

# CITY OF ALBUQUERQUE



March 18, 2016

Fred C. Arfman, P.E.  
Isaacson & Arfman, P.A.  
128 Monroe Street NE  
Albuquerque, NM, 87108

Richard J. Berry, Mayor

**RE: Manzano Mesa Park Pickleball Courts  
Grading and Drainage Plan  
Engineer's Stamp Date 2-1-16 (File: L21D037B2)**

Dear Mr. Arfman:

Based upon the information provided in your submittal received 2-2-16, the above referenced submittal is approved for Grading Permit. Furthermore, we have the following recommendations to consider:

1. Consider an 18" sidewalk culvert (on Pond 2) to pass the approximately 7 CFS peak flow expected during the 100-year event. The 1-foot culvert appears to be acceptable, however, for the 2-year and 10-year events.
2. The City, as the lead of the project, might not be able to direct the contractor to sole-source drainage (or other) products (NDS, Geotex, etc). We recommend stating "or equivalent", or follow the guidance from the funding agency (if the project is federal or state funded).

PO Box 1293

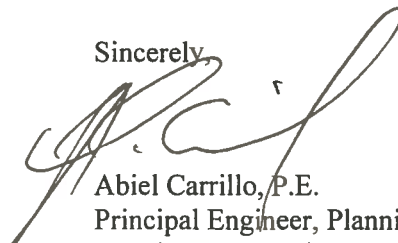
Albuquerque

If you have any questions, you can contact me at 924-3986.

New Mexico 87103

Sincerely,

www.cabq.gov

  
Abiel Carrillo, P.E.  
Principal Engineer, Planning Dept.  
Development Review Services

Orig: Drainage file



# City of Albuquerque

Planning Department

Development & Building Services Division

## DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Manzano Mesa Park Pickleball Courts Building Permit #: \_\_\_\_\_ City Drainage #: L21/0031B2  
DRB#: \_\_\_\_\_ EPC#: \_\_\_\_\_ Work Order#: \_\_\_\_\_  
Legal Description: A Portion of Manzano Mesa Park  
City Address: 501 Elizabeth Street SE - Albuquerque, NM

Engineering Firm: Isaacson & Arfman, P.A. Contact: Fred C. Arfman  
Address: 128 Monroe Street NE - Albuquerque, NM 87108  
Phone#: (505) 268-8828 Fax#: \_\_\_\_\_ E-mail: fred@iacivil.com

Owner: City of Albuquerque - Parks & Recreation Department Contact: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone#: \_\_\_\_\_ Fax#: \_\_\_\_\_ E-mail: \_\_\_\_\_

Architect: Morrow Reardon Wilkinson Miller, Ltd. Contact: \_\_\_\_\_  
Address: 210 La Veta Drive NE - Albuquerque, NM 87108  
Phone#: (505) 268-2266 Fax#: \_\_\_\_\_ E-mail: \_\_\_\_\_

Other Contact: \_\_\_\_\_ Contact: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone#: \_\_\_\_\_ Fax#: \_\_\_\_\_ E-mail: \_\_\_\_\_

Check all that Apply:

### DEPARTMENT:

☒ HYDROLOGY/DRAINAGE  
☐ TRAFFIC/TRANSPORTATION  
☐ MS4/EROSION & SEDIMENT CONTROL

### TYPE OF SUBMITTAL:

☐ ENGINEER ARCHITECT CERTIFICATION

☐ CONCEPTUAL G & D PLAN

☒ GRADING PLAN

☐ DRAINAGE MASTER PLAN

☐ DRAINAGE REPORT

☐ CLOMR/LOMR

☐ TRAFFIC CIRCULATION LAYOUT (TCL)

☐ TRAFFIC IMPACT STUDY (TIS)

☐ EROSION & SEDIMENT CONTROL PLAN (ESC)

☐ OTHER (SPECIFY) \_\_\_\_\_

IS THIS A RESUBMITTAL?: ☐ Yes ☒ No

DATE SUBMITTED: February 1, 2016 By: Fred C. Arfman

### CHECK 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

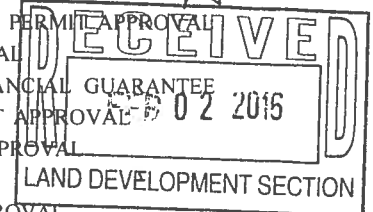
☐ GRADING/ PAD CERTIFICATION

☐ WORK ORDER APPROVAL

☐ CLOMR/LOMR

☐ PRE-DESIGN MEETING

☐ OTHER (SPECIFY) \_\_\_\_\_



COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: \_\_\_\_\_







GENERAL NOTES

- A. ALL WORK DETAILED ON THESE PLANS AND PERFORMED UNDER THIS CONTRACT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT. WHERE APPLICABLE, CITY OF ALBUQUERQUE STANDARDS APPLY.

B. 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.

C. ALL SUBGRADE, OVEREXCAVATION, BACKFILL, AND FILL SHALL BE PLACED AND / OR COMPACTED PER THE GEOTECHNICAL REPORT AND CITY OF ALBUQUERQUE SPECIFICATIONS.

D. COORDINATE WORK WITH CONSTRUCTION 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 LANDSCAPE ARCHITECT AND VERIFY THE INTENT BEFORE PROCEEDING.

F. CONTRACTOR SHALL OBTAIN ALL REQUIRED INSPECTIONS OF THE WORK.

G. 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.
- H. CONSTRUCTION EQUIPMENT SHALL NOT OBSTRUCT DRIVEWAYS. EQUIPMENT SHALL ONLY OBSTRUCT DESIGNATED TRAFFIC LANES IF APPROPRIATE BARRICADING PERMITS HAVE BEEN OBTAINED.

I. 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.

J. FOR ALL ACCESSIBLE ROUTES, MAXIMUM ALLOWABLE CROSS SLOPE IS 2.0% AND MAXIMUM LONGITUDINAL SLOPE WITHOUT RAMP IS 5.0%. FOLLOW ALL ADA ACCESSIBILITY GUIDELINES OR CITY CODES, WHICHEVER IS MORE STRINGENT.

K. ALL TRASH, DEBRIS, & SURFACE VEGETATION SHALL BE CLEARED AND LEGALLY DISPOSED OF OFFSITE.

L. 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.

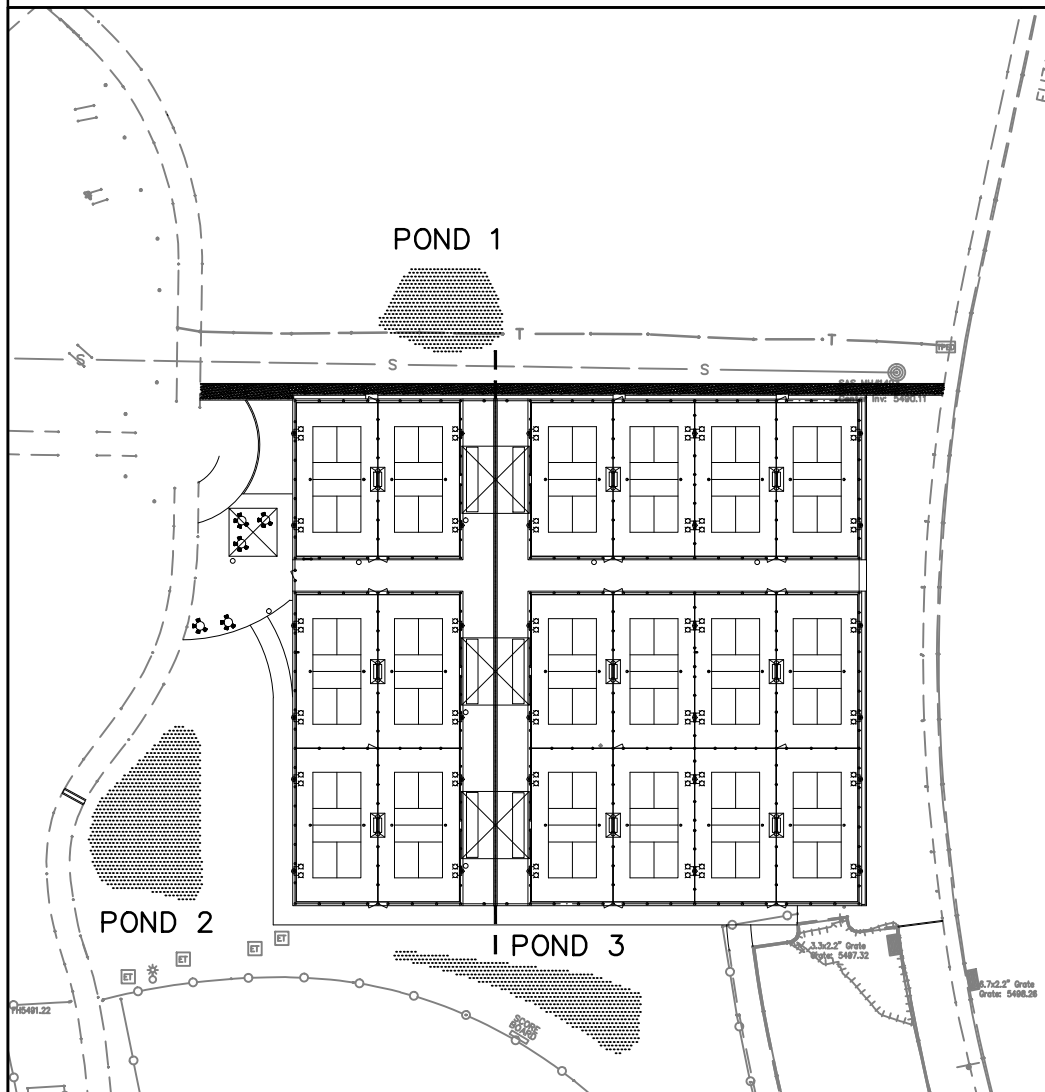
M. MAXIMUM UNPROTECTED SLOPES SHALL BE 6:1.

N. 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 TWO 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.
- O. A CURRENT STORMWATER CONTROL PERMIT, INCLUDING AN EROSION SEDIMENT CONTROL PLAN (E.S.C.) FOR EROSION AND SEDIMENT CONTROL IS REQUIRED FOR ALL CONSTRUCTION, DEMOLITION CLEARING, AND GRADING OPERATIONS THAT DISTURB THE SOIL ON ONE ACRE OR MORE OF LAND. OWNER WILL COORDINATE.
- P. POST-CONSTRUCTION MAINTENANCE FOR STORMWATER FACILITIES WILL BE THE RESPONSIBILITY OF THE FACILITIES OWNER.
- Q. STORMWATER CONTROL MEASURES SHOWN ON THIS PLAN ARE REQUIRED TO PROVIDE MANAGEMENT OF "FIRST FLUSH" (DEFINED AS THE 90TH PERCENTILE STORM EVENT OR 0.44" OF STORMWATER WHICH DISCHARGES DIRECTLY TO A PUBLIC STORM DRAINAGE SYSTEM).
- R. ADJUST ANY RIMS OF EXISTING UTILITY FEATURES AS NECESSARY TO MATCH NEW GRADES. UTILITIES IN PAVED AREAS SHALL BE HS-25 TRAFFIC RATED.
- S. PAVING AND ROADWAY GRADES SHALL BE ±0.1' FROM PLAN ELEVATIONS.
- T. WHERE GRADES BETWEEN NEW AND EXISTING ARE SHOWN AS "MATCH" OR "±", TRANSITIONS SHALL BE SMOOTH.
- U. ALL EROSION PROTECTION TO BE FRACTURED FACE ROCK (F.F. ROCK) DEFINED AS 6" AVG. DIA. (4" TO 8") ANGULAR FACED ROCK PLACED OVER GEOTEX 501

- NON-WOVEN GEOTEXTILE (O.E.).
- V. CONTRACTOR SHALL COMPLY WITH LOCAL REGULATIONS FOR RESEEDING OF DISTURBED AREAS. RESEEDING INSPECTION IS NOT INCLUDED AS PART OF ENGINEER'S CERTIFICATION OF SUBSTANTIAL COMPLIANCE.
- W. ENGINEER RECOMMENDS THAT OWNER MAINTAIN EROSION PROTECTION ELEMENTS. ENGINEER RECOMMENDS THAT OWNER INSPECT SITE YEARLY AND AFTER EACH RAINFALL TO IDENTIFY NEW AREAS OF EROSION AND INSTALL ADDITIONAL EROSION PROTECTION AS NEEDED BASED ON ACTUAL OCCURRENCES.
- X. MEASURES REQUIRED FOR EROSION AND SEDIMENT CONTROL SHALL BE INCIDENTAL TO THE PROJECT COST.

FIRST FLUSH SITE RETENTION



FIRST FLUSH VOLUMES

REQUIRED FIRST FLUSH RETENTION POND VOLUME = 1678 CF

RETENTION POND 1 VOLUME = 730 CF  
RETENTION POND 2 VOLUME = 1225 CF  
RETENTION POND 3 VOLUME = 790 CF

PROVIDED FIRST FLUSH RETENTION POND VOLUME = 2745 CF

CALCULATIONS

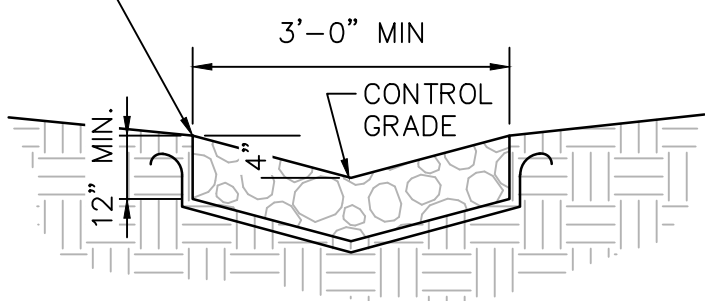
CALCULATIONS: 2133 MANZANO MESA PICKLEBALL COURTS : FEB. 1, 2016								
Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993								
ON-SITE								
AREA OF SITE TO BE DISTURBED:		98685	SF	=	2.3			
100-year, 6-hour								
HISTORIC FLOWS:		DEVELOPED FLOWS:			EXCESS PRECIP:			
	Treatment SF	%		Treatment SF	%	Precip. Zone		
Area A	=	0	0%	Area A	=	0	0%	E <sub>A</sub> = 0.80
Area B	=	49342.5	50%	Area B	=	19737	20%	E <sub>B</sub> = 1.08
Area C	=	49342.5	50%	Area C	=	19737	20%	E <sub>C</sub> = 1.46
Area D	=	0	0%	Area D	=	59211	60%	E <sub>D</sub> = 2.64
Total Area	=	98685	100%	Total Area	=	98685	100%	
On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)								
Weighted E =			$\frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$					
Historic E	=	1.27 in.	Developed E	=	2.09 in.			
On-Site Volume of Runoff: V <sub>360</sub> = E <sup>*</sup> A / 12								
Historic V <sub>360</sub>	=	10444	CF	Developed V <sub>360</sub>	=	17204	CF	
On-Site Peak Discharge Rate: Q <sub>p</sub> = Q <sub>pA</sub> A <sub>A</sub> + Q <sub>pB</sub> A <sub>B</sub> + Q <sub>pC</sub> A <sub>C</sub> + Q <sub>pD</sub> A <sub>D</sub> / 43,560								
For Precipitation Zone 4								
Q <sub>pA</sub> = 2.20			Q <sub>pC</sub> = 3.73					
Q <sub>pB</sub> = 2.92			Q <sub>pD</sub> = 5.25					
Historic Q <sub>p</sub>	=	7.5 CFS	Developed Q <sub>p</sub>	=	10.1 CFS			

CALCULATIONS

IMPERVIOUS AREA	FIRST FLUSH REQUIREMENT
Area of basin flows = 59211 SF	= 1.4 Ac
The following calculations are based on Treatment areas as shown in table to the right	
Sub-basin Weighted Excess Precipitation (see formula above)	
Weighted E = 2.64 in	LAND TREATMENT
Sub-basin Volume of Runoff (see formula above)	
$V_{360}$ = 13026 CF	A = 0%
Sub-basin Peak Discharge Rate: (see formula above)	
$Q_p$ = 7.1 cfs	B = 0%
	C = 0%
	D = 100%
	FIRST FLUSH VOL
	1678 CF

AS-BUILT INFORMATION		BENCH MARKS		SURVEY INFORMATION		ENGINEER'S SEAL		REVISIONS		REMARKS		NO. DATE		DESIGNED BY: BJB		DRAWN BY: BJB		CHECKED BY: FCA		DATE 1/29/16		DATE 1/29/16		PROJECT# 575197		RECORD DRAWINGS		DATE: XX/XX/2016		
CONTRACTOR	DATE	INSPECTOR'S	DATE	NO.	BY	DATE	DATE	NO.	BY	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	NO.	NO.	DATE	NO.	DATE	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
Description: An aluminum disc stamped "8-L22 1990"		located on the east side of Tramway Boulevard in the nose of the median of Central Avenue. NAVD 1988		Elevation Datum: 5668.036		FRED C. ARFMAN NEW MEXICO 7322 Professional Engineer 02-01-16																								
MICRO-FILM INFORMATION		RECORDED BY		NO.																										

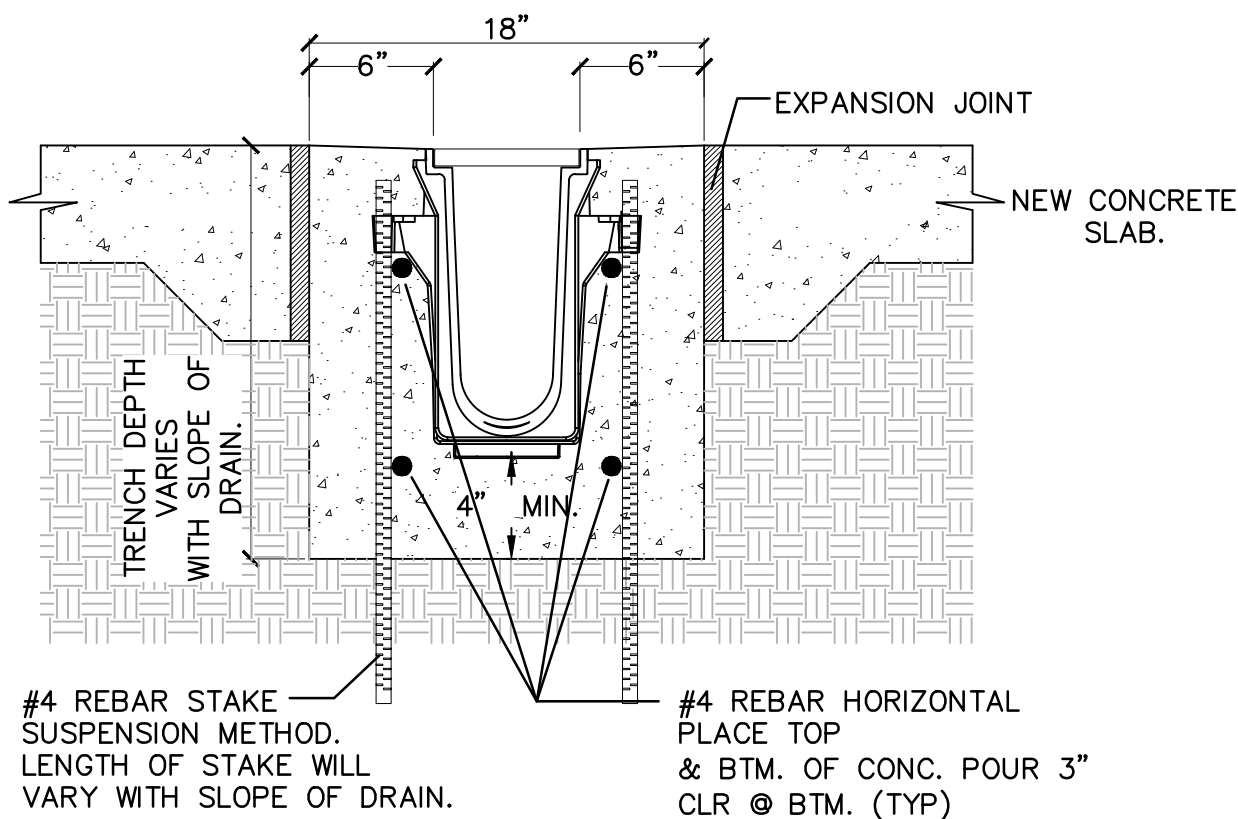
CONSTRUCT ALL SWALES AND EROSION PROTECTION (SHOWN HATCHED) BELOW ADJACENT GRADE TO ENSURE RUNOFF CAN BE CAPTURED AND CONVEYED PROPERLY



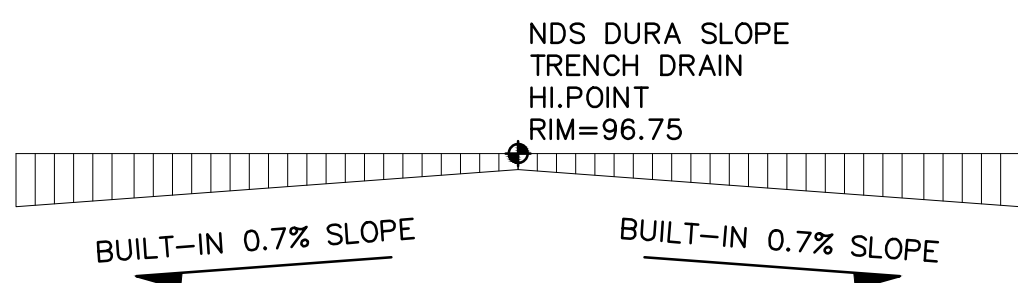
- VARY ANGULAR FACE ROCK SIZE BETWEEN 4" AND 8" DIA. (AVG.=6")
- PLACE GEOTEX 501 NON-WOVEN GEOTEXTILE (O.E.) BENEATH ALL EROSION PROTECTION

ANGULAR ROCK SWALE / EROSION PROTECTION

SCALE: N.T.S.



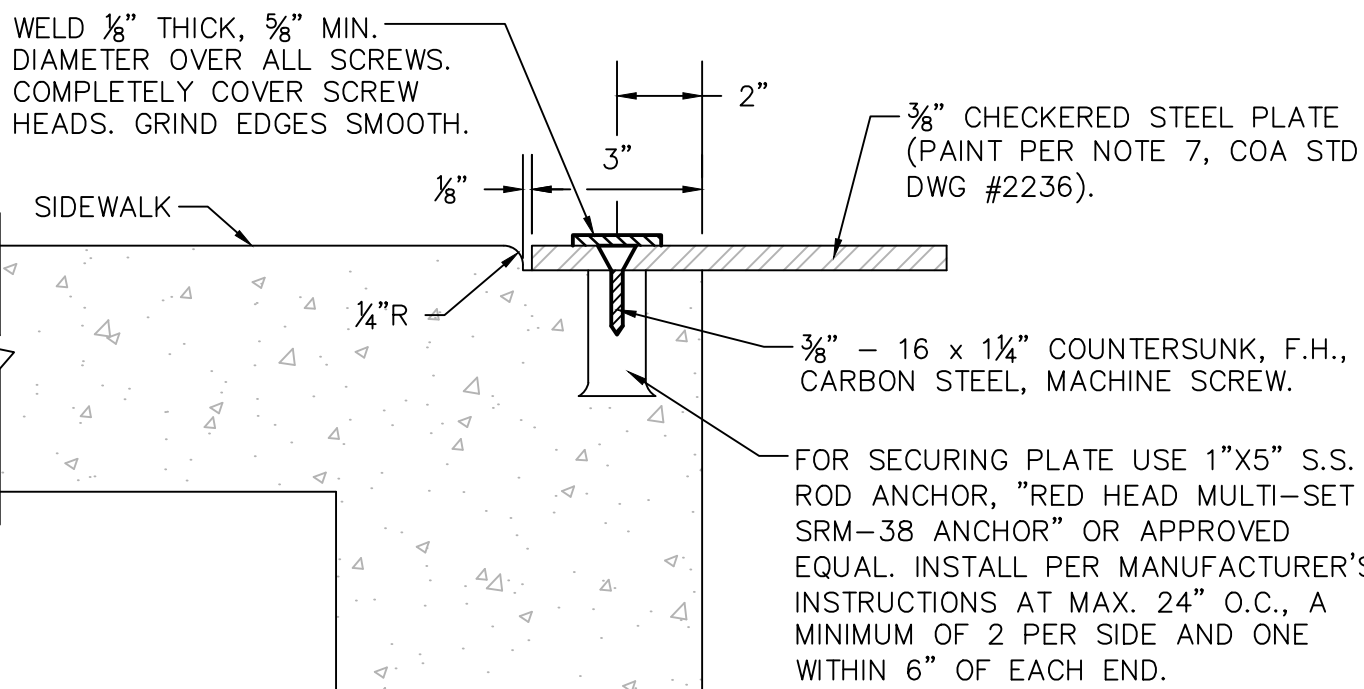
SET TRENCH DRAIN IN CHANNEL SURROUNDED BY 6" OF CONCRETE OR THICKNESS OF THE CONCRETE SLAB WITH A MINIMUM OF 3,500 P.S.I. AVOID FULL LOAD TRAFFIC FOR 28 DAYS OR UNTIL CONCRETE HAS COMPLETELY HARDENED.



TRENCH DRAIN

NDS DURASLOPE PRE-SLOPED TRENCH DRAIN SYSTEM WITH BUILT-IN 0.7% SLOPE. INSTALL FOR CLASS 'C' LOADS PER MANUFACTURER'S SPECIFICATIONS AND DETAILS.

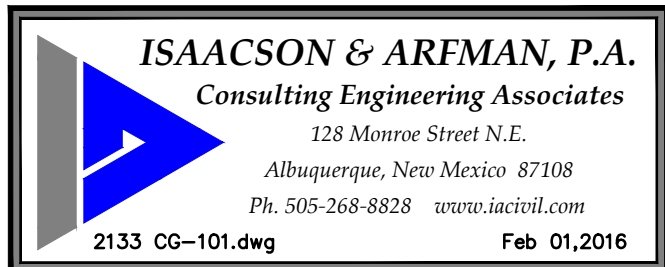
SCALE: N.T.S.



COVERED SIDEWALK CULVERT

MODIFIED SECTION B-B FROM C.O.A. STD. DWG. #2236

SCALE: N.T.S.



CITY OF ALBUQUERQUE  
STRATEGIC PLANNING AND DESIGN  
PARKS AND RECREATION DEPARTMENT

MANZANO MESA PARK  
PICKLEBALL COURTS  
GRADING & DRAINAGE DETAILS

Design Review Committee	City Engineer Approval	Mo./Day/Yr.	Mo./Day/Yr.
City Project No.	Zone Map No.	Sheet	
575197	L-21	CG-501	