

DRAINAGE PLAN

The following items concerning the Armstrong Electric Company Drainage Plan are contained herein:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, the site is located on the west side of Princeton Avenue N.E. between Menaul Boulevard N.E. and Candelaria Road N.E. At present, the site is developed commercially. Surrounding properties are also developed commercially making this a modification to an existing site within an infill area.

As shown by Panel 351 of 825 of the National Flood Insurance Program Flood Insurance Rate Maps published by F.E.M.A. for the County of Bernalillo, New Mexico, and Incorporated Areas, dated September 20, 1998, this site does not lie within a designated flood hazard zone. Furthermore, flooding is not identified immediately downstream or adjacent to the site. At present, the majority of the site drains from east to west onto the existing private property which lies to the west of the site. Only a small portion of the site currently drains to Princeton Avenue N.E.

The Grading Plan shows: 1) existing grades indicated by spot elevations and contours at 1'0" intervals, 2) proposed grades indicated by spot elevations, 3) the limit and character of the existing improvements, 4) the limit and character of the proposed improvements, 5) the limit and character of future improvements and 6) the continuity between existing and proposed grades. As shown by this Plan, the proposed improvements consist of the construction of a detached warehouse building at the northeast corner of the site. Roof runoff from the new building will be drained to the east and discharged onto built-up asphalt paving. From this point, the runoff will discharge to Princeton Drive N.E. via an existing driveway. The site is currently characterized by two drainage basins, Basin A, as stated above, drains onto private property which lies to the west of the site. Basin B discharges to Princeton Drive N.E. The proposed construction will reduce the size of Basin A while increasing the size of Basin B. This will reduce the amount of runoff discharging onto the existing private property while slightly increasing the amount of runoff discharging to Princeton Drive N.E. Offsite flows do not enter the site from the north or south due to the fact that those sites are topographically lower. Similarly, the site to the west is also topographically lower and does not contribute offsite flows. Princeton Drive N.E. is a fully improved public street which does not contribute runoff to the site.

The Calculations which appear hereon analyze both the existing, developed and future conditions for the 100-year, 6-hour rainfall event. The Procedure for 40-acre and Smaller Basins, as set forth in the Revision of Section 22.2, Hydrology of the Development Process Manual, Volume 2, Design Criteria, dated January, 1993, has been used to quantify the peak rate of discharge and volume of runoff generated. The future condition is analyzed to demonstrate that as the site continues to "build-out", the runoff generated by Basin A will be effectively reduced, therefore improving the existing condition of discharge onto the adjacent private property. The roof runoff by the future additions will similarly be guttered to the east and discharged to Princeton Avenue N.E. As shown by these calculations, development consistent with this plan will reduce the amount of runoff generated by Basin A while effecting a modest increase in runoff from Basin B. Overall, this represents an improvement to existing conditions.

CALCULATIONS

Site Characteristics

1. Precipitation Zone = 2
2. $P_{6,100} = P_{360} = 2.35$ in.
3. Total Area (A_T) = 0.85 ac
4. Existing Land Treatment

Basin "A"	Treatment	Area (sf/ac)	%
B		2,400/0.06	7.8
C		8,580/0.19	24.3
D		23,090/0.53	67.9

Basin "B"	Treatment	Area (sf/ac)	%
B		2,709/0.06	85.7
D		120/0.01	14.2

5. Developed Land Treatment

Basin "A"	Treatment	Area (sf/ac)	%
B		2,400/0.06	8.6
C		5,320/0.12	17.1
D		22,500/0.52	74.3

Basin "B"	Treatment	Area (sf/ac)	%
B		2,570/0.06	37.5
D		4,465/0.10	62.5

6. Future Land Treatment

Basin "A"	Treatment	Area (sf/ac)	%
B		2,400/0.06	10.7
D		21,950/0.50	89.3

Basin "B"	Treatment	Area (sf/ac)	%
B		2,570/0.06	20.7
D		10,115/0.23	79.3

Existing Condition

A. Basin A

1. Volume

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_w = [(0.78)(0.06) + (1.13)(0.19) + (2.12)(0.53)] / 0.78 = 1.77 \text{ in.}$$

$$V_{100} = (E_w / 12) A_T$$

$$V_{100} = (1.77 / 12) \times 33,980 = 5,020 \text{ cf}$$

2. Peak Discharge

$$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_p = Q_{100} = [(2.28)(0.06) + (3.14)(0.19) + (4.70)(0.53)] = 3.2 \text{ cfs}$$

B. Basin B

1. Volume

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_w = [(0.78)(0.06) + (2.12)(0.01)] / 0.07 = 1.00 \text{ in.}$$

$$V_{100} = (E_w / 12) A_T$$

$$V_{100} = (1.00 / 12) \times 2,829 = 240 \text{ cf}$$

2. Peak Discharge

$$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.01)] = 0.2 \text{ cfs}$$

Developed Condition

A. Basin A

1. Volume

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_w = [(0.78)(0.06) + (1.13)(0.12) + (2.12)(0.52)] / 0.70 = 1.84 \text{ in.}$$

$$V_{100} = (E_w / 12) A_T$$

$$V_{100} = (1.84 / 12) \times 30,220 = 4,640 \text{ cf}$$

2. Peak Discharge

$$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_p = Q_{100} = [(2.28)(0.06) + (3.14)(0.12) + (4.70)(0.52)] = 3.0 \text{ cfs}$$

B. Basin B

1. Volume

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_w = [(0.78)(0.06) + (2.12)(0.10)] / 0.16 = 1.63 \text{ in.}$$

$$V_{100} = (E_w / 12) A_T$$

$$V_{100} = (1.63 / 12) \times 7,035 = 960 \text{ cf}$$

2. Peak Discharge

$$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.10)] = 0.6 \text{ cfs}$$

Future Condition

A. Basin A

1. Volume

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_w = [(0.78)(0.06) + (2.12)(0.50)] / 0.56 = 1.98 \text{ in.}$$

$$V_{100} = (E_w / 12) A_T$$

$$V_{100} = (1.98 / 12) \times 24,350 = 4,020 \text{ cf}$$

2. Peak Discharge

$$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.50)] = 2.5 \text{ cfs}$$

B. Basin B

1. Volume

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_w = [(0.78)(0.06) + (2.12)(0.23)] / 0.29 = 1.86 \text{ in.}$$

$$V_{100} = (E_w / 12) A_T$$

$$V_{100} = (1.86 / 12) \times 12,765 = 1,980 \text{ cf}$$

2. Peak Discharge

$$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.23)] = 1.2 \text{ cfs}$$

Comparison:

A. Developed Condition

Basin "A"

$$1. \Delta V_{100} = 5,020 - 4,640 = 380 \text{ cf (decrease)}$$

$$2. \Delta Q_{100} = 3.2 - 3.0 = 0.2 \text{ cfs (decrease)}$$

Basin "B"

$$1. \Delta V_{100} = 960 - 240 = 720 \text{ cf (increase)}$$

$$2. \Delta Q_{100} = 0.6 - 0.2 = 0.4 \text{ cfs (increase)}$$

B. Future Condition

Basin "A"

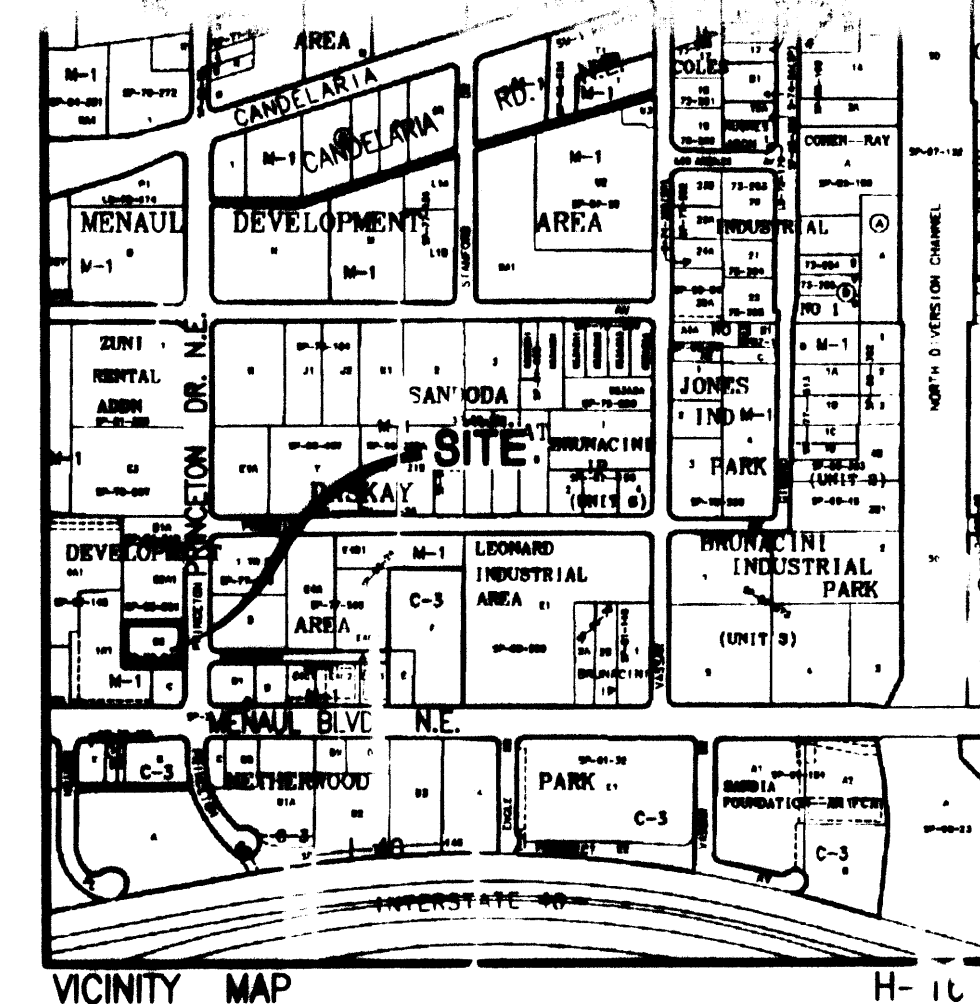
$$1. \Delta V_{100} = 5,020 - 4,020 = 1,000 \text{ cf (decrease)}$$

$$2. \Delta Q_{100} = 3.2 - 2.5 = 0.7 \text{ cfs (decrease)}$$

Basin "B"

$$1. \Delta V_{100} = 1,980 - 240 = 1,740 \text{ cf (increase)}$$

$$2. \Delta Q_{100} = 1.2 - 0.2 = 1.0 \text{ cfs (increase)}$$



VICINITY MAP

SCALE: 1" = 750'

LEGAL DESCRIPTION

TRACT B-3, MENAUL DEVELOPMENT AREA
SEPT. 27, 1978; C14-14.

NOTE:
THIS IS NOT A BOUNDARY SURVEY. APPARENT PROPERTY CORNERS ARE SHOWN FOR ORIENTATION ONLY. BOUNDARY DATA SHOWN IS BASED UPON THE SURVEY PERFORMED BY SOUTHWEST SURVEYING CO., INC. ON JULY 1995.

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 260-1990 (ALBUQUERQUE AREA), 1-800-321-ALERT(2537) (STATEWIDE), FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERFERENCES IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
4. ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
5. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE. THEREFORE, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREOF. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
6. THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.
7. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
8. BACKFILL COMPACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.
9. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.

EROSION CONTROL MEASURES:

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
2. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
3. WHEN APPLICABLE, CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" FROM THE CITY AND/OR FILE A NOTICE OF INTENT (N.O.I.) WITH THE EPA PRIOR TO BEGINNING CONSTRUCTION.
4. UNLESS FINAL STABILIZATION IS OTHERWISE PROVIDED FOR, ANY AREAS OF EXCESS DISTURBANCE (TRAFFIC ACCESS, STORAGE YARD, EXCAVATED MATERIAL, ETC.) SHALL BE RE-SEEDING ACCORDING TO C.O.A. SPECIFICATION 1012 "NATIVE GRASS SEEDING". THIS WILL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE.

APPROVALS	NAME	DATE
HYDROLOGY		
SIDEWALK INSPECTOR		
STORM DRAIN MAINTENANCE		

RECEIVED
MAR 27 2006
HYDROLOGY SECTION

03-22-2006

DESIGNED BY	DATE	BY	REVISIONS	JOB NO.
J.G.M.	2/20/06	J.G.M.	VERIFY PHASE 1, ADD PHASE 2	970224
DRAWN BY	DATE	BY	REVISIONS	DATE
S.G.H.				03-2006
APPROVED BY	DATE	BY	REVISIONS	SHEET
J.G.M.				1 OF 1

PHASES 1 and 2 GRADING AND DRAINAGE PLAN ARMSTRONG ELECTRIC CO.

Jma JEFF MORTENSEN & ASSOCIATES, INC.
6800-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE, N.M. 87109
ENGINEERS & SURVEYORS (505) 345-4250

File Path: J:\WORK\170224\170224.DWG Plot Date: 03-23-2006
File Name: 970224.G2.DWG Plot Time: 08:39 am

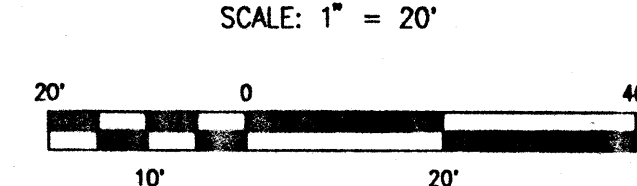


JEFF NORTENSON & ASSOCIATES, INC.
6010 S MIDWAY PARK BLVD. N.E.
ALBUQUERQUE, N.M. 87109
ENGINEERS & SURVEYORS (CSD) 345-4250

PHASES 1 and 2 GRADING AND DRAINAGE PLAN ARMSTRONG ELECTRIC CO.

TC TOP OF CURB
FL FLOWLINE
P.P. POWER POLE
+ 55.03 TA
55.00 EXISTING SPOT ELEVATION
55.00 PROPOSED SPOT ELEVATION
NEW CONCRETE
NEW ASPHALT

LEGEND



RECORD INFORMATION

FL44.55 RECORD INFORMATION
55.00 RECORD INFORMATION - AS-DESIGNED
55.00 RECORD INFORMATION

The following items concerning the Armstrong Electric Company Drains & Plan are contained herein:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, the site is located on the west side of Princeton Avenue N.E. between Menaul Boulevard N.E. and Candelaria Road N.E. At present, the site is developed commercially. Surrounding properties are also developed commercially making this a modification to an existing site within an infill area.

As shown by Panel 351 of 825 of the National Flood Insurance Program Flood Insurance Rate Maps published by F.E.M.A. for the County of Bernalillo, New Mexico, and Incorporated Areas, dated September 20, 1996, this site does not lie within a designated flood hazard zone. Furthermore, flooding is not identified immediately downstream or adjacent to the site. At present, the majority of the site drains from east to west onto the existing private property which lies to the west of the site. Only a small portion of the site currently drains to Princeton Avenue N.E.

The Grading Plan shows: 1) existing grades indicated by spot elevations and contours at 1'0" intervals, 2) proposed grades indicated by spot elevations, 3) the limit and character of the existing improvements, 4) the limit and character of the proposed improvements, 5) the limit and character of future improvements and 6) continuity between existing and proposed grades. As shown by this Plan, the proposed improvements consist of the construction of a detached warehouse building at the northeast corner of the site. Roof runoff from the new building will be drained to the east and discharged onto built-up asphalt paving. From this point, the runoff will discharge to Princeton Drive N.E. via an existing driveway. The site is currently characterized by two drainage basins, Basin A, as stated above, drains onto private property which lies to the west of the site. Basin B discharges to Princeton Drive N.E. The proposed construction will reduce the size of Basin A while increasing the size of Basin B. This will reduce the amount of runoff discharging onto the existing private property while slightly increasing the amount of runoff discharging to Princeton Drive N.E. Offsite flows do not enter the site from the north or south due to the fact that these sites are topographically lower. Similarly, the site to the west is also topographically lower and does not contribute offsite flows. Princeton Drive N.E. is a fully improved public street which does not contribute runoff to the site.

The Calculations which appear hereon analyze both the existing, developed and future conditions for the 100-year, 6-hour rainfall event. The Procedure for 40-acre and Smaller Basins, as set forth in the Revision of Section 22.2, Hydrology of the Development Process Manual, Volume 2, Design Criteria, dated January, 1993, has been used to quantify the peak rate of discharge and volume of runoff generated. The future condition is analyzed to demonstrate that as the site continues to "build-out", the runoff generated by Basin A will be effectively reduced, therefore improving the existing condition of discharge onto the adjacent private property. The roof runoff by the future additions will similarly be guttered to the east and discharged to Princeton Avenue N.E. As shown by these calculations, development consistent with this plan will reduce the amount of runoff generated by Basin A while effecting a modest increase in runoff from Basin B. Overall, this represents an improvement to existing conditions.

Site Characteristics

1. Precipitation Zone = 2
2. $P_{6,100} = P_{390} = 2.35$ in.
3. Total Area (A_t) = 0.85 ac
4. Existing Land Treatment

Basin "A"	Area (sf/ac)	%
Treatment	2,400/0.06	7.8
B	8,580/0.19	24.3
C	23,090/0.53	67.9

Basin "B"	Area (sf/ac)	%
Treatment	2,700/0.06	85.7
B	120/0.01	14.2

Basin "A"	Area (sf/ac)	%
Treatment	2,400/0.06	8.6
B	5,320/0.12	17.1
C	22,500/0.52	74.3

Basin "B"	Area (sf/ac)	%
Treatment	2,570/0.06	37.5
B	4,465/0.10	62.5

Basin "A"	Area (sf/ac)	%
Treatment	2,400/0.06	10.7
B	21,950/0.50	89.3

Basin "B"	Area (sf/ac)	%
Treatment	2,570/0.06	20.7
B	10,115/0.23	79.3

Existing Condition

- A. Basin A
1. Volume
 $E_w = (E_{A,A} + E_{B,B} + E_{C,C} + E_{D,D})/A_t$
 $E_w = [(0.78)(0.06) + (1.13)(0.19) + (2.12)(0.53)]/0.78 = 1.77$ in.
 $V_{100} = (E_w/12)A_t$
 $V_{100} = (1.77/12) \times 33,980 = 5,020$ cf
2. Peak Discharge
 $Q_p = Q_{PA,A} + Q_{PB,B} + Q_{PC,C} + Q_{PD,D}$
 $Q_p = Q_{100} = [(2.28)(0.06) + (3.14)(0.19) + (4.70)(0.53)] = 3.2$ cfs
- B. Basin B
1. Volume
 $E_w = (E_{A,A} + E_{B,B} + E_{C,C} + E_{D,D})/A_t$
 $E_w = [(0.78)(0.06) + (2.12)(0.01)]/0.07 = 1.00$ in.
 $V_{100} = (E_w/12)A_t$
 $V_{100} = (1.00/12) \times 2,829 = 240$ cf
2. Peak Discharge
 $Q_p = Q_{PA,A} + Q_{PB,B} + Q_{PC,C} + Q_{PD,D}$
 $Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.01)] = 0.2$ cfs

Developed Condition

- A. Basin A
1. Volume
 $E_w = (E_{A,A} + E_{B,B} + E_{C,C} + E_{D,D})/A_t$
 $E_w = [(0.78)(0.06) + (1.13)(0.12) + (2.12)(0.52)]/0.70 = 1.84$ in.
 $V_{100} = (E_w/12)A_t$
 $V_{100} = (1.84/12) \times 30,220 = 4,640$ cf
2. Peak Discharge
 $Q_p = Q_{PA,A} + Q_{PB,B} + Q_{PC,C} + Q_{PD,D}$
 $Q_p = Q_{100} = [(2.28)(0.06) + (3.14)(0.12) + (4.70)(0.52)] = 3.0$ cfs

DRAINAGE PLAN AMENDMENT

THE PHASE 1 PLAN DATED 04-23-1997 WAS APPROVED AND PERMITTED BUT NEVER CERTIFIED. VERIFICATION OF THE ORIGINAL DESIGN HAS DETERMINED THE FOLLOWING:

- THAT THE PHASE 1 BUILDING HAS BEEN CONSTRUCTED AT AN ELEVATION FOUND TO BE IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN
- THE ASPHALT PAVING OVERLAY FOR ACCESS INTO THE PHASE 1 BUILDING AND TO CREATE A WATERBLOCK TO DIVERT THE NEW ROOF RUNOFF TO THE STREET WAS NOT BUILT.
- THE PHASE 1 ROOF RUNOFF HAS NOT BEEN DIVERTED TO THE STREET AS DESIGNED

IT IS PROPOSED TO COMPLETE THE PHASE 1 REQUIREMENTS IN CONJUNCTION WITH THE PHASE 2 BUILDING ADDITION AS SHOWN AS A REVISION TO THE 1997 PLAN HEREON. AT THE SAME TIME, THE PHASE 1 ROOF RUNOFF WILL NEED TO BE MODIFIED TO ENSURE THAT IT IS DIRECTED TO THE STREET VIA THE EXISTING DRIVEPAD OR SIDEWALK CULVERT. THE PHASE 2 GRADING AND DRAINAGE AND THE PHASE 1 CORRECTIONS SHOULD BE CERTIFIED AS A CONDITION FOR PHASE 2 OCCUPANCY.

DRAINAGE PLAN AMENDMENT

THE PHASE 1 PLAN DATED 04-23-1997 WAS APPROVED AND PERMITTED BUT NEVER CERTIFIED. VERIFICATION OF THE ORIGINAL DESIGN HAS DETERMINED THE FOLLOWING:

- THAT THE PHASE 1 BUILDING HAS BEEN CONSTRUCTED AT AN ELEVATION FOUND TO BE IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN
- THE ASPHALT PAVING OVERLAY FOR ACCESS INTO THE PHASE 1 BUILDING AND TO CREATE A WATERBLOCK TO DIVERT THE NEW ROOF RUNOFF TO THE STREET WAS NOT BUILT.
- THE PHASE 1 ROOF RUNOFF HAS NOT BEEN DIVERTED TO THE STREET AS DESIGNED

IT IS PROPOSED TO COMPLETE THE PHASE 1 REQUIREMENTS IN CONJUNCTION WITH THE PHASE 2 BUILDING ADDITION AS SHOWN AS A REVISION TO THE 1997 PLAN HEREON. AT THE SAME TIME, THE PHASE 1 ROOF RUNOFF WILL NEED TO BE MODIFIED TO ENSURE THAT IT IS DIRECTED TO THE STREET VIA THE EXISTING DRIVEPAD OR SIDEWALK CULVERT. THE PHASE 2 GRADING AND DRAINAGE AND THE PHASE 1 CORRECTIONS SHOULD BE CERTIFIED AS A CONDITION FOR PHASE 2 OCCUPANCY.

B. Basin B

1. Volume
 $E_w = (E_{A,A} + E_{B,B} + E_{C,C} + E_{D,D})/A_t$
 $E_w = [(0.78)(0.06) + (2.12)(0.10)]/0.16 = 1.63$ in.
 $V_{100} = (E_w/12)A_t$
 $V_{100} = (1.63/12) \times 7,035 = 960$ cf
2. Peak Discharge
 $Q_p = Q_{PA,A} + Q_{PB,B} + Q_{PC,C} + Q_{PD,D}$
 $Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.10)] = 0.6$ cfs

Future Condition

A. Basin A

1. Volume
 $E_w = (E_{A,A} + E_{B,B} + E_{C,C} + E_{D,D})/A_t$
 $E_w = [(0.78)(0.06) + (2.12)(0.50)]/0.56 = 1.98$ in.
 $V_{100} = (E_w/12)A_t$
 $V_{100} = (1.98/12) \times 24,350 = 4,020$ cf
2. Peak Discharge
 $Q_p = Q_{PA,A} + Q_{PB,B} + Q_{PC,C} + Q_{PD,D}$
 $Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.50)] = 2.5$ cfs

B. Basin B

1. Volume
 $E_w = (E_{A,A} + E_{B,B} + E_{C,C} + E_{D,D})/A_t$
 $E_w = [(0.78)(0.06) + (2.12)(0.23)]/0.29 = 1.86$ in.
 $V_{100} = (E_w/12)A_t$
 $V_{100} = (1.86/12) \times 12,765 = 1,980$ cf
2. Peak Discharge
 $Q_p = Q_{PA,A} + Q_{PB,B} + Q_{PC,C} + Q_{PD,D}$
 $Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.23)] = 1.2$ cfs

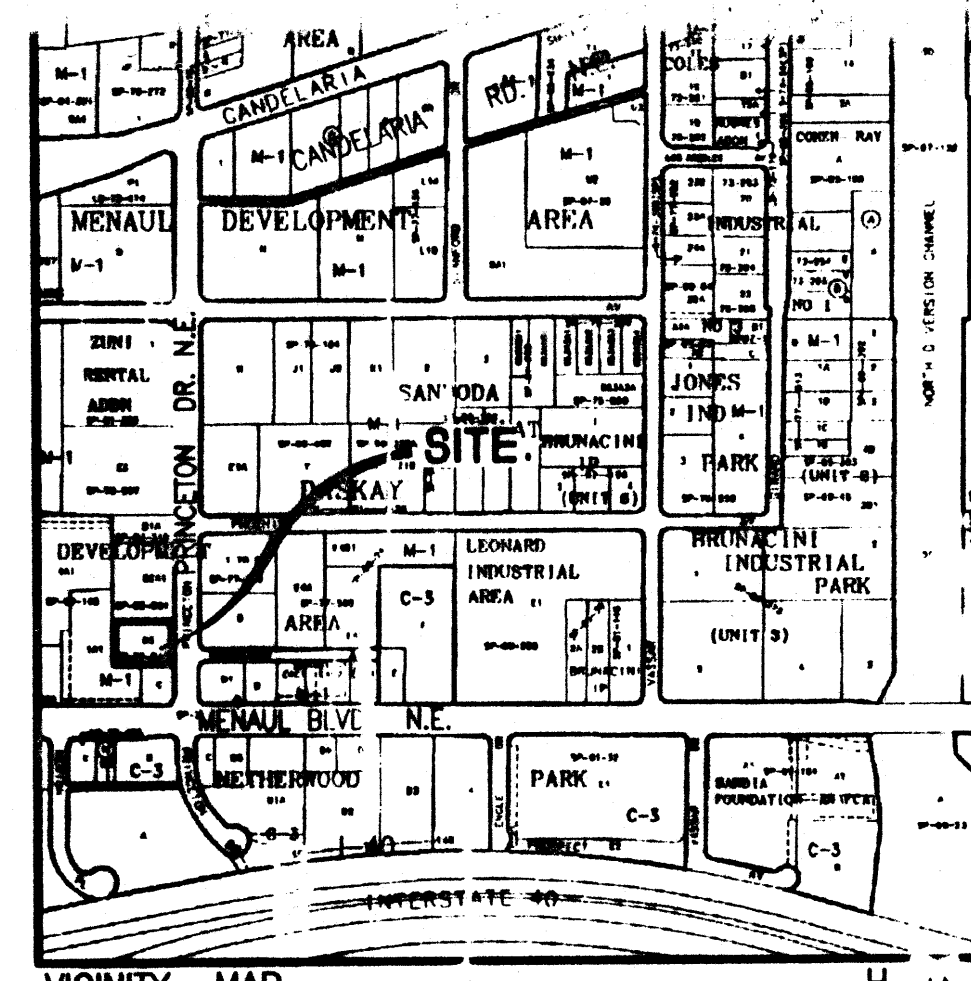
Comparison:

A. Developed Condition

- Basin "A"
1. $\Delta V_{100} = 5,020 - 4,640 = 380$ cf (decrease)
 2. $\Delta Q_{100} = 3.2 - 3.0 = 0.2$ cfs (decrease)
- Basin "B"
1. $\Delta V_{100} = 960 - 240 = 720$ cf (increase)
 2. $\Delta Q_{100} = 0.6 - 0.2 = 0.4$ cfs (increase)

B. Future Condition

- Basin "A"
1. $\Delta V_{100} = 5,020 - 4,020 = 1,000$ cf (decrease)
 2. $\Delta Q_{100} = 3.2 - 2.5 = 0.7$ cfs (decrease)
- Basin "B"
1. $\Delta V_{100} = 1,980 - 240 = 1,740$ cf (increase)
 2. $\Delta Q_{100} = 1.2 - 0.2 = 1.0$ cfs (increase)



VICINITY MAP

SCALE: 1" = 750'

LEGAL DESCRIPTION

TRACT B-3, MENAUL DEVELOPMENT AREA
SEPT. 27, 1978; C14-14.

NOTE:
THIS IS NOT A BOUNDARY SURVEY. APPARENT PROPERTY CORNERS ARE SHOWN FOR ORIENTATION ONLY. BOUNDARY DATA SHOWN IS BASED UPON THE SURVEY PERFORMED BY SOUTHWEST SURVEYING CO., INC. ON JULY 1, 1995.

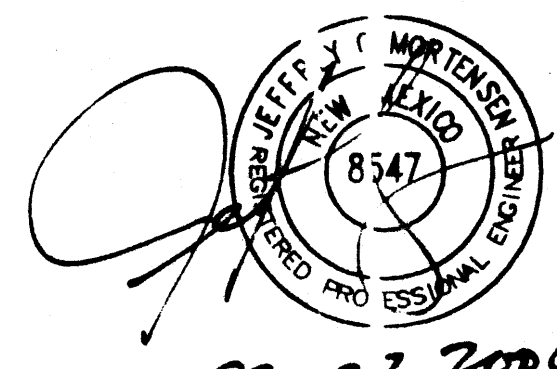
CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 280-1990 (ALBUQUERQUE AREA), 1-800-321-ALERT(2537) (STATEWIDE), FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
4. ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
5. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE. THEREFORE, NO REPRESENTATION PERTAINING TO THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
6. THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.
7. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
8. BACKFILL COMPACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.
9. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.

EROSION CONTROL MEASURES:

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
2. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
3. WHEN APPLICABLE, CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" FROM THE CITY AND/OR FILE A NOTICE OF INTENT (N.O.I.) WITH THE EPA PRIOR TO BEGINNING CONSTRUCTION.
4. UNLESS FINAL STABILIZATION IS OTHERWISE PROVIDED FOR, ANY AREAS OF EXCESS DISTURBANCE (TRAFFIC ACCESS, STORAGE YARD, EXCAVATED MATERIAL, ETC.) SHALL BE RE-SEEDING ACCORDING TO C.O.A. SPECIFICATION 1012 "NATIVE GRASS SEEDING". THIS SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE.

APPROVALS	NAME	DATE
HYDROLOGY		
SIDEWALK INSPECTOR		
STORM DRAIN MAINTENANCE		



DESIGNED BY	J.G.M.	NO.	DATE	BY	REVISIONS	JOB NO.
DRAWN BY	S.G.H.	1	2/20/06	J.G.M.	VERIFY PHASE 1, ADD PHASE 2	970224
APPROVED BY	J.G.M.					DATE
						03-2006
						SHEET
						1 OF 1

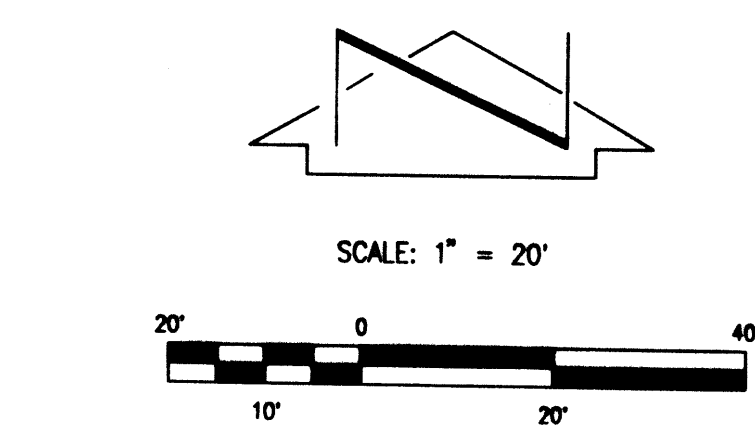


JEFF NORTENSHEN & ASSOCIATES, INC.
6000-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE, N.M. 87109
ENGINEERS & SURVEYORS (COT) 345-4250

PHASES 1 and 2 GRADING AND DRAINAGE PLAN ARMSTRONG ELECTRIC CO.

RECORD INFORMATION
FL44.58x RECORD INFORMATION
55.18 RECORD INFORMATION - AS-DESIGNED
55.18 RECORD INFORMATION

LEGEND
TC TOP OF CURB
FL FLOWLINE
P.P. POWER POLE
x 55.03 TA EXISTING SPOT ELEVATION
56.00 PROPOSED SPOT ELEVATION
NEW CONCRETE
NEW ASPHALT



The following items concerning the Armstrong Electric Company Drainage Plan are contained herein:

- Vicinity Map
- Grading Plan
- Calculations

As shown by the Vicinity Map, the site is located on the west side of Princeton Avenue N.E. between Menaul Boulevard N.E. and Candelaria Road N.E. At present, the site is developed commercially. Surrounding properties are also developed commercially making this a modification to an existing site within an infill area.

As shown by Panel 351 of 825 of the National Flood Insurance Program Flood Insurance Rate Maps published by F.E.M.A. for the County of Bernalillo, New Mexico, and Incorporated Areas, dated September 20, 1996, this site does not lie within a designated flood hazard zone. Furthermore, flooding is not identified immediately downstream or adjacent to the site. At present, the majority of the site drains from east to west onto the existing private property which lies to the west of the site. Only a small portion of the site currently drains to Princeton Avenue N.E.

The Grading Plan shows: 1) existing grades indicated by spot elevations and contours at 1'0" intervals, 2) proposed grades indicated by spot elevations, 3) the limit and character of the existing improvements, 4) the limit and character of the proposed improvements, 5) the limit and character of future improvements and 6) continuity between existing and proposed grades. As shown by this Plan, the proposed improvements consist of the construction of a detached warehouse building at the northeast corner of the site. Roof runoff from the new building will be drained to the east and discharged onto built-up asphalt paving. From this point, the runoff will discharge to Princeton Drive N.E. via an existing driveway. The site is currently characterized by two drainage basins, Basin A, as stated above, drains onto private property which lies to the west of the site. Basin B discharges to Princeton Drive N.E. The proposed construction will reduce the size of Basin A while increasing the size of Basin B. This will reduce the amount of runoff discharging onto the existing private property while slightly increasing the amount of runoff discharging to Princeton Drive N.E. Offsite flows do not enter the site from the north or south due to the fact that those sites are topographically lower. Similarly, the site to the west is also topographically lower and does not contribute offsite flows. Princeton Drive N.E. is a fully improved public street which does not contribute runoff to the site.

The Calculations which appear herein analyze both the existing, developed and future conditions for the 100-year, 6-hour rainfall event. The Procedure for 40-acre and Smaller Basins, as set forth in the Revision of Section 22.2, Hydrology of the Development Process Manual, Volume 2, Design Criteria, dated January, 1993, has been used to quantify the peak rate of discharge and volume of runoff generated. The future condition is analyzed to demonstrate that as the site continues to "build-out", the runoff generated by Basin A will be effectively reduced, therefore improving the existing condition of discharge onto the adjacent private property. The roof runoff by the future additions will similarly be guttered to the east and discharged to Princeton Avenue N.E. As shown by these calculations, development consistent with this plan will reduce the amount of runoff generated by Basin A while effecting a modest increase in runoff from Basin B. Overall, this represents an improvement to existing conditions.

CALCULATIONS

Site Characteristics

- Precipitation Zone = 2
- $P_{6,100} = P_{360} = 2.35$ in.
- Total Area (A_T) = 0.85 ac
- Existing Land Treatment

Basin "A"	Treatment	Area (sf/ac)	%
B		2,400/0.06	7.8
C		8,580/0.19	24.3
D		23,090/0.53	67.9

Basin "B"	Treatment	Area (sf/ac)	%
B		2,709/0.06	85.7
D		120/0.01	14.2

Developed Land Treatment

Basin "A"	Treatment	Area (sf/ac)	%
B		2,400/0.06	8.6
C		5,320/0.12	17.1
D		22,500/0.52	74.3

Basin "B"	Treatment	Area (sf/ac)	%
B		2,570/0.06	37.5
D		4,465/0.10	62.5

Future Land Treatment

Basin "A"	Treatment	Area (sf/ac)	%
B		2,400/0.06	10.7
C		21,950/0.50	89.3

Basin "B"	Treatment	Area (sf/ac)	%
B		2,570/0.06	20.7
D		10,195/0.23	79.3

Existing Condition

A. Basin A

- Volume

$$E_w = (E_{A^1} + E_{B^1} + E_{C^1} + E_{D^1}) / A_T$$
$$E_w = [(0.78)(0.06) + (1.13)(0.19) + (2.12)(0.53)] / 0.78 = 1.77 \text{ in.}$$
$$V_{100} = (E_w / 12) A_T$$
$$V_{100} = (1.77 / 12) \times 33,980 = 5,020 \text{ cf}$$
$$Q_p = Q_{PA^1} + Q_{PB^1} + Q_{PC^1} + Q_{PD^1}$$
$$Q_p = Q_{100} = [(2.28)(0.06) + (3.14)(0.19) + (4.70)(0.53)] = 3.2 \text{ cfs}$$

B. Basin B

- Volume

$$E_w = (E_{A^1} + E_{B^1} + E_{C^1} + E_{D^1}) / A_T$$
$$E_w = [(0.78)(0.06) + (2.12)(0.01)] / 0.07 = 1.00 \text{ in.}$$
$$V_{100} = (E_w / 12) A_T$$
$$V_{100} = (1.00 / 12) \times 2,829 = 240 \text{ cf}$$
$$Q_p = Q_{PA^1} + Q_{PB^1} + Q_{PC^1} + Q_{PD^1}$$
$$Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.01)] = 0.2 \text{ cfs}$$

Developed Condition

A. Basin A

- Volume

$$E_w = (E_{A^1} + E_{B^1} + E_{C^1} + E_{D^1}) / A_T$$
$$E_w = [(0.78)(0.06) + (1.13)(0.12) + (2.12)(0.52)] / 0.70 = 1.84 \text{ in.}$$
$$V_{100} = (E_w / 12) A_T$$
$$V_{100} = (1.84 / 12) \times 30,220 = 4,640 \text{ cf}$$
$$Q_p = Q_{PA^1} + Q_{PB^1} + Q_{PC^1} + Q_{PD^1}$$
$$Q_p = Q_{100} = [(2.28)(0.06) + (3.14)(0.12) + (4.70)(0.52)] = 3.0 \text{ cfs}$$

- Peak Discharge

$$Q_p = Q_{PA^1} + Q_{PB^1} + Q_{PC^1} + Q_{PD^1}$$
$$Q_p = Q_{100} = [(2.28)(0.06) + (3.14)(0.12) + (4.70)(0.52)] = 3.0 \text{ cfs}$$

B. Basin B

- Volume

$$E_w = (E_{A^1} + E_{B^1} + E_{C^1} + E_{D^1}) / A_T$$
$$E_w = [(0.78)(0.06) + (2.12)(0.10)] / 0.16 = 1.63 \text{ in.}$$
$$V_{100} = (E_w / 12) A_T$$
$$V_{100} = (1.63 / 12) \times 7,035 = 960 \text{ cf}$$
$$Q_p = Q_{PA^1} + Q_{PB^1} + Q_{PC^1} + Q_{PD^1}$$
$$Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.10)] = 0.6 \text{ cfs}$$

Future Condition

A. Basin A

- Volume

$$E_w = (E_{A^1} + E_{B^1} + E_{C^1} + E_{D^1}) / A_T$$
$$E_w = [(0.78)(0.06) + (2.12)(0.50)] / 0.56 = 1.98 \text{ in.}$$
$$V_{100} = (E_w / 12) A_T$$
$$V_{100} = (1.98 / 12) \times 24,350 = 4,020 \text{ cf}$$
$$Q_p = Q_{PA^1} + Q_{PB^1} + Q_{PC^1} + Q_{PD^1}$$
$$Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.50)] = 2.5 \text{ cfs}$$

B. Basin B

- Volume

$$E_w = (E_{A^1} + E_{B^1} + E_{C^1} + E_{D^1}) / A_T$$
$$E_w = [(0.78)(0.06) + (2.12)(0.23)] / 0.29 = 1.86 \text{ in.}$$
$$V_{100} = (E_w / 12) A_T$$
$$V_{100} = (1.86 / 12) \times 12,765 = 1,980 \text{ cf}$$
$$Q_p = Q_{PA^1} + Q_{PB^1} + Q_{PC^1} + Q_{PD^1}$$
$$Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.23)] = 1.2 \text{ cfs}$$

Comparison:

A. Developed Condition

Basin "A"

- $\Delta V_{100} = 5,020 - 4,640 = 380 \text{ cf}$ (decrease)
- $\Delta Q_{100} = 3.2 - 3.0 = 0.2 \text{ cfs}$ (decrease)

Basin "B"

- $\Delta V_{100} = 960 - 240 = 720 \text{ cf}$ (increase)
- $\Delta Q_{100} = 0.6 - 0.2 = 0.4 \text{ cfs}$ (increase)

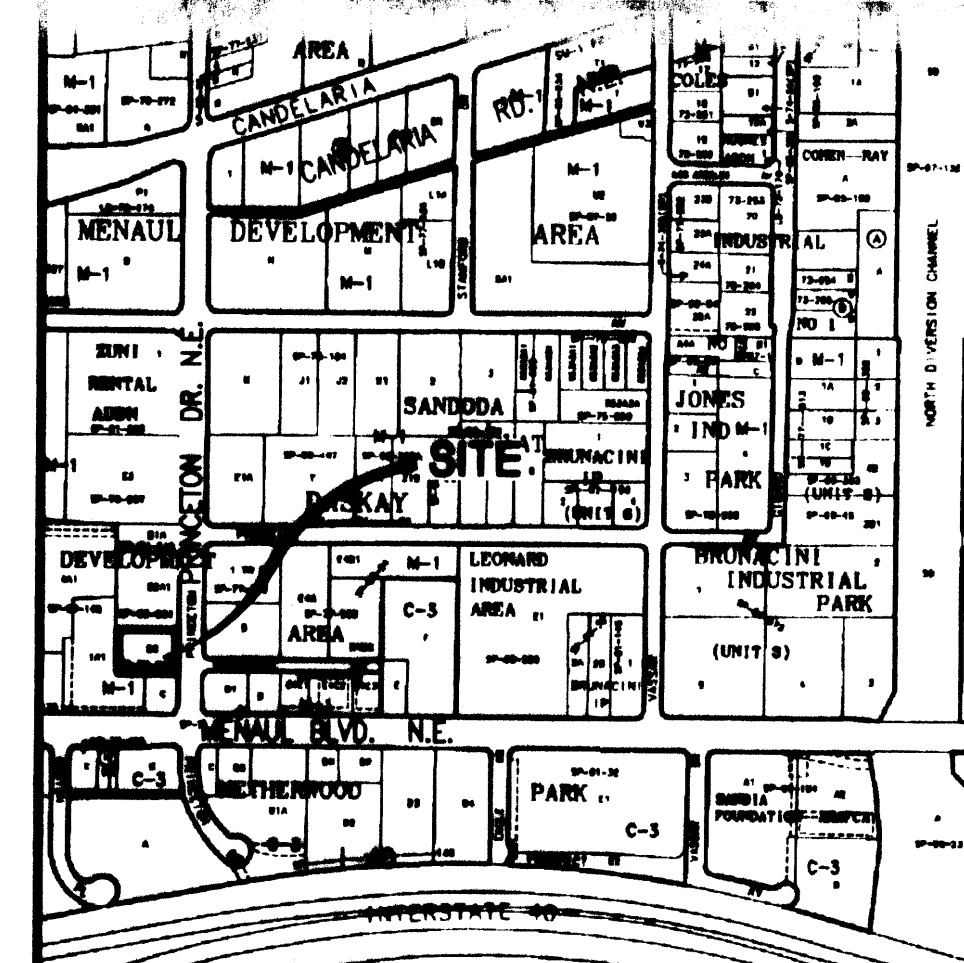
B. Future Condition

Basin "A"

- $\Delta V_{100} = 5,020 - 4,020 = 1,000 \text{ cf}$ (decrease)
- $\Delta Q_{100} = 3.2 - 2.5 = 0.7 \text{ cfs}$ (decrease)

Basin "B"

- $\Delta V_{100} = 1,980 - 240 = 1,740 \text{ cf}$ (increase)
- $\Delta Q_{100} = 1.2 - 0.2 = 1.0 \text{ cfs}$ (increase)



VICINITY MAP
SCALE: 1" = 750'

LEGAL DESCRIPTION

TRACT B-3, MENAUL DEVELOPMENT AREA
SEPT. 27, 1978; C14-14.

NOTE:
THIS IS NOT A BOUNDARY SURVEY. APPARENT PROPERTY CORNERS ARE SHOWN FOR ORIENTATION ONLY. BOUNDARY DATA SHOWN IS BASED UPON THE SURVEY PERFORMED BY SOUTHWEST SURVEYING CO., INC. ON JULY 1995.

CONSTRUCTION NOTES:

- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 280-1990 (ALBUQUERQUE AREA), 1-800-321-ALERT(2537) (STATEWIDE), FOR LOCATION OF EXISTING UTILITIES.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.
- ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
- ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
- IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE, THEREFORE, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREOF. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
- THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.
- AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
- BACKFILL COMPACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.
- MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.

EROSION CONTROL MEASURES:

- THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
- THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
- WHEN APPLICABLE, CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" FROM THE CITY AND/OR FILE A NOTICE OF INTENT (N.O.I.) WITH THE EPA PRIOR TO BEGINNING CONSTRUCTION.
- UNLESS FINAL STABILIZATION IS OTHERWISE PROVIDED FOR, ANY AREAS OF EXCESS DISTURBANCE (TRAFFIC ACCESS, STORAGE YARD, EXCAVATED MATERIAL, ETC.) SHALL BE RE-SEEDING ACCORDING TO C.O.A. SPECIFICATION 1012 "NATIVE GRASS SEEDING". THIS WILL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE.

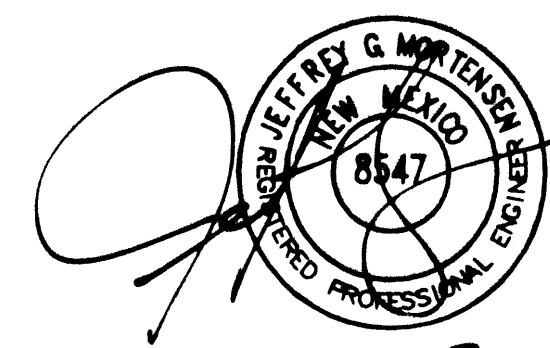
△ DRAINAGE PLAN AMENDMENT

THE PHASE 1 PLAN DATED 04-23-1997 WAS APPROVED AND PERMITTED BUT NEVER CERTIFIED. VERIFICATION OF THE ORIGINAL DESIGN HAS DETERMINED THE FOLLOWING:

- THAT THE PHASE 1 BUILDING HAS BEEN CONSTRUCTED AT AN ELEVATION FOUND TO BE IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN
- THE ASPHALT PAVING OVERLAY FOR ACCESS INTO THE PHASE 1 BUILDING AND TO CREATE A WATERBLOCK TO DIVERT THE NEW ROOF RUNOFF TO THE STREET WAS NOT BUILT.
- THE PHASE 1 ROOF RUNOFF HAS NOT BEEN DIVERTED TO THE STREET AS DESIGNED.

IT IS PROPOSED TO COMPLETE THE PHASE 1 REQUIREMENTS IN CONJUNCTION WITH THE PHASE 2 BUILDING ADDITION AS SHOWN AS A REVISION TO THE 1997 PLAN HEREON. AT THE SAME TIME, THE PHASE 1 ROOF RUNOFF WILL NEED TO BE MODIFIED TO ENSURE THAT IT IS DIRECTED TO THE STREET VIA THE EXISTING DRIVEPAD OR SIDEWALK CULVERT. THE PHASE 2 GRADING AND DRAINAGE AND THE PHASE 1 CORRECTIONS SHOULD BE CERTIFIED AS A CONDITION FOR PHASE 2 OCCUPANCY.

RECEIVED
10-24-2006
HYDROLOGY SECTION



03-27-2006

APPROVALS	NAME	DATE
HYDROLOGY		
SIDEWALK INSPECTOR		
STORM DRAIN MAINTENANCE		

DESIGNED BY	DATE	BY	REVISIONS	JOB NO.
J.G.M.	02/09/06	J.G.M.	VERIFY PHASE 1; ADD PHASE 2	970224
DRAWN BY	DATE	BY	REVISIONS	DATE
S.G.H.				03-2006
APPROVED BY	DATE	BY	REVISIONS	SHEET
J.G.M.				1 OF 1

DRAINAGE PLAN

The following items concerning the Armstrong Electric Company Drainage Plan are contained herein:

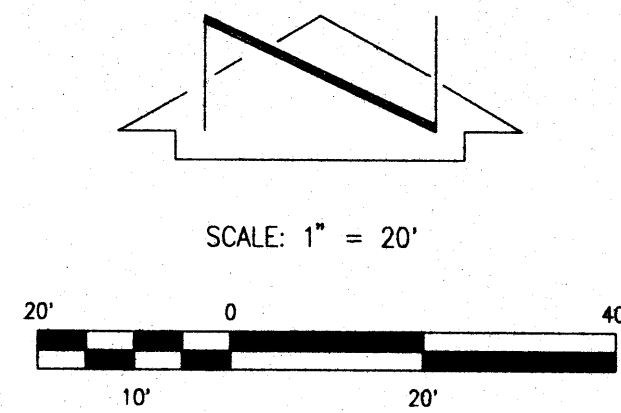
- Vicinity Map
- Grading Plan
- Calculations

As shown by the Vicinity Map, the site is located on the west side of Princeton Avenue N.E. between Menaul Boulevard N.E. and Candelaria Road N.E. At present, the site is developed commercially. Surrounding properties are also developed commercially making this a modification to an existing site within an infill area.

As shown by Panel 351 of 825 of the National Flood Insurance Program Flood Insurance Rate Maps published by F.E.M.A. for the County of Bernalillo, New Mexico, and Incorporated Areas, dated September 20, 1996, this site does not lie within a designated flood hazard zone. Furthermore, flooding is not identified immediately downstream or adjacent to the site. At present, the majority of the site drains from east to west onto the existing private property which lies to the west of the site. Only a small portion of the site currently drains to Princeton Avenue N.E.

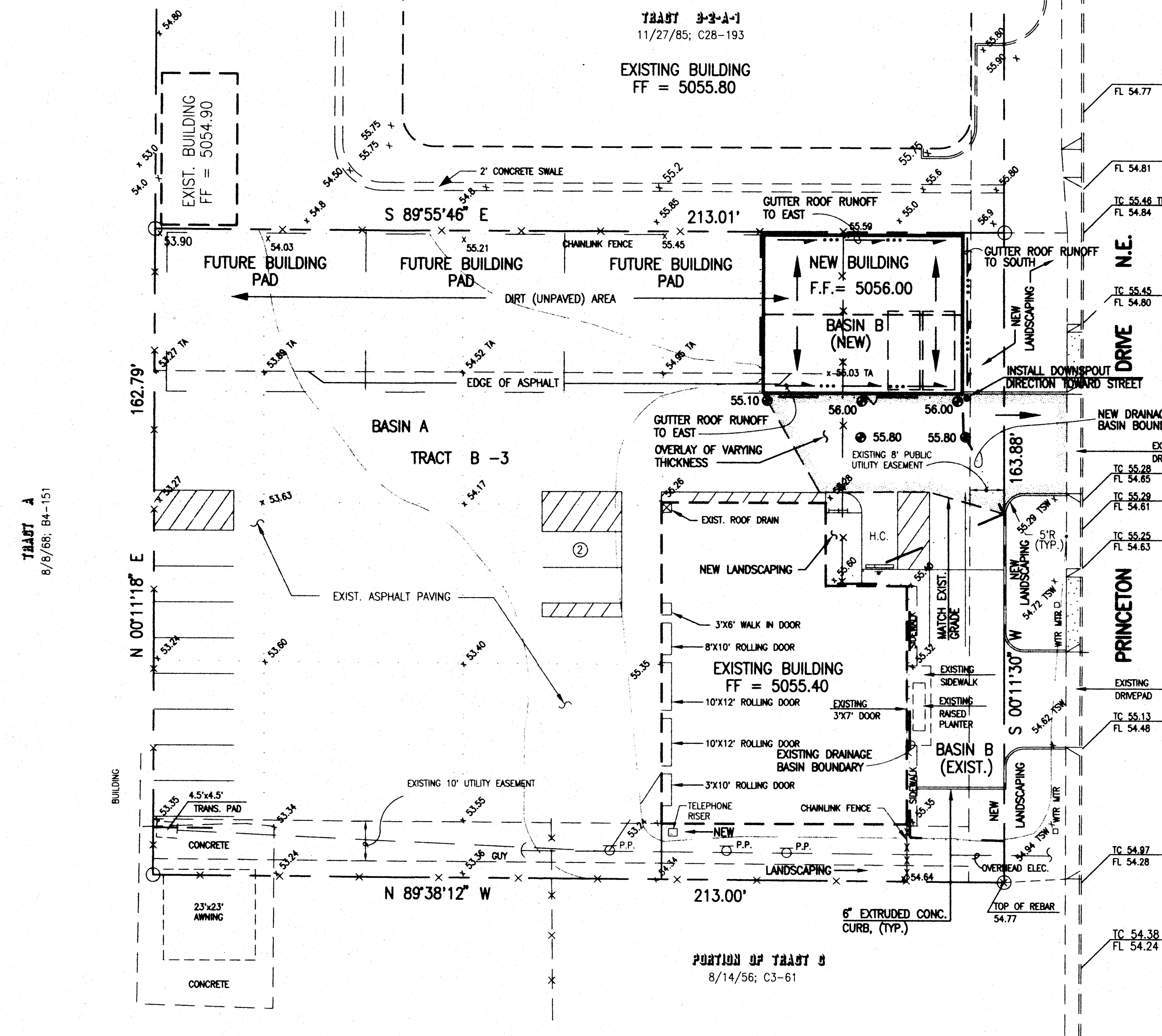
The Grading Plan shows: 1) existing grades indicated by spot elevations and contours at 1'0" intervals, 2) proposed grades indicated by spot elevations, 3) the limit and character of the existing improvements, 4) the limit and character of the proposed improvements, 5) the limit and character of future improvements and 6) continuity between existing and proposed grades. As shown by this Plan, the proposed improvements consist of the construction of a detached warehouse building at the northeast corner of the site. Roof runoff from the new building will be drained to the east and discharged onto built-up asphalt paving. From this point, the runoff will discharge to Princeton Drive N.E. via an existing driveway. The site is currently characterized by two drainage basins, Basin A, as stated above, drains onto private property which lies to the west of the site. Basin B discharges to Princeton Drive N.E. The proposed construction will reduce the size of Basin A while increasing the size of Basin B. This will reduce the amount of runoff discharging onto the existing private property while slightly increasing the amount of runoff discharging to Princeton Drive N.E. Offsite flows do not enter the site from the north or south due to the fact that those sites are topographically lower. Similarly, the site to the west is also topographically lower and does not contribute offsite flows. Princeton Drive N.E. is a fully improved public street which does not contribute runoff to the site.

The Calculations which appear hereon analyze both the existing, developed and future conditions for the 100-year, 6-hour rainfall event. The Procedure for 40-acre and Smaller Basins, as set forth in the Revision of Section 22.2, Hydrology of the Development Process Manual, Volume 2, Design Criteria, dated January, 1993, has been used to quantify the peak rate of discharge and volume of runoff generated. The future condition is analyzed to demonstrate that as the site continues to "build-out", the runoff generated by Basin A will be effectively reduced, therefore improving the existing condition of discharge onto the adjacent private property. The roof runoff by the future additions will similarly be guttered to the east and discharged to Princeton Avenue N.E. As shown by these calculations, development consistent with this plan will reduce the amount of runoff generated by Basin A while effecting a modest increase in runoff from Basin B. Overall, this represents an improvement to existing conditions.



LEGEND

- | | |
|----------|-------------------------|
| TC | TOP OF CURB |
| FL | FLOWLINE |
| P.P. | POWER POLE |
| 55.03 TA | EXISTING SPOT ELEVATION |
| 55.00 | PROPOSED SPOT ELEVATION |
| | NEW CONCRETE |
| | NEW ASPHALT |



CALCULATIONS

Site Characteristics

- Precipitation Zone = 2
- $P_{6,100} = P_{360} = 2.35$ in.
- Total Area (A_T) = 0.85 ac
- Existing Land Treatment

Basin "A"	Area (sf/ac)	%
Treatment		
B	2,400/0.06	7.8
C	8,580/0.19	24.3
D	23,090/0.53	67.9

Basin "B"	Area (sf/ac)	%
Treatment		
B	2,709/0.06	85.7
D	120/0.01	14.2

5. Developed Land Treatment

Basin "A"	Area (sf/ac)	%
Treatment		
B	2,400/0.06	8.6
C	5,320/0.12	17.1
D	22,500/0.52	74.3

Basin "B"	Area (sf/ac)	%
Treatment		
B	2,570/0.06	37.5
D	4,465/0.10	62.5

6. Future Land Treatment

Basin "A"	Area (sf/ac)	%
Treatment		
B	2,400/0.06	10.7
C	21,950/0.50	89.3

Basin "B"	Area (sf/ac)	%
Treatment		
B	2,570/0.06	20.7
D	10,195/0.23	79.3

Existing Condition

A. Basin A

1. Volume

$$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_W = [(0.78)(0.06) + (1.13)(0.19) + (2.12)(0.53)] / 0.78 = 1.77 \text{ in.}$$

$$V_{100} = (E_W / 12) A_T$$

$$V_{100} = (1.77 / 12) \times 33,980 = 5,020 \text{ cf}$$

2. Peak Discharge

$$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_p = Q_{100} = (2.28)(0.06) + (3.14)(0.19) + (4.70)(0.53) = 3.2 \text{ cfs}$$

B. Basin B

1. Volume

$$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_W = [(0.78)(0.06) + (2.12)(0.01)] / 0.07 = 1.00 \text{ in.}$$

$$V_{100} = (E_W / 12) A_T$$

$$V_{100} = (1.00 / 12) \times 2,829 = 240 \text{ cf}$$

2. Peak Discharge

$$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.01)] = 0.2 \text{ cfs}$$

Developed Condition

A. Basin A

1. Volume

$$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_W = [(0.78)(0.06) + (1.13)(0.12) + (2.12)(0.52)] / 0.70 = 1.84 \text{ in.}$$

$$V_{100} = (E_W / 12) A_T$$

$$V_{100} = (1.84 / 12) \times 30,220 = 4,640 \text{ cf}$$

2. Peak Discharge

$$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_p = Q_{100} = [(2.28)(0.06) + (3.14)(0.12) + (4.70)(0.52)] = 3.0 \text{ cfs}$$

B. Basin B

1. Volume

$$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_W = [(0.78)(0.06) + (2.12)(0.10)] / 0.16 = 1.63 \text{ in.}$$

$$V_{100} = (E_W / 12) A_T$$

$$V_{100} = (1.63 / 12) \times 7,035 = 960 \text{ cf}$$

2. Peak Discharge

$$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.10)] = 0.6 \text{ cfs}$$

Future Condition

A. Basin A

1. Volume

$$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_W = [(0.78)(0.06) + (2.12)(0.50)] / 0.56 = 1.98 \text{ in.}$$

$$V_{100} = (E_W / 12) A_T$$

$$V_{100} = (1.98 / 12) \times 24,350 = 4,020 \text{ cf}$$

2. Peak Discharge

$$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.50)] = 2.5 \text{ cfs}$$

B. Basin B

1. Volume

$$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_W = [(0.78)(0.06) + (2.12)(0.23)] / 0.29 = 1.86 \text{ in.}$$

$$V_{100} = (E_W / 12) A_T$$

$$V_{100} = (1.86 / 12) \times 12,765 = 1,980 \text{ cf}$$

2. Peak Discharge

$$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_p = Q_{100} = [(2.28)(0.06) + (4.70)(0.23)] = 1.2 \text{ cfs}$$

Comparison:

A. Developed Condition

Basin "A"

$$1. \Delta V_{100} = 5,020 - 4,640 = 380 \text{ cf (decrease)}$$

$$2. \Delta Q_{100} = 3.2 - 3.0 = 0.2 \text{ cfs (decrease)}$$

Basin "B"

$$1. \Delta V_{100} = 960 - 240 = 720 \text{ cf (increase)}$$

$$2. \Delta Q_{100} = 0.6 - 0.2 = 0.4 \text{ cfs (increase)}$$

B. Future Condition

Basin "A"

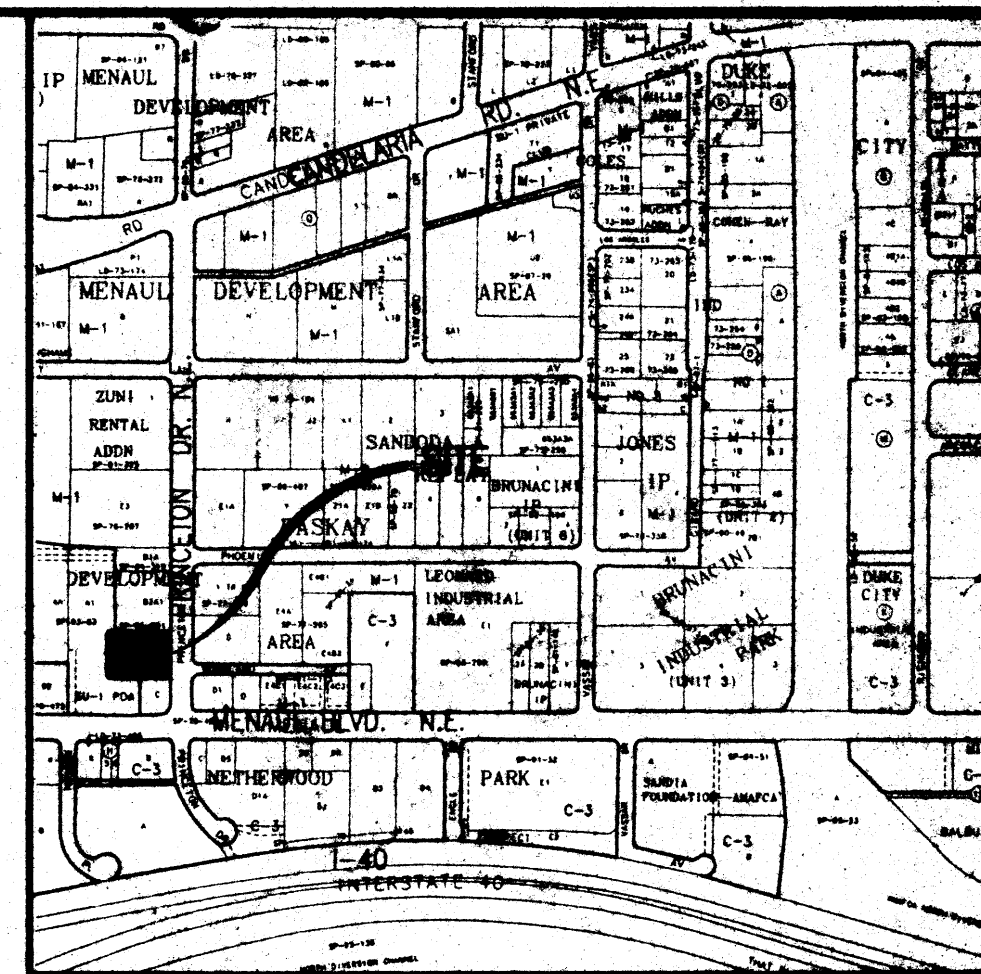
$$1. \Delta V_{100} = 5,020 - 4,020 = 1,000 \text{ cf (decrease)}$$

$$2. \Delta Q_{100} = 3.2 - 2.5 = 0.7 \text{ cfs (decrease)}$$

Basin "B"

$$1. \Delta V_{100} = 1,980 - 240 = 1,740 \text{ cf (increase)}$$

$$2. \Delta Q_{100} = 1.2 - 0.2 = 1.0 \text{ cfs (increase)}$$



VICINITY MAP

SCALE: 1" = 750'

LEGAL DESCRIPTION

TRACT B-3, MENAU DEVELOPMENT AREA

SEPT. 27, 1978; C14-14.

NOTE: THIS IS NOT A BOUNDARY SURVEY. APPARENT PROPERTY CORNERS ARE SHOWN FOR ORIENTATION ONLY. BOUNDARY DATA SHOWN IS BASED UPON THE SURVEY PERFORMED BY SOUTHWEST SURVEYING CO., INC. ON JULY, 1995.

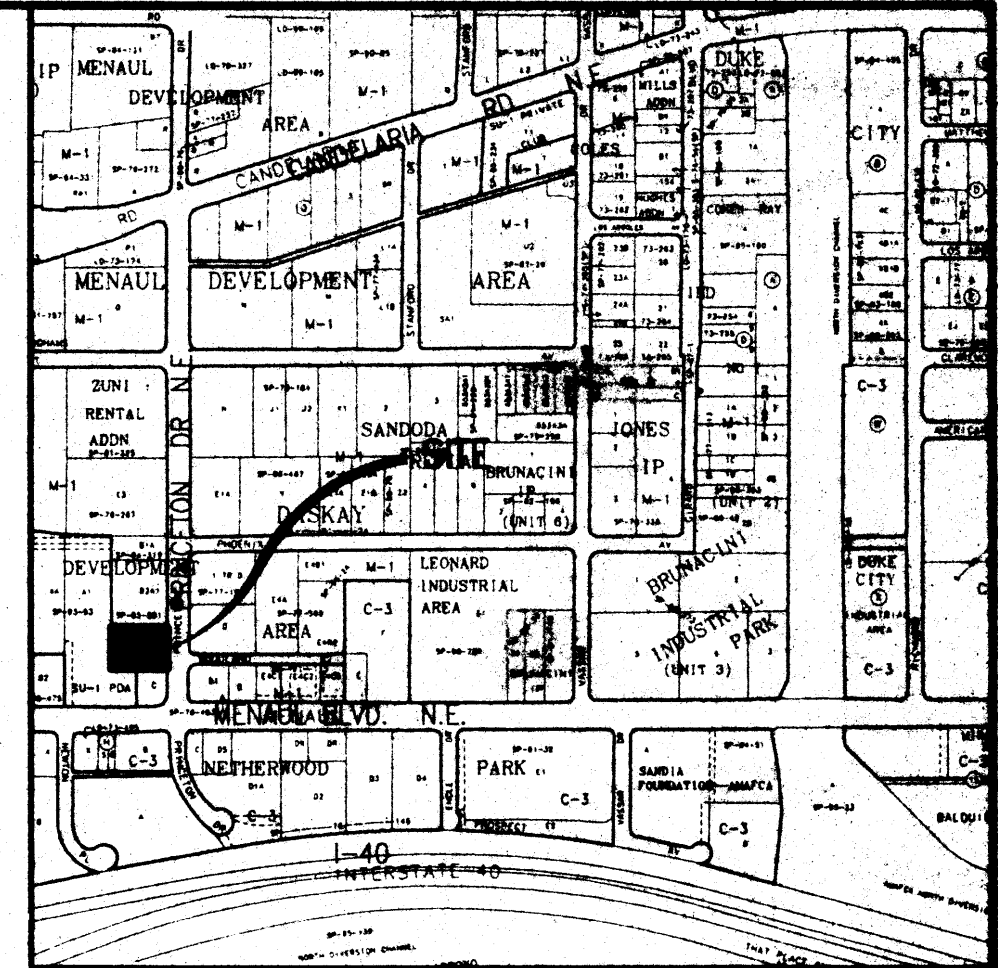
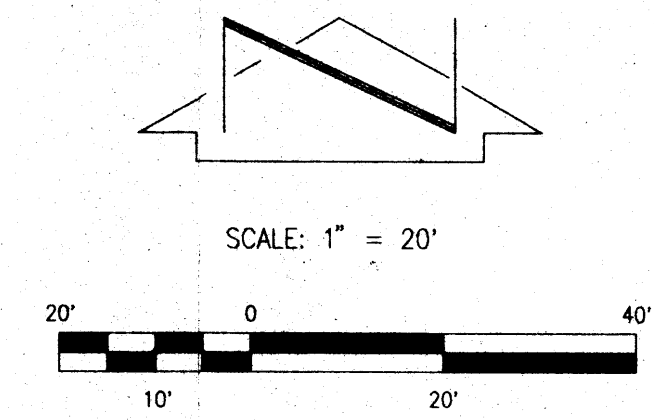
Construction Notes:

- Two (2) working days prior to any excavation, contractor must contact New Mexico One Call System 260-1990 (Albuquerque Area), 1-800-321-ALERT(2537) (Statewide), for location of existing utilities.
- Prior to construction, the contractor shall excavate and verify the horizontal and vertical location of all potential obstructions. Should a conflict exist, the contractor shall notify the engineer in writing so that the conflict can be resolved with a minimum amount of delay. The Contractor shall be responsible for all interpretations it makes without first contacting the Engineer as required above.
- All work on this project shall be performed in accordance with applicable federal, state and local laws, rules and regulations concerning construction safety and health.
- All construction within public right-of-way shall be performed in accordance with applicable City of Albuquerque Standards and Procedures.
- If any utility lines, pipelines, or underground utility lines are shown on these drawings, they are shown in an approximate manner only, and such lines may exist where none are shown. If any such existing lines are shown, the location is based upon information provided by the owner of said utility, and the information may be incomplete, or may be obsolete by the time construction commences. The engineer has conducted only preliminary investigation of the location, depth, size, or type of existing utility lines, pipelines, or underground utility lines. This investigation is not conclusive, and may not be complete, therefore, makes no representation pertaining thereto, and assumes no responsibility or liability therefor. The contractor shall inform itself of the location of any utility line, pipeline, or underground utility line in or near the area of the work in advance of and during excavation work. The contractor is fully responsible for any and all damage caused by its failure to locate, identify and preserve any and all existing utilities, pipelines, and underground utility lines. In planning and conducting excavation, the contractor shall comply with state statutes, municipal and local ordinances, rules and regulations, if any, pertaining to the location of these lines and facilities.
- The design of planters and landscaped areas is not part of this plan. All planters and landscaped areas adjacent to the building(s) shall be provided with positive drainage to avoid any ponding adjacent to the structure. For construction details, refer to landscaping plan.

Erosion Control Measures:

- The contractor shall ensure that no soil erodes from the site into public right-of-way or onto private property.
- The contractor shall promptly clean up any material excavated within the public right-of-way so that the excavated material is not susceptible to being washed down the street.
- The contractor shall secure "Topsoil Disturbance Permit" prior to beginning construction.





VICINITY MAP H-16

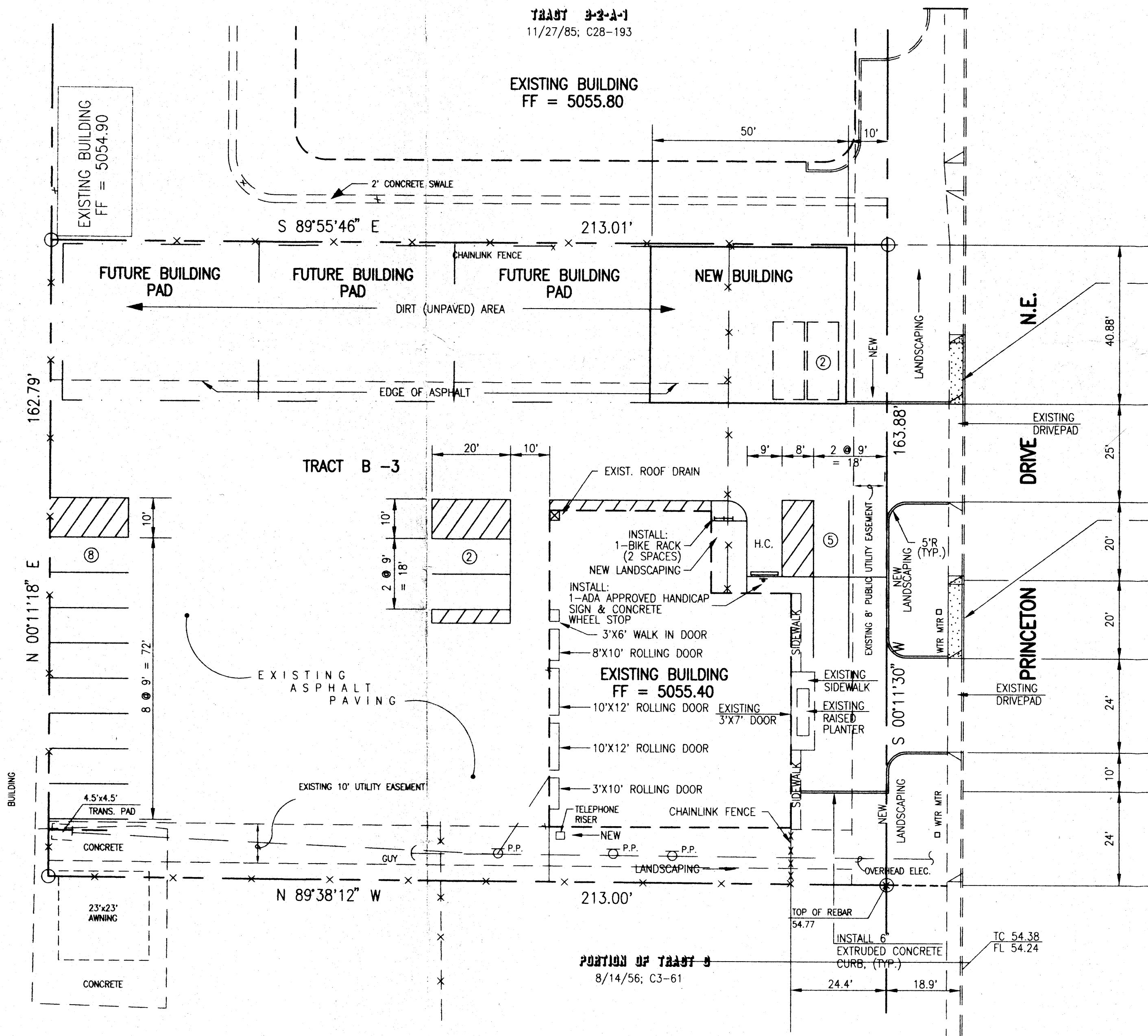
SCALE: 1" = 750'±
LEGAL DESCRIPTION
 TRACT B-3, MENAUL DEVELOPMENT AREA
 SEPT. 27, 1978; C14-14.

STREET ADDRESS:
 2409 PRINCETON N.E.
 ALBUQUERQUE, NEW MEXICO, 87107

NOTE:
 THIS IS NOT A BOUNDARY SURVEY. APPARENT PROPERTY CORNERS
 ARE SHOWN FOR ORIENTATION ONLY. BOUNDARY DATA SHOWN IS BASED
 UPON THE SURVEY PERFORMED BY SOUTHWEST SURVEYING CO., INC.
 ON JULY 1995.

SITE INFORMATION

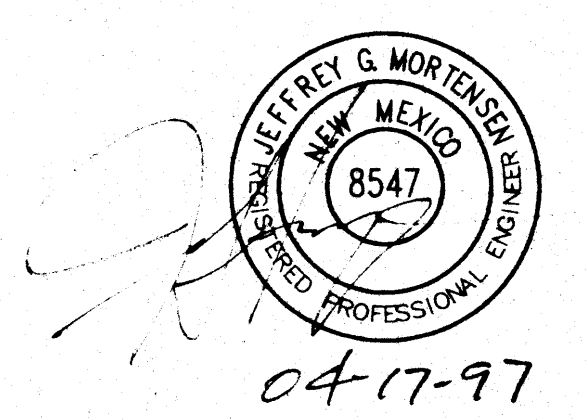
AREA:	34,790 SF± (0.80 AC.±)
ZONING:	M-1
PARKING ANALYSIS:	
1. REQUIREMENTS:	
EXISTING BUILDING	
OFFICE	2300 SF/200 = 12
WAREHOUSE	2300 SF/1000 = 3
NEW BUILDING	
WAREHOUSE	200 SF/1000 = 2
	17
2. ACTUAL	
REGULAR SPACES	14
HANDICAP SPACES	1
COVERED SPACES	2
	17



NEATLY SAWCUT, REMOVE & DISPOSE
 OF EXIST. DRIVEPAD & CURB & GUTTER.
 CONSTRUCT 4" SIDEWALK @ BACK OF CURB
 AND STANDARD CURB & GUTTER PER C.O.A.
 STD. DWG. 2415. REPLACE PAVING PER C.O.A.
 STD. DWG. 2465.

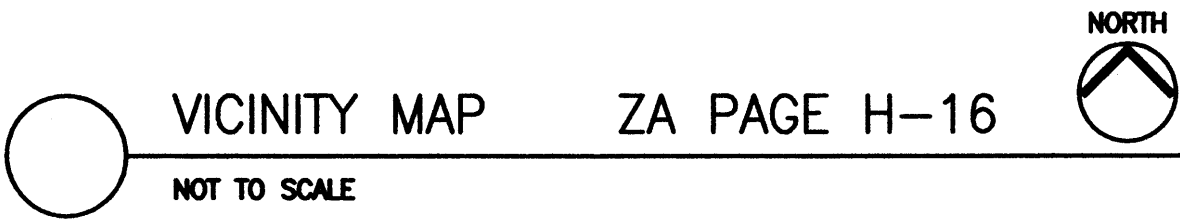
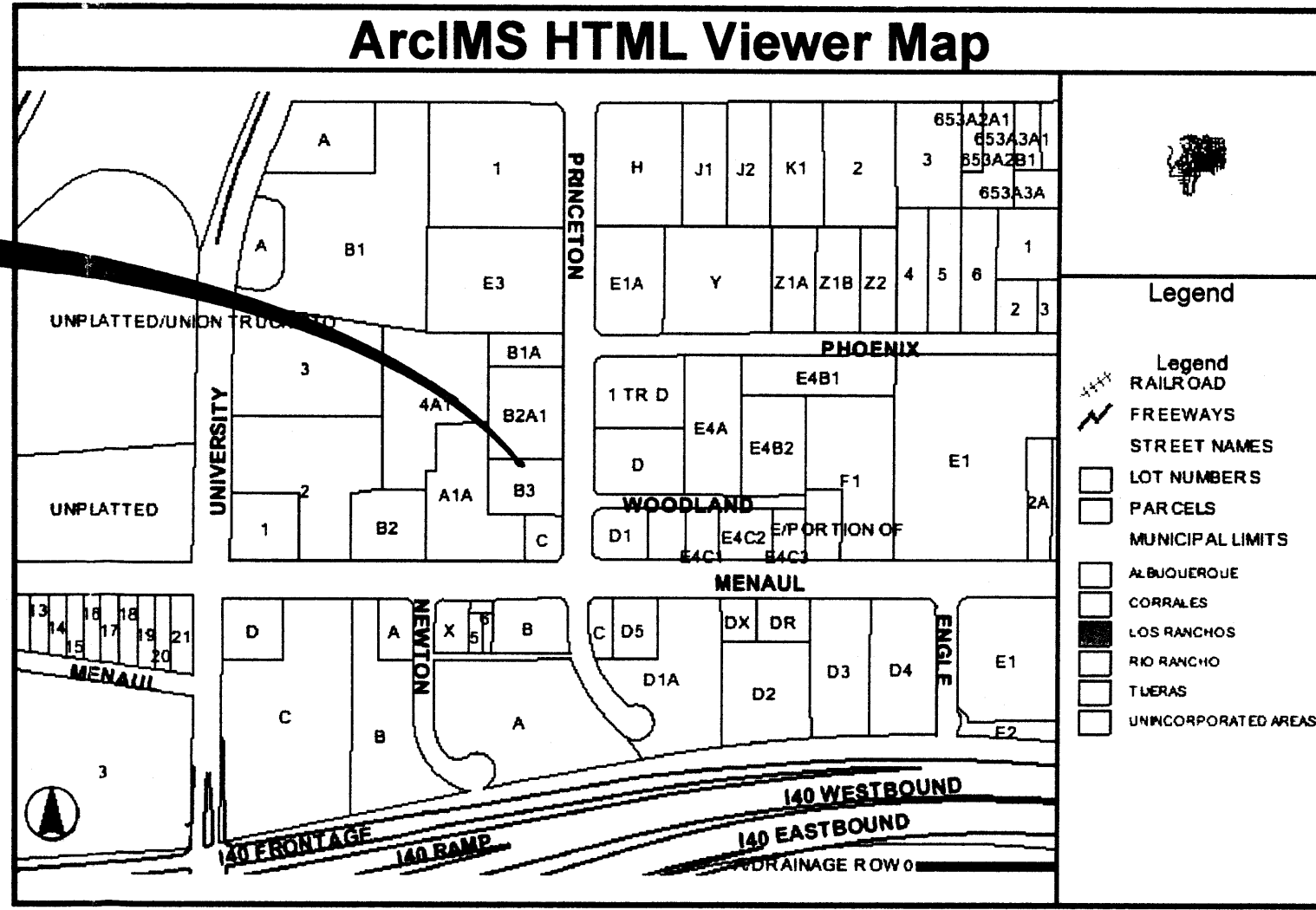
NEATLY SAWCUT, REMOVE & DISPOSE
 OF EXIST. DRIVEPAD & CURB & GUTTER.
 CONSTRUCT 4" SIDEWALK @ BACK OF CURB
 AND STANDARD CURB & GUTTER PER C.O.A.
 STD. DWG. 2415. REPLACE PAVING PER C.O.A.
 STD. DWG. 2465.

DESIGNED BY	DATE	BY	REVISIONS	JOB NO.
JGM				970221
DRAWN BY	DATE	BY	REVISIONS	JOB NO.
SCH				03-1997
APPROVED BY	DATE	BY	REVISIONS	JOB NO.
JGM				04-17-97
				1 OF 2



**A WAREHOUSE FOR
ARMSTRONG SERVICES INC.**

2409 PRINCETON NE
ALBUQUERQUE, NEW MEXICO



LEGEND

HANDICAP ACCESS ROUTE (1 TO 20 MAXIMUM SLOPE) → → → → →

BUILDING ENTRY ▲

**TRAFFIC CIRCULATION LAYOUT
APPROVED**

TES 3/15/06

Signed _____ Date _____

Cinelli / Roger Cinelli & Assoc.
ARCHITECTS 2418 Manuel Torres Lane N.W.
Albuquerque, New Mexico 87107
(505) 243-8211

PROJECT TITLE:
**WAREHOUSE FACILITY FOR
ARMSTRONG SERVICES INC.
2409 PRINCETON NE
ALBUQUERQUE, NEW MEXICO**

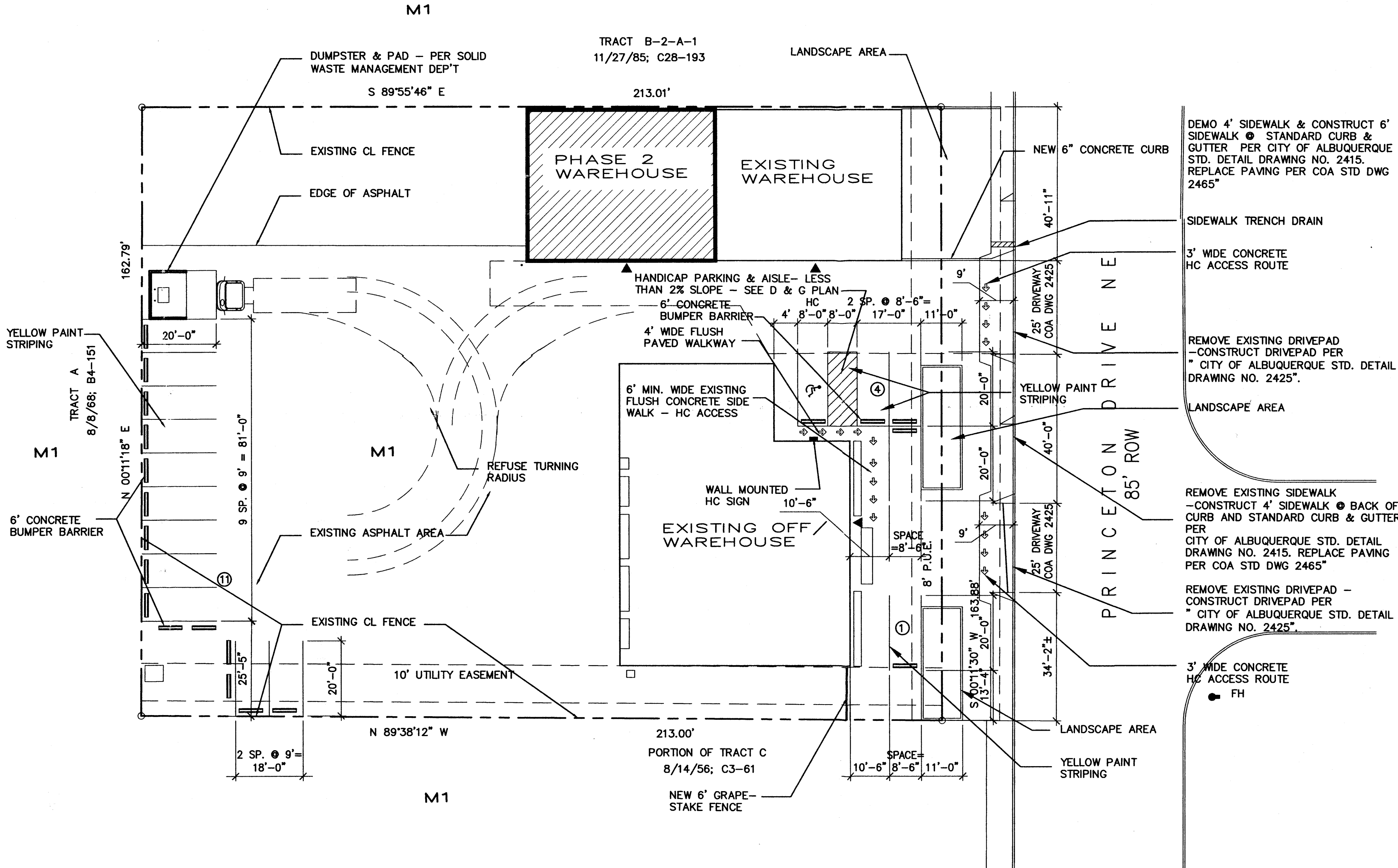
DRAWING TITLE:
TRAFFIC CONTROL LAYOUT

SEAL DATE FEB 2006 PROJECT NO. ARM
DRAWING NO. C102
SHEET 2 OF 2

PARKING REQUIREMENTS

PARKING REQUIREMENTS
8600 SF TOTAL AREA
2300 SF EX'G OFFICE DIVIDED BY 200 = 12 PARKING SPACES
4300 SF EX'G WAREHOUSE DIVIDED BY 2000 = 3 PARKING SPACES
2000 SF NEW WAREHOUSE DIVIDED BY 2000 = 1 PARKING SPACE
TOTAL SPACES REQUIRED 15 PARKING SPACES & 1 HC VAN SPACE

STANDARD 8'-6" X 20'	15
HANDICAP VAN (8'-0" X 20')	1
TOTAL	16 PARKING SPACES PROVIDED



TRAFFIC CONTROL PLAN
1" = 20'