CONSTRUCTION PLANS FOR THE

CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

SECTION: 20/29/30, TOWNSHIP: 38S, RANGE: 19E

PREPARED FOR:

SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS

4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

GENERAL NOTES:

(1) WASTEWATER/LEACHATE TREATMENT PROVIDED BY THE CITY OF VENICE EASTSIDE WASTEWATER TREATMENT PLANT.

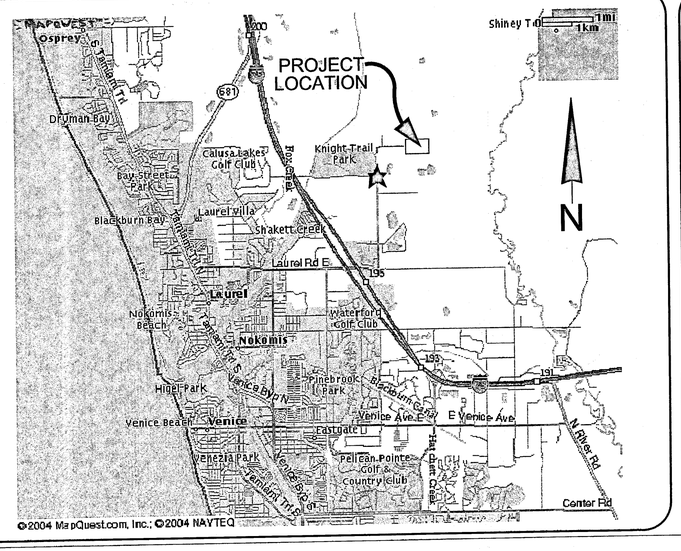
(2) FORCE MAIN TO BE OWNED AND OPERATED BY SARASOTA COUNTY ESBC UTILITIES.

(3) STORAGE AND PUMPING FACILITIES TO BE OWNED AND OPERATED BY SARASOTA COUNTY ESBC SOLID WASTE.

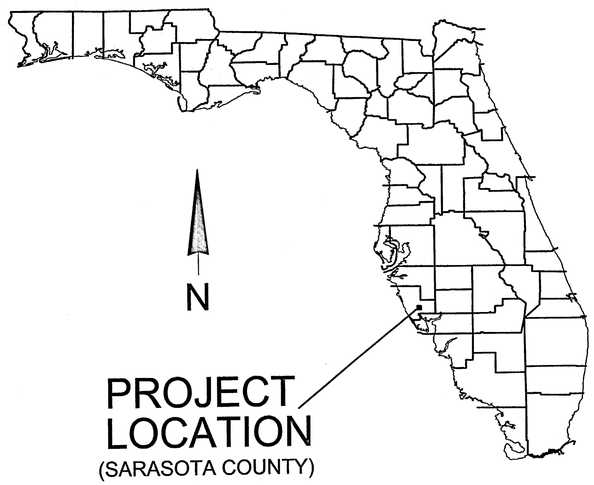
SARASOTA COUNTY 1921

SHEET NO.	SHEET NAME
	LEACHATE FORCE MAIN
1	COVER
2	NOTES, ABBREVIATIONS, AND LEGEND
3	OVERALL FORCE MAIN SITE PLAN
4	SITE PLAN STATION 0+00 TO STATION 19+74
5	SITE PLAN STATION 19+74 TO STATION 32+34
6	SITE PLAN STATION 32+34 TO STATION 44+95
7	SITE PLAN STATION 44+95 TO STATION 57+55
8	SITE PLAN STATION 57+55 TO STATION 70+13
9	SITE PLAN STATION 70+13 TO STATION 82+72
10	SITE PLAN STATION 82+72 TO STATION 95+24
11	SITE PLAN STATION 95+24 TO STATION 108+62
12	SITE PLAN STATION 108+62 TO STATION 121+00
13	SITE PLAN STATION 121+00 TO STATION 133+77
14	SITE PLAN STATION 133+77 TO STATION 146+19
15	SITE PLAN STATION 146+19 TO STATION 158+79
16	SITE PLAN STATION 158+79 TO STATION 171+44
17	SITE PLAN STATION 171+44 TO STATION 183+98
18	SITE PLAN STATION 183+98 TO STATION 196+86
19	SITE PLAN STATION 196+86 TO STATION 209+16
20	SITE PLAN STATION 209+16 TO STATION 219+00
21	SITE PLAN STATION 219+00 TO STATION 227+45
22	SITE PLAN STATION 227+45 TO STATION 239+23
23	SITE PLAN STATION 239+23 TO STATION 252+25
24	SITE PLAN STATION 252+25 TO STATION 264+75
25	SITE PLAN STATION 264+75 TO STATION 277+20
26	SITE PLAN STATION 277+20 TO STATION 287+31 & LEACHATE TRANSFER PUMP STATION SITE PLAN
27	FORCE MAIN – MISCELLANEOUS DETAILS
	PUMP STATION
28	LEACHATE TRANSFER PUMP STATION SITE AND GRADING PLAN
29	LEACHATE TRANSFER PUMP STATION SECTION AND DETAILS
30	LEACHATE TRANSFER PUMP STATION ELECTRCAL SITE PLAN
31	LEACHATE TRANSFER PUMP STATION ELECTRICAL ONE–LINE DIAGRAM
COVER	STANDARD INSTALLATION PLANS FOR THREE PHASE DUPLEX WASTEWATER LIFT STATIONS
1of2	CONTROL PANEL AND RTU INSTALLATION PLAN AND DETAILS
2of2	LIFT STATION CONTROL PANEL AND RTU STANDARD INSTALLATION PLAN AND DETAILS
COVER	STANDARD FABRICATION PLANS FOR THREE PHASE DUPLEX CONTROL PANEL FOR WASTEWATER LIFT STATIONS
1of4	BILL OF MATERIALS
2of4	CONTROL PANEL LAYOUT
3of4	CONTROL PANEL WIRING
4of4	PUMP CONTROL SCHEMATIC

PROJECT LOCATION MAP



PROJECT VICINITY MAP



"INVESTIGATE BEFORE YOU EXCAVATE"

CALL SUNSHINE @ 1-800-432-4770

FL. STATUE 553.851 (1979) REQUIRES A MIN. OF 2 DAYS AND MAX. OF 5 DAYS NOTICE BEFORE YOU EXCAVATE.

THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION, ROADWAY AND TRAFFIC DESIGN STANDARDS (DATED JAN. 2000), THE FLORIDA DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (DATED 2000) AND SUPPLEMENTS THERETO.

Dept. of Environmental Protection
APR 21 2006
Southwest District

JULY 2005

PREPARED BY :

PBS&J

POST, BUCKLEY, SCHUH & JERNIGAN, INC. D/B/A/ PBS&J
2803 FRUITVILLE ROAD, SUITE 130
SARASOTA, FLORIDA 34237
FBPR CERTIFICATE OF AUTHORIZATION NO.:24
9/8/03

4/20/06

JOHN EASH, P.E.
FL. P.E. #: 46235

NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

FILE ONLY

GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL CONDITIONS AND REQUIREMENTS OF ALL PERMITS AND ALL GOVERNING FEDERAL, STATE, AND LOCAL AGENCIES.

2. EXISTING UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN LOCATED FROM THE BEST AVAILABLE SURVEY DATA AND RECORDS AND THEIR LOCATIONS MUST ONLY BE CONSIDERED AS APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES SHOWN ON THE PLANS AND ANY OTHER UTILITIES WHICH MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES IN THE AREA AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION. CALL FLORIDA SUNSHINE STATE ONE CALL CENTER AT 1-800-432-4770. ALL COORDINATION AND REQUIRED UTILITY COMPANY TEMPORARY PROTECTION SHALL BE AT THE CONTRACTOR'S EXPENSE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE UNINTERRUPTION OF SERVICE AND REPLACEMENT OF DAMAGED UTILITIES.

3. A HORIZONTAL SPACING OF 10 FEET CENTER TO CENTER SHALL BE MAINTAINED BETWEEN POTABLE WATER MAINS AND ANY SANITARY SEWER MAINS. IN THE CASE OF A CROSSING, A VERTICAL SEPARATION OF NOT LESS THAN 18" SHALL BE MAINTAINED. SPECIFIC DETAILS ARE SHOWN ON SHEET 27

4. THE CONTRACTOR SHALL PROVIDE ALL DEWATERING EQUIPMENT NECESSARY TO KEEP ALL EXCAVATIONS DRY AND SHALL PROVIDE ALL NECESSARY SHEETING, SHORING, AND BRACING NECESSARY TO PROTECT ADJACENT STRUCTURES, UTILITIES, AND PAVEMENT, OR TO MINIMIZE TRENCH WIDTH, ALL IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

5. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S CONSTRUCTION MANAGER REGARDING ANY CONFLICTS OR DISCREPANCIES ARISING DURING CONSTRUCTION.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES, STRUCTURES, OR UTILITIES CAUSED BY CONSTRUCTION OPERATIONS WHICH HAVE BEEN PREVIOUSLY LOCATED BY THEIR RESPECTIVE OWNERS.

7. CONNECTIONS TO EXISTING FACILITIES SHALL BE DONE IN THE PRESENCE OF THE UTILITY OWNER AND THE ENGINEER. THE CONTRACTOR SHALL GIVE AT LEAST 2 WEEKS NOTICE TO ALL PARTIES CONCERNED PRIOR TO BEGINNING WORK.

8. ALL ADDITIONAL EXCAVATION AND DEMOLITION MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE FLORIDA TRENCH SAFETY ACT, 90-96, LAWS OF FLORIDA, EFFECTIVE OCTOBER 1, 1990, AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION EXCAVATION SAFETY STANDARDS, 29 CFR 1926.650, SUBPART P, AS AMENDED. THE CONTRACTOR SHALL INCLUDE IN THE TOTAL BID PRICE, ALL COSTS FOR COMPLIANCE WITH THESE REGULATIONS.

10. ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE NOTED.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY DAMAGED ITEMS SUCH AS DRIVEWAYS, MAILBOXES, STREET SIGNS, FENCES, ETC., AS DEEMED NECESSARY BY THE COUNTY,AUTHORITY AND/OR ENGINEER.

12. ALL ELEVATIONS REFER TO 1988 NATIONAL GEODETIC VERTICAL DATUM.

13. THE CONTRACTOR SHALL BE REQUIRED TO OBTAIN ALL APPLICABLE PERMITS.

14. ALL FITTINGS USED ON THIS PROJECT SHALL BE DUCTILE IRON UNLESS OTHERWISE SHOWN. ALL MECHANICAL JOINT FITTINGS AND VALVES ARE TO BE RESTRAINED USING THE "MEGA-LUG" SYSTEM OR EQUAL.

15. THE EXHAUST SYSTEM OF ALL GASOLINE AND DIESEL ENGINES SHALL BE EQUIPPED WITH MUFFLERS THAT MEET THE EQUIPMENTS MANUFACTURER'S REQUIREMENTS FOR NOISE SUPPRESSION. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER DUE TO RESIDENTIAL COMPLAINTS, INSTALL NOISE ABATEMENT BAFFLES POSITIONED TO BREAK LINE-OF-SITE FROM THE NOISE SOURCE TO AFFECTED RESIDENCES, AS APPROVED BY THE ENGINEER.

16. THE CONTRACTOR'S WORK SHALL BE SCHEDULED BETWEEN 7:00 A.M. AND 5:30 P.M. WITH A MAXIMUM OF 10 HOURS PER DAY AND 5 DAYS PER WEEK. SHOULD THE CONTRACTOR REQUIRE MORE WORK HOURS TO MAINTAIN THE CONTRACT SCHEDULE, A REQUEST SHALL BE SUBMITTED IN WRITING TO THE ENGINEER STATING THE REASONS WHY AND HOW MANY ADDITIONAL HOURS ARE NEEDED. ALSO, THE CONTRACTOR SHALL REQUEST IN WRITING TO THE ENGINEER WITH A MINIMUM OF SEVENTY-TWO (72) HOURS ADVANCE NOTICE, OF ANY PLANS FOR WORKING ON ANY WEEKEND DAYS OR OBSERVED NATIONAL HOLIDAYS. SHOULD THE ENGINEER APPROVE THE REQUEST FOR ADDITIONAL HOURS, THE CONTRACTOR SHALL REIMBURSE THE OWNER FOR ACTUAL COSTS FOR RESIDENT INSPECTION INCURRED DURING THE ADDITIONAL HOURS APPROVED. THE HOURLY RATE FOR THESE ADDITIONAL HOURS WILL BE $90.00 PER HOUR.

17. THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING: "STATE OF FLORIDA MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, AND UTILITY OPERATIONS", "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", SARASOTA COUNTY STANDARDS, APPLICABLE FDOT 600 SERIES STANDARD INDEXES FOR TRAFFIC CONTROL THROUGH WORK ZONES, AND "FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION".

18. THE CONTRACTOR SHALL PREPARE AND SUBMIT A TRAFFIC CONTROL PLAN (TCP). THE TCP SHALL BE PREPARED IN CONFORMANCE WITH AND IN THE FORM OUTLINED IN THE CURRENT VERSION OF THE "ROADWAY PLANS PREPARATION MANUAL". THE PLAN SHALL INDICATE A TCP FOR EACH PHASE OF THE CONTRACTOR'S ACTIVITY.

19. THE CONTRACTOR SHALL FULLY IMPLEMENT THE TCP PRIOR TO COMMENCEMENT OF ANY POTENTIAL TRAFFIC DISTURBING ACTIVITIES. IN NO CASE SHALL THE CONTRACTOR BEGIN WORK USING THE TCP UNTIL SUCH PLAN HAS BEEN APPROVED IN WRITING BY SARASOTA COUNTY AND THE PROJECT ENGINEER. EXCEPT IN AN EMERGENCY, NO CHANGES TO THE APPROVED PLAN WILL BE ALLOWED UNTIL WRITTEN APPROVAL TO CHANGE SUCH PLAN HAS BEEN RECEIVED. THE TCP SHALL BE SIGNED AND SEALED BY AN ENGINEER REGISTERED IN THE STATE OF FLORIDA.

20. THE CONTRACTOR SHALL PROVIDE PROPER WARNING SIGNS, BARRICADES, TEMPORARY FENCING AND OTHER APPROPRIATE SAFETY DEVICES DURING THE EXECUTION OF THE WORK TO PROVIDE PUBLIC PROTECTION AND SAFETY.

21. MAINTENANCE OF TRAFFIC SIGNS AND OTHER TRAFFIC CONTROL DEVICES SHALL BE PROVIDED BY THE CONTRACTOR DURING CONSTRUCTION AS REQUIRED BY THE F.D.O.T STANDARDS.

22. THE CONTRACTOR SHALL PROVIDE ACCESS FOR TRAFFIC AT ALL TIMES DURING CONSTRUCTION.

23. NOTIFY THE ENGINEER 48 HOURS PRIOR TO COMMENCEMENT OF OPEN-CUTTING ANY COUNTY ROAD.

24. THE CONTRACTOR SHALL COORDINATE AND SCHEDULE TIE-INS TO MINIMIZE DOWNTIME OF THE SYSTEM

25. THE CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF ALL CLEARED VEGETATION WITHIN FIVE (5) DAYS OF CLEARING AND GRUBBING WORK.

26. ALL PROPERTY LINE MARKERS (IRON PINS, CONCRETE MONUMENTS, ETC.) DESTROYED DURING CONSTRUCTION SHALL BE REPLACED IN-KIND BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL EMPLOY A LAND SURVEYOR REGISTERED IN THE STATE OF FLORIDA TO RESET PROPERTY MARKERS.

27. ALL FIELD DEFLECTIONS FOR THE PIPELINES SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. OTHERWISE APPROPRIATE FITTINGS SHALL, AT NO ADDITIONAL COST, BE USED. CONTRACTOR SHALL DETERMINE AND PROVIDE FITTINGS AS REQUIRED FOR DEFLECTIONS BASED UPON FIELD CONDITIONS WHERE SPECIFIC FITTING REQUIREMENTS ARE NOT IDENTIFIED.

28. RESTORATION SHALL INCLUDE, AT A MINIMUM, SOLID SODDING FOR ALL UNPAVED AREAS DISTURBED BY THE CONTRACTOR'S OPERATION.

29. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM ROAD PAVEMENTS, DRIVEWAYS, SIDEWALKS AND DRAINAGE SWALES AND EXISTING DRAINAGE PATTERNS RESTORED AT THE COMPLETION OF WORK EACH DAY.

30. ALL FILL AND ROAD MATERIALS EXCAVATED SHALL BE DISPOSED OF IN ACCORDANCE WITH THE SPECIFICATIONS.

31. NOTIFY PROPERTY OWNER AND ENGINEER 72 HOURS IN ADVANCE OF ALL PLANNED UTILITY INTERRUPTION OR DRIVEWAY CUTS.

32. ALL DRIVEWAYS, SIDEWALKS, AND OTHER RIGHT-OF-WAY OR EASEMENT ENCROACHMENTS SHALL BE RESTORED EQUAL TO OR BETTER THAN EXISTING CONDITIONS. COMMERCIAL DRIVEWAYS SHALL REMAIN OPERATIVE DURING NORMAL BUSINESS HOURS, UNLESS A DETOUR IS PROVIDED AND APPROVED BY THE ENGINEER.

33. SOD ALL DISTURBED AREAS.

34. ALL PROPOSED PIPE SHALL BE GREEN OR HAVE GREEN STRIPES.

35. 4" C900 PVC DR25 VERTICAL AND HORIZONTAL PIPE DEFLECTIONS SHALL NOT EXCEED 95% OF MANUFACTURERS RECOMMENDATION.

36. THE LIMITS OF PIPE REQUIRED TO BE INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING ARE SHOWN ON THE PLANS. ANY ADDITIONAL PIPE INSTALLLED BY HORIZONTAL DIRECTIONAL DRILLING ABOVE THAT SHOWN ON THE PLANS FOR THE CONTRACTOR'S CONVENIENCE WILL BE PAID FOR AT THE PRICE FOR OPEN CUT PLACEMENT.

WETLAND AND EROSION AND SEDIMENT CONTROL NOTES:

1. MAINTAIN WATER QUALITY STANDARDS PURSUANT TO SECTION 62-302 F.A.C.

2. THE CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL BARRIERS SUCH AS SILT SCREEN FENCING/FLOATING TURBIDITY BARRIERS, AS REQUIRED BY ACTUAL SITE CONDITIONS AND AS DIRECTED BY THE OWNER'S REPRESENTATIVE. THE MAINTENANCE OF EROSION CONTROL DEVICES AND THEIR COMPLETE REMOVAL ARE TO BE INCLUDED IN THE BID PRICE. THE SILT BARRIERS SHALL BE PLACED IN ACCORDANCE WITH THE REQUIREMNETS OF FDOT INDEX NO. 102 AND 103, OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE. FAILURE TO INSTALL OR PROPERLY MAINTAIN THESE BARRIERS MAY RESULT IN ENFORCEMENT ACTIONS WHICH MAY INCLUDE CITATIONS, AS PROVIDED BY CHAPTERS 40D-A, AND 40D-40, F.A.C.

3. THE CONTRACTOR SHALL PROVIDE HAY BALES, SILT FENCES, SCREENS, AND SODDED BERMS AROUND THE CONSTRUCTION ACTIVITY, AS NECESSARY, TO PREVENT THE TRANSPORTATION OF SEDIMENTS DOWNSTREAM INTO WETLANDS, OPEN DITCHES, SURFACE WATERS, STREETS, STORM SEWERS, LAKES, RETENTION PONDS, PRIVATE PROPERTY, ETC., AND SHALL PERFORM ALL NECESSARY INSPECTIONS AND MAINTENANCE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL GOVERNING AGENCY REQUIREMENTS THROUGHOUT THE CONSTRUCTION.

4. EROSION AND SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND SHALL NOT BE REMOVED UNTIL FINAL GRADING AND RESTORATION OF THE SITE HAS BEEN COMPLETED.

5. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE RETURNED TO THE EXISTING GRADE, PROFILE, AND CROSS SECTION UNLESS OTHERWISE NOTED. MATCH EXISTING ELEVATIONS AT BOUNDARIES/LIMITS OF CONSTRUCTION ACTIVITIES.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE EXISTING DRAINAGE SYSTEM WITHIN THE LIMITS OF THE PROJECT AREA, FOR THE DURATION OF THE PROJECT. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE WORK INVOLVED.

7. THE CONTRACTOR SHALL DEVELOP AND IMPLEMENT A STORMWATER POLLUTION PREVENTION PLAN IN COMPLIANCE WITH NPDES STORMWATER PERMIT REQUIREMENTS.

8. THE CONTRACTOR SHALL SUBMIT A NOTICE OF INTENT OF CONTSRUCTION COMMENCEMENT AND NOTICE OF TERMINATION TO APPLICABLE AGENCIES AND MONITOR CONSTRUCTION IN ACCORDANCE WITH NPDES STORMWATER PERMIT REQUIREMENTS.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TO THE ENGINEER A SILTATION/ EROSION PLAN MEETING ALL REQUIREMENTS OF FDOT INDEX NO.'S 102 AND 103, FOR APPROVAL AND INSTALLATION PRIOR TO ANY CONSTRUCTION.

ABBREVIATIONS

APPROX	APPROXIMATELY
ALUM	ALUMINUM
ARV	AIR RELEASE VALVE (MANUAL)
ARVV	AIR RELEASE & VACUUM VALVE (AUTOMATIC)
AWWA	AMERICAN WATER WORK ASSOC.
AVG	AVERAGE
B/L	BASE LINE
BV	BUTTERFLY VALVE
BV	BUTTERFLY VALVE
CAVR	COMBINATION AIR/ VACUUM RELIEF
CF	CUBIC FEET
C/L,	CENTERLINE
CL	CLEARANCE
CM	CONCRETE MONUMENT
CO	CLEAN-OUT
CONC	CONCRETE
DIA, d	DIAMETER
DI, DIP	DUCTILE IRON PIPE
D/W	DRIVE WAY
E	EAST
ELEV.	ELEVATION
EP	EDGE OF PAVEMENT
EXIST/EX	EXISTING
FL	FLANGED
FM	FORCE MAIN
FND	FOUND
FPS	FEET PER SECOND
FT	FEET
GAL	GALLONS
GPM	GALLONS PER MINUTE
HDPE	HIGH DENSITY POLYETHYLENE
HP	HORSEPOWER
HR	HOUR
ID	IDENTIFICATION
IE	INVERT ELEVATION
IR	IRON ROD
LB	POUND
LSB	LICENSED SURVEYOR BUSINESS
LF	LINEAL FEET
LT	LEFT
MAX	MAXIMUM
MJ	MECHANICAL JOINT
MISC	MISCELLANEOUS
MIN	MINIMUM
N	NORTH
NTS	NOT TO SCALE
OCEW	ON CENTER EACH WAY
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OSW	OTHER SURFACE WATER
PE	PLAIN END
PRM	PERMANENT REFERENCE MARKER
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PROP.	PROPOSED
PSI	POUNDS PER SQUARE INCH
P/L	PROPERTY LINE
RCP	REINFORCED CONCRETE PIPE
RDCR	REDUCER
REQ'D	REQUIRED
RJ	RESTRAINED JOINT
RJM	REJECT WATER MAIN
RM	REUSE MAIN
R.P.M.	REVOLUTIONS PER MINUTE
RWGV	RESILIENT WEDGE GATE VALVE
RT	RIGHT
S	SOUTH
S.F.	SAFETY FACTOR
SHT	SHEET
SQ.FT., SF	SQUARE FEET
S.S., ST. STL.	STAINLESS STEEL
STA	STATION
TOE	TOE OF SLOPE
TOP	TOP OF SLOPE
TYP.	TYPICAL
W/	WITH
WM	POTABLE WATER MAIN

LEGEND

LINETYPES

VERIZON — V — V —

4" LEACHATE FORCE MAIN — FM — FM —

EXISTING SEWER FORCE MAIN — FM — FM —

EXISTING SANITARY SEWER — SS — SS —

EXISTING PIPE CULVERT - - - - - - - - - - - -

EXISTING UNDERGROUND WATER MAIN — W — W —

EXISTING BURIED AND ABOVE GROUND TV, ELECTRIC, PHONE

EXISTING FENCE

RIGHT OF WAY — — — — — —

CENTERLINE OF ROAD

BASELINE 15+00

WETLAND LINE

TOP OF BANK

SYMBOLS

SPOT ELEVATION x 79.5

UTILITY POLES

VALVES OR

WATER METER

ELECTRIC METER

FIRE HYDRANT

SANITARY SEWER MANHOLE

MITERED END

SIGN

MAILBOX

TREE 8"

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT
TAMPA

POST, BUCKLEY, SCHUH & JERNIGAN, INC., D/B/A/
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Ph. (941) 954-4036

CLIENT:
SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

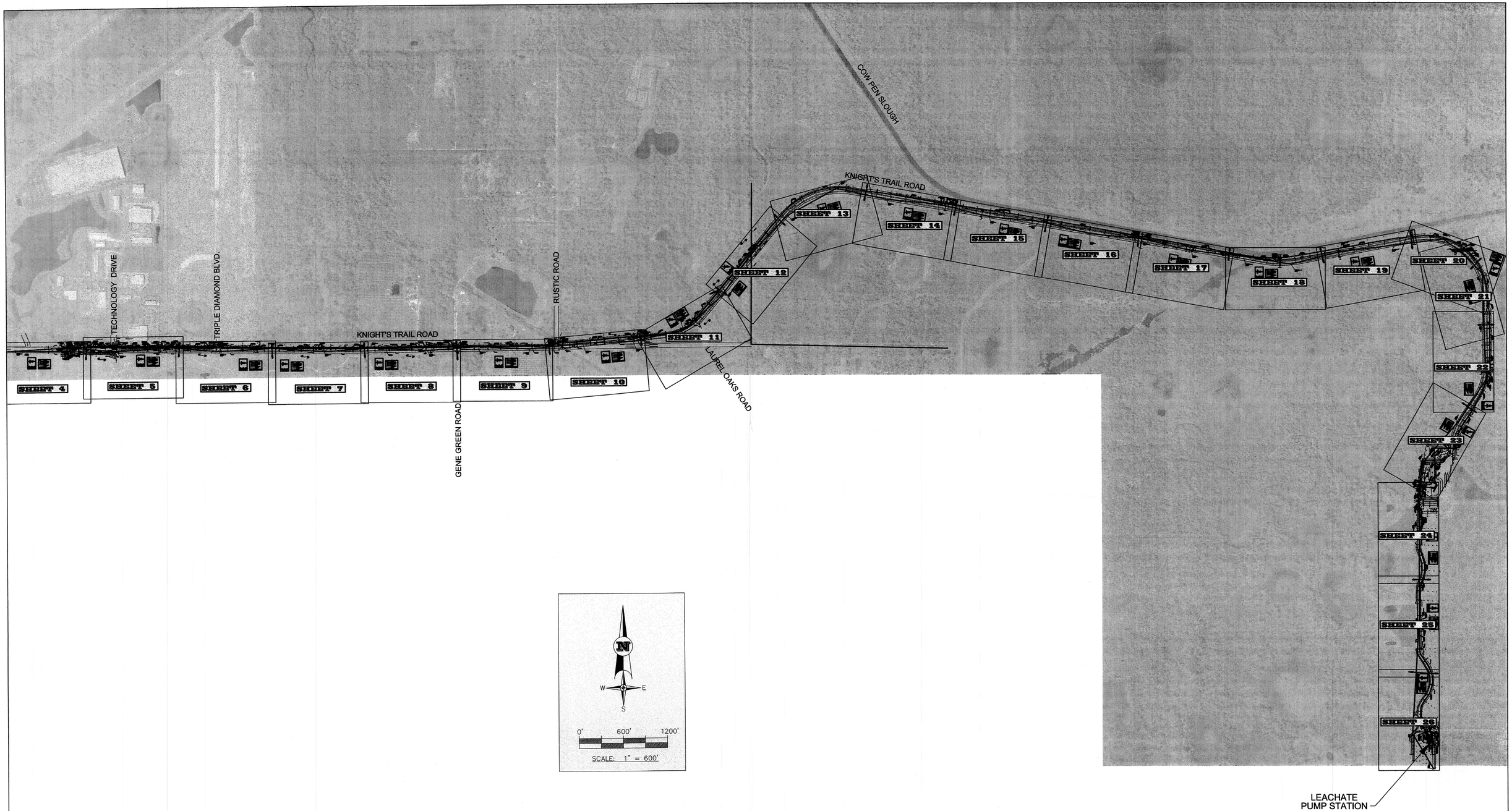
TASK:
NOTES, ABBREVIATIONS AND LEGEND

ORIGINAL: FEB 2005
REVISIONS:
1 2 3 4 5 6 7 8 9 10 11 12

4/20/06
JOHN EASH, P.E.
FL. P.E. #: 46235
NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

JOB NO. 120521.22
DRAWN BZ
DESIGNED BZ
CHECKED JE
QC JE

SHEET 2



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT
TAMPA

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NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
OVERALL FORCE MAIN SITE PLAN

ORIGINAL: FEB 2005
REVISIONS:
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4/20/06
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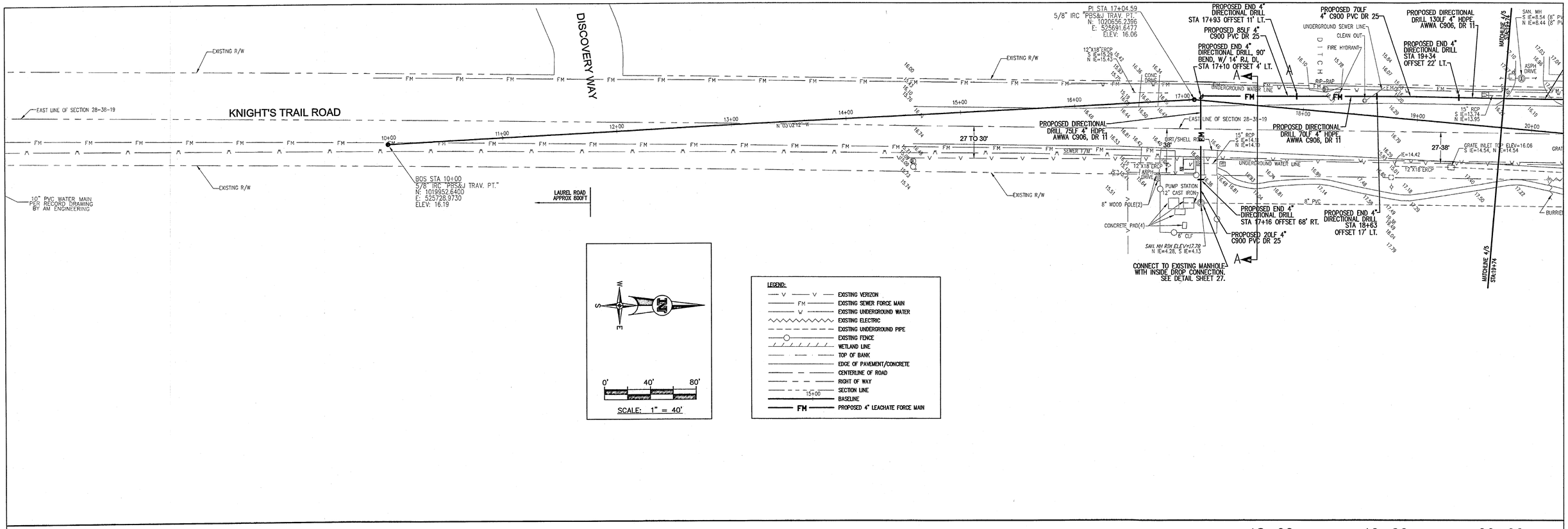
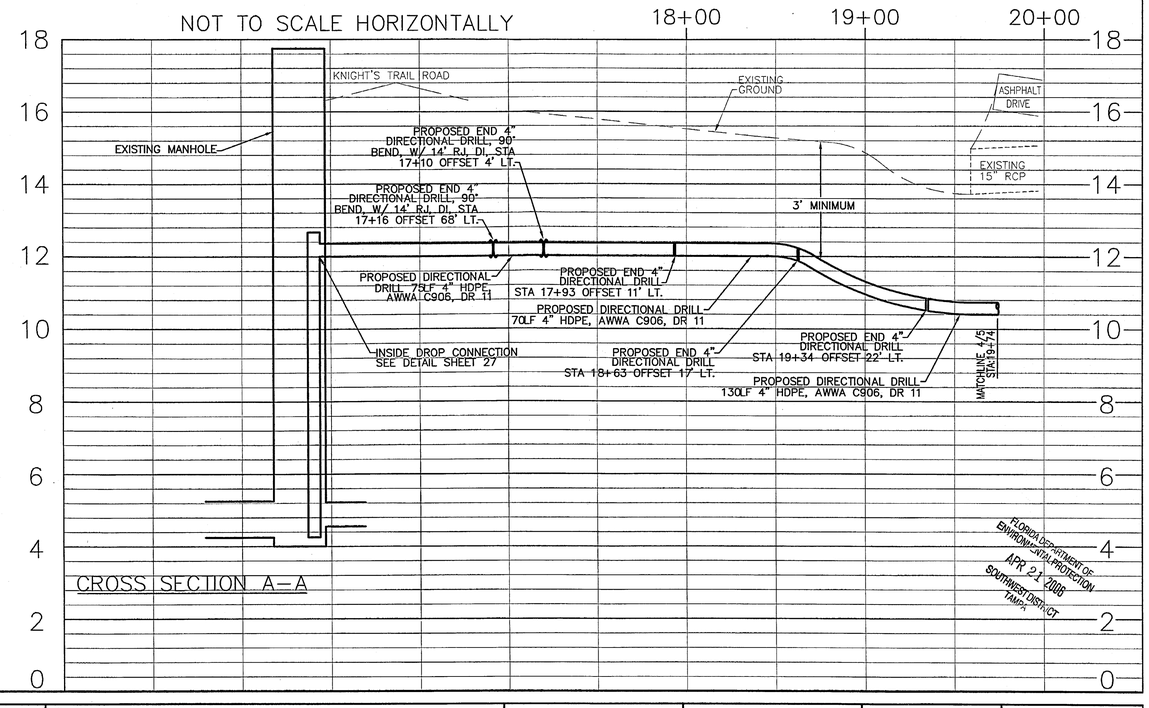
SHEET 3





CROSS SECTION A-A

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT TAMPA

POST, BUCKLEY, SCHUH & JERNIGAN, INC., D/B/A/

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PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 0+00 TO STATION 19+74

ORIGINAL: FEB 2005
REVISIONS:
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2
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10
11
12

4/26/06
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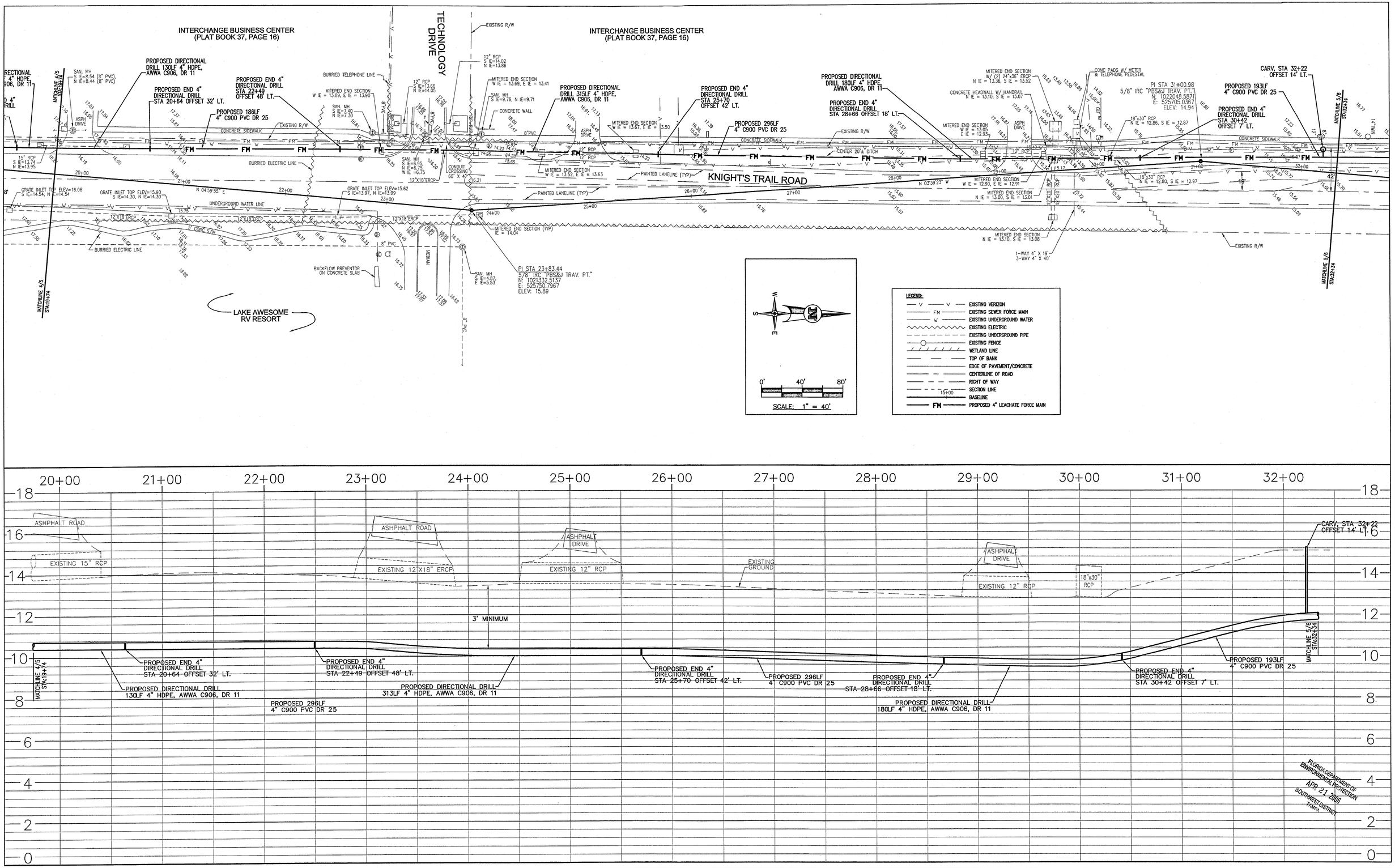
SHEET 4



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PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

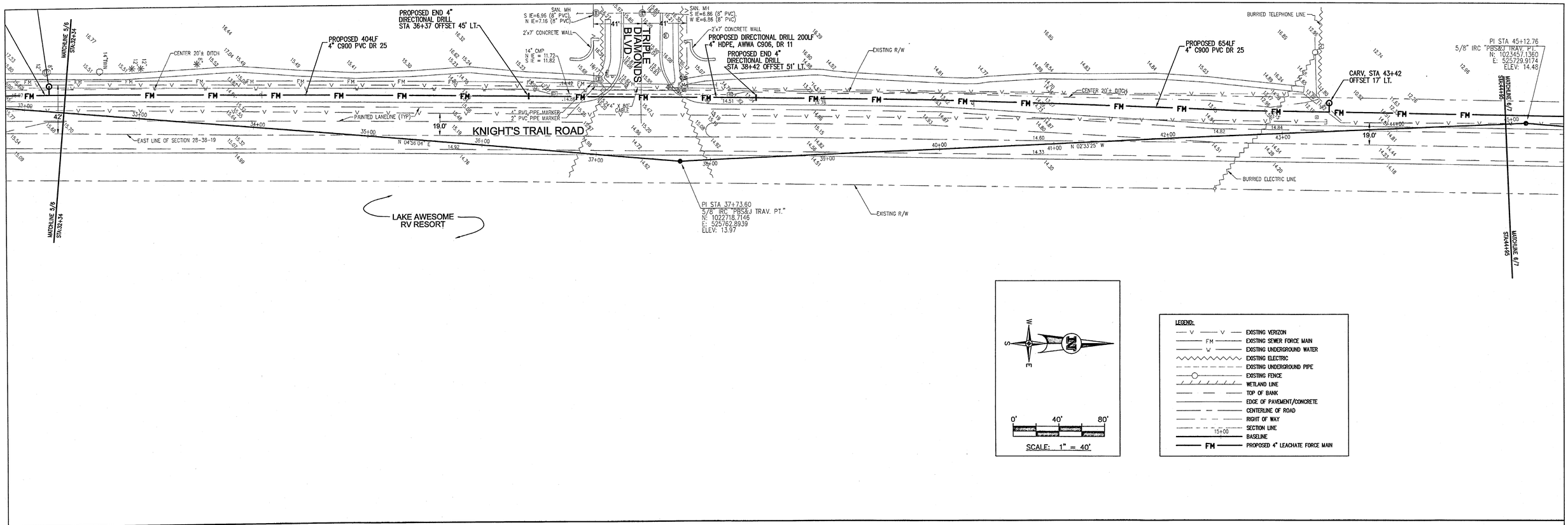
TASK:
SITE PLAN
STATION 19+74 TO STATION 32+34

ORIGINAL: FEB 2005
REVISIONS:
1 2 3 4 5 6 7 8 9 10 11 12

4/20/06
JOHN EASH, P.E.
FL. P.E. #: 46235
NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

JOB NO. 120521.22
DRAWN BZ
DESIGNED BZ
CHECKED JE
QC JE

SHEET 5



POST, BUCKLEY, SCHUH & JERNIGAN, INC., D/B/A/

PBS&J

PRINCIPAL ADDRESS:
2001 NW 107th AVENUE
MIAMI, FL. 33172-2507
FBRP CERT. OF AUTH. No. 24

PRODUCTION ADDRESS:
2803 FRUITVILLE RD. SUITE 130
SARASOTA, FLORIDA 34237
Ph. (941) 954-4036

CLIENT:
SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 32+34 TO STATION 44+95

ORIGINAL: FEB 2005
REVISIONS:
1 2 3 4 5 6 7 8 9 10 11 12

4/20/06
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QC JE

SHEET 6

PI STA 45+12.76
5/8" IRC "PBS&J TRAV. PT."
N: 1023457.1360
E: 525729.9174
ELEV: 14.48

PROPOSED 455LF
4" C900 PVC DR 25

MATCHLINE 6/7
STA 44+95

PROPOSED END 4"
DIRECTIONAL DRILL
STA 49+49 OFFSET 33' LT.

CENTER 20'± DITCH

30"x18" RCP
INV IN = 11.00
S IE = 11.20

GRATE INLET
TOP ELEV = 13.60

DIRT DRIVE

MITERED END SECTION
N IE = 11.25, S IE = 11.18

PROPOSED DIRECTIONAL
DRILL 330LF 4" HDPE,
AWWA C906, DR 11

RIP-RAP

EXISTING R/W

4' FNC.

WETLAND LINE "H"

PROPOSED END 4"
DIRECTIONAL DRILL
STA 55+90 OFFSET 20' LT.

PROPOSED 155LF
4" C900 PVC DR 25

MATCHLINE 7/8
STA 57+55

EAST LINE OF SECTION 28-38-19

N 04°06'20" E

KNIGHT'S TRAIL ROAD

19.0'

N 03°28'43" W

PAINTED LANELINE (TYP)

MITERED END SECTION
N IE = 11.27, S IE = 11.24

RIP-RAP

PI STA 52+10.81
5/8" IRC "PBS&J TRAV. PT."
N: 1024153.3938
E: 525779.8943
ELEV: 13.91

EXISTING R/W

LAKE AWESOME
RV RESORT

MATCHLINE 6/7
STA 44+95

MATCHLINE 7/8
STA 57+55

N
S
E
W

0' 40' 80'

SCALE: 1" = 40'

LEGEND:

- EXISTING VERIZON
- EXISTING SEWER FORCE MAIN
- EXISTING UNDERGROUND WATER
- EXISTING ELECTRIC
- EXISTING UNDERGROUND PIPE
- EXISTING FENCE
- WETLAND LINE
- TOP OF BANK
- EDGE OF PAVEMENT/CONCRETE
- CENTERLINE OF ROAD
- RIGHT OF WAY
- 15+00 SECTION LINE
- BASELINE
- FM PROPOSED 4" LEACHATE FORCE MAIN

45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00

16 14 12 10 8 6 4 2 0 -2

EXISTING GROUND

EXISTING WEIR

RIP-RAP

2-30"X18"RCP

INV:11.25'

INV:11.18'

3' MINIMUM

18" MINIMUM

18" MINIMUM

MATCHLINE 6/7
STA 44+95

PROPOSED END 4"
DIRECTIONAL DRILL
STA 49+49 OFFSET 33' LT.

PROPOSED DIRECTIONAL DRILL
330LF 4" HDPE, AWWA C906, DR 11

PROPOSED END 4"
DIRECTIONAL DRILL
STA 55+90 OFFSET 20' LT.

MATCHLINE 7/8
STA 57+55

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT

POST, BUCKLEY, SCHUH & JERNIGAN, INC., D/B/A/
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SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 44+95 TO STATION 57+55

ORIGINAL: FEB 2005
REVISIONS:
1 2 3 4 5 6 7 8 9 10 11 12

4 20 06
JOHN EASH, P.E.
FL. P.E. #: 46235
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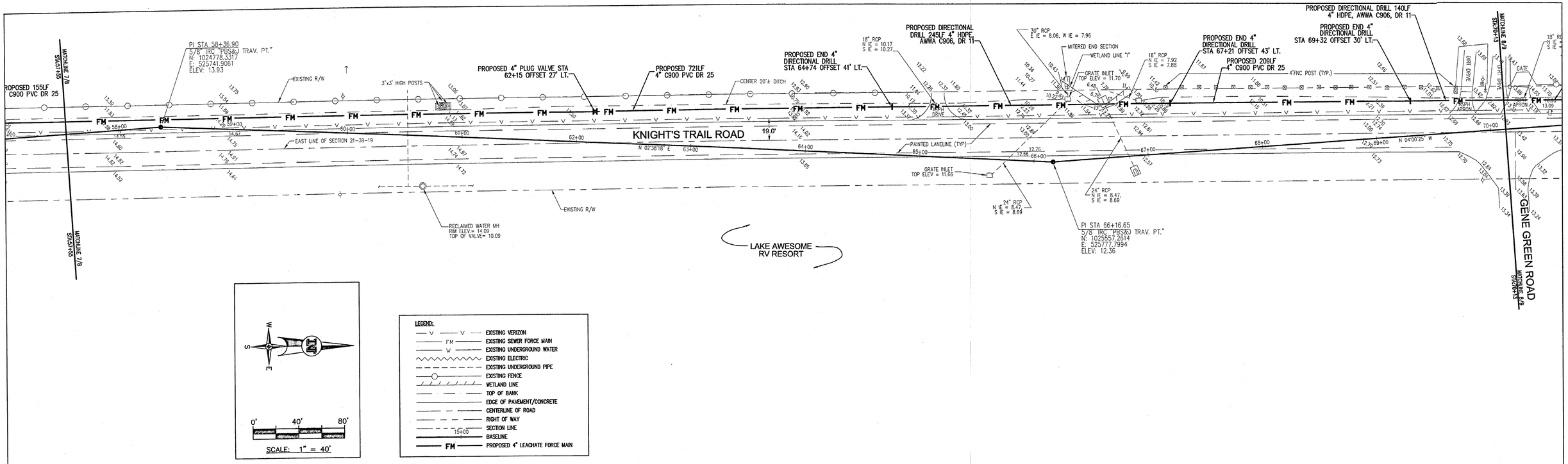
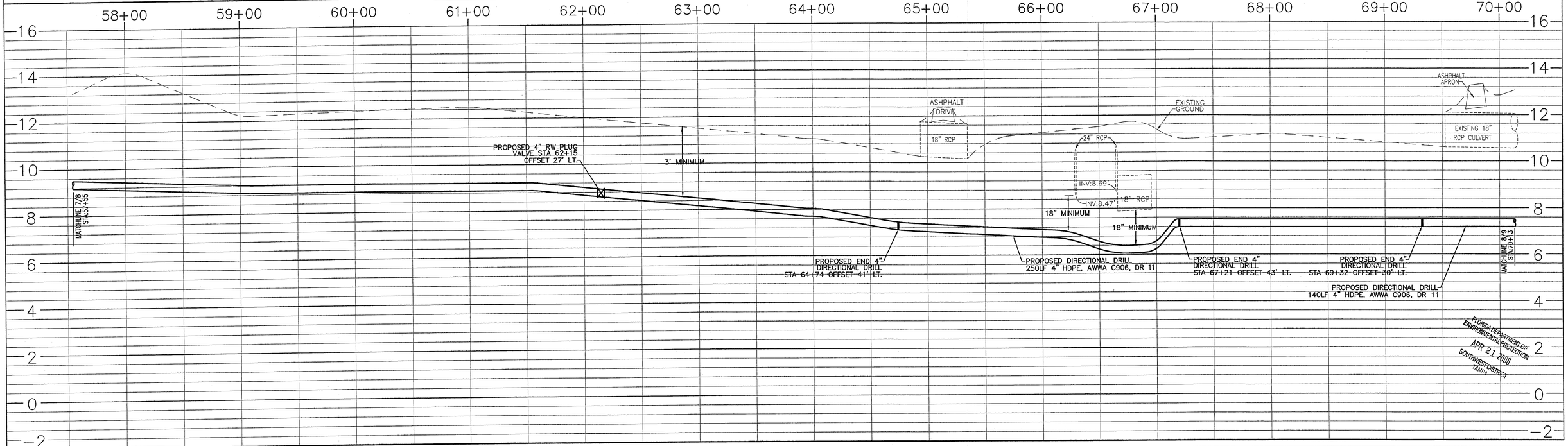
DESIGNED BZ
CHECKED JE
QC JE

SHEET 7





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NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 57+55 TO STATION 70+13

ORIGINAL: FEB 2005
REVISIONS:
1 2 3 4 5 6 7 8 9 10 11 12

4/20/06
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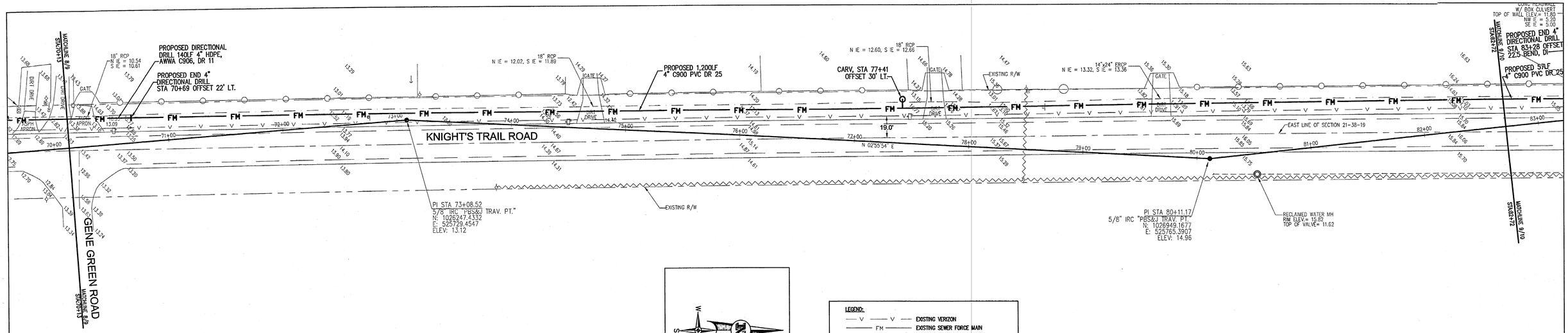
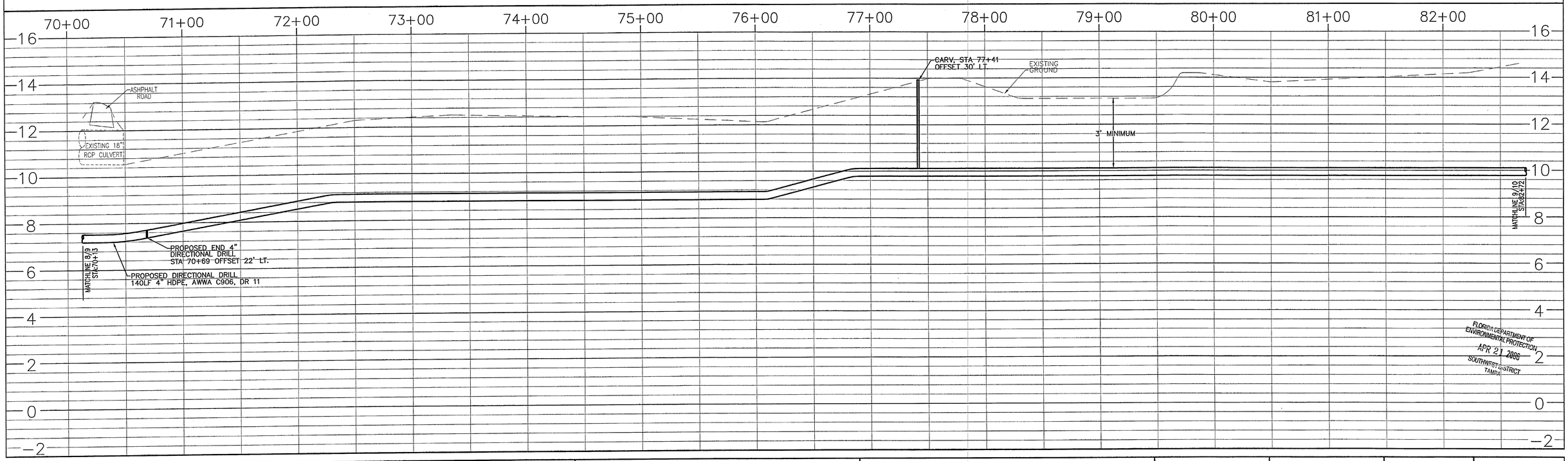
QC JE

SHEET 8





FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT
TAMPA

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4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 70+13 TO STATION 82+72

ORIGINAL: FEB 2005
REVISIONS:
1
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4/20/06
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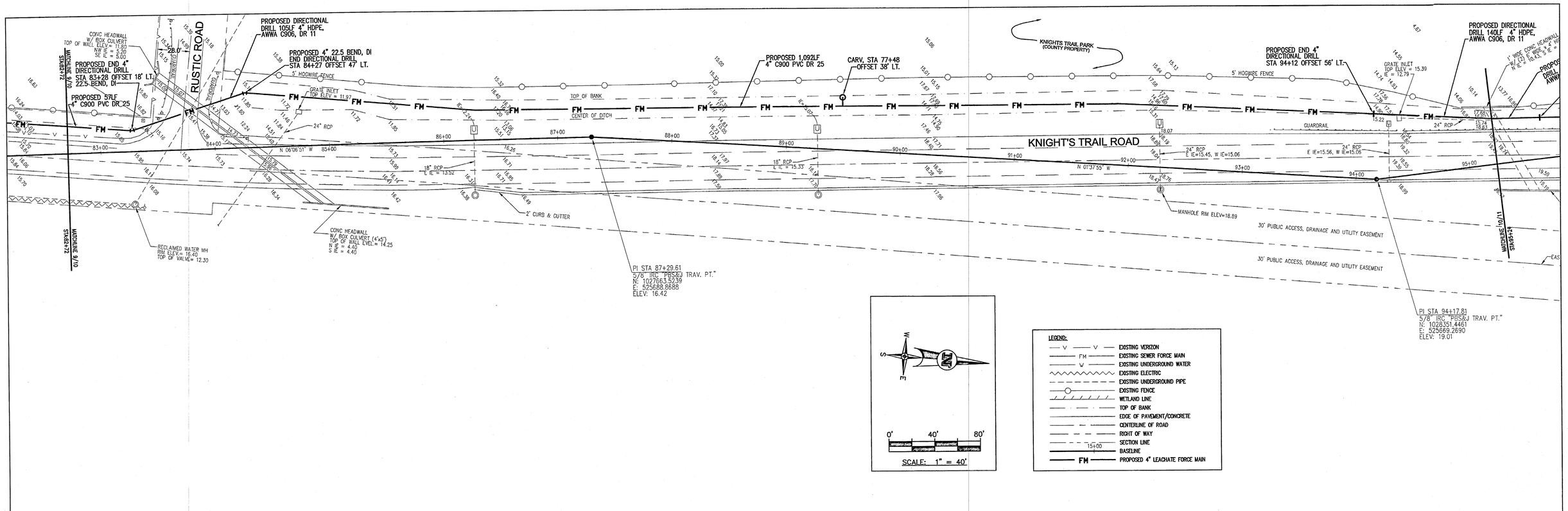
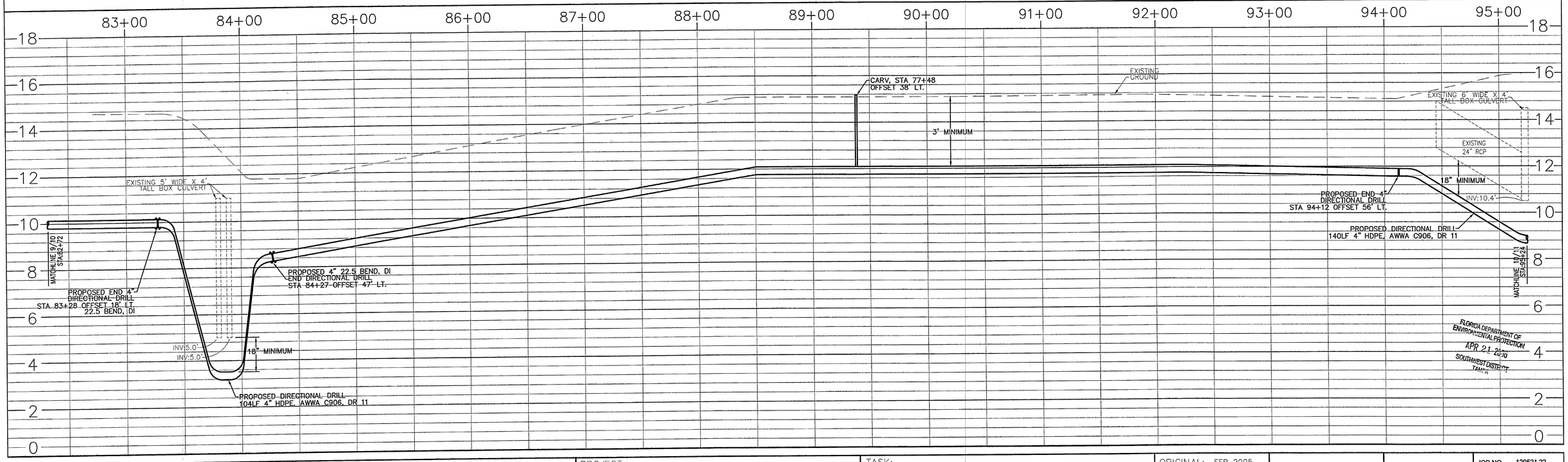
SHEET 9





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SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 82+72 TO STATION 95+24

ORIGINAL: FEB 2005
REVISIONS:
1 2 3 4 5 6 7 8 9 10 11 12

9/20/06
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FL. P.E. #: 46235
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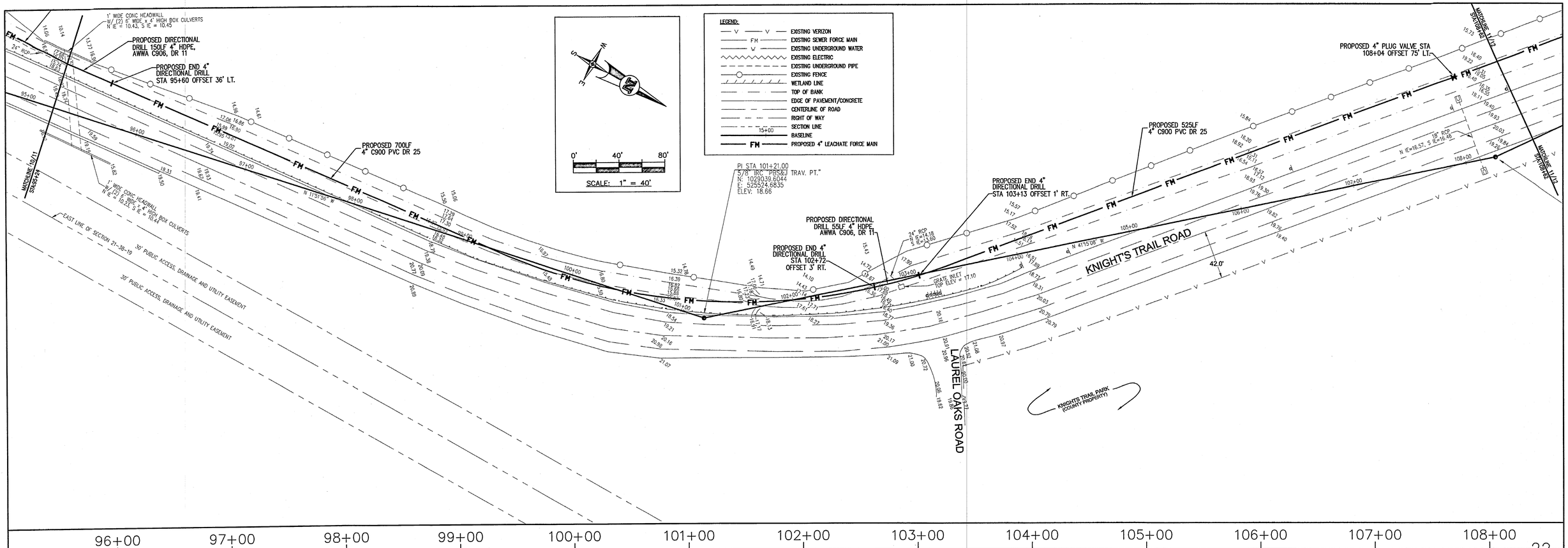
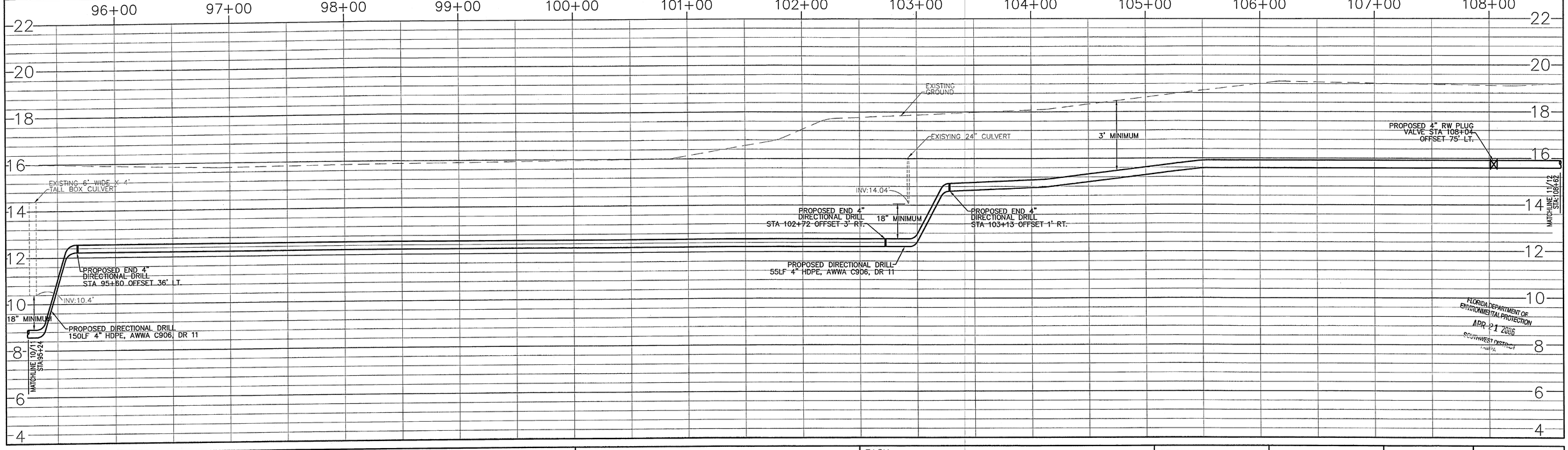
CHECKED JE
QC JE

SHEET 10





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SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 95+24 TO STATION 108+62

ORIGINAL: FEB 2005
REVISIONS:
1
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4/20/06
JOHN EASH, P.E.
FL. P.E. #: 46235
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JOB NO. 120521.22
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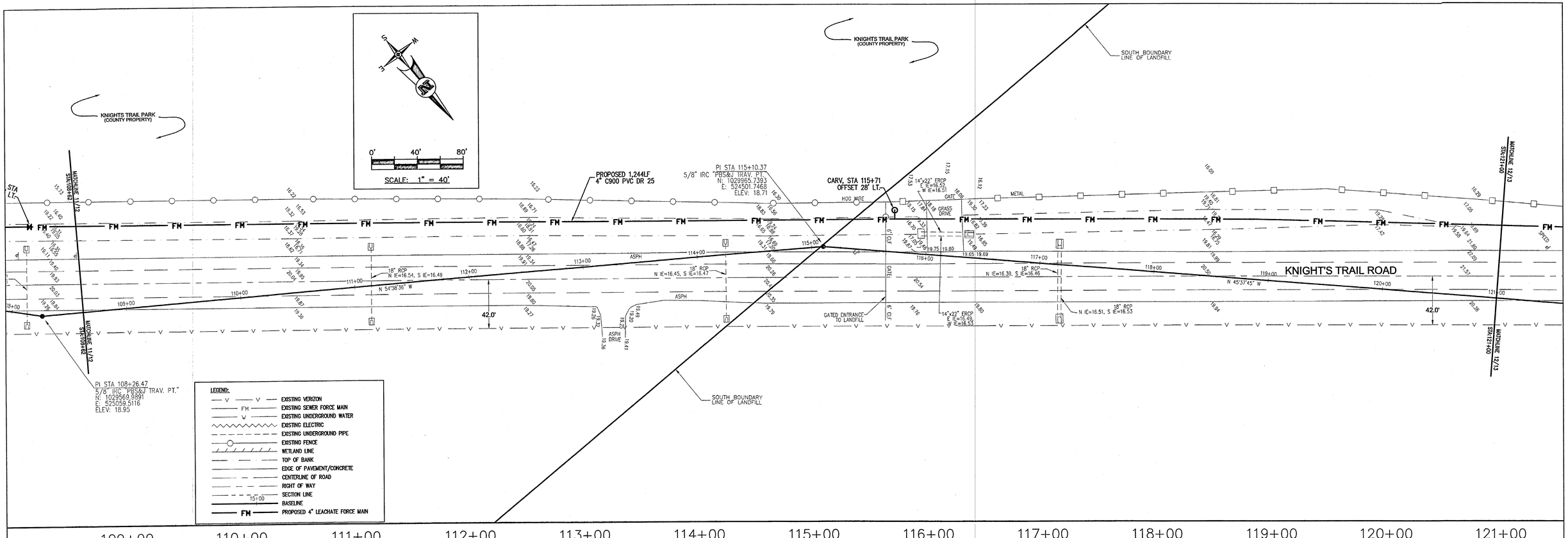
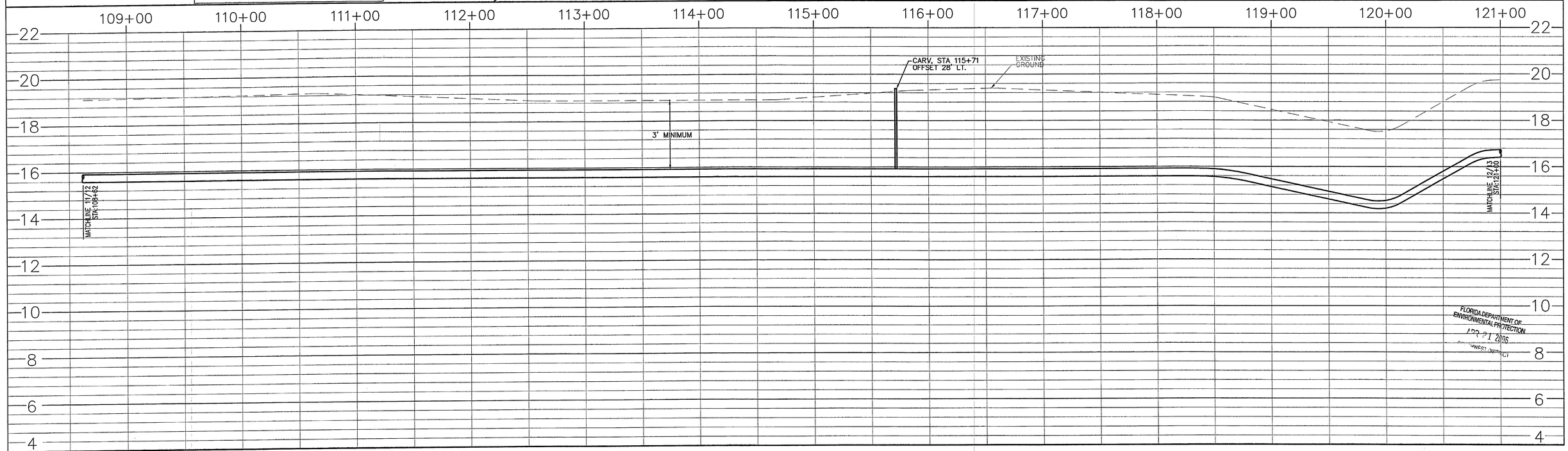
DESIGNED BZ
CHECKED JE
QC JE

SHEET 11





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SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 108+62 TO STATION 121+00

ORIGINAL: FEB 2005
REVISIONS:
1
2
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12

4/20/06
JOHN EASH, P.E.
FL. P.E. #: 46235
NOT VAUID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

JOB NO. 120521.22
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DESIGNED BZ
CHECKED JE
QC JE

SHEET 12

PROPOSED 1,330LF
4" C900 PVC DR 25

PI STA 122+15.37
5/8" IRC "PBS&J TRAV. PT."
N: 1030458.7426
E: 523997.7944
ELEV: 19.46

CARV, STA 128+74
OFFSET 55' LT.

PI STA 129+76.47
5/8" IRC "PBS&J TRAV. PT."
N: 1031128.2648
E: 523635.8406
ELEV: 22.79

KNIGHT'S TRAIL ROAD

N 26°23'47" W

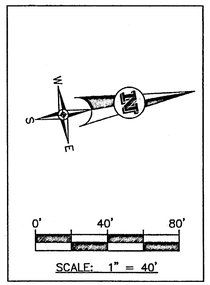
N 18°39'41" E

42.0'

15.8'

MATCHLINE 12/13
STA 121+00

MATCHLINE 13/14
STA 133+77



LEGEND:

- EXISTING VERIZON
- EXISTING SEWER FORCE MAIN
- EXISTING UNDERGROUND WATER
- EXISTING ELECTRIC
- EXISTING UNDERGROUND PIPE
- EXISTING FENCE
- WETLAND LINE
- TOP OF BANK
- EDGE OF PAVEMENT/CONCRETE
- CENTERLINE OF ROAD
- RIGHT OF WAY
- SECTION LINE
- 15+00 BASELINE
- PROPOSED 4" LEACHATE FORCE MAIN

122+00 123+00 124+00 125+00 126+00 127+00 128+00 129+00 130+00 131+00 132+00 133+00 134+00

24 22 20 18 16 14 12 10 8 6

EXISTING GROUND

CARV, STA 128+74
OFFSET 55' LT.

3' MINIMUM

MATCHLINE 12/13
STA 121+00

MATCHLINE 13/14
STA 133+77

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT
TAMPA

POST, BUCKLEY, SCHUH & JERNIGAN, INC., D/B/A/
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CLIENT:
SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 121+00 TO STATION 133+77

ORIGINAL: FEB 2005
REVISIONS:
1 2 3 4 5 6 7 8 9 10 11 12

4/20/06
JOHN EASH, P.E.
FL. P.E. #: 46235
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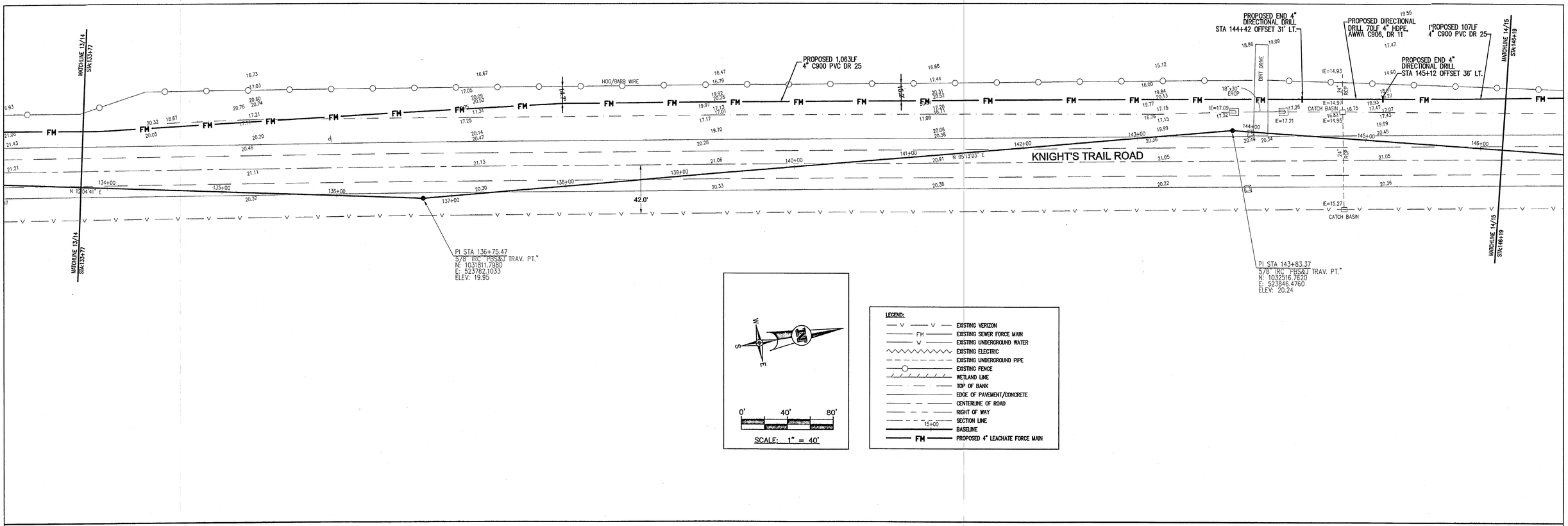
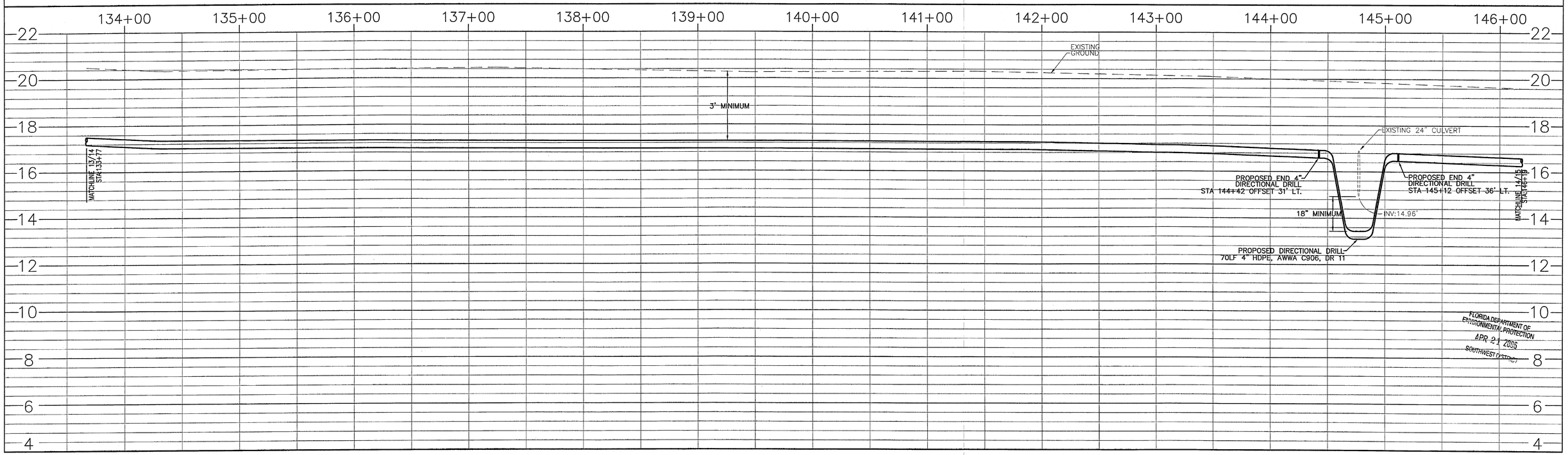
DESIGNED BZ
CHECKED JE
QC JE

SHEET 13





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NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 133+77 TO STATION 146+19

ORIGINAL: FEB 2005
REVISIONS:
1 2 3 4 5 6 7 8 9 10 11 12

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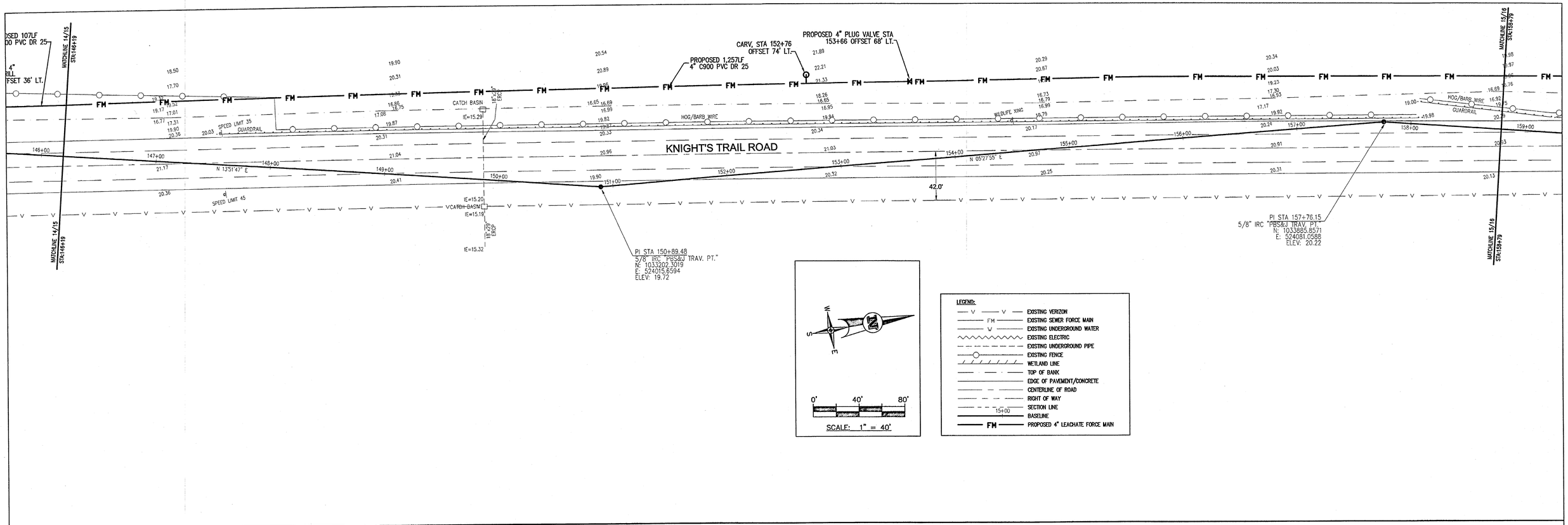
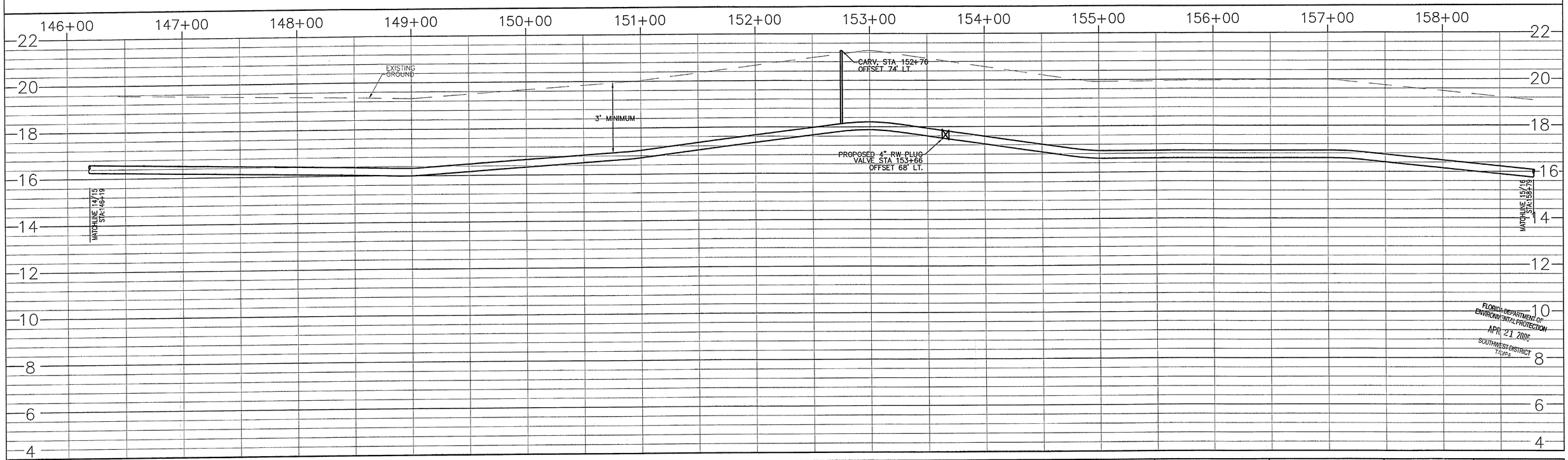
SHEET 14





FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
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TAMPA

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NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 146+19 TO STATION 158+79

ORIGINAL: FEB 2005
REVISIONS:
1
2
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FL. P.E. #: 46235
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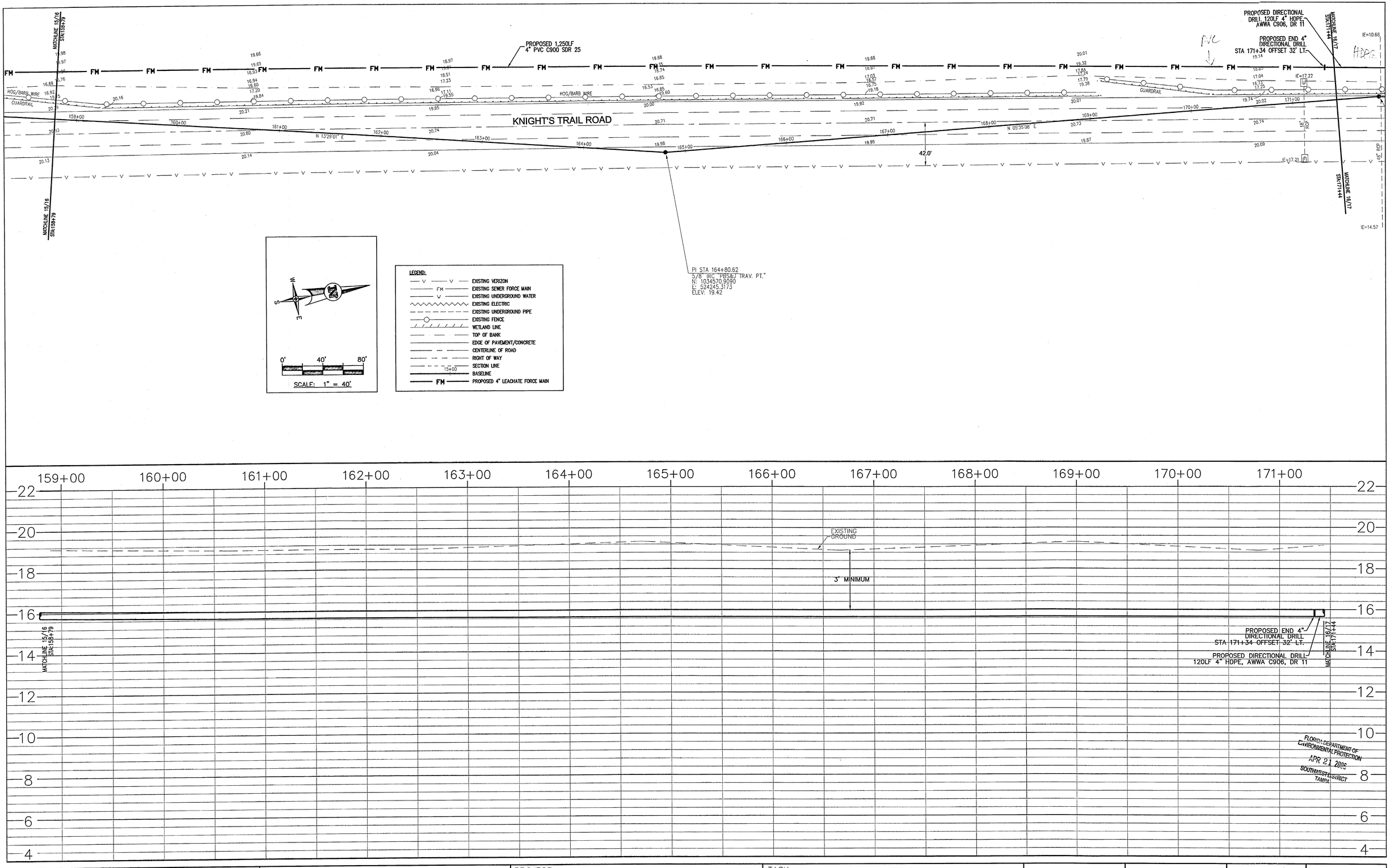

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4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 158+79 TO STATION 171+44

ORIGINAL: FEB 2005
REVISIONS:
1
2
3
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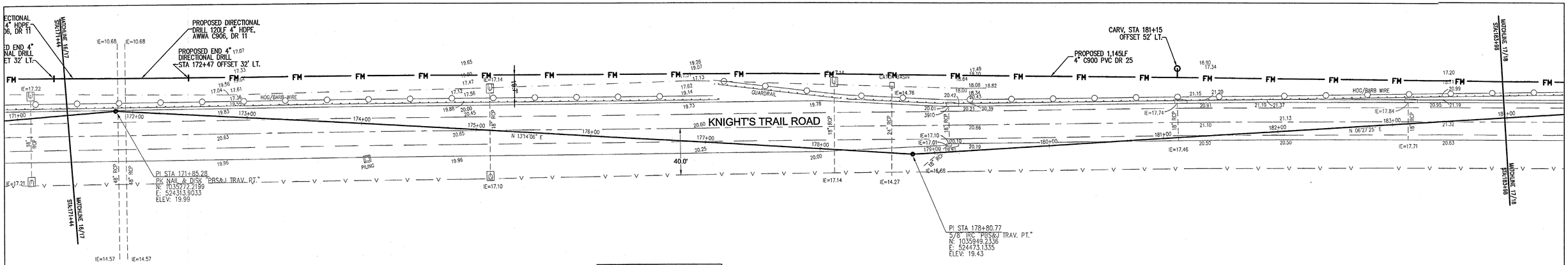
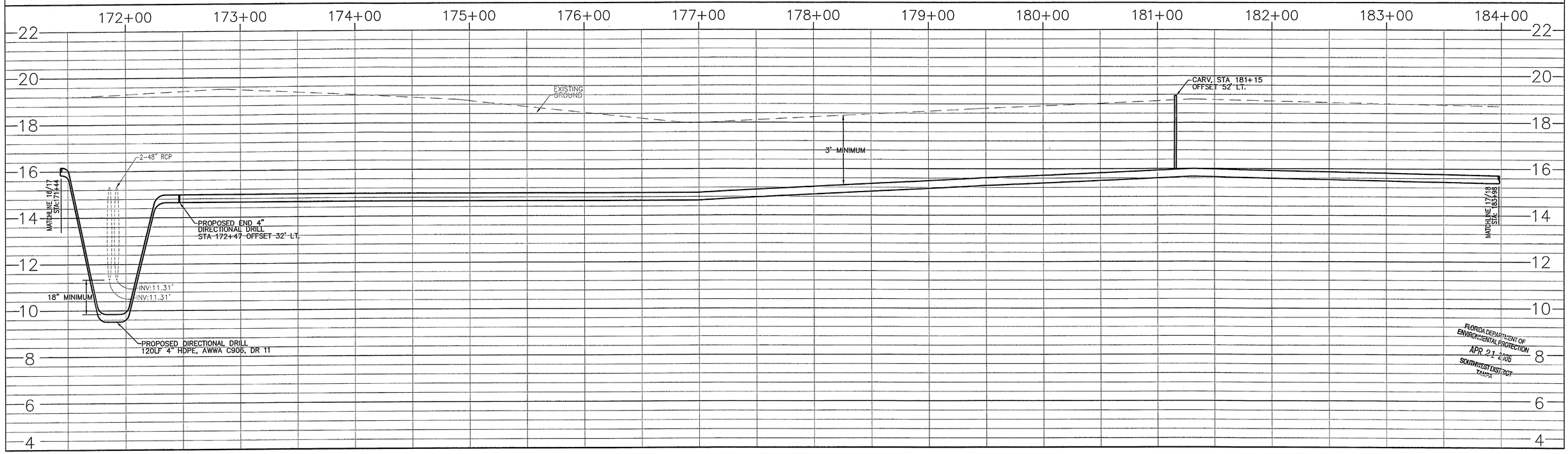
SHEET 16





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PBS&J
PRINCIPAL ADDRESS:
2001 NW 107th AVENUE
MIAMI, FL. 33172-2507
FBRP CERT. OF AUTH. No. 24
PRODUCTION ADDRESS:
2803 FRUITVILLE RD. SUITE 130
SARASOTA, FLORIDA 34237
Ph. (941) 954-4036

CLIENT:
SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 171+44 TO STATION 183+98

ORIGINAL: FEB 2005
REVISIONS:
1
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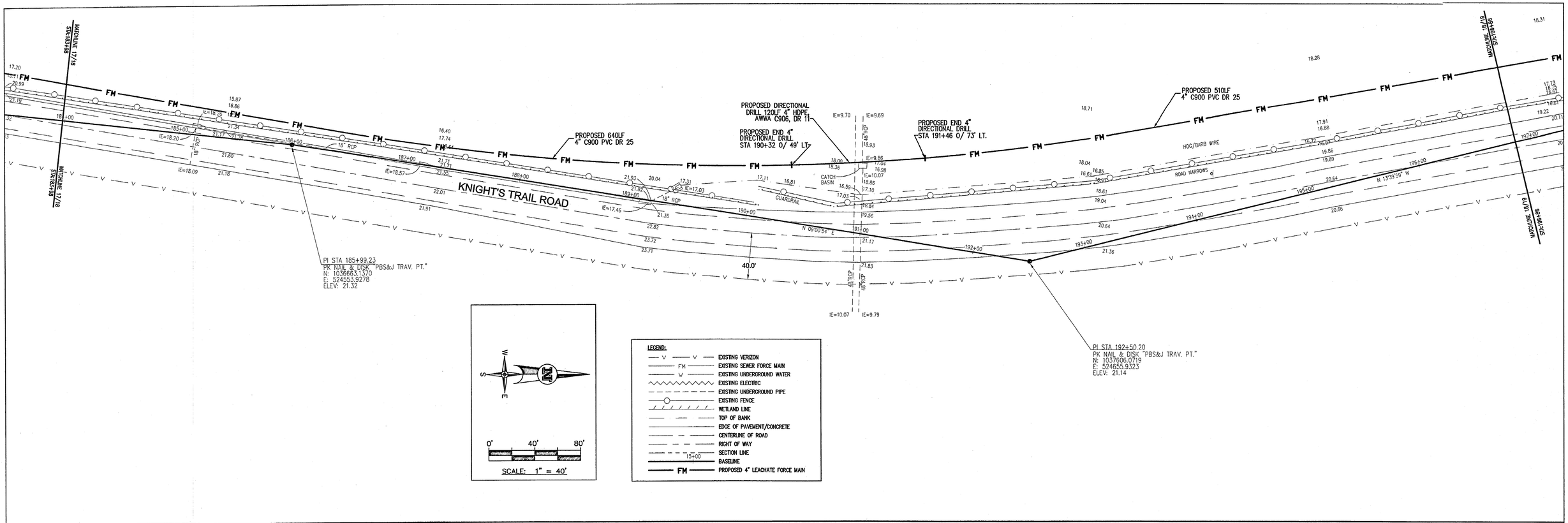
JOHN EASH, P.E.
4/20/06
FL. P.E. #: 46235
NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

JOB NO. 120521.22
DRAWN BZ
DESIGNED BZ
CHECKED JE
QC JE

SHEET 17



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Ph. (941) 954-4036

CLIENT:
SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 183+98 TO STATION 196+86

ORIGINAL: FEB 2005
REVISIONS:
1
2
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4/20/06
JOHN FASH, P.E.
FL. P.E. #: 46235
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JOB NO. 120521.22
DRAWN BZ
DESIGNED BZ
CHECKED JE
QC JE

SHEET 18

PI STA 199+48.99
PK NAIL & DISK "PBS&J TRAV. PT."
N: 1037985.0720
E: 524490.8306
ELEV: 20.38

PROPOSED 4" PLUG VALVE STA 199+80 OFFSET 49' LT.

PROPOSED 1,240LF 4" PVC C900 SDR 25

MATCHLINE 18/19 STA 196+86

MATCHLINE 19/20 STA 209+16

KNIGHT'S TRAIL ROAD

CATCH BASIN IE=14.88

CATCH BASIN IE=14.61

CATCH BASIN IE=14.53

CATCH BASIN IE=14.42

CATCH BASIN IE=10.82

CATCH BASIN IE=10.77

IE=10.68

IE=10.62

IE=10.87

IE=10.74

POST & BARB WIRE GUARDRAIL

REDUCED SPEED

SPEED LIMIT 45

SPEED LIMIT 35

N 05°47'17" W

40.0'

PI STA 206+85.64
PK NAIL & DISK "PBS&J TRAV. PT."
N: 1038716.5546
E: 524403.7608
ELEV: 20.40

SCALE: 1" = 40'

LEGEND:

- EXISTING VERIZON
- EXISTING SEWER FORCE MAIN
- EXISTING UNDERGROUND WATER
- EXISTING ELECTRIC
- EXISTING UNDERGROUND PIPE
- EXISTING FENCE
- WETLAND LINE
- TOP OF BANK
- EDGE OF PAVEMENT/CONCRETE
- CENTERLINE OF ROAD
- RIGHT OF WAY
- SECTION LINE
- BASELINE
- PROPOSED 4" LEACHATE FORCE MAIN

EXISTING GROUND

PROPOSED 4" RW PLUG VALVE STA 199+80 OFFSET 49' LT.

3' MINIMUM

MATCHLINE 18/19 STA 196+86

MATCHLINE 19/20 STA 209+16

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT TAMPA

POST, BUCKLEY, SCHUH & JERNIGAN, INC., D/B/A/

PBS&J

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Ph. (941) 954-4036

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SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 196+86 TO STATION 209+16

ORIGINAL: FEB 2005
REVISIONS:
1
2
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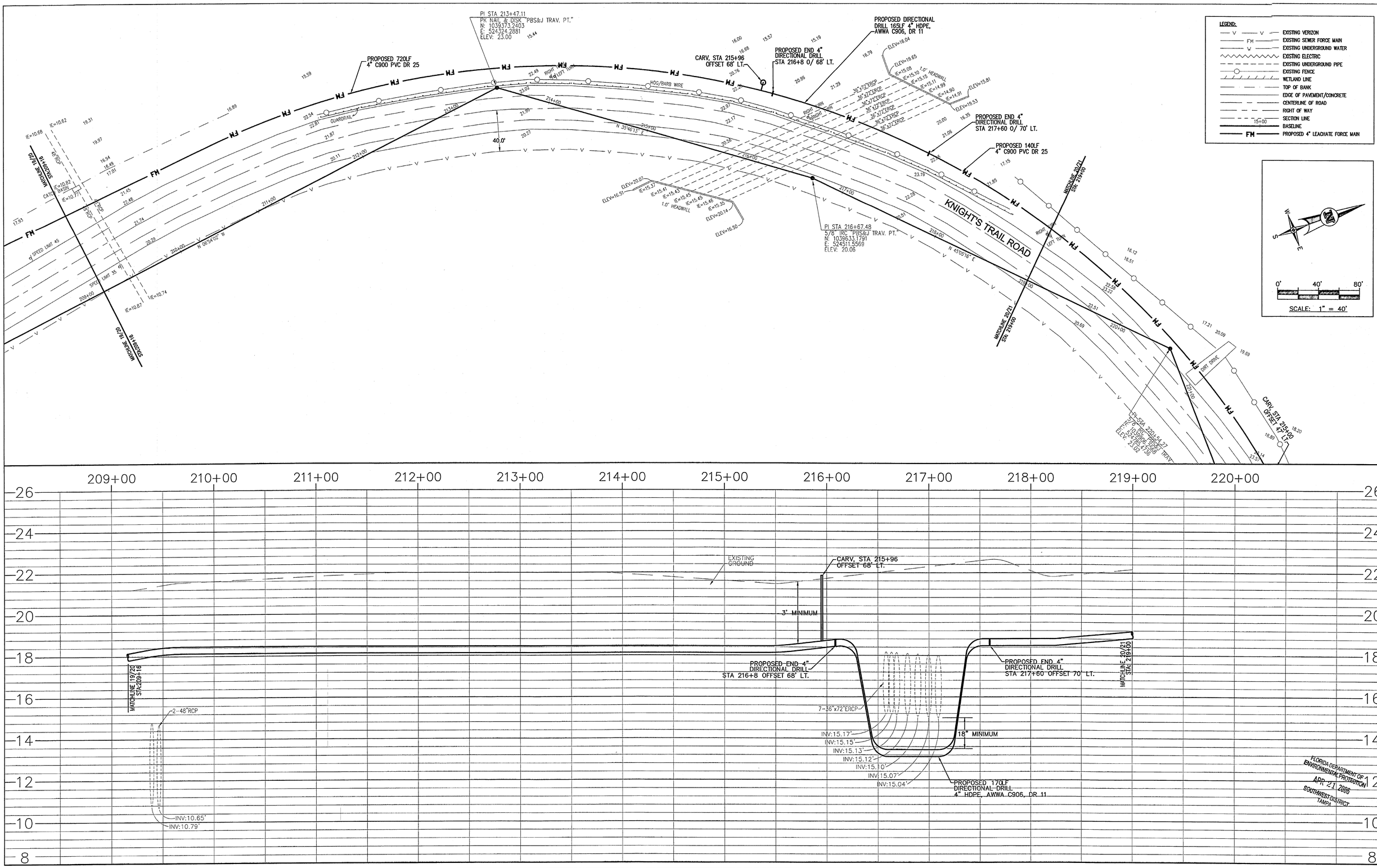
4/20/06
JOHN CASH, P.E.
FL. P.E. #: 46235
NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

JOB NO. 120521.22
DRAWN BZ
DESIGNED BZ
CHECKED JE
QC JE

SHEET 19



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CLIENT:
SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 209+16 TO STATION 219+00

ORIGINAL: FEB 2005
REVISIONS:
1
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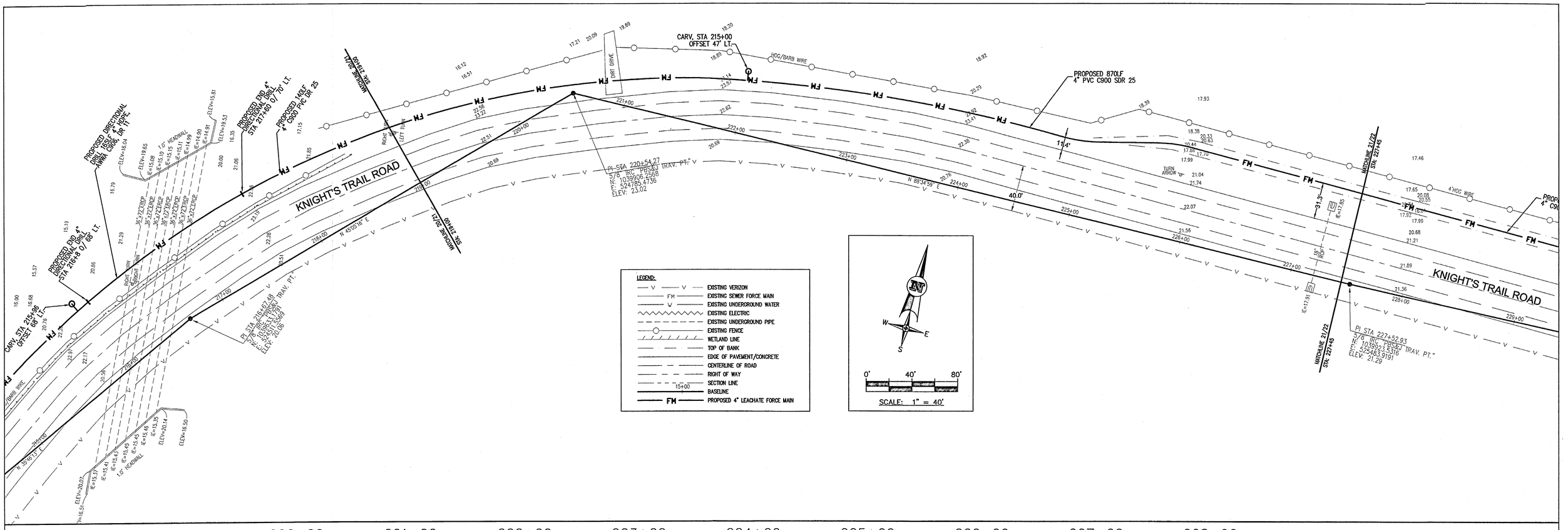
4/20/06
JOHN BOSH, P.E.
FL. P.E. #: 46235
NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

JOB NO. 120521.22
DRAWN BZ
DESIGNED BZ
CHECKED JE
QC JE

SHEET 20



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT
TAMPA

POST, BUCKLEY, SCHUH & JERNIGAN, INC., D/B/A/
PBS&J

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CLIENT:
SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 219+00 TO STATION 227+45

ORIGINAL: FEB 2005
REVISIONS:
1
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JOHN ESH, P.E.
FL. P.E. #: 46235
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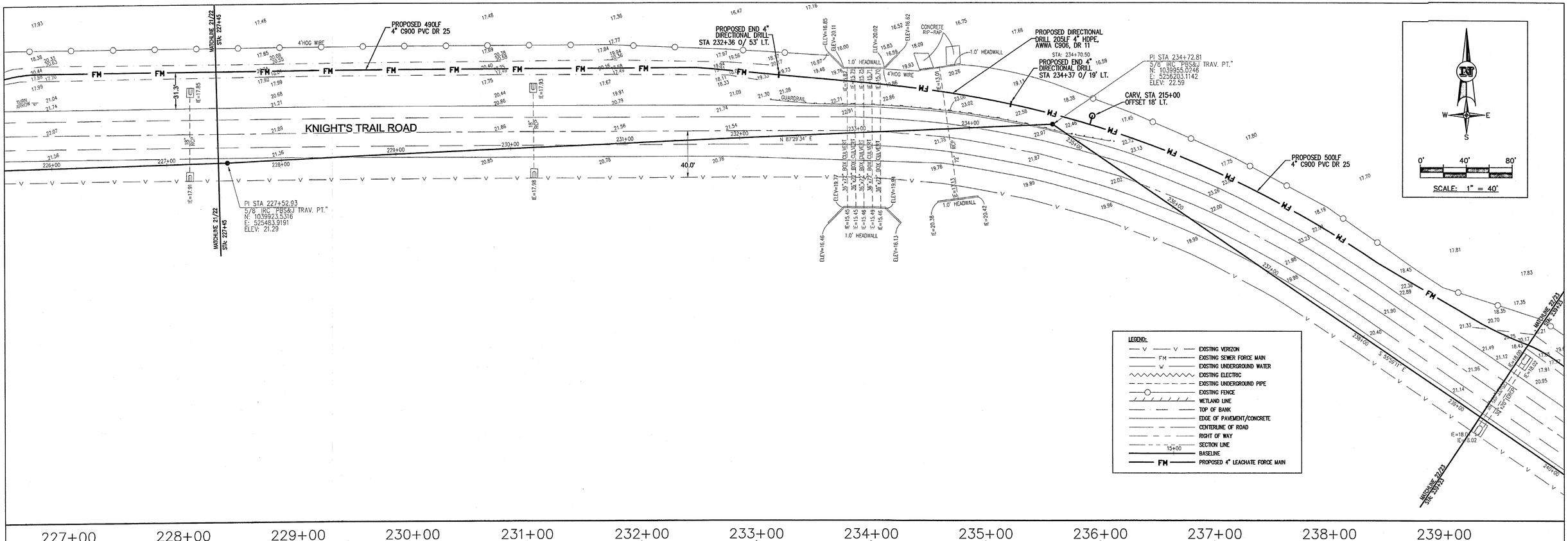
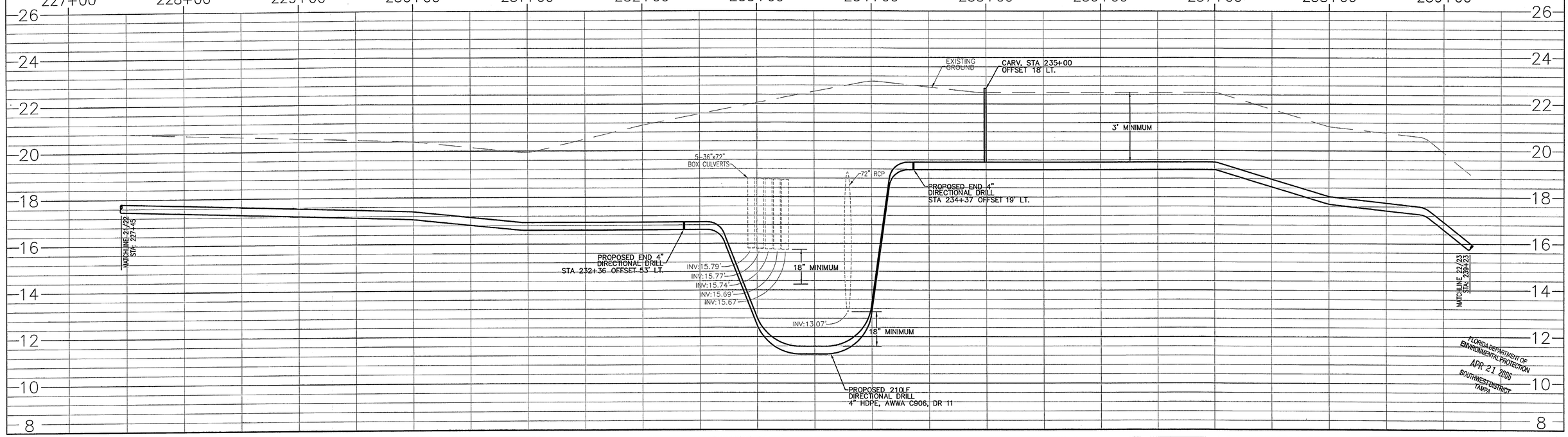
SHEET 21





FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT TAMPA

POST, BUCKLEY, SCHUH & JERNIGAN, INC., D/B/A/

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Ph. (941) 954-4036

CLIENT:
SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 227+45 TO STATION 239+23

ORIGINAL: FEB 2005
REVISIONS:
1 _____ 2 _____ 3 _____ 4 _____ 5 _____
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4/20/06
JOHN EASH, P.E.
FL. P.E. #: 46235
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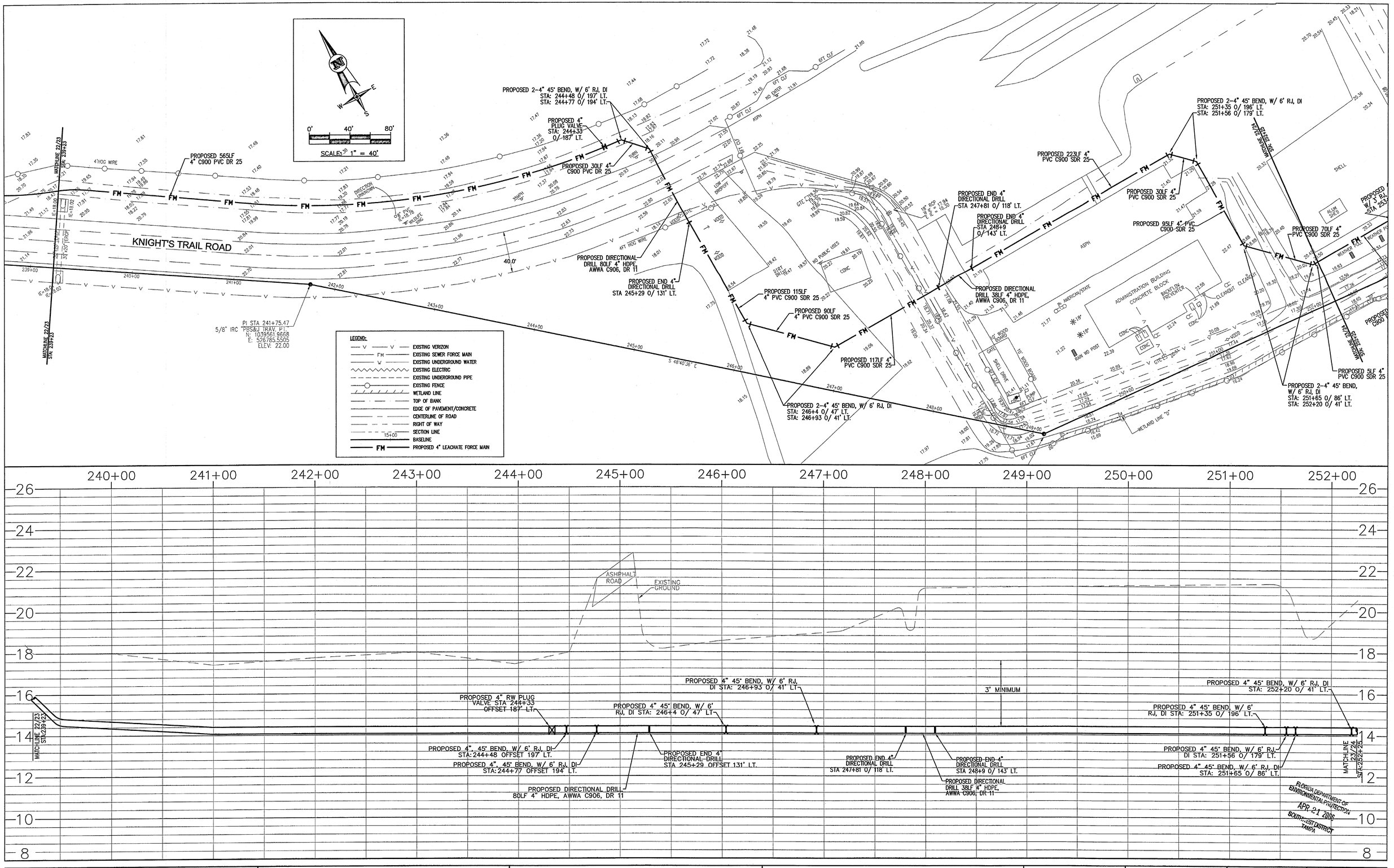
CHECKED JE
QC JE

SHEET 22



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT
TAMPA

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SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 239+23 TO STATION 252+25

ORIGINAL: FEB 2005
REVISIONS:
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4/20/06
JOHN EASH, P.E.
FL. P.E. #: 46235
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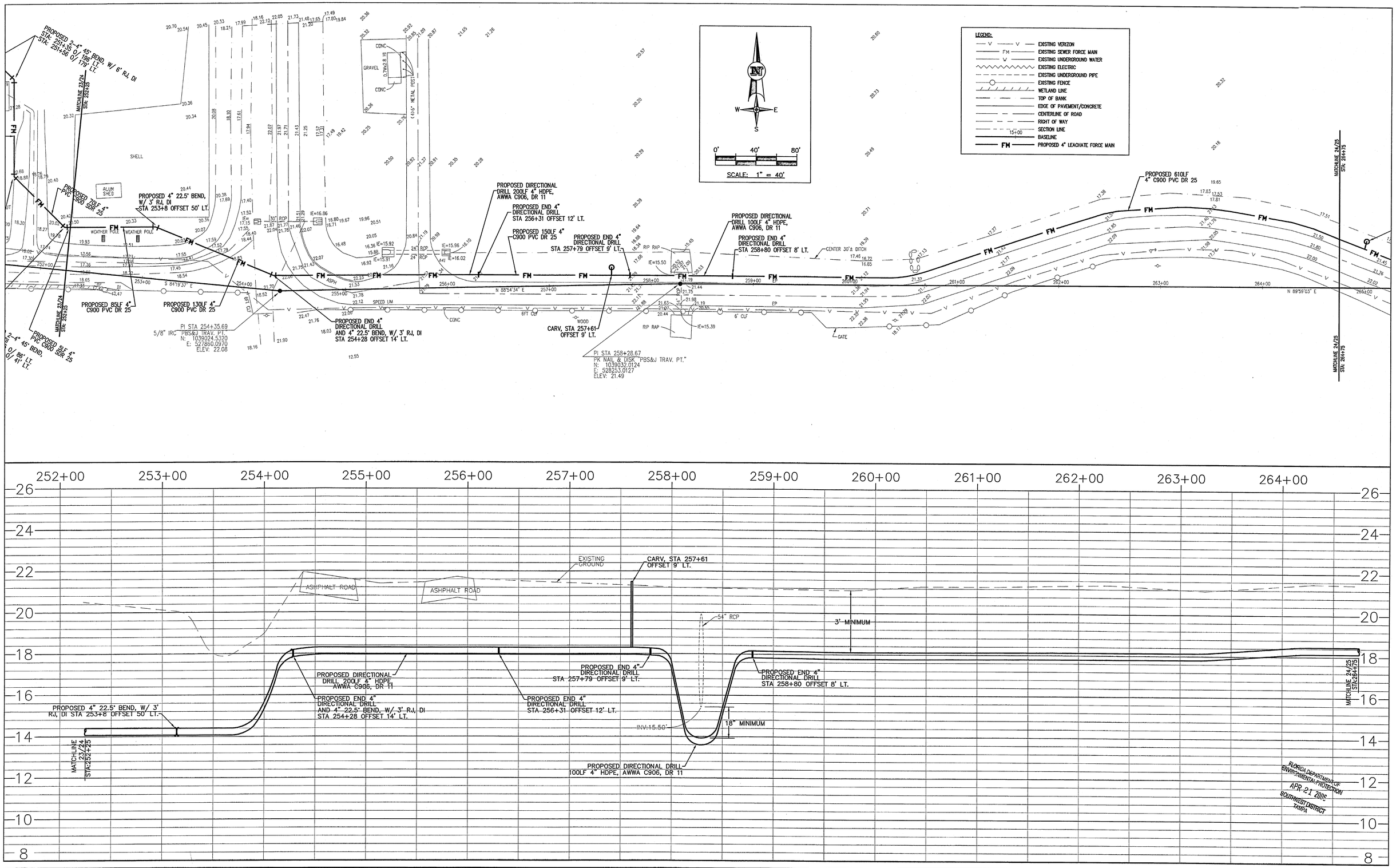
QC JE

SHEET 23



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT TAMPA

POST, BUCKLEY, SCHUH & JERNIGAN, INC., D/B/A/
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CLIENT:
SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 252+25 TO STATION 264+75

ORIGINAL: FEB 2005
REVISIONS:
1
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4/20/06
JOHN EASH, P.E.
FL. P.E. #: 46235
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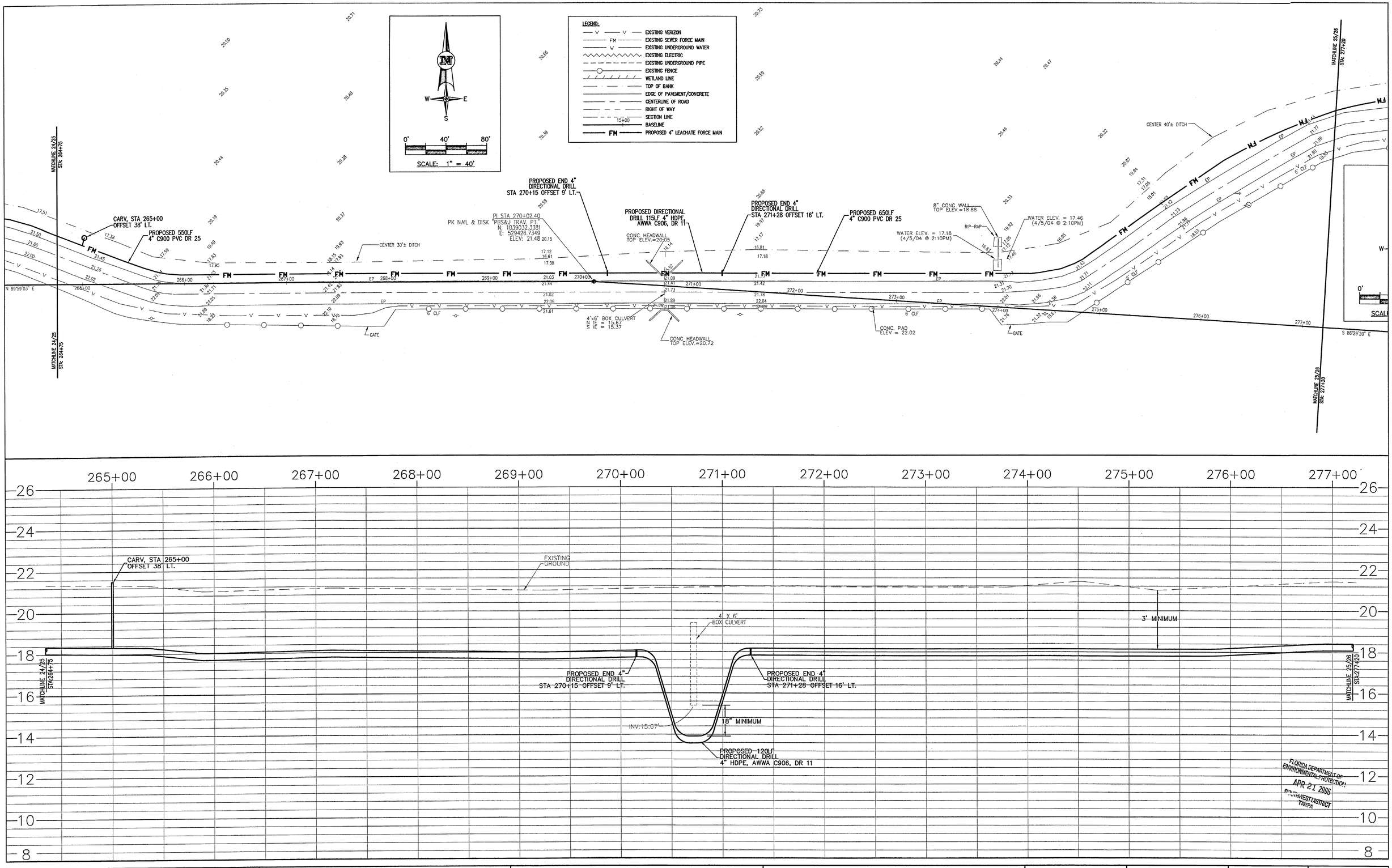
SHEET 24



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Ph. (941) 954-4036

CLIENT:
SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN
STATION 264+75 TO STATION 277+20

ORIGINAL: FEB 2005
REVISIONS:
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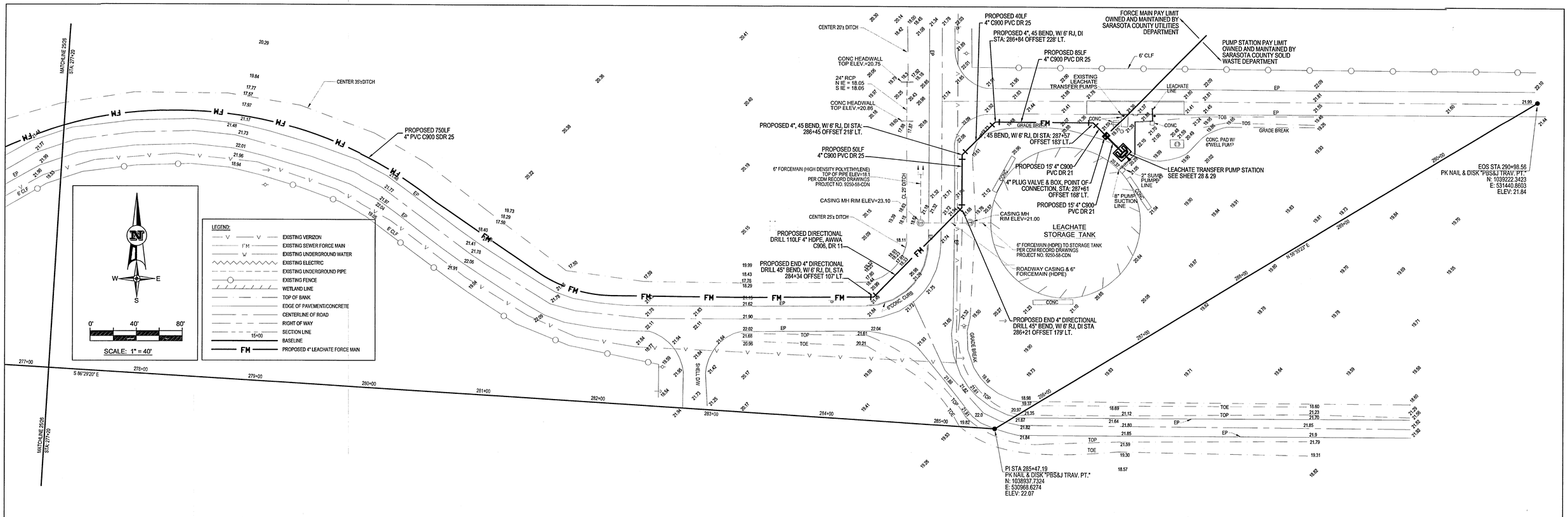
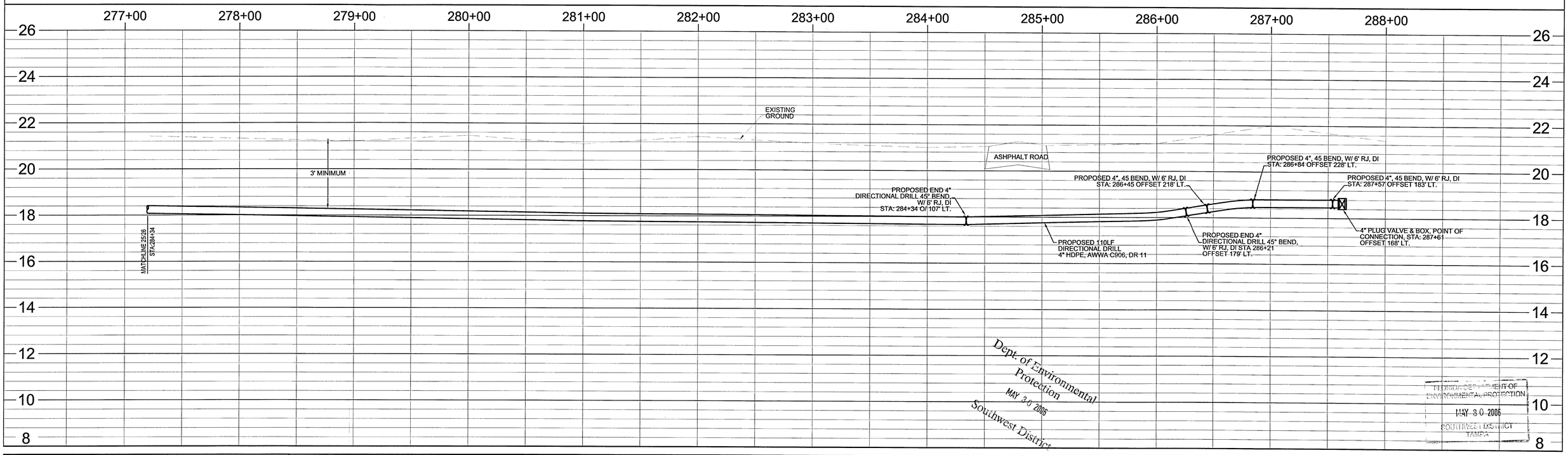
SHEET 25





Dept. of Environmental Protection
MAY 30 2006
Southwest District

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
MAY 30 2006
SOUTHWEST DISTRICT
TAMPA

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SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
SITE PLAN - STATION 277+20 TO
STATION 287+31 & LEACHATE
TRANSFER PUMP STATION SITE PLAN

ORIGINAL: FEB 2005
REVISIONS:
1
2
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5/25/06
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FL. P.E. #: 46235
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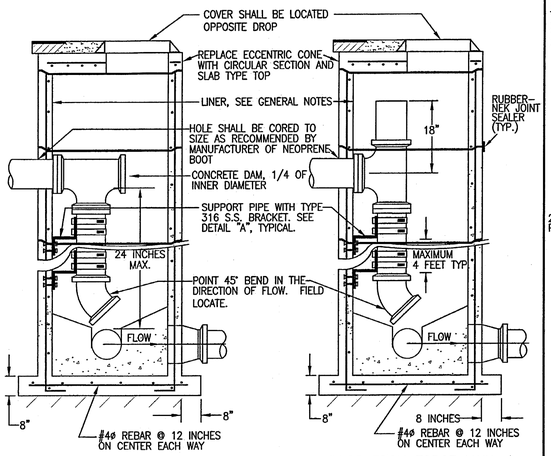
SHEET 26

FILE

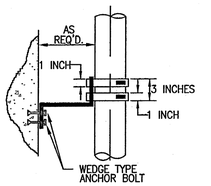


DROP FROM GRAVITY SEWER

DROP FROM FORCE MAIN

GENERAL NOTES:

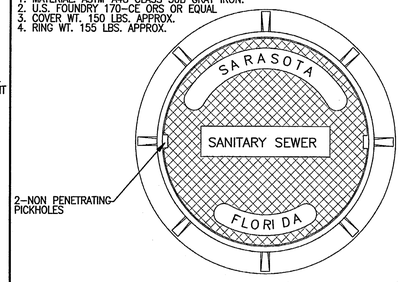
1. USE OF INSIDE DROP SHALL BE RESTRICTED TO EXISTING MANHOLES ON AN INDIVIDUAL BASIS ONLY, PREAPPROVED BY UTILITY.
2. FOR SPECIFICATIONS AND DIMENSIONS NOT SHOWN, SEE STANDARD DETAIL FOR WASTEWATER GRAVITY COLLECTION SYSTEM.
3. ALL PIPE AND FITTINGS SHALL BE P.V.C. ASTM 3034 SDR 26.
4. ALL BRACKETS, NUTS, BOLTS AND OTHER HARDWARE SHALL BE TYPE 316 STAINLESS STEEL.
5. MANHOLES SHALL BE LINED IN ACCORDANCE WITH WASTEWATER SECTION 13.13.2.c OF THE UNIFORM WATER, WASTEWATER AND REUSE CODE.
6. REFER TO WASTEWATER SECTION 13.12.2.c FOR PLUG VALVE REQUIREMENTS FOR DROP FROM FORCE MAIN.

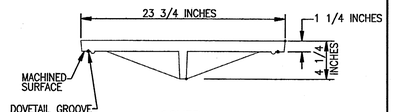


DETAIL "A"

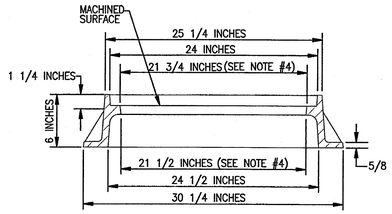
INSIDE DROP MANHOLE
N.T.S.

NOTES:
1. MATERIAL: ASTM-A48 CLASS 30B GRAY IRON.
2. U.S. FOUNDRY 170-CE ORS OR EQUAL
3. COVER WT. 150 LBS. APPROX.
4. RING WT. 155 LBS. APPROX.





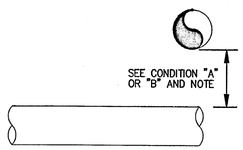
COVER



FRAME

STANDARD MANHOLE RING AND COVER
N.T.S.

VERTICAL



CONDITION "A": WATER MAIN CROSSING OVER REUSE MAIN/SEWER MAIN

MINIMUM VERTICAL SEPARATION SHALL BE 18 INCHES OR BOTH MAINS MUST BE DUCTILE IRON PIPE OR SDR-14 C-900 P.V.C. FOR A MINIMUM CONTINUOUS LENGTH OF 18 FEET CENTERED AT THE WATER MAIN.

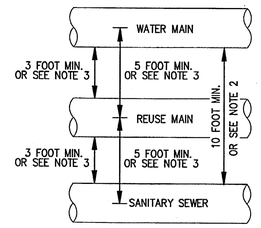
1. WHEN BOTH MAINS ARE EITHER DUCTILE IRON PIPE OR SDR-14 C-900 P.V.C., THE MINIMUM VERTICAL CLEARANCE SHALL BE 6 INCHES.

2. IF A 10 FOOT MINIMUM HORIZONTAL SEPARATION CAN NOT BE OBTAINED BETWEEN WATER AND SEWER MAINS, BOTH PIPES SHALL BE DUCTILE IRON PIPE OR SDR-14 C-900 P.V.C. UNTIL A 10 FOOT CLEARANCE IS OBTAINED.

3. IF 5 FOOT MINIMUM (CENTER TO CENTER) OR 3 FOOT MINIMUM (OUTSIDE TO OUTSIDE) SEPARATION CAN NOT BE OBTAINED BETWEEN REUSE MAIN TO WATER OR SEWER MAINS, ALL PIPE SHALL BE DUCTILE IRON PIPE OR SDR-14 C-900 P.V.C. UNTIL THE 5 FOOT OR 3 FOOT SEPARATION IS OBTAINED.

NOTE: CONCRETE ENCASEMENT SHALL NOT BE ACCEPTED.

HORIZONTAL



CONDITION "B": WATER MAIN CROSSING UNDER REUSE MAIN/SEWER MAIN

SEWER MAIN MUST BE DUCTILE IRON PIPE OR SDR-14 C-900 P.V.C. FOR A MINIMUM CONTINUOUS LENGTH OF 18 FEET CENTERED AT THE WATER MAIN REGARDLESS OF VERTICAL CLEARANCE.

WATER AND SEWER MAIN CROSSINGS
N.T.S.

VERTICAL BENDS

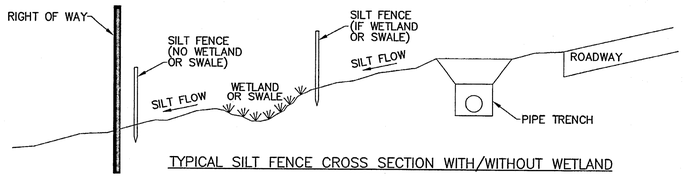
PIPE SIZE	90		45		22.5	
	HIGH SIDE	LOW SIDE	HIGH SIDE	LOW SIDE	HIGH SIDE	LOW SIDE
4"	39'	11'	16'	4'	8'	2'

HORIZONTAL BENDS

PIPE SIZE	90	45	22 1/2	11 1/4	TEE Lb	DEAD END
4"	14'	6'	3'	2'	13'	39'

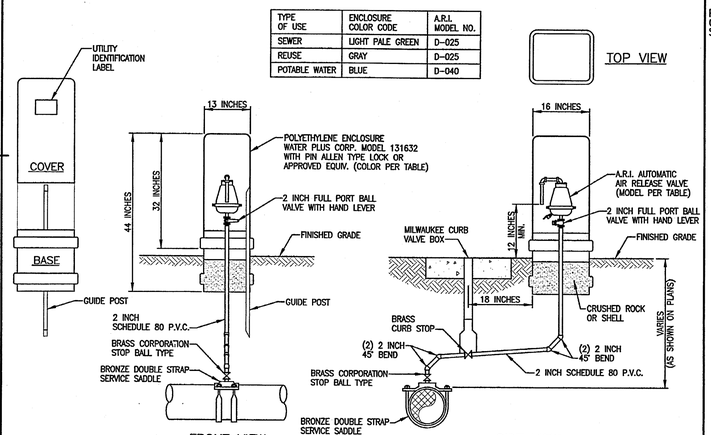
NOTES:
1. CHARTS ARE BASED ON EBBA PIPE RESTRAINT DESIGNS AND ENGINEER OF RECORD SHALL VERIFY JOINT RESTRAINTS.
2. SYSTEM DESIGN PARAMETERS ARE AS FOLLOWS: 150 PSI PRESSURE WITH A 1.5 S.F., 3' COVER, TYPE 4 TRENCH, AND SOIL GROUP SM.
3. PARAMETERS FOR VERTICAL BENDS USE A DEPTH OF 3' ON THE HIGH SIDE AND A DEPTH OF 5' ON THE LOW SIDE.
4. SOIL GROUP SM UNIFIED SOIL CLASSIFICATION
5. IN CASES WHERE PVC ENCASEMENT MUST BE USED, INCREASE RESTRAINED LENGTH BY 45%.
6. TEE RESTRAINT DISTANCE FOR LINE BRANCH (Lb) ARE BASED ON A LINE RUN OF 5' ON EACH SIDE OF THE TEE.

C-900 PVC PIPE RESTRAINT

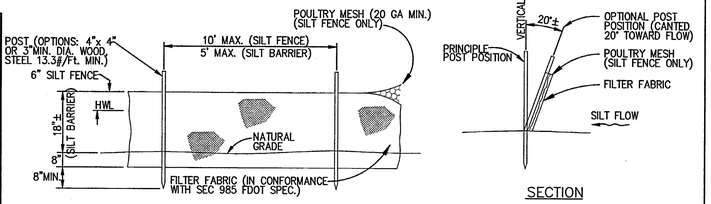


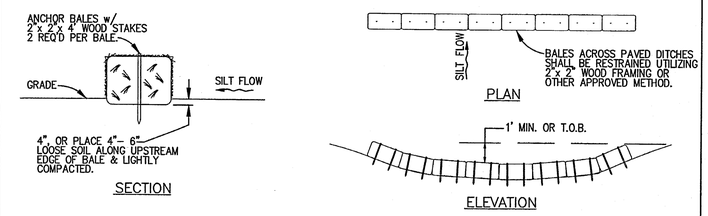
TYPICAL SILT FENCE CROSS SECTION WITH/WITHOUT WETLAND

TYPE OF USE	ENCLOSURE COLOR CODE	A.R.I. MODEL NO.
SEWER	LIGHT PALE GREEN	D-025
REUSE	GRAY	D-025
POTABLE WATER	BLUE	D-040



AUTOMATIC AIR RELEASE VALVE
N.T.S.



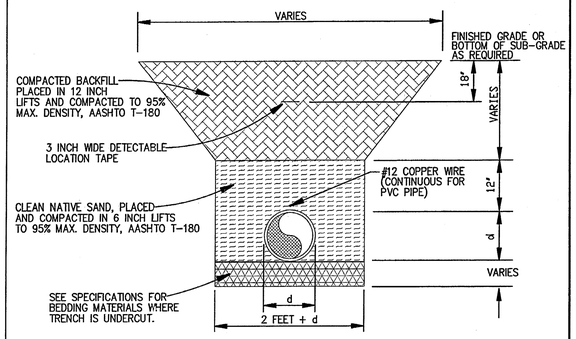


TYPICAL SILT FENCE AND STAKED SILT BARRIER
N.T.S.

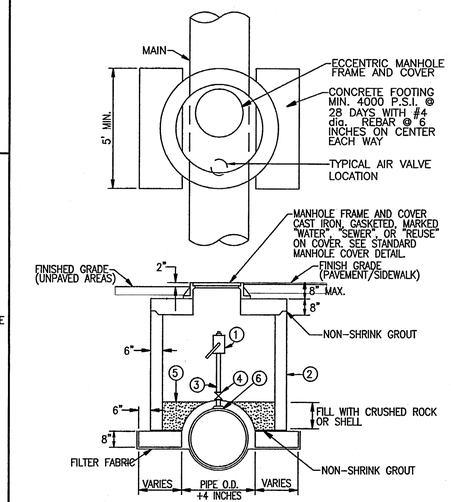
NOTE:

FOR VALVE BOX AND VALVE PAD DETAILS, SEE SHEET 29

NOTES:
1. TRENCH WIDTH SHALL BE APPROX. EQUAL TO THE PIPE DIA. + 2 FEET OR AS PER AWWA AND THE MANUFACTURER'S RECOMMENDATIONS.
2. PROVIDE SHEETING AND SHORING AS NECESSARY FOR SAFETY.
3. BACKFILL MATERIALS SHALL BE APPROVED BY THE ENGINEER WHERE THE PIPE IS UNDERCUT.
4. WATER MAINS TO BE INSTALLED WITH A MIN. OF 36 INCHES OF COVER.

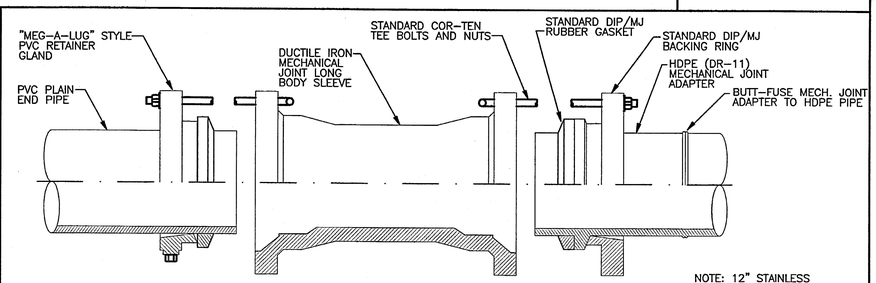


TRENCH DETAIL
N.T.S.



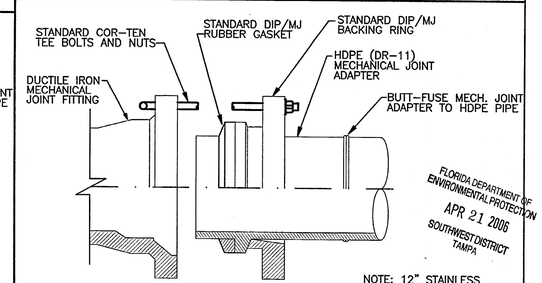
1. 2 INCH BRASS BALL VALVE, WITH PITOMETER HANDLE AND THREADED INLET AND OUTLET FURNISH THREADED BRASS PLUG FOR TOP OF BALL. VALVE SHALL NOT EXCEED 8 INCHES BELOW TOP OF VALVE BOX COVER.
2. PRECAST CONCRETE MANHOLE SECTION WITH TOP SLAB, ASTM C478 4 FEET DIA. UP TO 30 INCH DIA. MAINS 5 FEET DIA. UP TO 42 INCH DIA. MAINS
3. 2 INCH "EXTRA HEAVY" BRASS PIPE PER ASTM B 43-LATEST. BRASS FITTINGS SHALL BE "EXTRA HEAVY".
4. 2 INCH BRASS CORPORATION STOP MUST BE LEFT IN FULLY OPEN POSITION.
5. CRUSHED ROCK OR SHELL
6. BRASS DOUBLE STRAP SERVICE SADDLE

MANUAL AIR RELEASE VALVE
N.T.S.



NOTE: 12" STAINLESS STEEL STIFFENER SHALL BE PLACED IN THE HDPE DR11 PIPE.

HDPE TO PVC (PE) TRANSITION DETAIL
N.T.S.



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION APR 21 2006 SOUTHWEST DISTRICT TAMPA

NOTE: 12" STAINLESS STEEL STIFFENER SHALL BE PLACED IN THE HDPE DR11 PIPE.

HDPE TO DI FITTING
N.T.S.

POST, BUCKLEY, SCHUH & JERNIGAN, INC., D/B/A/
PBS&J
PRINCIPAL ADDRESS:
2001 NW 107th AVENUE
MIAMI, FL. 33172-2507
FBRP CERT. OF AUTH. No. 24
PRODUCTION ADDRESS:
2803 FRUITVILLE RD. SUITE 130
SARASOTA, FLORIDA 34237
Ph. (941) 954-4036

CLIENT:
SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

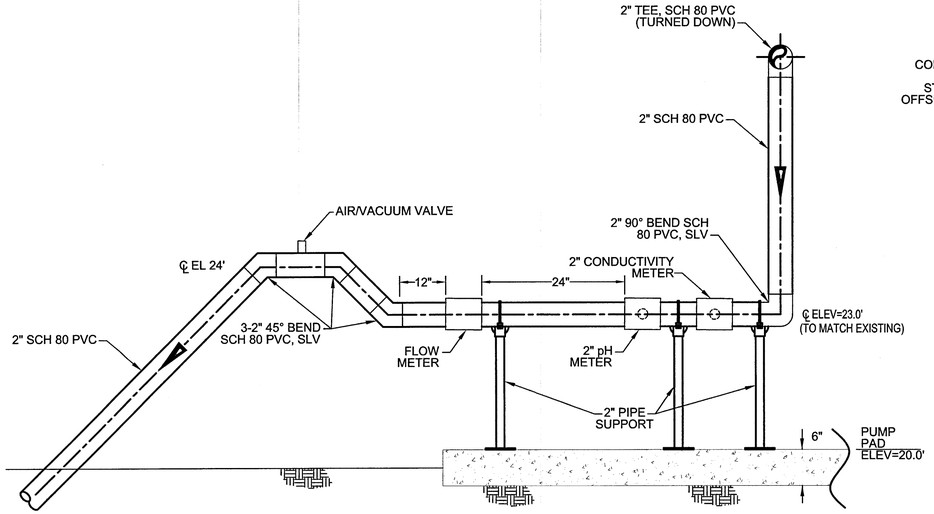
TASK:
FORCE MAIN
MISCELANEOUS DETAILS

ORIGINAL: FEB 2005
REVISIONS:
1 2 3 4 5 6 7 8 9 10 11 12

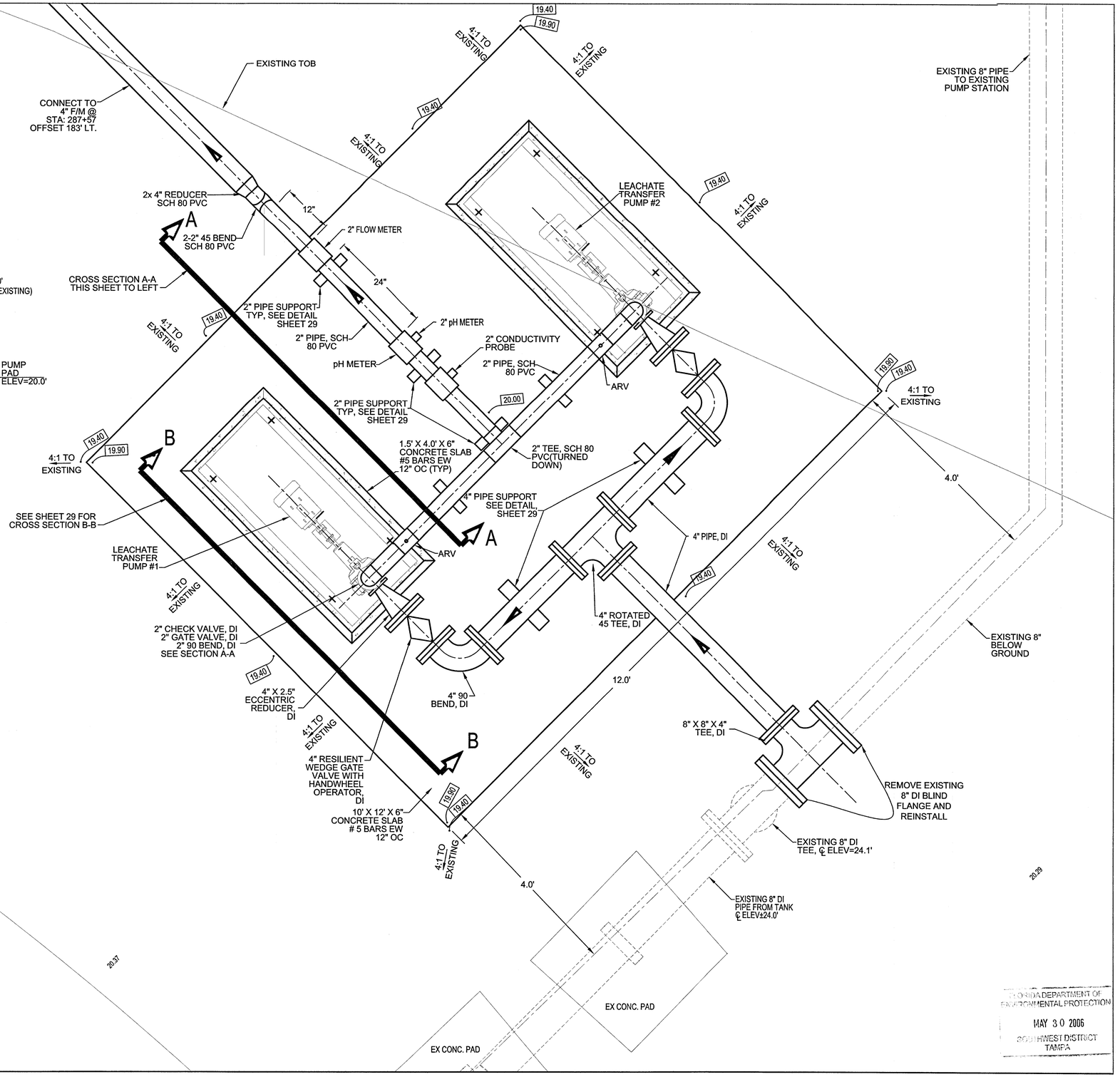
4/20/06
JOHN EASH, P.E.
FL. P.E. #: 46235
NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

JOB NO. 120521.22
DRAWN BZ
DESIGNED BZ
CHECKED JE
QC JE

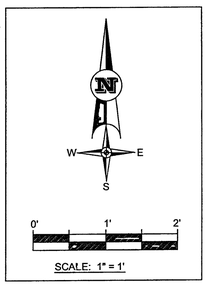
SHEET 27



CROSS SECTION A-A



EXISTING LEACHATE STORAGE TANK



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
MAY 30 2006
SOUTHWEST DISTRICT TAMPA

POST, BUCKLEY, SCHUH & JERNIGAN, INC., D/B/A/
PBS&J
PRINCIPAL ADDRESS:
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SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
LEACHATE TRANSFER PUMP STATION
SITE AND GRADING PLAN

ORIGINAL: MAR 2005
REVISIONS:
1
2
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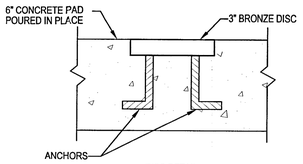
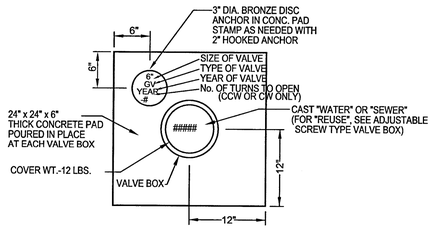
DAVE WEBER, P.E.
FL. P.E. #: 29323
NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

JOB NO. 120521.22
DRAWN BZ
DESIGNED BZ
CHECKED JE
QC JE

SHEET 28

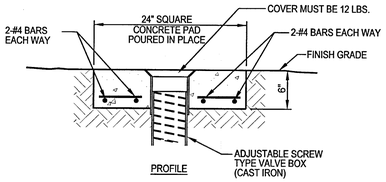


DISC DETAIL



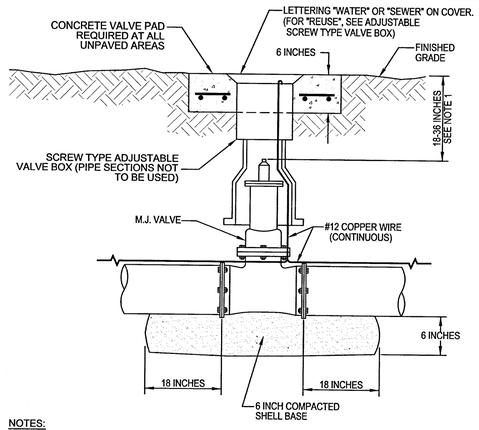
PLAN

NOTE:
CONCRETE VALVE PADS SHALL BE USED IN UNPAVED AREAS AND SET FLUSH WITH FINAL GRADE.



PROFILE

CONCRETE VALVE PAD
N.T.S.



NOTES:

1. VALVE STEM 18-36 INCHES TO FINISHED GRADE FROM OPERATING NUT OR EXTENSION.

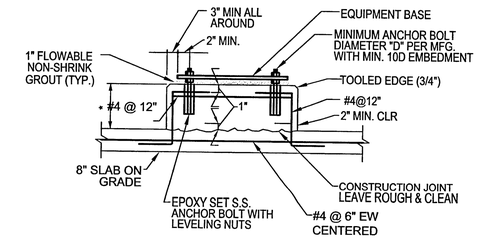
2. VALVE STEM EXTENSION SHALL BE SECURED WITH A STAINLESS STEEL SET SCREW TO THE OPERATING NUT, AND SUPPLIED WITH A STAINLESS STEEL CENTERING RING(S) 3 FEET ON CENTER. CENTERING RINGS SHALL BE PROVIDED AT THE TOP AND BOTTOM OF THE EXTENSION.

3. VALVE BOX RISER SHALL BE SUPPLIED BY VALVE BOX MANUFACTURER. P.V.C. RISER SHALL NOT BE ALLOWED.

4. THE 6 INCH THICK COMPACTED SHELL BASE SHALL EXTEND 18 INCHES PAST THE VALVE IN THE DIRECTION OF THE PIPE AND 12 INCHES ON EITHER SIDE OF THE VALVE.

5. PROVIDE CONCRETE VALVE PAD PER GEN. DWG. NO. 1.

TYPICAL VALVE AND VALVE BOX
N.T.S.



EQUIPMENT PAD NOTES:

1. PAD SIZE SHALL BE AS SHOWN ON THE PLANS OR AS DETERMINED BY THE EQUIPMENT MANUFACTURER AND APPROVED BY THE ENGINEER.

2. THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER, AND SHALL BE AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE WHILE PAD IS BEING POURED.

3. FOR CONCRETE PAD LOCATION, SEE MECHANICAL DRAWINGS. EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS SPECIFIED OTHERWISE.

4. ALL ANCHOR BOLTS SHALL BE TYPE 316 STAINLESS STEEL.

* AS REQUIRED

CONC PAD TYPE "A"
N.T.S.

NOTES:

pH: HACH LXV 401.52.00002 HACH SC 100 DUAL LOOP CONTROLLER.
HACH pH DIGITAL SENSOR, 1-IN NPT ELECTRODE: GLASS
FLOW THROUGH UNION MOUNT (2" X 2" X 1")
EDCO SURGE PROTECTOR SLAC 12036 FOR 120 VAC AND 4-20mA DC LINES, POLY CARBONATE NEMA 4X

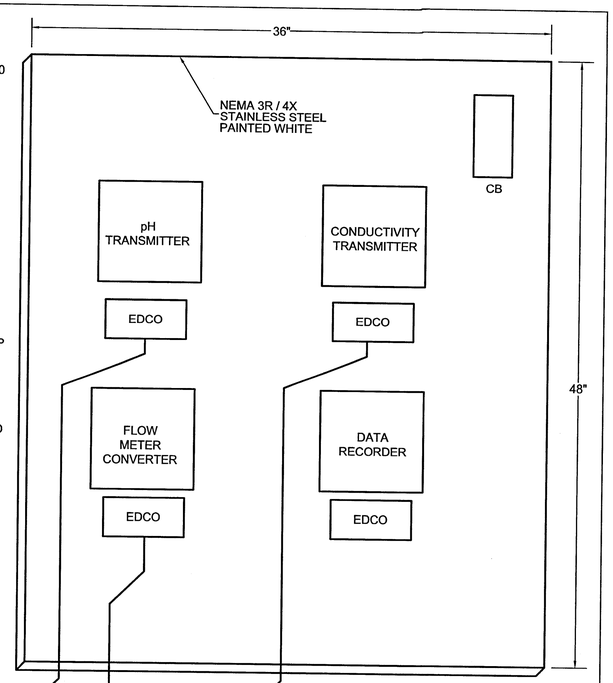
FLOW METER: ISCO 2" UNIMAG PVC MAGMETER W/ PVDF KYNAR SENSORS, 316 SS ELECTRODES AND PLAIN ENDS, UPO2FTNCR, ISCO UNIMAG UNIPULSE 5000 CONVERTER WITH RATE / TOTAL DISPLAY DSM 010 120VAC.
EDCO SURGE PROTECTOR SLAC 12036 FOR 120VAC AND 4-20mA DC LINES, PLOYCARBONATE NEMA 4X.

CONDUCTIVITY: HACH LXV401.52.00002HACH SC100 DUAL LOOP CONTROLLER.

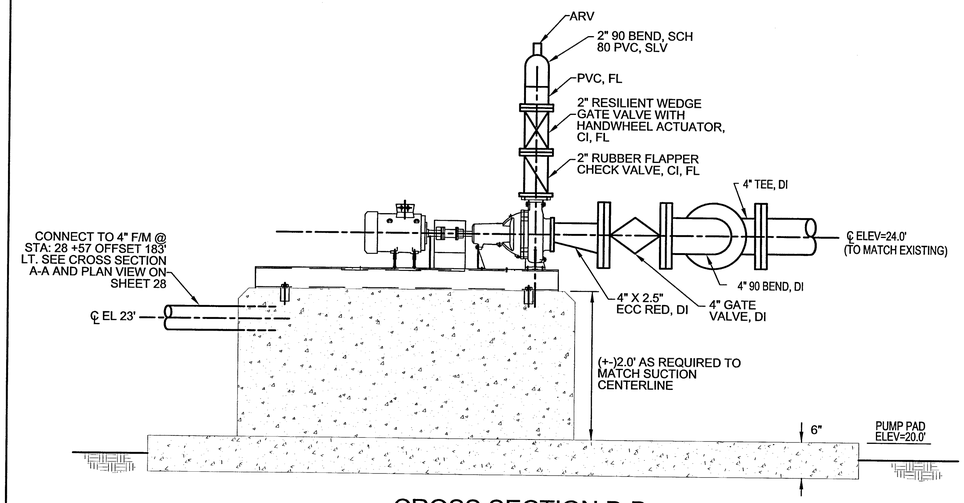
HACH 3400 CONDUCTIVITY SENSOR, $\frac{1}{2}$" NPT MATERIAL KYNAR/PVDF ELECTRODE: TITANIUM CELL: 0-10,000 MICRO S/CM

UNION MOUNT CPVC 2"X2"X$\frac{1}{2}$" TEE, EDCO SURGE PROTECTOR SLAC 12036 FOR 120VAC AND 4-20mA DC LINES, POLYCARBONATE NEMA 4X.

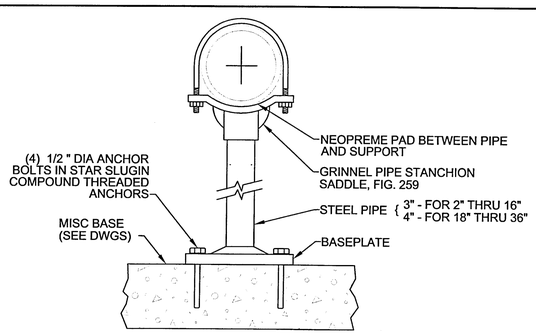
DATA RECORDER: ABB VIDEOGRAPHIC RECORDER SERIES SM1000, 1MB INTERNAL BUFFER 6 ANALOG INPUTS SMART DRIVE 120VAC SM 1006 SB/0000022STD EDCO SURGE PROTECTOR FOR 120VAC, NEMA 4X.



LEACHATE MONITORING INSTRUMENT PANEL
N.T.S.



CROSS SECTION B-B



PIPE SUPPORT DETAIL
N.T.S.

PUMP SPECIFICATIONS

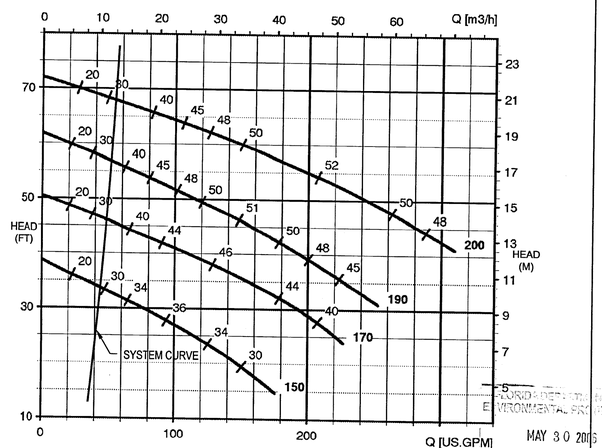
PUMPS REQUIRED	TWO
MFGR. & MODEL NO.:	KSB SEWATEC/SEWABLOC F 50-250
PUMP SIZE	2" DISCHARGE 2.5" SUCTION
PUMP CAPACITY	50 GPM
TOTAL HEAD.	46 FT.
IMPELLER SIZE OR NO.	170mm
MOTOR REQUIREMENTS *	1 HP. MIN., 480 VOLT, 3 PHASE
SPEED	1160 R.P.M.

* HP SHALL BE ADEQUATE THRU ALL POINTS ON THE PUMP CURVE

PUMP CONTROL LEVELS

1	HIGH WATER ALARM	ELEV. 40.0'
2	LAG PUMP No.2 ON	ELEV. 28.0'
3	LEAD PUMP No.1 ON	ELEV. 27.0'
4	ALL PUMPS OFF	ELEV. 26.0'
	BOTTOM OF EXISTING STORAGE TANK	ELEV. 22.3'

PUMP CURVE



RECEIVED
DEPARTMENT OF ENVIRONMENTAL PROTECTION
MAY 30 2006
SOUTHWEST DISTRICT
TAMPA

POST, BUCKLEY, SCHUH & JERNIGAN, INC., D/B/A/
PBS&J
PRINCIPAL ADDRESS:
2001 NW 107th AVENUE
MIAMI, FL. 33172-2507
FBRP CERT. OF AUTH. No. 24
PRODUCTION ADDRESS:
2803 FRUITVILLE RD. SUITE 130
SARASOTA, FLORIDA 34237
Ph. (941) 954-4036

CLIENT:
SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
LEACHATE TRANSFER PUMP STATION
SECTION AND DETAILS

ORIGINAL: MAR 2005
REVISIONS:
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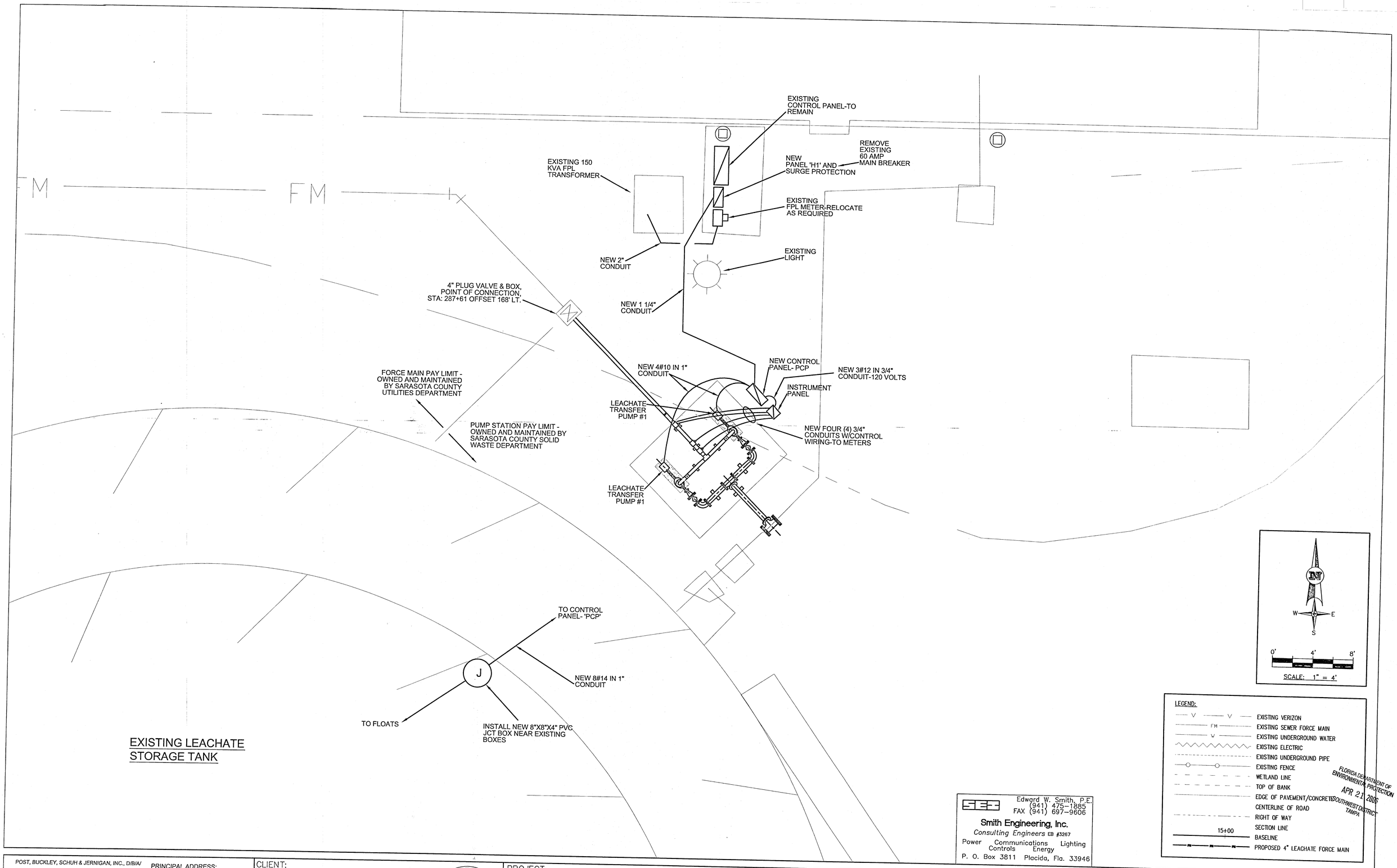
DAVE WEBER, P.E.
FL. P.E. #: 29323
NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

JOB NO. 120521.22
DRAWN BZ
DESIGNED BZ
CHECKED JE
QC JE

SHEET 29



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2005
SOUTHWEST DISTRICT TAMPA

Edward W. Smith, P.E.
(941) 475-1885
FAX (941) 697-9606
Smith Engineering, Inc.
Consulting Engineers EB #3267
Power Communications Lighting Controls Energy
P. O. Box 3811 Placida, Fla. 33946

POST, BUCKLEY, SCHUH & JERNIGAN, INC., D/B/A/
PBSJ
PRINCIPAL ADDRESS:
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MIAMI, FL. 33172-2507
FBRP CERT. OF AUTH. No. 24
PRODUCTION ADDRESS:
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Ph. (941) 954-4036

CLIENT:
SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT:
CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK:
LEACHATE TRANSFER PUMP STATION
ELECTRICAL SITE PLAN

ORIGINAL: MAR 2005
REVISIONS:
1
2
3
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11
12

EDWARD W. SMITH, P.E.
FL. P.E. #: 21074
NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

JOB NO. 120521.22
DRAWN EWS
DESIGNED EWS
CHECKED EWS
QC DW

SHEET 30

ELECTRICAL NOTES

1) ALL ELECTRICAL CONTRACTING WORK SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE WITH LOCAL AMENDMENTS.

2) DO NOT SCALE DRAWINGS, VERIFY ALL DIMENSIONS ON CIVIL ENGINEERING DRAWINGS OR BY ACTUAL FIELD MEASUREMENT.

3) ELECTRICAL CONTRACTOR IS ENCOURAGED TO VISIT SITE TO BETTER ESTIMATE THE SCOPE OF WORK.

4) MINOR DETAILS, NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER OPERATION, CONSISTENT WITH GOOD WORKMANSHIP, SHALL BE INCLUDED IN ESTIMATE, THE SAME AS IF SHOWN ON DRAWINGS.

5) PRIOR TO ROUGH IN, OWNER/ENGINEER RESERVE THE RIGHT TO RELOCATE ANY OUTLET OR DEVICE 10' IN ANY DIRECTION WITHOUT ANY EXTRA CHARGES.

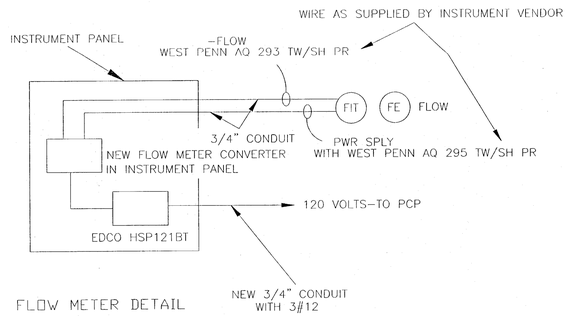
6) ALL ELECTRICAL CONTRACTING WORK SHALL BE GUARANTEED ONE YEAR FROM DATE OF ACCEPTANCE BY OWNER.

7) COORDINATE ALL WORK WITH FLORIDA POWER AND LIGHT (DENNIS BUCHIARELLI TELE. 941-483-2034).

8) ALL WIRE ON PROJECT SHALL BE COPPER - THHN/THWN

9) USE SCHEDULE 80 PVC FOR THE ENTIRE PROJECT- ABOVE & BELOW GROUND.

10) THESE DOCUMENTS HAVE BEEN PREPARED BASED ON INFORMATION PROVIDED BY OTHERS. THE CONSULTANT HAS NOT VERIFIED THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS THAT MAY BE INCORPORATED AS A RESULT OF ERRONEOUS INFORMATION PROVIDED BY OTHERS.



FLOW METER DETAIL

PANEL 'H1', 100 AMP MLO, 480/277V, 3 PHASE, 4W, NEMA 4X SS ENCL,
14,000 AIC RATED, 18 POLES- ULSE RATED

CKT. NO	WIRE SIZE	DESCRIPTION	BREAKERS POLE	BREAKERS AMP.	AMPS. A□	AMPS. B□	AMPS. C□	BREAKERS AMP.	BREAKERS POLE	DESCRIPTION	WIRE SIZE	CKT. NO
1	6	SURGE	3	50	30	-	-	60	3	TO NEW PCP PNL	6	2
3	6	"	-	-	-	30	-	-	-	"- 10 HP	6	4
5	6	"	-	-	-	-	30	-	-	"	6	6
7	-	SPACE	3	50	-	-	-	60	3	TO EXIST. PNL	6	8
9	-	"	-	-	-	-	-	-	-	"	6	10
11	-	"	-	-	-	-	-	-	-	"	6	12
13	-	SPACE	3	50	-	-	-	50	3	SPACE	-	14
15	-	"	-	-	-	-	-	-	-	"	-	16
17	-	"	-	-	-	-	-	-	-	"	-	18

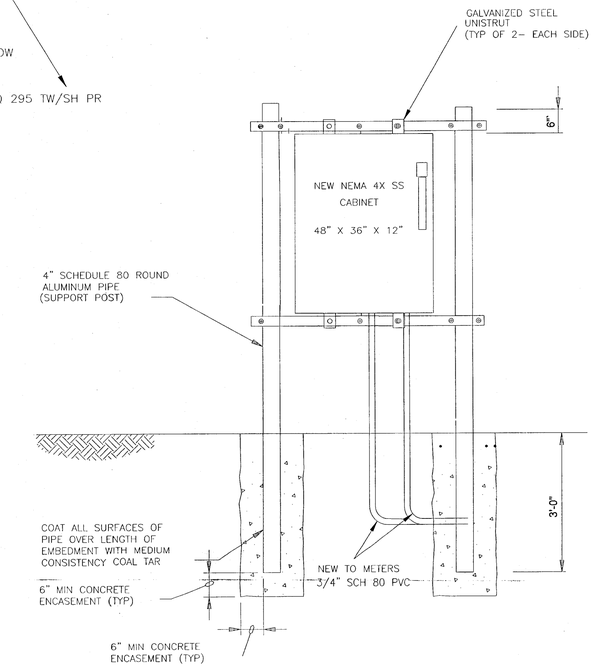
ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
S	SINGLE GANG SWITCH, HUBBELL/ LEVITON/ PASS, AND SEYMOUR, SINGLE GANG, NYLON WHITE 42" A.F.F.,NYLON IVORY COVER, SPEC. GRADE TYPE, 20 AMP
S3	THREE WAY SWITCH, HUBBELL/ LEVITON/ PASS, AND SEYMOUR, THREE WAY, 42" A.F.F.,NYLON IVORY COVER, SPEC. GRADE TYPE, 20 AMP
	SIMPLEX OUTLET, HUBBELL/LEVITON/PASS, AND SEYMOUR, 4" SQUARE BOX, SPEC GRADE 16"AFF, NYLON IVORY COVER PLATE, 20 AMPS
	DUPLEX OUTLET, HUBBELL/LEVITON/PASS, AND SEYMOUR, 4" SQUARE BOX, SPEC GRADE 16"AFF, NYLON IVORY COVER PLATE, 20 AMPS
	DUPLEX OUTLET, HUBBELL/LEVITON/PASS, AND SEYMOUR, 4" SQUARE BOX, SPEC GRADE 42" A.F.F., NYLON IVORY COVER PLATE, 20 AMPS
GFI WP	DUPLEX OUTLET GROUND FAULT- WP, HUBBELL/ LEVITON, /OUTLET, WEATHERPROOF COVER, SPEC GRADE, 16" A.F.F.
	DOUBLE GANG DUPLEX OUTLET- 16" A.F.F., NYLON IVORY COVER SPEC GRADE, 20 AMPS
	SAME AS ABOVE- EXCEPT 42" A.F.F.
	LIGHTING FIXTURE- SEE SCHEDULE
PANEL	PANEL BOARD - DESIGNATED, MOUNT AS SHOWN ON DRAWINGS
	MOTOR, LOAD-DESIGNATED, CONNECTION BY ELECTRICAL CONTRACTOR
	HOME RUN- SEE DRAWINGS
30A/20F	HEAVY DUTY FUSED/NON FUSED SAFETY SWITCH DISCONNECT SIZE/FUSE SIZE AS REQUIRED
	2'x4' FIXTURE, 3 F-40 CW FLUORESCENT LAMPS, 120 V, GLR FUSING, STATIC, ELECTRONIC BALLAST, SEE SCHEDULE
	TELEPHONE - 4" SQ. BOX, TELEPHONE OUTLET FOR FUTURE AT & T 100 INSTRUMENT -3/4" CONDUIT TO 6" ABOVE CEILING, 2 #22 SHIELDED TO PANEL
	EXIT SIGN- SEE FIXTURE SCHEDULE
	EMERGENCY LIGHT W/BATTERY PACK
	SPECIAL OUTLET -SEE DRAWINGS FOR DETAILS
	MOTOR LOAD-SEE DRAWINGS
HH	HANDHOLE- SEE DRAWINGS

SERVICE LOAD CALCULATION

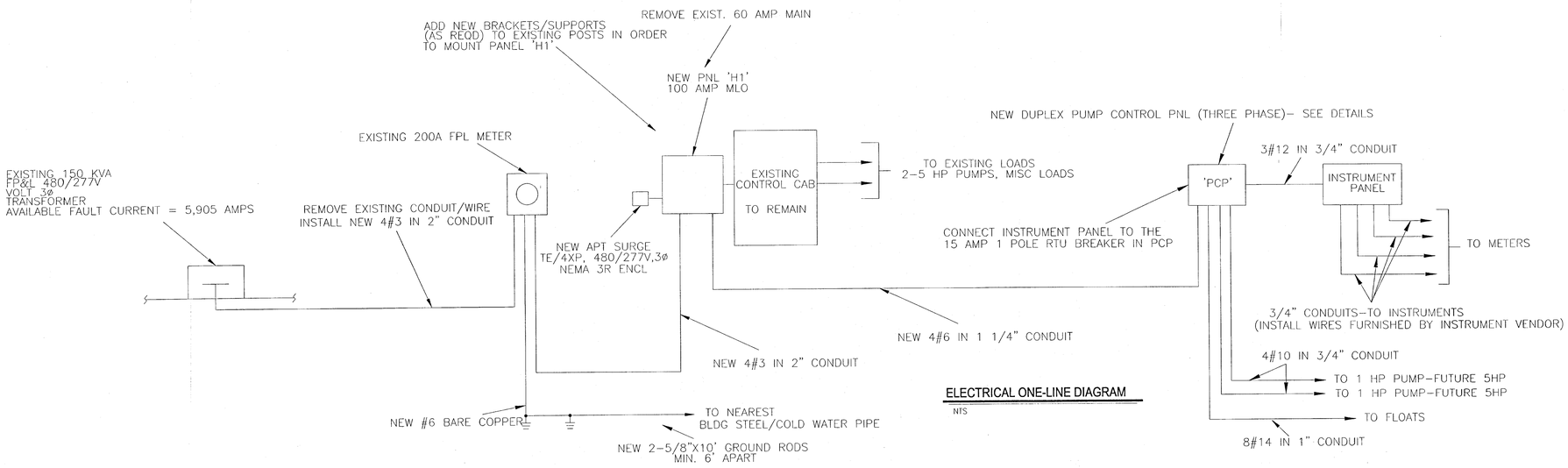
DESCRIPTION		AMPS
NEW-2-5 HP PUMPS @8 AMPS EA.- 480V	=	16
EXISTING-2-5 HP PUMPS @8 AMPS EA.- 480V	=	16
MISC EXISTING LOADS- LIGHTS/SUMP PMP	=	10
25% LARGEST LOAD-5 HP -8 AMPS X 0.25	=	2
TOTAL LOAD		46 AMPS

INSTALL 100 AMP FEEDER @ 480V, 3ø



INSTRUMENT PANEL DETAIL ELEVATION

NO SCALE



ELECTRICAL ONE-LINE DIAGRAM

NTS

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT
TAMPA

Edward W. Smith, P.E.
(941) 475-1885
FAX (941) 697-9606
Smith Engineering, Inc.
Consulting Engineers EB #3267
Power Communications Lighting Controls Energy
P. O. Box 3811 Placida, Fla. 33946

POST, BUCKLEY, SCHUH & JERNIGAN, INC., D/B/A/ PBS&J
PRINCIPAL ADDRESS:
2001 NW 107th AVENUE
MIAMI, FL. 33172-2507
FBRP CERT. OF AUTH. No. 24
PRODUCTION ADDRESS:
2803 FRUITVILLE RD. SUITE 130
SARASOTA, FLORIDA 34237
Ph. (941) 954-4036

CLIENT: SARASOTA COUNTY
ENVIRONMENTAL SERVICES
SOLID WASTE OPERATIONS
4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT: CENTRAL COUNTY LANDFILL
LEACHATE FORCE MAIN AND PUMP STATION

TASK: LEACHATE TRANSFER PUMP STATION
ELECTRICAL ONE-LINE DIAGRAM

ORIGINAL: MAR 2005
REVISIONS: 1 2 3 4 5 6 7 8 9 10 11 12

EDWARD W. SMITH, P.E.
FL. P.E. #: 21024
NOT VALID FOR CONSTRUCTION UNLESS SIGNED IN THIS BLOCK

JOB NO. 120521.22
DRAWN EWS
DESIGNED EWS
CHECKED EWS
QC DW

SHEET 31

UTILITIES DEPARTMENT

SARASOTA COUNTY, FLORIDA

STANDARD INSTALLATION PLANS FOR THREE PHASE DUPLEX WASTEWATER LIFT STATIONS SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) AND CONTROL PANELS

OCTOBER, 2003

REVISED MARCH, 2004

REVISED APRIL, 2004

McKIM & CREED

1531 Second Street
Sarasota, Florida 34236
Certificate of Authorization No. 6691

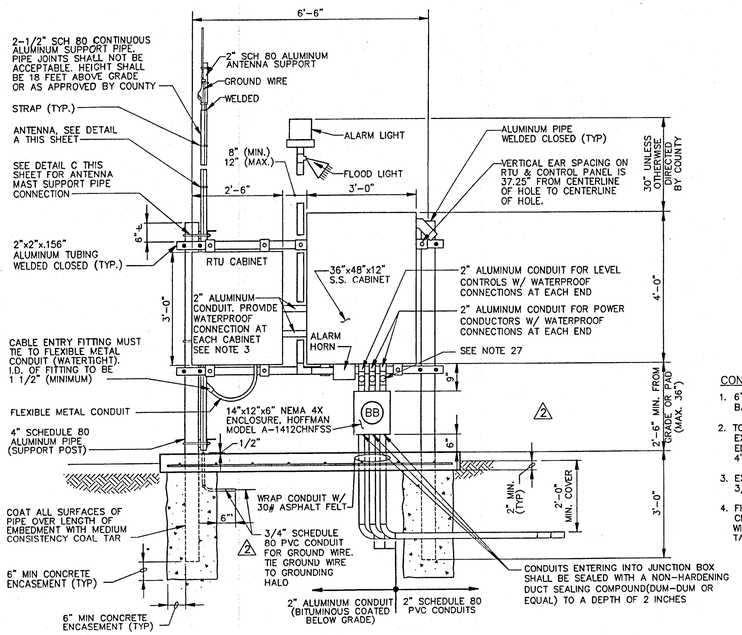
INDEX OF DRAWINGS

SHEET NUMBER	DRAWING TITLE
COV	COVER
1	CONTROL PANEL AND RTU INSTALLATION PLAN AND DETAILS
2	CONTROL PANEL AND RTU INSTALLATION PLAN AND DETAILS

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT TAMPA

NOTE:
CONTRACTOR SHALL OBTAIN FROM THE COUNTY A SET OF "STANDARD THREE PHASE DUPLEX CONTROL PANEL FABRICATION PLANS FOR WASTEWATER LIFT STATIONS". A COPY OF THE FABRICATION PLANS SHALL REMAIN ON-SITE THROUGHOUT THE CONSTRUCTION OF THE LIFT STATION.

S:\1039\electrical and dwgs\PumpStations\3P-Installation\MCE-COVER.dwg, Model, 05/05/2004 11:04:35 AM

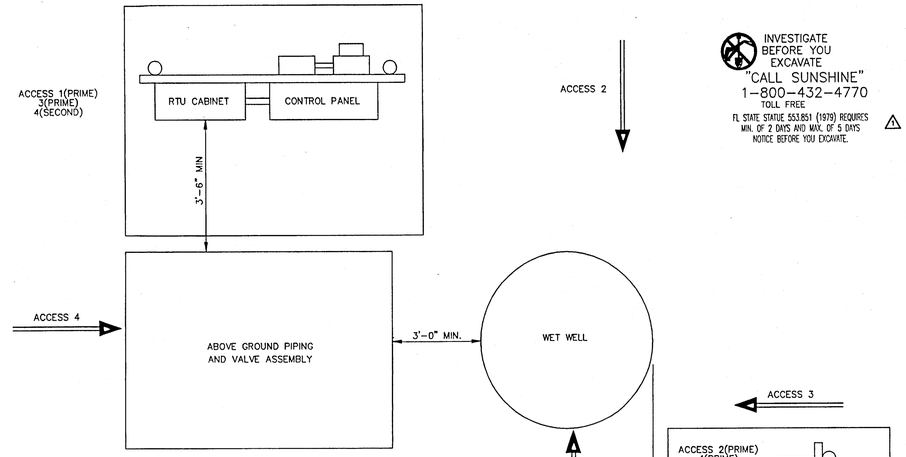


RTU CABINET/CONTROL PANEL STRUCTURE ELEVATION
NEW LIFT STATION INSTALLATION

1/2" = 1'-0"

CONCRETE SLAB NOTES:

1. 6" THICK CONCRETE SLAB WITH #4 BARS @ 12" EW.
2. TOP OF SLAB SHALL MATCH TOP OF EXIST. WETWELL AND VALVE VAULT ELEVATION WHERE IT IS WITHIN A 4" TOLERANCE.
3. EXPOSED EDGES TO BE CHAMFERED 3/4" OR EDGED 1/2" (TYP).
4. FINISH CONCRETE NEAR PIPE WITH A CROWN TO DRAIN WATER AWAY. SEAL WITH MEDIUM CONSISTENCY COAL TAR (TYP OF 2)



CONTROL PANEL MOUNTING PREFERENCES

NO SCALE

NOTE:
1. PRIME = PREFERRED INSTALLATION LOCATION
   SECOND = ALTERNATE INSTALLATION LOCATION
2. ACCESS DIRECTION IS FROM STREET

INVESTIGATE BEFORE YOU EXCAVATE "CALL SUNSHINE" 1-800-432-4770 TOLL FREE FL STATE STATUE 553.851 (1979) REQUIRES MIN. OF 2 DAYS AND MAX. OF 5 DAYS NOTICE BEFORE YOU EXCAVATE. ⚠

GENERAL NOTES

1. ALUMINUM PIPE AND TUBE SHALL BE ALLOY 6061-T6 OR 6063-T6. ENDS OF ALUMINUM TUBING SHALL BE WELDED SHUT.
2. ALL CONNECTION HARDWARE SHALL BE SERIES 300 STAINLESS STEEL. BOLTS SHALL BE SLEEVED WITH 1/8" THICK NON-CONDUCTIVE, NON-POUROUS, ULTRAVIOLET RESISTANT INSULATING MATERIAL.
3. CONDUITS SHALL HAVE A WATERPROOF CONNECTION AT EACH PANEL OR ENCLOSURE. WATER LEAKAGE AT THE PANELS AND RUSTING CONDUIT CLOSURE PIECES ARE NOT ACCEPTABLE. THE USE OF SILICONE TO SEAL THESE JOINTS IS NOT ACCEPTABLE METHOD OF SEALING THE PANEL INTERFACES. THE BOTTOM OF THE LOWER CONDUIT SHALL BE 1 1/2" ABOVE THE "ALARM SILENCE BUTTON". PROVIDE 1" BETWEEN THE LOWER AND UPPER CONDUIT. ⚠
4. ELECTRICAL SERVICE CHARACTERISTICS SHALL BE VERIFIED BEFORE INSTALLATION OF CONTROL PANEL.
5. ISOLATE ALL DISSIMILAR METALS WITH 1/8" NON CONDUCTIVE, NON-POROUS, ULTRA VIOLET RESISTANT INSULATING MATERIAL.
6. CONTRACTOR SHALL INSTALL A MINIMUM OF 5 GROUND RODS CONFIGURED IN A HALO AROUND THE EQUIPMENT TO PROVIDE A GROUND RESISTANCE OF NOT GREATER THAN 3 OHMS. GROUND RODS SHALL BE 3/4" x 10'-0" AT MINIMUM AND DRIVEN FLUSH WITH THE GRADE. CONTRACTOR SHALL PROPERLY MEASURE GROUNDING RESISTANCE IN THE PRESENCE OF THE OWNER OR THE OWNER'S REPRESENTATIVE - SEE DETAIL D THIS SHEET. THE GROUND RODS SHALL NOT BE DRIVEN INTO THE GROUND UNTIL ACCEPTED IN WRITING BY A COUNTY REPRESENATIVE. THE GROUND WIRE SHALL BE ATTACHED TO THE GROUND RODS BY CAD WELDING. THE GROUND RODS SHALL BE LOCATED 12" OFF THE CORNERS OF THE STRUCTURES AND THE FIFTH GROUND ROD SHALL BE LOCATED 12" FROM THE CONTROL PANEL AND/OR RTU SUPPORT POST.

   ALL APPROPRIATE FACILITIES SHALL BE GROUNDED INCLUDING, BUT NOT LIMITED TO: RTU CABINET, CONTROL PANEL, ELECTRICAL SERVICE,ELECTRICAL METER CANS, LIGHTNING TERMINAL STRIP CABINET,ANTENNA CABLE VIA GROUNDING STRAP KIT, ARRESTORS, ANTENNA MAST SUPPORT PIPE.
7. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE AGENCY FOR THE EXACT LOCATIONS FOR ALL WATER, SEWER, ELECTRIC, TELEPHONE AND ANY OTHER UNDERGROUND OR OVERHEAD UTILITY BEFORE STARTING CONSTRUCTION. THE OMISSION FROM OR THE INCLUSION OF UTILITY LOCATIONS ON THE CONTRACT DRAWINGS IS NOT TO BE CONSIDERED AS THE NONEXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES.
8. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING EQUIPMENT, STRUCTURES AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF THE PREPARATION OF THESE DRAWINGS, BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, ELEVATIONS AND OTHER FEATURES AFFECTING HIS WORK PRIOR TO CONSTRUCTION. SHOULD UTILITIES BE ENCOUNTERED WHICH ARE NOT INDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
9. IN ALTERNATE LOCATION, METER CAN SHALL BE MOUNTED SO THAT THE CENTERLINE OF THE METER IS 4'-0" ABOVE GRADE. WHEN METER CAN IS LOCATED ON BACK OF PANEL, IT SHALL BE MOUNTED 5'-0" TO 6'-0" ABOVE GRADE.
10. ADD ALUMINUM SPACERS (MACHINED TO MATCH PIPE DIAMETERS) AND MODIFY CONNECTORS AS REQUIRED FOR PROPER, SECURE AND NEAT MOUNTING.
11. ALTERNATE LOCATION FOR MAIN DISCONNECT SWITCH AND ELECTRIC METER IS IN LOCATIONS WHERE THE NATIONAL ELECTRIC CODE CLEAR SPACE IS NOT AVAILABLE.
12. WHEN THE NEW CONCRETE PAD IS POURED NEXT TO AN EXISTING CONCRETE PAD STRUCTURE, THE TWO SHALL BE SEPARATED WITH 1/2" THICK, FULL DEPTH EXPANSION BOARD (EXPANSION JOINT MATERIAL).
13. ALL BOXES AND PANELS SHALL BE LOCATED TO ALLOW ALL DOORS AND FRONTS TO FULLY OPEN.
14. D.O.T. BREAKAWAY POSTS CONNECTIONS (4" DIAMETER) SHALL BE PROVIDED AT ALL LOCATIONS WITHIN COUNTY OR STATE D.O.T. RIGHT-OF-WAY WHEN THE CLEAR ZONE DISTANCE IS VIOLATED.
15. LIGHTNING ARRESTERS SHALL BE ATTACHED TO THE DISCONNECT SWITCH.
16. UNDERGROUND SPLICES (RAYCHEM MODEL LINE WCSM-S OR EQUAL) SHALL BE WATERTIGHT AND ACCEPTABLE TO THE ENGINEER. ELECTRIC POWER SERVICE SPLICES SHALL BE ENCLOSED IN QUARZITE COMPOSOLITE SPLICE BOX WITH A HEAVY DUTY LID OR EQUAL. SPLICING OF THE PUMP CABLE, FLOAT CABLES OR OTHER WIRING TO THE WETWELL FROM THE JUNCTION BOX IS NOT ACCEPTABLE.
17. THE CONTROL WIRING SHALL BE IN A SEPARATE CONDUIT. THE WIRING FOR EACH PUMP SHALL ALSO BE IN SEPARATE CONDUITS. * NOTE FOR WIRES BETWEEN JUNCTION BLOCK AND CONTROL PANEL 12 GAUGE STRANDED BLACK FOR FLOATS. CORRECT GAUGE FOR PUMPS BLACK THHN. FLOAT WIRES SHOULD BE CUT TO LENGTH. PUMP WIRES SHOULD BE CUT TO LENGTH AND RAN BEHIND THE RAILS.
18. USE FOUR (4) VERTICAL ALUMINUM UNISTRUT MEMBERS (1 5/8"x1 5/8") TO MOUNT ELECTRIC SERVICE METER AND MAIN DISCONNECT ENCLOSURE WHEN LOCATED ON BACK OF CONTROL PANEL/RTU CABINET STRUCTURE.
19. CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PROTECT EQUIPMENT AND MATERIALS FROM HYDROGEN SULFIDE GAS DAMAGE.
20. THE VARIOUS CONSTRUCTION CONFIGURATIONS OF THE RTU CABINET/CONTROL PANEL STRUCTURE (BACK TO BACK, SPLIT UNIT, RETRO-FIT UNIT, ON WALL, ETC.) SHALL CONTAIN ALL COMPONENTS OF THE RTU CABINET/CONTROL PANEL STRUCTURE. THE MINIMUM SPACING BETWEEN THE 4" ALUMINUM SUPPORT POSTS FOR THE CONTROL PANEL MOUNTING SHALL BE 4 FEET AND THIS SPACING SHALL INCREASE AS REQUIRED.

    OWNER APPROVAL IS REQUIRED PRIOR TO THE CONSTRUCTION OF CONFIGURATIONS DIFFERING FROM THAT SHOWN ON THIS SHEET.

    ALL BACK TO BACK CONSTRUCTION CONFIGURATIONS (INCLUDING MOUNTING OF TERMINAL STRIP CABINETS) SHALL USE A MINIMUM OF FOUR 2"x2"x0.156" ALUMINUM TUBE SUPPORTS (TWO ON THE FRONT SIDE AND TWO ON THE BACK SIDE).
21. THE ANTENNA MAST SUPPORT PIPE SHALL BE PLACED ABOVE THE BREAK AWAY SUPPORT POST CONNECTION SLEEVES AT APPLICABLE LOCATIONS.
22. ALL CONDUIT PENETRATING A NEW OR EXISTING CONCRETE PAD OR SLAB SHALL BE LOCATED A MINIMUM OF 3 INCHES FROM THE EDGE OF THE CONCRETE PAD OR SLAB. CONSEQUENTLY ALL CONDUIT WILL HAVE A MINIMUM OF 3 INCHES OF CONCRETE COVER.
23. TEN SPARE CONDUCTORS SHALL BE PULLED BETWEEN THE RTU AND THE CONTROL PANEL. THE WIRES SHALL BE STRANDED 14 GAUGE XHHW. THE INSULATION SHALL BE ORANGE ON 4 CIRCUITS, GREEN ON 3 CIRCUITS AND YELLOW ON 3 CIRCUITS. S NUMBER LABELS SHALL BE INSTALLED ON THE RTU SIDE. DO NOT LAND CONNECTIONS ON EITHER END. CONTRACTOR SHALL TAPE THE ENDS ON THESE WIRES.
24. 4" SCHEDULE 80 ALUMINUM SUPPORT POSTS SHOULD BE A MINIMUM OF 9'-6" IN LENGTH
25. THE NEMA 4X STAINLESS STEEL JUNCTION BOX FOR A DUPLEX CONTROL PANEL SHALL BE 14" HIGH x 12" WIDE x 6" DEEP AND SHALL MEET NEC REQUIREMENTS. TWO INCH DIAMETER CONDUITS AND TWO INCH DIAMETER SEALOFFS, AS A MINIMUM SIZE, SHALL BE USED AT ALL DUPLEX CONTROL PANEL INSTALLATIONS.
26. THE CONTROL PANEL AND RTU CABINET SHALL MEET ALL THE REQUIREMENTS OF THE COUNTY'S MOST CURRENT STANDARD CONTROL PANEL AND RTU CABINET DESIGN, RESPECTIVELY. THE RTU CABINET SHALL BE FACTORY PAINTED WHITE IN ACCORDANCE WITH THE STANDARD DESIGN.
27. SEALOFFS SHALL BE PROVIDED BETWEEN JUNCTION BOX AND CONTROL CABINET AS SHOWN. SEALOFFS SHALL BE SEALED WITH CROUSE-HINDS "CHICO" COMPOUND. ALL THREADS ON SEAL OFFS SHALL BE ZINC COATED OR COLD GALVANIZED TO PREVENT RUSTING. RUSTING FACILITIES ARE NOT ACCEPTABLE TO THE COUNTY AND THE CONTRACTOR WILL PROVIDE ACCEPTABLE REMEDIES TO RUSTING FACILITIES INCLUDING REPLACING ALL RUSTING FACILITIES AT NO COST TO THE COUNTY.
28. SEE "STANDARD FABRICATION PLANS FOR DUPLEX WASTEWATER LIFT STATIONS SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) AND CONTROL PANELS" DRAWING 1 OF 4 FOR SPECIFICATIONS FOR CONTROL PANEL COMPONENTS. ⚠

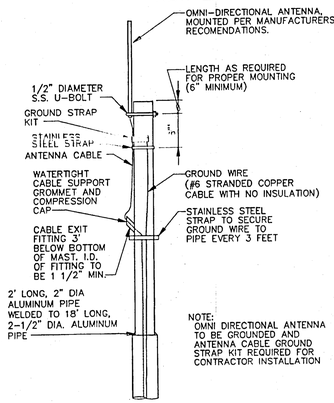
BILL OF MATERIALS

Item	Quantity	Description
AA	1	Electrical service - Provide service meter with 100 ampere (minimum) slow-blow fused main disconnect, padlockable in both the "On" and "Off" position. Meter shall meet local code and power utility requirements and have a manual by-pass switch. See additional requirements for electric meter can/cabinet in specifications. Main disconnect shall be padlockable. Surge arrestors appropriate to the service provided to the panel in voltage and phase configuration shall also be provided on both the line and load sides of the main disconnect. Main disconnect switches shall be as follows without exception: 240 volts,3ph (100 amps or less) — Square D Model H323NRB 240 volts,3ph (greater than 100 amps) — Square D Model H324NRB 208 volts,3ph (100 amps or less) — Square D Model H323NRB 208 volts,3ph (greater than 100 amps) — Square D Model H324NRB 480 volts,3ph (100 amps or less) — Square D Model H363NRB 480 volts,3ph (greater than 100 amps) — Square D Model H364NRB ⚠
BB	1	Stainless steel junction box - hinged, padlockable, 14"x12"x6" with back plate and compression type terminal strip for connection of level controls and pump power cords. Hoffman Model A-1412CHNFSS, with A-PLKJC padlock kit, or equal. Box shall be mounted to open same way as control panel. Junction box shall have a ground bus bar with 9 terminals at minimum. A laminated wiring diagram of junction box terminal connections shall be provided in a permanent sleeve attached to cover. See detail E this sheet.

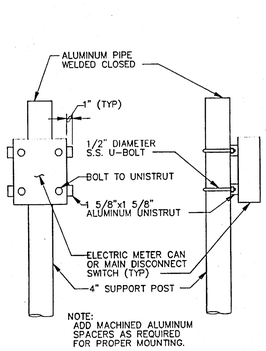
NOTE:
ANY MODIFICATION TO OR DEVIATION FROM THE DESIGN DOCUMENTS INCLUDING BUT NOT LIMITED TO THE PLANS AND SPECIFICATIONS, IS STRICTLY PROHIBITED WITHOUT PRIOR APPROVAL BY COUNTY UTILITIES GENERAL MANAGER.

RTU CABINET/CONTROL PANEL STRUCTURE PLAN
NEW LIFT STATION INSTALLATION

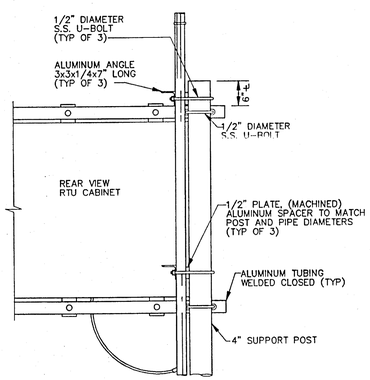
1/2" = 1'-0"



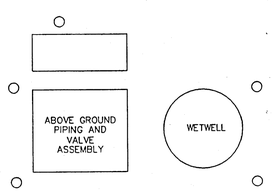
ANTENNA DETAIL — A — NTS



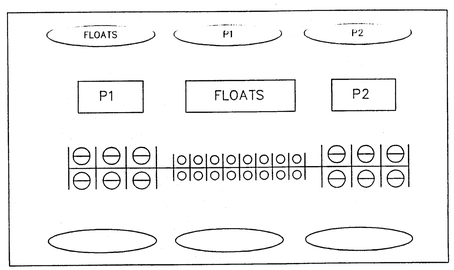
ALTERNATE END POST ATTACHMENT DETAIL — B — NTS



ANTENNA MAST SUPPORT PIPE CONNECTION DETAIL — C — NTS



GROUNDING HALO DETAIL — D — NTS



JUNCTION BOX DETAIL — E — NTS

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT TAMPA

REV.NO.	DESCRIPTIONS	DATE
2	REVISED/ELIMINATED NOTES	4/04
1	REVISED DISCONNECT SWITCH AND GENERAL NOTES	3/04

REVISIONS

SEAL

SEAL

McKIM&CREED
1531 Second Street
Sarasota, Florida 34236
AA0002667 EB0006691
Internet Site: http://www.mckimcreed.com

SARASOTA COUNTY

DUPLEX WASTEWATER LIFT STATIONS SUPERVISORY CONTROL, DATA ACQUISITION (SCADA) AND CONTROL PANELS

CONTROL PANEL AND RTU INSTALLATION PLAN AND DETAILS

DATE:	OCTOBER, 2003
MCE PROJ. #	1038-0007
DRAWN	
DESIGNED	
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL: NA
VERTICAL: NA

MSC DWG NUMBER
SHEET NUMBER 1
1 OF 2

STATUS: REVISION

S:\1038\electrical and dwgs\PumpStations\3P-Installation\MCE-SHEET 1 OF 2.dwg, Layout1, 05/05/2004 11:05:04 AM

BREAK AWAY SUPPORT POST CONNECTION NOTES

A. THE INSIDE DIAMETER (I.D.) OF THE SLEEVE SHALL BE NO MORE THAN 1/16" LARGER THAN THE OUTSIDE DIAMETER (O.D.) OF THE 4" SCHEDULE 80 ALUMINUM PIPE.

B. THE SLEEVE BOLTS SHALL BE 1/2" DIAMETER WITH LOCKNUTS. THE BOLTS SHALL BE GALVANIZED STEEL (ASTM A-307) OR ALUMINUM ASSOCIATION ALLOY 2024-T4 OR 6061-T6 (ASTM B-211).

C. THE BASE BOLTS, NUTS AND WASHERS SHALL BE HIGH STRENGTH ASTM A-325 AND SHALL HAVE AN ELECTROPLATED ZINC COATING SC3. TYPE II APPLIED IN ACCORDANCE WITH ASTM B633.

D. ASSEMBLE THE SLIP BASE CONNECTION IN THE FOLLOWING MANNER:

CONNECT 4" SCHEDULE 80 PIPE TO SLEEVE USING (2) 1/2" DIAMETER MACHINE BOLTS.

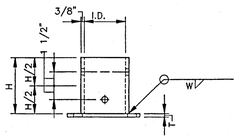
ASSEMBLE TOP BASE PLATE TO STUB BASE PLATE USING HIGH STRENGTH BOLTS WITH THREE (3) HARDENED WASHERS PER BOLT. ONE (1) WASHER PER BOLT AND TWO (2) BOLT KEEPER PLATES GO BETWEEN THE BASE PLATES.

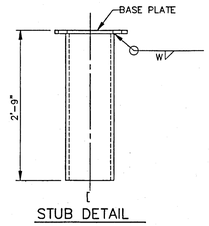
USE ALUMINUM SHIM STOCK AS REQUIRED TO PLUM THE COLUMN.

TIGHTEN ALL BOLTS TO THE MAXIMUM POSSIBLE WITH A 12" TO 15" WRENCH TO BED THE WASHERS AND SHIMS AND TO CLEAR THE BOLT THREADS. LOOSEN EACH BOLT ONE (1) TURN AND RETIGHTEN TO THE PRESCRIBED TORQUE (SEE TABLE). BOLTS SHALL BE TIGHTENED WITH PROPERLY CALIBRATED WRENCHES UNDER THE SUPERVISION OF THE PROJECT ENGINEER.

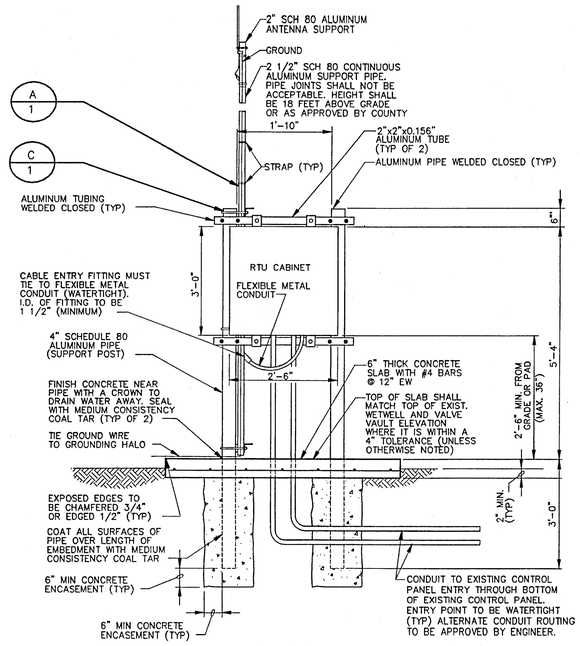
BURR THREADS AT JUNCTION WITH NUT USING A CENTER PUNCH TO PREVENT NUT LOOSENING.

E. USE ALUMINUM SHIMS TO OBTAIN TIGHT FIT BETWEEN THE 4" SCHEDULE 80 PIPE FACE AND THE SLEEVE. PLACE SHIMS IN ALL QUADRANTS BETWEEN THE 1/2" DIAMETER SLEEVE BOLTS. THE SHIM LENGTH SHALL BE ONE (1") SHORTER THAN THE HEIGHT OF THE SLEEVE.

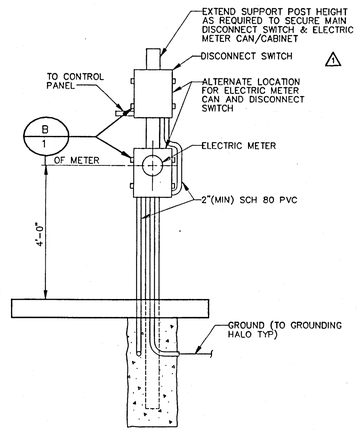




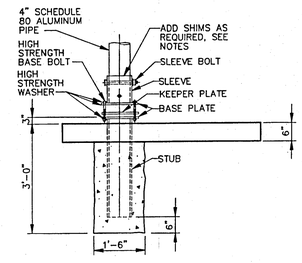
STUB DETAIL



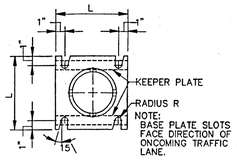
RTU CABINET STRUCTURE ELEVATION
NTS
LIFT STATION REHAB ONLY



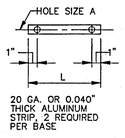
ALTERNATE ELECTRIC METER AND DISCONNECT SWITCH LOCATION
NTS
LIFT STATION REHAB ONLY



BASE DETAIL



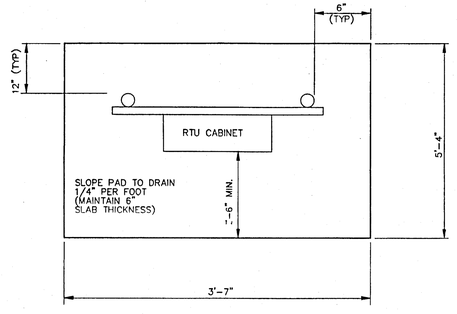
SLEEVE AND BASE PLATE DETAILS



BOLT KEEPER DETAIL

4" SCHEDULE 80 ALUMINUM PIPE	SLEEVE I.D. (MAX)	SLEEVE WALL	SLEEVE HEIGHT H	WELD W	BASE PLATE LxLxT	RADIUS R	BASE BOLT SIZE	BASE BOLT TORQUE FT- LBS.	BASE BOLT TORQUE INCH - LBS.	HOLE SIZE A
4 1/2"x1/4"	4 9/16"	3/8"	6"	5/8"	8x8x7/8	11/32"	5/8]x3 1/4"	29	345	11/16"

BREAK AWAY SUPPORT POST CONNECTIONS
NO SCALE



RTU CABINET STRUCTURE PLAN
NTS
LIFT STATION REHAB ONLY

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2005
SOUTHWEST DISTRICT

NOTE:
ANY MODIFICATION TO OR DEVIATION FROM THE DESIGN DOCUMENTS INCLUDING BUT NOT LIMITED TO THE PLANS AND SPECIFICATIONS, IS STRICTLY PROHIBITED WITHOUT PRIOR APPROVAL BY COUNTY UTILITIES GENERAL MANAGER.

REV.NO.	DESCRIPTIONS REVISIONS	DATE
1	REVISED: DISCONNECT SWITCH	3/04

SEAL

SEAL

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1531 Second Street
Sarasota, Florida 34236
AA0002667 EB0006691
Internet Site: http://www.mckimcreed.com

SARASOTA COUNTY

DUPLEX WASTEWATER LIFT STATIONS
SUPERVISORY CONTROL,
DATA ACQUISITION (SCADA)
AND CONTROL PANELS

LIFT STATION CONTROL PANEL AND RTU STANDARD INSTALLATION PLAN AND DETAILS

DATE:	OCTOBER, 2003
MCE PROJ. #	1038-0007
DRAWN	
DESIGNED	
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL: NA
VERTICAL: NA

M&C DWG NUMBER
SHEET NUMBER
2
2 OF 2

STATUS: REVISION

S:\1038\electrical and dwgs\PumpStations\SI\Installation\MCE-SHEET 2 OF 2.dwg, Layout1, 05/05/2004 11:05:28 AM

UTILITIES DEPARTMENT

SARASOTA COUNTY, FLORIDA

STANDARD FABRICATION PLANS FOR THREE PHASE DUPLEX CONTROL PANEL WASTEWATER LIFT STATIONS SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) AND CONTROL PANELS

INDEX OF DRAWINGS

SHEET NUMBER	DRAWING TITLE
COV	COVER
1	BILL OF MATERIALS
2	CONTROL PANEL LAYOUT
3	CONTROL PANEL WIRING
4	PUMP CONTROL SCHEMATIC

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT
TAMPA

OCTOBER, 2003

REVISED MARCH, 2004
REVISED APRIL, 2004

McKIM & CREED
1531 Second Street
Sarasota, Florida 34236
Certificate of Authorization No. 6691

S:\11036-electrical and dwgs\PumpStations\SP-Fabrication\MCE-SP COVER.dwg, Model, 05/05/2004 10:36:36 AM

BILL OF MATERIALS

Item	Quantity	Description
A	2	Circuit breakers (main and generator) – 3 pole, 240VAC, thermal magnetic, "Main" and "Generator," with mounting feet for base mounting. Ampere rating shall be based on the size of the pump station, but shall not be rated less than 100 amperes. Breakers shall be provided with mechanical interlock between Main and Generator. Square D Type QOU (230 volts, 125 amps or less), Type Q2L (230 volts, 150 to 225 amps), Type FAL (480 volts, 100 amps or less), or Type KAL (480 volts, 110 to 250 amps), without exception.
B	2	Circuit breakers (pump motors) – 3 pole, thermal magnetic, suitable base mounting. Ampere rating shall be based on the starting current of the motor per NEC and shall be rated not less than 125% nor greater than 250% of motor FLA. Square D type QOU (230 volts, 125 amps or less), type Q2L (230 volts, 150 to 225 amps), type FAL (480 volts, 100 amps or less), or type KAL (480 volts, 110 to 250 amps), without exception.
C	4	Circuit breakers (control, GFI, RTU cabinet and Flood Light) – Single pole, 10 & 15 ampere, 120/240VAC, thermal magnetic with mounting feet for base mounting. Square D Type QOU, without exception.
D	1	Power distribution terminal block – 3 pole, 600VAC, with line lugs for two #14 to 2/0 AWG cable per phase and load lugs for six (6) #14 to #4 AWG cables per phase. Square D Type LBA363206, without exception. For panels requiring #2 AWG branch circuits, Square D Type LBA365208, without exception, power distribution terminal blocks shall be used. Provide clear plexiglass covers, 0.045" thick, in accordance with U.L. requirements.
E	1	Neutral distribution terminal block – Single pole, 600VAC, with line lugs for two (2) #14 to 2/0 AWG cables and load lugs for six (6) #14 to #4 AWG cables per phase. Square D Type LBA163206, without exception. Provide clear plexiglass covers, 0.045" thick, in accordance with U.L. requirements.
F	1	Ground bar – Ground compression type terminal block mounted directly to panel. Ground bar shall consist of min. 12 ground terminals for up to #4 AWG wire. Square D PK12GTA, without exception.
F1	Lot as detailed	Terminal strips – Control compression type terminal strips mounted on aluminum perforated DIN channel. Terminal strips shall consist of the following: I 120 control terminal blocks for up to #10 AWG, 30 AMP, 600V. Square D Type GME6, without exception. II 6 screw on end clamps for containment of Item I. End clamps shall be installed at each end of the terminal strip. Square D Type GM10, without exception. III 3 end barriers for Item I. Square D Type GME6B, without exception.
G	1	Phase monitor/relay – Automatic reset, fused, surface-mount, 8-pin plug-in connection, adjustable range voltage for 3 phase power systems. MPE Model 001-230-118 (208 and 230 volt), MPE Model 001-500-118 (480 volt), Diversified Model SLA-230-ALA (208 or 230 volt), or Diversified Model SLA-440-ALA (480 volt), without exception.
H	1	Alternating duplexor relay – 11-pin plug-in connection, double pole-double throw, 120 VAC control voltage. MPE Model 008-120-12, or Diversified Electric Model ARA-120-ADA, without exception.
I	4	Intrinsically-safe relays (isolation switches)- single channel, 120 VAC power supply, 16 volt dc sensing voltage, 200 microamp sensing amperage, 8-pin plug-in connection. Diversified Electric Model ISO-120-AFA, without exception.
J	2	Pump seal failure relay – 11-pin plug-in connection, 120 VAC power supply, 100 kohm sensitivity, DPDT contacts. Warrick Controls Series 16DM, without exception.
K	Lot	Wiring duct – 1¢" wide, 3" high, white PVC, slotted side with solid cover. Panduit, without exception. Wiring duct shall be attached to back plate with screws.
L	Lot	Wiring duct – 2" wide, 3" high, white PVC, slotted side with solid cover. Panduit, without exception. Wiring duct shall be attached to back plate with screws.
M	2	Magnetic starters – 3 pole, 600 VAC maximum, open construction, close coupled, with overload relay assemblies. Starter shall have 120 VAC, 60 Hz magnetic coil and shall minimally have one auxiliary coil status contact. Starters shall be Square D Class 8536, without exception and shall be sized according to the motor horsepower as follows: NEMA Size 1: 230 volts – 7-1/2 hp and less 460 volts – 10 hp and less NEMA Size 2: 230 volts – greater than 7-1/2 hp, less than or equal to 15 hp 460 volts – greater than 10 hp, less than or equal to 25 hp NEMA Size 3: 230 volts – greater than 15 hp 460 volts – greater than 25 hp Overload elements shall be provided and shall be as recommended by the pump supplier. Electronic/adjustable overloads are not acceptable.
N	1	Back plate – 33" wide by 45" high, 10 gauge (minimum), primed and finish painted steel back plate with 3/4" rolled or broken edges for support. Finish paint coats shall have a dry film thickness of at least 4 mils. Hoffman or approved equal. All equipment mounted to back plate shall be attached with machine screws through drilled and tapped holes.
O	1	Control Power Transformer – 240/480 volt primary, 120 volt secondary, 60 Hz, 2 kVA transformer. Square D Model K2000D1, without exception. Do not provide when four wire 230 VAC electrical service is available.
P	1	Dead-front panel – 32 1/2" wide by 43" high, 10 gauge (minimum), brushed aluminum dead-front panel with 304 stainless steel or aluminum continuous piano hinge and two quarter-turn L- knob handles for holding the panel closed to the back of the plate and internal frame of the control panel. Isolate contact between dissimilar metals w/ 1/8" non-conductive insulating material. Panel shall be provided with door hold (open) with stainless steel rod. Door swing shall minimally be 90\open. Panel shall include mounted devices and cut-outs as indicated on the drawings. Panel edges shall be deburred and rounded.
Q	1	Control cabinet – 36" wide, 48" high, and 12" deep (excluding door depth), cabinet shall be constructed exclusively of 304 stainless steel, 14 gauge (minimum) with continuous welds throughout. Weep holes or other openings in enclosure which are not specified in these drawings shall not be acceptable. Panel shall have an outer door gasket seal which shall be close-cell neoprene or other material as approved by County. Door gasket shall provide a continuous seal against exterior door sealing face which shall be a continuous rolled lip. A drip shield shall be provided and tuck welded in place at not less than 5 locations. A three point 90\ turn latching mechanism constructed of 304 stainless steel shall be provided. Latching mechanism shall be operated by a single exterior stainless steel handle and shall be pad-lockable to prevent unauthorized operation. Door shall be full height with 304 stainless steel continuous piano hinge, door lock open stainless steel rod, and shall minimally have 120\swing. panel shall have provisions for mounting items N and P inside as a single unitized assembly. A laminated wiring diagram of all wiring connections shall be provided in a permanent sleeve attached to panel door. Panel shall be installed perpendicular to wetwell and valve vault and door hinged to open away from the wetwell and valve vault.
R	1	Receptacle – 600 VAC maximum, 200 amperes, 4 pole, 4 wire, watertight, circuit breaking, angled, panel mounted, cast aluminum, male receptacle with screw cap. Russell & Stoll Catalog No. JRSB-2044-FR, without exception.
S	2	Selector switches – Three-position, 30 mm industrial, maintained, lever operator, oil-tight, selector switch with contacts as indicated on the drawings and an "Manual-Off-Auto" legend plate. Square D Class 9001, Model KS43BH2 without exception.
T	2	Pilot lights – 120 VAC, resistor type, oil-tight, watertight, pilot light with green plastic lens and "RUN" legend plate. Square D Class 9001 Type SKP-3S light, Type G31 lens, and Type KN-224 legend plate, without exception.
U	2	Elapsed time meter – 120 VAC, 6-1/2 digit, nonresetable, panel-mounted. Redington Model 710-0002, without exception.
V	1	GFI receptacle – 120 VAC, 20 ampere, duplex, industrial-grade, ivory. Leviton Model 6598-I, or equal.
W	2	External (reset) cover operator – NEMA 3-4, with reset legend plate. Square D Class 9066 Model RA1, without exception.

BILL OF MATERIALS

Item	Quantity	Description
X	1	Alarm light – 120 VAC alarm light including red glass lens covering 25-60 watt incandescent lamp holder with flasher and protective wire cage. Gasket shall be provided between lens and enclosure for weathertight seal. Edwards No. 50 Series with 92-GRD cage, without exception. Alarm light mounting shall be stainless steel rigid pipe prewired with light attached , and packaged separately for transport ready for field assembly. 1/4" Disconnects shall be provided inside enclosure to facilitate field assembly.
Y	1	Horn – 120 VAC weatherproof horn. Federal Signal Corporation Model 350 with WB box, without exception.
Z	2	Push button – Red, flush, momentary (spring-return), oil-tight, NEMA 4 push-button with 1-N.O. contact with red legend plate engraved "Alarm Silence" and "Test Alarm" respectively. Square D, Class 9001, without exception.
AA	–	NOT USED
BB	–	NOT USED
CC	10	General purpose relays – shall have base and pilot light option. Double pole, double-throw relays shall be Square D Class 8501, KP12P14V20, without exception.
DD	1	Flood Light – 150 watt quarts flood light. RAB part no. QF150.
EE	3	Pilot lights – 120 VAC, resistor type, oil-tight, watertight, pilot light with plastic lens and legend plates as shown on the attached schematics. Square D Class 9001 Type SKP-3S light, and legend plates as indicated on the schematic, without exception. Lenses shall be Square D Type A31-amber or Type R31-red as indicated on schematics, without exception.
FF	–	Not used
GG	–	Not used
HH	1	Fuse blocks (If required) – Two fuse blocks shall be provided, one for the control power transformer primary connections and one for the secondary connections. Primary connection fuse blocks shall be Square D Model FB2211 (250 volt systems), or Model FB2611 (600 volt systems), without exception. Secondary fuse blocks shall be Square D Model FB1211, without exception.
II	1	Intrusion switch – The switch contact shall be normally closed (open when the panel door is closed). Intrusion switch shall be Square D Class 9007, Model XA7506E, without exception.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT TAMPA

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REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

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Sarasota, Florida 34236
AA0002667 EB0006691
Internet Site: http://www.mckimcreed.com

SARASOTA COUNTY

DUPLEX WASTEWATER LIFT STATIONS
SUPERVISORY CONTROL,
DATA ACQUISITION (SCADA)
AND CONTROL PANELS

CONTROL PANEL - BILL OF MATERIALS

DATE:	OCTOBER, 2003
MCE PROJ. #	1038-0007
DRAWN	
DESIGNED	
CHECKED	
PROJ. MGR.	MAC

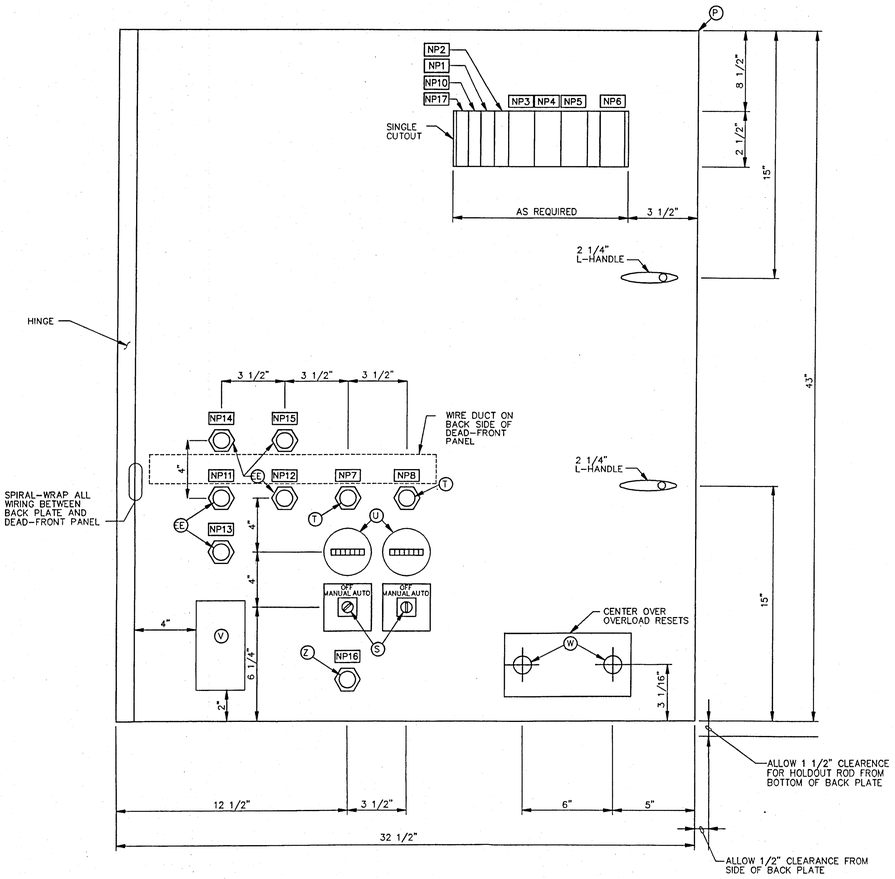
SCALE
HORIZONTAL: NA
VERTICAL: NA

M&C DWG NUMBER

SHEET NUMBER 1
1 OF 4

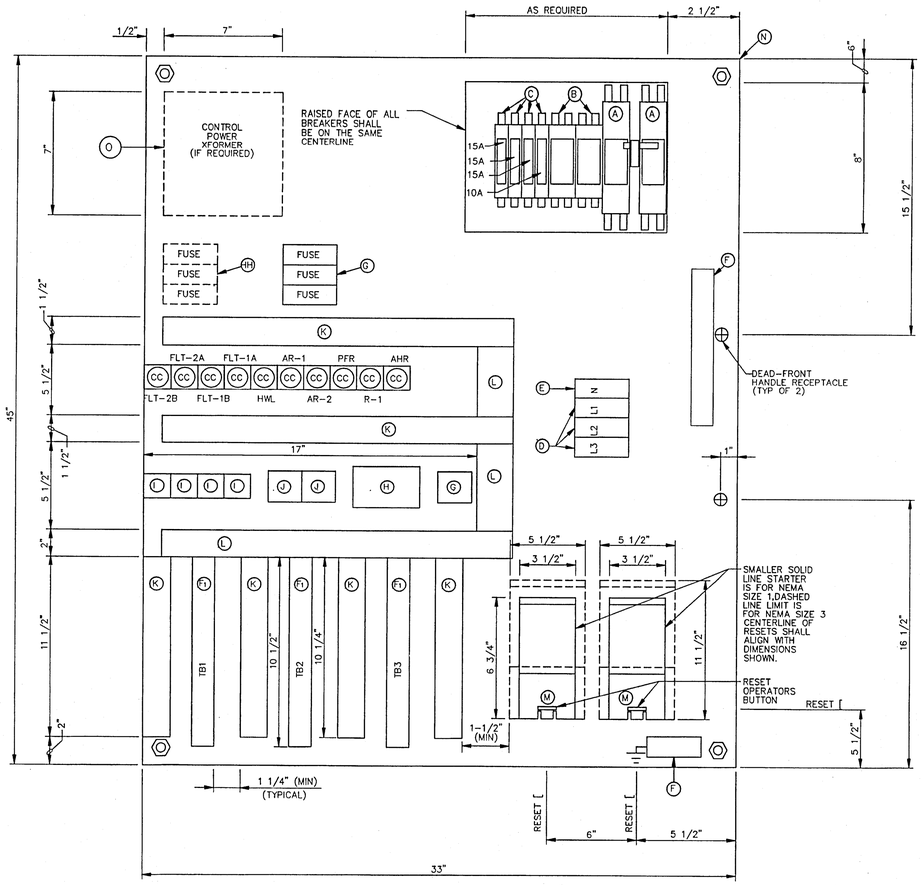
STATUS: REVISION

S:\1038\electrical and dwgs\PumpStations\SP-1 FabricationMCE-SP-1 OF 4.dwg, Model, 9/21/2004 2:13:18 PM



DEAD - FRONT PANEL

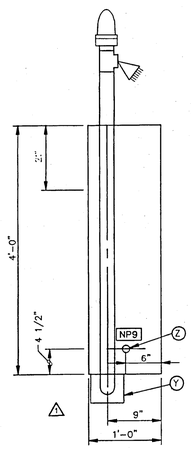
NO SCALE



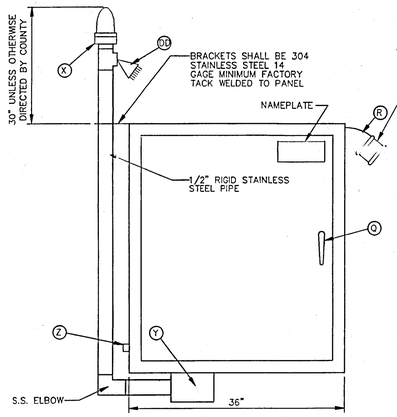
LAYOUT AND DETAILS OF INTERNAL BACK PLATE OF CONTROL PANEL

NO SCALE

NOTES:
1. SEE SHEET 1 FOR LIFT STATION BILL OF MATERIALS.



SIDE VIEW

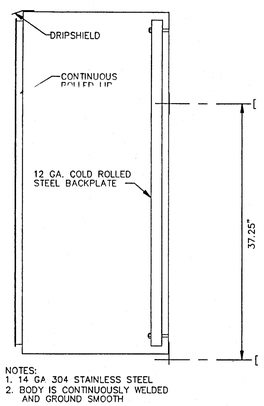


FRONT VIEW

CONTROL PANEL

NO SCALE

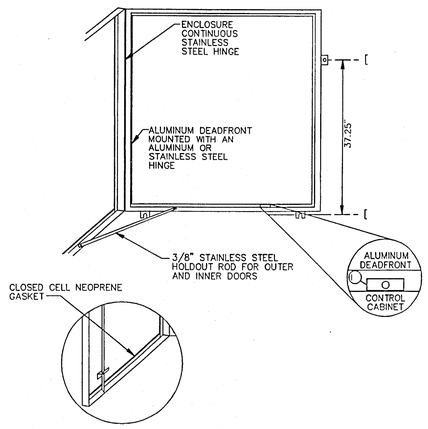
NAMEPLATE SCHEDULE		
REF. NO.	FIRST LINE	SIZE
1	CCB	1/2"x1/2"
2	GFI	1/2"x1/2"
3	PUMP NO. 1	1/2"x1 1/2"
4	PUMP NO. 2	1/2"x1 1/2"
5	MAIN	1/2"x1 1/2"
6	EMERGENCY	1/2"x1 1/2"
7	PUMP NO. 1	1/2"x1 1/2"
8	PUMP NO. 2	1/2"x1 1/2"
9	ALARM SILENCE	1/2"x2"
10	RTU	1/2"x1/2"
11	ONE PUMP REQUIRED	1/2"x1 1/2"
12	TWO PUMPS REQUIRED	1/2"x1 1/2"
13	HIGH LEVEL	1/2"x1 1/2"
14	PUMP 1 SEAL FAIL	1/2"x1 1/2"
15	PUMP 2 SEAL FAIL	1/2"x1 1/2"
16	ALARM TEST	1/2"x1 1/2"
17	FLOOD LIGHT	1/2"x1/2"



NOTES:
1. 14 GA 304 STAINLESS STEEL
2. BODY IS CONTINUOUSLY WELDED AND GROUND SMOOTH

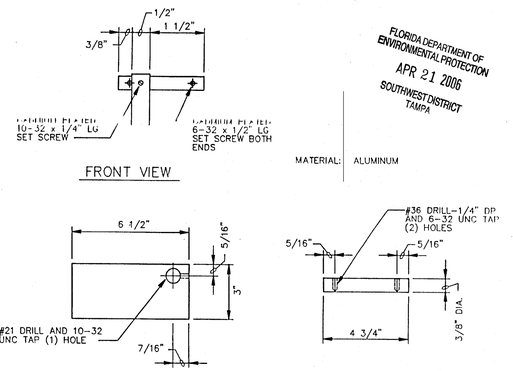
ENCLOSURE DETAIL

NO SCALE



DOOR DETAIL

NO SCALE



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT TAMPA

MATERIAL: ALUMINUM

BREAKER INTERLOCK DETAILS

NO SCALE

REV.NO.	DESCRIPTIONS	DATE
1	REVISED CONTROL PANEL SIDE VIEW	3/04

REVISIONS

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SARASOTA COUNTY

DUPLEX WASTEWATER LIFT STATIONS
SUPERVISORY CONTROL,
DATA ACQUISITION (SCADA)
AND CONTROL PANELS

CONTROL PANEL LAYOUT

DATE:	OCTOBER, 2003
MCE PROJ. #	1038-0007
DRAWN	
DESIGNED	
CHECKED	
PROJ. MGR.	MAC

SCALE
HORIZONTAL: NA
VERTICAL: NA

MKC DWG NUMBER

SHEET NUMBER
2
2 OF 4

STATUS: REVISION

S:\1038\electrical stnd dwgs\PumpStations\PS-Fabrication\MCE-3P 2 OF 4.dwg, Model, 05/05/2004 10:38:41 AM

RED FLASHING LIGHT
FLOOD LIGHT
ALARM HORN
HWL3
N8
FLL
N8
AHR2
N8
N8

PANEL EXTERIOR

TO 3 PHASE SOURCE
TO GENERATOR RECEPTACLE
#2 THHN/THWN
#12 MTW CABLE
TYPE THHN/THWN CU. CABLE SIZED AT 125% MOTOR FLA
CHANGE LI CONNECTIONS INSIDE DASHED LINE BOX TO X1 IF CONTROL POWER TRANSFORMER IS REQUIRED

15A 15A 15A 10A 3 PHASE CIRCUIT BREAKER 3 PHASE CIRCUIT BREAKER 3 PHASE CIRCUIT BREAKER 3 PHASE CIRCUIT BREAKER

FLL RTU CL1 GFI 1L1 1L2 1L3 2L1 2L2 2L3 L1 L2 L3 L1 L2 L3

#2 THHN/THWN
L1 L2 L3 N

FLT-2B FLT-2A FLT-1B FLT-1A HWL AR-1 AR-2 PFR R-1 AHR

S10 ISR3-1 ISR3-1 N4 ISR3-1 — S9 ISR1-1
CL2 ISR3-1 ISR3-1 N4 N4 — 10
S7 ISR2-1 ISR2-1 N4 N4 ISR2-1 — S8 ISR1-1
CL2 CL2 ISR2-1 N4 N4 — 6
CL7 ISR4-1 ISR4-1 N4 N4 S1 — HWL3 S2
S13 CL1 AR1 — S14
S21 CL3 AR2 — S22
S5 CL5 N5 — S6
R11 C10 N6 R12 — 3 C2 5 C4
AHR1 N7 AHR2 — HWL3 HWL3

CONTROL POWER TRANSFORMER (IF REQUIRED)
L1 L2 N
CPT FUSE BLOCK (IF REQUIRED)
L1 L2 X1

ISR-4: CL4 CL4 H F7 F8 IN N CL4 — N4 N4 — ISR4-1
ISR-1: CL4 CL4 H F1 F2 IN N CL4 — N4 N4 — ISR1-1 ISR1-1
ISR-3: CL4 CL4 H F5 F6 IN N ISR1-1 ISR1-1 — N4 N4 — ISR3-1
ISR-2: CL4 CL4 H F3 F4 IN N ISR1-1 ISR1-1 — N4 N4 — ISR2-1 ISR2-1

ALTERNATOR: CL2 H N 10 6 CONTROL — N2 5 3

RTU TB1
N RTU
N
CL1 CL1
CL2 CL2
CL3 CL3
CL4 CL4
CL5 CL5
CL6 CL6
CL7 CL7
CL8 CL8
SPACER
N1 N1
N1 N2
N2 N3
N3 N4
N4 N5
N5 N6
N5 N7
N7 N8
N8 S1
S1 S2
S2 S3
S3 S4
S4 S5
S5 S6
S6 S7
S7 S8
S8 S9
S9 S10
S10 S11
S11 S12
S12 S13
S13 S14
S14 S15
S15 S16
S16 S17
S17 S18
S18 S19
S19 S20
S20 TB2
S21 S21
S22 S22
S23 S23
S24 S24
S25 S25
S26 S26
S27 S27
S28 S28
S29
S30
S31
S32
TB2
S33
S34
S35
S36
S37
S38
S39
S40

TB2 (CONT.)
S41
S42
S43
S44
S45
S46
S47
S48
CL2 C1
CL2 C2
C3
CL2 C4
C5
CL5 C6
C7
CL6 C8
C10 C10
C11
C12
TB3
C13
C14
C15
C16
SPACER
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
SPACER

TB3 (CONT.)
F1 F1
F2 F2 — PUMP SHUTOFF FLOAT
F3 F3 — LEAD PUMP START FLOAT
F4 F4
F5 F5 — LAG PUMP START FLOAT
F6 F6
F7 F7 — HIGH LEVEL FLOAT
F8 F8
F9 F9 — PUMP 1 PROBE
GND GND — PUMP 1 HOUSING GND
F10 F10 — PUMP 2 PROBE
GND GND — PUMP 2 HOUSING GND
F11 F11
F12 F12 — P-1 THERM. SW.
F13 F13
F14 F14 — P-2 THERM. SW.
SPACER
MS11 MS11
MS11 MS11
SPACER
MS21 MS21
MS21 MS21
SPACER
FLL FLL
N8 N8
HWL3 HWL3
N8 N8
AHR2 AHR2
N8 N8

PWR
S3 S4 F12 F14 N1
INPUT SENSOR CIRCUIT
PML31 PML21 PML11
PML11 FML1
PML21 FML2
PML31 FML3

SFM21 SFM-2 SFM11 SFM-1
CL8 CL8 S23 S24 IN N3 N3 F10 GND
CL8 CL8 S15 S16 IN N3 N3 F9 GND

MS11 AR1 AR1 S11 S12 AR1 AR1 F11
MS-1 MS-1 MS-1 OL'S
1L1 1L2 1L3
MS21 AR2 AR2 S19 S20 AR2 AR2 F13
MS-2 MS-2 MS-2 OL'S
2L1 2L2 2L3

GFI RECEPTACLE
N GND1 GFI
ALARM TEST F7 F8
MS11 AR1 MS21 AR2 G
MS11 AR1 MS21 AR2 ETM
OFF CL2 MANUAL AUTO CL2 MS11 MS11 XOO
OFF CL2 MANUAL AUTO CL2 MS21 MS21 XOO
R11 MS11 MS11 OOX
R12 MS21 MS21 OOX
S17 S18 OOX
S25 S26 OOX
INTRUSION SWITCH S27 S28
ISR2-1 A N4 N4
ISR3-1 A N4 N4
ISR4-1 R N4
ALARM SILENCE ON SIDE OF PANEL
HWL3 AHR1 C6
SFM11 R N3 N3
SFM22 R N3

GND1
GROUND TERMINAL STRIP

DEAD - FRONT PANEL

PANEL BACK PLATE

NOTE:
WIRING SHALL BE COLOR CODED WITH NOT LESS THAN 35 COLOR COMBINATIONS USED THROUGHOUT PANEL. CONTROL CIRCUIT WIRING SHALL BE HEAT-SHRINK TIGHT WIRE MARKERED AT EACH END.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT TAMPA

REV.NO.	DESCRIPTIONS	DATE
1	REMOVED REMOTE LIGHT SWITCH	3/04

REVISIONS

SEAL

SEAL

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Sarasota, Florida 34236
AA0002667 EB0006691
Internet Site: http://www.mckimcreed.com

SARASOTA COUNTY

DUPLEX WASTEWATER LIFT STATIONS
SUPERVISORY CONTROL, DATA ACQUISITION (SCADA) AND CONTROL PANELS

CONTROL PANEL WIRING

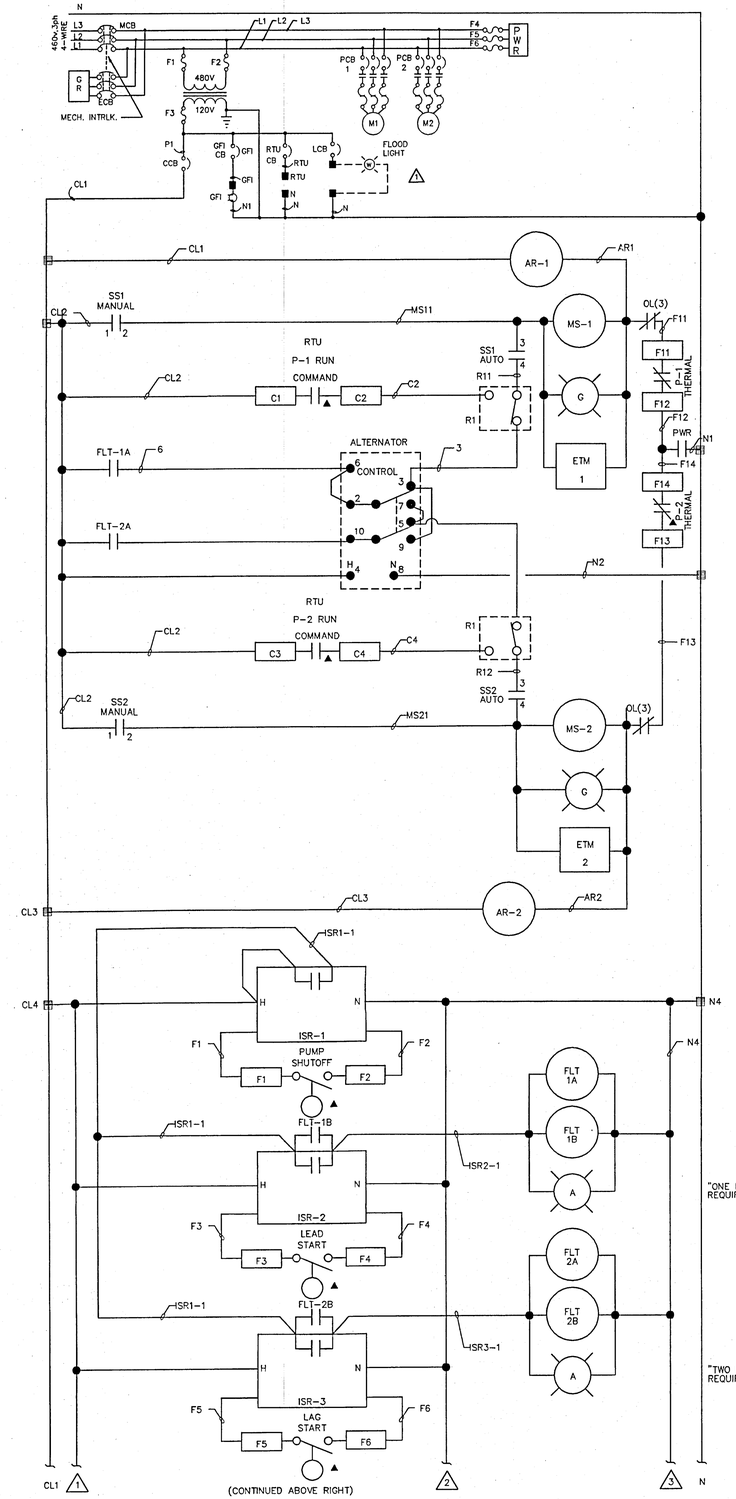
DATE:	OCTOBER, 2003
MCE PROJ. #	1038-0007
DRAWN	
DESIGNED	
CHECKED	
PROJ. MGR.	MAC

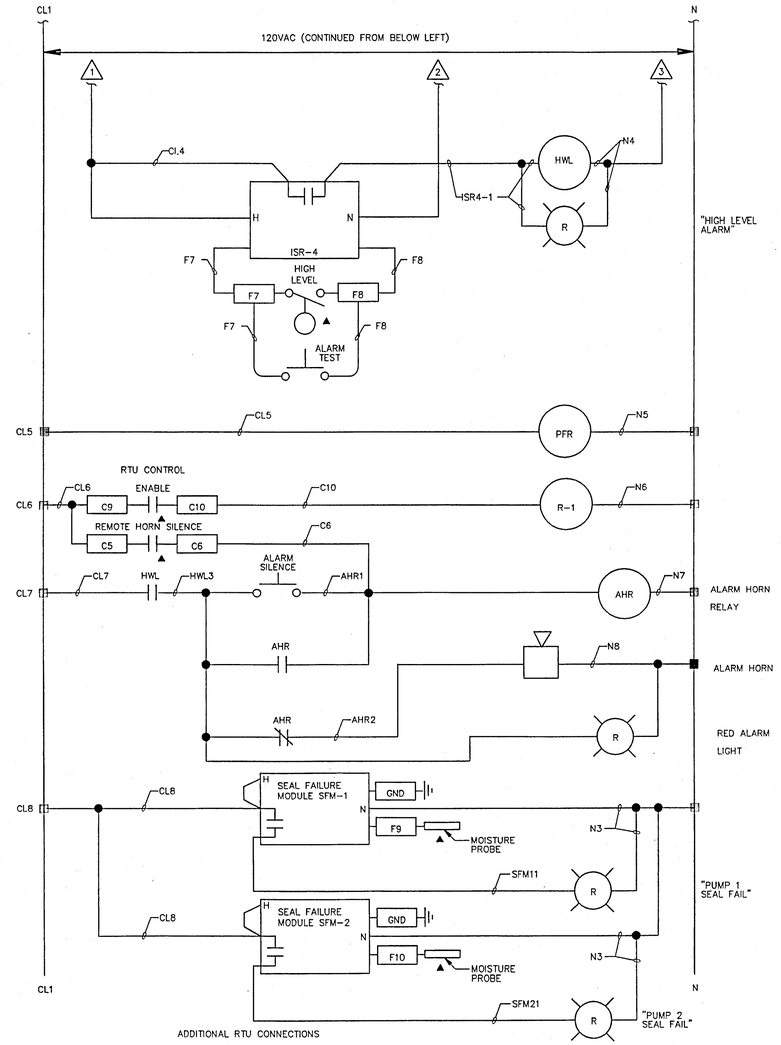
SCALE
HORIZONTAL: NA
VERTICAL: NA

M&C DWG NUMBER
SHEET NUMBER 3
3 OF 4

STATUS:
REVISION

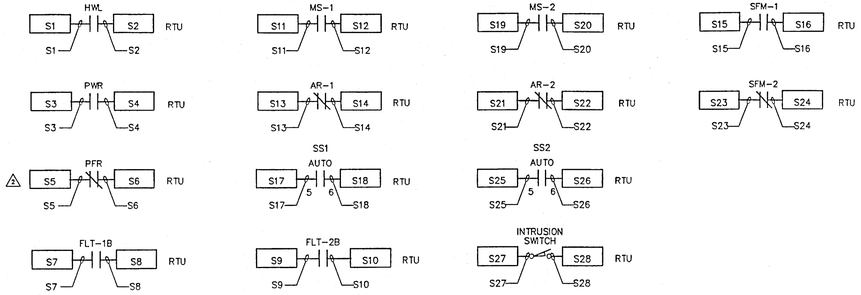
S:\1038\Prelim\Final dwgs\PumpStations\3P-Fabrication\MCE-3P 3 OF 4.dwg, Model, 05/05/2004 10:52:37 AM





SELECTOR SWITCHES SS1, SS2
DEVELOPMENTS

CONTACTS	POSITION		
	MANUAL	OFF	AUTO
1–2	X		
3–4			X
5–6			X



LEGEND:

- AR ALARM RELAY
- ETM ELAPSED TIME METER
- HWL HIGH WATER LEVEL
- ISR INTRINSICALLY SAFE RELAY
- MS MOTOR STARTER
- (A) PFR POWER FAILURE RELAY
- PWR POWER PHASE MONITOR
- RTU REMOTE TERMINAL UNIT
- SFM SEAL FAIL MONITOR UNIT
- ### EXTERNAL CONNECTION TERMINAL
- ▲ DEVICE EXTERNAL TO PANEL
- ### WIRE NUMBERS
- INTERNAL TERMINAL POINTS

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 21 2006
SOUTHWEST DISTRICT TAMPA

REV.NO.	DESCRIPTIONS	DATE
2	ADDED PFR	4/04
1	REMOVED REMOTE LIGHT SWITCH	3/04

REVISIONS

SEAL

SEAL

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SARASOTA COUNTY

DUPLEX WASTEWATER LIFT STATIONS
SUPERVISORY CONTROL,
DATA ACQUISITION (SCADA)
AND CONTROL PANELS

PUMP CONTROL SCHEMATIC

DATE:	OCTOBER, 2003
MCE PROJ. #	1038-0007
DRAWN	
DESIGNED	
CHECKED	
PROJ. MGR.	MAC

SCALE
HORIZONTAL: NA
VERTICAL: NA

MAC DWG NUMBER
SHEET NUMBER 4
4 OF 4

STATUS: REVISION

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