

CITY OF ALBUQUERQUE

Planning Department
Brennon Williams, Director



Mayor Timothy M. Keller

October 15, 2019

Matt Satches, PE
Bohannon Huston, Inc.
7500 Jefferson St NE
Albuquerque, NM 87109

RE: **2440 Louisiana NE**
Grading and Drainage Plan
Engineer's Stamp Date: 10/9/19
Hydrology File: H19D084

Dear Mr. Satches:

Based on the submittal received on 10/10/19 the above-referenced Grading and Drainage Plan is approved for Grading and Paving Permit.

PO Box 1293

Prior to Certificate of Occupancy (For Information):

Albuquerque

1. Engineer's Certification, per the DPM Chapter 22.7: *Engineer's Certification Checklist For Non-Subdivision* is required and needs to include photographs of the replaced orifice plates.

NM 87103

If you have any questions, please contact me at 924-3695 or dpeterson@cabq.gov.

www.cabq.gov

Sincerely,

Dana M. Peterson
Senior Engineer, Planning Dept.
Development Review Services



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 11/2018)

Project Title: _____ **Building Permit #:** _____ **Hydrology File #:** _____

DRB#: _____ **EPC#:** _____ **Work Order#:** _____

Legal Description: _____

City Address: _____

Applicant: _____ **Contact:** _____

Address: _____

Phone#: _____ **Fax#:** _____ **E-mail:** _____

Owner: _____ **Contact:** _____

Address: _____

Phone#: _____ **Fax#:** _____ **E-mail:** _____

TYPE OF SUBMITTAL: _____ PLAT (____# OF LOTS) _____ RESIDENCE _____ DRB SITE _____ ADMIN SITE

IS THIS A RESUBMITTAL?: _____ Yes _____ No

DEPARTMENT: _____ TRAFFIC/ TRANSPORTATION _____ HYDROLOGY/ DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

- _____ ENGINEER/ARCHITECT CERTIFICATION
- _____ PAD CERTIFICATION
- _____ CONCEPTUAL G & D PLAN
- _____ GRADING PLAN
- _____ DRAINAGE MASTER PLAN
- _____ DRAINAGE REPORT
- _____ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
- _____ ELEVATION CERTIFICATE
- _____ CLOMR/LOMR
- _____ TRAFFIC CIRCULATION LAYOUT (TCL)
- _____ TRAFFIC IMPACT STUDY (TIS)
- _____ OTHER (SPECIFY) _____
- _____ PRE-DESIGN MEETING?

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- _____ BUILDING PERMIT APPROVAL
- _____ CERTIFICATE OF OCCUPANCY
- _____ PRELIMINARY PLAT APPROVAL
- _____ SITE PLAN FOR SUB'D APPROVAL
- _____ SITE PLAN FOR BLDG. PERMIT APPROVAL
- _____ FINAL PLAT APPROVAL
- _____ SIA/ RELEASE OF FINANCIAL GUARANTEE
- _____ FOUNDATION PERMIT APPROVAL
- _____ GRADING PERMIT APPROVAL
- _____ SO-19 APPROVAL
- _____ PAVING PERMIT APPROVAL
- _____ GRADING/ PAD CERTIFICATION
- _____ WORK ORDER APPROVAL
- _____ CLOMR/LOMR
- _____ FLOODPLAIN DEVELOPMENT PERMIT
- _____ OTHER (SPECIFY) _____

DATE SUBMITTED: _____ **By:** _____

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____



TREASURY DIVISION DAILY DEPOSIT

Transmittals for:
PROJECTS Only

City of Albuquerque Treasury
J-24 Deposit
Date: 10/10/2019 Office: ANNEX
Station ID Cashier: E43107
Batch: 10752 Trans: 28
Fund: 305 Activity ID7547210
Account: 461615 Project ID
Dept ID: Bus.Unit:
Alloc Amt: \$3,856.00
Trans Amt: \$3,856.00
Check Tendered : \$3,856.00



Payment In-Lieu for Storm Water Quality Volume Requirement

CASH COUNT	AMOUNT	ACCOUNT NUMBER	FUND NUMBER	BUSINESS UNIT	PROJECT ID	ACTIVITY ID	AMOUNT
TOTAL CHECKS	\$ 3856.00	461615	305	PCDMD	24_MS4	7547210	\$ 3856.00
TOTAL AMOUNT						TOTAL DEPOSIT	\$3856.00

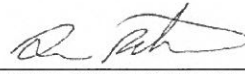
Hydrology#: H19D084 Name: 2440 Louisiana, 22,227sf imp.
Payment In-Lieu For Storm Water Quality
Volume Requirement

Address/Legal Description: 2440 Louisiana NE
TR 5-A-2 BLK C PLAT FOR LOTS 5-A-1, 5-A-2, 6-A-1-C-1-A AND 6-A-1-C-1-B BLOCK "C",
LOUISIANA SUBDIVISION

DEPARTMENT NAME: Planning Department/Development Review Services, Hydrology

PREPARED BY Dana Peterson PHONE 924-3695

BUSINESS DATE 10/4/19

DUAL VERIFICATION OF DEPOSIT 
EMPLOYEE SIGNATURE

AND BY _____
EMPLOYEE SIGNATURE

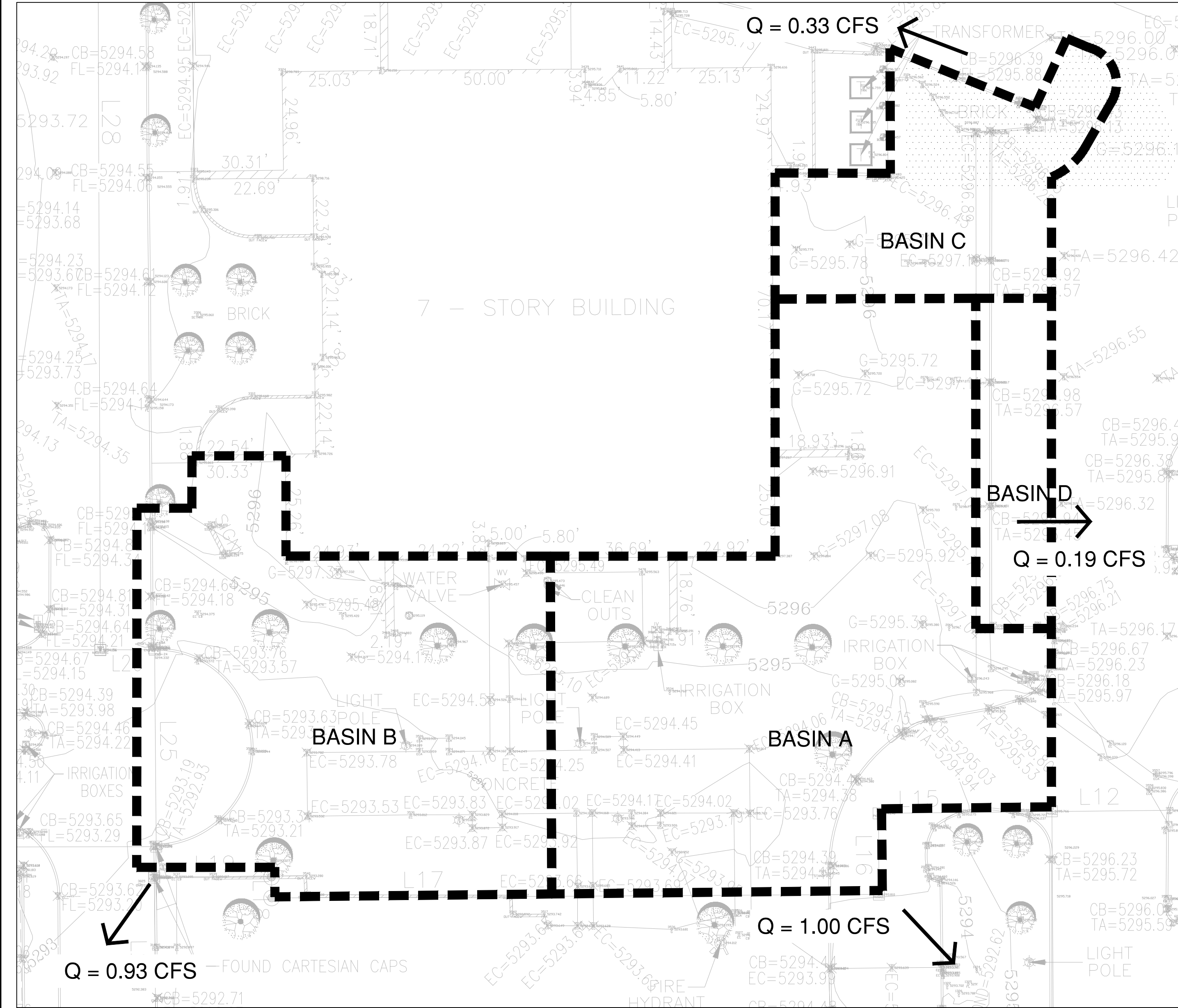
REMITTER: _____

AMOUNT: _____

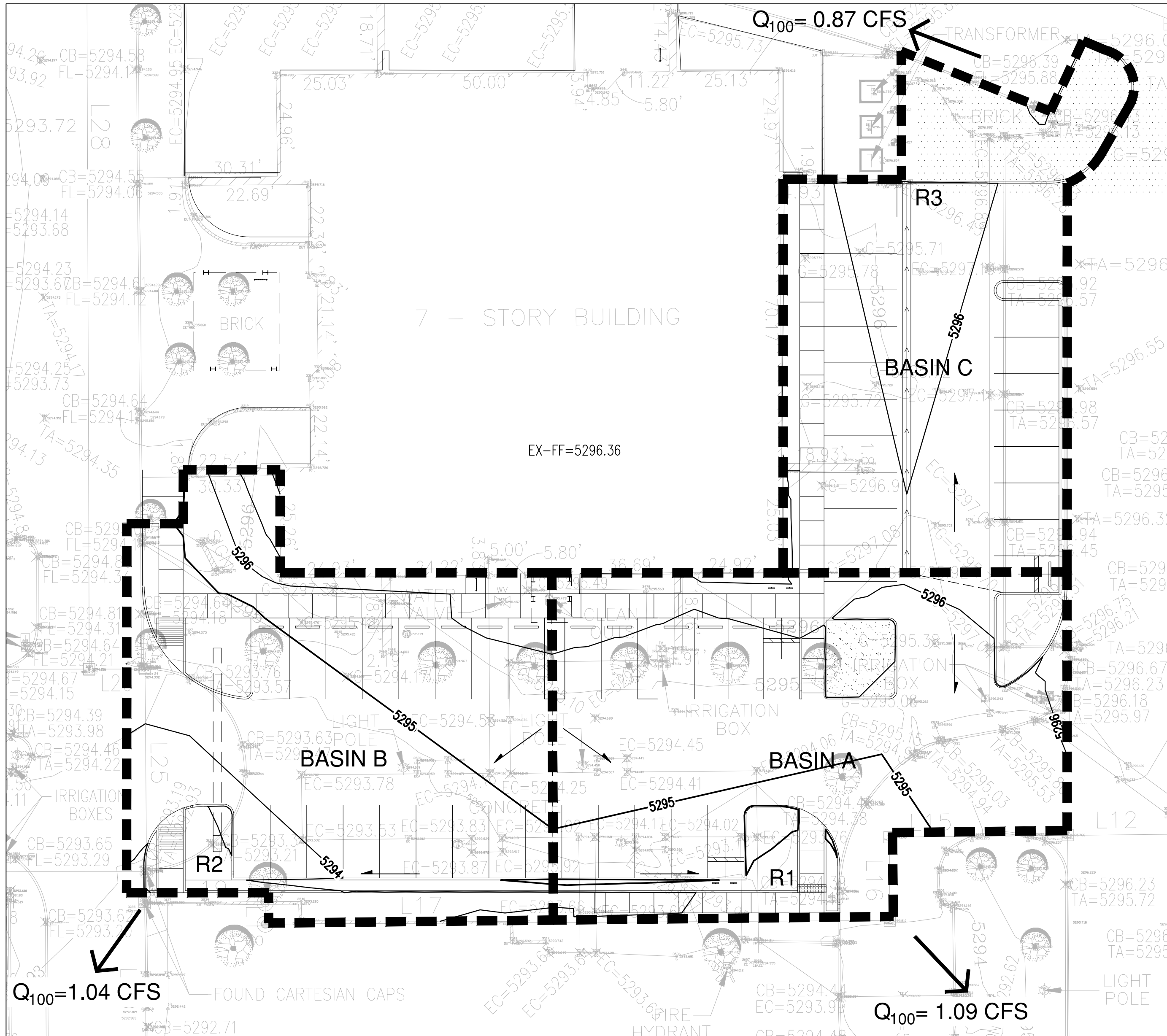
BANK: _____

CHECK #: _____ DATE ON CHECK: _____

The Payment-in-Lieu can be paid at the Plaza del Sol Treasury, 600 2nd St. NW. **Bring three copies of this invoice to the Treasury** and provide a copy of the receipt to Hydrology, Suite 201, 600 2nd St. NW, or e-mail with the Hydrology submittal to PLNDRS@cabq.gov.



EXISTING CONDITIONS



PROPOSED CONDITIONS

DRAINAGE NARRATIVE

EXISTING CONDITIONS:

THE SITE IS LOCATED NEAR THE INTERSECTION OF LOUISIANA BLVD AND CUTLER AVE. EAST OF CORONADO MALL, SOUTH OF THE LEWIS UNIVERSITY BUILDING. THE SITE CONSISTS OF EXISTING PARKING LOTS AND COVERED PARKING AREAS BUILT AROUND AN EXISTING 7 STORY BUILDING. THE CURRENT CONDITIONS OF THE SITE ARE FAIRLY FLAT. THE DISTURBED AREA IS APPROXIMATELY 0.64 ACRES, AND CONSISTS OF AN EXISTING PARKING AREA AND COURTYARD.

REVIEW OF THE CITY HYDROLOGY FILES (COA HYDROLOGY FILE #H19D004) AND THE EXISTING TOPOGRAPHIC SURVEY SHOWS THERE ARE SEVERAL EXISTING INLETS LOCATED AROUND THE SITE WHICH DISCHARGE INTO THE PUBLIC RIGHT OF WAY. ALL THE DRAINAGE FROM THE SITE AND SURROUNDING AREA APPEARS TO ENTER THE EXISTING 60" STORM DRAIN LOCATED WITHIN LOUISIANA BLVD VIA A DIRECT STORM DRAIN CONNECTION (NORTHWEST AND SOUTHWEST OF SITE) OR VIA SURFACE FLOW WHICH IS PICKED UP IN CURB INLETS AT THE INTERSECTION OF CUTLER AND LOUISIANA (SOUTHEAST OF SITE). THIS IS CONSISTENT WITH THE APPROVED DRAINAGE REPORT FOR AMERICAN FINANCIAL CENTER (HYDROLOGY FILE H19-D1) DATED JANUARY 17, 1984. ACCORDING TO THIS REPORT, THE ALLOWABLE DISCHARGE FROM THE SITE IS DETAINED ELEVATION PLATES ON ALL OUTFLOW PIPES. EXISTING SURFACE PARKING PONDS HELP TO MITIGATE THESE FLOWS AS NECESSARY.

A MORE RECENT GRADING AND DRAINAGE PLAN PREPARED BY LARRY READ AND APPROVED ON JANUARY 11, 2002 FOR PAVING PERMIT AND SITE PLAN FOR BUILDING PERMIT, CONSTRUCTED ADDITIONAL ONSITE PARKING. ACCORDING TO THIS PLAN, THE SITE UTILIZES THE PARKING LOTS AS DETENTION PONDS DURING LARGER STORM EVENTS. THESE PONDS AND OTHER ONSITE DRAINAGE IMPROVEMENTS WERE VERIFIED BY THE TOPOGRAPHIC SURVEY.

PER FEMA MAP PANEL #35001C0352H, THE SITE IS NOT LOCATED WITHIN A KNOWN FLOOD ZONE.

PROPOSED CONDITIONS:

A NEW DRIVE AISLE AND ASSOCIATED PARKING IS PROPOSED SOUTH OF THE LEWIS UNIVERSITY BUILDING. THIS DRIVE AISLE WILL CONNECT THE EXISTING PARKING LOT ON THE EAST TO THE EXISTING PARKING LOT TO THE WEST. HISTORIC OUTFALL LOCATIONS WILL BE MAINTAINED WITH THIS DEVELOPMENT AND ADDITIONAL RUNOFF WILL BE NEGLIGIBLE.

THE SOUTHEASTERN PORTION OF THE SITE (BASIN A) WILL CONTINUE TO

DISCHARGE TO THE SOUTHEAST. AN EXISTING POND IS LOCATED TO THE EAST OF THE UNDERGROUND PARKING AREA SOUTH OF THE SITE. PER THE 24'S UPTOWN - LOUISIANA CONDO PROJECT DRAINAGE REPORT (HYDRO FILE H19D001) THIS POND IS SIZED FOR 122% OF THE REQUIRED 100 YR. 6 HR STORM EVENT. THE REQUIRED VOLUME IS 1,642 CF, BUT 2,007 CF IS PROVIDED, A 365 CF DIFFERENCE. THE ADDITIONAL RUNOFF VOLUME FROM BASIN A DUE TO THIS DEVELOPMENT IS 325 CF, LESS THAN THE 365 CF DIFFERENCE. THE ADDITIONAL RUNOFF VOLUME FROM BASIN A IS MITIGATED ENTIRELY BY THE ADDITIONAL VOLUME PROVIDED PREVIOUSLY. SEE EXHIBIT A FOR MORE INFORMATION. THE TOTAL DISCHARGE RATE IS 1.09 CFS.

THE WESTERN PORTION OF THE SITE (BASIN B) WILL CONTINUE TO DISCHARGE TO THE PARKING LOT SOUTHWEST OF THE SITE. THE PARKING LOT LOCATED WEST OF THE 24'S CONDOS ACTS AS A DETENTION POND. THIS POND UTILIZES ORIFICE PLATES TO RESTRICT RUNOFF FLOW RATES. PER THE SHOPS @ THE 24'S GRADING & DRAINAGE PLAN (HYDRO FILE H19D001) THIS POND HAS APPROXIMATELY 0.1829 AC-FT OF STORAGE (~7967 CF). THE MAXIMUM STORAGE IS 0.0336 AC-FT (~1463 CF). THE DIFFERENCE BETWEEN THE EXISTING RUNOFF VOLUME AND PROPOSED RUNOFF VOLUME DUE TO THE DEVELOPMENT IS 257 CF. THIS VOLUME FALLS WITHIN THE REMAINING STORAGE VOLUME IN THIS POND. THIS POND HAS A MAXIMUM WATER SURFACE ELEVATION OF 522.91 FT. THE TOP OF POND IS 5223.50 FT. THE ADDITIONAL VOLUME WILL NEGLIGIBLY INCREASE THE MAXIMUM WATER SURFACE ELEVATION OF THIS POND. SEE EXHIBIT B FOR MORE INFORMATION. THE TOTAL DISCHARGE RATE IS 1.04 CFS.

THE EASTERN PORTION OF THE SITE (BASIN C), DISCHARGES TO THE NORTH THEN WEST. THE PARKING LOT LOCATED WEST OF THE 2440 OFFICE BUILDING ACTS AS A DETENTION POND. THIS POND UTILIZES ORIFICE PLATES TO RESTRICT RUNOFF FLOW RATES. THE ORIFICE PLATES WILL BE REPLACED WITH THIS DEVELOPMENT AS THEY HAVE BEEN PREVIOUSLY REMOVED. PER THE AMERICAN FINANCIAL CENTER DRAINAGE PLAN (HYDRO FILE H19D001) THIS PONDING AREA HAS A MAXIMUM WATER SURFACE ELEVATION APPROXIMATELY 15 IN. ABOVE THE TOP OF INLET GRATE, THIS EQUALS APPROXIMATELY 11,700 CF OF STORAGE. AN ADDITIONAL 926 CF IS NOW CONTRIBUTING TO THIS AREA. THE SPREAD OF THE PONDING AREA BASED ON THE SURVEY IS APPROXIMATELY 24,800 SF. THIS ADDITIONAL VOLUME SPREAD OVER THE PARKING LOT IS APPROXIMATED TO ADD .037 FT (.44 IN.) TO THE MAXIMUM WATER SURFACE ELEVATION. THIS AMOUNT IS NEGLIGIBLE. THE EXISTING PONDING AREA MITIGATES THE ADDITIONAL RUNOFF FROM THE DEVELOPMENT. SEE EXHIBIT C FOR MORE INFORMATION. THE TOTAL DISCHARGE RATE IS 0.87 CFS. AN ADDITIONAL 0.55 CFS IS DISCHARGED FROM THE PROPOSED DRIVE

AISE. THE ADJACENT DETENTION PONDS, AS DESCRIBED ABOVE, MITIGATE THE ADDITIONAL RUNOFF FLOW RATE AND VOLUME. THE ENTIRETY OF THE 2440 LOUISIANA PROPERTY DISCHARGES INTO THE 60" EXISTING STORM DRAIN WITHIN LOUISIANA.

MINIMAL WATER QUALITY HARVESTING AREAS ARE WITHIN THE DISTURBED AREA. ANY WATER QUALITY HARVESTING VOLUME WILL BE PAID CASH-IN-LIEU. SEE DRAINAGE TABLE FOR QUANTITY.

CONCLUSION:

THE ADDITIONAL RUNOFF VOLUME IS MITIGATED BY VARIOUS DETENTION PONDS ONSITE AND OFFSITE. THESE PONDS MAKE THE ADDITIONAL RUNOFF FLOW RATE NEGLIGIBLE GIVEN THE CAPACITY OF THE EXISTING PONDS IN THE AREA. THE PROPOSED BASINS DISCHARGE TO THEIR HISTORIC OUTFALL LOCATIONS. THE GRADING AND DRAINAGE PLAN AS PRESENTED IS IN CONFORMANCE WITH CITY HYDROLOGY REQUIREMENTS. WITH THIS SUBMITTAL WE ARE REQUESTING CITY OF ALBUQUERQUE HYDROLOGY PAVING & GRADING PERMIT APPROVAL.

2440 LOUISIANA EXISTING CONDITIONS Basin Data Table This table is based on the DPM Section 22.2, Zone: 3											
Basin ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages				Q(100yr)	Q(100yr)	V(100yr)	V(100yr-6hr)	V(100yr-24hr)
			A	B	C	D	(cfs/ac.)	(CFS)	(inches)	(CF)	(CF)
BASIN A	12887	0.30	35.0%	0.0%	35.0%	30.0%	3.37	1.00	1.39	1493	1654
BASIN B	9582	0.22	0.0%	0.0%	50.0%	50.0%	4.24	0.93	1.83	1457	1657
BASIN C	3596	0.08	0.0%	0.0%	65.0%	35.0%	4.00	0.33	1.66	499	551
BASIN D	1609	0.04	0.0%	0.0%	0.0%	100.0%	5.02	0.19	2.36	316	383
TOTAL	27674	0.64	-	-	-	-	-	2.44	-	3766	4246

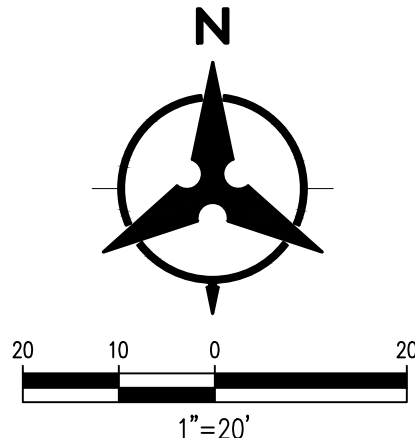
2440 LOUISIANA												
PROPOSED CONDITIONS Basin Data Table												
This table is based on the DPM Section 22.2, Zone: 3												
Basin ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages				Q(100yr) (cfs/ac.)	Q(100yr) (CFS)	V(100yr) (inches)	V _(100yr-6hr) (CF)	V _(100yr-24hr) (CF)	FIRST FLUSH (CF)
BASIN A	9920	0.23	0.0%	0.0%	15.0%	85.0%	4.78	1.09	2.20	1818	2170	183
BASIN B	9582	0.22	0.0%	0.0%	20.0%	80.0%	4.71	1.04	2.15	1714	2033	166
BASIN C	8172	0.19	0.0%	0.0%	25.0%	75.0%	4.63	0.87	2.09	1425	1680	133
TOTAL	27674	0.64	-	-	-	-	-	2.99	-	4957	5883	482

Concrete Run-down							
Run-down #	Basin ID	Run-down Type	Actual Flow (Q100)	Min Weir** Length ft	Weir Opening Width ft	Weir Opening Height ft	Capacity* CFS
R1	A	Rectang	1.09	2	2	0.5	1.87
R2	B	Rectang	1.04	2	2	0.5	1.87
R3	C	Rectang	0.87	1	5	0.5	4.69
Weir Eq: Q=2.65L(h ^{1.5}) - **							

LEGEND

- PROPOSED DRAINAGE BASIN
- PROPOSED DRAINAGE SUB-BASIN
- PROPERTY LINE
- EXISTING CONTOURS
- PROPOSED SPOT ELEVATION
- TS-TOP OF CURB, FL-FLOW LINE
- TS-TOP OF SIDEWALK, TA-TOP OF ASPHALT
- EX-EXISTING, FG-FINISHED GRADE
- TG-TOP OF GRATE, INV-INVERT
- WATER BLOCK / RIDGE OR HIGH POINT
- PROPOSED INDEX CONTOURS
- PROPOSED INTER CONTOURS
- PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN INLET

Bohannon & Huston
www.bhinc.com 800.877.5332



CALL BEFORE YOU DIG
FOR UTILITY LOCATES
DIAL 811 OR
1-800-321-ALERT

ENGINEER'S SEAL

AS-BUILT INFORMATION		BENCH MARKS		REMARKS		REVISIONS		DESIGN		DATE	
CONTRACTOR	DATE	CONTRACTOR	DATE	NO.	DATE	NO.	DATE	NO.	DATE	DESIGNED BY	DATE
WORK STAGED BY	DATE	DESIGNED BY	DATE	NO.	DATE	NO.	DATE	NO.	DATE	CHECKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE	DESIGNED BY	DATE	NO.	DATE	NO.	DATE	NO.	DATE	DESIGNED BY	DATE
FIELD VERIFICATION BY	DATE	DESIGNED BY	DATE	NO.	DATE	NO.	DATE	NO.	DATE	CHECKED BY	DATE
DRAWINGS CORRECTED BY	DATE	DESIGNED BY	DATE	NO.	DATE	NO.	DATE	NO.	DATE	DRAWN BY	DATE

2440 LOUISIANA
DRAINAGE MANAGEMENT PLAN

BHI PROJECT NO. DWG NO. SHEET C-001 OF

I. PROJECT DESCRIPTION

The 24's @ Uptown Project involves the renovation of an existing building, converting the upper level to six condominium units as well as the construction of an underground parking structure. The existing surface parking area will be modified to allow for a drive thru ATM machine and a ramp to the underground parking area. Refer to the google map for existing conditions view. The construction area will cover approximately .72 acres. The existing building-project site is roughly bounded by Louisiana Blvd. to the west, Prospect Place to the north and east and Cutler Avenue to the south.

II. DESIGN CRITERIA AND PREVIOUS DEVELOPMENT

The design criteria used in this report was in accordance with Section 22.2 Hydrology of the Development Process Manual, Volume 2, Design Criteria, January 1993 edition. The 100-year 6-hour storm event was analyzed to determine street capacities and sizing of the storm drain outfall using $P(1\text{-hr})=2.05"$, $P(6\text{-hr})=2.42"$ and $P(24\text{-hr})=2.85"$. The onsite Land Treatment values used were determined by measuring the total impervious area.

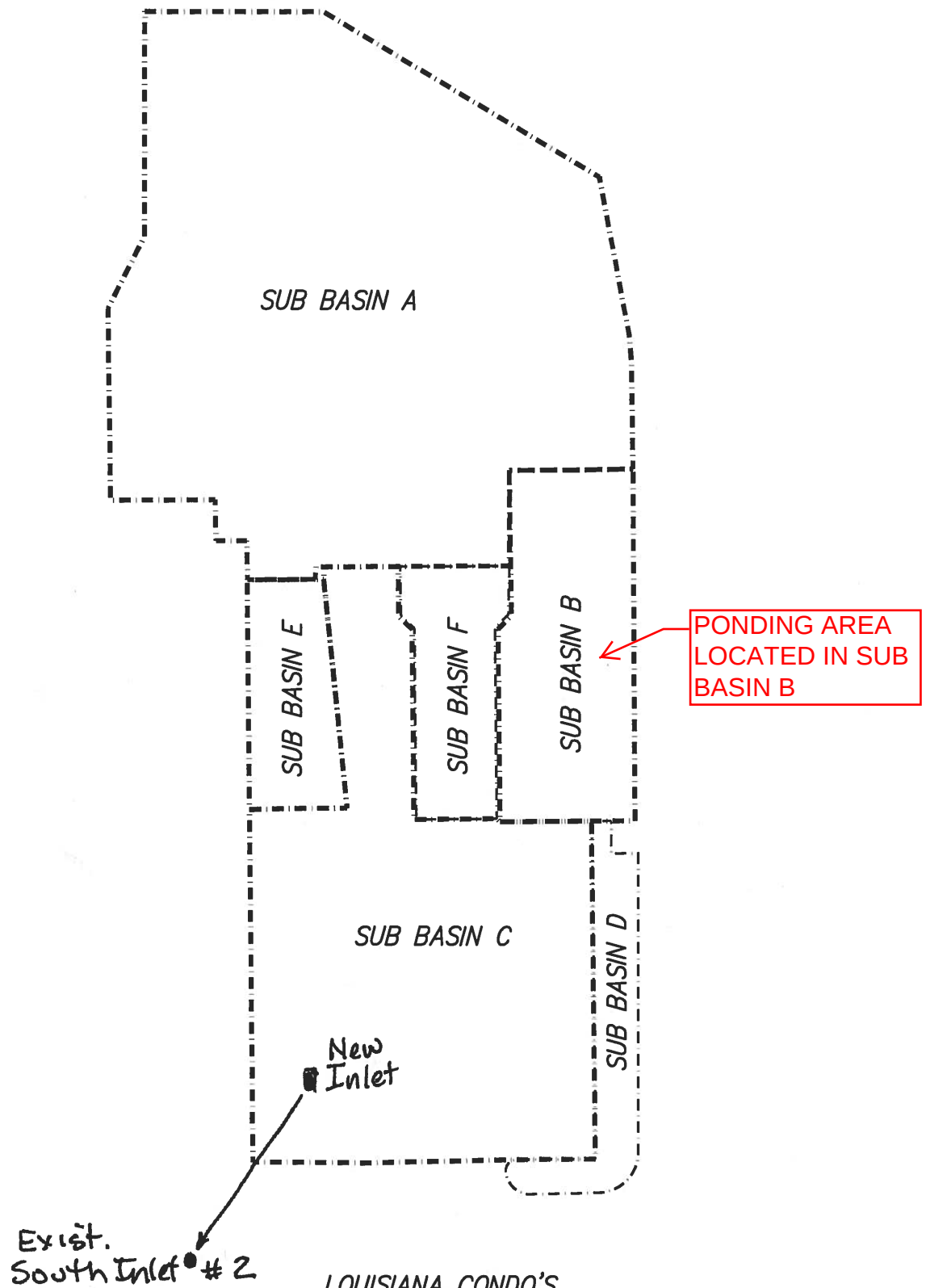
III. EXISTING DRAINAGE CONDITIONS

Under existing drainage conditions, the existing east parking lot runoff flows to an existing sump inlet near the entrance door on the east side of the building. This inlet drains to another connecting inlet on the south side of the building which connects to a series of inlets and underground storm pipe to the west. Runoff from the parking area and the landscape area generally flows south and west.

IV. DEVELOPED DRAINAGE CONDITIONS

Under developed conditions, the modified parking area and landscape area will continue to flow in a general southerly direction and end up in the same existing inlet located on the south side of the building. Referring to the "Sub Basin Boundary Exhibit", Sub Basin A will flow into a depressed landscape area in Sub Basin B. This ponding area will have capacity to contain 122% of the 100 year 6 hour storm event. Sub Basins E and D will have depressed landscaped areas that will contain the 100 year runoff. Sub Basin D will spill into the parking area (Sub Basin C) and Sub Basin E will spill into the driveway through an opening in the curb as shown on the plan that will also end up in Sub Basin C. All runoff in Sub Basin C will be intercepted by a new inlet at the southwest corner of the parking lot. This inlet will connect to the existing underground storm pipe that ultimately connects to the existing inlet #2.

The only runoff in the underground parking garage will be the small amount that falls on the ramp or is on the cars when they drive down after a rain or snowfall. This runoff will be directed to the SW corner of the parking garage and then pumped to the surface through a 3" diameter pipe to a point near the existing southern inlet.



LOUISIANA CONDO'S
SUBBASIN BOUNDARY EXHIBIT

TABLE 1

The 24's @ Uptown
Summary of Hydrology Parameters

Sub Basin ID	Area sq.ft	Area acre	Area sq.mi.	Land Treatment Values				100 YEAR-6 HOUR		
				A	B	C	D	Discharge cfs	Volume Acre-Feet	Volume Cu.Ft.
A	11,395.0	0.26	0.000409	0.0	55.0	0.0	45.0	1.01	0.033	1,446
B	2,259.0	0.05	0.000081	0.0	80.0	20.0	0.0	0.17	0.005	196
C	6,761.0	0.16	0.000243	0.0	0.0	0.0	100.0	0.78	0.028	1,224
D	901.0	0.02	0.000032	0.0	100.0	0.0	0.0	0.07	0.002	74
E	983.0	0.02	0.000035	0.0	50.0	0.0	50.0	0.10	0.003	131
								100 YEAR-24 HOUR		
F	1,087.0	0.02	0.000039	0.0	0.0	0.0	100.0	0.13	0.005	235

			DESIGN	100 YEAR
LANDSCAPE AREAS		DEPTH	VOLUME	VOLUME
DEPRESSED AREA	B	24"	2007 CF	1642
DEPRESSED AREA	D	6"	270.5 CF	74
DEPRESSED AREA	E	6"	150.7 CF	131

PRECIP VALUES

P(60)	2.05"
P(6)	2.42"
P(24)	2.85"

REVISED 8-30-16 DLH

The Shops @ The 24s Supplemental Information

I. Project Description:

The Shops @ the 24s involves the construction of a new building in an existing parking lot. The building footprint is over an existing storm drain. The storm drain is to be reconstructed to the north and west of the building. The proposed impervious area to the existing is essentially the same. The area of construction is approximately 20085 SF (0.46 AC).

II. Design Criteria:

The design criteria used in this report is in accordance with Section 22.2, Hydrology of the Development Process Manual, Volume 2. The 100 year 6-hour storm event is analyzed with AHYMO to determine discharge into an existing storm drain system.

III. Drainage conditions:

Existing site runoff is not changed significantly from existing conditions to proposed. Discharge is reduced by the new inlets equipped with 6" orifice plates and detention of the 100 yr storm. The roof Basin 101 drains into parking lot Basin 100 to the new inlets for the combined flow to be limited to less than undeveloped discharge congruent with the intent of the original approved construction from the 1970's. The orifice plates are set at elevation 5222.13 and a discharge rating curve was assembled from elevation 5222.35 to 5223.50 with discharge points evaluated as the lesser value from the orifice equation and the weir equation. The discharge is limited for two inlets as the orifice plates are set at the same elevation. This is an approximation. The north inlet chamber will fill to a higher elevation before the south orifice basin discharges at a higher rate than the south orifice before the peak of the 100 yr discharge. The 100 yr storm fills the retention ponds before formation of the detention pond. Due to this reason, rain fall was reduced by the volume of first flush spread onto the total area contributing to the detention pond (area of basin 100 and 101).

PARKING LOT
POND
RESTRICTED BY
ORIFICE PLATES

IV. First flush

The new grades will capture first flush runoff from the new construction area and existing offsite paved area. First flush ponds 1+2 will capture from the east side of basin 100, first flush pond 3 will capture from a downspout from the building roof, and first flush pond 4 will capture from the south downspout from the roof. The required first flush volume generated by the new construction area is calculated at 362 cf (0.26" first flush depth). Collecting first flush from offsite areas is not required, however, because the offsite basins are available from existing elevations, offsite basin discharge is collected and credited towards the construction area required first flush volume. The first flush ponds #1 and #2 collect flow thru curb openings at upstream sides and release volume in excess of first flush thru downstream curb openings that are lower in elevation. First flush ponds #3 and #4 collect from sidewalk culvert inverts and release excess volume to the parking lot through curb openings.

BULKING FACTOR APPLIED TO HYDROGRAPH. FACTOR = 1.06000 AT PEAK FLOW.

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 101.00

RUNOFF VOLUME = 2.15739 INCHES = 0.0230 ACRE-FeET
PEAK DISCHARGE RATE = 0.59 CFS AT 1.520 HOURS BASIN AREA = 0.0002 SQ. MI.

ADD HYD ID=3 HYD=201 I=1 I=2
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 201.00

RUNOFF VOLUME = 2.07479 INCHES = 0.1416 ACRE-FeET
PEAK DISCHARGE RATE = 3.63 CFS AT 1.530 HOURS BASIN AREA = 0.0013 SQ. MI.

*SPARKING LOT POND DESIGN WITH 100-YR DEVELOPED FLOWS TO DISCHARGE ORFICES AT EL
ROUTE RESERVOIR ID=5 HYD NO=POND.OT INFLOW=3 CODE=24

OUTFLOW (CFS)	STORAGE (AF)	ELEV (FT)
0.84	0.0001	5222.35
1.23	0.0019	5222.55
1.55	0.0159	5222.80
1.76	0.0470	5223.00
2.00	0.1101	5223.25
2.21	0.1829	5223.5

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	5221.92	-0.004	0.00
0.24	0.00	5222.35	0.000	0.84
0.48	0.00	5222.35	0.000	0.84
0.72	0.04	5222.35	0.000	0.84
0.96	0.22	5222.35	0.000	0.84
1.20	0.51	5222.35	0.000	0.84
1.44	2.36	5222.58	0.004	1.27
1.68	2.01	5222.91	0.033	1.67
1.92	0.74	5222.86	0.025	1.61
2.16	0.34	5222.61	0.005	1.30
2.40	0.20	5222.35	0.000	0.84
2.64	0.07	5222.35	0.000	0.84

TOTAL STORAGE
PROVIDED

36.96	0.00	5222.35	0.000	0.84
37.20	0.00	5222.35	0.000	0.84
37.44	0.00	5222.35	0.000	0.84
37.68	0.00	5222.35	0.000	0.84
37.92	0.00	5222.35	0.000	0.84
38.16	0.00	5222.35	0.000	0.84
38.40	0.00	5222.35	0.000	0.84
38.64	0.00	5222.35	0.000	0.84
38.88	0.00	5222.35	0.000	0.84
39.12	0.00	5222.35	0.000	0.84
39.36	0.00	5222.35	0.000	0.84
39.60	0.00	5222.35	0.000	0.84
39.84	0.00	5222.35	0.000	0.84

PEAK DISCHARGE = 1.669 CFS - PEAK OCCURS AT HOUR 1.72
 MAXIMUM WATER SURFACE ELEVATION = 5222.914
 MAXIMUM STORAGE = 0.0336 AC-FT INCREMENTAL TIME= 0.010000HRS

PRINT HYD

ID=5 CODE 1

HYDROGRAPH FROM AREA POND.OT

MWSEL &
STORAGE

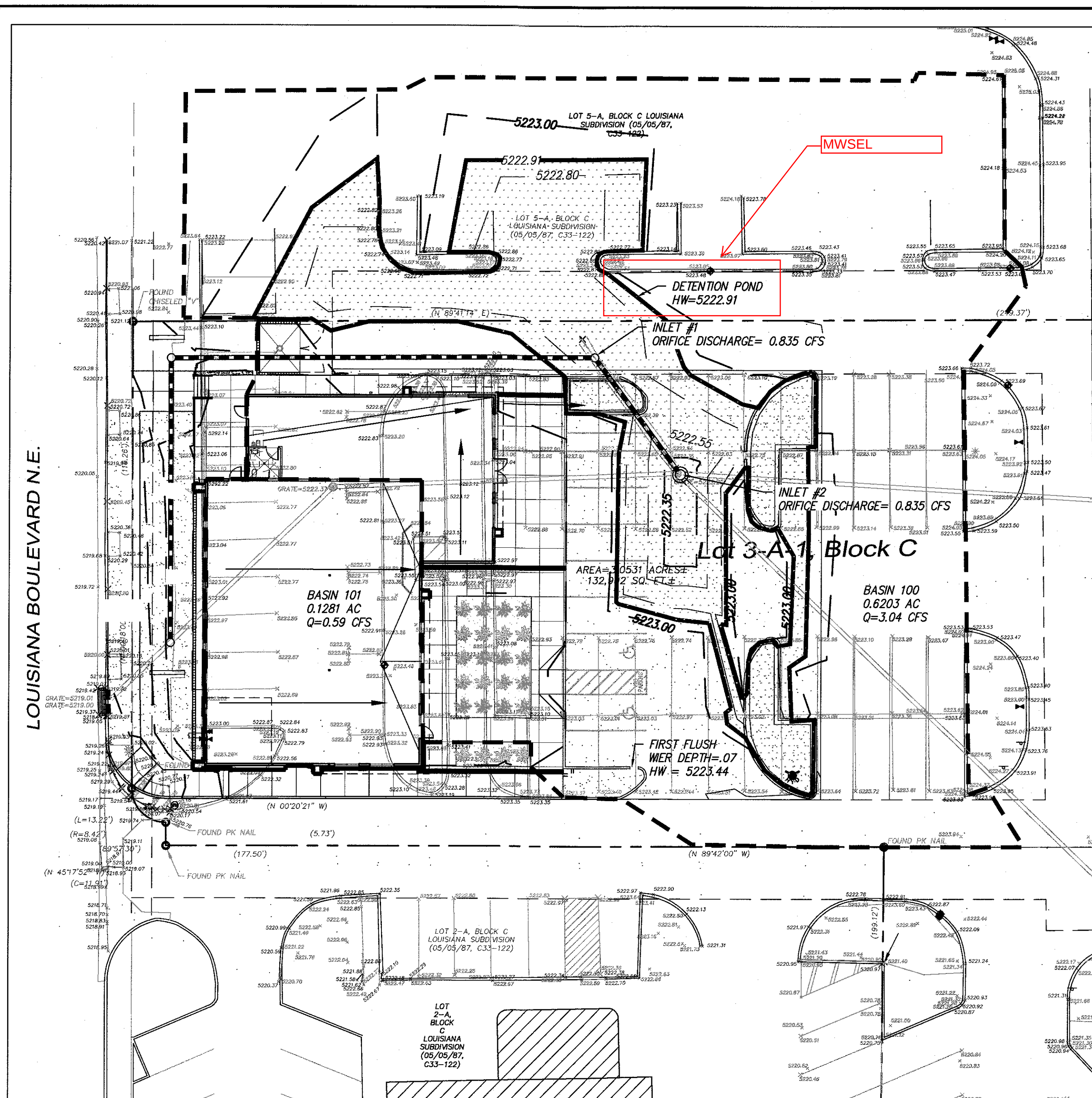
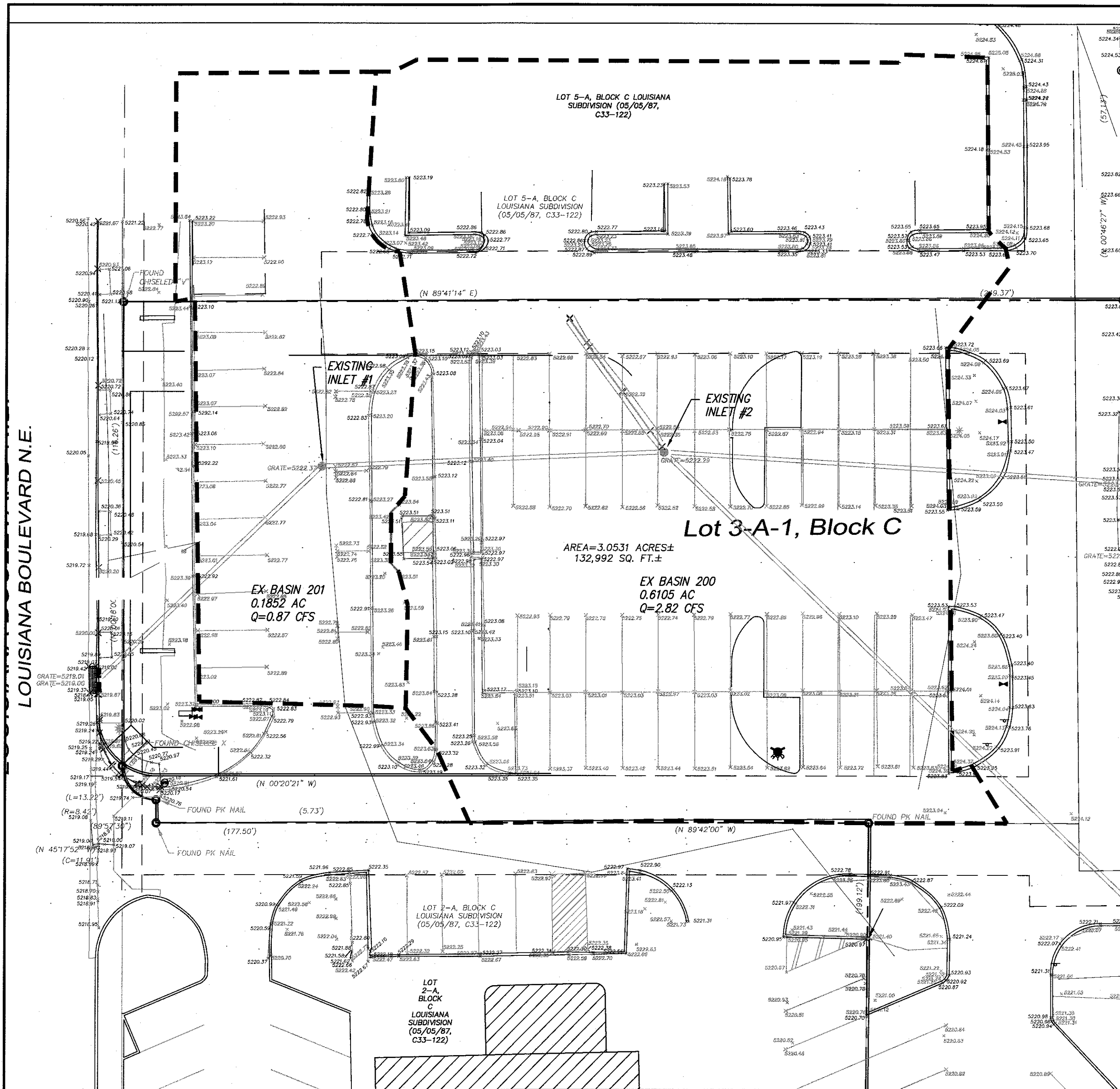
RUNOFF VOLUME = 41.35085 INCHES = 2.8229 ACRE-FEET
 PEAK DISCHARGE RATE = 1.67 CFS AT 1.720 HOURS BASIN AREA = 0.0013 SQ. MI.

RAINFALL TYPE=1 0.0 1.84 2.38 2.77 DT=0.01

6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1

DT = 0.010000 HOURS END TIME = 6.000000 HOURS

0.0000	0.0007	0.0014	0.0022	0.0029	0.0036	0.0043
0.0050	0.0057	0.0065	0.0073	0.0081	0.0089	0.0097
0.0105	0.0113	0.0121	0.0129	0.0138	0.0147	0.0155
0.0164	0.0173	0.0182	0.0191	0.0200	0.0210	0.0220
0.0230	0.0240	0.0250	0.0260	0.0270	0.0280	0.0298
0.0321	0.0343	0.0366	0.0388	0.0410	0.0433	0.0455
0.0479	0.0504	0.0529	0.0553	0.0578	0.0603	0.0628
0.0653	0.0678	0.0705	0.0733	0.0760	0.0787	0.0814
0.0841	0.0868	0.0895	0.0923	0.0951	0.0980	0.1008
0.1036	0.1065	0.1093	0.1121	0.1150	0.1180	0.1209
0.1239	0.1269	0.1298	0.1328	0.1358	0.1387	0.1420
0.1453	0.1486	0.1519	0.1552	0.1585	0.1617	0.1650
0.1686	0.1723	0.1760	0.1797	0.1834	0.1871	0.1908
0.1945	0.1987	0.2040	0.2093	0.2147	0.2200	0.2253
0.2306	0.2359	0.2413	0.2484	0.2555	0.2627	0.2698
0.2769	0.2841	0.2912	0.2983	0.3073	0.3173	0.3273
0.3373	0.3473	0.3572	0.3672	0.3772	0.3888	0.4038
0.4188	0.4338	0.4488	0.4637	0.4787	0.4937	0.5087
0.5346	0.5604	0.5863	0.6121	0.6380	0.6639	0.6897



EXISTING BASINS TO EXISTING INLETS #1 AND #2
Q = 3.69 CFS (EXISTING BASINS)

PROPOSED BASINS TO NEW INLETS #1 AND #2
Q = 3.63 CFS (PROPOSED BASINS)
Q = 1.67 CFS (DETENTION POND)
PROPOSED BASINS TO NEW INLETS #1 AND #2
Q = 1.87 CFS (PROPOSED BASINS, ASSUMED UNDEVELOPED CONDITIONS 50%A, 50%B)

HYDROLOGY NOTES

OVERALL HYDROLOGY PLAN:

THE PROJECT IS THE RECONSTRUCTION AND REGRADING OF A 0.46 AC PORTION WITHIN AN EXISTING 3.05 AC PROPERTY. IN REGARDS TO HYDROLOGY, THE PROPOSED CONSTRUCTION COMPARED TO THE EXISTING IS NOT SIGNIFICANT. AS THE IMPERVIOUS AREA IS NOT CHANGED SIGNIFICANTLY, THE AREA OF CONSTRUCTION WOULD SHED DISCHARGE SIMILAR TO EXISTING CONDITIONS, WITHOUT CONSIDERATION OF THE ROUTING EFFECTS FROM FIRST FLUSH CAPTURE OR A DETENTION POND. THE PROPOSED INLETS ARE EQUIPPED WITH ORIFICE PLATES TO REDUCE THE STORM WATER DISCHARGE RATE FROM EXISTING SIMILAR TO THE INTENT OF THE ORIGINAL CONSTRUCTION.

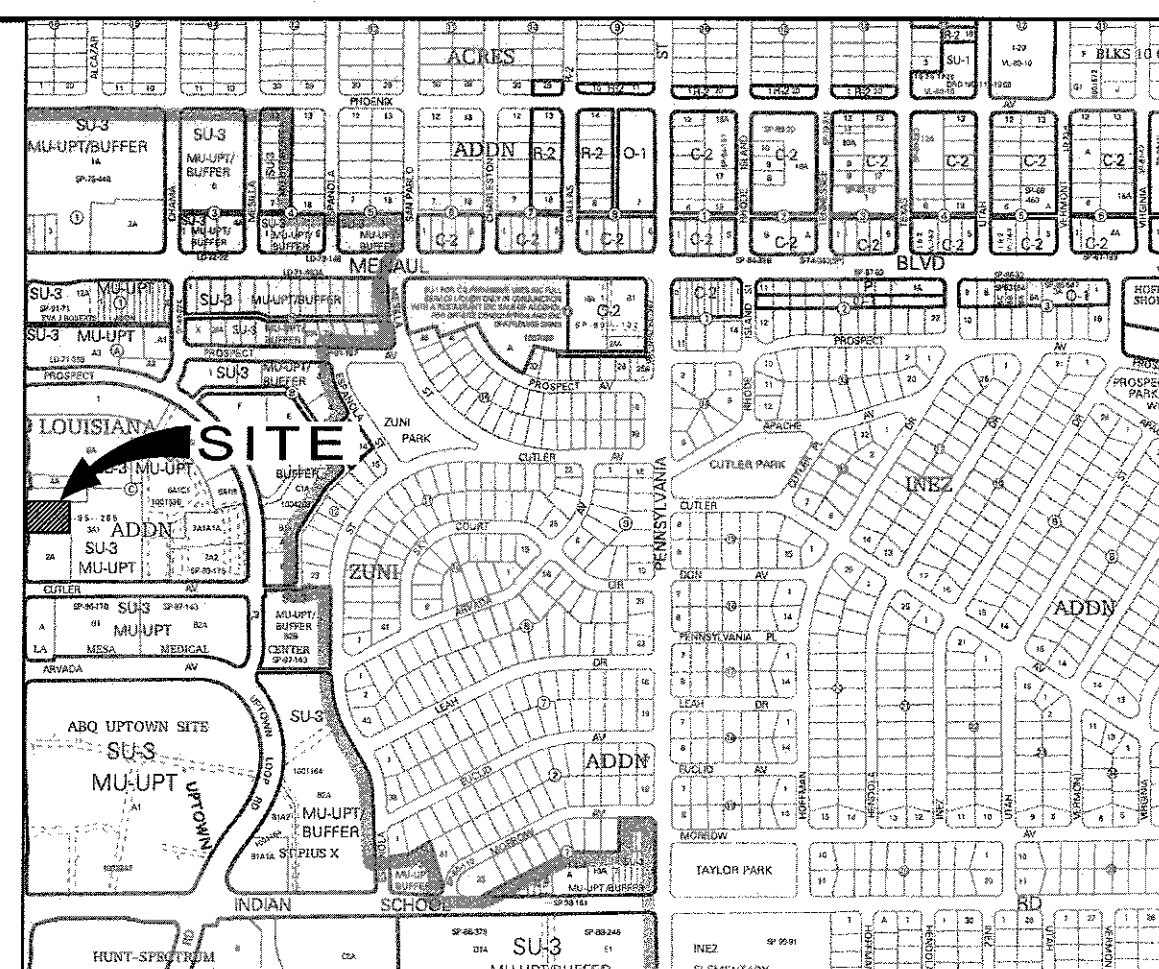
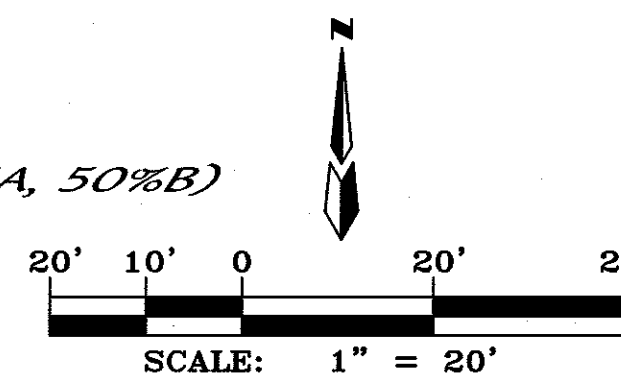
THE EXISTING 3.05 AC PROPERTY WAS APPROVED IN ABOUT 1978 FOR ONE BUILDING WITH RUNOFF DETAINED ON THE ROOF, AND ASPHALT PARKING LOTS ON THE WEST, SOUTH, AND EAST SIDES OF THE BUILDING ALSO USED TO DETAIN RUNOFF. RECENTLY THE PARKING LOT ON THE EAST SIDE OF THE EXISTING BUILDING WAS CONVERTED INTO AN UNDERGROUND PARKING LOT AND THE DETENTION THERE WAS REPLACED BY RETENTION. TWO EXISTING PARKING LOT PONDS ON THE SOUTH SIDE OF THE EXISTING BUILDING DRAIN TO SUMP INLETS WITH 6" DIAMETER ORIFICE PLATES LOCATED 2" BELOW THE SURFACE OF THE GRATES. THE EXISTING PARKING LOT PONDS ON THE WEST SIDE OF THE BUILDING HAVE FALLEN INTO A STATE OF DISREPAIR; THE FAR WEST INLET ORIFICE PLATE HAS RUSTED THROUGH AND THE NEXT INLET TO THE EAST HAS BEEN MODIFIED AND THE ORIFICE PLATE IS MISSING. THE EXISTING DRAINAGE SYSTEM WAS CONSTRUCTED IN PHASES FOR WHICH DIFFERENT DRAINAGE CRITERIA WAS IN PLACE BETWEEN THE FIRST TWO PHASES AND LAST TWO PHASES.

THE NEW CONSTRUCTION REPLACES THE WEST INLET AND THE NEXT INLET TO THE EAST WITH NEW INLETS EQUIPPED WITH NEW ORIFICE PLATES. ADDITIONALLY, THE NEW CONSTRUCTION REMOVES THE MODIFICATIONS TO THE NEXT INLET TO THE EAST. THE TWO RECONSTRUCTED INLETS WILL BE SIMILAR TO THE EXISTING INLETS SOUTH OF THE EXISTING BUILDING AND WILL RESTORE THE ORIGINAL INTENT OF THE DESIGN. THE NEW INLETS WITH ORIFICE PLATES MITIGATE DISCHARGE FROM THE CONTRIBUTING BASINS TO LESS THAN AN ASSUMED UNDEVELOPED Q WITH 50% A, 50% B LAND TREATMENTS. THIS MAY BE CONSERVATIVE AS THE ORIGINAL C VALUE (RATIONAL METHOD) FOR THE LATTER PHASES OF UNDEVELOPED LAND OF THE EXISTING STORM DRAIN WAS ESTIMATED TO BE 0.50. ALSO, THE CONSTRUCTION MITIGATES THE DISCHARGE TO LESS THAN THE EXISTING INLETS IN THERE EXISTING CONFIGURATION.

THE NORTH AND SOUTH DOWNSPOUTS FROM THE BUILDING WILL FLOW TO FIRST FLUSH PONDS #3 AND #4, AND THE MIDDLE DOWNSPOUT DISCHARGES TO THE PARKING LOT DETENTION POND. THE FIRST FLUSH PONDS #1, #2, #3, AND #4 FILL AND THEN DRAIN INTO THE PARKING LOT DETENTION POND CREATED BY NEW SUMP INLETS EQUIPPED WITH 6" ORIFICE PLATES TO LIMIT FLOW FROM 3.63 CFS TO 1.67 CFS FROM BASINS 101 AND 100 COMBINED. THIS WILL DETAIN APPROXIMATELY 7" OF STORM WATER PONDING OVER INLET #2 (100 YR) IN THE NEWLY CONSTRUCTED PARKING LOT EAST OF THE NEW BUILDING. THIS DETENTION IS REQUIRED TO RESTORE LIMITED STORM WATER DISCHARGE FROM THE AFFECTED PORTION OF THE EXISTING STORM DRAIN AS ORIGINALLY APPROVED.

THE RESULTS ARE SUMMARIZED IN THE ATTACHED SUPPLEMENTAL INFORMATION:

THE STORM DRAIN SYSTEM IS EXISTING AND WILL BE RECONSTRUCTED FROM INLET #2 AROUND THE BUILDING ON THE NORTH AND WEST SIDES. IT WILL JUNCTION BACK INTO THE EXISTING STORM DRAIN AT A LOCATION WEST OF THE PROPOSED BUILDING AND BE CONVEYED TO THE LOUISIANA STORM DRAIN. THE JUNCTION LOCATION AND THE EXISTING STORM DRAIN SYSTEM ARE TO BE VERIFIED ONCE UNCOVERED DURING CONSTRUCTION.



VICINITY MAP

LEGAL DESCRIPTION

LOT NUMBERED THREE-A-ONE (3-A-1) IN BLOCK LETTERED "C" OF LOUISIANA SUBDIVISION, CITY OF ALBUQUERQUE, NEW MEXICO, AS THE SAME IS SHOWN AND DESIGNATED ON THE SECOND CORRECTION PLAT OF LOT 3-A-1, BLOCK "C" OF SAID SUBDIVISION, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO, ON JULY 1, 1996, IN PLAT BOOK 96C, PAGE 290.

SHOPS @ THE 24s

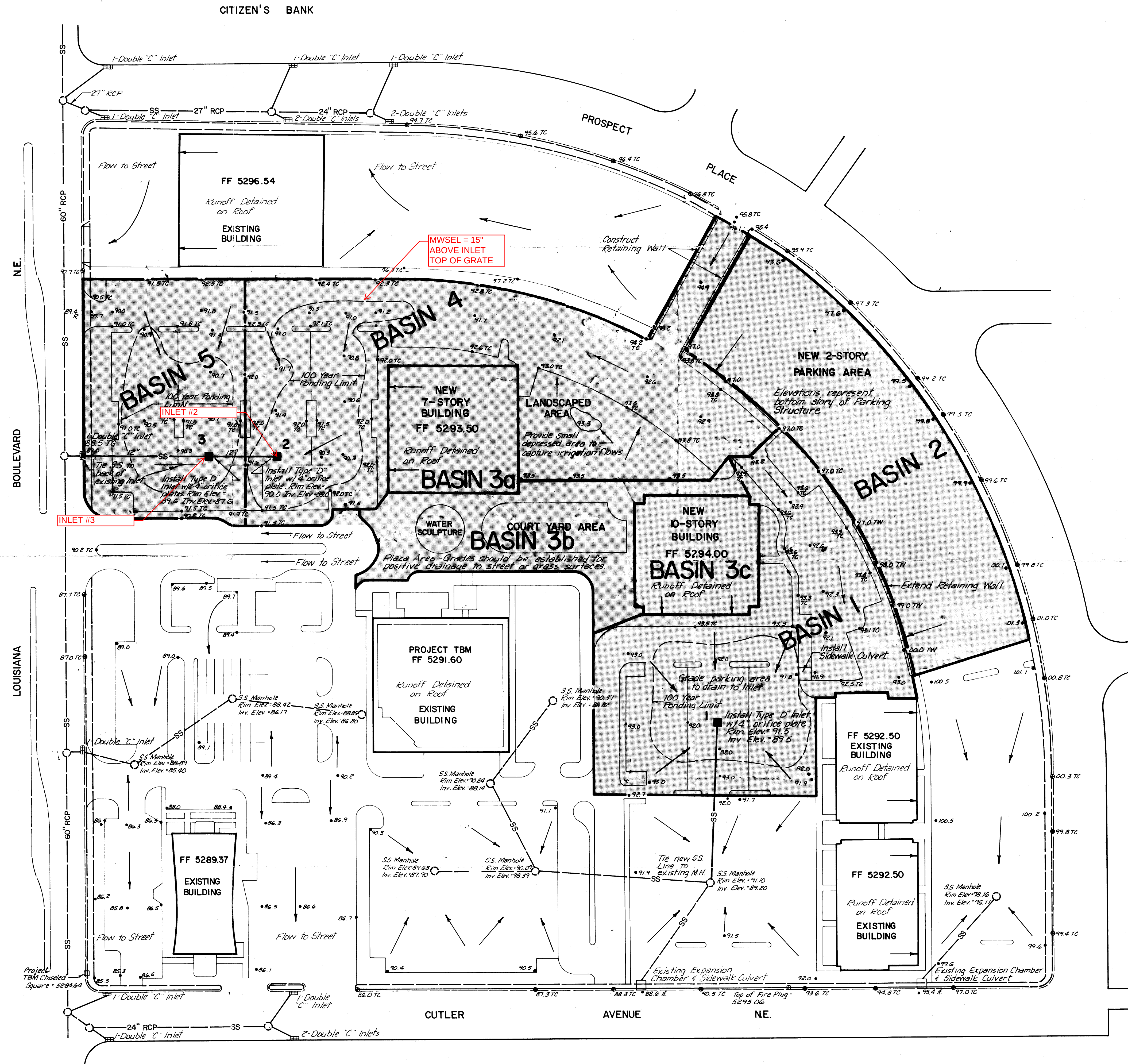
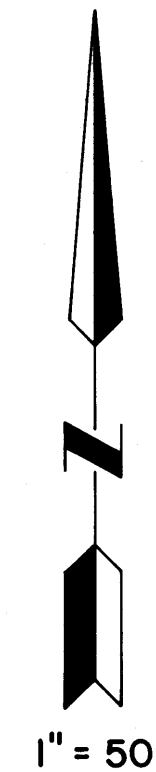
SUB BASIN BOUNDARY EXHIBIT



MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS

P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505)828-2200, FAX (505)797-9539

Designed: CP/DH	Drawn: DER, CP	Checked: DMG	Sheet C2 of 4
Scale: AS SHOWN	Date: 9/7/2018	Job: A18018	



LEGEND

- 92.5 SPOT ELEVATION
- SS — STORM DRAIN LINE
- STORM INLET
- ▬▬▬ RETAINING WALL
- ▬▬▬ NEW DEVELOPMENT
- ▬▬▬ BASIN BOUNDARY

**PLATE 4
PROPOSED CONDITIONS**

**AMERICAN FINANCIAL CENTER
DRAINAGE PLAN**

Job No. 32140 Sheet 1 of 2
 Drawn By P.E. Date JAN. 84
 Checked By B.G.B. Scale 1" = 50'

Carroll M. M. M. M.
 1-17-84

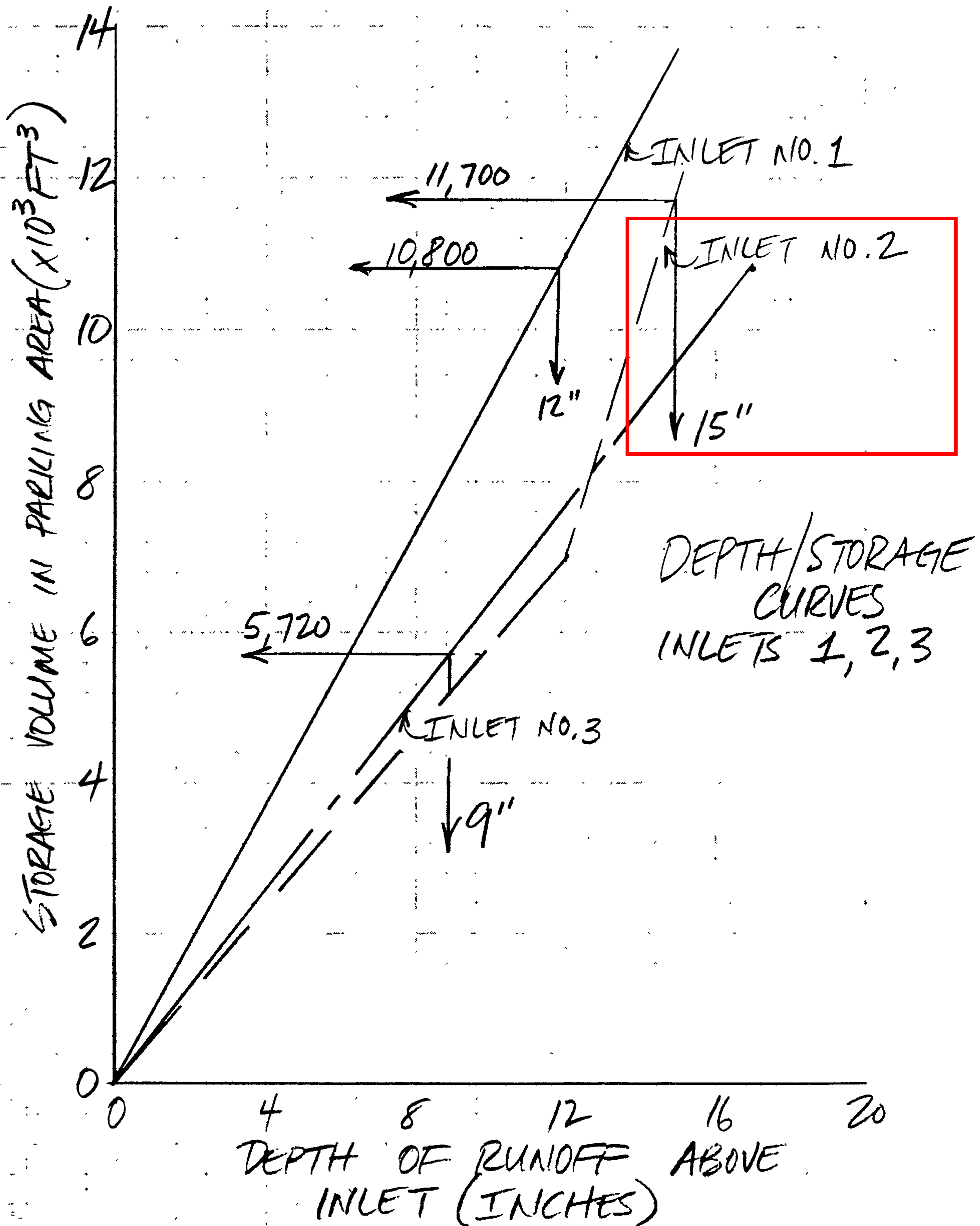


A with double gate

FLOWS TO INLETS		
INLET NO.	CONTRIBUTING BASINS	TOTAL Q
1	1 - 6.7 cfs 3B - 0 cfs 1/2 of 2 - 0.2 cfs	6.9 cfs
2	3A - 0.4 cfs 4 - 7.7 cfs 1/2 of 2 - 0.2 cfs	8.3 cfs
3	5 - 4.2 cfs	4.2 cfs



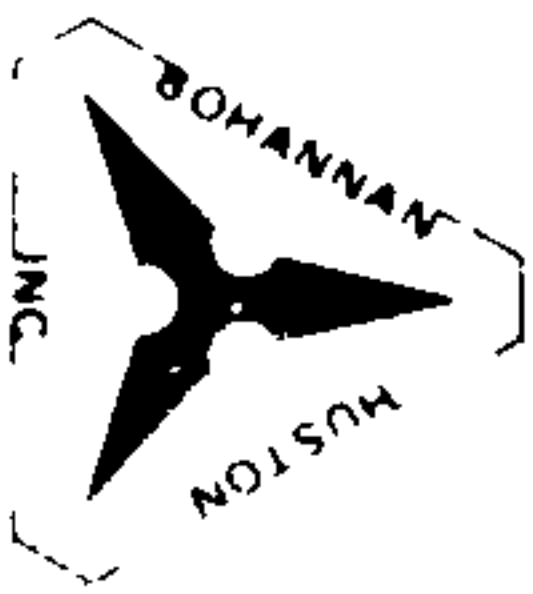
PROJECT NAME AMERICAN FINANCIAL CENTER SHEET _____ OF _____
 PROJECT NO. 32140 BY BB DATE 1-84
 SUBJECT FLOWS TO INLETS CH'D _____ DATE _____



PROJECT NAME AMERICAN FINANCIAL CENTER SHEET _____ OF _____

PROJECT NO. 32140 BY BB DATE 1-84

SUBJECT DEPTH/STORAGE CURVES CH'D _____ DATE _____



PROJECT NAME AMERICAN FINANCIAL CENTER
PROJECT NO. 32140 BY BB OF
SUBJECT RUNOFF HYDROGRAPHS CH'D DATE 1-84

