CITY OF ALBUQUERQUE

Planning Department
Brennon Williams, Director

Mayor Timothy M. Keller

August 18, 2020

Mark Goodwin, P.E.
Mark Goodwin & Associates
PO Box 90606
Albuquerque, NM 87199

RE: Lava Trails
Grading and Drainage Plan
Engineer's Stamp Date: 08/12/20
Hydrology File: F10D011A

Dear Mr. Goodwin:

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Based upon the information provided in your submittal received 07/20/20, the Grading & Drainage Plan is approved for Grading Permit.

Once the grading of the retention pond is complete, a grading certification will be required. Please provide a Drainage Covenant for the proposed Retention Pond per Chapter 17 of the DPM either prior to or at the same time as the grading certification. Please submit this on the 4th floor of Plaza de Sol. A $25 fee will be required.

As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Doug Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

Sincerely,

Renée C. Brissette

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
Planning Department

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: Lava Trails Building Permit #: _____ Hydrology File #: _____

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

Legal Description: Tract A-1, Lava Shadows

City Address: Western Trail and Petroglyph National Monument

Applicant: Grayland, Inc. Contact: Jack Clifford

Address: PO BOX 35640, Albuquerque, NM 87176

Phone#: 505.850.2251 Fax#: _____ E-mail: jackc3909@gmail.com

Other Contact: Mark Goodwin & Associates, PA Contact: Hiram Crook

Address: PO BOX 90606, Albuquerque, NM 87199

Phone#: 828.2200 Fax#: _____ E-mail: hiram @goodwinengineers.com

TYPE OF DEVELOPMENT: _____ PLAT (# of lots) _____ RESIDENCE _____ DRB SITE X ADMIN SITE

IS THIS A RESUBMITTAL? _____ Yes X No

DEPARTMENT _____ TRANSPORTATION X HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

____ ENGINEER/ARCHITECT CERTIFICATION
____ PAD CERTIFICATION
____ CONCEPTUAL G & D PLAN
X GRADING PLAN
____ DRAINAGE REPORT
____ DRAINAGE MASTER PLAN
____ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
____ ELEVATION CERTIFICATE
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ STREET LIGHT LAYOUT
____ 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
X GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR
____ FLOODPLAIN DEVELOPMENT PERMIT
____ OTHER (SPECIFY) _____

DATE SUBMITTED: July 20, 2020 By: Hiram Crook

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Jul 20 2020

LAVA TRAILS - 2FT RUNDOWN - 4.23 CFS

Rectangular

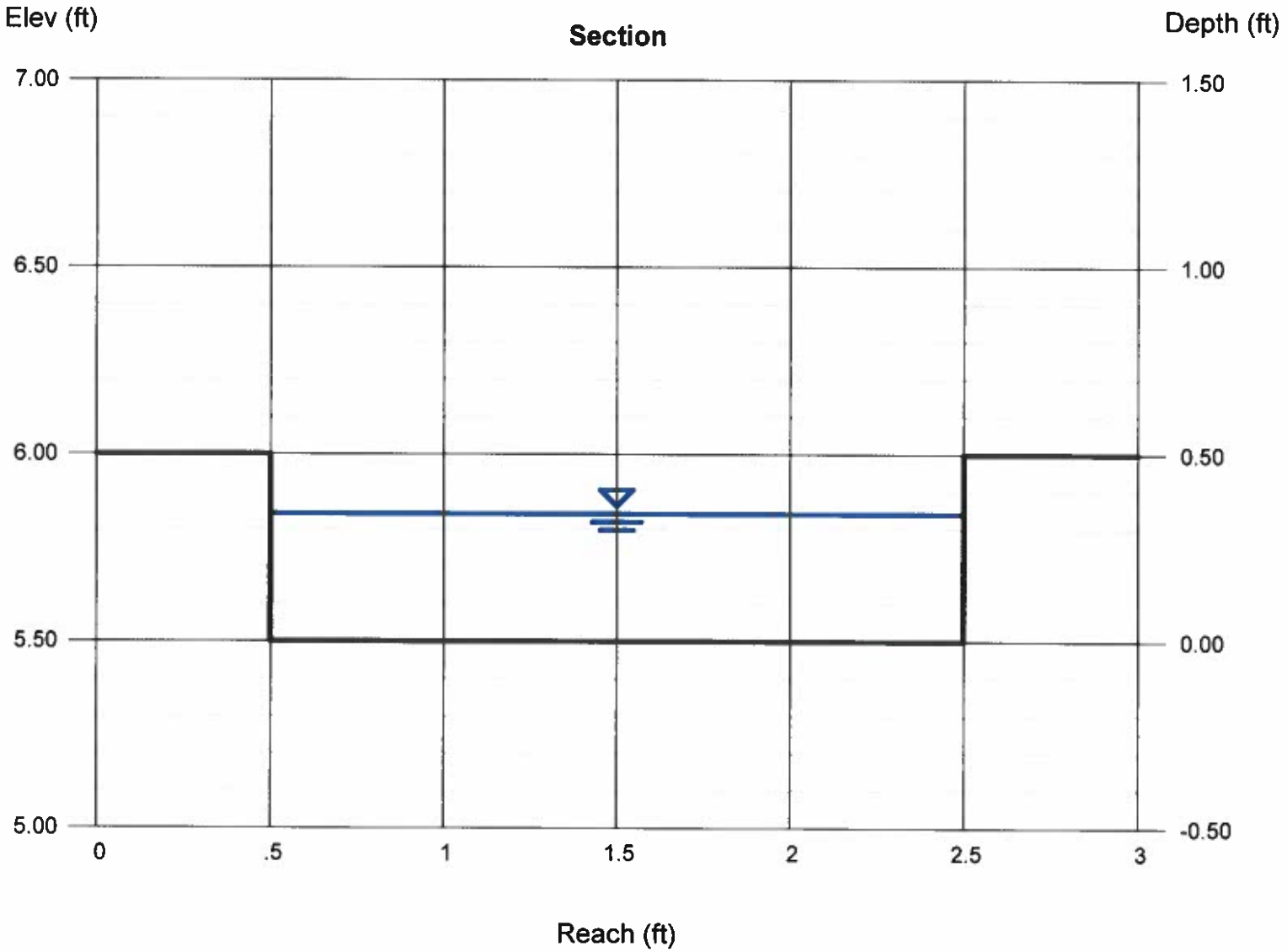
Bottom Width (ft)	= 2.00
Total Depth (ft)	= 0.50
Invert Elev (ft)	= 5.50
Slope (%)	= 2.00
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 4.23

Highlighted

Depth (ft)	= 0.34
Q (cfs)	= 4.230
Area (sqft)	= 0.68
Velocity (ft/s)	= 6.22
Wetted Perim (ft)	= 2.68
Crit Depth, Yc (ft)	= 0.50
Top Width (ft)	= 2.00
EGL (ft)	= 0.94



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  AHYMO PROGRAM (AHYMO-S4)              - Version: S4.01a - Rel: 01a
     RUN DATE (MON/DAY/YR) = 07/08/2020
     START TIME (HR:MIN:SEC) = 17:14:51    USER NO.= AHYMO_Temp_User:20122010
     INPUT FILE = s\2019\A19033 - Lava Trails\HYDROLOGY\100YR_6 hr LAVA TRAILS_THE GARAGE POND.txt
START           TIME=0.0
*****  LAVA TRAILS TRACT A
*****  FILE: F:\1-Projects\2019\A19033 - Lava Trails\HYDROLOGY, July 2020
*****
*****  100-YEAR 6-HOUR STORM EVENT
*****
RAINFALL        TYPE=1 RAIN QUARTER=0.0 IN
              RAIN ONE=1.69 IN RAIN SIX=2.16 IN
              RAIN DAY=2.47 IN DT=0.033333 HR

         6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1
         DT =  0.033333 HOURS      END TIME =    5.999941 HOURS
          0.0000 0.0021 0.0042 0.0064 0.0087 0.0110 0.0135
          0.0161 0.0189 0.0218 0.0247 0.0312 0.0377 0.0445
          0.0518 0.0590 0.0668 0.0747 0.0827 0.0909 0.0992
          0.1078 0.1164 0.1255 0.1350 0.1446 0.1553 0.1661
          0.1796 0.1959 0.2122 0.2340 0.2558 0.2820 0.3126
          0.3431 0.3890 0.4349 0.4974 0.5765 0.6557 0.8666
          1.0776 1.2415 1.3584 1.4754 1.5342 1.5929 1.6408
          1.6778 1.7148 1.7405 1.7661 1.7883 1.8071 1.8259
          1.8401 1.8543 1.8665 1.8766 1.8867 1.8958 1.9049
          1.9131 1.9207 1.9282 1.9352 1.9421 1.9490 1.9557
          1.9624 1.9655 1.9687 1.9717 1.9748 1.9778 1.9806
          1.9834 1.9862 1.9889 1.9917 1.9943 1.9970 1.9996
          2.0021 2.0046 2.0070 2.0094 2.0118 2.0142 2.0165
          2.0188 2.0210 2.0232 2.0254 2.0276 2.0298 2.0319
          2.0340 2.0360 2.0381 2.0400 2.0420 2.0440 2.0460
          2.0479 2.0498 2.0517 2.0536 2.0555 2.0574 2.0592
          2.0610 2.0628 2.0646 2.0664 2.0682 2.0699 2.0717
          2.0734 2.0751 2.0768 2.0785 2.0802 2.0819 2.0835
          2.0852 2.0868 2.0884 2.0900 2.0916 2.0932 2.0948
          2.0963 2.0979 2.0994 2.1010 2.1025 2.1040 2.1055
          2.1070 2.1085 2.1099 2.1114 2.1129 2.1143 2.1157
          2.1172 2.1186 2.1200 2.1214 2.1228 2.1242 2.1256
          2.1269 2.1283 2.1296 2.1310 2.1323 2.1337 2.1350
          2.1363 2.1376 2.1389 2.1402 2.1415 2.1428 2.1440
          2.1453 2.1466 2.1478 2.1491 2.1503 2.1515 2.1528
          2.1540 2.1552 2.1564 2.1576 2.1588 2.1600

*****
***** TRACT A-1 TO BE DIVIDED INTO 3 DRAINAGE BASINS (A,B&C)
***** HYDROLOGY FOR ON-SITE DEVELOPED CONDITIONS FOR TYPICAL
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***** DEVELOPED CONDITIONS INVOLVE 85% TYPE D AND 15% TYPE B
***** LAND TREATMENTS

***** BASIN A=0.66 ACRES
COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=0.0010 SQ MI
PER A=0 PER B=15 PER C=0 PER D=85
TP=0.1333 HR MASS RAINFALL=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 3.3558 CFS UNIT VOLUME = 0.9961 B = 526.28 P60 = 1.6900
AREA = 0.000850 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033333

K = 0.134159HR TP = 0.133300HR K/TP RATIO = 1.006445 SHAPE CONSTANT, N = 3.507338
UNIT PEAK = 0.36107 CFS UNIT VOLUME = 0.9623 B = 320.87 P60 = 1.6900
AREA = 0.000150 SQ MI IA = 0.50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033333

PRINT HYD ID=1 CODE=24

PARTIAL HYDROGRAPH 100.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.333	0.7	2.667	0.0	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.4	3.333	0.0	4.667	0.0	6.000	0.0

RUNOFF VOLUME = 1.73017 INCHES = 0.0923 ACRE-FEET
PEAK DISCHARGE RATE = 2.43 CFS AT 1.500 HOURS BASIN AREA = 0.0010 SQ. MI.

***** BASIN B=0.25 ACRES
COMPUTE NM HYD ID=2 HYD NO=100.2 AREA=0.0004 SQ MI
PER A=0 PER B=0 PER C=15 PER D=85
TP=0.1333 HR MASS RAINFALL=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 1.3423 CFS UNIT VOLUME = 0.9911 B = 526.28 P60 = 1.6900
AREA = 0.000340 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033333

K = 0.103836HR TP = 0.133300HR K/TP RATIO = 0.778968 SHAPE CONSTANT, N = 4.614198
UNIT PEAK = 0.17745 CFS UNIT VOLUME = 0.9317 B = 394.23 P60 = 1.6900
AREA = 0.000060 SQ MI IA = 0.35000 INCHES INF = 0.83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033333

PRINT HYD ID=2 CODE=24

PARTIAL HYDROGRAPH 100.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.333	0.3	2.667	0.0	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.1	3.333	0.0	4.667	0.0	6.000	0.0

RUNOFF VOLUME = 1.76443 INCHES = 0.0376 ACRE-FEET
PEAK DISCHARGE RATE = 1.01 CFS AT 1.500 HOURS BASIN AREA = 0.0004 SQ. MI.

***** BASIN C=0.22 ACRES
COMPUTE NM HYD ID=3 HYD NO=100.3 AREA=0.0003 SQ MI
PER A=0 PER B=0 PER C=0 PER D=100
TP=0.1333 HR MASS RAINFALL=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 1.1844 CFS UNIT VOLUME = 0.9897 B = 526.28 P60 = 1.6900
AREA = 0.000300 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033333

PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 100.30

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.333	0.2	2.667	0.0	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.1	3.333	0.0	4.667	0.0	6.000	0.0

RUNOFF VOLUME = 1.90746 INCHES = 0.0305 ACRE-FEET
PEAK DISCHARGE RATE = 0.79 CFS AT 1.500 HOURS BASIN AREA = 0.0003 SQ. MI.

***** COMBINE HYDROGRAPHS FROM BASINS A & B
ADD HYD ID=4 HYD NO=101.1 ID=1 ID=2
PRINT HYD ID=4 CODE=24

PARTIAL HYDROGRAPH 101.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.333	1.0	2.667	0.1	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.5	3.333	0.0	4.667	0.0	6.000	0.0

RUNOFF VOLUME = 1.73955 INCHES = 0.1299 ACRE-FEET
PEAK DISCHARGE RATE = 3.44 CFS AT 1.500 HOURS BASIN AREA = 0.0014 SQ. MI.

***** COMBINE HYDROGRAPHS FROM BASINS A/B WITH BASIN C
ADD HYD ID=5 HYD NO=101.2 ID=3 ID=4

PRINT HYD ID=5 CODE=24

PARTIAL HYDROGRAPH 101.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.333	1.2	2.667	0.1	4.000	0.0	5.333	0.0
0.667	0.0	2.000	0.6	3.333	0.0	4.667	0.0	6.000	0.0

RUNOFF VOLUME = 1.76904 INCHES = 0.1604 ACRE-FEET
PEAK DISCHARGE RATE = 4.23 CFS AT 1.500 HOURS BASIN AREA = 0.0017 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 17:14:51

HYDROLOGY NOTES

THE PROJECT SITE IS BOUNDED BY WESTERN TRAILS N.W. TO THE WEST, UNSER BLVD TO THE NORTH, AND UNDEVELOPED LOTS TO THE SOUTH AND EAST. AN EXISTING 2-STORY AUTOMOTIVE MAINTENANCE FACILITY WAS CONSTRUCTED ON THE 1.13 ACRE LOT. IT HAS ONE ACCESS ENTRANCE ROAD ON THE WEST SIDE OF THE PROPERTY.

EXISTING CONDITIONS:

THE SITE WAS PREVIOUSLY GRADED TO DIRECT FLOWS TO THE SOUTH EAST AND COLLECTED BY A CONCRETE RUNDOWN TO A TEMPORARY RETENTION POND EAST OF THE SITE UNTIL FURTHER DOWN STREAM CAPACITY IS IN PLACE. SHOWN BELOW IS THE OVERALL DRAINAGE FOR THE POTENTIAL FUTURE DEVELOPMENT OF TRACK A – LAVA TRAILS AS DESIGNED 11-26-2003. ALL DEVELPOMENT WITHIN THE BOUNDARIES OF LAVA TRAILS WILL NEED TO RETAIN ANY RUN-OFF UNTIL FURTHER DOWNSTREAM CAPACITY IS IN PLACE.

THERE ARE NO OFFSITE FLOWS ENTERING THE SITE.

THE SITE IS NOT LOCATED IN A 100YR FLOOD ZONE.

PROPOSED DEVELOPED CONDITIONS:

THIS RETENTION POND WILL BE MOVED SOUTH OF THE PRPOSED NEW PROPERTY LINE TO ACCOMMODATE A PLATTING ACTION AND WILL INCLUDE THE ADDITION OF A NEW 2' WIDE CONCRETE RUNDOWN FROM THE EXISTING RUN-OFF COLLECTION AREA. THE POND HAS BEEN SIZED TO HOLD THE 100 YEAR 10 DAY STORM EVENT PER COA DPM.

THE HYDROLOGY WAS CALCULATED PER COA DPM USING AHYMO P_{24}=2.47" FROM NOAA 14. THE RESULTS ARE SUMMARIZED IN THE HYDROLOGY TABLE ON THIS SHEET. THE 100 YR PEAK DISCHARGE FROM THE SITE IS Q=4.23 CFS and V=.1604 Ac-Ft.

BASIN DATA - TRACT A1

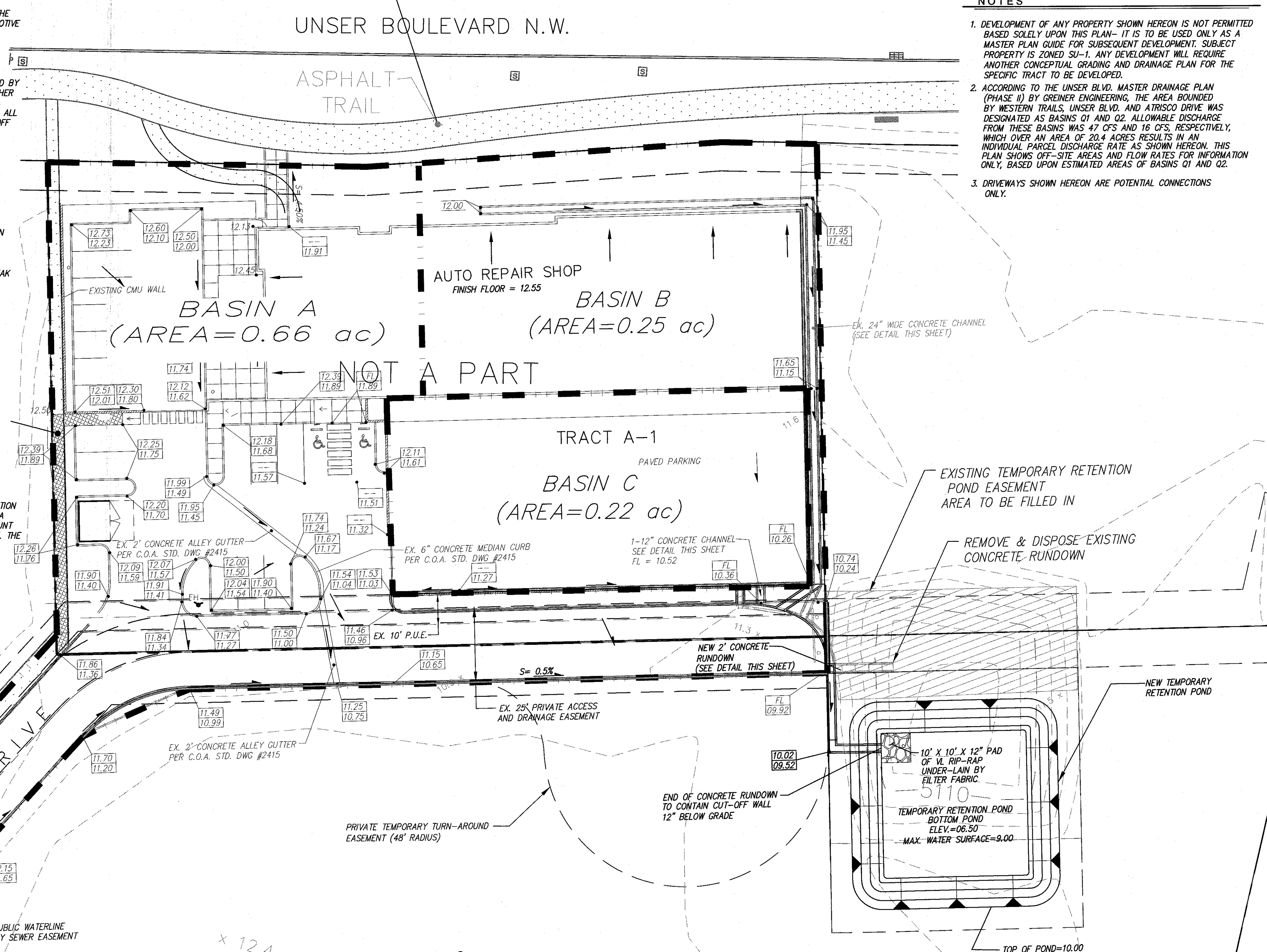
BASIN ID	%% D	%% C	AREA	Q(100)	VOLUME
A	85	15	0.66 AC.	2.43 cfs	.0923 AC-FT
B	85	15	0.25 AC.	1.01 cfs	..0376 AC-FT
C	100	0	0.22 AC.	0.79 cfs	.0305 AC-FT

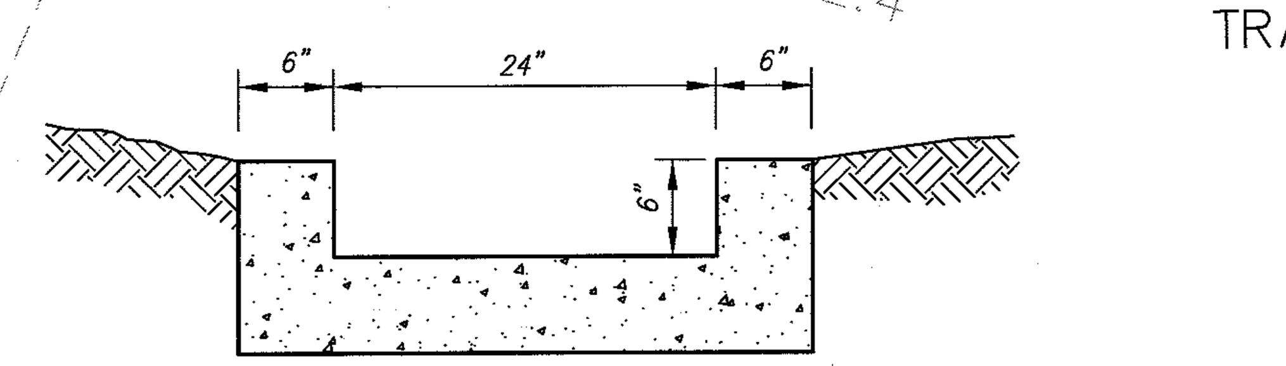
THE INTENT OF THIS PLAN IS TO PROVIDE COMPLETE RETENTION OF THE DEVELOPED, 100 YEAR, 10 DAY STORM.

P_{10} DAYS = 10.0–(24.9/(P_{1440})^1.4) =
10.0–(24.9/(2.47)^1.4) = 2.98 cfs

V_{10} DAYS = V_{360} + A_d ($P_{10\ DAY}$ – P_{360}) * 12 IN/FT =
.1604 + .9605 (2.98 –2.47) * 12 IN/FT =.2012 SQ FT = .20 Ac-Ft

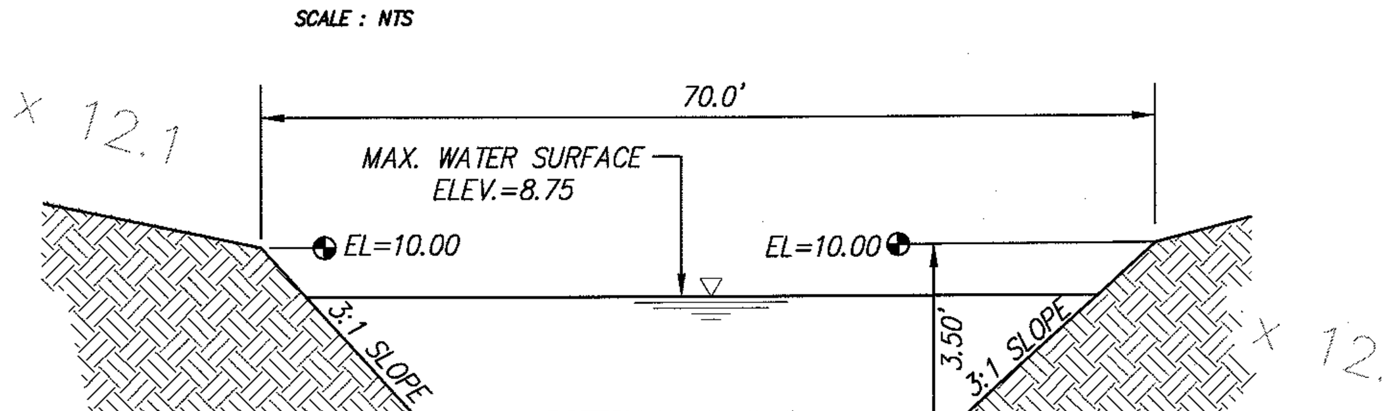
THE RETENTION POND DESIGN VOLUME FOR THE EXISTING POND WAS .25 AC-FT. THE CALCULATED VOLUME OF THE EXISTING POND AS DETERMINED BY RECENT SURVEY INFORMATION IS 0.28 AC-FT. THE PROPOSED POND WILL HAVE A DESIGN VOLUME OF 0.30 AC-FT WITH A REQUIRED VOLUME OF .20 AC-FT. THIS WILL ALLOW FOR A FACTOR OF SAFETY AND ACCOUNT FOR ANY ERRAND FLOWS FROM THE AREA JUST NORTH OF THE POND THAT WAS FILLED IN. THE ADJOINING PROPERTIES WILL NOT SEE ANY CHANGE IN PEAK OR TOTAL VOLUME.





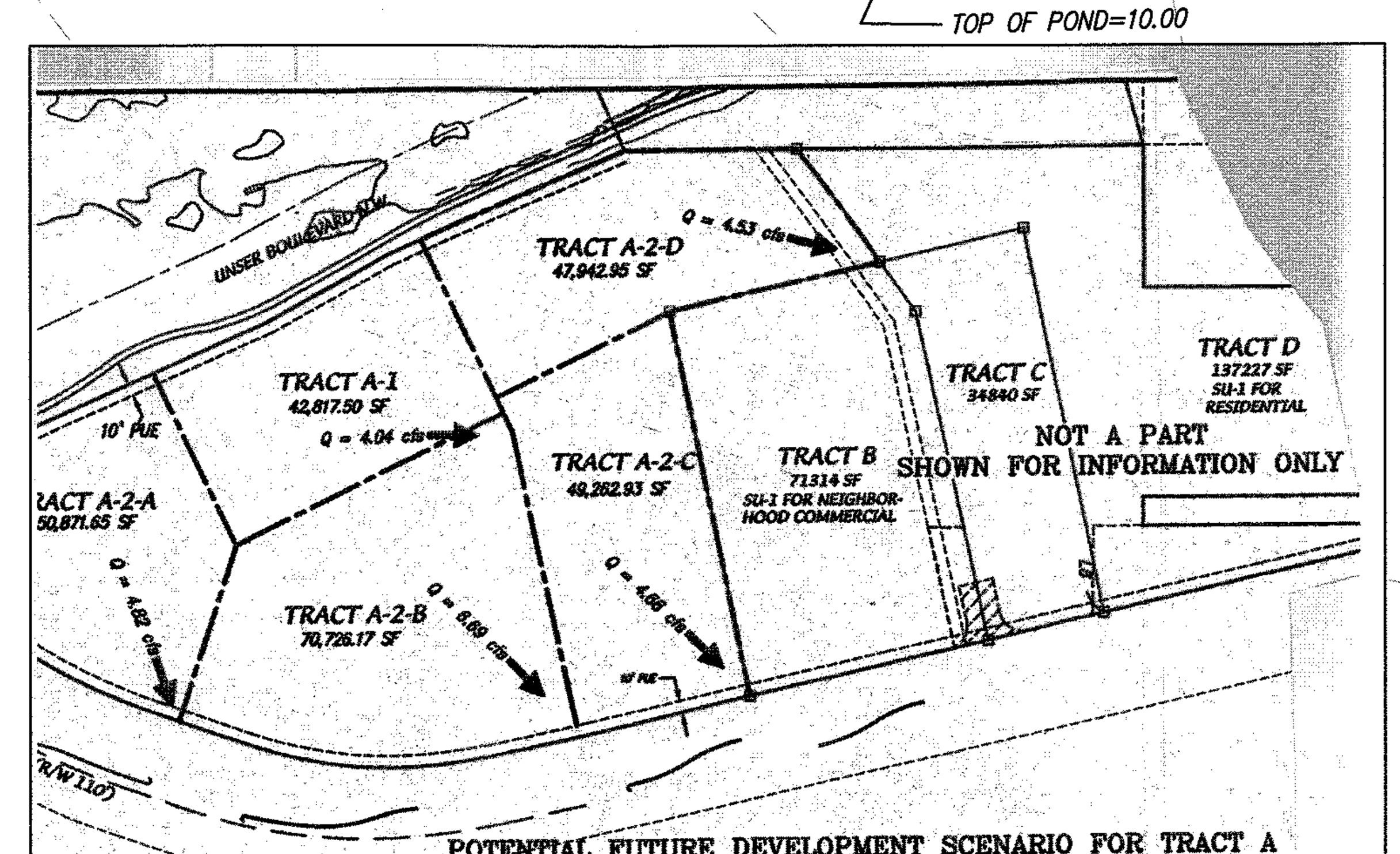
CONCRETE CHANNEL/RUNDOWN DETAIL

SCALE : NTS



RETENTION POND DETAIL

SCALE : NTS



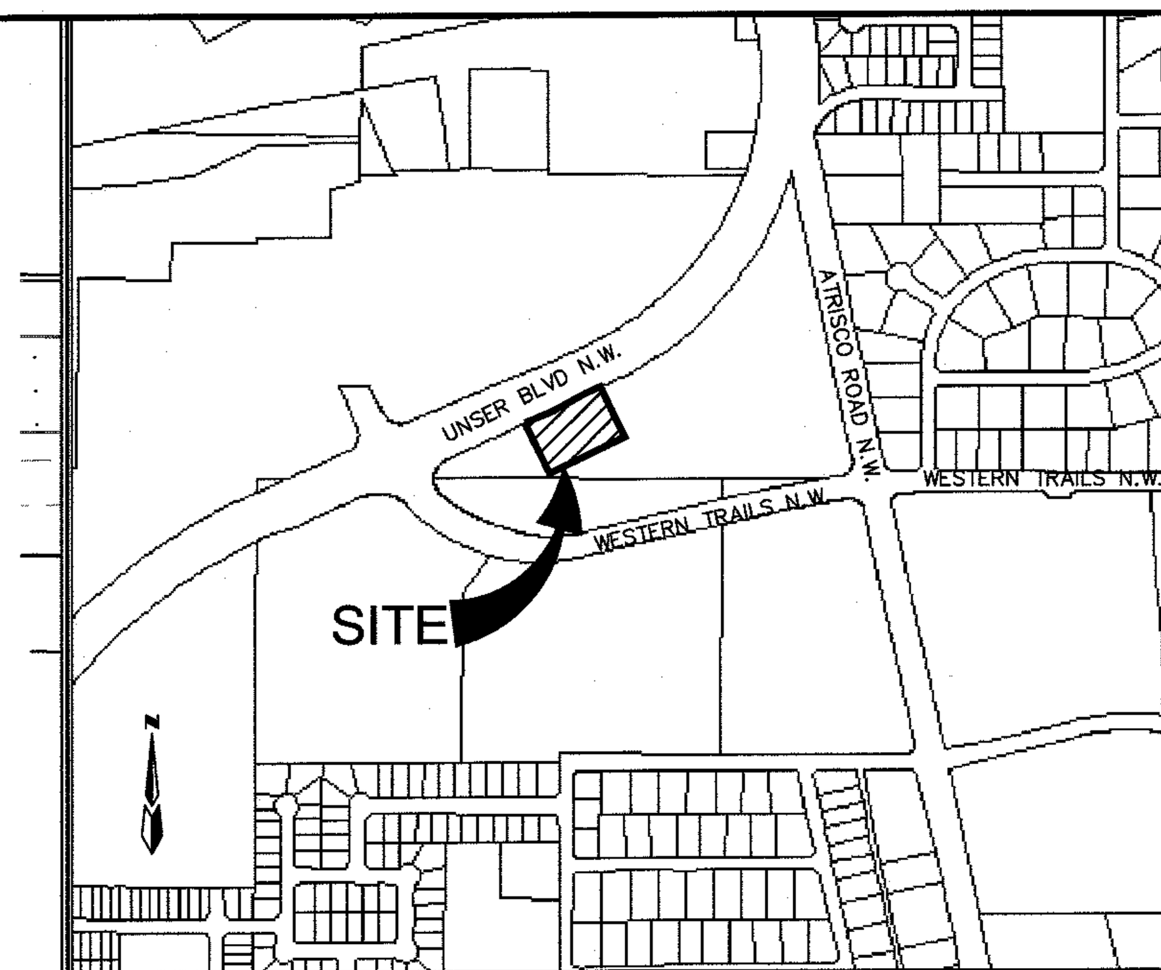
POTENTIAL FUTURE DEVELOPMENT TRACT A

DMG DESIGN – CONCEPTUAL GRADING PLAN – 11-26-2003

SCALE : NTS

NOTES

1. DEVELOPMENT OF ANY PROPERTY SHOWN HEREON IS NOT PERMITTED BASED SOLELY UPON THIS PLAN– IT IS TO BE USED ONLY AS A MASTER PLAN GUIDE FOR SUBSEQUENT DEVELOPMENT. SUBJECT PROPERTY IS ZONED SU-1. ANY DEVELOPMENT WILL REQUIRE ANOTHER CONCEPTUAL GRADING AND DRAINAGE PLAN FOR THE SPECIFIC TRACT TO BE DEVELOPED.
2. ACCORDING TO THE UNSER BLVD. MASTER DRAINAGE PLAN (PHASE II) BY GREINER ENGINEERING, THE AREA BOUNDED BY WESTERN TRAILS, UNSER BLVD. AND ATRISCO DRIVE WAS DESIGNATED AS BASINS Q1 AND Q2. ALLOWABLE DISCHARGE FROM THESE BASINS WAS 47 CFS AND 16 CFS, RESPECTIVELY, WHICH OVER AN AREA OF 20.4 ACRES RESULTS IN AN INDIVIDUAL PARCEL DISCHARGE RATE AS SHOWN HEREON. THIS PLAN SHOWS OFF-SITE AREAS AND FLOW RATES FOR INFORMATION ONLY, BASED UPON ESTIMATED AREAS OF BASINS Q1 AND Q2.
3. DRIVEWAYS SHOWN HEREON ARE POTENTIAL CONNECTIONS ONLY.



VICINITY MAP ZONE MAP: F-10/ F-11

LEGAL DESCRIPTION

UNPLATTED LANDS OF BEN TRAUB AND RAYMOND VAN WYE, TRACT A-2 AND TRACT C-2, LANDS OF ALBUQUERQUE PUBLIC SCHOOLS.

LEGEND

- EXISTING CONTOUR (MAJOR)
- EXISTING CONTOUR (MINOR)
- EXISTING SPOT ELEVATION
- EXISTING TOP CURB/FLOWLINE ELEVATION
- EXISTING ASPHALT PAVEMENT
- EXISTING ELECTRIC TRANSFORMER
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING TRAFFIC SIGNAL PULLBOX
- EXISTING TELEPHONE MANHOLE
- EXISTING CATV PEDESTAL
- EXISTING STORM DRAIN MANHOLE
- NEW STANDARD CURB & GUTTER
- NEW MOUNTABLE CURB & GUTTER
- NEW RIGHT-OF-WAY
- NEW CENTERLINE
- NEW LOT LINES
- NEW EASEMENTS
- 69.53TW / 68.25BW NEW TOP OF WALL ELEVATION / NEW BOTTOM OF WALL ELEVATION
- •81.77 NEW SPOT ELEVATIONS
- NEW FLOW DIRECTION
- NEW WATER BLOCK
- NEW RETAINING WALL (SEE NOTE 7 & 8)
- NEW GARDEN WALL (SEE NOTE 7)
- 24" RCP NEW STORM DRAIN
- BOLLARD

D. MARK GOODWIN — NEW MEXICO — 8948 — LICENSED PROFESSIONAL ENGINEER

SCALE: 1" = 30'

LAVA TRAILS

GRADING & DRAINAGE PLAN

dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505)828-2200, FAX (505)797-9539

Designed: HLC	Drawn: DER	Checked: DMG	Sheet 1 of 1
Scale: 1" = 1'	Date: 7/20/2020	Job: A19033	

F:\A19JOBS\A19033 Lava Trails\GRADE & DRAIN\A19033_G&D_PLAN.dwg, Last saved by: Hiram, 6/30/20