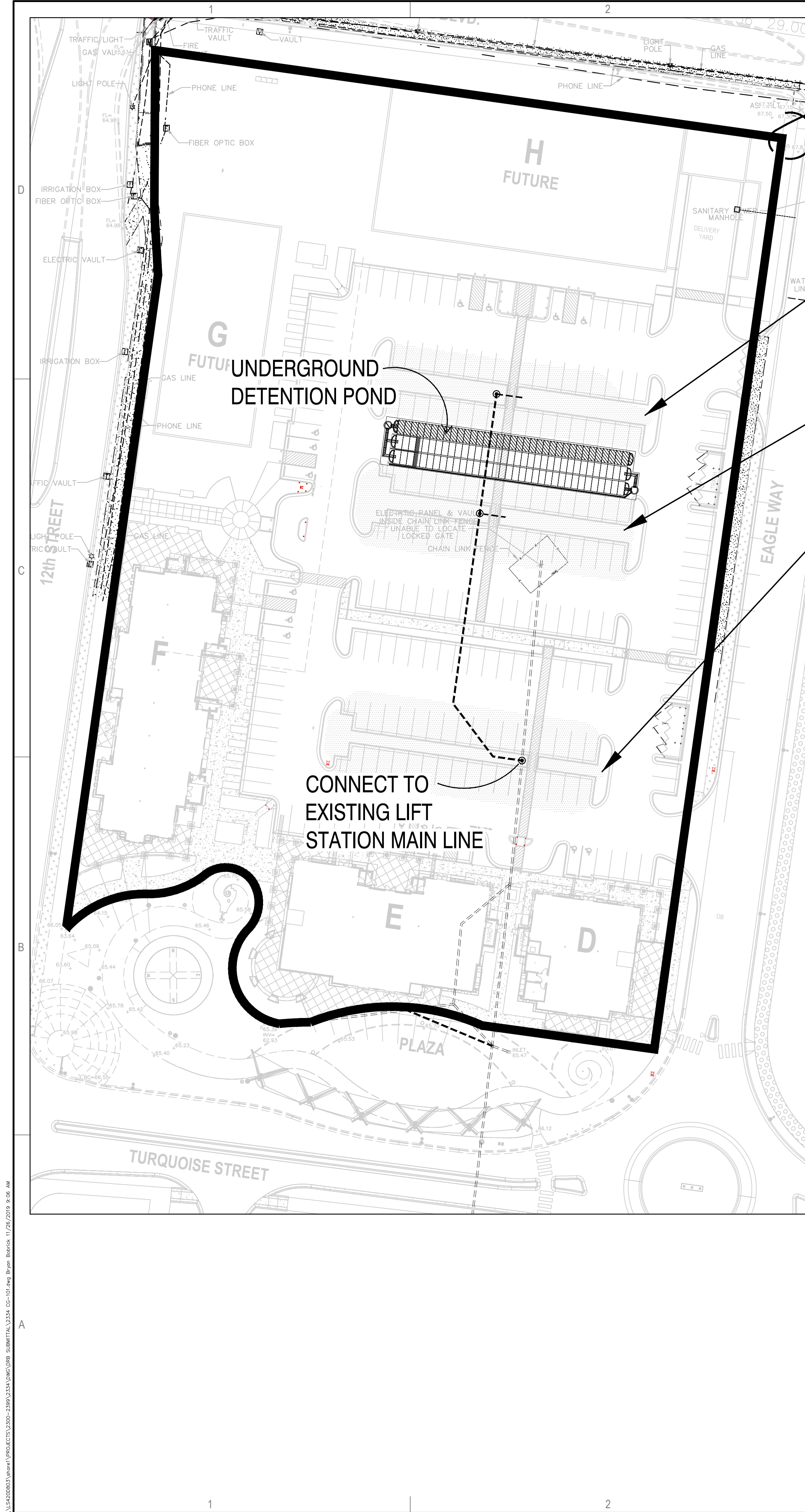




NORTH POND		
Contour	Area	Volume
4964.5	6515	
4964.0	1834	2087 CF
4963.0	992	1413 CF
4962.5	725	429 CF
POND VOLUME = 3930 CF		

CENTER POND		
Contour	Area	Volume
4964.5	8141	
4964.0	1854	2499 CF
4963.0	1125	1490 CF
4962.5	792	479 CF
POND VOLUME = 4468 CF		

SOUTH POND		
Contour	Area	Volume
4964.5	9043	
4964.0	1087	2533 CF
4963.0	530	809 CF
4962.5	258	197 CF
POND VOLUME = 3538 CF		

ALL ROOF AND PARKING WILL DRAIN TO THE INTERIOR. PERIMETER LANDSCAPE AND PAVEMENT WILL DRAIN TO THE SURROUNDING STREETS.

THIS SITE WILL DETAIN THE 100-YEAR 6-HOUR VOLUME WITHIN SURFACE PONDS AND UNDERGROUND OPEN CHAMBER SYSTEM. THESE DETENTION AREAS WILL BE CONNECTED TO THE EXISTING STORM DRAIN LIFT STATION CONSTRUCTED WITH THE ADJACENT SITE (COA HYDROLOGY NO. H13D106). THIS SYSTEM IS DESIGNED TO PUMP 2.0 CFS TO THE PUBLIC STORM DRAIN.

PER THE LIFT STATION DESIGN, THE TOTAL ACREAGE IMPACTING THE LIFT STATION IS 13.1 ACRES. THE PER ACRE DISCHARGE RATE IS 2.0/13.1=.15 CFS/ACRE. THEREFORE, THE DETENTION VOLUME IS BASED ON A DISCHARGE RATE OF 4.5*.15=.68 CFS (SEE INFLOW/OUTFLOW HYDROGRAPH).

TOTAL REQUIRED POND VOLUME=32,285 CF

- SURFACE PONDS
- NORTH = 3930 CF
 - CENTER = 4468 CF
 - SOUTH = 3538 CF

TOTAL SURFACE= 11935 CF

THE REMAINING (32285-11935) 20,350 CF WILL BE COLLECTED IN AN UNDERGROUND STORMTECH MC-4500 STORMWATER DETENTION SYSTEM.

MINOR PERIMETER LANDSCAPING AND PAVEMENT FRONTING MENAUL AND 12TH STREET WILL DISCHARGE TO THE STREETS.

PER THE APPROVED LIFT STATION DESIGN: LEAD PUMP TURNS ON AT 4955.00 LAG PUMP TURNS ON AT 4959.00

CALCULATIONS: 2334 - IPCC - Menaul & 12th - SE Corner : November 20, 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:	197952 SF	=	4.54 ACRE
100-year, 6-hour			
DEVELOPED FLOWS:		EXCESS PRECIP:	
Area A	=	Treatment SF	%
Area B	=		
Area C	=		
Area D	=		
Total Area	=		100%
On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)		Precip. Zone 2	
Weighted E =		E _A ΔA + E _B ΔB + E _C ΔC + E _D ΔD	
		ΔA + ΔB + ΔC + ΔD	
		Developed E =	
On-Site Volume of Runoff: V ₃₆₀ =		E*A / 12	
		Developed V ₃₆₀ =	
On-Site Peak Discharge Rate: Q _p = Q _{pA} ΔA + Q _{pB} ΔB + Q _{pC} ΔC + Q _{pD} ΔD / 43,560			
For Precipitation Zone 2			
Q _{pA}	=	1.56	
Q _{pB}	=	2.28	
Q _{pC}	=	3.14	
Q _{pD}	=	4.70	
		Developed Q _p =	

CALCULATIONS: 2334 - IPCC - Menaul & 12th - SE Corner : November 20, 2019	
HYDROGRAPH FOR SMALL WATERSHED	
DPM SECTION 22-2 * PAGE A-13/14	

Base time, t_B, for a small watershed hydrograph is,

$$t_B = (2.107 * E * A / Q_p) - (0.25 * A_D / A)$$

Where

E	=	1.94 inches
A	=	4.54 acres
A _D	=	3.86 acres
Q _p	=	19.9 cfs

$$t_B = 0.72 \text{ hours}$$

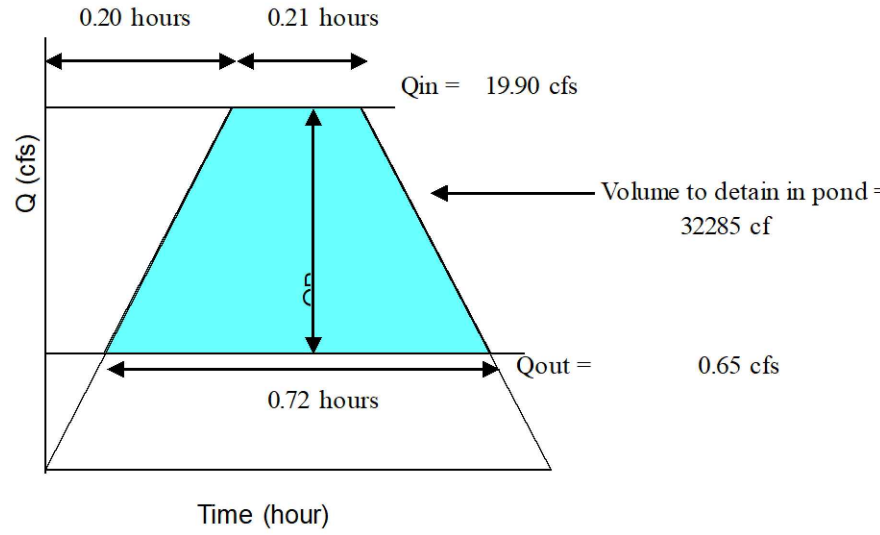
E is the excess precipitation in inches (from DPM TABLE A-8), Q_p is the peak flow, A_D is the area (acres) of treatment D, and A_T is the total area in acres. Using the time of concentration, t_C (hours), the time to peak in hours is:

$$t_p = (0.7 * t_C) + ((1.6 - (A_D / A)) / 12)$$

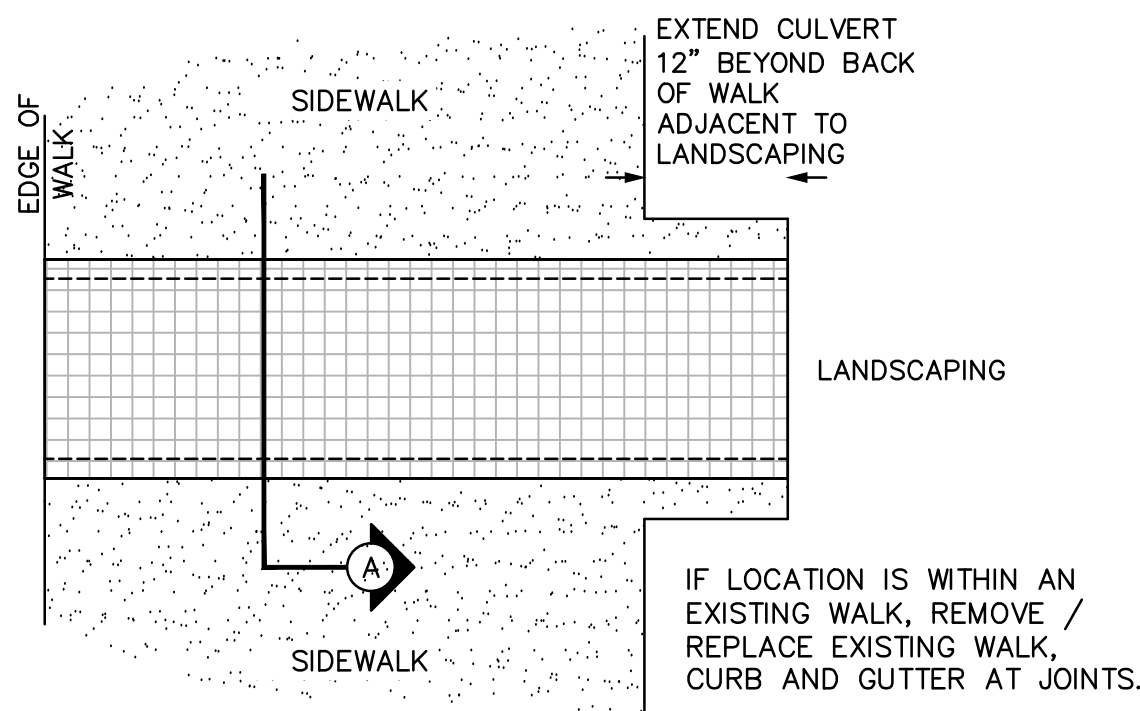
Where t_C = 0.20 hours

$$t_p = 0.20 \text{ hours}$$

Continue the peak for 0.25 * A_D / A_T hours. When A_D is zero, the hydrograph will be triangular. When A_D is not zero, the hydrograph will be trapezoidal. see the graph below:



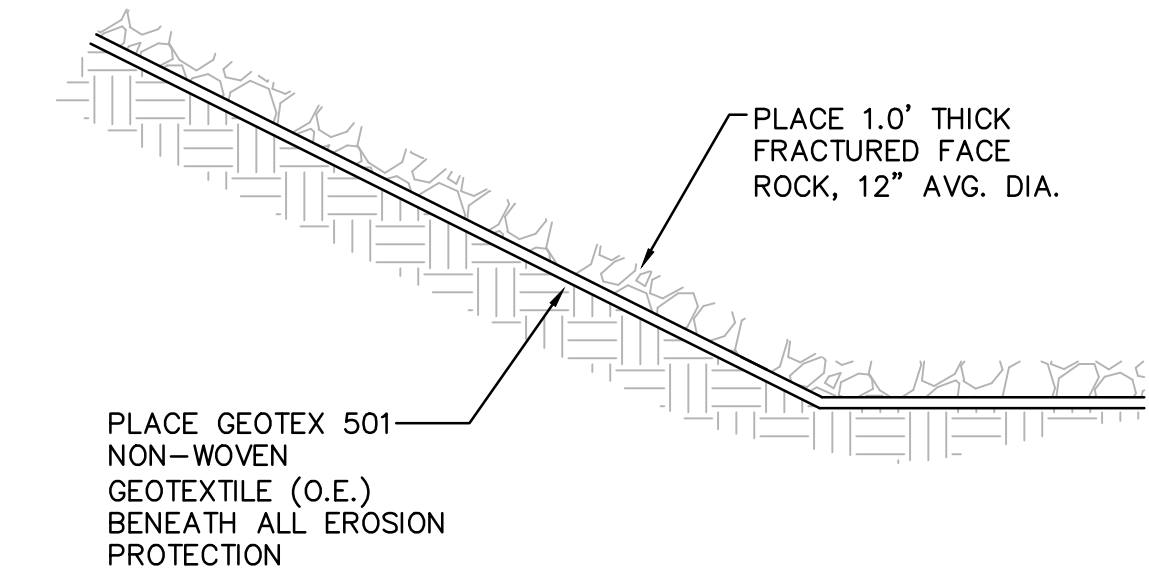
INFLOW / OUTFLOW HYDROGRAPH



COVERED SIDEWALK CULVERT

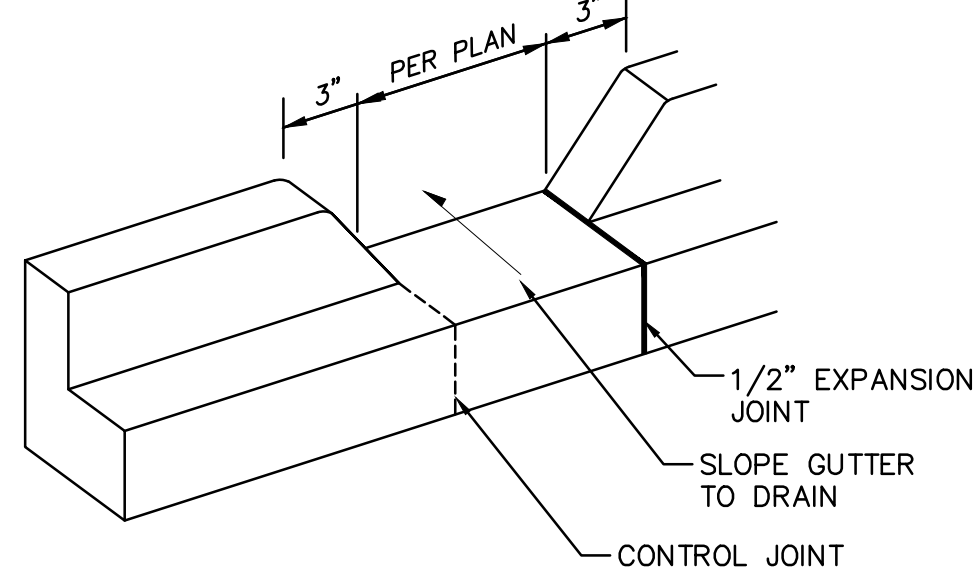
CONSTRUCT PER COA STD. DWG 2236 WITH MODIFICATIONS PER THIS DETAIL

- 6" AVERAGE DIAMETER (D60) ANGULAR ROCK (VARY BETWEEN 4" AND 8" DIAMETER)
- PLACE GEOTEX 501 NON-WOVEN GEOTEXTILE (O.E.) BENEATH ALL EROSION PROTECTION
- INSTALL ALL EROSION PROTECTION FLUSH WITH ADJACENT GRADE TO ENSURE RUNOFF CAN BE CAPTURED AND CONVEYED PROPERLY.



EROSION PROTECTION - MEDIUM

SCALE: N.T.S.

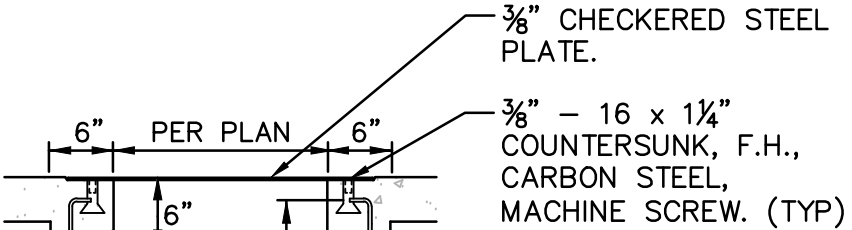


CURB OPENING

SCALE: N.T.S.

WELD 1/8" THICK, 3/8" MIN. DIAMETER OVER ALL SCREWS. COMPLETELY COVER SCREW HEADS. GRIND EDGES SMOOTH.

FOR SECURING PLATE USE 1"x5" S.S. ROD ANCHOR, "RED HEAD MULTI-SET II SRM-38" ANCHOR" OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S INSTRUCTIONS AT MAX. 24" O.C., A MINIMUM OF 2 PER SIDE AND ONE WITHIN 6" OF EACH END.



USE NO. 3 DEFORMED BAR DOWELS: SPACED DOWELS AT 18" O.C. MAXIMUM. 1-1/2" MINIMUM FROM FACE OF CONCRETE

SECTION A

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Architect Engineer

DRB SUBMITTAL

FRED C. ARFMAN
NEW MEXICO
PROFESSIONAL ENGINEER
NOVEMBER 26, 2019

AVANYU RETAIL

2400 12TH STREET
ALBUQUERQUE, NM 87104

Key Plan

NTS

No	Date	Description
Revision Schedule		
ISSUE:	DRB	
PROJECT NUMBER:	IA 2334	
FILE:	2334 CG-101.dwg	
DRAWN BY:	DC	
CHECKED BY:	FCH	
DATE:	-	

SHEET TITLE

GRADING AND DRAINAGE DETAILS & CALCULATIONS

CG-501

SCALE: N.T.S.