



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 10, 1997

Chris Weiss, P.E.
C.L. Weiss Engineering
P.O. Box 97
Sandia Park, NM 87047

***RE: RIO GRAND ZOO - HAY BARN (K13-D42). GRADING AND DRAINAGE PLAN
FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED
DECEMBER 12, 1997.***

Dear Mr. Weiss:

Based on the information provided on your December 3, 1997 submittal, the above referenced project is approved for Building Permit.

Prior to Certificate of Occupancy approval, and Engineer's Certification will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

Lisa Ann Manwill, P.E.
Hydrology

c: Andrew Garcia
File

DRAINAGE INFORMATION SHEET

D42

PROJECT TITLE: Rio Grande Zoo - Hay Barn ZONE ATLAS / DRNG. FILE #: K-13-Z
LEGAL DESCRIPTION: A Portion of the Rio Grande Zoo
CITY ADDRESS: N/A

ENGINEERING FIRM: C.L. Weiss Engineering CONTACT: Bryan Bobrick

ADDRESS: P.O. Box 97, Sandia Park, NM 87047 PHONE: 266-3444

OWNER: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR FIRM: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

☐ YES

☒ NO

☐ COPY OF CONFERENCE RECAP
SHEET PROVIDED

DRB NO. _____

EPC NO. _____

PROJ. NO. _____

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT

☒ DRAINAGE PLAN

☐ CONCEPTUAL GRADING & DRAINAGE PLAN

☒ GRADING PLAN

☐ EROSION CONTROL PLAN

☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT

☐ PRELIMINARY PLAT

☐ SITE DEVELOPMENT PLAN

☐ FINAL PLAT

☒ BUILDING PERMIT

☐ FOUNDATION PERMIT

☐ CERT. OF OCCUPANCY

☐ ROUGH GRADING PERMIT

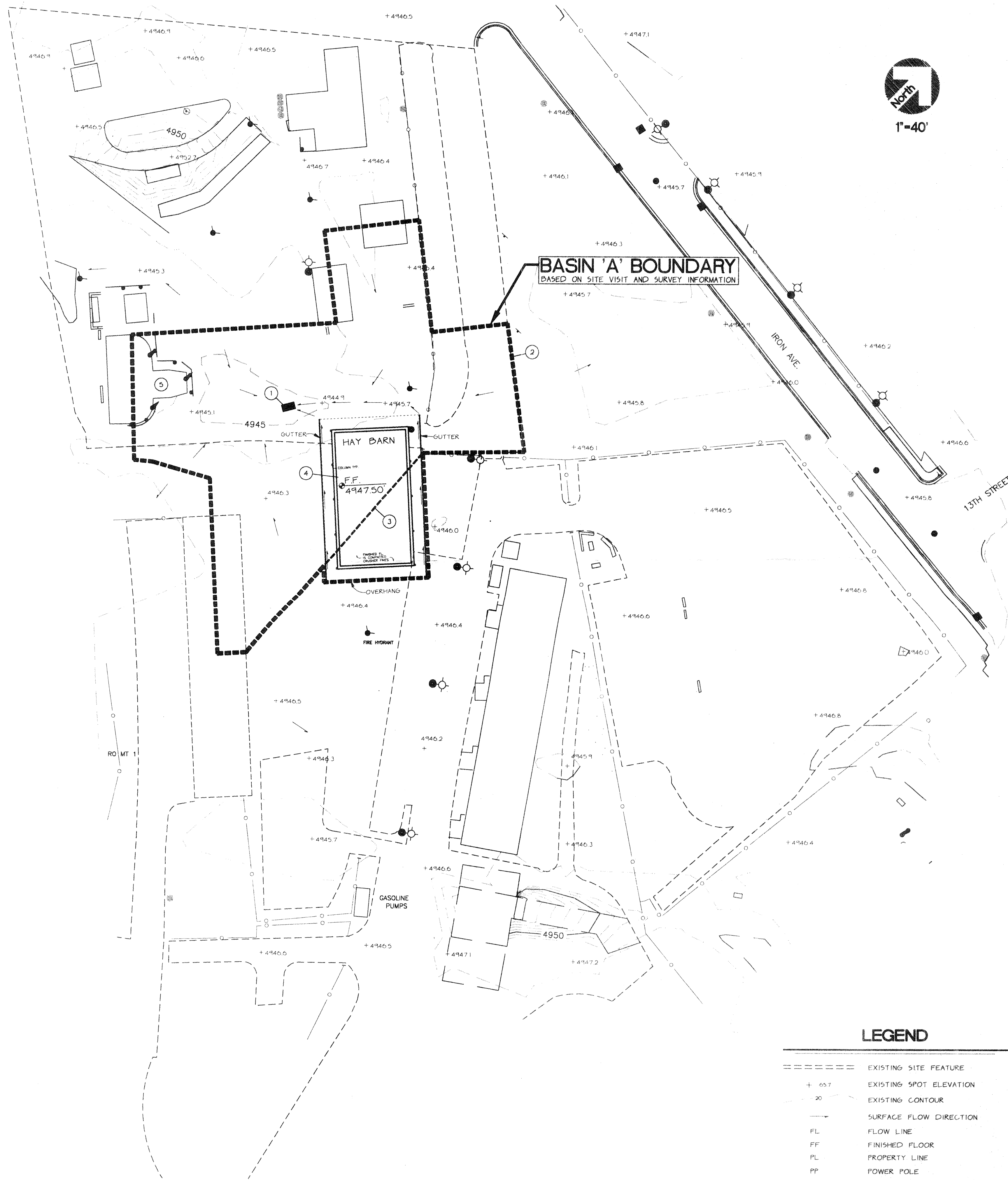
☐ GRADING / PAVING PERMIT

☐ OTHER _____

DATE SUBMITTED: Tuesday, December 02, 1997

BY: C.L. Weiss Engineering, Inc.

R **RECEIVE** **D**
DEC 03 1997
HYDROLOGY SECTION



LEGEND	
=====	EXISTING SITE FEATURE
+ 05.7	EXISTING SPOT ELEVATION
-20-	EXISTING CONTOUR
---	SURFACE FLOW DIRECTION
FL	FLOW LINE
FF	FINISHED FLOOR
PL	PROPERTY LINE
PP	POWER POLE
▲	ENTRY / EXIT LOCATION

SCOPE

The proposed improvements include a 5,500 SF (footprint) Hay Barn.

The present site is an undeveloped portion of the Rio Grande Zoo with existing buildings and asphalt parking areas to remain.

The intent of this plan is to show:

- Grading relationships between the existing ground elevations and proposed finished elevations in order to facilitate positive drainage to designated discharge points.
- The extent of proposed site improvements, including buildings, walks and pavement.
- The flow rate/volume of rainfall runoff across or around these improvements and methods of handling these flows to meet City of Albuquerque requirements for drainage management.
- The relationship of on-site improvements with existing neighboring property to insure an orderly transition between proposed and surrounding grades.

DRAINAGE PLAN CONCEPT: The floor of the barn is to be raised to an elevation of 4947.5' (approximately 1' to 1.5' above existing grades). Other than fine grading around the proposed structure to maintain the flow paths to the existing catch basin (keyed note #1) there will be no additional grading on site. Note: Approximately 40% of the proposed barn lies outside of the existing drainage basin. These flows will be routed into the existing catch basin using the gutters as shown. The calculations show the existing catch basin and 24" RCP have more than adequate capacity to accept this additional flow. This system connects to the existing lift station (keyed note #5).

GENERAL NOTES

LEGAL: A portion of the Rio Grande Zoo, Albuquerque, New Mexico.

SURVEYOR: As-built Survey provided by the Rio Grande Zoo

B.M.: 10-H3 Located at the junction of San Pasquale Ave. and Old Town Rd. in the SE quadrant of the intersection. A 60 Penny nail in electric power line pole #215. Elevation = 4957.175 (M.S.L.D.)

T.B.M.: Top of Double 'D' Catch Basin Grate. Elevation = 4943.8 (M.S.L.D.)

FLOOD HAZARD: Per FEMA Boundary Map #28, the site is located in a 500 year flood zone.

OFF-SITE DRAINAGE: No off-site flows affect this property.

EROSION CONTROL: The contractor is responsible for retaining on-site all sediment generated during construction by means of temporary earth berms or silt fences at the low points on the west property line.

CALCULATIONS:
Calculations are based on the Drainage Design Criteria for Albuquerque, NM, Section 22.2, DPM, Vol 2, dated Jan., 1993

AREA OF SITE (DEFINED AS BASIN A): 42000 SF = 0.96418733 Ac.

ON-SITE

DEVELOPED FLOWS:	HISTORIC FLOWS:	EXCESS PRECIPITATION:
On-Site Land Condition	On-Site Historic Flow Rate	Precip. Zone
Area a = 5700 SF	Area a = 5700 SF	Ea = 0.53
Area b = 0 SF	Area b = 0 SF	Eb = 0.78
Area c = 7580 SF	Area c = 12500 SF	Ec = 1.13
Area d = 32000 SF	Area d = 23800 SF	Ed = 2.12
Total Area = 45280 SF	Total Area = 42000 SF	

[Note: the total developed area is greater than the Historic area due to a portion of the adjacent basin which will now drain to the double inlet.

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)
Weighted E = $EaAa + EbAb + EcAc + EdAd$
 $Aa + Ab + Ac + Ad$

Proposed E = 1.75 in. Historic E = 1.61 in.

On-Site Volume of Runoff: V360 = $E \cdot A$

Proposed V360 = 6619 CF Historic V360 = 5634 CF

On-Site Peak Discharge Rate: $Qp = QpaAa + QpbAb + QpcAc + QpdAd / 43.560$

For Precipitation Zone 2
 $Qpa = 1.56$ $Qpb = 0$ $Qpc = 3.14$
 $Qpb = 2.28$ $Qpd = 4.70$
 Proposed $Qp = 4.2$ CFS Historic $Qp = 3.7$ CFS

An increase of 0.5 CFS

STORM DRAIN INLET CAPACITY (EXISTING)

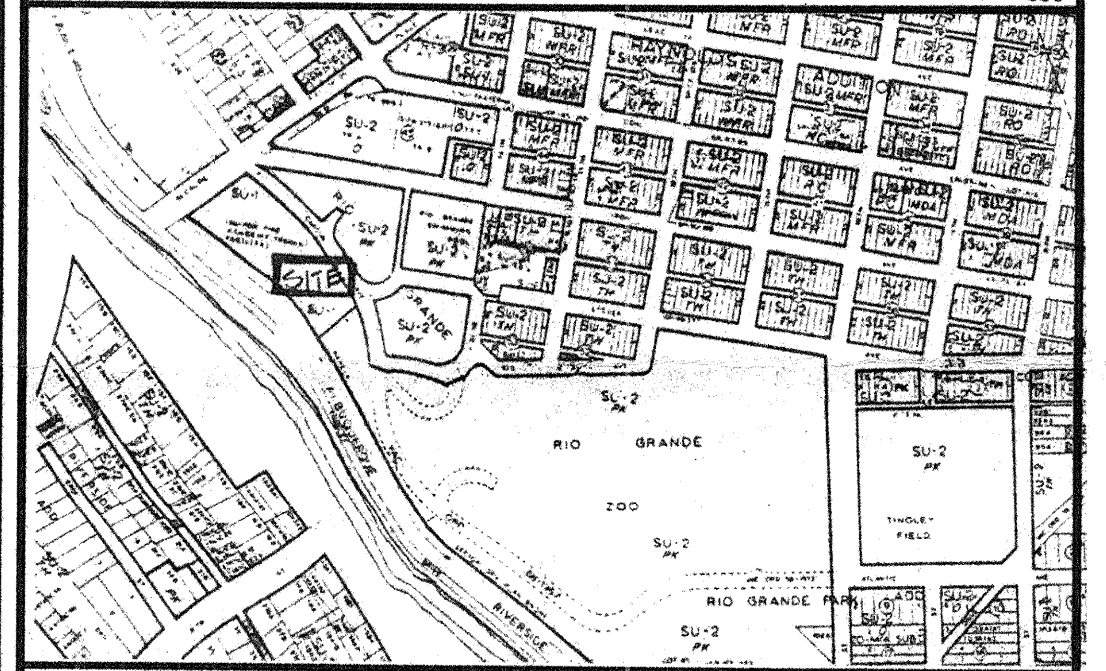
From City of Albuquerque As-Built Information entitled: Alcalde Storm Water Pumping Station and Collection System and from site visits, the Double "D" Catch Basin has the following characteristics.

Where C =	0.6
A =	8.6
g =	32.2
h =	2
Q (capacity) =	58.6 cfs
Q (less 20%) =	46.8 cfs
Q (required) =	4.2 cfs
20% reduction factor for debris:	OK
24" RCP from Catch Basin to existing 66" R.C.P. can carry approx. 13 cfs	OK

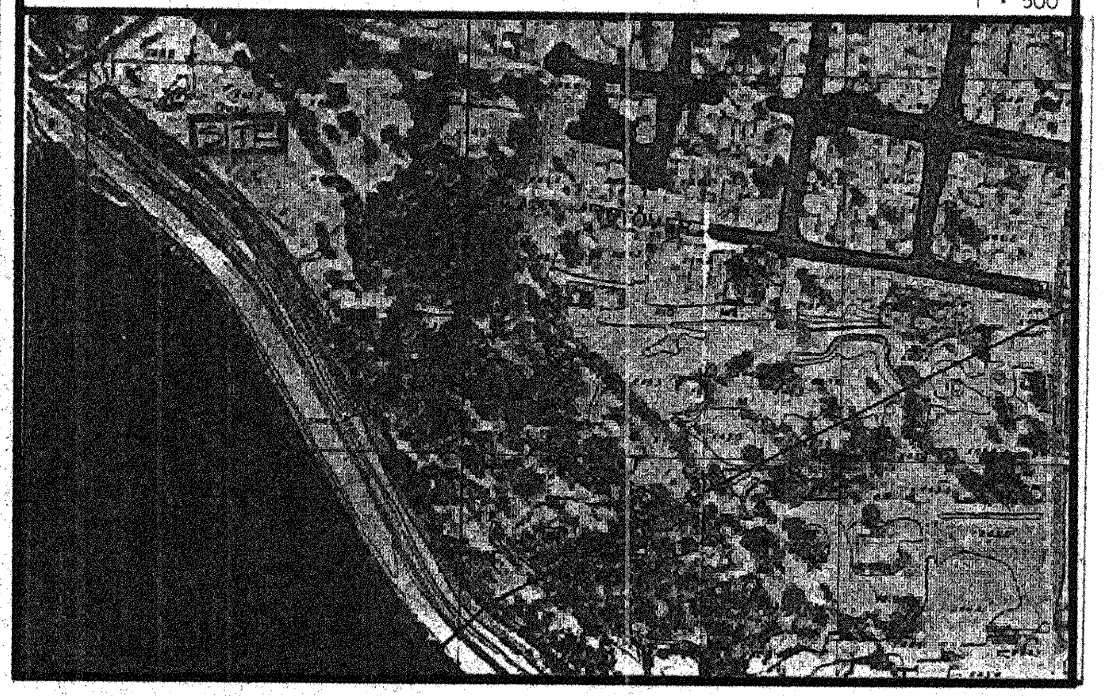
KEYNOTES

- EXISTING STORM DRAIN DOUBLE 'D' CATCH BASIN. RIM ELEV. = 4944.00. 24" RCP. INV. ELEV. = 4937.71.
- BOUNDARY OF BASIN 'A' DRAINING TO EXISTING CATCH BASIN (SEE KEYED NOTE #1)
- ORIGINAL BASIN 'A' BOUNDARY HAS BEEN MODIFIED TO INCLUDE ENTIRE PROPOSED HAY BARN
- PROPOSED BARN ADDITION ROOF FLOWS DRAIN TO GUTTERS ON THE LONG SIDES OF BARN AND ARE RELEASED AT THE NORTHERN TWO CORNERS OF THE BUILDING OVERHANG AS SHOWN.
- EXISTING LIFT STATION

VICINITY MAP # k-13



F.I.R.M. MAP # 333



C.L. WEISS ENGINEERING, INC.

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Revisions

THIS DESIGN, CALCULATIONS AND CONCEPTS ARE OWNED BY AND REMAIN THE PROPERTY OF C.L. WEISS ENGINEERING, INC. AND NO PART THEREOF SHALL BE UTILIZED BY ANY PERSON, FIRM OR CORPORATION FOR ANY PURPOSE WHATSOEVER EXCEPT WITH THE WRITTEN PERMISSION OF CHRISTOPHER L. WEISS, P.E.

RIO GRANDE ZOO

BARN ADDITION

RECEIVED

DEC 03 1997

HYDROLOGY SECTION

Scale: 1" = 40'

Drawn By: BJB

Checked By: CLW

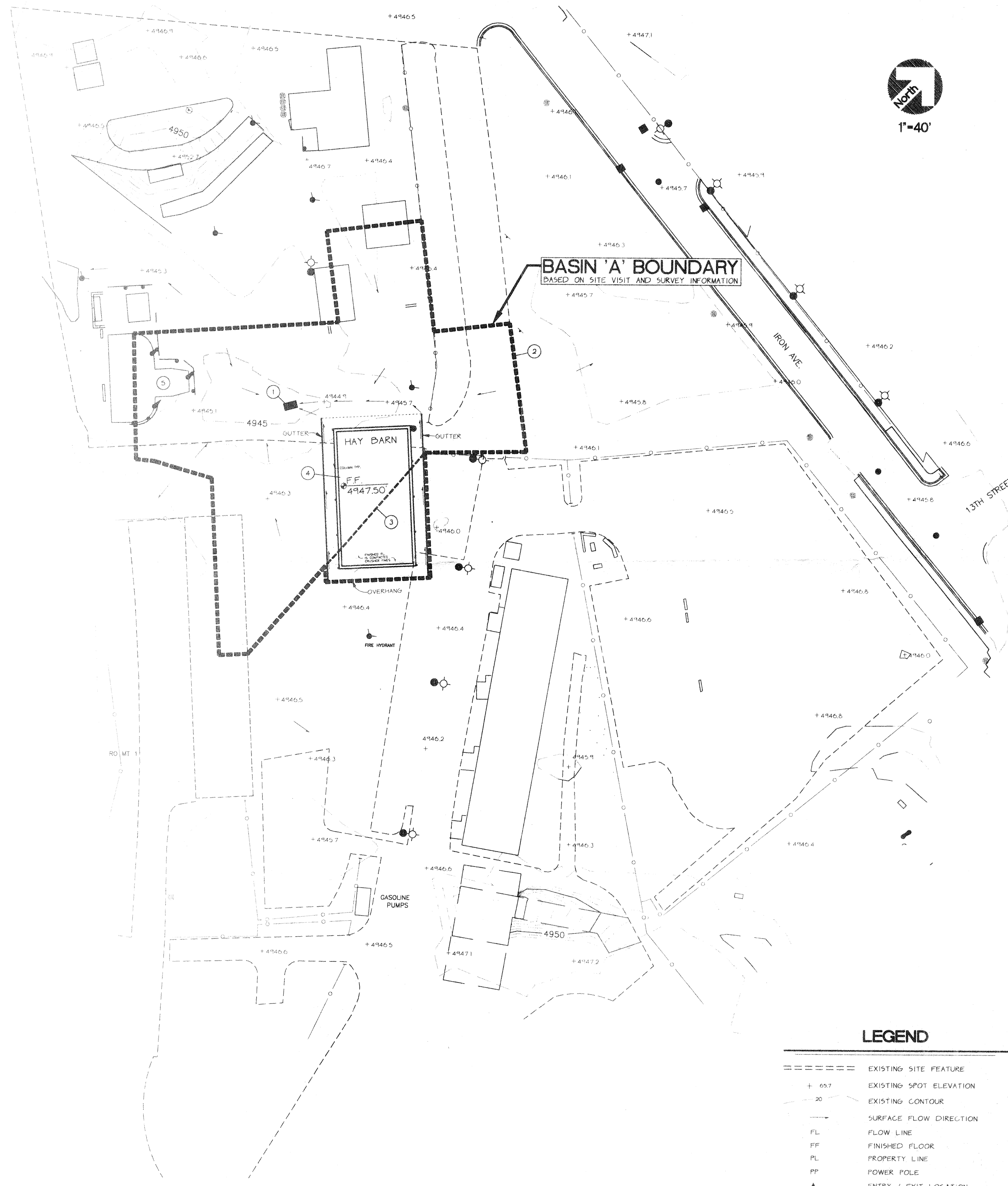
Job Number:

Date: DEC. 1997

Drainage and Grading Plan

C-1

SH. 1 OF 1



LEGEND	
=====	EXISTING SITE FEATURE
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- - - - -	EXISTING CONTOUR
----->	SURFACE FLOW DIRECTION
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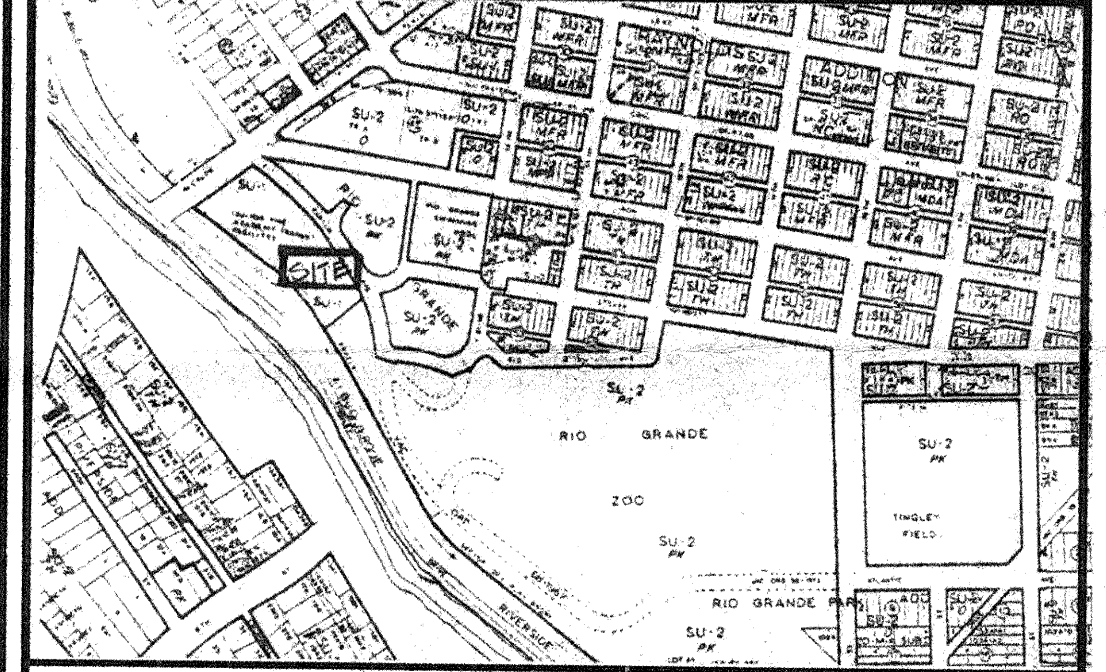
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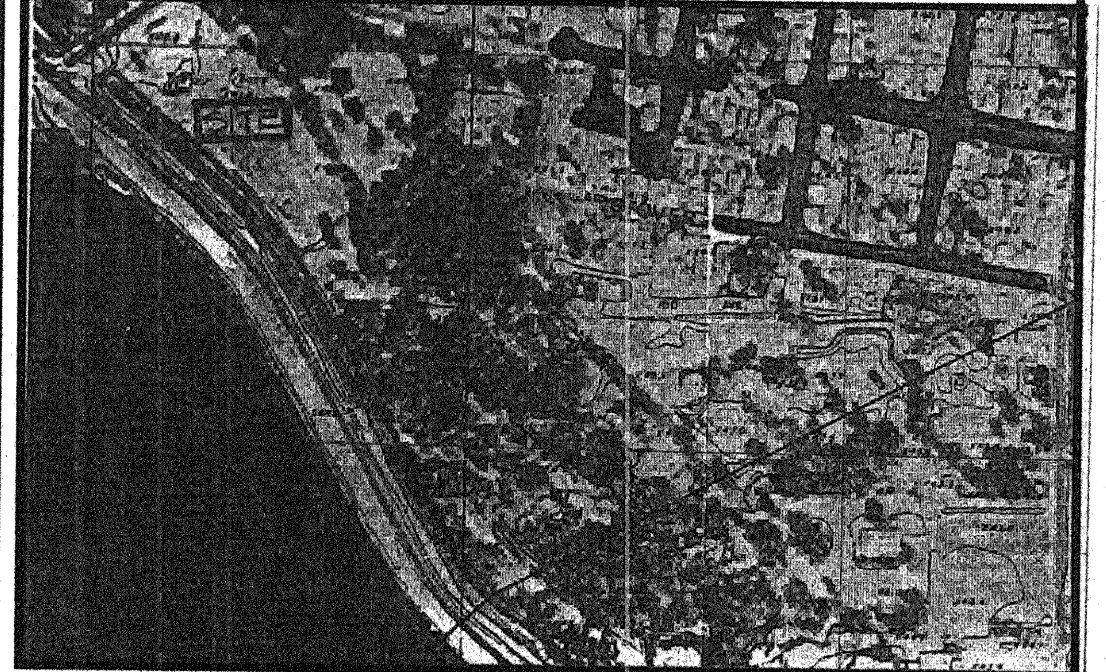
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VICINITY MAP # K-13



F.I.R.M. MAP # 333



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RIO GRANDE ZOO RECEIVE
BARN ADDITION
DEC 03 1997

Scale: 1" = 40' Drawn By: BJB Checked By: CLW Job Number: HYDROLOGY SECTION DEC. 1997

Drainage and Grading Plan

C-1
SH. 1 OF 1