

CITY OF ALBUQUERQUE

Planning Department
Brennon Williams, Interim Director



Mayor Timothy M. Keller

August 28, 2019

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

**RE: McMahon Market Place – Lot 9 Improvements
Grading and Drainage Plan & Drainage Report
Engineer's Stamp Date: 08/16/19
Hydrology File: A11D011I**

Dear Mr. Arfman:

Based upon the information provided in your submittal received 08/20/2019, the Grading & Drainage Plan and Drainage Report are approved for Building Permit.

PO Box 1293

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 approval in support of Permanent Release of Occupancy by Hydrology, Engineer Certification per the DPM checklist will be required.

Albuquerque

Prior to the backfill of the underground detention pond, please provide photos and an Engineer Certification for the underground retention pond. This can be submitted to Hydrology as a letter submittal either before or at the time of submittal for Permanent Release of Occupancy.

NM 87103

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 (Dough Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

www.cabq.gov

Also as a reminder, please provide a Drainage Covenant for the proposed underground detention pond per Chapter 17 of the DPM prior to Permanent Release of Occupancy. Please submit this on the 4th floor of Plaza de Sol. A \$25 fee will be required.

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 11/2018)

Project Title: McMahn Marketplace Building Permit #: _____ Hydrology File #: A11D0111
DRB#: _____ EPC#: _____ Work Order#: _____
Legal Description: Lots 9-A, 9-B, & Portions of 9-C and 9-D, McMahon Marketplace
City Address: _____

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: JMD-McMahon, LLC Contact: Doug Peterson
Address: 2325 San Pedro Drive NE, Suite 2-A - Albuquerque, NM 87114
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) Drainage Study
____ 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: August 19, 2019 **By:** Fred C. Arfman

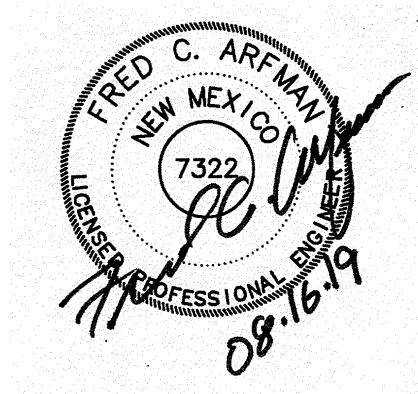
COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

AUGUST 28, 2019

McMahon Marketplace Lot 9a and Lot 9b Drainage Study



by



ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates

Thomas O. Isaacson, PE(RET.) & LS(RET.)
Fred C. Arfman, PE
Åsa Nilsson-Weber, PE

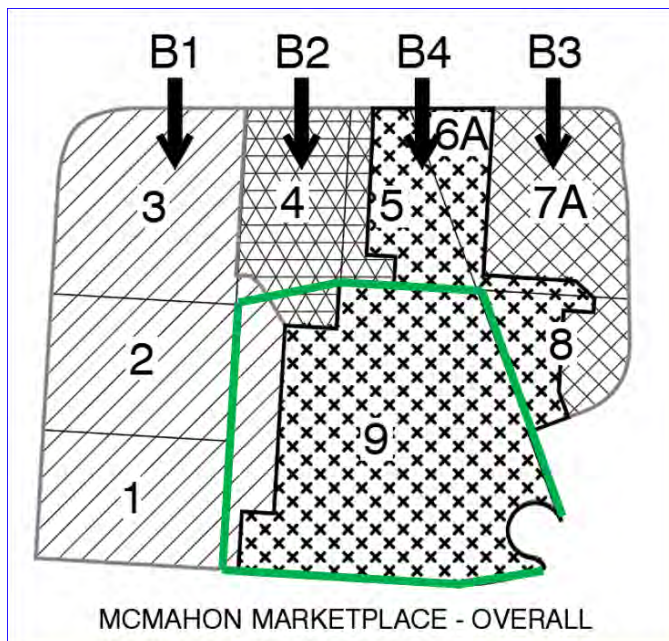
The McMahon Marketplace Drainage Management Plan (DMP) prepared by Bohannon-Huston, Inc., dated 05/07/10 limits the discharge from the entire 12.13 acre McMahon Marketplace property to 41.55 cfs. The image below shows the McMahon Marketplace DMP drainage basins B1 through B4 and the relationship between the Lot 9 limits (green) and the drainage basins.

The McMahon Marketplace Lots 1 through 8 are now developed. Lot 9 (9A, 9B, 9C and 9D) will be the final acreage to be developed.

A conceptual Grading and Drainage Plan for Lot 9 (CDG) prepared by Isaacson & Arfman, PA with stamp date 11/01/17 (COA Hydrology File A11/D011I) was approved for action by the DRB on the Site Plan for Building Permit.

This plan analyzed the fully developed discharge rates from Lots 1 through 8 and clarified the allowable discharge for the remaining Lot 9 sub-basins to limit the total discharge to the allowable rate of 41.55 cfs.

Per the CDG, Lot 9 is permitted to discharge flow as follows:

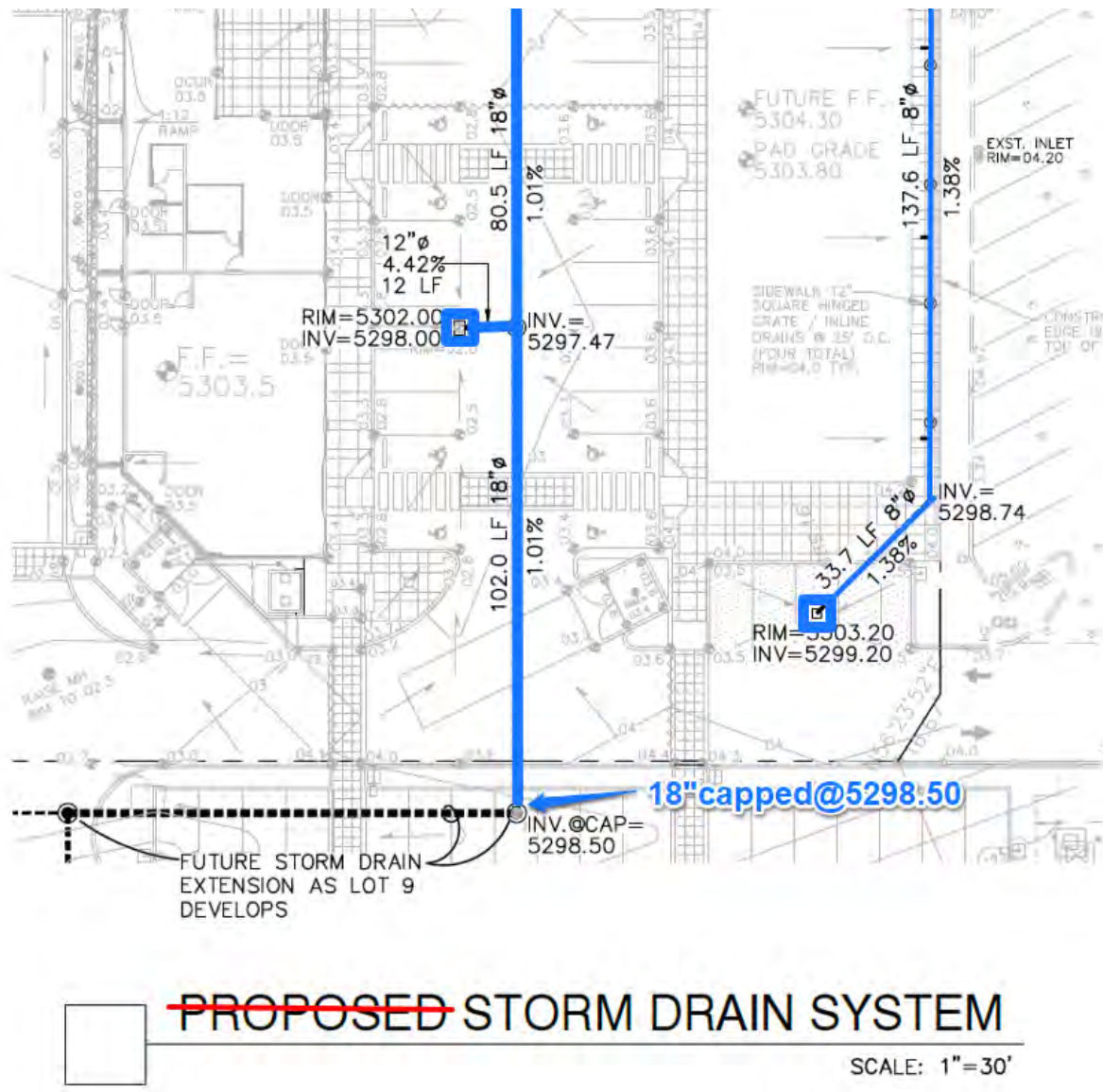


DMP B1: Free discharge to McMahon Blvd. Per the approved Lot 9 conceptual G&D plan and calculations, it was estimated that Lot 9 will discharge 2.8 cfs to DMP B1.

DMP B2: Free discharge to McMahon Blvd. Per the approved Lot 9 conceptual G&D plan and calculations, it was estimated that Lot 9 will discharge 0.1 cfs to DMP B2.

DMP B4: Detention required to limit fully developed discharge from Lot 9 to the Lot 5/6 Detention Pond to 10.9 cfs.

Lot 9 detention is required to limit developed discharge draining from Lot 9 to the Lot 5/6 Detention Pond to 10.9 cfs.



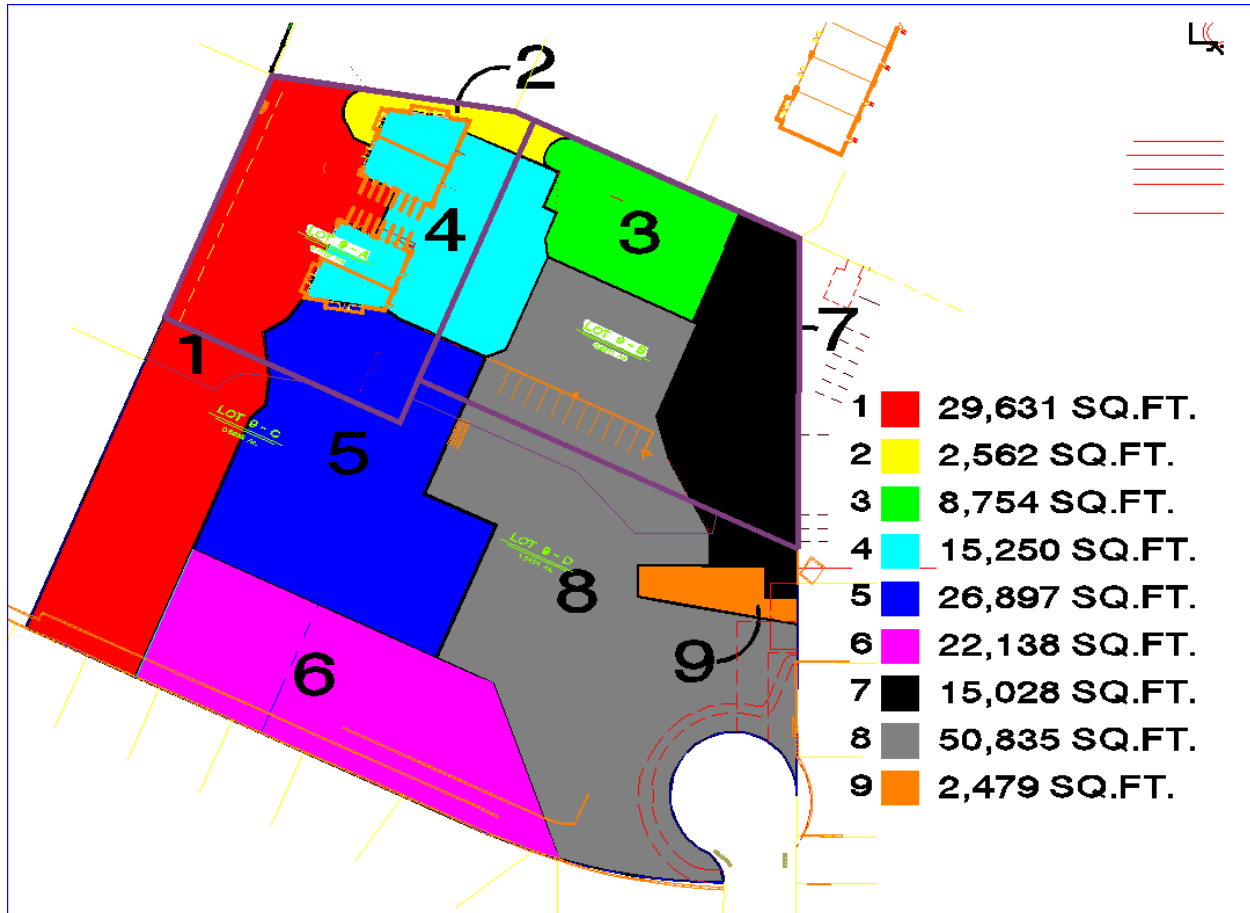
FULLY DEVELOPED CONDITION:

The fully developed Lot 9 property (3.98 acres) will generate 16.3 cfs during the 100-year 6-hour storm event (based on 5% Land Treatment B, 10% C and 85% D).

CALCULATIONS: McMahon Marketplace Lots 9A, 9B, 9C and 9D : August 9, 2019					
Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993					
100-YEAR, 6-HOUR CALCULATIONS					
AREA OF SITE:	173574	SF	=	3.98	ACRE
100-year, 6-hour					
HISTORIC FLOWS:	DEVELOPED FLOWS:		EXCESS PRECIP:		
		Treatment SF	%	Precip. Zone	1
Area A	=	0	0%	E _A	= 0.44
Area B	=	8679	5%	E _B	= 0.67
Area C	=	17357	10%	E _C	= 0.99
Area D	=	147538	85%	E _D	= 1.97
Total Area	=	173574	100%		
On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)					
Weighted E =	$\frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$				
Developed E	=	1.81 in.			
On-Site Volume of Runoff: V ₃₆₀ =					
	$E * A / 12$				
Developed V ₃₆₀	=	26137 CF			
On-Site Peak Discharge Rate: Q _p = 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
Developed Q _p	=	16.3 CFS			

FULLY DEVELOPED CONDITION:

In the fully developed condition, the property is divided into 9 drainage basins.



The Lot D fully developed flow will be routed as follows:

BASIN 1 – Free Discharge through DMP B1: The west portion of the Lot 9 site will discharge 2.8 cfs through DMP B1 to McMahon Blvd. Per the approved Lot 9 conceptual Grading & Drainage plan and calculations, MDP Basin B1 (fully developed) will free discharge 19.1 cfs to McMahon Blvd.

BASIN 2 - Free Discharge through DMP B2: A small northerly portion of Lot 9 will be routed through the Starbucks property (Lot 4) and free discharge 0.2 cfs to McMahon Blvd. Per the approved Lot 9 conceptual Grading & Drainage plan and calculations, DMP Basin B2 (fully developed) will free discharge 4.8 cfs to McMahon Blvd.

BASIN 3 – through BASIN 9: A portion of the Lot 9 parking area (Basin 3) will discharge 0.8 cfs to the storm drain inlet(s) on Lots 5/6. The remainder (Basins 4 – 9) will be routed to the proposed underground storage chambers which will provide detention as needed to limit the discharge to 10.1

cfs (10.9 cfs per conceptual Grading and Drainage Plan for Lot 9 – 0.8 cfs from Basin 3 which bypasses the underground storage chambers).

The total discharge from the fully developed McMahon Marketplace will be limited to 41.6 cfs.

Lot 9 Drainage Basins 1-5 (fully developed)

BASIN NO.	1	DESCRIPTION	Free Discharge through DMP B1
Area of basin flows =	29631	SF	= 0.7 Ac.
The following calculations are based on Treatment %'s as shown in table to the right		LAND TREATMENT	
Sub-basin Weighted Excess Precipitation:		A = 0%	
Weighted E =		1.81 in.	
Sub-basin Volume of Runoff:		B = 5%	
V ₃₆₀ =		4462 CF	
Sub-basin Peak Discharge Rate:		C = 10%	
Q _P =		2.8 cfs	
		D = 85%	
		FIRST FLUSH VOL. REQ'D	
		714 CF	
BASIN NO.	2	DESCRIPTION	Free Discharge through DMP B2
Area of basin flows =	2562	SF	= 0.1 Ac.
The following calculations are based on Treatment %'s as shown in table to the right		LAND TREATMENT	
Sub-basin Weighted Excess Precipitation:		A = 0%	
Weighted E =		1.81 in.	
Sub-basin Volume of Runoff:		B = 5%	
V ₃₆₀ =		386 CF	
Sub-basin Peak Discharge Rate:		C = 10%	
Q _P =		0.2 cfs	
		D = 85%	
		FIRST FLUSH VOL. REQ'D	
		62 CF	
BASIN NO.	3	DESCRIPTION	Discharge to DMP B4 Private SD → Pond
Area of basin flows =	8754	SF	= 0.2 Ac.
The following calculations are based on Treatment %'s as shown in table to the right		LAND TREATMENT	
Sub-basin Weighted Excess Precipitation:		A = 0%	
Weighted E =		1.81 in.	
Sub-basin Volume of Runoff:		B = 5%	
V ₃₆₀ =		1318 CF	
Sub-basin Peak Discharge Rate:		C = 10%	
Q _P =		0.8 cfs	
		D = 85%	
		FIRST FLUSH VOL. REQ'D	
		211 CF	
BASIN NO.	4	DESCRIPTION	Discharge to DMP B4 Private SD → Pond
Area of basin flows =	15250	SF	= 0.4 Ac.
The following calculations are based on Treatment %'s as shown in table to the right		LAND TREATMENT	
Sub-basin Weighted Excess Precipitation:		A = 0%	
Weighted E =		1.81 in.	
Sub-basin Volume of Runoff:		B = 5%	
V ₃₆₀ =		2296 CF	
Sub-basin Peak Discharge Rate:		C = 10%	
Q _P =		1.4 cfs	
		D = 85%	
		FIRST FLUSH VOL. REQ'D	
		367 CF	
BASIN NO.	5	DESCRIPTION	Discharge to DMP B4 Private SD → Pond
Area of basin flows =	26897	SF	= 0.6 Ac.
The following calculations are based on Treatment %'s as shown in table to the right		LAND TREATMENT	
Sub-basin Weighted Excess Precipitation:		A = 0%	
Weighted E =		1.81 in.	
Sub-basin Volume of Runoff:		B = 5%	
V ₃₆₀ =		4050 CF	
Sub-basin Peak Discharge Rate:		C = 10%	
Q _P =		2.5 cfs	
		D = 85%	
		FIRST FLUSH VOL. REQ'D	
		648 CF	

Lot 9 Drainage Basins 6-9 (fully developed)

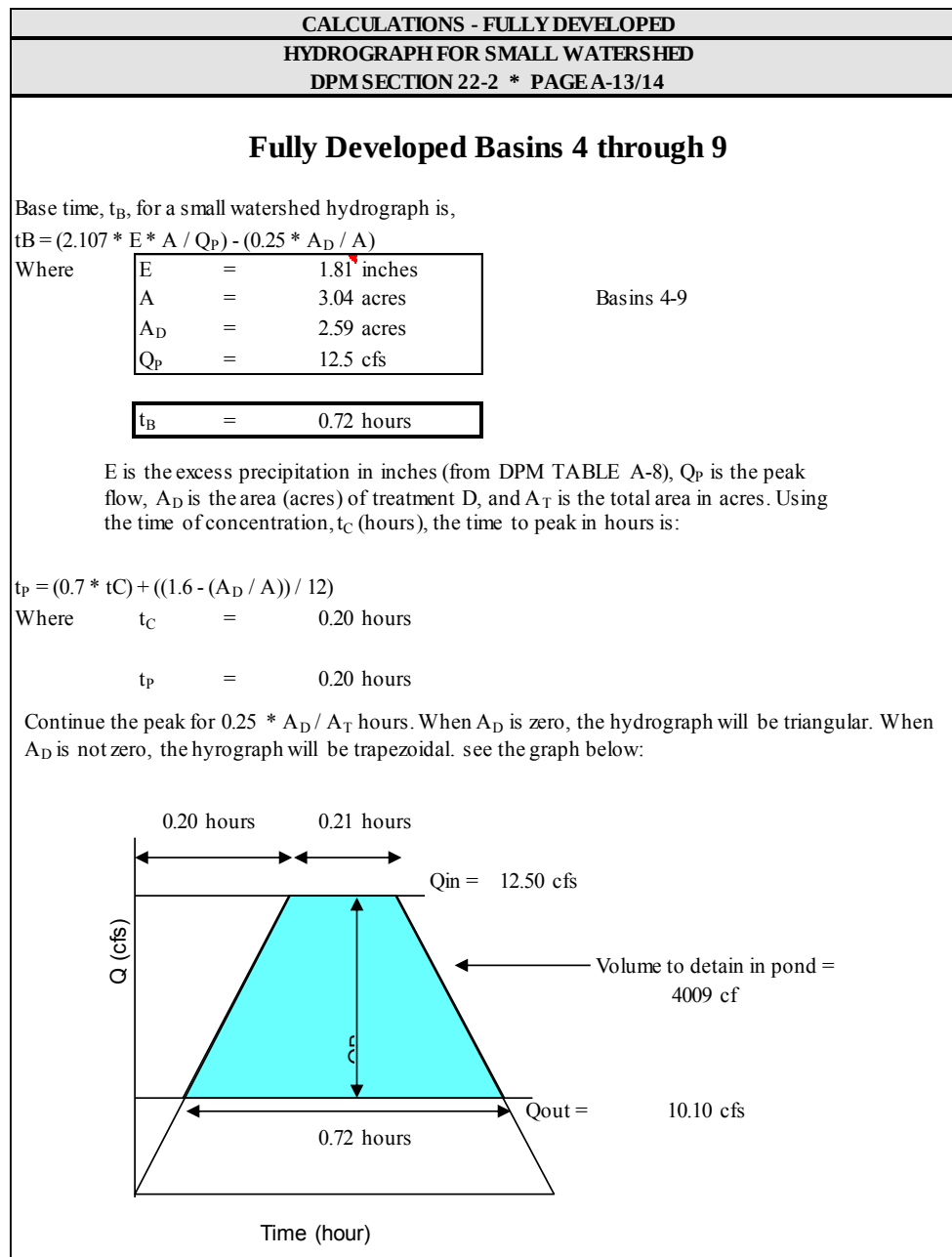
BASIN NO.	6	DESCRIPTION	Discharge to DMP B4 Private SD → Pond
Area of basin flows =	22138	SF	= 0.5 Ac.
The following calculations are based on Treatment %'s as shown in table to the right			
Sub-basin Weighted Excess Precipitation:		LAND TREATMENT	
Weighted E =		A = 0%	
		B = 5%	
Sub-basin Volume of Runoff:		C = 10%	
V ₃₆₀ =		D = 85%	
Sub-basin Peak Discharge Rate:		FIRST FLUSH VOL. REQ'D	
Q _P =		533 CF	
BASIN NO.	7	DESCRIPTION	Discharge to DMP B4 Private SD → Pond
Area of basin flows =	15028	SF	= 0.3 Ac.
The following calculations are based on Treatment %'s as shown in table to the right			
Sub-basin Weighted Excess Precipitation:		LAND TREATMENT	
Weighted E =		A = 0%	
		B = 5%	
Sub-basin Volume of Runoff:		C = 10%	
V ₃₆₀ =		D = 85%	
Sub-basin Peak Discharge Rate:		FIRST FLUSH VOL. REQ'D	
Q _P =		362 CF	
BASIN NO.	8	DESCRIPTION	Discharge to DMP B4 Private SD → Pond
Area of basin flows =	50835	SF	= 1.2 Ac.
The following calculations are based on Treatment %'s as shown in table to the right			
Sub-basin Weighted Excess Precipitation:		LAND TREATMENT	
Weighted E =		A = 0%	
		B = 5%	
Sub-basin Volume of Runoff:		C = 10%	
V ₃₆₀ =		D = 85%	
Sub-basin Peak Discharge Rate:		FIRST FLUSH VOL. REQ'D	
Q _P =		1224 CF	
BASIN NO.	9	DESCRIPTION	Discharge to DMP B4 Private SD → Pond
Area of basin flows =	2479	SF	= 0.1 Ac.
The following calculations are based on Treatment %'s as shown in table to the right			
Sub-basin Weighted Excess Precipitation:		LAND TREATMENT	
Weighted E =		A = 0%	
		B = 5%	
Sub-basin Volume of Runoff:		C = 10%	
V ₃₆₀ =		D = 85%	
Sub-basin Peak Discharge Rate:		FIRST FLUSH VOL. REQ'D	
Q _P =		60 CF	

ORIFICE EQUATION - GENERAL - SOLVE FOR A						
2*g*h) ^ 0.5						
Q	=	10.1	cfs			
C	=	0.6				
A	=	1.0	sq.ft.			
g	=	32.2	ft/sec^2			
h	=	4.4	ft	depth of flow at opening from the center of culvert		

Discharge from detention system (see next page) shall be limited to 10.1 cfs via orifice control.
A 1 sq.ft. opening will be provided in the outlet structure (see plans for additional design information.)

Per the inflow/outflow hydrograph, stormwater detention volume of 4009 cf will be provided as part of the underground detention / storm water quality system.

DEVELOPED TO STORMTECH	DESCRIPTION	Basins 4-9 area draining to stormtech chambers
Area of basin flows = 132627 SF	=	3.04 Ac.
The following calculations are based on Treatment %'s as shown in table to the right		
Sub-basin Weighted Excess Precipitation:		LAND TREATMENT
Weighted E = 1.81 in.		A = 0%
Sub-basin Volume of Runoff:		B = 5%
V ₃₆₀ = 19971 CF		C = 10%
Sub-basin Peak Discharge Rate:		D = 85%
Q _p = 12.5 cfs		





User Inputs

Chamber Model:	MC-3500
Outlet Control Structure:	Yes
Project Name:	McMahon Market-place
Engineer:	Bryan Bobrick
Project Location:	New Mexico
Measurement Type:	Imperial
Required Storage Volume:	4009 cubic ft.
Stone Porosity:	40%
Stone Foundation Depth:	12 in.
Stone Above Chambers:	12 in.
Average Cover Over Chambers:	18 in.
Design Constraint Dimensions:	(30 ft. x 80 ft.)

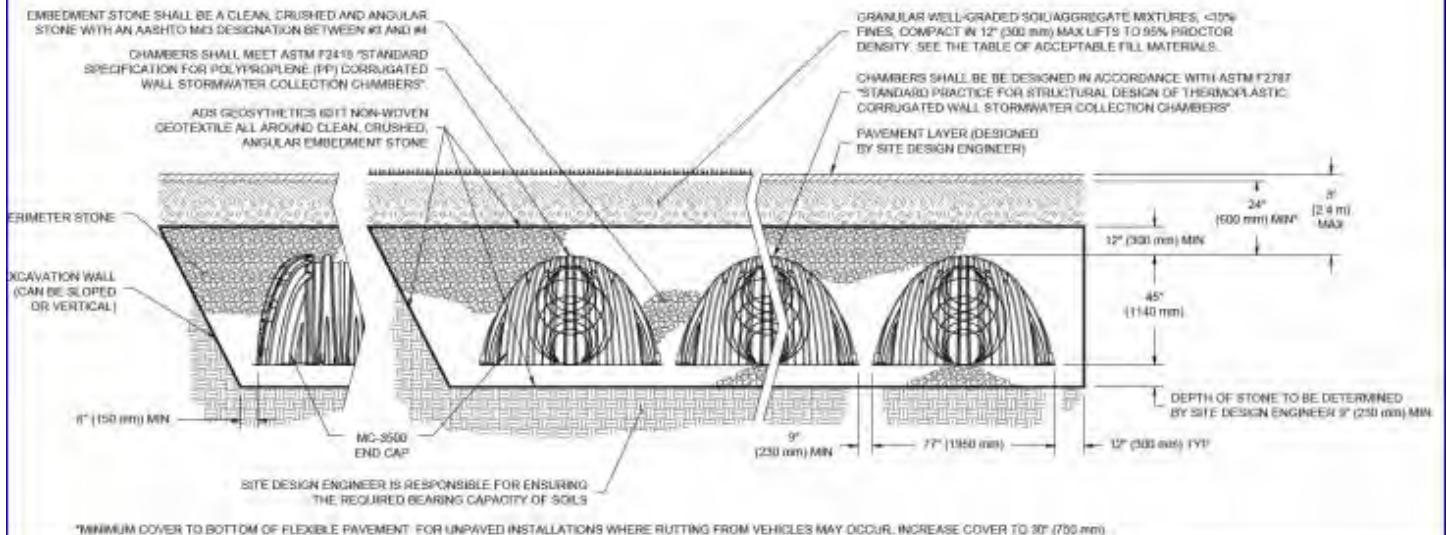
Results

System Volume and Bed Size

Installed Storage Volume:	5266.86 cubic ft.
Storage Volume Per Chamber:	109.90 cubic ft.
Number Of Chambers Required:	24
Number Of End Caps Required:	6
Chamber Rows:	3
Maximum Length:	70.95 ft.
Maximum Width:	22.25 ft.
Approx. Bed Size Required:	1578.55 square ft.

System Components

Amount Of Stone Required:	235.17 cubic yards
Volume Of Excavation (Not Including Fill):	336.17 cubic yards



For the fully developed condition

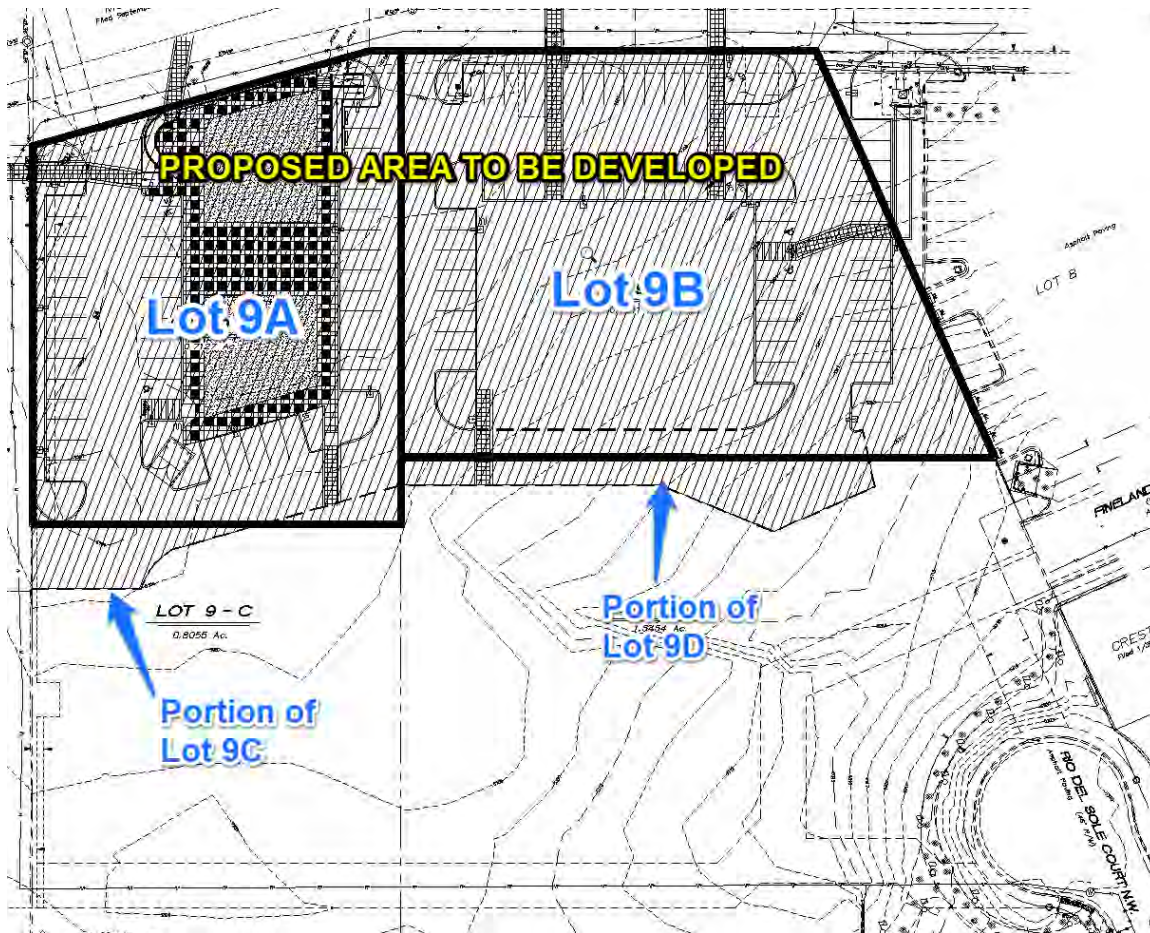
The 24" gravel layer (height 0" to 24") below the chambers provides 1067 cf of retention for stormwater quality.
The chambers and 12" gravel cover provides 4171 cf > 4009 cf required.

StormTech MC-3500 Cumulative Storage Volumes								
Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Single End Cap (cubic feet)	Incremental Chambers (cubic feet)	Incremental End Cap (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch, EC and Stone (cubic feet)	Cumulative System (cubic feet)	Elevation (feet)
81	0.00	0.00	0.00	0.00	44.46	44.46	5237.97	5304.75
70	0.00	0.00	0.00	0.00	44.46	44.46	4748.96	5303.83
69	0.06	0.00	1.39	0.00	43.90	45.29	4704.51	5303.75
68	0.19	0.02	4.66	0.14	42.53	47.34	4659.22	5303.67
67	0.29	0.04	7.06	0.23	41.54	48.82	4611.88	5303.58
66	0.40	0.05	9.69	0.31	40.46	50.45	4563.05	5303.50
65	0.69	0.07	16.49	0.41	37.70	54.59	4512.60	5303.42
64	1.03	0.09	24.68	0.53	34.37	59.58	4458.01	5303.33
63	1.25	0.11	29.99	0.64	32.20	62.83	4398.43	5303.25
62	1.42	0.13	34.13	0.76	30.50	65.39	4335.59	5303.17
61	1.57	0.14	37.76	0.87	29.01	67.63	4270.20	5303.08
60	1.71	0.16	40.97	0.98	27.68	69.62	4202.57	5303.00
59	1.83	0.18	43.88	1.09	26.47	71.44	4132.95	5302.92
58	1.94	0.20	46.51	1.20	25.37	73.08	4061.51	5302.83
57	2.04	0.22	48.98	1.31	24.34	74.63	3988.43	5302.75
56	2.13	0.23	51.23	1.41	23.40	76.04	3913.80	5302.67
55	2.22	0.25	53.38	1.50	22.50	77.39	3837.76	5302.58
54	2.31	0.27	55.36	1.59	21.67	78.63	3760.37	5302.50
53	2.38	0.28	57.23	1.68	20.89	79.80	3681.74	5302.42
52	2.46	0.29	59.02	1.76	20.14	80.92	3601.94	5302.33
51	2.53	0.31	60.68	1.85	19.45	81.97	3521.01	5302.25
50	2.59	0.32	62.25	1.93	18.78	82.96	3439.04	5302.17
49	2.66	0.33	63.75	2.01	18.15	83.91	3356.08	5302.08
48	2.72	0.35	65.16	2.08	17.56	84.80	3272.18	5302.00
47	2.77	0.36	66.51	2.16	16.99	85.66	3187.37	5301.92
46	2.82	0.37	67.79	2.23	16.45	86.47	3101.72	5301.83
45	2.88	0.38	69.01	2.31	15.93	87.25	3015.24	5301.75
44	2.92	0.40	70.18	2.38	15.43	87.99	2928.00	5301.67
43	2.97	0.41	71.28	2.45	14.97	88.69	2840.01	5301.58
42	3.01	0.42	72.30	2.51	14.53	89.34	2751.32	5301.50
41	3.05	0.43	73.28	2.58	14.11	89.97	2661.98	5301.42
40	3.09	0.44	74.26	2.64	13.69	90.60	2572.01	5301.33
39	3.13	0.45	75.13	2.70	13.32	91.16	2481.41	5301.25
38	3.17	0.46	75.98	2.77	12.96	91.70	2390.25	5301.17
37	3.20	0.47	76.79	2.82	12.61	92.22	2298.55	5301.08
36	3.23	0.48	77.55	2.88	12.28	92.71	2206.33	5301.00
35	3.26	0.49	78.27	2.94	11.97	93.18	2113.62	5300.92
34	3.29	0.50	78.97	2.99	11.67	93.63	2020.44	5300.83
33	3.32	0.51	79.63	3.04	11.39	94.06	1926.81	5300.75
32	3.34	0.51	80.26	3.09	11.12	94.46	1832.75	5300.67
31	3.37	0.52	80.85	3.13	10.86	94.84	1738.29	5300.58
30	3.39	0.53	81.42	3.18	10.62	95.21	1643.45	5300.50
29	3.41	0.54	81.95	3.22	10.39	95.56	1548.23	5300.42
28	3.44	0.54	82.49	3.26	10.16	95.90	1452.68	5300.33
27	3.46	0.55	82.99	3.30	9.94	96.22	1356.77	5300.25
26	3.48	0.56	83.49	3.33	9.73	96.55	1260.55	5300.17
25	3.51	0.59	84.12	3.57	9.38	97.07	1164.00	5300.08
24	0.00	0.00	0.00	0.00	44.46	44.46	1066.93	5300.00
1	0.00	0.00	0.00	0.00	44.46	44.46	44.46	5298.08

PROPOSED PARTIALLY DEVELOPED CONDITION (THIS PHASE):

The proposed area of development for this project falls within Lot 9 Basins 2, 3, 4, and a portion of 1, 5, 7, 8 and 9.

The proposed area to be developed with this project totals 1.76 acres or 44% of the total Lot D property. This includes 100% of 9A & 9B with small areas of access pavement on 9C & 9D.



Total stormwater quality retention required for the fully developed lot 9 properties (9a, 9b, 9c and 9d) = 4180 cf based on 85% total impervious area.

1003 cf of stormwater quality retention has been provided within the existing pond on lots 5/6a.

Therefore 3,177 cf will be required within lots 9a through 9d for fully developed conditions.

In the interim (proposed) condition, the partial development requires a total of 1,845 cf of stormwater quality storage. Subtracting the 1003 provided offsite, 842 cf of permanent retention volume is required.

1067 cf will be provided within the 24" gravel base of the stormtech chamber system. This addresses the required volume plus there will be an excess of 225 cf which will be utilized as the lot 9 properties continue to develop.

ORIFICE EQUATION - GENERAL - SOLVE FOR A

$$2 * g * h)^{0.5}$$

$$Q = 10.1 \text{ cfs}$$

$$C = 0.6$$

$$A = 1.0 \text{ sq.ft.}$$

$$g = 32.2 \text{ ft/sec}^2$$

$$h = 4.4 \text{ ft} \quad \text{depth of flow at opening from the center of culvert}$$

\\N:\PROJECTS\2300-2389\2321\DWG\ALBUQ\CG1.DWG P:\MKT\3211_02.dwg B:\ps B:\ps 8/28/2019 11:50 AM

GENERAL NOTES

CIVIL GENERAL NOTES

- A. THE CONTRACTOR SHALL ABIDE BY ALL STATE, LOCAL, AND FEDERAL LAWS, CODES, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS, INCLUDING EPA AND ADA REQUIREMENTS.
- B. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER CONTRACT SHALL, EXCEPT AS OTHERWISE STATED ON OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS (COA SPEC.).
- C. NO WORK SHALL BE PERFORMED WITHOUT THE APPROPRIATE PERMITS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS FOR THE PROJECT PRIOR TO COMMENCING CONSTRUCTION, OR PRIOR TO OCCUPANCY, AS APPROPRIATE.
- D. COORDINATE WORK WITH SITE PLAN, UTILITY PLAN, DEMOLITION PLAN, AND LANDSCAPE PLAN.
- E. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING OBSTRUCTIONS, AND CONDITION OF ALL EXISTING INFRASTRUCTURE PRIOR TO CONSTRUCTION. REPORT ALL DISCREPANCIES TO THE ARCHITECT AND VERIFY THE ARCHITECT / ENGINEER'S INTENT BEFORE PROCEEDING.
- F. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITE SAFETY.
- G. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON SITE AT ALL TIMES. THE CONTRACTOR SHALL NOT SCALE DRAWINGS. ONLY WRITTEN DIMENSIONS OR KEYED NOTES SHALL BE USED.
- H. CONTRACTOR SHALL OBTAIN ALL REQUIRED INSPECTIONS OF THE WORK. CONTRACTOR SHALL REGULARLY UPDATE ARCHITECT REGARDING THE STATUS OF THE INSPECTIONS.
- I. CONSTRUCTION ACTIVITY SHALL BE LIMITED TO THE PROPERTY AND/OR PROJECT LIMITS. ANY DAMAGE TO ADJACENT STRUCTURES RESULTING FROM THE CONSTRUCTION PROCESS SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- J. CONSTRUCTION EQUIPMENT SHALL NOT OBSTRUCT DRIVEWAYS. EQUIPMENT SHALL ONLY OBSTRUCT DESIGNATED TRAFFIC LANES IF APPROPRIATE BARRICADING PERMITS HAVE BEEN OBTAINED. THE CONTRACTOR SHALL NOT STORE ANY EQUIPMENT OR MATERIAL IN THE RIGHT-OF-WAY.
- K. THE CONTRACTOR SHALL PROVIDE A CONSTRUCTION TRAFFIC CONTROL AND SIGNING PLAN THAT CONFORMS TO THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND LOCAL REQUIREMENTS. THE CONTRACTOR SHALL OBTAIN BARRICADING PERMITS FROM THE APPROPRIATE AUTHORITIES PRIOR TO ANY CONSTRUCTION WORK ON OR ADJACENT TO EXISTING STREETS.
- L. THE CONTRACTOR SHALL MAINTAIN ALL BARRICADING AND CONSTRUCTION SIGNING AT ALL TIMES. THE CONTRACTOR SHALL VERIFY THE PROPER LOCATION OF ALL BARRICADING AT THE END AND BEGINNING OF EACH DAY.
- M. EXISTING UTILITY LINES ARE SHOWN IN AN APPROXIMATE MANNER ONLY AND MAY BE INCOMPLETE OR OBSOLETE. SUCH LINES MAY OR MAY NOT EXIST WHERE SHOWN OR NOT SHOWN. CONTRACTOR SHALL CONTACT NM-811 FOR UTILITY LINE SPOTS FIVE WORKING DAYS PRIOR TO CONDUCTING SITE FIELD WORK. CONTRACTOR SHALL FIELD VERIFY AND LOCATE ALL UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF NECESSARY DRY UTILITY ADJUSTMENTS.
- N. SITE PREPARATION, GRADING OPERATIONS, FOUNDATION CONSTRUCTION, AND PAVEMENT INSTALLATION WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT, WHICH WILL BE PROVIDED BY THE OWNER OR ARCHITECT.
- O. ALL TRASH, DEBRIS, & SURFACE VEGETATION SHALL BE CLEARED AND LEGALLY DISPOSED OF OFFSITE.
- P. VIBRATORY COMPACTION SHALL NOT BE USED OVER IN-PLACE UTILITIES.
- Q. SOIL TESTING AND INSPECTION SERVICES DURING SITE OPERATIONS ARE REQUIRED. CONTRACTOR SHALL ALLOW TESTING LABS TO INSPECT AND APPROVE COMPACTED SUBGRADES, BACKFILL, AND FILL LAYERS BEFORE FURTHER CONSTRUCTION WORK IS DONE. SHOULD COMPACTION TESTS INDICATE INADEQUATE DENSITY, CONTRACTOR SHALL PROVIDE ADDITIONAL COMPACTION AND TESTING AT THE CONTRACTOR'S SOLE EXPENSE.
- R. CONTRACTOR SHALL PROVIDE CONSTRUCTION STAKING. CONTRACTOR SHALL LOCATE AND PRESERVE ALL BOUNDARY CORNERS AND REPLACE ANY LOST OR DISTURBED CORNERS AT CONTRACTOR'S SOLE EXPENSE. PROPERTY CORNERS SHALL ONLY BE RESET BY A REGISTERED LAND SURVEYOR.
- S. ADJUST RIMS OF ALL EXISTING UTILITY FEATURES AS NECESSARY TO MATCH NEW GRADES. UTILITIES IN PAVED AREAS SHALL BE HS-25 TRAFFIC RATED.
- T. CONTRACTOR SHALL COMPLY WITH LOCAL REGULATIONS FOR RESEEDING OF DISTURBED AREAS.

GRADING GENERAL NOTES

- A. PROPOSED SPOT AND CONTOUR ELEVATIONS SHOWN REPRESENT TOP OF FINISH MATERIAL (I.E. TOP OF CONCRETE, TOP OF CONCRETE BUILDING PAD, TOP OF PAVEMENT MATERIAL, TOP OF LANDSCAPING MATERIAL, ETC.). CONTRACTOR SHALL GRADE, COMPACT SUBGRADE AND DETERMINE EARTHWORK ESTIMATES BASED ON ELEVATIONS SHOWN MINUS FINISH MATERIAL THICKNESSES.
- B. IF FIELD GRADE ADJUSTMENTS ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT.
- C. PRIOR TO OBTAINING A WORK ORDER AND/OR BUILDING PERMIT APPROVAL AND 14 DAYS PRIOR TO EARTH DISTURBANCE, PROJECTS THAT DISTURB 1 ACRE OR MORE (INCLUDING THE STAGING AREA AND ANY WORK WITHIN THE ADJACENT RIGHT-OF-WAY,) THE FOLLOWING ITEMS MUST BE SUBMITTED TO AND APPROVED BY THE CITY STORMWATER QUALITY ENGINEER (CURTIS CHERNE, PE, CCHERNE@CABQ.GOV, 924-3420):
- C.A. AN EROSION AND SEDIMENT CONTROL PLAN (ESC) PREPARED BY A STORMWATER QUALITY PROFESSIONAL;
- C.B. AN EPA NOTICE OF INTENT (NOI) SHOWING COMPLIANCE WITH EPA REQUIREMENTS FOR NPDES CONSTRUCTION PERMIT. (THIS ITEM IS REQUIRED FOR ALL PROJECTS THAT MEET EPA THRESHOLDS, WHETHER OR NOT THEY ARE WITHIN THE CITY OF ALBUQUERQUE'S JURISDICTION.)
- D. IF THE SITE IS SMALL ENOUGH NOT TO REQUIRE A SWPPP/NPDES PERMIT (LESS THAN ONE ACRE), THE CONTRACTOR SHALL STILL BE RESPONSIBLE FOR USING EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP'S) TO ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO ADJACENT PUBLIC RIGHT-OF-WAY.
- E. MEASURES REQUIRED FOR EROSION AND SEDIMENT CONTROL SHALL BE INCIDENTAL TO THE PROJECT COST.
- F. ALL NEW PAVEMENT SURFACES SHALL BE CONSTRUCTED WITH POSITIVE SLOPE AWAY FROM BUILDINGS AND POSITIVE SLOPE TOWARD EXISTING AND/OR PROPOSED DRAINAGE PATHS. PAVING AND ROADWAY GRADES SHALL BE ±0.05' FROM PLAN ELEVATIONS. BUILDING PAD ELEVATION SHALL BE ±0.02' FROM PLAN ELEVATION.
- G. GRADE BETWEEN NEW AND EXISTING ARE SHOWN AS 'MATCH' OR '+'. TRANSITIONS SHALL BE SMOOTH.
- H. PAVEMENT GRADES IN MARKED HANDICAPPED PARKING AREAS SHALL NOT EXCEED 2.0% IN ANY DIRECTION (1.5% IS PREFERRED). FOR ALL ACCESSIBLE ROUTES, MAXIMUM ALLOWABLE CROSS SLOPE IS 2.0% (1.5% PREFERRED) AND MAXIMUM LONGITUDINAL SLOPE WITHOUT RAMP IS 5.0% (4.8% PREFERRED). FOLLOW ALL ADA ACCESSIBILITY GUIDELINES OR CITY CODES, WHICHEVER IS MORE STRINGENT.
- I. ALL EROSION PROTECTION TO BE 6" AVG. DIA. ANGULAR FACED ROCK PLACED OVER GEOTEX 501 NON-WOVEN GEOTEXTILE (O.E.).
- J. POND DESIGN PARAMETERS AND STORMWATER QUALITY CONTROL MEASURES SHOWN ON THIS PLAN (TOP OF POND, BOTTOM OF POND, SIZE OF ORICE, AREA OF POND, ETC.) TO BE STRICTLY ADHERED TO FOR CERTIFICATION PURPOSES.
- K. POST-CONSTRUCTION MAINTENANCE FOR EROSION PROTECTION WILL BE THE RESPONSIBILITY OF THE FACILITIES OWNER. PERIODIC INSPECTION AND CERTIFICATIONS OF THE FACILITIES MAY BE REQUIRED BY THE CITY ENGINEER. ENGINEER RECOMMENDS THAT OWNER INSPECT SITE YEARLY AND AFTER RAINFALL TO IDENTIFY AREAS OF EROSION. INSTALL ADDITIONAL EROSION PROTECTION BASED ON ACTUAL OCCURRENCES.
- L. FOR ENGINEER'S CERTIFICATION OF SUBSTANTIAL COMPLIANCE (FOR CERTIFICATE OF OCCUPANCY) CONTRACTOR SHALL PROVIDE AN AUTOCAD FORMAT AS-BUILT SURVEY PREPARED BY A LICENSED SURVEYOR WHICH INCLUDES:
- AS-BUILT SPOT ELEVATIONS AT EACH DESIGN SPOT ELEVATION SHOWN ON THE APPROVED PLAN;
 - TOP AND BOTTOM ELEVATIONS AS REQUIRED TO DEFINE THE PERIMETER OF PONDS (TO BE USED BY ENGINEER TO CALCULATE AS-BUILT VOLUME PROVIDED);
 - POND OVERFLOW ELEVATIONS
 - ALL CONSTRUCTION, INCLUDING DRAIN INLETS, PIPES AND PONDS SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN IN ORDER TO RECEIVE ENGINEER'S CERTIFICATION.
- P. GRADING OF STORMWATER QUALITY RETENTION WILL BE INSPECTED AS PART OF ENGINEER'S CERTIFICATION FOR CERTIFICATE OF OCCUPANCY. DURING LANDSCAPING, THESE RETENTION PONDS MAY BE SMOOTHLY INTEGRATED INTO LANDSCAPING WHILE MAINTAINING REQUIRED TOP AND BOTTOM ELEVATION, VOLUME AND INLET / OVERFLOW ELEVATIONS.
- V. UPON WRITTEN REQUEST COORDINATED THROUGH THE PROJECT ARCHITECT, THE ELECTRONIC FILE OF THE GRADING AND DRAINAGE WILL BE PROVIDED TO THE CONTRACTOR FOR VERTICAL CONTROL. DO NOT USE THIS PLAN FOR PROJECT STAKING AS THERE IS NO CERTAINTY THAT IT IS USING THE MOST CURRENT SITE BASE.
- W. SITE CONSTRUCTION LAYOUT / STAKING SHALL BE COORDINATED WITH THE ARCHITECT USING THE ARCHITECT PROVIDED SITE PLAN.

STORM DRAIN GENERAL NOTES

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE INSTALLATION OF ALL WORK RELATED TO PROPOSED STORM DRAIN SHOWN ON THIS PLAN INCLUDING: TRENCHING, BACKFILL, SUPPORTS, INLET AND MANHOLE COLLARS, MANHOLES, WATER QUALITY FEATURES, EROSION CONTROL FEATURES, TESTING, CLEANING, AND STERILIZING. ANY WORK NOT ACCEPTED BY THE ARCHITECT OR ENGINEER DUE TO IMPROPER WORKMANSHIP OR LACK OF PROPER COORDINATION SHALL BE REMOVED AND CORRECTLY INSTALLED AT THE CONTRACTOR'S EXPENSE, AS DIRECTED.
- B. MINIMUM COVER FOR STORM DRAIN PIPES SHALL BE 12" UNLESS OTHERWISE NOTED.
- C. STORM DRAINS SHALL BE INSTALLED AFTER COMPLETION OF THE SITE ROUGH GRADING.
- D. STORM DRAINS SHALL BE INSTALLED PRIOR TO SURFACE IMPROVEMENTS SUCH AS PAVEMENT, SIDEWALKS, AND LANDSCAPING.
- E. TRENCHING, BORING, AND JACKING SHALL BE CONSTRUCTED IN ACCORDANCE WITH COA SPEC. SECT. 700. ALL BACKFILL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY PER ASTM D-1557.
- F. ALL INLET AND AREA DRAIN RINGS & GRATES, MANHOLE RINGS & COVERS, AND OTHER SURFACE ITEMS FOR THE STORM DRAINS SHALL BE ADJUSTED TO FINISHED GRADE, UNLESS OTHERWISE NOTED ON THE PLANS.
- G. ALL STORM DRAIN CROSSINGS OF WATER AND SEWER LINES SHALL HAVE 18" MIN CLEARANCE. IF 18" CLEARANCE IS NOT POSSIBLE, CONTACT THE ARCHITECT IMMEDIATELY.
- H. RCP PIPES, PP PIPES, CONCRETE INLETS, MANHOLES, AND CLEANOUTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH COA SPEC. SECT. 900.
- I. HDPE PIPE SHALL BE ADS N-12 (WATERTIGHT) OR ENGINEER APPROVED EQUIVALENT. HDPE PIPE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
- J. PVC PIPES SHALL BE PVC SDR-35, INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
- K. STORM DRAINS SHALL BE INSTALLED AT INVERTS AND SLOPES SPECIFIED ON THE PLANS. THE PIPE SHALL DRAIN AT A CONSTANT SLOPE BETWEEN FITTINGS AND MANHOLES. THE PIPE SHALL DRAIN TOWARD THE OUTLET AT ALL LOCATIONS.
- L. ALL FITTINGS AND COUPLINGS FOR WATERLINES LESS THAN 4" IN DIAMETER ARE TO BE COPPER, SOLDER JOINT FITTINGS IN ACCORDANCE WITH ASME 16.18 OR ASME B16.22.
- M. ALL FITTINGS AND COUPLINGS FOR WATERLINES 4" IN DIAMETER OR LARGER ARE TO BE MEGA LUG MECHANICAL JOINTS OR ENGINEER APPROVED EQUIVALENT.
- N. JOINTS SHALL BE RESTRAINED BY MEGA LUG HARNESSSES, OR ENGINEER APPROVED EQUIVALENT. JOINT RESTRAINTS SHALL BE INSTALLED AT DISTANCES FROM THE FITTINGS AS SHOWN ON THE JOINT RESTRAINT TABLE IN THESE PLANS.
- O. BACKFLOW PREVENTERS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- P. FIRE LINES SHALL USE PIPE MATERIALS LISTED AND APPROVED FOR FIRE SERVICE BY UNDERWRITERS LABORATORIES.
- Q. FIRE DEPARTMENT CONNECTIONS SHALL MEET UL 405, NFPA 1963, AND LOCAL FIRE DEPARTMENT REQUIREMENTS.
- R. ADJUST WATER AND FIRE LINES TO AVOID FOOTINGS, SEWER LINES, AND OTHER CONDUITS. INSTALL FITTINGS AS NEEDED.
- S. SEWER MANHOLES, CLEANOUTS, SEWER SERVICE TAPS, AND OTHER SEWER APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH COA SPEC. SECT. 900.
- T. SEWER SERVICE LINES SHALL BE INSTALLED AT A 2% MINIMUM SLOPE, UNLESS OTHERWISE SPECIFIED ON THE PLANS. THE PIPE SHALL DRAIN AT A CONSTANT SLOPE BETWEEN FITTINGS. THE PIPE SHALL DRAIN TOWARD THE SEWER MAIN AT ALL LOCATIONS.
- U. ALL SANITARY SEWER LINE MATERIALS SHALL BE PVC SDR-35 PIPE.

UTILITY GENERAL NOTES

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE INSTALLATION OF ALL WORK RELATED TO PROPOSED UTILITIES SHOWN ON THIS PLANSET INCLUDING: TRENCHING, BACKFILL, SUPPORTS, CLEANOUT PADS, SERVICE STOPS AND BOXES, SERVICE LINES, TESTING, CLEANING, AND STERILIZING. ANY WORK NOT ACCEPTED BY THE ARCHITECT OR ENGINEER DUE TO IMPROPER WORKMANSHIP OR LACK OF PROPER COORDINATION SHALL BE REMOVED AND CORRECTLY INSTALLED AT THE CONTRACTOR'S EXPENSE, AS DIRECTED.
- B. MINIMUM COVER SHALL BE 36" FOR WATERLINES AND 48" FOR SANITARY SEWER, EXCEPT AT BUILDING CONNECTIONS.
- C. UTILITY LINES SHALL BE INSTALLED AFTER COMPLETION OF THE SITE ROUGH GRADING.
- D. UTILITY LINES SHALL BE INSTALLED PRIOR TO SURFACE IMPROVEMENTS SUCH AS PAVEMENT, SIDEWALKS, AND LANDSCAPING.
- E. CONTRACTOR SHALL BE RESPONSIBLE FOR CONNECTIONS TO BUILDING PLUMBING AND ALL NECESSARY FITTINGS. FITTING COSTS SHALL BE INCIDENTAL. REFER TO THE MECHANICAL AND/OR PLUMBING PLANS FOR SERVICE CONNECTIONS.
- F. DRY UTILITY LOCATIONS AND DESIGN ARE NOT A PART OF THIS PLAN. CONTRACTOR SHALL COORDINATE WITH THE LOCAL DRY UTILITY COMPANIES TO DETERMINE THE SIZE, DEPTH, LOCATION, FITTINGS AND REQUIRED APPURTENANCES FOR THE DRY UTILITY SERVICE LINES ON THE SITE. REFER TO MECHANICAL AND ELECTRICAL PLANS FOR SERVICE CONNECTIONS.
- G. TRENCHING, BORING, AND JACKING SHALL BE CONSTRUCTED IN ACCORDANCE WITH COA SPEC. SECT. 700. ALL BACKFILL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY PER ASTM D-1557.
- H. ALL WATER VALVE BOXES, MANHOLE RINGS & COVERS, AND OTHER SURFACE ITEMS FOR THE UTILITIES SHALL BE ADJUSTED TO FINISHED GRADE.
- I. ALL CROSSINGS OF WATER AND SEWER LINES SHALL HAVE 18" MIN CLEARANCE. IF 18" CLEARANCE IS NOT POSSIBLE, BOTH SHALL PIPES BE ENCASED IN CONCRETE.
- J. VALVES, METERS, SERVICE LINES, METER AND VALVE BOXES, TAPPING SLEEVES, HYDRANTS, AND OTHER WATER APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH COA SPEC. SECT. 800.
- K. WATERLINES LESS THAN 4" DIAMETER SHALL BE COPPER TYPE K MEETING ASTM B 88 REQUIREMENTS. WATERLINES 4" IN DIAMETER OR LARGER SHALL BE PVC PIPE MEETING AWWA C900 DR-18 REQUIREMENTS.
- L. ALL FITTINGS AND COUPLINGS FOR WATERLINES LESS THAN 4" IN DIAMETER ARE TO BE COPPER, SOLDER JOINT FITTINGS IN ACCORDANCE WITH ASME 16.18 OR ASME B16.22.
- M. ALL FITTINGS AND COUPLINGS FOR WATERLINES 4" IN DIAMETER OR LARGER ARE TO BE MEGA LUG MECHANICAL JOINTS OR ENGINEER APPROVED EQUIVALENT.
- N. JOINTS SHALL BE RESTRAINED BY MEGA LUG HARNESSSES, OR ENGINEER APPROVED EQUIVALENT. JOINT RESTRAINTS SHALL BE INSTALLED AT DISTANCES FROM THE FITTINGS AS SHOWN ON THE JOINT RESTRAINT TABLE IN THESE PLANS.
- O. BACKFLOW PREVENTERS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- P. FIRE LINES SHALL USE PIPE MATERIALS LISTED AND APPROVED FOR FIRE SERVICE BY UNDERWRITERS LABORATORIES.
- Q. FIRE DEPARTMENT CONNECTIONS SHALL MEET UL 405, NFPA 1963, AND LOCAL FIRE DEPARTMENT REQUIREMENTS.
- R. ADJUST WATER AND FIRE LINES TO AVOID FOOTINGS, SEWER LINES, AND OTHER CONDUITS. INSTALL FITTINGS AS NEEDED.
- S. SEWER MANHOLES, CLEANOUTS, SEWER SERVICE TAPS, AND OTHER SEWER APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH COA SPEC. SECT. 900.
- T. SEWER SERVICE LINES SHALL BE INSTALLED AT A 2% MINIMUM SLOPE, UNLESS OTHERWISE SPECIFIED ON THE PLANS. THE PIPE SHALL DRAIN AT A CONSTANT SLOPE BETWEEN FITTINGS. THE PIPE SHALL DRAIN TOWARD THE SEWER MAIN AT ALL LOCATIONS.
- U. ALL SANITARY SEWER LINE MATERIALS SHALL BE PVC SDR-35 PIPE.

VICINITY MAP



PROJECT DATA

PROPERTY: THE SITE IS PARTIALLY DEVELOPED COMMERCIAL PROPERTY WITHIN C.O.A. VICINITY MAP A-11. THE SITE IS BOUND TO THE EAST, SOUTH AND WEST BY MCMAHON MARKETPLACE DRIVES, COMMERCIAL PROPERTIES AND MCMAHON BLVD. TO THE NORTH.

SITE AREA: 1.63 ACRES

PROPOSED IMPROVEMENTS: THE PROPOSED IMPROVEMENTS FALL WITHIN THE NORTHERN PORTION OF LOT 9 AND INCLUDE THE FULL DEVELOPMENT OF LOT 9-A, AND PARTIAL ASPHALT PAVED PARKING, PEDESTRIAN WALKS, DRAINAGE IMPROVEMENTS ON LOT 9-B AND PORTIONS OF 9-C AND 9-D.

LEGAL: LOTS 9-A, 9-B AND PORTIONS OF 9-C AND 9-D, MCMAHON MARKETPLACE, CITY OF ALBUQUERQUE, NEW MEXICO.

BENCHMARK: VERTICAL DATUM IS BASED UPON THE ALBUQUERQUE CONTROL SURVEY MONUMENT "9-A11", ELEVATION = 5301.647 (NAD 1988)

OFF-SITE: NO OFFSITE FLOW OTHER THAN LOTS 9-A THROUGH 9-D WILL IMPACT THIS PROPERTY AS PROVIDED IN THE AMENDED DRAINAGE MANAGEMENT PLAN.

FLOOD HAZARD: PROPERTY IS LOCATED WITHIN ZONE X, DESIGNATING AREAS DETERMINED TO BE OUTSIDE THE 100-YEAR FLOOD PLAIN ACCORDING TO THE FLOOD INSURANCE RATE MAP, BERNALILLO COUNTY, NEW MEXICO AND INCORPORATED AREAS MAP NO. 35001C0104H, MAP REVISED AUGUST 16, 2012.

DRAINAGE PLAN CONCEPT: THE OVERALL LOT 9 PROPERTY (LOTS 9-A THROUGH 9-D) WILL DISCHARGE PER THE COA HYDROLOGY APPROVED CONCEPTUAL GRADING AND DRAINAGE PLAN FOR LOT 9, STAMP DATE: 11/01/17 PREPARED BY ISAACSON & ARFMAN PA (COA HYDROLOGY FILE A11/D011) WHICH ADHERES TO THE WHOLE OF THE MCMAHON MARKETPLACE PROPERTY LIMITED TO 41.55 CFS PER THE APPROVED DRAINAGE MASTER PLAN. THE WEST PORTION OF THE PROPOSED PROPERTY FALLS WITHIN MASTER PLANNED BASINS B1 AND B2 (FREE DISCHARGE). DETENTION PONDING WILL BE PROVIDED FOR THE FULL DEVELOPMENT OF THE REMAINDER OF LOT 9 TO LIMIT THE ALLOWABLE DISCHARGE TO THE EXISTING DETENTION POND TO THE NORTH.

STORMWATER QUALITY (S.Q.) CONTROL MEASURES ARE REQUIRED TO PROVIDE MANAGEMENT OF 'FIRST FLUSH' DEFINED AS THE 90TH PERCENTILE STORM EVENT OR 0.34" [0.44" LESS 0.1" FOR INITIAL ABSTRACTION] OF STORMWATER WHICH DISCHARGES DIRECTLY TO A PUBLIC STORM DRAINAGE SYSTEM. SEE CGS.2.

A DRAINAGE COVENANT MAY BE REQUIRED FOR THE S.Q. PONDS AND THEIR OUTFALL STRUCTURES. IF SO, THE ORIGINAL NOTARIZED FORM, EXHIBIT A (LEGIBLE ON 8.5X11) AND RECORDING FEE (PAYABLE TO CITY OF ALBUQUERQUE) WILL BE TURNED INTO DRC (4TH, PLAZA DEL SOL) FOR ROUTING.

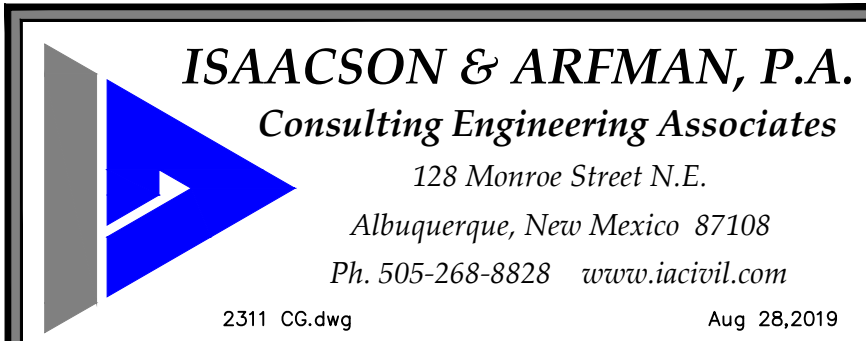
ENGINEER: FRED C. ARFMAN, NMPE 7322
ISAACSON & ARFMAN, PA
128 MONROE NE, 87111
TELEPHONE: (505) 268-8828

SURVEYOR: RUSS P. HUGG, NMPS NO. 9750
SURV-TEK, INC.
9384 VALLEY VIEW DR. NW, 87114
TELEPHONE: (505) 897-3366

CONSTRUCTION STAKING / LAYOUT

UPON WRITTEN REQUEST COORDINATED THROUGH THE PROJECT ARCHITECT, THE ELECTRONIC FILE OF THE GRADING AND DRAINAGE WILL BE PROVIDED TO THE CONTRACTOR FOR VERTICAL CONTROL. DO NOT USE THIS PLAN FOR PROJECT STAKING.

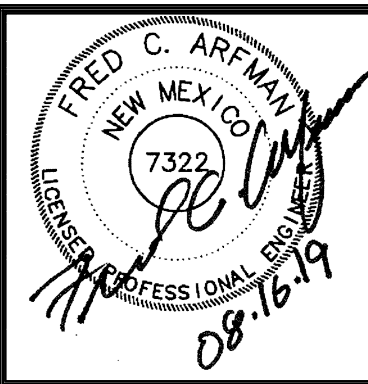
SITE CONSTRUCTION LAYOUT / STAKING SHALL BE COORDINATED WITH THE ARCHITECT USING THE ARCHITECT PROVIDED SITE PLAN.



ALL DIMENSIONS ARE TO BE FIELD VERIFIED. IF THERE ARE DISCREPANCIES, PLEASE NOTIFY THE ARCHITECT. DRAWING ARE NOT TO BE SCALED. USE DIMENSIONS FOR ACCURACY.

McMAHON MARKET PLACE
LOT 9 IMPROVEMENTS
McMAHON BLVD NW
ALBUQUERQUE, NM 87114

CIVIL NOTES



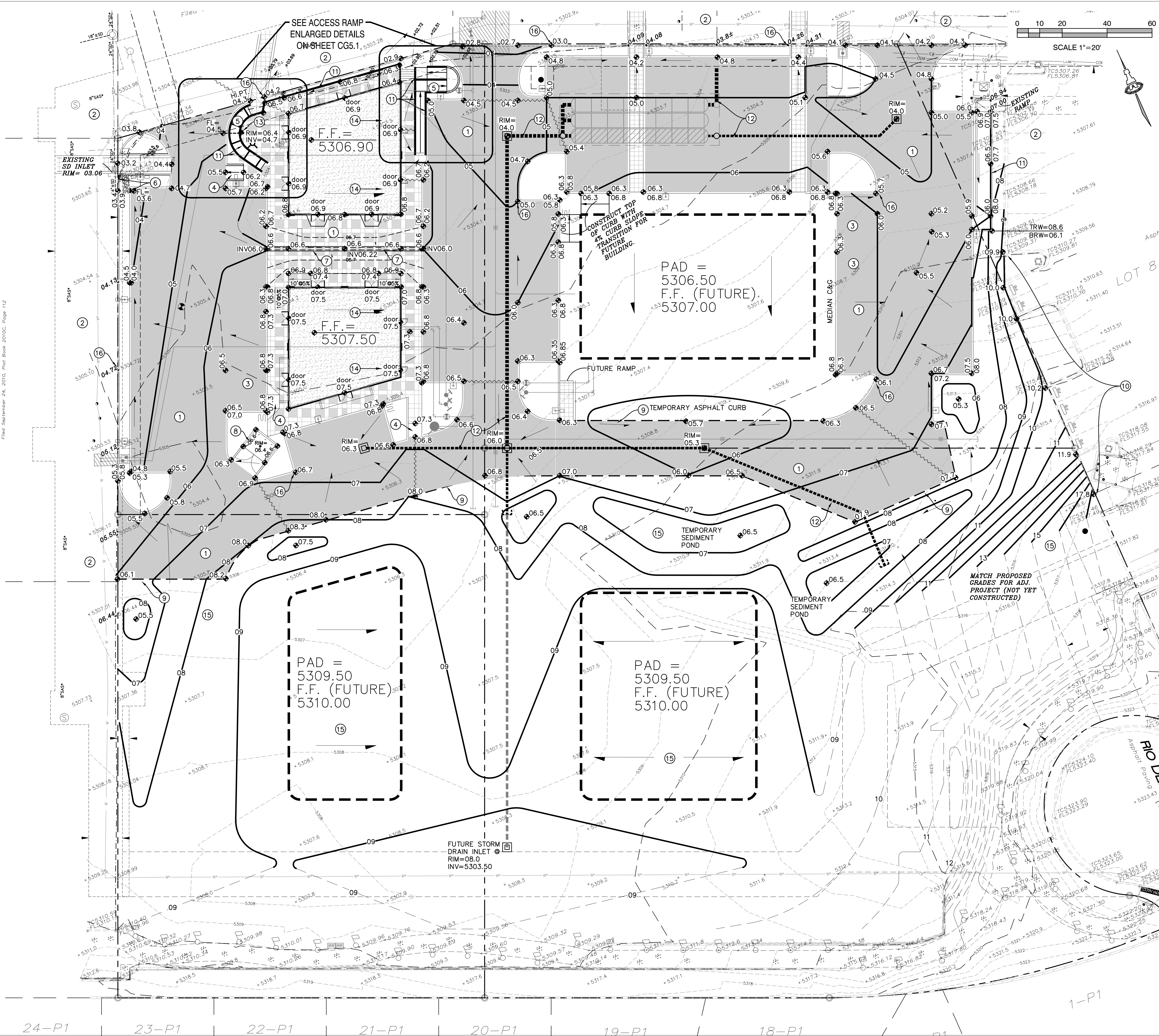
DATE: APRIL 2019
DRAWN BY: BJB
CHECKED BY: FCA
VERIFIED BY:

REVISIONS

NO.	DESCRIPTION

SHEET NO:

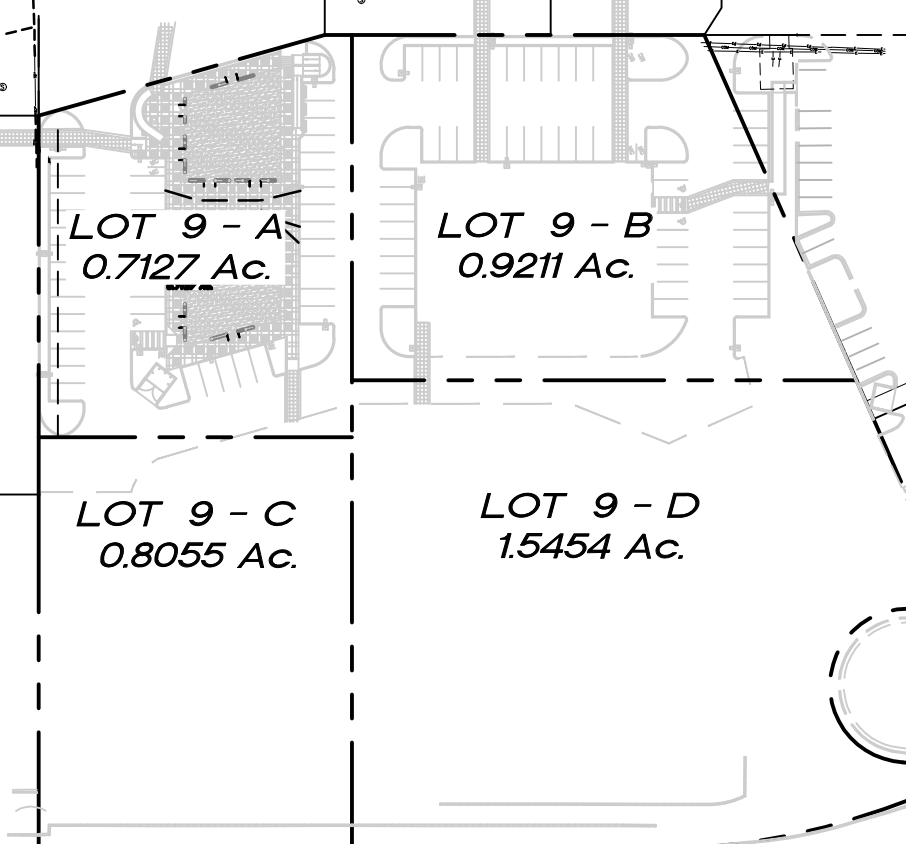
CG1.0



KEYED NOTES

1. CONSTRUCT PAVING / WALKS / CROSSWALKS / CURB AND GUTTER TO ELEVATIONS SHOWN. SEE PAVING PLAN FOR PAVEMENT MATERIAL, EXTENTS, SECTIONS, PARKING LAYOUT, DIMENSIONS, STRIPING, ETC. PROVIDE SMOOTH TRANSITION TO EXISTING.
2. EXISTING PAVING TO REMAIN. PROVIDE SMOOTH TRANSITIONS.
3. CONSTRUCT HC PARKING AREA TO ADA STANDARDS. TARGET SLOPE = 1% TO 1.5%. SLOPE SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION.
4. CONSTRUCT ADA COMPLIANT CURB RAMP AT ELEVATIONS SHOWN. TARGET LONGITUDINAL SLOPE = 7% LONGITUDINAL SLOPE SHALL NOT EXCEED 12:1 (8.3%). SEE ARCHITECTURAL.
5. CONSTRUCT ADA COMPLIANT RAMP WITH INTERMEDIATE LANDINGS AS SHOWN. SEE CG5.1 FOR ENLARGED DETAIL. SEE ARCHITECTURAL FOR ADDITIONAL INFORMATION.
6. PROVIDE 2.0' WIDE CURB OPENING AT FLOWLINE ELEVATIONS SHOWN. INSTALL 1' DEEP ROCK EROSION PROTECTION TO EXTENTS SHOWN.
7. INSTALL 70 LF TRENCH DRAIN (ACO K100S WITH PEDESTRIAN RATED GRATE) WITH BUILT-IN SLOPE. TOP OF GRATE = 5306.6. INVERT HIGH POINT IN CENTER OF PATIO = 06.22. DISCHARGE TO PAVEMENT EACH SIDE. NOTE: 0.1' CONTOURS PROVIDED FOR ADDITIONAL GRADING INFORMATION.
8. CONSTRUCT NEW CONCRETE DUMPSTER PAD AND ENCLOSURE AT ELEVATIONS SHOWN. INSTALL FLOOR DRAIN AT RIM ELEVATION SHOWN & EXTEND TO SANITARY SEWER GREASE TRAP (SEE UTILITY PLAN).
9. OWNER'S OPTION: CONSTRUCT TEMPORARY ASPHALT CURB AT PAVING LIMITS. SEE PAVING DETAILS.
10. CONTRACTOR TO PROTECT EXISTING RETAINING WALL CONSTRUCTED WITH LOT 8.
11. CONSTRUCT RETAINING WALLS TO ACHIEVE GRADE TRANSITIONS SHOWN. SEE ARCHITECTURAL FOR INFORMATION ON STRUCTURAL DESIGN, GUARDRAILS, ADDITIONAL WALL HEIGHT, CONSTRUCTION DETAILS, WEEPHOLES, ETC.
12. INSTALL PRIVATE STORM DRAIN SYSTEM. SEE CG5.2.
13. INSTALL 6" INLINE DRAIN WITH DOME GRATE. EXTEND DRAINLINE BELOW RAMP TO DAYLIGHT THROUGH FACE OF CURB.
14. OWNER'S OPTION: EXTEND LOT 9A ROOF DISCHARGE PIPE EAST THROUGH FACE OF CURB -OR- PIPE DIRECTLY INTO EAST STORM DRAIN.
15. GRADE OFF-SITE AREA TEMPORARY SEDIMENT PONDS AT LOCATIONS SHOWN. OWNER'S OPTION: ROUGH GRADE LOTS 9C AND 9D, INCLUDING PADS, FOR FUTURE DEVELOPMENT. SAME OWNER.
16. TYPICAL. SPOT ELEVATIONS IN PAVEMENT FLOWLINE REPRESENT FLOWLINE ELEVATION. ADD 0.5' FOR TOP OF ADJACENT CURB / WALK.

LOT 9 KEY



LEGEND

- EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- PROPOSED CONTOUR (1' INCREMENT)
- PROPOSED SPOT ELEVATION
- FLOW ARROW
- FINISH FLOOR ELEVATION
- PROPOSED GRADE BREAK
- PROPOSED STORMWATER QUALITY RETENTION PONDING AREA
- LIMITS OF EROSION CONTROL
- PROPOSED STORM DRAIN

RAMP AND WALK SLOPE CRITERIA

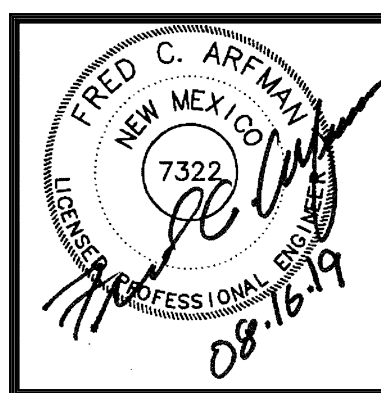
- SIDEWALK(S) AND RAMP(S): TARGET CROSS SLOPE = 1% TO 1.5%. CROSS SLOPE SHALL NOT EXCEED 2%.
- ACCESSIBLE RAMP(S): TARGET LONGITUDINAL SLOPE = 7% LONGITUDINAL SLOPE SHALL NOT EXCEED 12:1 (8.3%).
- ACCESSIBLE PARKING: TARGET SLOPE = 1% TO 1.5%. SLOPE SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION.

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McMAHON MARKET PLACE
LOT 9 IMPROVEMENTS
McMAHON BLVD NW
ALBUQUERQUE, NM 87114

GRADING AND DRAINAGE PLAN 1 OF 2

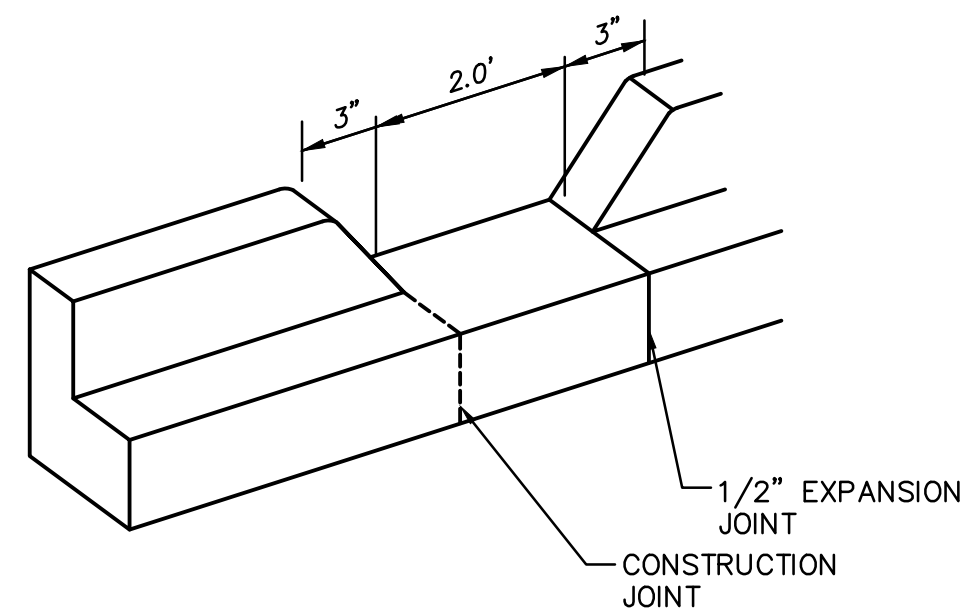
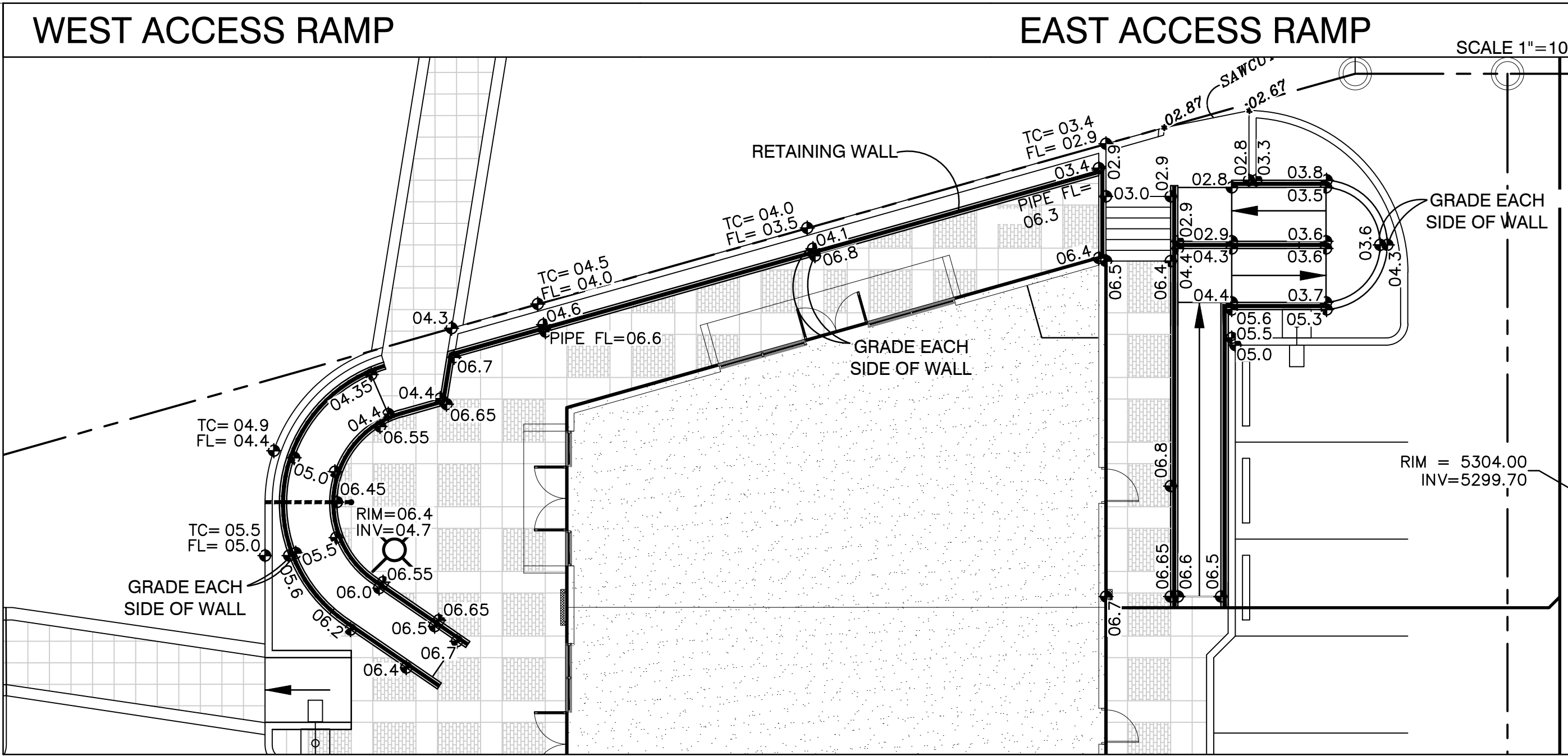
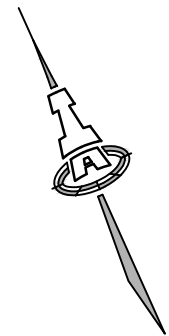


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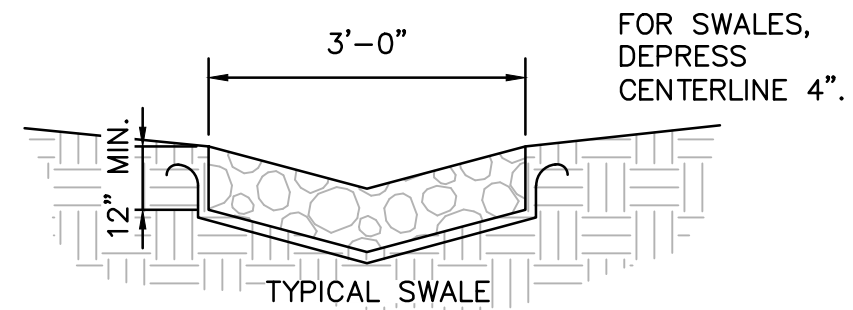
GENERAL NOTES

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

CURB OPENING

SCALE: N.T.S.

- VARY ANGULAR FACE ROCK SIZE BETWEEN 4" AND 8" DIA. (AVG.=6")
- PLACE GEOTEX 501 NON-WOVEN GEOTEXTILE (O.E.) BENEATH ALL EROSION PROTECTION
- CONSTRUCT ALL EROSION PROTECTION INSET INTO (NOT ON TOP OF) GRADE TO ENSURE RUNOFF CAN BE CAPTURED AND CONVEYED PROPERLY



TYPICAL SWALE

ROCK EROSION PROTECTION

SCALE: N.T.S.



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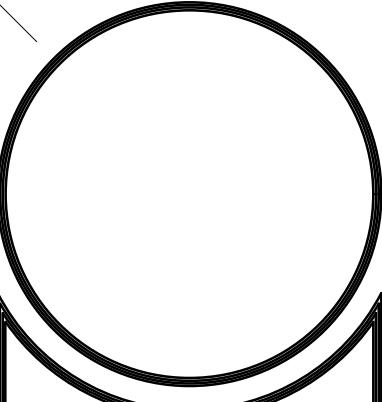
128 Monroe Street N.E.

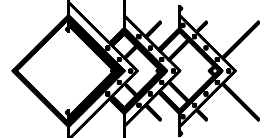
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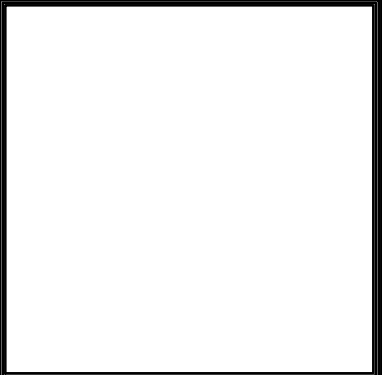
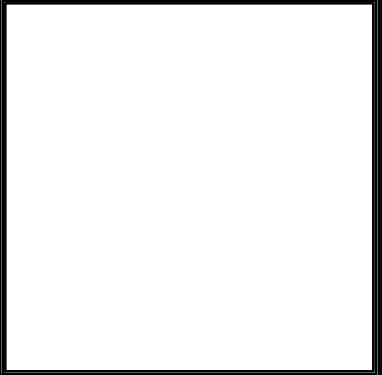
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GRADING AND DRAINAGE DETAILS



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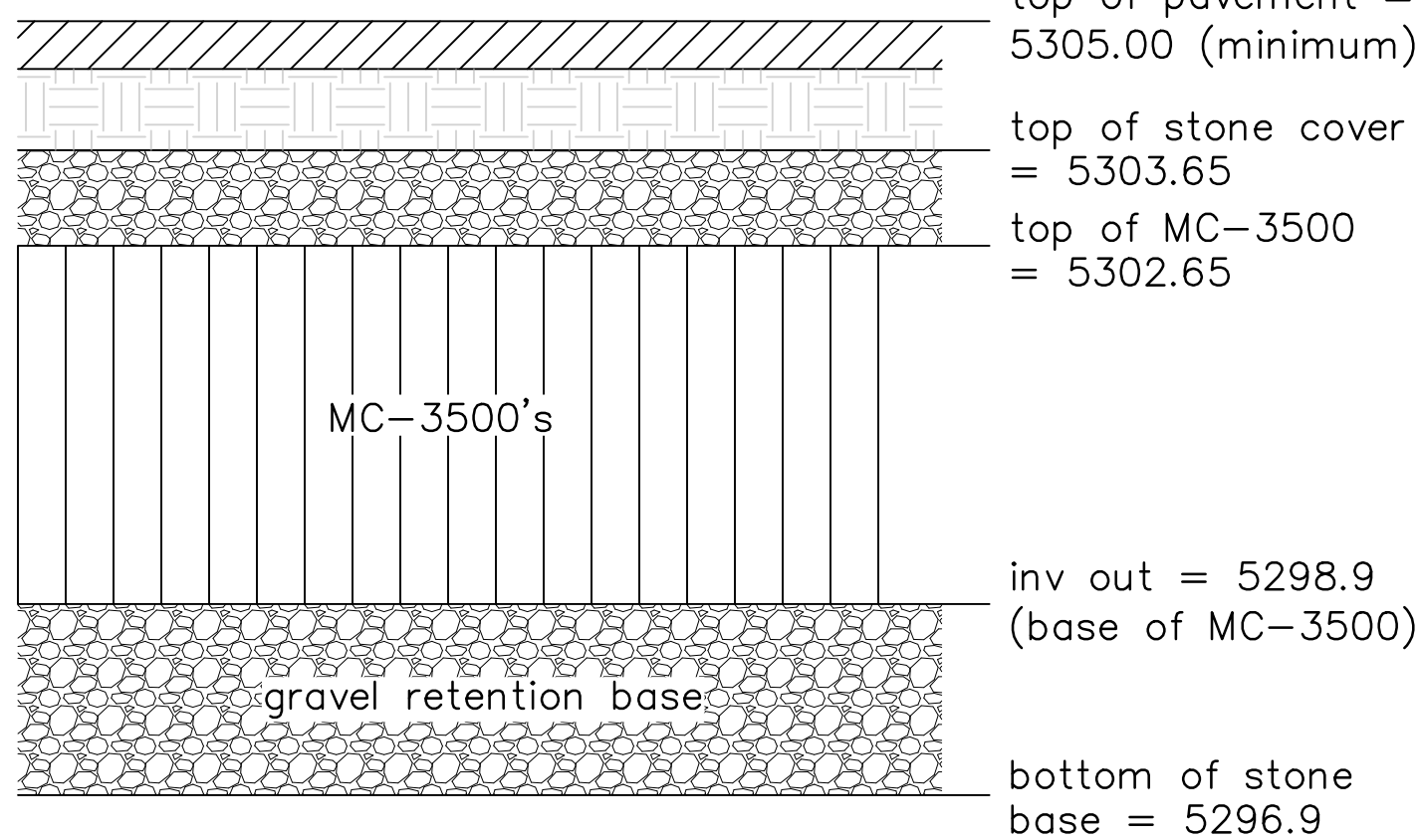
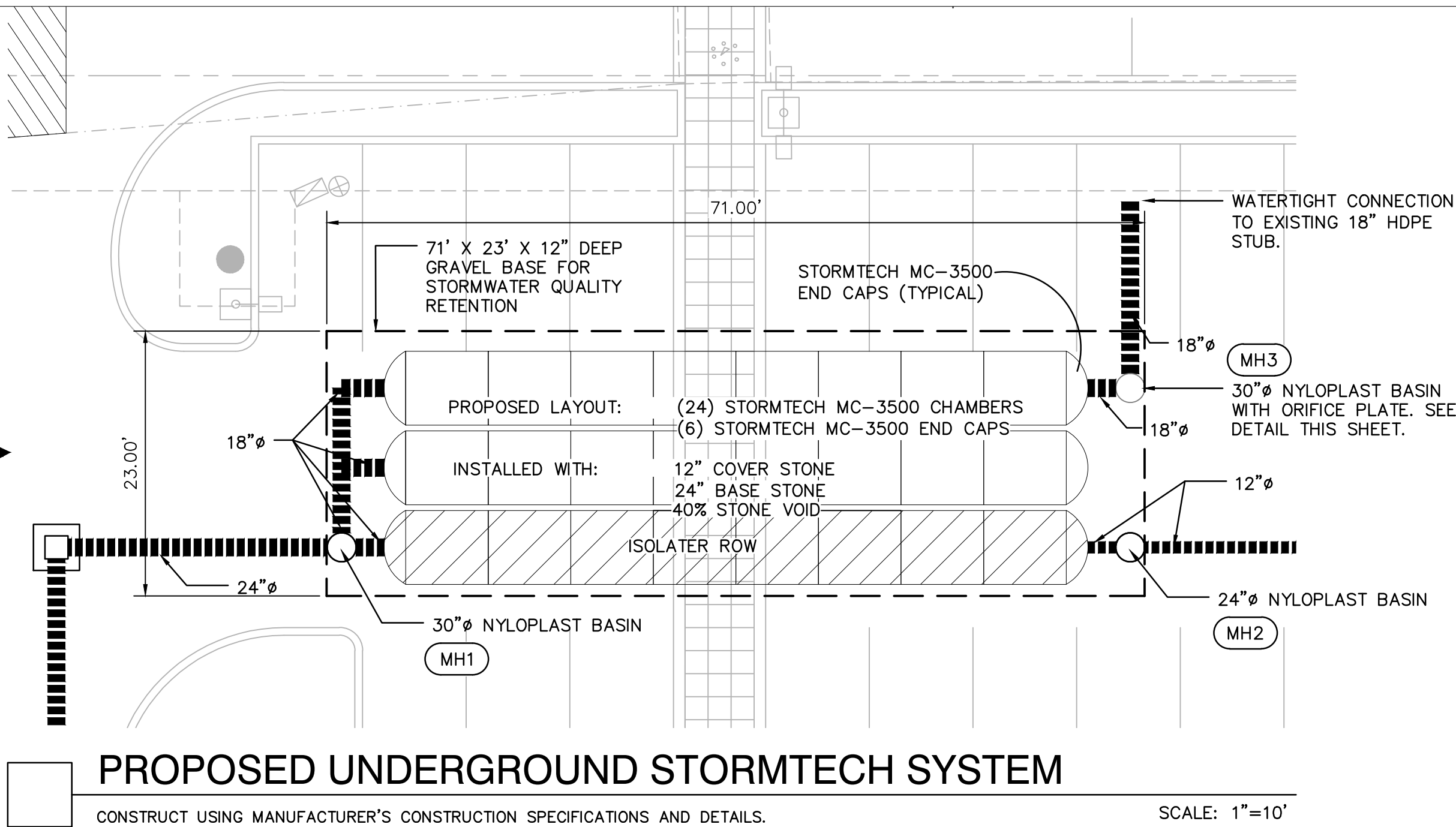
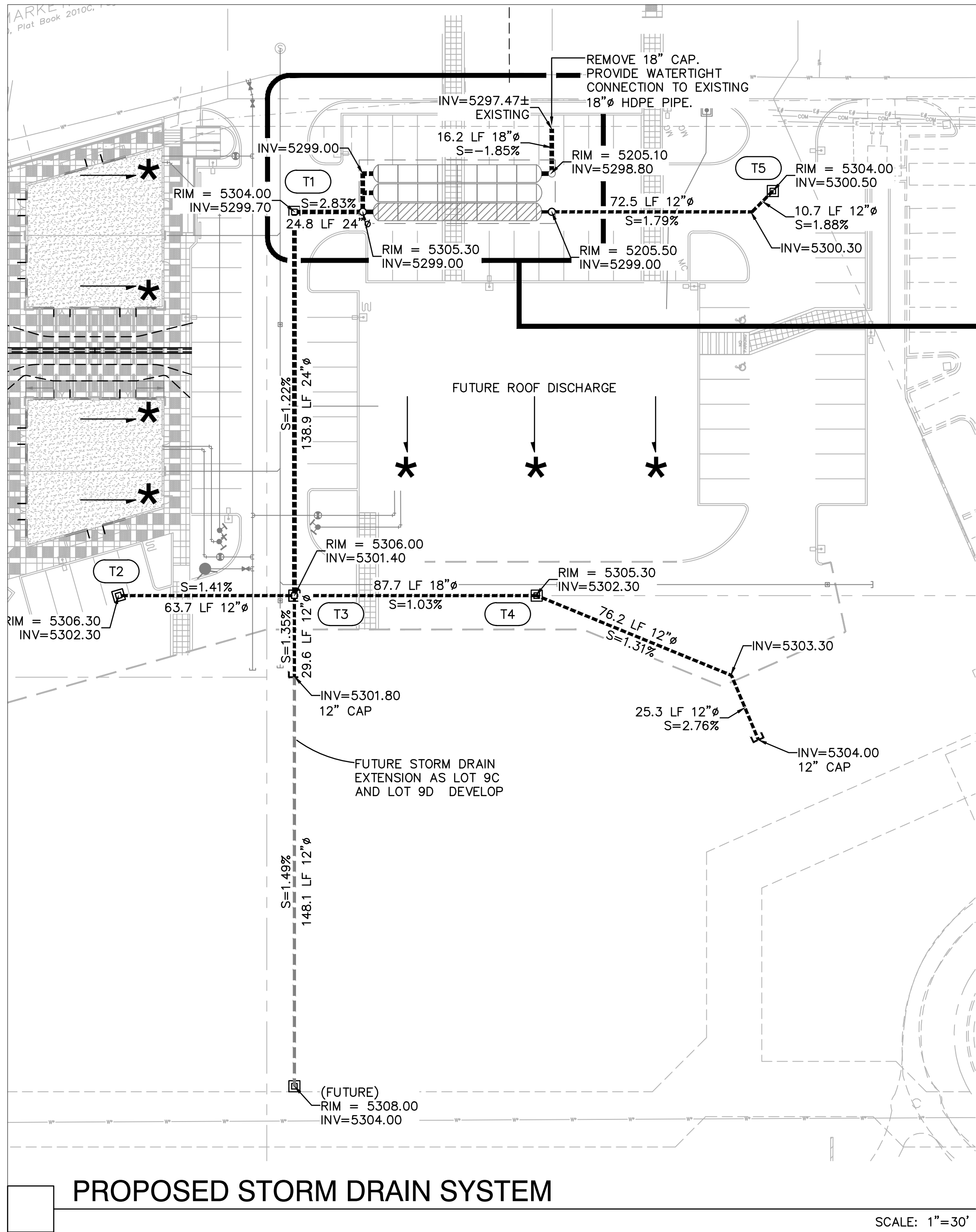
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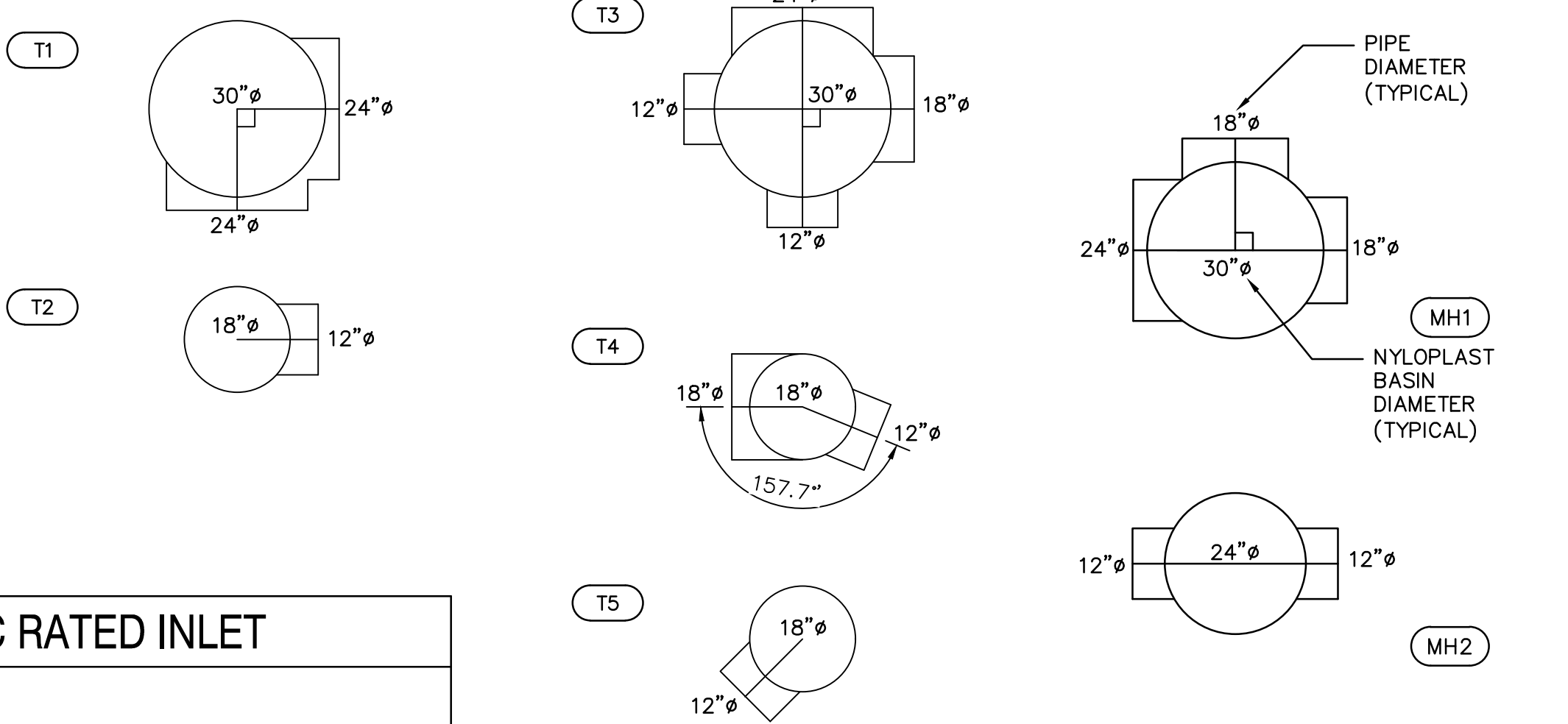
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FOR COMPLETE DESIGN AND PRODUCT SPECIFICATIONS AND DETAILS USING THE CHAMBER AND END CAP QUANTITIES AND STONE THICKNESSES SHOWN, GO TO NYLOPLAST-US.COM OR CALL 800-821-6710.

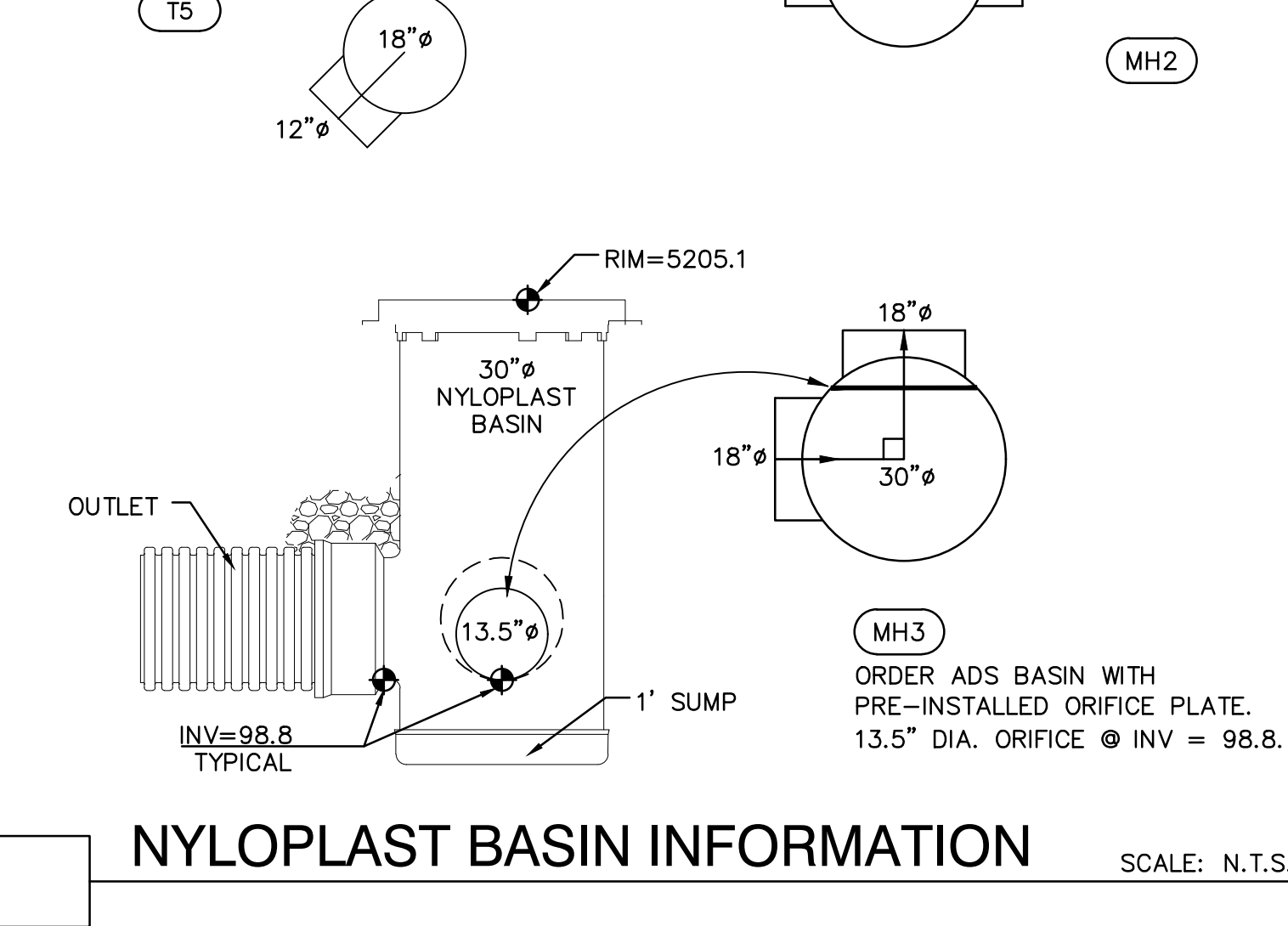
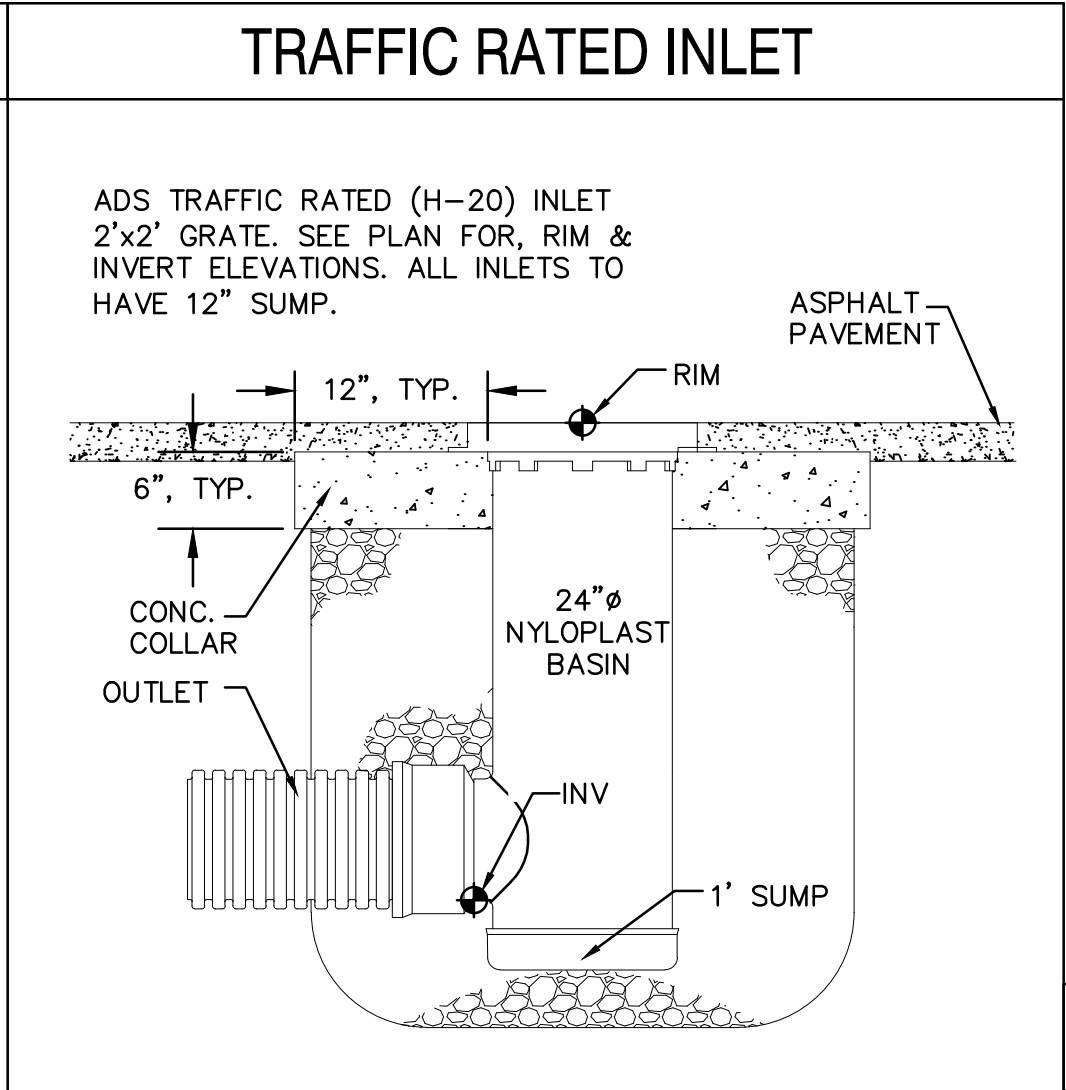
- NOTES
- FINAL LAYOUT, SPECIFICATIONS AND DETAILS SHALL BE COORDINATED WITH ADS USING THE CHAMBER AND END CAP QUANTITIES AND STONE THICKNESSES SHOWN.
 - THE SITE DESIGN ENGINEER HAS REVIEWED ELEVATIONS TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
 - THE SITE STRUCTURAL ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBERS TO THE BUILDING/STRUCTURE. NO FOUNDATION LOADS SHALL BE TRANSMITTED TO THE CHAMBERS.
 - THE SITE STRUCTURAL AND GEOTECH ENGINEERS MUST REVIEW TO CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON BEARING CAPACITY OF SOILS AND SEEPAGE.

STORMTECH DESIGN



LEGEND	
T#	NYLOPLAST BASIN WITH LOCKING, 2'X3' TRAFFIC RATED (H-20 MIN.) GRATE. SEE BASIN INFORMATION FOR DIMENSIONS.
MH#	NYLOPLAST BASIN WITH SOLID, LOCKING, TRAFFIC RATED (H-20 MIN.) GRATE. SEE BASIN INFORMATION FOR DIMENSIONS.
*	ROOF DISCHARGE TO SURFACE OR EXTEND PIPE TO STORM DRAIN DIRECTLY. OWNER'S OPTION.
GENERAL NOTES	
A. INSTALL ALL STORM DRAIN INLETS AND PIPE PER MANUFACTURER'S SPECIFICATIONS.	
B. ALL STORM DRAIN LINES AND FITTINGS TO BE ADS N-12WT WATERTIGHT.	
C. STORM DRAIN SYSTEM WILL REQUIRE REGULAR MAINTENANCE TO ENSURE PROPER FUNCTIONING DURING STORM EVENTS. ENGINEER RECOMMENDS THAT PROPERTY OWNER PUT IN PLACE INSPECTION AND MAINTENANCE CRITERIA SCHEDULED TO ON A REGULAR BASIS AND AFTER EACH STORM EVENT.	

FIRST FLUSH RETENTION	
TOTAL STORMWATER QUALITY RETENTION REQUIRED FOR THE FULLY DEVELOPED LOT 9 PROPERTIES (9A, 9B, 9C AND 9D) = 4180 CF BASED ON 85% TOTAL IMPERVIOUS AREA.	
1003 CF OF STORMWATER QUALITY RETENTION HAS BEEN PROVIDED WITHIN THE EXISTING POND ON LOTS 5/6A.	
THEREFORE, THE REMAINDER OF 3,177 CF WILL BE REQUIRED WITHIN LOTS 9A THROUGH 9D.	
IN THE INTERIM (PROPOSED) CONDITION, THE PARTIAL DEVELOPMENT REQUIRES A TOTAL OF 1,845 CF OF STORMWATER QUALITY STORAGE.	
SUBTRACTING THE 1003 PROVIDED OFFSITE, 842 CF OF PERMANENT RETENTION VOLUME IS REQUIRED.	
1067 CF WILL BE PROVIDED WITHIN THE 24" GRAVEL BASE OF THE STORMTECH CHAMBER SYSTEM. THIS ADDRESSES THE REQUIRED VOLUME PLUS THERE WILL BE AN EXCESS OF 225 CF WHICH WILL BE UTILIZED AS THE LOT 9 PROPERTIES CONTINUE TO DEVELOP.	



STORMTECH INSTALLATION

- NOTES PROVIDED BY ADVANCED DRAINAGE SYSTEMS
- CHAMBERS SHALL BE STORMTECH MC-3500.
 - STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
 - STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
 - CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS.

STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONESHOOTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
 - THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
 - JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
 - END CAPS SHALL BE FASTENED TO CHAMBERS WITH (3) 2-1/2" COARSE THREAD SCREWS.
 - INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
 - EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm) MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
 - STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING..
 - PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

- NOTES FOR CONSTRUCTION EQUIPMENT
- THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

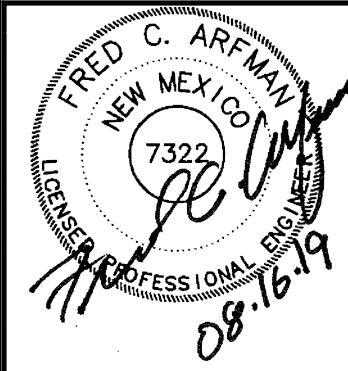
STORMTECH MAINTENANCE

- INSPECT ISOLATOR ROW FOR SEDIMENT - IF SEDIMENT IS AT OR ABOVE 3" - CLEAN OUT ISOLATOR ROW AND VACUUM STRUCTURE SUMP AS REQUIRED
- INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.
- GO TO NYLOPLAST-US.COM OR CALL 800-821-6710 FOR ADDITIONAL INFORMATION.

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