City of Albuquerque

March 14, 2000

Larry D. Read, PE
Larry Read & Associates
12836-B Lomas NE
Albuquerque, NM 87112

Re: Philips Semiconductor – Temporary Structures Drainage Report
Engineer's Stamp dated 3-5-00, (B18/D1)

Dear Mr. Read,

Based upon the information provided in your submittal dated 3-9-00, the above referenced site is approved for Foundation Permit.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

If I can be of further assistance, please contact me at 924-3986

Sincerely,

Bradley L. Bingham

Bradley L. Bingham, PE
Hydrology Review Engineer

C: file

DRAINAGE INFORMATION SHEET

PROJECT TITLE: PHILIPS SEMCONDUCTOR- TEMPORARY STRUCTURES ZONE ATLAS/DRNG. FILE: B-18-D001

LEGAL DESCRIPTION: SIGNETICS ABQ FACILITY, SP-80-399, T11N, R3E, SEC 12

CITY ADDRESS: 9201 PAN AMERICAN FRWY NE

ENGINEERING FIRM: LARRY READ & ASSOCIATES CONTACT: LARRY READ

ADDRESS: 12836-B LOMAS BLVD. NE 87112 PHONE: 237-8421

OWNER: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

PREDESIGN MEETING:

_____ YES
__X__ NO

_____ COPY OF CONFERENCE RECAP SHEET

PROVIDED

DRB NO. _____
EPC NO. _____

PROJECT NO. _____

TYPE OF TRANSMITTAL:

__X__ DRAINAGE REPORT

_____ DRAINAGE PLAN

_____ PRELIMINARY GRADING AND DRAINAGE

__X__ GRADING PLAN

_____ EROSION CONTROL PLAN

_____ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

_____ SKETCH PLAT APPROVAL

_____ PRELIMINARY PLAT APPROVAL

_____ SITE DEVELOPMENT PLAN APPROVAL

_____ FINAL PLAT APPROVAL

_____ BUILDING PERMIT APPROVAL

__X__ FOUNDATION PERMIT APPROVAL

_____ CERTIFICATE OF OCCUPANCY APPROVAL

_____ ROUGH GRADING PERMIT APPROVAL

_____ GRADING/PAVING PERMIT APPROVAL

_____ OTHER _____ (SPECIFY)

RECEIVED
MAR 09 2000
HYDROLOGY SECTION

DATE SUBMITTED: MARCH 9, 2000

BY: LARRY READ

DRAINAGE REPORT

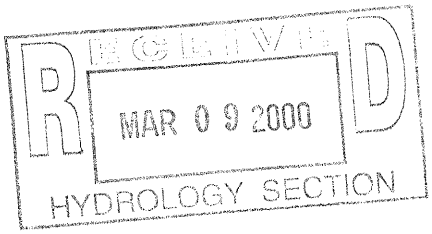
for

PHILIPS SEMICONDUCTORS

ALBUQUERQUE, NEW MEXICO

February 21, 2000

Prepared by
Larry D. Read, P.E.
12836-B Lomas Blvd., N.E.
Albuquerque, New Mexico 87112
(505) 237-8421



DRAINAGE REPORT

for

PHILIPS SEMICONDUCTORS

ALBUQUERQUE, NEW MEXICO

February 21, 2000

LOCATION & DESCRIPTION

The proposed site is approximately 3 acres within the existing Philips Semiconductor located approximately between San Mateo Boulevard and I-25 on the north side of Modesto Avenue, as shown on the Vicinity Map on **Exhibit 1**. The proposed construction will include a temporary tent structure and three (3) modular office buildings. The modular office buildings will be constructed adjacent to two (2) existing ones. These facilities will be temporary and will be removed after the site expansion is completed in approximately two (2) years. At which time the site will be returned to nearly the same conditions as currently exist.

RELATED REPORTS

Holmes & Narver has already prepared an overall facilities drainage map, see **Exhibit 2,** for the entire property. These improvements are contained entirely within Basin Number 11, as designated within the Holmes and Narver Report, which drains to the concrete lined South La Cueva Channel. The construction of these facilities does not alter the conveyance within this basin.

FLOODPLAIN STATUS

This project, as shown on FEMA's Flood Insurance Rate Map 35001C0129 D, dated September 20, 1996, is not within any designated 100-year floodplain. However, other areas of this property are within a designated floodplain. **Page 3** is a copy of this flood insurance map with the project area delineated.

METHODOLOGY

The hydrology for this project was analyzed using the Quick Calculations Method as defined within the June 1997 release of the City of Albuquerque Development Process Manual, Section 22.2.

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 City of Albuquerque Development Process Manual, Section 22.2. Tables within this section were used to establish the 6-hour precipitation, excess precipitation, and peak discharge.

EXISTING DRAINAGE

Holmes and Narver prepared a Master Drainage Report for this site, see **Exhibit 2** and **Table 1**. The area of this development is within the Holmes and Narver Drainage Basin 11which drains to the South La Cueva Channel via a concrete rundown. The discharge from this basin is 34.26 cfs under current conditions. Therefore, the existing rundown will contain the frequent low flow conditions. However, larger frequency storms, including the 100-year storm event will exceed the capacity of the rundown and flow over-land to the South La Cueva Arroyo. There are no structures within the runoff path to be harmed by this flow and field observation confirms that the rundown is sufficient to handle the typical storm since no erosion is evident in the field.

Resource Technology, Inc. has studied the South La Cueva Arroyo east of I-25 and confirmed potential avulsions upstream of this site. Without the avulsions, the arroyo discharges approximately 189 cfs past this site in the 100-year event. If the avulsions are included, the flow in the South La Cueva Channel increases to approximately 693 cfs. Even with the 693 cfs flow rate, the two foot (2') deep concrete channel plus three foot (3') earthen channel freeboard has sufficient capacity to convey this flow without jeopardizing the adjacent property, see **Channel Capacity Calculation** at the end of this report.

PROPOSED DEVELOPED CONDITION

The proposed development will increase the runoff from Basin 11 from 34.26 cfs to 39.84 cfs. This 5.58 cfs increase is due to the temporary structures and will only be in existence for approximately two (2) years. This increase is less than three (3) percent of the 189 cfs in the South LA Cueva Channel and is only 0.8% of the flow if the avulsions occur. This is an insignificant increase since this is only for a two (2) year period.

After these temporary structures are removed, the site can be returned to near existing conditions. Although the impervious area will be eliminated, the site will be compacted and therefore have a higher runoff coefficient than currently exists for the site. Therefore, **Table 1** also includes future conditions with the Land Treatment B are replaced with Land Treatment C. This results in a net increase of only 0.72 cfs. Since there is negligible impact on the South La Cueva Channel and these are only temporary structures, a building permit approval is being requested without any further analysis.

TABLE 1

100-YEAR HYDROLOGIC CALCULATIONS

BASIN #	AREA (acre)	LAND TREATMENT A (%)	B (%)	C (%)	D (%)	WEIGHTED E (in)	V (6-hr) (acre-ft)	V (6-hr) (cu-ft)	V(10 day) (acre-ft)	V(10 day) (cu-ft)	Q (cfs)
EXISTING CONDITIONS											
11	8.4620	0.00	10.13	46.28	43.59	1.72	1.21	52,801	1.92	83,597	34.26
PROPOSED CONDITIONS											
11	8.4620	0.00	0.00	19.89	80.11	2.15	1.51	65,955	2.81	122,552	39.84
FUTURE CONDITIONS											
11	8.4620	0.00	0.00	56.41	43.59	1.76	1.24	53,952	1.95	84,748	34.98

EXCESS PRECIP.	0.66	0.92	1.29	2.36	E_i (in)
PEAK DISCHARGE	1.87	2.6	3.45	5.02	Q_{Pi} (cfs)

WEIGHTED E (in) = $(E_A)(\%A) + (E_B)(\%B) + (E_C)(\%C) + (E_D)(\%D)$

$V_{6\text{-HR}}$ (acre-ft) = (WEIGHTED E)(AREA)/12

V_{10DAY} (acre-ft) = $V_{6\text{-HR}} + (A_D)(P_{10DAY} - P_{6\text{-HR}})/12$

Q (cfs) = $(Q_{PA})(A_A) + (Q_{PB})(A_B) + (Q_{PC})(A_C) + (Q_{PD})(A_D)$

ZONE = 3

$P_{6\text{-HR}}$ (in.) = 2.60

$P_{24\text{-HR}}$ (in.) = 3.10

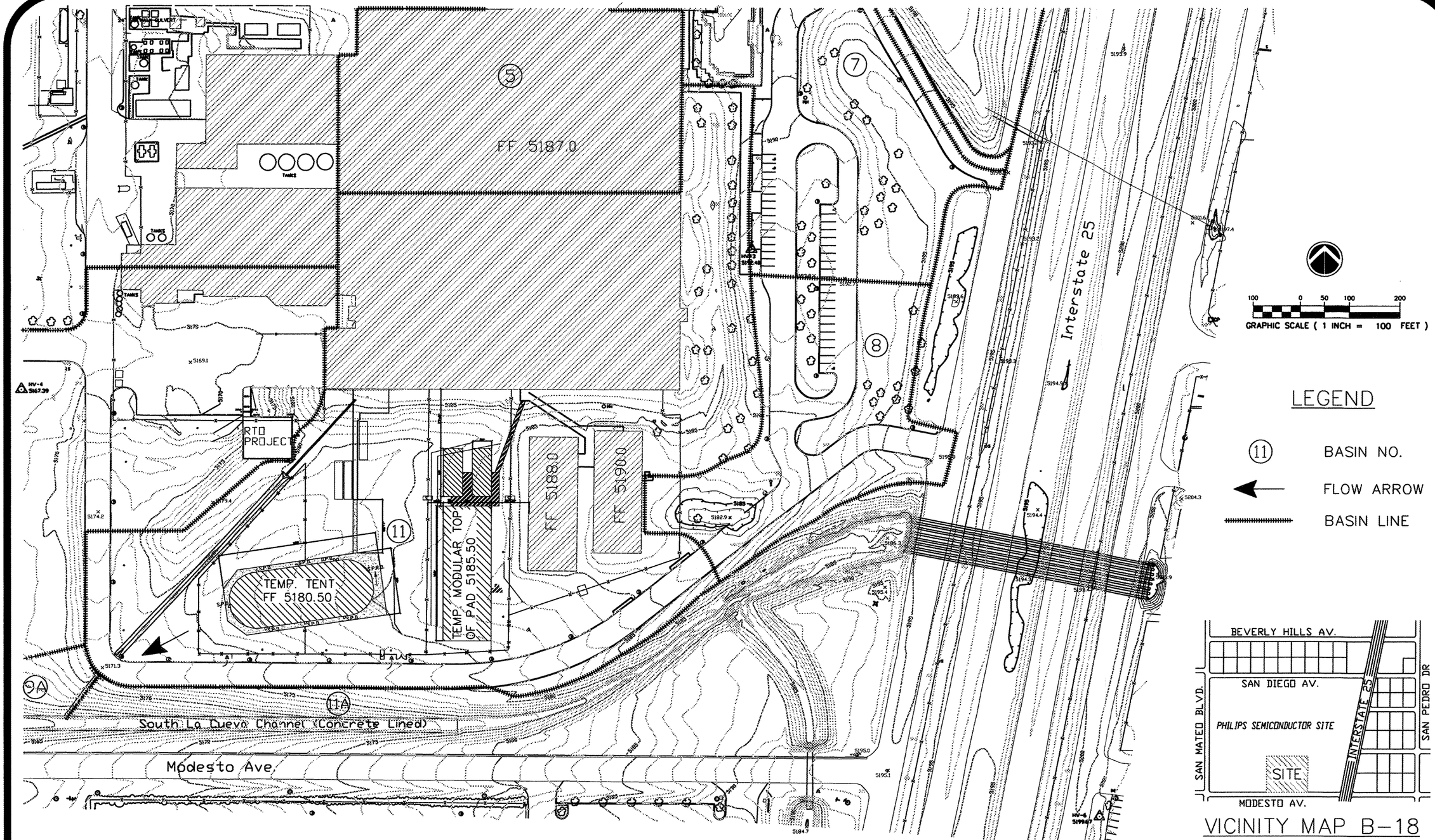
P_{10DAY} (in.) = 4.90

CHANNEL CAPACITY CALCULATIONS
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\philips.fm2
Worksheet	SOUTH LA CUEVE ARROYO
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Discharge

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.017000	ft/ft
Depth	2.00	ft
Left Side Slope	5.000000	H : V ≥ 2.5
Right Side Slope	5.000000	H : V
Bottom Width	9.50	ft

Results		
Discharge	693.92	cfs
Flow Area	39.00	ft^2
Wetted Perimeter	29.90	ft
Top Width	29.50	ft
Critical Depth	3.31	ft
Critical Slope	0.001988	ft/ft
Velocity	17.79	ft/s
Velocity Head	4.92	ft
Specific Energy	6.92	ft
Froude Number	2.73	
Flow is supercritical.		

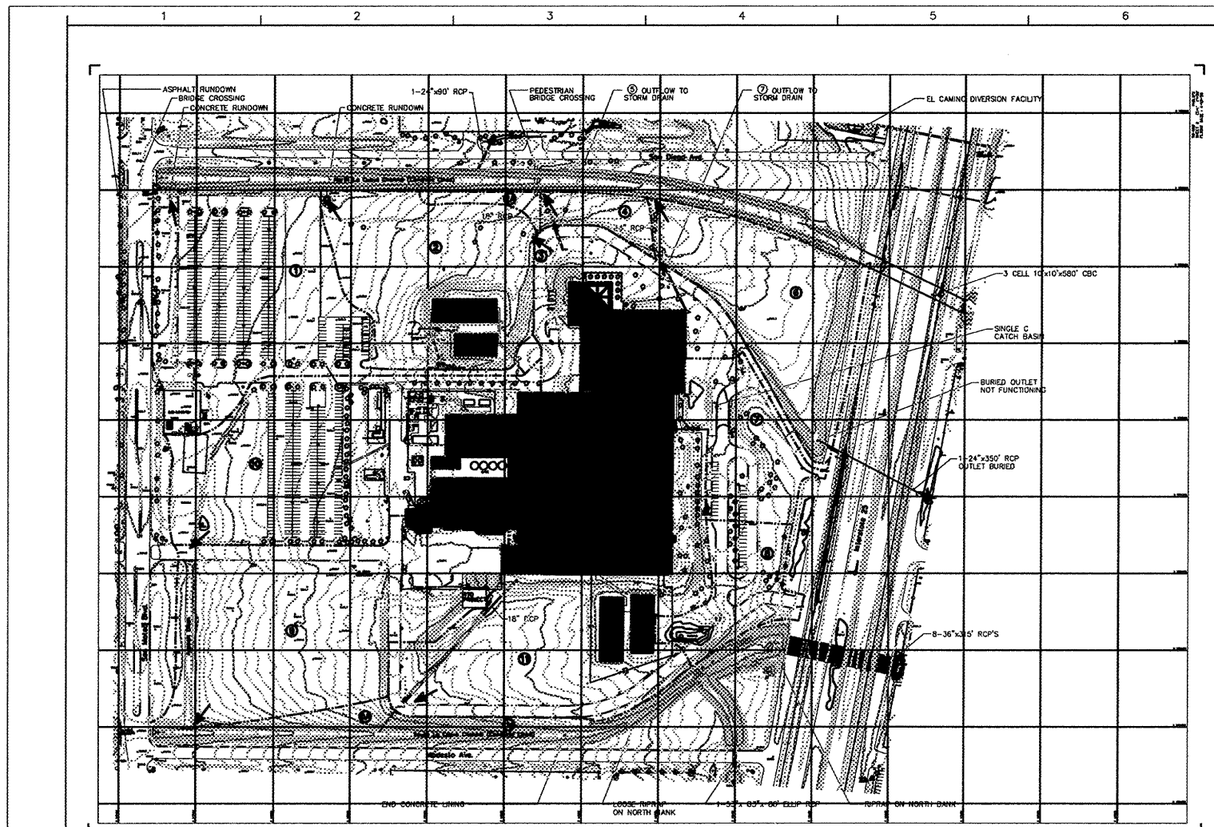


VICINITY MAP B-18

02/21/00
EXHIBIT1.DWG

DRAINAGE BASIN MAP FOR PHILIPS SEMICONDUCTORS

EXHIBIT 1



CIVIL GRADING AND DRAINAGE PLAN
1" = 100'-0"

EXISTING DRAINAGE CONDITIONS				EXISTING DRAINAGE CONDITIONS			
ZONE 3	TREATMENT	VOL 360	Q 100	ZONE 3	TREATMENT	VOL 360	Q 100
DRAINAGE AREA 1	1.286 Acres C 4.862 Acres D	1.61	28.84	7	1.281 Acres B 1.647 Acres D	0.42	12.69
DRAINAGE AREA 2	4.521 Acres C 0.653 Acres D	0.61	18.88	8	0.751 Acres B 0.313 Acres C 0.665 Acres D	0.22	6.37
2A	0.303 Acres C	0.03	1.04	9	3.498 Acres C 1.989 Acres D	0.98	28.95
3	0.765 Acres B 0.516 Acres C 1.407 Acres D	0.39	10.83	9A	0.520 Acres D	0.10	2.61
4	0.676 Acres C	0.07	2.33	10	1.950 Acres C 5.940 Acres D	1.38	36.55
5	3.181 Acres D	0.63	15.97	11	0.857 Acres B 3.916 Acres C 3.689 Acres D	1.21	34.26
6	3.989 Acres C 0.243 Acres D	0.48	14.98	11a	0.683 Acres C	0.07	2.36
					52.101 Acres		

DEVELOPED DRAINAGE CONDITIONS			
	TREATMENT	VOL 360	Q 100
9	5.418 Acres C 2.069 Acres D	0.99	29.08
TOTAL	7.487 Acres		

EROSION CONTROL PLAN

CONTRACTOR IS RESPONSIBLE FOR THE ABATEMENT OF SEDIMENT ONTO ADJOINING PUBLIC RIGHT-OF-WAY, PUBLIC AND/OR PRIVATE LAND DURING CONSTRUCTION AND FOR THE REMOVAL OF ANY SEDIMENT DEPOSITED ON ANY ADJOINING AREAS.

CONTRACTOR IS ALSO RESPONSIBLE FOR OBTAINING A "TOP SOIL DISTURBANCE PERMIT", PROTECTING ADJACENT PROPERTY FROM SEDIMENT (SEE ABOVE NOTE) AND REPAIRING ANY DAMAGE PROMPTLY.

EXISTING SITE CONDITIONS

THE EXISTING SITE IS APPROXIMATELY 70% DEVELOPED WITH EXISTING PLANT FACILITIES. THE NORTHERN PORTION OF THE SITE DRAINS TO THE NORTH LA CUEVA CHANNEL THROUGH A NUMBER OF RUNDOWNS. THE SOUTHERN PORTION OF THE SITE DRAINS TO THE SOUTH LA CUEVA CHANNEL THROUGH AN ASPHALT LINED CHANNEL AND A CONCRETE LINED CHANNEL.

PROPOSED SITE DRAINAGE PATTERN

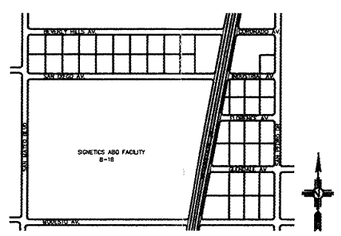
THE PROPOSED SITE DRAINAGE PATTERN FOLLOWS THE EXISTING PATTERN WITH ONE EXCEPTION. THE DEVELOPED FLOW FOR DRAINAGE AREA 9 HAS BEEN INCREASED FROM Q100=28.95 CFS TO Q100=29.08 CFS.

LEGAL DESCRIPTION

SIGNETICS ASG FACILITY, SP-80-399
T11N, R3E, SEC. 12

LEGEND

- DRAINAGE BOUNDARY
- ⑨ DRAINAGE BOUNDARY NUMBER
- DRAINAGE BASIN OUTFALL
- 30 STORM DRAIN
- MH MANHOLE
- DI INLET
- BUILDING
- 513 CONTOUR
- FF FINISHED FLOOR
- FENCE
- 9999 SPOT ELEVATION



VICINITY MAP B-18

Holmes & Narver

REV.	BY	DESCRIPTION	DATE

DRAWN BY	KAL	11/20/00	PROJECT MANAGER
ENGINEER	CLL	5/23/00	RTO
APPROVED BY			
ENGINEER			
ENGINEER			
V.C.P.			
REQUESTOR			
OTHER			
PRELIMINARY			
CONSTRUCTION			
AS-BUILT			

PHILIPS

Philips Semiconductors
5005 East Anderson Frwy, N.E.
Albuquerque, NM 87113

TITLE: CIVIL GRADING AND DRAINAGE PLAN

PLANT SERVICES DEPARTMENT
REF. NO. C80X701

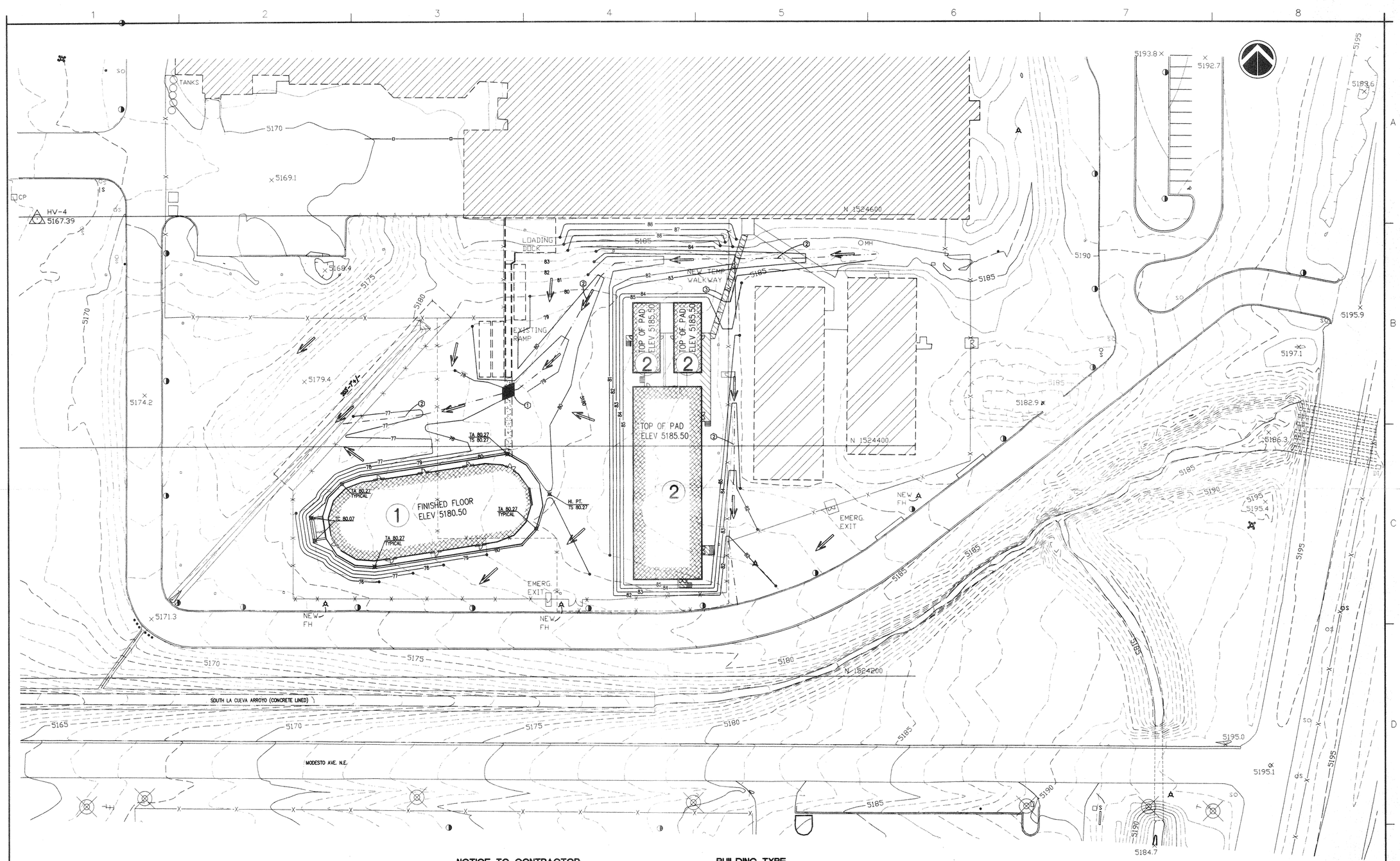
DRAWING NUMBER: C2
SCALE: 1"=100'
SHT. 3 OF 17

ARCH/ENG STAMP

02/21/00
EXHIBIT2.DWG

PREVIOUS DRAINAGE STUDY FOR PHILIPS SEMICONDUCTORS

EXHIBIT 2



LEGEND

- 74 — EXISTING CONTOUR
- 82 — PROPOSED CONTOUR
- LEASE BOUNDARY
- PROPOSED TEMP BUILDING
- EXISTING TEMP BUILDING
- FLOW DIRECTION
- (2) BUILDING TYPE

KEYED NOTES

1. INSTALL 8 – 8" DIA PVC PIPES. INLET ELEV 78.17. OUTLET ELEV 78.00.
2. CONSTRUCT EARTHEN SWALE. GRADE TO DRAIN.
3. RAISED WALKWAY AND DECK. TYPICAL TYPE 2 BUILDINGS. SEE ARCHITECTURAL PLANS.

NOTICE TO CONTRACTOR

1. PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE STATEWIDE LINE LOCATING SERVICE FOR LOCATION OF EXISTING UTILITIES PRIOR TO ANY EXCAVATION.
2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS. ANY DAMAGE TO UTILITIES BY THE CONSTRUCTION EFFORTS SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE.
3. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING EROSION CONTROL BERMS, SILT FENCES, SEDIMENT DAMS OR PONDS IN ORDER TO PREVENT SOIL FROM ERODING FROM THE SITE INTO ADJACENT LANDS. DISTURBED SOIL SHALL BE WATERED AND/OR COVERED TO PREVENT IT FROM BLOWING
4. ALL EXISTING AND PROPOSED WATER VALVES AND MANHOLES WITHIN THE CONSTRUCTION AREA SHALL BE ADJUSTED TO FINISHED GRADE. IF WITHIN A PAVED AREA, ADJUSTMENT SHALL BE MADE BEFORE PAVEMENT IS INSTALLED.
5. WHEN REMOVAL OF EXISTING CONCRETE SIDEWALKS OR CURB AND GUTTER IS CALLED OUT, REMOVE FROM EXISTING CONSTRUCTION JOINTS ONLY. SAWING OR BREAKING WILL NOT BE ALLOWED.

BUILDING TYPE

1. BUILDING TYPE 1 – TENT STRUCTURE ON ASPHALT PAD. SEE ARCHITECTURAL PLANS FOR DETAILS.
2. BUILDING TYPE 2 – PORTABLE BUILDING. FINISHED FLOOR ASSUMED 32" ABOVE TOP OF PAD ELEVATION SHOWN. SEE ARCHITECTURAL PLANS FOR DETAILS.

BA
9016 Washington St. NE
Albuquerque, NM 87113
Phone: (505) 858-0180
Fax: (505) 858-0111
Email: bdoarc@aol.com

REV.	BY	DESCRIPTION	DATE

REGISTERED LAWRENCE D. BRANCH NEW MEXICO 3.5.2000
ARCH/ENG STAMP

DRAWN BY	LDR	03.03.2000
ENGINEER	LDR	03.03.2000
APPROVED BY		
ENGINEER		
ENGINEER		
P/E/P		
REQUESTOR		
OTHER		
PRELIMINARY		
CONSTRUCTION		
AS-BUILT		

PROJECT NAME: PHILIPS FAB 25

PHILIPS

TITLE: TEMPORARY MEMBRANE STG. & MODULAR BUILDINGS GRADING – TEMP BLDGS

Philips Semiconductors
9201 Pan American Frwy., N.E.
Albuquerque, NM 87113

PLANT SERVICES DEPARTMENT

REF. No. TEMPGRADES.DWG

DRAWING NUMBER: C-100

SCALE: 1"=30'-0" SHT. 2 OF 9