APPROVED
DIVISION OF SOLID WASTE MANAGEMENT
DATE 3/7/95 BY JMcH

NORTH MECKLENBURG LANDFILL
HUNTERSVILLE, N. C.

JANUARY 20, 1995

LAST PHASE OF LANDFILL

INDEX TO NOTEBOOK:

Frank B. Hicks Associates, Inc.
Consulting Engineers · Surveyors · Planners
Charlotte, N.C.

SECTION 1

OPERATING PROCEDURES:

EARTHWORK EQUIPMENT ON SITE;

1. Dozer D68
2. Dozer D8C
3. Pan 615C, self loading.
4. Track Hoe Catapilar 325, can dig to 20 ft. depth.
5. Pump, Gas driven, 35 Hp., 300 gpm., as requested by Huntersville Volunteer Fire Dept.
6. Pump, Electric, 3 Hp., 120 gpm., as requested by Huntersville Volunteer Fire Dept.

1. PLANS, PERMITS AND REPORTS:
   a. Latest approved plans, spec's. and Studies are on file at the Landfill Office.
   b. Well monitor reports are on file in office and are sent to DEHNR, Mooresville Office.

2. SPREADING AND COMPACTION:
   a. Waste is placed in about 4 ft. thick layers and in area sequence shown on "Plan of Development Phases", attached.
   b. Waste is compacted as densly as practical in 4 ft. cells.

3. SOIL COVER:
   a. Waste shall be covered at least weekly with 6 inch minimum layers. Actually some material is covered almost daily due to current intake rate.
   b. Areas not receiving additional waste for 12 months will be covered with 12 inches of soil and grassed.
   c. After final termination of disposal for a portion of site or final portion of a site, cover with at least 2 ft. of suitable compacted earth in the following manner:
      (1) Retain a Soils Testing Lab. supervised by an Engineer registered in N.C and have this Lab. perform these funtions:
         (a) Perform a compaction test on soils to be used for final 2 ft. cover for data to make periodic compaction tests as final cover is placed.
         (b) As final cover is placed on a portion of the landfill (exterior slopes), have the Lab. make compaction tests before grassing.
         (c) Have copies of compaction tests stored by the Lab. and furnished to Landfill. Have Lab. keep a Permanent Record Map of locations of all tests and periodically, as requested, furnish copy of map to Landfill for distribution.

d. Cap System (Ref. sect. .1627 para. (c) (1 A - C)
   (A) See Exhibit "B" attached for soil permeability of soil to be used for cap system.
   (B) Closure Barrier soil shall be at least 18 inches thick and compacted and installed as per para. 3c. above.
   (C) Have and erosion layer of 6 inches of material capable of sustaining native plant growth added to 18 inch, d.(B) above.

e. Seed completed closure barrier area with lespedeza.

4. EROSSION CONTROL:
   a. Install drainage ditches, conduit and catch basins at each bench level. See drawings, attached.
   b. Grass all slopes and benches.
   c. Clean out sedimentation basins after each rain.
   d. Clean out drainage ditches from sediment basins to to of drainage area after each rain.
   e. Maintain gravel access road ditchs and sediment traps after each rain.
   f. Repair eroded areas after each rain and re-seed.

5. DRAINAGE CONTROL:
   a. Divert surface water from the landfill area in perimeter drainage ditches.
   b. No surface water shall be impounded within the landfill area.
   c. All surface water runoff within the landfill area must be routed by ditches and conduit to one of the sediment basins. Surfaces of active landfill areas shall be adequately sloped to provide for drainage at all times.

6. VEGETATION OF DISTURBED AREAS:
   a. Vegetate all exterior slopes as they are completed and after 2 ft. fill is installed, with lespedeza as approved in permit.
   b. Within six months after final termination of disposal operations at the site or a major part thereof or upon revocation of a permit, the area shall be stabilized with native grasses.
   c. Use temporary seeding to stabilize washout areas and erossion on all exterior slopes.

7. WATER PROTECTION:
   a. A seperation distance of four feet between waste and water table shall be maintained.
   b. Solid waste shall not be disposed of in water.
   c. Leachate shall be contained on site or properly treated prior to discharge to surface waters.

8. ACCESS AND SECURITY:
   a. Site security shall be maintained by locking existing gates when some staff member is not on site.
   b. The attendant shall be on duty at the site at all times landfill is open to the public to ensure compliance with approved operational requirements.
   c. Signs shall be posted at appropriate locations stating that no hazardous or liquid waste will be accepted.
   d. Traffic signs shall be posted to provide orderly traffic patterns to and from discharge areas.

9. SINAGE:
   a. Directional Signs on Hwy. 115 at Holbrooks Rd. shall be maintained at all times landfill is in operation.
   b. Existing Landfill entrance Sign providing information on hours of operation, dumping procedures, Permit Number and other instructions, shall be maintained at all times.
   c. Signs shall be posted at appropriate locations stating that no hazardous or liquid waste will be accepted at the landfill.
   d. Traffic signs shall be posted to provide orderly traffic patterns to and from discharge areas.

10. SAFETY REQUIREMENTS:
   a. Huntersville Volunteer Dept. will service the landfill. This VFD requested electrical driven pumps be installed at Sediment Basin No. 1 to boost water to their pumpers. This VFD will be called to fight all fires with foam or as they see fit. The VFD is well trained and can call for support from Meklenburg or Charlotte Fire fighting departments. Pumps are not to be used to boost water to fight fires using water.
   b. The two booster pumps also are used for a spray irrigation sytem to prevent dust along access road outside landfill area.
   c. Fires that occur in the landfill area should be immediately reported to Fire Dept. and Mecklenburg Co. and DEHNR, Mooresville. See attached Exhibit "A".
   d. Removal of solid waste from the landfill site is not permitted unless Owner/Operator approves and removal is not from the working face of the landfill.
   e. Barrels and drums shall not be disposed of unless they are empty and perforated sufficiently to ensure that no liquird or hazardous waste is contained therein.
   f. Personnel or Visitor Injuries shall be handled as detailed on Exhibit "A", attached.

g. Opeator Training for the four on site landfill employees is on an individual on-site basis. The four employees have up to 8 years on site experience. The Landfill Manager has 2 years experience at this lanfill. One employee has been with this landfill for 8 years. The other two have over a years experience and were trained at this site. There have been no injuries requiring medical treatment at this landfill since 1988.

11. WASTE ACCEPTANCE AND DISPOSAL:

a. The Landfill shall only accept those solid wastes which it is permitted to recieve. The landfill Operator shall notify DEHNR, Solid Waste Div. within 24 hours of attempted disposal any waste the landfill is not permitted to receive, including waste from outside the area the lanfill is permitted to serve.
b. No hazardous or liquid waste shall be accepted or disposed of in the landfill.
c. Wastewater treatment sludges may not be accepted.

12. ANTICIPATED LIFETIME AND PROJECT USAGE AFTER COMPLETION:
a. Anticipated lifetime of landfill:
average daily intake = 1500 CY/day.
average operation of 5 days/week.
total calculated volume in last phase = 842,510. CY

$$\text{Life of landfill} = \frac{842{,}510.\ \text{cy}}{1500\ \text{cy/day} \times 5\ \text{day/wk.} \times 52\text{wk/yr.}} = 2.16\ \text{yrs.}$$

b. Project usage of landfill after completion:
As pasture for grazing cattle and horses.

13. MONITORING OF EXPLOSIVE GASES:
a. Mecklenburg County EPD currently monitors at least monthly; however, if not monitored by County, Landfill will purchase equipment to monitor, keep and furnish records of monitoring program.

14. MISCELLANEOUS REQUIREMENTS:
a. Appropriate methods such as fencing and diking shall be provided to confine solid waste subject to be blown by wind. At the conclusion of each day of operation, all windblown material resulting from the operation shall be collected and returned to the area by the Operator.

N. MECKLENBURG LANDFILL
OPERATING PROCEDURES
NOVEMBER 14, 1994.
EXHIBIT "A"

IN CASE OF FIRE

1. CALL IN FIRE TO HUNTERSVILLE VOLUNTEER FIRE DEPARTMENT

   PHONE: 911 OR 336-3333.

2. USE HAND HELD FIRE EXTINGUISHER TO FIGHT FIRE UNTIL

   FIRE DEPARTMENT ARRIVES.

3. COVER FIRE WITH SOIL TO SMOTHER OUT, IF POSSIBLE.

4. MONITOR AREA OF FIRE FOR 24 HOURS.

   LANDFILL OFFICE

5. REPORT FIRE TO DEHNR, MOORESVILLE AND MECKLENBURG

   COUNTY EPD WITHIN 24 HOURS.

6. SUBMIT WRITTEN REPORT TO DEHNR, MOORESVILLE AND MECKLENBURG

   COUNTY EPD WITHIN 15 DAYS.

IN CASE OF PERSONNEL INJURY

1. IF MEDIC AND AMBULANCE SERVICE IS NEEDED, CALL 911.

2. FOR OTHER LESS SEVERS INJURIES TAKE EMPLOYEE TO

   NALLE CLINIC IN CHARLOTTE. EMPLOYEES ARE COVERED BY

   WORKMANS COMPENSATION AND INSURANCE.

3. IF INJURED IS A VISITOR CALL 911 FOR MEDIC IF NEEDED,

   AND NOTIFY INDIVIDUALS OFFICE.

4. FILE REPORT WITH OFFICE OF OCCUPATIONAL HEALTH AND SAFETY

   IF AND WHEN REQUIRED.

5. REQUIRED SAFETY EQUIPMENT IS ON PROJECT AND LANDFILL

   CONSTRUCTION EQUIPMENT.

NORTH MECKLENBURG LANDFILL

LARRY A. GRIFFIN, PRESIDENT.

SECTION 2

Earthwork Computations for
N. Mecklenburg Landfill
Final Phase
November 14, 1994.
Rev. Dec. 21, 1994

NORTH MECKLENBURG LANDFILL
HUNTERSVILLE, N. C.
NOVEMBER 14, 1994.

S U M M A R Y O F E A R T H W O R K Q U A N T A T I E S

I. EARTHWORK EXCAVATION VOLUME..... 151,537. CY.

BASED ON LOWEST EXCAVATION GRADES AS SHOWN ON DRAWING SHEET 12 - LOWEST EXCAVATION GRADES.

II. LANDFILL FILL VOLUME .....690,720. CY.

BASED ON FILL GRADES ABOVE EXISTING GRADES AS SHOWN ON DRAWING SHEET 11 - FINAL GRADE CONTOURS.

III. TOTAL LANDFILL FILL VOLUME ..... 842,257. CY.

BASED ON FILLING EXCAVATED VOLUME IN PARA. I ABOVE AND LANDFILL FILL VOLUME IN PARA II, ABOVE, COMBINED.

(NOTE THIS COMPUTATION IS BASED ON NO FILL WITHIN A 500 FT. RADIUS OF COUNCIL'S WELL,)

EXCAVATION BELOW GRADE
SEE DRAWING SHEET 12.

Earthwork Computations for
N. Mecklenburg Landfill
November 14, 1994
Rev. Dec. 21, 1994

B1 4 x 40 x 100 = 56,000.
C1 8.8 x 50 x 100 = 44,000.
D1 11 x 60 x 100 = 66,000.
E1 11 x 70 x 100. = 77,000.
F1 11.2 68 x 100 = 76,160.
G1 12.8 80 x 100 = 102,400.
H1 12.9 x 95 x 100 = 122,550.
I1 5 x 100^2 50,000
J0 2 x 36 x 100 7200.
666,110.

B2 9.8 x 25 x 100 = 73,500.
C2 20.3 x 100^2 = 203,000.
D2 22.5 x " = 225,000.
E2 22.0 x " = 220,000.
F2 23.8 x " = 238,000.
G2 24.8 x " = 248,000.
H2 $14.5 \times 100^2 - \frac{70^2}{2}$ = 109,475.
1,316,975

B3 11 x 80 x 100 = 88,000.
C3 22 x 100^2 = 220,000.
D3 27.5 x " = 275,000.
E3 20.2 x " = 202,000.
F3 6.5 x 100^2 = 90,000.
G3 15 x " 100^2 = 150,000.
H3 $4 \times \frac{25 \times 25}{2}$ = 1250.
876,250.

B4 6.6 x 25 x 100 = 16,500.
C4 22.6 x 100^2 = 226,000.
D4 25.0 x 100^2 = 250,000.
E4 20.3 x " = 203,000.
F4 8 x " = 80,000.
G4 2.3 x 50 x 40 = 4600.
780,100.

C5 13.5 x 100^2 = 135,000.
D5 21 x 85 x 100. = 178,500.
E5 12 x 20 x 100 24,000.
338,000.

C6 12 x 93 x 100 = 120,000.
D6 7 x 40 x 100 28,000.
148,000

C7 3.3 x 37.5 x 100. = 12,375.
D7 3.2 x 20 x 100, = 6400.
18,775.

TOTAL
$\frac{4,091,500}{27}$ = 151,537 CY

EXCAVATION BELOW GRADE
SEE DRAWING SHEET 12.
PAGE 2 OF 4

Earthwork Computations for
N. Mecklenburg Landfill
November 14, 1994
Rev. Dec. 21, 1994

B1 4 x 40 x 100 = 56,000.
C1 8.8 x 50 x 100 = 44,000.
D1 11 x 60 x 100 = 66,000.
E1 11 x 70 x 100. = 77,000.
F1 11.2 68 x 100 = 76,160.
G1 12.8 80 x 100 = 102,400.
H1 12.9 x 95 x 100 = 122,550.
I1 5 x 100^2 50,000
J0 2 x 36 x 100 7200.
666,110.

B2 9.8 x 25 x 100 = 73,500.
C2 20.3 x 100^2 = 203,000.
D2 22.5 x " = 225,000.
E2 22.0 x " = 220,000.
F2 23.8 x " = 238,000.
G2 24.8 x " = 248,000.
H2 14.5 x $\frac{100^2 - 70^2}{2}$ = 109,475.
1,316,975

B3 11 x 80 x 100 = 88,000.
C3 22 x 100^2 = 220,000.
D3 27.5 x " = 275,000.
E3 20.2 x " = 202,000.
F3 6.5 x 100^2 = 90,000.
G3 15 x " 100^2 = 150,000.
H3 4 x $\frac{25 \times 25}{2}$ = 1250.
876,250.

B4 6.6 x 25 x 100 = 16,500.
C4 22.6 x 100^2 = 226,000.
D4 25.0 x 100^2 = 252,000.
E4 20.3 x " = 203,000.
F4 8 x " = 80,000.
G4 2.3 x 50 x 40 = 4600.
780,100.

C5 13.5 x 100^2 = 135,000.
D5 21 x 85 x 100. = 178,500.
E5 12 x 20 x 100 24,000.
338,000.

C6 12 x 93 x 100 = 120,000.
B6 7 x 40 x 100 28,000.
148,000

C7 3.3 x 37.5 x 100. = 12,375.
D7 3.2 x 20 x 100, = 6400.
18,775.

TOTAL
$\frac{4,091,500}{27}$ = 151,537 CY

LANDFILL ABOVE GRADE
SEE DRAWING SHEET 11.

Earthwork Computations for
N. Mecklenburg Landfill
November 14, 1994

HT. x "A" x "B" /4

A1 8 x 28 x 65 = 14,560.
B1 9 x 35 x 100 = 31,500.
C1 9 x 45 x 100 = 40,500.
D1 10 x 55 x 100 = 55,000.
E1 9 x 65 x 100 = 58,500.
F1 10 x 75 x 100 = 75,000.
G1 10 x 35 x 100 = 35,000
H1 10 x 85 x 100 = 85,000.
I1 8 x 85 x 100 = 68,000.
J1 6 x 65 x 100 = 39,000.
502,060

A2 8 x 55 x 100 = 44,000.
B2 13.3 x 73 x 100 = 97,090.
C2 24.3 x 100 x 100 = 243,000.
D2 48.3 x " " = 483,000.
E2 55 x " " = 550,000.
F2 46 x " " = 460,000
G2 23.5 " " = 235,000.
H2 11.5 " " = 115,000.
I2 2.5 x 50 x 100 = 12,500.
2,244,590.

B3 9.5 x 75 x 100 = 71,250.
C3 28.8 x 100 x 100 = 288,000.
D3 48.3 " " = 483,000.
E3 55 " " = 550,000.
F3 39.5 " " = 395,000.
G3 12.0 " " = 120,000.
H3 3.5 x 70 x 100 = 24,500
1,931,750.

C4 2.3 x 120 = 253
D4 51 x 100^2 = 510,000.
E4 56 x 100^2 = 560,000.
F4 39.5 x " = 395,000.
G4 23.5 x " = 235,000.
H4 11.5 x " 115,000
I4 2.5 x 70 x 100 = 17,500.
1,332,753.

C5 18.8 x 90 x 100 = 169,200.
D5 48.3 x 100^2 = 483,100.
E5 55.5 x 100^2 = 555,000.
F5 42.5 " = 425,000.
G5 12.0 " = 120,000.
H5 3.5 x 60 x 100 = 21,000.
1,773,200.

C6 17.8 x 80 x 100 = 142,400.
D6 53.5 x 100^2 = 535,000.
E6 50 x " = 500,000
F6 26 x " = 260,000.
G6 10 x " = 100,000.
H6 1.3 x 17 x 100 = 2210.
1,539,610.

C7 20 x 55 x 100 = 110,000.
D7 53.5 x 100^2 = 535,000
E7 54 x " = 540,000
F7 30 x 100^2 = 300,000
G7 10 x 100^2 = 100,000
1,585,000.

[SUBTOTAL = 17,408,630 F]

LANDFILL ABOVE GRADE
SEE DRAWING SHEET 11.
PAGE 4 OF 4.

Earthwork Computations for
N. Mecklenburg Landfill
November 14, 1994

B8 $8.6 \times 20 \times 100 = 17,200.$

C8 $33.5 \times 100^2 = 335,000.$

D8 $67.5 \times 100^2 = 675,000.$

E8 $68 \times 50 \times 100 = 340,000.$

5,032,200.

B9 $8 \times 65 \times 100 = 52,000.$

C9 $46.5 \times 100^2 = 465,000.$

D9 $85.5 \times 100^2 = 855,000.$

E9 $68. \times \left[100^2 - \frac{60 \times 70}{2}\right] = 5372.$

10000
2100
7900

1,377,372.

A10 $7.6 \times 25 \times 100 = 19,000.$

B10 $16 \times 100^2 = 160,000$

C10 $50 \times \left[100^2 - \frac{50 \times 60}{2}\right] = 450,200$

9000

D10 $9 \times \frac{50 \times 50}{2} = 11,250.$

640,250.

A11 $9 \times 50 \times 100 = 45,000.$

B11 $38 \times \left[100^2 - \frac{62.5}{2}\right] = 270,956.$

9677

C11 $\left[\frac{60 \times 65}{2}\right] 66 = 128,700.$

444,656.

A12 $5.3 \times 80 \times 50/2 = 10,600.$

B12 $12.6 \times \frac{60 \times 70}{2} = 26,460.$

37,060.

VOLUME = $7,531,538 + 11,117,793 = 690,720$ CY

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SECTION 3

MECKLENBURG COUNTY
Engineering Department

August 23, 1994

Mr. Frank B. Hicks
1817 Wedgedale Dr.
Charlotte, NC 28210

Re: N. Mecklenburg Landfill Phase II

Dear Frank:

I have reviewed your revisions to North Mecklenburg Landfill (formerly P&P Landfill) off Holbrooks Road in Huntersville, and approved the erosion control. Since the initial Grading Permit #1141 was issued 8/30/88, just inform Ted Fortner, our inspector for the area, and enlarge the filter basins as approved on the plans. If you have any additional questions or require further assistance please feel free to call me at 336-3735.

Sincerely,

Michael J. Kenney
Land Development Manager

cc: Ted Fortner

Frank B. Hicks Associates, Inc.
Consulting Engineers • Surveyors • Planners
1817 Wedgedale Dr. • Charlotte, NC • 28210
Telephone: (704) 527-1586 • Fax: (704) 553-1643

March 14, 1994

Soil Conservation Service
700 N. Tryon Street
Charlotte, N. C.

Re: N. Mecklenburg Landfill
Application to DEHNR for C&D Landfill Approval
Last phase of property.

Gentlemen:

In September 1993, your office reviewed the Siltation and Erossion Control plans for the first 10 acres phase of this project. This submittal is intended to cover the remaining landfill and is part of a submittal to DEHNR Solid Waste Section. These drawings are intended to show the final finish grades on the whole landfill, the storm drainage system, erossion control and access and service roads.

The use of Sericea Lespedeza for ground cover as suggested by your office will continue to be used thru the remaining landfill construction.

Attached are Stormwater Drainage Computations and Siltation and Erossion Control Computations for the entire project as it is to be graded and drained.

If you have any questions please contact us.

Very truly yours,

FRANK B. HICKS ASSOCIATES, INC.

Frank B. Hicks, Jr, P.E.
FBH/s
Encl. Plans and Computations.

GENERAL NOTES ON STORM DRAINAGE AND SEDIMENTATION COMPUTATIONS:

STORM DRAINAGE DESIGN COMPUTATIONS - SEE DRAWING SHEET NO. 2.

DRAINAGE AREAS ARE DESIGNATED "A22," TO REFERENCE AREA USED IN COMPUTATIONS.

PIPE SIZES AND PROFILES ARE SHOWN ON DRAWING SHEET NO. 4. PIPE IS TO ALL BE CORRUGATED PLASTIC. SIZES ARER SHOWN ON THE PROFILES.

DRAINAGE DITCH SECTIONS AND CROSS SECTIONS ARE SHOWN ON DRAWING SHEET NO. 3.

DROP INLET, PRECAST CONCRETE, ARE SHOWN ON DRAWING SHEET NO. 3.

LOCATION OF THE USE OF THE DITCH SECTIONS IS SHOWN ON DRAWING SHEET NO. 2. ALSO SEE KEY TO "FLAGGING" SYMBOLS ON THIS SHEET.

SEDIMENTATION CONTROL DESIGN DATA:

LOCATION OF THE THREE SEDIMENTATION PONDS/ TRAP ARE SHOWN ON DRW. SHEET NO. 2 ALONG WITH REQ'D. AREA, DEPTH, RISER, ETC.

SECTIONS THRU SEDIMENTATION PONDS/TRAP ARE SHOWN ON DRAWING SHEET NO. 3.

NORTH MECKLENBURG LANDFILL

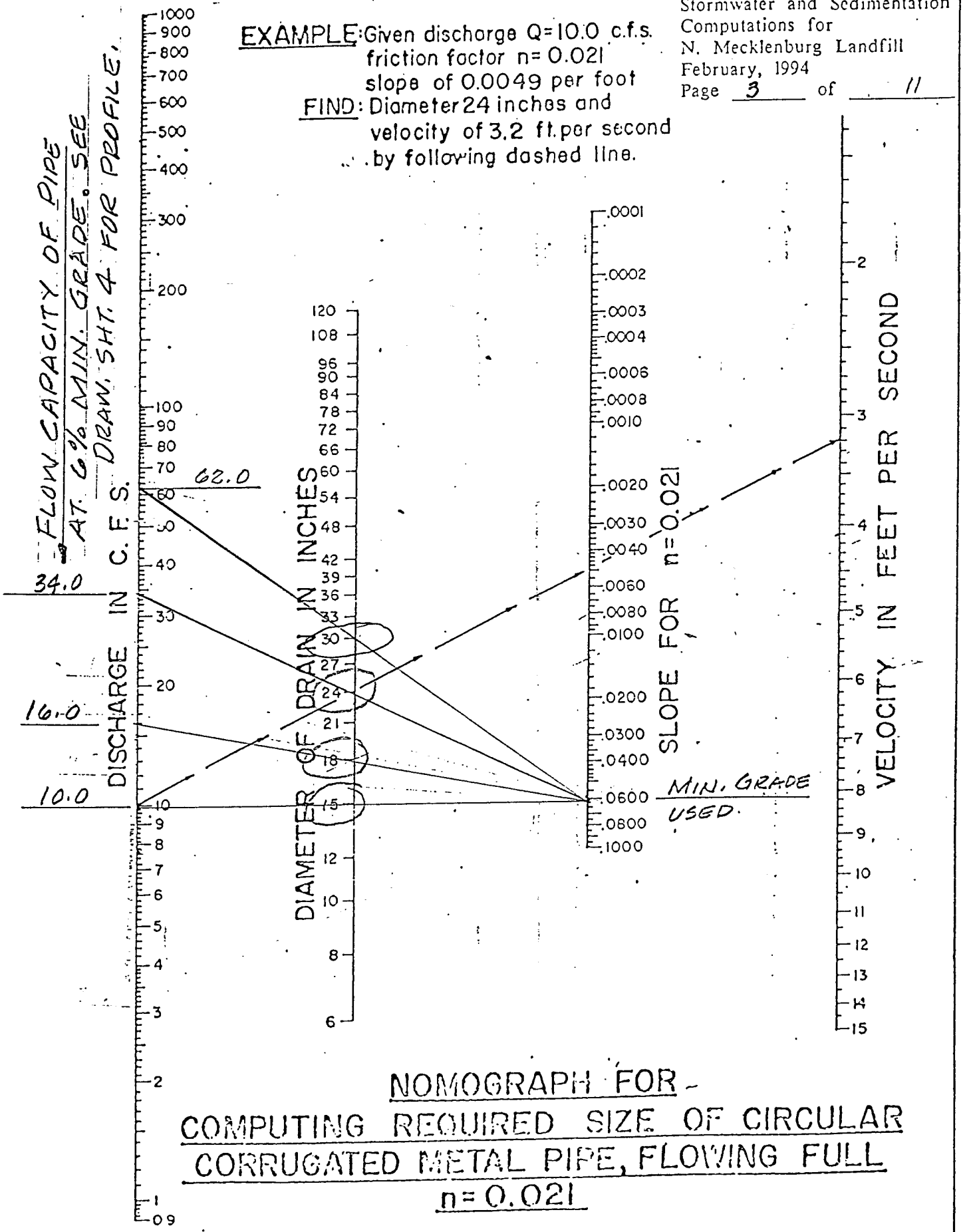
STORMWATER MANAGEMENT DESIGN COMPUTATIONS

1. DESIGN IS BY THE RATIONAL METHOD
2. INTENSITY OF RAINFALL IS BASED ON A STORM FREQUENCY OF 20 YEARS.
3. INTENSITY FACTOR IS 6.3.
4. STORM DRAINAGE PIPE IS CORRUGATED METAL OR PLASTIC. SEE DRAWINGS.
5. DROP INLET STRUCTURES ARE PRECAST NC DOT STANDARD UNITS.

LOCATION		AREA		C	INTENSITY			Q = CIA		PIPE					REMARKS
FROM	TO	SUB.	TOTAL		H'	L'	I	CFS		N	SLOPE	LGTH	SIZE	VEL.	
A1	DI-8	0.31	0.31	0.5	2	300	6.3		0.97	.021	6%		15"		
A2	DI-7	2.03	2.34		2	400		7.37	8.34		6%		15"		
A3	DI-6	1.93	4.27		2	350		13.4	21.74		6%		24"		
A4	DI-5	1.65	5.93		2	200		18.68	40.42		2.2%		30"		
A5															
A6	DI-4	0.40	0.40	0.5	2	400	6.3	1.26	1.26	.021	6%		15"		
A7	DI-3	2.22	2.62		2	550		7.31	8.57		6%		15"		
A8	DI-2	1.68	4.30		2	380		13.55	22.12		6%		24"		
A9	DI-1	0.46	4.76		2	200		15.00	37.12		6%		30"		
A10															
DITCHES:															DITCH DESIGNATION
A11	DI-10	0.65	0.65	0.5	10	350	6.3		8.47	.021	2%		18"	2.0	TD-3
A12		0.50	1.15		2	180									TD-3
A13		1.14	2.29		2.0	570									TD-3
A14	DI-10	0.40	2.69		3	800									TD-3
A15	TO DP#3		3.21	0.5			6.3		10.11		2% to 8%				
DIT."A"	(D2B)	0.65		0.5	18.	350.	6.3	2.05		.021	5.14%			2.0%	TD-2
DIT."B1"	(D2B)	1.03			22.	450.		3.24			6.28%			2.0	TD-2
DIT."B2"	(D2B)	2.30			20	600.		7.25			3.33%			2.0	TD-3
DIT."C"	(D2B)	0.83			60	400.		2.61			15.00%			5.0	TD-2
DIT."D"	(D2B)	2.0			2	200		6.30			1.0%			1.0	TD-3
DIT."E"	(D2B)	2.0			4	200		11.0			2.0%			1.5	TD-3

FLOW WITHIN A SYSTEM

EXAMPLE: Given discharge Q = 10.0 c.f.s.
friction factor n = 0.021
slope of 0.0049 per foot
FIND: Diameter 24 inches and
velocity of 3.2 ft. per second
by following dashed line.



NOMOGRAPH FOR COMPUTING REQUIRED SIZE OF CIRCULAR CORRUGATED METAL PIPE, FLOWING FULL n = 0.021

Adopted from Engineering Manual, War Department, Corps of Engineers, Part XIII, Chap. 1, June 1955

SEE NEXT PAGE (5)

SEE PAGE 2 & DRN. SHTS. 2, 3

(D-6B) VD-1
Q = 3.5 CFS.

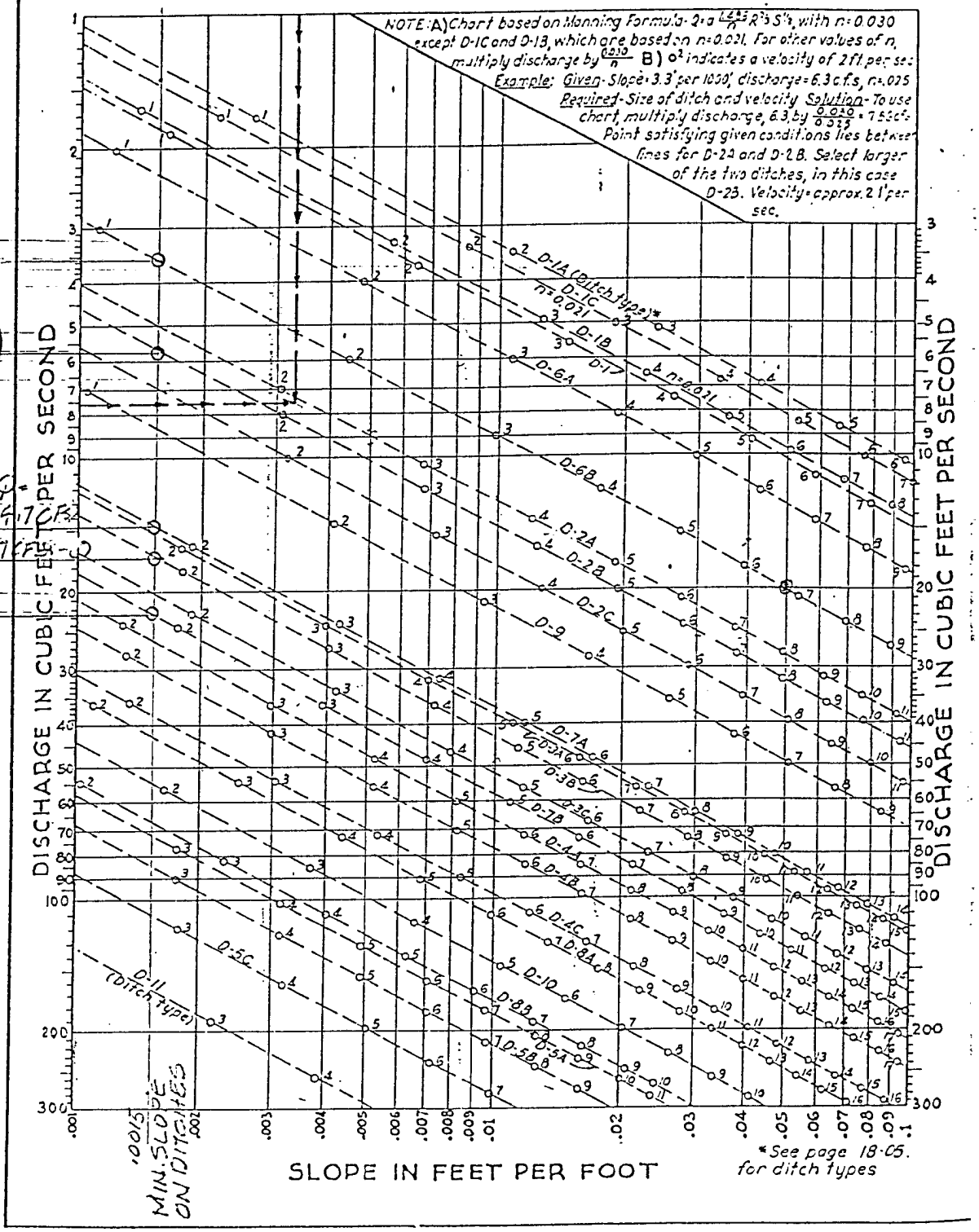
(D-2B) TD-2
Q = 5.7 CFS.

(D-7A) VD-2, 14.7 CFS

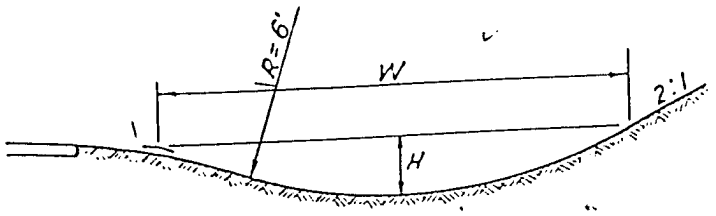
(D-3B) TD-3, 17 CFS

(D-7B) VD-3
Q = 22.5 CFS

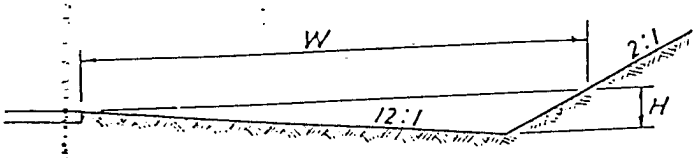
DRAINAGE-DITCHES-COMMON SECTIONS-2



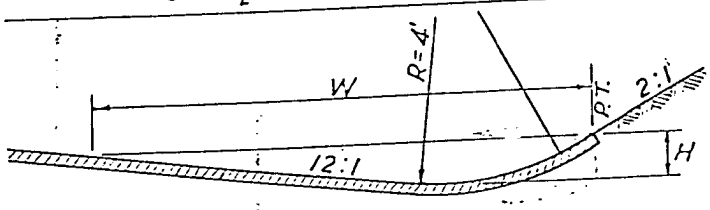
DRAINAGE- DITCHES-



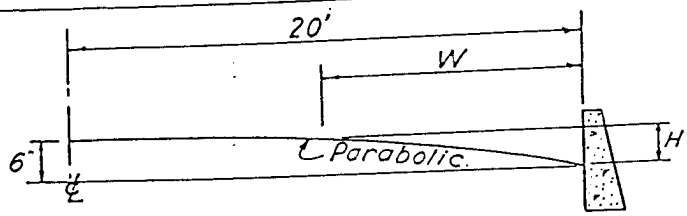
D-1 SEGMENTAL



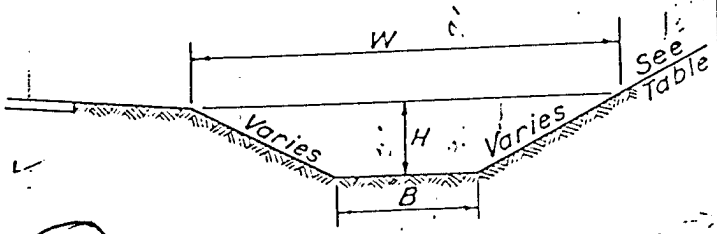
D-1A TRIANGULAR
Unequal side slopes



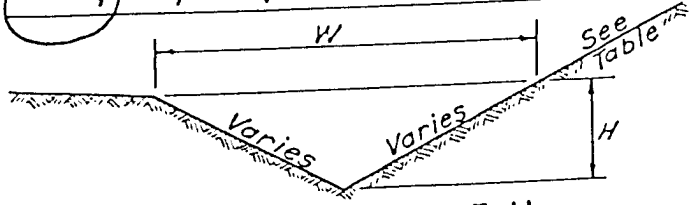
D-1B BITUMINOUS GUTTER



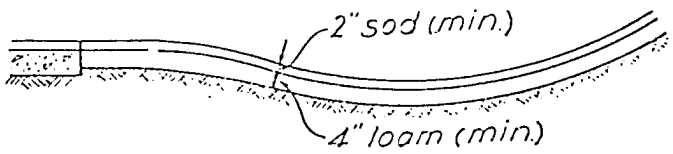
D-1C CURBED CROWNED STREET



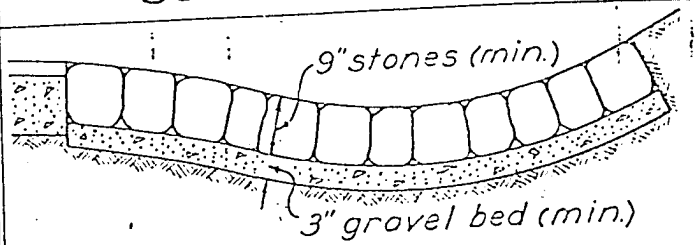
D-2, D-3, D-4, D-5 TRAPEZOIDAL



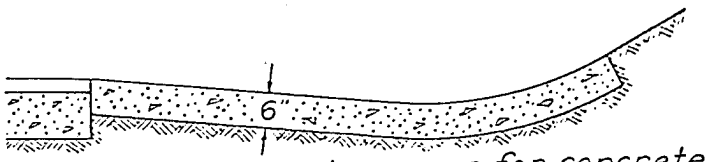
D-6, D-7, D-8, D-9, D-10, D-11
ISOSCELES TRIANGULAR
D-9, D-10 and D-11 - Airport ditches



SODDED GUTTER



COBBLED GUTTER



Base required same as for concrete pavement.

CONCRETE GUTTER

TABLE A — PROPERTIES OF DITCHES

NO.	DIMENSIONS				HYDRAULICS			
	SIDE SLOPES	B	H	W	a	p	R	$R^{2/3}$
D-1	—	—	6½"	5'-0"	1.84	5.16	0.356	0.502
D-1A	12:1 & 2:1	—	6"	7'-0"	1.75	7.14	0.245	0.392
D-1B	12:1 & 2:1	—	5"±	7'-0"	1.64	7.08	0.232	0.377
D-1C	½" to 1'-0"	—	4.5"	10'-0"	1.68	10.38	0.162	0.297
D-2A	1½:1	2'-0"	1'-0"	5'-0"	3.50	5.61	0.624	0.730
B	2:1	2'-0"	1'-0"	6'-0"	4.00	6.47	0.618	0.726
C	3:1	2'-0"	1'-0"	8'-0"	5.00	8.32	0.601	0.712
D-3A	1½:1	3'-0"	1'-6"	7'-6"	7.88	8.41	0.937	0.958
B	2:1	3'-0"	1'-6"	9'-0"	9.00	9.71	0.927	0.951
C	3:1	3'-0"	1'-6"	12'-0"	11.25	12.49	0.901	0.933
D-4A	1½:1	3'-0"	2'-0"	9'-0"	12.00	10.21	1.175	1.114
B	2:1	3'-0"	2'-0"	11'-0"	14.00	11.94	1.173	1.112
C	3:1	3'-0"	2'-0"	15'-0"	13.00	15.65	1.150	1.097
D-5A	1½:1	4'-0"	3'-0"	13'-0"	25.50	14.82	1.721	1.436
B	2:1	4'-0"	3'-0"	16'-0"	30.00	17.42	1.722	1.437
C	3:1	4'-0"	3'-0"	22'-0"	39.00	22.97	1.698	1.423
D-6A	2:1	—	1'-0"	4'-0"	2.00	4.47	0.447	0.584
B	3:1	—	1'-0"	6'-0"	3.00	6.32	0.475	0.609
D-7A	2:1	—	2'-0"	8'-0"	8.00	8.94	0.895	0.929
B	3:1	—	2'-0"	12'-0"	12.00	12.65	0.949	0.965
D-8A	2:1	—	3'-0"	12'-0"	18.00	13.42	1.341	1.216
B	3:1	—	3'-0"	18'-0"	27.00	18.97	1.423	1.265
D-9	7:1	—	1'-0"	14'-0"	7.00	14.14	0.495	0.626
D-10	7:1	—	2'-0"	28'-0"	23.00	28.28	0.990	0.993
D-11	7:1	—	3'-0"	42'-0"	63.00	42.43	1.485	1.302

SEDIMENTATION POND NO. 1

(SEE DRW. SHT #2)

		AC.
FLOW @ FE 5 =	40.42 CFS	5.93
@ FE 6 =	37.12	4.76
	77.54 CFS	.103
DIT. "C"	2.61	10.72
	80.15 CFS	

SURFACE AREA = 0.01 Q

= 80.1 × 0.01 = 0.802 AC.

= 34,935 SF.

STORAGE VOLUME = 1800 CF/AC

1800 × 10.72 = 19,296

TOTAL DRAINAGE AREA @ FE5+FE6+"C"

= 10.72

SED. POND #1 SIZE = 34,935/19296 = 1.81'

"DEWATERING HOLE" = $\frac{As\sqrt{2h}}{T \times Cd \times 20,428}$ (1.732)

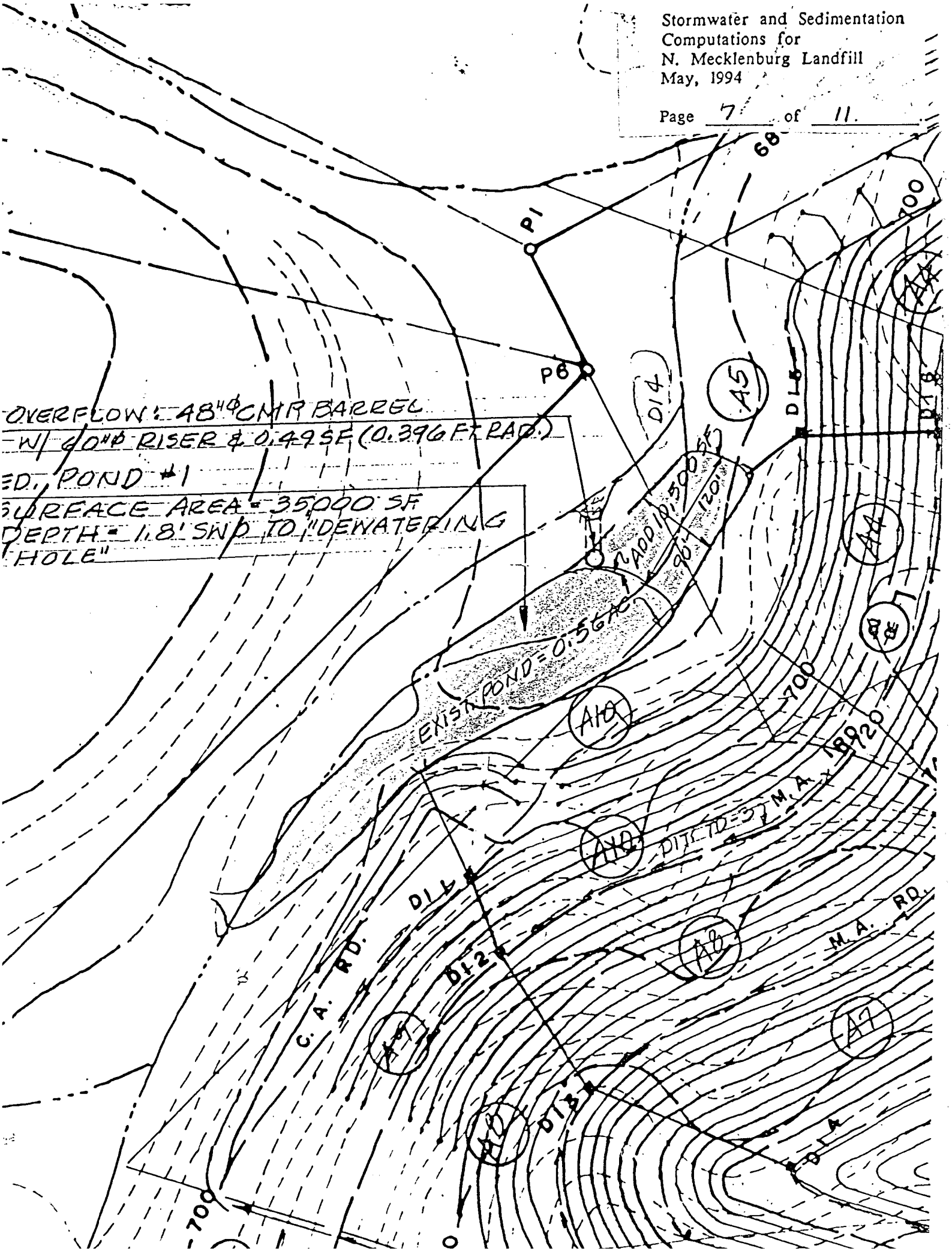
$= \frac{34,935\sqrt{2(1.5)}}{10 \times 0.6 \times 20,428}$

$= \frac{60,509.}{122,568.} = 0.4937$ SF

USE 48" ϕ BARREL W/ 60" ϕ RISER

$A = \pi r^2$

$r = \sqrt{\frac{.494}{3.14}} = 0.3966'$


OVERFLOW: 48"ϕ CMP BARREL
W/ 60"ϕ RISER & 0.49 SF (0.396 FT RAD.)
ED. POND #1
SURFACE AREA = 35000 SF
DEPTH = 1.8' SWD TO "DEWATERING
HOLE"
P1
P6
D14
A5
D15
D16
A4
A3
A2
A1
A10
A9
A8
A7
A6
D17
D12
D13
EXIST POND = 0.56AC
ADD'L 50 SF
90'
120'
700
1920
DITCH TO S.F.M.A.
C.A. RD.
M.A. RD.
68
900

SEDIMENTATION POND NO. 2.

FLOW VIA FES #4 = 8.47 CF

SURFACE AREA = 8.47 X 0.01 = 0.0847 Ac.
3689 SF

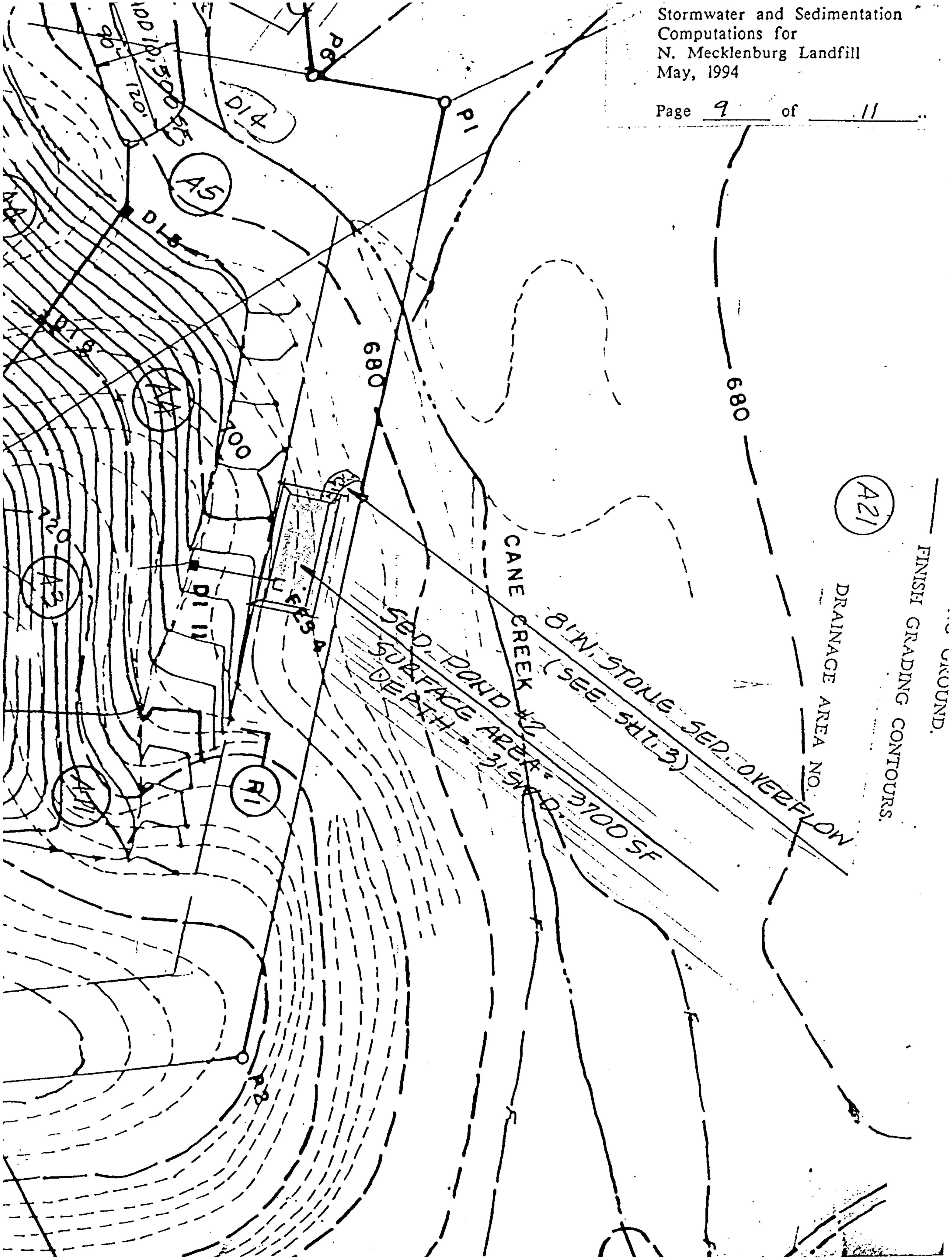
REQ'D. STORAGE = 1800 X 2.69 = 4842 CF

DEPTH = $\frac{4842}{3689}$ = 1.31 FT.

$\frac{3689}{40}$ = 92'

USE: 40 X 92 (BOT.) X 3 SIDE DEEP.

USE "STONE SEDIMENT TRAP OVERFLOW"
SEE DRAWINGS.


P1
D14
A5
680
700
A21
CANE CREEK
8'W. STONE SED. OVERFLOW
(SEE SHT. 3)
SED. POND #2
R1
FINISH GRADING CONTOURS.
DRAINAGE AREA NO.
GROUND.

SEDIMENTATION POND #3

FLOW @ DIT. "B-2" TO POND = 10.11 CFS

SURFACE AREA = 10.11 X 0.01 = 0.101 AC
= 4400 SF

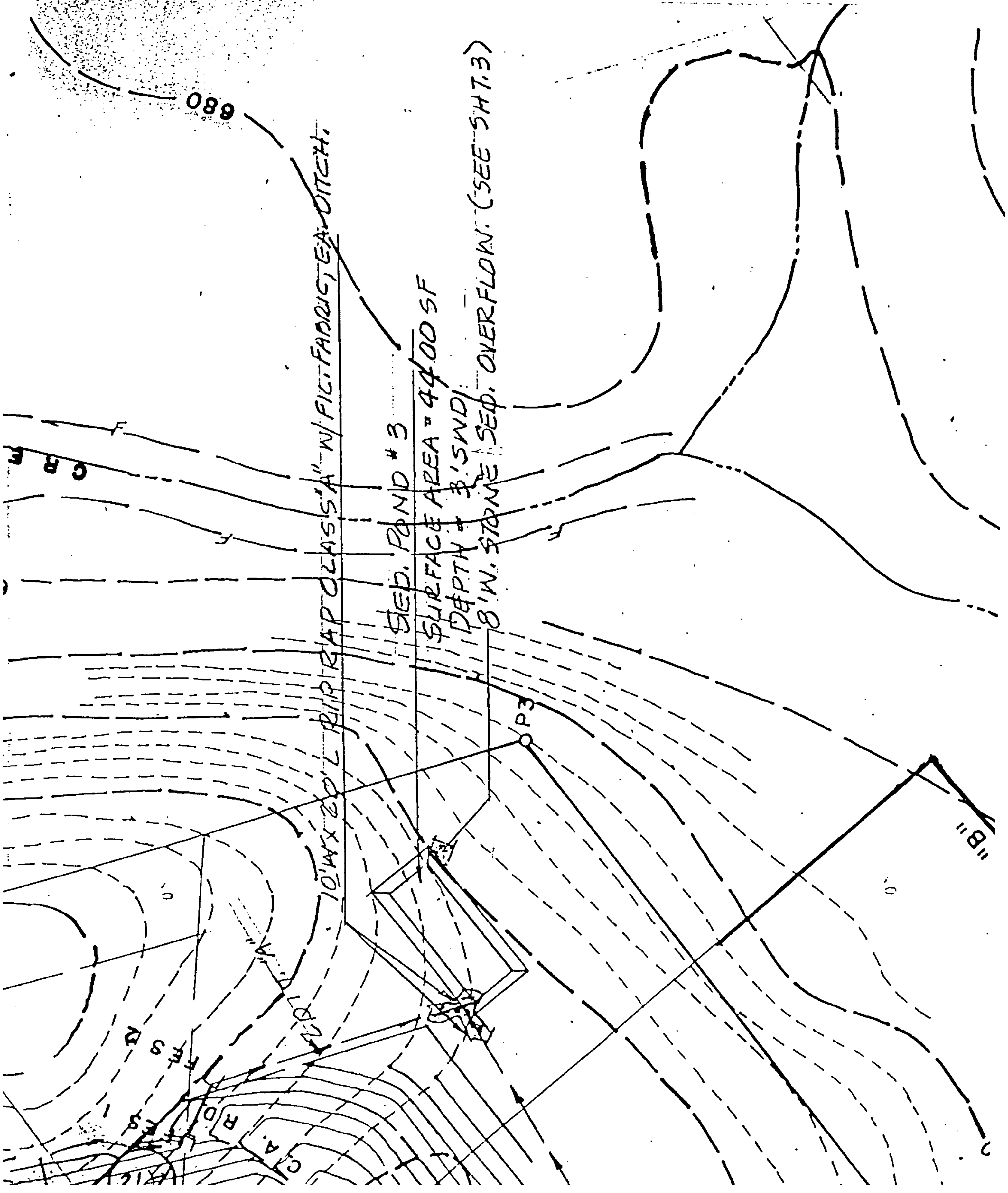
REQ'D STORAGE = 1800 X 2.3 = 4140 CF

DEPTH = $\frac{18,198.}{4400.}$ = 4.14 FT.

$\frac{4400}{40}$ = 110'

USE: 40' X 110' (BOT) X 35 WD DEEP.

USE "STONE SEDIMENT TRAP OVERFLOW", SEE DRAWINGS.


680
10'W X 20'L RIPRAP CLASS "A" W/ FIL. FABRIC, EA. DITCH.
SED. POND # 3
SURFACE AREA = 4400 SF
DEPTH = 3' SWD
8'W. STONE SED. OVERFLOW. (SEE SHT. 3)
P3
"B"

SECTION 4

PROPOSED MONITORING PLAN

North Mecklenburg Construction and Demolotion Landfill
15300 Holbrooks Road
Huntersville, North Carolina

Permit # 60-13

ESI Project No. ES-675

February 22, 1995

-Prepared for-

Mr. Larry Griffin, Sr.
19141 Highway 73 West
Davidson, North Carolina 28036

-Prepared by-

Ecological Services, Inc.
P.O. Box 12146
Charlotte, North Carolina

Paul A. Banks, P.G.
Project Geolgist

MONITORING PLAN OBJECTIVE

The proposed groundwater monitoring plan is intended to determine groundwater quality associated with the operation of the Phase I and Phase II landfill tracts. Groundwater sampling activities will be performed semi-annually. This plan presents our recommended groundwater monitoring program which includes well locations, and groundwater sampling and chemical testing.

MONITORING WELL SAMPLING PLAN

Ecological Services, Inc. recommends that a groundwater monitoring program be implemented following the Phase II permitting of the subject site. To ensure adequate site coverage, ESI proposes that the following groundwater monitoring locations be sampled (Figure 1):

Site Boarder Monitoring Points

MW-1a
MW-4a
MW-4
MW-6a
MW-8
MW-10
MW-11

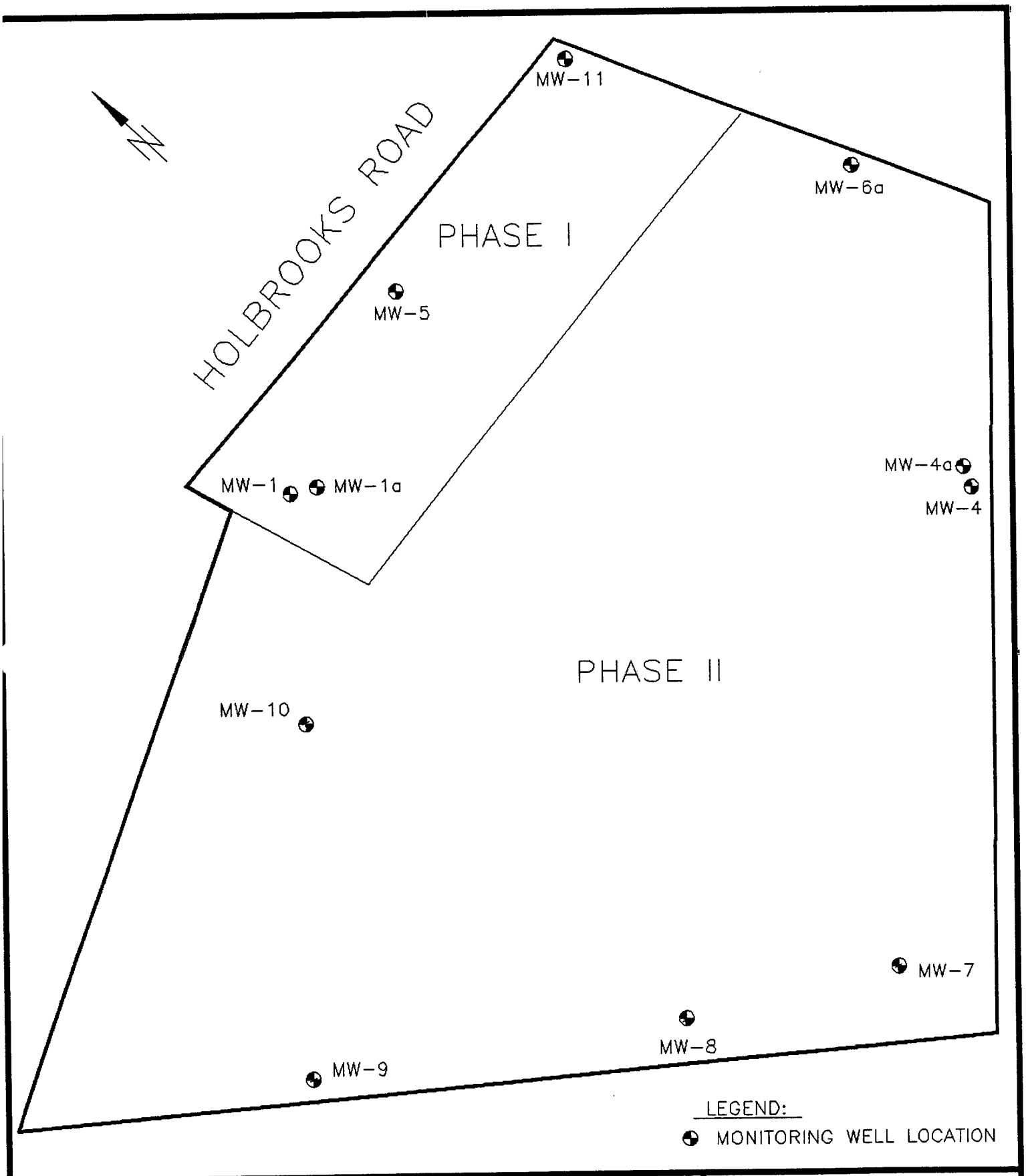
Well construction data is included in Appendix A of this monitoring plan.

Water levels will be measured prior to each sampling event with an oil/water interface probe to determine groundwater elevation. The monitoring wells will then be purged by bailing or pumping at least 4 times the water volume within the well, including the sand pack, or to dryness. After allowing each well to recover at least 60% of the initial head, or 24 hours, whichever occurs first, the monitoring well will be sampled using disposable EPA approved sampling bailers. At the time the water samples are collected from the wells, pH, temperature, and specific conductivity will be recorded in the field to ensure that representative groundwater is being obtained for chemical analysis. One field blank sample will be obtained in the field by pouring distilled water into a sampling bailer and then decanting the contents of the bailer into the appropriate glass container. A laboratory trip blank will also accompany the groundwater samples.

All groundwater samples will be properly preserved and shipped to a North Carolina Approved analytical laboratory for chemical analysis as outlined in the attached Solid Waste Section Sampling and Analysis Requirements (Appendix B). Appropriate chain-of-custody records will be maintained during each stage of sample collection and transportation.

EPARATION

letion of each semi-annual sampling event, a summary of our field activities, ta, and laboratory results will be provided to the DEHNR-Solid Waste in a letter report.



Date: 02-23-95
Scale: 1" = 200'
Dwg. No.: ES675-1

ESI

Figure 1: Site Configuration Map
North Mecklenburg Landfill
Huntersville, North Carolina

APPENDIX A

Well Construction Data

Geologist Log — **Ecological Services, Inc**

Job #: ES-0675	North Mecklenburg Landfill	Well #: 1-A	Page 1 of 1
County: Mecklenburg State: NC	Date Begin: 02/02/95 Date End: 02/03/95	Casing Height: 2.5 ft.	Land Surface Elevation:
Lat.: Long.:	Drilled By: Badger Well Drilling	Static Water Level:	
Grid Coor.:	Logged By: Mike Magnetti	Development Method:	
Tests:	Drilling Method: Auger/Air	Sampling Method:	
Grout: 5% bentonite: 0' to 7'	Seal: 7' to 9'	Gravel Pack: 8/20 Silica Sand: 9' to 25'	
Casing Type: Sch 40 PVC Diameter: 2"	Depth: 0' to 10'		Hole Dia.: 6"
Screen Type: Sch 40 PVC Diameter: 2"	Slot: 0.010-inch	Depth: 10' to 25'	Total Depth: 25.1'

PID/FID Reading(ppm)	Penetration Resistance	Depth (ft)	Lithology/Remarks	Well Completion
		0	Tan and Brown Silty Clay Medium to Fine Grain	0 — Grout 0' to 7'
			Weathered Bedrock	9' — Bentonite 7' to 9'
		10	Weathered Bedrock Saprolitic with an Increase in Cohesion and Resistance with Depth	Casing 0' to 10'
		20	Total Well Depth	20 — Screen 10' to 25' — Sand 9' to 25'
		30		30
		40		40
		50		50
		60		60

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Geologist Log

Ecological Services, Inc

Job #: ES–0675	North Mecklenburg Landfill	Well #: MW–4	Page 1 of 1
County: Mecklenburg State: NC	Date Begin: Date End:	Casing Height:	Land Surface Elevation:
Lat.: Long.:	Drilled By: Graham & Currie	Static Water Level:	
Grid Coor.:	Logged By: Ben Hope	Development Method:	
Tests:	Drilling Method: Air Rotary	Sampling Method:	
Grout: 5% bentonite	Seal: 40–44 ft	Gravel Pack: FX 50 sand 44–67 ft	
Casing Type: Sch 40 PVC	Diameter: 2" Depth: 0 – 47 ft		Hole Dia.: 6"
Screen Type: Sch 40 PVC	Diameter: 2" Slot: 0.010–inch	Depth: 47–67 ft	Total Depth: 67 ft

PID/FID Reading (ppm)	Penetration Resistance	Depth (ft)	Lithology/Remarks	WellCompletion
		0	0 – 30.0 ft: Tan Silty Fine Sand	0
		10		10
		20		20
		30	30.0 – 40.0 ft: Brown Silty Fine Sand	30
				Grout (0 – 40 ft)
		40	40.0 – 50.0 ft: Partially Weathered Bedrock Sampled as Tan Silty Fine Medium Sand with Rock Fragments	40
				Bentonite (40 – 44 ft)
				Casing to 47 ft
		50	50.0 – 67.0 ft: Gray Silty Medium Sand with Rock Fragments	50
		60		60
				Sand (44 – 67 ft)
				Screen (47 – 67 ft)
			Boring Terminated at 67.0 ft	
		70		70

Geologist Log — **Ecological Services, Inc**

Job #: ES-0675	North Mecklenburg Landfill	Well #: 4-A Page 1 of 1
County: Mecklenburg State: NC	Date Begin: 02/02/95 Date End: 02/03/95	Casing Height: 2.38' Land Surface Elevation:
Lat.: Long.:	Drilled By: Badger Well Drilling	Static Water Level:
Grid Coor.:	Logged By: Mike Magnetti	Development Method:
Tests:	Drilling Method: Air	Sampling Method:

Grout: 5% bentonite 0' to 24' Seal: 24' to 26' Gravel Pack: 8/20 Silica Sand: 26' to 42'

Casing Type: Sch 40 PVC Diameter: 2" Depth: 0' to 27' Hole Dia.: 6"

Screen Type: Sch 40 PVC Diameter: 2" Slot: 0.010-inch Depth: 27' to 42' Total Depth: 42'

PID/FID Reading (ppm)	Penetration Resistance	Depth (ft)	Lithology/Remarks	Well Completion
		0	Brown and Tan Silty Clay Highly Weather Rock	0
		10	Weathered Saprolitic Bedrock Increase in Cohesion and Resistance with Depth	10
			Solid Rock	
		20	A more Solid Compitent Bedrock	20
			Fracture Zone	Grout 0' to 24'
				Bentonite 24' to 26'
				Casing 0' to 27'
		30		30
			Fracture Zone	
		40		40
			Total Depth	Sand 26' to 42'
				Screen 27' to 42'
		50		50
		60		60

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Geologist Log — **Ecological Services, Inc**

Job #: ES-0675	North Mecklenburg Landfill	Well #: 6-A Page 1 of 1
County: Mecklenburg State: NC	Date Begin: 02/02/95 Date End: 02/03/95	Casing Height: 2.0' Land Surface Elevation:
Lat.: Long.:	Drilled By: Badger Well Drilling	Static Water Level:
Grid Coor.:	Logged By: Mike Magnetti	Development Method:
Tests:	Drilling Method: Air	Sampling Method:

Grout: 5% bentonite: 0' to 48.3' Seal: 48.3' to 50.3' Gravel Pack: 8/20 Silica Sand: 50.3' to 66.3'

Casing Type: Sch 40 PVC Diameter: 2" Depth: 0' to 51.3' Hole Dia.: 6"

Screen Type: Sch 40 PVC Diameter: 2" Slot: 0.010-inch Depth: 51.3' to 66.3' Total Depth: 66.3'

PID/FID Reading (ppm)	Penetration Resistance	Depth (ft)	Lithology/Remarks	Well Completion
		0	Brown and tan medium to fine grained silty sand	0
			Weathered Saprolitic Bedrock	
		10		10
		20	Fracture Zone	20
		30		30
		40		40
				Grout 0' to 48.3'
		50		Bent. 48.3' to 50.3'
			Fracture Zone	Casing 0' to 51.3
		60		60
				Sand 50.3' to 66.3'
				Screen 51.3' to 66.3'

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Geologist Log

Ecological Services, Inc

Job #: ES–0675	North Mecklenburg Landfill	Well #: MW–8 Page 1 of 2
County: Mecklenburg State: NC	Date Begin: 1–10–94 Date End: 1–14–94	Casing Height: Land Surface Elevation:
Lat.: Long.:	Drilled By: Graham & Currie	Static Water Level:
Grid Coor.:	Logged By: Ben Hope	Development Method:
Tests:	Drilling Method: Air Rotary	Sampling Method:

Grout: 5% bentonite 0 – 55 ft | Seal: bentonite 55 – 57.5 ft | Gravel Pack: FX 50 sand 57.5 to 80.0 ft

Casing Type: Sch 40 PVC Diameter: 2" Depth: 0 – 60 ft Hole Diameter: 6"

Screen Type: Sch 40 PVC Diameter: 2" Slot: 0.010–inch Depth: 60 – 80 ft Total Depth: 80 ft

PID/FID Reading (ppm)	Penetration Resistance	Depth (ft)	Lithology/Remarks	Well Completion
		0	0 – 20.0 ft: Light Brown Silty Medium Sand with Some Pebbles	0
		10		10
		20	20.0 – 50.0 ft: Brown Silty Fine Sand	20
		30		30
		40		40
		50	50.0 – 80.0 ft: Bedrock Sampled as Gray Silty Coarse Sand with Pebbles and Rock Fragments Abundant	50
		60		Grout (0 – 55 ft); Bentonite (55 – 57 ft); 60; Casing to 60 ft

Geologist Log

Ecological Services, Inc

Job #: ES-0675	North Mecklenburg Landfill	Well #: MW-8	Page 2 of 2
County: Mecklenburg	State: NC	Date Begin: 1-10-94 Date End: 1-14-94	Casing Height: Land Surface Elevation:
Lat.:	Long.:	Drilled By: Graham & Currie	Static Water Level:
Grid Coor.:		Logged By: Ben Hope	Development Method:
Tests:		Drilling Method: Air Rotary	Sampling Method:
Grout: 5% bentonite 0 – 55 ft		Seal: bentonite 55 – 57.5 ft	Gravel Pack: FX 50 sand 57.5 to 80 ft
Casing Type: Sch 40 PVC	Diameter: 2"	Depth: 0 – 60 ft	Hole Diameter: 6"
Screen Type: Sch 40 PVC	Diameter: 2"	Slot: 0.010-inch Depth: 60 to 80 ft	Total Depth: 80 ft

PID/FID Reading (ppm)	Penetration Resistance	Depth (ft)	Lithology/Remarks	Well Completion
		60		60
		70		70
		80	Boring Terminated at 80.0 ft	Sand (57.5 – 80 ft) / Screen (60 to 80 ft)
		90		90
		100		100
		110		110
		120		120

Geologist Log

Ecological Services, Inc

Job #: ES-0675	North Mecklenburg Landfill	Well #: MW-10
County: Mecklenburg State: NC	Date Begin: 1-10-94 Date End: 1-11-94	Casing Height: Land Surface Elevation:
at.: Long.:	Drilled By: Graham & Currie	Static Water Level:
Grid Coor.:	Logged By: Ben Hope	Development Method:
Tests:	Drilling Method: Hollow Stem	Sampling Method:

Grout: 5% bentonite 0 – 4.5 ft Seal: bentonite 4.5 – 7 ft Gravel Pack: FX 50 sand 7 – 19 ft

Casing Type: Sch 40 PVC Diameter: 2" Depth: 0 – 9 ft Hole Diameter: 4"

Screen Type: Sch 40 PVC Diameter: 2" Slot: 0.010-inch Depth: 9 – 19 ft Total Depth: 19 ft

PID/FID Reading (ppm)	Penetration Resistance	Depth (ft)	Lithology/Remarks	Well Completion
		0	0 – 19.0 ft: Grayish Brown Sandy Fine Silt	0
				Grout (0 – 4.5 ft)
				Bentonite (4.5 – 7 ft)
				Casing to 9 ft
		10		10
				Sand (7 – 19 ft)
				Screen (9 – 19 ft)
			Boring Terminated at 19 ft	
		20		20
		30		30
		40		40
		50		50
		60		60

Geologist Log

Ecological Services, Inc

Job #: ES – 0675	North Mecklenburg Landfill	Well #: 11 Page 1 of 1
County: Mecklenburg State: NC	Date Begin: 02/02/95 Date End: 02/03/95	Casing Height: 2.0' Land Surface Elevation:
Lat.: Long.:	Drilled By: Badger Well Drilling	Static Water Level:
Grid Coor.:	Logged By: Mike Magnetti	Development Method:
Tests:	Drilling Method: Air	Sampling Method:
Grout: 5% bentonite 0' to 62.8'	Seal: 62.8' to 64.8'	Gravel Pack: 8/20 Silica Sand: 64.8' to 80.8'
Casing Type: Sch 40 PVC Diameter: 2"	Depth: 0' to 65.8'	Hole Dia.: 6"
Screen Type: Sch 40 PVC Diameter: 2"	Slot: 0.010 – inch Depth: 65.8' to 80.8'	Total Depth: 80.8'

PID/FID Reading (ppm)	Penetration Resistance	Depth (ft)	Lithology/Remarks	Well Completion
	6 – 10 – 50/5	0	Brown and tan medium to fine silty sand	Grout 0' to 62.8'
		10	Weathered Bedrock	Bentonite 62.8' to 64.8'
			Fracture Zone	Sand 64.8' to 80.8'
		20		Casing 0' to 65.8'
			Fracture Zone	Screen 65.8' to 80.8'
		30		
		40	Fracture Zone	
		50		
		60		

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APPENDIX B

Sampling and Analysis Requirements

SAMPLING AND ANALYSIS REQUIREMENTS
CONSTRUCTION AND DEMOLITION LANDFILLS
N.C. SOLID WASTE SECTION

LAB CERTIFICATION REQUIREMENTS:
The Solid Waste Section now requires water quality sample analysis by a laboratory certified by the Division of Environmental Management for groundwater analysis (15A NCAC 2H .0800). The laboratories used for water quality analysis for Solid Waste Section facilities shall be certified under the Division of Environmental Management (DEM) Certification program for the approved methods and at the approved levels of certification.

SAMPLING ANALYTICAL METHODS AND REPORTING LIMITS:
Each parameter on the following constituent list shall be certified at the designated level and an appropriately certified method used for the sample analysis. The data shall be reported at the specified Practical Quantitation Limit (PQL).

Parameter	**Certification** by DEM	**PQL** in ppb
Arsenic	Metals, Group I - low level	10
Barium	Barium (20)	500
Cadmium	Metals, Group I - low level	1
Chromium	Metals, Group I - low level	10
Lead	Metals, Group I - low level	10
Mercury	Mercury (21)	1
Selenium	Metals, Group I - low level	20
Silver	Metals, Group II - low level	10

Volatile Organic Compounds
For the parameters and PQLs required for volatile organic compound analysis, refer to the next page of this attachment. For volatile organic analysis the laboratory shall be certified for an SW-846 GC/MS Method (8240 or 8260). The recommended method of analysis is EPA Method 8260.

SAMPLING AND ANALYSIS:
In addition to sampling for the constituents referenced above, all sampling should also include field testing of pH, temperature, and specific conductivity. EPA requires analysis for total metals. No filtering of samples is allowed. The 3030C preparation method for metals analysis is not allowed.

January 1995

VOLATILE ORGANIC COMPOUNDS

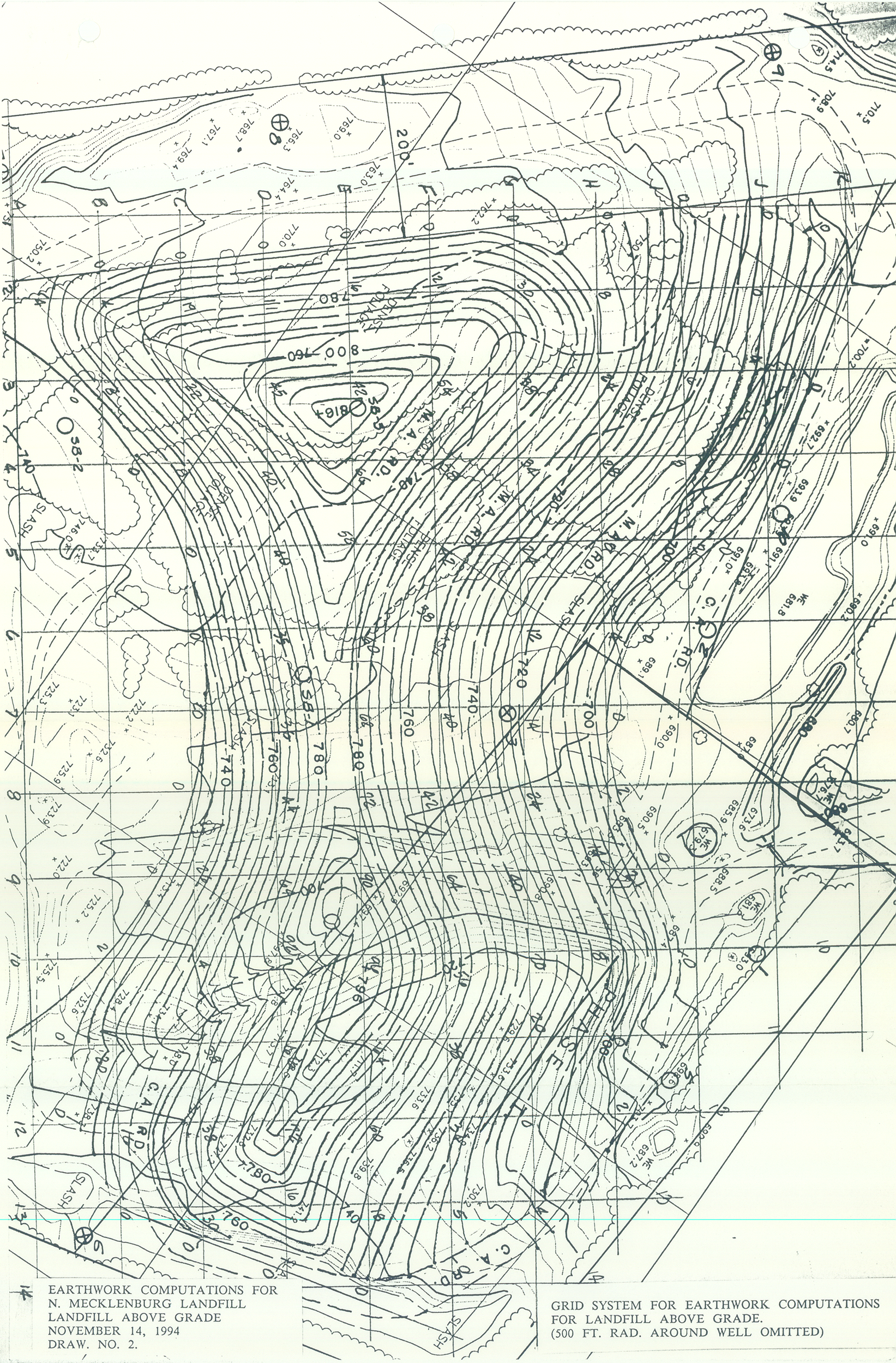
ORGANIC CONSTITUENT	PQL (UG/L)	ORGANIC CONSTITUENT	PQL (UG/L)
(16) ACETONE	100	(40) T-1,3-DICHLOROPROPENE	10
(17) ACRYLONITRILE	200	(41) ETHYLBENZENE	5
(18) BENZENE	5	(42) METHYL BUTYL KETONE	50
(19) BROMOCHLOROMETHANE	5	(43) METHYL BROMIDE	10
(20) BROMODICHLOROMETHANE	5	(44) METHYL CHLORIDE	10
(21) BROMOFORM	5	(45) METHYLENE BROMIDE	10
(22) CARBON DISULFIDE	100	(46) METHYLENE CHLORIDE	10
(23) CARBON TETRACHLORIDE	10	(47) MEK; 2-BUTANONE	100
(24) CHLOROBENZENE	5	(48) METHYL IODIDE	10
(25) CHLOROETHANE	10	(49) METHYL ISOBUTYL KETONE	100
(26) CHLOROFORM	5	(50) STYRENE	10
(27) CHLORODIBROMOMETHANE	5	(51) 1,1,1,2-TETRACHLOROETHANE	5
(28) DBCP	25	(52) 1,1,2,2-TETRACHLOROETHANE	5
(29) ETHYLENE DIBROMIDE	5	(53) TETRACHLOROETHYLENE	5
(30) O-DICHLOROBENZENE	5	(54) TOLUENE	5
(31) P-DICHLOROBENZENE	5	(55) 1,1,1,-TRICHLOROETHANE	5
(32) T-1,4-DICHLORO-2-BUTENE	100	(56) 1,1,2-TRICHLOROETHANE	5
(33) 1,1-DICHLOROETHANE	5	(57) TRICHLOROETHYLENE	5
(34) ETHYLENE DICHLORIDE	5	(58) CFC-11	5
(35) VINYLIDENE CHLORIDE	5	(59) 1,2,3-TRICHLOROPROPANE	15
(36) CIS-1,2-DICHLOROETHENE	5	(60) VINYL ACETATE	50
(37) T-1,2-DICHLOROETHENE	5	(61) VINYL CHLORIDE	10
(38) PROPYLENE DICHLORIDE	5	(62) XYLENES	5
(39) CIS-1,3-DICHLOROPROPENE	10		

ALSO KNOWN AS: (21)-TRIBROMOMETHANE, (25)-ETHYL CHLORIDE, (26)-TRICHLOROMETHANE, (27)-DIBROMOCHLOROMETHANE, (28)-1,2-DIBROMO-3-CHLOROPROPANE, (29)-1,2-DIBROMOETHANE, (30)-1,2-DICHLOROBENZENE, (31)-1,4-DICHLOROBENZENE, (33)-ETHYLIDENE CHLORIDE, (34)-1,2-DICHLOROETHANE, (35)-1,1-DICHLOROETHENE (ETHYLENE), (36)-CIS-1,2-DICHLOROETHYLENE, (37)-TRANS-1,2-DICHLOROETHYLENE, (38)-1,2-DICHLOROPROPANE, (42)-2-HEXANONE, (43)-BROMOMETHANE, -CHLOROMETHANE, (45)-DIBROMOMETHANE, (46)-DICHLOROMETHANE, (47)-METHYL ETHYL KETONE, -IODOMETHANE, (49)-4-METHYL-2-PENTANONE, (53)-TETRACHLOROETHENE, PERCHLOROETHYLENE, (55)-METHYLCHLOROFORM, (57)-TRICHLOROETHENE, (58)-TRICHLOROFLUOROMETHANE

TABLE 1
Gauging Data for Newly Installed Groundwater Monitoring Wells North Mecklenburg Landfill

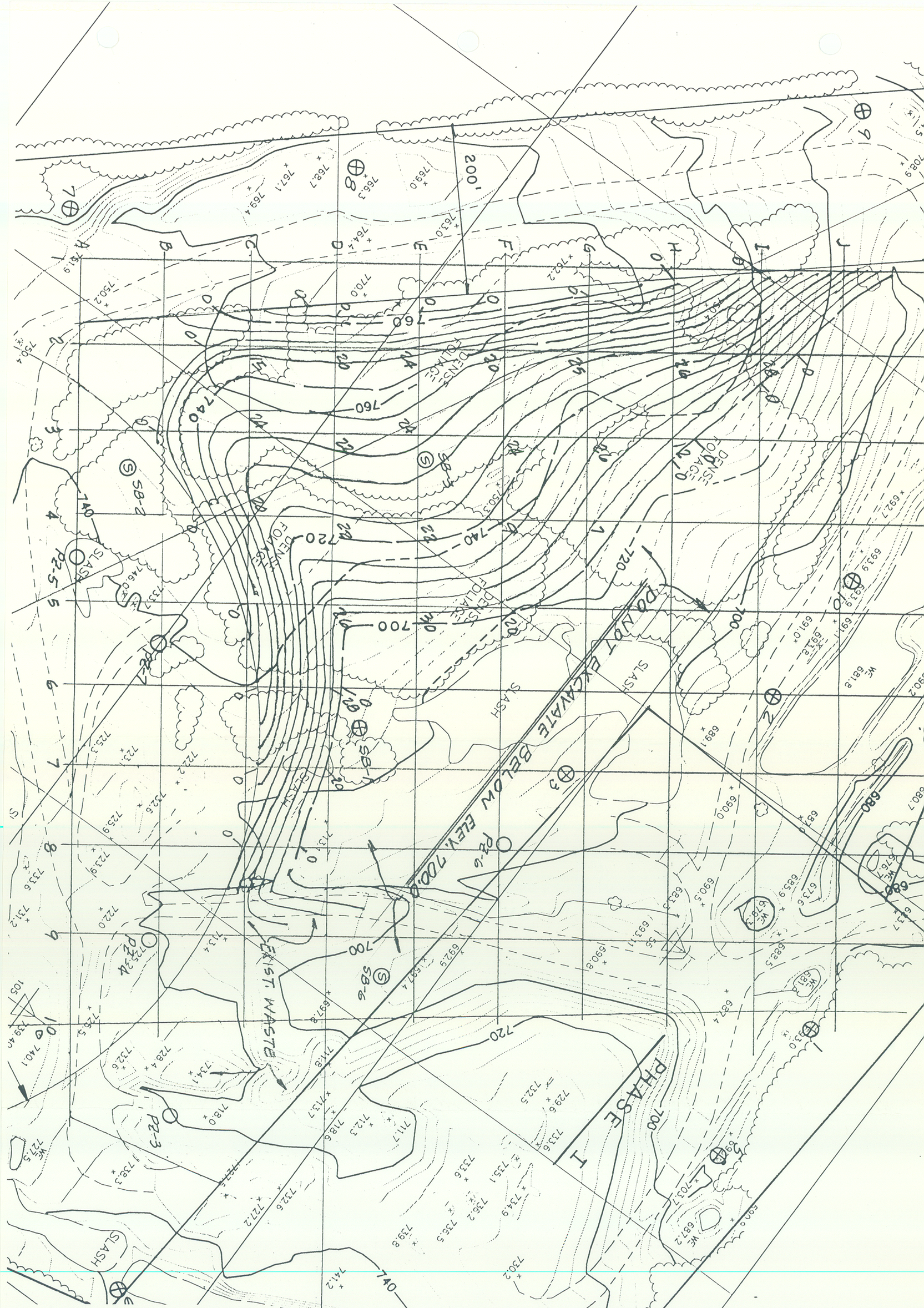
DATE	LOCATION	DTW	TOC ELEVATION	GW ELEVATION
2/5/95	MW-1a	14.47	688.13	673.66
2/5/95	MW-4a	29.64	720.86	691.22
2/5/95	MW-6a	58.66	741.55	682.89
2/5/95	MW-11	65.65	750.24	684.59

DTW - Depth to Water
TOC - Top of Casing
GW - Groundwater
All measurements given in feet



EARTHWORK COMPUTATIONS FOR
N. MECKLENBURG LANDFILL
LANDFILL ABOVE GRADE
NOVEMBER 14, 1994
DRAW. NO. 2.

GRID SYSTEM FOR EARTHWORK COMPUTATIONS
FOR LANDFILL ABOVE GRADE.
(500 FT. RAD. AROUND WELL OMITTED)



EARTHWORK COMPUTATIONS FOR
N. MECKLENBURG LANDFILL
EXCAVATION BELOW GRADE
NOVEMBER 14, 1994
DRAW. NO. 1
Rev. Dec. 12, 1994

GRID SYSTEM FOR EARTHWORK COMPUTATIONS
FOR EXCAVATION BELOW GRADE.
(500 FT. RAD. AROUND WELL OMITTED)