DRAINAGE INFORMATION

G-16

57C

PROJECT TITLE: Division of Vocational Rehabilitation Addition

ZONE ATLAS/DRNG. FILE #: G-16-Z

DRB#: N/A EPC #: N/A WORK ORDER #: N/A

LEGAL DESCRIPTION: Tracts A-3-A-1-C AND A-3-A-1-B Candelaria Business Center

CITY ADDRESS: Alta Monte Avenue NE

ENGINEERING FIRM: Chavez-Grieves CONTACT: Benny McMillan

ADDRESS: 5639 Jefferson NE PHONE: 344-4080

OWNER: Wisznia & Associates Architects CONTACT: Walter Wisznia

ADDRESS: 1740 Tower II, Corpus Christi,TX PHONE: 512-884-8881

ARCHITECT: Wisznia & Associates Architects CONTACT: Jeff Cohen

ADDRESS: 812 Perdido, New Orleans, LA PHONE: 504-581-1948

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

_X_ ENGINEER'S CERTIFICATION

___ OTHER

PRE-DESIGN MEETING:

___ YES

___ NO

___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAT APPROVAL

____ PRELIMINARY PLAT APPROVAL

____ S. DEV. PLAN FOR SUB'D. APPROVAL

____ S. DEV. PLAN FOR BLDG. PRMT. APPROVAL

____ SECTOR PLAN APPROVAL

____ FINAL PLAT APPROVAL

____ FOUNDATION PERMIT APPROVAL

____ BUILDING PERMIT APPROVAL

__X__ CERTIFICATE OF OCCUPANCY APPROVAL

____ GRADING PERMIT APPROVAL

____ PAVING PERMIT APPROVAL

____ S.A.D. DRAINAGE REPORT

____ DRAINAGE REQUIREMENTS

____ OTHER

DATE SUBMITTED: August 7, 1998

BY: Benny E. McMillan

RECEIVED
AUG 7 1998
HYDROLOGY SECTION

CITY OF
Albuquerque

March 16, 1998

James Alarid
Chavez-Grieves
5639 Jefferson NE
Albuquerque, NM 87109

RE: DIVISION OF VOCATIONAL REHABILITATION ADDITION (G16-D57C). DRAINAGE REPORT FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED 3-6-98.

Dear Mr. Alarid:

Based on the information provided on your March 9, 1998 submittal, the above referenced project is approved for Building Permit.

Prior to Certificate of Occupancy approval an 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

CITY OF
Albuquerque

February 6, 1998

James Alarid
Chavez-Grieves
5639 Jefferson NE
Albuquerque, NM 87109

RE: DIVISION OF VOCATIONAL REHABILITATION ADDITION (G16-D57C). DRAINAGE REPORT FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED 1-5-98 (SHEET C2) AND 1-13-98 (SHEETS DB1 AND DB2).

Dear Mr. Alarid:

Based on the information provided on your January 13, 1997 submittal, City Hydrology has the following comments:

1. Provide street names on all plan sheets.

2. Indicate where the existing rundown is. Where does it terminate? Show the Candeleria interceptor.

3. On sheet C2, provide actual spot elevation on the south side. It should be clear that water flows to the west.

3. Provide a invert elevation for your 2-inch storm drain outlet.

4. Consider something other than wood chips for your pond bottom. The wood chips will clog your pipe. A 2-inch pipe may be a maintenance problem.

5. I believe you are required to have a minimum of 10% type "B" land treatment on all development. Check the DPM for minimum requirements.

6. It appears that a cross lot drainage easement will be required for this development.

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

PROJECT TITLE: Division of Vocational Rehabilitation Addition

ZONE ATLAS/DRNG. FILE #: G-16-Z / D57C

DRB#: N/A EPC #: N/A WORK ORDER #: N/A

LEGAL DESCRIPTION: Tracts A-3-A-1-C AND A-3-A-1-B Candelaria Business Center

CITY ADDRESS: Alta Monte Avenue NE

ENGINEERING FIRM: Chavez-Grieves CONTACT: James Alarid

ADDRESS: 5639 Jefferson NE PHONE: 344-4080

OWNER: Wisznia & Associates Architects CONTACT: Walter Wisznia

ADDRESS: 1740 Tower II, Corpus Christi,TX PHONE: 512-884-8881

ARCHITECT: Wisznia & Associates Architects CONTACT: Jeff Cohen

ADDRESS: 812 Perdido, New Orleans, LA PHONE: 504-581-1948

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

TYPE OF SUBMITTAL:

X DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN

X EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

___ OTHER

PRE-DESIGN MEETING:

___ YES

X NO

___ COPY PROVIDED

DATE SUBMITTED: March 5, 1998

BY: James Alarid

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ S. DEV. PLAN FOR SUB'D. APPROVAL

___ S. DEV. PLAN FOR BLDG. PRMT. APPROVAL

___ SECTOR PLAN APPROVAL

___ FINAL PLAT APPROVAL

___ FOUNDATION PERMIT APPROVAL

X BUILDING PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ GRADING PERMIT APPROVAL

___ PAVING PERMIT APPROVAL

___ S.A.D. DRAINAGE REPORT

___ DRAINAGE REQUIREMENTS

OTHER

RECEIVED
MAR 0 9 1998
HYDROLOGY SECTION

THE ENGINEERING FIRM OF CHOICE

CHAVEZ · GRIEVES
CONSULTING ENGINEERS, INC.

5639 JEFFERSON STREET NE · ALBUQUERQUE, NEW MEXICO 87109 · PHONE (505) 344·4080 · FAX (505) 343·8759

March 5, 1998

Lisa Ann Manwill, P.E.
City of Albuquerque Hydrology
P.O. Box 1293
Albuquerque, NM 87103

RE: DRAINAGE REPORT AND GRADING AND DRAINAGE PLAN
DIVISION OF VOCATIONAL REHABILITATION ADDITION (G16-D57C)
ALBUQUERQUE, NEW MEXICO

Dear Ms. Manwill:

Transmitted herewith for building permit approval is the grading and drainage plan revised per your comments dated February 6, 1998. Your comments are addressed as follows:

1. Alta Monte Avenue NE has been labeled on all plan sheets.

2. The existing rundown is now labeled on the drawings. The Candelaria interceptor, a 66" RCP storm drain, is shown south of the site running through the adjacent property in a 30' C.O.A. interceptor ditch easement (94C-170). A detailed view of the 66" RCP, associated easements, and the drop inlet which receives flow from the site have been included shown on sheet DB-2 for clarification.

3a. Existing spot elevations are now shown along the south end of the property all along the path that the runoff will take from the parking lot and into the existing rundown.

3b. An invert elevation has been provided for the 2" storm drain outlet.

4. The location of the new pond is currently landscaped with wood chips. The note shown was to indicate existing conditions. Landscaping in the area of the pond will be 2" and larger gravel to prevent clogging the pump.

5. All of the landscaping on the site will consist of a variety of trees and plants in all areas except on the bottom and sloped sides of the pond. A 2" and larger gravel will be used in the pond. The tree and plant landscape is Type B and the gravel over plastic will be Type C. The land treatment distribution for the site is as follows:10%-Type B, 3%-Type C, and 87%-Type D.

6. A cross-lot drainage easement exists for the property. A copy has been included in the appendices of the report.

If you have any questions or wish to discuss this in more detail, please call me.

Sincerely,

CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC.

James Alarid, E.I.

G:\W35\100\DOCUMENT\MANWILL.WPD

CHAVEZ · GRIEVES
CONSULTING ENGINEERS, INC.
5639 JEFFERSON STREET NE • ALBUQUERQUE, NEW MEXICO 87109 • PHONE (505) 344-4080 • FAX (505) 343-8759

GRADING AND DRAINAGE PLAN

FOR

DIVISION OF VOCATIONAL REHABILITATION ADDITION

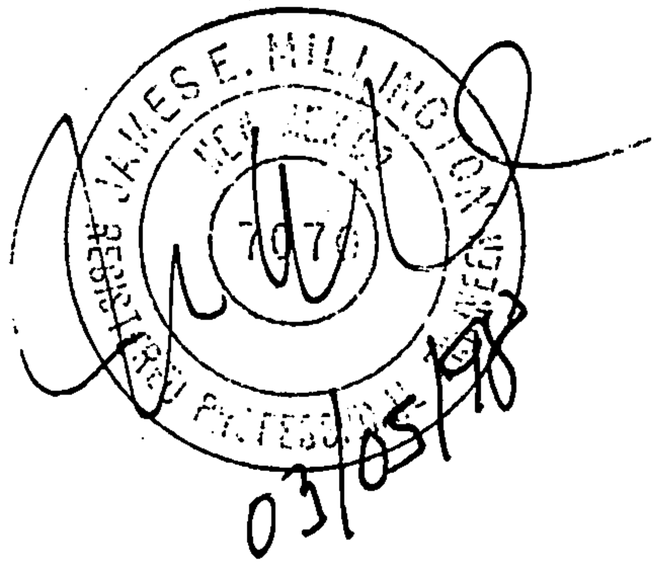
ALBUQUERQUE, NEW MEXICO

MARCH 1998

CHAVEZ · GRIEVES
CONSULTING ENGINEERS, INC.
5639 JEFFERSON STREET NE • ALBUQUERQUE, NEW MEXICO 87109 • PHONE (505) 344-4080 • FAX (505) 343-8759

GRADING AND DRAINAGE PLAN

DIVISION OF VOCATIONAL REHABILITATION ADDITION



03/05/98

MARCH 1998

LOCATION

The site of the Division of Vocational Rehabilitation (DVR) Addition is located south of Alta Monte Avenue NE between Lafayette Drive NE and Amherst Drive NE in Albuquerque, New Mexico. The addition will be constructed adjacent to the east wall of the existing DVR building.

LEGAL DESCRIPTION

The legal description of the property is Tracts A-3-A-1-C and A-3-A-1-B of the Candelaria Business Center.

ZONING

The property lies in the City of Albuquerque Zone Atlas map number G-16-Z. The site is currently zoned C-3.

FLOOD HAZARD ZONES

As shown by Panel 3500020351 of the National Flood Insurance Rate Maps for the City of Albuquerque, dated September 20, 1996, the site is not in a designated flood hazard zone. According to the grading plan by Jeff Mortensen & Associates, Inc., dated May 9, 1996, the northern portion of the site contributes to a flood hazard zone designated AO, Depth 2 which is located south of Comanche Road NE and east of the North Diversion Channel. Therefore no additional runoff will be diverted north to Alta Monte Avenue NE.

EXISTING SITE CONDITIONS AND DRAINAGE PATTERN

The site for the addition is currently asphalt parking and landscaped with wood chips. It slopes gradually from northeast to southwest at an average slope of approximately 3.0%. The runoff from the site flows southwest where it gathers at the curb flow line and is carried to a concrete rundown. From the rundown, the runoff flows to the south into a storm drain located south of the site. This storm drain discharges into the Candelaria Interceptor, which is located southwest of the site. Any runoff not taken into the storm drain will flow overland, above the storm drain, and eventually discharge into the Candelaria Interceptor. Offsite flows do not impact the site from the north due to a fully improved street with curb and gutter. The slope of the property adjacent to the east side of the site is such that flows do not enter the site. The peak discharge from the existing eastern portion of the site is 4.00 CFS. See existing basin sheet DB-1 in the appendices of this report for a detailed layout of the existing drainage conditions.

PROPOSED SITE CONDITIONS AND DRAINAGE PATTERN

The developed site will have a new 7,775 square-foot addition adjacent to the east wall of the existing building. A small portion of the existing parking lot will be removed to make room for the addition, but the majority of the lot will remain unchanged and maintain the same drainage pattern. The site will remain isolated from any offsite runoff. The increased discharge from the developed site will be detained in a new detention pond located on the north side of the new addition. A new pump will be installed to drain the pond since the topography of the site does not allow for any other means of draining the north side of the building. The pump will drain the pond at a rate of 0.21 CFS. The pond has been sized to hold the 10-day volume as required for retention ponds in the DPM. This was done to ensure the protection of the building in a worst case condition if the pump failed. The peak discharge of the developed eastern portion of the site (developed Basin B & C) will be 4.14 CFS. Note that runoff from developed Basin A is not included in the developed/pre-developed comparison since it is out of the area of study and only used to size the detention pond. The peak discharge from the site will be 4.13 cfs. This includes the retention pond pumped discharge (Basin A & B) and Basin C. See developed basin sheet DB-2 in the appendices of this report for a detailed layout of the developed drainage conditions.

HYDROLOGY/HYDRAULICS

The runoff calculations and design have been done in accordance with Section 22.2 of the Development Process Manual (DPM) of the City of Albuquerque, January 1993. The 100-year, 6-hour storm was used as the design storm event as required by the Section 22.2 of the DPM.

RELATED CITY OF ALBUQUERQUE SUBMITTALS

See grading and drainage report and plan completed by Jeff Mortensen & Associates, Inc., dated May 9, 1996 for the existing building and parking lot. The above mentioned report contains the analysis and design of the storm drain system through which we propose to discharge. For more information on the analysis of the storm drain south of the site and the nearby storm hazard zone, see grading plans by Bohannan-Huston, Inc., dated February 24, 1984, and by David Thompson, dated January 5, 1988.

Comparison of Generated Runoff

Basin	Undeveloped - CFS	Developed - CFS
A	4.00	0.24*
B	-	0.22
C	-	3.92
TOTAL ONSITE	***4.00***	***4.38***

*Developed Basin A out of limits of study, for purpose of sizing detention pond.

Runoff Discharge From Site

Basin	Undeveloped - CFS
A & B Pumped	0.21
C	3.92
TOTAL	4.13

APPENDIX A

HYDRAULIC COMPUTATIONS

```
     AHYMO PROGRAM (AHYMO_97) -- Version:  1997.02c
     RUN DATE (MON/DAY/YR) = 03/02/1998
     START TIME (HR:MIN:SEC) = 10:55:30
     USER NO.= AHYMO-I3Chavez-Grieves-C
     INPUT FILE = G:\W35\100\DOCUMENT\AHYMODVR.IN

*S**************************************************************************
*S******************    CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC.   ********
*S********************     DIVISION OF VOCATIONAL REHABILITATION    *********
*S**************************************************************************
*S**************************************************************************
*S 100 YEAR STORM, 6 HOUR STORM
START                TIME=0.00 PUNCH CODE=0
RAINFALL             TYPE=1 RAIN QUARTER=0.0 RAIN ONE=1.97
                     RAIN SIX=2.25 RAIN DAY=2.60  DT=0.03333

                COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                DT =    .033330 HOURS       END TIME =     5.999400 HOURS
                   .0000   .0011   .0023   .0034   .0046   .0059   .0071
                   .0084   .0097   .0111   .0124   .0139   .0153   .0168
                   .0184   .0199   .0216   .0233   .0250   .0268   .0287
                   .0307   .0327   .0348   .0370   .0393   .0417   .0442
                   .0469   .0497   .0527   .0581   .0639   .0702   .0835
                   .1134   .1594   .2255   .3157   .4342   .5853   .7735
                  1.0032  1.2164  1.3054  1.3806  1.4475  1.5083  1.5643
                  1.6163  1.6648  1.7104  1.7532  1.7936  1.8318  1.8680
                  1.9022  1.9347  1.9655  1.9948  2.0225  2.0285  2.0339
                  2.0391  2.0440  2.0487  2.0531  2.0574  2.0615  2.0654
                  2.0692  2.0729  2.0764  2.0799  2.0832  2.0864  2.0896
                  2.0926  2.0956  2.0985  2.1013  2.1041  2.1068  2.1094
                  2.1120  2.1145  2.1169  2.1194  2.1217  2.1241  2.1263
                  2.1286  2.1308  2.1329  2.1350  2.1371  2.1392  2.1412
                  2.1432  2.1451  2.1471  2.1490  2.1508  2.1527  2.1545
                  2.1563  2.1581  2.1598  2.1615  2.1632  2.1649  2.1666
                  2.1682  2.1698  2.1714  2.1730  2.1746  2.1761  2.1776
                  2.1791  2.1806  2.1821  2.1836  2.1850  2.1864  2.1879
                  2.1893  2.1906  2.1920  2.1934  2.1947  2.1961  2.1974
                  2.1987  2.2000  2.2013  2.2026  2.2038  2.2051  2.2063
                  2.2076  2.2088  2.2100  2.2112  2.2124  2.2136  2.2147
                  2.2159  2.2171  2.2182  2.2193  2.2205  2.2216  2.2227
                  2.2238  2.2249  2.2260  2.2271  2.2281  2.2292  2.2302
                  2.2313  2.2323  2.2334  2.2344  2.2354  2.2364  2.2374
                  2.2384  2.2394  2.2404  2.2414  2.2424  2.2434  2.2443
                  2.2453  2.2462  2.2472  2.2481  2.2491  2.2500

*S  COMPUTE THE RUNOFF FROM THE EXISTING BASINS.
*S EXISTING BASIN A
COMPUTE NM HYD       ID=1  HYD=EXIST-A  DA=.0014875 SQ MI
                     %A=0  %B=0  %C=26  %D=74
                     TP=0.1333  RAINFALL=-1

     K =    .072649HR     TP =    .133300HR     K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   4.3458     CFS   UNIT VOLUME =     .9969       B =  526.28       P60 = 1.9700
     AREA =       .001101 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  .033330

     K =    .106995HR     TP =    .133300HR     K/TP RATIO =    .802661     SHAPE CONSTANT, N =  4.461616
     UNIT PEAK =   1.1166     CFS   UNIT VOLUME =     .9893       B =   384.85       P60 = 1.9700
     AREA =       .000387 SQ MI     IA =     .35000 INCHES     INF =     .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD            ID=1  CODE=1
```

```
                                HYDROGRAPH FROM AREA EXIST-A

    RUNOFF VOLUME =     1.77109 INCHES     =        .1405 ACRE-FEET
    PEAK DISCHARGE RATE =      4.00 CFS  AT   1.500 HOURS   BASIN AREA =    .0015 SQ. MI.


*S DEVELOPED BASIN A
COMPUTE NM HYD      ID=2  HYD=DEVEL-A  DA=.0000781 SQ MI
                    %A=0  %B=0  %C=0  %D=100
                    TP=0.1333  RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   .30834    CFS   UNIT VOLUME =    .9610       B =   526.28      P60 = 1.9700
     AREA =      .000078 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=2  CODE=1

                                HYDROGRAPH FROM AREA DEVEL-A

    RUNOFF VOLUME =     2.01675 INCHES     =        .0084 ACRE-FEET
    PEAK DISCHARGE RATE =       .24 CFS  AT   1.500 HOURS   BASIN AREA =    .0001 SQ. MI.


*S DEVELOPED BASIN B
COMPUTE NM HYD      ID=3  HYD=DEVEL-B  DA=.0001109 SQ MI
                    %A=0  %B=50  %C=30  %D=20
                    TP=0.1333  RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   .87568E-01CFS   UNIT VOLUME =    .8874       B =   526.28      P60 = 1.9700
     AREA =      .000022 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


     K =   .122376HR    TP =   .133300HR    K/TP RATIO =   .918051     SHAPE CONSTANT, N =  3.855965
     UNIT PEAK =   .22992    CFS   UNIT VOLUME =    .9433       B =   345.45      P60 = 1.9700
     AREA =      .000089 SQ MI    IA =    .44375 INCHES    INF =   1.09250 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=3  CODE=1

                                HYDROGRAPH FROM AREA DEVEL-B

    RUNOFF VOLUME =     1.07868 INCHES     =        .0064 ACRE-FEET
    PEAK DISCHARGE RATE =       .22 CFS  AT   1.500 HOURS   BASIN AREA =    .0001 SQ. MI.


*S DEVELOPED BASIN C
COMPUTE NM HYD      ID=4  HYD=DEVEL-C  DA=.001377 SQ MI
                    %A=0  %B=7  %C=0  %D=93
                    TP=0.1333  RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   5.0559    CFS   UNIT VOLUME =    .9973       B =   526.28      P60 = 1.9700
     AREA =      .001281 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330
```

```
    K =   .131605HR     TP =   .133300HR     K/TP RATIO =   .987285     SHAPE CONSTANT, N =  3.576399
    UNIT PEAK =   .23563     CFS   UNIT VOLUME =     .9401       B =   325.86      P60 = 1.9700
    AREA =       .000096 SQ MI     IA =     .50000 INCHES     INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD           ID=4  CODE=1

                                        HYDROGRAPH FROM AREA DEVEL-C


    RUNOFF VOLUME =     1.92666 INCHES      =         .1415 ACRE-FEET
    PEAK DISCHARGE RATE =      3.92 CFS  AT    1.500 HOURS   BASIN AREA =    .0014 SQ. MI.


* ADD DEVELOPED BASIN A & B
ADD HYD             ID=5 HYD=POND_IN ID I=2 ID II=3
PRINT HYD           ID=5 CODE=1

                                        HYDROGRAPH FROM AREA POND_IN


    RUNOFF VOLUME =     1.45478 INCHES      =         .0147 ACRE-FEET
    PEAK DISCHARGE RATE =       .46 CFS  AT    1.500 HOURS   BASIN AREA =    .0002 SQ. MI.


FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 10:55:30
```

CHAVEZ - GRIEVES / CONSULTING ENGINEERS, Inc.

5639 Jefferson Street NE, Albuquerque, New Mexico 87109 *Phone (505) 344-4080 - Fax (505) 343-8759*

RETENTION POND VOLUME CALCULATIONS

By: James Alarid Date: MARCH 2, 1998

Project: NM Department of Vocational Rehab. Addition Zone Atlas: G-16

This procedure is in accordance with the City of Albuquerque Development Process Manual, Volume 2, Section 22.2, "Hydrology", Equations c-7 and a-9.

BASIN	Q_{360} (CFS)	V_{360} (AC-FT)	A_D (AC)	$V_{10\text{-DAY}}$ (AC-FT)	$V_{10\text{-DAY}}$ (CU-FT)
Basin A	0.46	0.0142	0.064	0.021	927.44

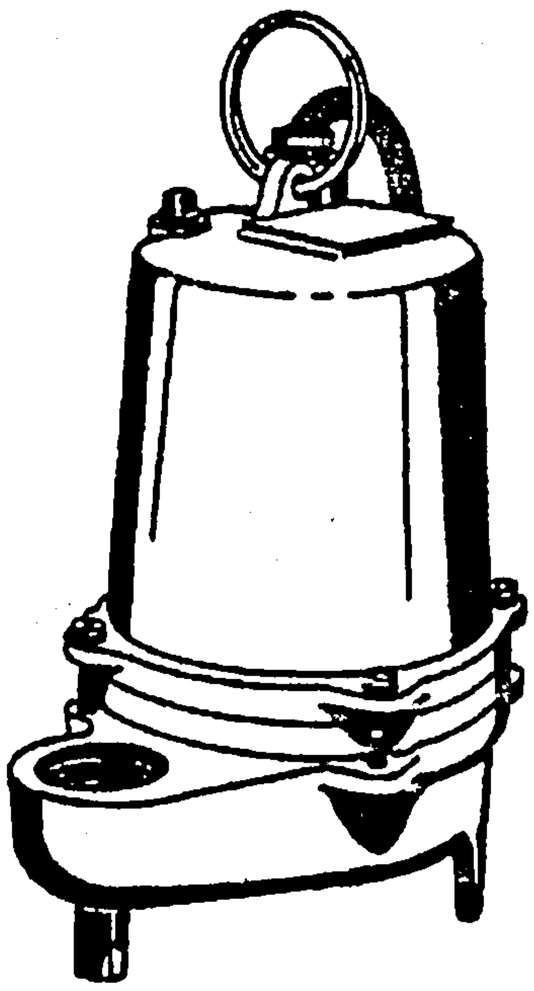
POND VOLUME:

ELEVATION	AREA (FT^2)	VOLUME (FT^3)
5120	265	
5121	449	357
5122	908	679

TOTAL VOLUME = 1,036 (FT^3) > 927.44

BARNES® SUBMERSIBLE NON-CLOG PUMPS
Series: SE, Manual & Automatic
1-1/2" Spherical Solids Handling

SECTION	1A
PAGE	1
DATE	6/96
REPLACES	1/96



Series: SE .4 HP 1750 RPM (SE411 & SE421)

Canadian Standards Association
File No. LR16567

Underwriters Laboratories Inc. ®
File No. E142177

Description:

SUBMERSIBLE NON-CLOG SEWAGE PUMP DESIGNED FOR TYPICAL RAW SEWAGE APPLICATIONS.

Sample Specifications: Section 1 Page 7.

Specifications

DISCHARGE:		2" (51mm) NPT, Vertical
LIQUID TEMPERATURE:		104° F (40° C) Continuous.
VOLUTE:		Cast Iron ASTM A-48, Class 30.
MOTOR HOUSING:		Cast Iron ASTM A-48, Class 30.
SEAL PLATE:		Cast Iron ASTM A-48, Class 30.
IMPELLER:		
	Design:	2 Vane, Open, With Pump Out Vanes On Back Side. Dynamically Balanced, ISO G6.3.
	Material:	Zytel 70G43 Nylon, Glass Filled.
SHAFT:		416 Stainless Steel.
SQUARE RINGS:		Buna-N
HARDWARE:		300 Series Stainless Steel.
PAINT:		Air Dry Enamel.
SEAL:	*Design:*	Single Mechanical, Oil-Filled Reservoir, Secondary Exclusion Seal.
	Material:	Rotating Face - Carbon Stationary Face - Ceramic Elastomer - Buna-N Hardware - 300 Series Stainless
CABLE ENTRY:		15 ft. (4.6M) Cord w/Plug On 115 Volt, Pressure Grommet For Sealing And Strain Relief.
SPEED:		1750 RPM (Nominal).
UPPER BEARING:		
	Design:	Sleeve
	Lubrication:	Oil
	Load:	Radial
LOWER BEARING:		
	Design:	Single Row, Ball
	Lubrication:	Oil
	Load:	Radial & Thrust
MOTOR:		
	Design:	NEMA L Torque Curve. Completely Oil-Filled, Squirrel Cage Induction.
	Insulation:	Class A.
SINGLE PHASE:		Permanent Split Capacitor (PSC). Includes Overload Protection In Motor.
FLOAT:		Automatic Models. Wide Angle, Polypropylene, 15ft. (4.6M) Cable. SE411A, Float w/Plug Attached To Discharge Piping, SE411AU & SE421AU Float Attached To Pump. ON and OFF Points are Adjustable.
OPTIONAL EQUIPMENT:		Seal Material, Additional Cable and Cast Iron Impeller.

CRANE PUMPS & SYSTEMS

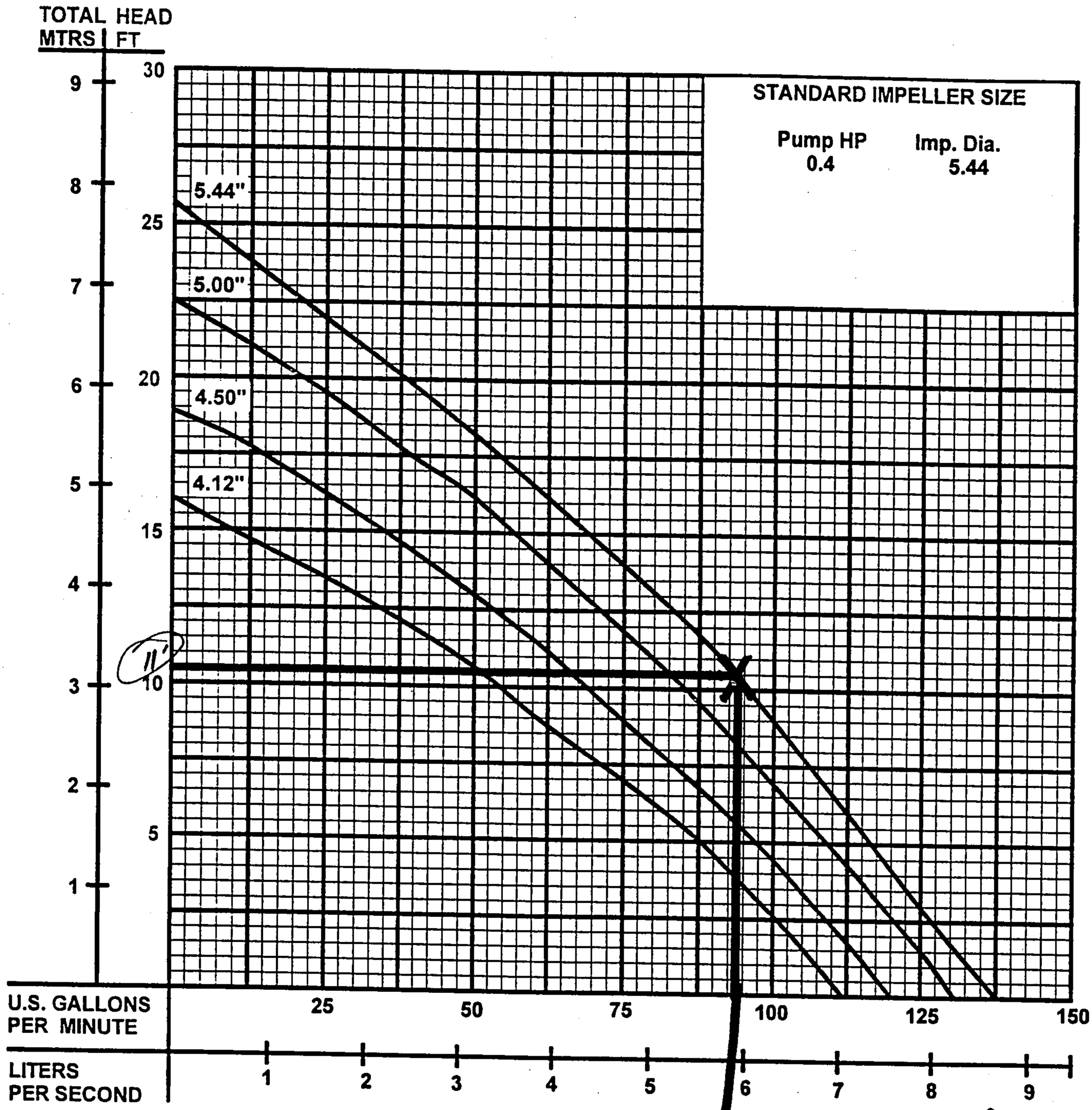
Barnes Pumps, Inc
Distributor Sales & Service Dept.
420 Third Street/P.O. Box 603
Piqua, Ohio 45356-0603
Ph: (513) 773-2442
Fax: (513) 773-2238

Barnes Pumps, Inc.
Bid-To-Spec & Project Sales
1485 Lexington Ave.
Mansfield, Ohio 44907-2674
Ph: (419) 774-1511
Fax: (419) 774-1530

Barnes Pumps Canada, Inc.
83 West Drive
Bramalea, Ontario
Canada L6T 2J6
Ph: (905) 457-6223
Fax: (905) 457-2650

PERFORMANCE CURVE
Series: SE ,0.4 HP, 1750RPM
Manual & Automatic

SECTION	1A
PAGE	3
DATE	6/96
REPLACES	1/96



Testing is performed with water, specific gravity of 1.0 @ 68° F, other fluids may vary performance.

CRANE PUMPS & SYSTEMS

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Ph: (905) 457-6223
Fax: (905) 457-2650

Submersible Wastewater Pump Association SWPA MEMBER

SECTION	1A
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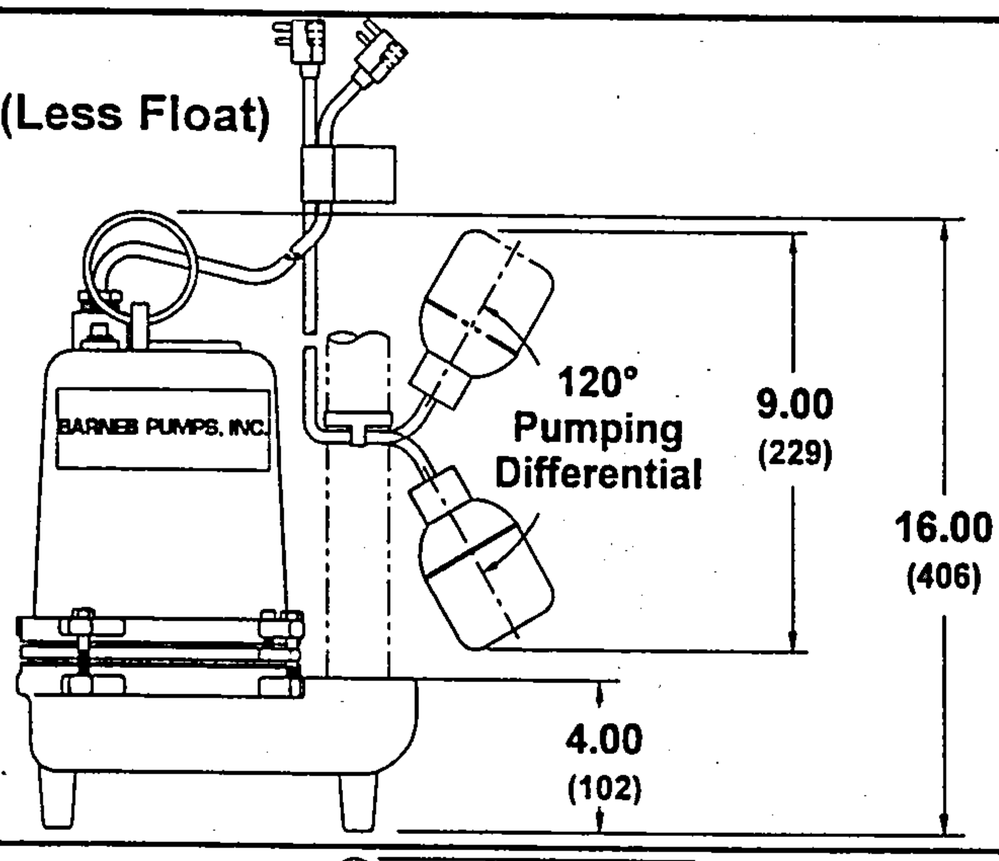
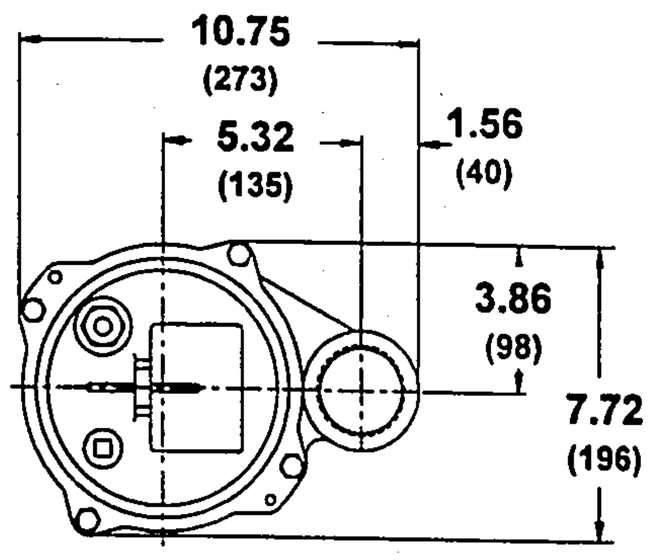
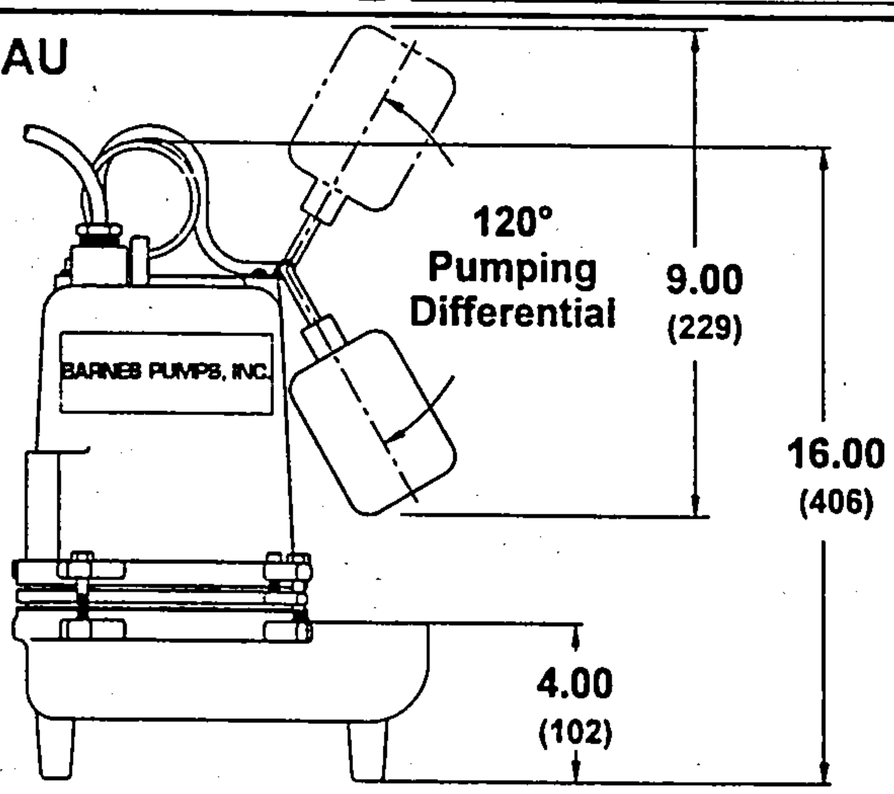
SE411A
SE411 & SE421 (Less Float)

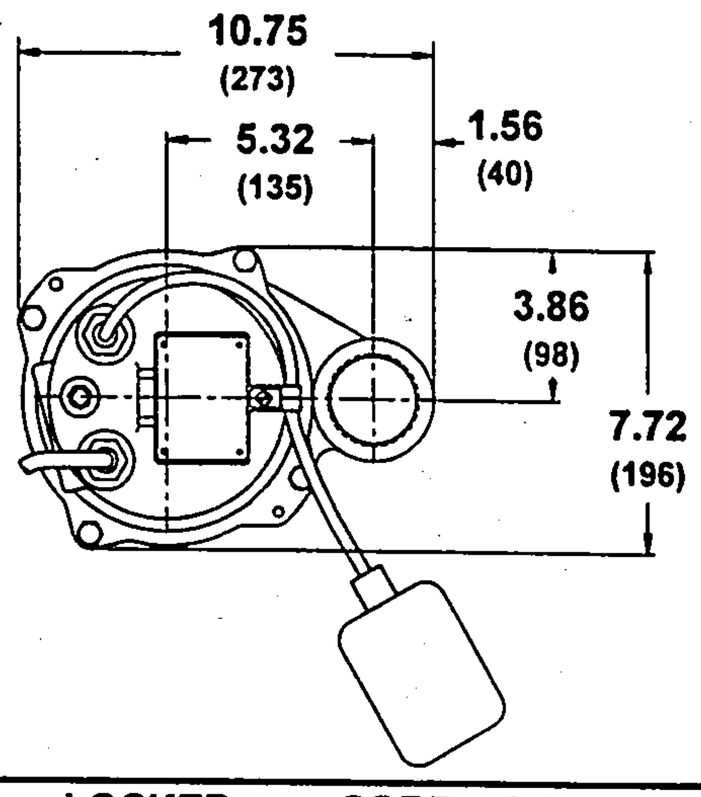
inches (mm)





SE411AU & 421AU





MODEL NO.	PART NO.	HP	VOLT	PH	RPM (Nom)	NEMA START CODE	FULL LOAD AMPS	LOCKED ROTOR AMPS	CORD SIZE	CORD TYPE	CORD OD
SE411	068701	0.4	115	1	1750	A	10.0	19.0	14/3	SJTOW-A	0.390
SE411A	082215	0.4	115	1	1750	A	10.0	19.0	14/3	SJTOW-A	0.390
SE411AU	093193	0.4	115	1	1750	A	10.0	19.0	14/3	SJTOW-A	0.390
SE421	082089	0.4	230	1	1750	A	5.0	9.5	14/3	SJTOW-A	0.390
SE421AU	093195	0.4	230	1	1750	A	5.0	9.5	14/3	SJTOW-A	0.390

Mercury Switch on SE411A, Cable 16/2, SJOW-A, 0.320 O.D., Piggy-Back Plug.
Mechanical Switch (SE411AU & SE421AU), Cable 14/2, SJOOW-A (UL), SJOW (CSA), 0.370 O.D.

IMPORTANT !

1) PUMP MAY BE OPERATED "DRY" FOR EXTENDED PERIODS WITHOUT DAMAGE TO MOTOR AND/OR SEALS.
2) THIS PUMP IS APPROPRIATE FOR THOSE APPLICATIONS SPECIFIED AS CLASS I DIVISION II HAZARDOUS LOCATIONS.
3) THIS PUMP IS **NOT** APPROPRIATE FOR THOSE APPLICATIONS SPECIFIED AS CLASS I DIVISION I HAZARDOUS LOCATIONS.
4) INSTALLATIONS SUCH AS DECORATIVE FOUNTAINS OR WATER FEATURES PROVIDED FOR VISUAL ENJOYMENT MUST BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE ANSI/NFPA 70 AND/OR THE AUTHORITY HAVING JURISDICTION. THIS PUMP IS NOT INTENDED FOR USE IN SWIMMING POOLS, RECREATIONAL WATER PARKS, OR INSTALLATIONS IN WHICH HUMAN CONTACT WITH PUMPED MEDIA IS A COMMON OCCURRENCE.

CRANE PUMPS & SYSTEMS

Barnes Pumps, Inc
Distributor Sales & Service Dept.
420 Third Street/P.O. Box 603
Piqua, Ohio 45356-0603
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83 West Drive
Bramalea, Ontario
Canada L6T 2J6
Ph: (905) 457-6223
Fax: (905) 457-2650

Submersible Wastewater Pump Association SWPA MEMBER

STEWART TITLE OF ALBUQUERQUE
GF# 95120329

008456

96071650

DRAINAGE EASEMENT, COVENANT AND AGREEMENT

THIS DRAINAGE EASEMENT, COVENANT AND AGREEMENT is entered into by and between CARLO, INC., a New Mexico corporation ("Carlo"), and WALTER WISZNIA, individually, ("Wisznia").

R E C I T A L S:

A. Carlo is the owner of the following property (the "Carlo Property"):

> Tract A-2-A-1 as shown on the Plat of Tract A-2-A-1 and A-3-A-1, Candelaria Business Center, Section 03, T 10 N, R 3E, NMPM, Albuquerque, Bernalillo County, New Mexico dated June 1994 and filed for record with the Bernalillo County Clerk on June 29, 1995 in Vol. 95C, Folio 239 as Document #95064385 ("Carlo Plat").

B. Wisznia is the owner of the following property (the "Wisznia Property"):

> Tract lettered A-3-A-1-A-2 of the plat of tracts A3A1A1 and A3A1A2, Candelaria Business Center, Albuquerque, Bernalillo County, New Mexico, as the same are shown and designated on the plat thereof, filed in the office of the County Clerk of Bernalillo County, New Mexico on May 13, 1996 in Volume 96C, County Folio 113 as Document #96053237.

C. Wisznia desires to have an easement for drainage (the "Wiscnia Drainage Easement") from the southern boundary of the Wisznia Property to the 30' Private Access and Drainage Easement (94C-170) shown on the Carlo Plat.

D. Wisznia may be in the process of developing the Wisznia Property into a residential or commercial subdivision (the "Wisznia Subdivision"), and as a condition of approval of the Wisznia Subdivision, the City of Albuquerque ("City") may require Wisznia

to obtain this Agreement and the easement described herein.

E. Wisznia wishes to locate the Wisznia Drainage Easement and to construct upon, improve, repair and maintain certain drainage facilities on the Wisznia Drainage Easement and/or the Carlo Property.

F. Carlo agrees to permit the contemplated location of the Wisznia Drainage Easement and the construction, improvement, repair and maintenance of said drainage facilities provided that Wisznia complies with the terms of this Agreement.

NOW THEREFORE, in consideration of the mutual covenants and conditions, the parties agree as follows:

1. **Grant of Easement**. Carlo grants to Wisznia a non-exclusive easement over the Carlo Property as described on **Exhibit "A"** hereto for purposes of accepting storm drainage waters from the Wisznia Property.

The storm drainage waters which the Carlo Property shall be obligated to accept shall be the historic storm waters which have flowed from the Wisznia Property to the Carlo Property together with flows from any upstream properties developed as of the date of this Agreement, if any (the "Wisznia Property Historic Flows"), together with the increased flows from the Wisznia Property resulting from the development of the Wisznia Subdivision (the "Wisznia Property Developed Flows"). The Wisznia Property Historic Flows and the Wisznia Property Developed Flows are jointly referred to herein as the "Wisznia Flows".

Wisznia shall have the right to construct drainage facilities

within the Wisznia Drainage Easement to detain and/or alter the flow characteristics of the Wisznia Flows which facilities may include, but are not limited to, valley gutter, asphalt pavement, and other drainage improvements necessary to convey the Wisznia Flows across and through the Wisznia Drainage Easement (the "Drainage Facilities"). The Drainage Facilities shall be those approved by the City of Albuquerque ("City") pursuant to drainage plans submitted to, and approved by, the City and Carlo for the benefitted properties.

2. Points of Discharge of Flows. Wisznia, at Wisznia's sole expense (or public expense if agreed upon by the public agency) may construct Drainage Facilities upon the Wisznia Property and the Wisznia Drainage Easement which collect the Wisznia Flows and discharge the Wisznia Flows onto the Carlo Property at the northeasternmost location of the Wisznia Drainage Easement (the "Wisznia Discharge Point"). The Wisznia Discharge Point shall be shown and designated on any Wisznia Subdivision plat, and any easements required by the City shall be granted on the Wisznia Subdivision Plat.

3. Carlo's Obligations. Upon the full execution hereof, Carlo's obligation shall be to: (i) accept the Wisznia Flows at the Wisznia Discharge Point and to allow the Wisznia Flows across the Carlo Property along the Wisznia Drainage Easement to the 30' private access and drainage easement (94C - 170) as depicted on the Carlo Plat in any manner acceptable to Carlo and, if necessary, approved by the City; and (ii) allow Wisznia access to the Wisznia

Drainage Easement to satisfy the obligations of this Agreement and Covenant regarding construction, repair and maintenance of the Drainage Facilities.

4. Wisznia's Responsibilities. Wisznia will be solely responsible for any modification or changes to existing improvements in the Wisznia Drainage Easement and for constructing, maintaining, repairing and, if required, removing the Drainage Facilities, all in accordance with this Agreement and any standards required by the City pursuant to any approved Grading and Drainage Plan. Wisznia shall also be responsible for any improvements, upgrades, maintenance or repairs to the Wisznia Drainage Easement, and/or the Wisznia Property necessary in Carlo's sole opinion to properly convey the Wisznia Flows without damage to Carlo's Property, neighboring properties or existing improvements. Wisznia will be solely responsible for paying all related costs including, but not limited to, Carlo's attorney's fees for document preparation and otherwise related to the matters covered herein, survey costs and engineering fees. Wisznia will not permit the Drainage Facilities to constitute a hazard to the health or safety of the general public or to interfere with Carlo's use of Carlo's Property. Wisznia will conform with all applicable laws, ordinances and regulations.

5. Demand for Repair, Modification or Removal. Carlo may send written notice ("Notice") to Wisznia requiring Wisznia to repair, modify or remove the Drainage Facilities within thirty (30) days ("Deadline") and Wisznia will comply promptly with the

requirements of the Notice. If removal is demanded, Carlo also may require Wisznia to return Carlo's Property to its original condition by the Deadline. Wisznia will perform all required work by the Deadline, at Wisznia's sole expense.

6. Failure to Perform by Wisznia and Emergency Work by Carlo. If Wisznia fails to comply with the terms of the Notice by the Deadline stated, or if Carlo determines that an emergency condition exists, Carlo may perform the work itself. Carlo then may assess Wisznia for the cost of the work and for any other expenses or damages which result from Wisznia's failure to perform. Wisznia agrees promptly to pay Carlo the amount assessed. If Wisznia fails to pay Carlo within thirty (30) days after Carlo gives Wisznia written notice of the amount due, Carlo may impose a lien against Wisznia's Property for the total resulting amount.

7. Carlo's Right to Maintain. In the event that Wisznia fails to maintain the Drainage Facilities, then in addition to the rights granted to Carlo above, Carlo shall have the right, but not the obligation, to enter upon the Wisznia Drainage Easement and/or the Wisznia Property to perform any required inspections, installation, repairs, modification or maintenance and to remove any improvements, and/or landscaping required for the performance of such maintenance. Carlo shall not be responsible for any damage to the improvements and/or landscaping of the Wisznia Property resulting from the exercise of such rights.

8. Cancellation of Agreement. In the event of Wisznia's default on any obligation hereunder, this Agreement may be

cancelled by Carlo's mailing to Wisznia notice of Carlo's intention to record a Cancellation of Easement with the Bernalillo County Clerk. Unless Wisznia cures such default to Carlo's satisfaction, the Cancellation of Easement will be effective thirty (30) days after the date of mailing the Notice to Wisznia unless a later date is stated in the Notice or the Cancellation of Easement. After the effective date, Carlo will record the Cancellation of Easement with the Bernalillo County Clerk.

9. Automatic Termination. In the event that Wisznia records a Wisznia Subdivision plat or drainage plan in the Bernalillo County, New Mexico real estate records which concerns the Wisznia Property but which does not require use of the Wisznia Drainage Easement, the Wisznia Drainage Easement shall automatically terminate and be of no further force or effect. The termination of the Wisznia Drainage Easement shall not enlarge or diminish any common law rights which the parties hereto have with respect to the acceptance or discharge of historic storm drainage waters.

10. Indemnity. Wisznia agrees to defend, indemnify and hold Carlo harmless from any and all claims, actions, suits or proceedings of any kind including any claims of third parties, including all attorneys fees and costs, resulting from the use of the Drainage Facilities, the Wisznia Drainage Easement and properties appurtenant to the Wisznia Drainage Easement. To the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this obligation will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out

of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications; or (2) the giving of or the failure to give directions or instructions by Carlo, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

11. **Appurtenant Agreement**. The rights and obligations set out herein are appurtenant to the Wisznia Property, and the Carlo Property, as applicable, shall run with, benefit and burden the Wisznia Property and Carlo Property and shall be binding upon the parties' successors and assigns and constitute covenants running with the land of each party unless terminated or released as provided herein.

12. **Execution**. This Agreement may be executed in counterparts.

13. **Entire Agreement**. This Agreement contains the entire agreement of the parties and supersedes any and all agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith.

14. **Changes of Agreement.** Changes to this Agreement are not binding unless made in writing, signed by both parties.

15. **Construction and Severability**. If any part of this Agreement is held to be invalid or unenforceable, the remainder of the Agreement will remain valid and enforceable if the remainder is reasonably capable of completion.

16. **Captions**. The captions to the sections or paragraphs of

this Agreement are not part of this Agreement and will not affect the meaning or construction of any of its provisions.

17. Method and Place of Notice. All notices and other communications required or permitted hereunder shall be in writing and shall be given either by receipted facsimile, by personal delivery, or by placing with an overnight commercial courier correctly addressed to the intended recipient as provided in this Section. Any such notice or other communication shall be deemed received upon actual receipt, if delivered by facsimile or personally, or one (1) day after deposit with an overnight courier. The addresses of the parties for purposes of this Section shall be as follows:

Grantor:	Carlo, Inc. C/O Victor J. Bachechi P.O. Box 25966 Albuquerque, N.M. 87125
With a copy to:	Terry D. Farmer Moses, Dunn, Farmer & Tuthill, P.A. P.O. Box 27047 Albuquerque, N.M. 87125-7047
Grantee:	Walter Wisznia Wisznia & Associates 1740 First City Tower II Corpus Christi, Texas 78478

The parties may, from time to time, designate a different address for purposes of this Section by giving notice to the other in the manner set forth herein not less than fifteen (15) days prior to the effective date of the change.

IN WITNESS WHEREOF, the parties have executed this Agreement

008464

this 4 day of June, 1996.

CARLO, INC., a New Mexico corporation

By: Victor J. Bachechi
Victor J. Bachechi
Its President

Walter Wisznia

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

THIS INSTRUMENT WAS ACKNOWLEGED before me on the 25th day of June, 1996 by Victor J. Bachechi, the President of Carlo, Inc., a New Mexico corporation for and on its behalf.

Denise Bullard
Notary Public

(SEAL)

My commission expires:
7/28/99

STATE OF Texas)
) ss.
COUNTY OF Nueces)

THIS INSTRUMENT WAS ACKNOWLEDGED before me on the 4th day of June, 1996 by Walter Wisznia.

PHYLLIS J. HATCHER
Notary Public
STATE OF TEXAS

Phyllis J. Hatcher
Notary Public

My commission expires:
March 15, 1999

95 JUN 27 AM 9:34

car2504\drainage.eas.2

9

96 17 8456-8-16

Drnc(e)

EXHIBIT 'A'

DRAINAGE EASEMENT

EASEMENT DESCRIPTION

A drainage easement located within the Corporate Limits of the City of Albuquerque, New Mexico, comprising a portion of Tract A-2-A-1, Candelaria Business Center as the same is shown and designated on the plat filed in the Office of the County Clerk of Bernalillo County, New Mexico, on June 29, 1995, Book 95C, Page 239, and being more particularly described as follows:

Beginning at the northernmost corner of the easement herein described, being a point on the north property line of said Tract A-2-A-1, Candelaria Business Center, whence the west point of tangency on the south boundary of Tract A-3-A-1-A-2, Candelaria Business Center, as shown on the plat filed in the Office of the County Clerk of Bernalillo County, New Mexico, on May 13, 1996, Book 96C, Page 193, bears N 87°58'37" W a distance of 38.82 feet; thence along the arc of a curve to the right with DELTA = 01°34'37", R = 685.03 feet, L = 18.85 feet (Chord Bearing = S 85°33'53" E, Chord Length = 18.85 feet) along said south boundary; thence S 56°38'16" W a distance of 36.44 feet; thence S 01°16'58" W a distance of 24.00 feet; thence N 88°43'02" W a distance of 36.77 feet; thence S 00°48'18" W a distance of 19.33 feet to the southeast corner of the easement herein described; thence N 89°19'18" W a distance of 102.76 feet; thence S 65°05'19" W a distance of 11.80 feet to a point on the north easement line of an existing 30' private access and drainage easement granted by the plat filed May 19, 1994, Book 94C, Page 170; thence N 89°35'25" W a distance of 11.12 feet along said north easement line to the southwest corner of the easement herein described, also being the point of intersection of said north easement line with the east easement line of an existing 30' private access and drainage easement granted by the plat filed June 29, 1995, Book 95C, Page 239; thence N 00°02'30" E a distance of 4.29 feet along said east easement line; thence N 69°20'57" E a distance of 16.86 feet; thence N 01°11'57" E a distance of 39.51 feet to the northwest corner of the easement herein described; thence S 88°41'40" E a distance of 116.94 feet; thence N 62°54'59" E a distance of 45.23 feet to the point of beginning and containing 0.1455 acres more or less.

Notes:

1. An easement survey was performed in May, 1996. Property corners were found as indicated.
2. Site located within Section 03, T 10 N, R 3 E, N.M.P.M.
3. All distances are ground distances.
4. Bearings shown hereon are based upon the South Boundary of Tracts A-3-A-1-A-1 and A-3-1-A-2, Candelaria Business Center, filed May 13, 1996, Book 96C, Page 193.
5. The purpose of this document is to define new drainage easement within Tract A-2-A-1, Candelaria Business Center, filed June 29, 1995, Book 95C, Page 239.
6. Existing easements shown hereon are based upon the plats of record.

CERTIFICATION

I, Charles G. Cala, Jr., a registered Professional Surveyor under the laws of the State of New Mexico, do hereby certify that this easement survey was prepared by me or under my supervision, complies with the minimum standards for surveying in the State of New Mexico, and is true and correct to the best of my knowledge and belief.

Charles G. Cala, Jr., NMPS 11184

CHARLES G. CALA, JR. NEW MEXICO 11184 REGISTERED PROFESSIONAL SURVEYOR

5-30-96
Date

SHEET 1 OF 2

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE NEW MEXICO 8710
ENGINEERS SURVEYORS (505)
JOB NO. 951187

EXHIBIT 'A'
DRAINAGE EASEMENT

008466

SCALE: 1" = 100'

50 0 100
25 50

TRACT A-3-A-1-D
CANDELARIA BUSINESS CENTER
FILED 8-9-1995, 95C-295

EXISTING 30' PRIVATE ACCESS EASEMENT GRANTED BY PLAT FILED 6-29-1995, 95C-239.

FOUND REBAR W/CAP STAMPED "PS 11463" TAGGED W/WASHED STAMPED "NMPS 11184"

EXISTING DRAINAGE EASEMENT, COVENANT AND AGREEMENT PER DOCUMENT FILED 12-19-1995, BCR 95-30, PAGES 7318-7328, DOC.#95129322.

TRACT A-3-A-1-A-2
CANDELARIA BUSINESS CENTER
FILED 05-13-1996, 96C-193

EASEMENT P.O.B.

CH. BEARING = N 87°58'37" W
CH. DISTANCE = 38.82'

FOUND REBAR W/CAP STAMPED "PS 11463" TAGGED W/WASHED STAMPED "NMPS 11184"

DRAINAGE EASEMENT GRANTED BY THIS DOCUMENT

EXISTING 30' PRIVATE ACCESS & DRAINAGE EASMENT GRANTED BY PLAT FILED 6-29-1995, 95C-239.

SET 5/8" REBAR W/CAP STAMPED "NEW MEXICO PS 11184"

EXISTING 30' PRIVATE ACCESS AND DRAINAGE EASEMENT GRANTED BY PLAT FILED 5-19-1994, 94C-170.

TRACT A-2-A-1
CANDELARIA BUSINESS CENTER
FILED 06-29-1995, 95C-239

TRACT A-3-A-1-A-1
CANDELARIA BUSINESS CENTER
FILED 05-13-1996, 96C-193

N 89°35'25" W (BEARING BASE)
212.28'
512.82'
300.54'

FOUND P.K. NAIL TOP OF WALL

EXISTING 10' P.N.M. & M.S.T.&T. EASEMENT GRANTED BY PLAT FILED 5-19-1994, 94C-170(2)

EXISTING 20' PUBLIC WATERLINE EASEMENT GRANTED BY PLAT FILED 5-19-1994, 94C-170(2).

EXISTING 30' FUTURE R.O.W. RESERVATION TO BE DEDICATED UPON REQUEST BY THE CITY OF ALBUQUERQUE.

PORTER'S REPLAT
FILED 10-13-1971, 66-28

LINE	DIRECTION	DISTANCE
EL1	S 56°38'16" W	36.44'
EL2	S 01°16'58" W	24.00'
EL3	N 88°43'02" W	36.77'
EL4	S 00°48'18" W	19.33'
EL5	N 89°19'18" W	102.76'
EL6	S 65°05'19" W	11.80'
EL7	N 89°35'25" W	11.12'
EL8	N 00°02'30" E	4.29'
EL9	N 69°20'57" E	16.86'
EL10	N 01°11'57" E	39.51'
EL11	S 88°41'40" E	116.94'
EL12	N 62°54'59" E	45.23'

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	685.03'	299.99'	152.44'	297.60'	N 77°03'19" W	25°05'27"
EC1	685.03'	18.85'	9.43'	18.85'	S 85°33'53" E	01°34'37"

JEFF MORTENSEN & ASSOCIATES
6010-B MIDWAY PARK BLVD.
ALBUQUERQUE NEW MEXICO
ENGINEERS SURVEYORS
JOB NO. 951187

APPENDIX B

DRAWINGS

2237

DRAINAGE INFORMATION

G16 57 Ac

PROJECT TITLE: Division of Vocational Rehabilitation Addition

ZONE ATLAS/DRNG. FILE #: G-16-Z

DRB#: N/A EPC #: N/A WORK ORDER #: N/A

LEGAL DESCRIPTION: Tracts A-3-A-1-C AND A-3-A-1-B Candelaria Business Center

CITY ADDRESS: Alta Monte Avenue NE

ENGINEERING FIRM: Chavez-Grieves CONTACT: James Alarid

ADDRESS: 5639 Jefferson NE PHONE: 344-4080

OWNER: Wisznia & Associates Architects CONTACT: Walter Wisznia

ADDRESS: 1740 Tower II, Corpus Christi,TX PHONE: 512-884-8881

ARCHITECT: Wisznia & Associates Architects CONTACT: Jeff Cohen

ADDRESS: 812 Perdido, New Orleans, LA PHONE: 504-581-1948

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

TYPE OF SUBMITTAL:

__X__ DRAINAGE REPORT

__X__ DRAINAGE PLAN

____ CONCEPTUAL GRADING & DRAINAGE PLAN

__X__ GRADING PLAN

__X__ EROSION CONTROL PLAN

____ ENGINEER'S CERTIFICATION

____ OTHER

PRE-DESIGN MEETING:

____ YES

__X__ NO

____ COPY PROVIDED

DATE SUBMITTED: January 13,1998

BY: James Alarid

CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAT APPROVAL

____ PRELIMINARY PLAT APPROVAL

____ S. DEV. PLAN FOR SUB'D. APPROVAL

____ S. DEV. PLAN FOR BLDG. PRMT. APPROVAL

____ SECTOR PLAN APPROVAL

____ FINAL PLAT APPROVAL

____ FOUNDATION PERMIT APPROVAL

__X__ BUILDING PERMIT APPROVAL

____ CERTIFICATE OF OCCUPANCY APPROVAL

____ GRADING PERMIT APPROVAL

____ PAVING PERMIT APPROVAL

____ S.A.D. DRAINAGE REPORT

____ DRAINAGE REQUIREMENTS

____ OTHER

RECEIVED
JAN 13 1998
HYDROLOGY SECTION

CHAVEZ · GRIEVES
CONSULTING ENGINEERS, INC.
5639 JEFFERSON STREET NE · ALBUQUERQUE, NEW MEXICO 87109 · PHONE (505) 344-4080 · FAX (505) 343-8759

GRADING AND DRAINAGE PLAN

FOR

DIVISION OF VOCATIONAL REHABILITATION ADDITION

ALBUQUERQUE, NEW MEXICO

JANUARY 1998

THE ENGINEERING FIRM OF CHOICE

CHAVEZ · GRIEVES
CONSULTING ENGINEERS, INC.

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GRADING AND DRAINAGE PLAN

DIVISION OF VOCATIONAL REHABILITATION ADDITION

JANUARY 1998

LOCATION

The site of the Division of Vocational Rehabilitation (DVR) Addition is located south of Alta Monte Avenue NE between Lafayette Drive NE and Amherst Drive NE in Albuquerque, New Mexico. The addition will be constructed adjacent to the east wall of the existing DVR building.

LEGAL DESCRIPTION

The legal description of the property is Tracts A-3-A-1-C and A-3-A-1-B of the Candelaria Business Center.

ZONING

The property lies in the City of Albuquerque Zone Atlas map number G-16-Z. The site is currently zoned C-3.

FLOOD HAZARD ZONES

As shown by Panel 3500020351 of the National Flood Insurance Rate Maps for the City of Albuquerque, dated September 20, 1996, the site is not in a designated flood hazard zone. According to the grading plan by Jeff Mortensen & Associates, Inc., dated May 9, 1996, the northern portion of the site contributes to a flood hazard zone designated AO, Depth 2 which is located south of Comanche Road NE and east of the North Diversion Channel. Therefore no additional runoff will be diverted north to Alta Monte Avenue NE.

EXISTING SITE CONDITIONS AND DRAINAGE PATTERN

The site for the addition is currently asphalt parking and landscaped with wood chips. It slopes gradually from northeast to southwest at an average slope of approximately 3.0%. The runoff from the site flows southwest where it gathers at the curb flow line and is carried to a concrete rundown. From the rundown, the runoff flows to the south into a storm drain located south of the site. This storm drain discharges into the Candelaria Interceptor, which is located southwest of the site. Any runoff not taken into the storm drain will flow overland, above the storm drain, and eventually discharge into the Candelaria Interceptor. Offsite flows do not impact the site from the north due to a fully improved street with curb and gutter. The slope of the property adjacent to the east side of the site is such that flows do not enter the site. The peak discharge from the existing eastern portion of the site is 4.00 CFS. See existing basin sheet DB-1 in the appendices of this report for a detailed layout of the existing drainage conditions.

show

Label Exist conc rundown of plan.

label streets

PROPOSED SITE CONDITIONS AND DRAINAGE PATTERN

The developed site will have a new 7,775 square-foot addition adjacent to the east wall of the existing building. A small portion of the existing parking lot will be removed to make room for the addition, but the majority of the lot will remain unchanged and maintain the same drainage pattern. The site will remain isolated from any offsite runoff. The increased discharge from the developed site will be detained in a new detention pond located on the north side of the new addition. A new pump will be installed to drain the pond since the topography of the site does not allow for any other means of draining the north side of the building. The pump will drain the pond at a rate of 0.21 CFS. The pond has been sized to hold the 10-day volume as required for retention ponds in the DPM. This was done to ensure the protection of the building in a worst case condition if the pump failed. The peak discharge of the developed eastern portion of the site (developed Basin B & C) will be 4.22 CFS. Note that runoff from developed Basin A is not included in the developed/pre-developed comparison since it is out of the area of study and only used to size the detention pond. The peak discharge from the site will be 4.18 cfs. This includes the retention pond pumped discharge (Basin A & B) and Basin C. See developed basin sheet DB-2 in the appendices of this report for a detailed layout of the developed drainage conditions.

HYDROLOGY/HYDRAULICS

The runoff calculations and design have been done in accordance with Section 22.2 of the Development Process Manual (DPM) of the City of Albuquerque, January 1993. The 100-year, 6-hour storm was used as the design storm event as required by the Section 22.2 of the DPM.

RELATED CITY OF ALBUQUERQUE SUBMITTALS

See grading and drainage report and plan completed by Jeff Mortensen & Associates, Inc., dated May 9, 1996 for the existing building and parking lot. The above mentioned report contains the analysis and design of the storm drain system through which we propose to discharge. For more information on the analysis of the storm drain south of the site and the nearby storm hazard zone, see grading plans by Bohannan-Huston, Inc., dated February 24, 1984, and by David Thompson, dated January 5, 1988.

well, is there capacity? Provide applicable info.

Comparison of Generated Runoff

Basin	Undeveloped - CFS	Developed - CFS
A	4.00	0.24*
B	-	0.25
C	-	3.97
TOTAL ONSITE	***4.00***	***4.46***

*Developed Basin A out of limits of study, for purpose of sizing detention pond.

Runoff Discharge From Site

Basin	.developed - CFS
A & B Pumped	0.21
C	3.97
TOTAL	4.18

APPENDIX A

HYDRAULIC COMPUTATIONS

```
          AHYMO PROGRAM (AHYMO_97) -- Version:  1997.02c
          RUN DATE (MON/DAY/YR) = 01/06/1998
          START TIME (HR:MIN:SEC) = 15:26:30
          USER NO.= AHYMO-I3Chavez-Grieves-C
          INPUT FILE = c:\kim\ahymodvr.in

*S**************************************************************************
*S******************    CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC.   ********
*S******************     DIVISION OF VOCATIONAL REHABILITATION    *********
*S**************************************************************************
*S**************************************************************************
*S 100 YEAR STORM, 6 HOUR STORM
START                  TIME=0.00 PUNCH CODE=0
RAINFALL               TYPE=1 RAIN QUARTER=0.0 RAIN ONE=1.97
                       RAIN SIX=2.25 RAIN DAY=2.60  DT=0.03333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT =    .033330 HOURS          END TIME =     5.999400 HOURS
   .0000   .0011   .0023   .0034   .0046   .0059   .0071
   .0084   .0097   .0111   .0124   .0139   .0153   .0168
   .0184   .0199   .0216   .0233   .0250   .0268   .0287
   .0307   .0327   .0348   .0370   .0393   .0417   .0442
   .0469   .0497   .0527   .0581   .0639   .0702   .0835
   .1134   .1594   .2255   .3157   .4342   .5853   .7735
  1.0032  1.2164  1.3054  1.3806  1.4475  1.5083  1.5643
  1.6163  1.6648  1.7104  1.7532  1.7936  1.8318  1.8680
  1.9022  1.9347  1.9655  1.9948  2.0225  2.0285  2.0339
  2.0391  2.0440  2.0487  2.0531  2.0574  2.0615  2.0654
  2.0692  2.0729  2.0764  2.0799  2.0832  2.0864  2.0896
  2.0926  2.0956  2.0985  2.1013  2.1041  2.1068  2.1094
  2.1120  2.1145  2.1169  2.1194  2.1217  2.1241  2.1263
  2.1286  2.1308  2.1329  2.1350  2.1371  2.1392  2.1412
  2.1432  2.1451  2.1471  2.1490  2.1508  2.1527  2.1545
  2.1563  2.1581  2.1598  2.1615  2.1632  2.1649  2.1666
  2.1682  2.1698  2.1714  2.1730  2.1746  2.1761  2.1776
  2.1791  2.1806  2.1821  2.1836  2.1850  2.1864  2.1879
  2.1893  2.1906  2.1920  2.1934  2.1947  2.1961  2.1974
  2.1987  2.2000  2.2013  2.2026  2.2038  2.2051  2.2063
  2.2076  2.2088  2.2100  2.2112  2.2124  2.2136  2.2147
  2.2159  2.2171  2.2182  2.2193  2.2205  2.2216  2.2227
  2.2238  2.2249  2.2260  2.2271  2.2281  2.2292  2.2302
  2.2313  2.2323  2.2334  2.2344  2.2354  2.2364  2.2374
  2.2384  2.2394  2.2404  2.2414  2.2424  2.2434  2.2443
  2.2453  2.2462  2.2472  2.2481  2.2491  2.2500

*S  COMPUTE THE RUNOFF FROM THE EXISTING BASINS.
*S EXISTING BASIN A
COMPUTE NM HYD         ID=1  HYD=EXIST-A  DA=.0014875 SQ MI
                       %A=0  %B=0  %C=26  %D=74
                       TP=0.1333  RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   4.3458    CFS   UNIT VOLUME =    .9969       B =   526.28      P60 = 1.9700
     AREA =      .001101 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

     K =   .106995HR    TP =   .133300HR    K/TP RATIO =   .802661     SHAPE CONSTANT, N =  4.461616
     UNIT PEAK =   1.1166    CFS   UNIT VOLUME =    .9893       B =   384.85      P60 = 1.9700
     AREA =      .000387 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD              ID=1  CODE=1

                                HYDROGRAPH FROM AREA EXIST-A


     RUNOFF VOLUME =     1.77109 INCHES     =        .1405 ACRE-FEET
     PEAK DISCHARGE RATE =       4.00 CFS  AT   1.500 HOURS   BASIN AREA =   .0015 SQ. MI.
```

Is this woodchips?

```
*S DEVELOPED BASIN A
COMPUTE NM HYD       ID=2  HYD=DEVEL-A  DA=.0000781 SQ MI
                     %A=0  %B=0  %C=0  %D=100
                     TP=0.1333  RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   .30834    CFS   UNIT VOLUME =    .9610       B =   526.28      P60 = 1.9700
     AREA =      .000078 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD            ID=2  CODE=1

                                        HYDROGRAPH FROM AREA DEVEL-A


    RUNOFF VOLUME =     2.01675 INCHES     =          .0084 ACRE-FEET
    PEAK DISCHARGE RATE =        .24 CFS  AT   1.500 HOURS   BASIN AREA =   .0001 SQ. MI.



*S DEVELOPED BASIN B
COMPUTE NM HYD       ID=3  HYD=DEVEL-B  DA=.0001109 SQ MI
                     %A=0  %B=0  %C=80  %D=20
                     TP=0.1333  RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   .87568E-01CFS   UNIT VOLUME =    .8874       B =   526.28      P60 = 1.9700
     AREA =      .000022 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


     K =   .106995HR    TP =   .133300HR    K/TP RATIO =   .802661     SHAPE CONSTANT, N =  4.461616
     UNIT PEAK =   .25614    CFS   UNIT VOLUME =    .9474       B =   384.85      P60 = 1.9700
     AREA =      .000089 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD            ID=3  CODE=1

                                        HYDROGRAPH FROM AREA DEVEL-B


    RUNOFF VOLUME =     1.26087 INCHES     =          .0075 ACRE-FEET
    PEAK DISCHARGE RATE =        .25 CFS  AT   1.500 HOURS   BASIN AREA =   .0001 SQ. MI.



*S DEVELOPED BASIN C
COMPUTE NM HYD       ID=4  HYD=DEVEL-C  DA=.001377 SQ MI
                     %A=0  %B=0  %C=7  %D=93
                     TP=0.1333  RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   5.0559    CFS   UNIT VOLUME =    .9973       B =   526.28      P60 = 1.9700
     AREA =      .001281 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


     K =   .106995HR    TP =   .133300HR    K/TP RATIO =   .802661     SHAPE CONSTANT, N =  4.461616
     UNIT PEAK =   .27829    CFS   UNIT VOLUME =    .9527       B =   384.85      P60 = 1.9700
     AREA =      .000096 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD            ID=4  CODE=1

                                        HYDROGRAPH FROM AREA DEVEL-C


    RUNOFF VOLUME =     1.95061 INCHES     =          .1433 ACRE-FEET
    PEAK DISCHARGE RATE =        3.97 CFS  AT   1.500 HOURS   BASIN AREA =   .0014 SQ. MI.
```

How come no tc/tp "B" don't you need LS req?

```
* ADD DEVELOPED BASIN A & B
ADD HYD              ID=5 HYD=POND_IN ID I=2 ID II=3
PRINT HYD            ID=5 CODE=1

                                        HYDROGRAPH FROM AREA POND_IN


    RUNOFF VOLUME =     1.56218 INCHES     =        .0157 ACRE-FEET
    PEAK DISCHARGE RATE =        .49 CFS  AT    1.500 HOURS   BASIN AREA =    .0002 SQ. MI.



FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 15:26:31
```

CHAVEZ - GRIEVES / CONSULTING ENGINEERS, Inc.

5639 Jefferson Street NE, Albuquerque, New Mexico 87109 *Phone (505) 344-4080 - Fax (505) 343-8759*

Detention

~~RETENTION~~ POND VOLUME CALCULATIONS

By: James Alarid Date: January 7, 1998

Project: NM Department of Vocational Rehab. Addition Zone Atlas: G-16

This procedure is in accordance with the City of Albuquerque Development Process Manual, Volume 2, Section 22.2, "Hydrology", Equations c-7 and a-9.

BASIN	Q_{360} (CFS)	V_{360} (AC-FT)	A_D (AC)	$V_{10\text{-DAY}}$ (AC-FT)	$V_{10\text{-DAY}}$ (CU-FT)
Basin A+B	0.49	0.0159	0.064	0.023	1,001.50

POND VOLUME

ELEVATION	AREA (SF)	VOLUME (Ft^3)
5120	265	
5121	449	357
5122	908	679

TOTAL VOLUME = 1036 (Ft^3) > 1001.5 (Ft^3)

BARNES® SUBMERSIBLE NON-CLOG PUMPS
Series: SE, Manual & Automatic
1-1/2" Spherical Solids Handling

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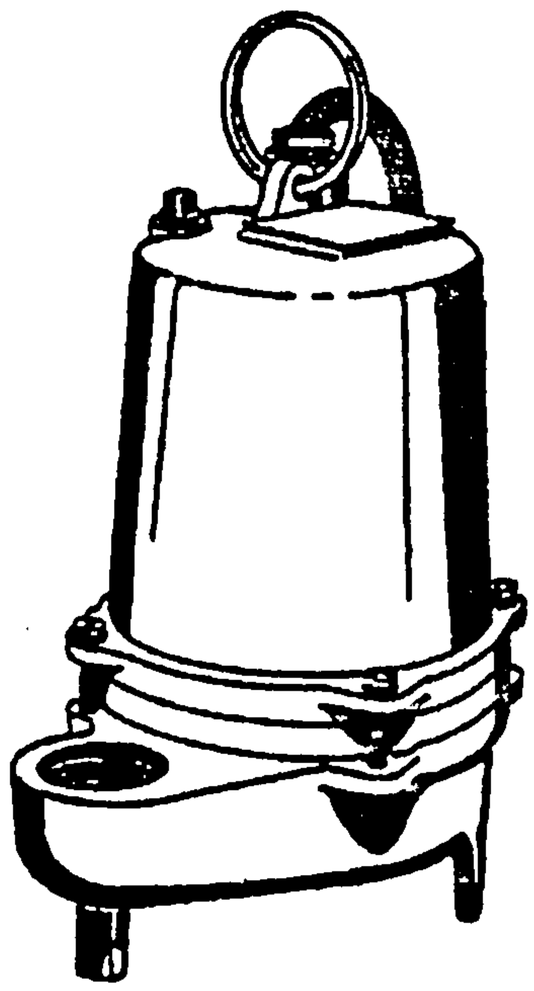

Series: SE .4 HP 1750 RPM (SE411 & SE421)

(R) Canadian Standards Association
File No. LR16567

Underwriters Laboratories Inc. ®
File No. E142177

Description:

SUBMERSIBLE NON-CLOG SEWAGE PUMP DESIGNED FOR TYPICAL RAW SEWAGE APPLICATIONS.

Sample Specifications: Section 1 Page 7.

Specifications

DISCHARGE:		2" (51mm) NPT, Vertical
LIQUID TEMPERATURE:		104° F (40° C) Continuous.
VOLUTE:		Cast Iron ASTM A-48, Class 30.
MOTOR HOUSING:		Cast Iron ASTM A-48, Class 30.
SEAL PLATE:		Cast Iron ASTM A-48, Class 30.
IMPELLER:		
	Design:	2 Vane, Open, With Pump Out Vanes On Back Side. Dynamically Balanced, ISO G6.3.
	Material:	Zytel 70G43 Nylon, Glass Filled.
SHAFT:		416 Stainless Steel.
SQUARE RINGS:		Buna-N
HARDWARE:		300 Series Stainless Steel.
PAINT:		Air Dry Enamel.
SEAL:	*Design:*	Single Mechanical, Oil-Filled Reservoir, Secondary Exclusion Seal.
	Material:	Rotating Face - Carbon Stationary Face - Ceramic Elastomer - Buna-N Hardware - 300 Series Stainless
CABLE ENTRY:		15 ft. (4.6M) Cord w/Plug On 115 Volt, Pressure Grommet For Sealing And Strain Relief.
SPEED:		1750 RPM (Nominal).
UPPER BEARING:		
	Design:	Sleeve
	Lubrication:	Oil
	Load:	Radial
LOWER BEARING:		
	Design:	Single Row, Ball
	Lubrication:	Oil
	Load:	Radial & Thrust
MOTOR:		
	Design:	NEMA L Torque Curve. Completely Oil-Filled, Squirrel Cage Induction.
	Insulation:	Class A.
SINGLE PHASE:		Permanent Split Capacitor (PSC). Includes Overload Protection In Motor.
FLOAT:		Automatic Models. Wide Angle, Polypropylene, 15ft. (4.6M) Cable. SE411A, Float w/Plug Attached To Discharge Piping, SE411AU & SE421AU Float Attached To Pump. ON and OFF Points are Adjustable.
OPTIONAL EQUIPMENT:		Seal Material, Additional Cable and Cast Iron Impeller.

CRANE PUMPS & SYSTEMS

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Ph: (513) 773-2442
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Mansfield, Ohio 44907-2674
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Fax: (419) 774-1530

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Fax: (905) 457-2650

PERFORMANCE CURVE
Series: SE ,0.4 HP, 1750RPM
Manual & Automatic

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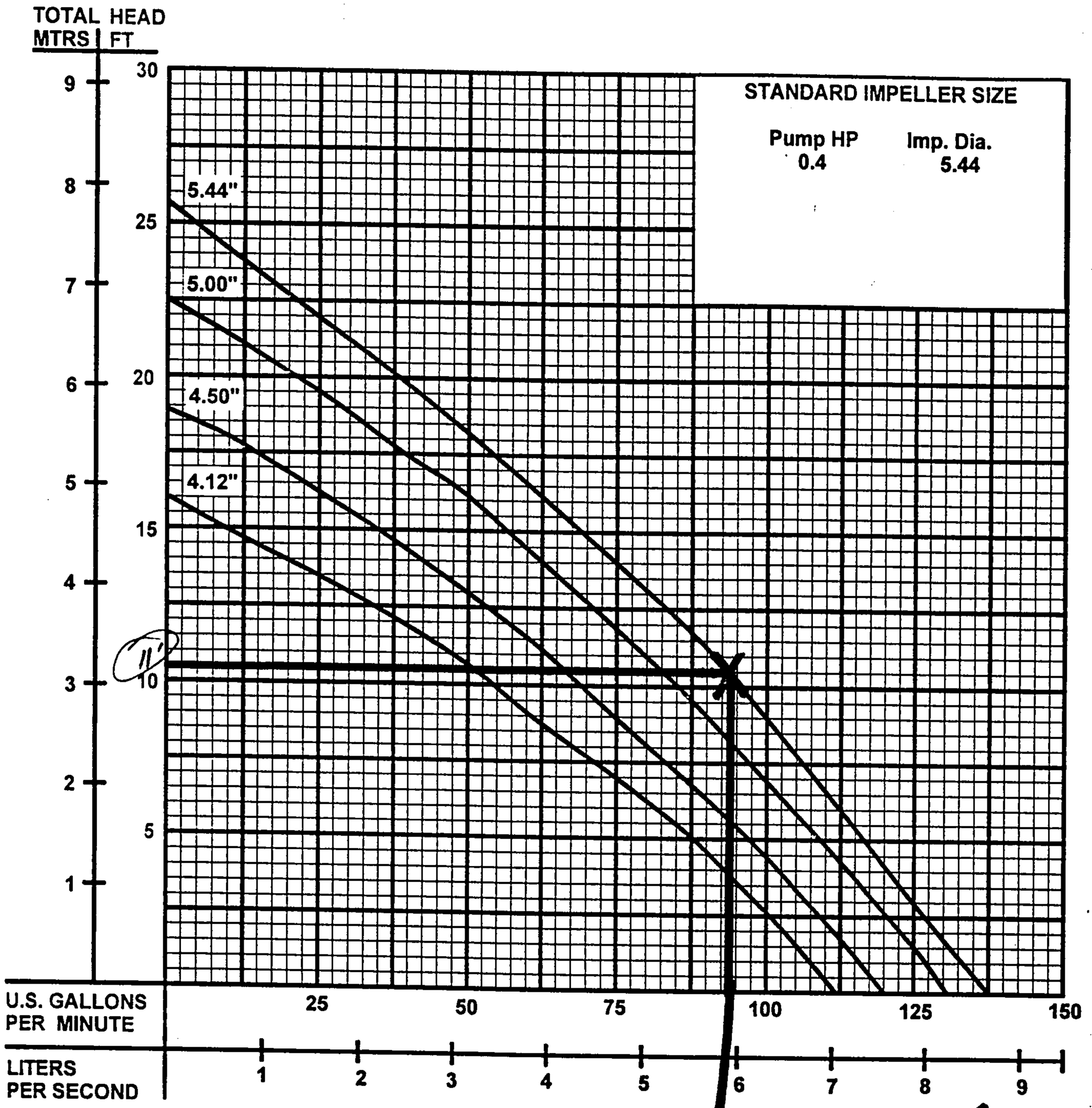

Testing is performed with water, specific gravity of 1.0 @ 68° F, other fluids may vary performance.

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Submersible Wastewater Pump Association SWPA MEMBER

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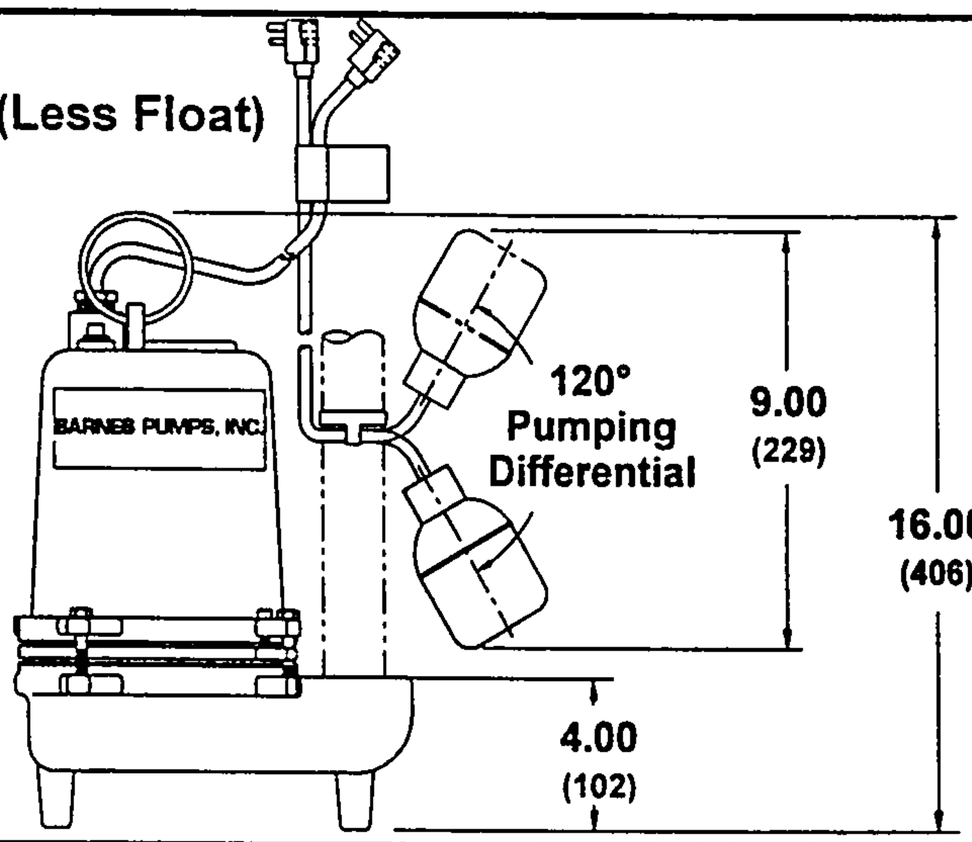
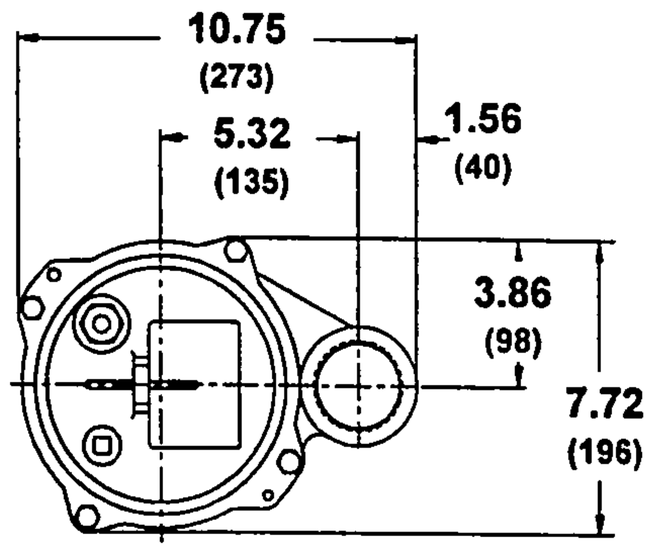
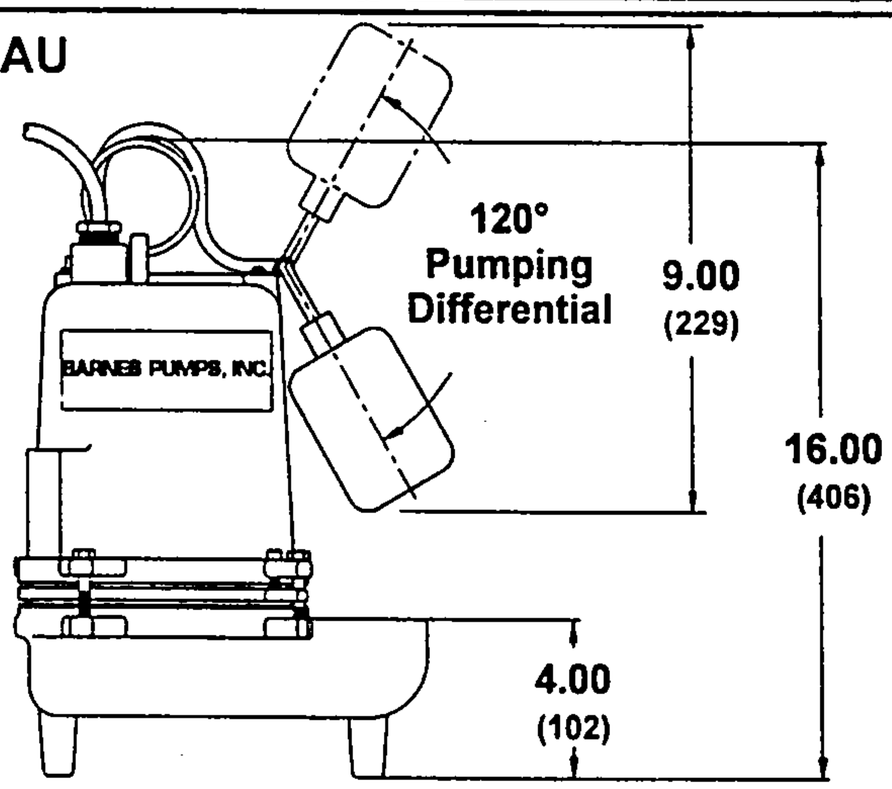
SE411A
SE411 & SE421 (Less Float)

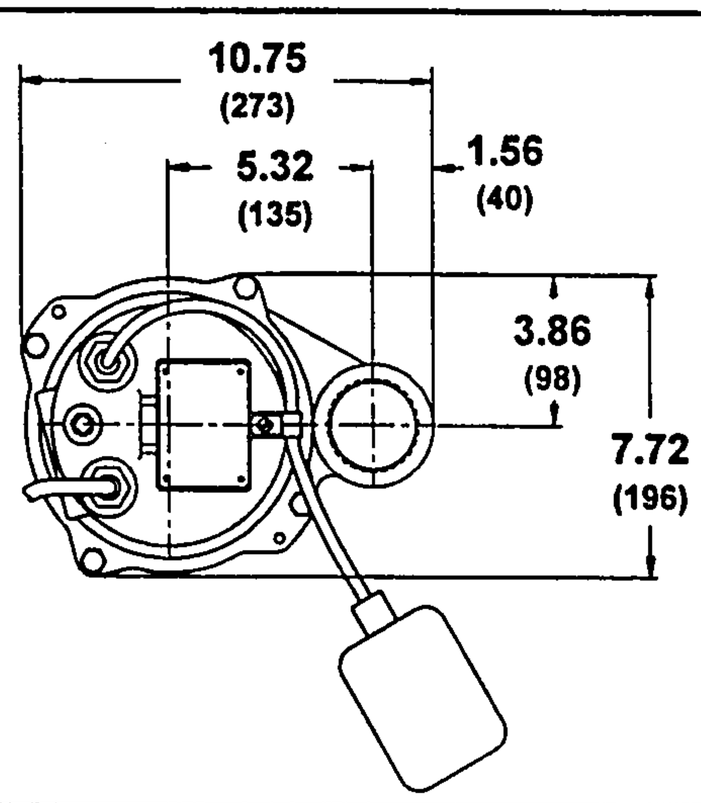
inches
(mm)





SE411AU & 421AU





MODEL NO.	PART NO.	HP	VOLT	PH	RPM (Nom)	NEMA START CODE	FULL LOAD AMPS	LOCKED ROTOR AMPS	CORD SIZE	CORD TYPE	CORD OD
SE411	068701	0.4	115	1	1750	A	10.0	19.0	14/3	SJTOW-A	0.390
SE411A	082215	0.4	115	1	1750	A	10.0	19.0	14/3	SJTOW-A	0.390
SE411AU	093193	0.4	115	1	1750	A	10.0	19.0	14/3	SJTOW-A	0.390
SE421	082089	0.4	230	1	1750	A	5.0	9.5	14/3	SJTOW-A	0.390
SE421AU	093195	0.4	230	1	1750	A	5.0	9.5	14/3	SJTOW-A	0.390

Mercury Switch on SE411A, Cable 16/2, SJOW-A, 0.320 O.D., Piggy-Back Plug.
Mechanical Switch (SE411AU & SE421AU), Cable 14/2, SJOOW-A (UL), SJOW (CSA), 0.370 O.D.

IMPORTANT !

1) PUMP MAY BE OPERATED "DRY" FOR EXTENDED PERIODS WITHOUT DAMAGE TO MOTOR AND/OR SEALS.
2.) THIS PUMP IS APPROPRIATE FOR THOSE APPLICATIONS SPECIFIED AS CLASS I DIVISION II HAZARDOUS LOCATIONS.
3) THIS PUMP IS **NOT** APPROPRIATE FOR THOSE APPLICATIONS SPECIFIED AS CLASS I DIVISION I HAZARDOUS LOCATIONS.
4) INSTALLATIONS SUCH AS DECORATIVE FOUNTAINS OR WATER FEATURES PROVIDED FOR VISUAL ENJOYMENT MUST BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE ANSI/NFPA 70 AND/OR THE AUTHORITY HAVING JURISDICTION. THIS PUMP IS NOT INTENDED FOR USE IN SWIMMING POOLS, RECREATIONAL WATER PARKS, OR INSTALLATIONS IN WHICH HUMAN CONTACT WITH PUMPED MEDIA IS A COMMON OCCURRENCE.

CRANE PUMPS & SYSTEMS

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Submersible Wastewater Pump Association SWPA MEMBER

APPENDIX B

DRAWINGS