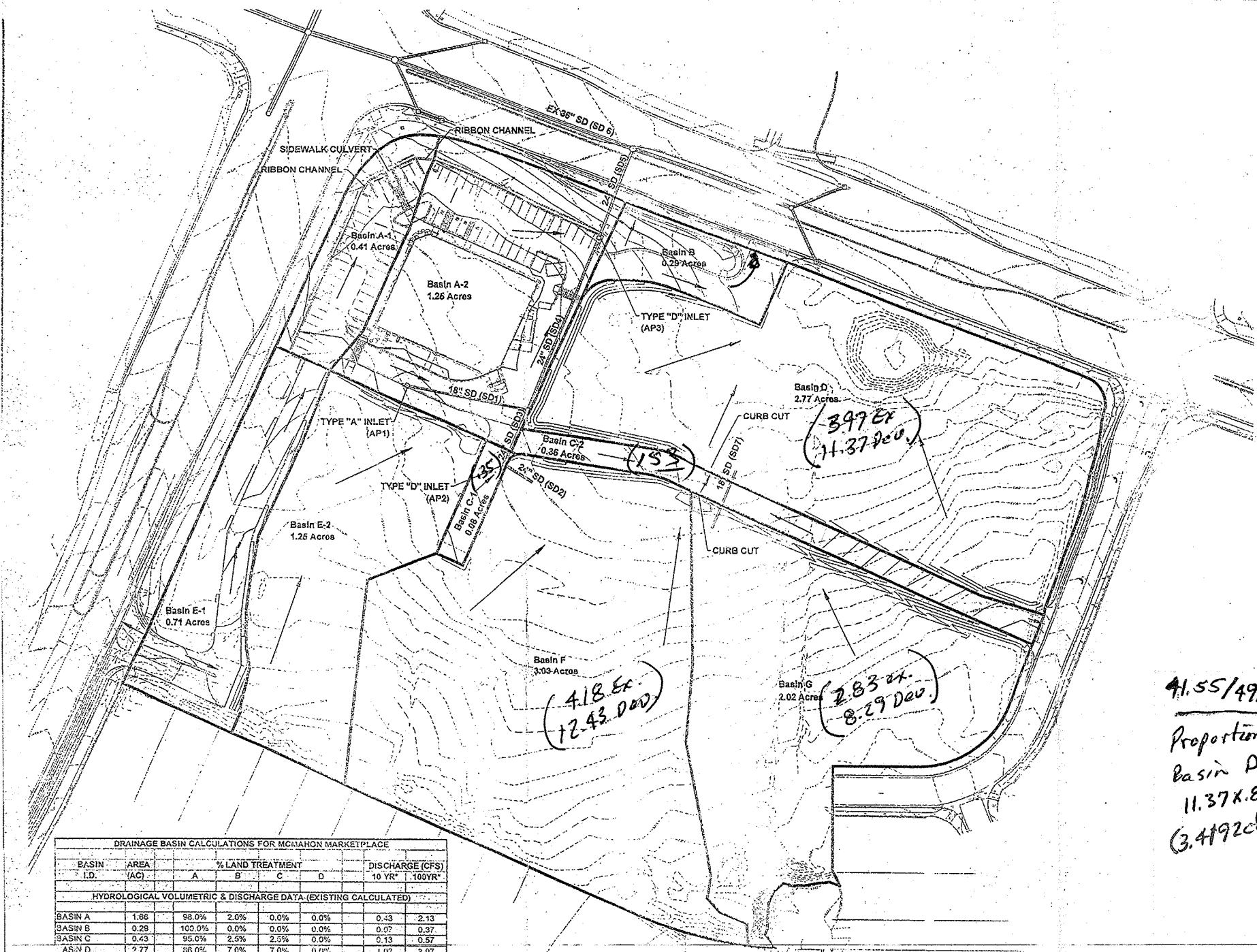




DRAINAGE BASIN CALCULATIONS FOR MCMAHON MARKETPLACE

BASIN I.D.	AREA (AC)	% LAND TREATMENT				DISCHARGE (CFS)	
		A	B	C	D	10 YR	100 YR
HYDROLOGICAL VOLUMETRIC & DISCHARGE DATA (EXISTING CALCULATED)							
BASIN A	1.86	98.0%	2.0%	0.0%	0.0%	0.43	2.13
BASIN B	0.28	100.0%	0.0%	0.0%	0.0%	0.07	0.37
BASIN C	0.43	95.0%	2.5%	2.0%	0.0%	0.13	0.57
BASIN D	2.77	86.0%	7.0%	7.0%	0.0%	1.03	3.97
BASIN E	1.86	86.0%	9.0%	5.0%	0.0%	0.70	2.76
BASIN F	3.03	90.0%	6.0%	4.0%	0.0%	1.00	4.18
BASIN G	2.02	90.0%	3.0%	7.0%	0.0%	0.71	2.83
TOTAL	12.16					4.08	16.83
HYDROLOGICAL VOLUMETRIC & DISCHARGE DATA (DEVELOPED)							
INTERIM							
BASIN A-1	0.41	0.0%	5.0%	10.0%	85.0%	1.08	1.68
BASIN A-2	1.25	0.0%	5.0%	10.0%	85.0%	3.30	5.13
BASIN B	0.29	0.0%	0.0%	33.0%	67.0%	0.70	1.12
BASIN C-1	0.08	0.0%	0.0%	0.0%	100.0%	0.23	0.35
BASIN C-2	0.35	0.0%	0.0%	0.0%	100.0%	1.01	1.53
Subtotal developed onsite							9.81
BASIN D	2.77	86.0%	7.0%	7.0%	0.0%	1.03	3.97
BASIN E-1	0.71	56.0%	9.0%	5.0%	30.0%	0.82	1.67
BASIN E-2	1.25	90.0%	6.0%	4.0%	0.0%	0.41	1.72
BASIN F	3.03	90.0%	6.0%	4.0%	0.0%	1.00	4.18
BASIN G	2.02	90.0%	3.0%	7.0%	0.0%	0.71	2.83
SUBTOTAL	12.16					10.30	24.2
FULLY DEVELOPED							
BASIN A-1	0.41	0.0%	5.0%	10.0%	85.0%	1.08	1.68
BASIN A-2	1.25	0.0%	5.0%	10.0%	85.0%	3.30	5.13
BASIN B	0.29	0.0%	0.0%	33.0%	67.0%	0.70	1.12
BASIN C	0.43	0.0%	0.0%	0.0%	100.0%	1.24	1.88
BASIN D	2.77	0.0%	5.0%	10.0%	85.0%	7.31	11.37
BASIN E-1	0.71	0.0%	5.0%	10.0%	85.0%	1.87	2.91
BASIN E-2	1.25	0.0%	5.0%	10.0%	85.0%	3.30	5.13
BASIN F	3.03	0.0%	5.0%	10.0%	85.0%	8.00	12.48
BASIN G	2.02	0.0%	5.0%	10.0%	85.0%	5.33	8.29
SUBTOTAL	12.16					32.15	49.9

NOTE: Peak Discharge calculated from Chapter 22 Section 2 of the COA OPM.

RECEIVED
JUL 26 2013
LAND DEVELOPMENT SECTION

McMAHON MARKETPLACE
DRAINAGE MANAGEMENT PLAN
ALBUQUERQUE, NEW MEXICO
MARCH, 2010

DRAINAGE MANAGEMENT PLAN

I. PURPOSE

The purpose of this submittal is to present the grading and drainage management plan for McMahon Marketplace. The project consists of approximately 12.16 acres of land to be developed for commercial use.

II. SITE LOCATION AND CHARACTERISTICS

The project is south of McMahon Blvd and north of Tuscany West Unit 4 and bordered to the west by Unser Blvd and to the east by Fineland Drive. The site is currently undeveloped tracts, with native shrubs and grasses.

III. EXISTING HYDRAULIC AND HYDROLOGIC CONDITIONS

In the existing conditions, the site drains across moderately sloped terrain towards the north. Currently the westerly portion of the site discharges directly to McMahon and Unser, while the easterly portion discharges to an existing pond located on the east half of the site. The runoff then flows north on Unser and west on McMahon which ultimately is captured by inlet upstream of the intersection. The flow is then carried north within the Unser storm drain to the Black Arroyo Blvd storm drain system and ultimately to the Black Arroyo.

A Master Drainage Study for the Unser/ McMahon Area was prepared by Bohannon Huston, dated July 17, 2001 and revised November 13, 2001, analyzes the entire basin area discharging to the Black Arroyo Blvd storm drain system. That report also addresses this site specifically. The proposed McMahon Marketplace is described in the report as Basin DC2 and allows full discharge ($Q_{100} = 41.55\text{cfs}$) into McMahon.

IV. INTERIM HYDRAULIC AND HYDROLOGIC CONDITIONS

In the interim conditions, the only portion of the site which will be developed is the northwest corner. A CVS Drugstore is proposed at this location. Basin A, B, C1, C2 and E-1 are the only part of the site which will be developed at this time. Basin A is the CVS site, Basin B is the entrance off of McMahon and Basins C and Basin E are the access roads off of Fineland and Unser. Basin A ($Q_{100} = 6.81\text{cfs}$) drains toward and is collected at the northeast corner of the basin by a Type "D" inlet which is connect to the main storm drainline in McMahon Blvd. Basin B ($Q_{100} = 1.12\text{cfs}$) discharges directly in McMahon Blvd where is collected by existing inlets downstream. Basin C-1 ($Q_{100} = 0.35\text{cfs}$) discharges north to the lowpoint located at the southeast corner of the CVS site where it is collect by a Type "A" inlet and conveyed north via a 24" storm drain which connects to the same above mentioned storm drain in McMahon. Basin C-2 ($Q_{100} = 1.53\text{cfs}$) is conveyed to a lowpoint with curb cuts and discharges in Basin D and follows existing drainage patterns into McMahon Blvd where it will be collect by existing inlets downstream. Basin E-1 ($Q_{100} = 1.67\text{cfs}$) will discharge north and combine with Basin A-1 ($Q_{100} = 1.68\text{cfs}$) where the combined flow will be carried downstream to the Type "D" inlet on the northeast corner of the site via a 2" ribbon channel a sidewalk culvert. Basin E-2 ($Q_{100} = 1.72\text{cfs}$) discharges to a desiltation pond located at the northeast corner of the site where it will discharge via curb cut to same lowpoint, inlet and manner as Basin C-2. Basin D ($Q_{100} = 3.97\text{cfs}$) is undeveloped therefore the existing drainage patterns will not be changed. The westerly portion discharges directly into McMahon and the easterly portion discharges into an existing retention pond. Basin F ($Q_{100} = 4.18\text{cfs}$) discharges to a desiltation pond located south of lowpoint within Basin C-2. Basin G ($Q_{100} = 2.83\text{cfs}$) flows to a swale where it is diverted west to the same desiltation pond from Basin F. Both Basin F and combine with Basin C and a portion of Basin D where they follow existing drainage patterns and discharge in McMahon Blvd. The total discharge from the interim site is $Q_{100} = 24.5\text{cfs}$ which is well below the allowable discharge of 41.55cfs.

V. FULLY DEVELOPED HYDRAULIC AND HYDROLOGIC CONDITIONS

In the ultimate conditions, the total McMahon Market place discharges a 100-yr, 6-hour flow of 49.9cfs. The total discharge allowed from the Master "Trinag" Study for the Unser/McMahon Area is 41.55cfs. The total flow was based a land treatment type of 0% A, 5% B, 10% C, and 85% D. The future development can either create a pond to restrict the flow to the 41.55cfs or modify the amount of landscaping to reduce the amount of Land Treatment Type "D" to reduce the runoff from 49.9cfs to 41.55cfs. The storm drain pipe being constructed with the interim plan have been sized to accommodate future flow, however a second storm drain connection to the McMahon storm drain maybe necessary to discharge a future runoff.

VI. CONCLUSION

This plan provides hydrologic and hydraulic considerations for McMahon Marketplace. These flows can be safely conveyed by the improvements proposed in this plan to the existing storm systems, which have adequate capacity to accept such runoff. With the exception of the approximate 8cfs difference in the total developed flow and the allowable discharge in McMahon as stated above. This information provides adequate supporting documentation and guidance for approval of this plan.

FULLY DEVELOPED CONDITIONS FOR INLETS IN MCMAHON MARKETPLACE

	INLET	CONDITION	TYPE	FLOW TO INLET 100-YR	STREET DEPTH (FT.)	GRATE CAP. (cfs)
AP1	1	ON 0.60% GRADE	"A" Double Grate	2.00	0.20	7.90
AP2	2	SUMP	"A" Single Grate	5.38	0.25	6.65
AP3	3	ON 5.35% GRADE	"D" Single Grate	7.82	0.33	9.48

STORM DRAIN ANALYSIS

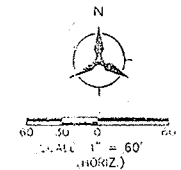
PIPE NO.	SIZE/TYPE	LENGTH (ft.)	SLOPE (%)	INTERIM Q (100-YR. cfs)	ULTIMATE Q (100-YR. cfs)	PIPE CAPACITY (100-YR. CFS)
SD1	18" SD	124.00	2.51	2.00	2.00	16.64
SD2	24" SD	32.00	0.60	0.00	13.28	17.52
SD3	36" SD	56.89	1.00	3.38	18.66	22.64
SD4	24" SD	189.15	0.86	7.38	20.66	20.98
SD5	24" SD	94.25	6.18	15.20	28.48	56.24
*EXSD6	36" SD	N/A	0.92	26.20	52.55	63.97
SD7	18" SD	6.00	2.60	0.00	7.77	14.87

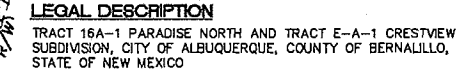
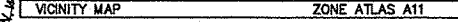
* EX STORM DRAIN INFO TAKEN FROM CPN 618591 SHEET 51
Q100 FROM INLET IN MCMAHON = 11cfs
ALLOW DISCHARGE FROM SITE = 41.55cfs
ULTIMATE Q100 = 52.55cfs
INTERIM = 15 20cfs + 11cfs = 26 20 cfs

from DMP
All-DOH
RECEIVED
MAY 07 2010
HYDROLOGY SECTION

Bohannon & Huston

Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING - SPATIAL DATA - ADVANCED TECHNOLOGIES





GRADING NARRATIVE

THIS SITE IS BOUNDED BY THREE EXISTING STREETS (TO THE WEST, NORTH AND EAST) AND AN EXISTING RESIDENTIAL DEVELOPMENT (TO THE SOUTH).

THE EXISTING TOPOGRAPHY SLOPES GENERALLY FROM THE SOUTHWEST TO THE NORTHEAST WITH A SLOPE OF APPROXIMATELY 2.7%. AN EXCEPTION TO THIS IS ALONG THE SOUTHERLY BOUNDARY WHERE THE GROUND FALLS AWAY FROM THE EXISTING RESIDENTIAL DEVELOPMENT, CREATING A SLOPE OF 12.5% ONTO THIS SITE.

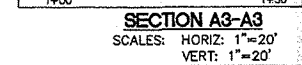
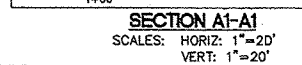
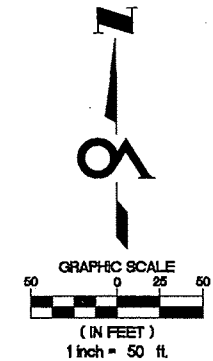
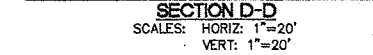
A 3:1 SLOPE DOWN TO A RETAINING WALL (WHICH WILL VARY FROM 0' TO 5' IN HEIGHT) WILL BE USED ALONG THIS SOUTHERLY BOUNDARY TO ACCOMMODATE THE EXISTING SLOPE.

APPROXIMATE EARTHWORK		
CUT (CY)	FILL (CY)	NET (CY)
30.185	11.320	18.866

(EARTHWORK VOLUME IS UNADJUSTED)

LEGEND

	EXISTING CONTOUR LABEL
	PROPOSED SILT FENCE
	PROPOSED VEHICLE TRACKING CONTROL
	PROPOSED INLET PROTECTION AND CURB SOCKS
	PROPOSED SLOPE AND FLOW DIRECTION
	PROPOSED STORM DRAIN
	PROPOSED INLET BOX
	PROPOSED OUTLET STRUCTURE
	PROPOSED CURB CHASE
	FINISH GRADE



[T8.dwg][EXTOP0.dwg][PRBASE.dwg][EXBASE.dwg][PRTOPO.dwg][SITEV16EPCBASE21807-0A.dwg]
Drawing name: F:\Projects\20061497\LD RPS Unser & McLachlan\dwg\P&Z\Concept Plans\CR1.dwg Feb 21, 2007 - 7:37 am

[illegible]

MATCH LINE STA. 22+00
SEE SHEET 50



CONSTRUCTION BUILD NOTES:

CONCRETE DROP INLET:

CD4 "M" STA 22+16.25, 5' RT,
CONSTRUCT TYPE '2C' INLET.
GRATE ELE. = 5298.65

CD5 "M" STA 22+16.25, 41' LT,
CONSTRUCT TYPE 'A' INLET.
GRATE ELE. = 5298.85

CD6 "M" STA 22+50.00, 41' LT,
CONSTRUCT TYPE '2C' INLET
GRATE ELE. = 5298.74

CD7 "M" STA 24+89.64, 41' RT,
CONSTRUCT TYPE 'A' INLET.
GRATE ELE. = 5298.35

CD8 "M" STA 25+17.04, 41' RT
CONSTRUCT TYPE '2C' INLET.
GRATE ELE. = 5298.06

CD9 "M" STA 25+32.07, 51' LT,
CONSTRUCT TYPE 'A' INLET.
GRATE ELE. = 5297.68

CD10 "M" STA 29+29.58, 41' RT,
CONSTRUCT TYPE 'A' INLET.
GRATE ELE. = 5293.63

CD11 "M" STA 29+29.58, 41' LT,
CONSTRUCT TYPE 'A' INLET.
GRATE ELE. = 5293.38

CONSTRUCT TYPE '2C' INLET AS PER COA
STANDARD DWG 2205

CONSTRUCT TYPE 'A' INLET AS PER COA
STANDARD DWG 2201 & 2202

OFFSETS MEASURED FROM CONSTR.
CL TO CURB & GUTTER FLOWLINE.

STORM DRAIN PIPE:

SD5 "M" STA 22+16.25, 39.94' LT,
"M" STA 22+50.00, 39.94' LT,
CONSTRUCT 24" CLASS III RCP.

SD6 "M" STA 22+50.00, 39.94' LT,
"M" STA 22+72.76, 2.67' RT,
CONSTRUCT 24" CLASS III RCP.

SD7 "M" STA 22+16.25, 49.94' RT,
"M" STA 22+72.76, 2.67' RT,
CONSTRUCT 24" CLASS III RCP.

SD8 "M" STA 22+72.76, 2.67' RT,
"M" STA 23+52.74, 2.67' RT,
CONSTRUCT 48" CLASS III RCP.

SD9 "M" STA 23+52.74, 2.67' RT,
"M" STA 24+49.93, 2.67' RT,
CONSTRUCT 48" CLASS III RCP.

SD10 "M" STA 25+32.07, 49.94' LT,
"M" STA 24+49.93, 2.67' RT,
CONSTRUCT 24" CLASS III RCP.

SD11 "M" STA 24+89.64, 39.94' RT,
"M" STA 24+49.93, 2.67' RT,
CONSTRUCT 24" CLASS III RCP.

SD11A "M" STA 24+89.64, 41' RT,
"M" STA 25+17.04, 41' RT,
CONSTRUCT 24" CLASS III RCP.

SD12 "M" STA 24+49.93, 2.67' RT,
"M" STA 28+87.46, 0.32' RT, 3

CONSTRUCT 36" CLASS III RCP.

SD13 "M" STA 28+87.46, 0.32' RT,
"M" STA 29+29.58, 41' LT, 3
CONSTRUCT 24" CLASS III RCP.

SD14 "M" STA 28+87.46, 0.32' RT,
"M" STA 29+29.58, 41' RT, 3
CONSTRUCT 24" CLASS III RCP.

 Gannett Fleming West, Inc. ENGINEERS AND PLANNERS			
WILSON <i>& COMPANY</i>			
		CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT TRANSPORTATION DESIGN	
TITLE:		McMAHON BOULEVARD TRANSPORTATION IMPROVEMENTS GRADING & DRAINAGE PLAN	
Design Review Committee		City Engineer Approval	
		Legt. Design Update	
City Project No.		Zone Map No.	
618591		A-11 & A-12	

[illegible]