

# CITY OF ALBUQUERQUE



May 7, 2010

Yolanda Padilla Moyer, P.E.  
Bohannon Huston, Inc.  
7500 Jefferson St NE CY 1  
Albuquerque, NM 87109

**Re: McMahon Market Place Drainage Management Plan, Overall Grading Plan  
and Grading Plan**

**Engineer's Stamp dated 5-7-10 (A11/D011)**

Dear Ms. Padilla Moyer,

Based upon the information provided in your submittal received 5-7-10, the above referenced plans are approved for Building Permit. Please attach a copy of the Overall Grading Plan and Grading Plan to the construction sets prior to sign-off by Hydrology.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge.

This project requires a Topsoil Disturbance Permit since it is disturbing  $\frac{3}{4}$  of an acre or more.

If you have any questions, you can contact me at 924-3695.

Sincerely,

A handwritten signature in cursive script that reads "Curtis A. Cherne".

Curtis A. Cherne, P.E.  
Senior Engineer, Planning Dept.  
Development and Building Services

Copy: file  
Kathy Verhage, DMD

2.61 culvert

2ft x 0.67ft\_report.txt

MANNING'S N = 0.013 SLOPE = 0.007

| POINT | DIST  | ELEV    | POINT  | DIST  | ELEV  | POINT        | DIST   | ELEV |
|-------|-------|---------|--------|-------|-------|--------------|--------|------|
| 1.0   | 0.0   | 0.7     | 3.0    | 2.0   | 0.0   |              |        |      |
| 2.0   | 0.0   | 0.0     | 4.0    | 2.0   | 0.7   |              |        |      |
| WSEL  | DEPTH | FLOW    | WETTED | FLOW  | FLOW  | TOPWID       | TOTAL  |      |
| FT.   | INC   | AREA    | PER    | RATE  | VEL   | PLUS         | ENERGY |      |
|       |       | SQ. FT. | (FT)   | (CFS) | (FPS) | OBSTRUCTIONS | (FT)   |      |
| 0.050 | 0.050 | 0.100   | 2.100  | 0.126 | 1.256 | 2.000        | 0.075  |      |
| 0.100 | 0.100 | 0.200   | 2.200  | 0.387 | 1.934 | 2.000        | 0.158  |      |
| 0.150 | 0.150 | 0.300   | 2.300  | 0.738 | 2.460 | 2.000        | 0.244  |      |
| 0.200 | 0.200 | 0.400   | 2.400  | 1.159 | 2.896 | 2.000        | 0.330  |      |
| 0.250 | 0.250 | 0.500   | 2.500  | 1.635 | 3.271 | 2.000        | 0.416  |      |
| 0.300 | 0.300 | 0.600   | 2.600  | 2.159 | 3.598 | 2.000        | 0.501  |      |
| 0.350 | 0.350 | 0.700   | 2.700  | 2.722 | 3.888 | 2.000        | 0.585  |      |
| 0.400 | 0.400 | 0.800   | 2.800  | 3.319 | 4.149 | 2.000        | 0.668  |      |
| 0.450 | 0.450 | 0.900   | 2.900  | 3.945 | 4.384 | 2.000        | 0.749  |      |
| 0.500 | 0.500 | 1.000   | 3.000  | 4.598 | 4.598 | 2.000        | 0.829  |      |
| 0.550 | 0.550 | 1.100   | 3.100  | 5.273 | 4.793 | 2.000        | 0.907  |      |
| 0.600 | 0.600 | 1.200   | 3.200  | 5.968 | 4.973 | 2.000        | 0.985  |      |
| 0.650 | 0.650 | 1.300   | 3.300  | 6.681 | 5.139 | 2.000        | 1.061  |      |

Int. →  
F.D. →

Interim

fully developed

$$E1 = Q_{100} = 1.67$$

$$H1 = Q_{100} = 1.68$$

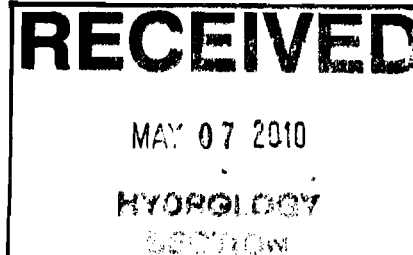
$$Q_{T_{100}} = 3.35 \text{ cfs}$$

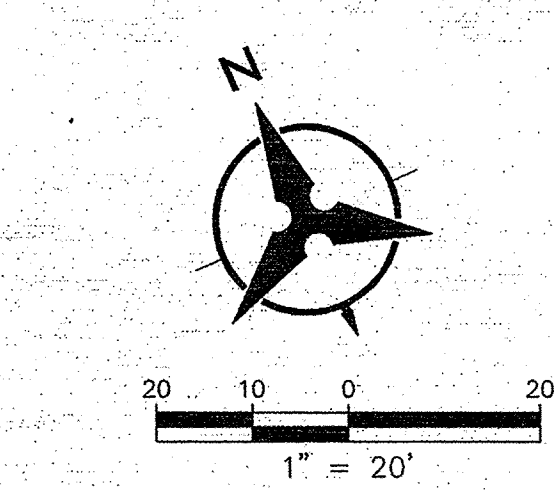
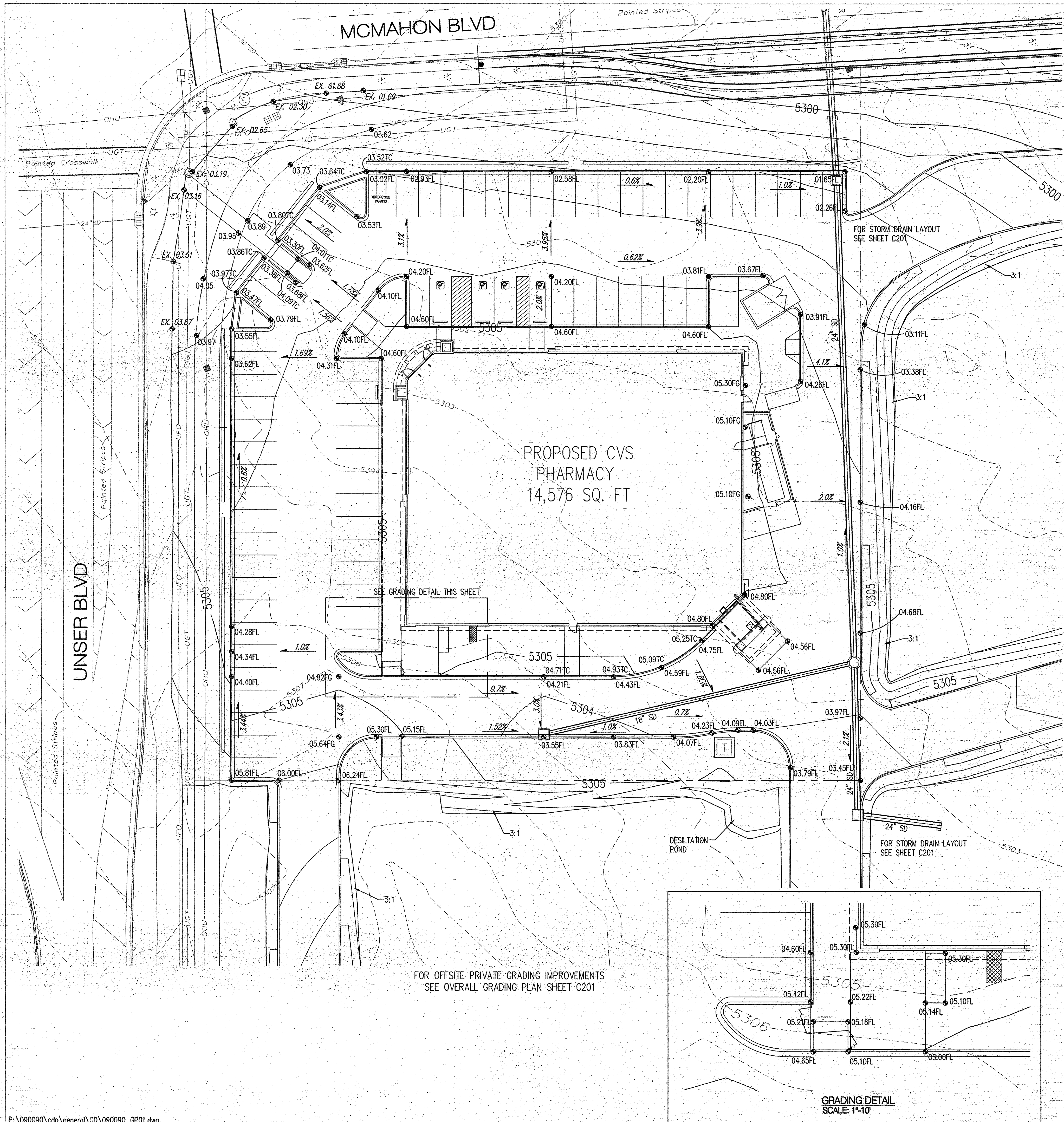
$$= 2.91$$

$$= 1.68$$

$$= 4.59 \text{ cfs}$$

4.59 cfs





- LEGEND**
- PROPERTY LINE
  - 5860 EXISTING CONTOURS
  - 5860.15 EXISTING GROUND SPOT ELEVATION
  - EXISTING ELECTRICAL POLE
  - AA62.10 PROPOSED SPOT ELEVATION  
TC=TOP OF CURB, FL=FLOW LINE  
EX=EXISTING, TG=TOP OF GRADE
  - PROPOSED DIRECTION OF FLOW
  - WATER BLOCK
  - PROPOSED RETAINING WALL
  - PROPOSED INDEX CONTOURS
  - PROPOSED INTER CONTOURS
  - PROPOSED CURB & CUTTER
  - EASEMENT
  - EXISTING TREE
  - SD PROPOSED STORM DRAIN LINE
  - PROPOSED STORM DRAIN MANHOLE
  - PROPOSED STORM DRAIN INLET
  - EXISTING STORM DRAIN MANHOLE

**BENCHMARK**  
ALBUQUERQUE CONTROL STATION MONUMENT "9-A11"  
NEW MEXICO STATE PLANE COORDINATES  
CENTRAL ZONE (NAD 83)  
NORTH = 1,533,206.142  
EAST = 1,506,571.019  
ELEVATION = 5,301.647 (NAVD 1988)  
DELTA ALPHA = -001°30'20"  
GROUND TO GRID FACTOR = 0.999670857

- GRADING NOTES**
- EXCEPT AS PROVIDED HEREIN, GRADING SHALL BE PERFORMED AT THE ELEVATIONS AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS PLAN.
  - THE COST FOR REQUIRED CONSTRUCTION DUST AND EROSION CONTROL MEASURES SHALL BE INCIDENTAL TO THE PROJECT COST.
  - ALL WORK RELATIVE TO FOUNDATION CONSTRUCTION, SITE PREPARATION, AND PAVEMENT INSTALLATION, AS SHOWN ON THIS PLAN, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "GEOTECHNICAL INVESTIGATION," AS PROVIDED BY THE ARCHITECT OR OWNER. ALL OTHER WORK SHALL, UNLESS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT, (FIRST PRIORITY) SPECIFICATIONS, AND/OR THE CITY OF ALBUQUERQUE (COA) STANDARD SPECIFICATIONS FOR PUBLIC WORKS (SECOND PRIORITY).
  - EARTH SLOPES SHALL NOT EXCEED 3 HORIZONTAL TO 1 VERTICAL UNLESS SHOWN OTHERWISE.
  - IT IS THE INTENT OF THESE PLANS THAT THIS CONTRACTOR SHALL NOT PERFORM ANY WORK OUTSIDE OF THE PROPERTY BOUNDARIES EXCEPT AS REQUIRED BY THIS PLAN.
  - THE CONTRACTOR IS TO ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO ADJACENT PROPERTY OR PUBLIC RIGHT-OF-WAY. THIS SHOULD BE ACHIEVED BY CONSTRUCTING TEMPORARY BEAMS OR SILT FENCE AT THE PROPERTY LINES AND NETTING THE SOIL TO PROTECT IT FROM WIND EROSION.
  - A DISPOSAL SITE FOR ANY & ALL EXCESS EXCAVATION MATERIAL, AND UNSUITABLE MATERIAL AND/OR A BORROW SITE CONTAINING ACCEPTABLE FILL MATERIAL SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REGULATIONS AND APPROVED BY THE OBSERVER. ALL COSTS INCURRED IN OBTAINING A DISPOSAL OR BORROW SITE AND HAUL TO OR FROM SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.
  - PAVING AND ROADWAY GRADES SHALL BE +/- 0.1' FROM PLAN ELEVATIONS. PAD ELEVATION SHALL BE +/- 0.05' FROM BUILDING PLAN ELEVATION.
  - ALL PROPOSED CONTOURS REFLECT TOP OF PAVEMENT ELEVATIONS IN THE PARKING AREA AND MUST BE ADJUSTED FOR MEDIANS AND ISLANDS.
  - VERIFY ALL ELEVATIONS SHOWN ON PLAN FROM BASIS OF ELEVATION CONTROL STATION PRIOR TO BEGINNING CONSTRUCTION.

- GENERAL NOTES**
- ALL WORK DETAILED ON THESE PLANS AND PERFORMED UNDER THIS CONTRACT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND THE PROJECT GEOTECHNICAL REPORT, WHERE APPLICABLE, CITY OF ALBUQUERQUE STANDARDS SHALL APPLY.
  - THE CONTRACTOR SHALL ABIDE BY ALL LOCAL, STATE, AND FEDERAL LAWS, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS, INCLUDING EPA REQUIREMENTS WITH RESPECT TO STORM WATER DISCHARGE.
  - PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL POTENTIAL OBSTRUCTIONS INCLUDING ALL UNDERGROUND UTILITIES. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION OBSERVER OR ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
  - TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT LINE LOCATING SERVICE FOR LOCATION OF EXISTING UTILITIES.
  - ALL ELECTRICAL, TELEPHONE, CABLE TV, GAS AND OTHER UTILITY LINES, CABLES, AND APPURTENANCES ENCOUNTERED DURING CONSTRUCTION THAT REQUIRE RELOCATION, SHALL BE COORDINATED WITH THAT UTILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL NECESSARY UTILITY ADJUSTMENTS. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR DELAYS OR INCONVENIENCES CAUSED BY UTILITY COMPANY WORK CREWS. THE CONTRACTOR MAY BE REQUIRED TO RESCHEDULE THEIR ACTIVITIES TO ALLOW UTILITY CREWS TO PERFORM THEIR REQUIRED WORK.
  - THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITY LINES WITHIN THE CONSTRUCTION AREA. ANY DAMAGE TO EXISTING FACILITIES CAUSED BY CONSTRUCTION ACTIVITY SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE AND APPROVED BY THE CONSTRUCTION OBSERVER.
  - CONSTRUCTION ACTIVITY SHALL BE LIMITED TO THE PROPERTY AND/OR PROJECT LIMITS. ANY DAMAGE TO ADJACENT PROPERTIES RESULTING FROM THE CONSTRUCTION PROCESS SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
  - OVERNIGHT PARKING OF CONSTRUCTION EQUIPMENT SHALL NOT OBSTRUCT DRIVEWAYS OR DESIGNATED TRAFFIC LANES. THE CONTRACTOR SHALL NOT STORE ANY EQUIPMENT OR MATERIAL WITHIN THE PUBLIC RIGHT-OF-WAY.
  - THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS FOR THE PROJECT PRIOR TO COMMENCING CONSTRUCTION (I.E., BARRICADING, TOPSOIL DISTURBANCE, EXCAVATION PERMITS, EPA STORM WATER PERMITS, ETC.).
  - ALL PROPERTY CORNERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ALL PROPERTY CORNERS MUST BE RESET BY A REGISTERED LAND SURVEYOR.
  - THE CONTRACTOR SHALL PREPARE A CONSTRUCTION TRAFFIC CONTROL AND SIGNING PLAN AND OBTAIN APPROVAL OF SUCH PLAN FROM THE CITY OF ALBUQUERQUE, TRAFFIC ENGINEERING DEPARTMENT, PRIOR TO BEGINNING ANY CONSTRUCTION WORK ON OR ADJACENT TO EXISTING STREETS.
  - ALL BARRICADES AND CONSTRUCTION SIGNING SHALL CONFORM TO APPLICABLE SECTIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), US DEPARTMENT OF TRANSPORTATION, LATEST EDITION.
  - THE CONTRACTOR SHALL MAINTAIN ALL CONSTRUCTION BARRICADES AND SIGNING AT ALL TIMES. THE CONTRACTOR SHALL VERIFY THE PROPER LOCATION OF ALL BARRICADES AT THE END AND BEGINNING OF EACH DAY.
  - THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO CONFORM WITH EPA REQUIREMENTS, INCLUDING COMPLIANCE WITH NPDES PHASE 2 REQUIREMENTS.

**CIVIL ENGINEER**

**Bohannon & Huston**  
Consulting Engineers  
7500 Jefferson St. NE  
Albuquerque, NM 87109-4008  
TEL: (505) 823-1000  
FAX: (505) 798-7988

CONSULTANT:

SEAL:

*Yolanda Padilla*  
Yolanda Padilla, M.E.  
16035  
Professional Engineer

**CVS/**  
pharmacy

STORE #75803  
SOUTHEAST CORNER OF MCMAHON BLVD  
AND UNSER BLVD  
ALBUQUERQUE, NM

**DEVELOPER:**  
ARMSTRONG DEVELOPMENT  
PROPERTIES, INC.  
1500 N. PRIEST DR., SUITE  
150E  
TEMPE, AZ 85281  
OFFICE: 602.385.4100  
FAX: 602.385.4101

REVISIONS:

DRAWING BY: AR

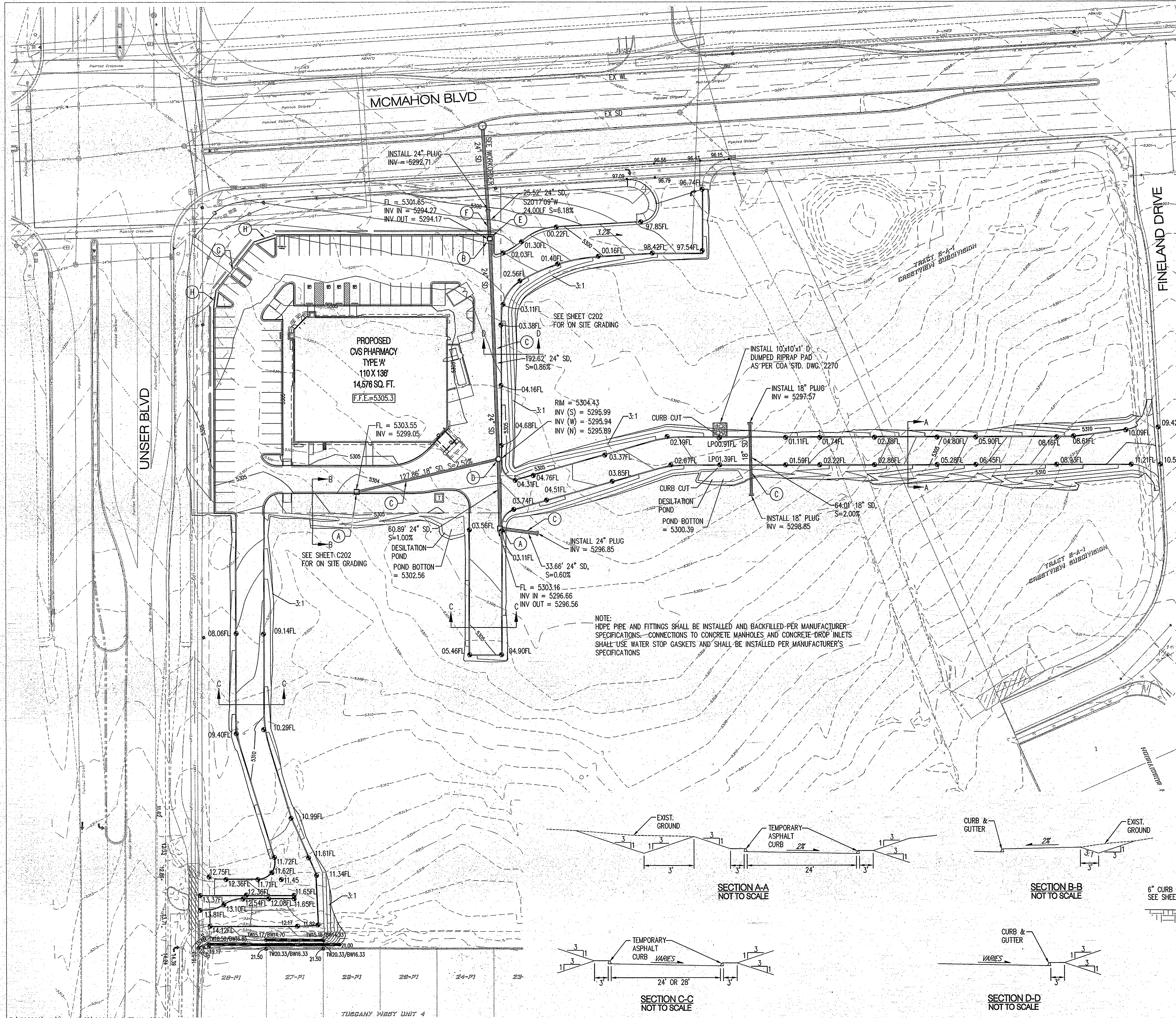
DATE: FEBRUARY, 2010

JOB NUMBER: 090090

TITLE: **GRADING PLAN**

SHEET NUMBER:  
**C202**

COMMENTS:



#### KEYED NOTES

- (A) INSTALL STORM DRAIN INLET TYPE 'A' PER C.O.A. STD. DWG. 2201 OR NYLOPLAST ROAD & HIGHWAY DRAINAGE INLET STRUCTURE WITH 2'x2' STEEL BAR GRATE (551.25 SQ IN. APPROX. DRAIN AREA) H-25 RATED GRATE (OR APPROVED EQUAL)
- (B) INSTALL STORM DRAIN INLET TYPE 'D' PER C.O.A. STD. DWG. 2206 OR NYLOPLAST ROAD & HIGHWAY DRAINAGE INLET STRUCTURE WITH 2'x2' STEEL BAR GRATE (551.25 SQ IN. APPROX. DRAIN AREA) H-25 RATED GRATE (OR APPROVED EQUAL)
- (C) INSTALL HDPE (N-12WT OR APPROVED EQUAL) STORM DRAIN. SIZE PER PLANS
- (D) INSTALL 4' DIAMETER TYPE 'E' MANHOLE PER C.O.A. STD. DWG. 2102
- (E) INSTALL STORM DRAIN INLET TYPE 'D' PER C.O.A. STD. DWG. 2206
- (F) 24" RCP CLASS III
- (G) 24" SIDEWALK CULVERT PER C.O.A. STD. DWG. 2236
- (H) PCC RIBBON CHANNEL PER DETAIL THIS SHEET

#### LEGEND

- PROPERTY LINE
- 5860 --- EXISTING CONTOURS
- X 5860.15 EXISTING GROUND SPOT ELEVATION
- EXISTING ELECTRICAL POLE
- AA62.10 PROPOSED SPOT ELEVATION  
TC=TOP OF CURB, FL=FLOW LINE  
EX=EXISTING, TO=TOP OF GRADE
- PROPOSED DIRECTION OF FLOW
- WATER BLOCK ---
- PROPOSED RETAINING WALL ---
- 5305 --- PROPOSED INDEX CONTOURS
- PROPOSED INTER CONTOURS ---
- PROPOSED CURB & GUTTER ---
- EASEMENT ---
- SD EXISTING TREE
- PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN INLET
- ⊙ EXISTING STORM DRAIN MANHOLE



1" = 40'

#### BENCHMARK

ALBUQUERQUE CONTROL STATION MONUMENT "9-A11"  
NEW MEXICO STATE PLANE COORDINATES  
CENTRAL ZONE (NAD 83)  
NORTH = 1,533,206.142  
EAST = 1,506,571.019  
ELEVATION = 5,301.647 (NAVD 1988)  
DELTA ALPHA = -0015'30.20"  
GROUND TO GRID FACTOR = 0.999670857

SECTION A-A  
NOT TO SCALE

SECTION B-B  
NOT TO SCALE

SECTION C-C  
NOT TO SCALE

SECTION D-D  
NOT TO SCALE

RIBBON CHANNEL DETAIL  
NOT TO SCALE

## CIVIL ENGINEER

**Bohannon & Huston**  
Consulting Engineers & Surveyors, Inc.  
ENGINEERING • SURVEYING • SPATIAL DATA • ADVANCED TECHNOLOGIES

BOHANNAN HUSTON, INC.  
7500 JEFFERSON ST. NE  
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TEL: (505) 823-1000  
FAX: (505) 798-7988

CONSULTANT:

SEAL:



**CVS/**  
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STORE #75803  
SOUTHEAST CORNER OF MCMAHON BLVD  
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1500 N. PRIEST DR., SUITE  
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TEMPE, AZ 85281  
OFFICE: 602.385.4100  
FAX: 602.385.4101

REVISIONS:

**RECEIVED**

MAY 07 2010

HYDROLOGY  
SECTION

DRAWING BY: AR

DATE: FEBRUARY, 2010

JOB NUMBER: 090090

TITLE:

OVERALL GRADING PLAN

SHEET NUMBER:

C201

COMMENTS:

## I. PURPOSE

## II. SITE LOCATION AND CHARACTERISTICS

### III. EXISTING HYDRAULIC AND HYDROLOGIC CONDITIONS

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.

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. Basins 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 Finland 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 drain line 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 at 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 in 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 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 a 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.

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 Drainage 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.

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.

| STORM DRAIN ANALYSIS                                 |           |                 |              |                            |                             |                                |
|------------------------------------------------------|-----------|-----------------|--------------|----------------------------|-----------------------------|--------------------------------|
| PIPE NO.                                             | SIZE/TYPE | LENGTH<br>(ft.) | SLOPE<br>(%) | INTERIM Q<br>(100-YR, cfs) | ULTIMATE Q<br>(100-YR, cfs) | PIPE CAPACITY<br>(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                                                  | 24" SD    | 56.89           | 1.00         | 5.38                       | 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            | 2.00         | 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               |           |                 |              |                            |                             |                                |

SHEET 1 OF 1

ALBUQUERQUE, NEW MEXICO  
MARCH, 2010

| DRAINAGE BASIN CALCULATIONS FOR MCMAHON MARKETPLACE            |           |                  |      |       |        |                 |        |
|----------------------------------------------------------------|-----------|------------------|------|-------|--------|-----------------|--------|
| BASIN I.D.                                                     | AREA (AC) | % LAND TREATMENT |      |       |        | DISCHARGE (CFS) |        |
|                                                                |           | A                | B    | C     | D      | 10 YR*          | 100YR* |
| HYDROLOGICAL VOLUMETRIC & DISCHARGE DATA (EXISTING CALCULATED) |           |                  |      |       |        |                 |        |
| BASIN A                                                        | 1.66      | 98.0%            | 2.0% | 0.0%  | 0.0%   | 0.43            | 2.13   |
| BASIN B                                                        | 0.29      | 100.0%           | 0.0% | 0.0%  | 0.0%   | 0.07            | 0.37   |
| BASIN C                                                        | 0.43      | 95.0%            | 2.5% | 2.5%  | 0.0%   | 0.13            | 0.57   |
| BASIN D                                                        | 2.77      | 86.0%            | 7.0% | 7.0%  | 0.0%   | 1.03            | 3.97   |
| BASIN E                                                        | 1.96      | 86.0%            | 9.0% | 5.0%  | 0.0%   | 0.70            | 2.78   |
| 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            | 12.43  |
| 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 3 of the COA DPM.