

CITY OF ALBUQUERQUE

Planning Department
David Campbell, Director



Mayor Timothy M. Keller

June 24, 2019

David Aube, P.E.
Hartman & Majewski Design Group
120 Vassar Dr SE, Suite 100
Albuquerque, NM, 87106

RE: Hope Christian School – Elementary
6721 Palomas Ave. NE
Grading and Drainage Plan
Engineer's Stamp Date: 06/10/19
Hydrology File: D18D009A

Dear Mr. Aube:

PO Box 1293

Based upon the information provided in your submittal received 06/10/2019, the Grading & Drainage Plan is approved for Building Permit.

Albuquerque

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.

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 (Curtis Cherne, PE, ccherne@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

www.cabq.gov

Also as a reminder, please provide a Drainage Covenant per Chapter 17 of the DPM for the stormwater quality ponds 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, P.E. CFM
Senior Engineer, Hydrology
Planning Department



City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: Hope Christian School Building Permit #: _____ Hydrology File #: D18D009A
DRB#: _____ **EPC#:** _____ **Work Order#:** _____
Legal Description: Tract B, Hope Christian School, Lot 23-A, Block 11, Track A Unit A, NAA, Remaining Portion
City Address: of Lot A, Block11, Tract A, Unit A, NAA, and Hope Christian School
6721 Palomas Avenue NE, 87113
Applicant: Hope Christian School **Contact:** Terry Heisey
Address: 6721 Palomas Avenue NE, 87113
Phone#: 505-822-8858 **Fax#:** _____ **E-mail:** ttheisey@hcsnm.org
Other Contact: Hope Christian School **Contact:** David Aube
Address: 120 Vassar Drive SE
Phone#: 505-998-6430 **Fax#:** 505-242-6881 **E-mail:** daube@designgroupnm.com

TYPE OF DEVELOPMENT: _____ PLAT (# of lots) _____ RESIDENCE ☒ DRB SITE _____ ADMIN SITE

IS THIS A RESUBMITTAL? ☒ Yes _____ No

DEPARTMENT _____ TRANSPORTATION ☒ HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

_____ ENGINEER/ARCHITECT CERTIFICATION
_____ PAD CERTIFICATION
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
☒ DRAINAGE REPORT
_____ DRAINAGE MASTER PLAN
_____ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
_____ ELEVATION CERTIFICATE
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT (TCL)
_____ TRAFFIC IMPACT STUDY (TIS)
_____ STREET LIGHT LAYOUT
_____ OTHER (SPECIFY) _____
_____ 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: 6-10-19 **By:** David Aube

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

Drainage Summary

Project: Hope Christian School
Project Numbe: 2553
Date: 05/05/19
By: Dave A

Site Location 6721 Palomas Avenue NE

Precipitaion Zone 3 Per Table A-1 COA DPM Section 22.2

Existing summary

Basin Name	EX 1	EX 2	EX 3	EX 4	EX 5
Area (sf)	41420.42	99535	37025	108444	46960.2
Area (acres)	0.95	2.29	0.85	2.49	1.08
%A Land treatment	0	15	0	0	0
%B Land treatment	0	5	5	0	15
%C Land treatment	85	55	45	30	20
%D Land treatment	15	25	50	70	65
Soil Treatment (acres)					
Area "A"	0.00	0.34	0.00	0.00	0.00
Area "B"	0.00	0.11	0.04	0.00	0.16
Area "C"	0.81	1.26	0.38	0.75	0.22
Area "D"	0.14	0.57	0.42	1.74	0.70
Excess Runoff (acre-feet)					
100yr. 6hr.	0.1149	0.2751	0.1280	0.4230	0.1734
10yr. 6hr.	0.0596	0.1452	0.0742	0.2564	0.1036
2yr. 6hr.	0.0240	0.0639	0.0381	0.1417	0.0564
100yr. 24hr.	0.1209	0.2989	0.1457	0.4956	0.2026
Peak Discharge (cfs)					
100 yr.	3.50	8.14	3.56	11.32	4.68
10yr.	2.10	4.78	2.26	7.40	3.00
2yr.	0.92	2.17	1.17	4.14	1.63

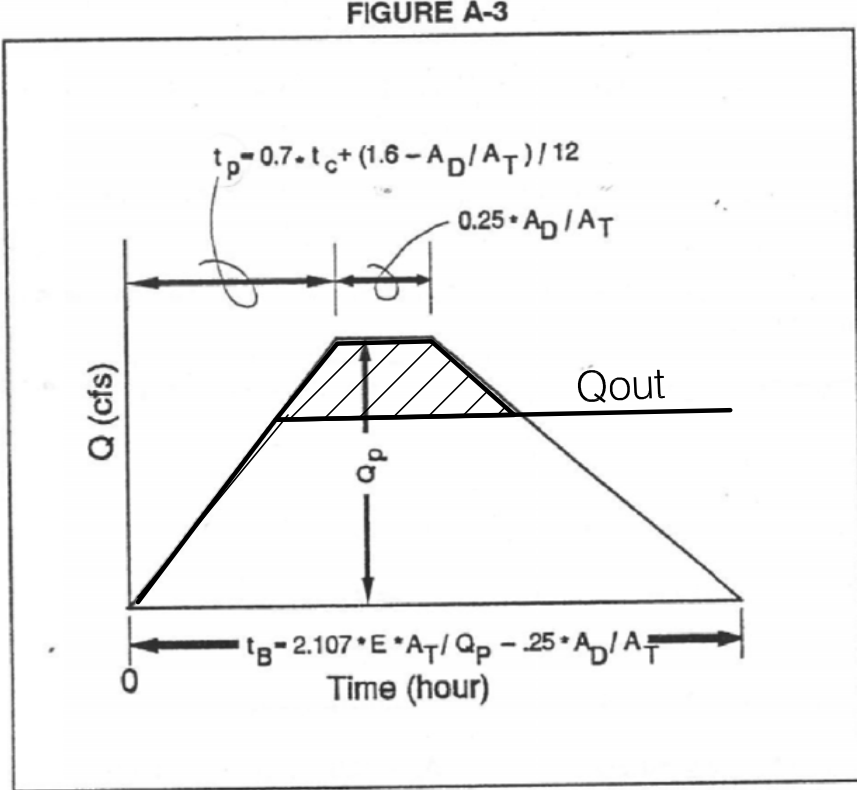
Proposed summary

Basin Name	PRO 1	PRO 2	PRO 3	PRO 4	PRO 5	EX 5	3 East
Area (sf)	33815	12673	118011	13107	108763	46960.2	82153
Area (acres)	0.778	0.291	2.709	0.301	2.497	1.08	1.89
%A Land treatment	30	0	12	0	15	0	20
%B Land treatment	0	10	28	15	10	15	40
%C Land treatment	0	0	30	0	20	20	20
%D Land treatment	70	90	40	85	55	65	20
Soil Treatment (acres)							
Area "A"	0.23	0.00	0.33	0.00	0.37	0.00	0.38
Area "B"	0.00	0.03	0.76	0.05	0.25	0.16	0.75
Area "C"	0.00	0.00	0.81	0.00	0.50	0.22	0.38
Area "D"	0.54	0.26	1.08	0.26	1.37	0.70	0.38
Excess Runoff (acre-feet)							
100yr. 6hr.	0.1197	0.0537	0.3765	0.0538	0.3635	0.1734	0.1933
10yr. 6hr.	0.0716	0.0336	0.2054	0.0333	0.2109	0.1036	0.0952
2yr. 6hr.	0.0403	0.0196	0.0977	0.0192	0.1114	0.0564	0.0380
100yr. 24hr.	0.1423	0.0646	0.4217	0.0644	0.4207	0.2026	0.2090
Peak Discharge (cfs)							
100 yr.	3.16	1.39	10.82	1.40	9.97	4.68	5.86
10yr.	1.98	0.92	6.39	0.92	6.17	3.00	3.15
2yr.	1.11	0.54	3.00	0.53	3.24	1.63	1.22

First Flush Ponding Voulme (cf) 670.7 323.2 1337.5 315.7 NA NA 465.5

Pond Routing and Volumes

	Pond 1	Pond 2	Pond 3	Pond 4
Incoming Flow Rate	Qin	5.86	3.16	1.39
Allowable Discharge Rate	Qout	4.40	2.61	1.00
Hyrdlogy Zone	2	2	2	2
Area Total	At	2.709	0.95	0.291
Area Type A	Aa	12	30	
Area Type B	Ab	28		15
Area Type C	Ac	30		
Area Type D Impervious	Ad	40	70	85
Excess runoff rates	A	0.53	0.53	0.53
	B	0.78	0.78	0.78
	C	1.13	1.13	1.13
	D	2.12	2.12	2.12
Weighted E (Exces Runoff)		1.47	1.64	1.99
Time of Concentration		0.2	0.2	0.2
Time to Peak		0.240	0.215	0.198
=0.7*Tc + ((1.6-(Ad/At)/12)				
Time of Base		1.331	0.866	0.651
=2.107*E*At/Qp-(.25*Ad/At)				
Duration of Peak		0.100	0.175	0.225
Time for end of peak		0.340	0.390	0.423
Time when storage begins		0.180	0.178	0.143
Time incoming is less that discharge		0.587	0.473	0.487
Volume Required during storm		0.370	0.129	0.111
		1343	469	403



HOPE CHRISTIAN ELEMENTARY SCHOOL, PHASE 1

- I. PURPOSE AND SCOPE
- The purpose of this drainage plan is to present the existing and proposed drainage management plans for the proposed Classroom Building to be located within the Hope Christian Elementary School located mid-block on Paloma Avenue NE, between San Pedro Boulevard NE, and Louisiana Boulevard NE. The site is located in Zone Atlas Page D-18-Z. The site is currently partially developed.
- II. SITE DESCRIPTION AND HISTORY
- The site has been previously developed with a mixture of built on site buildings and modular classroom buildings. Several of the buildings are to remain, and the portables will be removed prior beginning Phase 2 development.
- III. COMPUTATIONAL PROCEDURES
- Hydrologic analysis was performed utilizing the design criteria found in the COA-DPM Section 22.2 released in June 1997.
- IV. PRECIPITATION
- The 100-yr, 6-hr duration storm was used as the design storm for this analysis. This site is within Zone 3 as identified in the DPM Section 22.2. Tables within the section were used to establish the 6-hr precipitation, excess precipitation and peak discharge.
- V. EXISTING DRAINAGE CONDITIONS OVERVIEW

The existing site contains a variety of functions from turf practice fields, buildings, pedestrian circulation paths, vehicular paths, parking areas and vacant dirt lots out to the west. The site is bounded to the east by a site for ABCWUA water tanks, to the north by Paseo Del Norte, to the south by Palomas Avenue NE, and to the West by a site currently under construction for an Assisted Care Facility.

The site generally drains from east to west. The ABCWUA water tanks to the east also generally drain from east to west, but the driveway located on the western side of the water tanks site collects the water and diverts it to the south into Palomas Avenue NE. This prevents offsite drainage from entering the project site from the east.

A majority of the southe nr parts of the site (Basins Ex 4 and Ex5) drains gently to south and will discharge into Palomas Avenue NE. The middle portion of the site (Basin Ex1 and Basin Ex2) will drain historically into the neighboring property to the west. There is not a defined concentrated flow location, but more sheet flow in nature. The south western part of the site (Basin Ex 3) will drain back into Palomas. Please refer to the Drainage Summary Table for Peak Flowrates for each of these basins and Excess Runoff Volumes.

VI. DRAINAGE MANAGEMENT PLAN

The site overall drainage patterns will change slightly with the phased construction. In Phase 1 the new building will have a center ridge and drain toward the edges. For Proposed Basin 1 (PRO 1) the peak runoff will be 3.16 cfs and will still drain to the historic discharge point along the western property line. The developed discharge rate is 0.34 cfs less than the historic conditions. The site to the west was designed to accept 2.75 cfs per acres with the historic basin area of 41420 sf giving an allowable discharge of 2.61 cfs onto the property to the west. A portion (255 cf) of the required first flush volume 671 cubic feet that will be collected in a shallow pond at the north west corner of the site. The remainder would be captured within the engineer wood fibers of the playground area. The play areas is 7400sf and would only need to contain 0.056' (less that 3/4") over the area.

Proposed Basin 2 (PRO 2) will also receive some roof runoff, as well as drainage from a base course fire lane. The basin will generate a peak runoff of 1.39 cfs. The site to the west was designed to accept 2.75 cfs per acre onto the property to the west. When the neighboring drainage study was completed the offsite flows permitted was identified as 6.08 cfs. This would reduce the allowable from Basin 2 to (6.08-2.61=3.47cfs). Due to the size of the basin, the peak runoff will be less than 1.39 cfs generated in the basin due to the routing through the pond and retaining the first flush volume. The proposed runoff is well below the amount that was anticipated onto the parcel to the west. The first flush volume is 323 cubic feet and will be completely contained in a shallow pond (with capacity for 400cf) at the south west corner of the basin. The outfall from this basin will be through openings in the wall that will allow the 1.00 cfs (discharge rate after the 400 cubic feet is removed) to flow into the neighbors property.

VI. DRAINAGE MANAGEMENT PLAN (CONTINUED)

Proposed Basin 3 (PRO 3) contains portions of the new building, the Kindergarten Playground area, existing turf fields and an area that currently contains portable buildings that will be removed once the new building is constructed and the classroom functions are transferred from the portables to the permanent facility. This basin was previous contained within Existing Basin 2 and 3 but with the new building blocking the historic drainage path, the kindergarten playground and loading area will divert the water so the basins are now combined.

The new peak runoff rate from PRO 3 is 10.82 cfs. Historically EX 2 and EX 3 combined created a peak runoff of 11.70 cfs. This basin has also been divided to allow for the eastern portion that drains into the kindergarten play area to be studied. this will generate 5.86 cfs and the outfall from the play area is set at 4.40 cfs. This will set the ponding volume equal to the first flush volume for the entire basin. The lower portion of the basin will discharge directly into Palomas, but an attempt has been made to offset and contain the first flush volume in the upper portion of the basin.

A portion of the roof and paving will flow toward the shallow ponding areas that is created by the Kindergarten Playground area. The basin will be filled with engineered wood fibers but will still contain some of the first flush volume. This depression will also accept runoff from the eastern portion of the basin. The ponding volume is 1,560 and will be able to contain the first flush volume of 1338 cf.

Once the ponding volume is reached, an overflow drain (sidewalk culvert) will discharge the excess runoff into the drive lane along the east side of the building and then flowing down toward Palomas Avenue NE. The proposed discharge point for PRO 3 is into Palomas Avenue NE as there is a drive lane that diverts the runoff into the South Domingo Baca Arroyo that is located just to the south of Edmund G Ross Elementary School. The peak runoff from this basin will be 10.36 cfs.

Proposed Basin 4 (PRO 4) is a small parking area located along Palomas Avenue NE. This basin creates a peak runoff of 1.40 cfs. Runoff will be routed through the landscaping areas (two internal islands with 1421 sf of surface area) where possible to harvest excess runoff and to contain the First Flush (316 cf). To contain the first flush volume the landscaping areas would need to be depressed an average of .22' (3") . Due to the slopes within the parking area and landscaping areas, we proposed to depress the area 8" on the low side so that the volume is acheieved even though the area is sloping. A sidewalk culvert will be required to discharge the runoff under the sidewalk and into Palomas Avenue NE.

Proposed Basin 5 (PRO 5) and Existing Basin (EX 5) are unchanged in the proposed conditions from existing. The peak flow rate and discharge point remain. Retention of First Flush is not required in these basins.

VII. CONCLUSIONS

The site generally drains from east to west, and historic patterns have been maintained. Drainage onto the adjacent parcels has decreased from the historic that will benefit the two properties to the west.

Because the new two story classroom facility is replacing the single story modular buildings, the overall impervious roof surface are is decreasing. There is an increase in parking areas that will keep the overall impervious area approximately the same in the existing and proposed conditions.

Proposed Basin 1 through 4 have been designed to retain the first flush volumes. This is accomplished by directing excess runoff to shallow ponds prior to the overflow that directs runoff toward the the western property line or out into Palomas Avenue NE. Proposed Basin 5 and Existing Basin 5 do not contain any new impervious surface and therefore is not affected by the first flush requirements.

PROJECT LOCATION:
SOUTHWEST CORNER OF PASEO DEL NORTE AND LOUISIANA BOULEVARD NE

LEGAL DESCRIPTIONS:
TRACT B, HOPE CHRISTIAN SCHOOL, LOT 23-A, BLOCK 11, TRACT A, UNIT A, NORTH ALBUQUERQUE ACRES, REMAINING PORTION LOT A, BLOCK 11, TRACK A, UNIT A NORTH ALBUQUERQUE ACRES, LOT 13A, BLOCK 11, TRACK A, UNIT A, NORTH ALBUQUERQUE ACRES, AND HOPE CHRISTIAN SCHOOL

ZONE ATLAS PAGE:
D-18-Z

TOTAL ACREAGE:
ELEMENTARY SCHOOL = 6.752 ACRES

EXISTING ZONING:
ELEMENTARY SCHOOL IS DESIGNATED MX-M
ADDITIONAL PARCEL TO BE ADDED TO ELEMENTARY SCHOOL IS DESIGNATED PD BUT WILL BE REVIEWED UNDER VOLUNTARY ZONING CONVERSION TO CHANGE TO MX-M

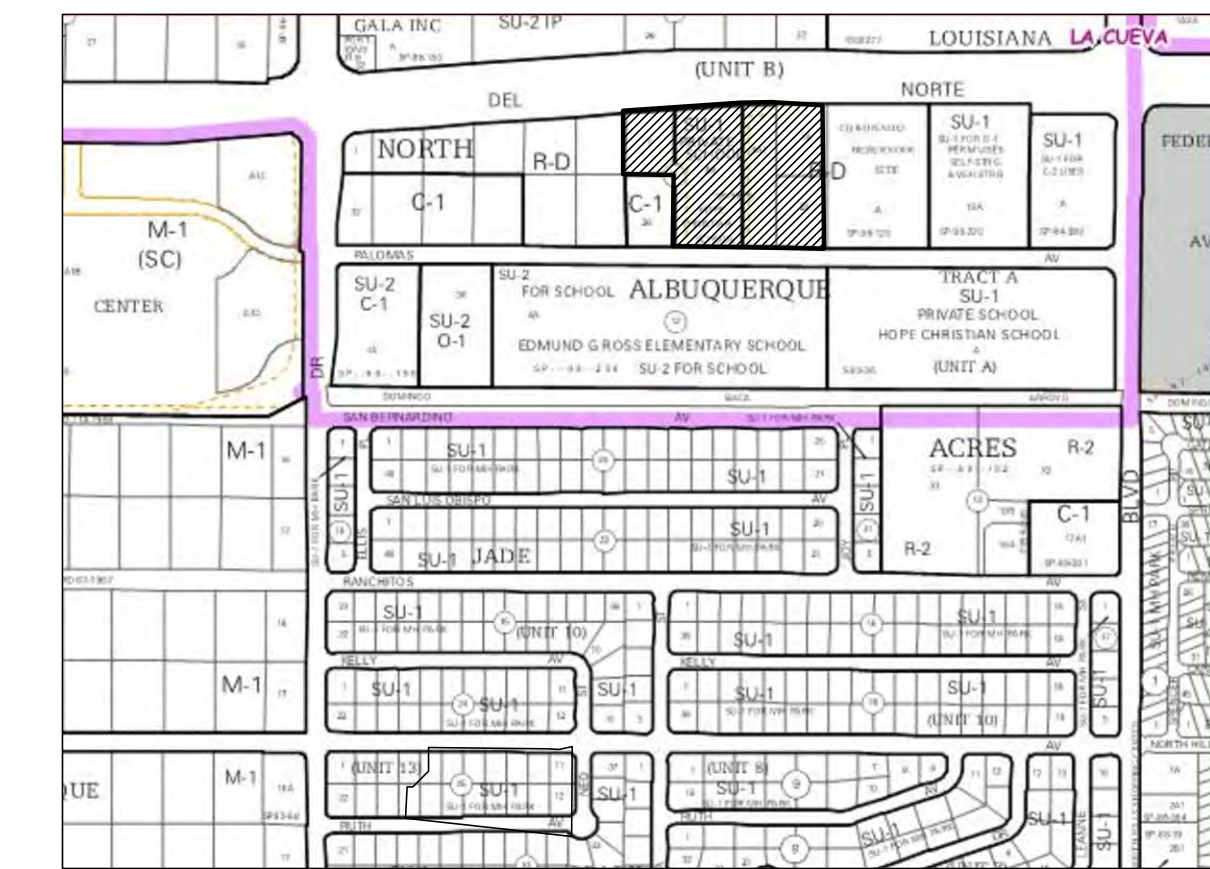
MIDDLE SCHOOL IS DESIGNATED MX-M

HIGH SCHOOL IS DESIGNATED MX-L

PROPOSED USES:
PRIVATE SCHOOL



B5 FIRMETTE PAGE
SCALE: NOT TO SCALE 35001C0137H



A5 ZONE ATLAS PAGE
SCALE: NOT TO SCALE

DAVID A. AURE
STATE OF NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
6-10-19

REVISIONS

PHASE	DATE
CD	5.6.19

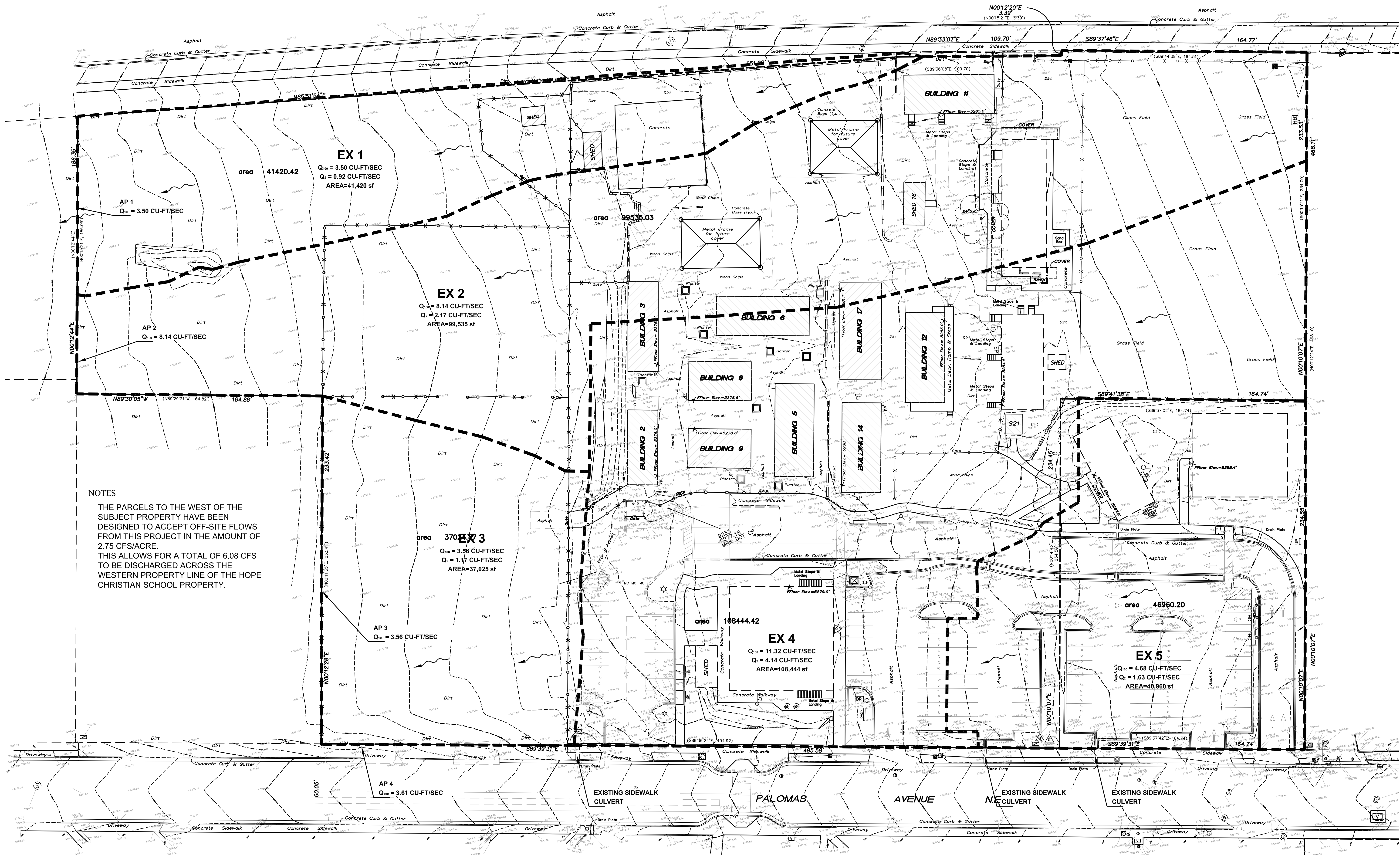
PHASE	DATE
CD	5.6.19

DRAINAGE PLAN
NARRATIVE

CD-1

PROJECT CONTROL POINT
PK Nail and aluminum disc stamped
"Surv-Tek, Inc. - Control"
Modified project surface coordinates:
N= 1,516,913.00
E= 1,543,366.00
ELEV= 5265.25 feet (NAVD 88)

PASEO DEL NORTE N.E.



NOTES

THE PARCELS TO THE WEST OF THE SUBJECT PROPERTY HAVE BEEN DESIGNED TO ACCEPT OFF-SITE FLOWS FROM THIS PROJECT IN THE AMOUNT OF 2.75 CFS/ACRE. THIS ALLOWS FOR A TOTAL OF 6.08 CFS TO BE DISCHARGED ACROSS THE WESTERN PROPERTY LINE OF THE HOPE CHRISTIAN SCHOOL PROPERTY.

1 SITE DRAINAGE PLAN - EXISTING CONDITIONS
1" = 30'-0"

HOPE CHRISTIAN ELEMENTARY

REVISIONS

PHASE DATE

CD 5.6.19

DRAINAGE PLAN
EXISTING CONDITIONS

CD-2

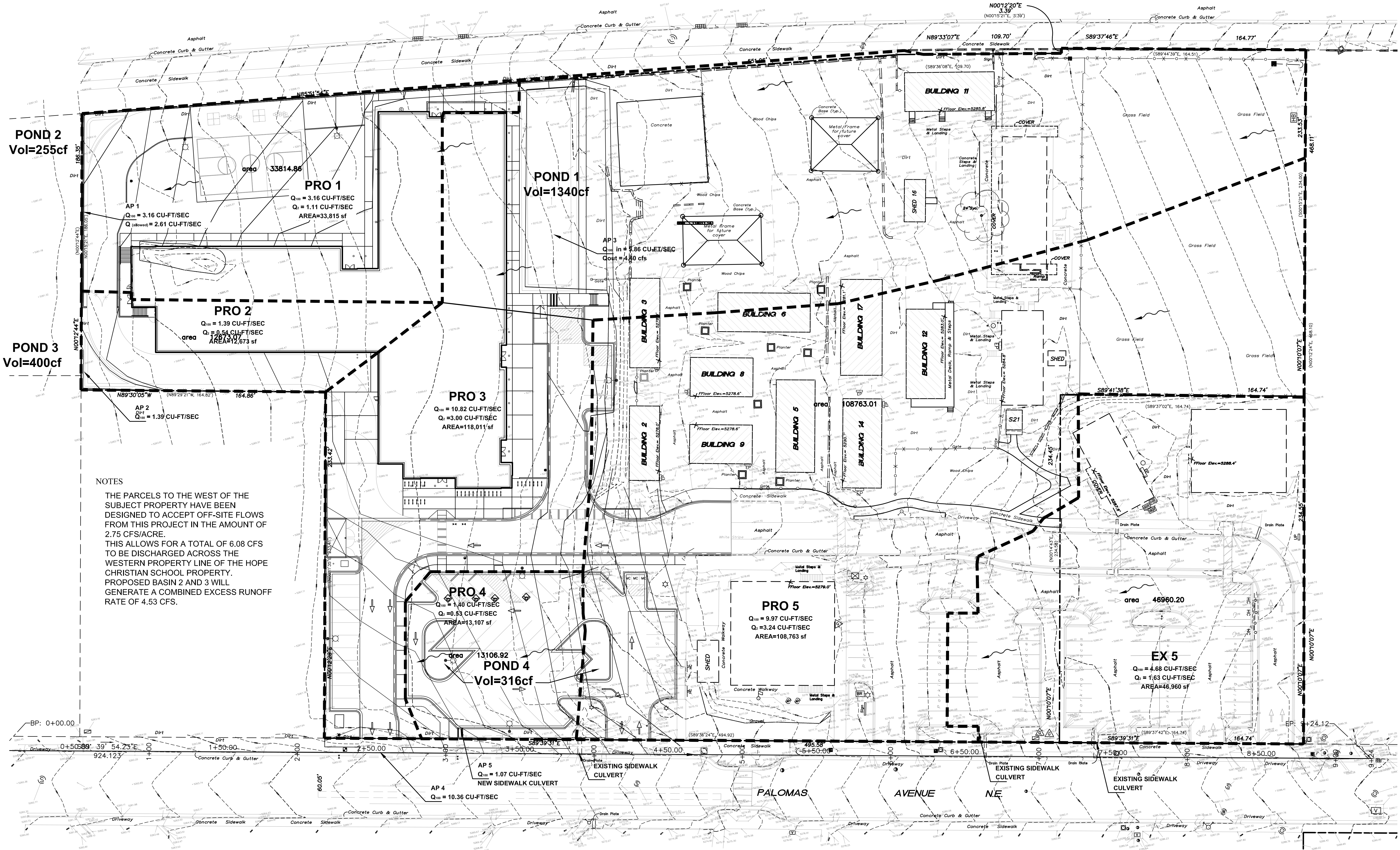
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DAVID A. ALBRE
STATE OF
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
6-10-19

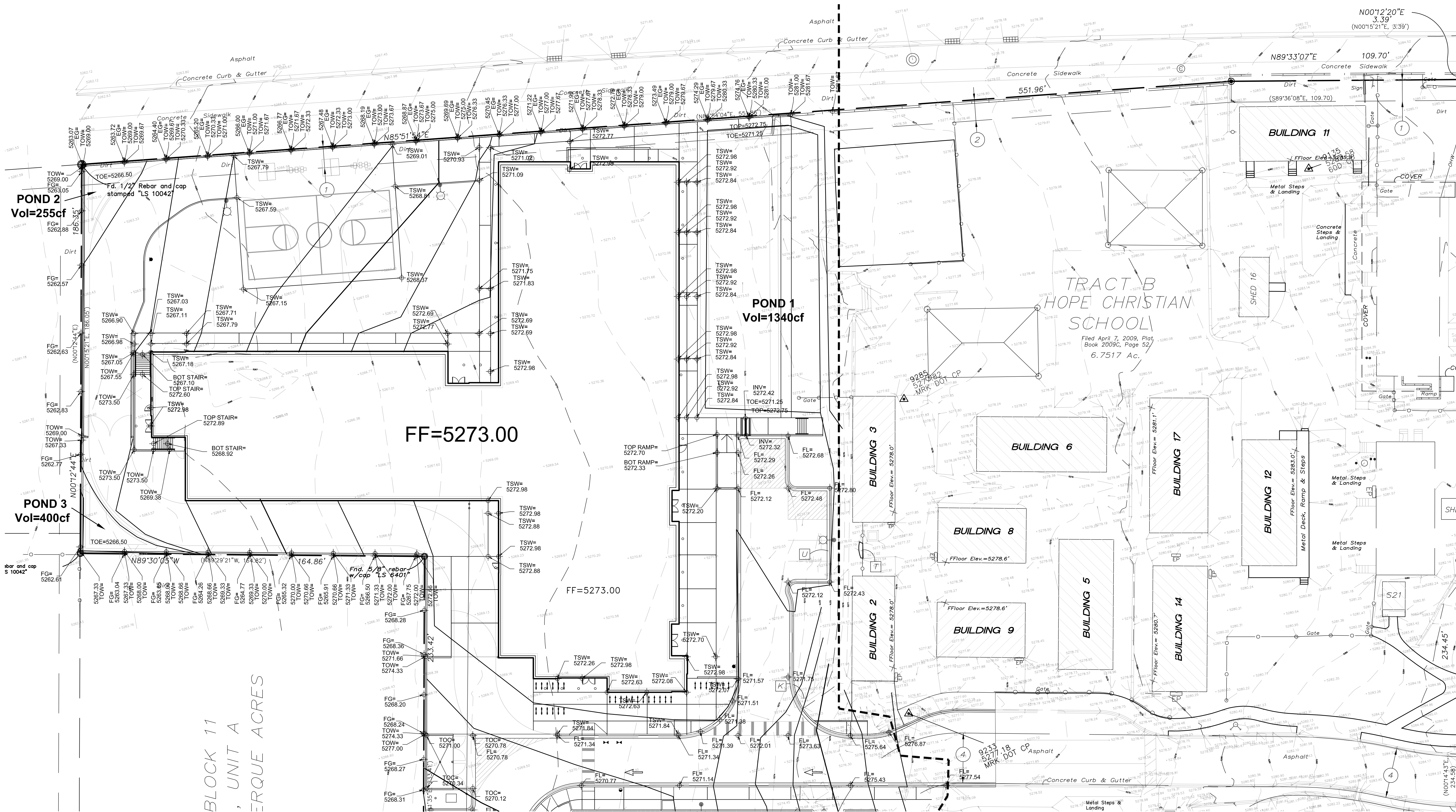
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2.75 CFS/ACRE.
THIS ALLOWS FOR A TOTAL OF 6.08 CFS
TO BE DISCHARGED ACROSS THE
WESTERN PROPERTY LINE OF THE HOPE
CHRISTIAN SCHOOL PROPERTY.
PROPOSED BASIN 2 AND 3 WILL
GENERATE A COMBINED EXCESS RUNOFF
RATE OF 4.53 CFS.

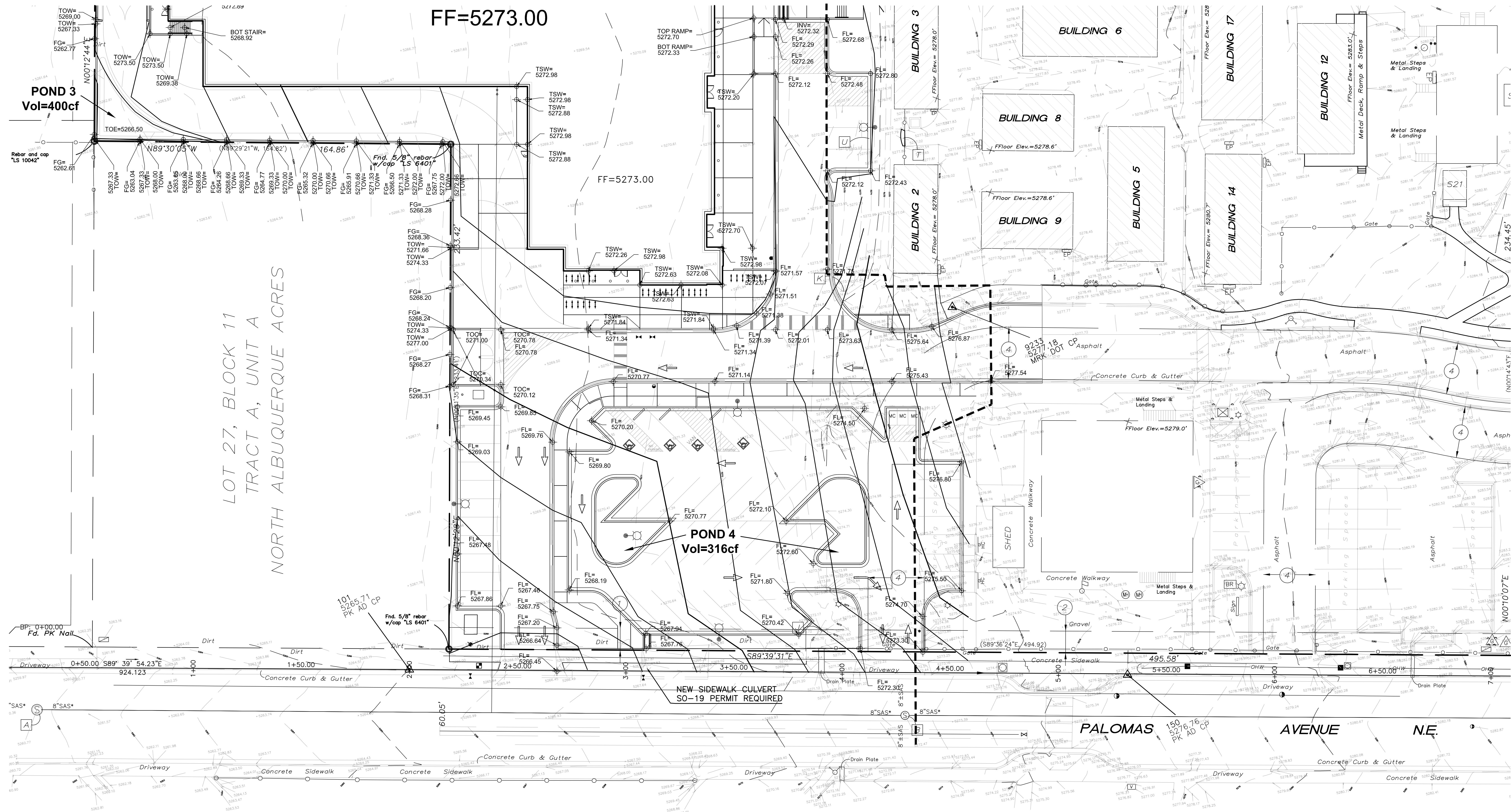
1 SITE DRAINAGE PLAN - PROPOSED CONDITIONS
1" = 30'-0"



1 SITE GRADING PLAN - ENLARGED
1" = 20'-0"

GRADING PLAN GENERAL NOTES

- I. SEE SHEET CG01 FOR COMPLETE LIST OF GENERAL NOTES AND SYMBOL/LINETYPE LEGEND THAT APPLY TO ALL SHEETS.



1 SITE GRADING PLAN - ENLARGED
1" = 20'-0"

GRADING PLAN GENERAL NOTES

- 1. SEE SHEET CG01 FOR COMPLETE LIST OF GENERAL NOTES AND SYMBOL/LINETYPE LEGEND THAT APPLY TO ALL SHEETS.



REVISIONS

PHASE

DATE

CD 5.6.19

ENLARGED
SITE GRADING PLAN