

CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Director



Mayor Timothy M. Keller

June 12, 2023

Scott McGee, PE
Scott M. McGee PE, LLC
9700 Sand Verbena Trail NE
Albuquerque, NM 87122

RE: **Mesa Del Sol Apartments, Building I & J - Encanto
University Blvd. SE
Grading and Drainage Plan
Engineers Stamp Date 5/18/2023 (R16D101)**

Dear Mr. McGee,

Based upon the information provided in your re-submittal received 5/30/2023 along with the previously approved plan with the ESD of 3/7/2022, this revised plan is approved for Building Permit.

PO Box 1293

PRIOR TO CERTIFICATE OF OCCUPANCY:

Albuquerque

1. Engineer's Certification, per the DPM Part 6-14 (F): *Engineer's Certification Checklist For Non-Subdivision* is required.
2. Please provide the executed paper Drainage Covenant (latest revision) printed on one-side only with Exhibit A and a check for \$25 made out to "Bernalillo County" for the stormwater quality ponds per Article 6-15(C) of the DPM to Hydrology for review. Once the review is done, Hydrology will send back an email stating our approval/comments.

NM 87103

www.cabq.gov

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, 505-924-3420) 14 days prior to any earth disturbance.

If you have any questions, please contact me at 924-3695 or tchen@cabq.gov.

Sincerely,

Tiequan Chen P.E.
Principal Engineer, Hydrology
Planning Department, Development Review Services



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 10/2018)

Project Title: _____ **Building Permit #:** _____ **Hydrology File #:** _____

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

Legal Description: _____

City Address: _____

Applicant: _____ **Contact:** _____

Address: _____

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

Other Contact: _____ **Contact:** _____

Address: _____

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

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

IS THIS A RESUBMITTAL? _____ Yes _____ No

DEPARTMENT: _____ TRAFFIC/TRANSPORTATION _____ HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

- _____ ENGINEER/ARCHITECT CERTIFICATION
- _____ PAD CERTIFICATION
- _____ CONCEPTUAL G & D PLAN
- _____ 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:

- _____ 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) _____

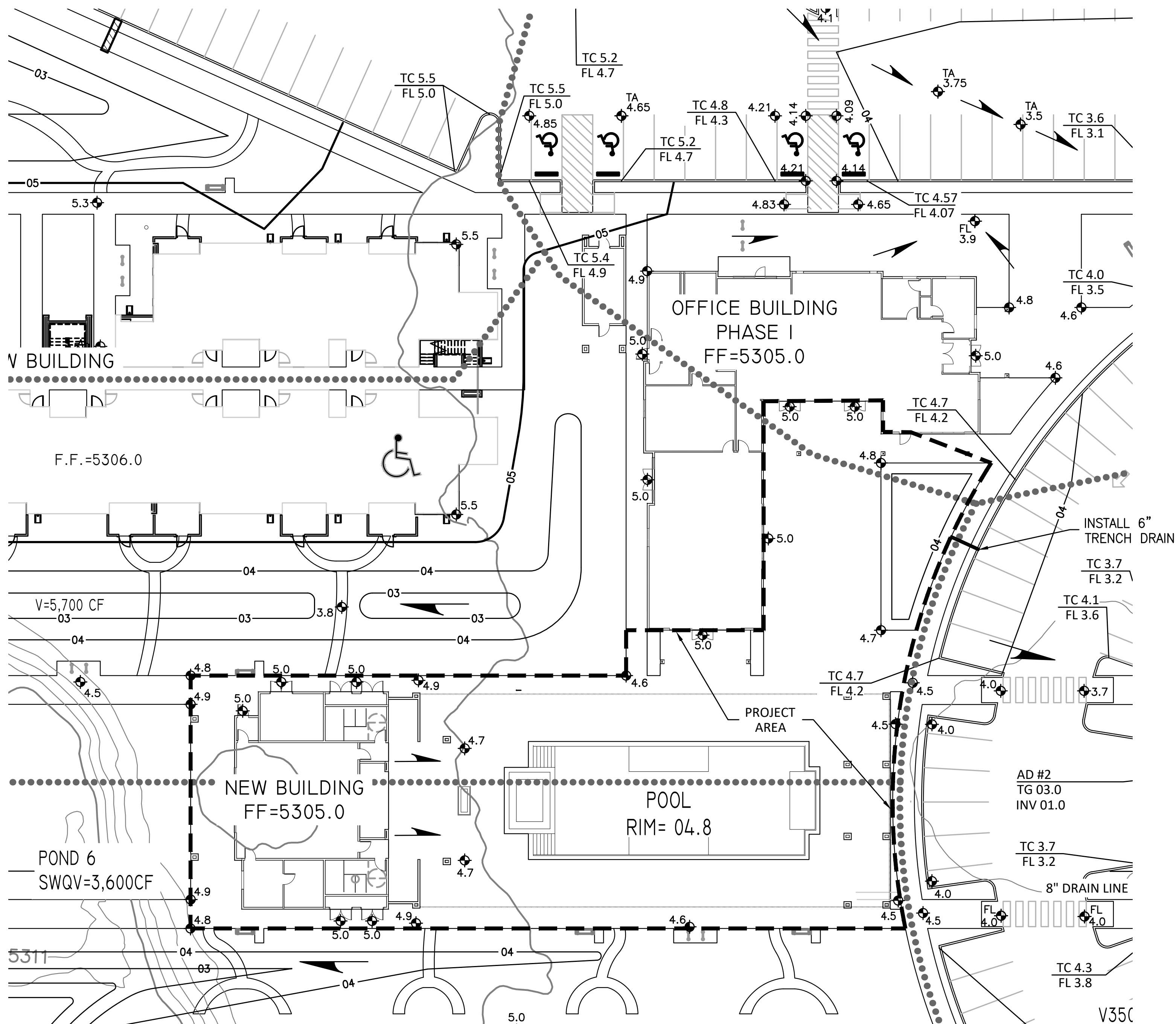
DATE SUBMITTED: _____ **By:** _____

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

GRADING AND DRAINAGE PLAN
REVISED COMMUNITY BUILDING AREA
ENCANTO APARTMENTS
MESA DEL SOL
MAY, 2023



LEGAL DESCRIPTION: TRACT A-4-A MESA DEL SOL INNOVATION PARK

PROJECT AREA: 0.41 AC (17,850 SF)

BENCHMARK: City of Albuquerque Station 'S-R15' being a brass cap.
ELEV= 5306.674 (NAVD 1988)

SURVEYOR: Harris Surveying Inc. dated November, 2020

FLOOD HAZARD: From FEMA Map 35001C0555H (8/16/2012), this site is identified as being within Zone 'X' which is determined to be an area of minimal flood hazard.

EXISTING CONDITIONS: This site is currently under construction and is being developed as a multi-family residential project. This site has an approved building permit Grading plan (R16/D101) on file.

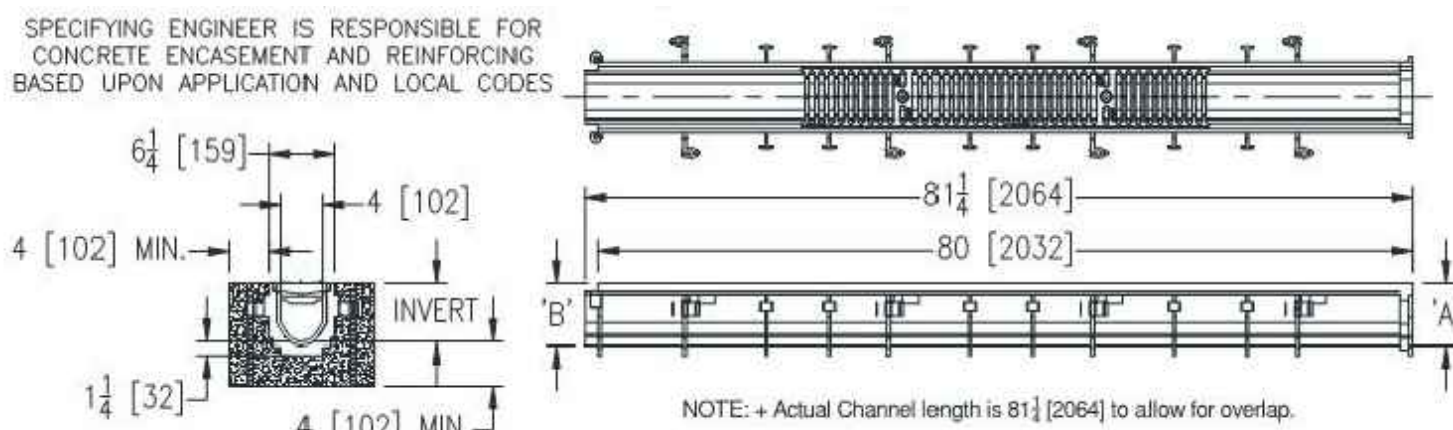
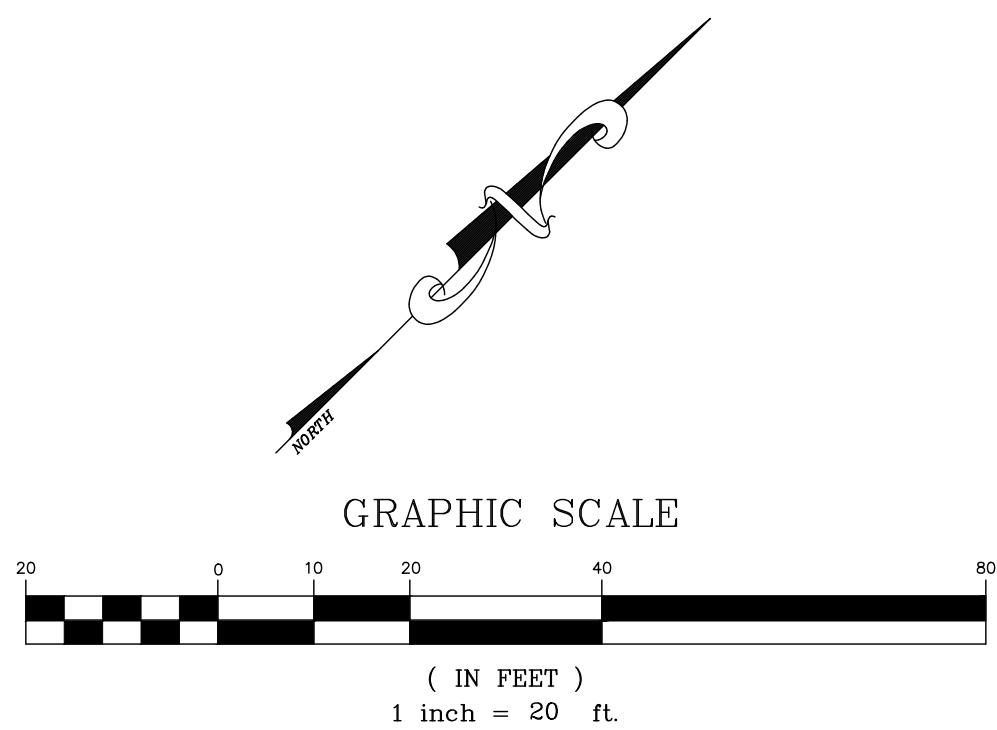
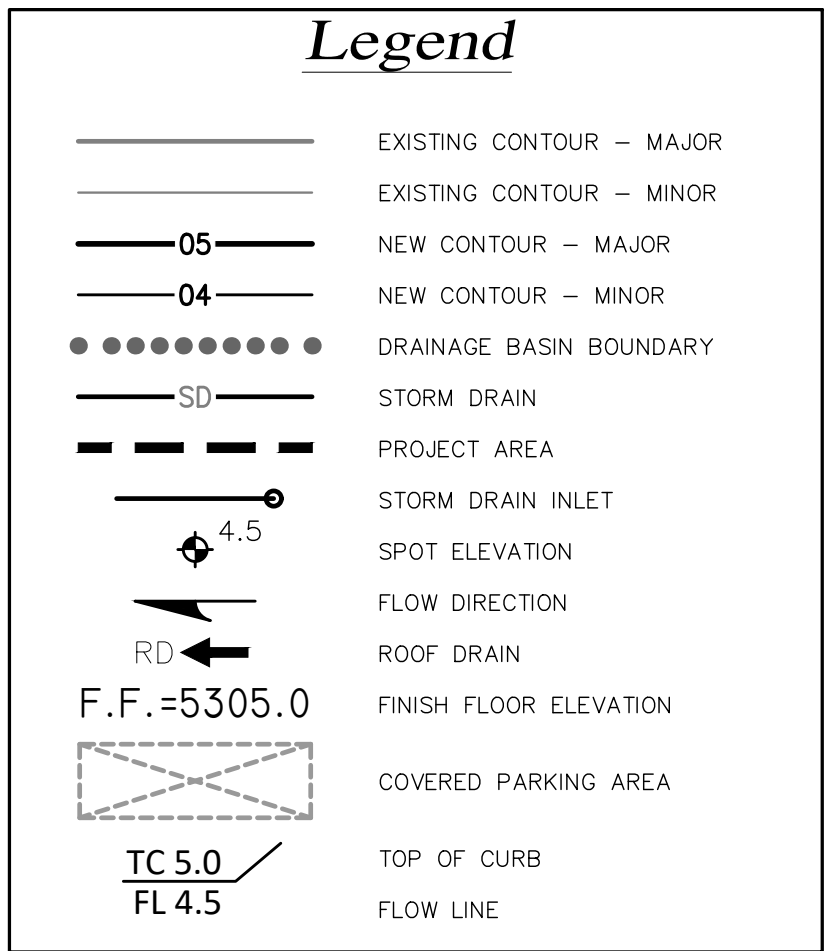
PROPOSED IMPROVEMENTS: The revised improvements include a new pool building, a larger pool, and a revised community building in the interior of the site. The remainder of the site is unchanged.

DRAINAGE APPROACH: The new drainage plan will follow the approved Drainage plan and impacts Basins 6 and 9 of the approved plan. Basin 9 has an additional SWQ volume (5700 - 1701) V = 3,999 CF above what is required.

Existing land treatment: 5% B, 33% C, and 62% D
 $Q = [(0.05)(2.36) + (0.33)(3.05) + (.62)(4.34)](0.41) = 1.6 \text{ CFS}$
Proposed land treatment: 2% B, 6% C and 92% D
 $Q = [(0.02)(2.36) + (0.06)(3.05) + (.92)(4.34)](0.41) = 1.7 \text{ CFS}$
The added impervious area 'D' = $(0.92 - 0.62)(0.41)(43560) = 5,378 \text{ SF}$

SWQ V = $(5,378)(0.42/12) = 188 \text{ CF}$
Basin 9 pond has 3,999 CF additional capacity (OK)

This developed flow will discharge to onsite retention ponding areas located in Basins 6 and 9 on the site. The SWQ volume of 188 CF will be retained in the ponds as shown. Site discharge will not increase above the allowable:
 $Q = (11.91/15.15) 56.08 = 44.0 \text{ CFS}$

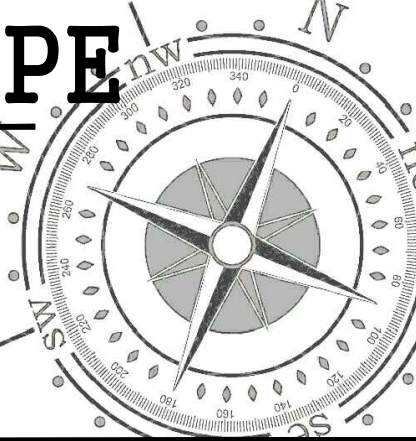


ZURN TRENCH DETAIL



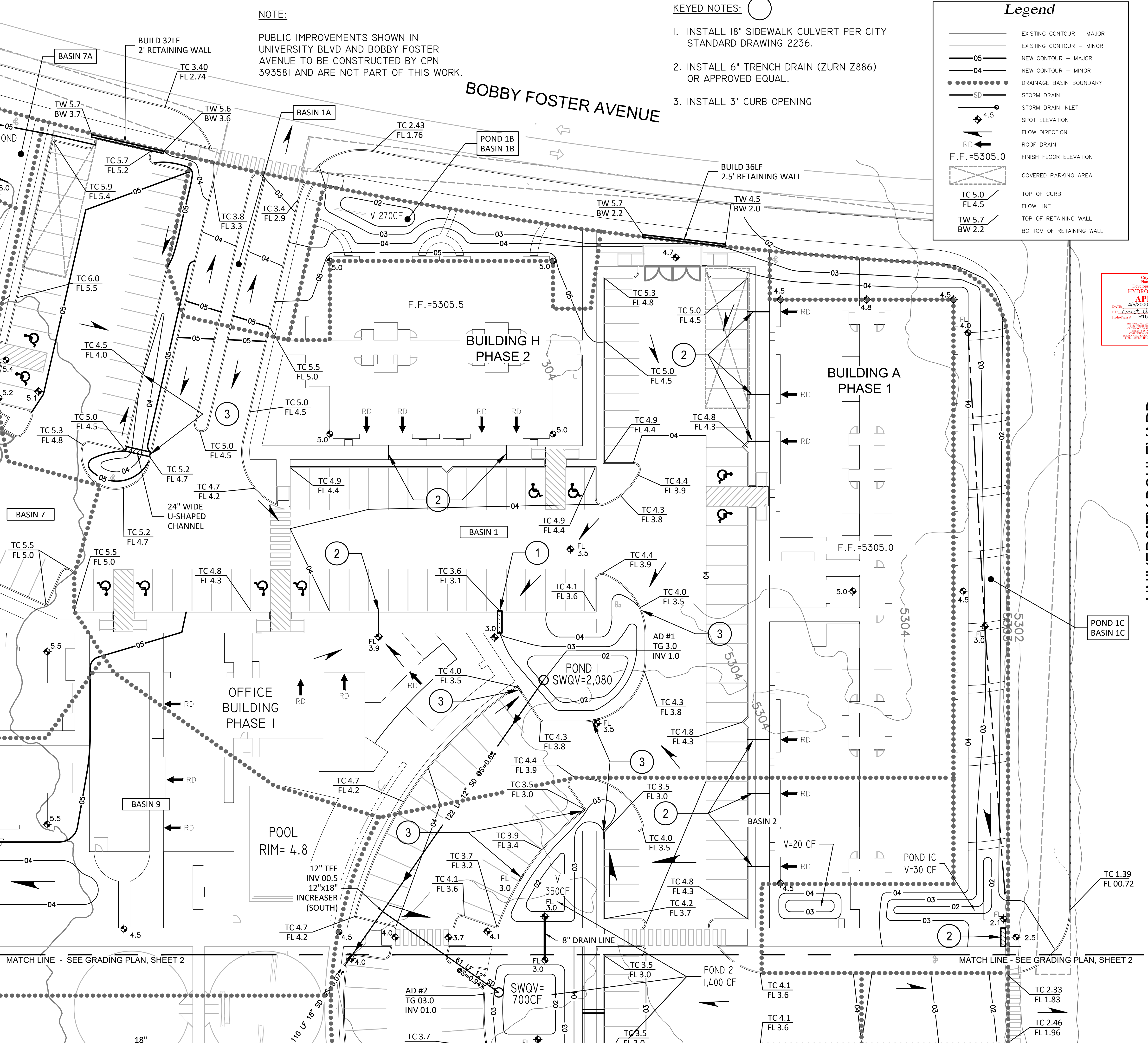
Scott M McGee PE

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Albuquerque, NM 87122
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scottmmcgee@gmail.com



D:\Acad\Bugs\McGee\Mesa del Sol\Mesa del Sol_03.dwg

MATCH LINE - SEE GRADING PLAN, SHEET 4



NOTE:
PUBLIC IMPROVEMENTS SHOWN IN UNIVERSITY BLVD AND BOBBY FOSTER AVENUE TO BE CONSTRUCTED BY CPN 393581 AND ARE NOT PART OF THIS WORK.

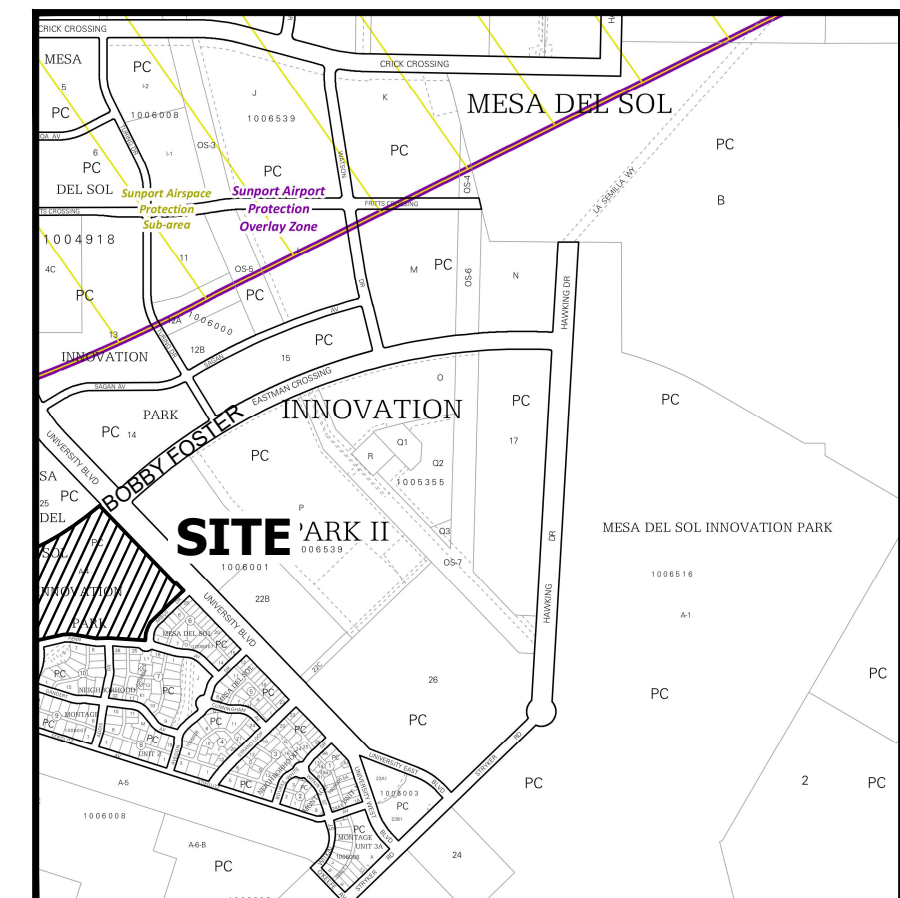
- KEYED NOTES:
1. INSTALL 18" SIDEWALK CULVERT PER CITY STANDARD DRAWING 2236.
 2. INSTALL 6" TRENCH DRAIN (ZURN Z886) OR APPROVED EQUAL.
 3. INSTALL 3' CURB OPENING

Legend

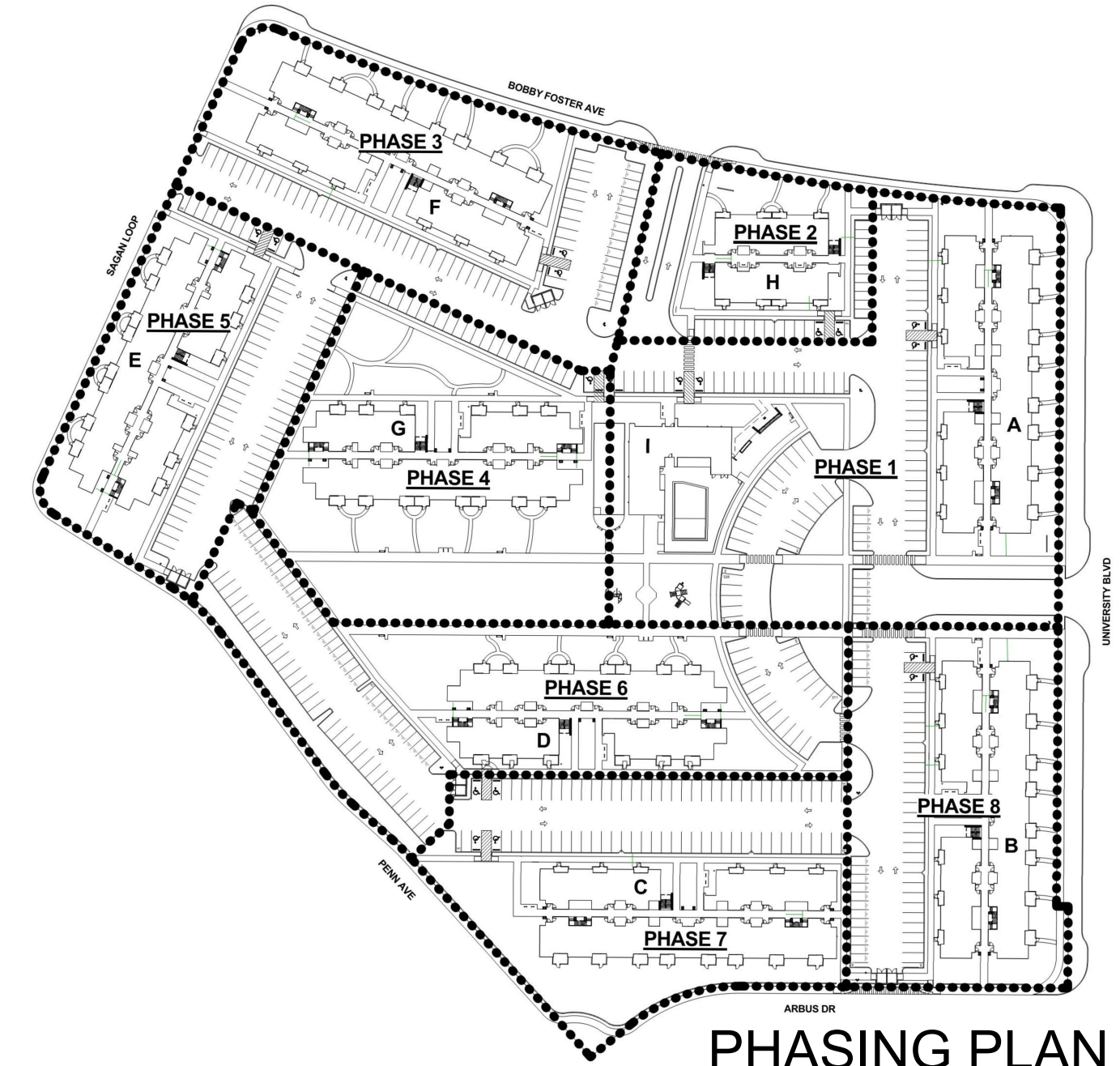
---	EXISTING CONTOUR - MAJOR
---	EXISTING CONTOUR - MINOR
—05—	NEW CONTOUR - MAJOR
—04—	NEW CONTOUR - MINOR
.....	DRAINAGE BASIN BOUNDARY
---	STORM DRAIN
⬇	STORM DRAIN INLET
4.5	SPOT ELEVATION
→	FLOW DIRECTION
RD	ROOF DRAIN
F.F.=5305.0	FINISH FLOOR ELEVATION
TC 5.0 FL 4.5	COVERED PARKING AREA
TC 5.0 FL 4.5	TOP OF CURB
TW 5.7 BW 2.2	FLOW LINE
TW 5.7 BW 2.2	TOP OF RETAINING WALL
TW 5.7 BW 2.2	BOTTOM OF RETAINING WALL

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED
DATE: 4/15/2020
BY: Ernest Cisneros
Hydrologist R16D101

GRADING AND DRAINAGE PLAN
SHEET 1 - NE
**ENCANTO APARTMENTS
MESA DEL SOL**
MARCH, 2022

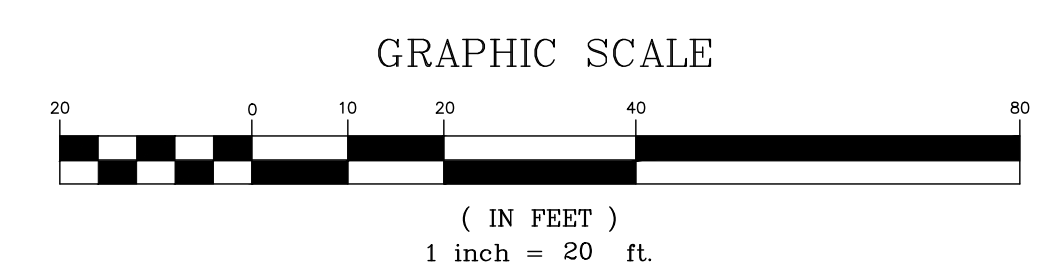
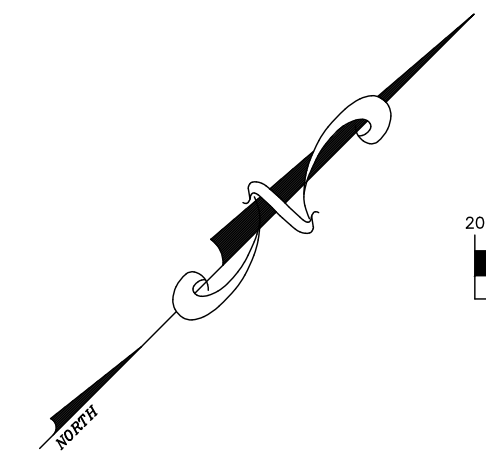


VICINITY MAP
ZONE ATLAS R-16-Z



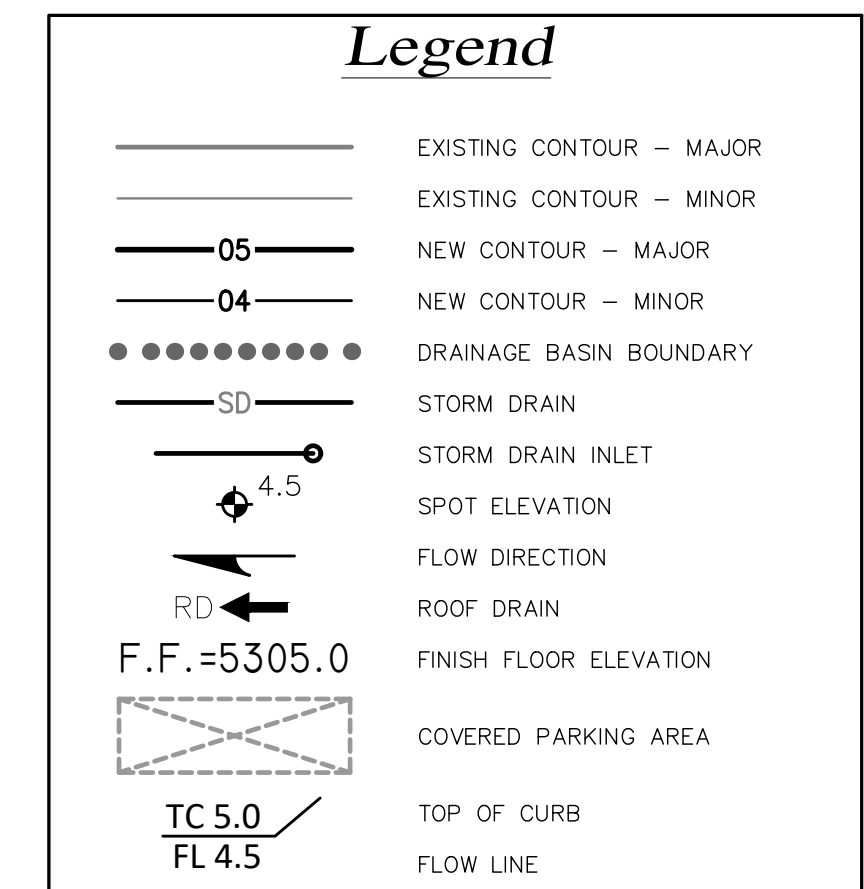
PHASING PLAN
N.T.S.

PHASING NOTE:
ALL MASS GRADING (INCLUDING ALL STORMWATER POND AREAS) AND ALL STORM DRAIN INLETS AND STORM DRAIN LINES SHALL BE BUILT AS PART OF PHASE I.



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GRADING AND DRAINAGE PLAN
SHEET 2 - SE
ENCANTO APARTMENTS
MESA DEL SOL
MARCH, 2022



KEYED NOTES:

- INSTALL 18" SIDEWALK CULVERT PER CITY STANDARD DRAWING 2236.
- INSTALL 6" TRENCH DRAIN (ZURN Z886) OR APPROVED EQUAL.
- INSTALL 3' CURB OPENING

LEGAL DESCRIPTION: TRACT A-4-A, REPLAT OF TRACT A-4 MESA DEL SOL INNOVATION PARK

SITE AREA: 11.9075 AC (518,694 SF)

BENCHMARK: City of Albuquerque Station '5-R15' being a brass cap. ELEV= 5306.674 (NAVD 1988)

SURVEYOR: Harris Surveying Inc. dated November, 2020

FLOOD HAZARD: From FEMA Map 35001C0555H (8/16/2012), this site is identified as being within Zone 'X' which is determined to be an area of minimal flood hazard.

OFFSITE FLOW: The site does not accept offsite flow as public streets border the site to the north, east, and south. The land to the west is undeveloped and is scheduled to be developed as Sagan Road. The Mesa del Sol DMP defines this site as being within Basin M which is to drain to the southwest and discharge to regional pond 2A. Discharge is based on 56.08/15.15= 3.7 CFS/AC.

EXISTING CONDITIONS: The site is currently undeveloped and the site slopes down to the west at 0.5 - 1%.

PROPOSED IMPROVEMENTS: The proposed improvements include 8 residential apartment buildings, a community building, paved access and parking, sidewalks, and landscaping.

DRAINAGE APPROACH: The site drainage pattern will follow historic conditions and include the onsite retention of the SWQ volume.

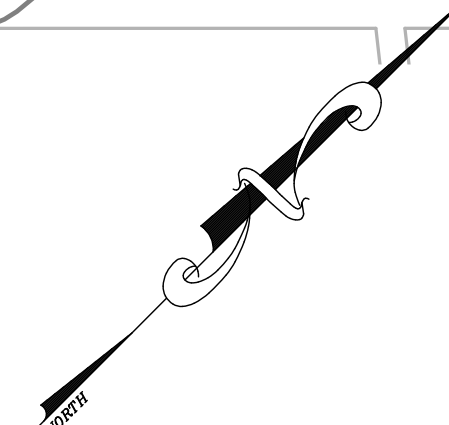
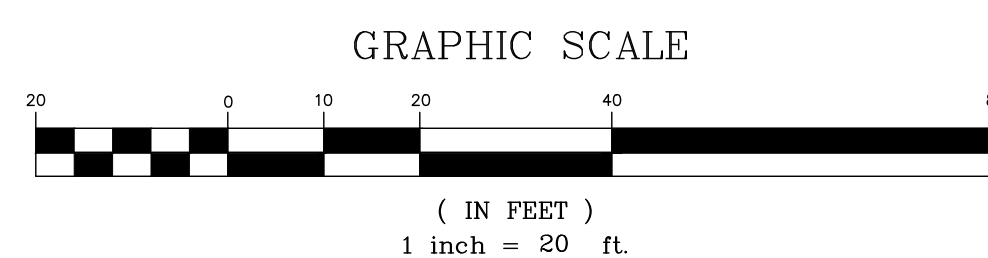
Existing land treatment: 100% A PRECIPITATION ZONE: 3
 $Q = (1.87)(11.91) = 22.3$ CFS
Proposed land treatment: 5% B, 33% C and 62% D
 $Q = [(0.05)(2.60) + (0.33)(3.45) + (.62)(5.02)](11.91) = 52.2$ CFS

SWQ V= (320,318)(0.42/12)= 11,211 CF

This flow will discharge to several onsite retention ponding areas located throughout the site. The SWQ volume of 10,900 CF will be retained in the ponds as shown. Site discharge will not exceed the allowable:
 $Q = (11.91/15.15) 56.08 = 44.0$ CFS.

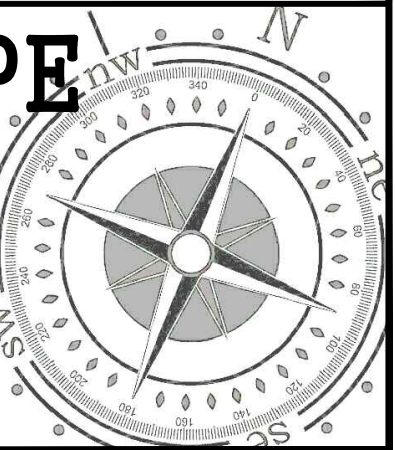
PUBLIC R/W KEYED NOTES

- REMOVE EXISTING VALLEY GUTTER AND CURB RETURNS. INSTALL NEW STANDARD CURB AND GUTTER PER CITY STD DWG NO 2415A.
- INSTALL NEW 6' PUBLIC CONCRETE SIDEWALKS ON PENN AVE AND ARBUS (FROM SAGAN LOOP TO UNIVERSITY BLVD) PER CITY STD DWG NO 2430.



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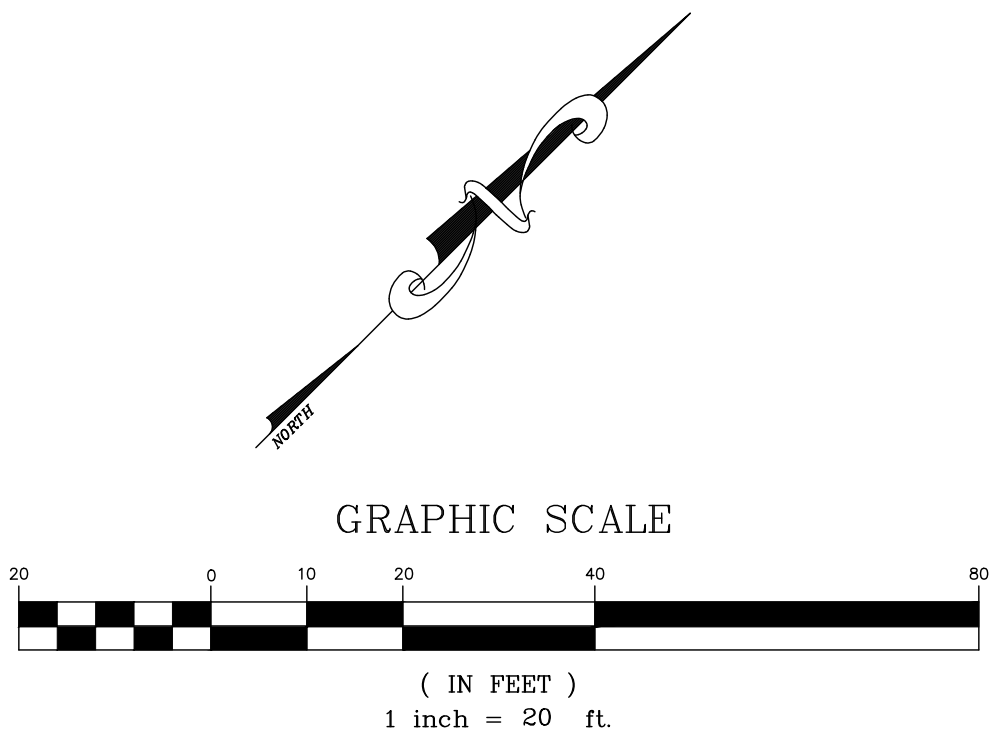


GRADING AND DRAINAGE PLAN
SHEET 3 - SW
**ENCANTO APARTMENTS
MESA DEL SOL**
MARCH, 2022



Legend

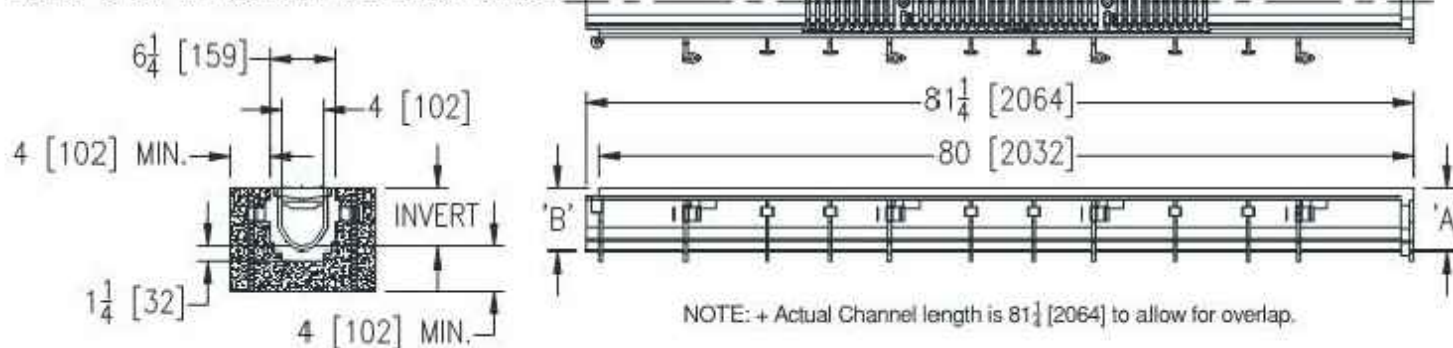
- EXISTING CONTOUR - MAJOR
- EXISTING CONTOUR - MINOR
- NEW CONTOUR - MAJOR
- NEW CONTOUR - MINOR
- DRAINAGE BASIN BOUNDARY
- STORM DRAIN
- STORM DRAIN INLET
- SPOT ELEVATION
- FLOW DIRECTION
- ROOF DRAIN
- FINISH FLOOR ELEVATION
- COVERED PARKING AREA
- TOP OF CURB
- FLOW LINE



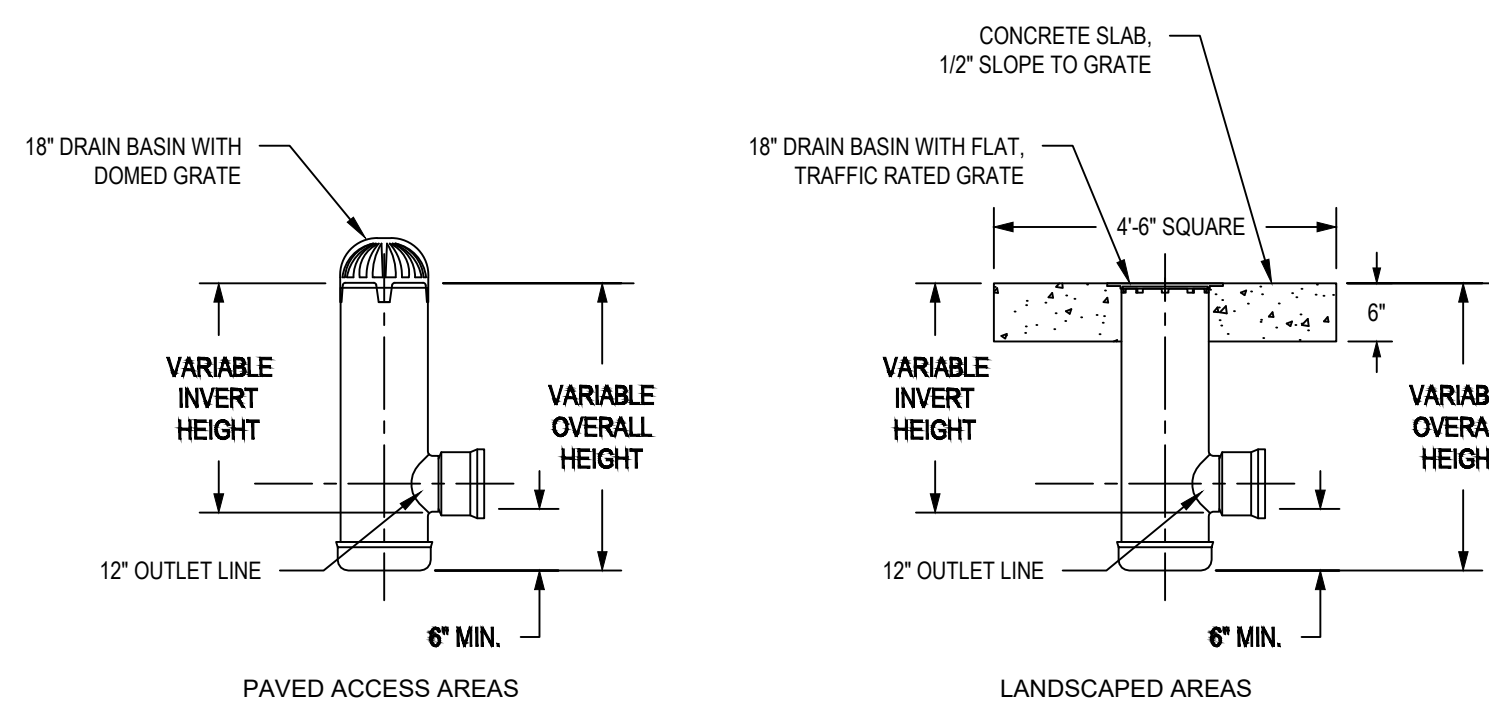
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SPECIFYING ENGINEER IS RESPONSIBLE FOR
CONCRETE ENCASEMENT AND REINFORCING
BASED UPON APPLICATION AND LOCAL CODES



ZURN TRENCH DETAIL



18" DRAIN BASIN

NOT TO SCALE

AREA DRAIN TABLE

BASIN #	ELEVATION TOP OF GRATE	INVERT	TYPE
1	03.0	01.0	DOMED
2	03.0	01.0	DOMED
3	03.0	01.3	FLAT
4	04.0	00.2	FLAT
5	04.0	99.2	FLAT
6	3.0	98.2	DOMED
7	04.0	99.0	DOMED
8	05.0	02.0	DOMED
9	04.0	98.2	DOMED

MANNING EQUATION: $Q = (1.486 / .010) \times A \times R^{2/3} \times S^{1/2}$
USING 12" PIPE AND $S = 0.7\%$ -- $Q = 148.6 (0.785) (.397) (.084) = 3.9$ CFS
18" PIPE AND $S = 0.7\%$ -- $Q = 148.6 (1.767) (0.52) (.084) = 11.5$ CFS
36" PIPE AND $S = 0.7\%$ -- $Q = 148.6 (7.07) (0.82) (.084) = 72.5$ CFS

KEYED NOTES:

- INSTALL 18" SIDEWALK CULVERT PER CITY STANDARD DRAWING 2236.
- INSTALL 6" TRENCH DRAIN (ZURN Z886) OR APPROVED EQUAL.
- INSTALL 3' CURB OPENING

PUBLIC R/W KEYED NOTES

- REMOVE EXISTING VALLEY GUTTER AND CURB RETURNS. INSTALL NEW STANDARD CURB AND GUTTER PER CITY STD DWG NO 2415A.
- INSTALL NEW 6' PUBLIC CONCRETE SIDEWALKS ON PENN AVE AND ARBUS (FROM SAGAN LOOP TO UNIVERSITY BLVD) PER CITY STD DWG NO 2430.



GRADING AND DRAINAGE PLAN
SHEET 4 - NW
ENCANTO APARTMENTS
MESA DEL SOL
MARCH, 2022

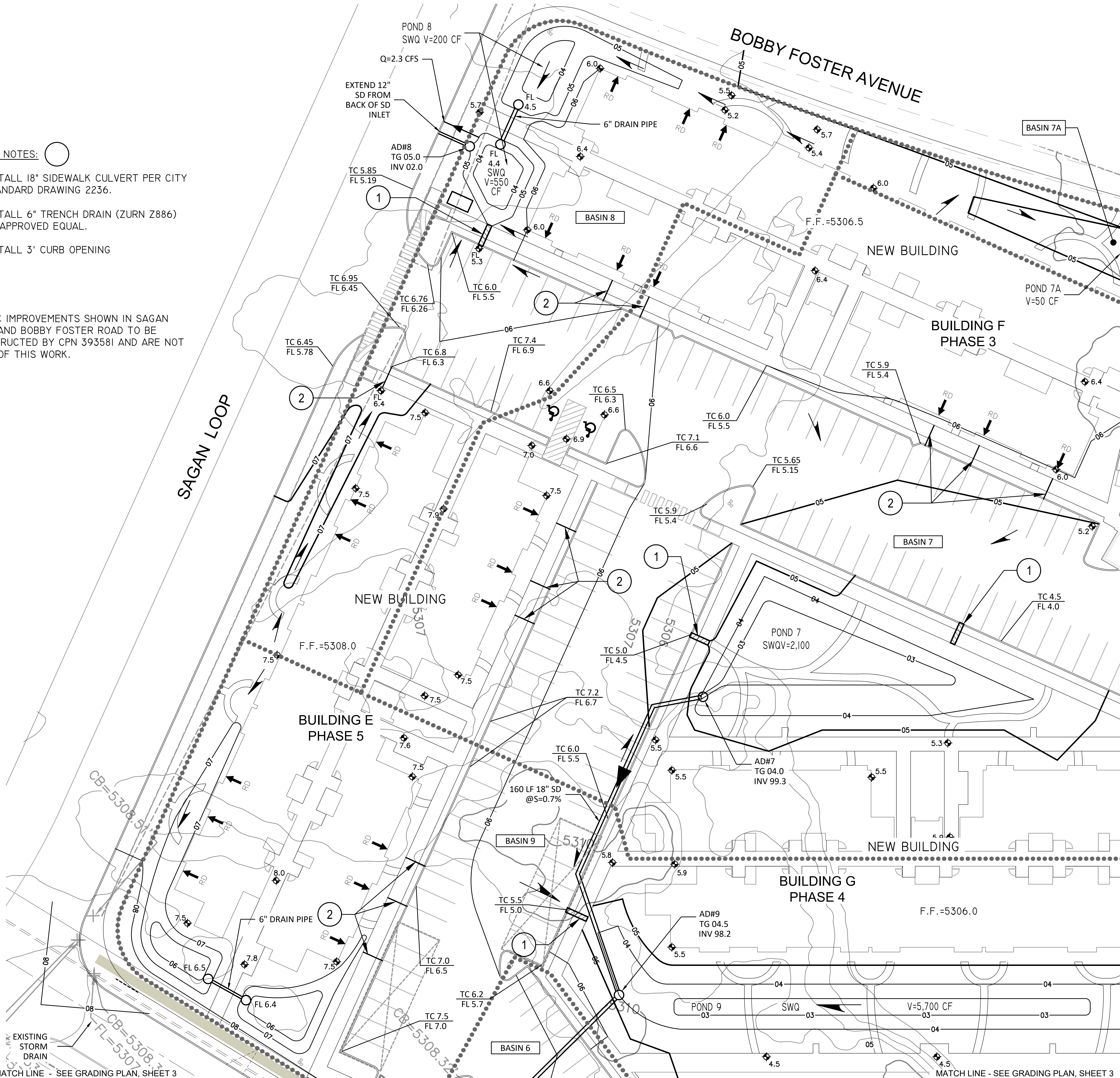


KEYED NOTES:

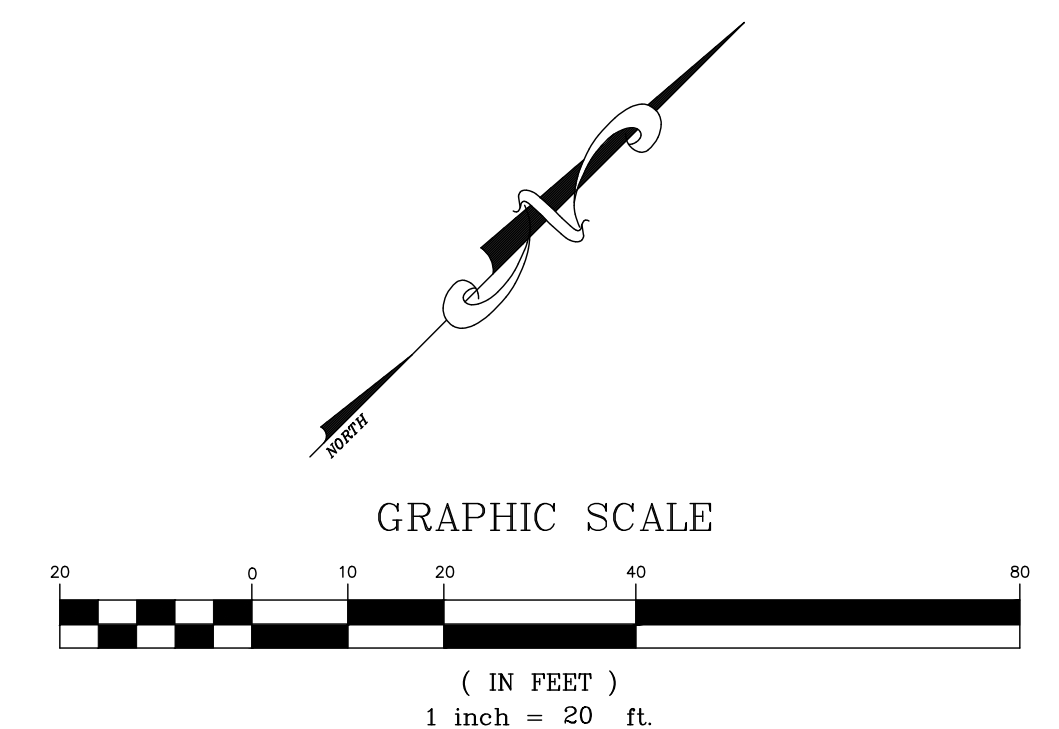
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2. INSTALL 6" TRENCH DRAIN (ZURN Z886) OR APPROVED EQUAL.
3. INSTALL 3' CURB OPENING

NOTE:

PUBLIC IMPROVEMENTS SHOWN IN SAGAN LOOP AND BOBBY FOSTER ROAD TO BE CONSTRUCTED BY CPN 393581 AND ARE NOT PART OF THIS WORK.

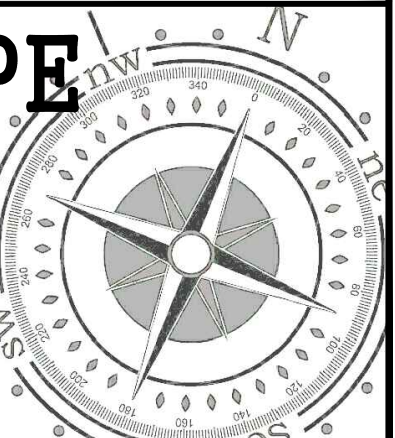


Legend	
	EXISTING CONTOUR - MAJOR
	EXISTING CONTOUR - MINOR
	NEW CONTOUR - MAJOR
	NEW CONTOUR - MINOR
	DRAINAGE BASIN BOUNDARY
	STORM DRAIN
	STORM DRAIN INLET
	SPOT ELEVATION
	FLOW DIRECTION
	ROOF DRAIN
	FINISH FLOOR ELEVATION
	COVERED PARKING AREA
	TOP OF CURB
	FLOW LINE



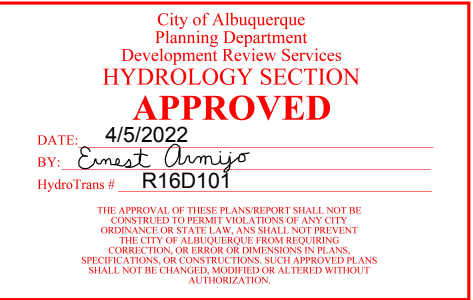
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ENCANTO APARTMENTS
MESA DEL SOL

MARCH, 2022



STORMWATER QUALITY POND CALCULATIONS

BASIN 1
TOTAL IMPERVIOUS AREA=56322 SF
REQ'D SWQ V = 56322 (0.42/12)= 1971 CF
TOTAL V PROVIDED= 2080 CF

BASIN 1B
TOTAL IMPERVIOUS AREA=654 SF
REQ'D SWQ V = 654 (0.42/12)= 23 CF
TOTAL V PROVIDED= 270 CF

BASIN 1C
TOTAL IMPERVIOUS AREA=1059 SF
REQ'D SWQ V = 1059 (0.42/12)= 37 CF
TOTAL V PROVIDED= 50 CF

BASIN 2
TOTAL IMPERVIOUS AREA=38507 SF
REQ'D SWQ V = 38507 (0.42/12)= 1348 CF
TOTAL V PROVIDED= 1400 CF (700+350+350)

BASINS 3-6
TOTAL IMPERVIOUS AREA=102276 SF
REQ'D SWQ V = 102276 (0.42/12)= 3580 CF
TOTAL V PROVIDED= 3600 CF

BASIN 4A
TOTAL IMPERVIOUS AREA=2067 SF
REQ'D SWQ V = 2067 (0.42/12)= 72 CF
TOTAL V PROVIDED= 3300 CF

BASIN 7
TOTAL IMPERVIOUS AREA=48887 SF
REQ'D SWQ V = 48887 (0.42/12)= 1711 CF
TOTAL V PROVIDED= 2100 CF

BASIN 7A
TOTAL IMPERVIOUS AREA=690 SF
REQ'D SWQ V = 690 (0.42/12)= 24 CF
TOTAL V PROVIDED= 50 CF

BASIN 8
TOTAL IMPERVIOUS AREA=15025 SF
REQ'D SWQ V = 15025 (0.42/12)= 526 CF
TOTAL V PROVIDED= 750 CF

BASIN 9
TOTAL IMPERVIOUS AREA=48614 SF
REQ'D SWQ V = 48614 (0.42/12)= 1701 CF
TOTAL V PROVIDED= 5700 CF

NOTE THAT BASINS 1A & 2A ARE MINOR ENTRY DRIVE AREAS
(0.09 AC AND 0.06 AC) WITHOUT SWQ PONDS PROVIDED

UNIVERSITY BOULEVARD

BOBBY FOSTER AVENUE

SAGAN LOOP

PENN AVENUE
(CPN 775486)

ARBUS

POND VOLUMES

POND 1:	ELEV	AREA(SF)	VOLUME(CF)
	5302.0	658	0
	5303.0	1245	952

POND 1B:

ELEV	AREA(SF)	VOLUME(CF)
5302.0	270	270

POND 1C:

ELEV	AREA(SF)	VOLUME(CF)
5302.0	199	199

POND 2: (3 COMBINED)

ELEV	AREA(SF)	VOLUME(CF)
5302.0	1061	0
5303.0	2503	1782

POND 3A:

ELEV	AREA(SF)	VOLUME(CF)
5303.0	506	506

POND 6:

ELEV	AREA(SF)	VOLUME(CF)
5301.0	116	0
5302.0	1215	666
5303.0	2053	1634
5304.0	4147	3100
TOTAL		5400

POND 7:

ELEV	AREA(SF)	VOLUME(CF)
5303.0	1952	0
5304.0	4502	3227

POND 8: (2 COMBINED)

ELEV	AREA(SF)	VOLUME(CF)
5304.0	682	0
5305.0	1935	1309

POND 9:

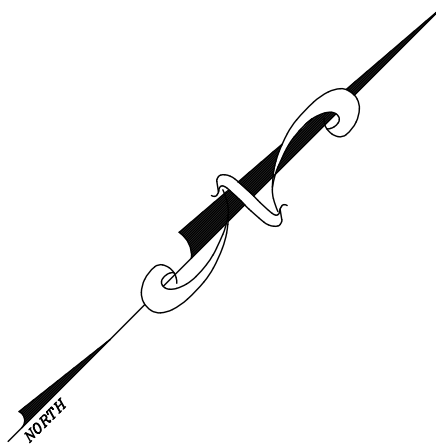
ELEV	AREA(SF)	VOLUME(CF)
5303.0	1228	
5304.0	5057	3143

POST DEVELOPED DRAINAGE CALCULATIONS
This table is based on the COA DPM Chapter 6.2, Precip Zone

BASIN	AREA (SF)	AREA (AC)	A	B	C	D	CFS/AC	CFS	WT.E	V 100-6 (CF)
1	80460	1.85	0	5	25	70	4.19	7.75	1.79	12002
1A	3950	0.09	0	5	30	65	4.11	0.37	1.76	579
1B	4360	0.1	0	10	75	15	3.29	0.33	1.24	450
1C	7060	0.16	0	10	75	15	3.29	0.53	1.24	730
2	55010	1.26	0	5	25	70	4.19	5.28	1.79	8206
2A	2600	0.06	0	10	75	15	3.29	0.2	1.24	269
2B	7300	0.17	0	10	75	15	3.29	0.56	1.24	754
3	40610	0.93	0	5	25	70	4.19	3.9	1.79	6058
3A	7300	0.17	0	10	75	15	3.29	0.56	1.24	754
4	34420	0.79	0	5	25	70	4.19	3.31	1.79	30806
4A	13780	0.32	0	10	75	15	3.29	1.09	1.24	1424
5	24390	0.56	0	5	33	62	4.07	2.28	1.73	3516
6	55860	1.28	0	5	33	62	4.07	5.21	1.73	8053
7	74250	1.7	0	5	33	62	4.07	6.92	1.73	10704
7A	4600	0.11	0	10	75	15	3.29	0.36	1.24	475
8	24334	0.56	0	5	33	62	4.07	2.28	1.73	3494
9	78410	1.8	0	28	10	62	3.87	6.97	1.65	10781
	518694	11.91						47.9		99055

1:2

COMMENTS
Drains to Basin 1 Pond. Combines with Basin 2 and drains to Basin 6
Entry area discharges to Bobby Foster Rd
Landscape area drains to Basin 1b Pond. Overflows to Bobby Foster Rd
Landscape area drains to Basin 2b Pond. Overflows to University entrance
Drains to Basin 2 Pond. Combines with Basin 1 and drains to Basin 6
Entry area discharges to University Blvd
Landscape area overflows to University entrance
Combines with Basins 4 & 5 and drains to Basin 6
Landscape area overflows to University Blvd
Combines with Basins 3 & 5 and drains to Basin 6
Retention ponding. Overflows to Arbus
Combines with Basins 3 & 4 and drains to Basin 6
Combines with Basins 3-5 and drains to Basin 9
Drains to Basin 7 Pond and drains to Basin 9
Landscape area Overflows to Bobby Foster Rd
Drains to Basin 8 Pond and drains to back of Sagan Loop drop inlet
Drains to Basin 9 Pond and drains to existing 36" storm drain stubbed into site



GRAPHIC SCALE



(IN FEET)
1 inch = 50 ft.



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