IRRIGATION WATER PRESSURE CALCULATIONS
ELEMENTARY SCHOOL STATION A10

Irrigation Pressure Calculation
BCSD ES Static Pressure: 50.00
Max. GPM Demand: 375.00

Units	Size	Type	Description	GPM	Unit PSI Loss
1	4"	Disc	Water Meter	375.00	13.00
1	6"	Ductile Iron	RP BFP	375.00	09.00
1	3"	Brass	Master Valve	188.00	03.70
1	2"	Plastic	Flow Sensor	188.00	02.00
1210	4"	Cl 315	Mainline	171.60	11.13
4	4"	Iron	Gate Valve	171.60	04.00
1	3"	Brass	RCV	171.60	01.76
50	1-1/4"	Sch. 40	Lateral Line	14.30	00.61
50	1-1/2"	Sch. 40	Lateral Line	28.60	01.04
35	2"	Sch. 40	Lateral Line	42.90	00.46
45	3"	Sch. 40	Lateral Line	85.80	00.31
165	4"	Sch. 40	Lateral Line	171.60	01.19
Misc		Fittings Allowance			01.00
				Component Losses:	49.20

Station #: #:A10 Min. Req'r by Head: 50.00
Highest GPM System 6.9' Elevation Gain: -02.98
Total Pressure Req'r: 96.22
Residual Pressure: -46.22

IRRIGATION WATER PRESSURE CALCULATIONS
MIDDLE SCHOOL STATION B9

Irrigation Pressure Calculation
BCSD MS Static Pressure: 50.00
Max. GPM Demand: 375.00

Units	Size	Type	Description	GPM	Unit PSI Loss
1	4"	Disc	Water Meter	375.00	13.00
1	6"	Ductile Iron	RP BFP	375.00	09.00
1	3"	Brass	Master Valve	188.00	03.70
1	2"	Plastic	Flow Sensor	188.00	02.00
1665	4"	Cl 315	Mainline	143.00	10.83
4	4"	Iron	Gate Valve	143.00	01.00
1	2-1/2"	Brass	RCV	143.00	03.00
50	1-1/4"	Sch. 40	Lateral Line	14.30	00.61
50	1-1/2"	Sch. 40	ateral Line	28.60	01.04
35	2"	Sch. 40	Lateral Line	42.90	00.46
75	4"	Sch. 40	Main Line	143.00	00.36
Misc		Fittings Allowance			01.00
				Component Losses:	46.00

Station #: B9 Min. Req'r by Head: 50.00
Highest GPM System 6.9' Elevation Gain: -02.98
Total Pressure Req'r: 93.02
Residual Pressure: -43.02

IRRIGATION WATER PRESSURE CALCULATIONS
MIDDLE SCHOOL STATION B32

Irrigation Pressure Calculation
BCSD MS Static Pressure: 50.00
Max. GPM Demand: 375.00

Units	Size	Type	Description	GPM	Unit PSI Loss
1	4"	Disc	Water Meter	375.00	13.00
1	6"	Ductile Iron	RP BFP	375.00	09.00
1	3"	Brass	Master Valve	188.00	03.70
1	2"	Plastic	Flow Sensor	188.00	02.00
2210	4"	Cl. 315	Main Line	143.00	13.34
4	4"	Iron	Gate Valve	143.00	01.00
1	2-1/2"	Brass	RCV	143.00	03.00
50	1-1/4"	Sch. 40	Lateral Line	14.30	00.61
50	1-1/2"	Sch. 40	Lateral Line	28.60	01.04
50	2"	Sch. 40	Lateral Line	42.90	00.66
50	2-1/2"	Sch. 40	Lateral Line	57.20	00.47
50	3"	Sch. 40	Lateral Line	71.50	00.25
15	4"	Sch. 40	Lateral Line	143.00	00.10
Misc		Fittings Allowance			03.29
				Component Losses:	51.46

Station #: B32 Min. Req'r by Head: 50.00
Highest GPM System 8.1' Elevation Gain: -03.50
Total Pressure Req'r: 98.96
Residual Pressure: -48.96

IRRIGATION WATER PRESSURE CALCULATIONS
MIDDLE SCHOOL STATION B38

Irrigation Pressure Calculation
BCSD MS Static Pressure: 50.00
Max. GPM Demand: 375.00

Units	Size	Type	Description	GPM	Unit PSI Loss
1	4"	Disc	Water Meter	375.00	13.00
1	6"	Ductile Iron	RP BFP	375.00	09.00
1	3"	Brass	Master Valve	188.00	03.70
1	2"	Plastic	Flow Sensor	188.00	02.00
2580	4"	Cl. 315	Main Line	114.40	10.30
11	4"	Iron	Gate Valve	114.40	11.00
1	2-1/2"	Brass	RCV	114.40	02.45
50	1-1/4"	Sch. 40	Lateral Line	14.30	00.61
50	1-1/2"	Sch. 40	Lateral Line	28.60	01.04
50	2"	Sch. 40	ateral Line	42.90	00.66
50	2-1/2"	Sch. 40	Lateral Line	57.20	00.47
50	4"	Sch. 40	Lateral Line	114.40	00.17
Misc		Fittings Allowance			02.65
				Component Losses:	57.05

Station #: B38 Min. Req'r by Head: 50.00
Highest GPM System 6.9' Elevation Gain: -02.99
Total Pressure Req'r: 104.06
Residual Pressure: -54.06

PLOT TIME: 11:13 AM
PLOT DATE: 12/5/2012
PATHNAME: C:\Jobs 12\01-12\2012\012445\Drawings\CD\12444-BLDG P(3&4 QUAD E CLASSROOM)-CD.pln

ELEMENTARY SCHOOL
WATER USE CALCULATIONS

Maximum Applied Water Allowance Calculations for New and Rehabilitated Landscapes

Enter value in Pale Blue Cells Tan Cells Show Results Messages and Warnings		
Click on the blue cell on right to Pick City Name	Bakersfield	Name of City
ET_o of City from Appendix A	52.40	ET_o (inches/year)
Enter total landscape including SLA	447,262.00	LA (ft^2)
Enter Special Landscape Area	384,143.00	SLA (ft^2)
Results:		
MAWA = (ET_o) x (0.62) x [(0.7 x LA)+(0.3 x SLA)]	13,916,321.49	Gallons
	1,860,347.77	Cubic Feet
	18,603.48	HCF
	42.71	Acre-feet
	13.92	Millions of Gallons

MAWA calculation incorporating Effective Precipitation (Optional)		
ET_o of City from Appendix A	52.40	ET_o (inches/year)
Landscape Area	447,262.00	LA (ft^2)
Special Landscape Area	384,143.00	SLA (ft^2)
Enter Effective Precipitation	0.00	Eppt (in/yr)
Results:		
MAWA=(ET_o - Eppt) x (0.62) x [(0.7 x LA)+(0.3 x SLA)]	-	Gallons
	-	Cubic Feet
	-	HCF
	-	Acre-feet
	-	Millions of Gallons

Estimated Total Water Use
Equation:
ETWU = (ET_o) x (0.62) x [(PF x HA/IE) + SLA]

Enter values in Pale Blue Cells Tan Cells Show Results Messages and Warnings		
Enter Irrigation Efficiency (equal to or greater than 0.71)	0.00	
Irrigation Efficiency Default Value	0.71	

Plant Water Use Type	Plant Factor
Low	0 - 0.3
Medium	0.4 - 0.6
High	0.7 - 1.0
SLA	1.00

Hydrozone	Plant Water Use Type (s) (low, medium, high)	Plant Factor (PF)	Hydrozone Area (HA) (ft^2)	PF x HA (ft^2)
1	Medium	0.60	0	0
2	Medium	0.80	19,000	11,400
3	Medium	0.40	3,225	1,290
4	Low	0.30	40,894	12,268
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				24,958
	SLA	1	384,143	384,143
		Sum	447,262	

Results

MAWA = 13,916,321	ETWU=	13,622,895	Gallons	ETWU complies with MAWA
		1,821,122	Cubic Feet	
		18,211	HCF	
		41.81	Acre-feet	
		13.62	Millions of Gallons	

MIDDLE SCHOOL
WATER USE CALCULATIONS

Maximum Applied Water Allowance Calculations for New and Rehabilitated Landscapes

Enter value in Pale Blue Cells Tan Cells Show Results Messages and Warnings		
Click on the blue cell on right to Pick City Name	Bakersfield	Name of City
ET_o of City from Appendix A	52.40	ET_o (inches/year)
Enter total landscape including SLA	582,983.00	LA (ft^2)
Enter Special Landscape Area	469,657.00	SLA (ft^2)
Results:		
MAWA = (ET_o) x (0.62) x [(0.7 x LA)+(0.3 x SLA)]	17,836,529.15	Gallons
	2,384,405.05	Cubic Feet
	23,844.05	HCF
	54.74	Acre-feet
	17.84	Millions of Gallons

MAWA calculation incorporating Effective Precipitation (Optional)		
ET_o of City from Appendix A	52.40	ET_o (inches/year)
Landscape Area	582,983.00	LA (ft^2)
Special Landscape Area	469,657.00	SLA (ft^2)
Enter Effective Precipitation	0.00	Eppt (in/yr)
Results:		
MAWA=(ET_o - Eppt) x (0.62) x [(0.7 x LA)+(0.3 x SLA)]	-	Gallons
	-	Cubic Feet
	-	HCF
	-	Acre-feet
	-	Millions of Gallons

Estimated Total Water Use
Equation:
ETWU = (ET_o) x (0.62) x [(PF x HA/IE) + SLA]

Enter values in Pale Blue Cells Tan Cells Show Results Messages and Warnings		
Enter Irrigation Efficiency (equal to or greater than 0.71)	0.00	
Irrigation Efficiency Default Value	0.71	

Plant Water Use Type	Plant Factor
Low	0 - 0.3
Medium	0.4 - 0.6
High	0.7 - 1.0
SLA	1.00

Hydrozone	Plant Water Use Type (s) (low, medium, high)	Plant Factor (PF)	Hydrozone Area (HA) (ft^2)	PF x HA (ft^2)
1	Medium	0.60	0	0
2	Medium	0.60	45,890	27,534
3	Medium	0.40	4,475	1,790
4	Low	0.30	62,961	18,888
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				48,212
	SLA	1	469,657	469,657
		Sum	582,983	

Results

MAWA = 17,836,529	ETWU=	17,465,389	Gallons	ETWU complies with MAWA
		2,334,791	Cubic Feet	
		23,348	HCF	
		53.60	Acre-feet	
		17.47	Millions of Gallons	

RIOS DESIGN STUDIO
LANDSCAPE ARCHITECTURE & DESIGN
3805 ORA VISTA AVENUE
BAKERSFIELD, CALIFORNIA
93309
P: 661.835.9259
F: 661.367. 5284

REGISTERED LANDSCAPE ARCHITECT
JAIME RIOS No. 2979
Signature
SEPTEMBER 30,2012
Expiration Date
Date
STATE OF CALIFORNIA

ORDIZ MELBY
ARCHITECTS, INC.
5500 MING AVENUE SUITE 280
BAKERSFIELD, CALIFORNIA 93309
TELEPHONE (661) 832-5258
FACSIMILE (661) 832-4291

LICENSED ARCHITECT
DANNY ESPINEDA ORDIZ
No. C- 14728
MAY 31, 2011
RENEWAL DATE
STATE OF CALIFORNIA

DANNY E. ORDIZ, AIA
ARCHITECT C-14,728
WILLIAM J. MELBY, AIA
ARCHITECT C-16,835

IDENTIFICATION STAMP
DIVISION OF STATE ARCHITECT
OFFICE OF REGULATION SERVICES
APPL. #:
FILE #:
AC_____ FLS_____ SS_____
DATE_____

NEW ELEMENTARY SCHOOL
9801 HIGHLAND KNOLLS DR
BAKERSFIELD
CALIFORNIA
93306

NEW MIDDLE SCHOOL
4115 VINELAND ROAD
BAKERSFIELD
CALIFORNIA
93306

FOR:

BAKERSFIELD CITY SCHOOL DISTRICT

1300 BAKER STREET
BAKERSFIELD
CALIFORNIA
93305

MARK	DATE	DESCRIPTION
1	04/15/11	PROGRESS SET NOT FOR CONSTRUCTION
2		
3		
4		
5		

JOB NUMBER:
200101244
CAD DRAWING FILE:
#Pln1244-BLDG P(3&4 QUAD E CLASSROOM)-CD.pln
DRAWN BY:
JR:
CHECKED BY:
MER:

SHEET TITLE
IRRIGATION CALCULATIONS

SHEET IDENTIFICATION NUMBER
L14