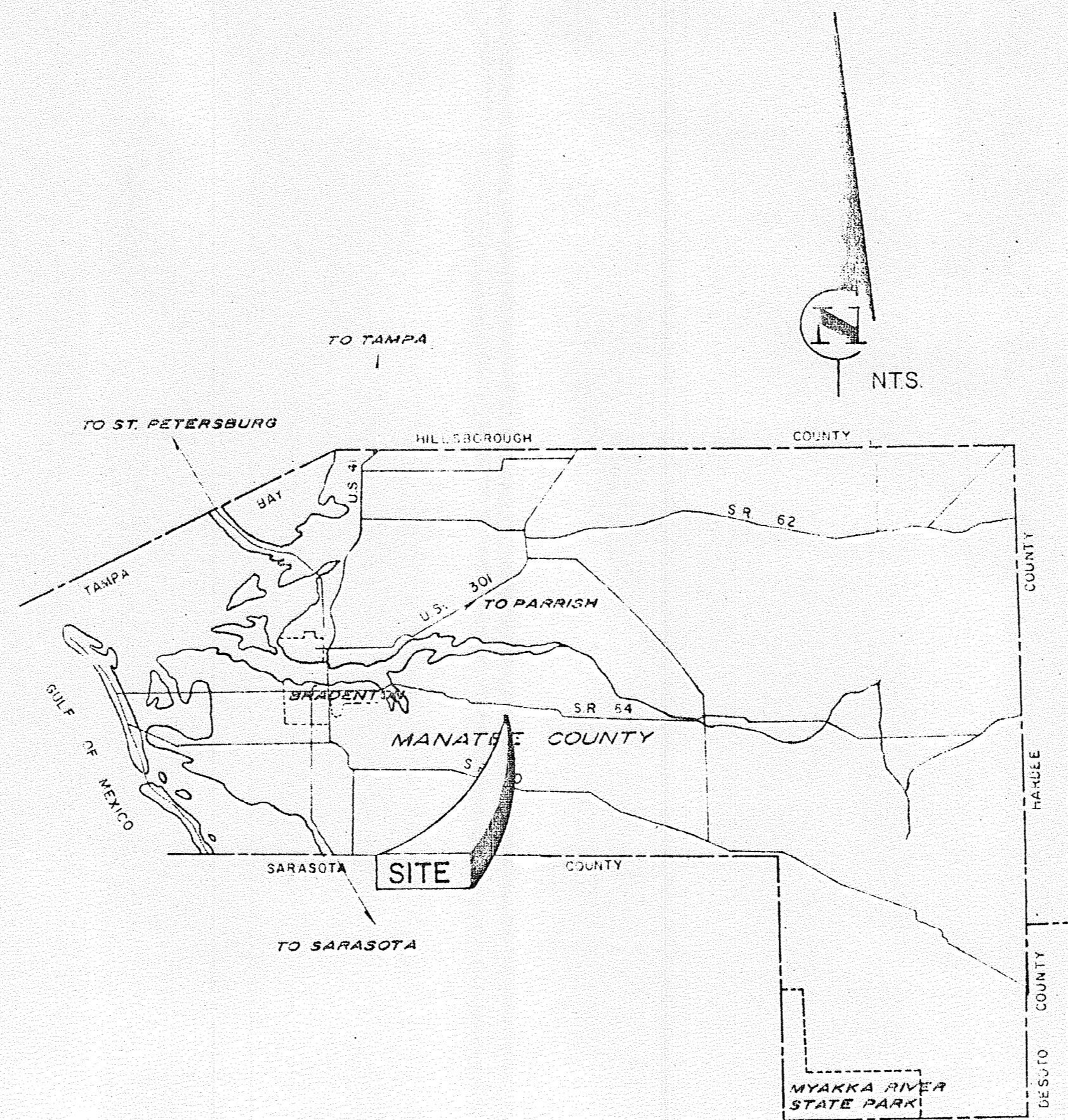


MANATEE COUNTY, FLORIDA
LENA ROAD LANDFILL IMPROVEMENTS
STAGE 2 & 3
PROJECT NO. 0169

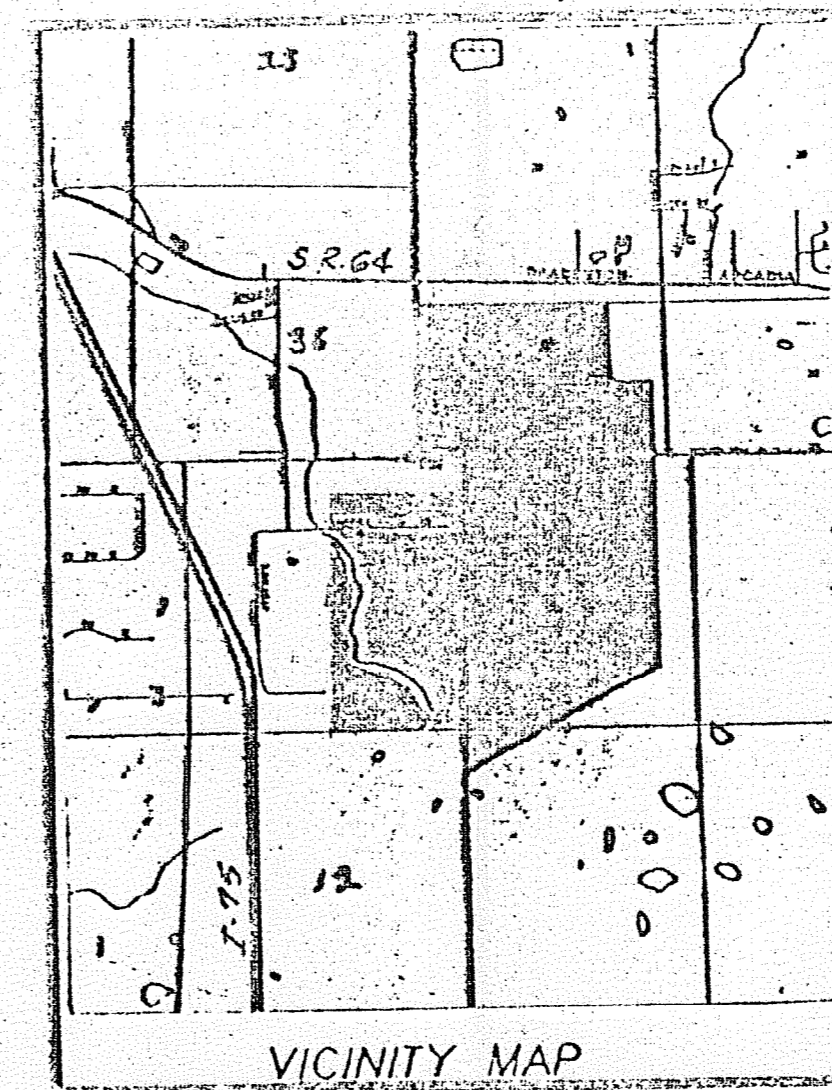
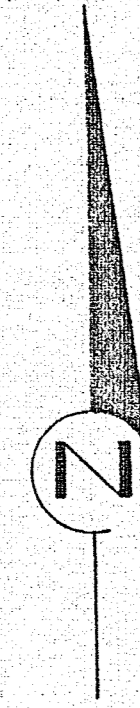


APPROVED :

ROBERT T. HALL, P.E. #27417

DATE

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 1
SOUTHWEST DISTRICT
TAMPA
FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 18 2010
SOUTHWEST DISTRICT
TAMPA



PARCEL "A" (FORMERLY PARCEL A AND B) DESCRIPTION AS FURNISHED
 THE SOUTH 1/2 OF THE N.W. 1/4 AND THE NORTH 1/2 OF THE S.W. 1/4 OF SECTION 5, TOWNSHIP 35 SOUTH, RANGE 19 EAST.
 ALSO:
 THE NORTH 1/2 OF THE N.W. 1/4 OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST, AND ALL OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST; LESS THAT PART OF SECTION 31, LYING EAST OF A LINE WHICH IS THE NORTHERLY EXTENSION OF THE EAST LINE OF THE N.W. 1/4 OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST.

PARCEL "B" DESCRIPTION AS FURNISHED
 THAT PART OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST, LYING NORTHERLY OF THE NORTHERLY LINE OF THAT CERTAIN GAS LINE EASEMENT RUNNING DIAGONALLY THROUGH THE PROPERTY, LESS THE SOUTH 1/2 OF THE N.W. 1/4 AND THE NORTH 1/2 OF THE S.W. 1/4 OF SAID SECTION 6; ALSO LESS THAT PART OF SECTION 6, LYING NORTHERLY OF A LINE WHICH IS THE EASTERLY EXTENSION OF THE NORTH LINE OF THE SOUTH 1/2 OF THE N.W. 1/4 OF SAID SECTION 6; ALSO LESS THAT PART OF SECTION 6 LYING EASTERLY OF A LINE WHICH IS PARALLEL WITH AND 1690 FEET EASTERLY OF THE EAST LINE OF THE N.W. 1/4 OF SAID SECTION 6 AND ANY NORTHERLY OR SOUTHERLY EXTENSION THEREOF.

ALSO:
 THAT PART OF SECTION 7, TOWNSHIP 35 SOUTH, RANGE 19 EAST LYING NORTHERLY OF THE NORTHERLY LINE OF THAT CERTAIN GAS LINE EASEMENT RUNNING DIAGONALLY THROUGH THE PROPERTY.

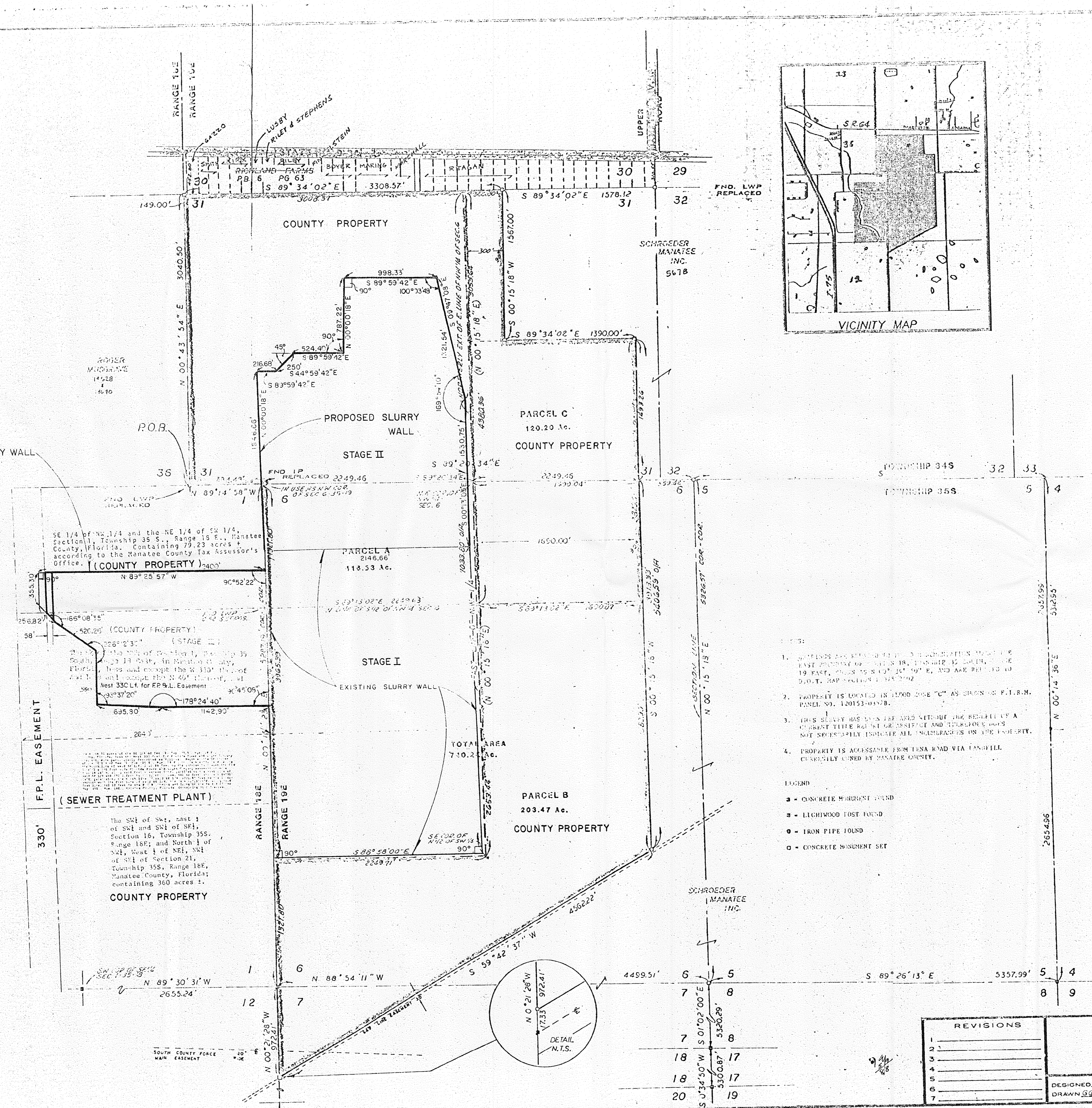
PARCEL "C" DESCRIPTION AS FURNISHED
 THAT PART OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST, MORE FULLY DESCRIBED AS BEING BOUNDED ON THE NORTH BY THE NORTH LINE OF SAID SECTION 6, AND BOUNDED ON THE WEST BY THE EAST LINE OF THE N.W. 1/4 OF SAID SECTION 6, AND BOUNDED ON THE SOUTH BY THE EASTERLY EXTENSION OF THE NORTH LINE OF THE SOUTH 1/2 OF THE N.W. 1/4 OF SAID SECTION 6, AND BOUNDED ON THE EAST BY A LINE WHICH LIES 1690 FEET EASTERLY OF AND PARALLEL WITH THE EAST LINE OF THE N.W. 1/4 OF SAID SECTION 6.
 ALSO:
 THAT PART OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST, MORE FULLY DESCRIBED AS BEING BOUNDED ON THE NORTH BY THE NORTH LINE OF SAID SECTION 31, AND BOUNDED ON THE WEST BY A LINE WHICH IS THE NORTHERLY EXTENSION OF THE EAST LINE OF THE N.W. 1/4 OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST, AND BOUNDED ON THE SOUTH BY A LINE WHICH LIES 1567 FEET SOUTHERLY OF AND PARALLEL WITH THE NORTH LINE OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST AND BOUNDED ON THE EAST BY A LINE WHICH LIES 300 FEET EASTERLY OF AND PARALLEL WITH THE NORTHERLY EXTENSION OF THE EAST LINE OF THE N.W. 1/4 OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST.

ALSO:
 THAT PART OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST, MORE FULLY DESCRIBED AS BEING BOUNDED ON THE NORTH BY THE NORTH LINE OF SAID SECTION 31, AND BOUNDED ON THE WEST BY A LINE WHICH IS THE NORTHERLY EXTENSION OF THE EAST LINE OF THE N.W. 1/4 OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST, AND BOUNDED ON THE SOUTH BY THE SOUTH LINE OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST, (ALSO BEING THE NORTH LINE OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST) AND BOUNDED ON THE EAST BY A LINE WHICH LIES 1690 FEET EAST OF AND PARALLEL WITH THE NORTHERLY EXTENSION OF THE EAST LINE OF THE N.W. 1/4 OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST.
 ALL OF THE ABOVE BEING AND LYING IN MANATEE COUNTY, FLORIDA.

DESCRIPTION:
 PARCELS A, B AND C, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
 BEGINNING AT THE S.W. CORNER OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST; THENCE N 00° 43' 54" E, ALONG WEST BOUNDARY OF SAID SECTION 31, A DISTANCE OF 3040.50 FEET TO THE N.W. CORNER OF SAID SECTION 31; THENCE S 89° 34' 02" E, ALONG NORTH BOUNDARY OF SAID SECTION 31, A DISTANCE OF 3308.57 FEET; THENCE S 00° 15' 18" W, A DISTANCE OF 1567.00 FEET; THENCE S 89° 34' 02" E, A DISTANCE OF 1390.00 FEET; THENCE S 00° 15' 18" W, A DISTANCE OF 3426.39 FEET TO THE NORTH RIGHT OF WAY LINE OF A GAS LINE EASEMENT; THENCE S 59° 42' 37" E, ALONG SAID RIGHT OF WAY LINE, A DISTANCE OF 4562.22 FEET TO THE WEST BOUNDARY OF SECTION 7, TOWNSHIP 35 SOUTH, RANGE 19 EAST; THENCE N 00° 21' 28" W, ALONG SAID WEST BOUNDARY LINE OF SAID SECTION 7, TO THE S.W. CORNER OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST; THENCE N 00° 15' 23" E, ALONG WEST BOUNDARY OF SAID SECTION 6, A DISTANCE OF 5287.19 FEET TO THE N.W. CORNER OF SAID SECTION 6; THENCE N 89° 14' 58" W, ALONG SOUTH BOUNDARY OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST, A DISTANCE OF 784.48 FEET TO THE POINT OF BEGINNING, LYING AND BEING IN MANATEE COUNTY, FLORIDA.
 SUBJECT TO PERTINENT EASEMENTS, RIGHTS OF WAY AND RESTRICTIONS OF RECORD CONTAINING 740.20 ACRES, MORE OR LESS.

1. THESE ARE THE ORIGINAL RECORDS OF THE SURVEY AND THE ORIGINAL RECORDS OF THE SURVEY ARE FILED IN THE OFFICE OF THE COUNTY TAX ASSessor's OFFICE, MANATEE COUNTY, FLORIDA.
2. PROPERTY IS LOCATED IN 1000 WIDE "C" AS SHOWN ON P.L.R.M. PANEL NO. 120153-0992B.
3. THIS SURVEY HAS BEEN PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE RESEARCH AND THEREFORE DOES NOT NECESSARILY INDICATE ALL ENCUMBRANCES ON THE PROPERTY.
4. PROPERTY IS ACCESSIBLE FROM TENA ROAD VIA CANNELL CURRENTLY OWNED BY MANATEE COUNTY.

- LEGEND**
- - CONCRETE MOUND FOUND
 - - LIGHTWOOD TOST FOUND
 - - IRON PIPE FOUND
 - - CONCRETE MOUND SET



F.P.L. EASEMENT (SEWER TREATMENT PLANT)
 The SW 1/4 of S 1/4, East 1/2 of S 1/4 and SW 1/4 of S 1/4, Section 16, Township 35S, Range 18E; and North 1/2 of S 1/4, West 1/2 of NE 1/4, SW 1/4 of S 1/4 of Section 21, Township 35S, Range 18E, Manatee County, Florida; containing 360 acres ±.

BOUNDARY SURVEY
 OF
MANATEE COUNTY LANDFILL
 IN
SEC 31 TWP 34 S, RGE 19 E & SEC 6 & 7, TWP 35 S, RGE 19 E.
MANATEE COUNTY, FLORIDA
 FOR MANATEE COUNTY

REVISIONS	
1	
2	
3	
4	
5	
6	
7	

DESIGNED M.V. CHECKED 5.88 DATE _____ SCALE 1"=500'
 DRAWN SSS COMP. JOB NO. 0169 FILE NO. _____ SHEET 2 OF 14

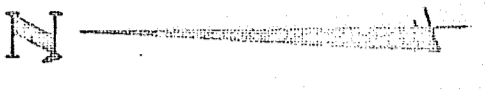
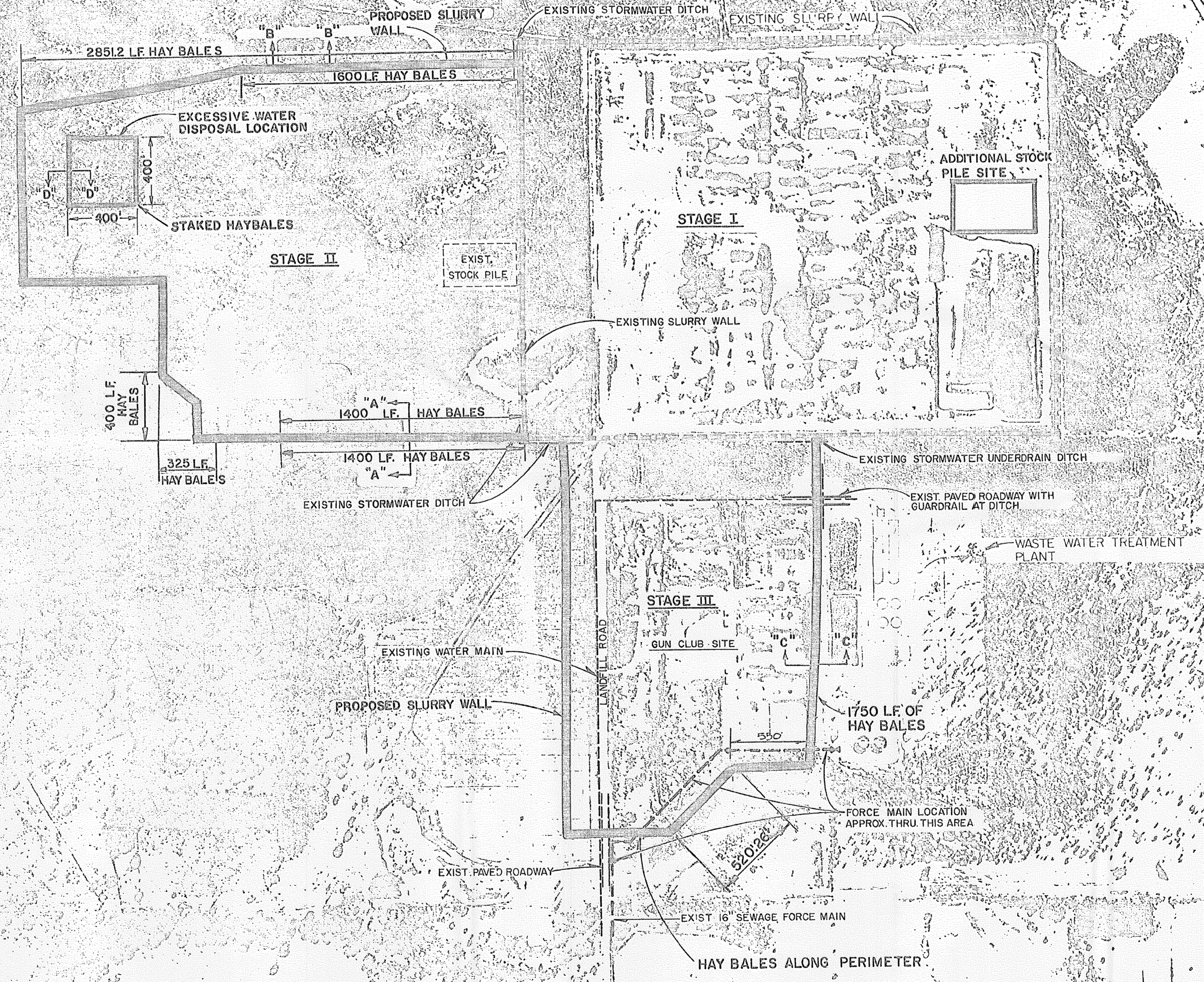
PROJECT 485-0169-534

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
 MAY 13 2000
 SOUTHWEST DISTRICT
 TAMPA

Proj # 485 SHT # 2

GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR WATER QUALITY AND QUANTITY IN ALL SWALE AREAS.
2. ALL EXCESSIVE WATER TO BE PLACED IN AREAS DESIGNATED BY FIELD ENGINEER.
3. NO EXCESSIVE WATER IS TO BE PLACED IN WET LAND AREAS.
4. WATER NEEDED FOR CONST. OF THE SLURRY WALL SHALL NOT COME FROM ANY WET LANDS.
5. A PROFESSIONAL GEOTECHNICAL ENGINEER IS RETAINED BY MANATEE COUNTY FOR THE CONSTRUCTION AND INSPECTION OF THE SLURRY WALL.
6. EXCESS MATERIAL TO BE PLACED IN THE EXISTING STOCK PILE AREA WHERE SHOWN ON THIS SHEET.



NOTE:
DATE FLOWN:
10/13/82

NOTE:
POWER, TELEPHONE AND OTHER UTILITIES
EXIST. IN LANDFILL ROAD AND ENTRANCE
ROAD TO TREATMENT PLANT.

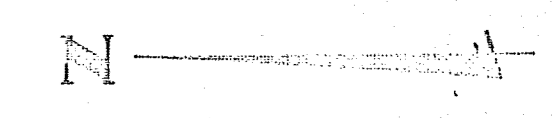
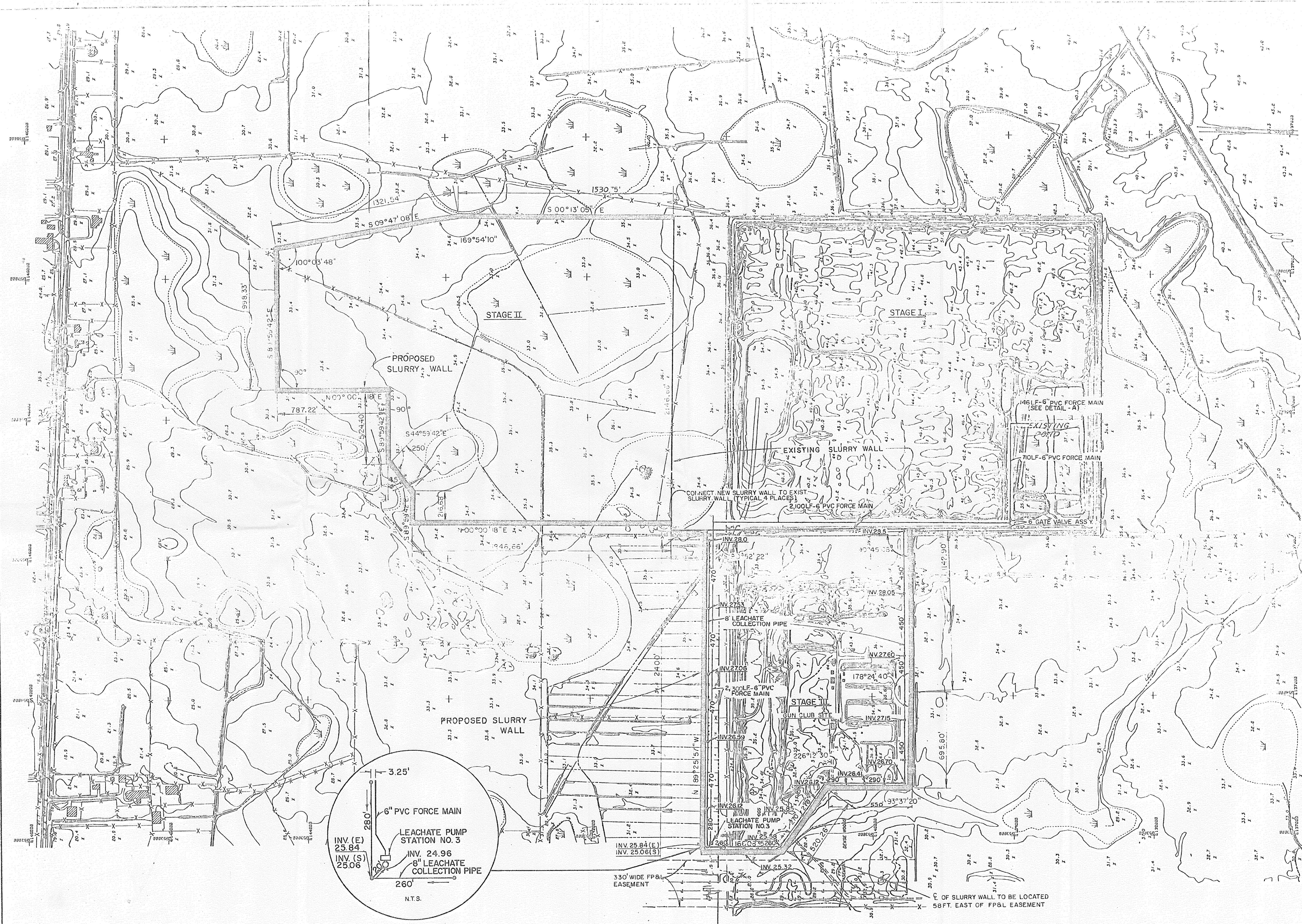
FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 13 2010
SOUTHWEST DISTRICT
TAMPA

LENA ROAD LANDFILL IMPROVEMENTS - STAGE 2 & 3
EXISTING SITE PLAN
MANATEE COUNTY, FLORIDA

DATE	MARCH 1988	PROJ. NO.	485-0169-534-120-016
SCALE	1" = 400'	FILE NO.	
SHEET NO.	3	OF	14

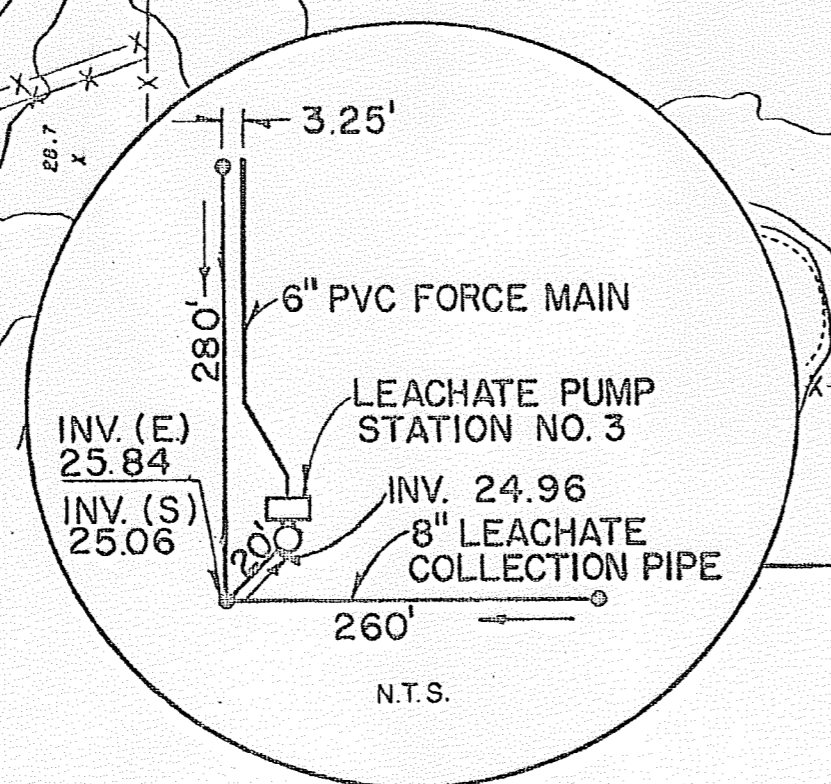
DESIGNED	GGG
CHECKED	1/23

Reel 0169-534-120



NOTE:
 TOPO BASED ON AERIAL
 PHOTOGRAPHY.
 DATE FLOWN:
 10/13/82

NOTE:
 *TOPOGRAPHY WITHIN
 ACTIVE PORTION OF THE
 LANDFILL DIFFERENT FROM
 THAT INDICATED.*



STATUS	ACTION DATE

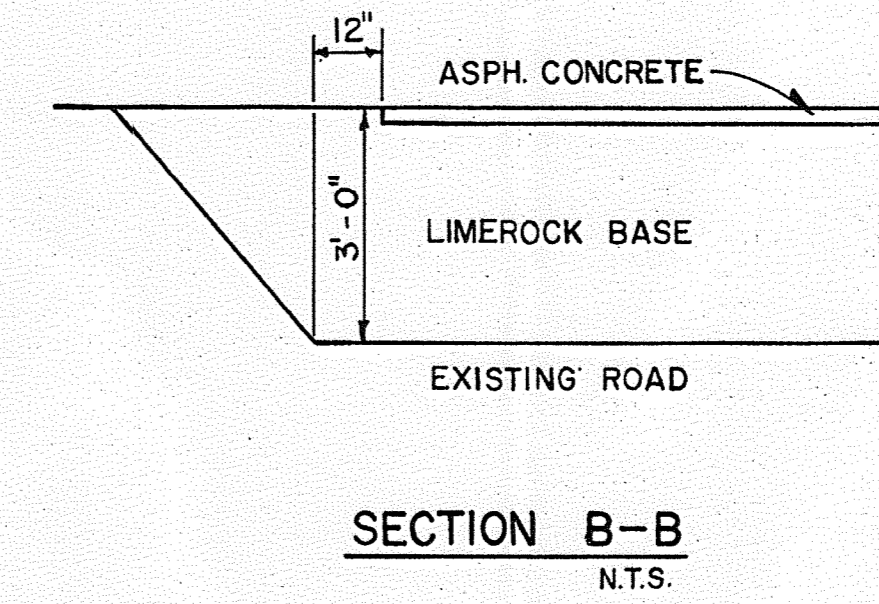
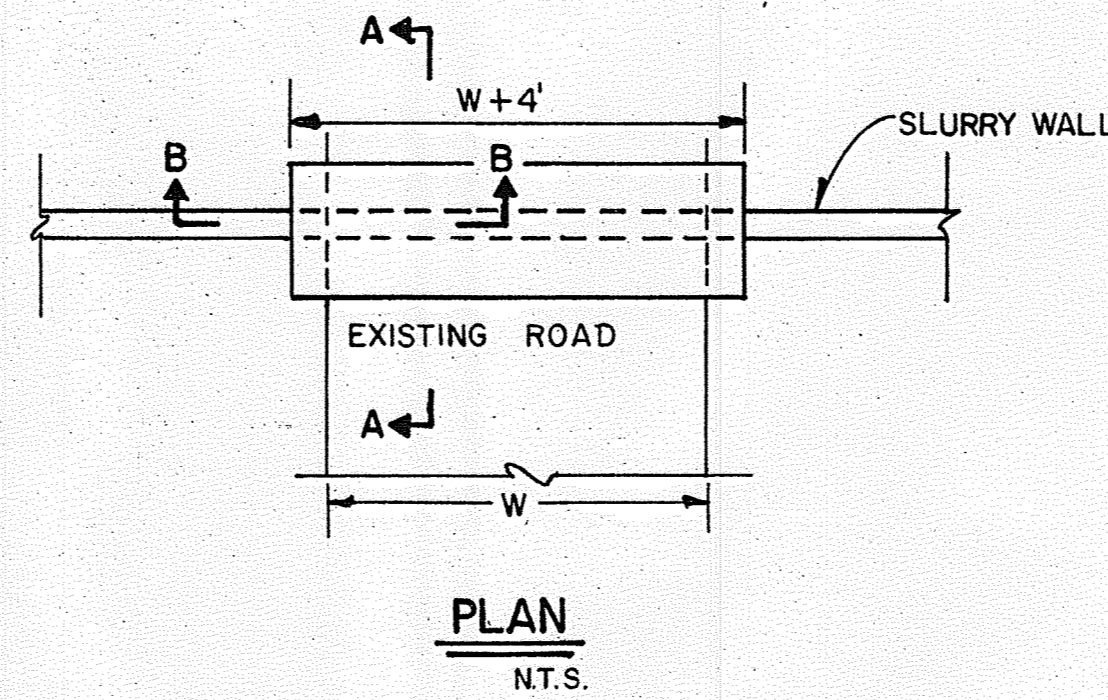
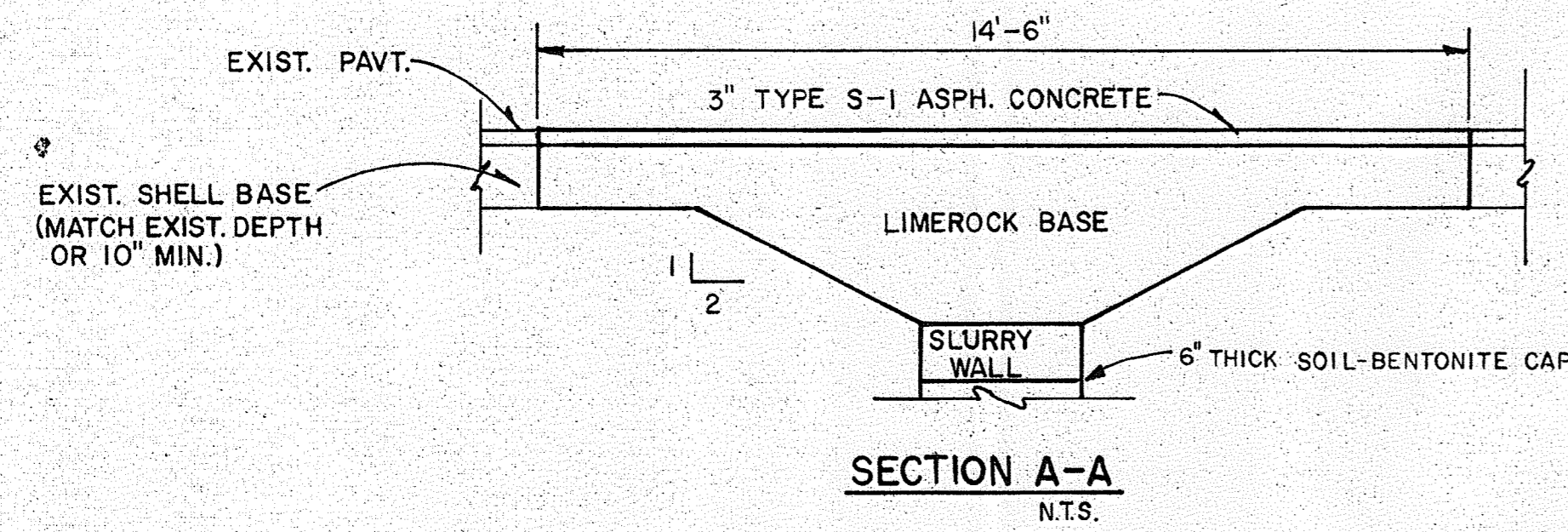
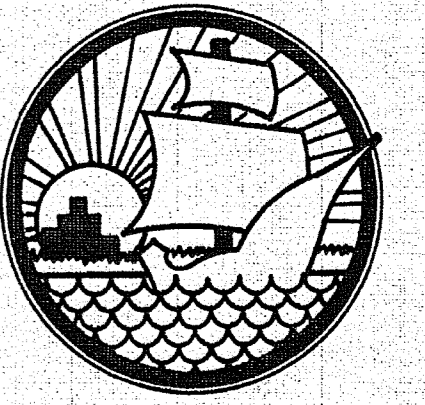
REV. NO.	DATE	REVISION	BY	CHECKED

DESIGNED	
DRAWN	SGS
CHECKED	

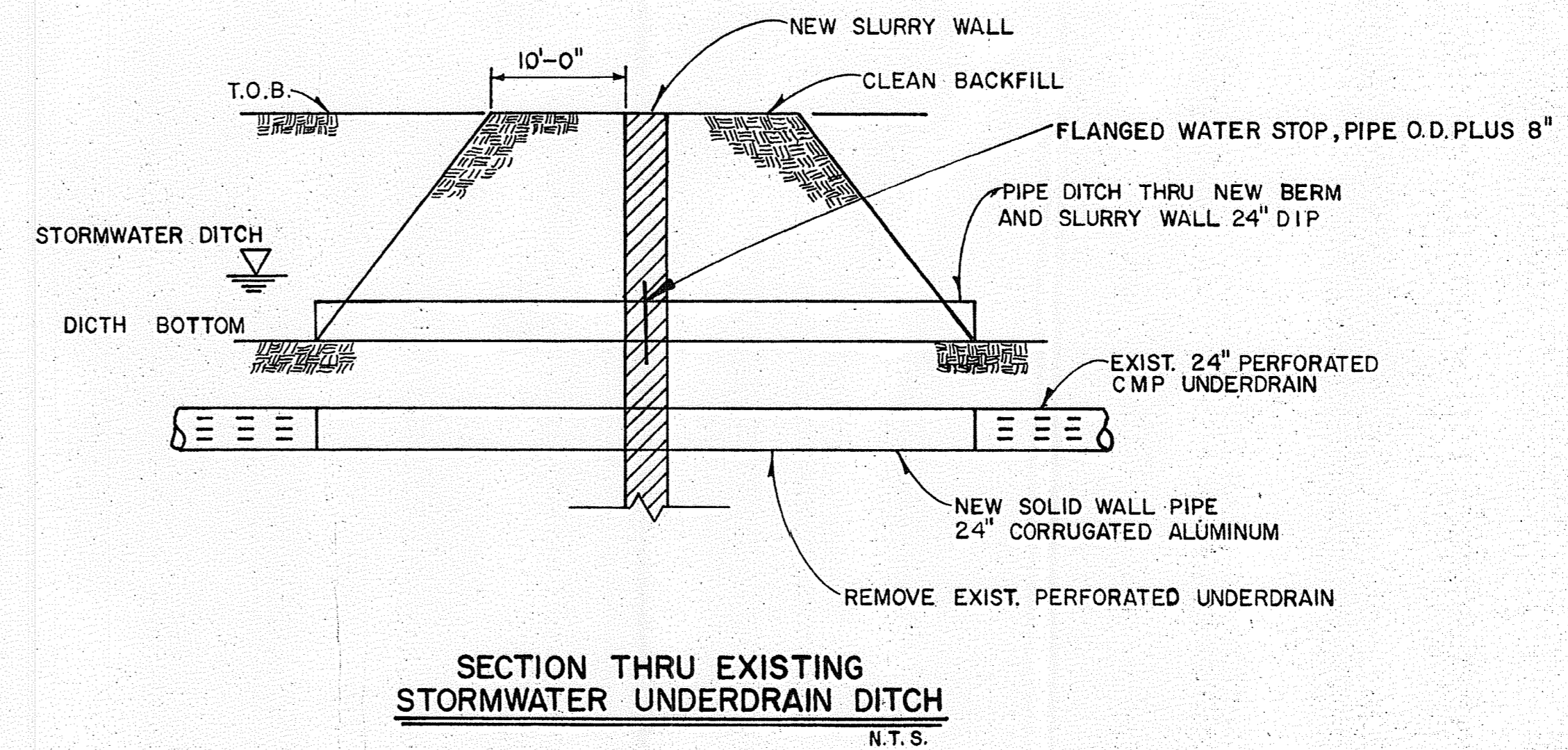
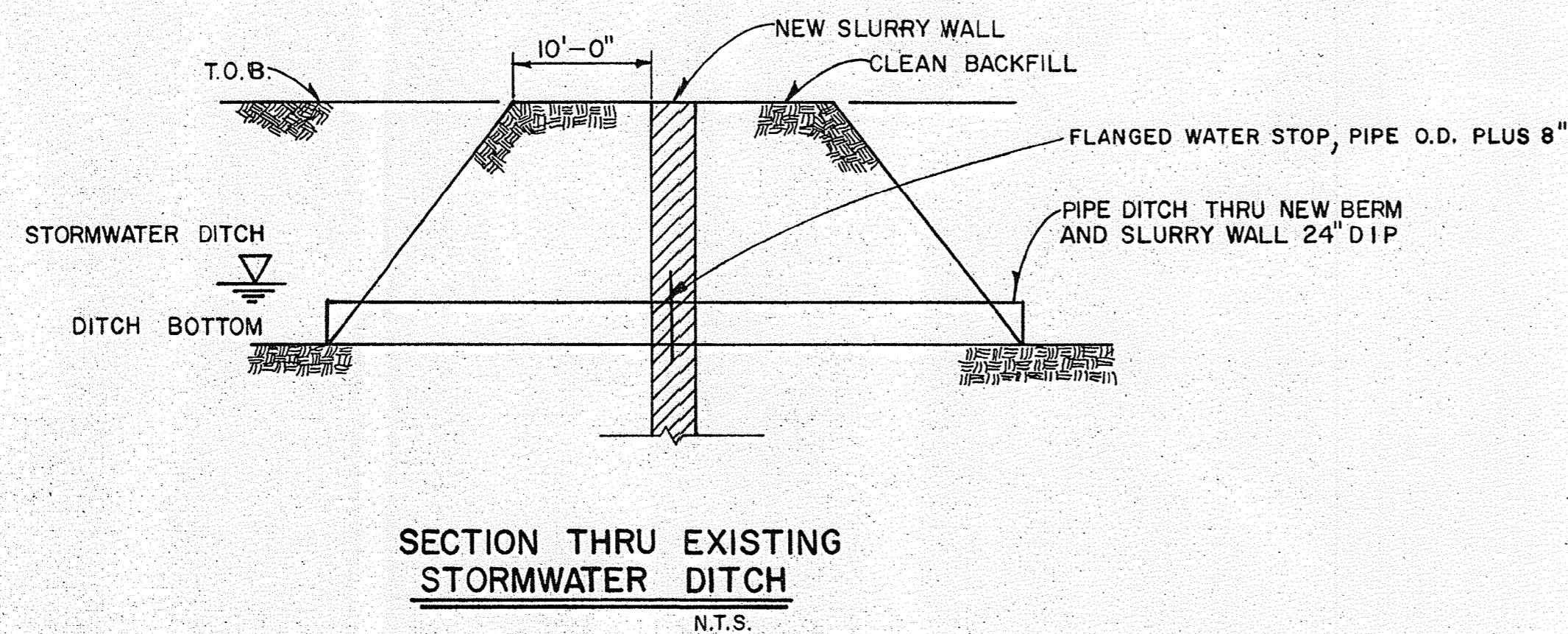
LENA ROAD LANDFILL IMPROVEMENTS - STAGE 2 & 3
 EXISTING TOPOGRAPHY - OVERALL PLAN
 MANATEE COUNTY, FLORIDA

DATE: 5-88
 SCALE: 1" = 300
 SHEET NO. 4 OF 14

PROJ. NO.
 485-0169-534
 FILE NO.

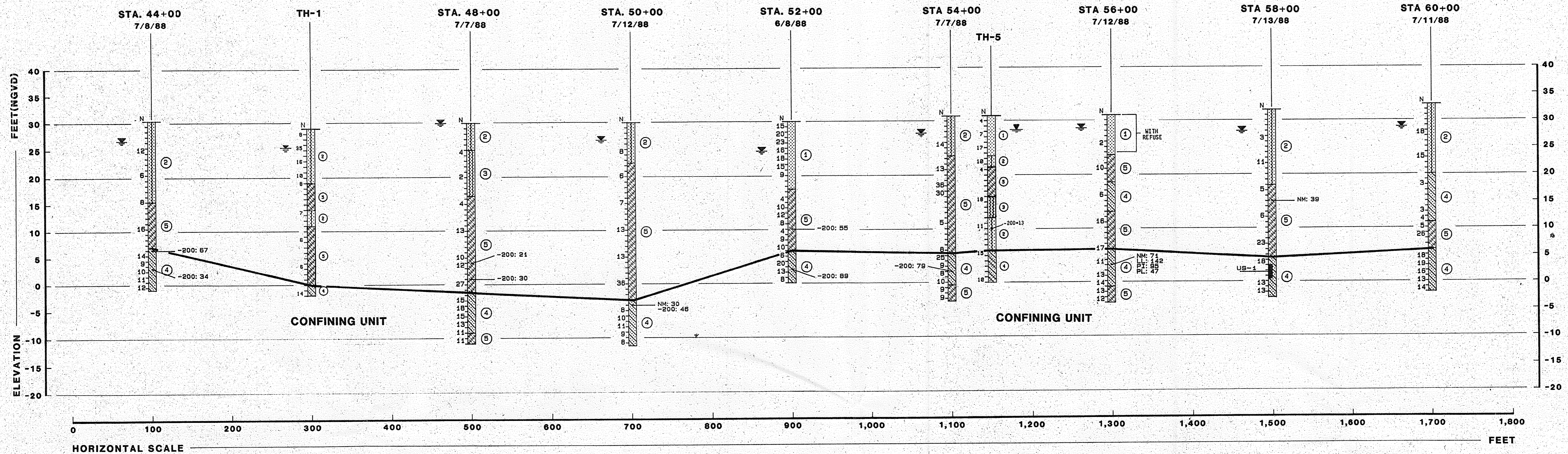


TYPICAL ROAD CROSSING DETAIL
N.T.S.



REVISION	DATE	
	BY	DATE
SURVEYED		
DESIGNED	T.J.Z.	10/88
DRAWN	K.E.	1/89
CHECKED	TR	1/89
FILE NO.:		
PROJECT NO.:	485-0169-534	
VERTICAL SCALE:	N.T.S.	
HORIZONTAL SCALE:	N.T.S.	
SEAL		

WEST WALL SOIL BORING PROFILES



NOTE: BURIED REFUSE IS EXPECTED TO EXIST FROM STATION 54+00 TO 60+00 ALONG THE WEST WALL-ASSUME MINIMUM 5' THICKNESS.

LEGEND

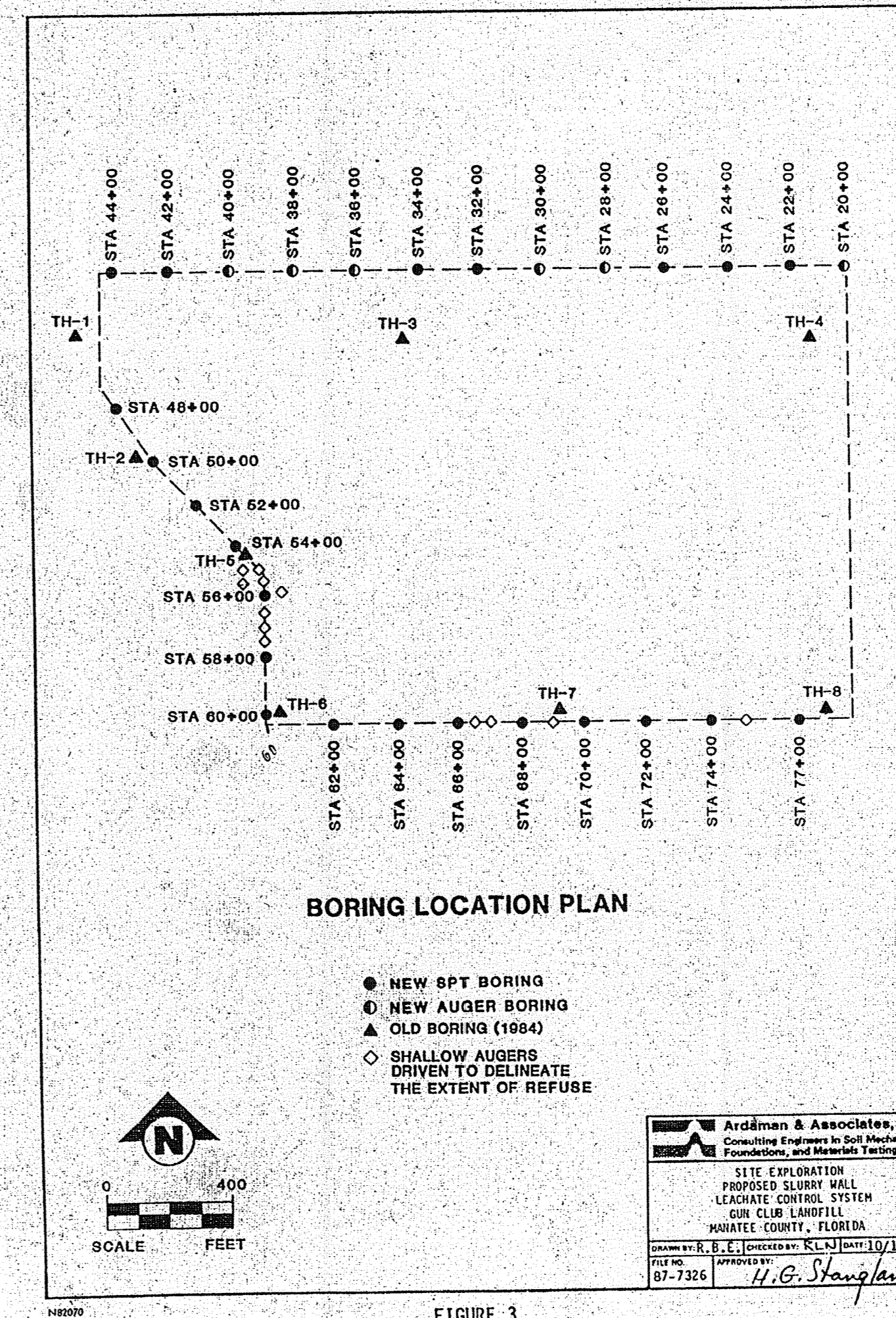
- ① LIGHT GRAY TO GRAY AND LIGHT BROWN TO YELLOWISH BROWN FINE SAND
- ② GRAY OR LIGHT BROWN TO YELLOWISH BROWN SLIGHTLY SILTY TO SILTY FINE SAND
- ③ GRAY AND BROWN MEDIUM TO FINE SAND TO SLIGHTLY SILTY FINE SAND WITH PHOSPHATES
- ④ GRAY AND GREEN OR BROWN TO LIGHT YELLOWISH BROWN CLAY AND SANDY CLAY WITH OCCASIONAL TRACES OF PHOSPHATES AND SEAMS OF FINE SAND
- ⑤ GRAY AND GREEN SLIGHTLY CLAYEY TO CLAYEY FINE SAND WITH OCCASIONAL TRACES OF PHOSPHATES, SHELL OR CEMENTED SAND

- TH STANDARD PENETRATION TEST (SPT) BORING CONDUCTED IN 1984
- STA STATION WHERE STANDARD PENETRATION TEST (SPT) BORING OR AUGER BORING WAS CONDUCTED IN 1988
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT
- 50/3" 50 BLOWS FOR 3 INCHES PENETRATION INTO SOIL
- ↓ GROUNDWATER LEVEL MEASURED ON DATE DRILLED
- ⊖ LOSS OF DRILLING FLUID CIRCULATION
- US-1 | UNDISTURBED SAMPLE OBTAINED WITH A 3-INCH DIA. SHELBY TUBE
- NM NATURAL MOISTURE CONTENT IN PERCENT
- 200 PERCENT PASSING NO. 200 SIEVE SIZE (PERCENT FINES)
- LL LIQUID LIMIT IN PERCENT
- PL PLASTIC LIMIT IN PERCENT
- PI PLASTICITY INDEX IN PERCENT
- k COEFFICIENT OF PERMEABILITY IN cm/sec

ENGINEERING CLASSIFICATION		
I COHESIONLESS SOILS		
DESCRIPTION	BLOW COUNT "N"	
VERY LOOSE	0 TO 4	
LOOSE	4 TO 10	
MEDIUM DENSE	10 TO 30	
DENSE	30 TO 50	
VERY DENSE	50	
II COHESIVE SOILS		
DESCRIPTION	UNCONFINED COMPRESSIVE STRENGTH, QU, TSF	BLOW COUNT "N"
VERY SOFT	1/4	0 TO 2
SOFT	1/2 TO 1	2 TO 4
MEDIUM STIFF	1 TO 2	4 TO 8
STIFF	2 TO 4	8 TO 15
VERY STIFF	4	15 TO 30
HARD		30

WHILE THE BORINGS ARE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THEIR RESPECTIVE LOCATIONS AND FOR THEIR RESPECTIVE VERTICAL REACHES, LOCAL VARIATIONS CHARACTERISTIC OF THE SUBSURFACE MATERIALS OF THE REGION ARE ANTICIPATED AND MAY BE ENCOUNTERED. THE BORING LOGS AND RELATED INFORMATION ARE BASED ON THE DRILLER'S LOGS AND VISUAL EXAMINATION OF SELECTED SAMPLES IN THE LABORATORY. THE DELINEATION BETWEEN SOIL TYPES SHOWN ON THE LOGS IS APPROXIMATE AND THE DESCRIPTION REPRESENTS OUR INTERPRETATION OF SUBSURFACE CONDITIONS AT THE DESIGNATED BORING LOCATIONS ON THE PARTICULAR DATE DRILLED.

GROUNDWATER ELEVATIONS SHOWN ON THE BORING LOGS REPRESENT GROUNDWATER SURFACES ENCOUNTERED ON THE DATES SHOWN. FLUCTUATIONS IN WATER TABLE LEVELS SHOULD BE ANTICIPATED THROUGHOUT THE YEAR. ABSENCE OF WATER SURFACE DATA ON CERTAIN BORINGS IMPLIES THAT NO GROUNDWATER DATA IS AVAILABLE, BUT DOES NOT NECESSARILY MEAN THAT GROUNDWATER WILL NOT BE ENCOUNTERED AT THESE LOCATIONS OR WITHIN THE VERTICAL REACHES OF THESE BORINGS IN THE FUTURE.



BORING LOCATION PLAN

- NEW SPT BORING
- NEW AUGER BORING
- △ OLD BORING (1984)
- ◇ SHALLOW AUGERS DRIVEN TO DELINEATE THE EXTENT OF REFUSE

Ardaman & Associates, Inc.
 Consulting Engineers in Soil Mechanics, Foundations, and Materials Testing

SITE EXPLORATION
 PROPOSED SLURRY WALL
 LEACHATE CONTROL SYSTEM
 GUN CLUB LANDFILL
 MANATEE COUNTY, FLORIDA

DRAWN BY: R.B.E. CHECKED BY: K.L.L. DATE: 10/11/88
 FILE NO. 87-7326 APPROVED BY: H.G. Stangland

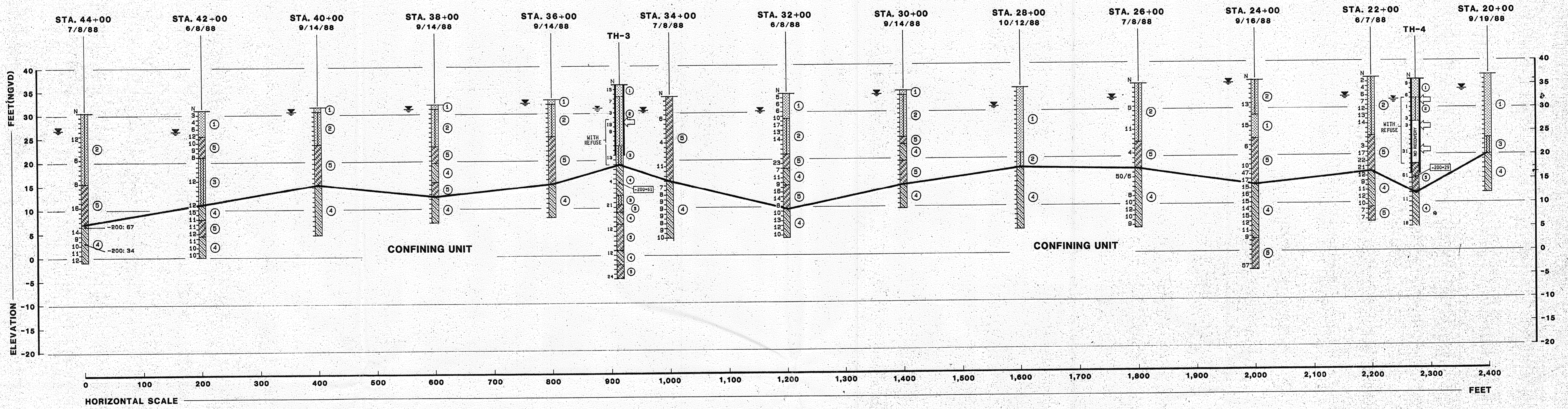
WEST WALL BORING PROFILES

Ardaman & Associates, Inc.
 Consulting Engineers in Soil Mechanics, Foundations, and Materials Testing

**SITE EXPLORATION
 PROPOSED SLURRY WALL
 LEACHATE CONTROL SYSTEM
 GUN CLUB LANDFILL
 MANATEE COUNTY, FLORIDA**

DRAWN BY: R.B.E. CHECKED BY: K.L.L. DATE: 10/11/88
 FILE NO. 87-7326 APPROVED BY: H.G. Stangland

NORTH WALL SOIL BORING PROFILES



LEGEND

- ① LIGHT GRAY TO GRAY AND LIGHT BROWN TO YELLOWISH BROWN FINE SAND
- ② GRAY OR LIGHT BROWN TO YELLOWISH BROWN SLIGHTLY SILTY TO SILTY FINE SAND
- ③ GRAY AND BROWN MEDIUM TO FINE SAND TO SLIGHTLY SILTY FINE SAND WITH PHOSPHATES
- ④ GRAY AND GREEN OR BROWN TO LIGHT YELLOWISH BROWN CLAY AND SANDY CLAY WITH OCCASIONAL TRACES OF PHOSPHATES AND SEAMS OF FINE SAND
- ⑤ GRAY AND GREEN SLIGHTLY CLAYEY TO CLAYEY FINE SAND WITH OCCASIONAL TRACES OF PHOSPHATES, SHELL OR CEMENTED SAND

- TH STANDARD PENETRATION TEST (SPT) BORING CONDUCTED IN 1984
- STA STATION WHERE STANDARD PENETRATION TEST (SPT) BORING OR AUGER BORING WAS CONDUCTED IN 1988
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT
- 50/3" 50 BLOWS FOR 3 INCHES PENETRATION INTO SOIL
- ☞ GROUNDWATER LEVEL MEASURED ON DATE DRILLED
- ☞ LOSS OF DRILLING FLUID CIRCULATION
- US-1 UNDISTURBED SAMPLE OBTAINED WITH A 3-INCH DIA. SHELBY TUBE
- NM NATURAL MOISTURE CONTENT IN PERCENT
- 200 PERCENT PASSING NO. 200 SIEVE SIZE (PERCENT FINES)
- LL LIQUID LIMIT IN PERCENT
- PL PLASTIC LIMIT IN PERCENT
- PI PLASTICITY INDEX IN PERCENT
- k COEFFICIENT OF PERMEABILITY IN cm/sec

ENGINEERING CLASSIFICATION

I COHESIONLESS SOILS

DESCRIPTION	BLOW COUNT "N"
VERY LOOSE	0 TO 4
LOOSE	4 TO 10
MEDIUM DENSE	10 TO 30
DENSE	30 TO 50
VERY DENSE	50

II COHESIVE SOILS

DESCRIPTION	UNCONFINED COMPRESSIVE STRENGTH, QU, TSF	BLOW COUNT "N"
VERY SOFT	1/4	0 TO 2
SOFT	1/4 TO 1/2	2 TO 4
MEDIUM STIFF	1/2 TO 1	4 TO 8
STIFF	1 TO 2	8 TO 15
VERY STIFF	2 TO 4	15 TO 30
HARD	4	30

WHILE THE BORINGS ARE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THEIR RESPECTIVE LOCATIONS AND FOR THEIR RESPECTIVE VERTICAL REACHES, LOCAL VARIATIONS CHARACTERISTIC OF THE SUBSURFACE MATERIALS OF THE REGION ARE ANTICIPATED AND MAY BE ENCOUNTERED. THE BORING LOGS AND RELATED INFORMATION ARE BASED ON THE DRILLER'S LOGS AND VISUAL EXAMINATION OF SELECTED SAMPLES BY THE LABORATORY. THE DELINEATION BETWEEN SOIL TYPES SHOWN ON THE LOGS IS APPROXIMATE AND THE DESCRIPTION REPRESENTS OUR INTERPRETATION OF SUBSURFACE CONDITIONS AT THE DESIGNATED BORING LOCATIONS ON THE PARTICULAR DATE DRILLED.

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STAGE III

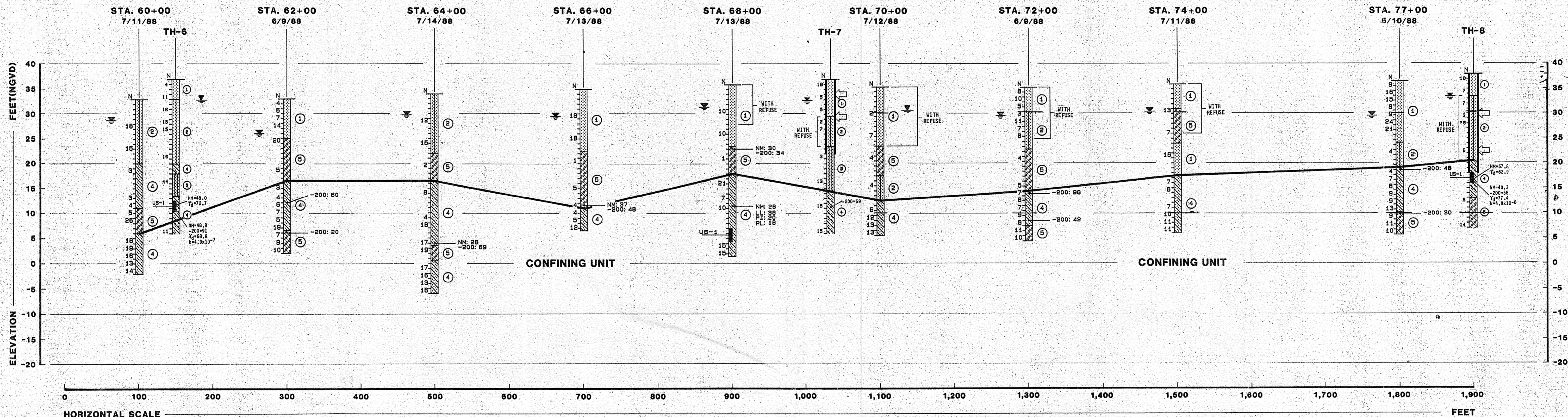
NORTH WALL BORING PROFILES

Ardaman & Associates, Inc.
Consulting Engineers in Soil Mechanics, Foundations, and Materials Testing

**SITE EXPLORATION
PROPOSED SLURRY WALL
LEACHATE CONTROL SYSTEM
GUN CLUB LANDFILL
MANATEE COUNTY, FLORIDA**

DRAWN BY: R.B.E. | CHECKED BY: RLW | DATE: 10/14/88
FILE NO. 87-7326 | APPROVED BY: H.G. Stangland

SOUTH WALL SOIL BORING PROFILES



LEGEND

- ① LIGHT GRAY TO GRAY AND LIGHT BROWN TO YELLOWISH BROWN FINE SAND
- ② GRAY OR LIGHT BROWN TO YELLOWISH BROWN SLIGHTLY SILTY TO SILTY FINE SAND
- ③ GRAY AND BROWN MEDIUM TO FINE SAND TO SLIGHTLY SILTY FINE SAND WITH PHOSPHATES
- ④ GRAY AND GREEN OR BROWN TO LIGHT YELLOWISH BROWN CLAY AND SANDY CLAY WITH OCCASIONAL TRACES OF PHOSPHATES AND SEAMS OF FINE SAND
- ⑤ GRAY AND GREEN SLIGHTLY CLAYEY TO CLAYEY FINE SAND WITH OCCASIONAL TRACES OF PHOSPHATES, SHELL OR CEMENTED SAND

TH - STANDARD PENETRATION TEST (SPT) BORING CONDUCTED IN 1984

STA - STATION WHERE STANDARD PENETRATION TEST (SPT) BORING OR AUGER BORING WAS CONDUCTED IN 1988

N - STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT

50/3" 50 BLOWS FOR 3 INCHES PENETRATION INTO SOIL

— GROUNDWATER LEVEL MEASURED ON DATE DRILLED

⊖ LOSS OF DRILLING FLUID CIRCULATION

US-1 ⊖ UNDISTURBED SAMPLE OBTAINED WITH A 3-INCH DIA. SHELBY TUBE

NM NATURAL MOISTURE CONTENT IN PERCENT

-200 PERCENT PASSING NO. 200 SIEVE SIZE (PERCENT FINES)

LL LIQUID LIMIT IN PERCENT

PL PLASTIC LIMIT IN PERCENT

PI PLASTICITY INDEX IN PERCENT

k COEFFICIENT OF PERMEABILITY IN cm/sec

ENGINEERING CLASSIFICATION

I COHESIONLESS SOILS

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LOOSE	4 TO 10
MEDIUM DENSE	10 TO 30
DENSE	30 TO 50
VERY DENSE	50

II COHESIVE SOILS

DESCRIPTION	UNCONFINED COMPRESSIVE STRENGTH, QU, TSF	BLOW COUNT "N"
VERY SOFT	1/4	0 TO 2
SOFT	1/4 TO 1/2	2 TO 4
MEDIUM STIFF	1/2 TO 1	4 TO 8
STIFF	1 TO 2	8 TO 15
VERY STIFF	2 TO 4	15 TO 30
HARD	4	30

WHILE THE BORINGS ARE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THEIR RESPECTIVE LOCATIONS AND FOR THEIR RESPECTIVE VERTICAL REACHES, LOCAL VARIATIONS CHARACTERISTIC OF THE SUBSURFACE MATERIALS OF THE REGION ARE ANTICIPATED AND MAY BE ENCOUNTERED. THE BORING LOGS AND RELATED INFORMATION ARE BASED ON THE DRILLERS LOGS AND VISUAL EXAMINATION OF SELECTED SAMPLES IN THE LABORATORY. THE DELINEATION BETWEEN SOIL TYPES SHOWN ON THE LOGS IS APPROXIMATE AND THE DESCRIPTION REPRESENTS ONE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE DESIGNATED BORING LOCATIONS ON THE PARTICULAR DATE DRILLED. GROUNDWATER ELEVATIONS SHOWN ON THE BORING LOGS REPRESENT GROUNDWATER SURFACES ENCOUNTERED ON THE DATES SHOWN. FLUCTUATIONS IN WATER TABLE LEVELS SHOULD BE ANTICIPATED THROUGHOUT THE YEAR. ABSENCE OF WATER SURFACE DATA ON CERTAIN BORINGS IMPLIES THAT NO GROUNDWATER DATA IS AVAILABLE, BUT DOES NOT NECESSARILY MEAN THAT GROUNDWATER WILL NOT BE ENCOUNTERED AT THESE LOCATIONS OR WITHIN THE VERTICAL REACHES OF THESE BORINGS IN THE FUTURE.

Test Pits - Results of test pits dug by county forces to determine extent of buried refuse along south wall of Stage 3 - Gun Club Landfill, October 25, 1988.

Location - South Wall	Depth of Garbage from Surface	Lateral Extent of Garbage
Sta. 77+00	2 1/2 to 11 feet	Garbage ends at toe of creek bank. Thickness decreases moving towards creek.
Sta. 76+00	5 1/2 to 12 1/2 feet	Thickness decreases towards creek. Garbage ends at toe of creek bank.
Sta. 75+00	1 1/2 to 6 feet	Garbage extends to toe of creek, thinning in that direction.
Sta. 73+00	4 to 8 feet	Garbage extends to toe of creek. Garbage starts thinning towards creek.
Sta. 71+00	7 to 13 1/2 feet	Garbage right against creek bank. Some thinning towards creek.
Sta. 69+00	3 1/2 to 7 1/2 feet	Garbage extends to toe of creek, thinning towards creek.
Sta. 67+00	3 1/2 to 8 feet	Garbage thins to creek, begins to slope up adjacent to toe of creek.

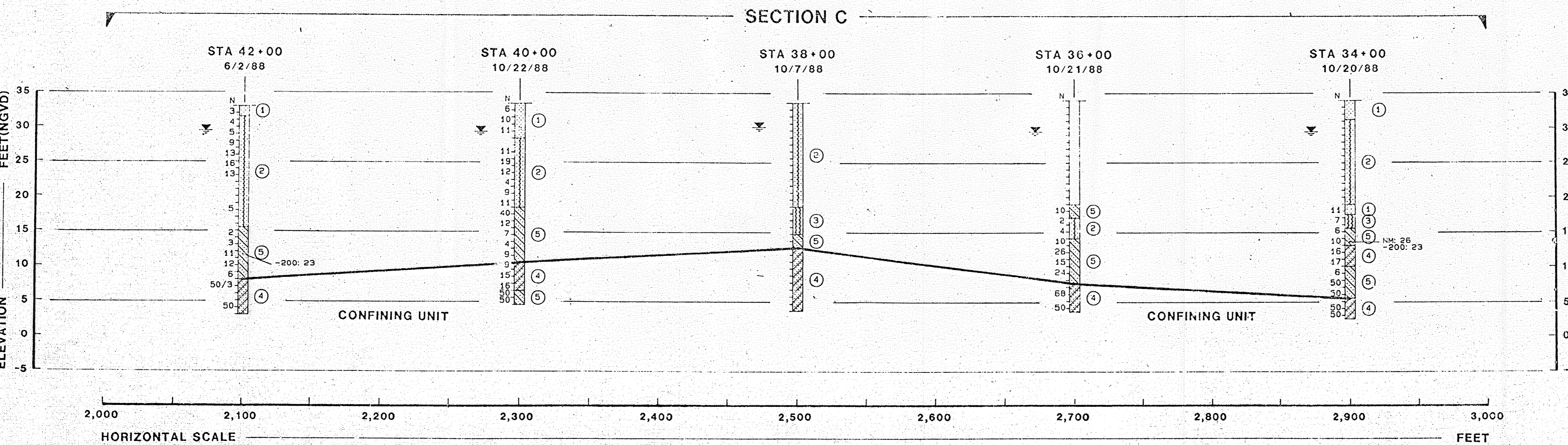
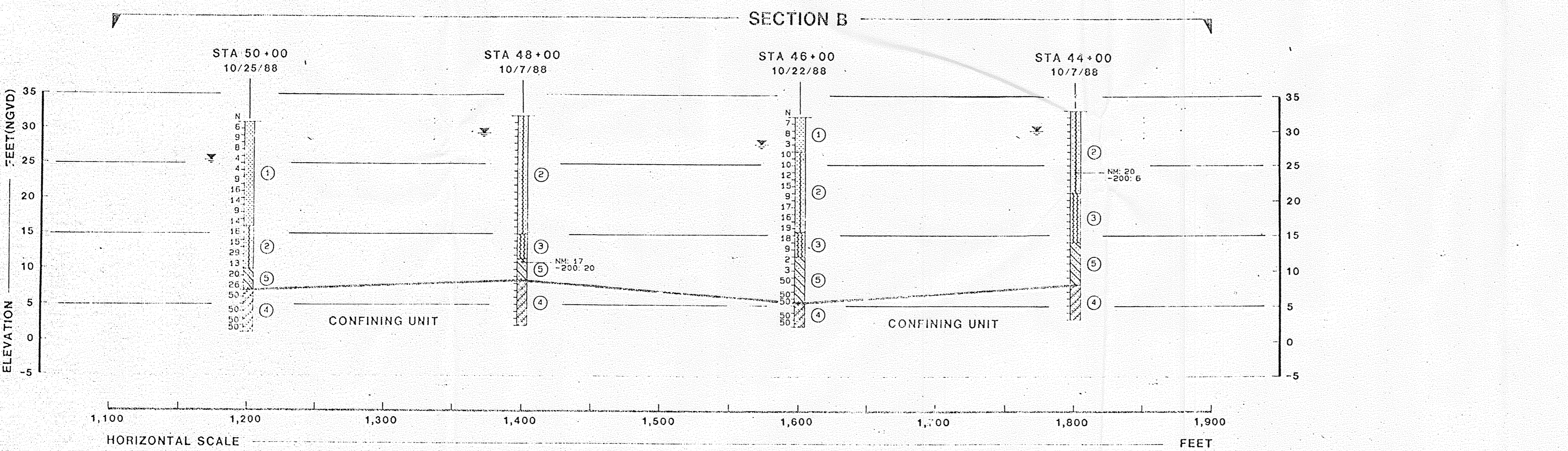
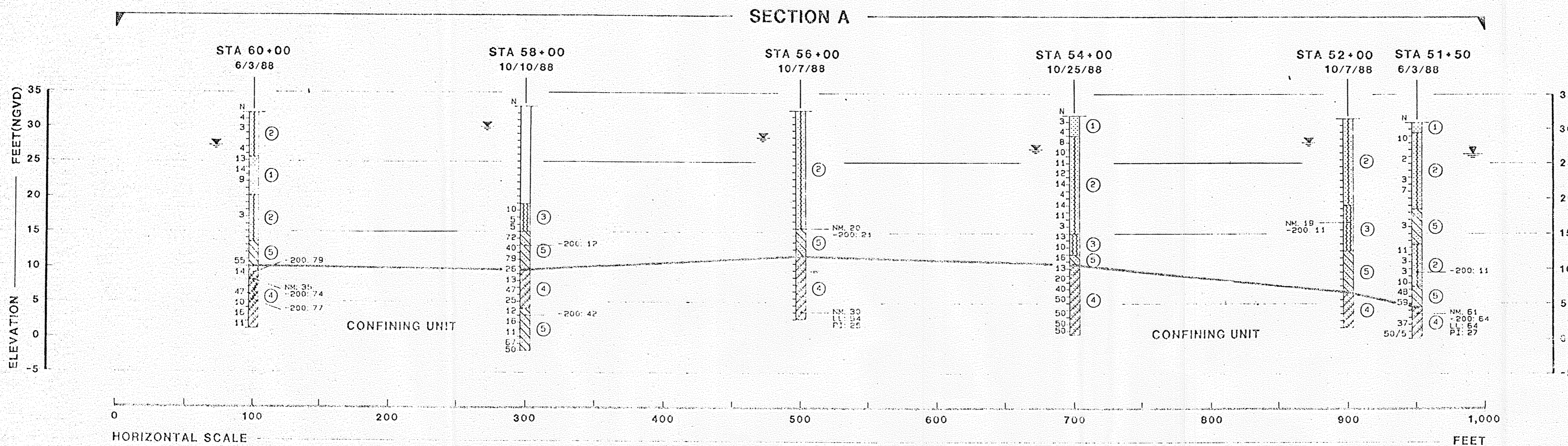
SOUTH WALL BORING PROFILES

Ardaman & Associates, Inc.
Consulting Engineers in Soil Mechanics, Foundations, and Materials Testing

**SITE EXPLORATION
PROPOSED SLURRY WALL
LEACHATE CONTROL SYSTEM
GUN CLUB LANDFILL
MANATEE COUNTY, FLORIDA**

DRAWN BY: R.B.E. CHECKED BY: R.L.J. DATE: 10/12/88
FILE NO. 87-7326 APPROVED BY: H.G. Stangland

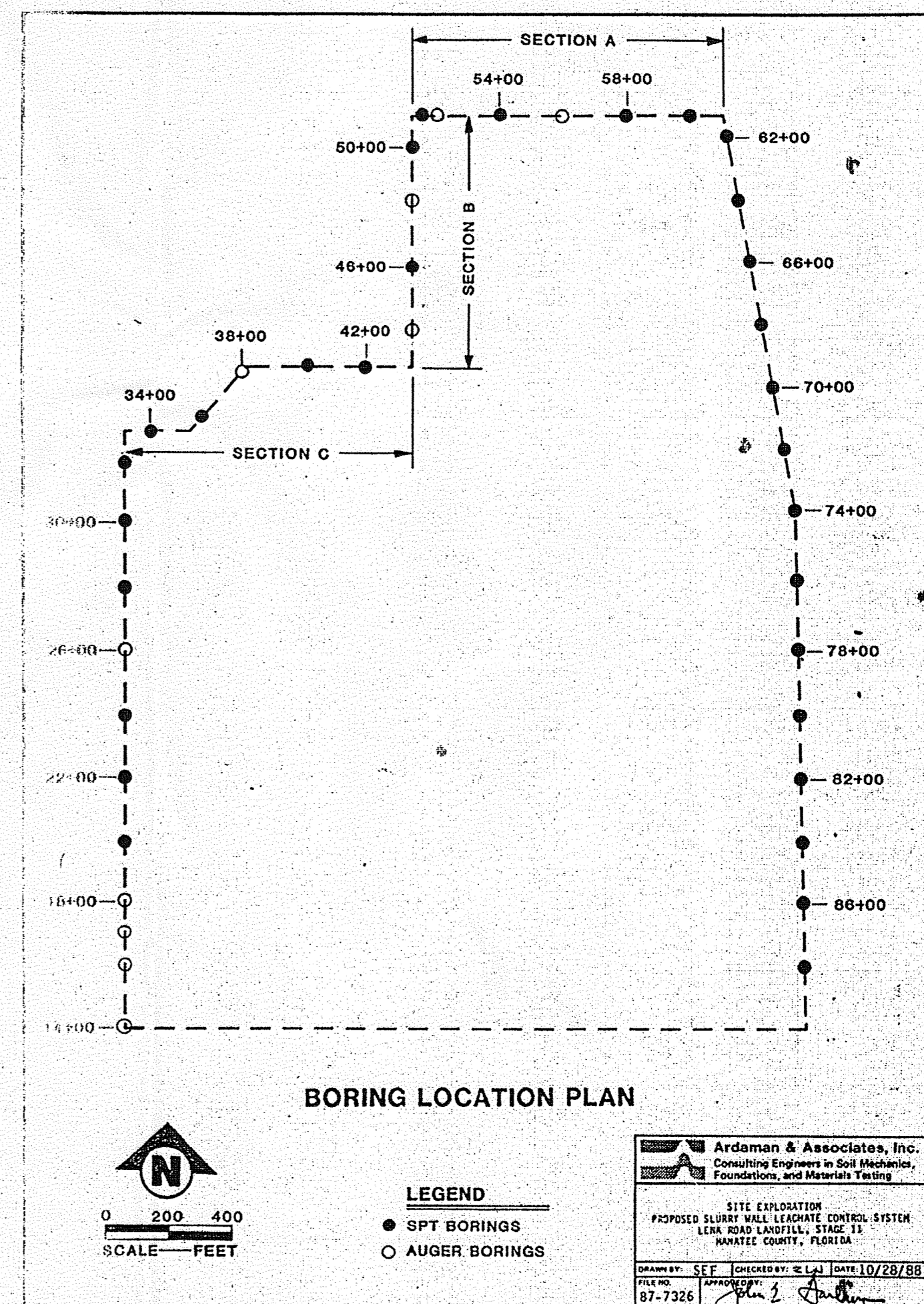
NORTH WALL SOIL BORING PROFILES



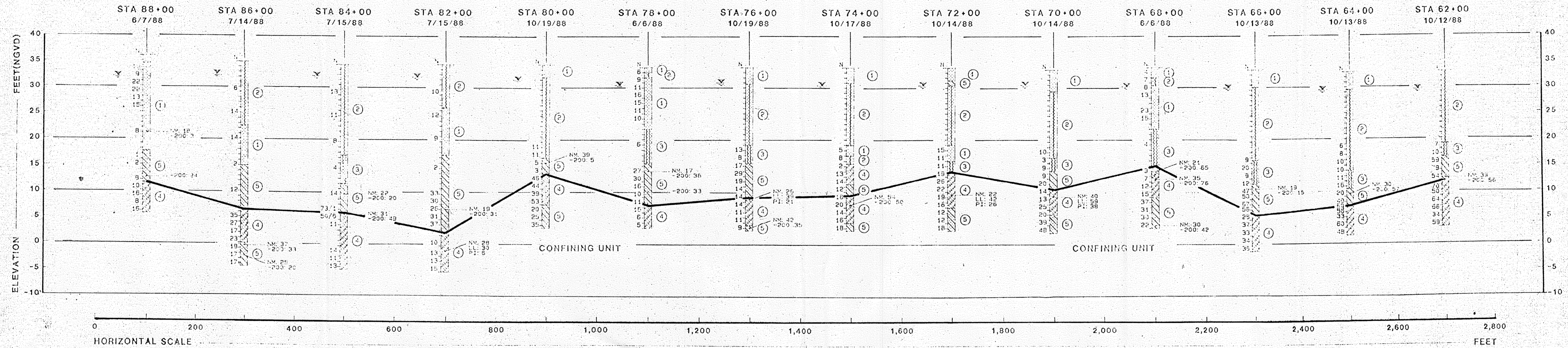
ENGINEERING CLASSIFICATION		
COHESIONLESS SOILS		
DESCRIPTION	BLOW COUNT "N"	
VERY LOOSE	0 TO 4	
LOOSE	4 TO 10	
MEDIUM DENSE	10 TO 30	
DENSE	30 TO 50	
VERY DENSE	50	
UNCONSOLIDATED COHESIVE SOILS		
DESCRIPTION	UNCONSOLIDATED COMPRESSIVE STRENGTH, QU, TSF	BLOW COUNT "N"
VERY SOFT	1/4	0 TO 1
SOFT	1/4 TO 1/2	2 TO 4
MEDIUM STIFF	1/2 TO 1	4 TO 8
STIFF	1 TO 2	8 TO 15
VERY STIFF	2 TO 4	15 TO 30
HARD	4	30

LEGEND	
①	LIGHT GRAY TO GRAY AND LIGHT BROWN TO YELLOWISH BROWN FINE SAND
②	GRAY OR LIGHT BROWN TO YELLOWISH BROWN SLIGHTLY SILTY TO SILTY FINE SAND
③	GRAY AND BROWN MEDIUM TO FINE SAND TO SLIGHTLY SILTY FINE SAND WITH PHOSPHATES
④	GRAY AND GREEN OR BROWN TO LIGHT YELLOWISH BROWN CLAY AND SANDY CLAY WITH OCCASIONAL TRACES OF PHOSPHATES AND SEAMS OF FINE SAND
⑤	GRAY AND GREEN SLIGHTLY CLAYEY TO CLAYEY FINE SAND WITH OCCASIONAL TRACES OF PHOSPHATES, SHELL OR CEMENTED SAND
⑥	GRAY CLAYEY SILT AND SILT WITH OCCASIONAL TRACES OF PHOSPHATES

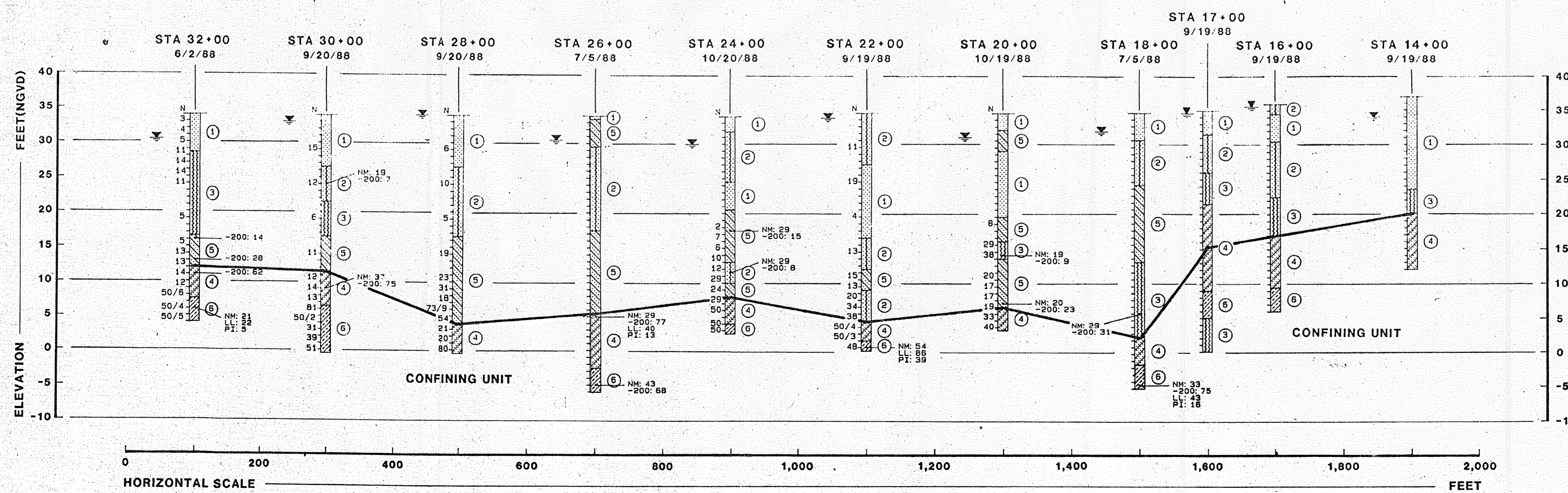
STA STATION WHERE STANDARD PENETRATION TEST (SPT) BORING OR AUGER BORING WAS CONDUCTED IN 1938
 N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT
 50/3" 50 BLOWS FOR 3 INCHES PENETRATION INTO SOIL
 ▽ GROUNDWATER LEVEL MEASURED ON DATE DRILLED
 NM NATURAL MOISTURE CONTENT IN PERCENT
 -200 PERCENT PASSING NO. 200 SIEVE SIZE (PERCENT FINES)
 LL LIQUID LIMIT IN PERCENT
 PL PLASTIC LIMIT IN PERCENT
 PI PLASTICITY INDEX IN PERCENT
 K COEFFICIENT OF PERMEABILITY IN cm/sec



EAST WALL SOIL BORING PROFILES



WEST WALL SOIL BORING PROFILES



LEGEND

- ① LIGHT GRAY TO GREY AND LIGHT BROWN TO SILTY SAND FINE SAND
- ② DARK GRAY TO BLACK TO REDDISH-BROWN SILTY TO SILTY FINE SAND
- ③ GRAY TO BROWN SILTY TO FINE SAND TO SILTY SILT FINE SAND WITH PHOSPHATES
- ④ GRAY TO GREEN OR BROWN TO LIGHT REDDISH-BROWN CLAY AND SILTY CLAY WITH OCCASIONAL TRACES OF PHOSPHATES AND STAINS OF FINE SAND
- ⑤ GRAY TO GREEN SLIGHTLY CLAYEY TO CLAYEY FINE SAND WITH OCCASIONAL TRACES OF PHOSPHATES, SHELL OR CELESTINE SAND
- ⑥ GRAY CLAYEY SILT AND SILT WITH OCCASIONAL TRACES OF PHOSPHATES

- ⊙ STA STATION WHERE STANDARD PENETRATION TEST (SPT) BORING OR AUGER BORING WAS CONDUCTED IN 1988
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT
- 50/3" 50 BLOWS FOR 3 INCHES PENETRATION INTO SOIL
- ▽ GROUNDWATER LEVEL MEASURED ON DATE DRILLED
- N NATURAL MOISTURE CONTENT IN PERCENT
- 200 PERCENT PASSING NO. 200 SIEVE SIZE (PERCENT FINES)
- LL LIQUID LIMIT IN PERCENT
- PL PLASTIC LIMIT IN PERCENT
- PI PLASTICITY INDEX IN PERCENT
- κ COEFFICIENT OF PERMEABILITY IN cm/sec

ENGINEERING CLASSIFICATION	
DESCRIPTION	SOIL TYPE
①	VERY SANDY
②	SANDY
③	VERY SANDY SILT
④	CLAYEY SILT
⑤	CLAYEY SILT
⑥	CLAYEY SILT

FOR THE PURPOSE OF CLASSIFICATION OF SOILS, THE FOLLOWING DEFINITIONS ARE USED: SAND: GRAIN SIZE 0.075 TO 4.75 MM; SILT: GRAIN SIZE 0.075 TO 0.075 MM; CLAY: GRAIN SIZE LESS THAN 0.075 MM. THE PERCENTAGE OF SAND, SILT, AND CLAY IN A SOIL SAMPLE IS DETERMINED BY SIEVE ANALYSIS AND GRAVIMETRY. THE PERCENTAGE OF SAND, SILT, AND CLAY IN A SOIL SAMPLE IS DETERMINED BY SIEVE ANALYSIS AND GRAVIMETRY. THE PERCENTAGE OF SAND, SILT, AND CLAY IN A SOIL SAMPLE IS DETERMINED BY SIEVE ANALYSIS AND GRAVIMETRY.

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 Consulting Engineers in Soils, Hydrogeology, Foundations, and Materials Testing

SITE EXPLORATION
PROPOSED SLURRY WALL
LEACHATE CONTROL SYSTEM
LENA ROAD LANDFILL, STAGE II
MANATEE COUNTY, FLORIDA

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
 MAY 18 2010
 SOUTHWEST DISTRICT TAMPA

DRAWN BY: R.B.E. CHECKED BY: R.L.N. DATE: 10/28/88
 FILE NO. 87-7326 APPROVED BY: *John E. Ardaman*

SHEET 14 OF 14