



Timothy M. Keller, Mayor

February 9, 2018

Hugh W. Floyd, P.E.
Respec
5971 Jefferson St. NE
Albuquerque, NM, 87109

RE: Legacy NAA Apartments 2
Conceptual Grading and Drainage Plan
Engineer's Stamp Date: 02/08/18
Hydrology File: C18D083

Dear Mr. Floyd:

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Based upon the information provided in your submittal received 02/02/2018, the Conceptual Grading and Drainage Plan is **not** approved for Site Plan for Building Permit. The following comments need to be addressed for approval of the above referenced project:

1. Please add the word "Conceptual" to the sheets title and add a note stating "Not for Construction".
2. Sheet C-1. Under Background, the southern half of the property is tying into the existing storm inlet on Alameda Blvd. This was installation with modifications to the NAAMDP under a design analysis report "Alameda Blvd San Pedro to Wyoming Project #7663.91 by Thompson Engineering dated January 2012. This report revised the allowable discharge for the southern half of the property to 3.82 cfs/ac. So the 2.21 ac will have an allowable discharge of 8.44 cfs.
3. Sheet C-1. The Q_{100} for Subbasin East should be 2.09 cfs.
4. Sheet C-1. Please clarify if the retaining walls along the East property line are existing or proposed. If it is proposed, then please show a cross section.
5. Sheet C-1. Please show the retention pond volume calculations for both Subbasin Northeast and Subbasin East for the 100 year – 10 day.

CITY OF ALBUQUERQUE



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6. Sheet C-1. For Subbasins North, West, and South, please show the first flush volume within the landscape areas. The first flush volume is for water quality purposes. Having this volume just within underground pipes does not fulfill the intent of the first flush basins. Please revise and show how the flows into and exists the first flush ponds.
7. Sheet C-2. For Subbasin Northeast, the basin area and the proposed grading do not match. On Sheet C-1 there are drainage arrows starting at the edge of the parking going to the retention pond. On Sheet C-2, the drainage from the south half of the parking goes to a swale along the edge of the parking and into Subbasin North. Please correct.
8. Sheet C-2. For Subbasin East, How is the drainage actually getting into the retention ponds? Especially the eastern pond. Should there be a connecting pipe between all three retention ponds? Please explain or correct.
9. Sheet C-2. For Subbasin East and Northwest, the retention ponds needs to have a spillway for the volume over the 100 – 10day. Please add spillway.

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As a reminder, please provide a Private Facility Drainage Covenant per Chapter 17 of the DPM for the first flush ponds and the retention ponds prior to Building Permit approval. I have attached a word document of this drainage covenant for your use. Also the site currently shows more than 1 acre of disturbance is being proposed. An Erosion and Sediment Control Plan is required and has to be submitted to the storm water quality engineer (Curtis Cherne, PE, ccherne@cabq.gov). Hydrology's approval for Grading or Building Permit will not be given until the submittal of the ESC Plan.

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 09/2015)

Project Title: _____ **Building Permit #:** _____ **City Drainage #:** _____
DRB#: _____ **EPC#:** _____ **Work Order#:** _____
Legal Description: _____
City Address: _____

Engineering Firm: _____ **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

Owner: _____ **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

Architect: _____ **Contact:** _____
Address: _____
Phone#: _____ **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) _____

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) _____

IS THIS A RESUBMITTAL?: ____ Yes ____ No

DATE SUBMITTED: _____ **By:** _____

COA STAFF: _____ ELECTRONIC SUBMITTAL RECEIVED: ____

Hydrology

Hydrology Calculations

The following calculations are based on Albuquerque's Development Process Manual, Section 22.2

Runoff Rate:

Treatment Type Areas	Subbasin	Area _a (ac)	Area _b (ac)	Area _c (ac)	Area _d (ac)	Total (ac)
Subbasin North	0	0.0678	0.0678	0.9944	1.1300	
Subbasin South	0	0.0510	0.0510	1.5980	1.7000	
Subbasin West	0	0.2295	0.0850	0.5355	0.8500	
Subbasin East	0	0.3000	0.2100	0.1800	0.6900	
Subbasin North East	0	0.0240	0.0240	0.0720	0.1200	

Water Quality & Ponding

Water Quality:

Subbasin	Required Volume (Cu. Ft.)	Drains to	Volume Provided (Cu. Ft.)
Subbasin North	1,227	North Pond	1,230
Subbasin South	1,972	South Pond	1,970
Subbasin West	661	West Pond	665
Subbasin East	222	Ponds 1-4 (Pool Area)	4,035 All Retained
Subbasin North East	89	North East Pond	1,100 All Retained
Total	4,171	WQ Ponding TOTAL	11,175

SUB BASIN EAST RETENTION PONDS

Pond 1				Pond 3				SUB BASIN NORTH EAST RETENTION POND			
Elev.	Area (Sq. Ft.)	Vol (Cu. Ft.)	Cum. (Cu. Ft.)	Elev.	Area (Sq. Ft.)	Vol (Cu. Ft.)	Cum. (Cu. Ft.)	Elev.	Area (Sq. Ft.)	Vol (Cu. Ft.)	Cum. (Cu. Ft.)
5236.5	78.0	0	0	5236.5	151.0	0	0	5236.5	870.0	0	0
5237.0	253.0	83	83	5237.0	421.0	143	143	5237.0	3592.0	1116	1116
5237.5	539.0	198	281	5238.0	992.0	707	850				
5238.0	1005.0	630	910								

Total retention Sub Basin East: 910+1371+850+905= 4,035 cubic ft
Total retention Sub Basin North East: 1,116 cubic ft

A-HYMO - Input

S PROJECT NAME: LEGACY NAA APARTMENTS PHASE 2
S JOB NO. - 03231
S DATE: Jan. 19 2018
S INPUT FILE NAME: NAAINF.hym
S OUTPUT FILE NAME: NAAINF.out
S MODIFIED BY NIRT F. ON JAN. 19 2018
S BASIN 117.2-NORTH WAS REPLACED WITH SUBBASINS NORTH & WEST
S BASIN 117.3-SOUTH WAS REPLACED WITH SUBBASIN SOUTH

S 24-hr, 100 year storm event
S TYPE=2 RAIN QUARTER=0.0 RAIN ONE=2.14
S RAINFALL TYPE=2 RAIN SIX=2.60 RAIN DAY=3.10 DT=0.05 HRS

S COMPUTE SAN PEDRO STORM DRAIN PROJECT (THOMPSON REPORT)
S BASIN 117.20-NORTH
S COMPUTE NM HYD

S BASIN 117.30-SOUTH
S COMPUTE NM HYD

S SUBBASIN WEST
S COMPUTE NM HYD

S SUBBASIN NORTH
S COMPUTE NM HYD

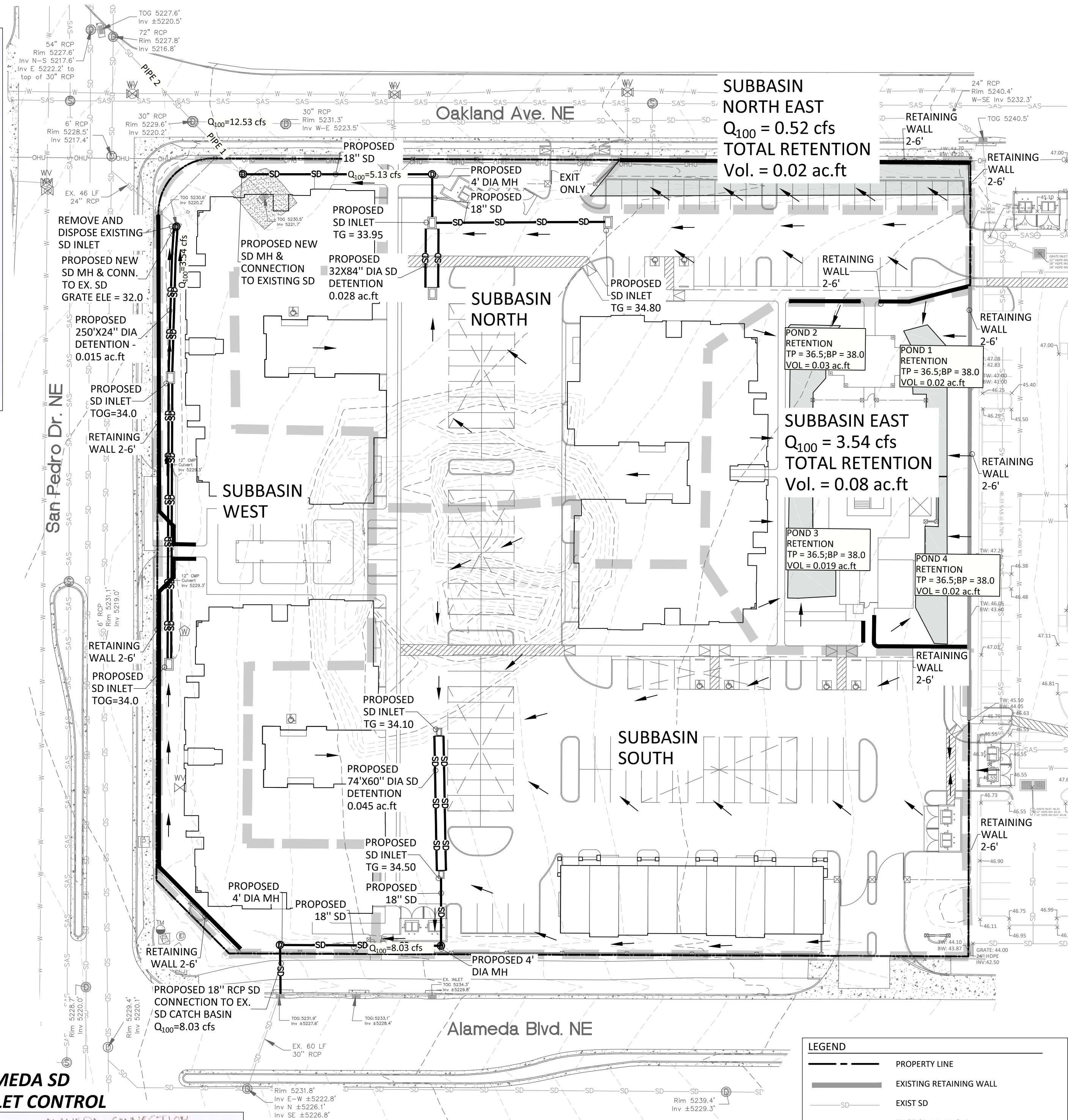
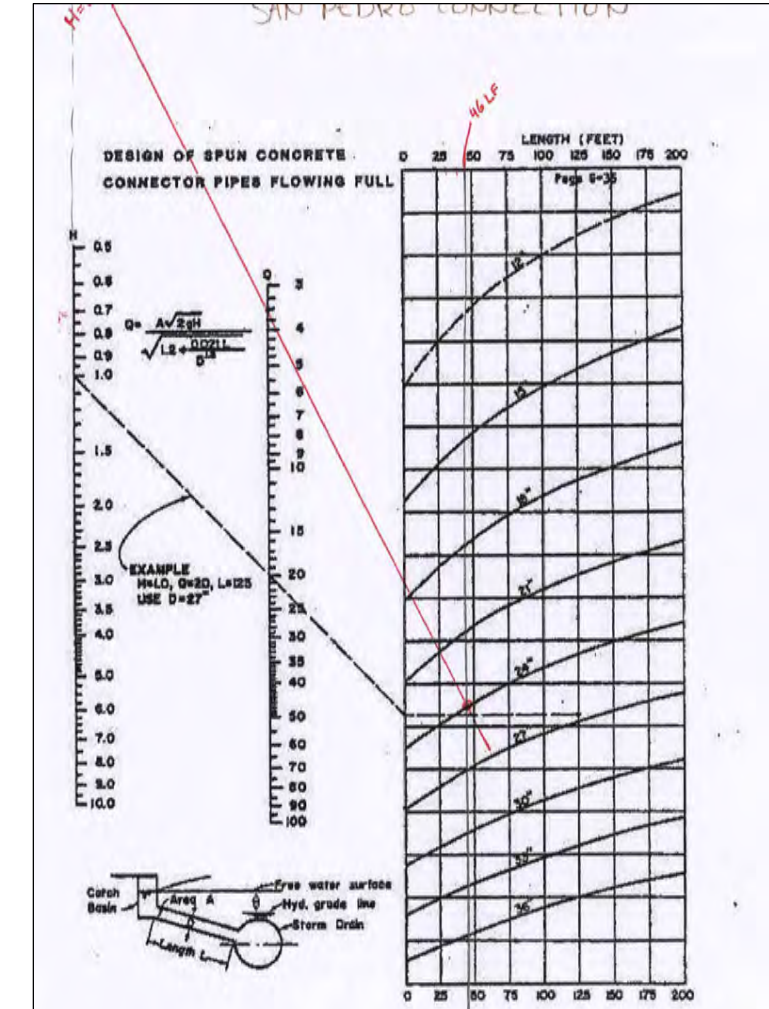
S SUBBASIN SOUTH
S COMPUTE NM HYD

A-HYMO - Output

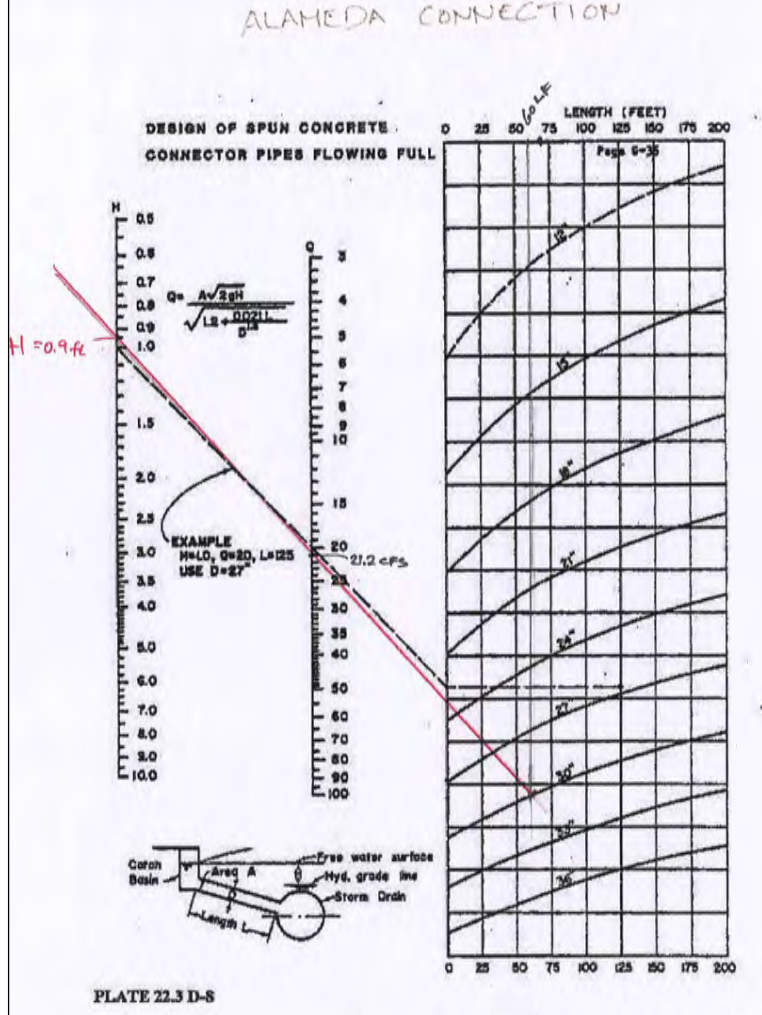
AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -
INPUT FILE = NAAINF.TXT

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
S	PROJECT NAME: LEGACY APARTMENTS PHASE 2									1
S	JOB NO. - 03231									
S	DATE: Jan. 19 2018									
S	INPUT FILE NAME: NAAINF.hym									
S	OUTPUT FILE NAME: NAAINF.out									
S	RAINFALL TYPE= 2									
S	COMPUTE SAN PEDRO STORM DRAIN PROJECT (THOMPSON REPORT)									
S	BASIN 117.20-NORTH	1		.00348	8.67	.360	1.94076	1.500	3.894 PER IMP= 50.00	
S	COMPUTE NM HYD SPSPD.BASIN.									
S	BASIN 117.30-SOUTH	2		.00346	8.62	.358	1.94076	1.500	3.894 PER IMP= 50.00	
S	COMPUTE NM HYD SPSPD.BASIN.									
S	RAINFALL TYPE= 2									
S	COMPUTE NM HYD BASINNorth	3		.00170	5.13	.240	2.64497	1.500	4.717 PER IMP= 88.00	
S	COMPUTE NM HYD BASINSouth	4		.00260	8.03	.381	2.75109	1.500	4.828 PER IMP= 94.00	
S	COMPUTE NM HYD BASINWest	5		.00133	3.54	.154	2.17270	1.500	4.164 PER IMP= 63.00	
S	COMPUTE NM HYD BASINEast	6		.00094	2.09	.079	1.56591	1.500	3.477 PER IMP= 30.00	
S	COMPUTE NM HYD BASINNorthEast	7		.00010	.52	.022	2.14977	1.500	4.316 PER IMP= 60.00	

SAN PEDRO SDOUTLET CONTROL

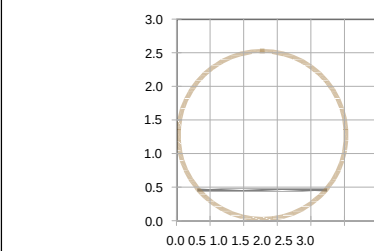


ALAMEDA SD OUTLET CONTROL



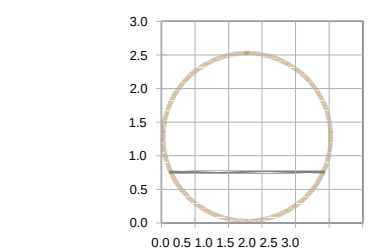
OAKLAND PIPE'S CAPACITY - PIPE 1

Manning Formula:	
Circular Channel:	
Input:	
Flow	5.13 cfs
Slope	0.0107 ft/ft
Manning's n	0.013
Diameter	30 in
Output:	
Depth	0.432 ft
Flow Area	0.567 ft ²
Velocity	9.05 fpm
Velocity Head	1.27 ft
Top Width	1.89 ft
Froude Number	2.92
Critical Depth	0.747 ft
Critical Slope	0.00614 ft/ft



OAKLAND PIPE'S CAPACITY - PIPE 2

Manning Formula:	
Circular Channel:	
Input:	
Flow	17.66 cfs
Slope	0.0054 ft/ft
Manning's n	0.013
Diameter	30 in
Output:	
Depth	0.729 ft
Flow Area	1.19 ft ²
Velocity	14.6 fpm
Velocity Head	3.42 ft
Top Width	2.27 ft
Froude Number	3.61
Critical Depth	1.423 ft
Critical Slope	0.00485 ft/ft



Background

Phase 2 of the Legacy NAA Apartments account for 4.44 acres within the City of Albuquerque, Bernalillo County, New Mexico. This property is located east of San Pedro Drive between Alameda Boulevard and Oakland Avenue. There is a shaded Zone X floodplain that affects a small part of the northern portion of the site.

The site does not currently receive any offsite flows but has previously received flows from the adjacent properties to the east. The adjacent site is currently under construction and no longer discharges onto the project area (C18D064B). This area is included in the North Albuquerque Acres Master Drainage Plan (NAAMPD). The northern half of the property is allowed to discharge to the San Pedro storm drain and the southern half is allowed to discharge to the Alameda storm drain per the Design Analysis Report for San Pedro Storm Drain (DARSPSD) by Thompson Engineering Consultants (January 2010)

Methodology

Hydrology Calculations for the site are performed in accordance with the Albuquerque Development Process Manual (DPM) Section 22 using AHYMO to calculate peak flow rates in order to ensure all flow paths are sufficient to carry flows effectively throughout the site. The water quality pond volume was calculated by multiplying the first flush runoff value of 0.34" by the impervious area of each sub basin. All hydrologic and hydraulic calculations can be found on this sheet.

Existing Conditions

The existing property slopes from east to west at approximately 3%. The site is currently developed and was previously used as a parking space for the Toyota dealership across San Pedro Drive (C18D083). The site runoff is currently free discharging to the northwest into an existing storm drain in San Pedro.

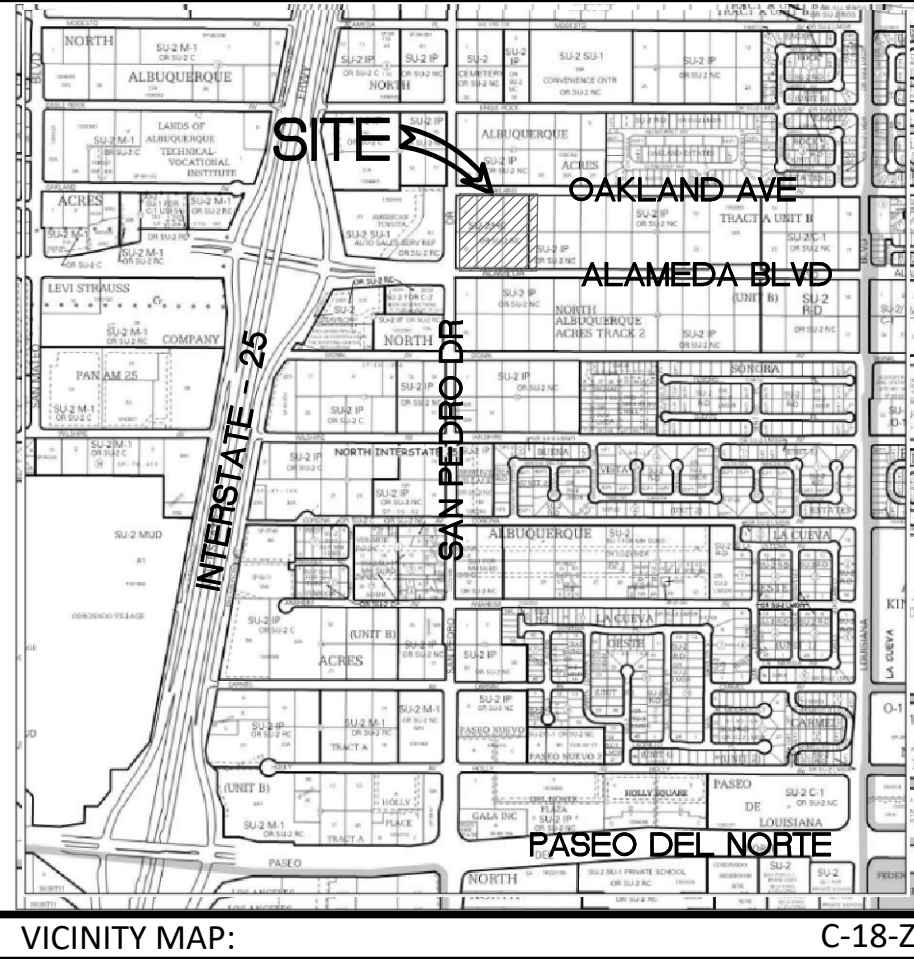
Proposed Conditions

The DARSPSD uses a developed impervious area of 50%, which is consistent with the assumption in the NAAMPD. Two subbasins were created to model the allowable flow rate. Subbasin 117.20-NORTH is 2.23 acres and generates 8.67 cfs. The 8.67 cfs represents the allowable flow rate to the San Pedro storm drain. Subbasin 117.30-SOUTH is 2.21 acres and generates 8.62 cfs. The 8.62 cfs represents the allowable flow rate to the Alameda storm drain (See A-HYMO calcs).

Five proposed subbasins were created to model the developed flow rate for the proposed site. Subbasin North is 1.13 acres and generates 5.13 cfs. Subbasin North discharges to the San Pedro storm drain. Subbasin West is 0.85 acres and generates 3.54 cfs. Subbasin West discharges to the San Pedro storm drain. Therefore, there is a total developed flow rate to the San Pedro storm drain of 8.67 cfs, which is in compliance with the allowable flow rate, 8.67 cfs. Subbasin South is 1.7 acres and generates 8.03 cfs. Subbasin South discharges to the Alameda storm drain. The developed flow rate is below the allowable, 8.62 cfs.

Subbasin East will generate 2.09 cfs. The total 100-yr volume is 0.08 acre feet (3,480 cubic feet) and will be retained at ponds 1-4 with total capacity of 0.09 acre feet (4,035 cubic feet). Subbasin North East will generate 0.52 cfs. The total 100-yr volume is 960 cubic feet and will be retained at the North East pond with total capacity of 1,100 cubic feet.

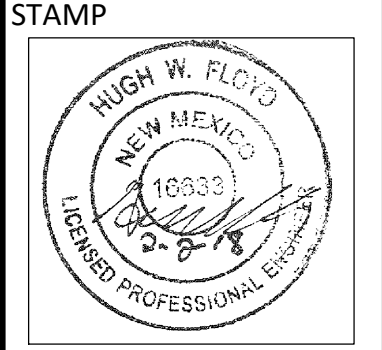
The Alameda storm drain HGL shows an elevation of 5230 ft where the 3 inlets in Alameda connect to the main trunk (COA 7663.91). According to outlet control analysis, the developed site addition of 8.03 cfs will raise the HGL by 0.9ft (See graph). Total HGL=5230.95, lower than grate elevation, 5231.90. The San Pedro storm drain HGL shows an elevation of 5224.5 ft where the existing 24" RCP connects to the main trunk (COA 5304.91). The developed site flow rate of 3.54 cfs has no effect on the HGL. (See graph). The Oakland storm drain HGL shows an elevation of 5234.5 ft where the existing 30" RCP connects to the main trunk (COA 742484). See Manning's calcs for pipe's capacity.



5971 JEFFERSON ST NE
ALBUQUERQUE, NM 87109
PHONE: 505.566.4187

RESPEC
WATER & NATURAL RESOURCES

REVISION	
DESIGNED	NF
DRAWN	NF
CHECKED	RB
DATE	1/24/18



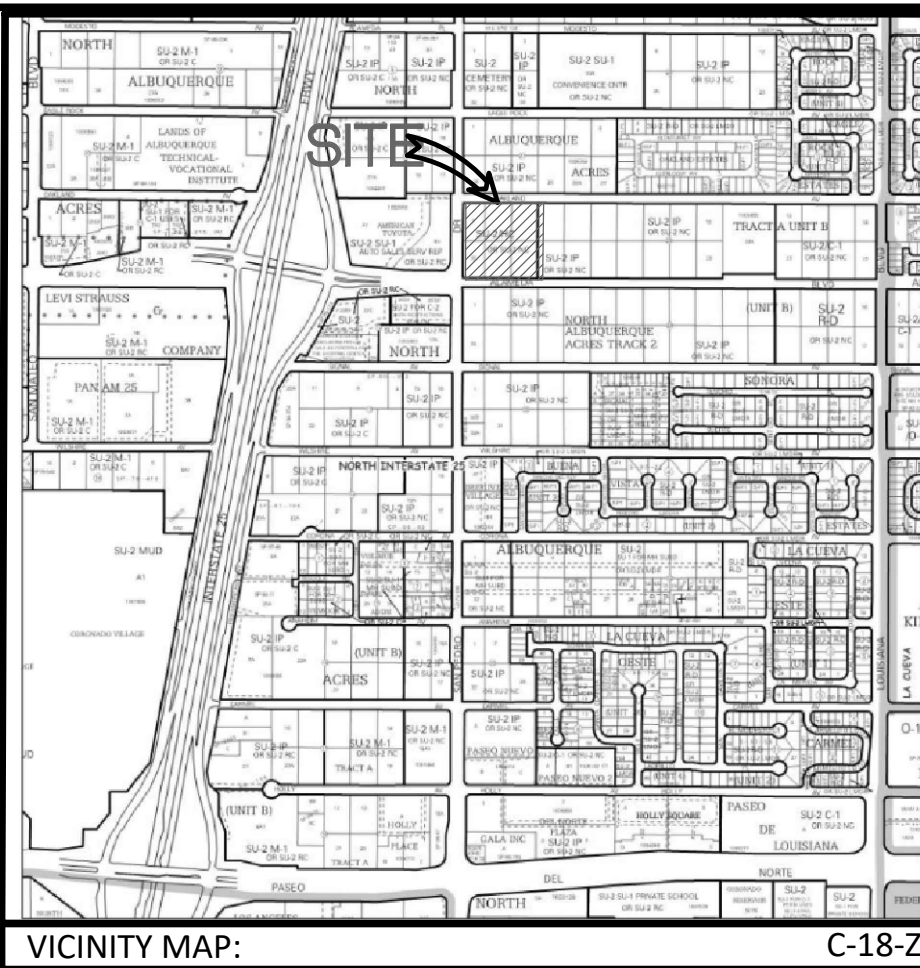
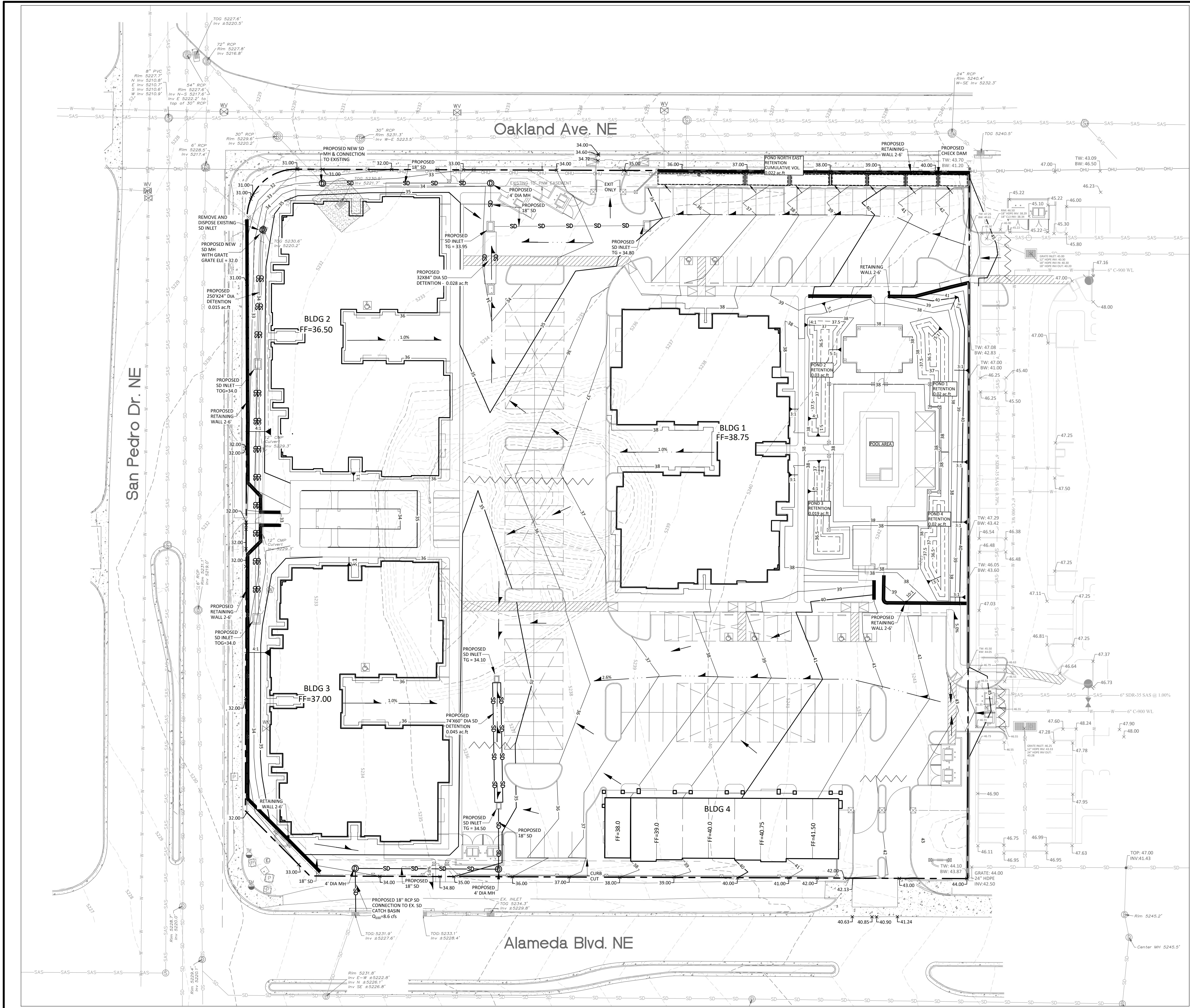
LEGAL DESCRIPTION:
LOTS 1, 2, 3, & 30, 31 & 32,
TRACT A UNIT B NORTH
ALBUQUERQUE ACERS

LEGACY NAA
APARTMENTS
DRAINAGE PLAN



SHEET NUMBER:

C-1



LEGEND	
	PROPERTY LINE
	EXIST. ELE.
	EXISTING RETAINING WALL
	PROPOSED RETAINING WALL
	PROPOSED HIGH POINT
	PROPOSED FLOW LINE
	PROPOSED SD
	PROPOSED SD INLET
	PROPOSED SD MANHOLE
	PROPOSED FINISHED FLOOR ELE.
	EXIST SD
	EXIST SD MANHOLE
	EXIST SD INLET

5971 JEFFERSON ST NE
ALBUQUERQUE, NM 87109
PHONE: 505.566.4187

RESPEC
WATER & NATURAL RESOURCES

DESIGNED	NF
DRAWN	NF
CHECKED	RB
DATE	2/2018

STAMP

LEGAL DESCRIPTION:

LOTS 1, 2, 3, & 30, 31 & 32,
TRACT A UNIT B NORTH
ALBUQUERQUE ACERS

LEGACY NAA
APARTMENTS

GRADING PLAN

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.

SHEET NUMBER:

C-2

REVISION
