CITY OF ALBUQUERQUE

Hydrology Section Planning Department
Brennon Williams, Acting Director

Timothy M. Keller, Mayor

July 2, 2019

Vince Carrica, P.E.
Tierra West, LLC
5571 Midway Park Place, NE
Albuquerque, NM 87109

RE: **BEK Distribution Facility – 601 Gallatin Pl. NW**
G&D Plan and Drainage Report Engineers Stamp Date: 6/25/2019,
Hydrology File: FJ10D002G1

Dear Mr. Carrica,

Based on the information provided in your submittal received on 6/25/2019 the Conceptual Grading and Drainage Plan and report cannot be approved.

Prior to Grading Permit and Site plan for Building Permit:

1. What is the purpose of the pipe connection from pond 4 to the back of the inlet in Gallatin Pl.? What is the discharge from Pond 4? Can the pipe be deleted from the plan? If not then provide a detail of the outlet structure on the private end of the pipe.
2. Please revise the Pond volume calculations in the report to show that Basins 31 and 32 drain to pond 4 and revise the Direct Discharge calculation.
3. Also please add a calculation of the required SWQV and a statement of how that volume is being provided as note 3 on Sheet C201.
4. Some reconstruction of the existing Coca-Cola Pond will be required by this project.
    a. Provide written and signed permission from the adjoining property owner for work on their property.
    b. Better survey information must be added to the G&D Plan including detailed survey of the dam, the headwall and pipe outfall, and the emergency overflow spillway.
    c. The existing Dam may encroach on this site. A minimum 6' wide top of dam must be maintained where the proposed construction seems to be cutting into it. Please add a typical section through the dam and property line at the culvert under the south driveway.
    d. Sidewalk culverts and reconstruction of the emergency overflow spillway should be shown on the G&D Plan with build notes and a line Item added to the Infrastructure List.
5. 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.

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Prior to Work Order, and/or Building Permit:

6. Remove the word Conceptual from the sheet Title and the label NOT FOR CONSTRUCTION. Also identify how the future building pads will be graded to drain especially where future roof drains are planned to direct that drainage away from the adjacent public streets and into the ponds.
7. Key note 25 on the Site Plan calls for a 6" temporary header curb that is not shown on the G&D Plan. Please revise one or the other so they agree, and provide a copy of the revised Site Plan when resubmitting to hydrology. If the temporary curb is to remain please add details of the curb on the G&D Plan with spot elevation that show how the parking lot will drain thru the curb.
8. How will drainage get out of the sump in the C&G on the east side of the Staging area?
9. Surface drainage in the future staging area and the future parking lot next to the pond appears to enter the pond in two places but only one has a rundown. Lined conveyance systems should be added to the plan to convey drainage from the paving proposed with this building permit through the future paving area and into the pond. Please revise the G&D Plan adding lined swales and typical sections through the future north parking area and into the north pond.
10. Please label the contours in the north east corner of the parking lot and verify that the spot elevations agree with the contours. If they are not 5141 and 5142 then please revise the grading to decisively contain the parking lot drainage and convey it into the north pond.
11. The contours indicate erratic slopes varying from 1% to 10% with abrupt grade changes in the northwesterly 250' of the staging/parking lot. Please revise the grading.
12. Additional right of way may be needed for the hammerhead turnaround at the west end of Fortuna Rd. Please coordinate with transportation and if additional ROW is required then show the right of way dedication on the G&D plan.
13. Please show the PNM easement adjacent to and on this tract in the west corner. Either revise the plan to eliminate the grading within the easement or provide written permission from PNM for grading inside of their easement.
14. The finished contours are missing between the retaining wall and the street in Los Volcanes Road. Please show proposed contours all of the way to the existing street to indicate the proposed grade of the sidewalk in the public right of way and the landscape area on the private side of the sidewalk. Also please add a few typical sections showing the grade on both sides of the retaining wall, the new sidewalk, the ROW line, the fence, and the slope.
15. HGL calculations are required for the storm drain in the north east corner of the site where failure of the storm drain could result in excessive stormwater runoff to public streets. Also please add a profile and HGL calculations for the storm drain on the south and east side of the building.
16. Please add the Book and Page (B 2019C P 0040) of the plat to note 1 on sheet C201.
17. The south pond must have a non-erosive spillway. Please add a build note and a detail on the G&D Plan. Please check the weir coefficient, 1.6 is for metric units, 2.7 is SI for broad crest, and 3.3 SI for sharp crest.
18. Please revise the pond volume calculations to use the Conic approximation method (the volume of a frustum) = h/3 x [b1 +b2 +sqrt(b1 x b2)] where h is the height between the two areas, and b1 and b2 are the areas of the contours. The equations

presented in the report do not make any sense, but the volumes seem to have been calculated by the average end area method. The method used for volume calculations needs to be better documented in the report. Also please provide the excel file.

19. Please revise the Drainage Basin map to include a graphic scale, north arrow, flow arrows indicating the discharge point of each basin and roof drainage patterns. The paper copy must be scalable.
20. It appears that curb opening details and design calculations may be missing. Please identify how the drainage from Basins 8 and 9 gets into Inlet # 3. Also please identify how the drainage from basin 24 gets into the south pond by including details on the G&D Plan and calculations in the report. The engineering design analysis must demonstrate that the peak 100 year flow rates are intercepted by onsite drainage structures and prevented from entering the public right of way.
21. Please revise the grading of the south pond so a floodwall is not expected to hold back drainage.

PRIOR TO CERTIFICATE OF OCCUPANCY:

22. Engineer's Certification, per the DPM Chapter 22.7: *Engineer's Certification Checklist For Non-Subdivision* is required.

If you have any questions, you can contact me at 924-3986 or jhughes@cabq.gov .

Sincerely,

James D. Hughes, P.E.
Principal Engineer, Planning Dept.
Development and Review Services

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

TIERRA WEST, LLC

5571 Midway Park Pl. NE Albuquerque, NM 87109
(505) 858-3100 fax (505) 858-1118 1-800-245-3102
tierrawestllc.com

June 25, 2019

Mr. James D. Hughes, P.E
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

RE: BEK DISTRIBUTION FACILITY – 601 GALLATIN PL. NW
G&D PLAN AND DRAINAGE REPORT ENGINEERS
STAMP DATE: 05/16/2019, HYDROLOGY FILE: FJ10D002G1

Dear Mr. Hughes:

Please find the following responses addressing your comments listed below:

1. The contours on the steep slopes along the west side indicate a 2.6:1 slope. Please either change the slope label from 3:1 to 2.6:1 or change the contours.
   Response: These slopes were modified to either to a true 3:1 maximum slope or the area was called out to be re-stabilized on the landscape plan with 2 to 4" cobble plating.

2. Please add a note near the west slope that states "All disturbed areas must be stabilized prior to Engineer's Certification for Certificate of Occupancy".
   Response: Note added

3. The Landscape Plan included in the Site Plan Application must be corrected to match the Site Plan and G&D Plan in the west portion of the site as that will be used to identify the steep slope stabilization required in 2 above. Please include a copy of the revised landscape plan when resubmitting the G&D Plan to Hydrology.
   Response: The landscape plan was adjusted to match the site plan and phasing. Copy of landscape plan is included with re-submittal package.

4. Keyed note 12 on the Site Plan indicates future parking. Is that area to be paved now with this building permit? If not, then don't hatch the area not being paved on the G&D Plan for Building Permit and provide a separate Conceptual G&D Plan for Site Plan labeled NOT FOR CONSTRUCTION showing paving of future parking. Identify how the future parking will be graded now on the G&D Plan for Building Permit. Also identify how the future building pads will be graded to drain especially where future roof drains are planned to direct that drainage away from the adjacent public streets and into the ponds. The Landscape Plan should be modified to show both the interim and final stabilization in the future areas.
   Response: Future parking is to receive gravel / crusher fines for stabilization, which is now noted on the landscape plans. They will not be paved with phase

one. We are preparing interim grading plans for these areas, to be submitted next week for your review as part of grading permit submittal.

5. Key note 25 on the Site Plan calls for a 6" temporary header curb that is not shown on the G&D Plan. Please revise one or the other so they agree, and provide a copy of the revised Site Plan when resubmitting to hydrology. If the temporary curb is to remain please add details of the curb on the G&D Plan with spot elevation that show how the parking lot will drain thru the curb.
   Response: The 6" curb is needed to deter traffic from using the future phase area. Grading plan note has been modified to include curb cuts to allow drainage to follow intended path to pond.

6. How will drainage get out of the stamp in the C&G on the east side of the Staging area?
   Response: A curb cut was added at low point in first phase staging area.

7. Surface drainage in the future staging area and the future parking lot next to the pond appears to enter the pond in two places but only one has a rundown. Lined conveyance systems should be added to the plan to convey drainage from the paving proposed with this building permit through the future paving area and into the pond. Please revise the G&D Plan adding lined swales and typical sections through the future north parking area and into the north pond.
   Response: A lined rundown was added at the northwest corner of the pond. Interim grading plans are being prepared for these future pavement areas, to be submitted for your review next week.

8. Please label the contours in the north east corner of the parking lot and verify that the spot elevations agree with the contours. If they are not 5141 and 5142 then please revise the grading to decisively contain the parking lot drainage and convey it into the north pond.
   Response: The contours will be labeled with grading permit submittal which will be submitted for your review next week.

9. The contours indicate excessively steep slopes west of the staging/parking lot about 350' south of the northwest corner of the site. The contours indicate erratic slopes varying from 1% to 10% with abrupt grade changes in the northwesterly 250' of the staging/parking lot. Please revise the grading.
   Response: These contours and associated grades have been adjusted/corrected.

10. The Contours between 5140 and 5150 indicate a slope of about 2:1 on top of the sidewalk in the public right of way at the west end of Fortuna. Please revise the grading and add a typical section to the G&D Plan showing the sidewalk, ROW line and slope. If a retaining wall is added, show the footer with dimension from the footer to the ROW line. Also show the fence on the G&D Plan and in the section with dimensions.
    Response: These contours and associated grades have been adjusted/corrected. No retaining wall is required at these locations.

11. Additional right of way may be needed for the hammerhead turnaround at the west end of Fortuna Rd. Please coordinate with transportation and show the right of way dedication on the G&D plan.
Response: We are in the process of working with Transportation on the required ROW. The proposed ROW for the turnaround is shown on the grading plan.

12. Please add the fence to the legend. Please also identify the bold line style-line, dot, line, dot- shown in the buffer between the street and parking lot in the north east corner of the site.
Response: Fence location / call out has been added to the grading plan.

13. Please show the PNM easement adjacent to and on this tract in the west corner. Either revise the plan to eliminate the grading within the easement or provide written permission from PNM for grading inside of their easement.
Response: The PNM easement is shown on the grading plan. No grading within the easement is required.

14. The finished contours are missing between the east side of the parking lot and the street in Gallatin Place and Los Volcanes Road. Please show proposed contours all of the way to the existing street to indicate the proposed grade of the sidewalk in the public right of way and the landscape area on the private side of the sidewalk. Also please add a few typical sections showing the existing C&G the new sidewalk, the ROW line, the fence, and the slope and/or retaining wall with dimensions both horizontal and vertical. Please include the area between the parking lot and the Right of way in the sections. The area appears to be wide enough to add retention ponds which may be required to limit the discharge to the allowable rates.
Response: Finish contours added to grading plan for these areas. Shallow ponds added to these areas as well.

15. HGL calculations are required for the storm drain in the north east corner of the site where failure of the storm drain could result in excessive stormwater runoff to public streets. Also please add a profile and HGL calculations for the storm drain on the south and east side of the building.
Response: These calculations will be included with submittal for building permit approval G&D plan.

16. Please add a statement to the first page of the G&D Plan stating: "The retention ponds and storm drains on this site are to be maintained by the owner of the property. Maintenance inspections may be conducted by the City and maintenance may be enforced by the City in accordance with the drainage easement recorded on the Plat recorded in the Bernalillo County records room Book and page. Any modification to Hydrology for approval prior to construction.
Response: Statement was added.

17. Please add a statement to the first page of the G&D Plan stating: "The Drainage Management Plan for this sight is in accordance with the 2007 Meridian Business Park II Plan. The allowable discharged 0.1cfs/acre so the allowable discharge for this 50.35 acre site plus the 4.2 acres on the east side of the site, will drain into onsite retention ponds sized for the storm water runoff volume from the 100 year- 1- day

storm. Each pond is equipped with an overflow spillway with the capacity to discharge the 100 year peak rate of flow going into the pond.
Response: Statement was added.

18. Non-erosive Emergency overflow spillways with capacity for the peak100 year flow rate are required for each pond with a potentially erosive embankment. The north, east, and west ponds do not have embankment. However the south pond must have a non-erosive spillway. Please number the ponds on the G&D Plan and include a label on each with the peak 100 year flow rate, the 100 year 10 day volume and elevation, the spillway crest elevation, the spillway flow depth, and the dam top elevation.
Response: Ponds were numbered and pond info added for each. Emergency overflow area for south pond added.

19. The runoff calculations in the Drainage Report need to be modified. Land treatment B has been excessively used and should be replaced with treatment C unless the ground cover is irrigated lawns on flat slopes. The 100 year 10 day volume must be calculated for use in sizing retention ponds. The precipitation depths, runoff rated, and volumes in the draft DPM values, and are lower than the old values. Please provide the excel file with the digital resubmittal.
Response: Land treatment B & C values were revised. A revised spreadsheet is included with this submittal. The spreadsheet includes the 100 yr, 10 day volumes. The spreadsheet is attached as requested.

20. Please revise the pond volume calculations to use the Conic approximation method (the volume of a frustum) = h/3 x [b1 + b2 + sqrt (b1xb2)] where h is the height between the two areas, and b1 and b2 are the areas of the contours. The method used in the report overestimated the volume of the ponds.
Response: The method of pond volume calculation is a standard method used in all our projects. The Conic method appears to change the volumes slightly and appears to be conservative.

21. Please revise the Drainage Basin map to include a graphic scale, north arrow, flow arrows indications the discharge point of each basin and roof drainage patterns. The paper copy must be scalable
Response: This will be done with G&D re-submittal for grading permit approval, to be submitted to your office for review next week.

22. It appears that curb opening details and design calculations may be missing. Please identify how the drainage from Basins 8 and 9 gets into Inlet # 3. Also please identify how the drainage from basin 24 gets into the south pond by including details on the G&D Plan and calculations in the report. The engineering design analysis must demonstrate that the peak 100 year flow rated are intercepted by onsite drainage structures and prevented from entering the public right of way.
Response: Details and calculations will be submitted with G&D re-submittal for grading permit approval, to be submitted to your office for review next week.

23. Please show the existing meandering sidewalk and concrete driveways and HC ramps along Los Volcanes Rd clearly indicating what items are to be removed and replaced with C&G and new sidewalk and label each on the G&D Plan.

Response: Existing and proposed offsite adjacent roadway improvements have been added to the grading plans.

24. Please revise the grading of the south pond so a floodwall is not expected to hold back drainage.
Response: The floodwall is required to provide for the future building and dock staging areas required by BEK. The possible reduction in pond volume will be reviewed as part of the re-submittal for grading permit, to be submitted to your office for review next week.

25. Please show the existing storm drains in Los Volcanes both private and public. Show and label the private drainage easement from Coke's pond west of this site where it crosses through this site.
Response: The existing storm drains and Coke's drainage easement in Los Volcanes were added to the grading plan.

If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,

Ronald R. Bohannan, PE

JN: 2018014

RRB/vc/kw

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: BEK Distribution Facility Building Permit #: _____ Hydrology File #: _____

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

Legal Description: LT 1-A AD LOT 8-A UNSER TOWNE CROSSING

City Address: 601 GALLATIN PL NW ALBUQUERQUE NM 87121

Applicant: TIERRA WEST LLC Contact: VINCE CARRICA

Address: 5571 MIDWAY PARK PLACE NE ALBUQUERQUE NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: vcarrica@tierrawestllc.com

Other Contact: _____ Contact: _____

Address: _____

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

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

IS THIS A RESUBMITTAL? ____X____ Yes _____ No

DEPARTMENT _____ TRANSPORTATION __X__ HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

____ ENGINEER/ARCHITECT CERTIFICATION
____ PAD CERTIFICATION
__X__ 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: 6/25/2019 By: Vince Carrica

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

DRAINAGE REPORT

For

601Gallatin Pl. NW
ALBUQUERQUE, NEW MEXICO

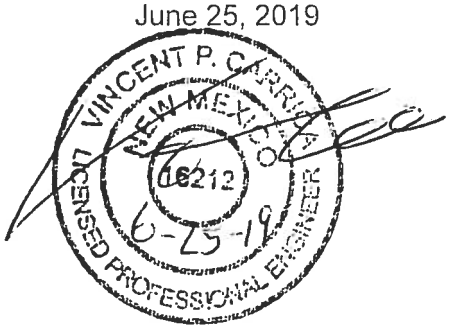
Prepared by

Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

Prepared for

Ben E. Keith
Albuquerque, NM

June 25, 2019



Vincent Carrica, PE #16212

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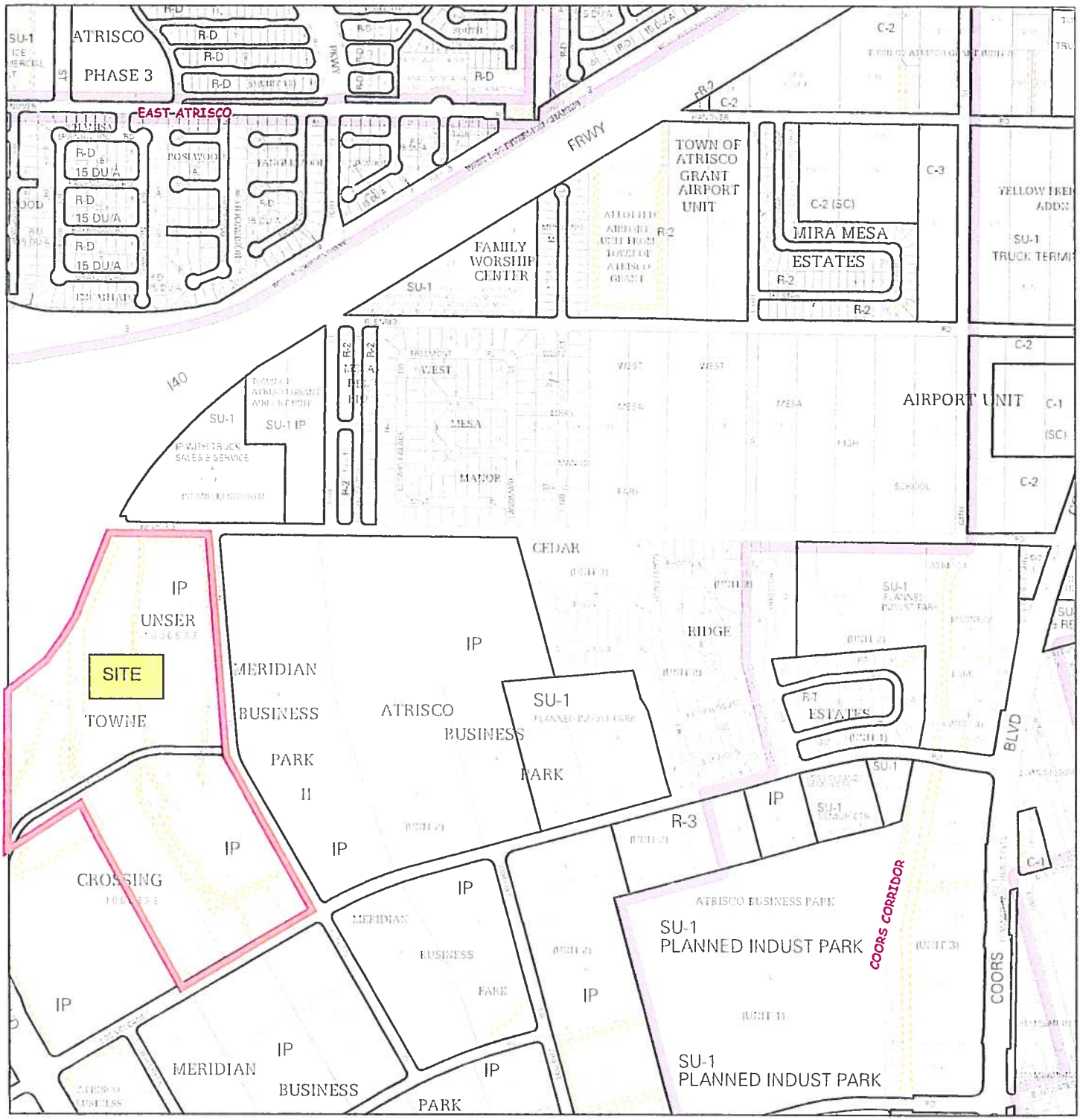


For more current information and details visit: http://www.cabq.gov/gis

Albuquerque Geographic Information System

Map amended through: 1/28/2016

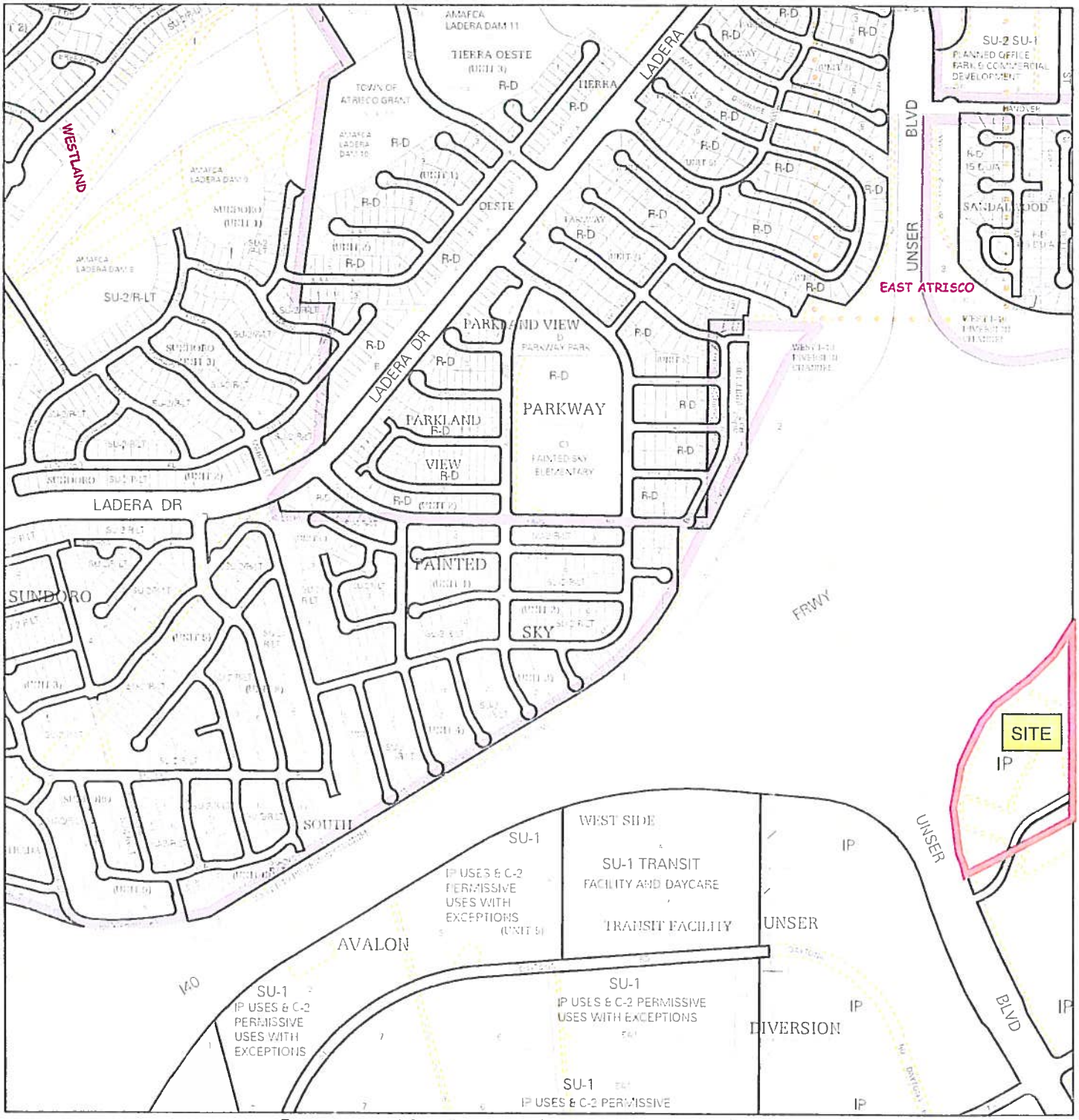
Zone Atlas Page:

J-10-Z

Selected Symbols

- SECTOR PLANS
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Petroglyph Mon.
- Escarpment
- 2 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone

0 750 1,500 Feet



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AGIS
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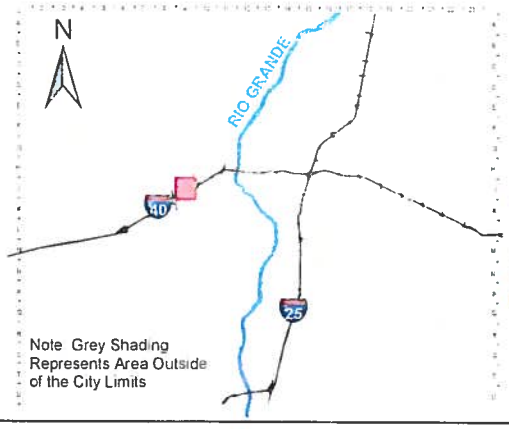


Zone Atlas Page:

J-09-Z

Selected Symbols

- SECTOR PLANS
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Petroglyph Mon.
- Escarpment
- 2 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone

0 750 1,500 Feet

LOCATION

The proposed commercial development is located off Gallatin Place south of Interstate 40, east of Unser Blvd at the corner of Los Volcanes and Gallatin Pl in southwest Albuquerque. It is comprised of approximately 50.35 acres zoned NR-BP. This report represents a drainage management and grading plan for approval by the City of Albuquerque, for Site Plan, grading and Building Permit submittal.

DRAINAGE BASIN DESIGNATION

The drainage basins for proposed conditions are as indicated on the BASIN MAP included in this report. The site is broken into 34 onsite drainage basins and one upland offsite basin to the west within the Coca Cola Lot 16 parcel.

EXISTING DRAINGE CONDITIONS

The site is currently vacant with several earthen detention ponds constructed onsite. It drains predominantly northwest to southeast. Runoff from an upland undeveloped basin that is within the Coca Cola Lot 16 drains onto the site. This runoff is combined with the onsite runoff and routed through existing detention ponds before being released to Los Volcanes Rd, which then drains to the east per the Atrisco Business Park Master Drainage Plan for fully developed conditions, dated February of 1992.

FIRM MAP

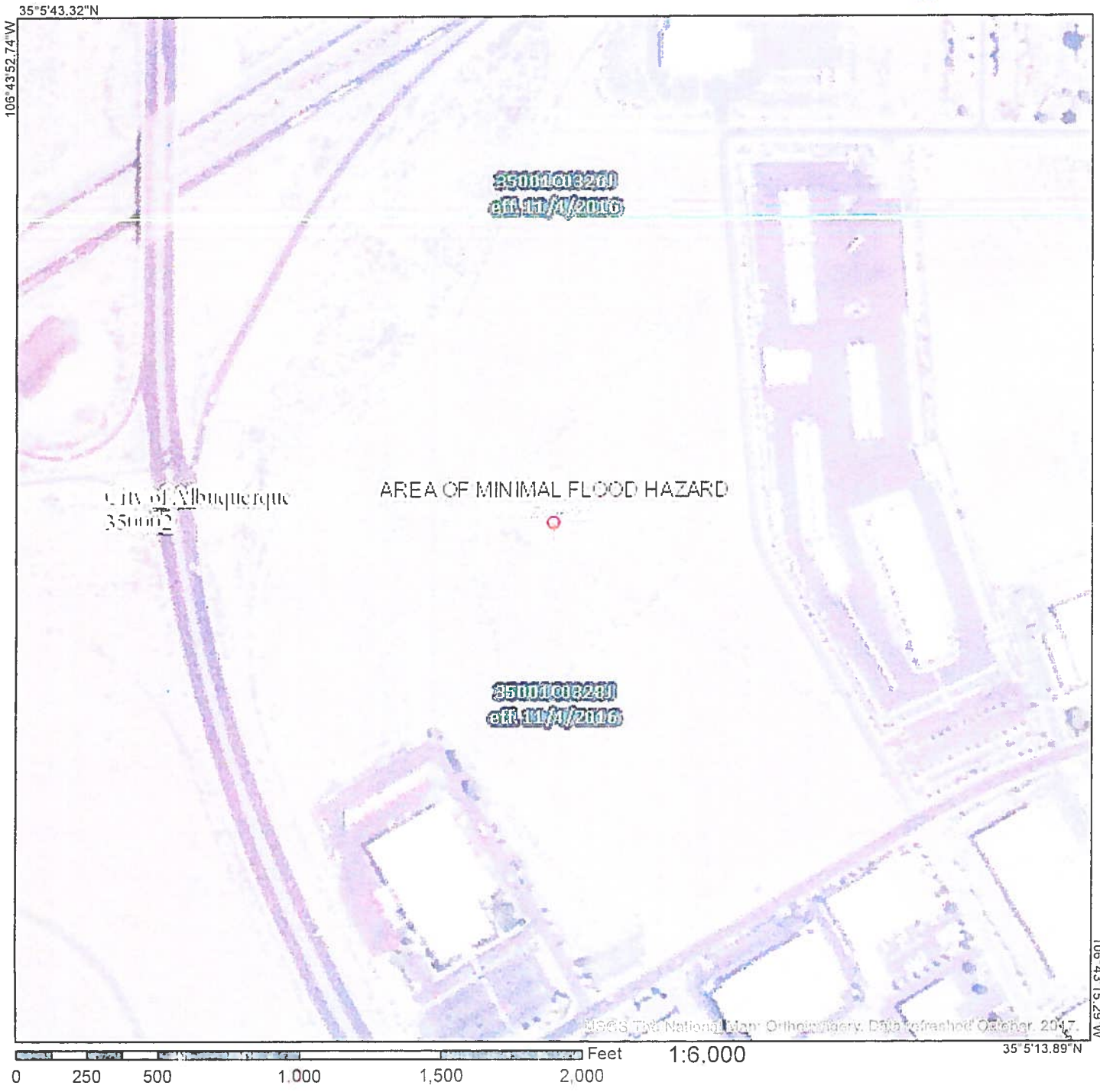
The site is not located in a flood plain as is shown on designated Flood Hazard Zone Map No. 35001C0328J dated 11/4/2016.

DESIGN-CRITERIA

The drainage plan presented in this report was prepared in accordance with the City of Albuquerque Drainage Ordinances and the Development Process Manual DPM. The hydrological analysis is based on the 100-year frequency, 6-hour duration storm. The plan will also include retention of the first flush in on-site drainage ponds. See attached Weighted E Table for excess precipitation values calculated for this site.

National Flood Hazard Layer FIRMette

FEMA



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- SPECIAL FLOOD HAZARD AREAS
  - Without Base Flood Elevation (BFE)
  - With BFE or Depth
  - Regulatory Floodway
- OTHER AREAS OF FLOOD HAZARD
  - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile
  - Future Conditions 1% Annual Chance Flood Hazard
  - Area with Reduced Flood Risk due to Levee. See Notes.
  - Area with Flood Risk due to Levee
- OTHER AREAS
  - NO SCREEN — Area of Minimal Flood Hazard
  - Effective LOMRs
  - Area of Undetermined Flood Hazard
- GENERAL STRUCTURES
  - Channel, Culvert, or Storm Sewer
  - Levee, Dike, or Floodwall
- OTHER FEATURES
  - 20.2 — Cross Sections with 1% Annual Chance
  - 17.5 — Water Surface Elevation
  - Coastal Transect
  - Base Flood Elevation Line (BFE)
  - Limit of Study
  - Jurisdiction Boundary
  - Coastal Transect Baseline
  - Profile Baseline
  - Hydrographic Feature
- MAP PANELS
  - Digital Data Available
  - No Digital Data Available
  - Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/31/2019 at 6:29:47 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

DEVELOPED-DRAINAGE CONDITIONS

The site is proposed to be developed with a single user, Ben E Keith food distribution facility that will be constructed in phases. No offsite flows will enter the site with the exception of the upland basin in the Coca Cola Lot 16 undeveloped portion (approximately 4.2 acres), which will continue to be routed through the subject site until it is developed in the future. Runoff from the site will be routed to four onsite drainage ponds. Discharge from the overall site will be equal to or less than the allowable 0.1 cfs per acre. The total onsite acreage is 50.35 acres. The offsite upland acreage is 4.2 acres. The allowable discharge at 0.1 cfs per acre for the total 54.55 acres is 5.45 cfs. This is in compliance with the Atrisco Business Park Master Drainage Plan for fully developed conditions dated February of 1992. The drainage ponds will retain the first flush retention volumes as required by the drainage ordinance.

Refer to enclosed Weighted E computation spreadsheet for developed runoff conditions. Storm drain capacities are listed in a table in the appendix along with ponding capacities.

SUMMARY

The proposed grading and drainage plan for the proposed development of the existing undeveloped property includes surface flows and an onsite storm drain to convey runoff to retention ponds. Runoff from the overall site will be equal to or less than 0.1 cfs per acre.

VOLUME CALCULATIONS

BEK

NORTH POND #1

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	5,511.00	B.O.P. =	5125
Ab =	21,406.00	B.O.P. =	5127
At =	59,609.00	T.O.P.=	5140
Dt =	13.00		
C =	2938.69		

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5125.00	0	0	0.000
5126.00	0	0.2177	0.000
5127.00	0	0.6179	0.000
5128.00	1.00	1.1430	0.000
5129.00	2.00	1.7357	0.000
5130.00	3.00	2.3957	0.000
5131.00	4.00	3.1233	0.000
5132.00	5.00	3.9183	0.000
5132.26	5.26	4.1360	0.000
5133.00	6.00	4.7807	0.000
5134.00	7.00	5.7106	0.000
5135.00	8.00	6.7080	0.000
5136.00	9.00	7.7729	0.000
5137.00	10.00	8.9052	0.000
5138.00	11.00	10.1050	0.000
5139.00	12.00	11.3722	0.000
5140.00	13.00	12.7069	0.000

Orifice Equation

Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	0
Area (ft^2)=	0
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS

BEK

WEST POND #2

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	3,401.00	B.O.P.=	5126
At =	21,542.00	T.O.P. =	5139
Dt =	13.00		
C =	1395.46		
B Elev. =	5,126.00		

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5126.00	0	0	0.000
5127.00	1.00	0.0941	0.000
5128.00	2.00	0.2202	0.000
5129.00	3.00	0.3784	0.000
5130.00	4.00	0.5686	0.000
5131.00	5.00	0.7908	0.000
5132.00	6.00	1.0451	0.000
5133.00	7.00	1.3314	0.000
5134.00	8.00	1.6497	0.000
5135.00	9.00	2.0001	0.000
5136.00	10.00	2.3825	0.000
5137.00	11.00	2.7970	0.000
5138.00	12.00	3.2435	0.000
5138.24	12.24	3.3554	0.000
5139.00	13.00	3.7220	0.000

Orifice Equation
Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	0
Area (ft^2)=	0
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS

BEK

SOUTH POND #3

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

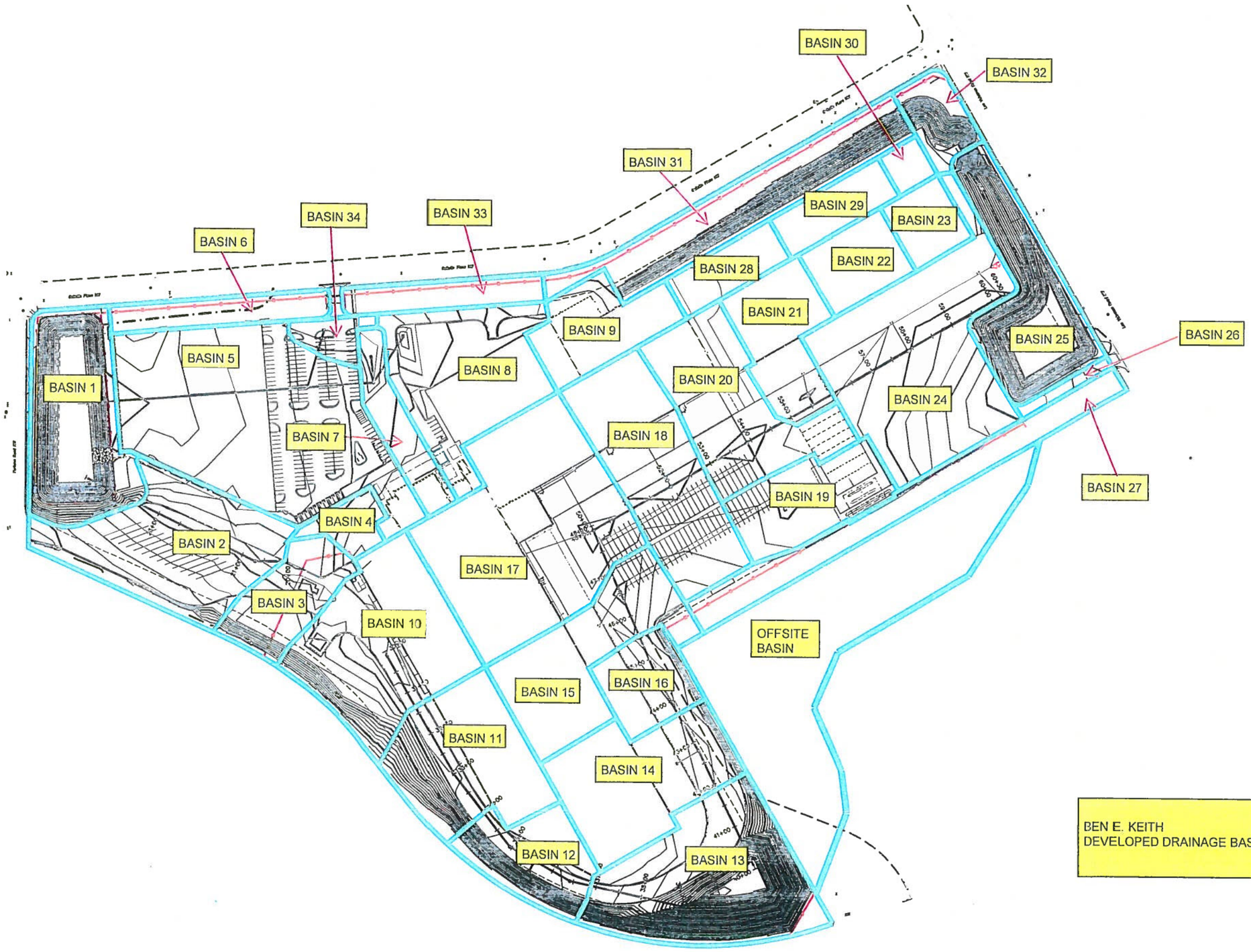
Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	14,771.00	B.O.P.=	5120
At =	39,220.00	T.O.P. =	5130
Dt =	10.00		
C =	2444.90		
B Elev. =	5,120.00		

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5120.00	0	0	0.000
5121.00	1.00	0.3672	0.000
5122.00	2.00	0.7904	0.000
5123.00	3.00	1.2699	0.000
5124.00	4.00	1.8054	0.000
5125.00	5.00	2.3971	0.000
5126.00	6.00	3.0449	0.000
5127.00	7.00	3.7488	0.000
5127.21	7.21	3.9037	0.000
5128.00	8.00	4.5088	0.000
5129.00	9.00	5.3250	0.000
5130.00	10.00	6.1973	0.000

Orifice Equation
Q = CA SQRT(2gH)

C =	0.6	
Diameter (in)	0	
Area (ft^2)=	0	
g =	32.2	
H (Ft) =		Depth of water above center of orifice
Q (CFS)=		Flow



BEN E. KEITH
DEVELOPED DRAINAGE BASINS

BEK Ultimate Buildout

Weighted E Method

Zone #1

Developed Basins

Basin	Area (sf)	Area (acres)	Area (sq miles)	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	2-Year Weighted E (ac-ft)	2-Year Volume (ac-ft)	2-Year Flow cfs
1	88,955	2.042	0.00319	0%	0	50%	1.021	50%	1.02106	0%	0.000	0.830	0.141	5.00	0.330	0.056	2.30	0.065	0.011	0.51
2	104,765	2.405	0.00376	0%	0	0%	0.000	35%	0.84178	65%	1.563	1.627	0.326	9.25	0.960	0.192	5.77	0.510	0.102	3.04
3	41,508	0.953	0.00149	0%	0	20%	0.191	40%	0.38116	40%	0.381	1.318	0.105	3.15	0.716	0.057	1.81	0.338	0.027	0.83
4	15,458	0.355	0.00055	0%	0	75%	0.266	25%	0.08872	0%	0.000	0.750	0.022	0.79	0.275	0.008	0.33	0.038	0.001	0.05
5	195,280	4.483	0.00700	0%	0	10%	0.448	0%	0	90%	4.035	1.840	0.687	18.54	1.138	0.425	12.00	0.649	0.242	6.83
6	28,217	0.648	0.00101	0%	0	100%	0.648	0%	0	0%	0.000	0.670	0.036	1.31	0.220	0.012	0.49	0.010	0.001	0.02
7	29,072	0.667	0.00104	0%	0	40%	0.267	40%	0.26696	20%	0.133	1.058	0.059	1.89	0.512	0.028	0.99	0.196	0.011	0.36
8	92,495	2.123	0.00332	0%	0	40%	0.849	0%	0	60%	1.274	1.450	0.257	7.29	0.832	0.147	4.33	0.436	0.077	2.18
9	46,069	1.058	0.00165	0%	0	0%	0.000	0%	0	100%	1.058	1.970	0.174	4.62	1.240	0.109	3.06	0.720	0.063	1.79
10	108,502	2.491	0.00389	0%	0	30%	0.747	12%	0.2989	58%	1.445	1.462	0.304	8.69	0.838	0.174	5.19	0.435	0.090	2.60
11	82,142	1.886	0.00295	0%	0	6%	0.113	30%	0.56572	64%	1.207	1.598	0.251	7.13	0.939	0.148	4.42	0.497	0.078	2.31
12	46,504	1.068	0.00167	0%	0	4%	0.043	25%	0.2669	71%	0.758	1.673	0.149	4.17	0.999	0.089	2.62	0.542	0.048	1.41
13	118,308	2.716	0.00424	0%	0	23%	0.625	50%	1.35799	27%	0.733	1.181	0.267	8.37	0.605	0.137	4.62	0.257	0.058	1.90
14	85,002	1.951	0.00305	0%	0	0%	0.000	5%	0.09757	95%	1.854	1.921	0.312	8.38	1.200	0.195	5.50	0.690	0.112	3.18
15	82,626	1.897	0.00296	0%	0	2%	0.038	3%	0.0569	95%	1.802	1.915	0.303	8.12	1.196	0.189	5.32	0.688	0.109	3.07
16	34,431	0.790	0.00124	0%	0	0%	0.000	7%	0.05533	93%	0.735	1.901	0.125	3.37	1.184	0.078	2.21	0.678	0.045	1.27
17	163,508	3.754	0.00587	0%	0	0%	0.000	0%	0	100%	3.754	1.970	0.616	16.40	1.240	0.388	10.85	0.720	0.225	6.34
18	97,763	2.244	0.00351	0%	0	0%	0.000	0%	0	100%	2.244	1.970	0.368	9.81	1.240	0.232	6.49	0.720	0.135	3.79
19	53,031	1.217	0.00190	0%	0	0%	0.000	0%	0	100%	1.217	1.970	0.200	5.32	1.240	0.126	3.52	0.720	0.073	2.06
20	85,009	1.952	0.00305	0%	0	0%	0.000	0%	0	100%	1.952	1.970	0.320	8.53	1.240	0.202	5.64	0.720	0.117	3.30
21	50,827	1.167	0.00182	0%	0	0%	0.000	0%	0	100%	1.167	1.970	0.192	5.10	1.240	0.121	3.37	0.720	0.070	1.97
22	31,395	0.721	0.00113	0%	0	0%	0.000	0%	0	100%	0.721	1.970	0.118	3.15	1.240	0.074	2.08	0.720	0.043	1.22
23	22,198	0.510	0.00080	0%	0	0%	0.000	0%	0	100%	0.510	1.970	0.084	2.23	1.240	0.053	1.47	0.720	0.031	0.86
24	147,654	3.390	0.00530	0%	0	0%	0.000	0%	0	100%	3.390	1.970	0.556	14.81	1.240	0.350	9.80	0.720	0.203	5.73
25	77,984	1.790	0.00280	0%	0	28%	0.501	72%	1.28899	0%	0.000	0.900	0.134	4.72	0.378	0.056	2.30	0.089	0.013	0.62
26	6,339	0.146	0.00023	0%	0	0%	0.000	0%	0	100%	0.146	1.970	0.024	0.64	1.240	0.015	0.42	0.720	0.009	0.25
27	62,581	1.437	0.00224	0%	0	95%	1.365	5%	0.07183	0%	0.000	0.686	0.082	2.98	0.231	0.028	1.14	0.016	0.002	0.07
28	24,636	0.566	0.00088	0%	0	0%	0.000	0%	0	100%	0.566	1.970	0.093	2.47	1.240	0.058	1.63	0.720	0.034	0.96
29	25,739	0.591	0.00092	0%	0	0%	0.000	0%	0	100%	0.591	1.970	0.097	2.58	1.240	0.061	1.71	0.720	0.035	1.00
30	90,025	2.067	0.00323	0%	0	0%	0.000	0%	0	100%	2.067	1.970	0.339	9.03	1.240	0.214	5.97	0.720	0.124	3.49
31	81,636	1.874	0.00293	0%	0	45%	0.843	55%	1.03076	0%	0.000	0.846	0.132	4.67	0.341	0.053	2.18	0.071	0.011	0.51
32	23,372	0.537	0.00084	0%	0	58%	0.311	30%	0.16096	12%	0.064	0.922	0.041	1.38	0.408	0.018	0.66	0.128	0.006	0.19
33	25,847	0.593	0.00093	0%	0	95%	0.564	5%	0.02967	0%	0.000	0.686	0.034	1.23	0.231	0.011	0.47	0.016	0.001	0.03
34	12,809	0.294	0.00046	0%	0	0%	0.000	0%	0	100%	0.294	1.970	0.048	1.29	1.240	0.030	0.85	0.720	0.018	0.50
Total	2,281,687	52.380	0.06029				1.710				4.983		6.998	196.394		4.136	121.516		2.226	64.233
OFFSITE	182,772	4.196	0.00656	100%	4.195868	0%	0.000	0%	0	0%	0.000	0.440	0.154	5.41	0.080	0.028	1.01	0.000	0.000	0.00

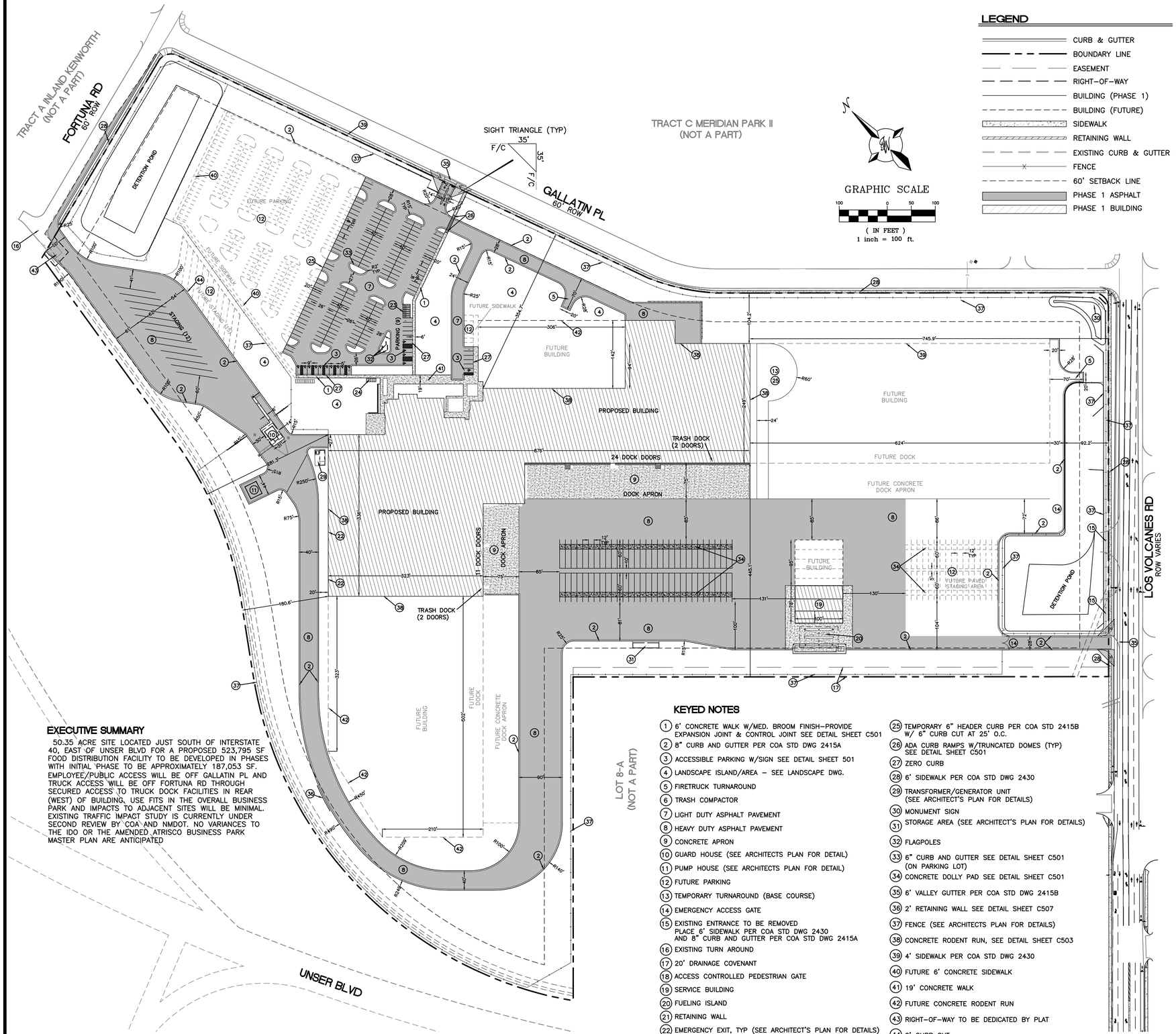
REQUIRED VOLUME	100YR,6HR MAX Q		PROVIDED VOLUME		IMPERV. AREA (D)		10-DAY VOLUME	MAX WSE	TOP OF POND	OVERFLOW WEIR
2.522	71.804	NORTH POND	12.707		13.14		4.132	5132.26	5139	
0.243	3.919	DIRECT DISCHARGE	--		0.06		0.251			
1.992	54.449	WEST POND	3.722		11.12		3.355	5138.24	5140.7	
2.394	61.552	SOUTH POND	6.197		12.32		3.903	5127.21	5130	H=2.5', L=10', CAPACITY=63.25 CFS
0.132	4.670	EAST POND	0.110		0.00		0.132	5121.93	5122	

V 10-DAY=V6HR+AD(P10DAYS-P6HR)/12 IN/FT
P10DAYS = 3.67 IN
P6HR = 2.20 IN
Q weir = 1.6LH3/2

BEK Ultimate Buildout

HYDRAULIC GRADES

Culvert Run No.	FROM	RIM ELEV	TO	RIM ELEV	Length (ft)	CONTRIBUTING BASINS	Q (CFS)	Inv In	Inv Out	Slope	D (in)	DEPTH (IN)	DEPTH (FT)	DIA. (IN)	SLOPE (FT/FT)	Q (CFS)	v
1	D4	42.8	M3	44.3	55	3	3.15	37	36	0.0182	18	18.00	1.50	18	0.01	10.53	5.96
2	M3	44.3	NP		445	3,10,11,12	57.64	29.77	25.32	0.01	36	36.00	3.00	36	0.01	66.88	9.46
2A	M4	42.69	M3	44.3	190	10,11,12	54.49	31.67	29.77	0.01	36	36.00	3.00	36	0.01	66.88	9.46
2B	D5	42.1	M4	42.69	90	10,11,12	54.49	32.57	31.67	0.01	36	36.00	3.00	36	0.01	66.88	9.46
3	D3	42	M2	42	113	8,9	11.91	33.85	33.17	0.006	24	24.00	2.00	24	0.006	17.57	5.59
4	D2	42	M2	42	50	7	1.67	38	33.17	0.0966	12	12.00	1.00	12	0.01	3.57	4.55
5	M2	42	M1	43.33	144	7,8,9	13.58	33.17	31.73	0.01	24	24.00	2.00	24	0.01	22.68	7.22
6	D1	42	M1	43.33	126	34	1.29	38	31.73	0.0498	12	12.00	1.00	12	0.01	3.57	4.55
7	M1	43.33	NP		473	7,8,9,34	14.87	31.73	27	0.01	24	24.00	2.00	24	0.01	22.68	7.22
8	D6	42.1	D5	42.1	280	11,12	10.59	35.37	32.57	0.01	24	24.00	2.00	24	0.01	22.68	7.22
9	D7	42	D6	42.1	263	12	3.94	38	35.37	0.01	18	18.00	1.50	18	0.01	10.53	5.96
15	D8	40.2	WP		268	14 THRU18	45.9	28.29	25.61	0.01	36	36.00	3.00	36	0.01	66.88	9.46
16	D9	40.2	D8	40.2	180	15 THRU 18	37.6	30.09	28.29	0.01	30	30.00	2.50	30	0.01	41.13	8.38
17	D10	39.6	D9	40.2	198	15,17,18	34.28	32.07	30.09	0.01	30	30.00	2.50	30	0.01	41.13	8.38
18	D11	39.4	D10	39.6	143	17,18	26.21	33.5	32.07	0.01	30	30.00	2.50	30	0.01	41.13	8.38
19	D12	39.4	D11	39.4	190	18	9.81	35.4	33.5	0.01	24	24.00	2.00	24	0.01	22.68	7.22
21	D14	39.7	D13	39.4	164	19	5.32	35.7	34.06	0.01	18	18.00	1.50	18	0.01	10.53	5.96
22	D13	39.4	M8	40.62	164	19,20	13.85	34.06	32.42	0.01	24	24.00	2.00	24	0.01	22.68	7.22
23	D15	39.9	M8	40.62	24	21	5.1	35.9	35	0.0375	18	18.00	1.50	18	0.01	10.53	5.96
24	M8	40.62	M9	40.11	233	19 THRU 21	18.95	32.42	30.09	0.01	24	24.00	2.00	24	0.01	22.68	7.22
25	M9	40.11	M10	39.81	233	19 THRU 22	22.1	30.09	27.76	0.01	30	30.00	2.50	30	0.01	41.13	8.38
26	M10	39.81	SP		77	19 THRU 23	24.33	27.76	20	0.1008	30	30.00	2.50	30	0.01	41.13	8.38



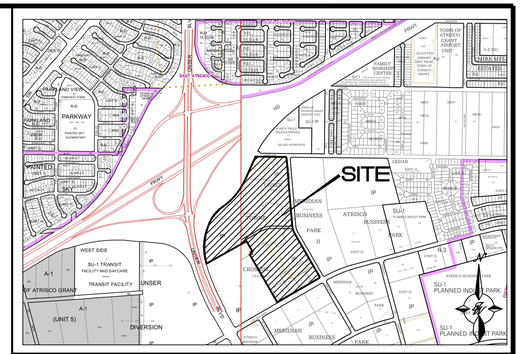
LEGEND

- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- RIGHT-OF-WAY
- BUILDING (PHASE 1)
- BUILDING (FUTURE)
- SIDEWALK
- RETAINING WALL
- EXISTING CURB & GUTTER
- FENCE
- 60' SETBACK LINE
- PHASE 1 ASPHALT
- PHASE 1 BUILDING

GRAPHIC SCALE

100 0 50 100

(IN FEET)
1 inch = 100 ft.



VICINITY MAP J-9-Z,J-10-Z

LEGAL DESCRIPTION: LOT 1-A UNSER TOWNE CROSSING

ADDRESS – 601 GALLATIN PL NW
ALBUQUERQUE, NM 87121

SITE DATA

PROPOSED USAGE	DISTRIBUTION FACILITY	
LOT AREA	2,193,246 SF (50.35 ACRES)	
BUILDING AREA		
OFFICE AREAS	33,365 SF	
SUPPORT AREAS	17,484 SF	
WAREHOUSE AREAS	136,204 SF	
FUTURE BUILDING	325,394 SF	
TOTAL	566,626 SF	

PARKING	
TOTAL PARKING REQUIRED	283 SPACES (1 SPACE PER 2000 SF)
TOTAL BICYCLE PARKING REQUIRED	29 SPACES (10% OF REQUIRED PARKING)
TOTAL MOTORCYCLE PARKING REQUIRED	5 SPACES
PROVIDED	
PHASE 1	
PARKING PROVIDED	185 SPACES
HC PARKING REQUIRED	7 SPACES
HC PARKING PROVIDED	15 SPACES (7 VAN ACCESSIBLE)
MOTORCYCLE PARKING PROVIDED	6 SPACES
BICYCLE SPACES PROVIDED	10 SPACES
FUTURE	
PARKING PROVIDED	216 SPACES
BICYCLE PARKING PROVIDED	20 SPACES

LANDSCAPE REQUIRED: 372,852 SF
LANDSCAPE PROVIDED: 801,716 SF

NOTES

1. SITE FALLS WITHIN THE ATRISCO BUSINESS PARK MASTER PLAN
2. PARKING FIELD GRADES ARE 1% MINIMUM AND 4% MAXIMUM
3. ENTRANCE DRIVES DO NOT EXCEED 6% GRADE
4. ALL IMPROVEMENTS LOCATED IN THE RIGHT-OF-WAY MUST BE INCLUDED ON PUBLIC WORK ORDER
5. FUTURE BUILDING AND PAVEMENT AREAS SHALL BE STABILIZED WITH GRAVEL MULCH AS NOTED ON THE LANDSCAPE PLAN

KEYED NOTES

1. 6' CONCRETE WALK W/MED. BROOM FINISH–PROVIDE EXPANSION JOINT & CONTROL JOINT SEE DETAIL SHEET C501
2. 8" CURB AND GUTTER PER COA STD DWG 2415A
3. ACCESSIBLE PARKING W/SIGN SEE DETAIL SHEET 501
4. LANDSCAPE ISLAND/AREA – SEE LANDSCAPE DWG.
5. FIRETRUCK TURNAROUND
6. TRASH COMPACTOR
7. LIGHT DUTY ASPHALT PAVEMENT
8. HEAVY DUTY ASPHALT PAVEMENT
9. CONCRETE APRON
10. GUARD HOUSE (SEE ARCHITECTS PLAN FOR DETAIL)
11. PUMP HOUSE (SEE ARCHITECTS PLAN FOR DETAIL)
12. FUTURE PARKING
13. TEMPORARY TURNAROUND (BASE COURSE)
14. EMERGENCY ACCESS GATE
15. EXISTING ENTRANCE TO BE REMOVED PLACE 6' SIDEWALK PER COA STD DWG 2430 AND 8" CURB AND GUTTER PER COA STD DWG 2415A
16. EXISTING TURN AROUND
17. 20' DRAINAGE COVENANT
18. ACCESS CONTROLLED PEDESTRIAN GATE
19. SERVICE BUILDING
20. FUELING ISLAND
21. RETAINING WALL
22. EMERGENCY EXIT, TYP (SEE ARCHITECT'S PLAN FOR DETAILS)
23. MOTORCYCLE PARKING W/SIGN SEE DETAIL SHEET C501
24. BICYCLE RACKS SEE DETAIL SHEET C501
25. TEMPORARY 6" HEADER CURB PER COA STD 2415B W/ 6" CURB CUT AT 25' O.C.
26. ADA CURB RAMPS W/TRUNCATED DOMES (TYP) SEE DETAIL SHEET C501
27. ZERO CURB
28. 6' SIDEWALK PER COA STD DWG 2430
29. TRANSFORMER/GENERATOR UNIT (SEE ARCHITECT'S PLAN FOR DETAILS)
30. MONUMENT SIGN
31. STORAGE AREA (SEE ARCHITECT'S PLAN FOR DETAILS)
32. FLAGPOLES
33. 6" CURB AND GUTTER SEE DETAIL SHEET C501 (ON PARKING LOT)
34. CONCRETE DOLLY PAD SEE DETAIL SHEET C501
35. 6' VALLEY GUTTER PER COA STD DWG 2415B
36. 2' RETAINING WALL SEE DETAIL SHEET C507
37. FENCE (SEE ARCHITECTS PLAN FOR DETAILS)
38. CONCRETE RODENT RUN, SEE DETAIL SHEET C503
39. 4' SIDEWALK PER COA STD DWG 2430
40. FUTURE 6' CONCRETE SIDEWALK
41. 19' CONCRETE WALK
42. FUTURE CONCRETE RODENT RUN
43. RIGHT-OF-WAY TO BE DEDICATED BY PLAT
44. 2' CURB CUT

EXECUTIVE SUMMARY

50.35 ACRE SITE LOCATED JUST SOUTH OF INTERSTATE 40, EAST OF UNSER BLVD FOR A PROPOSED 523,795 SF FOOD DISTRIBUTION FACILITY TO BE DEVELOPED IN PHASES WITH INITIAL PHASE TO BE APPROXIMATELY 187,053 SF. EMPLOYEE/PUBLIC ACCESS WILL BE OFF GALLATIN PL AND TRUCK ACCESS WILL BE OFF FORTUNA RD THROUGH SECURED ACCESS TO TRUCK DOCK FACILITIES IN REAR (WEST) OF BUILDING. USE FITS IN THE OVERALL BUSINESS PARK AND IMPACTS TO ADJACENT SITES WILL BE MINIMAL. EXISTING TRAFFIC IMPACT STUDY IS CURRENTLY UNDER SECOND REVIEW BY COA AND NMDOT. NO VARIANCES TO THE IDO OR THE AMENDED ATRISCO BUSINESS PARK MASTER PLAN ARE ANTICIPATED

PROJECT NUMBER: PR-2018-001361
APPLICATION NUMBER: SI-2019-00106

This plan is consistent with the specific Site Development Plan approved by the Environmental Planning Commission (EPC), dated _____, and the Findings and Conditions in the Official Notification of Decision are satisfied.

Is an Infrastructure List required? ( ) Yes ( ) No If Yes, then a set of approved DRC plans with a work order is required for any construction within Public Right-of-Way or for construction of public improvements.

DRB SITE DEVELOPMENT PLAN SIGNOFF APPROVAL:

Traffic Engineer, Transportation Division	Date
Water Utility Development	Date
Parks & Recreation Department	Date
City Engineer	Date
* Environmental Health Department (conditional)	Date
Solid Waste Management	Date
DRB Chairperson, Planning Department	Date

* Environmental Health, if necessary

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ALBUQUERQUE, NM 87121

Revision No.

Job No.
2018014

CAD/CHK'D By:
pm / vc

Date
6-27-19

Sheet Title
SITE PLAN FOR BUILDING PERMIT

Sheet No.
C101

CIVIL