CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Interim Director

Mayor Timothy M. Keller

November 8, 2021

Fred C. Arfman, P.E.
Isaacson & Arfman, P.A.
128 Monroe St. N.E
Albuquerque, NM 87108

RE: Albuquerque RV & Boat Storage
2201 Vista Oriente St. NW
4th Revised Grading and Drainage Plan
Engineer's Stamp Date: 09/29/21
Hydrology File: H10D030

Dear Mr. Arfman:

Based upon the information provided in your submittal received 09/29/2021, the Fourth Revised Grading & Drainage Plan is approved for Building Permit, SO-19 Permit, and for action by the DRB for Site Plan for Building Permit. Please attach a copy of this approved plan in the construction sets for Building Permit processing along with a copy of this letter.

PRIOR TO CERTIFICATE OF OCCUPANCY:

1. Engineer's Certification, per the DPM Part 6-14 (F): *Engineer's Certification Checklist For Non-Subdivision* is 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

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 11/2018)

Project Title: Albuquerque RV & Boat Storage Building Permit #: _____ Hydrology File #: H09D030

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

Legal Description: Tract 1, Ladera Business Park, Unit 2

City Address: 2201 Vista Oriente Street NW - Albuquerque, NM 87129

Applicant: Isaacson & Arfman, PA Contact: Fred C. Arfman or Bryan J. Bobrick

Address: 128 Monroe Street NE - Albuquerque, NM 87108

Phone#: (505) 268-8828 Fax#: _____ E-mail: freda@iacivil.com bryanb@iacivil.com

Owner: Ladera Enterprises, LLC Contact: _____

Address: _____

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

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

IS THIS A RESUBMITTAL?: X Yes _____ No

DEPARTMENT: ____ TRAFFIC/ TRANSPORTATION ____ HYDROLOGY/ DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

____ ENGINEER/ARCHITECT CERTIFICATION
____ PAD CERTIFICATION
____ CONCEPTUAL G & D PLAN
X 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:

X 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: SEPT. 29, 2021 By: Fred C. Arfman

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

POND P2		
Contour	Area	Volume
5181.50	5335	
5181.00	3252	2147 CF
5180.00	1372	2312 CF
5179.00	618	995 CF
TOTAL VOL.		5454 CF
REQUIRED		3816 CF

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED
DATE: 11/08/21
BY: Renée C. Brissette
HydroTrans # H10D030

THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE CONSTRUED TO PERMIT VIOLATIONS OF ANY CITY ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT THE CITY OF ALBUQUERQUE FROM REQUIRING CORRECTION, OR ERROR OR DIMENSIONS IN PLANS, SPECIFICATIONS, OR CONSTRUCTIONS. SUCH APPROVED PLANS SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT AUTHORIZATION.

S.O.19 : NOTICE TO CONTRACTORS

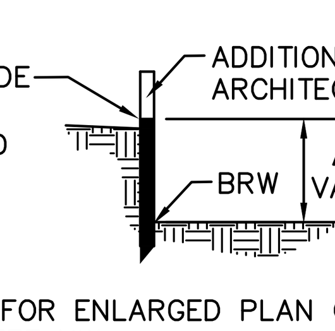
PRIVATE DRAINAGE FACILITES WITHIN CITY RIGHT-OF-WAY

1. Build sidewalk culvert per COA STD DWG 2236.
2. Contact Storm Drain Maintenance at (505) 857-8033 to schedule a meeting prior to forming.
3. An excavation permit will be required before beginning any work within City Right-Of-Way.
4. All work on this project shall be performed in accordance with applicable federal, state and local laws, rules and regulations concerning construction safety and health.
5. Two working days prior to any excavation, the contractor must contact **New Mexico One Call, dial "811"** [or (505) 260-1990] for the location of existing utilities.
6. Prior to construction, the contractor shall excavate and verify the locations of all obstructions. Should a conflict exist, the contractor shall notify the engineer so that the conflict can be resolved with a minimum amount of delay.
7. Backfill compaction shall be according to traffic/street use.
8. Maintenance of the facility shall be the responsibility of the owner of the property being served.
9. Work on arterial streets may be required on a 24-hour basis.
10. Contractor must contact Storm Drain Maintenance at (505) 857-8033 to schedule a construction inspection. For excavating and barricading inspections, contact Construction Coordination at (505) 924-3416.

KEYED NOTES

KEYED NOTES ARE REFERENCED ON SHEETS CG-101 AND CG-102. NOT ALL NOTES ARE USED ON EACH SHEET.

1. CONSTRUCT ENTRANCE DRIVES, CONCRETE VALLEY GUTTER, PUBLIC SIDEWALK, AND ADA COMPLIANT RAMPS PER COA STD. DETAILS AND SPECIFICATIONS. SEE CP-101 FOR ADDITIONAL INFORMATION.
2. CONSTRUCT NEW PAVING AT ELEVATIONS SHOWN. SEE CP-101 FOR ADDITIONAL INFORMATION FOR MATERIAL, EXTENTS, JOINTS, AND PAVING SECTIONS.
3. CONSTRUCT 6" HIGH CURB (HEADER OR MEDIAN CURB AND GUTTER – OWNER'S OPTION). NOTE: ENGINEER RECOMMENDS MEDIAN CURB AND GUTTER FOR CONCENTRATED FLOWPATHS.
4. CONSTRUCT 2' WIDE CONC. ALLEY GUTTER. SEE CG-501 FOR SECTION.
5. SEE CG-501 FOR SECTION THROUGH EAST PROPERTY LINE.
6. 0.5' DESIGN CONTOURS ARE SHOWN DASHED WHERE NECESSARY TO CLARIFY GRADING CONCEPT.
7. BUILDING AND OVERHEAD CANOPY ROOF DISCHARGE DIRECTION. (OWNER'S OPTION – ENGINEER RECOMMENDS CONCRETE SPLASHPAD FOR CONCENTRATED ROOF DISCHARGE TO ASPHALT PAVEMENT.) SEE BUILDING PLANS FOR SPECIFIC ROOF DISCHARGE INFORMATION.
8. PROVIDE 2' WIDE OPENING(S) IN CURB TO PASS FLOW. INSTALL 4'X4'X8" DEEP ROCK EROSION PROTECTION AT CURB OPENINGS.
9. CONSTRUCT STORMWATER QUALITY RETENTION POND AT ELEVATIONS AND VOLUMES SHOWN. ALL STORMWATER QUALITY PONDING VOLUMES REQUIRE VERIFICATION AS PART OF AS-BUILT ENGINEER'S CERTIFICATION PROCEDURE. PONDS WHICH DO NOT PROVIDE THE REQUIRED VOLUME WILL BE CORRECTED AT CONTRACTOR'S EXPENSE.
10. CONSTRUCT PERIMETER RETAINING/PRIVACY WALLS TO ACHIEVE GRADE DIFFERENCE SHOWN. SEE ARCHITECTURAL FOR DETAILS, ADDITIONAL WALL HEIGHT, FOOTING, GUARDRAIL, REINFORCING, ETC. NO STRUCTURE OR FOOTING MAY BE CONSTRUCTED ON ADJACENT PROPERTIES WITHOUT ADJACENT PROPERTY OWNER PERMISSION.

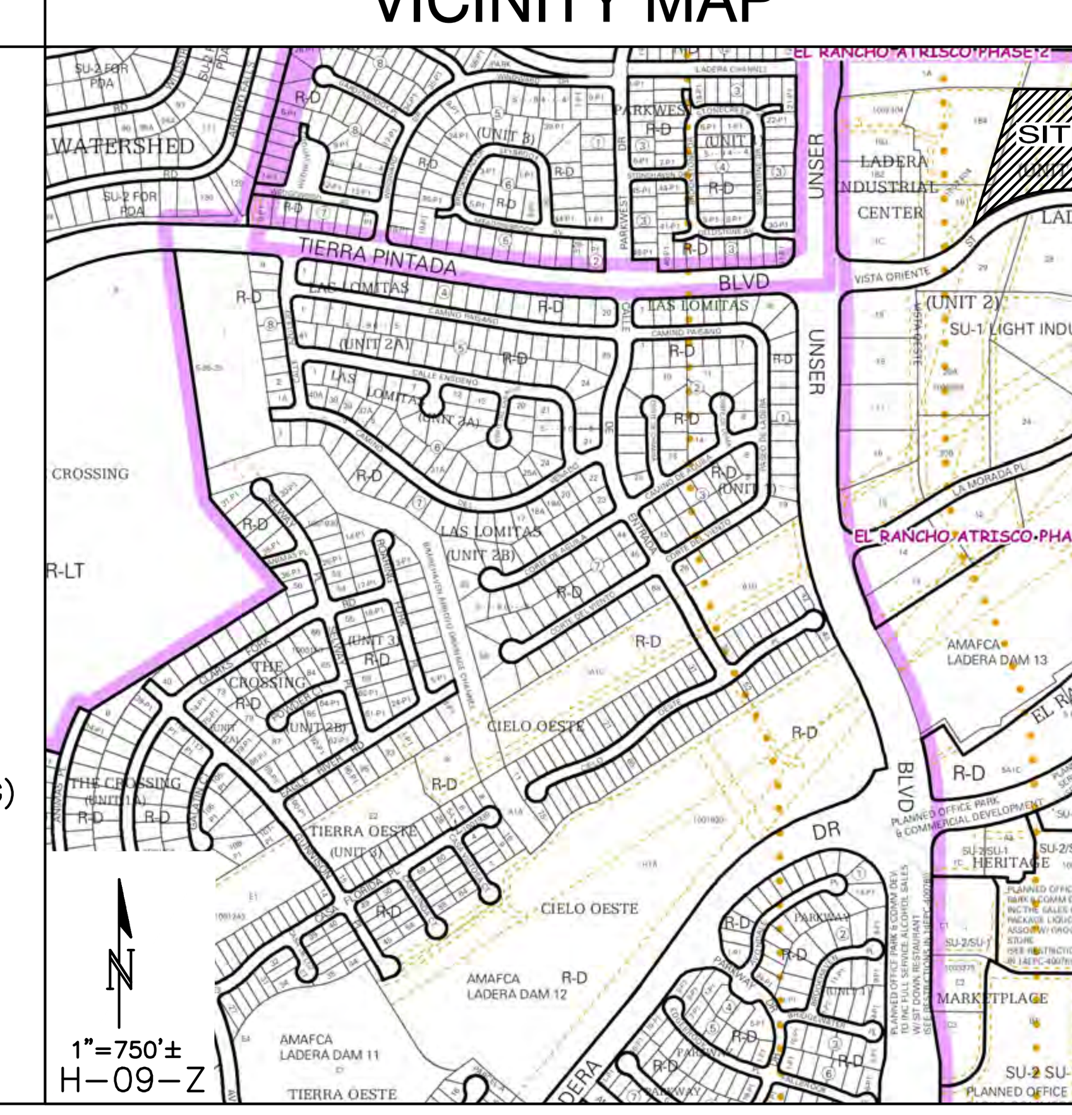


11. SEE CG-102 FOR ENLARGED PLAN OF OUTFALL TO VISTA ORIENTE STREET NW.
12. SEE CG-501 FOR ROCK EROSION PROTECTION DETAIL.
13. UNIT SIDE DOOR. COORDINATE GRADE TRANSITION WITH OWNER.

LEGEND

5105.65'	EXISTING SPOT ELEVATION
5110	EXISTING CONTOUR
12	PROPOSED CONTOUR (1' INCREMENT)
10.5	PROPOSED CONTOUR (0.5' INCREMENT)
08.9	PROPOSED SPOT ELEVATION
	FLOW ARROW
	PROPOSED STORMWATER QUALITY RETENTION POND LIMITS
	ROOF / CANOPY DISCHARGE DIRECTION
	GRADE BREAK
	EROSION CONTROL (TO EXTENTS SHOWN)
	PERIMETER RETAINING WALL (>16" RETAINING)
	PERIMETER WALL (<16" RETAINING)

VICINITY MAP



1 2

FRED C. ARFMAN NEW MEXICO 7322 LICENSED PROFESSIONAL ENGINEER 09.29.21

ISAACSON & ARFMAN, P.A.
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128 Monroe Street N.E.
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Ph. 505-268-8828 www.iacivil.com

2278 CG-101 NOMAD.dwg Sep 29,2021

ABQ RV &
BOAT STORAGE

LADERA ENTERPRISES LLC

GRADING & DRAINAGE PLAN 1 OF 2

Date:	No.	Revision:	Date:	Job No.
09-29-21				2278
Drawn By: BJB				CG-101
Ckd By: FCA				SH. OF

M:\PROJECTS\2200-2299\2278\DWG\2278 BUILDING PERMIT\2278 CG-101 NOMAD.dwg Bryan 9/29/2021 1:27 PM

POND P1		
Contour	Area	Volume
5188.00	1080	
5187.00	40	560 CF
TOTAL VOL.		**560** CF
REQUIRED		**458** CF

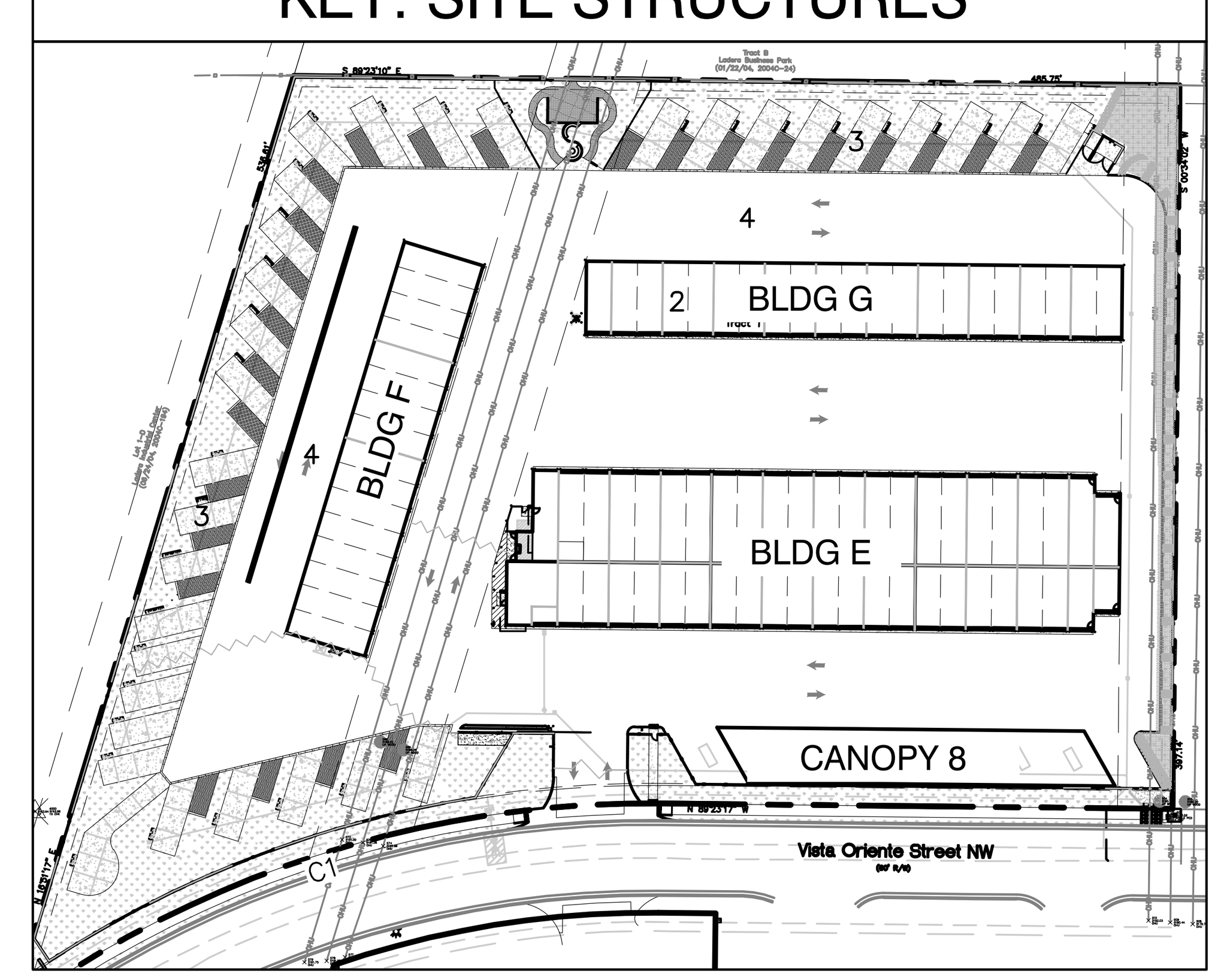
WEST CURB TABLE

	FL	TC
CR	88.40	88.90
1	88.37	88.87
2	88.34	--
3	88.31	88.98
CR	88.28	88.93

EAST CURB TABLE

	FL	TC
CR	85.56	86.23
1	86.17	86.84
2	86.78	--
3	87.39	87.89
CR	88.0	88.5

KEY: SITE STRUCTURES



LEGEND

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- —5110— EXISTING CONTOUR
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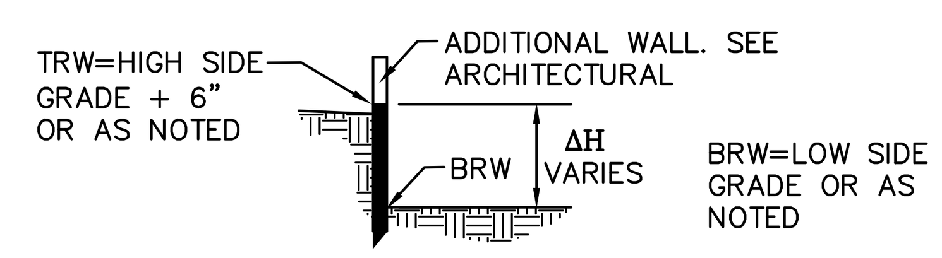

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13. UNIT SIDE DOOR. COORDINATE GRADE TRANSITION WITH OWNER.

PROJECT DATA

PROPERTY: THE SITE IS A 5.22 ACRE, UNDEVELOPED PROPERTY LOCATED WITHIN C.O.A. VICINITY MAP H-09. THE SITE IS BOUND TO THE LADERA CHANNEL, TO THE WEST AND EAST BY UNDEVELOPED LAND, AND TO THE SOUTH BY VISTA ORIENTE ST NW.

PROPOSED IMPROVEMENTS: THE PROPOSED IMPROVEMENTS INCLUDE SELF STORAGE BUILDINGS AND OUTDOOR RV STORAGE WITH ASSOCIATED ASPHALT PAVED ACCESS, PARKING AND LANDSCAPING.

PROPERTY ADDRESS: 2201 VISTA ORIENTE ST. NW, ALBUQUERQUE, 87120

LEGAL: TRACT 1, LADERA BUSINESS PARK, UNIT 2, CITY OF ALBUQUERQUE, BERNALILLO CNTY, NM.

BENCHMARK: BRASS CAP STAMPED "2-H9, 1980", ON THE WEST MESA UNDER POWER LINES RUNNING NE/SW, 0.2 MI. NORTH OF LADERA DR. NW, 111FT. WEST OF THE CENTERLINE OF UNSER BLVD., IN THE MIDDLE OF A SET OF POWERPOLES.

OFF-SITE FLOW: NO OFF-SITE DRAINAGE IMPACTS THIS PROPERTY.

FLOOD HAZARD: PER BERNALILLO COUNTY FIRM MAP #35001C0326J, THE SITE IS LOCATED WITHIN FLOODZONE 'X' DESIGNATED AS AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN.

DRAINAGE FOR THIS TRACT WAS INCLUDED IN THE LADERA BUSINESS PARK MASTER DRAINAGE REPORT (MDR) BY MARK GOODWIN & ASSOCIATES DATED 11-21-02. PER THE MDR, THIS PROPERTY (DESIGNATED AS BASIN B-1) IS PERMITTED FREE DISCHARGE.

ENGINEER: FRED C. ARFMAN: NMPE 7322 – ISAACSON & ARFMAN, PA
128 MONROE NE 87108 – (505) 268-8828

SURVEYOR: WILL PLOTNER JR: NMPS NO. 14271 – CARTESIAN SURVEYS INC
P.O. BOX 44414 RIO RANCHO, NM 87174 – (505) 891-0244

FRED C. ARFMAN NEW MEXICO 7322 LICENSED PROFESSIONAL ENGINEER 09.29.21

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
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Ph. 505-268-8828 www.iacivil.com

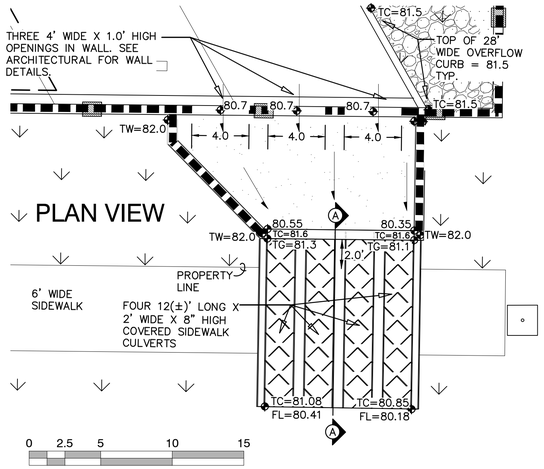
2278 CG-101 NOMAD.dwg Sep 29,2021

ABQ RV & BOAT STORAGE

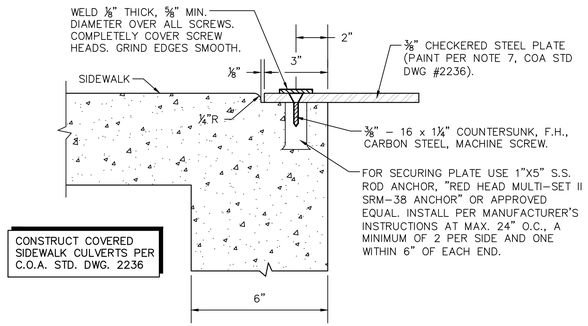
LADERA ENTERPRISES LLC

GRADING & DRAINAGE PLAN 2 OF 2

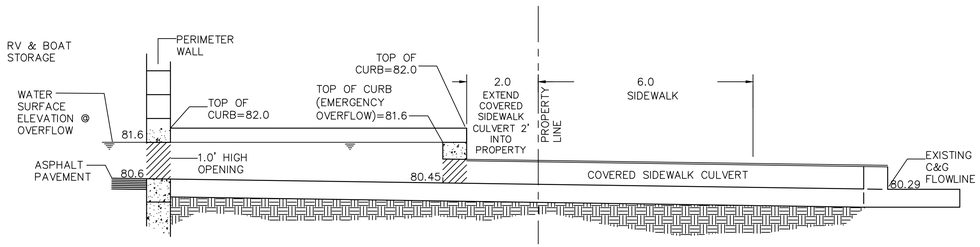
Date:	No.	Revision:	Date:	Job No.
09-09-21				2278
Drawn By:				CG-102
Ckd By: FCA				SH. OF



PLAN VIEW SCALE 1"=5'

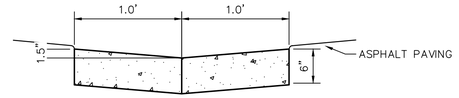


CONSTRUCT COVERED SIDEWALK CULVERTS PER C.O.A. STD. DWG. 2236



STORMWATER OUTFALL STRUCTURE TO VISTA ORIENTE

SCALE: N.T.S.

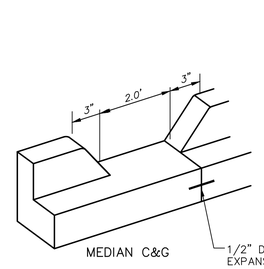


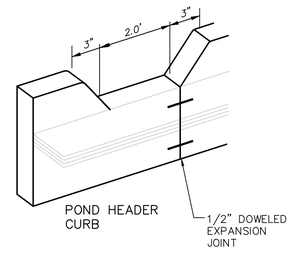
GENERAL NOTES

1. EDGES SHALL BE SHAPED WITH A 3/8" EDGING TOOL.
2. CONSTRUCTION CONTROL JOINTS AT 6' O.C. MAX.
3. SEALED 1/2" EXPANSION JOINTS AT 48' O.C. MAX.
4. EDGE OF ASPHALT PAVING TO BE ¾" ABOVE EDGE OF CONCRETE (TYP).

CONCRETE ALLEY GUTTER

SCALE: N.T.S.





GENERAL NOTES

1. EDGES NOT SPECIFICALLY DIMENSIONED SHALL BE SHAPED WITH A 3/8" EDGING TOOL.

ORIFICE EQUATION - 2' WIDE CURB OPENING

The Orifice Equation is used to calculate the Flow at the opening of a Channel

Q = C*A * (2*g*h) ^ 0.5

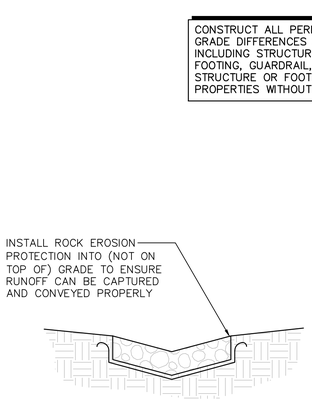
Where	Q	=	2.71	cfs	
	C	=	0.6		
	A	=	1.125	sq.ft.	
	g	=	32.2	ft/sec^2	
	h	=	0.25	ft	depth of flow at opening from the center of culvert

Curb Heignt	0.5
Opening area	1.125

TYPICAL CURB OPENING

SCALE: N.T.S.

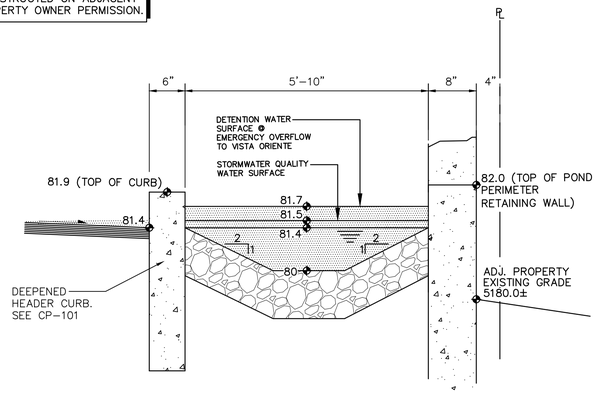
CONSTRUCT ALL PERIMETER RETAINING WALLS TO ACHIEVE GRADE DIFFERENCES SHOWN. SEE ARCHITECTURAL FOR DETAILS INCLUDING STRUCTURAL SECTIONS, ADDITIONAL WALL HEIGHT, FOOTING, GUARDRAIL, WATERPROOFING, REINFORCING, ETC. NO STRUCTURE OR FOOTING MAY BE CONSTRUCTED ON ADJACENT PROPERTIES WITHOUT ADJACENT PROPERTY OWNER PERMISSION.



- ALL EROSION PROTECTION TO BE 8" DEEP, 4" AVG. DIA. ANGULAR FACED ROCK.
- PLACE GEOTEX 501 NON–WOVEN GEOTEXTILE (O.E.) BENEATH ALL EROSION PROTECTION
- ROCK SWALES TO BE 3' WIDE, 6" DEPRESSED

ROCK EROSION PROTECTION

SCALE: N.T.S.



SECTION: EAST STORMWATER QUALITY POND

SCALE: N.T.S.

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED
DATE: 11/08/21
BY: Renée Brissette
HydroTrans # H10D030

THIS APPROVAL OF THESE PLANS/REPORT SHALL NOT BE CONSTRUED TO PERMIT VIOLATIONS OF ANY CITY ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT THE CITY OF ALBUQUERQUE FROM REQUIRING CORRECTION OF ERRORS IN THE CONSTRUCTION PLANS. SPECIFICATIONS, OR CONSTRUCTION, SUCH APPROVED PLANS SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT AUTHORIZATION.

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2278 CG–501.dwg Sep 29,2021

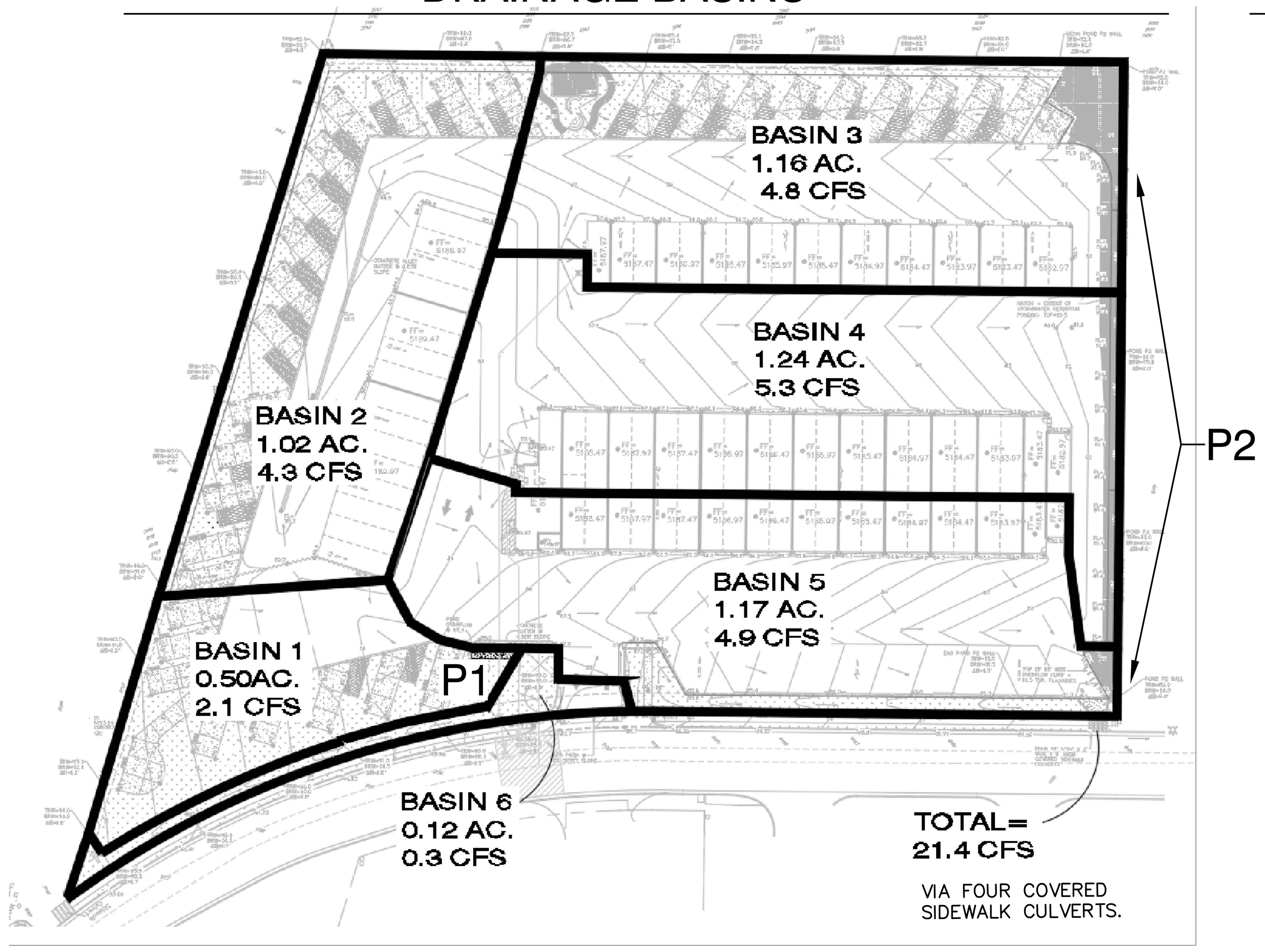
ABQ RV & BOAT STORAGE

LADERA ENTERPRISES LLC

GRADING & DRAINAGE DETAILS

Date: 09–29–21	No. Revision:	Date:	Job No. 2278
Drawn By: BJB			CG–501
Ckd By: FCA			SH. OF

DRAINAGE BASINS



BASIN CALCULATIONS

BASIN NO. 1	DESCRIPTION		
Area of basin flows =	21837 SF	= 0.50 Ac.	
The following calculations are based on Treatment areas as shown in table to the right			LAND TREATMENT
	Sub-basin Weighted Excess Precipitation (see formula above)		A = 0.00%
	Weighted E = 1.84 in.		B = 10.00%
	Sub-basin Volume of Runoff (see formula above)		C = 0.00%
	V_{360} = 3348 CF		D = 90.00%
	Sub-basin Peak Discharge Rate: (see formula above)		FIRST FLUSH VOL.
	Q_P = 2.1 cfs		557 CF

BASIN 1 DISCHARGES THROUGH STORMWATER QUALITY POND P1 WITH EXCESS FLOW PASSING TO THE SOUTHEAST COVERED SIDEWALK CULVERTS. 557 CF REQUIRED.

BASIN NO. 2	DESCRIPTION		
Area of basin flows =	44594 SF	= 1.02 Ac.	
The following calculations are based on Treatment areas as shown in table to the right			LAND TREATMENT
	Sub-basin Weighted Excess Precipitation (see formula above)		A = 0.00%
	Weighted E = 1.88 in.		B = 7.00%
	Sub-basin Volume of Runoff (see formula above)		C = 0.00%
	V_{360} = 6983 CF		D = 93.00%
	Sub-basin Peak Discharge Rate: (see formula above)		FIRST FLUSH VOL.
	Q_P = 4.3 cfs		1175 CF

BASIN NO. 3	DESCRIPTION		
Area of basin flows =	50435 SF	= 1.16 Ac.	
The following calculations are based on Treatment areas as shown in table to the right			LAND TREATMENT
	Sub-basin Weighted Excess Precipitation (see formula above)		A = 0.00%
	Weighted E = 1.84 in.		B = 10.00%
	Sub-basin Volume of Runoff (see formula above)		C = 0.00%
	V_{360} = 7733 CF		D = 90.00%
	Sub-basin Peak Discharge Rate: (see formula above)		FIRST FLUSH VOL.
	Q_P = 4.8 cfs		1286 CF

BASIN NO. 4	DESCRIPTION		
Area of basin flows =	53828 SF	= 1.24 Ac.	
The following calculations are based on Treatment areas as shown in table to the right			LAND TREATMENT
	Sub-basin Weighted Excess Precipitation (see formula above)		A = 0.00%
	Weighted E = 1.94 in.		B = 2.00%
	Sub-basin Volume of Runoff (see formula above)		C = 0.00%
	V_{360} = 8720 CF		D = 98.00%
	Sub-basin Peak Discharge Rate: (see formula above)		FIRST FLUSH VOL.
	Q_P = 5.3 cfs		1495 CF

BASINS 2, 3 AND 4 DISCHARGE THROUGH STORMWATER QUALITY POND P2 BEFORE FREE DISCHARGING TO VISTA ORIENTE STREET. 3,956 CF REQUIRED.

TOTAL SITE STORMWATER QUALITY POND VOLUME REQUIRED = 5,872 CF.

TOTAL STORMWATER QUALITY POND VOLUME PROVIDED = 5,990 CF.

BASIN NO. 5	DESCRIPTION		
Area of basin flows =	51023 SF	= 1.17 Ac.	
The following calculations are based on Treatment areas as shown in table to the right			LAND TREATMENT
	Sub-basin Weighted Excess Precipitation (see formula above)		A = 0.00%
	Weighted E = 1.88 in.		B = 7.00%
	Sub-basin Volume of Runoff (see formula above)		C = 0.00%
	V_{360} = 7989 CF		D = 93.00%
	Sub-basin Peak Discharge Rate: (see formula above)		FIRST FLUSH VOL.
	Q_P = 4.9 cfs		1344 CF

BASIN NO. 6	DESCRIPTION		
Area of basin flows =	5308 SF	= 0.12 Ac.	
The following calculations are based on Treatment areas as shown in table to the right			LAND TREATMENT
	Sub-basin Weighted Excess Precipitation (see formula above)		A = 0.00%
	Weighted E = 0.80 in.		B = 90.00%
	Sub-basin Volume of Runoff (see formula above)		C = 0.00%
	V_{360} = 354 CF		D = 10.00%
	Sub-basin Peak Discharge Rate: (see formula above)		FIRST FLUSH VOL.
	Q_P = 0.3 cfs		15 CF

BASINS 5 AND 6 FREE DISCHARGE TO VISTA ORIENTE STREET. 1,359 CF REQUIRED.

COVERED SIDEWALK CULVERT CALULATIONS

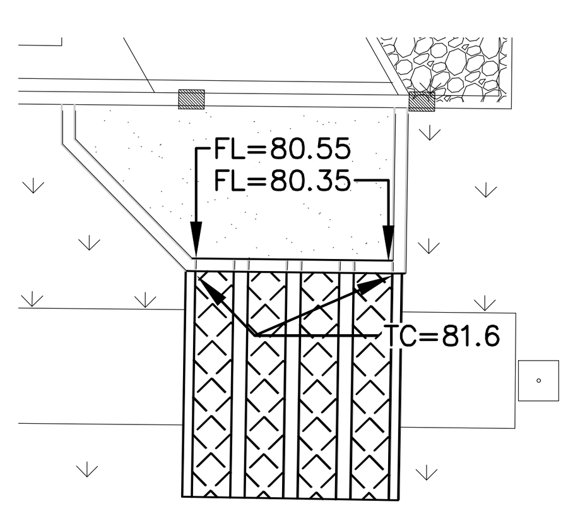
ORIFICE EQUATION - SIDEWALK CULVERT

The Orifice Equation is used to calculate the Flow at the opening of a Channel

Q = C*A * (2*g*h) ^0.5

Where	Q	=	5.47	cfs	Water Surface =	81.6
	C	=	0.6		Flowline =	80.45
	A	=	1.24	sq.ft.	h =	0.84
	g	=	32.2	ft/sec^2		
	h	=	0.84	ft	depth of flow at opening from the center of culvert	

COVERED SIDEWALK CULVERT CAPACITY = 5.5 CFS EACH
FOUR REQUIRED: 4 * 5.5 CFS = 22.0 CFS > REQUIRED



OVERALL CALCULATIONS

CALCULATIONS: 2278 - ABQ RV & BOAT STORAGE : May 17, 2019

Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993

ON-SITE

AREA OF SITE: 227163 SF = 5.2

100-year, 6-hour

PREVIOUS DEVELOPED FLOWS:		Treatment SF	%	DEVELOPED FLOWS:		Treatment SF	%	EXCESS PRECIP:
								Precip. Zone 1
Area A	=	0	0%	Area A	=	0	0%	E_A = 0.44
Area B	=	113581.5	50%	Area B	=	12239	5.4%	E_B = 0.67
Area C	=	113581.5	50%	Area C	=	12119	5.3%	E_C = 0.99
Area D	=	0.0	0%	Area D	=	202805	89.3%	E_D = 1.97
Total Area	=	227163	100%	Total Area	=	227163	100%	

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted } E = \frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$$

Historic E	=	0.83 in.	Developed E	=	1.85 in.

On-Site Volume of Runoff: V360 = E*A / 12

Historic V_{360}	=	15712 CF	Developed V_{360}	=	34977 CF

On-Site Peak Discharge Rate: $Qp = Q_{pA}A_A+Q_{pB}A_B+Q_{pC}A_C+Q_{pD}A_D / 43,560$

For Precipitation Zone 1

Q_{pA} = 1.29 Q_{pC} = 2.87

Q_{pB} = 2.03 Q_{pD} = 4.37

Historic Q_p	=	12.78 CFS	Developed Q_p	=	21.7 CFS

WEIR CALCULATIONS

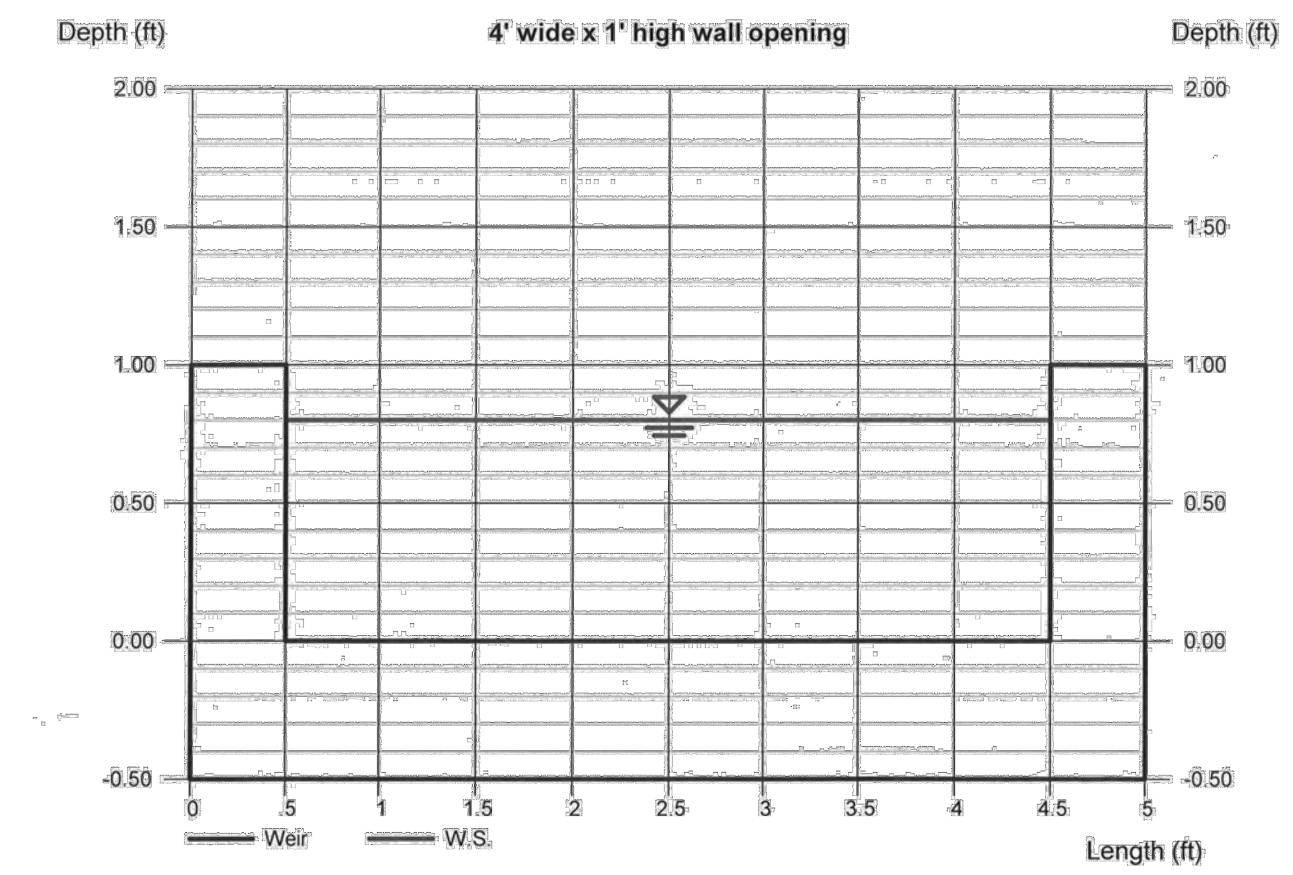
Weir Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Friday, Jun 7 2019

4' wide x 1' high wall opening

Rectangular Weir		Highlighted	
Crest	= Broad	Depth (ft)	= 0.80
Bottom Length (ft)	= 4.00	Q (cfs)	= 7.442
Total Depth (ft)	= 1.00	Area (sqft)	= 3.20
		Velocity (ft/s)	= 2.33
Calculations		Top Width (ft)	= 4.00
Weir Coeff. Cw	= 2.60		
Compute by:	Q vs Depth		
No. Increments	= 5		

THREE 4' WIDE X 1.0' HIGH OPENINGS IN WALL. SEE ARCHITECTURAL FOR WALL DETAILS. AT 0.8' DEEP, CAPACITY = 7.4 CFS. THREE @ 7.4 = 22.2 > REQUIRED



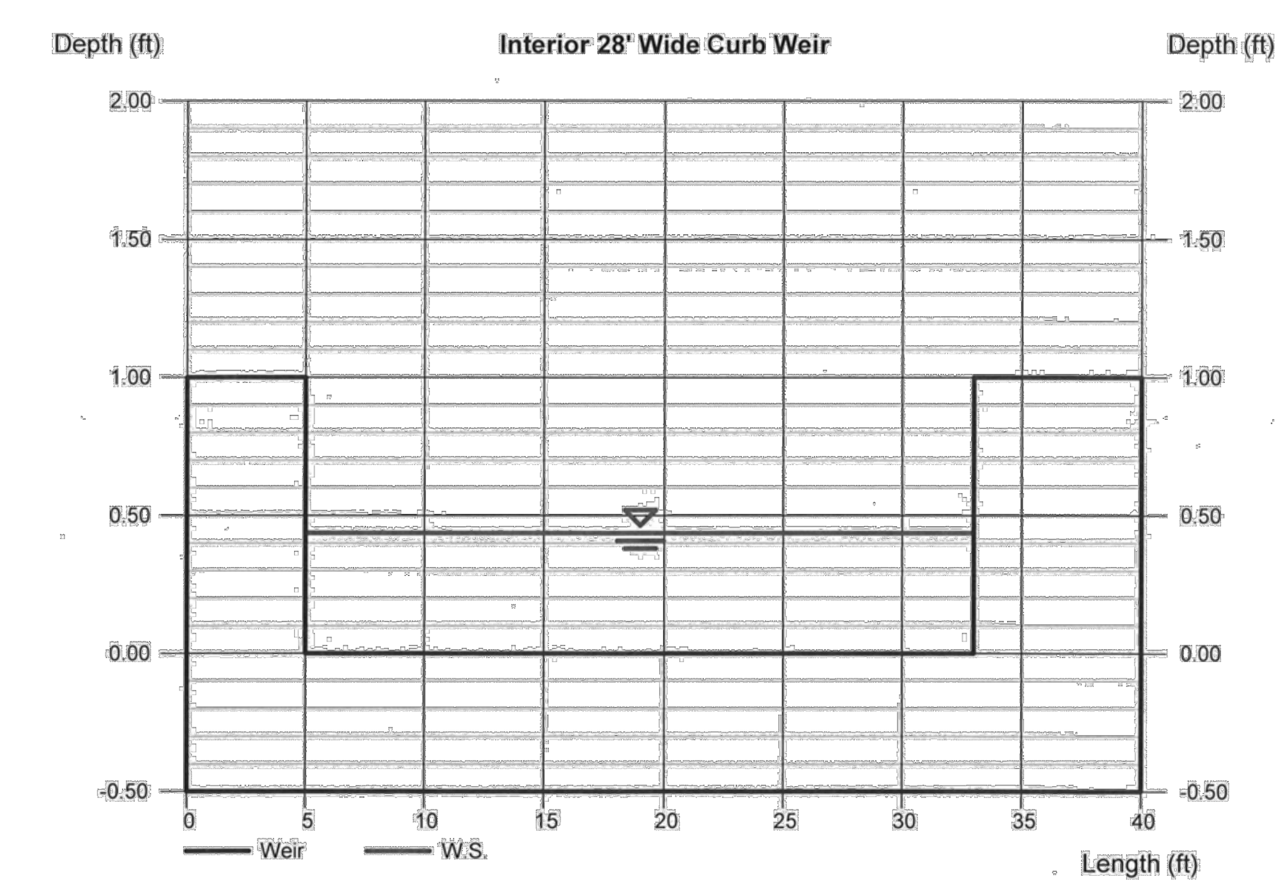
Weir Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Friday, Jun 7 2019

Interior 28' Wide Curb Weir

Rectangular Weir		Highlighted	
Crest	= Broad	Depth (ft)	= 0.44
Bottom Length (ft)	= 28.00	Q (cfs)	= 21.00
Total Depth (ft)	= 1.00	Area (sqft)	= 12.22
		Velocity (ft/s)	= 1.72
Calculations		Top Width (ft)	= 28.00
Weir Coeff. Cw	= 2.60		
Compute by:	Known Q		
Known Q (cfs)	= 21.00		

TOP OF 28' OVERFLOW WEIR ELEVATION = 81.5. AT 81.6, ADDITIONAL FLOW WILL BYPASS THE STORMWATER QUALITY PONDING AND DISCHARGE DIRECTLY. 2



City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED
DATE: 11/08/21
BY: Renée C. Brissette
HydroTrans # H10D030

THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE CONSTRUED TO PERMIT VIOLATIONS OF ANY CITY ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT THE CITY OF ALBUQUERQUE FROM REQUIRING CORRECTION, OR ERROR OR DIMENSIONS IN PLANS, SPECIFICATIONS, OR CONSTRUCTIONS. SUCH APPROVED PLANS SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT AUTHORIZATION.

FRED C. ARFMAN NEW MEXICO 7322 LICENSED PROFESSIONAL ENGINEER 09.29.21

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph. 505-268-8828 www.iacivil.com

2278 CG-501.dwg Nov 08,2021

ABQ RV &
BOAT STORAGE

LADERA ENTERPRISES LLC

DRAINAGE CALCULATIONS

Date: 09-29-21	No.	Revision:	Date:	Job No. 2278
Drawn By: BJB				CG-502
Ckd By: FCA				SH. OF