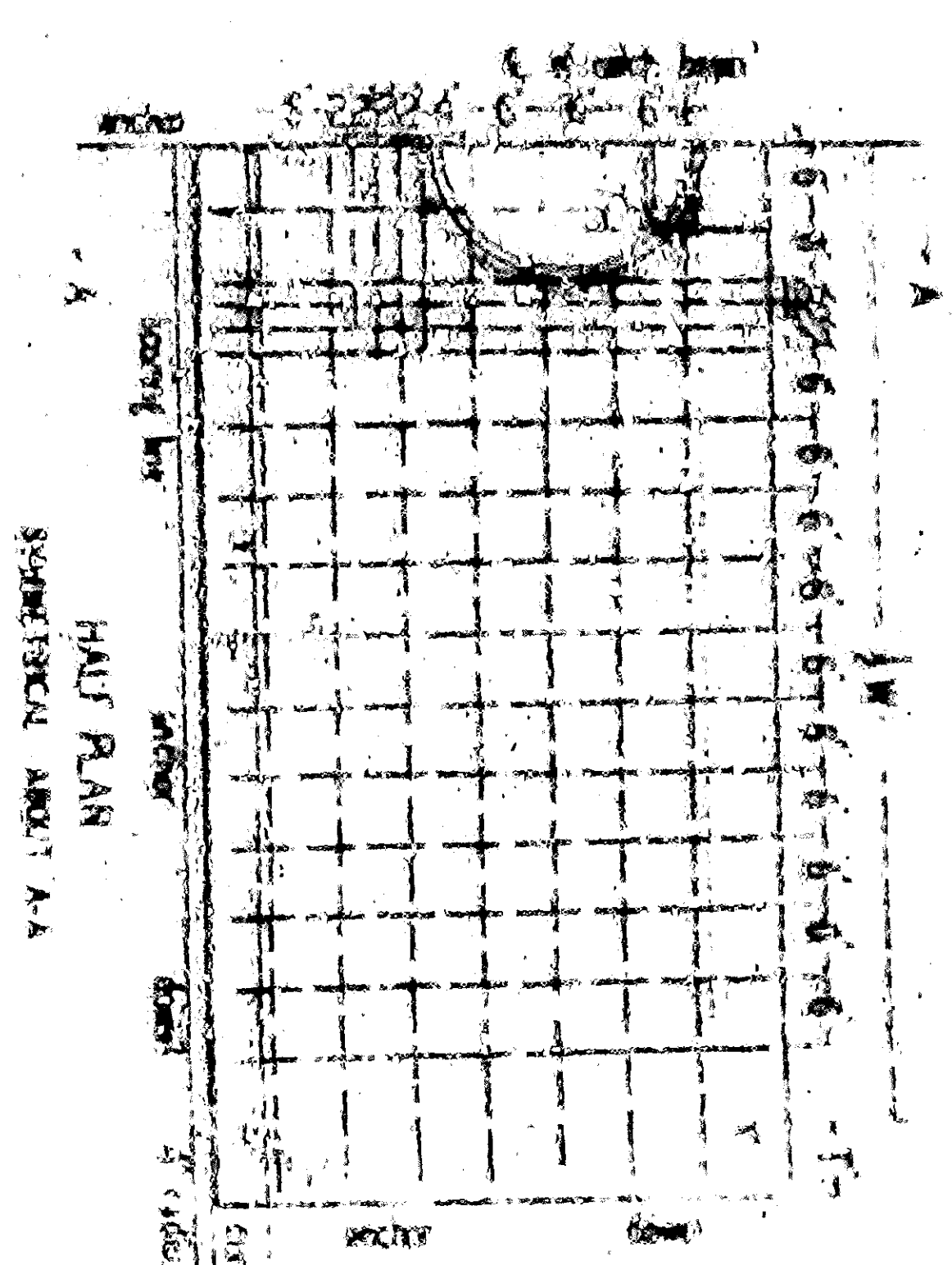


ITEM	DESCRIPTION	QUANTITY	UNIT
1	CONCRETE	1.00	CU YD
2	STEEL	1.00	TON
3	FORMWORK	1.00	SQ YD
4	PAINT	1.00	GA
5	LABOR	1.00	HOUR

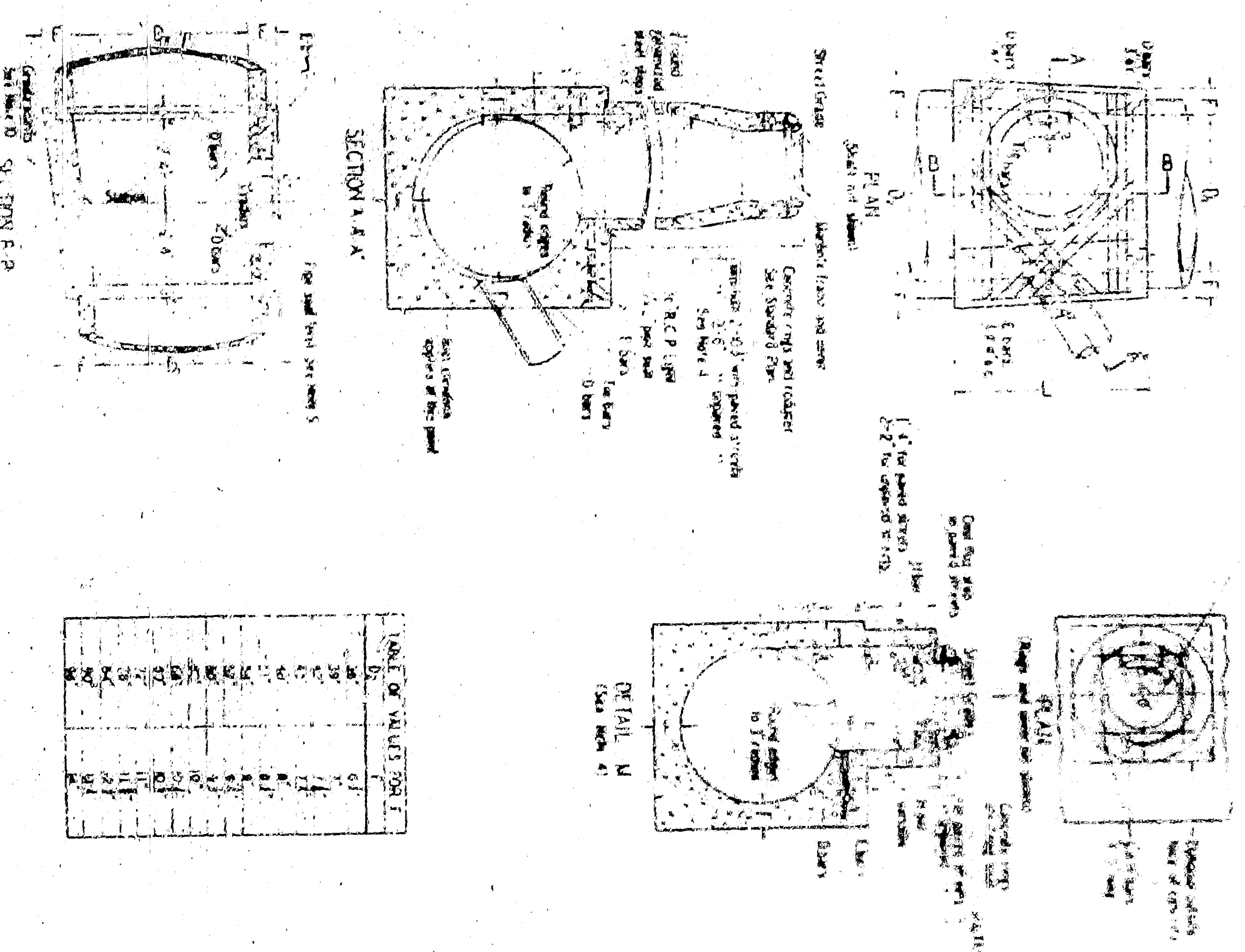
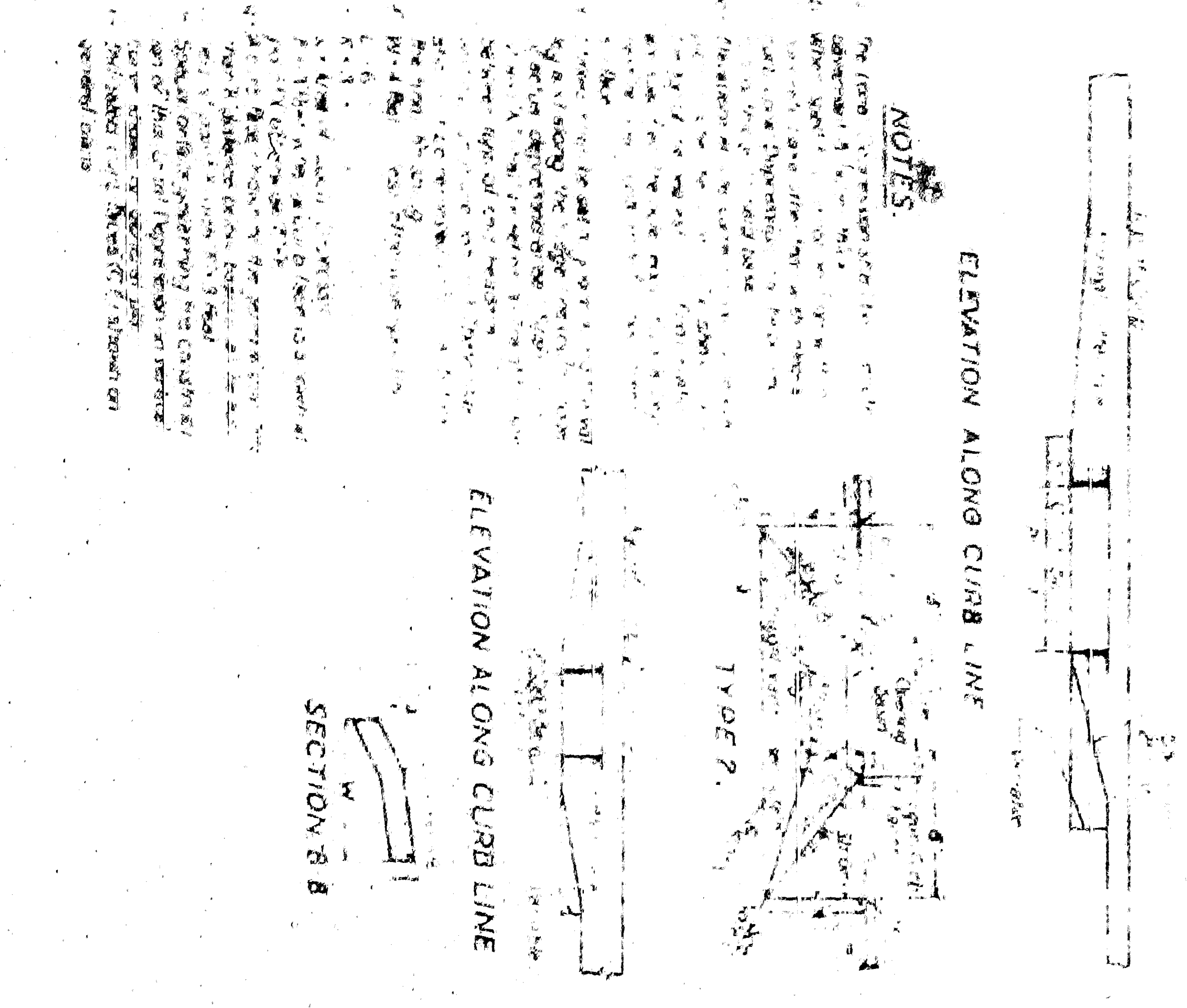
CATCH BASIN "A"
 DIMENSIONS: 4' 3" x 4' 3" x 1' 6" (depth of basin above manhole)



ITEM	DESCRIPTION	QUANTITY	UNIT
1	CONCRETE	1.00	CU YD
2	STEEL	1.00	TON
3	FORMWORK	1.00	SQ YD
4	PAINT	1.00	GA
5	LABOR	1.00	HOUR

CATCH BASIN "B"
 DIMENSIONS: 4' 3" x 4' 3" x 1' 6" (depth of basin above manhole)

STANDARD LOCAL DEPRESSION FOR SIDE OPENING BASINS



GENERAL NOTES
CATCH BASINS

CONCRETE used in catch basins shall be in accordance with Section 101.01 of the City of San Bernardino Specifications. The concrete shall be placed in the direction of the flow of water and the position of the curb shall be consistent with the improvement plan. CURVATURE of the lip and sidewalks at gutter opening shall be formed by curve forms and shall not be made by plastering. FLOOR of basin shall be given a steel troweled finish and shall slope from all directions to the outlet. For Type B manhole, slope shall be parallel with curb shall be 1/8" to 1/2" unless otherwise specified. MANHOLE shall be placed along back of curb and shall be 1/2" to 1" from curb. OUTLET pipe shall be trimmed to the final slope and shall be 1/2" to 1" from curb. PROTECTION BAR: For concrete curb, a 1/2" x 1/2" x 1/2" galvanized steel bar shall be embedded 2 inches of each end. REMAINING STEEL shall be 1/2" x 1/2" x 1/2" galvanized steel. STEPS: 1/2" x 1/2" x 1/2" galvanized steel steps (17 inches apart) required when the slope is greater than 4 feet 6 inches. The manhole shall be 6 inches below the sidewalk and 3/4" to 1" inches from the wall. Only one step (12 inches from the bottom) if less than 5 feet 6 inches or less. No steps required if less than 5 inches from the bottom. Steps shall be anchored not less than 5 inches into the concrete. Steps shall be placed 7 feet apart. Steps shall be finished to slope. SURFACE of all exposed concrete shall conform to slope, grade, curb face as 1/2" inches or more. Finish shall be in accordance with existing or proposed curb and work adjacent to the basin.

MANHOLES

CONCRETE as specified for Catch Basins. CENTER OF MANHOLE SHAFT shall be located over center line of storm drain when diameter D₁ is 48 inches or less in which case slope of shafts shall be 1/8" per foot. The Contractor shall construct manhole shafts as per Detail M. The Contractor shall not use the portion of construction shaft as per Detail M for any depth or manhole. When diameter D₁ is 48" or less, center of shaft shall be located as per Detail M. Center of Manhole Shaft shall be located as per Detail M. Center of Manhole Shaft shall be located as per Detail M. THICKNESS OF DECK shall vary when necessary to provide level pipe seat, but shall not be less than 4 inches unless for F. shown on manhole plan. REINFORCING STEEL shall be round, deformed bars, #1, clear from face of concrete unless otherwise sized and lengths are shown in table below. STEPS shall be 1/2" x 1/2" x 1/2" galvanized steel and anchored not less than 5 inches in the walls of structure. Unless otherwise shown the spacing shall be 12 inches. The lowest step shall be not more than 2' 6" above the invert. RINGS REDUCER AND PIPE: 1/2" access shaft shall be secured in manhole. RINGS REDUCER AND PIPE: 1/2" access shaft shall be secured in manhole. RINGS REDUCER AND PIPE: 1/2" access shaft shall be secured in manhole. FLOOR of manhole shall be poured in one continuous operation and not be placed in sections. The floor shall have the goal of placing of the surrounding line a construction joint with a longitudinal keyway.

STEEL TABLE FOR MANHOLES

D ₁ (in)	D ₂ (in)		D ₃ (in)		E (in)	
	12	18	24	30	36	42
48	1.00	1.00	1.00	1.00	1.00	1.00
54	1.00	1.00	1.00	1.00	1.00	1.00
60	1.00	1.00	1.00	1.00	1.00	1.00
66	1.00	1.00	1.00	1.00	1.00	1.00
72	1.00	1.00	1.00	1.00	1.00	1.00
78	1.00	1.00	1.00	1.00	1.00	1.00
84	1.00	1.00	1.00	1.00	1.00	1.00
90	1.00	1.00	1.00	1.00	1.00	1.00
96	1.00	1.00	1.00	1.00	1.00	1.00
102	1.00	1.00	1.00	1.00	1.00	1.00
108	1.00	1.00	1.00	1.00	1.00	1.00
114	1.00	1.00	1.00	1.00	1.00	1.00
120	1.00	1.00	1.00	1.00	1.00	1.00

DEPARTMENT OF ENGINEERING
 CITY OF SAN BERNARDINO

REDEVELOPMENT AGENCY OF THE CITY OF SAN BERNARDINO

MEADOWBROOK PROJECT AREA NO. 1 CALIF R-10

STANDARD DETAILS
 STORM DRAIN STRUCTURES

ACCEPTED BY: [Signature]
 REGISTERED CIVIL ENGINEER NO. 12345

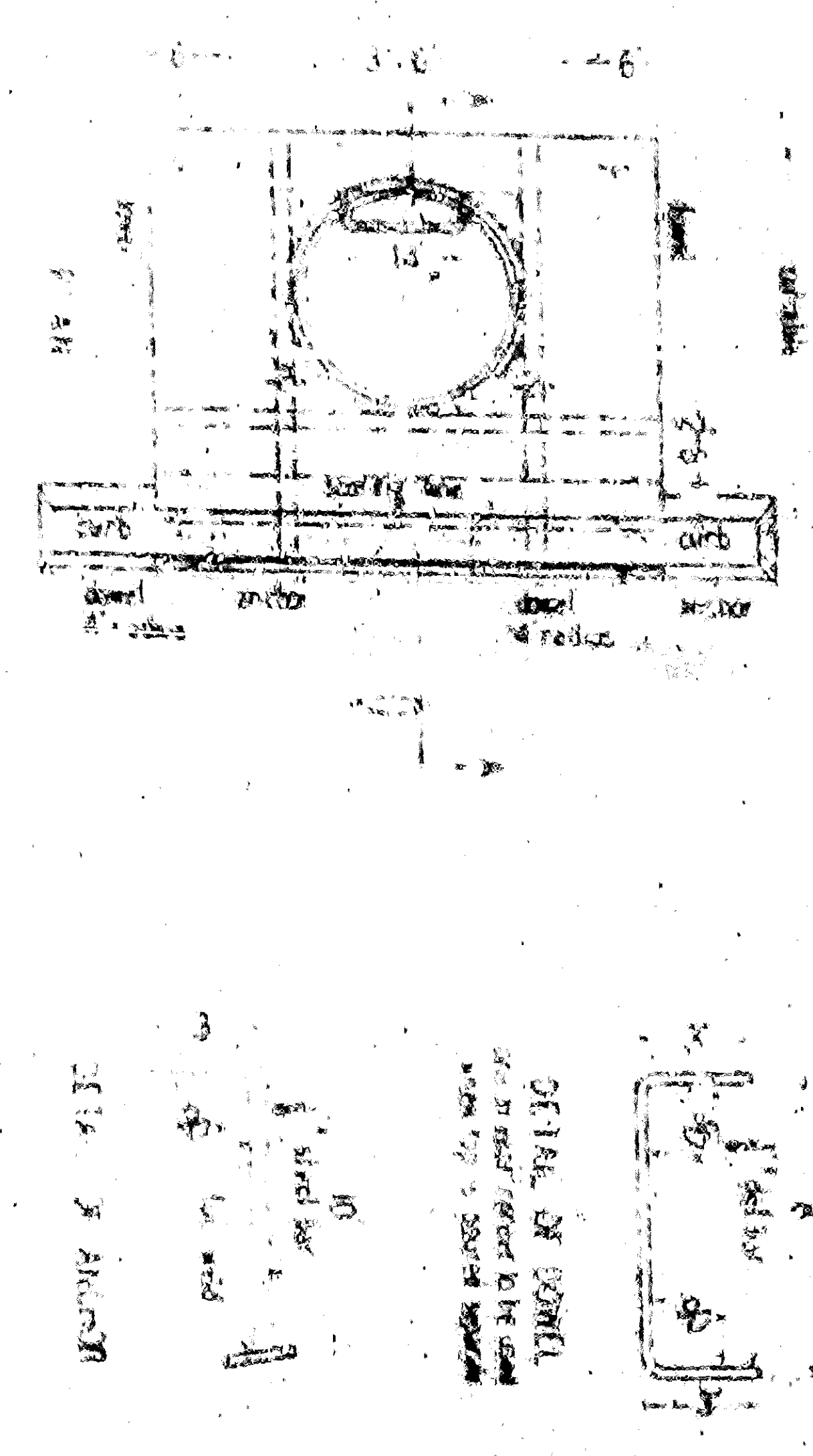
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DRAWING NO. 2863

DEPARTMENT OF ENGINEERING
 CITY OF SAN BERNARDINO

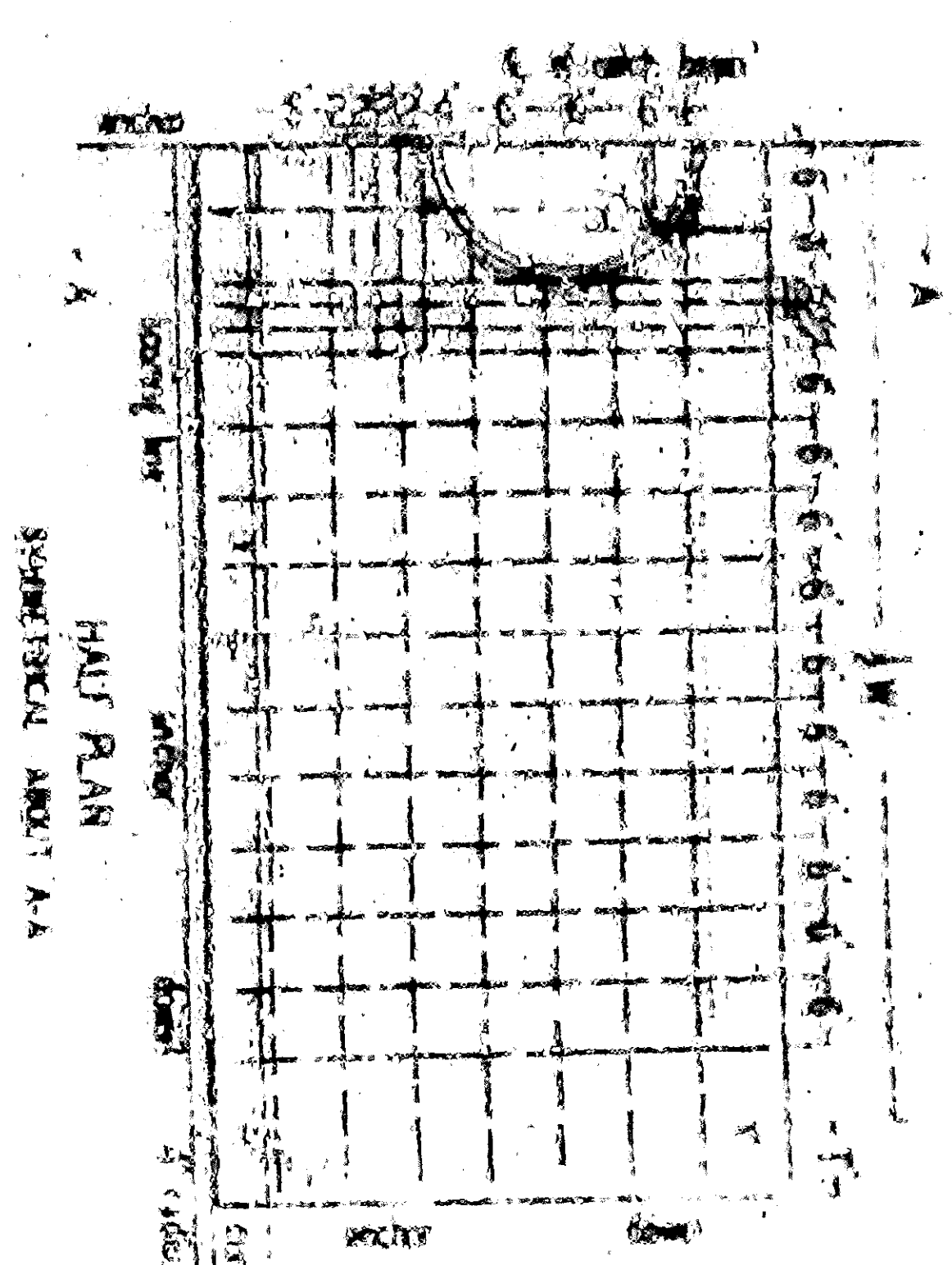
DETAIL OF STANDARD
 STORM DRAIN STRUCTURES

SUBMITTED BY: [Signature]
 APPROVED BY: [Signature]
 REGISTERED CIVIL ENGINEER NO. 56789



ITEM	DESCRIPTION	QUANTITY	UNIT
1	CONCRETE	1.00	CU YD
2	STEEL	1.00	TON
3	FORMWORK	1.00	SQ YD
4	REINFORCING STEEL	1.00	TON
5	MANHOLE	1.00	NO.

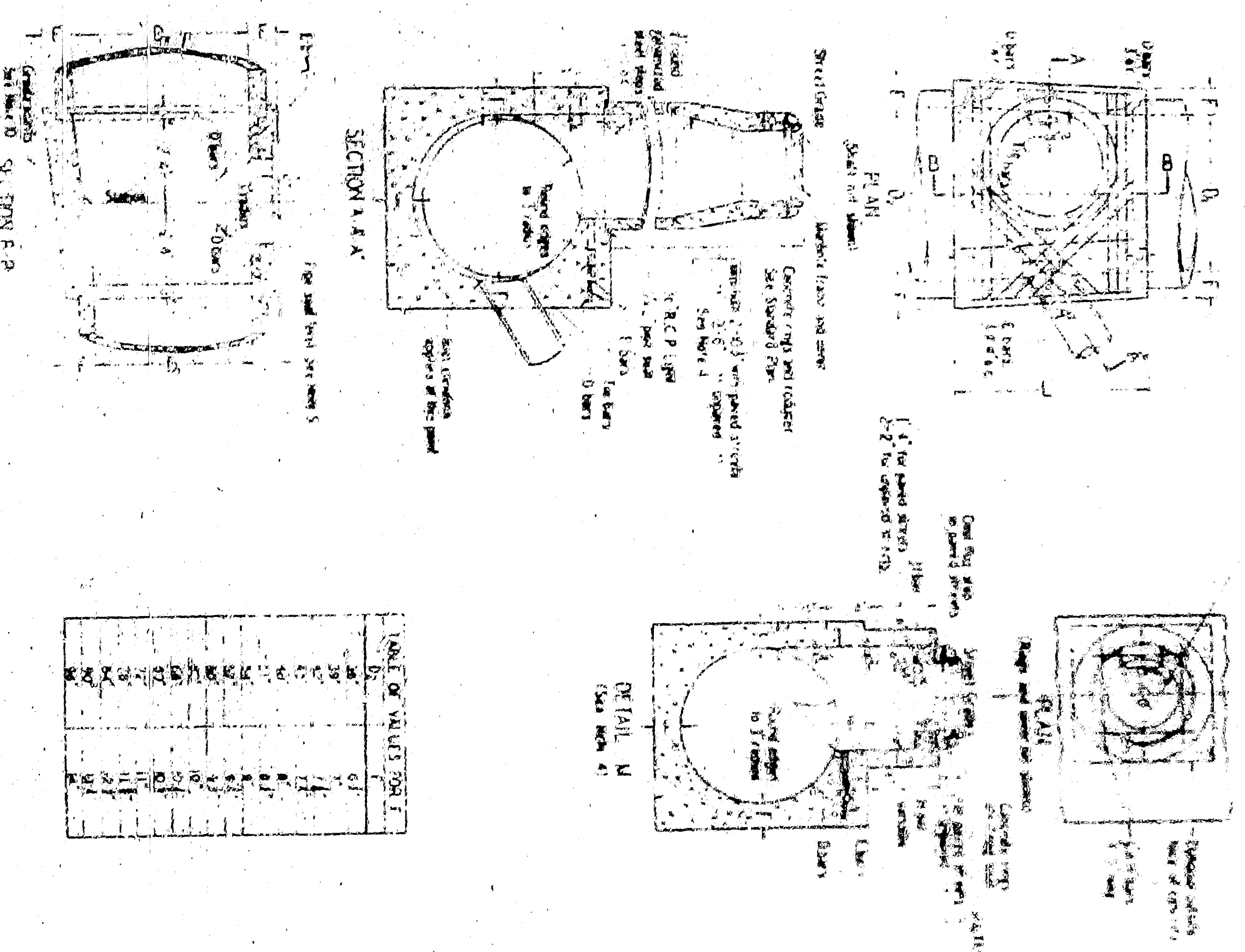
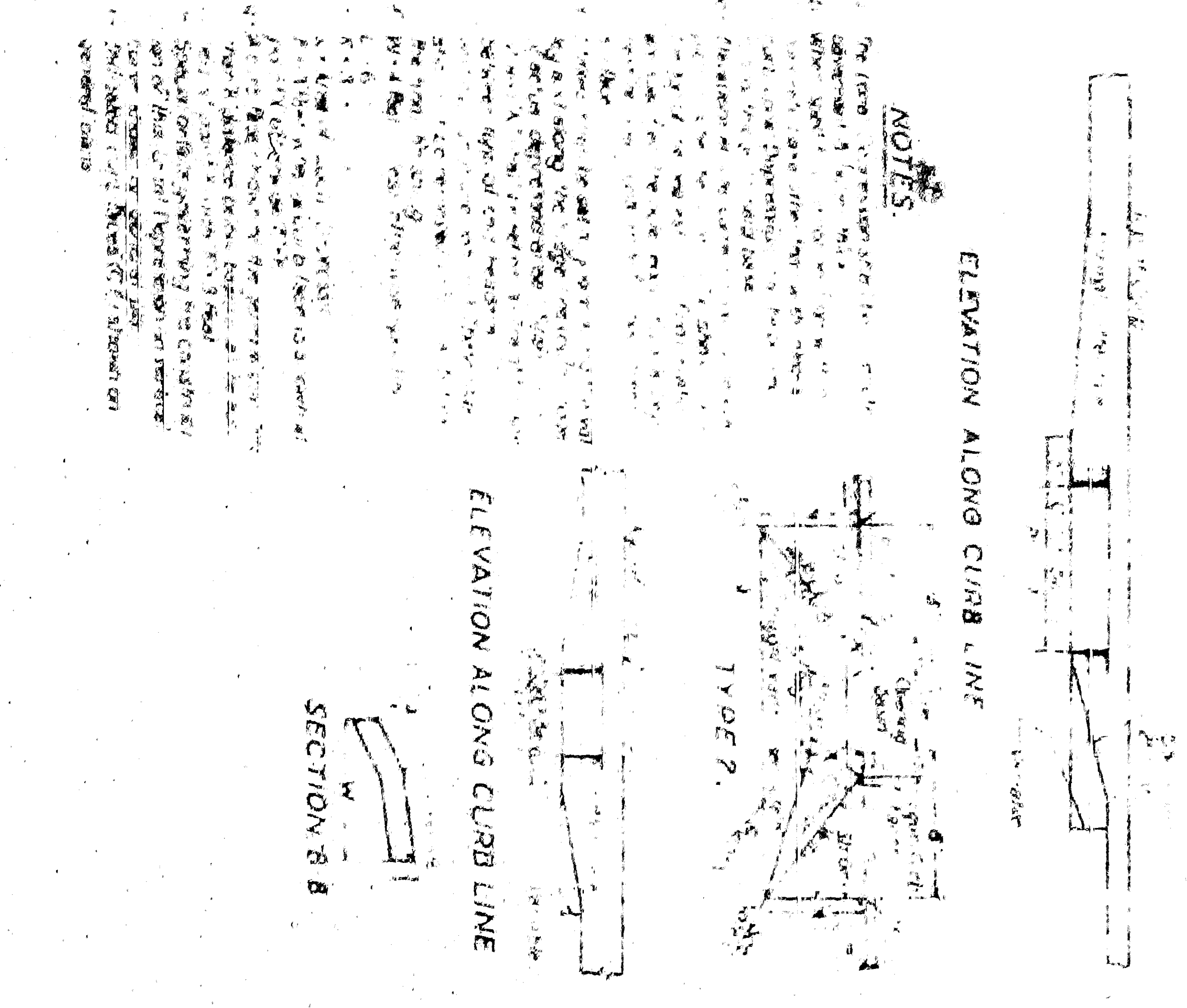
CATCH BASIN "A"
 DIMENSIONS: 4' 3" x 4' 3" x 1' 6" (depth of basin above manhole)



ITEM	DESCRIPTION	QUANTITY	UNIT
1	CONCRETE	1.00	CU YD
2	STEEL	1.00	TON
3	FORMWORK	1.00	SQ YD
4	REINFORCING STEEL	1.00	TON
5	MANHOLE	1.00	NO.

CATCH BASIN "B"
 DIMENSIONS: 4' 3" x 4' 3" x 1' 6" (depth of basin above manhole)

STANDARD LOCAL DEPRESSION FOR SIDE OPENING BASINS



GENERAL NOTES
CATCH BASINS

CONCRETE used in catch basins shall be in accordance with Section 101.01 of the City of San Bernardino Specifications. The concrete shall be placed in one continuous operation, and the joints shall be made in the proper direction and the position of any joints shall be consistent with the improvement plan. CURVATURE of the lip and sidewalls of gutter opening shall be formed by curve forms and shall not be made by plastering. FLOOR of basin shall be given a steel troweled finish and shall slope from all directions to the outlet. For Type B manhole, slope shall be parallel with curb shall be 1 to 12 unless otherwise specified. MANHOLE shall be placed along back of curb and shall be 12" to 18" from curb. OUTLET pipe shall be trimmed to the final slope and shall be 12" to 18" from curb. PROTECTION BAR: For concrete curb, a 1/2" x 1/2" x 1/2" galvanized steel protection bar shall be embedded 2 inches of each end. REINFORCING STEEL shall be 3/8" round (barbed) bars. STEPS: 3/4" inch plain round galvanized steel steps (17 inches apart) required when the slope is greater than 4 feet 6 inches. The manhole shall be 6 inches below the sidewalk and 3/4" to 1 1/4 inches from the wall. Only one step (12 inches from the bottom) if less than 5 feet 6 inches or less. No steps required if less than 5 inches from the bottom. Steps shall be anchored not less than 5 inches from the bottom. Steps shall be placed 7 feet apart. Steps shall be finished to slope. SURFACE of all exposed concrete shall conform in slope, grade, curb face as 15 inches or more. Finish and scoring to existing or proposed curb and work adjacent to the basin.

MANHOLES

CONCRETE as specified for Catch Basins. CENTER OF MANHOLE SHAFT shall be located over center line of storm drain when diameter D₁ is 48 inches or less in which case slope of shafts shall be 1/8" per foot. The Contractor shall construct manhole shafts as per Detail M. The Contractor shall not use the portion of construction shaft as per Detail M for any depth or manhole. When diameter D₁ is 48" or less, center of shaft shall be located as per Detail M. Center of Manhole Shaft shall be located as per Detail M. Thickness of deck shall vary when necessary to provide level pipe seat, but shall not be less than 4 inches unless for F. shown on manhole plan. REINFORCING STEEL shall be round, deformed bars, #1, clear from face of concrete unless shown otherwise. Size and length are shown in table below. STEPS shall be 3/4" round galvanized steel and anchored not less than 5 inches in the walls of structure. Unless otherwise shown the spacing shall be 14 inches centers. The lowest step shall be not more than 2" above the invert. RINGS REDUCER AND PIPE: 1/2" access shaft shall be secured in manhole. For manhole, manhole shall be secured in manhole. STATIONS of manholes shall be shown on improvement plan. Stationing of manholes shall be shown on improvement plan. FLOOR of manhole shall be poured in one continuous operation, and the joints shall be made in the proper direction and the position of any joints shall be consistent with the improvement plan. Manhole shall be 12" to 18" from curb. Manhole shall be 12" to 18" from curb.

STEEL TABLE FOR MANHOLES

D ₁ (in)	D ₁ (in)		D ₂ (in)		E (in)	
	Length	Area	Length	Area	Length	Area
48	10.0	0.15	10.0	0.15	10.0	0.15
54	10.0	0.15	10.0	0.15	10.0	0.15
60	10.0	0.15	10.0	0.15	10.0	0.15
66	10.0	0.15	10.0	0.15	10.0	0.15
72	10.0	0.15	10.0	0.15	10.0	0.15
78	10.0	0.15	10.0	0.15	10.0	0.15
84	10.0	0.15	10.0	0.15	10.0	0.15
90	10.0	0.15	10.0	0.15	10.0	0.15
96	10.0	0.15	10.0	0.15	10.0	0.15
102	10.0	0.15	10.0	0.15	10.0	0.15
108	10.0	0.15	10.0	0.15	10.0	0.15
114	10.0	0.15	10.0	0.15	10.0	0.15
120	10.0	0.15	10.0	0.15	10.0	0.15

DEPARTMENT OF ENGINEERING
 CITY OF SAN BERNARDINO

REDEVELOPMENT AGENCY OF
 THE CITY OF SAN BERNARDINO

MEADOWBROOK
 PROJECT AREA NO. 1
 CALIF R-10

STANDARD DETAILS
 STORM DRAIN STRUCTURES

ACCEPTED BY: [Signature]
 REGISTERED CIVIL ENGINEER NO. 1234

REFERENCE: [Blank]
 DRAWN BY: [Blank]

DRAWING NO. 2863

DEPARTMENT OF ENGINEERING
 CITY OF SAN BERNARDINO

DETAIL OF STANDARD
 STORM DRAIN STRUCTURES

SUBMITTED BY: [Signature]
 APPROVED BY: [Signature]
 REGISTERED CIVIL ENGINEER NO. 5678