CITY OF ALBUQUERQUE

Planning Department
Brennon Williams, Director

Mayor Timothy M. Keller

May 22, 2020

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

RE: Paseo Nuevo Parking Lot
6321 Holly Ave. NE
Grading & Drainage Plan
Engineer's Stamp Date: 05/04/20
Hydrology File: C18D074A

Dear Mr. Arfman:

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Based upon the information provided in your submittal received 05/20/2020, the Grading and Drainage Plan is approved for Paving Permit and Grading Permit.

Please provide a Drainage Covenant per Chapter 17 of the DPM for Stormwater Quality ponds as soon as possible. Please submit this on the 4th floor of Plaza de Sol. A $25 fee will be required.

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

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

Sincerely,

Renée C. Brissette

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

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 11/2018)

Project Title: Paseo Nuevo Parking Lot Building Permit #: _____ Hydrology File #: C18D074A

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

Legal Description: Tract A, Paseo Nuevo 2 and Tract C, Paseo Nuevo

City Address: _____

Applicant: Isaacson & Arfman, Inc. 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: _____ Contact: _____

Address: _____

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

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

IS THIS A RESUBMITTAL?: ____X____ Yes _____ No

DEPARTMENT: ____ TRAFFIC/ TRANSPORTATION __X__ 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
__X__ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR
____ FLOODPLAIN DEVELOPMENT PERMIT
____ OTHER (SPECIFY) _____

DATE SUBMITTED: May 20, 2020 By: Fred C. Arfman

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

Isaacson & Arfman, Inc. EST 1980
Civil Engineering Consultants
128 Monroe Street NE
Albuquerque, NM 87108
505-268-8828 | www.iacivil.com

May 20, 2020

Ms. Renée Brisette & Mr. Shahab Biazar, PE
City of Albuquerque
Development and Building Services
600 2nd St. NW, Suite 201
Albuquerque, NM 87102

RE: PASEO NUEVO PARKING LOT – C18D074A - RESUBMITTAL

Dear Ms. Brisette & Mr. Biazar,

Attached with this letter is the electronic resubmittal of the stamped & dated Grading and Drainage Plan and Supplemental Information for the above referenced project.Minor revisions were made including:

- Phase lines
- Phase 3 area interim grades
- Update calculations and project information

Regarding the previous submittal, we received review comments regarding the allowable discharge rates. The comments and responses are provided below:

1. *Please note that Tract C (0.8275 Ac) is part of the Revised Drainage Report for Paseo Nuevo dated August 2006 by Tierra West. This Tract has the allowable discharge of 3.51 cfs with 20% B cover and 80% D cover. Please adjust all reference and calculations to reflect this.*

RESPONSE: See Supplemental Information for AHYMO calculations for Tract C showing fully developed discharge will be less than the allowable discharge of 3.75 cfs which is based on the Paseo Nuevo Revised Drainage Report (PNRDR) referencing 22.66 cfs for the 5 acre area. This calculates to 4.53 cfs/acre. NOTE: Page 7 of the PNRDR specifically references the Conceptual Drainage Report for the Holly Ave. Improvements (C18/D72) dated March 2006 (CDRHA) for the allowable discharge rate of 22.66 cfs for the 5 acre area. See excerpt below.

Proposed Drainage Management Plan

As shown on the attached exhibit, the proposed site is divided into 7 onsite basins. Based on the approved Conceptual Drainage Report for the Holly Avenue Improvements (C18/D72) dated March 2006, this site is allowed to discharge 22.66 cfs to the Holly Avenue and San Pedro Drive storm sewer system.

Based on AHYMO Calculations (See FCA stamped Supplemental Calculations) Tract C will generate 3.46 cfs < 3.75 cfs allowable.

2. *Please note that Tract A (0.6462 ac) is not part of the above referenced Drainage Report. The site must demonstrate adequate downstream capacity per § 14-5-2-12(G) of the Albuquerque Code of Ordinances.*

RESPONSE: Tract A is not part of the PNRDR as it is not included in the 5 acre area referenced in the PNRDR, but it is part of CDRHA – the same report that the PNRDR used as the basis for allowable discharge. The CDRHA provides for the same discharge rate per acre for this property which is part of the 'Betty Love' basin (2.66 acres with 12.07 cfs discharge = 4.53 cfs/acre.) The allowable discharge rate for Tract A = 0.6462 ac * 4.53 cfs/ac = 2.93 cfs.

Based on AHYMO Calculations (See FCA stamped Supplemental Calculations) Tract A will generate 2.71 cfs < 2.93 cfs allowable.

3. *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.*

RESPONSE: The total project area will exceed 1 acre. The Owner has been informed that an Erosion and Sediment Control Plan and Owner's Notice of Intent (NOI) is required to be submitted as noted.

Please call/email me with any questions or comments.

Sincerely,
ISAACSON & ARFMAN P.A.

Bryan J. Bobrick

Bryan J. Bobrick
Project Manager
Attachments

MAY-20

Supplemental Information

for

Paseo Nuevo Parking Lot Hydrology Submittal

by

Isaacson & Arfman, Inc.
EST 1980
Civil Engineering Consultants

128 Monroe Street NE
Albuquerque, NM 87108
505-268-8828 | www.iacivil.com

INTRODUCTION:

The allowable discharge for this site is based on the stamped, dated (2006), and approved document entitled *'Conceptual Drainage Report for Holly Avenue Improvements"* prepared by Ronald R. Bohannan, PE, of Tierra West, LLC. The document is available in the CABQ Hydrology Database via a link from project (C18/D72) provided below (Drainage Report).

http://data.cabq.gov/government/planning/drainage/C18D072/C18D072_Documents/C18-D72_HOLLY%20AVENUE%20IMPROVEMENTS_DOCUMENTS_No_.pdf

This Drainage Report analyzed the storm drain and street capacities for Holly Ave. and projected fully developed conditions to determine the discharge rates for all properties contributing to the Holly Avenue street and Storm Sewer system.

The report notes that:

> The storm sewer system for Holly Avenue was based on information obtained from several drainage reports on the surrounding area, and on an analysis of the vacant land adjacent to the street. The storm sewer is sized to accept the flows from the Carmel Subdivision, the Kohl's Department Store site, and the vacant land to the west along Holly Avenue. While the flows from the Carmel Subdivision and the Kohl's were taken from approved drainage reports, the flows from the vacant land was analyzed using a 20% Type "B" and a 80% Type "D" land treatment in anticipation of the area becoming commercial development.

This report was approved for work order and designated by COA Planning Dept. Principal Engineer, Bradly L. Bingham, PE, as the "Master plan that all future projects in the basin must adhere."

CITY OF ALBUQUERQUE

May 2, 2006

Ron Bohannan, PE
Tierra West LLC
8509 Jefferson NE
Albuquerque, NM 87113

Re: Holly Avenue Improvements Conceptual Drainage Report
Engineer Stamp 3-22-06 (C18/D72)

Dear Mr. Bohannan,

Based on information provided in your submittal dated 3-22-06, the above referenced report is approved for Work Order. This will be the master plan that all future projects in this basin must adhere.

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

Sincerely,

Bradley L. Bingham, PE
Principal Engineer, Planning Dept
Development and Building Services

P.O. Box 1293

Albuquerque

New Mexico 87103

The calculations in the Drainage Report for the Betty Love Basin and the Skarsgard Basins (see table and basin exhibits below) establish a rate of 4.53 cfs/acre for fully developed conditions.

Weighted E Method

Developed On-Site Basins

Basin	Area (sf)	Area (acres)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year Weighted E (ac-ft)	100-Year Volume (ac-ft)	100-Year Flow cfs	10-Year Weighted E (ac-ft)	10-Year Volume (ac-ft)	10-Year Flow cfs
Holly 1	55,936	1.28	0%	0	30%	0.39	0%	0.00	70%	0.90	1.928	0.206	5.51	1.158	0.124	3.51
Holly 2	39,448	0.91	0%	0	30%	0.27	0%	0.00	70%	0.63	1.928	0.145	3.89	1.158	0.087	2.47
Holly 3	55,489	1.27	0%	0	30%	0.38	0%	0.00	70%	0.89	1.928	0.205	5.47	1.158	0.123	3.48
Dascalos	235,027	5.40	0%	0	20%	1.08	0%	0.00	80%	4.32	2.072	0.932	24.47	1.272	0.572	15.92
Betty Love	115,893	2.66	0%	0	20%	0.53	0%	0.00	80%	2.13	2.072	0.459	12.07	1.272	0.282	7.85
Schumacher	293,607	6.74	0%	0	20%	1.35	0%	0.00	80%	5.39	2.072	1.164	30.57	1.272	0.714	19.86
Skarsgard 1	108,785	2.50	0%	0	20%	0.50	0%	0.00	80%	2.00	2.072	0.431	11.33	1.272	0.265	7.37
Skarsgard 2	108,850	2.50	0%	0	20%	0.50	0%	0.00	80%	2.00	2.072	0.431	11.33	1.272	0.265	7.37

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

Flow = Qa * Aa + Qb * Ab + Qc * Ac + Qd * Ad

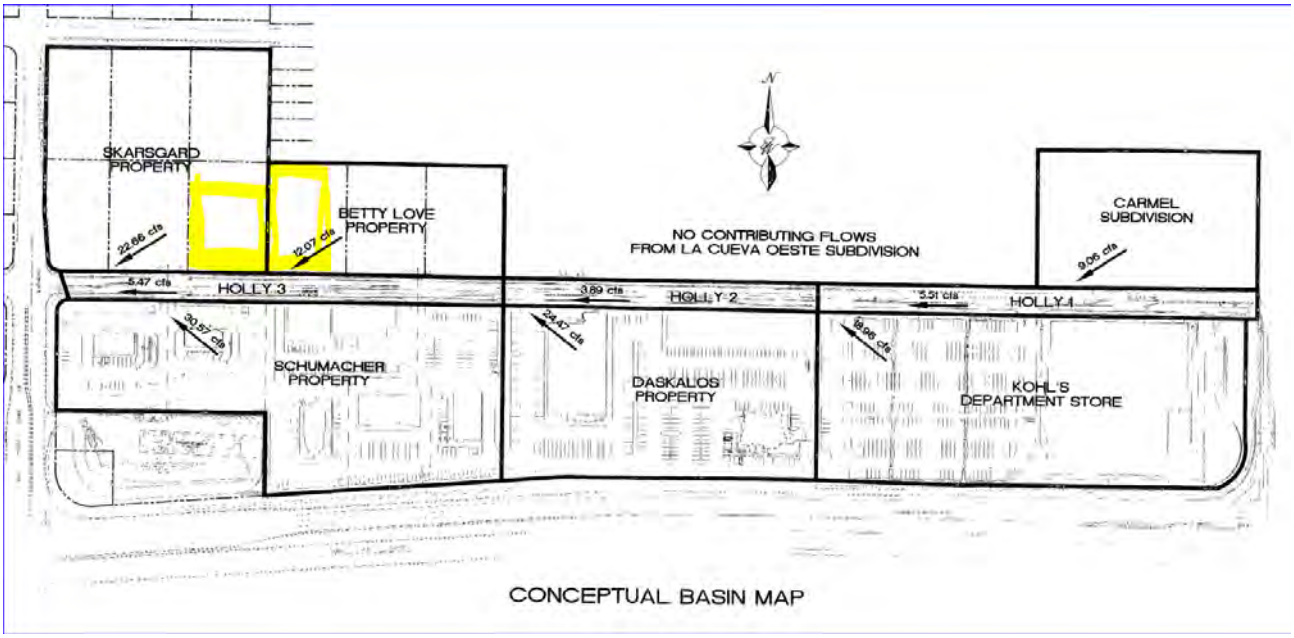
Excess Precipitation, E (inches)		
Zone3	100-Year	10 - Year
E_a	0.66	0.19
E_b	0.92	0.36
E_c	1.29	0.62
E_d	2.36	1.50

Peak Discharge (cfs/acre)		
Zone 3	100-Year	10 - Year
Q_a	1.87	0.58
Q_b	2.60	1.19
Q_c	3.45	2.00
Q_d	5.02	3.39

Overall Basin Exhibit:

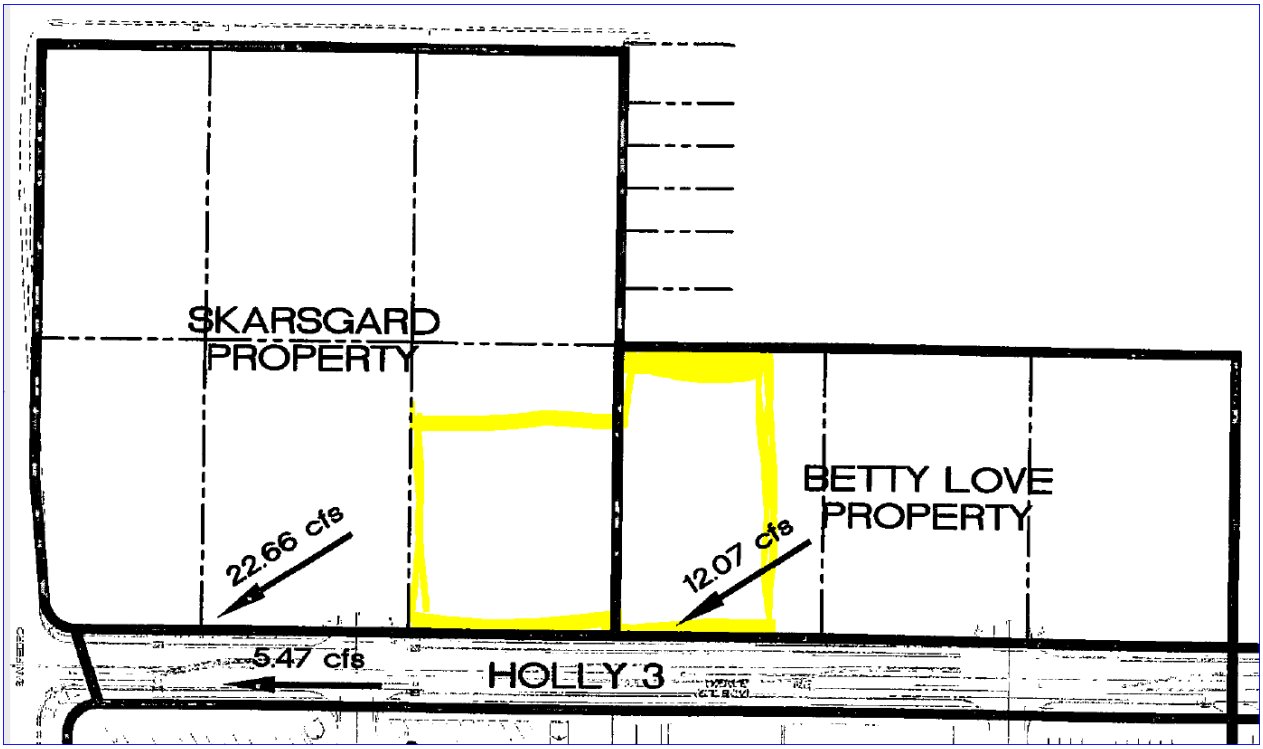
Betty Love = 2.66 acres @ 4.53 cfs/acre,

Skarsgard = 5.0 acres @ 4.53 cfs/acre



CONCEPTUAL BASIN MAP

Enlarged Basin Exhibit



The Skarsgard property, which has been partially developed, utilized this same Drainage Report to establish the allowable discharge rate. See except below.

Proposed Drainage Management Plan

As shown on the attached exhibit, the proposed site is divided into 7 onsite basins. Based on the approved Conceptual Drainage Report for the Holly Avenue Improvements (C18/D72) dated March 2006, this site is allowed to discharge 22.66 cfs to the Holly Avenue and San Pedro Drive storm sewer system.

Basin 1 consists primarily of a parking structure and will sheet flow the east and be captured in drain lines extending to the storm sewer system on the ground level and routed to the storm sewer in Holly Avenue. Basin 2 consists of the building and this drainage will be captured in the storm sewer as well. Basins 3 and 4 will drain to landscape drains and into the storm sewer system. Basin 5 will flow to a drop inlet which will be routed to the storm sewer in Holly Avenue. Basins 6 and 7 will sheet flow to Holly Avenue and enter existing drop inlets.

This site will now discharge 22.28 cfs to the Holly Avenue system, which is less than the 22.66 cfs allowed.

AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4) - Ver. S4.01a, Rel: 01a RUN DATE (MON/DAY/YR) =05/20/2020
INPUT FILE = M:\PROJECTS\2300-2399\2346\CALCS\AHYMO\2346.dat USER NO.= AHYMO_Temp_User:20122010

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S**********										
START										TIME= 0.00
LOCATION		ALBUQUERQUE								
RAINFALL TYPE= 1 NOAA 14										RAIN6= 2.400
*S TRACT C										
COMPUTE NM HYD	10.00	-	1	0.00129	3.46	0.136	1.97891	1.530	4.186	PER IMP= 85.00
*S TRACT A										
COMPUTE NM HYD	20.00	-	2	0.00101	2.71	0.107	1.97891	1.530	4.193	PER IMP= 85.00
FINISH										

```
    AHYMO PROGRAM (AHYMO-S4)                    - Version: S4.01a - Rel: 01a
         RUN DATE (MON/DAY/YR) = 05/20/2020
         START TIME (HR:MIN:SEC) = 10:19:21     USER NO.= AHYMO_Temp_User:20122010
         INPUT FILE = M:\PROJECTS\2300-2399\2346\CALCS\AHYMO\2346.dat

*S**********************************************************************
*
*     2346 PASEO NUEVO PARKING LOT
*     MAY 19, 2020 - BJB/ANW
*
*     PRECIPITATION FROM NOAA
*     HOLLY AVE SITE; ALBUQUERQUE, NM; (LAT: 35.176084° LONG:-106.57590°)
*          P15 =       1.07"
*          P60 =       1.79"
*          P360 =      2.40"
*          P1440 =     2.74"
*
*     HYDROLOGIC MODEL FOR SITE PROPOSED CONDITIONS
*     100-YEAR, 6-HOUR STORM
*
*     2246.DAT
*     BY ISAACSON & ARFMAN PA - ÅSA NILSSON-WEBER PE / BJB
*
**********************************************************************
START               TIME=0.0 HR  PUNCH CODE=0
LOCATION                ALBUQUERQUE
     City of Albuquerque soil infiltration values (LAND FACTORS) used for computations.
     Land Treatment     Initial Abstr.(in)    Unif. Infilt.(in/hour)
          A             0.65                  1.67
          B             0.50                  1.25
          C             0.35                  0.83
          D             0.10                  0.04

RAINFALL            TYPE=1 RAIN QUARTER=1.07 RAIN ONE=1.79
                    RAIN SIX=2.40 RAIN DAY=2.74 DT=0.01

               6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1
               DT =   0.010000 HOURS       END TIME =     6.000000 HOURS
                 0.0000  0.0008  0.0016  0.0024  0.0032  0.0041  0.0049
                 0.0057  0.0065  0.0074  0.0082  0.0091  0.0100  0.0109
                 0.0118  0.0127  0.0136  0.0145  0.0155  0.0165  0.0175
                 0.0185  0.0195  0.0205  0.0215  0.0225  0.0236  0.0248
                 0.0259  0.0270  0.0281  0.0293  0.0304  0.0315  0.0336
                 0.0362  0.0387  0.0413  0.0438  0.0464  0.0489  0.0515
```

0.0542	0.0570	0.0598	0.0627	0.0655	0.0683	0.0712
0.0740	0.0768	0.0799	0.0830	0.0861	0.0891	0.0922
0.0953	0.0983	0.1014	0.1045	0.1077	0.1109	0.1141
0.1173	0.1205	0.1237	0.1269	0.1302	0.1335	0.1369
0.1402	0.1436	0.1469	0.1503	0.1536	0.1570	0.1607
0.1644	0.1681	0.1718	0.1754	0.1791	0.1828	0.1865
0.1905	0.1947	0.1988	0.2029	0.2071	0.2112	0.2153
0.2195	0.2240	0.2291	0.2343	0.2395	0.2447	0.2498
0.2550	0.2602	0.2654	0.2723	0.2792	0.2862	0.2931
0.3000	0.3070	0.3139	0.3209	0.3296	0.3393	0.3491
0.3588	0.3685	0.3782	0.3879	0.3976	0.4089	0.4235
0.4381	0.4526	0.4672	0.4818	0.4964	0.5109	0.5255
0.5507	0.5758	0.6010	0.6262	0.6513	0.6765	0.7016
0.7268	0.7799	0.8469	0.9139	0.9809	1.0480	1.1150
1.1820	1.2491	1.3061	1.3433	1.3804	1.4176	1.4547
1.4919	1.5290	1.5662	1.6033	1.6220	1.6407	1.6594
1.6780	1.6967	1.7154	1.7340	1.7527	1.7668	1.7785
1.7903	1.8020	1.8138	1.8256	1.8373	1.8491	1.8596
1.8678	1.8759	1.8841	1.8922	1.9004	1.9085	1.9167
1.9248	1.9308	1.9368	1.9427	1.9487	1.9547	1.9606
1.9666	1.9726	1.9776	1.9821	1.9866	1.9911	1.9957
2.0002	2.0047	2.0092	2.0135	2.0174	2.0213	2.0252
2.0291	2.0330	2.0369	2.0408	2.0447	2.0482	2.0518
2.0553	2.0588	2.0623	2.0658	2.0693	2.0728	2.0760
2.0789	2.0818	2.0848	2.0877	2.0907	2.0936	2.0966
2.0995	2.1022	2.1049	2.1077	2.1104	2.1131	2.1159
2.1186	2.1213	2.1240	2.1266	2.1293	2.1319	2.1346
2.1372	2.1398	2.1425	2.1442	2.1454	2.1466	2.1478
2.1490	2.1502	2.1514	2.1526	2.1538	2.1550	2.1562
2.1573	2.1585	2.1597	2.1608	2.1620	2.1632	2.1643
2.1653	2.1664	2.1675	2.1686	2.1697	2.1708	2.1719
2.1730	2.1740	2.1751	2.1761	2.1772	2.1783	2.1793
2.1804	2.1814	2.1824	2.1835	2.1845	2.1855	2.1865
2.1876	2.1886	2.1896	2.1906	2.1916	2.1925	2.1935
2.1945	2.1954	2.1964	2.1974	2.1983	2.1993	2.2002
2.2011	2.2021	2.2030	2.2040	2.2049	2.2058	2.2068
2.2077	2.2086	2.2095	2.2104	2.2113	2.2123	2.2132
2.2140	2.2149	2.2158	2.2167	2.2175	2.2184	2.2193
2.2201	2.2210	2.2219	2.2227	2.2236	2.2244	2.2253
2.2261	2.2270	2.2278	2.2286	2.2295	2.2303	2.2311
2.2319	2.2328	2.2336	2.2344	2.2352	2.2360	2.2368
2.2376	2.2384	2.2392	2.2400	2.2408	2.2416	2.2423
2.2431	2.2439	2.2447	2.2454	2.2462	2.2470	2.2478
2.2485	2.2493	2.2500	2.2508	2.2515	2.2523	2.2531
2.2538	2.2546	2.2553	2.2561	2.2568	2.2575	2.2583

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                2.2692  2.2699  2.2706  2.2713  2.2720  2.2727  2.2734
                2.2741  2.2748  2.2755  2.2762  2.2769  2.2776  2.2783
                2.2790  2.2797  2.2804  2.2811  2.2817  2.2824  2.2831
                2.2838  2.2845  2.2851  2.2858  2.2865  2.2872  2.2878
                2.2885  2.2892  2.2898  2.2905  2.2912  2.2918  2.2925
                2.2932  2.2938  2.2945  2.2951  2.2958  2.2964  2.2971
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                2.3022  2.3029  2.3035  2.3041  2.3048  2.3054  2.3061
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                2.3111  2.3117  2.3123  2.3129  2.3135  2.3141  2.3148
                2.3154  2.3160  2.3166  2.3172  2.3178  2.3184  2.3190
                2.3196  2.3202  2.3208  2.3214  2.3220  2.3226  2.3232
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                2.3280  2.3285  2.3291  2.3297  2.3303  2.3309  2.3315
                2.3320  2.3326  2.3332  2.3338  2.3344  2.3349  2.3355
                2.3361  2.3367  2.3372  2.3378  2.3384  2.3389  2.3395
                2.3401  2.3406  2.3412  2.3417  2.3423  2.3429  2.3434
                2.3440  2.3445  2.3451  2.3457  2.3462  2.3468  2.3473
                2.3479  2.3484  2.3490  2.3495  2.3501  2.3506  2.3512
                2.3517  2.3522  2.3528  2.3533  2.3539  2.3544  2.3549
                2.3555  2.3560  2.3566  2.3571  2.3576  2.3582  2.3587
                2.3592  2.3598  2.3603  2.3608  2.3613  2.3619  2.3624
                2.3629  2.3634  2.3640  2.3645  2.3650  2.3655  2.3661
                2.3666  2.3671  2.3676  2.3681  2.3686  2.3692  2.3697
                2.3702  2.3707  2.3712  2.3717  2.3722  2.3727  2.3732
                2.3737  2.3743  2.3748  2.3753  2.3758  2.3763  2.3768
                2.3773  2.3778  2.3783  2.3788  2.3793  2.3798  2.3803
                2.3808  2.3813  2.3818  2.3822  2.3827  2.3832  2.3837
                2.3842  2.3847  2.3852  2.3857  2.3862  2.3867  2.3871
                2.3876  2.3881  2.3886  2.3891  2.3896  2.3900  2.3905
                2.3910  2.3915  2.3920  2.3924  2.3929  2.3934  2.3939
                2.3943  2.3948  2.3953  2.3958  2.3962  2.3967  2.3972
                2.3977  2.3981  2.3986  2.3991  2.3995  2.4000

*
*********************************************************************************
*S  TRACT C
COMPUTE NM HYD       ID=1 HYD NO=10 AREA= 0.0012929688 SQ MI
                     PER A=0 PER B=0 PER C=15 PER D=85
                     TP=-0.1333 HR   MASS RAIN=-1

     K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE CONSTANT, N =  7.106428
     UNIT PEAK =   4.3390    CFS   UNIT VOLUME =   0.9971       B =   526.28      P60 = 1.7900
```

AREA = 0.001099 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.010000

K = 0.104964HR TP = 0.133300HR K/TP RATIO = 0.787430 SHAPE CONSTANT, N = 4.558258
UNIT PEAK = 0.56862 CFS UNIT VOLUME = 0.9753 B = 390.82 P60 = 1.7900
AREA = 0.000194 SQ MI IA = 0.35000 INCHES INF = 0.83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.010000

PRINT HYD ID=1 CODE=5

OUTFLOW HYDROGRAPH REACH 10.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.350	1.0	2.700	0.1	4.050	0.0	5.400	0.0
0.050	0.0	1.400	1.5	2.750	0.1	4.100	0.0	5.450	0.0
0.100	0.0	1.450	2.5	2.800	0.1	4.150	0.0	5.500	0.0
0.150	0.0	1.500	3.4	2.850	0.1	4.200	0.0	5.550	0.0
0.200	0.0	1.550	3.4	2.900	0.0	4.250	0.0	5.600	0.0
0.250	0.0	1.600	2.9	2.950	0.0	4.300	0.0	5.650	0.0
0.300	0.0	1.650	2.3	3.000	0.0	4.350	0.0	5.700	0.0
0.350	0.0	1.700	1.7	3.050	0.0	4.400	0.0	5.750	0.0
0.400	0.0	1.750	1.4	3.100	0.0	4.450	0.0	5.800	0.0
0.450	0.0	1.800	1.1	3.150	0.0	4.500	0.0	5.850	0.0
0.500	0.0	1.850	0.9	3.200	0.0	4.550	0.0	5.900	0.0
0.550	0.0	1.900	0.7	3.250	0.0	4.600	0.0	5.950	0.0
0.600	0.0	1.950	0.6	3.300	0.0	4.650	0.0	6.000	0.0
0.650	0.0	2.000	0.5	3.350	0.0	4.700	0.0	6.050	0.0

0.700	0.1	2.050	0.5	3.400	0.0	4.750	0.0	6.100
0.0								
0.750	0.1	2.100	0.4	3.450	0.0	4.800	0.0	6.150
0.0								
0.800	0.2	2.150	0.4	3.500	0.0	4.850	0.0	6.200
0.0								
0.850	0.2	2.200	0.3	3.550	0.0	4.900	0.0	6.250
0.0								
0.900	0.2	2.250	0.3	3.600	0.0	4.950	0.0	6.300
0.0								
0.950	0.2	2.300	0.2	3.650	0.0	5.000	0.0	6.350
0.0								
1.000	0.2	2.350	0.2	3.700	0.0	5.050	0.0	6.400
0.0								
1.050	0.3	2.400	0.2	3.750	0.0	5.100	0.0	6.450
0.0								
1.100	0.3	2.450	0.2	3.800	0.0	5.150	0.0	6.500
0.0								
1.150	0.4	2.500	0.1	3.850	0.0	5.200	0.0	6.550
0.0								
1.200	0.5	2.550	0.1	3.900	0.0	5.250	0.0	6.600
0.0								
1.250	0.6	2.600	0.1	3.950	0.0	5.300	0.0	
1.300	0.7	2.650	0.1	4.000	0.0	5.350	0.0	

RUNOFF VOLUME = 1.97891 INCHES = 0.1365 ACRE-FEET
PEAK DISCHARGE RATE = 3.46 CFS AT 1.530 HOURS BASIN AREA = 0.0013 SQ. MI.

*S TRACT A
COMPUTE NM HYD ID=2 HYD NO=20 AREA= 0.0010096875 SQ MI
PER A=0 PER B=0 PER C=15 PER D=85
TP=-0.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 3.3884 CFS UNIT VOLUME = 0.9962 B = 526.28 P60 = 1.7900
AREA = 0.000858 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.010000

K = 0.104964HR TP = 0.133300HR K/TP RATIO = 0.787430 SHAPE CONSTANT, N = 4.558258
UNIT PEAK = 0.44404 CFS UNIT VOLUME = 0.9692 B = 390.82 P60 = 1.7900
AREA = 0.000151 SQ MI IA = 0.35000 INCHES INF = 0.83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.010000

PRINT HYD ID=2 CODE=5

OUTFLOW HYDROGRAPH REACH 20.00

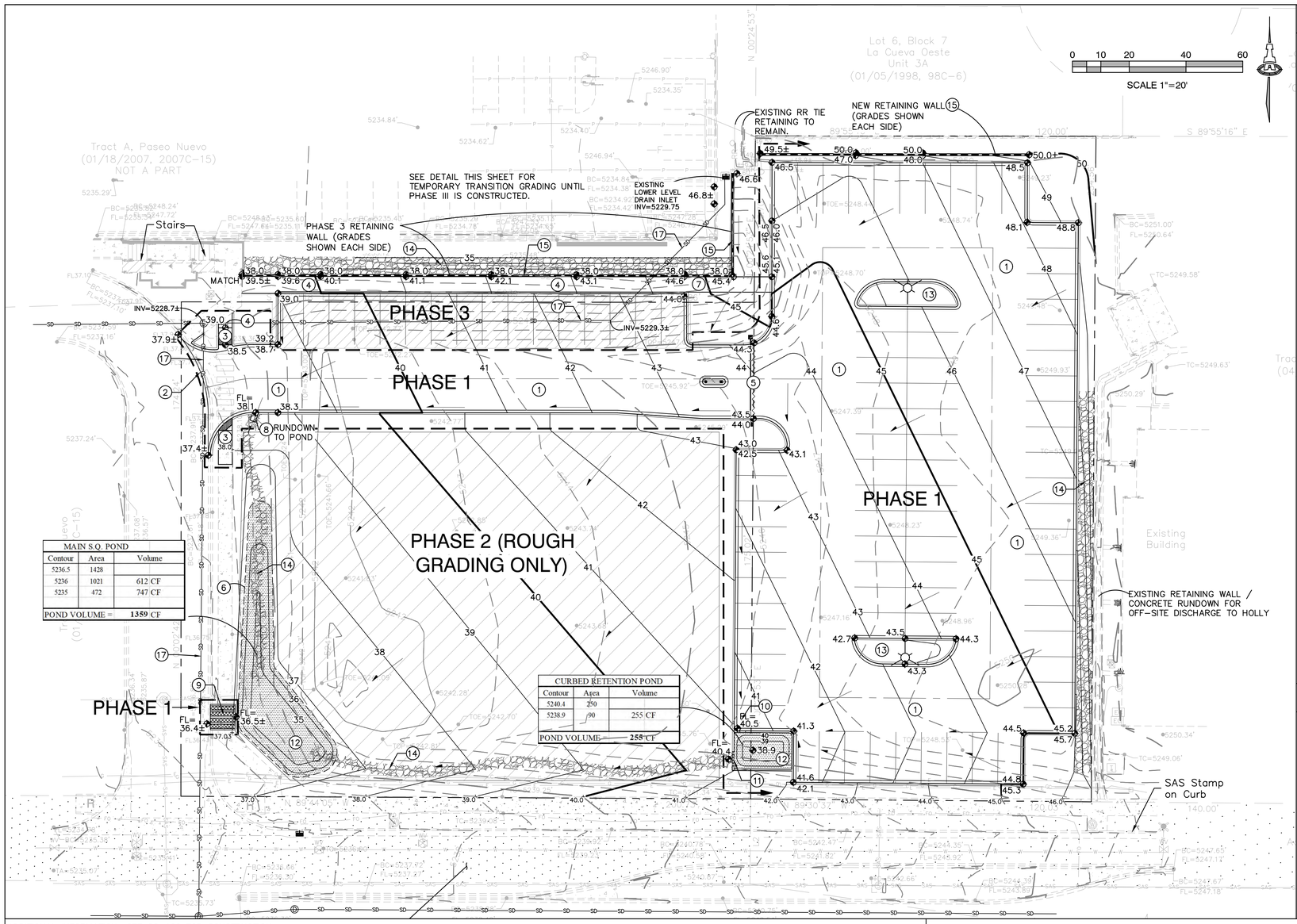
TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	1.350	0.8	2.700	0.1	4.050	0.0	5.400	0.0
0.050	0.0	1.400	1.2	2.750	0.0	4.100	0.0	5.450	0.0
0.100	0.0	1.450	1.9	2.800	0.0	4.150	0.0	5.500	0.0
0.150	0.0	1.500	2.6	2.850	0.0	4.200	0.0	5.550	0.0
0.200	0.0	1.550	2.6	2.900	0.0	4.250	0.0	5.600	0.0
0.250	0.0	1.600	2.3	2.950	0.0	4.300	0.0	5.650	0.0
0.300	0.0	1.650	1.8	3.000	0.0	4.350	0.0	5.700	0.0
0.350	0.0	1.700	1.4	3.050	0.0	4.400	0.0	5.750	0.0
0.400	0.0	1.750	1.1	3.100	0.0	4.450	0.0	5.800	0.0
0.450	0.0	1.800	0.8	3.150	0.0	4.500	0.0	5.850	0.0
0.500	0.0	1.850	0.7	3.200	0.0	4.550	0.0	5.900	0.0
0.550	0.0	1.900	0.6	3.250	0.0	4.600	0.0	5.950	0.0
0.600	0.0	1.950	0.5	3.300	0.0	4.650	0.0	6.000	0.0
0.650	0.0	2.000	0.4	3.350	0.0	4.700	0.0	6.050	0.0
0.700	0.0	2.050	0.4	3.400	0.0	4.750	0.0	6.100	0.0
0.750	0.1	2.100	0.3	3.450	0.0	4.800	0.0	6.150	0.0
0.800	0.1	2.150	0.3	3.500	0.0	4.850	0.0	6.200	0.0
0.850	0.1	2.200	0.2	3.550	0.0	4.900	0.0	6.250	0.0

0.900	0.2	2.250	0.2	3.600	0.0	4.950	0.0	6.300
0.0								
0.950	0.2	2.300	0.2	3.650	0.0	5.000	0.0	6.350
0.0								
1.000	0.2	2.350	0.2	3.700	0.0	5.050	0.0	6.400
0.0								
1.050	0.2	2.400	0.2	3.750	0.0	5.100	0.0	6.450
0.0								
1.100	0.2	2.450	0.1	3.800	0.0	5.150	0.0	6.500
0.0								
1.150	0.3	2.500	0.1	3.850	0.0	5.200	0.0	6.550
0.0								
1.200	0.4	2.550	0.1	3.900	0.0	5.250	0.0	
1.250	0.4	2.600	0.1	3.950	0.0	5.300	0.0	
1.300	0.6	2.650	0.1	4.000	0.0	5.350	0.0	

RUNOFF VOLUME = 1.97891 INCHES = 0.1066 ACRE-FEET
PEAK DISCHARGE RATE = 2.71 CFS AT 1.530 HOURS BASIN AREA = 0.0010 SQ. MI.

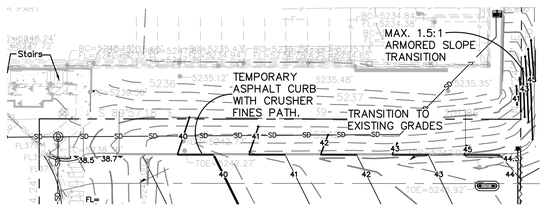
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 10:19:21



ADDITIONAL INFORMATION: SEE CG-100 FOR CONSTRUCTION NOTES RELATING TO CIVIL PLANS.

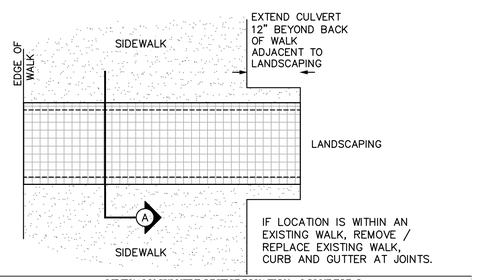
TEMPORARY TRANSITION UNTIL PHASE III



COVERED SIDEWALK CULVERT

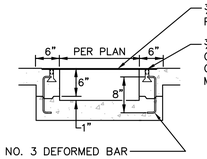
SCALE: N.T.S.

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



WELD ⅛" THICK, ⅝" 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

SIDEWALK CULVERT ORIFICE EQUATION - SOLVE FOR Q

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

Where	Q	=	1.81	cfs	
	C	=	0.6		
	A	=	0.75	sq.ft.	
	g	=	32.2	ft/sec^2	
	h	=	0.25	ft	depth of flow at opening from the center of orifice
4 Units =			7.22	cfs	OK
Required Q =			6.90	cfs	

KEYED NOTES

1. CONSTRUCT NEW PAVING AT ELEVATIONS SHOWN. SEE PAVING PLAN FOR MATERIAL, EXTENTS, JOINTS AND PAVING SECTIONS. NOTE: TO ENSURE READABILITY, NOT ALL PAVEMENT SPOT ELEVATIONS SHOW ADJACENT TOP OF CURB / TOP OF WALK ELEVATIONS. TEXT SHOWN WITHIN FLOWLINE INDICATES FLOWLINE ELEVATION. ADD 0.5' TYPICAL FOR TOP OF CURB / TOP OF ADJACENT WALK ELEVATIONS.
2. PROVIDE SMOOTH TRANSITION TO EXISTING PAVEMENT.
3. CONSTRUCT ADA COMPLIANT 1:12 MAX. SLOPE HANDICAP ACCESS RAMP.
4. CONSTRUCT ADA COMPLIANT PEDESTRIAN ACCESS WALK AT ELEVATIONS SHOWN. MAX. 5% SLOPE, MAX. 2% CROSS-SLOPE.
5. HIGH POINT / GRADE BREAK LOCATION.
6. 0.5' DESIGN CONTOUR SHOWN DASHED WHERE NECESSARY TO CLARIFY GRADING CONCEPT AND POND ELEVATIONS.
7. GRADING / CONSTRUCTION ON ADJACENT PROPERTY TO ELEVATIONS AND LIMITS SHOWN. SAME OWNER. WRITTEN LETTER OF PERMISSION WILL BE PROVIDED.
8. CONSTRUCT 2.0 WIDE CONCRETE RUNDOWN TO PASS FLOW.
9. CONSTRUCT FOUR 1.5' WIDE COVERED CONCRETE SIDEWALK CULVERTS PER COA STD. DWG. 2236 AND DETAIL THIS SHEET.
10. PROVIDE 2' WIDE CURB OPENING TO PASS PAVEMENT FLOW TO POND.
11. PROVIDE THREE 1' WIDE CURB OPENINGS TO PASS EXCESS FLOW WEST.
12. CONSTRUCT 18" DEPTH STORMWATER QUALITY RETENTION POND AT ELEVATIONS SHOWN. INSTALL ANGULAR ROCK TO DEFINE PERIMETER. ALL STORMWATER QUALITY PONDING VOLUMES WILL BE VERIFIED AS PART OF AS-BUILT / ENGINEER'S CERTIFICATION. PONDS WHICH DO NOT PROVIDE THE REQUIRED VOLUME WILL BE CORRECTED AT CONTRACTOR'S EXPENSE.
13. DEPRESS LANDSCAPING FOR GENERAL WATER HARVESTING. NOTE: NO WATER HARVESTING SHALL OCCUR WITHIN 10' OF ANY BUILDING.
14. INSTALL 12" DEEP X 6" AVG. DIA. ANGULAR ROCK EROSION PROTECTION THIS AREA TO LIMITS SHOWN. (DRAINAGE SWALES, TRANSITION SLOPES > 3:1).
15. CONSTRUCT RETAINING WALL(S) TO ACHIEVE GRADES SHOWN. GRADE ON HIGH SIDE OF WALL AND GRADE ON LOW SIDE OF WALL ARE PROVIDED. WALL DESIGN SHALL INCLUDE ADA COMPLIANT GUARDRAIL WHERE ADJACENT TO WALK. STAMPED, ENGINEERED STRUCTURAL DESIGN TO BE PROVIDED BY WALL CONTRACTOR IN COORDINATION WITH OWNER (HEIGHT, MATERIAL, FOOTINGS, TIES, GUARDRAILS, REINFORCING, WEEPHOLES, ETC.)
16. CONSTRUCT CONCRETE HEADER CURB ON WEST AND SOUTH SIDE OF RETENTION POND.
17. EXISTING STORM DRAIN MAIN WITH AS-BUILT INVERTS PROVIDED. CONTRACTOR TO PROTECT.

STORMWATER QUALITY

STORMWATER QUALITY CONTROL MEASURES ARE REQUIRED TO PROVIDE MANAGEMENT OF 'FIRST FLUSH'.

THE MAXIMUM IMPERVIOUS AREA FOR THIS PROPERTY IS CALCULATED AS 85% OF TOTAL AREA. (0.85 * 37,808) = 32,137 SF.

THIS PROPERTY IS 'NEW CONSTRUCTION' WHICH REQUIRES STORMWATER QUALITY VOLUME BASED ON THE 90TH PERCEITLE STORM EVENT (0.34" AFTER INITIAL ABSTRACTION). THE REQUIRED STORMWATER QUALITY RETENTION VOLUME 0.34" * LAND TREATMENT 'D' AREA: 0.34/12 * (54,565 SF) = 1,546 CF.

ALTHOUGH NO BUILDING IS INCLUDED IN THIS PHASE OF CONSTRUCTION, THE PROPOSED STORMWATER QUALITY RETENTION PONDS TO BE CONSTRUCTED AS SHOWN ON THE ATTACHED PLAN WILL ACCOMMODATE THE FULLY DEVELOPED CONDITION.

PROJECT INFORMATION

PROPERTY: THE SITE IS A PARTIALLY DEVELOPED PROPERTY LOCATED EAST OF THE NORTHEAST CORNER OF SAN PEDRO DRIVE AND HOLLY AVENUE NE WITHIN C.O.A. VICINITY MAP C-18. THE SITE IS BOUND TO THE EAST AND NORTHWEST BY DEVELOPED COMMERCIAL, TO THE NORTHEAST BY RESIDENTIAL, TO THE WEST BY UNDEVELOPED COMMERCIAL AND TO THE SOUTH BY HOLLY AVE. NE.

PROPOSED IMPROVEMENTS: THE PROPOSED IMPROVEMENTS INCLUDE ASPHALT PAVED ACCESS, PARKING, AND LANDSCAPING.

LEGAL: TRACT A, PASEO NUEVO 2, AND TRACT C, PASEO NUEVO, ALBUQUERQUE, NEW MEXICO.

AREA: TRACT A = 0.6462 AC, TRACT C = 0.8275 AC

BENCHMARK: ACS MONUMENT "HEAVEN" HAVING AN ELEVATION OF 5378.235. (NAVD 1988)

OFF-SITE: NO OFF-SITE DRAINAGE AFFECTS THIS PROPERTY.

FLOOD HAZARD: PER BERNALILLO COUNTY FIRM MAP #35001C0137H, DATED AUGUST 16, 2012, THE SITE IS LOCATED WITHIN FLOODZONE 'X' DESIGNATED AS AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN.

DRAINAGE CONCEPT:

THE ALLOWABLE DISCHARGE FOR THIS SITE (4.53 CFS/ACRE) IS BASED ON THE STAMPED, DATED, AND APPROVED DOCUMENT ENTITLED 'CONCEPTUAL DRAINAGE REPORT FOR HOLLY AVENUE IMPROVEMENTS" PREPARED TIERRA WEST, LLC. THIS DRAINAGE REPORT ANALYZED THE STORM DRAIN AND STREET CAPACITIES FOR HOLLY AVE. BASED ON THE ALLOWABLE DISCHARGE RATES FROM THE ADJACENT PROPERTIES. IT IS AVAILABLE IN THE CABQ HYDROLOGY DATABASE FOR PROJECT (C18/D72). ALLOWABLE DISCHARGE IS 4.53 CFS/AC * 1.47 AC. = 6.66 CFS. AHYMO CALCULATIONS DISCHARGE RATE < 6.66 CFS WHICH SUPPORTS FREE DISCHARGE.

LEGEND

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED 1.0' CONTOUR
- PROPOSED 0.5' CONTOUR
- PROPOSED SPOT ELEVATION
- FLOW DIRECTION
- ROCK EROSION CONTROL
- LIMITS OF PONDING
- NEW RETAINING WALL
- PHASE BOUNDARY
- PHASE 1
- PHASE 2 (GRADING)
- PHASE 3

FRED C. ARFMAN, NEW MEXICO, 7322, LICENSED PROFESSIONAL ENGINEER, 05.04.20

Isaacson & Arfman, Inc.
Civil Engineering Consultants
128 Monroe Street NE
Albuquerque, NM 87108
505-268-8828 | www.iacivil.com

PASEO NUEVO PARKING LOT

GRADING AND DRAINAGE PLAN

Date: 04/24/2020	No.	Revision:	Date:	Job No. 2346
Drawn By: BJB				CG-101
Ckd By: ANW				SH. OF 10