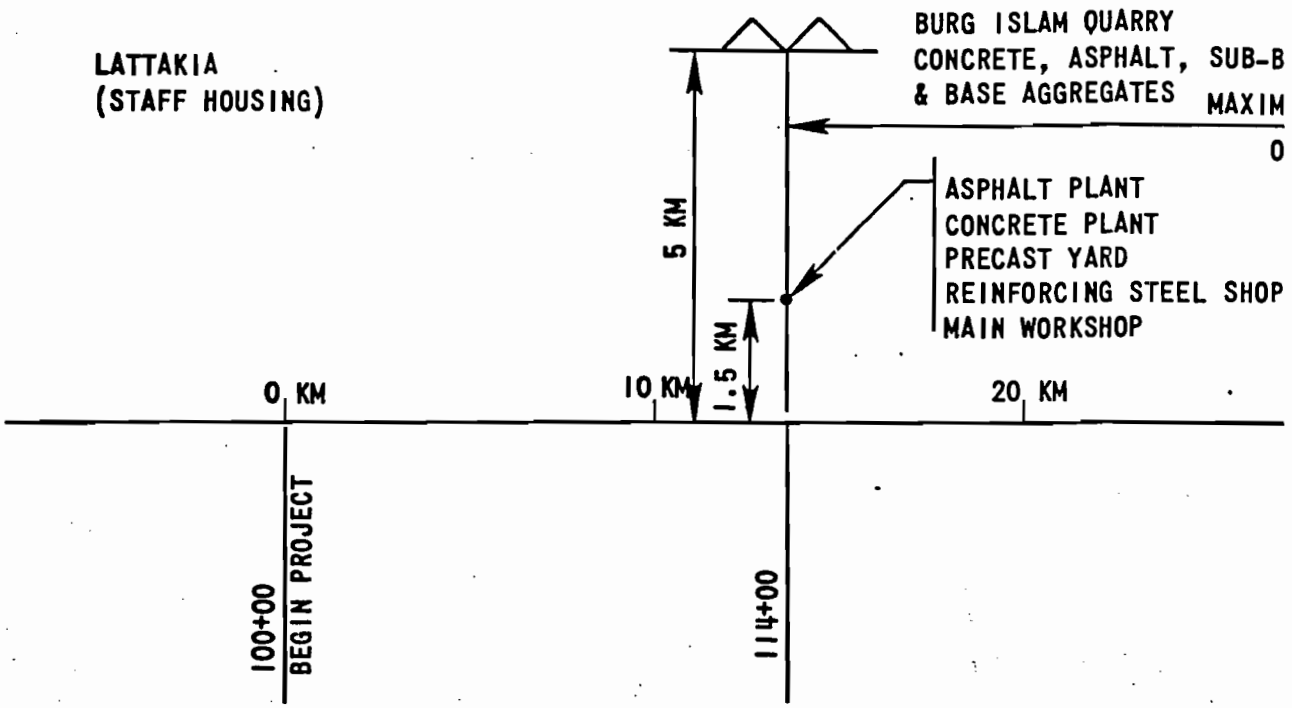
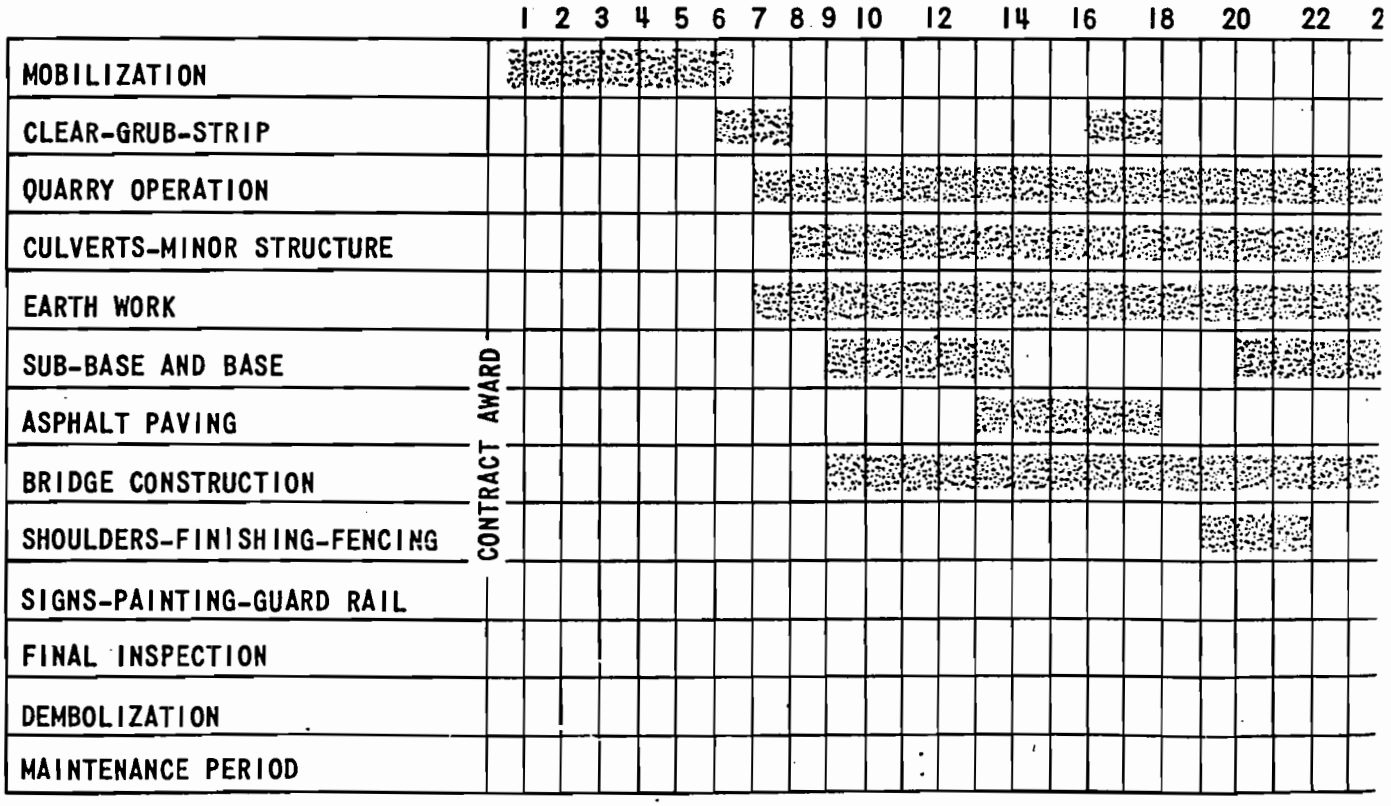


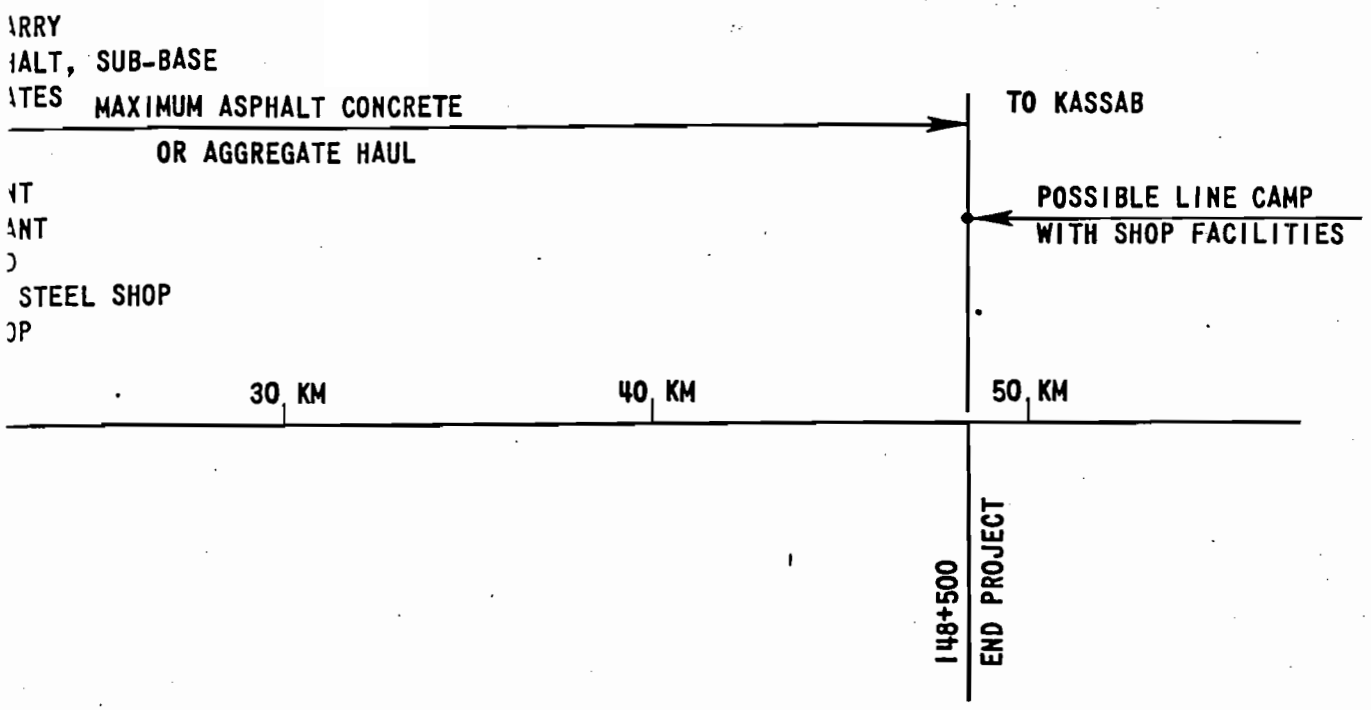
PLATE 6

PROPOSED CONTRACTORS ORGANIZATIONAL CHART

LYON


LATTAKIA
(STAFF HOUSING)
BURG ISLAM QUARRY
CONCRETE, ASPHALT, SUB-B
& BASE AGGREGATES
MAXIM
0
ASPHALT PLANT
CONCRETE PLANT
PRECAST YARD
REINFORCING STEEL SHOP
MAIN WORKSHOP
5 KM
1.5 KM
0 KM
10 KM
20 KM
100+00
BEGIN PROJECT
114+00


1 2 3 4 5 6 7 8 9 10 12 14 16 18 20 22 2
MOBILIZATION
CLEAR-GRUB-STRIP
QUARRY OPERATION
CULVERTS-MINOR STRUCTURE
EARTH WORK
SUB-BASE AND BASE
ASPHALT PAVING
BRIDGE CONSTRUCTION
SHOULDERS-FINISHING-FENCING
SIGNS-PAINTING-GUARD RAIL
FINAL INSPECTION
DEMBOLIZATION
MAINTENANCE PERIOD
CONTRACT AWARD



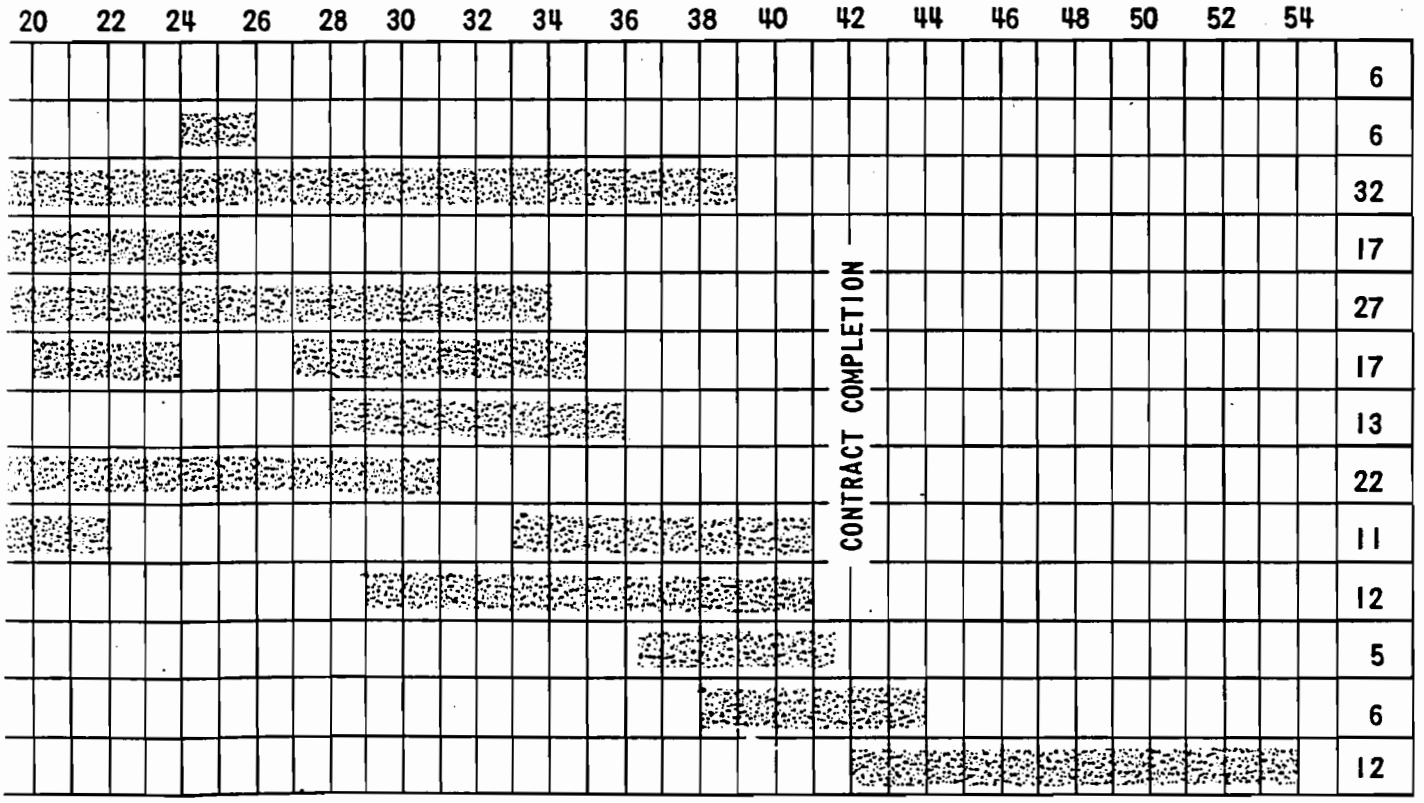
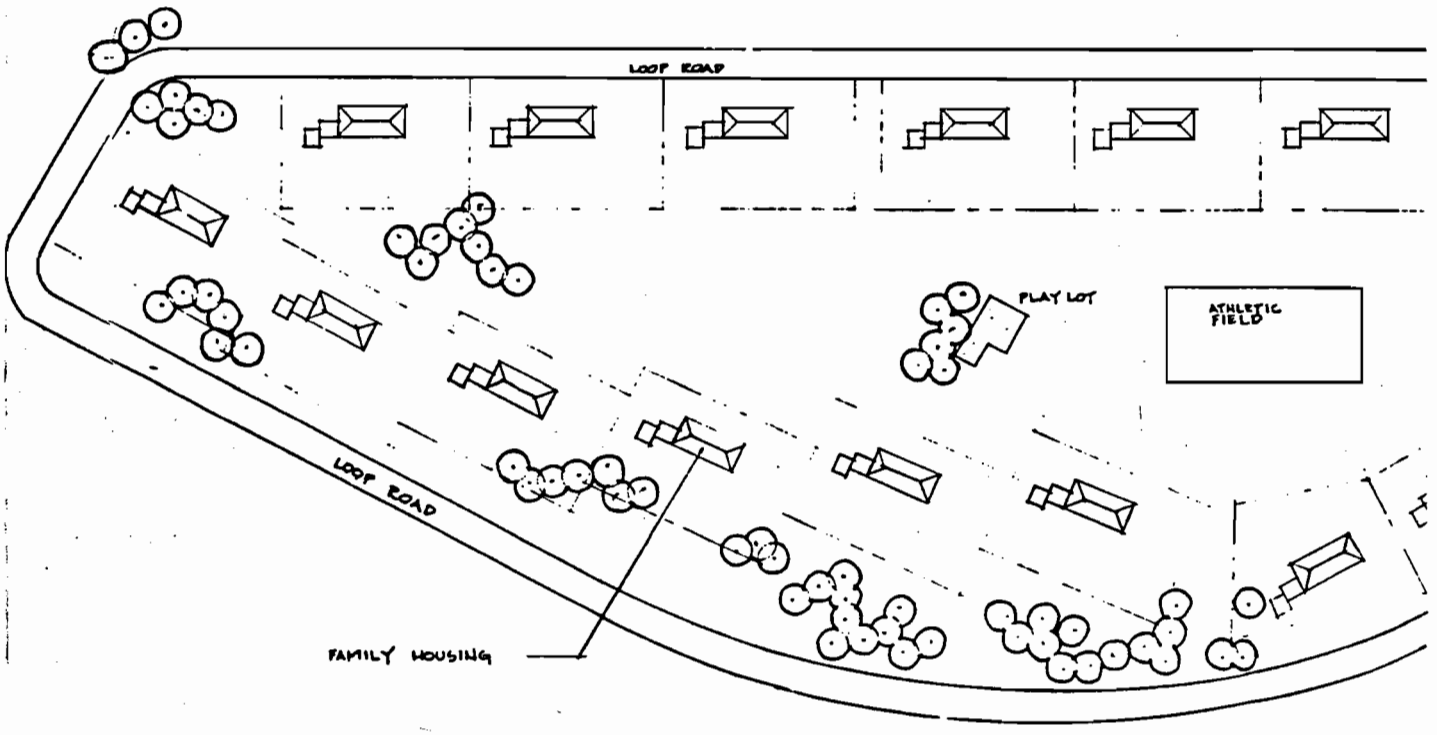


PLATE 7

PROPOSED CONSTRUCTION SCHEDULE

LYON



SITE PLAN

HIGHWAY

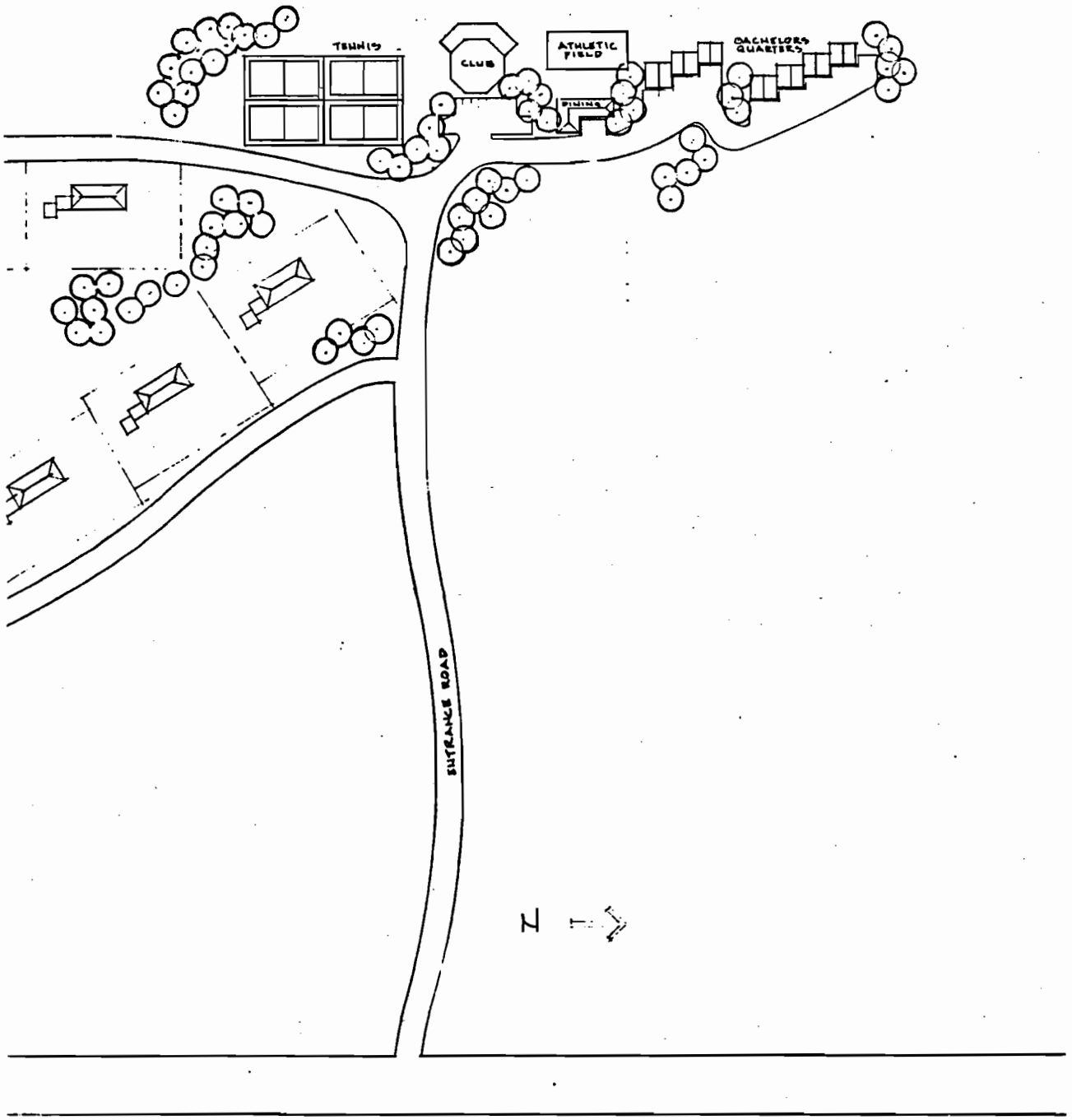
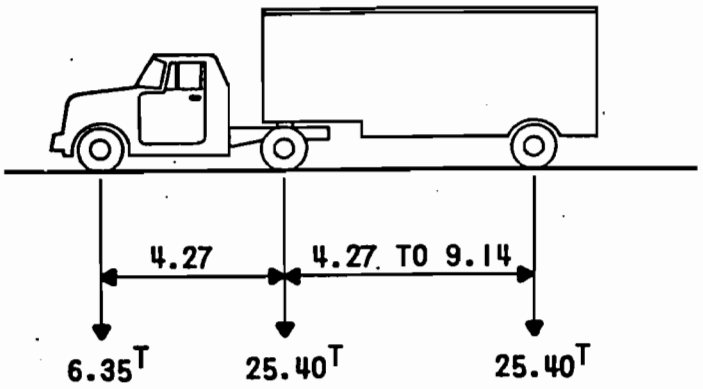


PLATE 8

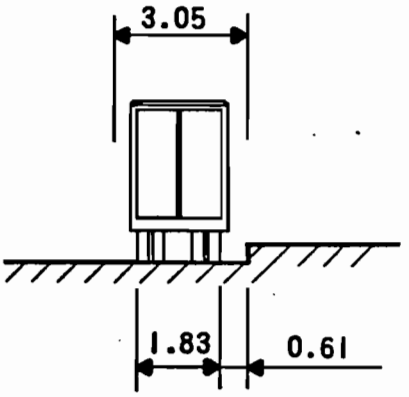
PROPOSED CONTRACTOR'S AND ENGINEER'S HOUSING

LYON

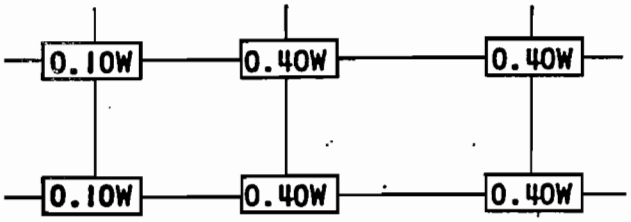
AASHTO LOADING

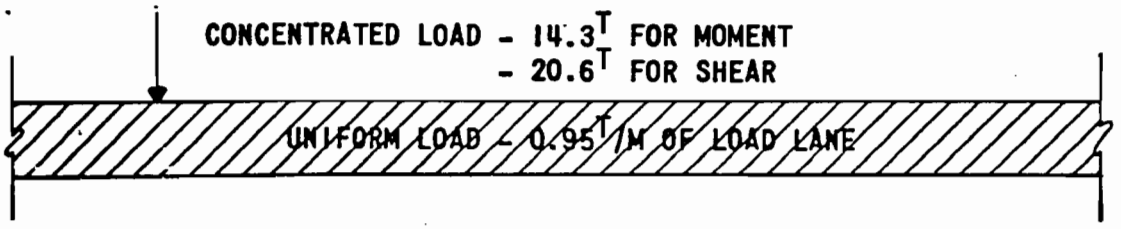


LONGITUDINAL



TRANSVERSE

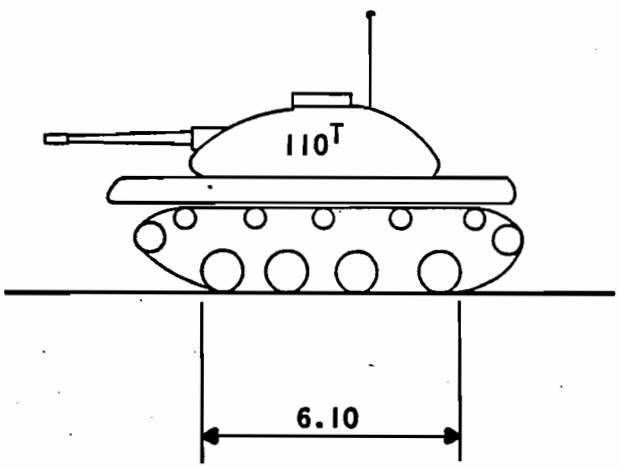


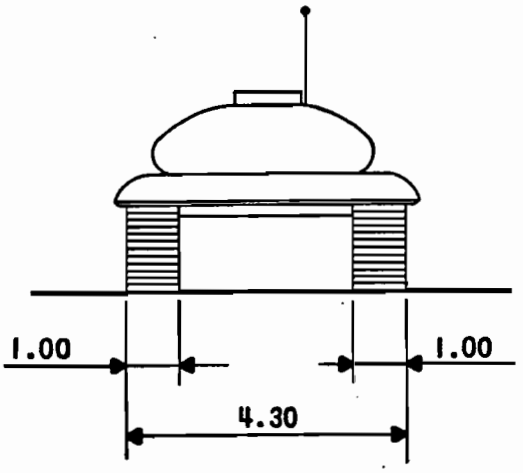


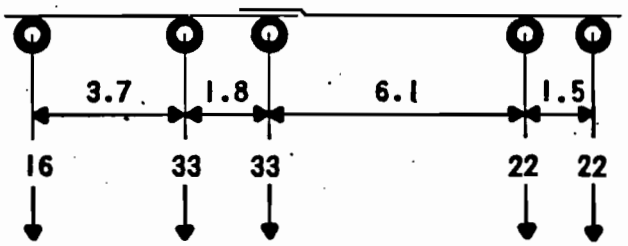
TRUCK TRAIN LOADING

MILITARY LOADING

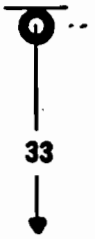
CLASS 120



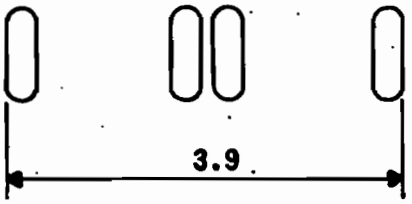




MULTI-AXLE



SINGLE AXLE



BOGIE AXLE

PLATE 9

PROPOSED DESIGN LOADING FOR STRUCTURES

LYON

EARTHQUAKE DATA FILE (U.S. DEPARTMENT OF COMMERCE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTR

NOTES OF STRONG EARTHQUAKES IN

April 8, 1951	Six killed, 10 injured and 13 buildings destroyed at Iskendron,
October 22, 1952	Twenty killed, 44 injured and extensive property damage at Adan
January 1, 1975	Damage in the Hatay, Turkey area.

MODIFIED MERCALLI INTEN
(Abridge

I. Not felt except by a very few under especially favorable circumstances.

II. Felt only by a few persons at rest, especially on upper floors of buildings. Deli

III. Felt quite noticeably indoors, especially on upper floors of buildings, but many p Vibration like a passing truck. Duration estimated.

IV. During the day felt indoors by many, outdoors by few. At night, some awakened. D striking building. Standing motorcars rocked noticeably.

V. Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few poles, and other tall objects sometimes noticed. Pendulum clocks may stop.

VI. Felt by all; many frightened and run outdoors. Some heavy furniture moved; a few

VII. Everybody runs outdoors. Damage negligible in buildings of good design and constr built or badly designed structures; some chimneys broken. Noticed by persons dr

VIII. Damage slight in specially designed structures; considerable in ordinary substanti thrown out of frame structures. Fall of chimneys, factory stacks, columns, monu Changes in well water. Persons driving motorcars disturbed.

*IX. Damage considerable in specially designed structures; well-designed frame structur shifted off foundations. Ground cracked conspicuously. Underground pipes broke

X. Some well-built wooden structures destroyed; most masonry and frame structures des from river banks and steep slopes. Shifted sand and mud. Water splashed (slopp

XI. Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fiss slips in soft ground. Rails bent greatly.

XII. Damage total. Waves seen on ground surfaces. Lines of slight and level distorted

*Only intensity listed is IX on the Modified Mercalli Scale for the earthquake on Octobe

INISTRATION, ENVIRONMENTAL DATA SERVICE, NATIONAL GEOPHYSICAL AND SOLAR-TERRESTRIAL DATA CENTER)

ES IN AREA 34-37 N., 35-38 E.

dron, Turkey.

Adana, Turkey.

INTENSITY SCALE OF 1931
ridged)

Delicately suspended objects may swing.

any people do not recognize it as an earthquake. Standing motorcars may rock slightly.

d. Dishes, windows, doors disturbed; walls make creaking sound. Sensation like heavy truck

a few instances of cracked plaster; unstable objects overturned. Disturbances of trees,

few instances of fallen plaster or damaged chimneys. Damage slight.

onstruction; slight to moderate in well-built ordinary structures; considerable in poorly
ns driving motorcars.

tantial buildings, with partial collapse; great in poorly built structures. Panel walls
monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts.

uctures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings
broken.

s destroyed with their foundations; ground badly cracked. Rails bent. Landslides considerable
(slopped) over banks.

fissures in ground. Underground pipelines completely out of service. Earth slumps and land

orted. Objects thrown upward into air.

October 22, 1952.

PLATE 10

EARTHQUAKE DATA FILE

LYON

EARTHQUAKE DATA FILE (U.S. DEPARTMENT OF COMMERCE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTI

SOURCE	YEAR	MO	DA	HR	MN	SEC	LAT	LONG	DEPTH (KM)	MAGNI BODY	MAGNI SURF
G-R	1928	08	23	06	15	55.0	36.500N	036.000E			5.
G-R	1936	06	14	17	01	30.0	37.000N	035.500E			5.
ISS	1951	04	08	21	38	05.0	36.600N	036.100E			6.
BCI	1951	07	12	06	51	12.0	36.500N	036.500E			
ISS	1951	08	05	15	12	07.0	34.200N	036.000E			
CGS	1952	10	22	17	00	38.0	36.500N	035.500E			5.
ISS	1953	03	24	21	17	32.0	37.000N	037.000E			
CGS	1964	04	23	14	23	43.2	36.900N	037.900E	057	4.80 MB	
CGS	1964	11	17	22	50	53.7	36.700N	035.200E	037	4.50 MB	
CGS	1965	04	01	01	11	36.4	36.000N	035.800E	042	4.30 MB	
CGS	1966	06	26	13	17	00.2	37.000N	035.900E	045	4.50 MB	
CGS	1968	03	26	19	37	33.7	34.200N	035.500E	033	4.90 MB	
CGS	1969	05	24	11	49	27.0	36.942N	035.418E	043	4.30 MB	
GS	1974	06	12	10	19	51.1*	34.040N	037.692E	033N	4.60 MB	
GS	1975	01	01	00	29	56.8	36.581N	036.463E	015	4.80 MB	
GS	1976	07	30	07	23	24.9*	36.767N	035.893E	041	4.2 MB	

NUMBER OF HITS 16

PREPARED BY THE NATIONAL GEOPHYSICAL A
ENVIRONMENTAL DATA SERVICE - NATIONAL OCE

78/09/25

RN Flinn - Engdahl Regions
366 - Turkey
374 - Jordan, Syria

CE - Cultural Effects - C, D, F, or H indicates reported Casualties, Damage or Felt informat
The notations listed here provide a brief summary of the earthquake effects on po
Casualty, damage, or felt reports associated with a particular earthquake do not
were noted at the epicentral position. Especially with offshore earthquakes, the
be reported at some distance from the source of the shock. An "F" in this positi
intensity (position 49) is likely associated with an intensity of I-III on the Mo

MAR-DG - Marsden 10° square and 1° subsquare.

SOURCE -
G-R - Gutenberg - Richter
ISS - International Seismological Summary
BCI - Bureau Central International de Seismologie
CGS - Coast & Geodetic Society
GS - U.S. Geological Survey

BEST AVAILABLE DOCUMENT

DMINISTRATION, ENVIRONMENTAL DATA SERVICE, NATIONAL GEOPHYSICAL AND SOLAR-TERRESTRIAL DATA CENTER)

MAGNITUDES SURF	OTHER	LOCAL	INT MAP	INT MAX	PHENOM DISVNO	RN	CE	Q/S	MAR	DG	DIST (KM)
	5.60	PAS (Pasadena, Ca., U.S.A.)				374			141	66	
	5.60	PAS (Pasadena, Ca., U.S.A.)				366			141	75	
	6.00	PRA (Prague, Czechoslovakia)				374	C		141	66	
						374			141	66	
						374	F		141	46	
	5.00	ROM (Rome, Italy)		IX		366	C		141	65	
						366	F		141	77	
						374		017	141	67	
						366		013	141	65	
						366		016	141	65	
						366	F	020	141	75	
						374		017	141	45	
						366	F	025	141	65	
						374	F	12	141	47	
						374	D	38	141	66	
						366		16	141	65	

:S 16

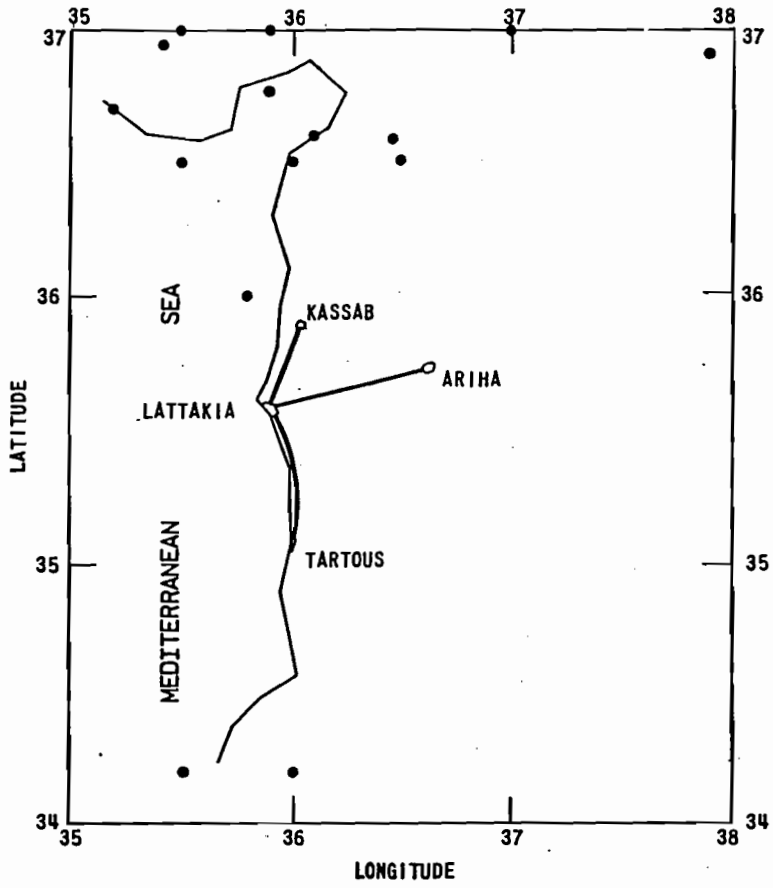
:SICAL AND SOLAR-TERRESTRIAL DATA CENTER
:NAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

nformation, or earthquake Heard.
s on population and buildings.
do not imply that the effects
es, the maximum intensity may
position with no accompanying
the Modified Mercalli Scale.

PLATE II

EARTHQUAKE DATA FILE

LYON



● DENOTES EARTHQUAKE LOCATIONS AS RECEIVED FROM U.S. DEPARTMENT OF COMMERCE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, ENVIRONMENTAL DATA SERVICE, NATIONAL GEOPHYSICAL AND SOLAR-TERRESTRIAL CENTER.

PLATE 12

LOCATION MAP

LYON

SEISMICITY SEARCH FOR EPICENTERS IN REGION BOUNDED BY 34-37°N 35-38°E FROM HISTORICAL FILE FOR 1906 TO 1975
INTERNATIONAL SEISMOLOGICAL CENTER, BERKSHIRE, U. K.

366 Turkey

	AGENCY	YEAR	MO	DY	HR	MN	SEC	LATITUDE	LONGITUDE	DEP	MAG						
1	CGS	1936	06	14	17	01	24.0	37.000N	036.000E				366				USE
2	GUTE	1936	06	14	17	01	30.0	37.000N	035.500E		5.60	PAS	366				GUTE
3	CGS	1951	04	08	21	38	08.0	36.500N	035.500E		"		366				USE
4	CGS	1952	10	22	17	00	38.0	36.500N	035.500E		"		366				USE
5	BCIS	1953	03	24	21	17	32.0	37.000N	037.000E		"		366	FELT			BCIS
6	ISS	1953	03	24	21	17	32.0	37.000N	037.000E		"		366				ISS
7	BCIS	1961	09	10	16	17	16.0	36.600N	035.800E		"		366				BCIS
8	ISC	1964	02	02	06	26	55.3	36.510N	35.800E	81	"		366			N 11	ISC
9	ISC	1964	11	17	22	50	49.1	36.810N	35.330E	4	"		366			N 24	ISC
10	KSA	1965	02	25	13	43	18.0	36.100N	35.500E		"		366			N 2	ISC
11	ISC	1966	06	26	13	17	01.7	36.840N	35.920E	50	4.50		366			N 28	ISC
12	ISC	1969	05	24	11	49	28.0	36.820N	35.310E	44	4.40		366			N 54	ISC
13	ISC	1972	04	09	05	45	12.0	36.658N	035.623E	33	"		366			N 7	ISC

PLATE 13

EARTHQUAKE DATA FILE

LYON

SEISMICITY SEARCH FOR EPICENTERS IN REGION BOUNDED BY 34-37°N 35-38°E FROM HISTORICAL FILE FOR 1906 TO 1975
INTERNATIONAL SEISMOLOGICAL CENTER, BERKSHIRE, U. K.

374 Jordan-Syria Region

	AGENCY	YEAR	MO	DY	HR	MN	SEC	LATITUDE	LONGITUDE	DEP	MAG					
14	GUTE	1928	08	23	06	15	55.0	36.500N	036.000E		5.60	PAS	374		GUTE	
15	BCIS	1951	04	08	21	38	00.0	36.400N	037.500E	100	6.00	FRA	374		BCIS	
16	ISS	1951	04	08	21	38	05.0	36.600N	036.100E		"		374		ISS	
17	BCIS	1951	07	12	06	51	12.0	36.500N	036.500E		"		374		BCIS	
18	BCIS	1951	08	05	15	12	02.0	34.200N	036.000E		"	FELT	374		BCIS	
19	ISS	1951	08	05	15	12	07.0	34.200N	036.000E		"	FELT	374		ISS	
20	KSA	1964	01	03	04	57	57.0	34.350N	35.500E		"		374	N 2	ISC	
21	KSA	1964	06	28	16	08	00.0	35.500N	36.300E		"		374	N 3	ISC	
22	ISC	1964	10	14	16	56	06.0	36.000N	36.000E		"		374	N 3	ISC	
23	ISC	1964	10	14	23	30	00.0	36.000N	36.000E		"		374	N 3	ISC	
24	ISC	1965	04	01	01	11	36.5	35.950N	35.770E	40	"		374	N 25	ISC	
25	KSA	1965	06	29	02	46	04.0	34.160N	36.500E		"		374	N 3	ISC	
26	KSA	1965	11	11	13	22	00.0	35.300N	37.700E		"		374	N 3	ISC	
27	KSA	1966	01	27	01	04	00.0	36.600N	37.000E		"		374	N 3	ISC	
28	KSA	1966	04	29	22	06	00.0	34.300N	35.500E		"		374	N 2	ISC	
29	KSA	1966	05	20	19	51	00.0	34.200N	35.300E		"		374	N 2	ISC	
30	KSA	1966	06	11	20	23	00.0	34.100N	35.400E		"		374	N 2	ISC	
31	ISC	1968	03	26	19	37	34.1	34.080N	35.470E	37	4.80		374	N 50	ISC	5
32	LAO	1968	05	30	12	32	11.0	36.300N	36.200E		4.40		374	N 1	ISC	
33	ISC	1969	11	30	00	39	23.4	35.700N	35.600E	33	"		374	N 7	ISC	
34	ISC	1970	07	30	05	00	47.0	34.400N	35.500E	33	"		374	N 8	ISC	
35	ISC	1973	08	12	16	55	36.3	34.193N	036.624E	0	"		374	N 8	ISC	4
36	ISC	1973	11	08	15	49	49.1	35.511N	036.216E	33	"		374	N 15	ISC	3
37	ISC	1974	06	12	10	19	48.8	34.100N	037.278E	0	4.60		374	N 29	ISC	2
38	ISC	1974	07	31	08	41	05.0	36.785N	036.595E	0	"		374	N 7	ISC	
39	ISC	1974	11	08	20	10	38.5	36.408N	036.412E	0	"		374	N 7	ISC	
40	ISC	1975	01	01	00	30	01.3	36.666N	036.485E	35	4.80		374	N145	ISC	1

1 - ISK Some damage at Hassa Town 36.83°N 36.50°E Felt at Hatay, Gaziantep, Manas, Adana

2 - NEIS Felt

3 - KSA Felt at Tripoli and Beirut

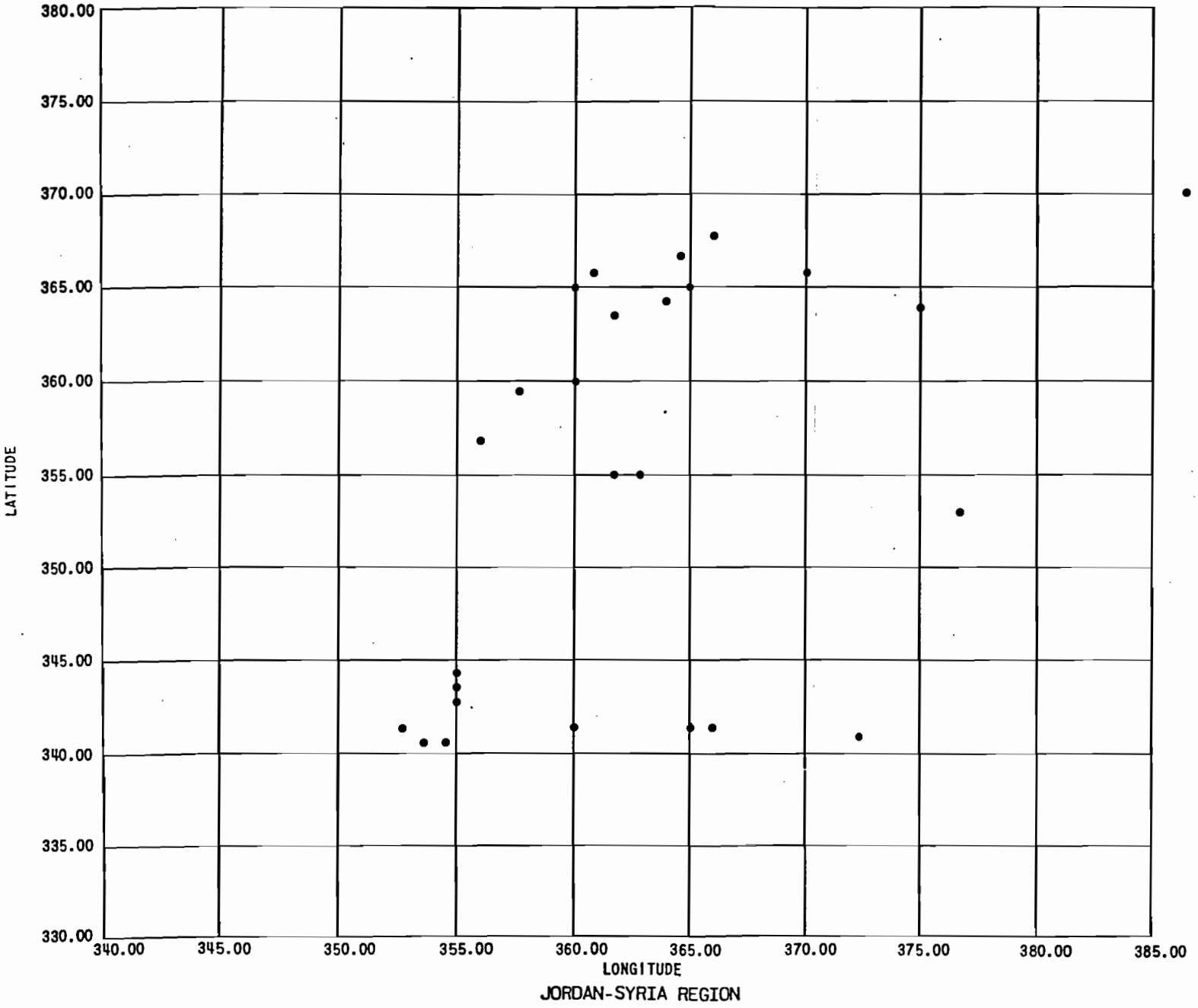
4 - KSA Felt I = V MCS in the north of Begaa

5 - BCIS Felt I = III - IV MCS Lebanon and Northern Israel

PLATE 14

EARTHQUAKE DATA FILE

LYON



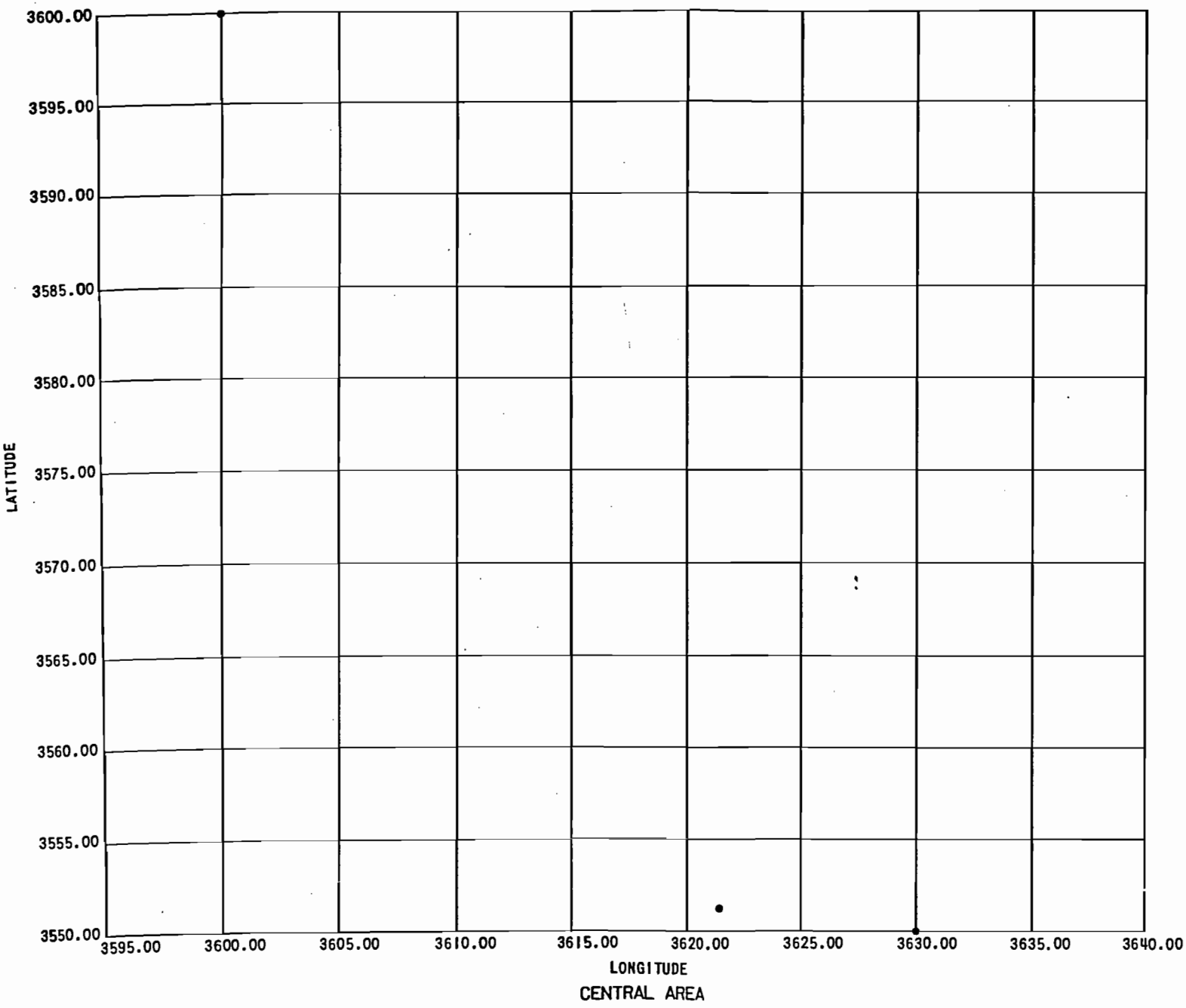
JORDAN-SYRIA REGION

● DENOTES EPICENTERS OF EARTHQUAKES AS RECEIVED FROM INTERNATIONAL SEISMOLOGICAL CENTRE, BERKSHIRE, U.K.

PLATE 15

EPICENTER LOCATION

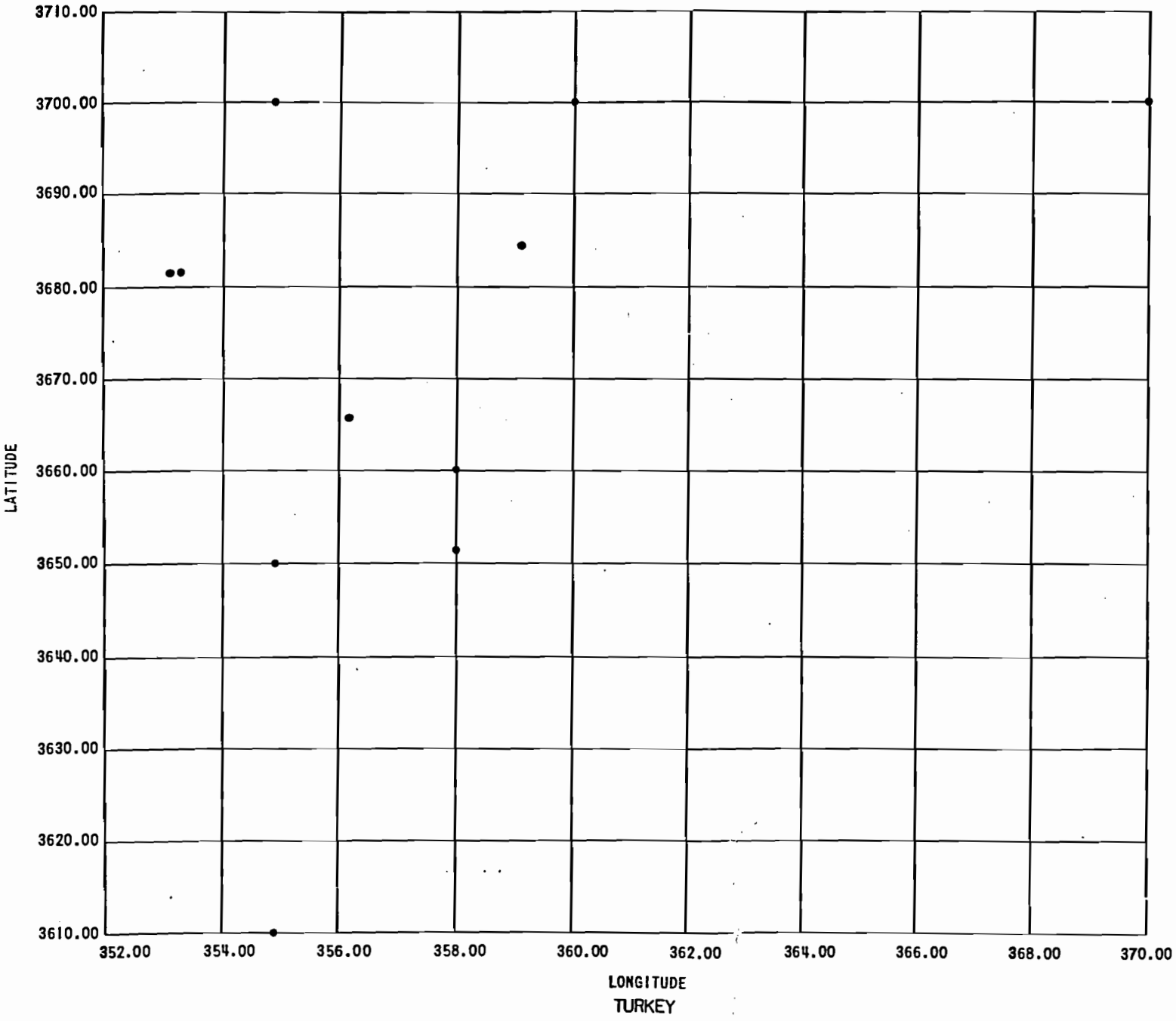
LYON



● DENOTES EPICENTERS OF EARTHQUAKES AS RECEIVED FROM INTERNATIONAL SEISMOLOGICAL CENTRE, BERKSHIRE, U.K.

PLATE 16

EPICENTER LOCATIO



● DENOTES EPICENTERS OF EARTHQUAKES AS RECEIVED FROM INTERNATIONAL SEISMOLOGICAL CENTRE, BERKSHIRE, U.K.

END

PLATE 17

EPICENTER LOCATION

LYON