FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Statement of Policy for the Flood Control District of Maricopa County to Assume Ownership and Operation and Maintenance Responsibilities for Flood Control Structures Constructed by Non-Federal Entities

This statement of policy establishes criteria for Flood Control structures constructed by others in order that the ownership and operation and maintenance responsibilities may be transferred to the Flood Control District of Maricopa County. These criteria are to be considerd general guidelines only. The Board of Directors of the Flood Control District of Maricopa County may, at its discretion, make exceptions to these criteria. Also, structures may be required to meet other criteria as determined by the Board of Directors. The determination whether the structures will be accepted by the Flood Control District shall be made by the Board of Directors and its decision is final.

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A. STRUCTURAL ADEQUACY

1. DAMS

1.1 General

A dam shall consist of a structure (normally concrete or earthen embankment), a principal spillway (controlled or uncontrolled), an emergency spillway, a reservoir area, and an access road. No structure constructed by a non-federal entity shall be accepted by the Flood Control District of Maricopa County unless it has had an acceptable level of maintenance and is currently licensed by the Arizona Department of Water Resources.

1.2 Minimum Size

The structure shall be at least of the size required for approval and licensing by the Division of Safety of Dams, Arizona Department of Water Resources. Stock tanks and other small impoundments cannot be accepted for ownership, maintenance and operation.

1.3 Compaction

Areas over which fills are to be placed shall be cleared and scarified to a depth of six inches to provide a bond between the existing ground and the material to be deposited thereon. Unless otherwise specified, the original ground area upon which fills are to be constructed shall be compacted to a uniform density of not less than 95%. Material unsuitable for foundation must be completely removed prior to beginning fill operation. The loose thickness of each layer of fill material before compacting shall not exceed eight inches except as provided in the following paragraph for rocky material. Each layer shall be compacted in accordance with the following requirement to a uniform density of not less than 95%.

When fill material contains by volume over 25% rock larger than six inches in greatest dimension, the fill below a plane three feet below finished grade may be constructed in layers of a loose

thickness before compaction not exceeding the maximum size of rock in the material but not exceeding three feet in thickness. The interstices around the rock in each layer shall be filled with earth or other fine material and compacted. At the time of compaction the moisture content of fill material shall be plus or minus 3% of optimum moisture.

Tests

Unless otherwise provided in the plans or special provisions the fill shall be thoroughly compacted to not less than the stated densities when tested and determined by AASHTO T-99 Method A and T-191 or ASTM D-2922 and D-3017 with the percent of density adjusted in accordance with the rock correction procedure for maximum density determination standard detail to compensate for the rock content larger than that which will pass a number 4 sieve. For soil cement construction, the optimum moisture requirements and field tests of moisture density shall be determined in accordance with AASHTO T-134, T-191, T-217 or ASTM D-558, D-2922, D-3017 on representative samples.

All structures shall be analyzed, using recognized principles of soil mechanics, for stability, seepage and piping.

1.4 Principal Spillway

(a) The principal spillway shall be designed in accordance with U.S. Army Corps of Engineers or Soil Conservation Service criteria and guidelines.

(b) Trash racks shall be of a design to exclude trash at any water stage within the reservoir. They may be of a type to completely enclose the entrance into the spillway, or may be of pipe or structural steel to form a rack open at the top. Racks which are open at the top shall extend above the maximum expected water surface elevation. All racks shall be designed by a Structural Engineer to withstand hydrostatic, hydrodynamic, and other loads that may be reasonably expected. Horizontal spacing of the Vertical members in the trash racks shall comply with the attached graph, "Trash Racks-Maximum Horizontal Spacing of Vertical Members versus Diameter of Principal Spillway," (enclosure 1).

(c) Outlet structures, catch basins, retaining walls, abutments, footings, foundations, and similar structures shall be constructed in conformity with plans and specifications. Concrete for use in work constructed under these specifications shall conform to the requirements of section "725 and 726, Uniform Standard Specifications for Public Works Construction (MAG)."

1.5 Emergency Spillway

(a) Explanatory definitions, as applicable, and procedures shall be generally in accordance with guidelines for spillway design prepared by the U.S. Army Corps of Engineers or the Soil Conservation Service.

(b) Spillways structural hazard classification, spillway capacities and spillway freeboard shall be in accordance with the Soil Conservation Service Criteria References and Procedure for Hydrological Design of Earthen Dams, dated December 1, 1972 (enclosure 2). However, where design is indicated to be in accordance with the six-hour P.M.P. storm, runoff for the specific type watershed shall be determined in accordance with Hydrometeorological Report number 49, "Probable Maximum Precipitation Estimates, Colorado River and Great Basin Drainages" prepared by the National Weather Service, September 1977.

(c) A foundation and soils investigation will be required to indicate the character and density of the material in the spillway. Also a hydraulic analysis will be required to determine velocities during a spillway design flood, and an analysis made of possible scouring. Where necessary to keep scouring within acceptable limits, riprap, paving, and/or soil stabilization will be required to protect and reduce velocities on the spillway section.

1.6 Plans and Specifications

Plans and specifications shall be submitted in accordance with Arizona Department of Water Resources R-12-15-1205.

2. CHANNELS

2.1 Capacity

The Channel shall, as a minimum contain the peak runoff from a 100-year storm over the watershed or tributary area. Design factors must be realistic, and reasonable allowances must be made for future development in the area. Assumptions that future developments will comply with current land use and control zoning regulations are acceptable.

Channels which require levees to contain the design runoff must be designed as a minimum in accordance with Federal Emergency Management Agency (FEMA) Levee Policy and must be designed and constructed in accordance with U.S. Army Corps of Engineers criteria contained in EM 1110-2-1913, dated March 31, 1978. In areas where loss of life or extensive property damage could occur as a result of the catastrophic failure of a levee caused by overtopping, the levee shall be designed to preclude catastrophic failure when subjected to Standard Project Flood (SPF) conditions.

2.2 Channel Design

(a) Maximum Permissible Side Slopes (Unlined):

(1) Slopes not exposed to action of channel current or subject to bank seepage.

a Cohesionless materials. Slopes will not be steeper than the natural angle of repose of the material.

b Cohesive materials. Slopes will not be steeper than critical slope corresponding to height of bank.

(b) Slopes exposed to action of channel current and to seepage from bank:

Material	Maximum Side Slope Slope Exposed to Action of: Channel Current	Channel Current and Seepage into Channel
1. Cut firm rock	1/4:1	1/4:1
2. Cut fissured rock	1/2:1	1/2 1
3. Disintegrated rock	3/4:1	1:1
4. Cut cemented gravel		
a. Insoluble binder	3/4:1	1:1
b. Soluble binder	1:1	1-1/2:1
5. Cut, heavy clay	1:1	Specific Analysis
6. Fill, heavy clay	2:1	Specific Analysis
7. Well graded mixture of sand and silt with good clay binder, cut or fill	1-1/2:1	2:1
8. Well graded mixture of coarse sand and silt with poor binder, cut or fill	2:1	3:1
9. Fine sands and silts, poor binder, cut or fill	3:1	3:1
10. Clean coarse sands, sand-gravel mixtures, cut or fill	1-1/2:1	1-3/4:1

Slopes with height in excess of 10 feet or having surcharge load on berms shall be analyzed for stability by the Engineer of record.

(c) Scour

Mean channel velocities during a peak flow shall be determined if the mean velocity is five feet per second or greater, analysis shall be made by a Soils Engineer to determine whether scouring will occur. If scour is probable, the channel shall be lined or methods developed for reducing the velocities to within acceptable limits. Drop structures may be used to reduce channel velocities.

(d) Sediment

If mean channel velocities are low (less than 2 feet per second), the tributary area shall be studied to determine whether excessive sedimentation is likely to occur in the channel. Sedimentation which will reduce the cross sectional area of the channel at any point by 2% annually is considered excessive. Corrective action, in effect or planned, to eliminate excessive sedimentation shall be discussed together with implementation where required.

(e) Access Roads

An access road of 12 foot minimum width for maintenance will be provided along one bank of the channel where the top width of the channel does not exceed 20 feet, and along both banks where the top width exceeds 20 feet.

(f) Residual Freeboard

Freeboard, above the calculated maximum water surface, shall be provided in accord with the following criteria:

	Subcritical Velocity	Supercritical Velocity
Rectangular Section	$0.1H_e$	0.20d
Trapezoidal Section	$0.2H_e$	0.25d

where H_e = specific energy head $= \left(\text{depth of flow} + \frac{V^2}{2g}\right)$

d = Calculated depth of flow

$f \geq .1\,\text{depth flow} + .1\frac{V^2}{2g}$

Minimum Freeboard shall be 3.0 feet.
Minimum clearance between calculated maximum water surface and the underside of bridge deck and culvert top slabs shall be 1.0 feet.

(g) Excavation

Excavation in open cut for lined channels may be made so as to place concrete directly against the excavated surfaces providing the faces of the excavation are firm and unyielding.

Excavation to provide a subgrade for lined channels, or subdrainage material, shall be to the lines indicated on the plans; and excavation made below subgrade shall be backfilled and compacted to a uniform density as per paragraph 1.3 above.

(h) Fill and Back Fill

Unless otherwise specified in the special provisions, material obtained from the project excavation may be presumed to be suitable for use as fill or backfill provided that all organic material, rubbish, debris, and other objectionable material is first removed; unless otherwise specified in the special provisions the density of any fill backfills shall be as per paragraph 1.3 above.

3. LEVEES

3.1 Compaction

Unless otherwise specified all compaction and tests to be as per paragraph 1.3 above and EM 1110-2-1913.

3.2 Cross Section

Side Slopes shall not be steeper than one vertical on 2-1/2 horizontal landside and one vertical on 3 horizontal streamside. The top width shall be at least 12 feet. The top elevation shall provide a freeboard of not less than 3 feet above the peak water surface determined for a 100-year flood. Where the height of the levee exceeds 5 feet, special analysis may be required to determine potential damage due to failure, possibility of piping, and other risks encountered in high levees.

3.3 Scour

Mean velocities will be determined using realistic factors in the adjoining stream. If the mean velocity is 5 feet per second or greater, an analysis will be made by a competent Soils Engineer to determine whether scour of the levee will occur. Armor protection of the levee will be required where velocities are excessive, and where changes in direction of the stream may cause scouring impingement against the levee.

3.4 Access Roads

An access road of 12 foot minimum width will be provided along the top of levee for maintenance.

4. FENCING

Fencing of structures may be required when it is deemed necessary by the Flood Control District to protect the public from hazard or to protect the structures from vandalism or damage.

5. ACCELERATION CHUTES

Acceleration chutes, whether leading into box culverts, pipes, or high velocity open channels, are often used to permit reduced downstream cross sections and resulting reduced costs.

Acceleration chutes are potentially hazardous if inadequately planned and designed (2, 3, 4). High velocity flow can wash out channels and structures downstream in short order, resulting in property damage and uncontrolled flow.

5.1 Hydraulics

Discharge generally passes through the critical stage in the entrance section of the chute and enters the chute as supercritical flow.

Normally, the flow must remain at supercritical through the length of the chute and into the channel or conduit downstream. Care must be exercised in the design to insure against an unwanted hydraulic jump in the downstream channel or conduit. The reader is referred to Section 2.1 for details as to hydraulic analysis procedures. The analysis must include computation of the energy gradient through the chute and in the downstream channel or conduit.

6. BENDS

Structures are generally unnecessary in subcritical flow channels unless the bend is of small radius. Structures for supercritical flow are complex and require careful hydraulic design to control the flow.

6.1 Supercritical Flow

Bends are normally not used in supercritical flow channels because of the costs involved and the hazards introduced. It is possible to utilize banking, easement curves, and diagonal sills (7). Sometimes outside bank rollover structures might even be considered. All of these, however, are generally out of place in urban drainage works.

When a bend is necessary, and it is not practical to first take the flow into subcritical flow, the designer will generally conclude that the channel should be placed in a closed conduit for the entire reach of the bend, and downstream far enough to eliminate the main oscillations. A model test is usually required on such structures. Furthermore, the forces exerted on the structure are large and must be analyzed.

6.1.1 Hydraulic Forces. The forces involved with hydraulic structures are large, and their analyses are often complex. The forces created can cause substantial damage if provisions are not made for their control (8).

In regard to bends, forces are usually larger than one would intuitively assume.

Newton's third law of motion: "For every force acting on a body there is a corresponding force exerted by the body; these two forces are equal in magnitude but opposite in direction," describes the basic fundamentals.

In America the pound is the unit of force and the slug is the unit of mass. One pound is the force acting on a mass of one slug which will accelerate the body by one foot per second per second.

For time (t) of one second,

$$F = M\ (v_1 - v_2)$$

where:

F = force
M = mass
v = velocity

7. BAFFLE CHUTES

Baffle chutes are used to dissipate the energy in the flow at a larger drop. They require no tailwater to be effective (3).

They are particularly useful where the water surface upstream is held at a higher elevation to provide head for filling a side storage pond during peak flows.

7.1 General

Baffle chutes are used in channels where water is to be lowered from one level to another. The baffle piers prevent undue acceleration of the flow as it passes down the chute. Since the flow velocities entering the downstream channel are low, no stilling basin is needed. The chute, on a 2:1 slope or flatter, may be designed to discharge up to 60 cfs per foot of width, and the drop may be as high as structurally feasible. The lower end of the chute is constructed to below stream-bed level and back-filled as necessary. Degradation of the stream bed does not, therefore, adversely affect the performance of the structure. In urban drainage design, the lower end should be protected from the scouring action.

7.2 Design Procedure

The baffled apron should be designed for the full design discharge.

The unit design discharge $q = Q/W$ may be as high as 60 cfs per foot of chute width, W. Less severe flow conditions at the base of the chute exist for 35 cfs and a relatively mild condition occurs for unit discharges of 20 cfs and less. Referring to Figure 7-1, it will be noted that the entrance velocity, V_1, should be as low as practical. Ideal conditions exist when

$$V_1 = \sqrt[3]{gq} - 5 \qquad (7\text{-}1)$$

Flow conditions are not acceptable when

$$V_1 = \sqrt[3]{gq} \qquad (7\text{-}2)$$

The vertical offset between the approach channel floor, Figure 7-2, and the chute is used to create a stilling pool or desirable V_1 and will vary in individual installations. Place the first row of baffle piers close to the top of the chute no more than 12 inches in elevation below the crest.

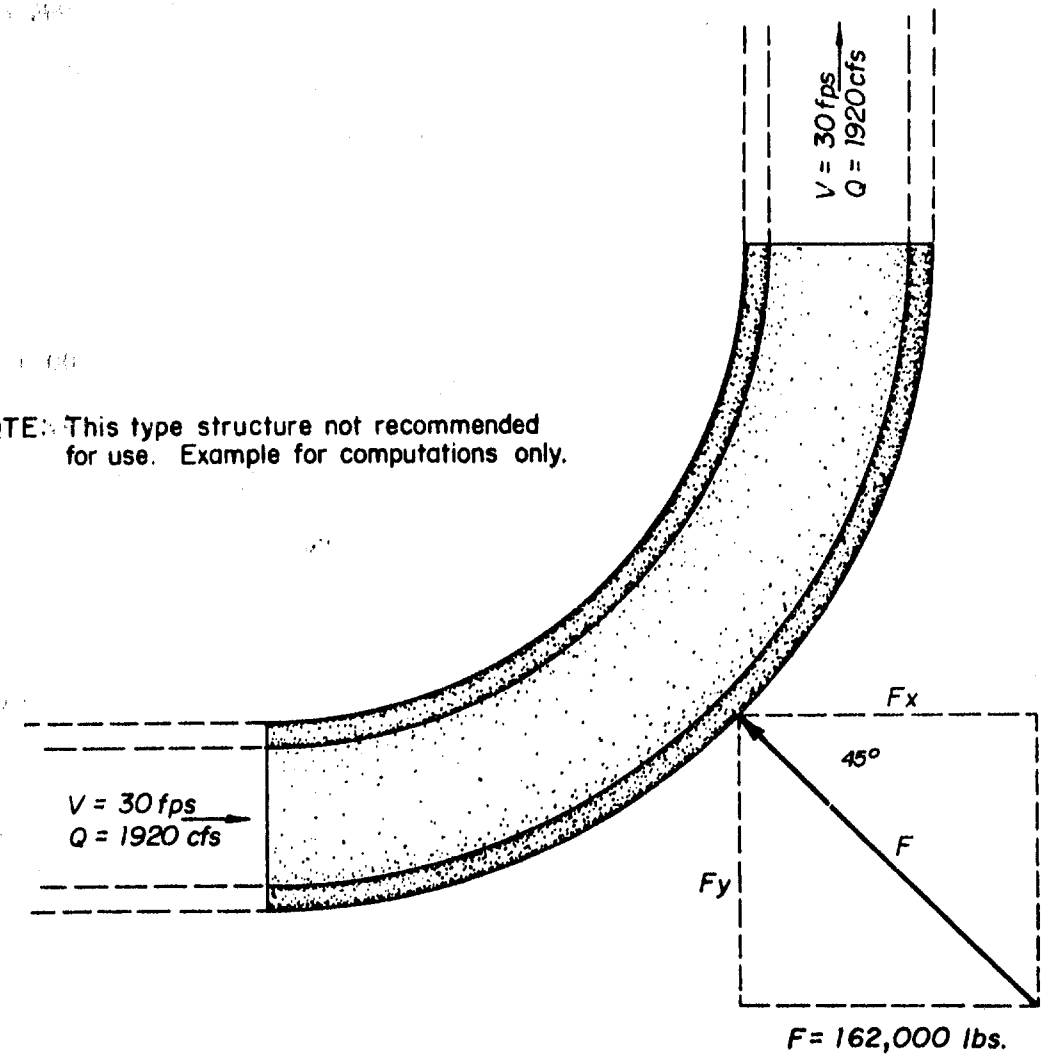


FIGURE 6-1. DYNAMIC FORCES AT BEND

6.1.1A Example Computing Horizontal Forces

As an example of computing horizontal forces, assume the conditions as shown in Figure 6-1 where the flow is 1920 cfs, the velocity is 30 fps, and the bend is in a box culvert with inside dimensions of 8' x 8'.

The magnitude and direction of the resultant force on the wall is needed. F is the total force of the wall on the water, and it can be broken into components Fx and Fy. Fx is a force in the direction indicated which decelerates the water from 30 fps to zero velocity, Fy is a force in the direction indicated which accelerates the water from zero to 30 fps. Then

$$F = \text{Mass} \times \text{acceleration, or}$$

$$Fx = 8' \times 8' \times 30 \left(\frac{62.4}{32.2}\right) \times (0 - 30) = 115{,}000 \text{ lbs.}$$

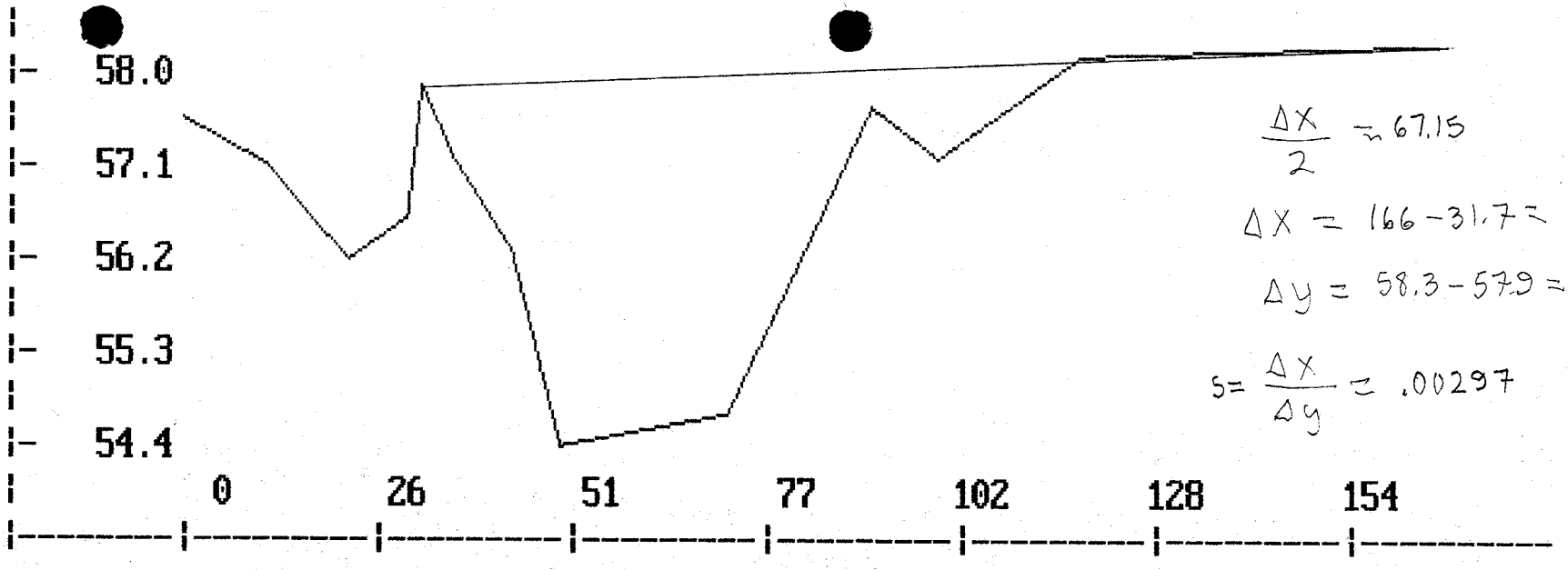
$$Fy = 8' \times 8' \times 30 \left(\frac{62.4}{32.2}\right) \times (30 - 0) = + \ 115{,}000 \text{ lbs.}$$

The magnitude of F is

$$F = \sqrt{Fx^2 + Fy^2} = 162{,}000 \text{ lbs.}$$

The resultant force of 162,000 lbs. acts at 45 degrees with the original flow direction.

The force due to pressure on the bend should also be calculated when conduits flow under pressure. The total force exerted on the bend by the water, the total of momentum and pressure forces, must be counteracted by external forces. Allowable soil bearing should be determined using soil tests if necessary. Forces which cannot be handled by the pipe bearing on the soil must be compensated for by additional thrust blocks or other structures.



$\frac{\Delta X}{2} = 67.15$

$\Delta X = 166 - 31.7 = 134.3$

$\Delta y = 58.3 - 57.9 = .4$ (335.75)

$s = \frac{\Delta X}{\Delta y} = .00297$

Sec # 13 of 24

Centerline Station = 30+20

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		57.6	11.0	57.1	22.0	56.2	29.7	56.6
2	31.7	57.9	35.8	57.2	43.5	56.3	50.0	54.4
3	72.0	54.7	91.0	57.7	100.0	57.2	119.0	58.2
4	166.0	58.3						
5								
6								

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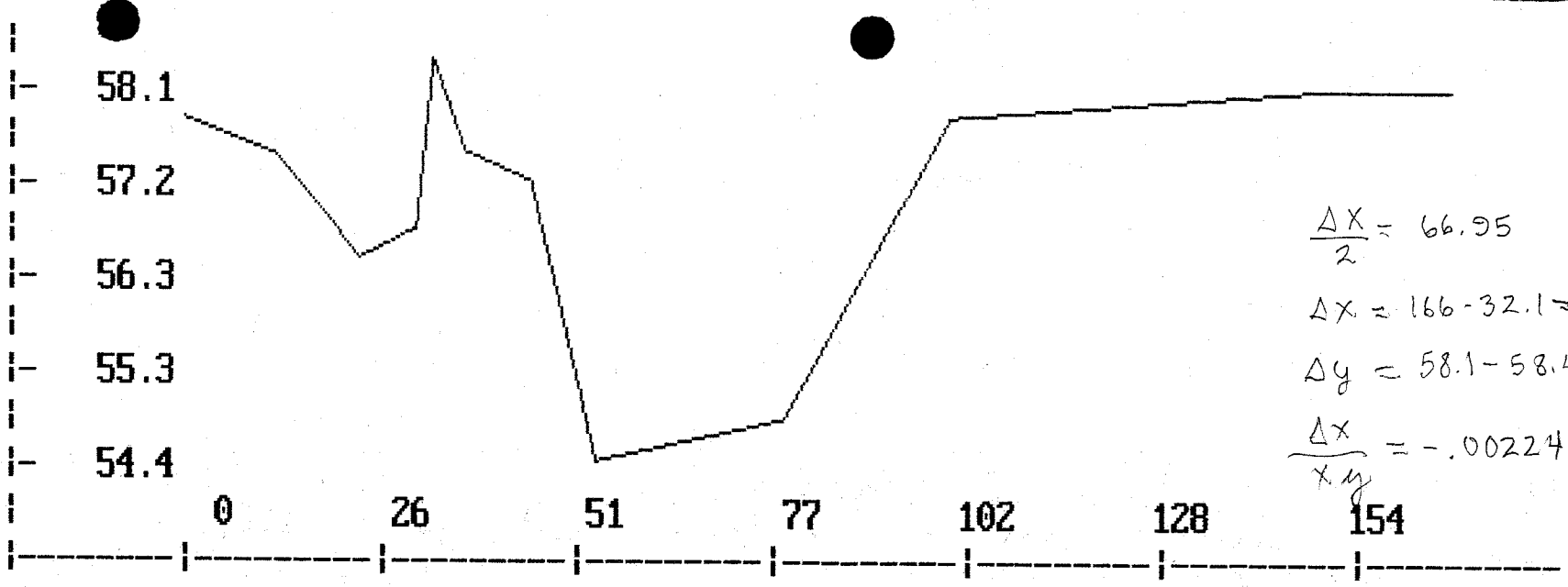

$\frac{\Delta X}{2} = 66.95$

$\Delta X = 166 - 32.1 = 133.9$

$\Delta y = 58.1 - 58.4 = -.3$ $(-446.\overline{3})$

$\frac{\Delta x}{x y} = -.00224$

Sec # 12 of 24

Centerline Station = 30+40

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		57.8	11.4	57.5	22.5	56.4	30.0	56.7
2	32.1	58.4	36.4	57.5	45.0	57.2	53.6	54.4
3	78.0	54.8	100.0	57.8	150.0	58.1	166.0	58.1
4								
5								
6								

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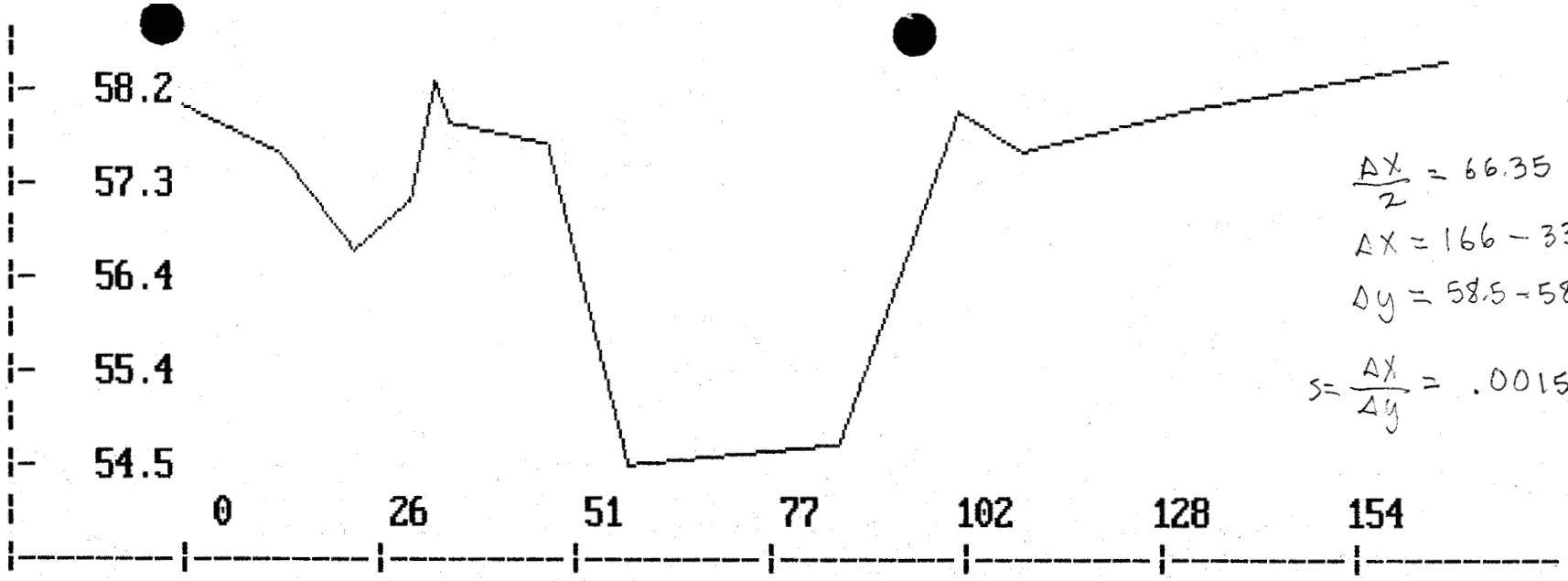

$\frac{\Delta X}{2} = 66.35$

$\Delta X = 166 - 33.3 = 132.7$

$\Delta y = 58.5 - 58.3 = .2$

$s = \frac{\Delta X}{\Delta y} = .001507$

Sec # 11 of 24

Centerline Station = 30+60

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		58.0	12.6	57.6	22.5	56.6	30.0	57.1
2	33.3	58.3	35.3	57.9	48.0	57.7	58.5	54.5
3	86.0	54.7	102.0	58.0	110.5	57.6	131.5	58.0
4	166.0	58.5						
5								
6								

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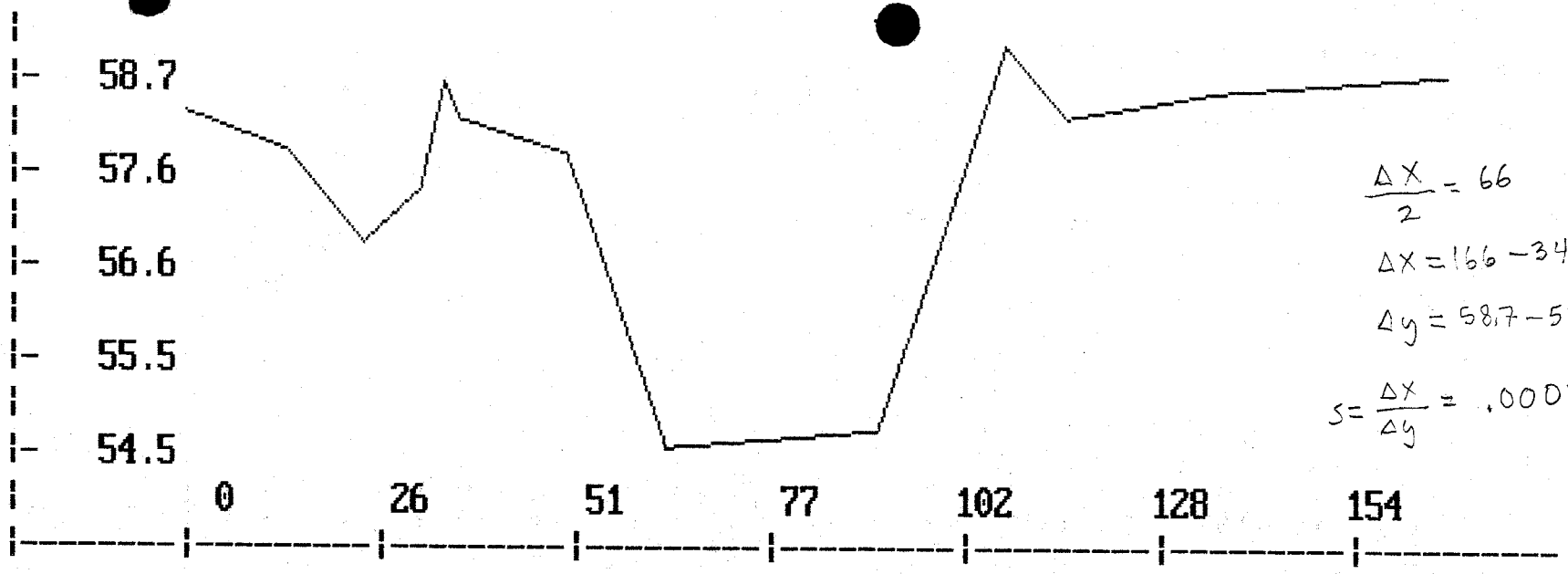

$\frac{\Delta X}{2} = 66$

$\Delta X = 166 - 34 = 132$

$\Delta y = 58.7 - 58.6 = .1$

$s = \frac{\Delta X}{\Delta y} = .00075$

Sec # 10 of 24

Centerline Station = 30+80

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		58.3	13.0	57.8	23.3	56.8	30.7	57.4
2	34.0	58.6	36.0	58.2	50.0	57.8	63.0	54.5
3	91.0	54.7	108.0	59.0	116.0	58.2	136.0	58.5
4	166.0	58.7						
5								
6								

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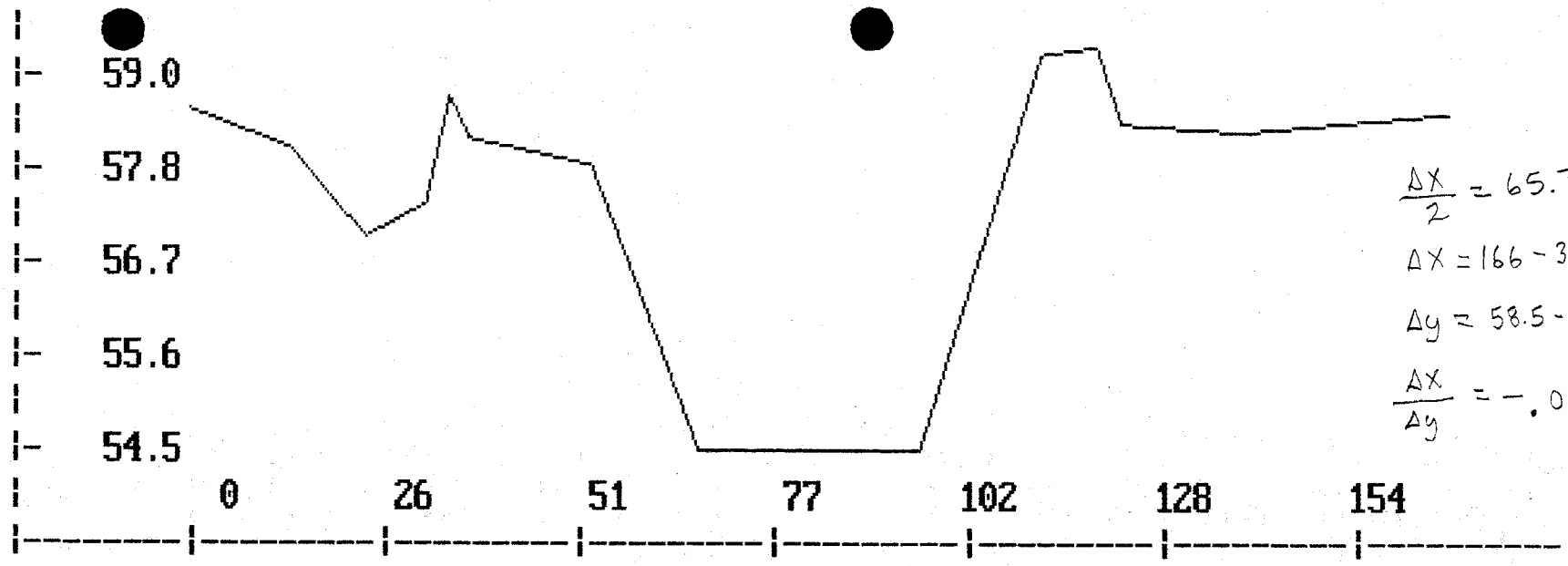

$\frac{\Delta X}{2} = 65.75$

$\Delta X = 166 - 34.5 = 131.5$

$\Delta y = 58.5 - 58.7 = -.2$

$\frac{\Delta X}{\Delta y} = -.00152$

Sec # 9 of 24

Centerline Station = 40+00

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		58.5	13.2	58.1	23.6	57.0	31.4	57.4
2	34.5	58.7	37.0	58.2	53.0	57.9	67.0	54.5
3	96.0	54.5	112.0	59.2	119.5	59.3	122.7	58.4
4	140.0	58.3	166.0	58.5				
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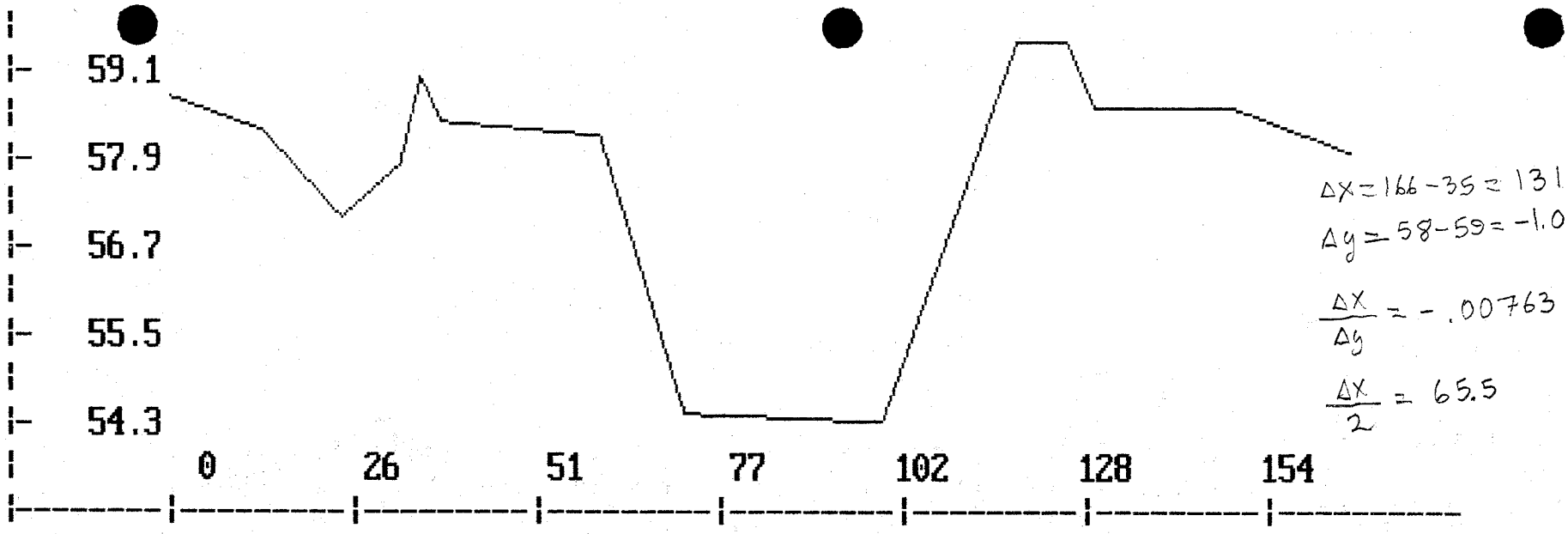

$\Delta X = 166 - 35 = 131$

$\Delta y = 58 - 59 = -1.0$

$\frac{\Delta X}{\Delta y} = -.00763$

$\frac{\Delta X}{2} = 65.5$

Sec # 8 of 24

Centerline Station = 40+20

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		58.7	12.9	58.3	24.0	57.1	32.0	57.8
2	35.0	59.0	38.0	58.4	60.0	58.2	72.0	54.4
3	100.0	54.3	119.0	59.5	126.0	59.5	130.0	58.6
4	150.0	58.6	166.0	58.0				
5								
6								

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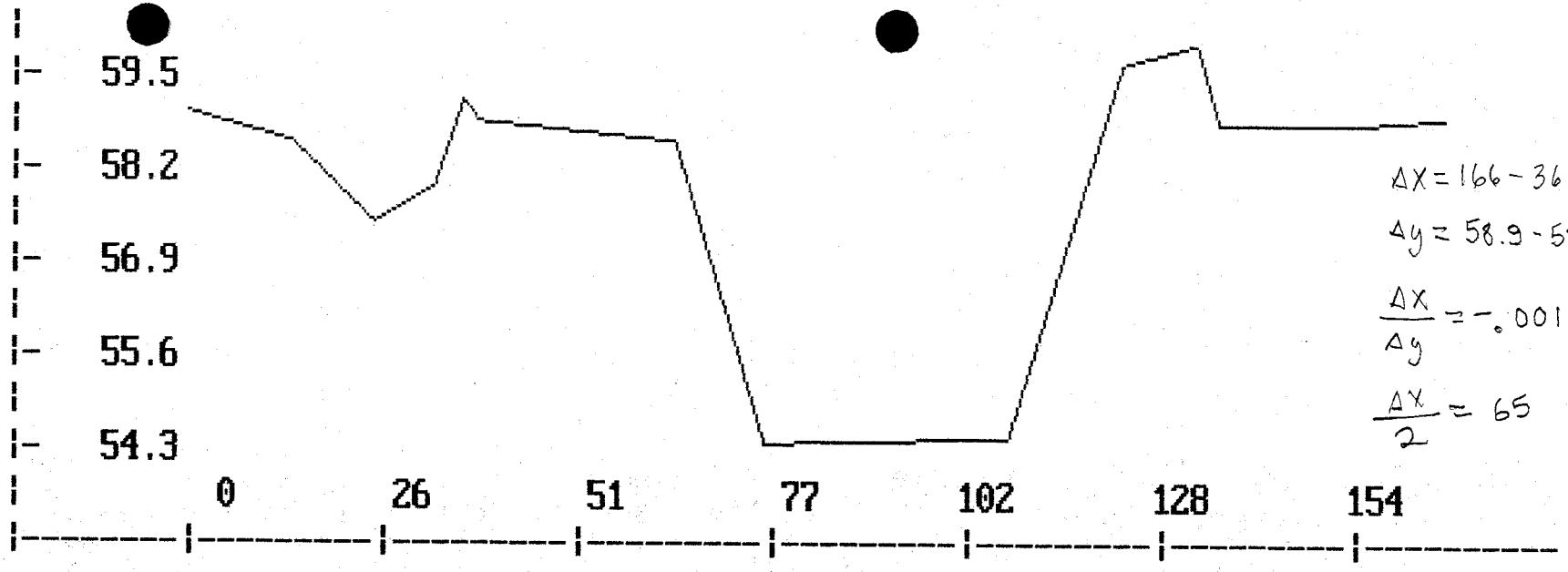

$\Delta X = 166 - 36 = 130$

$\Delta y = 58.9 - 59.1 = -.2$

$\frac{\Delta X}{\Delta y} = -.00153$

$\frac{\Delta X}{2} = 65$

Sec # 7 of 24

Centerline Station = 40+40

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		59.0	13.7	58.5	24.6	57.4	32.2	57.9
2	36.0	59.1	38.0	58.8	64.0	58.5	76.0	54.3
3	108.0	54.4	123.0	59.6	133.0	59.9	136.0	58.8
4	156.0	58.8	166.0	58.9				
5								
6								

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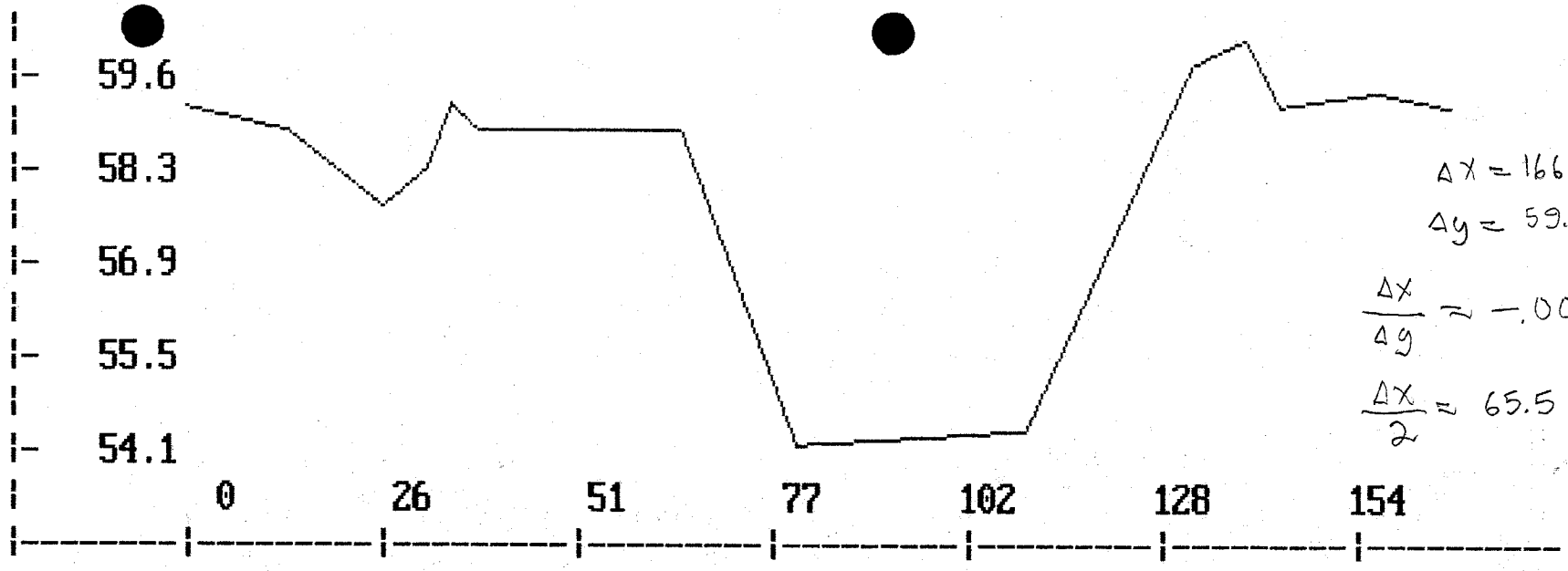

$\Delta X = 166 - 35 = 131$

$\Delta y = 59.1 - 59.2 = -.1$

$\frac{\Delta X}{\Delta y} \approx -.00076$

$\frac{\Delta X}{2} \approx 65.5$

Sec # 6 of 24

Centerline Station = 40+60

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		59.2	13.5	58.8	26.0	57.7	31.5	58.2
2	35.0	59.2	38.5	58.8	65.0	58.8	80.0	54.1
3	110.0	54.3	132.0	59.7	139.0	60.1	143.4	59.1
4	157.0	59.3	166.0	59.1				
5								
6								

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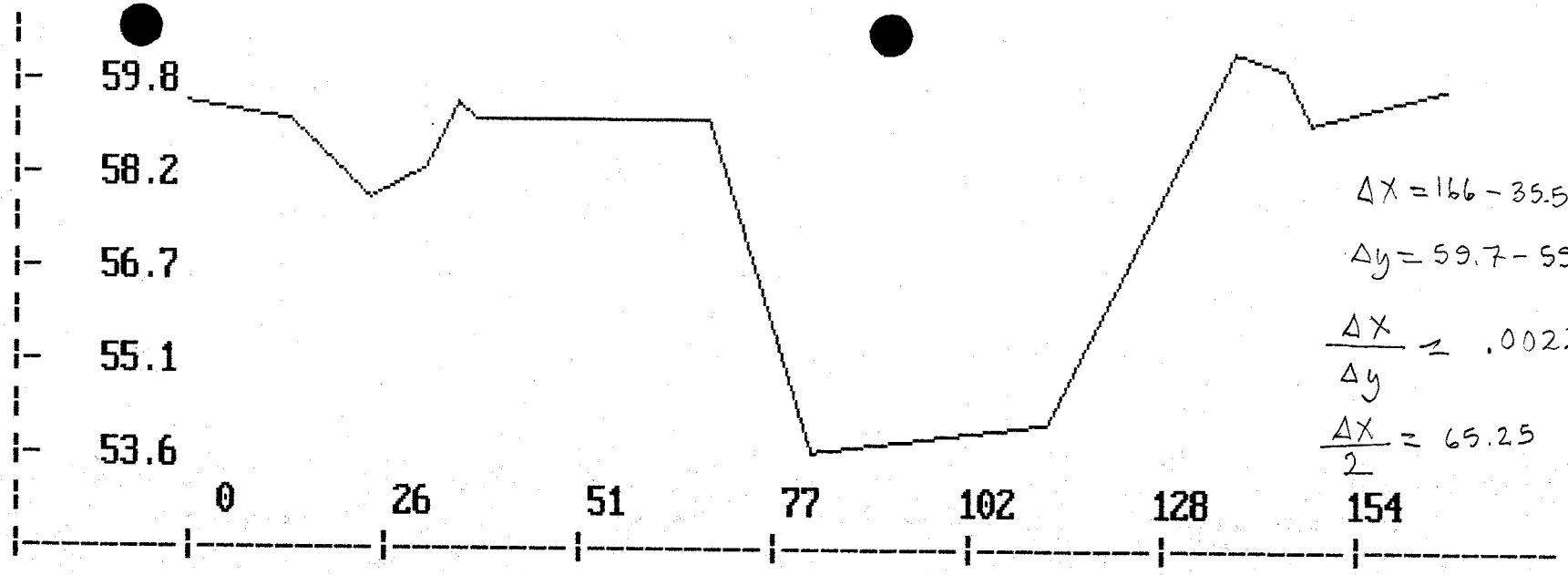


$\Delta X = 166 - 35.5 = 130.5$

$\Delta y = 59.7 - 59.4 = .3$

$\frac{\Delta X}{\Delta y} = .00229$

$\frac{\Delta X}{2} = 65.25$

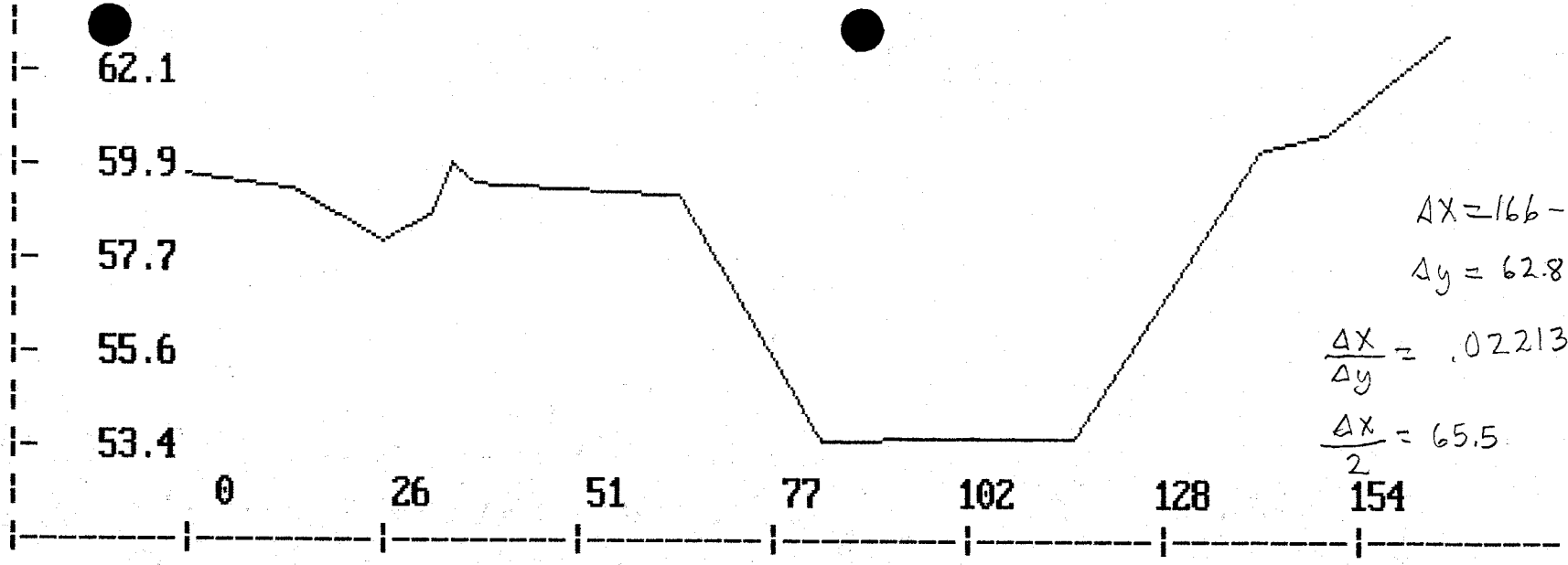
Sec # 5 of 24

Centerline Station = 40+80

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		59.4	13.3	59.1	24.0	57.8	31.0	58.3
2	35.5	59.4	38.0	59.1	68.5	59.1	82.0	53.6
3	113.0	54.1	138.0	60.3	144.5	60.0	148.0	59.1
4	166.0	59.7						
5								
6								

Esc-Menu F5-Prior F6-Rod/Elev F7-Next F8-Select NUM



$\Delta X = 166 - 35 = 131$

$\Delta y = 62.8 - 59.9 = 2.9$

$\frac{\Delta X}{\Delta y} = .02213$

$\frac{\Delta X}{2} = 65.5$

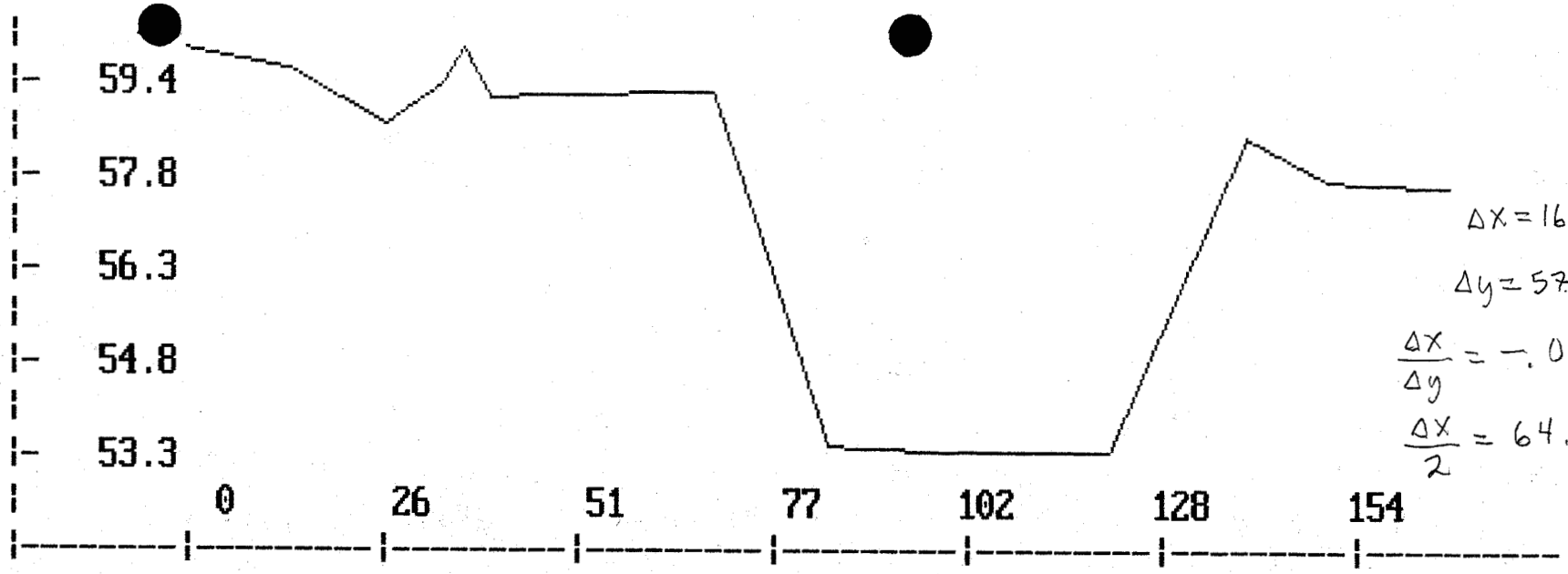
Sec # 4 of 24

Centerline Station = 50+00

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		59.7	14.0	59.3	26.0	58.1	32.0	58.7
2	35.0	59.9	38.0	59.4	65.0	59.1	83.5	53.4
3	116.7	53.5	141.0	60.1	150.0	60.5	166.0	62.8
4								
5								
6								

Esc-Menu F5-Prior F6-Rod/Elev F7-Next F8-Select NUM



$\Delta X = 166 - 36.4 = 129.6$

$\Delta y = 57.6 - 59.8 = -2.2$

$\frac{\Delta X}{\Delta y} = -.0169$

$\frac{\Delta X}{2} = 64.8$

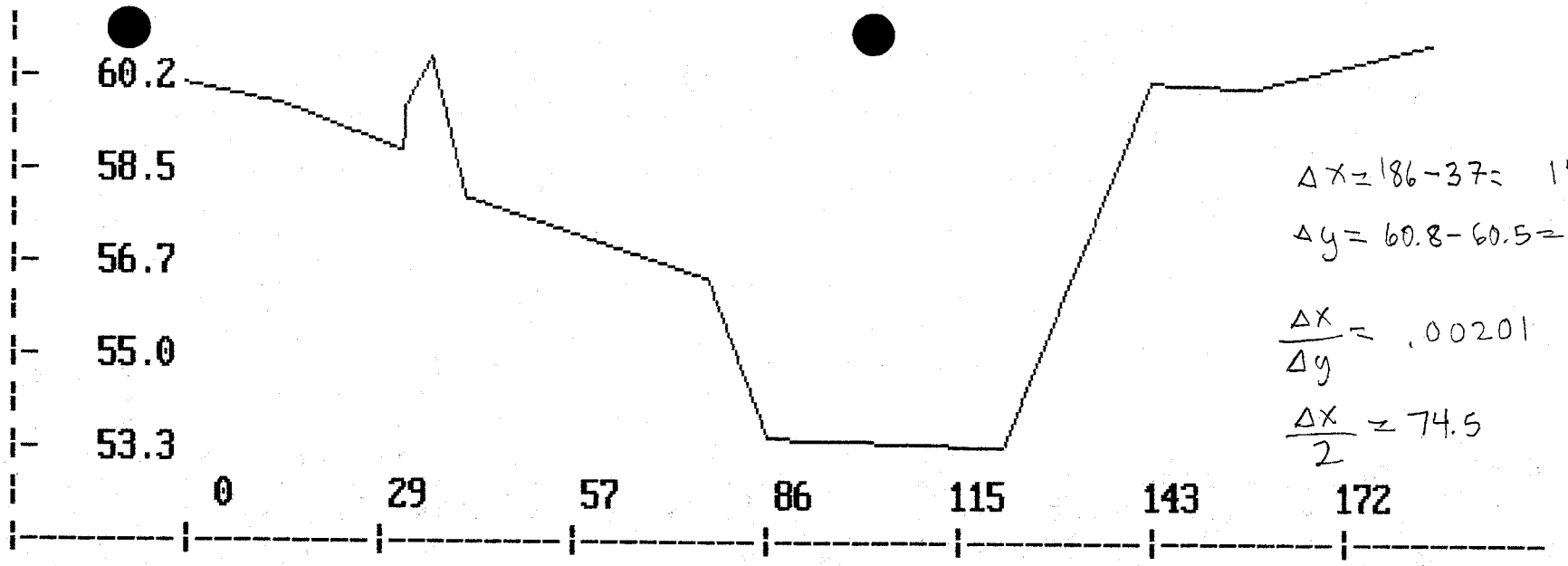
Sec # 3 of 24

Centerline Station = 50+20

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		59.8	13.9	59.5	26.3	58.6	33.3	59.2
2	36.4	59.8	40.0	59.0	69.0	59.1	84.0	53.4
3	100.0	53.3	121.0	53.3	139.0	58.4	150.0	57.7
4	166.0	57.6						
5								
6								

Esc-Menu F5-Prior F6-Rod/Elev F7-Next F8-Select NUM



$\Delta x = 186 - 37 = 149$

$\Delta y = 60.8 - 60.5 = .3$

$\frac{\Delta x}{\Delta y} = .00201$

$\frac{\Delta x}{2} = 74.5$

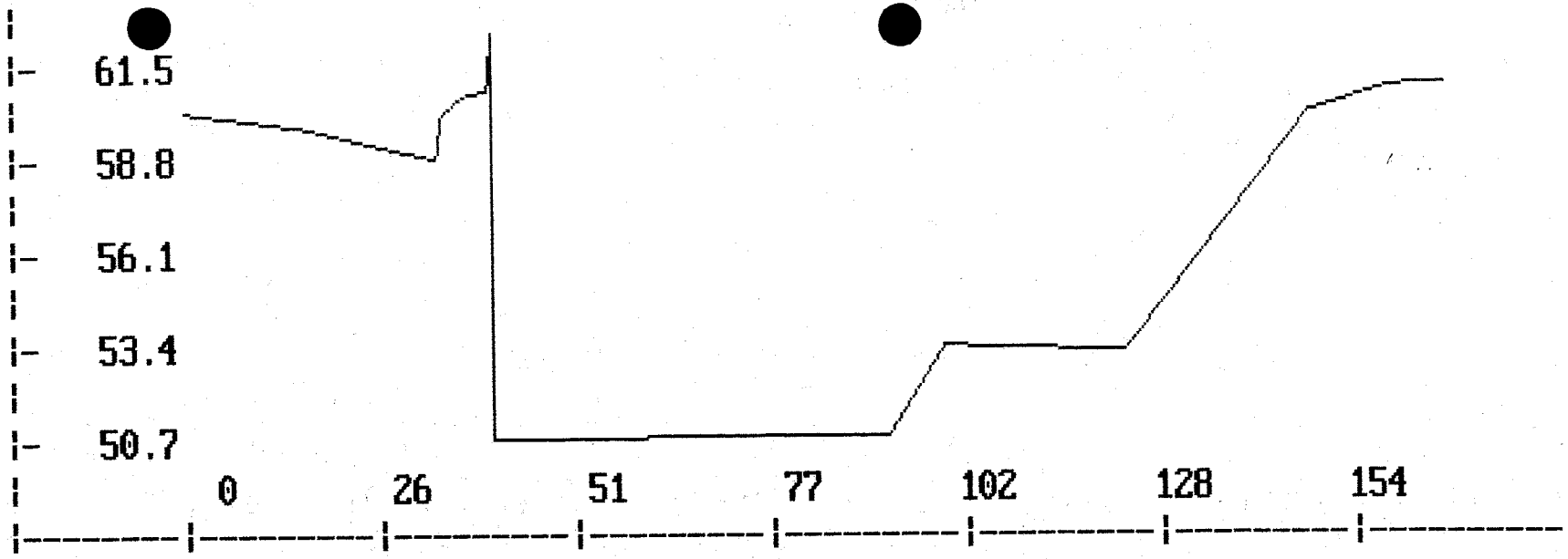
Sec # 2 of 24

Centerline Station = 50+40

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		60.0	14.5	59.7	32.5	58.8	33.0	59.6
2	37.0	60.5	42.0	57.9	78.0	56.4	86.8	53.4
3	100.0	53.4	122.0	53.3	144.0	60.1	160.0	60.0
4	186.0	60.8						
5								
6								

Esc-Menu F5-Prior F6-Rod/Elev F7-Next F8-Select NUM

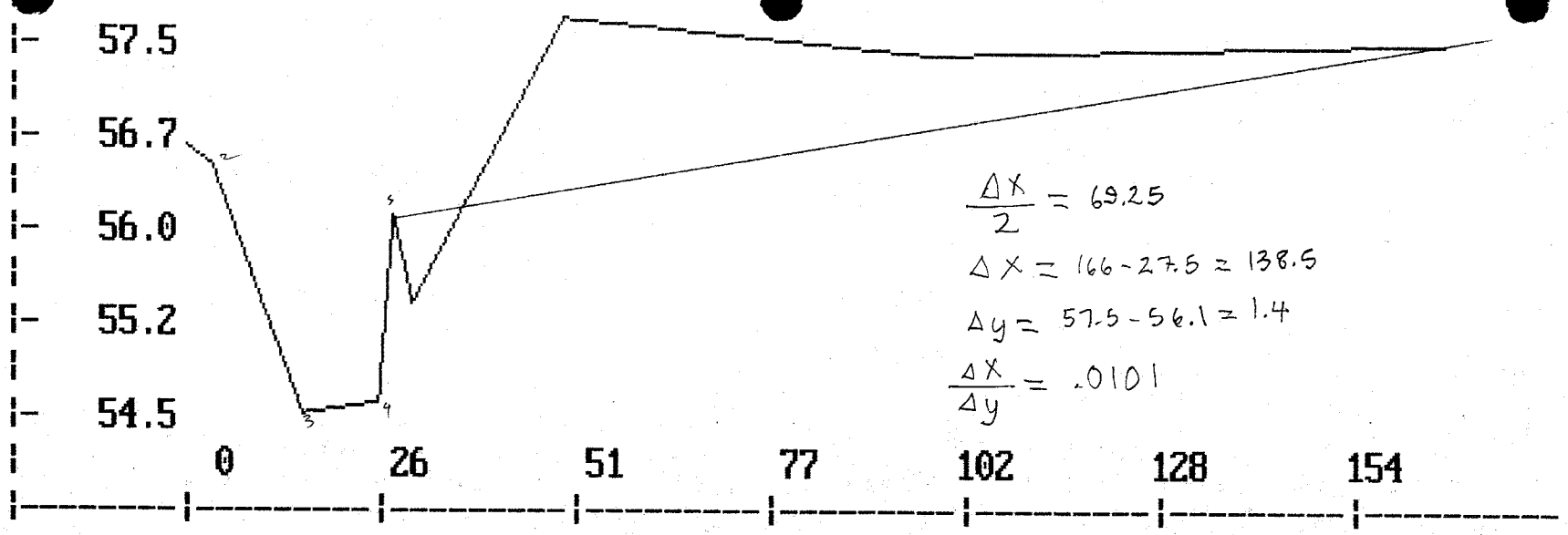


Sec # 1 of 24

Centerline Station = 50+60
Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		60.1	15.0	59.7	33.0	58.8	33.7	60.0
2	36.7	60.6	39.8	60.8	40.6	62.5	40.7	50.7
3	50.0	50.7	92.7	50.8	100.2	53.4	124.0	53.2
4	148.0	60.1	159.0	60.9	166.0	61.0		
5								
6								

Esc-Menu F5-Prior F6-Rod/Elev F7-Next F8-Select NUM



$\frac{\Delta X}{2} = 69.25$

$\Delta X = 166 - 27.5 = 138.5$

$\Delta y = 57.5 - 56.1 = 1.4$

$\frac{\Delta X}{\Delta y} = .0101$

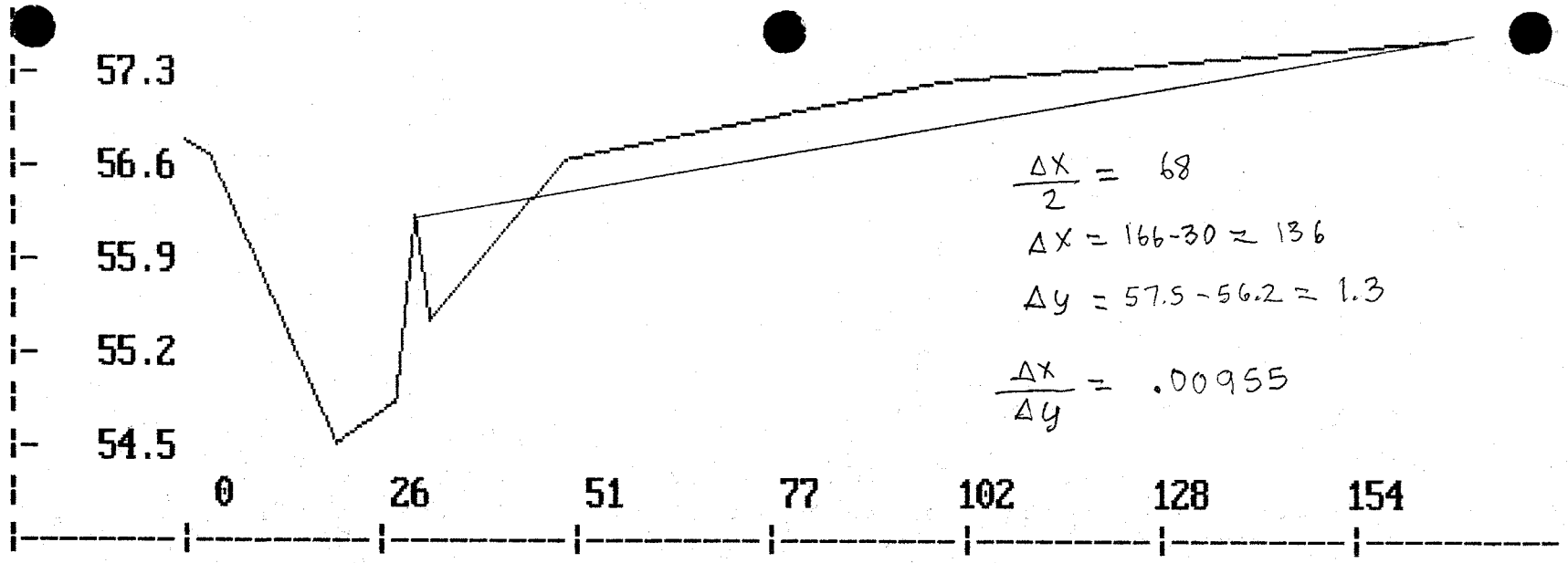
Sec # 22 of 24

Centerline Station = 11+40

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		56.7	3.3	56.5	15.6	54.5	25.6	54.6
2	27.5	56.1	30.0	55.4	50.0	57.7	100.0	57.4
3	166.0	57.5						
4								
5								
6								

Esc-Menu F5-Prior F6-Rod/Elev F7-Next F8-Select



$\frac{\Delta X}{2} = 68$

$\Delta X = 166 - 30 \approx 136$

$\Delta y = 57.5 - 56.2 \approx 1.3$

$\frac{\Delta X}{\Delta y} = .00955$

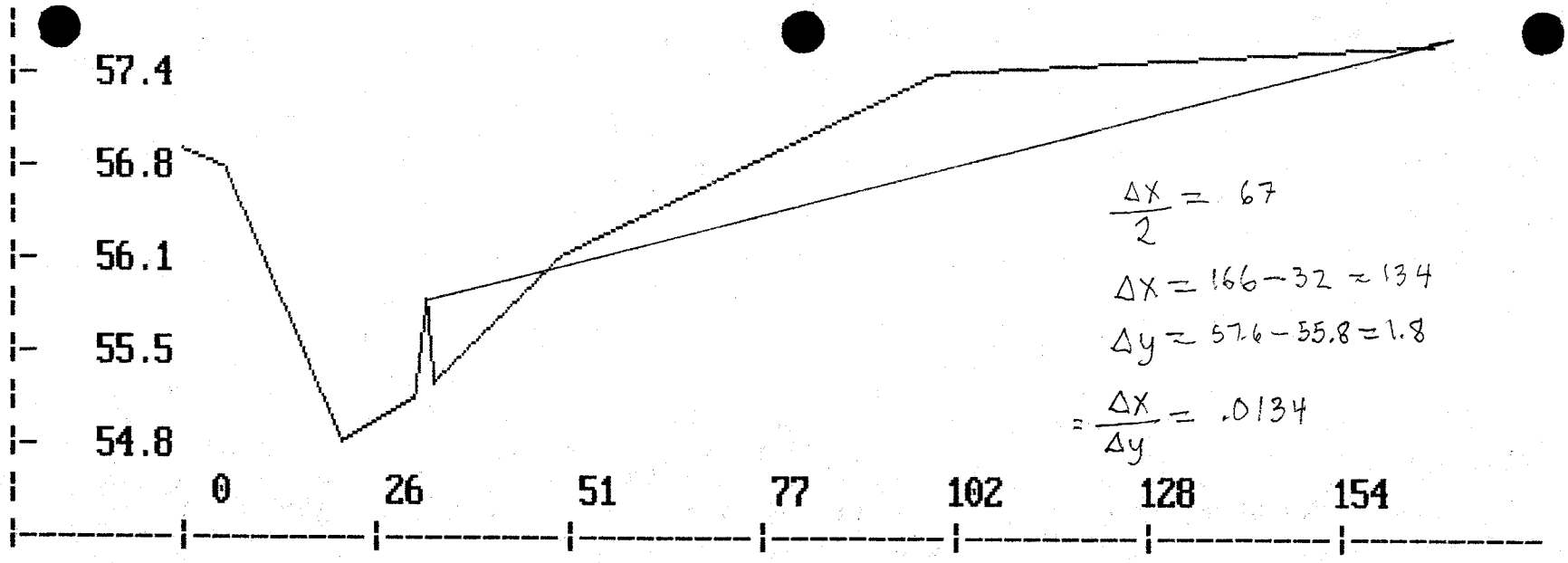
Sec # 21 of 24

Centerline Station = 11+60

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		56.8	3.1	56.7	19.8	54.5	27.4	54.8
2	30.0	56.2	32.0	55.4	50.0	56.6	100.0	57.2
3	166.0	57.5						
4								
5								
6								

Esc-Menu F5-Prior F6-Rod/Elev F7-Next F8-Select



$\frac{\Delta X}{2} = 67$

$\Delta X = 166 - 32 = 134$

$\Delta y = 57.6 - 55.8 = 1.8$

$= \frac{\Delta X}{\Delta y} = .0134$

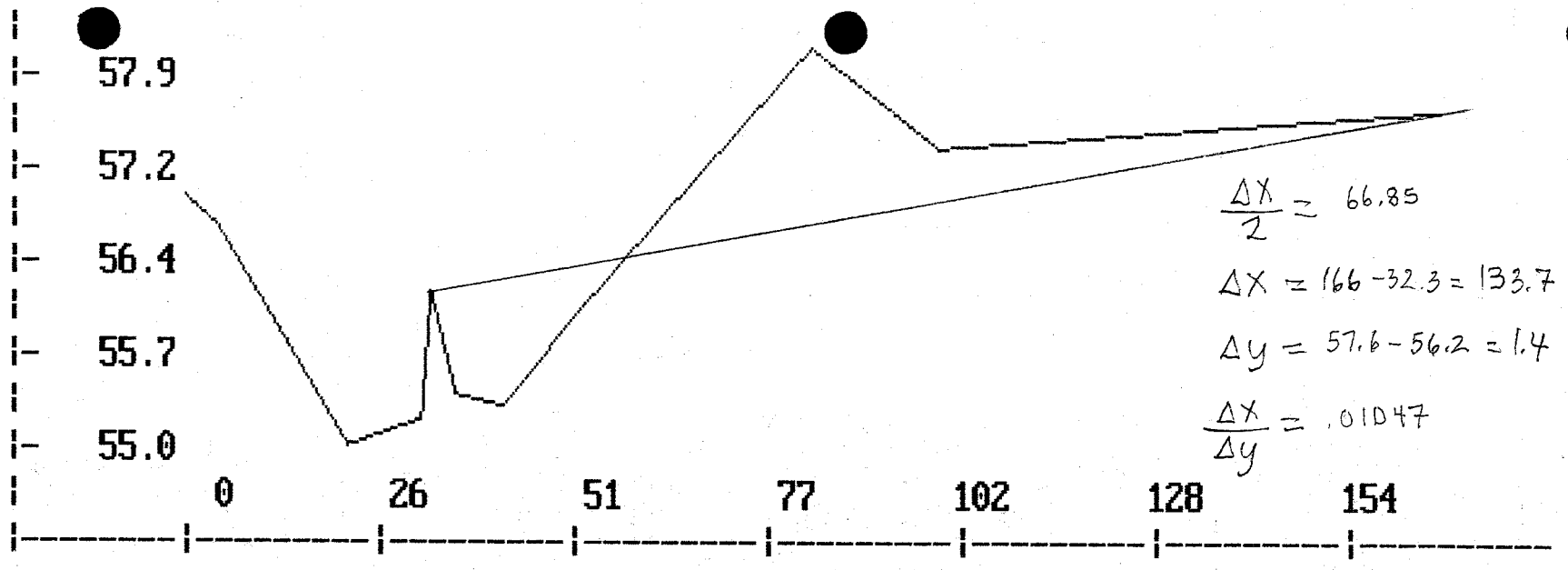
Sec # 20 of 24

Centerline Station = 11+80

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		56.9	5.3	56.8	21.0	54.8	30.5	55.1
2	32.0	55.8	33.0	55.2	50.0	56.1	100.0	57.4
3	166.0	57.6						
4								
5								
6								

Esc-Menu F5-Prior F6-Rod/Elev F7-Next F8-Select



$\frac{\Delta X}{2} = 66.85$

$\Delta X = 166 - 32.3 = 133.7$

$\Delta y = 57.6 - 56.2 = 1.4$

$\frac{\Delta X}{\Delta y} = .01047$

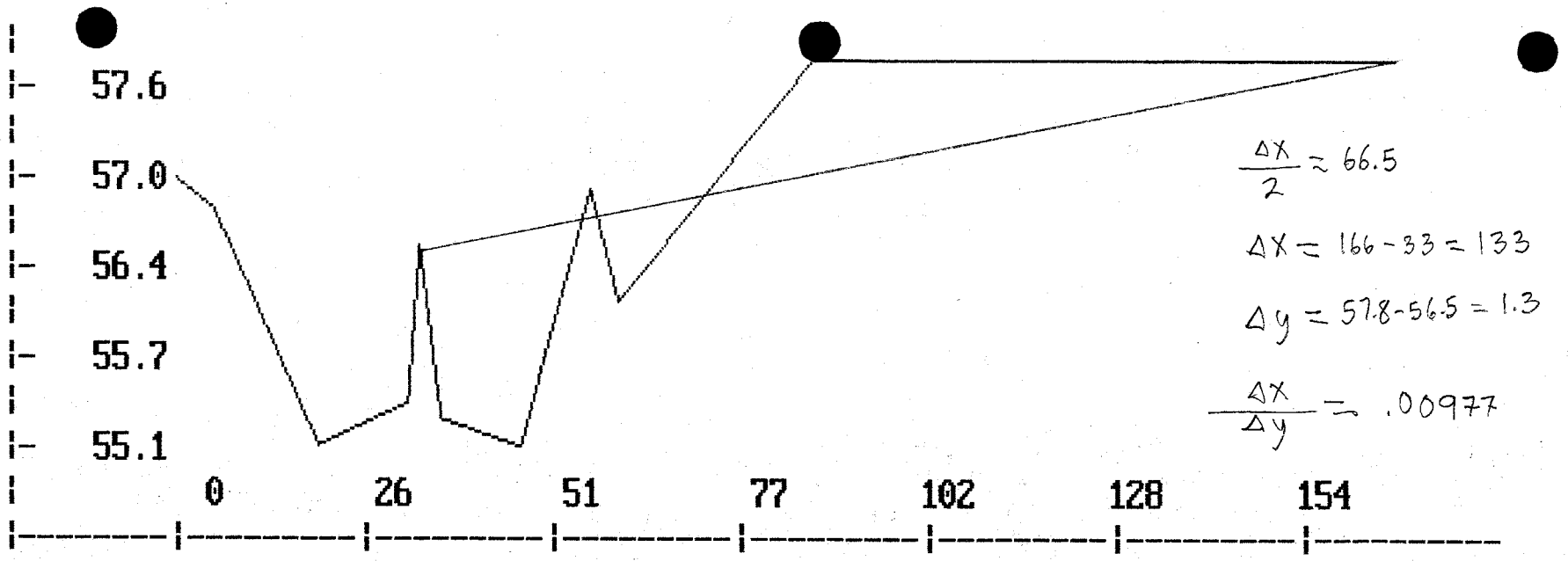
Sec # 19 of 24

Centerline Station = 20+00

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		57.0	3.9	56.8	21.5	55.0	31.0	55.2
2	32.3	56.2	35.5	55.4	42.0	55.3	50.0	55.9
3	83.0	58.1	100.0	57.3	166.0	57.6		
4								
5								
6								

Esc-Menu F5-Prior F6-Rod/Elev F7-Next F8-Select



$\frac{\Delta X}{2} \approx 66.5$

$\Delta X = 166 - 33 = 133$

$\Delta y = 57.8 - 56.5 = 1.3$

$\frac{\Delta X}{\Delta y} = .00977$

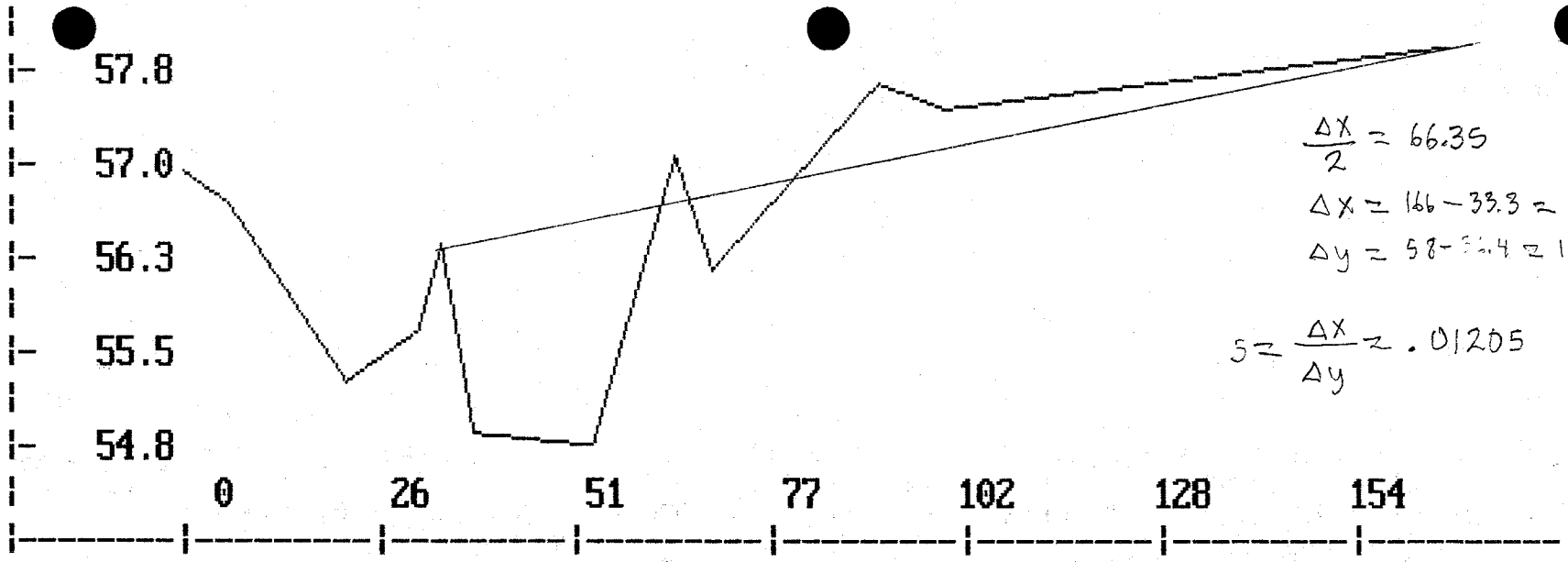
Sec # 18 of 24

Centerline Station = 20+20

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		57.0	4.8	56.8	19.3	55.1	31.5	55.4
2	33.0	56.5	36.0	55.3	46.8	55.1	56.3	56.9
3	60.0	56.1	86.6	57.8	100.0	57.8	166.0	57.8
4								
5								
6								

Esc-Menu F5-Prior F6-Rod/Elev F7-Next F8-Select



$\frac{\Delta X}{2} = 66.35$

$\Delta X = 166 - 33.3 = 132.7$

$\Delta y = 58 - 56.4 = 1.6$

$S = \frac{\Delta X}{\Delta y} = .01205$

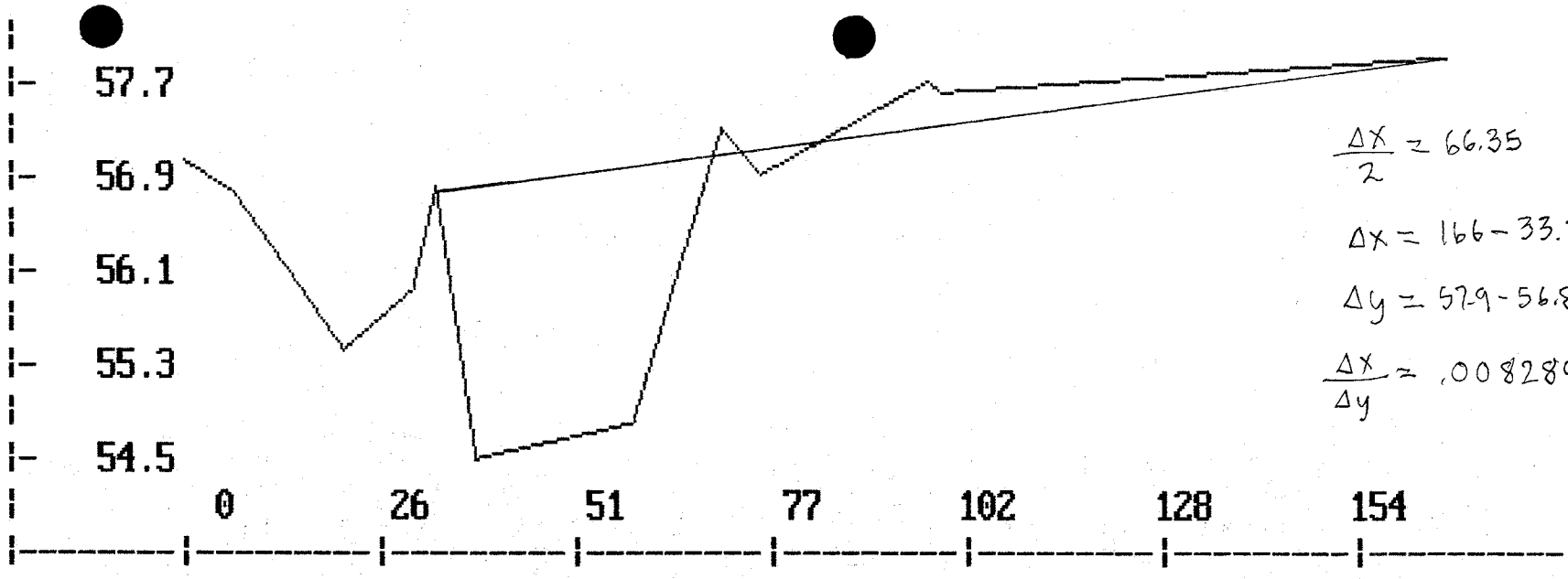
Sec # 17 of 24

Centerline Station = 20+40

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		57.0	5.4	56.7	21.0	55.3	30.2	55.7
2	33.3	56.4	37.4	54.9	53.0	54.8	64.0	57.1
3	68.8	56.2	91.0	57.7	100.0	57.5	166.0	58.0
4								
5								
6								

Esc-Menu F5-Prior F6-Rod/Elev F7-Next F8-Select



$\frac{\Delta x}{2} = 66.35$

$\Delta x = 166 - 33.3 = 132.7$

$\Delta y = 57.9 - 56.8 = 1.1$

$\frac{\Delta x}{\Delta y} = .008289$

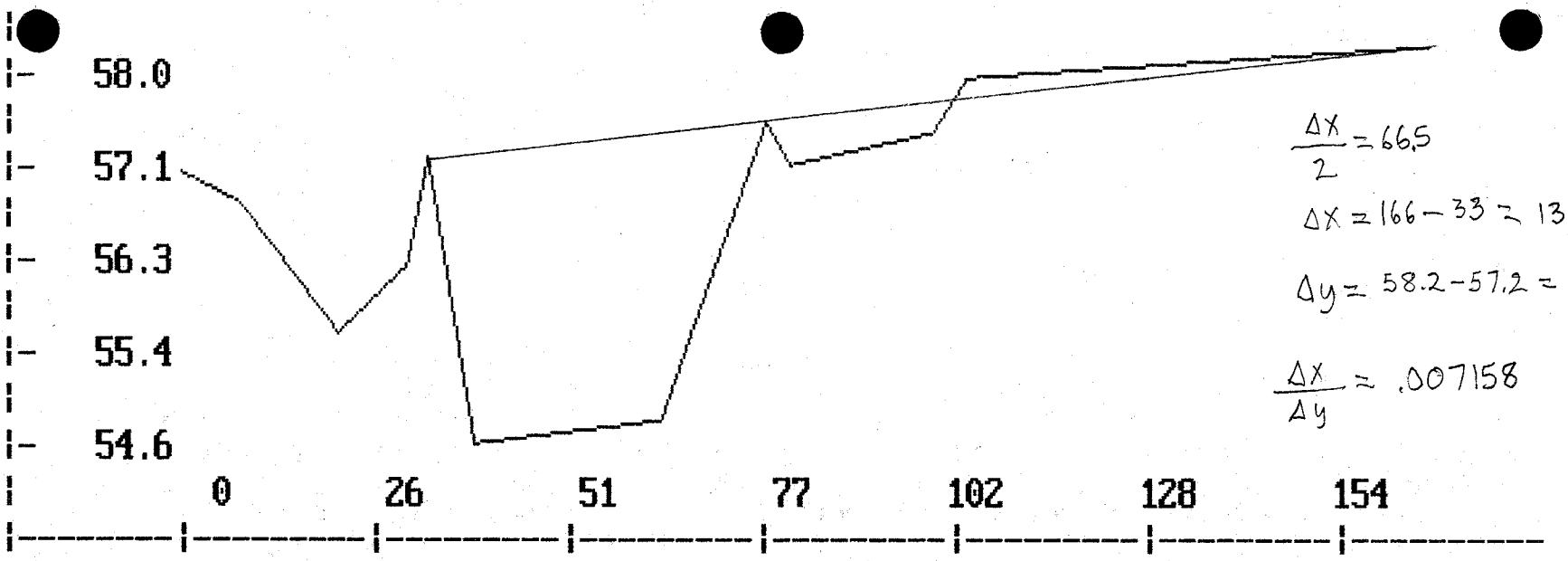
Sec # 16 of 24

Centerline Station = 20+60

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		57.0	6.2	56.8	21.0	55.4	30.0	55.9
2	33.3	56.8	38.4	54.5	59.0	54.8	71.0	57.3
3	76.0	56.9	98.0	57.7	100.0	57.6	166.0	57.9
4								
5								
6								

Esc-Menu F5-Prior F6-Rod/Elev F7-Next F8-Select



$\frac{\Delta x}{2} = 66.5$

$\Delta x = 166 - 33 = 133$

$\Delta y = 58.2 - 57.2 = 1.0$

$\frac{\Delta x}{\Delta y} = .007158$

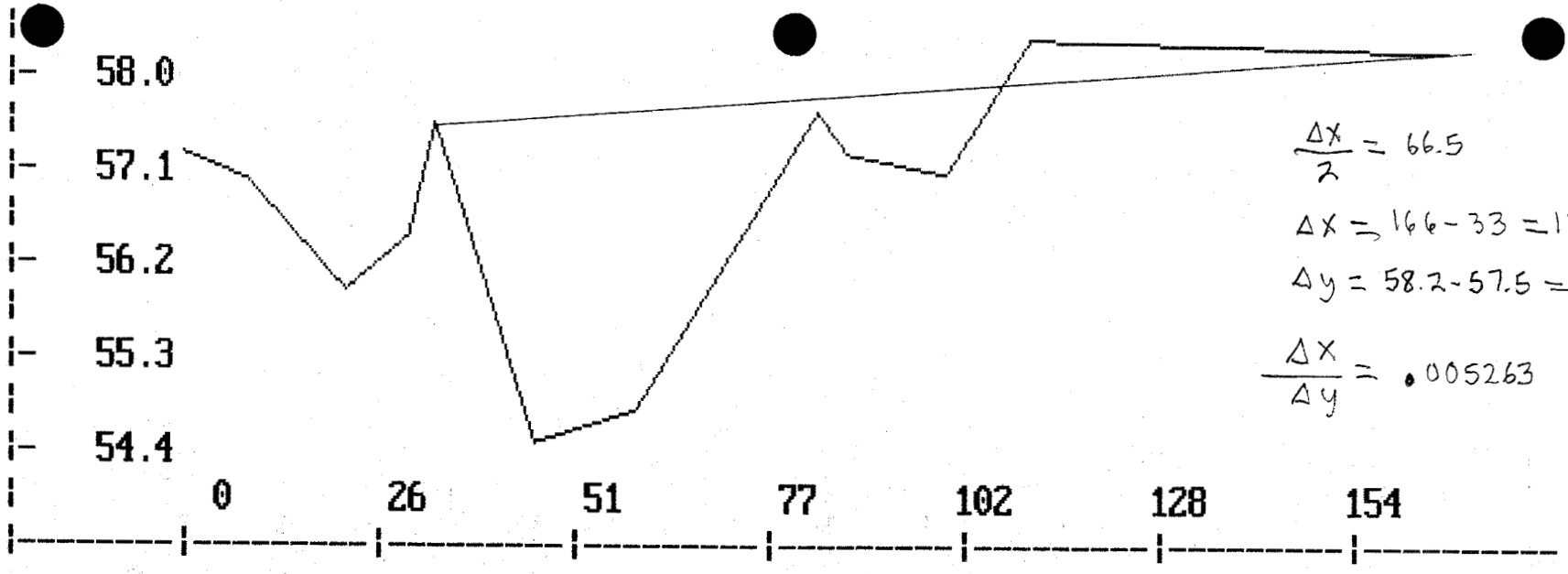
Sec # 15 of 24

Centerline Station = 20+80

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		57.1	7.5	56.8	21.0	55.6	30.0	56.2
2	33.0	57.2	39.0	54.6	63.7	54.8	77.8	57.5
3	81.0	57.1	100.0	57.4	104.5	57.9	166.0	58.2
4								
5								
6								

Esc-Menu F5-Prior F6-Rod/Elev F7-Next F8-Select



$\frac{\Delta x}{2} = 66.5$

$\Delta x = 166 - 33 = 133$

$\Delta y = 58.2 - 57.5 = .7$

$\frac{\Delta x}{\Delta y} = .005263$

Sec # 14 of 24

Centerline Station = 30+00

Elevation or Rod Reading (E/R) E

	Dist	Elev	Dist	Elev	Dist	Elev	Dist	Elev
1		57.3	8.4	57.0	21.4	55.9	29.5	56.4
2	33.0	57.5	46.0	54.4	59.0	54.7	83.0	57.6
3	87.0	57.2	100.0	57.0	111.0	58.3	166.0	58.2
4								
5								
6								

Esc-Menu F5-Prior F6-Rod/Elev F7-Next F8-Select

Per your request, I have compile all the information and breakdown of all quantities including steel bars, concrete, fill, back-fill, areas, dimensions, coordinates and the structural analysis itself. Every piece of information has been directed to you and every available file is being printed and placed in the three ring binder that is also available to you.

MATERIALS AND WORK DETAIL BREAKDOWN
BY EDGAR O. MORENO

STATION 47+00 to 47+30

Bar #5
length 6.7357

Bar #5
length 21.2548

Bar #5 VARIES FROM 21.2498' TO 37.25'
length 29.2499

Bar #5
length 4.9975

Bar #5
length 6.8190

Bar #5
length 4.9767

Bar #5
length 15.0267

Bar #5 VARIES FROM 15' TO 31'
length 23.0000

Bar #5
length 7.4975

Bar #5
length 11.1167

Bar #5
length 7.6381

Bar #5
length 20.0197

Bar #5
length 11.1427

Bar #5
length 25.5393

Bar #4
length 6.0197

Bar #4
length 6.1030

STATION 47+30 to 47+45

Bar #5
length 15.0267

Bar #5
length 31.0000

Bar #5
length 7.4975

Bar #5
length 11.1167

Bar #5
length 7.6381

Bar #5
length 20.0197

Bar #5
length 11.1427

Bar #5
length 6.7357

Bar #5
length 21.2548

Bar #5
length 37.2500

Bar #5
length 4.9975

Bar #5
length 6.8190

Bar #5
length 4.9767

Bar #5
length 25.5393

Bar #4
length 6.0197

Bar #4
length 6.1030

STA. 47+45 TO STA. 48+25.95

Bar #5
length 14.6666
Bar #5"
length 6.7357

Bar #5
length 21.2754

Bar #5
length 4.9506

Bar #5
length 6.7357

Bar #5
length 4.9506

Bar #5
length 21.2544

Bar #5
length 7.6478

Bar #5
length 11.1121

Bar #5
length 28.0270

Bar #5
length 7.6478

Bar #5
length 11.1121

Bar #5
length 7.0000

Bar #5
length 4.5000

Bar #5
length 7.5000

Bar #6
length 11.0000

Bar #4
length 15.0000

Bar #4
length 14.6666

Bar #4"
length 6.0197

Bar #4
length 6.0197

Bar #4
length 6.0197

STA. 48+25 TO STA. 48+55

Bar #5
length 14.6666

Bar #5"
length 6.7357

Bar #5
length 21.2754

Bar #5
length 4.9506

Bar #5
length 6.7357

Bar #5
length 4.9506

Bar #5
length 21.2544

Bar #5
length 7.6478

Bar #5
length 11.1121

Bar #5
length 28.0270

Bar #5
length 7.6478

Bar #5
length 11.1121

Bar #4"
length 14.6666

Bar #4"
length 6.0197

Bar #4
length 6.0197

STA. 48+55 TO STA. 50+25.95

Bar #5"
length 6.7357

Bar #5
length 21.2754

Bar #5
length 4.9506

Bar #5
length 6.7357

Bar #5
length 4.9506

Bar #5
length 21.2544

Bar #5
length 7.6478

Bar #5
length 11.1121

Bar #5
length 28.0270

Bar #5
length 7.6478

Bar #5
length 11.1121

Bar #4"
length 6.0197

Bar #4
length 6.0197

STA. 50+25.95 TO STA. 50+53.23

Bar #5
length 6.7366

Bar #5
length 21.2559

Bar #5
length 6.7366

Bar #5
length 5.0774

Bar #5 VARIES FROM 21.2853' TO 27.833'
length 24.5591

Bar #5
length 5.0774

Bar #5
length 15.0232

Bar #5 VARIES FROM 15' TO 21.5371'
length 18.2685

Bar #5
length 11.1588

Bar #5
length 7.6802

Bar #5
length 20.0197

Bar #5 VARIES FROM 9.5' TO 16.0833'
length 12.7916

Bar #5
length 7.6802

Bar #5
length 11.1588

Bar #4
length 6.1320

Bar #4
length 6.1320

STA. 50+53.23 TO STA. 50+80.52

Bar #5
length 6.735697

Bar #5 VARIES FROM 21.25' TO 27.7871'
length 24.518550

Bar #5
length 27.099409

Bar #5
length 6.736615

Bar #5
length 4.950618

Bar #5 VARIES FROM 15' TO 21.5371'
length 18.268551

Bar #5 Bar is 21.5359'
length 20.834004

Bar #5
length 5.077412

Bar #5
length 7.680211

Bar #5
length 11.158751

Bar #5
length 15.372678

Bar #5
length 20.013523

Bar #5
length 7.689503

Bar #5
length 11.153736

Bar #4
length 6.132044

Bar #4
length 6.132044

STA. 50+80.52 TO STA. 50+94.96

Bar #5"
length 6.7366

Bar #5 VARIES FROM 27.8225' TO 27.1117'
length 27.4671

Bar #5"
length 6.7366

Bar #5"
length 5.0774

Bar #5 VARIES FROM 27.7871' TO 27.1117'

length 27.4494

Bar #5 VARIES FROM 21.5371' TO 20.72'
length 21.1285

Bar #5
length 5.0774

Bar #5
length 7.6802

Bar #5
length 11.1588

Bar #5 VARIES FROM 21.5371' TO 20.72'
length 21.1285

Bar #5"
length 15.3727

Bar #5
length 7.6802

Bar #5 Bars
length 11.1588

Bar #5" VARIES FROM 26.5371' TO 25.8192'
length 26.1781

Bar #4"
length 6.1320

Bar #4"
length 6.1320

STATION 5+63 TO 5+94

Bars: (13) #6 @ 6"
length each = 4.7241

Bars: (40) #6 @ 16"
length each = 35.6151

Bars: (41) #6 @ 4"
length each = 4.7495

Bars: (80) #6 @ 8"
length each = 13.8483

Bars: (40) #6 @ 16"
length each = 22.2792

Bars: (161) #6 @ 4"
length each = 4.7528

MAIN-MENU

F3	CIVIL ENGINEERING	ALT-F3	ARCHAEOLOGY
F4	ELECTRICAL ENGINEERING	ALT-F4	LANDSCAPE ARCHITECTURE
F5	GEOTECHNICAL ENGINEERING & TESTING	ALT-F5	ARCHITECTURE
F6	MECHANICAL ENGINEERING	ALT-F6	FIRE PROTECTION
F7	STRUCTURAL ENGINEERING	CTRL-A	REPORT-BY CONSULTANT SORTED-ALPHABETICALLY
F8	SURVEYING	CTRL-B	TO PRINT LABELS FOR ALL RECORDS
ALT-F1	TRANSPORTATION ENGINEERING	CTRL-C	TO REFERENCE DISCIPLINE SCREEN
ALT-F2	WATER RESOURCES ENGINEERING	CTRTL-D	TO REFERENCE MASTER LAYOUT

Pete Cullum	506-4587	Oct. 5,1992	10:00 am Operations Building
Mike King	4866	Oct. 7,1992	Call before for schedule for verification
Cynthia Donald	2930		

Flood Control

Leanna Cumberland	506-4429	Chief Contractor
Helen Ortiz	506-4429	Contract Administrator

MCDOT

Janet Tucker	506-8038
Pam Slusser	506-8038

Bars: (40) #6 @ 16"
length each = 25.7961

Bars: (13) #6
length each = 19.5610

Bars: (13) #6 @ 6"
length each = 33.6583

Bars: (40) #6 @ 16"
length each = 33.7199

Bars: (80) #6 @ 8"
length each = 11.4153

Bars: (53) #6
length each = 19.5625

Bars: (41) @6 @ 16"
length each = 40.0924

Bar #5
length 35.5613

Bar #5
length = 20.6250

Bar #5
length 7.7285

Bar #5
length 39.9363

Bar #5
length 7.7285

Bar #5
length 15.8947

Bar #6
length 13.8931

Bar #5
length 38.7060

Bar #6
length 13.8931

Bar #5
length 15.8944

Bar #5

length = 8.1686

Bar #5
length = 1.9724

Bar #5
length = 21.4539

Bar #5
length = 13.7045

Bar #5
length = 40.3157

Bar #5
length 35.1515

DETAIL CALCULATION OF AREAS BY CROSS PRODUCT
by EDGAR O. MORENO

STA. 48+00

AREA

With Vertex

at point, X= -66.5171 Y= 141.6510

With Vertex

at point, X= -66.5171 Y= 142.6560

With Vertex

at point, X= -66.5171 Y= 143.1560

With Vertex

at point, X= -67.5171 Y= 143.1560

With Vertex

at point, X= -67.5171 Y= 135.5727

With Vertex

at point, X= -82.0171 Y= 135.5727

With Vertex

at point, X= -82.5171 Y= 135.5727

With Vertex

at point, X= -82.5171 Y= 143.1560

With Vertex

at point, X= -83.5171 Y= 143.1560

With Vertex

at point, X= -83.5171 Y= 135.5727

With Vertex

at point, X=-102.5171 Y= 135.1560

With Vertex

at point, X=-121.5171 Y= 135.5727

With Vertex

at point, X=-121.5171 Y= 143.1560

With Vertex

at point, X=-122.5171 Y= 143.1560

With Vertex

at point, X=-122.5171 Y= 135.5727

With Vertex

at point, X=-123.0171 Y= 135.5727

With Vertex

at point, X=-123.0171 Y= 134.0727

With Vertex

at point, X= -64.0171 Y= 134.0727

With Vertex

at point, X= -64.0171 Y= 134.4424

With Vertex

at point, X= -64.0171 Y= 135.5727

With Vertex

at point, X= -66.5171 Y= 135.5727

END AREA

surface in sqf = 103.3333

AREA

With Vertex

at point, X= -55.1090 Y= 124.0768

With Vertex

at point, X= -55.1090 Y= 125.0818

With Vertex

at point, X= -43.6696 Y= 123.9378

With Vertex

at point, X= -44.5833 Y= 123.0242

END AREA

surface in sqf = 11.0374

AREA

With Vertex

at point, X= -53.9702 Y= 111.8441

With Vertex

at point, X= -53.9702 Y= 117.9225

With Vertex

at point, X= -43.4445 Y= 116.8699

With Vertex

at point, X= -49.6198 Y= 110.6946

With Vertex

at point, X= -51.4702 Y= 110.7138

With Vertex

at point, X= -51.4702 Y= 111.8441

END AREA

surface in sqf = 48.5806

AREA

With Vertex

at point, X= -54.8743 Y= 95.8533

With Vertex

at point, X= -47.7853 Y= 102.9423

With Vertex

at point, X= -39.8372 Y= 102.1475

With Vertex

at point, X= -53.2247 Y= 95.8362

```
  END AREA
  surface in sqf =  36.3089
  AREA

  With Vertex
 at point, X= -32.0423  Y=  71.8771

  With Vertex
 at point, X= -31.6918  Y=  72.2275

  With Vertex
 at point, X= -68.5423  Y=  72.6104

  With Vertex
 at point, X= -85.0423  Y=  79.9104

  With Vertex
 at point, X=-101.5434  Y=  79.3781

  With Vertex
 at point, X= -94.0423  Y=  71.8771

  END AREA
  surface in sqf = 192.2668
text STA. 49+00
  AREA
```

With Vertex

at point, X= 58.7368 Y= 160.1681

With Vertex

at point, X= 17.7368 Y= 160.1681

With Vertex

at point, X= 17.7368 Y= 161.6681

With Vertex

at point, X= 18.2368 Y= 161.6681

With Vertex

at point, X= 18.2368 Y= 169.2244

With Vertex

at point, X= 19.2368 Y= 169.2244

With Vertex

at point, X= 19.2368 Y= 161.6681

With Vertex

at point, X= 38.2368 Y= 161.2514

With Vertex

at point, X= 57.2368 Y= 161.6681

With Vertex

at point, X= 57.2368 Y= 169.2244

With Vertex

at point, X= 58.2368 Y= 169.2244

With Vertex

at point, X= 58.2368 Y= 168.7244

With Vertex

at point, X= 58.2368 Y= 167.7194

With Vertex

at point, X= 58.2368 Y= 161.6681

With Vertex

at point, X= 58.7368 Y= 161.6681

END AREA

surface in sqf = 68.6960

AREA

With Vertex

at point, X= -54.2052 Y= 161.1866

With Vertex

at point, X= -54.2052 Y= 162.1916

With Vertex

at point, X= -44.6085 Y= 161.2320

With Vertex

at point, X= -45.5221 Y= 160.3183

END AREA

surface in sqf = 9.1854

AREA

With Vertex

at point, X= -54.2459 Y= 141.9254

With Vertex

at point, X= -52.7459 Y= 141.9254

With Vertex

at point, X= -51.1223 Y= 143.5490

With Vertex

at point, X= -46.0629 Y= 148.6084

With Vertex

at point, X= -54.7459 Y= 149.4767

With Vertex

at point, X= -54.7459 Y= 143.4254

With Vertex

at point, X= -54.2459 Y= 143.4254

END AREA

surface in sqf = 38.7174

AREA

With Vertex

at point, X= -28.1930 Y= 112.3705

With Vertex

at point, X= -16.8152 Y= 114.8357

With Vertex

```
at point, X= -50.5964  Y= 118.2138

  With Vertex

at point, X= -56.5695  Y= 112.2407

  With Vertex

at point, X= -49.1930  Y= 112.1705

  END AREA

surface in sqf = 146.6920

  AREA

  With Vertex

at point, X= -17.3755  Y=  85.6812

  With Vertex

at point, X=  -3.7520  Y=  85.5515

  With Vertex

at point, X=  -5.3755  Y=  83.9279

  With Vertex

at point, X= -49.3755  Y=  83.9279
```

With Vertex

at point, X= -58.3431 Y= 92.8954

With Vertex

at point, X= -55.3755 Y= 93.2812

With Vertex

at point, X= -40.3755 Y= 93.4812

END AREA

surface in sqf = 280.4871

text STA. 50+00

AREA

With Vertex

at point, X= -49.0850 Y= 90.6567

With Vertex

at point, X= -43.5082 Y= 96.2335

With Vertex

at point, X= -42.5946 Y= 97.1472

With Vertex

at point, X= -7.4684 Y= 93.6345

With Vertex

at point, X= -27.7158 Y= 90.0993

END AREA

surface in sqf = 168.8074

AREA

With Vertex

at point, X= -87.3334 Y= 84.5695

With Vertex

at point, X=-104.6225 Y= 84.1853

With Vertex

at point, X= -96.3334 Y= 75.8961

With Vertex

at point, X= -52.3334 Y= 75.8961

With Vertex

at point, X= -51.2026 Y= 77.0269

```
    With Vertex

  at point, X= -64.3334  Y=  77.3695

    END AREA

surface in sqf = 245.4227



text STA. 51+00
    AREA

    With Vertex

  at point, X= -35.9823  Y=  97.6548

    With Vertex

  at point, X= -23.9048  Y= 102.1503

    With Vertex

  at point, X= -41.6446  Y= 103.9243

    With Vertex

  at point, X= -48.0144  Y=  97.5545

    END AREA
```

surface in sqf = 88.5890

AREA

With Vertex

at point, X= -55.2437 Y= 78.3162

With Vertex

at point, X= -56.8934 Y= 76.6665

With Vertex

at point, X=-113.7789 Y= 76.6665

With Vertex

at point, X=-124.3851 Y= 87.2727

With Vertex

at point, X=-108.2116 Y= 86.4165

With Vertex

at point, X=-105.8116 Y= 85.8165

With Vertex

at point, X= -91.2116 Y= 78.7165

With Vertex

at point, X= -67.2116 Y= 78.2165

END AREA

surface in sqf = 273.7960

THEORY AND CALCS BY EDGAR O. MORENO.

SOSSAMAN Rd.		STR. EXCAVATION		FILL CONSTRUCTION	
Sta S->N	Dist (ft)	Area (SqFt)	Volume (Cu.Yds)	Area (SqFt)	Volume (Cu.Yds)
1+00		8.0		11.5	
	20		17.1		5.3
1+20		38.1		2.9	
	20		59.4		7.7
1+40		76.2		3.4	
	20		96.8		11.4
1+60		24.8		6.7	
	20		121.3		15.8
1+80		41.3		5.1	
	20		153.1		23.3
2+00		44.5		15.3	
	20		183.1		39.5
2+20		36.5		28.4	
	20		203.2		65.8
2+40		17.6		42.7	
	20		213.9		106.3
2+60		11.4		66.6	
	20		220.1		168.2
2+80		5.1		100.4	
	20		226.2		246.7
3+00		11.4		111.5	
	20		230.7		344.3
3+20		1.0		152.1	
	20		231.1		467.1
3+40		0.0		179.5	
	20		231.1		604.9
3+60		0.0		192.5	
	20		231.4		748.4
3+80		0.8		194.8	
	20		234.2		894.7
4+00		6.6		200.2	
	20		246.0		1040.7

4+20		25.4		194.2	
	20		259.0		1196.3
4+40		9.7		225.9	
	20		266.5		1371.8
4+60		10.3		248.0	
	20		271.9		1573.5
4+80		4.4		296.4	
	20		273.5		1880.9
5+00		0.0		533.6	
	20		274.1		2189.8
5+20		1.4		300.5	
	20		274.6		2502.8
5+40		0.0		544.7	

GUADALUPE Rd. Sta W->E	Dist (ft)	STR. EXCAVATION Area (SqFt)	Volume (Cu.Yds)	FILL CONSTRUCTION Area (SqFt)	Volume (Cu.Yds)
47+00		0.0		0.0	
	100		356.1		322.8
48+00		192.3		174.3	
	100		1231.6		1086.9
49+00		280.5		238.3	
	100		2205.5		2039.1
50+00		245.4		275.9	
	100		3166.9		2870.8
51+00		273.8		173.2	
	51		3677.1		3034.4
51+51		266.4		0.0	
	49		3986.7		3034.4
52+00		74.8		0.0	

GUADALUPE Rd. Sta W->E	Dist (ft)	STR. BACKFILL Area (SqFt)	Volume (Cu.Yds)
47+00		0.0	
	100		180.0
48+00		97.2	
	100		521.7
49+00		87.3	
	100		861.2
50+00		96.0	
	100		1209.7
51+00		92.2	
	51		1367.4
51+51		74.8	
	49		1503.1
52+00		74.8	
	30		1586.2
52+30		74.8	

GUADALUPE Rd. Sta W->E	Dist (ft)	CONCRETE CLASS AA Area (SqFt)	Volume (Cu.Yds)	STR. W/Ft (Lbs)	STEEL Weight (Lbs)
47+00		68.7		282.2	
	32		97.4		9024.0
47+32		95.7		300.0	
	13		143.5		12924.0
47+45		95.7/103.3		362.3	
	80		449.6		41884.0
48+25		103.3/86.2		297.2	
	30		545.4		50800.0
48+55		86.2/68.7		208.0	
	170		977.9		86160.0
50+25		68.7		265.4	
	28		1060.0		95591.2
50+53		89.8		276.0	
	27		1149.8		103043.2
50+80		89.8		293.0	
	14		1196.4		107145.2
50+94		89.8/138.2		840.0	
	57		1488.2		155025.2
51+51		138.2/27.4		140.0	
	79		1568.4		166085.2
52+30		27.4			

SOSSAMAN Rd. Sta N->S	Dist (ft)	CONCRETE CLASS AA Area (SqFt)	Volume (Cu.Yds)	STR. W/Ft (Lbs)	STEEL Weight (Lbs)
5+63		140.0		836.0	
	45		234.0		37620.0
5+78		140./105.		836./627.	
	19		307.0		49533.0
5+94		105./90.0		627./400.	
	19		370.5		57133.0
6+12		90.0/47.0		400./100	
	30		423.0		60133.0
6+37		47.0			

SOSSAMAN Rd. Sta N->S	Dist (ft)	CONCRETE CLASS B V/Ft (Cu.Yds)	Volume (Cu.Yds)	STR. W/Ft (Lbs)	STEEL Weight (Lbs)
6+12		2.15		133.1	
	90		194.0		11980.0
7+02					

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

NODE	COORDINATES	
1	1.0000	8.8333
2	1.0000	.6250
3	1.5000	.6250
4	2.50	.6140
5	3.50	.6031
6	4.50	.5921
7	5.50	.5811
8	6.50	.5702
9	7.50	.5592
10	8.50	.5482
11	9.50	.5373
12	10.50	.5263
13	11.50	.5153
14	12.50	.5044
15	13.50	.4934
16	14.50	.4824
17	15.50	.4714
18	16.50	.4605
19	17.50	.4495
20	18.50	.4385
21	19.50	.4276
22	20.50	.4166
23	21.50	.4277
24	22.50	.4387
25	23.50	.4496
26	24.50	.4606
27	25.50	.4716
28	26.50	.4825
29	27.50	.4935
30	28.50	.5045
31	29.50	.5154
32	30.50	.5264
33	31.50	.5374
34	32.50	.5483
35	33.50	.5593
36	34.50	.5703
37	35.50	.5812
38	36.50	.5922
39	37.50	.6032
40	38.50	.6141
41	39.50	.6251
42	40	.6250
43	40	8.8333

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

ELEMENT				
1	DEPTH	1	Iz	.0104
2	DEPTH	1.1667	Iz	.0165
3	DEPTH	1.1667	Iz	.0165
4	DEPTH	1.1447	Iz	.0156
5	DEPTH	1.1228	Iz	.0147
6	DEPTH	1.1009	Iz	.0139
7	DEPTH	1.0789	Iz	.0131
8	DEPTH	1.0570	Iz	.0123
9	DEPTH	1.0350	Iz	.0116
10	DEPTH	1.0131	Iz	.0108
11	DEPTH	.9912	Iz	.0101
12	DEPTH	.9692	Iz	.0095
13	DEPTH	.9473	Iz	.0089
14	DEPTH	.9254	Iz	.0083
15	DEPTH	.9034	Iz	.0077
16	DEPTH	.8815	Iz	.0071
17	DEPTH	.8596	Iz	.0066
18	DEPTH	.8376	Iz	.0061
19	DEPTH	.8157	Iz	.0057
20	DEPTH	.7938	Iz	.0052
21	DEPTH	.7718	Iz	.0048
22	DEPTH	.7499	Iz	.0044
23	DEPTH	.7940	Iz	.0052
24	DEPTH	.8159	Iz	.0057
25	DEPTH	.8379	Iz	.0061
26	DEPTH	.8598	Iz	.0066
27	DEPTH	.8817	Iz	.0071
28	DEPTH	.9037	Iz	.0077
29	DEPTH	.9256	Iz	.0083
30	DEPTH	.9475	Iz	.0089
31	DEPTH	.9695	Iz	.0095
32	DEPTH	.9914	Iz	.0102
33	DEPTH	1.0133	Iz	.0108
34	DEPTH	1.0353	Iz	.0116
35	DEPTH	1.0572	Iz	.0123
36	DEPTH	1.0792	Iz	.0131
37	DEPTH	1.1011	Iz	.0139
38	DEPTH	1.1230	Iz	.0148
39	DEPTH	1.1450	Iz	.0156
40	DEPTH	1.1669	Iz	.0166
41	DEPTH	1.1667	Iz	.0165
42	DEPTH	1	Iz	.0104

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

NODE DISPLACEMENT		INCHES		RADIANS
NODE	LOAD	X DISPL	Y DISPL	ROTATION
1	1	-0.13822	-0.07594	0.00140
	2	0.22617	0.02798	-0.00265
	3	0.59952	0.08313	-0.00665
	4	0.02980	0.03850	-0.00030
	5	-0.50221	-0.10944	0.00558
	6	1.16626	0.12819	-0.01325
	7	-1.02842	-0.28368	0.01125
	8	0.49109	0.04569	-0.00555
2	1	0.00000	-0.07581	0.00140
	2	0.00001	0.02798	-0.00124
	3	0.00003	0.08313	-0.00370
	4	0.00000	0.03850	-0.00030
	5	-0.00002	-0.10944	0.00309
	6	0.00006	0.12836	-0.00643
	7	-0.00004	-0.28351	0.00704
	8	0.00003	0.04582	-0.00259
3	1	0.00000	-0.06740	0.00138
	2	0.00000	0.02100	-0.00108
	3	0.00000	0.06240	-0.00322
	4	0.00000	0.03669	-0.00030
	5	0.00000	-0.09213	0.00269
	6	0.00000	0.09283	-0.00543
	7	0.00000	-0.24332	0.00633
	8	0.00000	0.03168	-0.00213
4	1	0.00000	-0.05158	0.00124
	2	0.00000	0.00988	-0.00078
	3	0.00000	0.02935	-0.00232
	4	0.00000	0.03328	-0.00027
	5	0.00000	-0.06452	0.00194
	6	0.00000	0.03865	-0.00367
	7	0.00000	-0.17610	0.00488
	8	0.00000	0.01105	-0.00135
5	1	0.00000	-0.03797	0.00102
	2	0.00000	0.00218	-0.00052
	3	0.00000	0.00648	-0.00153
	4	0.00000	0.03035	-0.00022
	5	0.00000	-0.04541	0.00128
	6	0.00000	0.00388	-0.00221
	7	0.00000	-0.12611	0.00349
	8	0.00000	-0.00114	-0.00073
6	1	0.00000	-0.02711	0.00079
	2	0.00000	-0.00261	-0.00030
	3	0.00000	-0.00776	-0.00089
	4	0.00000	0.02803	-0.00017
	5	0.00000	-0.03351	0.00074
	6	0.00000	-0.01533	-0.00108
	7	0.00000	-0.09189	0.00227
	8	0.00000	-0.00685	-0.00027

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

NODE DISPLACEMENT		INCHES		RADIANS
NODE	LOAD	X DISPL	Y DISPL	ROTATION
7	1	0.00000	-0.01907	0.00056
	2	0.00000	-0.00513	-0.00013
	3	0.00000	-0.01524	-0.00040
	4	0.00000	0.02632	-0.00012
	5	0.00000	-0.02727	0.00033
	6	0.00000	-0.02300	-0.00028
	7	0.00000	-0.07087	0.00130
	8	0.00000	-0.00799	0.00004
8	1	0.00000	-0.01357	0.00037
	2	0.00000	-0.00600	-0.00002
	3	0.00000	-0.01783	-0.00006
	4	0.00000	0.02517	-0.00008
	5	0.00000	-0.02511	0.00005
	6	0.00000	-0.02285	0.00024
	7	0.00000	-0.06008	0.00057
	8	0.00000	-0.00623	0.00023
9	1	0.00000	-0.01019	0.00021
	2	0.00000	-0.00578	0.00005
	3	0.00000	-0.01719	0.00014
	4	0.00000	0.02449	-0.00004
	5	0.00000	-0.02564	-0.00012
	6	0.00000	-0.01799	0.00052
	7	0.00000	-0.05659	0.00007
	8	0.00000	-0.00289	0.00031
10	1	0.00000	-0.00843	0.00009
	2	0.00000	-0.00495	0.00008
	3	0.00000	-0.01471	0.00025
	4	0.00000	0.02416	-0.00002
	5	0.00000	-0.02771	-0.00021
	6	0.00000	-0.01086	0.00063
	7	0.00000	-0.05779	-0.00023
	8	0.00000	0.00101	0.00033
11	1	0.00000	-0.00780	0.00002
	2	0.00000	-0.00386	0.00009
	3	0.00000	-0.01145	0.00028
	4	0.00000	0.02407	0.00000
	5	0.00000	-0.03043	-0.00023
	6	0.00000	-0.00321	0.00062
	7	0.00000	-0.06157	-0.00037
	8	0.00000	0.00482	0.00030
12	1	0.00000	-0.00787	-0.00002
	2	0.00000	-0.00274	0.00009
	3	0.00000	-0.00814	0.00026
	4	0.00000	0.02415	0.00001
	5	0.00000	-0.03320	-0.00022
	6	0.00000	0.00385	0.00054
	7	0.00000	-0.06635	-0.00041
	8	0.00000	0.00814	0.00025

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

NODE DISPLACEMENT INCHES RADIANS

NODE	LOAD	X DISPL	Y DISPL	ROTATION
13	1	0.00000	-0.00831	-0.00004
	2	0.00000	-0.00175	0.00007
	3	0.00000	-0.00521	0.00022
	4	0.00000	0.02430	0.00001
	5	0.00000	-0.03565	-0.00018
	6	0.00000	0.00971	0.00043
	7	0.00000	-0.07105	-0.00037
	8	0.00000	0.01079	0.00019
14	1	0.00000	-0.00886	-0.00005
	2	0.00000	-0.00097	0.00006
	3	0.00000	-0.00288	0.00017
	4	0.00000	0.02449	0.00002
	5	0.00000	-0.03759	-0.00014
	6	0.00000	0.01418	0.00032
	7	0.00000	-0.07506	-0.00030
	8	0.00000	0.01274	0.00014
15	1	0.00000	-0.00937	-0.00004
	2	0.00000	-0.00041	0.00004
	3	0.00000	-0.00120	0.00011
	4	0.00000	0.02466	0.00001
	5	0.00000	-0.03899	-0.00010
	6	0.00000	0.01731	0.00021
	7	0.00000	-0.07808	-0.00021
	8	0.00000	0.01408	0.00009
16	1	0.00000	-0.00975	-0.00003
	2	0.00000	-0.00004	0.00002
	3	0.00000	-0.00013	0.00007
	4	0.00000	0.02480	0.00001
	5	0.00000	-0.03990	-0.00006
	6	0.00000	0.01930	0.00013
	7	0.00000	-0.08010	-0.00013
	8	0.00000	0.01492	0.00005
17	1	0.00000	-0.00997	-0.00001
	2	0.00000	0.00016	0.00001
	3	0.00000	0.00047	0.00003
	4	0.00000	0.02491	0.00001
	5	0.00000	-0.04039	-0.00003
	6	0.00000	0.02042	0.00007
	7	0.00000	-0.08122	-0.00006
	8	0.00000	0.01541	0.00003
18	1	0.00000	-0.01004	0.00000
	2	0.00000	0.00024	0.00000
	3	0.00000	0.00072	0.00001
	4	0.00000	0.02498	0.00000
	5	0.00000	-0.04060	-0.00001
	6	0.00000	0.02095	0.00003
	7	0.00000	-0.08166	-0.00002
	8	0.00000	0.01566	0.00001

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

NODE DISPLACEMENT INCHES RADIANS

NODE	LOAD	X DISPL	Y DISPL	ROTATION
19	1	0.00000	-0.01000	0.00001
	2	0.00000	0.00025	0.00000
	3	0.00000	0.00075	0.00000
	4	0.00000	0.02503	0.00000
	5	0.00000	-0.04063	0.00000
	6	0.00000	0.02113	0.00001
	7	0.00000	-0.08166	0.00001
	8	0.00000	0.01578	0.00001
20	1	0.00000	-0.00991	0.00001
	2	0.00000	0.00023	0.00000
	3	0.00000	0.00068	-0.00001
	4	0.00000	0.02505	0.00000
	5	0.00000	-0.04057	0.00001
	6	0.00000	0.02114	0.00000
	7	0.00000	-0.08144	0.00002
	8	0.00000	0.01583	0.00000
21	1	0.00000	-0.00981	0.00001
	2	0.00000	0.00020	0.00000
	3	0.00000	0.00060	-0.00001
	4	0.00000	0.02506	0.00000
	5	0.00000	-0.04051	0.00000
	6	0.00000	0.02111	0.00000
	7	0.00000	-0.08121	0.00002
	8	0.00000	0.01585	0.00000
22	1	0.00000	-0.00977	0.00000
	2	0.00000	0.00019	0.00000
	3	0.00000	0.00057	0.00000
	4	0.00000	0.02507	0.00000
	5	0.00000	-0.04048	0.00000
	6	0.00000	0.02110	0.00000
	7	0.00000	-0.08111	0.00000
	8	0.00000	0.01587	0.00000
23	1	0.00000	-0.00980	-0.00001
	2	0.00000	0.00020	0.00000
	3	0.00000	0.00060	0.00001
	4	0.00000	0.02506	0.00000
	5	0.00000	-0.04050	0.00000
	6	0.00000	0.02112	0.00000
	7	0.00000	-0.08120	-0.00002
	8	0.00000	0.01586	0.00000
24	1	0.00000	-0.00990	-0.00001
	2	0.00000	0.00023	0.00000
	3	0.00000	0.00068	0.00001
	4	0.00000	0.02505	0.00000
	5	0.00000	-0.04057	-0.00001
	6	0.00000	0.02115	0.00000
	7	0.00000	-0.08143	-0.00002
	8	0.00000	0.01584	0.00000

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

NODE DISPLACEMENT			INCHES	RADIANS
NODE	LOAD	X DISPL	Y DISPL	ROTATION
25	1	0.00000	-0.00999	-0.00001
	2	0.00000	0.00025	0.00000
	3	0.00000	0.00075	0.00000
	4	0.00000	0.02503	0.00000
	5	0.00000	-0.04063	0.00000
	6	0.00000	0.02114	-0.00001
	7	0.00000	-0.08165	-0.00001
	8	0.00000	0.01578	-0.00001
26	1	0.00000	-0.01003	0.00000
	2	0.00000	0.00024	0.00000
	3	0.00000	0.00072	-0.00001
	4	0.00000	0.02498	0.00000
	5	0.00000	-0.04060	0.00001
	6	0.00000	0.02096	-0.00003
	7	0.00000	-0.08165	0.00002
	8	0.00000	0.01566	-0.00001
27	1	0.00000	-0.00996	0.00001
	2	0.00000	0.00016	-0.00001
	3	0.00000	0.00047	-0.00003
	4	0.00000	0.02491	-0.00001
	5	0.00000	-0.04039	0.00003
	6	0.00000	0.02042	-0.00007
	7	0.00000	-0.08121	0.00006
	8	0.00000	0.01541	-0.00003
28	1	0.00000	-0.00975	0.00002
	2	0.00000	-0.00004	-0.00002
	3	0.00000	-0.00013	-0.00007
	4	0.00000	0.02480	-0.00001
	5	0.00000	-0.03989	0.00006
	6	0.00000	0.01930	-0.00013
	7	0.00000	-0.08009	0.00013
	8	0.00000	0.01492	-0.00005
29	1	0.00000	-0.00937	0.00004
	2	0.00000	-0.00041	-0.00004
	3	0.00000	-0.00121	-0.00011
	4	0.00000	0.02466	-0.00001
	5	0.00000	-0.03899	0.00010
	6	0.00000	0.01730	-0.00021
	7	0.00000	-0.07808	0.00021
	8	0.00000	0.01408	-0.00009
30	1	0.00000	-0.00886	0.00005
	2	0.00000	-0.00097	-0.00006
	3	0.00000	-0.00288	-0.00017
	4	0.00000	0.02448	-0.00002
	5	0.00000	-0.03759	0.00014
	6	0.00000	0.01417	-0.00032
	7	0.00000	-0.07505	0.00030
	8	0.00000	0.01274	-0.00014

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

NODE DISPLACEMENT			INCHES	RADIANS
NODE	LOAD	X DISPL	Y DISPL	ROTATION
31	1	0.00000	-0.00831	0.00004
	2	0.00000	-0.00175	-0.00007
	3	0.00000	-0.00521	-0.00022
	4	0.00000	0.02430	-0.00001
	5	0.00000	-0.03565	0.00018
	6	0.00000	0.00970	-0.00043
	7	0.00000	-0.07105	0.00037
	8	0.00000	0.01078	-0.00019
32	1	0.00000	-0.00788	0.00002
	2	0.00000	-0.00274	-0.00009
	3	0.00000	-0.00814	-0.00026
	4	0.00000	0.02415	-0.00001
	5	0.00000	-0.03320	0.00022
	6	0.00000	0.00383	-0.00054
	7	0.00000	-0.06634	0.00041
	8	0.00000	0.00813	-0.00025
33	1	0.00000	-0.00780	-0.00002
	2	0.00000	-0.00386	-0.00009
	3	0.00000	-0.01146	-0.00028
	4	0.00000	0.02407	0.00000
	5	0.00000	-0.03043	0.00023
	6	0.00000	-0.00323	-0.00062
	7	0.00000	-0.06157	0.00037
	8	0.00000	0.00481	-0.00030
34	1	0.00000	-0.00843	-0.00009
	2	0.00000	-0.00495	-0.00008
	3	0.00000	-0.01472	-0.00025
	4	0.00000	0.02416	0.00002
	5	0.00000	-0.02771	0.00021
	6	0.00000	-0.01087	-0.00063
	7	0.00000	-0.05779	0.00023
	8	0.00000	0.00100	-0.00033
35	1	0.00000	-0.01020	-0.00021
	2	0.00000	-0.00578	-0.00005
	3	0.00000	-0.01719	-0.00014
	4	0.00000	0.02449	0.00004
	5	0.00000	-0.02564	0.00012
	6	0.00000	-0.01799	-0.00052
	7	0.00000	-0.05659	-0.00007
	8	0.00000	-0.00290	-0.00031
36	1	0.00000	-0.01358	-0.00037
	2	0.00000	-0.00600	0.00002
	3	0.00000	-0.01782	0.00007
	4	0.00000	0.02517	0.00008
	5	0.00000	-0.02512	-0.00005
	6	0.00000	-0.02283	-0.00024
	7	0.00000	-0.06010	-0.00057
	8	0.00000	-0.00622	-0.00022

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

NODE DISPLACEMENT INCHES RADIANS

NODE	LOAD	X DISPL	Y DISPL	ROTATION
37	1	0.00000	-0.01908	-0.00056
	2	0.00000	-0.00512	0.00014
	3	0.00000	-0.01522	0.00040
	4	0.00000	0.02632	0.00012
	5	0.00000	-0.02728	-0.00034
	6	0.00000	-0.02297	0.00028
	7	0.00000	-0.07091	-0.00130
	8	0.00000	-0.00798	-0.00004
38	1	0.00000	-0.02713	-0.00079
	2	0.00000	-0.00260	0.00030
	3	0.00000	-0.00773	0.00089
	4	0.00000	0.02803	0.00017
	5	0.00000	-0.03354	-0.00074
	6	0.00000	-0.01527	0.00108
	7	0.00000	-0.09195	-0.00228
	8	0.00000	-0.00683	0.00027
39	1	0.00000	-0.03798	-0.00102
	2	0.00000	0.00219	0.00051
	3	0.00000	0.00651	0.00153
	4	0.00000	0.03035	0.00022
	5	0.00000	-0.04544	-0.00128
	6	0.00000	0.00393	0.00221
	7	0.00000	-0.12617	-0.00349
	8	0.00000	-0.00112	0.00072
40	1	0.00000	-0.05158	-0.00124
	2	0.00000	0.00988	0.00078
	3	0.00000	0.02935	0.00232
	4	0.00000	0.03328	0.00027
	5	0.00000	-0.06452	-0.00194
	6	0.00000	0.03865	0.00367
	7	0.00000	-0.17609	-0.00488
	8	0.00000	0.01105	0.00135
41	1	0.00000	-0.06738	-0.00138
	2	0.00000	0.02098	0.00108
	3	0.00000	0.06234	0.00321
	4	0.00000	0.03668	0.00030
	5	0.00000	-0.09207	-0.00268
	6	0.00000	0.09271	0.00542
	7	0.00000	-0.24321	-0.00632
	8	0.00000	0.03163	0.00213
42	1	0.00000	-0.07578	-0.00140
	2	-0.00001	0.02794	0.00124
	3	-0.00003	0.08302	0.00369
	4	0.00000	0.03849	0.00030
	5	0.00002	-0.10935	-0.00308
	6	-0.00005	0.12816	0.00642
	7	0.00003	-0.28332	-0.00703
	8	-0.00003	0.04573	0.00259

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

NODE DISPLACEMENT		INCHES		RADIANS
NODE	LOAD	X DISPL	Y DISPL	ROTATION
43	1	0.13804	-0.07591	-0.00140
	2	-0.22591	0.02794	0.00264
	3	-0.59874	0.08302	0.00665
	4	-0.02976	0.03849	0.00030
	5	0.50156	-0.10935	-0.00557
	6	-1.16479	0.12799	0.01324
	7	1.02710	-0.28349	-0.01123
	8	-0.49046	0.04560	0.00555

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

SUPPORT REACTIONS KIPS

NODE	LOAD	X FORCE	Y FORCE	MOMENT
3	1	7.64	0.84	0.00
	2	-5.97	-0.26	0.00
	3	-18.60	-0.78	0.00
	4	-1.65	-0.46	0.00
	5	15.44	1.15	0.00
	6	-31.40	-1.16	0.00
	7	36.02	3.04	0.00
	8	-12.60	-0.40	0.00
4	1	-1.25	0.64	0.00
	2	1.76	-0.12	0.00
	3	5.22	-0.37	0.00
	4	0.27	-0.42	0.00
	5	-4.36	0.81	0.00
	6	9.85	-0.48	0.00
	7	-8.99	2.20	0.00
	8	4.25	-0.14	0.00
5	1	-1.34	0.47	0.00
	2	1.39	-0.03	0.00
	3	4.12	-0.08	0.00
	4	0.29	-0.38	0.00
	5	-3.44	0.57	0.00
	6	7.41	-0.05	0.00
	7	-7.57	1.58	0.00
	8	3.07	0.01	0.00
6	1	-1.38	0.34	0.00
	2	1.08	0.03	0.00
	3	3.22	0.10	0.00
	4	0.30	-0.35	0.00
	5	-2.69	0.42	0.00
	6	5.45	0.19	0.00
	7	-6.34	1.15	0.00
	8	2.14	0.09	0.00
7	1	-1.23	0.24	0.00
	2	0.76	0.06	0.00
	3	2.27	0.19	0.00
	4	0.27	-0.33	0.00
	5	-1.90	0.34	0.00
	6	3.57	0.29	0.00
	7	-4.81	0.89	0.00
	8	1.30	0.10	0.00
8	1	-0.96	0.17	0.00
	2	0.48	0.07	0.00
	3	1.43	0.22	0.00
	4	0.21	-0.31	0.00
	5	-1.19	0.31	0.00
	6	2.06	0.29	0.00
	7	-3.26	0.75	0.00
	8	0.68	0.08	0.00
9	1	-0.72	0.13	0.00
	2	0.26	0.07	0.00

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
SUPPORT REACTIONS KIPS

NODE	LOAD	X FORCE	Y FORCE	MOMENT
	3	0.78	0.21	0.00
	4	0.16	-0.31	0.00
	5	-0.66	0.32	0.00
	6	0.93	0.22	0.00
	7	-2.05	0.71	0.00
	8	0.22	0.04	0.00
10	1	-0.49	0.11	0.00
	2	0.10	0.06	0.00
	3	0.30	0.18	0.00
	4	0.11	-0.30	0.00
	5	-0.25	0.35	0.00
	6	0.13	0.14	0.00
	7	-1.06	0.72	0.00
	8	-0.09	-0.01	0.00
11	1	-0.29	0.10	0.00
	2	0.00	0.05	0.00
	3	0.01	0.14	0.00
	4	0.06	-0.30	0.00
	5	-0.01	0.38	0.00
	6	-0.28	0.04	0.00
	7	-0.39	0.77	0.00
	8	-0.22	-0.06	0.00
12	1	-0.15	0.10	0.00
	2	-0.06	0.03	0.00
	3	-0.18	0.10	0.00
	4	0.03	-0.30	0.00
	5	0.15	0.42	0.00
	6	-0.54	-0.05	0.00
	7	0.07	0.83	0.00
	8	-0.30	-0.10	0.00
13	1	-0.04	0.10	0.00
	2	-0.09	0.02	0.00
	3	-0.27	0.07	0.00
	4	0.01	-0.30	0.00
	5	0.23	0.45	0.00
	6	-0.62	-0.12	0.00
	7	0.33	0.89	0.00
	8	-0.30	-0.13	0.00
14	1	0.02	0.11	0.00
	2	-0.09	0.01	0.00
	3	-0.26	0.04	0.00
	4	0.00	-0.31	0.00
	5	0.22	0.47	0.00
	6	-0.54	-0.18	0.00
	7	0.40	0.94	0.00
	8	-0.25	-0.16	0.00
15	1	0.05	0.12	0.00
	2	-0.08	0.01	0.00
	3	-0.24	0.02	0.00
	4	-0.01	-0.31	0.00

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

SUPPORT REACTIONS KIPS

NODE	LOAD	X FORCE	Y FORCE	MOMENT
	5	0.20	0.49	0.00
	6	-0.45	-0.22	0.00
	7	0.41	0.98	0.00
	8	-0.20	-0.18	0.00
16	1	0.06	0.12	0.00
	2	-0.06	0.00	0.00
	3	-0.19	0.00	0.00
	4	-0.01	-0.31	0.00
	5	0.16	0.50	0.00
	6	-0.34	-0.24	0.00
	7	0.34	1.00	0.00
	8	-0.14	-0.19	0.00
17	1	0.05	0.12	0.00
	2	-0.04	0.00	0.00
	3	-0.13	-0.01	0.00
	4	-0.01	-0.31	0.00
	5	0.11	0.50	0.00
	6	-0.22	-0.26	0.00
	7	0.25	1.02	0.00
	8	-0.09	-0.19	0.00
18	1	0.04	0.13	0.00
	2	-0.03	0.00	0.00
	3	-0.08	-0.01	0.00
	4	-0.01	-0.31	0.00
	5	0.06	0.51	0.00
	6	-0.13	-0.26	0.00
	7	0.16	1.02	0.00
	8	-0.05	-0.20	0.00
19	1	0.02	0.13	0.00
	2	-0.01	0.00	0.00
	3	-0.03	-0.01	0.00
	4	-0.01	-0.31	0.00
	5	0.03	0.51	0.00
	6	-0.06	-0.26	0.00
	7	0.07	1.02	0.00
	8	-0.02	-0.20	0.00
20	1	0.00	0.12	0.00
	2	0.00	0.00	0.00
	3	0.00	-0.01	0.00
	4	0.00	-0.31	0.00
	5	0.00	0.51	0.00
	6	-0.01	-0.26	0.00
	7	0.00	1.02	0.00
	8	-0.01	-0.20	0.00
21	1	-0.02	0.12	0.00
	2	0.00	0.00	0.00
	3	0.01	-0.01	0.00
	4	0.00	-0.31	0.00
	5	-0.01	0.51	0.00
	6	0.01	-0.26	0.00

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
SUPPORT REACTIONS KIPS

NODE	LOAD	X FORCE	Y FORCE	MOMENT
	7	-0.04	1.02	0.00
	8	0.00	-0.20	0.00
22	1	0.00	0.12	0.00
	2	0.00	0.00	0.00
	3	0.00	-0.01	0.00
	4	0.00	-0.31	0.00
	5	0.00	0.51	0.00
	6	0.00	-0.26	0.00
	7	0.00	1.01	0.00
	8	0.00	-0.20	0.00
23	1	0.02	0.12	0.00
	2	-0.01	0.00	0.00
	3	-0.02	-0.01	0.00
	4	0.00	-0.31	0.00
	5	0.01	0.51	0.00
	6	0.00	-0.26	0.00
	7	0.05	1.01	0.00
	8	0.01	-0.20	0.00
24	1	0.00	0.12	0.00
	2	0.00	0.00	0.00
	3	0.00	-0.01	0.00
	4	0.00	-0.31	0.00
	5	0.00	0.51	0.00
	6	0.02	-0.26	0.00
	7	0.00	1.02	0.00
	8	0.01	-0.20	0.00
25	1	-0.02	0.12	0.00
	2	0.01	0.00	0.00
	3	0.03	-0.01	0.00
	4	0.01	-0.31	0.00
	5	-0.03	0.51	0.00
	6	0.06	-0.26	0.00
	7	-0.07	1.02	0.00
	8	0.02	-0.20	0.00
26	1	-0.04	0.13	0.00
	2	0.03	0.00	0.00
	3	0.08	-0.01	0.00
	4	0.01	-0.31	0.00
	5	-0.06	0.51	0.00
	6	0.13	-0.26	0.00
	7	-0.16	1.02	0.00
	8	0.05	-0.20	0.00
27	1	-0.05	0.12	0.00
	2	0.04	0.00	0.00
	3	0.13	-0.01	0.00
	4	0.01	-0.31	0.00
	5	-0.11	0.50	0.00
	6	0.22	-0.26	0.00
	7	-0.25	1.02	0.00
	8	0.09	-0.19	0.00

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

SUPPORT REACTIONS KIPS

NODE	LOAD	X FORCE	Y FORCE	MOMENT
28	1	-0.06	0.12	0.00
	2	0.06	0.00	0.00
	3	0.19	0.00	0.00
	4	0.01	-0.31	0.00
	5	-0.16	0.50	0.00
	6	0.34	-0.24	0.00
	7	-0.35	1.00	0.00
	8	0.14	-0.19	0.00
29	1	-0.05	0.12	0.00
	2	0.08	0.01	0.00
	3	0.24	0.02	0.00
	4	0.01	-0.31	0.00
	5	-0.20	0.49	0.00
	6	0.45	-0.22	0.00
	7	-0.41	0.98	0.00
	8	0.20	-0.18	0.00
30	1	-0.02	0.11	0.00
	2	0.09	0.01	0.00
	3	0.26	0.04	0.00
	4	0.00	-0.31	0.00
	5	-0.22	0.47	0.00
	6	0.54	-0.18	0.00
	7	-0.40	0.94	0.00
	8	0.25	-0.16	0.00
31	1	0.04	0.10	0.00
	2	0.09	0.02	0.00
	3	0.27	0.07	0.00
	4	-0.01	-0.30	0.00
	5	-0.23	0.45	0.00
	6	0.62	-0.12	0.00
	7	-0.33	0.89	0.00
	8	0.30	-0.13	0.00
32	1	0.15	0.10	0.00
	2	0.06	0.03	0.00
	3	0.18	0.10	0.00
	4	-0.03	-0.30	0.00
	5	-0.15	0.41	0.00
	6	0.54	-0.05	0.00
	7	-0.07	0.83	0.00
	8	0.30	-0.10	0.00
33	1	0.29	0.10	0.00
	2	0.00	0.05	0.00
	3	-0.01	0.14	0.00
	4	-0.06	-0.30	0.00
	5	0.01	0.38	0.00
	6	0.28	0.04	0.00
	7	0.39	0.77	0.00
	8	0.22	-0.06	0.00
34	1	0.49	0.11	0.00
	2	-0.10	0.06	0.00

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
SUPPORT REACTIONS KIPS

NODE	LOAD	X FORCE	Y FORCE	MOMENT
	3	-0.30	0.18	0.00
	4	-0.11	-0.30	0.00
	5	0.25	0.35	0.00
	6	-0.13	0.14	0.00
	7	1.06	0.72	0.00
	8	0.09	-0.01	0.00
35	1	0.73	0.13	0.00
	2	-0.26	0.07	0.00
	3	-0.79	0.21	0.00
	4	-0.16	-0.31	0.00
	5	0.66	0.32	0.00
	6	-0.94	0.22	0.00
	7	2.05	0.71	0.00
	8	-0.22	0.04	0.00
36	1	0.96	0.17	0.00
	2	-0.48	0.07	0.00
	3	-1.43	0.22	0.00
	4	-0.21	-0.31	0.00
	5	1.19	0.31	0.00
	6	-2.07	0.29	0.00
	7	3.26	0.75	0.00
	8	-0.68	0.08	0.00
37	1	1.24	0.24	0.00
	2	-0.76	0.06	0.00
	3	-2.27	0.19	0.00
	4	-0.27	-0.33	0.00
	5	1.90	0.34	0.00
	6	-3.58	0.29	0.00
	7	4.81	0.89	0.00
	8	-1.31	0.10	0.00
38	1	1.38	0.34	0.00
	2	-1.08	0.03	0.00
	3	-3.21	0.10	0.00
	4	-0.30	-0.35	0.00
	5	2.68	0.42	0.00
	6	-5.43	0.19	0.00
	7	6.32	1.15	0.00
	8	-2.13	0.09	0.00
39	1	1.34	0.47	0.00
	2	-1.38	-0.03	0.00
	3	-4.11	-0.08	0.00
	4	-0.29	-0.38	0.00
	5	3.44	0.57	0.00
	6	-7.39	-0.05	0.00
	7	7.55	1.58	0.00
	8	-3.07	0.01	0.00
40	1	1.24	0.64	0.00
	2	-1.75	-0.12	0.00
	3	-5.21	-0.37	0.00
	4	-0.27	-0.42	0.00

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

SUPPORT REACTIONS KIPS

NODE	LOAD	X FORCE	Y FORCE	MOMENT
	5	4.35	0.81	0.00
	6	-9.82	-0.48	0.00
	7	8.97	2.20	0.00
	8	-4.24	-0.14	0.00
41	1	-7.63	0.84	0.00
	2	5.96	-0.26	0.00
	3	18.57	-0.78	0.00
	4	1.65	-0.46	0.00
	5	-15.41	1.15	0.00
	6	31.35	-1.16	0.00
	7	-35.97	3.04	0.00
	8	12.58	-0.40	0.00

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
1	1	1	0.00	0.00	0.00
		2	-1.23	0.00	0.00
	2	1	0.00	0.00	0.00
		2	0.00	-0.59	2.41
	3	1	0.00	0.00	0.00
		2	0.00	-2.61	7.16
	4	1	0.00	0.00	0.00
		2	0.00	0.00	0.00
	5	1	0.00	0.00	0.00
		2	0.00	2.08	-5.98
	6	1	0.00	0.00	0.00
		2	-1.60	-5.17	15.23
	7	1	0.00	0.00	0.00
		2	-1.60	3.52	-10.10
	8	1	0.00	0.00	0.00
		2	-1.23	-2.61	7.16
2	1	2	0.00	-1.43	0.00
		3	0.00	1.51	-0.73
	2	2	0.59	0.00	-2.41
		3	-0.59	0.00	2.41
	3	2	2.61	0.00	-7.16
		3	-2.61	0.00	7.16
	4	2	0.00	0.31	0.00
		3	0.00	-0.31	0.16
	5	2	-2.08	0.00	5.98
		3	2.08	0.00	-5.98
	6	2	5.17	-1.45	-15.23
		3	-5.17	1.56	14.47
	7	2	-3.52	-1.85	10.10
		3	3.52	1.97	-11.06
	8	2	2.61	-1.11	-7.16
		3	-2.61	1.20	6.58
3	1	3	7.65	-0.59	0.73
		4	-7.65	0.76	-1.41
	2	3	-5.38	-0.32	-2.41
		4	5.38	0.32	2.09
	3	3	-15.98	-0.96	-7.16
		4	15.98	0.96	6.20
	4	3	-1.65	0.15	-0.16
		4	1.65	-0.15	0.30
	5	3	13.35	0.80	5.98
		4	-13.35	-0.80	-5.18
	6	3	-26.20	-2.60	-14.47
		4	26.19	2.83	11.76
	7	3	32.50	0.59	11.06

4	-32.50	-0.36	-10.58

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	3	-9.98	-1.39	-6.58
		4	9.98	1.57	5.10
4	1	4	6.40	-0.13	1.41
		5	-6.40	0.30	-1.62
	2	4	-3.62	-0.43	-2.09
		5	3.62	0.43	1.66
	3	4	-10.75	-1.26	-6.20
		5	10.75	1.26	4.94
	4	4	-1.38	0.05	-0.30
		5	1.38	-0.05	0.35
	5	4	8.98	1.06	5.18
		5	-8.98	-1.06	-4.12
	6	4	-16.35	-2.80	-11.76
		5	16.34	3.02	8.85
	7	4	23.50	1.61	10.58
		5	-23.50	-1.39	-9.08
	8	4	-5.73	-1.35	-5.10
		5	5.73	1.52	3.66
5	1	5	5.05	0.16	1.62
		6	-5.05	0.01	-1.55
	2	5	-2.23	-0.44	-1.66
		6	2.23	0.44	1.22
	3	5	-6.63	-1.30	-4.94
		6	6.63	1.30	3.64
	4	5	-1.08	-0.02	-0.35
		6	1.08	0.02	0.34
	5	5	5.54	1.09	4.12
		6	-5.54	-1.09	-3.04
	6	5	-8.94	-2.58	-8.85
		6	8.94	2.80	6.16
	7	5	15.92	2.04	9.08
		6	-15.93	-1.82	-7.15
	8	5	-2.66	-1.16	-3.66
		6	2.66	1.33	2.42
6	1	6	3.67	0.31	1.55
		7	-3.67	-0.15	-1.32
	2	6	-1.15	-0.39	-1.22
		7	1.15	0.39	0.83
	3	6	-3.41	-1.17	-3.64
		7	3.41	1.17	2.47
	4	6	-0.78	-0.05	-0.34
		7	0.78	0.05	0.29
	5	6	2.85	0.98	3.04
		7	-2.85	-0.98	-2.06
	6	6	-3.50	-2.14	-6.16

	7	3.50	2.36	3.90
7	6	9.59	2.06	7.15
	7	-9.59	-1.84	-5.20

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	6	-0.52	-0.91	-2.42
		7	0.52	1.07	1.43
7	1	7	2.43	0.37	1.32
		8	-2.44	-0.21	-1.03
	2	7	-0.39	-0.32	-0.83
		8	0.39	0.32	0.51
	3	7	-1.14	-0.95	-2.47
		8	1.14	0.95	1.51
	4	7	-0.51	-0.06	-0.29
		8	0.51	0.06	0.22
	5	7	0.96	0.80	2.06
		8	-0.96	-0.80	-1.26
	6	7	0.07	-1.63	-3.90
		8	-0.07	1.84	2.17
	7	7	4.78	1.83	5.20
		8	-4.78	-1.62	-3.47
	8	7	0.78	-0.64	-1.43
		8	-0.78	0.81	0.71
8	1	8	1.48	0.37	1.03
		9	-1.48	-0.21	-0.74
	2	8	0.09	-0.24	-0.51
		9	-0.09	0.24	0.27
	3	8	0.28	-0.71	-1.51
		9	-0.28	0.71	0.80
	4	8	-0.30	-0.06	-0.22
		9	0.30	0.06	0.16
	5	8	-0.23	0.60	1.26
		9	0.23	-0.60	-0.67
	6	8	2.13	-1.12	-2.17
		9	-2.13	1.33	0.95
	7	8	1.53	1.49	3.47
		9	-1.53	-1.28	-2.09
	8	8	1.46	-0.41	-0.71
		9	-1.46	0.57	0.22
9	1	9	0.75	0.33	0.74
		10	-0.76	-0.18	-0.48
	2	9	0.36	-0.17	-0.27
		10	-0.36	0.17	0.10
	3	9	1.06	-0.49	-0.80
		10	-1.06	0.49	0.31
	4	9	-0.14	-0.06	-0.16
		10	0.14	0.06	0.10
	5	9	-0.89	0.41	0.67
		10	0.89	-0.41	-0.26
	6	9	3.06	-0.69	-0.95

	10	-3.06	0.89	0.16
7	9	-0.52	1.12	2.09
	10	0.51	-0.92	-1.06

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MEMB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	9	1.67	-0.22	-0.22
		10	-1.68	0.37	-0.07
10	1	10	0.26	0.28	0.48
		11	-0.26	-0.12	-0.28
	2	10	0.46	-0.10	-0.10
		11	-0.46	0.10	0.00
	3	10	1.36	-0.30	-0.31
		11	-1.36	0.30	0.00
	4	10	-0.03	-0.04	-0.10
		11	0.03	0.04	0.06
	5	10	-1.13	0.25	0.26
		11	1.13	-0.25	0.00
	6	10	3.18	-0.35	-0.16
		11	-3.18	0.54	-0.28
	7	10	-1.57	0.79	1.06
		11	1.57	-0.59	-0.38
	8	10	1.58	-0.07	0.07
		11	-1.59	0.22	-0.22
11	1	11	-0.03	0.22	0.28
		12	0.03	-0.07	-0.14
	2	11	0.46	-0.05	0.00
		12	-0.46	0.05	-0.05
	3	11	1.36	-0.16	0.00
		12	-1.36	0.16	-0.16
	4	11	0.03	-0.03	-0.06
		12	-0.03	0.03	0.03
	5	11	-1.14	0.13	0.00
		12	1.14	-0.13	0.13
	6	11	2.90	-0.10	0.28
		12	-2.90	0.29	-0.48
	7	11	-1.96	0.51	0.38
		12	1.96	-0.32	0.04
	8	11	1.36	0.03	0.22
		12	-1.36	0.12	-0.27
12	1	12	-0.18	0.17	0.14
		13	0.18	-0.02	-0.05
	2	12	0.40	-0.02	0.05
		13	-0.40	0.02	-0.07
	3	12	1.18	-0.06	0.16
		13	-1.18	0.06	-0.22
	4	12	0.06	-0.02	-0.03
		13	-0.06	0.02	0.01
	5	12	-0.98	0.05	-0.13
		13	0.98	-0.05	0.18
	6	12	2.35	0.06	0.48

	13	-2.36	0.13	-0.51
7	12	-1.89	0.30	-0.04
	13	1.89	-0.11	0.25

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	12	1.06	0.08	0.27
		13	-1.06	0.06	-0.26
13	1	13	-0.22	0.12	0.05
		14	0.21	0.02	0.01
	2	13	0.30	0.00	0.07
		14	-0.30	0.00	-0.07
	3	13	0.91	0.00	0.22
		14	-0.91	0.00	-0.22
	4	13	0.07	-0.01	-0.01
		14	-0.07	0.01	0.00
	5	13	-0.76	0.00	-0.18
		14	0.76	0.00	0.18
	6	13	1.74	0.15	0.51
		14	-1.74	0.04	-0.46
	7	13	-1.56	0.16	-0.25
		14	1.56	0.02	0.31
	8	13	0.76	0.11	0.26
		14	-0.76	0.03	-0.21
14	1	14	-0.20	0.09	-0.01
		15	0.19	0.05	0.03
	2	14	0.22	0.01	0.07
		15	-0.22	-0.01	-0.06
	3	14	0.64	0.03	0.22
		15	-0.64	-0.03	-0.18
	4	14	0.07	-0.01	0.00
		15	-0.07	0.01	-0.01
	5	14	-0.54	-0.03	-0.18
		15	0.54	0.03	0.15
	6	14	1.20	0.19	0.46
		15	-1.20	-0.01	-0.36
	7	14	-1.16	0.07	-0.31
		15	1.16	0.11	0.30
	8	14	0.51	0.12	0.21
		15	-0.51	0.02	-0.16
15	1	15	-0.14	0.07	-0.03
		16	0.14	0.06	0.03
	2	15	0.14	0.02	0.06
		16	-0.14	-0.02	-0.05
	3	15	0.40	0.05	0.18
		16	-0.40	-0.05	-0.14
	4	15	0.05	0.00	0.01
		16	-0.05	0.00	-0.01
	5	15	-0.34	-0.04	-0.15
		16	0.34	0.04	0.11
	6	15	0.74	0.19	0.36

	16	-0.75	-0.02	-0.26
7	15	-0.75	0.03	-0.30
	16	0.75	0.15	0.24

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	15	0.32	0.12	0.16
		16	-0.32	0.02	-0.11
16	1	16	-0.08	0.06	-0.03
		17	0.08	0.07	0.03
	2	16	0.07	0.02	0.05
		17	-0.07	-0.02	-0.03
	3	16	0.22	0.05	0.14
		17	-0.22	-0.05	-0.09
	4	16	0.04	0.00	0.01
		17	-0.04	0.00	-0.01
	5	16	-0.18	-0.04	-0.11
		17	0.18	0.04	0.07
	6	16	0.41	0.18	0.26
		17	-0.41	0.00	-0.16
	7	16	-0.41	0.01	-0.24
		17	0.41	0.16	0.16
	8	16	0.18	0.11	0.11
		17	-0.18	0.03	-0.07
17	1	17	-0.03	0.05	-0.03
		18	0.02	0.08	0.02
	2	17	0.03	0.01	0.03
		18	-0.03	-0.01	-0.02
	3	17	0.09	0.04	0.09
		18	-0.09	-0.04	-0.05
	4	17	0.03	0.00	0.01
		18	-0.03	0.00	-0.01
	5	17	-0.07	-0.03	-0.07
		18	0.07	0.03	0.04
	6	17	0.19	0.15	0.16
		18	-0.19	0.01	-0.09
	7	17	-0.16	0.01	-0.16
		18	0.15	0.15	0.09
	8	17	0.09	0.09	0.07
		18	-0.09	0.04	-0.04
18	1	18	0.01	0.05	-0.02
		19	-0.01	0.08	0.00
	2	18	0.00	0.01	0.02
		19	0.00	-0.01	-0.01
	3	18	0.01	0.03	0.05
		19	-0.01	-0.03	-0.02
	4	18	0.02	0.00	0.01
		19	-0.02	0.00	0.00
	5	18	-0.01	-0.02	-0.04
		19	0.01	0.02	0.02
	6	18	0.06	0.13	0.09

	19	-0.06	0.03	-0.05
7	18	0.00	0.02	-0.09
	19	0.00	0.14	0.03

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	18	0.04	0.08	0.04
		19	-0.04	0.05	-0.02
19	1	19	0.03	0.05	0.00
		20	-0.03	0.07	-0.01
	2	19	-0.01	0.01	0.01
		20	0.01	-0.01	0.00
	3	19	-0.02	0.02	0.02
		20	0.02	-0.02	0.00
	4	19	0.01	0.00	0.00
		20	-0.01	0.00	0.00
	5	19	0.02	-0.02	-0.02
		20	-0.02	0.02	0.00
	6	19	0.00	0.11	0.05
		20	-0.01	0.05	-0.02
	7	19	0.07	0.04	-0.03
		20	-0.07	0.12	-0.01
	8	19	0.02	0.07	0.02
		20	-0.02	0.05	-0.01
20	1	20	0.03	0.05	0.01
		21	-0.03	0.07	-0.02
	2	20	-0.01	0.00	0.00
		21	0.01	0.00	0.00
	3	20	-0.03	0.01	0.00
		21	0.03	-0.01	0.01
	4	20	0.00	0.00	0.00
		21	0.00	0.00	0.00
	5	20	0.02	-0.01	0.00
		21	-0.02	0.01	-0.01
	6	20	-0.01	0.09	0.02
		21	0.01	0.07	-0.01
	7	20	0.08	0.05	0.01
		21	-0.08	0.10	-0.04
	8	20	0.01	0.06	0.01
		21	-0.01	0.06	-0.01
21	1	21	0.01	0.05	0.02
		22	-0.01	0.06	-0.02
	2	21	0.00	0.00	0.00
		22	0.00	0.00	0.00
	3	21	-0.01	0.00	-0.01
		22	0.01	0.00	0.01
	4	21	0.00	0.00	0.00
		22	0.00	0.00	0.00
	5	21	0.01	0.00	0.01
		22	-0.01	0.00	-0.01
	6	21	0.00	0.08	0.01

	22	0.00	0.07	-0.01
7	21	0.03	0.06	0.04
	22	-0.03	0.09	-0.05

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	21	0.00	0.06	0.01
		22	0.00	0.06	-0.01
22	1	22	0.01	0.06	0.02
		23	-0.01	0.05	-0.02
	2	22	0.00	0.00	0.00
		23	0.00	0.00	0.00
	3	22	-0.01	0.00	-0.01
		23	0.01	0.00	0.01
	4	22	0.00	0.00	0.00
		23	0.00	0.00	0.00
	5	22	0.01	0.00	0.01
		23	-0.01	0.00	-0.01
	6	22	-0.01	0.07	0.01
		23	0.01	0.08	-0.01
	7	22	0.03	0.08	0.05
		23	-0.03	0.06	-0.04
	8	22	0.00	0.06	0.01
		23	0.00	0.06	-0.01
23	1	23	0.03	0.07	0.02
		24	-0.03	0.05	-0.01
	2	23	-0.01	0.00	0.00
		24	0.01	0.00	0.00
	3	23	-0.03	-0.01	-0.01
		24	0.03	0.01	0.00
	4	23	0.00	0.00	0.00
		24	0.00	0.00	0.00
	5	23	0.02	0.01	0.01
		24	-0.02	-0.01	0.00
	6	23	-0.01	0.07	0.01
		24	0.01	0.09	-0.02
	7	23	0.08	0.11	0.04
		24	-0.08	0.05	-0.01
	8	23	0.01	0.06	0.01
		24	-0.01	0.06	-0.02
24	1	24	0.03	0.07	0.01
		25	-0.03	0.05	0.00
	2	24	-0.01	-0.01	0.00
		25	0.01	0.01	-0.01
	3	24	-0.02	-0.02	0.00
		25	0.02	0.02	-0.02
	4	24	0.01	0.00	0.00
		25	-0.01	0.00	0.00
	5	24	0.02	0.02	0.00
		25	-0.02	-0.02	0.02
	6	24	0.01	0.05	0.02

	25	0.00	0.11	-0.05
7	24	0.07	0.12	0.01
	25	-0.07	0.04	0.03

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	24	0.02	0.05	0.02
		25	-0.02	0.07	-0.02
25	1	25	0.01	0.08	0.00
		26	-0.01	0.05	0.02
	2	25	0.00	-0.01	0.01
		26	0.00	0.01	-0.02
	3	25	0.01	-0.03	0.02
		26	-0.01	0.03	-0.05
	4	25	0.02	0.00	0.00
		26	-0.02	0.00	-0.01
	5	25	-0.01	0.02	-0.02
		26	0.01	-0.02	0.04
	6	25	0.06	0.03	0.05
		26	-0.06	0.13	-0.10
	7	25	0.00	0.14	-0.03
		26	0.00	0.02	0.09
	8	25	0.04	0.05	0.02
		26	-0.04	0.08	-0.04
26	1	26	-0.02	0.08	-0.02
		27	0.03	0.05	0.03
	2	26	0.03	-0.01	0.02
		27	-0.03	0.01	-0.03
	3	26	0.09	-0.04	0.05
		27	-0.09	0.04	-0.09
	4	26	0.03	0.00	0.01
		27	-0.03	0.00	-0.01
	5	26	-0.07	0.03	-0.04
		27	0.07	-0.03	0.07
	6	26	0.19	0.01	0.10
		27	-0.19	0.15	-0.16
	7	26	-0.16	0.15	-0.09
		27	0.16	0.01	0.16
	8	26	0.09	0.04	0.04
		27	-0.09	0.09	-0.07
27	1	27	-0.08	0.07	-0.03
		28	0.08	0.06	0.04
	2	27	0.07	-0.02	0.03
		28	-0.07	0.02	-0.05
	3	27	0.22	-0.05	0.09
		28	-0.22	0.05	-0.14
	4	27	0.04	0.00	0.01
		28	-0.04	0.00	-0.01
	5	27	-0.18	0.04	-0.07
		28	0.18	-0.04	0.11
	6	27	0.41	0.00	0.16

	28	-0.41	0.18	-0.26
7	27	-0.41	0.16	-0.16
	28	0.41	0.01	0.24

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	27	0.18	0.03	0.07
		28	-0.18	0.11	-0.11
28	1	28	-0.14	0.06	-0.04
		29	0.14	0.07	0.03
	2	28	0.14	-0.02	0.05
		29	-0.14	0.02	-0.06
	3	28	0.40	-0.05	0.14
		29	-0.40	0.05	-0.18
	4	28	0.05	0.00	0.01
		29	-0.05	0.00	-0.01
	5	28	-0.34	0.04	-0.11
		29	0.34	-0.04	0.15
	6	28	0.75	-0.02	0.26
		29	-0.75	0.19	-0.36
	7	28	-0.75	0.15	-0.24
		29	0.76	0.03	0.30
	8	28	0.32	0.02	0.11
		29	-0.32	0.12	-0.16
29	1	29	-0.19	0.05	-0.03
		30	0.20	0.09	0.01
	2	29	0.22	-0.01	0.06
		30	-0.22	0.01	-0.07
	3	29	0.64	-0.03	0.18
		30	-0.64	0.03	-0.22
	4	29	0.07	0.01	0.01
		30	-0.07	-0.01	0.00
	5	29	-0.54	0.03	-0.15
		30	0.54	-0.03	0.18
	6	29	1.20	-0.01	0.36
		30	-1.20	0.19	-0.46
	7	29	-1.16	0.11	-0.30
		30	1.16	0.07	0.31
	8	29	0.52	0.02	0.16
		30	-0.51	0.12	-0.21
30	1	30	-0.21	0.02	-0.01
		31	0.22	0.12	-0.05
	2	30	0.31	0.00	0.07
		31	-0.31	0.00	-0.07
	3	30	0.91	0.00	0.22
		31	-0.91	0.00	-0.22
	4	30	0.07	0.01	0.00
		31	-0.07	-0.01	0.01
	5	30	-0.76	0.00	-0.18
		31	0.76	0.00	0.18
	6	30	1.74	0.04	0.46

	31	-1.74	0.15	-0.51
7	30	-1.56	0.02	-0.31
	31	1.56	0.16	0.25

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

EMB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	30	0.76	0.03	0.21
		31	-0.76	0.11	-0.26
31	1	31	-0.17	-0.02	0.05
		32	0.18	0.17	-0.14
	2	31	0.40	0.02	0.07
		32	-0.40	-0.02	-0.05
	3	31	1.18	0.06	0.22
		32	-1.18	-0.06	-0.16
	4	31	0.06	0.02	-0.01
		32	-0.06	-0.02	0.03
	5	31	-0.98	-0.05	-0.18
		32	0.98	0.05	0.13
	6	31	2.36	0.13	0.51
		32	-2.36	0.06	-0.48
	7	31	-1.89	-0.11	-0.25
		32	1.89	0.30	0.04
	8	31	1.07	0.06	0.26
		32	-1.06	0.08	-0.27
32	1	32	-0.03	-0.07	0.14
		33	0.03	0.22	-0.28
	2	32	0.46	0.05	0.05
		33	-0.46	-0.05	0.00
	3	32	1.36	0.16	0.16
		33	-1.36	-0.16	0.00
	4	32	0.03	0.03	-0.03
		33	-0.03	-0.03	0.06
	5	32	-1.14	-0.13	-0.13
		33	1.14	0.13	0.00
	6	32	2.90	0.29	0.48
		33	-2.90	-0.10	-0.28
	7	32	-1.96	-0.32	-0.04
		33	1.96	0.51	-0.38
	8	32	1.36	0.12	0.27
		33	-1.36	0.03	-0.22
33	1	33	0.26	-0.12	0.28
		34	-0.26	0.28	-0.48
	2	33	0.46	0.10	0.00
		34	-0.46	-0.10	0.10
	3	33	1.36	0.30	0.00
		34	-1.36	-0.30	0.31
	4	33	-0.03	0.04	-0.06
		34	0.03	-0.04	0.10
	5	33	-1.13	-0.25	0.00
		34	1.13	0.25	-0.26
	6	33	3.18	0.54	0.28

	34	-3.18	-0.35	0.16
7	33	-1.57	-0.59	0.38
	34	1.57	0.79	-1.07

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	33	1.58	0.22	0.22
		34	-1.58	-0.07	-0.07
34	1	34	0.76	-0.18	0.48
		35	-0.76	0.33	-0.74
	2	34	0.36	0.17	-0.10
		35	-0.36	-0.17	0.27
	3	34	1.06	0.49	-0.31
		35	-1.06	-0.49	0.80
	4	34	-0.14	0.06	-0.10
		35	0.14	-0.06	0.16
	5	34	-0.89	-0.41	0.26
		35	0.89	0.41	-0.67
	6	34	3.05	0.89	-0.16
		35	-3.05	-0.69	0.95
	7	34	-0.51	-0.92	1.07
		35	0.51	1.12	-2.09
	8	34	1.68	0.37	0.07
		35	-1.67	-0.22	0.22
35	1	35	1.48	-0.21	0.74
		36	-1.48	0.37	-1.03
	2	35	0.09	0.24	-0.27
		36	-0.09	-0.24	0.51
	3	35	0.28	0.71	-0.80
		36	-0.28	-0.71	1.52
	4	35	-0.30	0.06	-0.16
		36	0.30	-0.06	0.22
	5	35	-0.23	-0.60	0.67
		36	0.23	0.60	-1.27
	6	35	2.12	1.33	-0.95
		36	-2.12	-1.12	2.18
	7	35	1.54	-1.28	2.09
		36	-1.53	1.49	-3.48
	8	35	1.46	0.57	-0.22
		36	-1.46	-0.41	0.71
36	1	36	2.44	-0.21	1.03
		37	-2.44	0.37	-1.32
	2	36	-0.39	0.32	-0.51
		37	0.39	-0.32	0.83
	3	36	-1.15	0.95	-1.52
		37	1.15	-0.95	2.47
	4	36	-0.51	0.06	-0.22
		37	0.51	-0.06	0.29
	5	36	0.96	-0.80	1.27
		37	-0.96	0.80	-2.06
	6	36	0.06	1.84	-2.18

	37	-0.06	-1.63	3.91
7	36	4.79	-1.62	3.48
	37	-4.79	1.83	-5.20

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MEMB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	36	0.78	0.81	-0.71
		37	-0.78	-0.64	1.43
37	1	37	3.67	-0.15	1.32
		38	-3.67	0.31	-1.55
	2	37	-1.15	0.39	-0.83
		38	1.15	-0.39	1.22
	3	37	-3.42	1.17	-2.47
		38	3.42	-1.17	3.64
	4	37	-0.78	0.05	-0.29
		38	0.78	-0.05	0.34
	5	37	2.86	-0.98	2.06
		38	-2.86	0.98	-3.04
	6	37	-3.51	2.36	-3.91
		38	3.51	-2.14	6.16
	7	37	9.60	-1.84	5.20
		38	-9.60	2.06	-7.15
	8	37	-0.52	1.07	-1.43
		38	0.53	-0.91	2.42
38	1	38	5.05	0.01	1.55
		39	-5.05	0.16	-1.63
	2	38	-2.23	0.44	-1.22
		39	2.23	-0.44	1.66
	3	38	-6.63	1.30	-3.64
		39	6.63	-1.30	4.94
	4	38	-1.08	0.02	-0.34
		39	1.08	-0.02	0.35
	5	38	5.54	-1.09	3.04
		39	-5.54	1.09	-4.12
	6	38	-8.94	2.80	-6.16
		39	8.94	-2.58	8.85
	7	38	15.92	-1.82	7.15
		39	-15.92	2.04	-9.08
	8	38	-2.66	1.33	-2.42
		39	2.66	-1.16	3.67
39	1	39	6.40	0.30	1.63
		40	-6.39	-0.13	-1.41
	2	39	-3.61	0.43	-1.66
		40	3.61	-0.43	2.09
	3	39	-10.74	1.26	-4.94
		40	10.74	-1.26	6.20
	4	39	-1.37	-0.05	-0.35
		40	1.37	0.05	0.30
	5	39	8.97	-1.06	4.12
		40	-8.97	1.06	-5.18
	6	39	-16.32	3.02	-8.85

	40	16.33	-2.80	11.76
7	39	23.48	-1.39	9.08
	40	-23.47	1.61	-10.59

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MEMB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	39	-5.72	1.52	-3.67
		40	5.72	-1.35	5.10
40	1	40	7.64	0.76	1.41
		41	-7.64	-0.59	-0.73
	2	40	-5.37	0.32	-2.09
		41	5.37	-0.32	2.41
	3	40	-15.95	0.95	-6.20
		41	15.95	-0.95	7.16
	4	40	-1.65	-0.15	-0.30
		41	1.65	0.15	0.16
	5	40	13.33	-0.80	5.18
		41	-13.33	0.80	-5.98
	6	40	-26.14	2.83	-11.76
		41	26.15	-2.60	14.47
	7	40	32.46	-0.36	10.59
		41	-32.45	0.59	-11.06
	8	40	-9.96	1.57	-5.10
		41	9.96	-1.39	6.58
41	1	41	0.00	1.51	0.73
		42	0.00	-1.43	0.00
	2	41	0.59	0.00	-2.41
		42	-0.59	0.00	2.41
	3	41	2.61	0.00	-7.16
		42	-2.61	0.00	7.16
	4	41	0.00	-0.31	-0.16
		42	0.00	0.31	0.00
	5	41	-2.08	0.00	5.98
		42	2.08	0.00	-5.98
	6	41	5.17	1.56	-14.47
		42	-5.17	-1.45	15.23
	7	41	-3.52	1.97	11.06
		42	3.52	-1.85	-10.10
	8	41	2.61	1.20	-6.58
		42	-2.61	-1.11	7.16
42	1	43	0.00	0.00	0.00
		42	-1.23	0.00	0.00
	2	43	0.00	0.00	0.00
		42	0.00	0.59	-2.41
	3	43	0.00	0.00	0.00
		42	0.00	2.61	-7.16
	4	43	0.00	0.00	0.00
		42	0.00	0.00	0.00
	5	43	0.00	0.00	0.00
		42	0.00	-2.08	5.98
	6	43	0.00	0.00	0.00

	42	-1.60	5.17	-15.23
7	43	0.00	0.00	0.00
	42	-1.60	-3.52	10.10

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	43	0.00	0.00	0.00
		42	-1.23	2.61	-7.16

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
1	1	1	0.00	0.00	0.00
		2	-1.23	0.00	0.00
	2	1	0.00	0.00	0.00
		2	0.00	-0.59	2.41
	3	1	0.00	0.00	0.00
		2	0.00	-2.61	7.16
	4	1	0.00	0.00	0.00
		2	0.00	0.00	0.00
	5	1	0.00	0.00	0.00
		2	0.00	2.08	-5.98
	6	1	0.00	0.00	0.00
		2	-1.60	-5.17	15.23
	7	1	0.00	0.00	0.00
		2	-1.60	3.52	-10.10
	8	1	0.00	0.00	0.00
		2	-1.23	-2.61	7.16
2	1	2	0.00	-1.43	0.00
		3	0.00	1.51	-0.73
	2	2	0.59	0.00	-2.41
		3	-0.59	0.00	2.41
	3	2	2.61	0.00	-7.16
		3	-2.61	0.00	7.16
	4	2	0.00	0.31	0.00
		3	0.00	-0.31	0.16
	5	2	-2.08	0.00	5.98
		3	2.08	0.00	-5.98
	6	2	5.17	-1.45	-15.23
		3	-5.17	1.56	14.47
	7	2	-3.52	-1.85	10.10
		3	3.52	1.97	-11.06
	8	2	2.61	-1.11	-7.16
		3	-2.61	1.20	6.58
3	1	3	7.65	-0.59	0.73
		4	-7.65	0.76	-1.41
	2	3	-5.38	-0.32	-2.41
		4	5.38	0.32	2.09
	3	3	-15.98	-0.96	-7.16
		4	15.98	0.96	6.20
	4	3	-1.65	0.15	-0.16
		4	1.65	-0.15	0.30
	5	3	13.35	0.80	5.98
		4	-13.35	-0.80	-5.18
	6	3	-26.20	-2.60	-14.47
		4	26.19	2.83	11.76
	7	3	32.50	0.59	11.06

4	-32.50	-0.36	-10.58

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

EMB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	3	-9.98	-1.39	-6.58
		4	9.98	1.57	5.10
4	1	4	6.40	-0.13	1.41
		5	-6.40	0.30	-1.62
	2	4	-3.62	-0.43	-2.09
		5	3.62	0.43	1.66
	3	4	-10.75	-1.26	-6.20
		5	10.75	1.26	4.94
	4	4	-1.38	0.05	-0.30
		5	1.38	-0.05	0.35
	5	4	8.98	1.06	5.18
		5	-8.98	-1.06	-4.12
	6	4	-16.35	-2.80	-11.76
		5	16.34	3.02	8.85
	7	4	23.50	1.61	10.58
		5	-23.50	-1.39	-9.08
	8	4	-5.73	-1.35	-5.10
		5	5.73	1.52	3.66
5	1	5	5.05	0.16	1.62
		6	-5.05	0.01	-1.55
	2	5	-2.23	-0.44	-1.66
		6	2.23	0.44	1.22
	3	5	-6.63	-1.30	-4.94
		6	6.63	1.30	3.64
	4	5	-1.08	-0.02	-0.35
		6	1.08	0.02	0.34
	5	5	5.54	1.09	4.12
		6	-5.54	-1.09	-3.04
	6	5	-8.94	-2.58	-8.85
		6	8.94	2.80	6.16
	7	5	15.92	2.04	9.08
		6	-15.93	-1.82	-7.15
	8	5	-2.66	-1.16	-3.66
		6	2.66	1.33	2.42
6	1	6	3.67	0.31	1.55
		7	-3.67	-0.15	-1.32
	2	6	-1.15	-0.39	-1.22
		7	1.15	0.39	0.83
	3	6	-3.41	-1.17	-3.64
		7	3.41	1.17	2.47
	4	6	-0.78	-0.05	-0.34
		7	0.78	0.05	0.29
	5	6	2.85	0.98	3.04
		7	-2.85	-0.98	-2.06
	6	6	-3.50	-2.14	-6.16

	7	3.50	2.36	3.90
7	6	9.59	2.06	7.15
	7	-9.59	-1.84	-5.20

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

EMB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	6	-0.52	-0.91	-2.42
		7	0.52	1.07	1.43
7	1	7	2.43	0.37	1.32
		8	-2.44	-0.21	-1.03
	2	7	-0.39	-0.32	-0.83
		8	0.39	0.32	0.51
	3	7	-1.14	-0.95	-2.47
		8	1.14	0.95	1.51
	4	7	-0.51	-0.06	-0.29
		8	0.51	0.06	0.22
	5	7	0.96	0.80	2.06
		8	-0.96	-0.80	-1.26
	6	7	0.07	-1.63	-3.90
		8	-0.07	1.84	2.17
	7	7	4.78	1.83	5.20
		8	-4.78	-1.62	-3.47
	8	7	0.78	-0.64	-1.43
		8	-0.78	0.81	0.71
8	1	8	1.48	0.37	1.03
		9	-1.48	-0.21	-0.74
	2	8	0.09	-0.24	-0.51
		9	-0.09	0.24	0.27
	3	8	0.28	-0.71	-1.51
		9	-0.28	0.71	0.80
	4	8	-0.30	-0.06	-0.22
		9	0.30	0.06	0.16
	5	8	-0.23	0.60	1.26
		9	0.23	-0.60	-0.67
	6	8	2.13	-1.12	-2.17
		9	-2.13	1.33	0.95
	7	8	1.53	1.49	3.47
		9	-1.53	-1.28	-2.09
	8	8	1.46	-0.41	-0.71
		9	-1.46	0.57	0.22
9	1	9	0.75	0.33	0.74
		10	-0.76	-0.18	-0.48
	2	9	0.36	-0.17	-0.27
		10	-0.36	0.17	0.10
	3	9	1.06	-0.49	-0.80
		10	-1.06	0.49	0.31
	4	9	-0.14	-0.06	-0.16
		10	0.14	0.06	0.10
	5	9	-0.89	0.41	0.67
		10	0.89	-0.41	-0.26
	6	9	3.06	-0.69	-0.95

	10	-3.06	0.89	0.16
7	9	-0.52	1.12	2.09
	10	0.51	-0.92	-1.06

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	9	1.67	-0.22	-0.22
		10	-1.68	0.37	-0.07
10	1	10	0.26	0.28	0.48
		11	-0.26	-0.12	-0.28
	2	10	0.46	-0.10	-0.10
		11	-0.46	0.10	0.00
	3	10	1.36	-0.30	-0.31
		11	-1.36	0.30	0.00
	4	10	-0.03	-0.04	-0.10
		11	0.03	0.04	0.06
	5	10	-1.13	0.25	0.26
		11	1.13	-0.25	0.00
	6	10	3.18	-0.35	-0.16
		11	-3.18	0.54	-0.28
	7	10	-1.57	0.79	1.06
		11	1.57	-0.59	-0.38
	8	10	1.58	-0.07	0.07
		11	-1.59	0.22	-0.22
11	1	11	-0.03	0.22	0.28
		12	0.03	-0.07	-0.14
	2	11	0.46	-0.05	0.00
		12	-0.46	0.05	-0.05
	3	11	1.36	-0.16	0.00
		12	-1.36	0.16	-0.16
	4	11	0.03	-0.03	-0.06
		12	-0.03	0.03	0.03
	5	11	-1.14	0.13	0.00
		12	1.14	-0.13	0.13
	6	11	2.90	-0.10	0.28
		12	-2.90	0.29	-0.48
	7	11	-1.96	0.51	0.38
		12	1.96	-0.32	0.04
	8	11	1.36	0.03	0.22
		12	-1.36	0.12	-0.27
12	1	12	-0.18	0.17	0.14
		13	0.18	-0.02	-0.05
	2	12	0.40	-0.02	0.05
		13	-0.40	0.02	-0.07
	3	12	1.18	-0.06	0.16
		13	-1.18	0.06	-0.22
	4	12	0.06	-0.02	-0.03
		13	-0.06	0.02	0.01
	5	12	-0.98	0.05	-0.13
		13	0.98	-0.05	0.18
	6	12	2.35	0.06	0.48

	13	-2.36	0.13	-0.51
7	12	-1.89	0.30	-0.04
	13	1.89	-0.11	0.25

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	12	1.06	0.08	0.27
		13	-1.06	0.06	-0.26
13	1	13	-0.22	0.12	0.05
		14	0.21	0.02	0.01
	2	13	0.30	0.00	0.07
		14	-0.30	0.00	-0.07
	3	13	0.91	0.00	0.22
		14	-0.91	0.00	-0.22
	4	13	0.07	-0.01	-0.01
		14	-0.07	0.01	0.00
	5	13	-0.76	0.00	-0.18
		14	0.76	0.00	0.18
	6	13	1.74	0.15	0.51
		14	-1.74	0.04	-0.46
	7	13	-1.56	0.16	-0.25
		14	1.56	0.02	0.31
	8	13	0.76	0.11	0.26
		14	-0.76	0.03	-0.21
14	1	14	-0.20	0.09	-0.01
		15	0.19	0.05	0.03
	2	14	0.22	0.01	0.07
		15	-0.22	-0.01	-0.06
	3	14	0.64	0.03	0.22
		15	-0.64	-0.03	-0.18
	4	14	0.07	-0.01	0.00
		15	-0.07	0.01	-0.01
	5	14	-0.54	-0.03	-0.18
		15	0.54	0.03	0.15
	6	14	1.20	0.19	0.46
		15	-1.20	-0.01	-0.36
	7	14	-1.16	0.07	-0.31
		15	1.16	0.11	0.30
	8	14	0.51	0.12	0.21
		15	-0.51	0.02	-0.16
15	1	15	-0.14	0.07	-0.03
		16	0.14	0.06	0.03
	2	15	0.14	0.02	0.06
		16	-0.14	-0.02	-0.05
	3	15	0.40	0.05	0.18
		16	-0.40	-0.05	-0.14
	4	15	0.05	0.00	0.01
		16	-0.05	0.00	-0.01
	5	15	-0.34	-0.04	-0.15
		16	0.34	0.04	0.11
	6	15	0.74	0.19	0.36

	16	-0.75	-0.02	-0.26
7	15	-0.75	0.03	-0.30
	16	0.75	0.15	0.24

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

EMB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	15	0.32	0.12	0.16
		16	-0.32	0.02	-0.11
16	1	16	-0.08	0.06	-0.03
		17	0.08	0.07	0.03
	2	16	0.07	0.02	0.05
		17	-0.07	-0.02	-0.03
	3	16	0.22	0.05	0.14
		17	-0.22	-0.05	-0.09
	4	16	0.04	0.00	0.01
		17	-0.04	0.00	-0.01
	5	16	-0.18	-0.04	-0.11
		17	0.18	0.04	0.07
	6	16	0.41	0.18	0.26
		17	-0.41	0.00	-0.16
	7	16	-0.41	0.01	-0.24
		17	0.41	0.16	0.16
	8	16	0.18	0.11	0.11
		17	-0.18	0.03	-0.07
17	1	17	-0.03	0.05	-0.03
		18	0.02	0.08	0.02
	2	17	0.03	0.01	0.03
		18	-0.03	-0.01	-0.02
	3	17	0.09	0.04	0.09
		18	-0.09	-0.04	-0.05
	4	17	0.03	0.00	0.01
		18	-0.03	0.00	-0.01
	5	17	-0.07	-0.03	-0.07
		18	0.07	0.03	0.04
	6	17	0.19	0.15	0.16
		18	-0.19	0.01	-0.09
	7	17	-0.16	0.01	-0.16
		18	0.15	0.15	0.09
	8	17	0.09	0.09	0.07
		18	-0.09	0.04	-0.04
18	1	18	0.01	0.05	-0.02
		19	-0.01	0.08	0.00
	2	18	0.00	0.01	0.02
		19	0.00	-0.01	-0.01
	3	18	0.01	0.03	0.05
		19	-0.01	-0.03	-0.02
	4	18	0.02	0.00	0.01
		19	-0.02	0.00	0.00
	5	18	-0.01	-0.02	-0.04
		19	0.01	0.02	0.02
	6	18	0.06	0.13	0.09

	19	-0.06	0.03	-0.05
7	18	0.00	0.02	-0.09
	19	0.00	0.14	0.03

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	18	0.04	0.08	0.04
		19	-0.04	0.05	-0.02
19	1	19	0.03	0.05	0.00
		20	-0.03	0.07	-0.01
	2	19	-0.01	0.01	0.01
		20	0.01	-0.01	0.00
	3	19	-0.02	0.02	0.02
		20	0.02	-0.02	0.00
	4	19	0.01	0.00	0.00
		20	-0.01	0.00	0.00
	5	19	0.02	-0.02	-0.02
		20	-0.02	0.02	0.00
	6	19	0.00	0.11	0.05
		20	-0.01	0.05	-0.02
	7	19	0.07	0.04	-0.03
		20	-0.07	0.12	-0.01
	8	19	0.02	0.07	0.02
		20	-0.02	0.05	-0.01
20	1	20	0.03	0.05	0.01
		21	-0.03	0.07	-0.02
	2	20	-0.01	0.00	0.00
		21	0.01	0.00	0.00
	3	20	-0.03	0.01	0.00
		21	0.03	-0.01	0.01
	4	20	0.00	0.00	0.00
		21	0.00	0.00	0.00
	5	20	0.02	-0.01	0.00
		21	-0.02	0.01	-0.01
	6	20	-0.01	0.09	0.02
		21	0.01	0.07	-0.01
	7	20	0.08	0.05	0.01
		21	-0.08	0.10	-0.04
	8	20	0.01	0.06	0.01
		21	-0.01	0.06	-0.01
21	1	21	0.01	0.05	0.02
		22	-0.01	0.06	-0.02
	2	21	0.00	0.00	0.00
		22	0.00	0.00	0.00
	3	21	-0.01	0.00	-0.01
		22	0.01	0.00	0.01
	4	21	0.00	0.00	0.00
		22	0.00	0.00	0.00
	5	21	0.01	0.00	0.01
		22	-0.01	0.00	-0.01
	6	21	0.00	0.08	0.01

	22	0.00	0.07	-0.01
7	21	0.03	0.06	0.04
	22	-0.03	0.09	-0.05

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	21	0.00	0.06	0.01
		22	0.00	0.06	-0.01
22	1	22	0.01	0.06	0.02
		23	-0.01	0.05	-0.02
	2	22	0.00	0.00	0.00
		23	0.00	0.00	0.00
	3	22	-0.01	0.00	-0.01
		23	0.01	0.00	0.01
	4	22	0.00	0.00	0.00
		23	0.00	0.00	0.00
	5	22	0.01	0.00	0.01
		23	-0.01	0.00	-0.01
	6	22	-0.01	0.07	0.01
		23	0.01	0.08	-0.01
	7	22	0.03	0.08	0.05
		23	-0.03	0.06	-0.04
	8	22	0.00	0.06	0.01
		23	0.00	0.06	-0.01
23	1	23	0.03	0.07	0.02
		24	-0.03	0.05	-0.01
	2	23	-0.01	0.00	0.00
		24	0.01	0.00	0.00
	3	23	-0.03	-0.01	-0.01
		24	0.03	0.01	0.00
	4	23	0.00	0.00	0.00
		24	0.00	0.00	0.00
	5	23	0.02	0.01	0.01
		24	-0.02	-0.01	0.00
	6	23	-0.01	0.07	0.01
		24	0.01	0.09	-0.02
	7	23	0.08	0.11	0.04
		24	-0.08	0.05	-0.01
	8	23	0.01	0.06	0.01
		24	-0.01	0.06	-0.02
24	1	24	0.03	0.07	0.01
		25	-0.03	0.05	0.00
	2	24	-0.01	-0.01	0.00
		25	0.01	0.01	-0.01
	3	24	-0.02	-0.02	0.00
		25	0.02	0.02	-0.02
	4	24	0.01	0.00	0.00
		25	-0.01	0.00	0.00
	5	24	0.02	0.02	0.00
		25	-0.02	-0.02	0.02
	6	24	0.01	0.05	0.02

	25	0.00	0.11	-0.05
7	24	0.07	0.12	0.01
	25	-0.07	0.04	0.03

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	24	0.02	0.05	0.02
		25	-0.02	0.07	-0.02
25	1	25	0.01	0.08	0.00
		26	-0.01	0.05	0.02
	2	25	0.00	-0.01	0.01
		26	0.00	0.01	-0.02
	3	25	0.01	-0.03	0.02
		26	-0.01	0.03	-0.05
	4	25	0.02	0.00	0.00
		26	-0.02	0.00	-0.01
	5	25	-0.01	0.02	-0.02
		26	0.01	-0.02	0.04
	6	25	0.06	0.03	0.05
		26	-0.06	0.13	-0.10
	7	25	0.00	0.14	-0.03
		26	0.00	0.02	0.09
	8	25	0.04	0.05	0.02
		26	-0.04	0.08	-0.04
26	1	26	-0.02	0.08	-0.02
		27	0.03	0.05	0.03
	2	26	0.03	-0.01	0.02
		27	-0.03	0.01	-0.03
	3	26	0.09	-0.04	0.05
		27	-0.09	0.04	-0.09
	4	26	0.03	0.00	0.01
		27	-0.03	0.00	-0.01
	5	26	-0.07	0.03	-0.04
		27	0.07	-0.03	0.07
	6	26	0.19	0.01	0.10
		27	-0.19	0.15	-0.16
	7	26	-0.16	0.15	-0.09
		27	0.16	0.01	0.16
	8	26	0.09	0.04	0.04
		27	-0.09	0.09	-0.07
27	1	27	-0.08	0.07	-0.03
		28	0.08	0.06	0.04
	2	27	0.07	-0.02	0.03
		28	-0.07	0.02	-0.05
	3	27	0.22	-0.05	0.09
		28	-0.22	0.05	-0.14
	4	27	0.04	0.00	0.01
		28	-0.04	0.00	-0.01
	5	27	-0.18	0.04	-0.07
		28	0.18	-0.04	0.11
	6	27	0.41	0.00	0.16

	28	-0.41	0.18	-0.26
7	27	-0.41	0.16	-0.16
	28	0.41	0.01	0.24

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	27	0.18	0.03	0.07
		28	-0.18	0.11	-0.11
28	1	28	-0.14	0.06	-0.04
		29	0.14	0.07	0.03
	2	28	0.14	-0.02	0.05
		29	-0.14	0.02	-0.06
	3	28	0.40	-0.05	0.14
		29	-0.40	0.05	-0.18
	4	28	0.05	0.00	0.01
		29	-0.05	0.00	-0.01
	5	28	-0.34	0.04	-0.11
		29	0.34	-0.04	0.15
	6	28	0.75	-0.02	0.26
		29	-0.75	0.19	-0.36
	7	28	-0.75	0.15	-0.24
		29	0.76	0.03	0.30
	8	28	0.32	0.02	0.11
		29	-0.32	0.12	-0.16
29	1	29	-0.19	0.05	-0.03
		30	0.20	0.09	0.01
	2	29	0.22	-0.01	0.06
		30	-0.22	0.01	-0.07
	3	29	0.64	-0.03	0.18
		30	-0.64	0.03	-0.22
	4	29	0.07	0.01	0.01
		30	-0.07	-0.01	0.00
	5	29	-0.54	0.03	-0.15
		30	0.54	-0.03	0.18
	6	29	1.20	-0.01	0.36
		30	-1.20	0.19	-0.46
	7	29	-1.16	0.11	-0.30
		30	1.16	0.07	0.31
	8	29	0.52	0.02	0.16
		30	-0.51	0.12	-0.21
30	1	30	-0.21	0.02	-0.01
		31	0.22	0.12	-0.05
	2	30	0.31	0.00	0.07
		31	-0.31	0.00	-0.07
	3	30	0.91	0.00	0.22
		31	-0.91	0.00	-0.22
	4	30	0.07	0.01	0.00
		31	-0.07	-0.01	0.01
	5	30	-0.76	0.00	-0.18
		31	0.76	0.00	0.18
	6	30	1.74	0.04	0.46

	31	-1.74	0.15	-0.51
7	30	-1.56	0.02	-0.31
	31	1.56	0.16	0.25

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	30	0.76	0.03	0.21
		31	-0.76	0.11	-0.26
31	1	31	-0.17	-0.02	0.05
		32	0.18	0.17	-0.14
	2	31	0.40	0.02	0.07
		32	-0.40	-0.02	-0.05
	3	31	1.18	0.06	0.22
		32	-1.18	-0.06	-0.16
	4	31	0.06	0.02	-0.01
		32	-0.06	-0.02	0.03
	5	31	-0.98	-0.05	-0.18
		32	0.98	0.05	0.13
	6	31	2.36	0.13	0.51
		32	-2.36	0.06	-0.48
	7	31	-1.89	-0.11	-0.25
		32	1.89	0.30	0.04
	8	31	1.07	0.06	0.26
		32	-1.06	0.08	-0.27
32	1	32	-0.03	-0.07	0.14
		33	0.03	0.22	-0.28
	2	32	0.46	0.05	0.05
		33	-0.46	-0.05	0.00
	3	32	1.36	0.16	0.16
		33	-1.36	-0.16	0.00
	4	32	0.03	0.03	-0.03
		33	-0.03	-0.03	0.06
	5	32	-1.14	-0.13	-0.13
		33	1.14	0.13	0.00
	6	32	2.90	0.29	0.48
		33	-2.90	-0.10	-0.28
	7	32	-1.96	-0.32	-0.04
		33	1.96	0.51	-0.38
	8	32	1.36	0.12	0.27
		33	-1.36	0.03	-0.22
33	1	33	0.26	-0.12	0.28
		34	-0.26	0.28	-0.48
	2	33	0.46	0.10	0.00
		34	-0.46	-0.10	0.10
	3	33	1.36	0.30	0.00
		34	-1.36	-0.30	0.31
	4	33	-0.03	0.04	-0.06
		34	0.03	-0.04	0.10
	5	33	-1.13	-0.25	0.00
		34	1.13	0.25	-0.26
	6	33	3.18	0.54	0.28

	34	-3.18	-0.35	0.16
7	33	-1.57	-0.59	0.38
	34	1.57	0.79	-1.07

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	33	1.58	0.22	0.22
		34	-1.58	-0.07	-0.07
34	1	34	0.76	-0.18	0.48
		35	-0.76	0.33	-0.74
	2	34	0.36	0.17	-0.10
		35	-0.36	-0.17	0.27
	3	34	1.06	0.49	-0.31
		35	-1.06	-0.49	0.80
	4	34	-0.14	0.06	-0.10
		35	0.14	-0.06	0.16
	5	34	-0.89	-0.41	0.26
		35	0.89	0.41	-0.67
	6	34	3.05	0.89	-0.16
		35	-3.05	-0.69	0.95
	7	34	-0.51	-0.92	1.07
		35	0.51	1.12	-2.09
	8	34	1.68	0.37	0.07
		35	-1.67	-0.22	0.22
35	1	35	1.48	-0.21	0.74
		36	-1.48	0.37	-1.03
	2	35	0.09	0.24	-0.27
		36	-0.09	-0.24	0.51
	3	35	0.28	0.71	-0.80
		36	-0.28	-0.71	1.52
	4	35	-0.30	0.06	-0.16
		36	0.30	-0.06	0.22
	5	35	-0.23	-0.60	0.67
		36	0.23	0.60	-1.27
	6	35	2.12	1.33	-0.95
		36	-2.12	-1.12	2.18
	7	35	1.54	-1.28	2.09
		36	-1.53	1.49	-3.48
	8	35	1.46	0.57	-0.22
		36	-1.46	-0.41	0.71
36	1	36	2.44	-0.21	1.03
		37	-2.44	0.37	-1.32
	2	36	-0.39	0.32	-0.51
		37	0.39	-0.32	0.83
	3	36	-1.15	0.95	-1.52
		37	1.15	-0.95	2.47
	4	36	-0.51	0.06	-0.22
		37	0.51	-0.06	0.29
	5	36	0.96	-0.80	1.27
		37	-0.96	0.80	-2.06
	6	36	0.06	1.84	-2.18

	37	-0.06	-1.63	3.91
7	36	4.79	-1.62	3.48
	37	-4.79	1.83	-5.20

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

EMB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	36	0.78	0.81	-0.71
		37	-0.78	-0.64	1.43
37	1	37	3.67	-0.15	1.32
		38	-3.67	0.31	-1.55
	2	37	-1.15	0.39	-0.83
		38	1.15	-0.39	1.22
	3	37	-3.42	1.17	-2.47
		38	3.42	-1.17	3.64
	4	37	-0.78	0.05	-0.29
		38	0.78	-0.05	0.34
	5	37	2.86	-0.98	2.06
		38	-2.86	0.98	-3.04
	6	37	-3.51	2.36	-3.91
		38	3.51	-2.14	6.16
	7	37	9.60	-1.84	5.20
		38	-9.60	2.06	-7.15
	8	37	-0.52	1.07	-1.43
		38	0.53	-0.91	2.42
38	1	38	5.05	0.01	1.55
		39	-5.05	0.16	-1.63
	2	38	-2.23	0.44	-1.22
		39	2.23	-0.44	1.66
	3	38	-6.63	1.30	-3.64
		39	6.63	-1.30	4.94
	4	38	-1.08	0.02	-0.34
		39	1.08	-0.02	0.35
	5	38	5.54	-1.09	3.04
		39	-5.54	1.09	-4.12
	6	38	-8.94	2.80	-6.16
		39	8.94	-2.58	8.85
	7	38	15.92	-1.82	7.15
		39	-15.92	2.04	-9.08
	8	38	-2.66	1.33	-2.42
		39	2.66	-1.16	3.67
39	1	39	6.40	0.30	1.63
		40	-6.39	-0.13	-1.41
	2	39	-3.61	0.43	-1.66
		40	3.61	-0.43	2.09
	3	39	-10.74	1.26	-4.94
		40	10.74	-1.26	6.20
	4	39	-1.37	-0.05	-0.35
		40	1.37	0.05	0.30
	5	39	8.97	-1.06	4.12
		40	-8.97	1.06	-5.18
	6	39	-16.32	3.02	-8.85

	40	16.33	-2.80	11.76		
7	39	23.48	-1.39	9.08		
	40	-23.47	1.61	0.00	0.00	0.00

10.59

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT		
	8	39	-5.72	1.52	-3.67		
		40	5.72	-1.35	5.10		
40	1	40	7.64	0.76	1.41		
		41	-7.64	-0.59	-0.73		
	2	40	-5.37	0.32	-2.09		
		41	5.37	-0.32	2.41		
	3	40	-15.95	0.95	-6.20		
		41	15.95	-0.95	7.16		
	4	40	-1.65	-0.15	-0.30		
		41	1.65	0.15	0.16		
	5	40	13.33	-0.80	5.18		
		41	-13.33	0.80	-5.98		
	6	40	-26.14	2.83	-11.76		
		41	26.15	-2.60	14.47		
	7	40	32.46	-0.36	10.59		
		41	-32.45	0.59	-11.06		
	8	40	-9.96	1.57	-5.10		
		41	9.96	-1.39	6.58		
41	1	41	0.00	1.51	0.73		
		42	0.00	-1.43	0.00		
	2	41	0.59	0.00	-2.41		
		42	-0.59	0.00	2.41		
	3	41	2.61	0.00	-7.16		
		42	-2.61	0.00	7.16		
	4	41	0.00	-0.31	-0.16		
		42	0.00	0.31	0.00		
	5	41	-2.08	0.00	5.98		
		42	2.08	0.00	-5.98		
	6	41	5.17	1.56	0.00	0.00	0.00
-14.47							
		42	-5.17	-1.45	15.23		
	7	41	-3.52	1.97	11.06		
		42	3.52	-1.85	0.00	0.00	0.00
-10.10							
	8	41	2.61	1.20	-6.58		
		42	-2.61	-1.11	7.16		
42	1	43	0.00	0.00	0.00		
		42	-1.23	0.00	0.00		
	2	43	0.00	0.00	0.00		
		42	0.00	0.59	-2.41		
	3	43	0.00	0.00	0.00		
		42	0.00	2.61	-7.16		
	4	43	0.00	0.00	0.00		
		42	0.00	0.00	0.00		
	5	43	0.00	0.00	0.00		

	42	0.00	-2.08	5.98
6	43	0.00	0.00	0.00
	42	-1.60	5.17	-15.23
7	43	0.00	0.00	0.00
	42	-1.60	-3.52	10.10

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
ELEMENT END FORCES
KIP FEET

MB	LOAD	JT	AXIAL	SHEAR	MOMENT
	8	43	0.00	0.00	0.00
		42	-1.23	2.61	-7.16

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

SUPPORT REACTIONS KIPS

NODE	LOAD	X FORCE	Y FORCE	MOMENT
3	1	7.64	0.84	0.00
	2	-5.97	-0.26	0.00
	3	-18.60	-0.78	0.00
	4	-1.65	-0.46	0.00
	5	15.44	1.15	0.00
	6	-31.40	-1.16	0.00
	7	36.02	3.04	0.00
	8	-12.60	-0.40	0.00
4	1	-1.25	0.64	0.00
	2	1.76	-0.12	0.00
	3	5.22	-0.37	0.00
	4	0.27	-0.42	0.00
	5	-4.36	0.81	0.00
	6	9.85	-0.48	0.00
	7	-8.99	2.20	0.00
	8	4.25	-0.14	0.00
5	1	-1.34	0.47	0.00
	2	1.39	-0.03	0.00
	3	4.12	-0.08	0.00
	4	0.29	-0.38	0.00
	5	-3.44	0.57	0.00
	6	7.41	-0.05	0.00
	7	-7.57	1.58	0.00
	8	3.07	0.01	0.00
6	1	-1.38	0.34	0.00
	2	1.08	0.03	0.00
	3	3.22	0.10	0.00
	4	0.30	-0.35	0.00
	5	-2.69	0.42	0.00
	6	5.45	0.19	0.00
	7	-6.34	1.15	0.00
	8	2.14	0.09	0.00
7	1	-1.23	0.24	0.00
	2	0.76	0.06	0.00
	3	2.27	0.19	0.00
	4	0.27	-0.33	0.00
	5	-1.90	0.34	0.00
	6	3.57	0.29	0.00
	7	-4.81	0.89	0.00
	8	1.30	0.10	0.00
8	1	-0.96	0.17	0.00
	2	0.48	0.07	0.00
	3	1.43	0.22	0.00
	4	0.21	-0.31	0.00
	5	-1.19	0.31	0.00
	6	2.06	0.29	0.00
	7	-3.26	0.75	0.00
	8	0.68	0.08	0.00
9	1	-0.72	0.13	0.00
	2	0.26	0.07	0.00

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
SUPPORT REACTIONS KIPS

NODE	LOAD	X FORCE	Y FORCE	MOMENT
	3	0.78	0.21	0.00
	4	0.16	-0.31	0.00
	5	-0.66	0.32	0.00
	6	0.93	0.22	0.00
	7	-2.05	0.71	0.00
	8	0.22	0.04	0.00
10	1	-0.49	0.11	0.00
	2	0.10	0.06	0.00
	3	0.30	0.18	0.00
	4	0.11	-0.30	0.00
	5	-0.25	0.35	0.00
	6	0.13	0.14	0.00
	7	-1.06	0.72	0.00
	8	-0.09	-0.01	0.00
11	1	-0.29	0.10	0.00
	2	0.00	0.05	0.00
	3	0.01	0.14	0.00
	4	0.06	-0.30	0.00
	5	-0.01	0.38	0.00
	6	-0.28	0.04	0.00
	7	-0.39	0.77	0.00
	8	-0.22	-0.06	0.00
12	1	-0.15	0.10	0.00
	2	-0.06	0.03	0.00
	3	-0.18	0.10	0.00
	4	0.03	-0.30	0.00
	5	0.15	0.42	0.00
	6	-0.54	-0.05	0.00
	7	0.07	0.83	0.00
	8	-0.30	-0.10	0.00
13	1	-0.04	0.10	0.00
	2	-0.09	0.02	0.00
	3	-0.27	0.07	0.00
	4	0.01	-0.30	0.00
	5	0.23	0.45	0.00
	6	-0.62	-0.12	0.00
	7	0.33	0.89	0.00
	8	-0.30	-0.13	0.00
14	1	0.02	0.11	0.00
	2	-0.09	0.01	0.00
	3	-0.26	0.04	0.00
	4	0.00	-0.31	0.00
	5	0.22	0.47	0.00
	6	-0.54	-0.18	0.00
	7	0.40	0.94	0.00
	8	-0.25	-0.16	0.00
15	1	0.05	0.12	0.00
	2	-0.08	0.01	0.00
	3	-0.24	0.02	0.00
	4	-0.01	-0.31	0.00

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
SUPPORT REACTIONS KIPS

NODE	LOAD	X FORCE	Y FORCE	MOMENT
	5	0.20	0.49	0.00
	6	-0.45	-0.22	0.00
	7	0.41	0.98	0.00
	8	-0.20	-0.18	0.00
16	1	0.06	0.12	0.00
	2	-0.06	0.00	0.00
	3	-0.19	0.00	0.00
	4	-0.01	-0.31	0.00
	5	0.16	0.50	0.00
	6	-0.34	-0.24	0.00
	7	0.34	1.00	0.00
	8	-0.14	-0.19	0.00
17	1	0.05	0.12	0.00
	2	-0.04	0.00	0.00
	3	-0.13	-0.01	0.00
	4	-0.01	-0.31	0.00
	5	0.11	0.50	0.00
	6	-0.22	-0.26	0.00
	7	0.25	1.02	0.00
	8	-0.09	-0.19	0.00
18	1	0.04	0.13	0.00
	2	-0.03	0.00	0.00
	3	-0.08	-0.01	0.00
	4	-0.01	-0.31	0.00
	5	0.06	0.51	0.00
	6	-0.13	-0.26	0.00
	7	0.16	1.02	0.00
	8	-0.05	-0.20	0.00
19	1	0.02	0.13	0.00
	2	-0.01	0.00	0.00
	3	-0.03	-0.01	0.00
	4	-0.01	-0.31	0.00
	5	0.03	0.51	0.00
	6	-0.06	-0.26	0.00
	7	0.07	1.02	0.00
	8	-0.02	-0.20	0.00
20	1	0.00	0.12	0.00
	2	0.00	0.00	0.00
	3	0.00	-0.01	0.00
	4	0.00	-0.31	0.00
	5	0.00	0.51	0.00
	6	-0.01	-0.26	0.00
	7	0.00	1.02	0.00
	8	-0.01	-0.20	0.00
21	1	-0.02	0.12	0.00
	2	0.00	0.00	0.00
	3	0.01	-0.01	0.00
	4	0.00	-0.31	0.00
	5	-0.01	0.51	0.00
	6	0.01	-0.26	0.00

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
SUPPORT REACTIONS KIPS

NODE	LOAD	X FORCE	Y FORCE	MOMENT
	7	-0.04	1.02	0.00
	8	0.00	-0.20	0.00
22	1	0.00	0.12	0.00
	2	0.00	0.00	0.00
	3	0.00	-0.01	0.00
	4	0.00	-0.31	0.00
	5	0.00	0.51	0.00
	6	0.00	-0.26	0.00
	7	0.00	1.01	0.00
	8	0.00	-0.20	0.00
23	1	0.02	0.12	0.00
	2	-0.01	0.00	0.00
	3	-0.02	-0.01	0.00
	4	0.00	-0.31	0.00
	5	0.01	0.51	0.00
	6	0.00	-0.26	0.00
	7	0.05	1.01	0.00
	8	0.01	-0.20	0.00
24	1	0.00	0.12	0.00
	2	0.00	0.00	0.00
	3	0.00	-0.01	0.00
	4	0.00	-0.31	0.00
	5	0.00	0.51	0.00
	6	0.02	-0.26	0.00
	7	0.00	1.02	0.00
	8	0.01	-0.20	0.00
25	1	-0.02	0.12	0.00
	2	0.01	0.00	0.00
	3	0.03	-0.01	0.00
	4	0.01	-0.31	0.00
	5	-0.03	0.51	0.00
	6	0.06	-0.26	0.00
	7	-0.07	1.02	0.00
	8	0.02	-0.20	0.00
26	1	-0.04	0.13	0.00
	2	0.03	0.00	0.00
	3	0.08	-0.01	0.00
	4	0.01	-0.31	0.00
	5	-0.06	0.51	0.00
	6	0.13	-0.26	0.00
	7	-0.16	1.02	0.00
	8	0.05	-0.20	0.00
27	1	-0.05	0.12	0.00
	2	0.04	0.00	0.00
	3	0.13	-0.01	0.00
	4	0.01	-0.31	0.00
	5	-0.11	0.50	0.00
	6	0.22	-0.26	0.00
	7	-0.25	1.02	0.00
	8	0.09	-0.19	0.00

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
SUPPORT REACTIONS KIPS

NODE	LOAD	X FORCE	Y FORCE	MOMENT
28	1	-0.06	0.12	0.00
	2	0.06	0.00	0.00
	3	0.19	0.00	0.00
	4	0.01	-0.31	0.00
	5	-0.16	0.50	0.00
	6	0.34	-0.24	0.00
	7	-0.35	1.00	0.00
	8	0.14	-0.19	0.00
29	1	-0.05	0.12	0.00
	2	0.08	0.01	0.00
	3	0.24	0.02	0.00
	4	0.01	-0.31	0.00
	5	-0.20	0.49	0.00
	6	0.45	-0.22	0.00
	7	-0.41	0.98	0.00
	8	0.20	-0.18	0.00
30	1	-0.02	0.11	0.00
	2	0.09	0.01	0.00
	3	0.26	0.04	0.00
	4	0.00	-0.31	0.00
	5	-0.22	0.47	0.00
	6	0.54	-0.18	0.00
	7	-0.40	0.94	0.00
	8	0.25	-0.16	0.00
31	1	0.04	0.10	0.00
	2	0.09	0.02	0.00
	3	0.27	0.07	0.00
	4	-0.01	-0.30	0.00
	5	-0.23	0.45	0.00
	6	0.62	-0.12	0.00
	7	-0.33	0.89	0.00
	8	0.30	-0.13	0.00
32	1	0.15	0.10	0.00
	2	0.06	0.03	0.00
	3	0.18	0.10	0.00
	4	-0.03	-0.30	0.00
	5	-0.15	0.41	0.00
	6	0.54	-0.05	0.00
	7	-0.07	0.83	0.00
	8	0.30	-0.10	0.00
33	1	0.29	0.10	0.00
	2	0.00	0.05	0.00
	3	-0.01	0.14	0.00
	4	-0.06	-0.30	0.00
	5	0.01	0.38	0.00
	6	0.28	0.04	0.00
	7	0.39	0.77	0.00
	8	0.22	-0.06	0.00
34	1	0.49	0.11	0.00
	2	-0.10	0.06	0.00

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO
SUPPORT REACTIONS KIPS

NODE	LOAD	X FORCE	Y FORCE	MOMENT
	3	-0.30	0.18	0.00
	4	-0.11	-0.30	0.00
	5	0.25	0.35	0.00
	6	-0.13	0.14	0.00
	7	1.06	0.72	0.00
	8	0.09	-0.01	0.00
35	1	0.73	0.13	0.00
	2	-0.26	0.07	0.00
	3	-0.79	0.21	0.00
	4	-0.16	-0.31	0.00
	5	0.66	0.32	0.00
	6	-0.94	0.22	0.00
	7	2.05	0.71	0.00
	8	-0.22	0.04	0.00
36	1	0.96	0.17	0.00
	2	-0.48	0.07	0.00
	3	-1.43	0.22	0.00
	4	-0.21	-0.31	0.00
	5	1.19	0.31	0.00
	6	-2.07	0.29	0.00
	7	3.26	0.75	0.00
	8	-0.68	0.08	0.00
37	1	1.24	0.24	0.00
	2	-0.76	0.06	0.00
	3	-2.27	0.19	0.00
	4	-0.27	-0.33	0.00
	5	1.90	0.34	0.00
	6	-3.58	0.29	0.00
	7	4.81	0.89	0.00
	8	-1.31	0.10	0.00
38	1	1.38	0.34	0.00
	2	-1.08	0.03	0.00
	3	-3.21	0.10	0.00
	4	-0.30	-0.35	0.00
	5	2.68	0.42	0.00
	6	-5.43	0.19	0.00
	7	6.32	1.15	0.00
	8	-2.13	0.09	0.00
39	1	1.34	0.47	0.00
	2	-1.38	-0.03	0.00
	3	-4.11	-0.08	0.00
	4	-0.29	-0.38	0.00
	5	3.44	0.57	0.00
	6	-7.39	-0.05	0.00
	7	7.55	1.58	0.00
	8	-3.07	0.01	0.00
40	1	1.24	0.64	0.00
	2	-1.75	-0.12	0.00
	3	-5.21	-0.37	0.00
	4	-0.27	-0.42	0.00

GUADALUPE CHANNEL FINAL ANALYSIS BY EDGAR O. MORENO

SUPPORT REACTIONS KIPS

NODE	LOAD	X FORCE	Y FORCE	MOMENT
	5	4.35	0.81	0.00
	6	-9.82	-0.48	0.00
	7	8.97	2.20	0.00
	8	-4.24	-0.14	0.00
41	1	-7.63	0.84	0.00
	2	5.96	-0.26	0.00
	3	18.57	-0.78	0.00
	4	1.65	-0.46	0.00
	5	-15.41	1.15	0.00
	6	31.35	-1.16	0.00
	7	-35.97	3.04	0.00
	8	12.58	-0.40	0.00