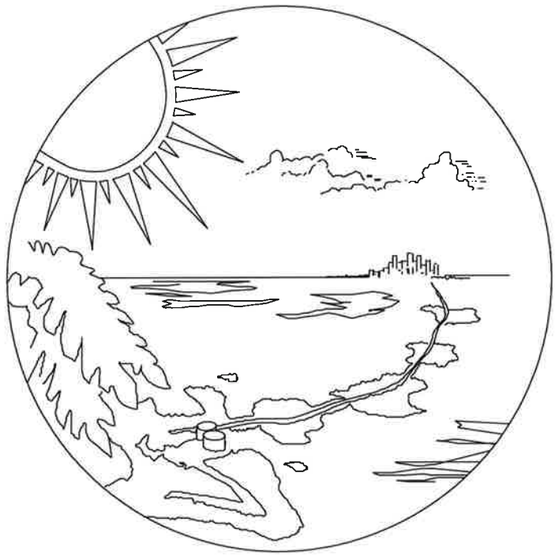
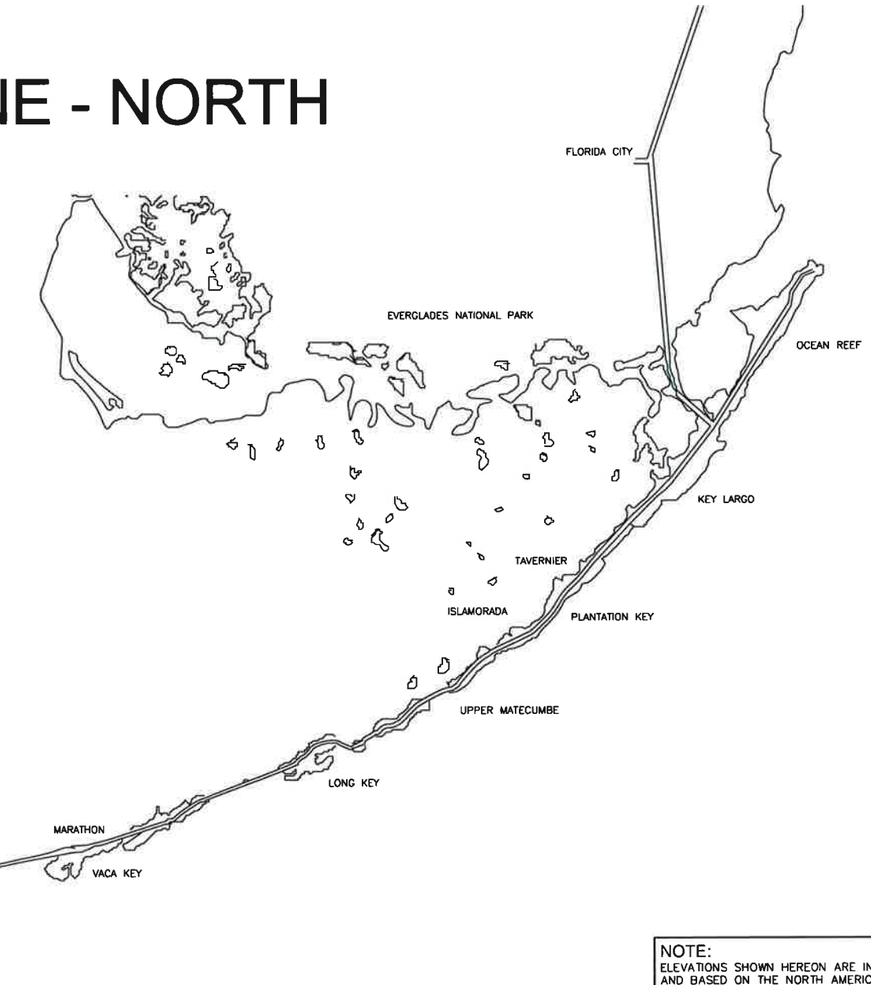
PERMIT SET

FLORIDA KEYS AQUEDUCT AUTHORITY

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM
DESIGN BUILD PROJECT FOR OUTER ISLANDS



BIG PINE - NORTH



BOARD OF DIRECTORS

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CHAIR

Antoinette M. Appell
VICE CHAIR

Brian L. Barroso
SECRETARY/TREASURER

David C. Ritz
DIRECTOR

Melva G. Wagner
DIRECTOR

Kirk C. Zuelch
EXECUTIVE DIRECTOR

NOTE:
ELEVATIONS SHOWN HEREON ARE IN FEET AND BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988).

ELECTRICAL ENGINEER:
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5300 W. ATLANTIC AVE., SUITE 408
DELRAY BEACH, FLORIDA 33484
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Florida P.E. No. 50780

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12595 SW 137 Avenue, Suite 112
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500 W. Cypress Creek Rd.,
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Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.
Layne
30364 QUAIL ROOST TRAIL, UNIT 1
BIG PINE KEY, FL 33043
PHONE: (305) 615-2615

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

COVER SHEET

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. G-1
SHEET 1 of 281

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DESCRIPTION	LENGTH	UNIT
2" HDPE DR 11 (DIPS) FM	74,670	LF
3" HDPE DR 11 (DIPS) FM	35,007	LF
4" HDPE DR 11 (DIPS) FM	17,146	LF
6" HDPE DR 11 (DIPS) FM	5,565	LF
8" HDPE DR 11 (DIPS) FM	236	LF
8" GRAVITY SANITARY SEWER	28,375	LF

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REVISIONS

DATE	MARK	BY	DESCRIPTION

DRAWN: AK DATE: 1/14
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ENGINEER'S SEAL
OSCAR R. BELLO No. 61612 STATE OF FLORIDA PROFESSIONAL ENGINEER
2/11/14

ENGINEER:
CHEN-MOORE AND ASSOCIATES
500 W. Cypress Creek Rd., Suite 630
Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.
Layne

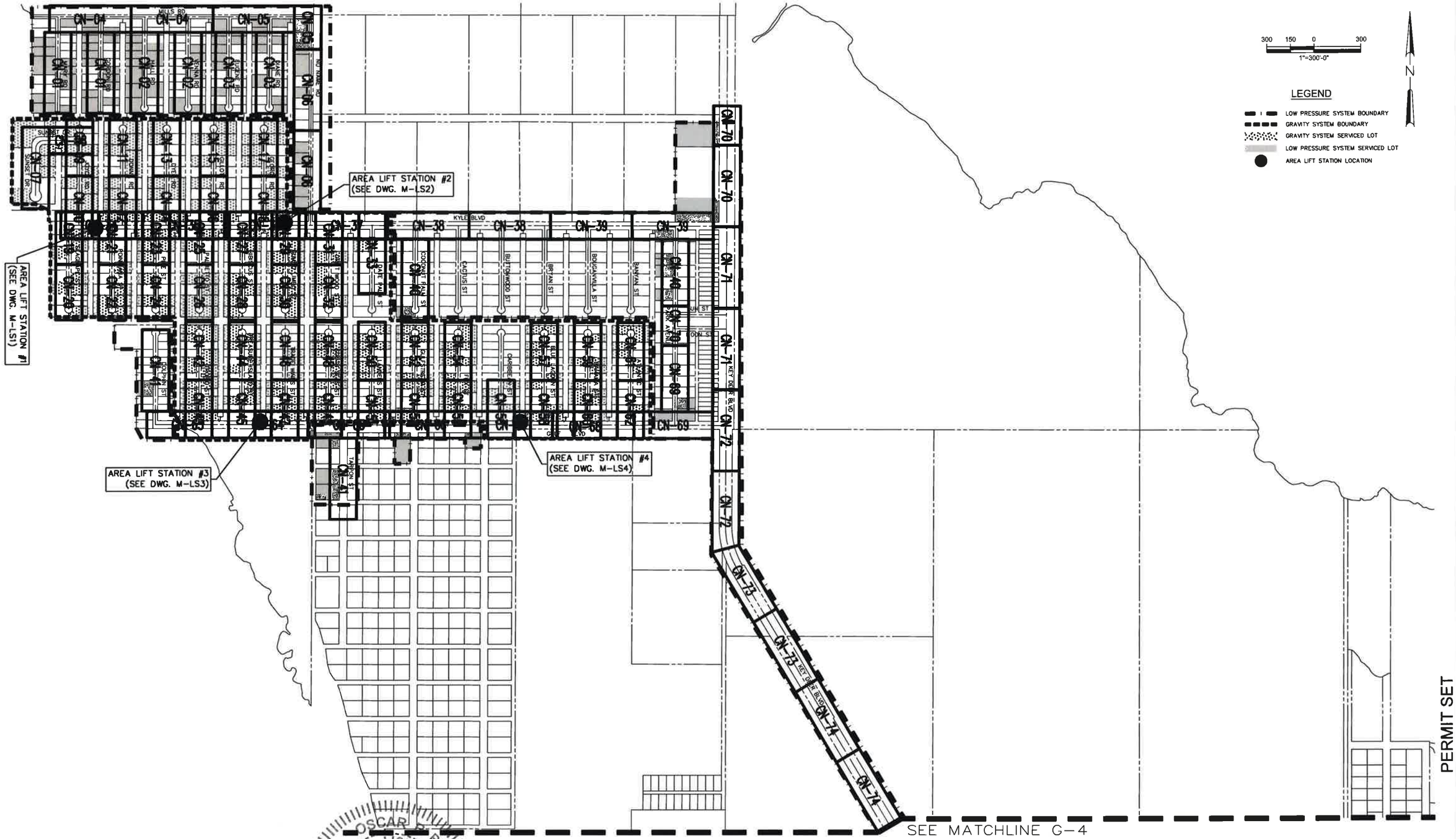
CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

DRAWING INDEX

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. G-2
SHEET 2 of 281

RECEIVED Feb 12, 2014
South District DEP



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DATE	MARK	BY	DESCRIPTION

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ENGINEER'S SEAL
OSCAR R. BELLODA
FL. REG. NO. 61612
STATE OF FLORIDA
PROFESSIONAL ENGINEER

ENGINEER
CHEN-MOORE & ASSOCIATES
500 W. Cypress Creek Rd., Suite 630
Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

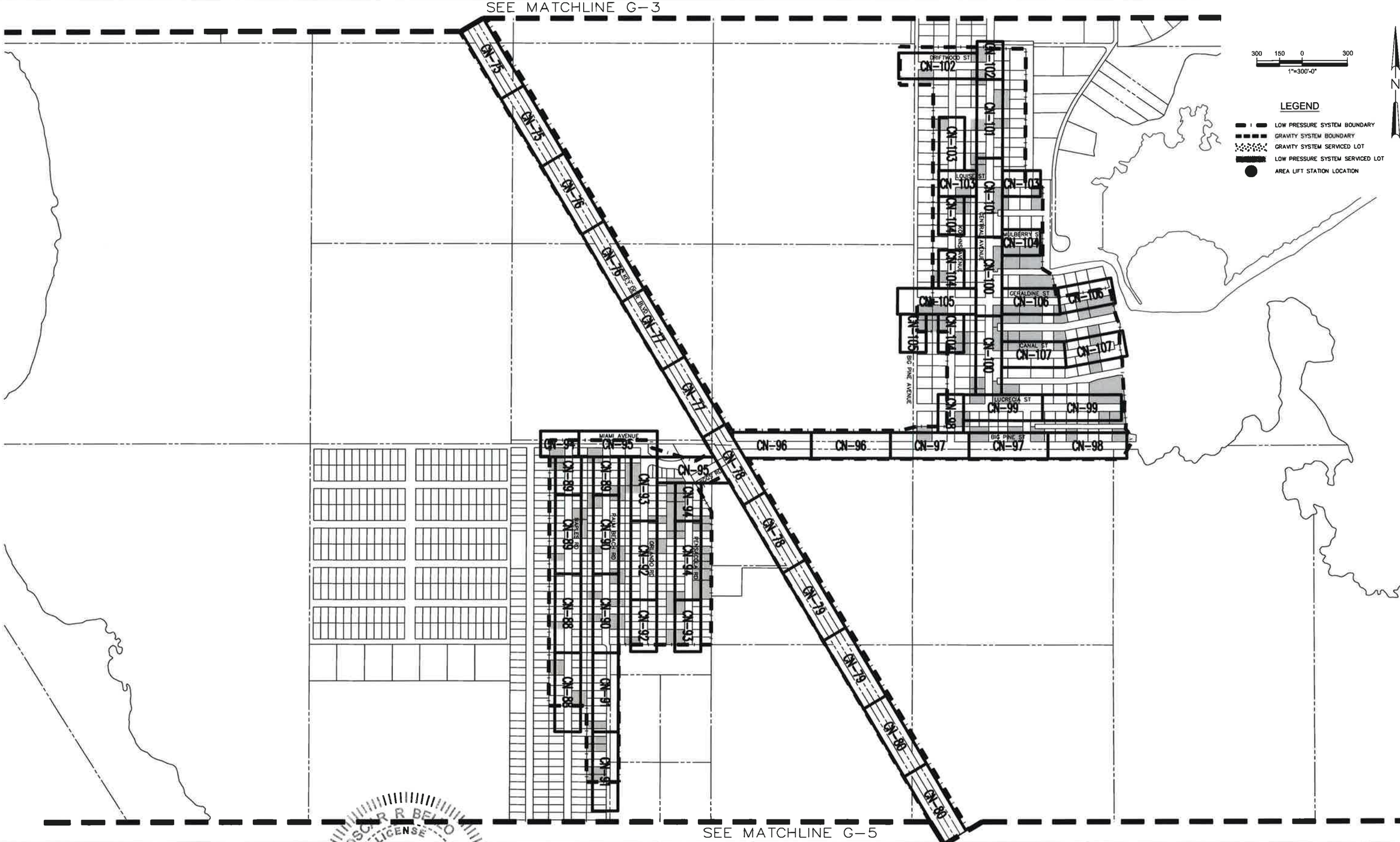
CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

KEY SHEET 1

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. G-3
SHEET 3 of 281

SEE MATCHLINE G-3



SEE MATCHLINE G-5

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ENGINEER'S SEAL
No. 61612
2-11-14
STATE OF
OSCAR R. BELLO, P.E.
FL. REG. NO. 61612

ENGINEER:
CHEN-MOORE &ASSOCIATES
500 W. Cypress Creek Rd., Suite 630
Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

KEY SHEET 2

FKAA PROJECT NO. 4053-12
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DRAWING NO. G-4
SHEET 4 of 281

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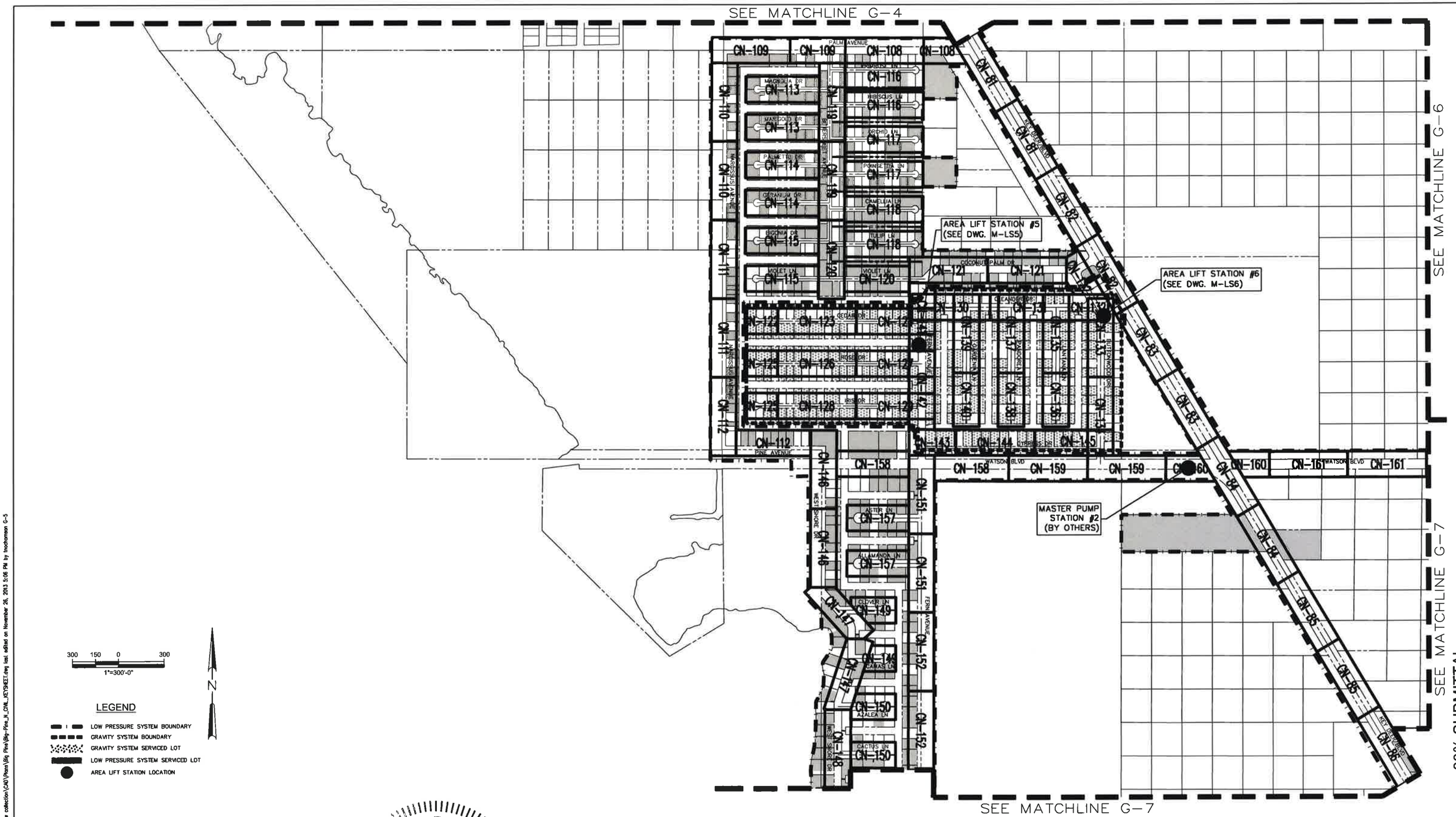

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ENGINEER'S SEAL
OSCAR R BELLO LICENSE No. 61612 2-11-14 STATE OF FLORIDA PROFESSIONAL ENGINEER
OSCAR R. BELLO (P.E.) FLORIDA REG. NO. 61612

ENGINEER:
CHEN-MOORE & ASSOCIATES
500 W. Cypress Creek Rd., Suite 630
Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

KEY SHEET 3

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. G-5
SHEET 5 of 281

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VERIFY SCALES		
0 1"		
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'ENGINEER'S SEAL
No. 61612
2-11-14
STATE OF
OSCAR R. BELLO
FL REG NO. 61612
PROFESSIONAL ENGINEER

ENGINEER
CHEN·MOORE &ASSOCIATES
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Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.
Layne

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH
KEY SHEET 4

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. G-6
SHEET 6 of 281

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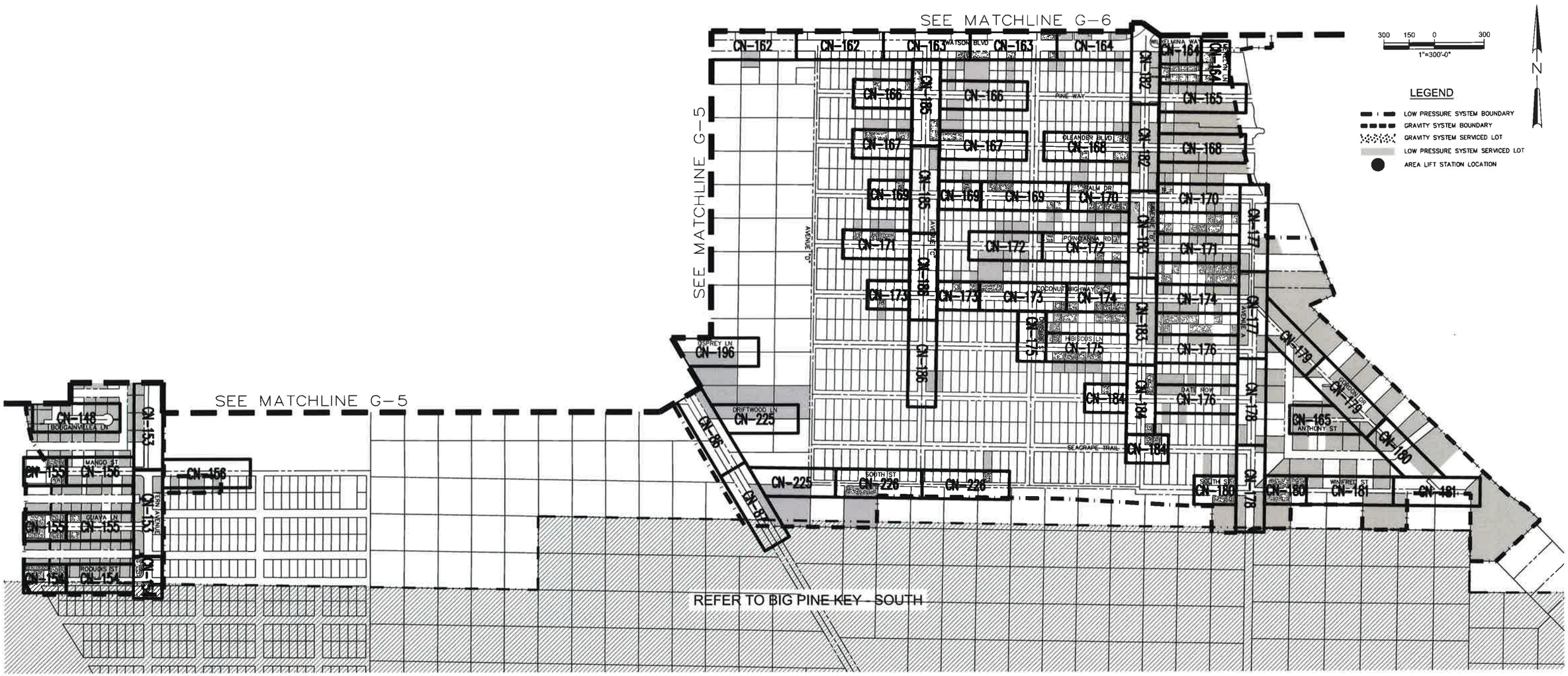

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ENGINEER'S SEAL
No. 61612
2-11-14
STATE OF FLORIDA
OSCAR R. BELLO
FL REG. NO. 61612
PROFESSIONAL ENGINEER

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Fax: (954)730-2030
EB 0004593

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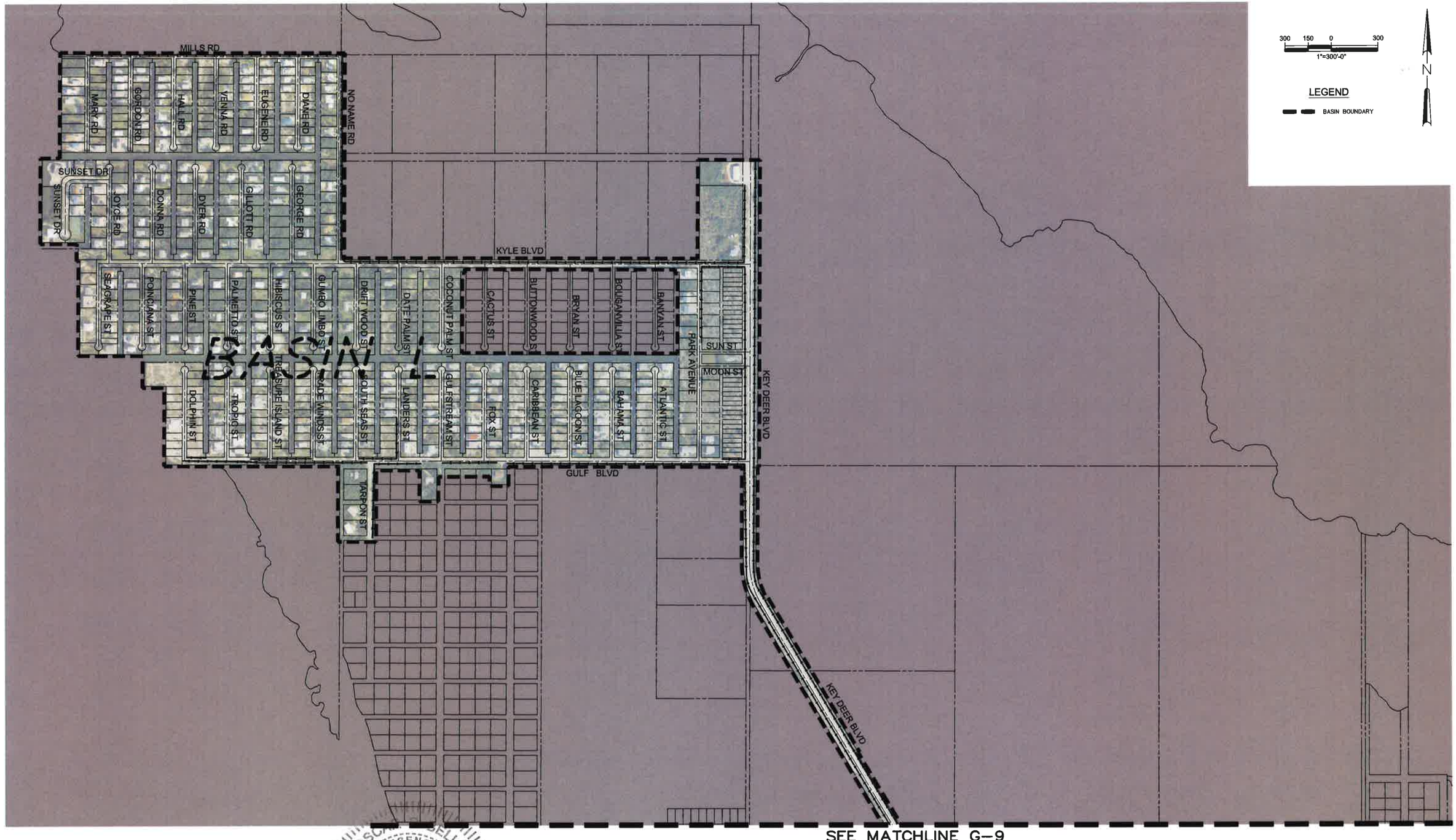
CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

KEY SHEET 5

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. G-7
SHEET 7 of 281



SEE MATCHLINE G–9

PERMIT SET

FKAA Cudjoe Regional WW Collection\CAD\Plans\Big Pine\Big_Pine_N_CIVIL_KEYSHEET-BASINS.dwg last edited on November 20, 2013 5:53 PM by tmacharmson G-8

REVISIONS			
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DRAWN: AK	DATE: 11/13	
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ENGINEER'S SEAL
No. 61612
2-4-14
STATE OF FLORIDA
OSCAR R. BELLO
FL. REG. NO. 61612
PROFESSIONAL ENGINEER

ENGINEER:
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Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

BASIN 'L' MAP

FKAA PROJECT NO.	4053-12
FKAA FILE ID.	
DRAWING NO.	G-8
SHEET	8 of 281

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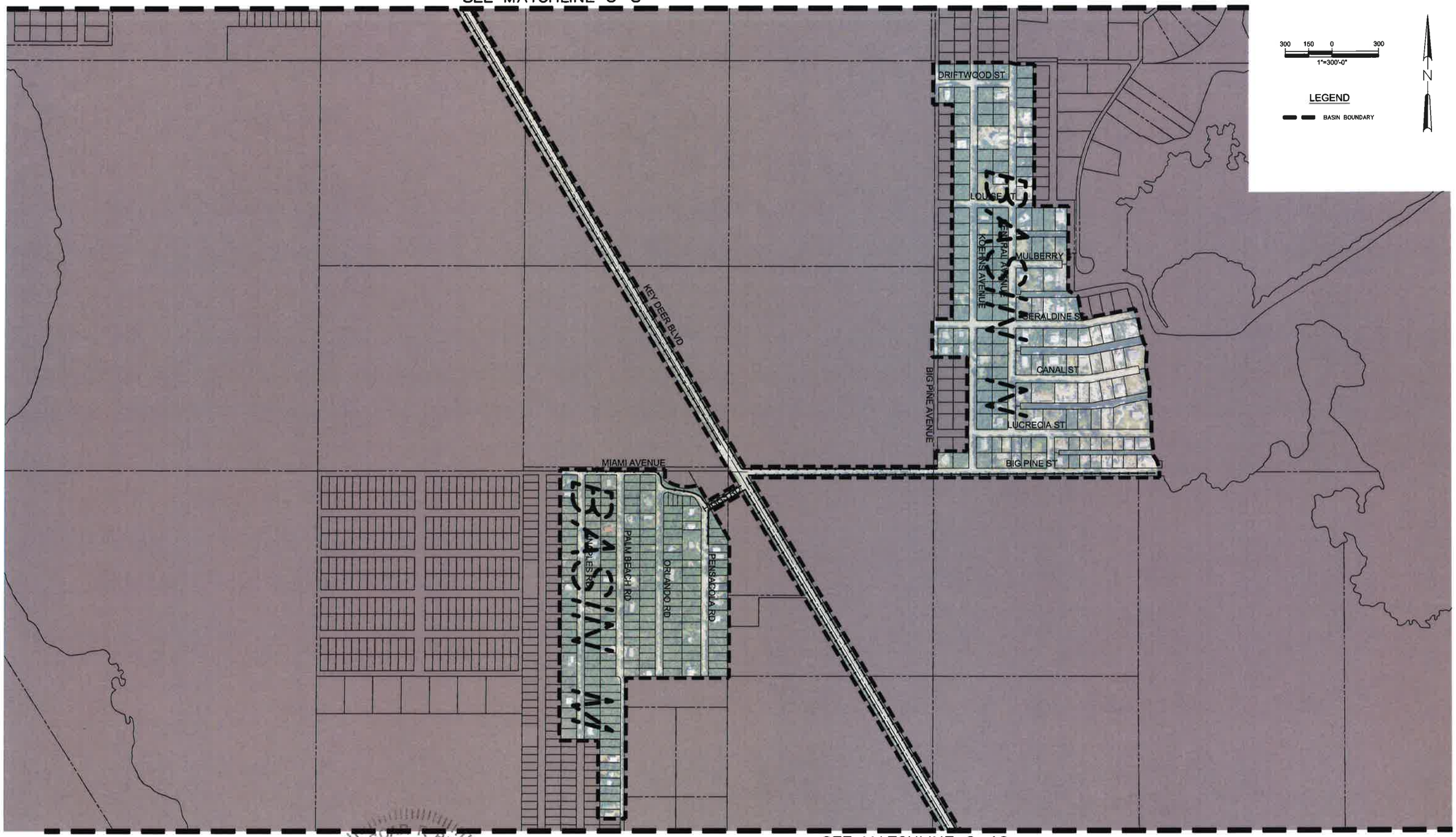
SEE MATCHLINE G-8



SEE MATCHLINE G-10

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REVISIONS

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0 1"
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ENGINEER'S SEAL
No. 61612
2-11-14
STATE OF FLORIDA
OSCAR R. BELLO
FL REG. NO. 61612
PROFESSIONAL ENGINEER

ENGINEER:
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500 W. Cypress Creek Rd., Suite 630
Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

BASINS 'M' & 'N' MAP

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. G-9
SHEET 9 of 281

FKAA Cudjoe Regional WW Collection\CAD\Plans\Big Pine\Big-Pine_N_CIVIL_KEYSHEET-BASINS.dwg last edited on November 20, 2013 5:53 PM by tmontemayor G-9

SEE MATCHLINE G-11

SEE MATCHLINE G-9

KEY DEER BLVD
BUTTONWOOD DR
LANTANA LN
PANDOREA LN
GARDENIA LN
COCONUT PALM DR
OLEANDER DR
CYPRESS DR
WATSON BLVD
FERN AVENUE
PRIMROSE LN
HIBISCUS LN
ORCHID LN
POINSETTIA LN
CAMELLIA LN
TULIP LN
VIOLET LN
CEDAR DR
ROSE DR
IRIS DR
PALM AVENUE
BITTERSWEET AVENUE
MAGNOLIA DR
MARIGOLD DR
PALMETTO DR
GERANIUM DR
BEGONIA DR
VIOLET LN
PINE AVENUE
NARCISSUS AVENUE
ASTER LN
ALAMANDA LN
CLOVER LN
CANNAS LN
AZALEA LN
CACTUS LN
BOUGAINVILLEA LN
MANGO ST
GUAVA LN
ROQUES ST
WEST SHORE DR

300 150 0 300
1"=300'-0"

LEGEND

BASIN BOUNDARY

PERMIT SET

REVISIONS			
DATE	MARK	BY	DESCRIPTION

DRAWN: AK DATE: 11/13
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DESIGN: TN DATE: 11/13
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ENGINEER'S SEAL
No. 61612
2-11-14
STATE OF FLORIDA
OSCAR R. BELLO
PE, REG. NO. 61612

ENGINEER
CHEN·MOORE & ASSOCIATES
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Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

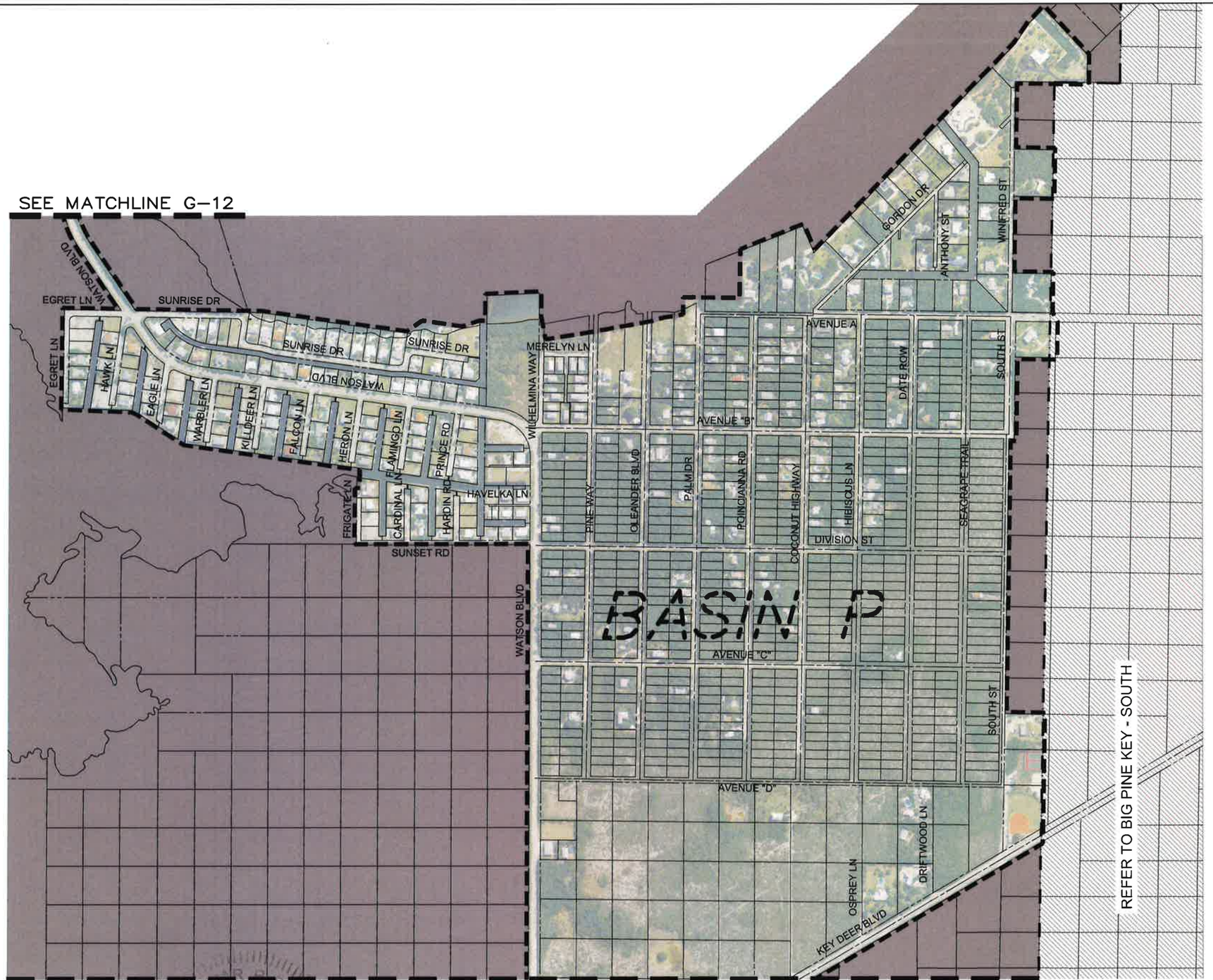
DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

BASIN 'O' MAP

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. G-10
SHEET 10 of 281



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REVISIONS			
DATE	MARK	BY	DESCRIPTION

DRAWN: AK	DATE: 11/13	ENGINEER'S SEAL
CHECKED: OB	DATE: 11/13	
DESIGN: TN	DATE: 11/13	

VERIFY SCALES
0 1"
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No. 61612
2-11-14
STATE OF FLORIDA
OSCAR R. BELLO
FL REG. NO. 61612
PROFESSIONAL ENGINEER

ENGINEER:
CHEN·MOORE & ASSOCIATES
500 W. Cypress Creek Rd., Suite 630
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Tel: (954)730-0707
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EB 0004593

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LAYNE HEAVY CIVIL, INC.
Layne

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

BASIN 'P' MAP

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. G-11
SHEET 11 of 281

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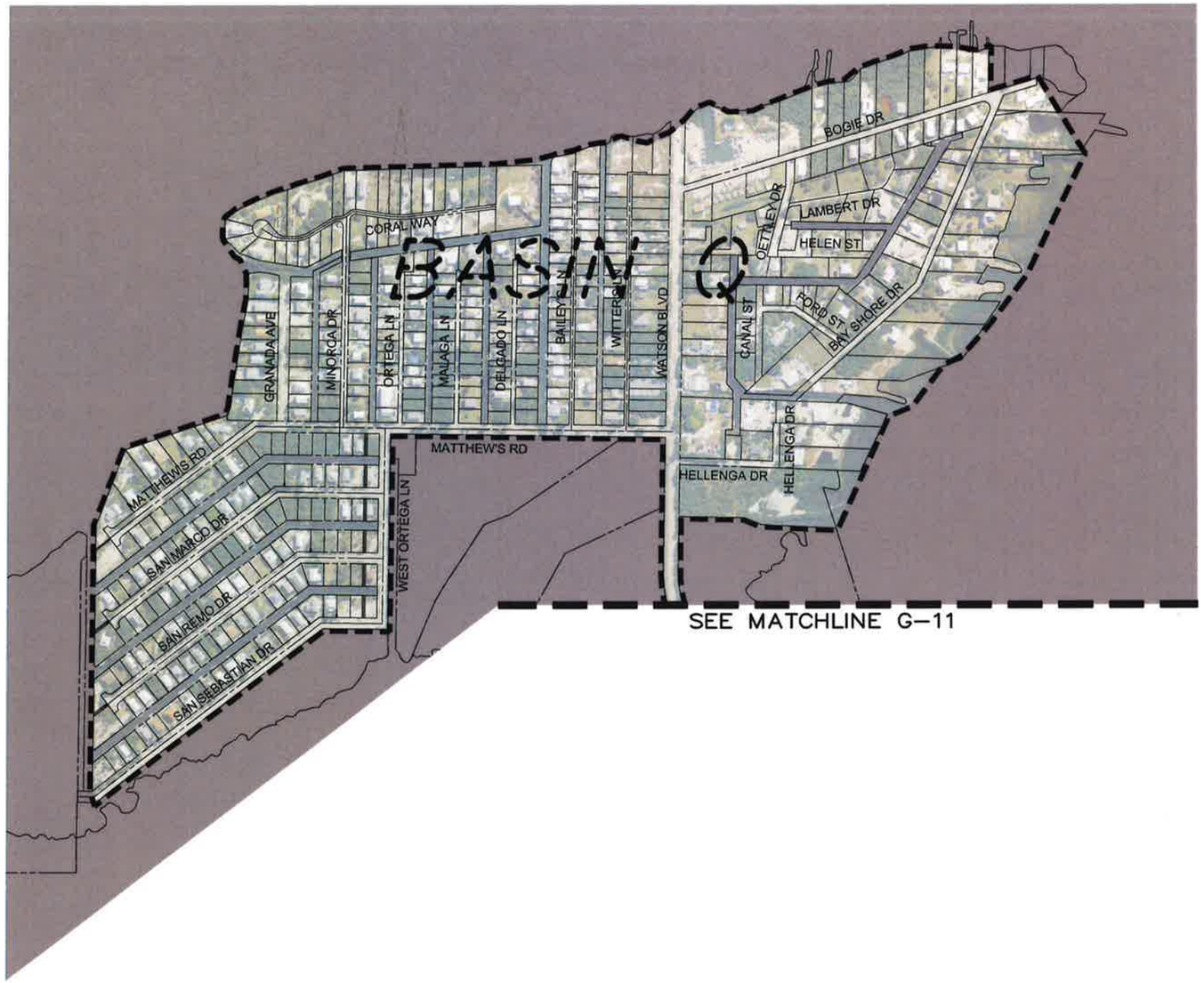

300 150 0 300

1"=300'-0"

LEGEND

BASIN BOUNDARY

N

PERMIT SET

REVISIONS			
DATE	MARK	BY	DESCRIPTION

DRAWN: AK DATE: 11/13
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ENGINEER'S SEAL
No. 61612
2-11-14
STATE OF FLORIDA
OSCAR R. BELLO
FL. REG. NO. 61612

ENGINEER:
CHEN·MOORE &ASSOCIATES
500 W. Cypress Creek Rd., Suite 630
Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
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LAYNE HEAVY CIVIL, INC.

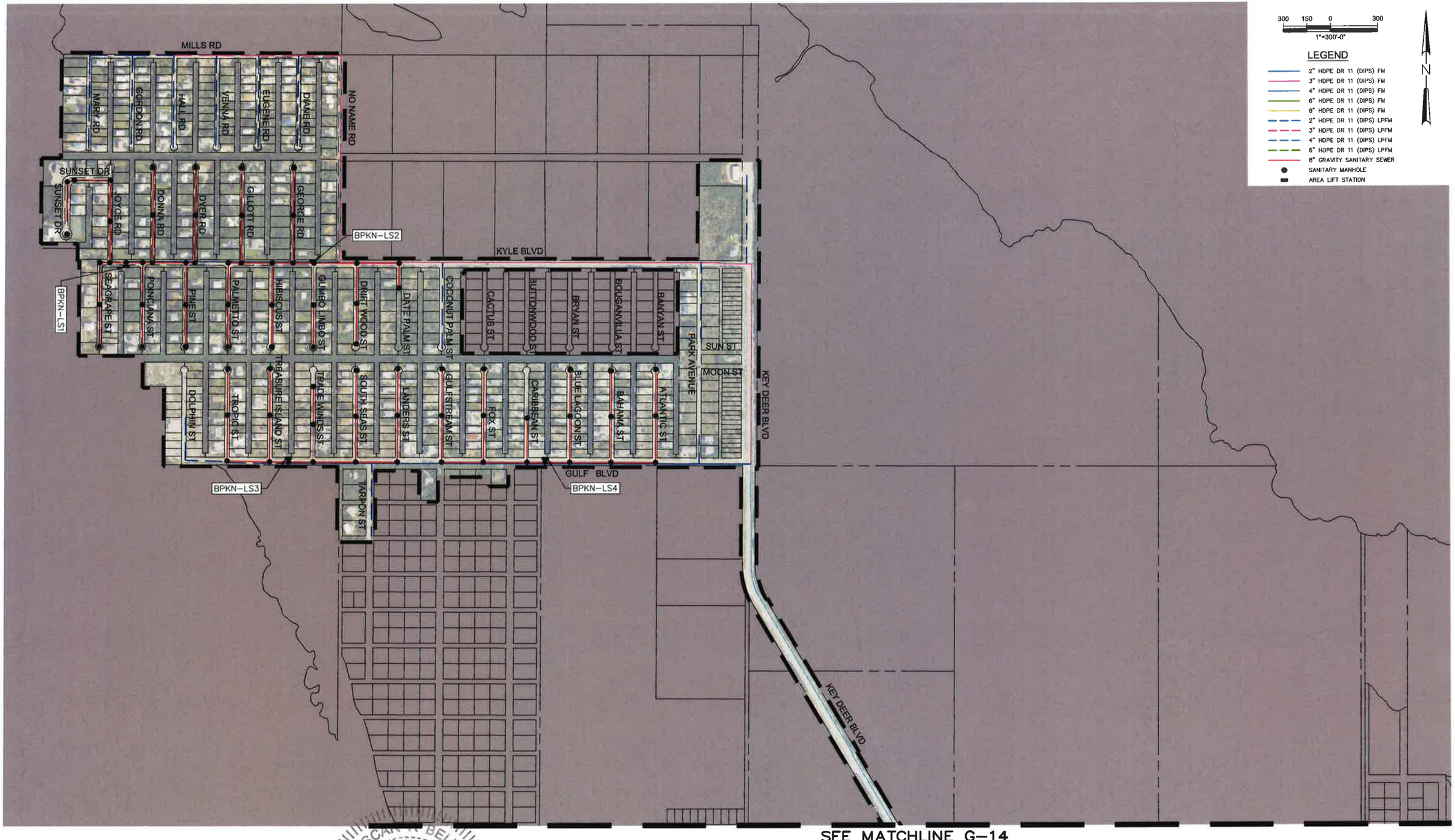
CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

BASIN 'Q' MAP

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. G-12
SHEET 12 of 281



SEE MATCHLINE G-14

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REVISIONS			
DATE	MARK	BY	DESCRIPTION

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DESIGN: TN	DATE: 11/13	

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0 1"
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ENGINEER'S SEAL
No. 61612
2-11-14
STATE OF FLORIDA
OSCAR R. BELLO
FL REG. NO. 61612
PROFESSIONAL ENGINEER

ENGINEER:
CHEN·MOORE &ASSOCIATES
500 W. Cypress Creek Rd., Suite 630
Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

MASTER UTILITY MAP - BASIN L

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. G-13
SHEET 13 of 281

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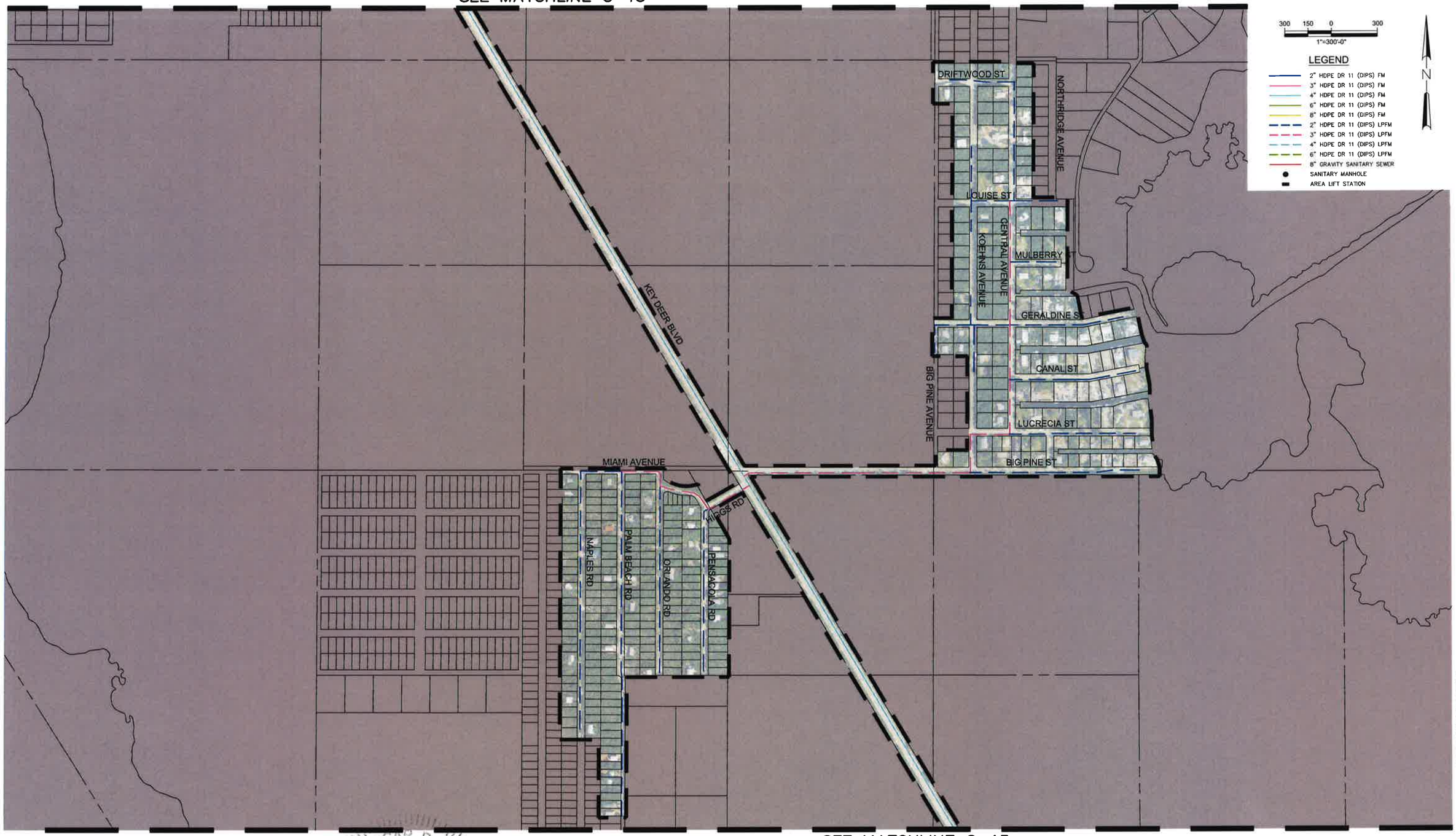
SEE MATCHLINE G-13



SEE MATCHLINE G-15

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VERIFY SCALES: IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY		

ENGINEER'S SEAL

No. 61612
2-11-14
STATE OF FLORIDA
OSCAR R. BELLO
FL REG. NO. 61612
REGISTERED PROFESSIONAL ENGINEER

ENGINEER:
CHEN·MOORE & ASSOCIATES
500 W. Cypress Creek Rd., Suite 630
Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

MASTER UTILITY MAP - BASIN M & N

FKAA PROJECT NO.	4053-12
FKAA FILE ID.	
DRAWING NO.	G-14
SHEET	14 of 281

SEE MATCHLINE G-14

SEE MATCHLINE G-16

SEE MATCHLINE G-17

PERMIT SET

PALM AVENUE

PRIMROSE LN

MAGNOLIA DR

HIBISCUS LN

MARIGOLD DR

ORCHID LN

PALMETTO DR

POINSETTIA LN

GERANIUM DR

CAMELLIA LN

BIGONIA DR

TULIP LN

VIOLET LN

VIOLET LN

COCONUT PALM DR

OLEANDER DR

CEDAR DR

BPKN-LS5

ROSE DR

IRIS DR

PINE AVENUE

CYPRESS DR

WATSON BLVD

WATSON BLVD

ASTER LN

ALLAMANDA LN

CLOVER LN

CAMAS LN

AZALEA LN

CACTUS LN

BPKN-LS6

MASTER PUMP STATION #2 (BY OTHERS)

KEY DEER BLVD

KEY DEER BLVD

NARCISSUS AVENUE

NARCISSUS AVENUE

BITTERSWEET AVENUE

FERN AVENUE

GARDENIA LN

PANDOREA LN

LANTANA LN

BUTTONWOOD DR

WEST SHORE DR

FERN AVENUE

WEST SHORE DR

300 150 0 300

1"=300'-0"

N

LEGEND

- 2" HDPE DR 11 (DIPS) FM
- 3" HDPE DR 11 (DIPS) FM
- 4" HDPE DR 11 (DIPS) FM
- 6" HDPE DR 11 (DIPS) FM
- 8" HDPE DR 11 (DIPS) FM
- 2" HDPE DR 11 (DIPS) LPFM
- 3" HDPE DR 11 (DIPS) LPFM
- 4" HDPE DR 11 (DIPS) LPFM
- 6" HDPE DR 11 (DIPS) LPFM
- 8" GRAVITY SANITARY SEWER
- SANITARY MANHOLE
- AREA LIFT STATION

SEE MATCHLINE G-17

REVISIONS			
DATE	MARK	BY	DESCRIPTION

DRAWN: AK	DATE: 11/13		
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DESIGN: TN	DATE: 11/13		

VERIFY SCALES
0 1"
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ENGINEER'S SEAL
OSCAR R. BELLO
No. 61612
2-11-14
STATE OF FLORIDA
PROFESSIONAL ENGINEER
OSCAR R. BELLO
FL REG. NO. 61612

ENGINEER:
CHEN·MOORE &ASSOCIATES
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Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

MASTER UTILITY MAP - BASIN O

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. G-15
SHEET 15 of 281

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REVISIONS			
DATE	MARK	BY	DESCRIPTION

DRAWN: AK	DATE: 11/13	ENGINEER'S SEAL
CHECKED: OB	DATE: 11/13	No. 61612
DESIGN: TN	DATE: 11/13	2-11-14
VERIFY SCALES		STATE OF
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY		OSCAR R. BELLO FL REG. NO. 61612

ENGINEER:
CHEN·MOORE &ASSOCIATES
500 W. Cypress Creek Rd., Suite 630
Ft. Lauderdale, FL 33309
Tel: (954)730-0707
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LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

MASTER UTILITY MAP - BASIN Q & P

FKAA PROJECT NO.	4053-12
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DRAWING NO.	G-16
SHEET	16 of 281

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SEE MATCHLINE G-16

SEE MATCHLINE G-15

SEE MATCHLINE G-15

REFER TO BIG PINE KEY - SOUTH

WATSON BLVD
ELKALN
WILHELMINA WAY
MERELYN LN
PINE WAY
OLEANDER BLVD
PALM DR
POINCIANNA RD
COCONUT HIGHWAY
HIBISCUS LN
DATE ROW
SEAGRAPE TRAIL
SOUTH ST
SOUTH ST
DRIFTWOOD LN
KEY LN
AVENUE "D"
AVENUE "C"
AVENUE "B"
AVENUE "A"
DIVISION ST
GORDON DR
ANTHONY ST
WINIFRED ST
BOUGAINVILLEA LN
MANGO ST
GUAVA LN
ROQUDIS ST

300 150 0 300
1"=300'-0"

N

LEGEND

- 2" HDPE DR 11 (DIPS) FM
- 3" HDPE DR 11 (DIPS) FM
- 4" HDPE DR 11 (DIPS) FM
- 6" HDPE DR 11 (DIPS) FM
- 8" HDPE DR 11 (DIPS) FM
- 2" HDPE DR 11 (DIPS) LPFM
- 3" HDPE DR 11 (DIPS) LPFM
- 4" HDPE DR 11 (DIPS) LPFM
- 6" HDPE DR 11 (DIPS) LPFM
- 8" GRAVITY SANITARY SEWER
- SANITARY MANHOLE
- AREA LIFT STATION

PERMIT SET

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REVISIONS

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ENGINEER'S SEAL
OSCAR R BELLO LICENSE No. 61612 STATE OF FLORIDA REGISTERED PROFESSIONAL ENGINEER
2-11-14
OSCAR R) BELLO
FL REG. NO. 61612

ENGINEER:
CHEN·MOORE &ASSOCIATES
500 W. Cypress Creek Rd., Suite 630
Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.
Layne

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH
MASTER UTILITY MAP - BASIN P

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. G-17
SHEET 17 of 281

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GENERAL NOTES

A. THE CONTRACTOR SHALL NOTIFY ALL UTILITIES WITH FACILITIES IN PROXIMITY TO THE PROPOSED UNDERGROUND UTILITY IMPROVEMENTS 48 HOURS PRIOR TO STARTING WORK AND SHALL COORDINATE WORK WITH UTILITY REPRESENTATIVES.

B. THE CONTRACTOR SHALL NOTIFY THE FKAA CONTRACT OFFICE PRIOR TO STARTING WORK SO THAT INSPECTION MAY BE PROVIDED.

C. THE CONTRACTOR SHALL NOT INTERRUPT WATER SERVICE TO CUSTOMERS WHILE MAKING CONNECTIONS TO EXISTING WATERMAINS UNLESS AUTHORIZED BY THE FKAA. SUCH TIE-INS SHALL BE SCHEDULED WITH THE FKAA 48 HOURS IN ADVANCE.

D. NO REVISIONS SHALL BE MADE TO THESE PLANS WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER OF RECORD (CHEN MOORE & ASSOCIATES).

E. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVE OR MAKE A TAP ON ANY WATER MAIN UNLESS AN FKAA REPRESENTATIVE IS PRESENT.

F. WHERE POSSIBLE, INSTALL RELOCATED WATER MAINS IN MONROE COUNTY R/W WITH 30 INCHES OF COVER. IF IT BECOMES NECESSARY TO INSTALL A WATER MAIN WITH LESS THAN 24 INCHES OF COVER IN MONROE COUNTY R/W, THE WATER MAIN SHALL BE CONSTRUCTED OF CLASS 52 DUCTILE IRON PIPE. NEVER INSTALL A WATER MAIN WITH LESS THAN 20 INCHES OF COVER.

G. THE MINIMUM DEPTH FOR OPEN TRENCH OR TRENCHLESS METHODS IN FDOT R/W SHALL BE AS FOLLOWS:
1. BELOW THE TOP OF THE PAVEMENT: 36 INCHES MINIMUM
2. BELOW THE EXISTING UNPAVED GROUND: 30 INCHES MINIMUM (INCLUDING DESIGNED DITCH GRADE AS VERIFIED FROM EXISTING PIPE INVERTS)

H. ALL WORK MUST CONFORM TO FKAA MINIMUM CONSTRUCTION STANDARDS AND SPECIFICATIONS, LATEST REVISION AT TIME OF BID. ALL MATERIALS SUPPLIED SHALL CONFORM TO FKAA PRODUCT LIST AND SHOP DRAWINGS AS APPROVED BY FKAA PRIOR TO CONSTRUCTION. ALL REQUESTS FOR MATERIAL SUBSTITUTION SHALL BE APPROVED PRIOR TO DELIVERY OF THESE MATERIALS TO THE JOB SITE.

I. THE CONTRACTOR SHALL MAINTAIN A CURRENT APPROVED SET OF CONSTRUCTION DOCUMENTS ON SITE AT ALL TIMES.

J. CONTINUITY OF WATER SERVICE TO FKAA UTILITY CUSTOMERS SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THIS PROJECT. IF A BREAK IN SERVICE IS UNAVOIDABLE TO ACCOMMODATE CONNECTION OF NEW FACILITIES, IT SHALL BE SCHEDULED FOR OFF PEAK HOURS WITH FKAA. DETERMINATION OF SERVICE BREAK REQUIREMENT WILL BE MADE BY FKAA.

K. WATER MAINS AND FORCE MAINS ARE TO BE LAID WITHIN 0.2 FEET OF THE DESIGN PROFILE.

L. CONTRACTOR SHALL REFER TO DETAILS ON DRAWINGS D-1 THROUGH D-8 , M-LS2 THROUGH M-LS10, M-1 THROUGH M-6, AND W-1 & W-2 FOR STANDARD DETAIL CONSTRUCTION INFORMATION.

M. STATIONS SHOWN ON THE DRAWINGS ARE STATIONS BASED ON THE ESTABLISHED BASELINE AND SHALL NOT BE CONSIDERED AS DISTANCES OR AS A MEASURE OF THE LINEAR FOOTAGE OF PIPE TO BE INSTALLED.

N. ALL FITTINGS SHALL HAVE RESTRAINED JOINTS. SEE STANDARD DETAIL DRAWING D-3 FOR RESTRAINED PIPE LENGTHS.

O. ALL LONGITUDINAL TRENCHING WITHIN FDOT R/W WILL REQUIRE TRENCH DROP-OFF PROTECTION VIA TEMPORARY INSTALLATION OF CONCRETE BARRIERS PER FDOT DESIGN STANDARD INDEX 600 SERIES. NO PRE-TRENCHING ON FDOT R/W WILL BE ALLOWED.

P. PERMITTEE SHALL PROVIDE TO THE DEPARTMENT REPRESENTATIVE AT TIME OF INSTALLATION, A MANUFACTURER'S CERTIFICATION OF PROPOSED UNDERGROUND APPURTENANCES MANUFACTURED OFF-SITE, SUCH AS MANHOLES, SPLICE BOXES OR VAULTS THAT ARE GREATER THAN EIGHTY (80) CUBIC FEET IN ACCORDANCE WITH LOADING CRITERIA:
1. ONE WHEEL LOAD OF 16,000 LBS.
2. ONE AXLE LOAD OF 32,000 LBS.
3. TWO AXLE LOADS OF 24,000 LBS EACH, SPACED FOUR FEET APART.

Q. CONTRACTOR SHALL SCHEDULE DIRECTIONAL DRILL BORE DATE WITH F.D.O.T. INSPECTOR.

R. CONTRACTOR WILL ENSURE NO CONSTRUCTION ACTIVITIES WITHIN 5 FEET OF DRIP LINE OF TREES WITHOUT FIRST INSTALLING TREE PROTECTION PER FDOT INDEX 544. CONTRACTOR TO ENSURE NO STOCKPILING OF MATERIAL OR VEHICULAR ACCESS WITHIN DRIP LINE OF TREES.

S. SUPERPAVE (SP) ASPHALT CONCRETE SHALL BE USED FOR FDOT ROADWAYS IN LIEU OF S-III.

T. ALL FDOT ROADWAY IN PROJECT AREA IS UNDER THE FDOT 5-YEAR MORATORIUM. EVERY EFFORT SHOULD BE MADE TO PROTECT ASPHALT FROM DAMAGE. IF ANY DAMAGE OCCURS, THE ASPHALT MUST BE MILLED AND REPAVED IN FULL LANE WIDTH EXTENDING 50 FEET UPSTREAM AND DOWNSTREAM OF THE DAMAGE.

FDOT ENVIRONMENTAL NOTES

A. THE PERMITEE SHALL BE REQUIRED TO OBTAIN A DEWATERING PERMIT FROM FDEP AND SFWMD TO AVOID POTENTIAL CONTAMINATION PLUME EXACERBATION AND DETERMINE PROPER GROUNDWATER MANAGEMENT ASSOCIATED WITH SUCH SITE(S).

DOCUMENTATION OF THE DEWATERING ACTIVITIES SHALL BE REQUIRED. WATER GENERATED FROM THE DEWATERING OPERATIONS AT THESE LOCATIONS SHALL BE PROPERLY DISPOSED AND/OR TREATED TO MEET LOCAL, STATE AND FEDERAL DISCHARGE STANDARDS.

IN THE EVENT OF GROUNDWATER CONTAMINATION EXACERBATION OCCURS AS A RESULT OF DEWATERING ACTIVITIES, THE PERMITEE SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATES WITH THE REMEDIATION AS REQUIRED BY ALL APPLICABLE REGULATORY AGENCIES.

B. IF SOIL OR GROUNDWATER CONTAMINATION IS IDENTIFIED DURING EXCAVATION AND/OR DEWATERING, THE APPLICANT IS TO CONTACT THE ASSISTANT CONTAMINATION IMPACT COORDINATOR AT 305-470-5138 OFFICE, 305-986-8542 CELL PHONE, (VIA EMAIL MARIA.SALGADO@DOT.STATE.FL.US) AND INFORM THEM OF THE FIELD ASSESSMENT RESULTS.

C. PROVIDE THE DEPARTMENT COPIES OF CONTAMINATION-RELATED DELIVERABLES SUBMITTED TO ENVIRONMENTAL REGULATORY AGENCIES. THE REPORTS ARE TO BE SUBMITTED TO THE DISTRICT CONTAMINATION IMPACT COORDINATOR AT 1000 N.W. 111TH AVENUE, MIAMI, FL 33172-5800.

D. ENSURE APPROPRIATE EROSION CONTROL DEVICES ARE IN PLACE BEFORE WORK BEGINS AND ARE USED THROUGHOUT THE PROJECT.

GENERAL LATERAL CONSTRUCTION

A. LOCATION OF LATERALS ARE BASED ON AVAILABLE INFORMATION AT TIME OF DESIGN. CONTRACTOR SHALL CONFIRM PLUMBING DRAIN LOCATION FOR EACH HOUSE BEFORE INSTALLATION OF LATERALS. FINAL LOCATIONS OF LATERALS MUST BE REVIEWED BY THE HOME OWNER/FKAA BEFORE PROCEEDING.

B. THE INSIDE DIAMETER OF GRAVITY SANITARY LATERALS SHALL BE 6 INCHES.

C. GRAVITY SANITARY LATERALS HAVE A SLOPE OF 1.00% FROM THE MAIN LINE CONNECTION TO THE RIGHT-OF-WAY LINE UNLESS OTHERWISE DIRECTED BY FKAA.

EXISTING UTILITIES

A. THE LOCATION OF THE EXISTING UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE LOCATIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY IF OTHER UTILITIES (NOT SHOWN ON THE PLAN) EXIST WITHIN THE AREA OF CONSTRUCTION. SHOULD THERE BE UTILITY CONFLICTS, THE CONTRACTOR SHALL INFORM ENGINEER AND NOTIFY THE RESPECTIVE UTILITY OWNER TO RESOLVE THE UTILITY CONFLICTS AND THE UTILITY ADJUSTMENTS AS REQUIRED.

B. TELEPHONE, ELECTRIC, CABLE TV, GAS, ETC. ARE TAKEN FROM FIELD INSPECTIONS AND SKETCHES PROVIDED BY UTILITIES AND ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL CONTACT ALL UTILITY OWNERS AND CONFIRM LOCATIONS OF UTILITIES NO LESS THAN 48 HOURS BEFORE BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL ACCURATELY LOCATE AND UNCOVER ALL EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION WHERE CROSSING OR PARALLELING OF EXISTING UTILITIES OCCUR. ANY DAMAGE RESULTING FROM THE CONTRACTORS OPERATION SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.

C. CONTRACTOR SHALL NOTIFY SUNSHINE STATE ONE CALL (811) 48 HOURS IN ADVANCE OF CONSTRUCTION.

D. OVERHEAD ELECTRIC LINES EXIST THROUGHOUT THE LIMITS OF WORK, BUT MAY NOT BE SHOWN ON THE DRAWINGS.

E. WATER SERVICES EXIST THROUGHOUT THE LIMITS OF WORK, BUT MAY NOT BE IDENTIFIED ON THE DRAWINGS. PROCEED WITH CAUTION TO MAINTAIN THE WATER SERVICES. DAMAGES TO, OR RELOCATION OF WATER SERVICES DURING CONSTRUCTION SHALL BE COORDINATED WITH FKAA AND REPAIRED OR RELOCATED AT THE CONTRACTOR'S EXPENSE.

F. CONFLICTS WITH EXISTING WATER MAINS THAT REQUIRE MODIFICATION TO THE WATER MAIN SHALL BE COORDINATED WITH FKAA. CONSTRUCT UTILITY BYPASSES AFTER COORDINATION WITH FKAA.

TRAFFIC CONTROL

A. MAINTENANCE OF TRAFFIC (MOT) PLANS SHALL MEET THE REQUIREMENTS OF SECTION 102 OF THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AS FURTHER DEFINED IN THE SPECIFICATIONS OF THESE CONTRACT DOCUMENTS. MOT PLANS SHALL ALSO REFERENCE FDOT DESIGN STANDARDS INDEX 600 SERIES.

EROSION CONTROL NOTES

A. CUT AND FILL SLOPES TO BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION.

B. SILT FENCES TO BE USED IN ACCORDANCE WITH NPDES PERMIT.

C. ALL EXISTING STORM SEWER INLET GRATES TO BE COVERED IN ACCORDANCE WITH NPDES PERMIT.

D. ADD SILT FENCING OF WETLANDS AND UPLANDS AS DIRECTED BY FKAA.

SURVEY NOTES:

A. NO EXCAVATION WAS PERFORMED TO VERIFY THE LOCATION OR EXISTENCE OF ANY UNDERGROUND IMPROVEMENTS, STRUCTURES, OR FOUNDATIONS. UNDERGROUND UTILITIES SHOWN HEREON ARE SHOWN PER ABOVE GROUND EVIDENCE AND/OR RECORD DRAWINGS OR MUNICIPAL ATLAS INFORMATION AND THE LOCATION OF ALL UNDERGROUND UTILITY LINES ARE APPROXIMATE ONLY. THIS DOCUMENT SHOULD NOT BE RELIED UPON FOR EXCAVATION OR CRITICAL DESIGN FUNCTIONS WITHOUT FIELD VERIFICATION OF UNDERGROUND UTILITY LOCATIONS. UTILITIES OTHER THAN THOSE SHOWN HEREON MAY EXIST.

B. ANY USE OF THE SURVEY INFORMATION FOR PURPOSES OTHER THAN WHICH IT WAS INTENDED, WITHOUT WRITTEN VERIFICATION, WILL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE SURVEYOR. NOTHING HEREIN SHALL BE CONSTRUED TO GIVE ANY RIGHTS OR BENEFITS TO ANYONE OTHER THAN THOSE CERTIFIED TO.

C. BEARINGS SHOWN HEREON ARE BASED UPON THE CENTERLINE OF OF THE ROAD AND REFER TO THE FLORIDA STATE PLANE COORDINATE SYSTEM EAST ZONE (NAD 83) AND WERE ESTABLISHED BY USING REAL-TIME KINEMATIC (RTK) GLOBAL POSITIONING SYSTEM OBSERVATIONS UTILIZING THE LENGAMEN VRS NETWORK SOLUTION.

D. THE SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT.

E. ELEVATIONS SHOWN HEREON REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88').

F. FIELD SURVEY WAS CONDUCTED OCTOBER 2013.

LEGEND

- RIGHT OF WAY
- CENTERLINE
- PROP. SEWER MANHOLE
- PROP. SEWER GRAVITY MAIN
- PROP. SEWER FORCE MAIN
- PROP. LOW PRESSURE SEWER FORCE MAIN
- PROP. WATER MAIN
- EX. WATER MAIN TO BE ABANDONED
- EX. WATER MAIN
- EX. ABANDONED WATER MAIN
- EX. OVERHEAD WIRE
- EX. UNDERGROUND CABLE LINE
- EX. POWER POLE
- EX. FIRE HYDRANT
- EX. GROUND ELEVATION
- EX. WATER VALVE
- PROP. WATER SAMPLE POINT
- PROP. TEE, VALVE & FIRE HYDRANT
- PROP. TAPPING VALVE
- PROP. IN-LINE FLUSHING CONNECTION ASSEMBLY, REDUCER & BEND PROP. TEE
- PROP. FORCE MAIN TERMINAL FLUSHING CONNECTION ASSEMBLY
- PROP. WATER MAIN TERMINAL FLUSH-OUT ASSEMBLY
- PROP. AIR RELEASE VALVE
- PROP. 1" ASPHALT OVERLAY
- PIPE CROSSING ID
- EX. WATER SERVICE
- PROP. WATER SERVICE
- SANITARY LATERAL & CLEANOUT * (NO LOCATION SHEET)
- SANITARY LATERAL & CLEANOUT (WITH LOCATION SHEET)
- LOW PRESSURE SEWER SIMPLEX LATERAL KIT * (NO LOCATION SHEET)
- LOW PRESSURE SEWER SIMPLEX LATERAL KIT (WITH LOCATION SHEET)
- LOW PRESSURE SEWER DUPLEX LATERAL KIT * (NO LOCATION SHEET)
- LOW PRESSURE SEWER DUPLEX LATERAL KIT (WITH LOCATION SHEET)
- PROP. LIFT STATION

* THE LOCATIONS OF THE SANITARY LATERALS & SIMPLEX/DUPLEX LOW PRESSURE STATIONS ARE NOT KNOWN AT THIS TIME. THE LOCATIONS OF THE LOW PRESSURE STATIONS WILL NEED TO BE COORDINATED WITH THE CONTRACTOR. THE EXACT LOCATIONS WILL VARY DEPENDING ON LOCATIONS OF LATERAL KITS, PROXIMITY TO HOMEOWNERS ELECTRICAL BOX, EXISTING SEPTIC TANK LOCATION, CONSTRUCTION ACCESS, ETC.

PERMIT SET

NOTE:
ELEVATIONS SHOWN HEREON ARE IN FEET AND BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988).

REVISIONS			
DATE	MARK	BY	DESCRIPTION

DRAWN: AK DATE: 11/13
CHECKED: OB DATE: 11/13
DESIGN: TN DATE: 11/13
VERIFY SCALES: IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

ENGINEER'S SEAL: OSCAR R. BELLO, LIC. No. 61812, STATE OF FLORIDA, 2-11-14, PROFESSIONAL ENGINEER

ENGINEER: CHEN·MOORE & ASSOCIATES
500 W. Cypress Creek Rd., Suite 630
Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER: LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

GENERAL NOTES

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. G-18
SHEET 18 of 281

PIPE CROSSING TABLE

NO.	EX. GRADE	TOP PIPE	B.O.P. EL.	BOTTOM PIPE	T.O.P. EL.	CLEARANCE
1	1.51	4" WM	-1.91	8" SAN	-4.24	2.33
2	1.51	6" WM	-2.08	8" SAN	-4.25	2.17
3	2.34	6" WM	-1.25	8" SAN	-4.15	2.90
4	2.36	6" WM	-1.22	8" SAN	-4.21	2.99
5	2.46	6" WM	-1.12	8" SAN	-6.28	5.16
6	2.55	2" FM	-0.70	8" SAN	-3.54	2.84
7	2.76	2" FM	-0.49	8" SAN	-3.49	3.00
8	2.74	2" WM	-0.52	8" SAN	-3.58	3.06
9	2.46	6" WM	-1.12	8" SAN	-3.72	2.60
10	2.59	6" WM	-0.99	8" SAN	-3.78	2.79
11	2.58	2" WM	-0.67	8" SAN	-4.41	3.74
12	2.67	4" WM	-0.76	8" SAN	-4.42	3.66
13	2.66	2" WM	-0.60	8" SAN	-4.53	3.93
14	2.43	6" WM	-1.15	8" SAN	-2.67	1.52
15	2.36	6" WM	-1.23	8" SAN	-2.76	1.53
16	2.60	2" FM	-0.75	8" SAN	-5.03	4.28
17	2.45	6" WM	-1.14	8" SAN	-6.65	5.51
18	2.96	2" WM	-0.30	8" SAN	-1.30	1.00
19	2.94	6" WM	-0.64	8" SAN	-3.40	2.76
20	2.81	6" WM	-0.77	8" SAN	-3.45	2.68
21	2.88	2" FM	-0.37	8" SAN	-2.23	1.86
22	2.90	4" WM	-0.52	8" SAN	-3.95	3.43
23	2.87	2" WM	-0.39	8" SAN	-3.97	3.58
24	2.56	6" WM	-1.02	8" SAN	-3.16	2.14
25	2.69	6" WM	-0.89	8" SAN	-3.21	2.32
26	2.70	2" WM	-0.55	8" SAN	-4.92	4.37
27	2.70	4" WM	-0.73	8" SAN	-4.94	4.21
28	2.67	2" WM	-0.58	8" SAN	-1.58	1.00
29	2.58	2" FM	-0.68	8" SAN	-3.92	3.24
30	2.89	6" WM	-0.69	8" SAN	-3.40	2.71
31	2.84	6" WM	-0.74	8" SAN	-3.49	2.75
32	2.43	2" FM	-0.82	8" SAN	-5.49	4.67
33	2.52	2" WM	-0.73	8" SAN	-4.72	3.99
34	2.52	6" WM	-1.06	8" SAN	-4.70	3.64
35	2.24	6" WM	-1.35	8" SAN	-2.35	1.00
36	2.31	6" WM	-1.27	8" SAN	-4.09	2.82
37	2.46	6" WM	-1.13	8" SAN	-4.13	3.00
38	1.99	6" WM	-1.59	8" SAN	-2.79	1.20
39	1.97	6" WM	-1.61	8" SAN	-2.82	1.21
40	1.60	2" WM	-1.65	8" SAN	-2.86	1.21

PIPE CROSSING TABLE

NO.	EX. GRADE	TOP PIPE	B.O.P. EL.	BOTTOM PIPE	T.O.P. EL.	CLEARANCE
41	1.69	6" WM	-1.90	8" SAN	-2.90	1.00
42	2.04	2" WM	-1.21	8" SAN	-2.79	1.58
43	2.07	6" WM	-1.52	8" SAN	-2.81	1.29
44	2.05	6" WM	-1.54	8" SAN	-5.74	4.20
45	2.13	2" FM	-1.12	8" SAN	-5.71	4.59
46	2.05	2" WM	-1.20	8" SAN	-3.16	1.96
47	2.07	6" WM	-1.52	8" SAN	-3.21	1.69
48	1.82	2" WM	-1.43	8" SAN	-3.35	1.92
49	1.83	6" WM	-1.75	8" SAN	-3.38	1.63
50	1.92	2" WM	-1.33	8" SAN	-3.39	2.06
51	1.93	6" WM	-1.65	8" SAN	-3.41	1.76
52	1.38	2" WM	-1.87	8" SAN	-2.87	1.00
53	1.67	2" WM	-1.59	8" SAN	-4.50	2.91
54	1.81	6" WM	-1.78	8" SAN	-4.52	2.74
55	1.74	2" WM	-1.51	8" SAN	-2.51	1.00
56	1.79	2" WM	-1.46	8" SAN	-4.56	3.10
57	1.84	6" WM	-1.75	8" SAN	-4.59	2.84
58	1.83	2" WM	-1.43	8" SAN	-4.37	2.94
59	1.93	6" WM	-1.65	8" SAN	-4.41	2.76
60	1.97	6" WM	-1.62	8" SAN	-6.84	5.22
61	2.18	2" FM	-1.07	8" SAN	-6.17	5.10
62	1.95	2" WM	-1.30	8" SAN	-3.66	2.36
63	1.97	6" WM	-1.61	8" SAN	-3.71	2.10
64	2.68	2" WM	-0.58	8" SAN	-1.58	1.00
65	2.06	2" WM	-1.19	8" SAN	-3.46	2.27
66	2.06	6" WM	-1.53	8" SAN	-3.49	1.96
67	1.80	2" WM	-1.46	8" SAN	-3.83	2.37
68	1.89	6" WM	-1.69	8" SAN	-3.86	2.17

PIPE CROSSING TABLE

NO.	EX. GRADE	TOP PIPE	B.O.P. EL.	BOTTOM PIPE	T.O.P. EL.	CLEARANCE
101	2.75	6" WM	-0.83	8" SAN	-5.01	4.18
102	2.36	6" WM	-1.22	8" SAN	-5.48	4.26
103	2.61	6" WM	-0.98	8" SAN	-4.86	3.88
104	4.79	6" WM	1.21	8" SAN	-2.18	3.39
105	2.78	2" FM	-0.48	8" SAN	-5.57	5.09
106	2.48	6" WM	-1.10	8" SAN	-6.30	5.20
107	4.85	6" WM	1.27	8" SAN	-2.44	3.71
108	5.35	6" WM	1.77	8" SAN	-2.19	3.96
109	4.60	6" WM	1.01	8" SAN	-2.87	3.88
110	3.91	6" WM	0.32	8" SAN	-4.98	5.30
111	3.94	6" WM	0.36	8" SAN	-5.16	5.52
112	3.10	6" WM	-0.48	8" SAN	-4.30	3.82

PERMIT SET

REVISIONS

DATE	MARK	BY	DESCRIPTION

DRAWN: AK DATE: 11/13
CHECKED: OB DATE: 11/13
DESIGN: TN DATE: 11/13
VERIFY SCALES
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

ENGINEER'S SEAL
No. 61612
2/11/14
STATE OF FLORIDA
OSCAR R. BELLO
FL. REG. NO. 61612

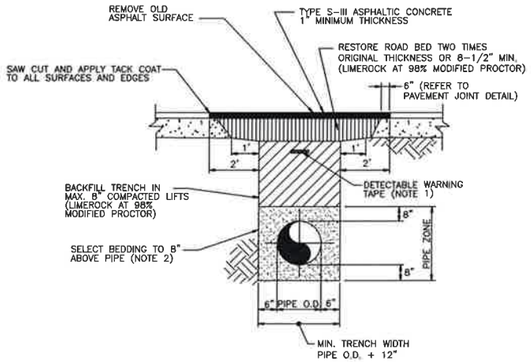
ENGINEER:
CHEN·MOORE &ASSOCIATES
500 W. Cypress Creek Rd., Suite 630
Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.
Layne

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH
PIPE CROSSING TABLE

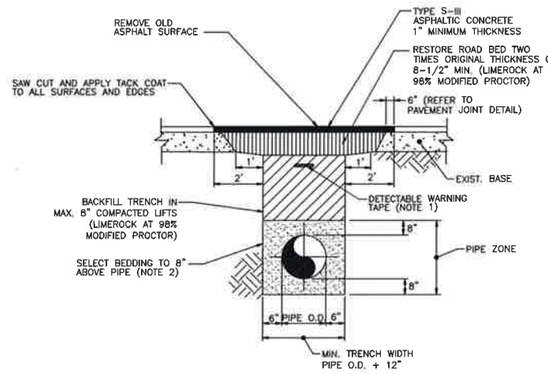
FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. CN-227
SHEET 245 of 281



NOTES:

1. 2" WIDE DETECTABLE WARNING TAPE SHALL BE INSTALLED BETWEEN 6" AND 12" BELOW FINISH GRADE ABOVE ALL GRAVITY SANITARY SEWER.
2. PIPE SHALL BE BEDDED IN COMPACTED GRANULAR SELECT MATERIAL FREE OF ROCKS, CLAY, AND ORGANIC MATERIAL. BEDDING SHALL PASS THROUGH A 3/8" SIEVE.
3. ANY PAVEMENT CUTS SHALL BE COLD PATCHED AT END OF EACH WORKING DAY TO FACILITATE UNHINDERED TRAFFIC FLOW.
4. INSTALL SOD IN AREAS DISTURBED BY CONSTRUCTION. MATCH EXISTING.
5. CONTRACTOR SHALL BE REQUIRED TO INSTALL CONCRETE COLLARS AROUND ALL STRUCTURES IN ROADWAY.

TRENCH AND PAVEMENT RESTORATION

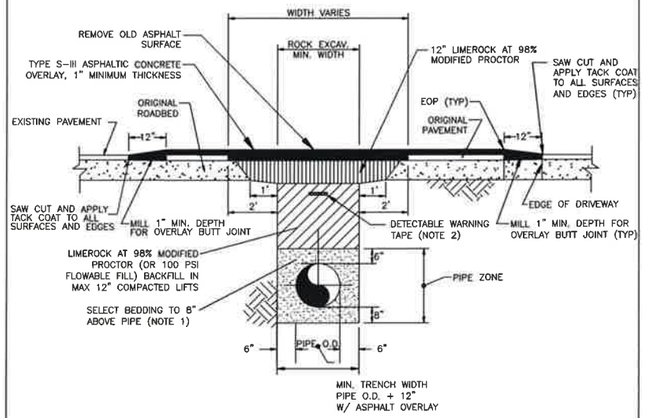


NOTES:

1. 2" WIDE DETECTABLE WARNING TAPE SHALL BE INSTALLED BETWEEN 6" AND 12" BELOW FINISH GRADE ABOVE ALL WATER MAINS, FORCE MAINS, SANITARY SEWERS AND RECLAIMED WATER MAINS.
2. SELECT BEDDING IN PIPE ZONE SHALL BE FREE OF ROCKS, CLAY, AND ORGANIC MATERIAL. MATERIAL SHALL EITHER PASS THROUGH A 3/8" SIEVE OR MEET THE REQUIREMENTS FOR FDOT #57 STONE.
3. ANY PAVEMENT CUTS SHALL BE COLD PATCHED AT END OF EACH WORKING DAY TO FACILITATE UNHINDERED TRAFFIC FLOW.
4. INSTALL SOD IN AREAS DISTURBED BY CONSTRUCTION. MATCH EXISTING.
5. CONTRACTOR SHALL BE REQUIRED TO INSTALL CONCRETE COLLARS AROUND ALL STRUCTURES IN ROADWAY.

SERVICE TRENCH RESTORATION

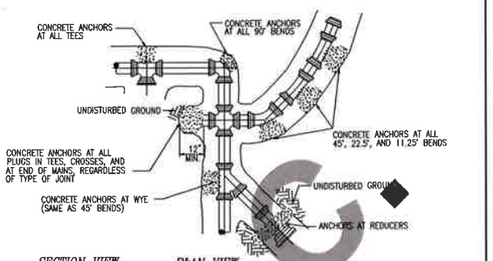
IN SECTIONS WITH DRIVEWAYS:



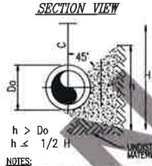
NOTES:

1. SELECT BEDDING IN PIPE ZONE SHALL BE FREE OF ROCKS, CLAY, AND ORGANIC MATERIAL. MATERIAL SHALL EITHER PASS THROUGH A 3/8" SIEVE OR MEET THE REQUIREMENTS FOR FDOT #57 STONE.
2. 2" WIDE DETECTABLE WARNING TAPE SHALL BE INSTALLED BETWEEN 6" AND 12" BELOW FINISH GRADE ABOVE ALL FORCE MAINS AND SANITARY SEWERS.
3. ANY PAVEMENT CUTS SHALL BE COLD PATCHED AT END OF EACH WORKING DAY TO FACILITATE UNHINDERED TRAFFIC FLOW.
4. INSTALL SOD IN AREAS DISTURBED BY CONSTRUCTION. MATCH EXISTING.
5. CONTRACTOR SHALL BE REQUIRED TO INSTALL CONCRETE COLLARS AROUND ALL STRUCTURES IN ROADWAY.

FULL LANE RESTORATION WITH ASPHALT OVERLAY (OPTIONAL)



SECTION VIEW



PLAN VIEW

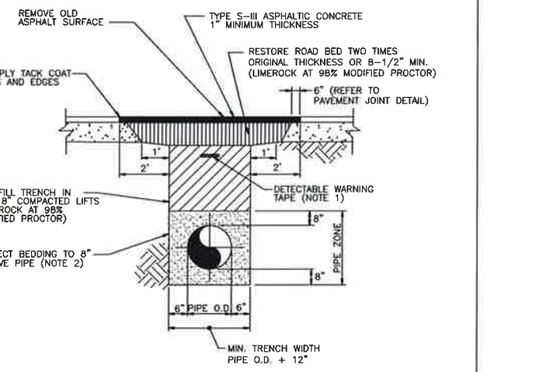
CONCRETE THRUST BLOCK BEARINGS ON UNDISTURBED SOIL OF TRENCH WALL IN SQ. FT.

PIPE SIZE	DEAD END	HORIZONTAL BEND 90° ELBOW	45° ELBOW	22.5° ELBOW	11.25° ELBOW
4"	2	3.0	1.5	1.0	1.0
6"	3	4.5	2.0	1.5	1.5
8"	6	7.5	4.5	2.0	2.0
10"	9	12	7.0	3.0	2.5
12"	10	15	9.0	4.5	3.0

NOTES:

1. BEARING AREAS ARE BASED ON AN ALLOWABLE SOIL BEARING PRESSURE OF 2000 lbs./sq.ft. AND MAY BE VARIED BY THE ENGINEER IF OTHER SOIL CONDITIONS ARE ENCOUNTERED. BEARING AREAS SHALL BE CALCULATED ON AREAS OF UNDISTURBED GROUND IN CONTACT WITH THRUST RESTRAINT.
2. PLASTIC SHEET SHALL BE USED BETWEEN THRUST BLOCK AND PLUGS, BOLTS, OR HUBS. CONCRETE ANCHORS ARE REQUIRED ON TAPPING SLEEVES WHERE THE BRANCH IS EQUAL TO SIZE RUN.
3. THRUST BLOCKS SHALL BE POURED IN DRY TRENCH.
4. CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.
5. CONCRETE THRUST BLOCKS ONLY BY WRITTEN PERMISSION FROM FKAA ENGINEERING DEPARTMENT, MECHANICAL RESTRAINTS UNDER NORMAL CONDITIONS.

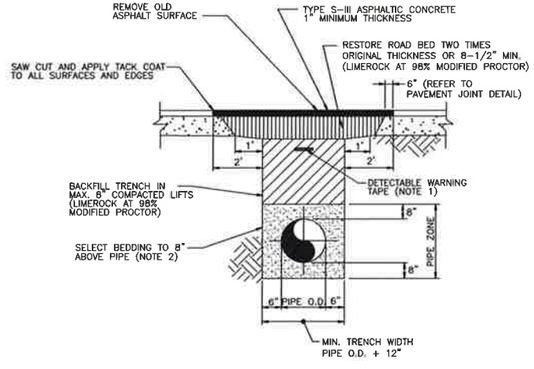
THRUST RESTRAINT – THRUST BLOCKS



NOTES:

1. 2" WIDE DETECTABLE WARNING TAPE SHALL BE INSTALLED BETWEEN 6" AND 12" BELOW FINISH GRADE ABOVE ALL FORCE MAINS.
2. PIPE SHALL BE BEDDED IN COMPACTED GRANULAR SELECT MATERIAL FREE OF ROCKS, CLAY, AND ORGANIC MATERIAL. BEDDING SHALL PASS THROUGH A 3/8" SIEVE.
3. ANY PAVEMENT CUTS SHALL BE COLD PATCHED AT END OF EACH WORKING DAY TO FACILITATE UNHINDERED TRAFFIC FLOW.
4. INSTALL SOD IN AREAS DISTURBED BY CONSTRUCTION. MATCH EXISTING.
5. CONTRACTOR SHALL BE REQUIRED TO INSTALL CONCRETE COLLARS AROUND ALL STRUCTURES IN ROADWAY.

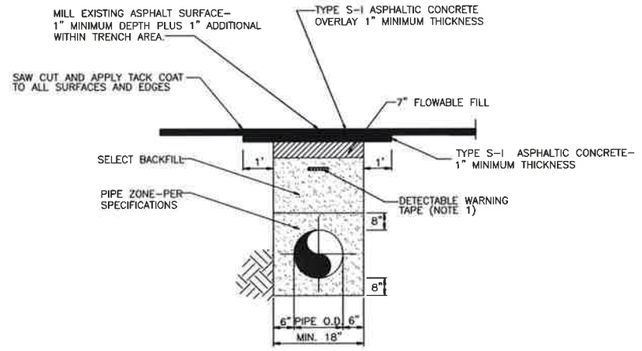
FORCE MAIN TRENCH AND PAVEMENT RESTORATION



NOTES:

1. 2" WIDE DETECTABLE WARNING TAPE SHALL BE INSTALLED BETWEEN 6" AND 12" BELOW FINISH GRADE ABOVE ALL GRAVITY SANITARY SEWER.
2. PIPE SHALL BE BEDDED IN COMPACTED GRANULAR SELECT MATERIAL FREE OF ROCKS, CLAY, AND ORGANIC MATERIAL. BEDDING SHALL PASS THROUGH A 3/8" SIEVE.
3. ANY PAVEMENT CUTS SHALL BE COLD PATCHED AT END OF EACH WORKING DAY TO FACILITATE UNHINDERED TRAFFIC FLOW.
4. INSTALL SOD IN AREAS DISTURBED BY CONSTRUCTION. MATCH EXISTING.
5. CONTRACTOR SHALL BE REQUIRED TO INSTALL CONCRETE COLLARS AROUND ALL STRUCTURES IN ROADWAY.

GRAVITY SANITARY SEWER TRENCH AND PAVEMENT RESTORATION



NOTES:

1. 6" WIDE DETECTABLE WARNING TAPE SHALL BE INSTALLED BETWEEN 9" AND 12" BELOW FINISH GRADE ABOVE ALL GRAVITY SEWER MAINS. SEE IV MATERIAL SPECIFICATIONS.
2. GRAVITY SEWER MAIN SHALL BE BEDDED PER SPECIFICATIONS.
3. FLOWABLE FILL (500 PSI) INSTALLED TO EXISTING GRADE PRIOR TO MILLING AND RESURFACING AT A MINIMUM DEPTH OF 9".
4. FINAL FULL WIDTH RESTORATION WITH S-1 ASPHALTIC CONCRETE AFTER MINIMUM 1" MILL AND AN ADDITIONAL 1" MILL MINIMUM 1 FOOT EACH SIDE OF TRENCH.

TRENCH AND PAVEMENT RESTORATION FLOWABLE FILL OPTION FOR GRAVITY SEWER MAINS

PERMIT SET

REVISIONS			
DATE	MARK	BY	DESCRIPTION

DRAWN: AK DATE: 11/13
CHECKED: OB DATE: 11/13
DESIGN: TN DATE: 11/13
VERIFY SCALES
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

ENGINEER'S SEAL
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STATE OF FLORIDA
OSCAR R. BELLO
FL REG. NO. 61612

ENGINEER:
CHEN·MOORE &ASSOCIATES
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Fax: (954)730-2030
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DESIGN-BUILDER: LAYNE HEAVY CIVIL, INC.

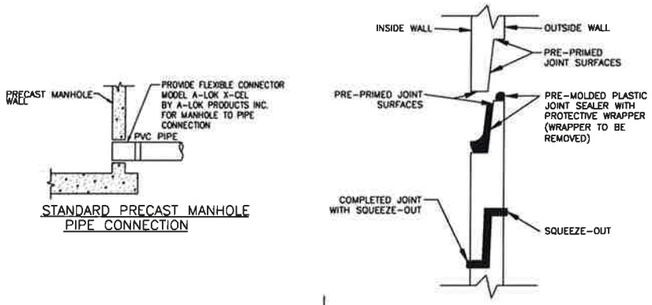
CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

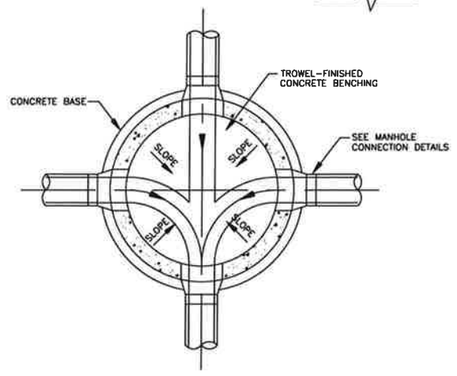
BIG PINE KEY - NORTH

STANDARD DETAILS - SHEET 1

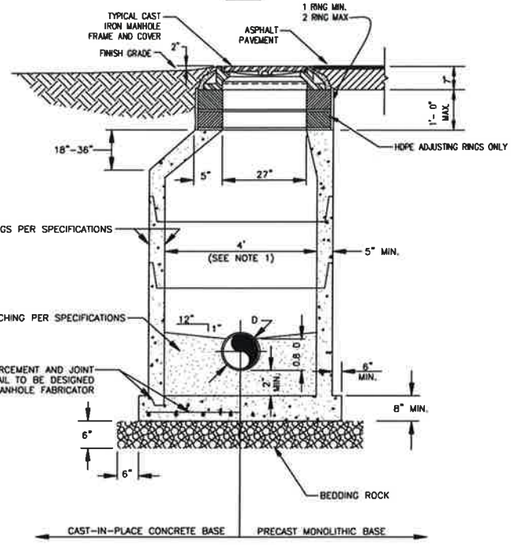
FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. D-1
SHEET 247 of 281



STANDARD PRECAST MANHOLE PIPE CONNECTION



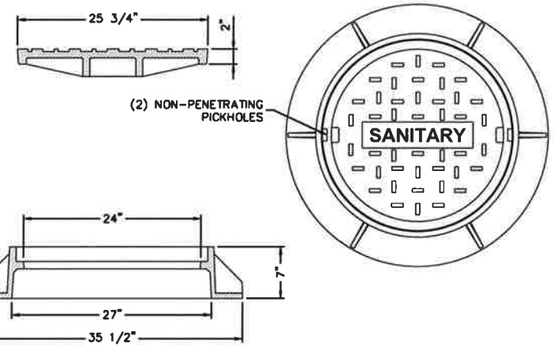
PLAN



PROFILE

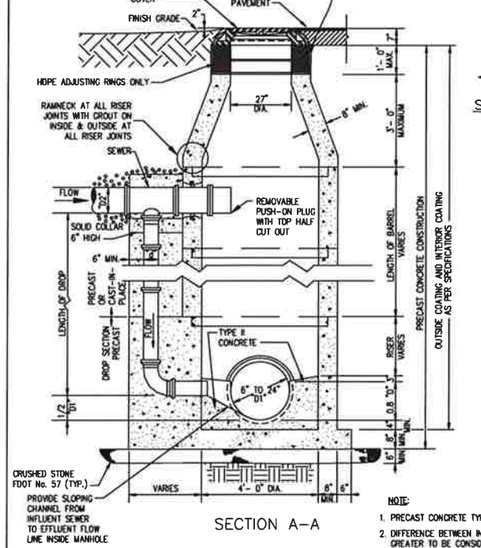
NOTES:
1. PRECAST CONCRETE TYPE II 4000 P.S.I.
2. DROP CONNECTIONS ARE REQUIRED WHENEVER INVERT OF INFLUENT WASTEWATER PIPE IS 24" OR MORE ABOVE THE INVERT OF THE MANHOLE.
3. MANHOLE WALL TO BE COATED OR LINED.
4. BRICK ADJUSTING RINGS NOT ALLOWED.
5. ALL OPENINGS SHALL BE SEALED WITH A WATERPROOF NON-SHRINKING GROUT
6. LIFT HOLES SHALL BE FILLED WITH EXPANDABLE GROUT

PRECAST CONCRETE MANHOLE



NOTES:
1- MATERIAL: ASTM-A48 CLASS 35B GRAY IRON
2- RING WT: 220 LBS. APP.
3- COVER WT. 190 LBS. APP.
4- A WATER-TIGHT MANHOLE "RAIN GUARD" INSERT, BY L.F. MANUFACTURING INC. OR KNUTSON ENTERPRISES, SHALL BE INSTALLED IN ALL MANHOLES. COVER SHALL FIT FLUSH WITH THE FRAME WITH THE "RAIN GUARD" INSTALLED. ALL "RAIN GUARDS" MUST HAVE STIFFENING RIBS AND PRE-APPROVED VALVE DESIGN.

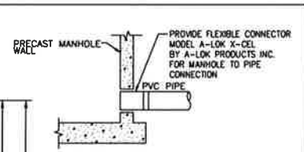
STANDARD GRAVITY MANHOLE FRAME AND COVER



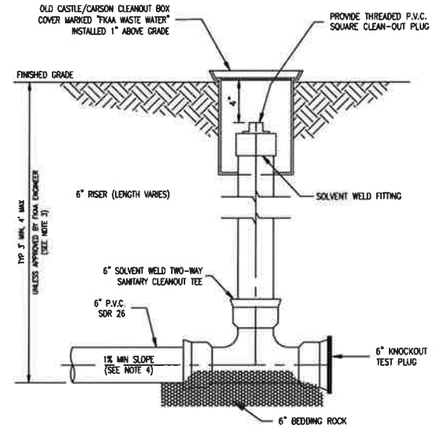
SECTION A-A

NOTE:
1. PRECAST CONCRETE TYPE II 4000 P.S.I.
2. DIFFERENCE BETWEEN INVERTS MUST BE 2.01' OR GREATER TO BE CONSIDERED A DROP MANHOLE.
3. BRICK ADJUSTING RINGS NOT ALLOWED
4. USE ECCENTRIC CONE FOR MANHOLES 8-FEET AND DEEPER
5. ALL OPENINGS SHALL BE SEALED WITH A WATERPROOF NON-SHRINKING GROUT
6. LIFT HOLES SHALL BE FILLED WITH EXPANDABLE GROUT
7. MANHOLE WALL TO BE LINED WITH CAST-IN HDPE LINER.

DROP MANHOLE

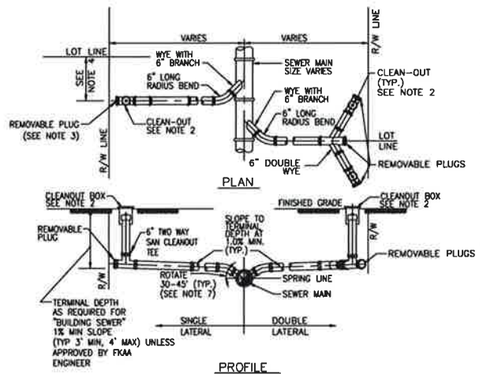


STANDARD PRECAST MANHOLE PIPE CONNECTION



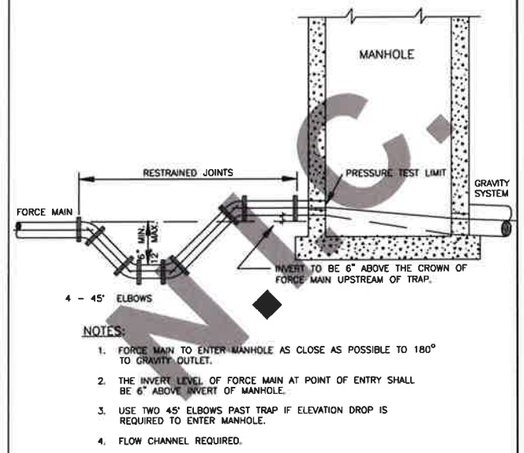
NOTES:
1. ALLOW 4" MIN CLEARANCE BETWEEN TOP OF CLEANOUT PLUG AND BOTTOM OF COVER.
2. LID COLOR - GREY
3. VERIFY DEPTH OF CLEANOUT TEE IS ADEQUATE TO ALLOW BUILDING SEWER. TO BE INSTALLED AT MINIMUM 1% SLOPE FROM BUILDING DRAIN.
4. LESSER SLOPES MUST BE APPROVED BY FKAA ENGINEER.

SANITARY SEWER CLEANOUT



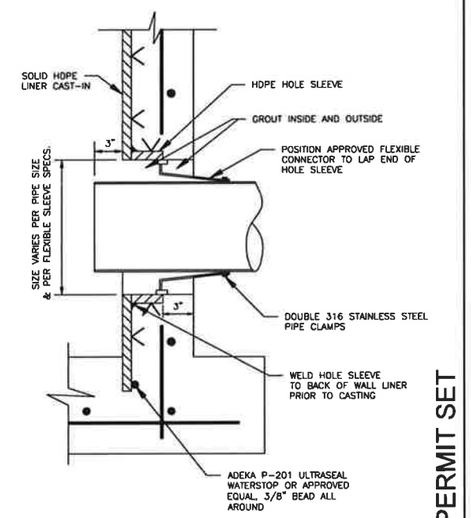
NOTES:
1. INVERT OF SERVICE LATERAL SHALL NOT ENTER SEWER MAIN BELOW SPRING LINE.
2. REFER TO SEWER CLEANOUT DETAIL FOR CLEANOUT BOX INSTALLATION.
3. LOCATE SINGLE LATERAL AS CLOSE TO LOT LINE AS POSSIBLE.
4. COORDINATE SEWER LOCATION OF LATERAL SERVICES WITH FKAA ENGINEER.
5. LATERALS SHALL BE 6" DIAMETER SDR 26 FOR GRAVITY SEWER.
6. INSTALL ADDITIONAL "STREET ELBOW" FITTING AT SEWER MAIN IF REQUIRED FOR MINIMUM SLOPE OF 1%. LOWER SLOPES MUST BE APPROVED BY FKAA ENGINEER.
7. LESSER DEGREE INTO MAIN MUST BE APPROVED BY FKAA ENGINEER.

SANITARY SERVICE LATERAL



NOTES:
1. FORCE MAIN TO ENTER MANHOLE AS CLOSE AS POSSIBLE TO 180° TO GRAVITY OUTLET.
2. THE INVERT LEVEL OF FORCE MAIN AT POINT OF ENTRY SHALL BE 6" ABOVE INVERT OF MANHOLE.
3. USE TWO 45° ELBOWS PAST TRAP IF ELEVATION DROP IS REQUIRED TO ENTER MANHOLE.
4. FLOW CHANNEL REQUIRED.
5. MANHOLE WALL TO BE LINED WITH CAST-IN HDPE LINER. REFER TO SPECIFICATIONS.

FORCE MAIN ENTERING MANHOLE



BOOT TO SLEEVE CONNECTION
MANHOLE W/ HDPE LINER CAST-IN

PERMIT SET

REVISIONS

DATE	MARK	BY	DESCRIPTION

DRAWN: AK DATE: 11/13
CHECKED: OB DATE: 11/13
DESIGN: TN DATE: 11/13
VERIFY SCALES
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

ENGINEER'S SEAL
No. 61612
2-11-14
OSCAR R. BELLO
FL. REG. NO. 61612

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EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

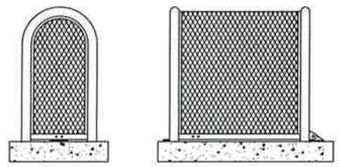
CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH
STANDARD DETAILS - SHEET 2

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. D-2
SHEET 248 of 281

RECEIVED Feb 12, 2014
South District DEP

STANDARD GUARDSHACK™ ENCLOSURES



STANDARD GUARDSHACK™ AND COAST GUARDSHACK™ SIZES INTERNAL DIMENSIONS

CGS – 3	10' W x 24" H x 40' L	HINGED
CGS – 3.3	16' W x 30" H x 30' L	HINGED
CGS–3.5	16' W x 30" H x 40" L	HINGED
CGS – 4	16' W x 30" H x 46' L	HINGED

CGS designates as 304 S. S.

GUARDSHACK™ GENERAL SPECIFICATIONS

- All pipe shall be 1 ¼" schedule 40 A.S.T.M. A–53 Grade A–Electric Weld pipe.
- Angle Iron shall be 1" x 1" x ⅛" steel.
- Shall be 1 ¼" schedule 10 A.S.T. M. A–312 304 S.S.
- Shall be ½" spacing x # 13 Ga. flattened expanded metal diamond pattern type 304 S.S.
- All stainless steel expanded metal shall be sandblasted prior to fabrication to remove burrs, flashing and sharp edges.
- There shall be no exposed ends of expanded metal on the outside of the enclosure.
- Welding shall be a minimum of ¼" long welds on 4" spacing.
- Standard mounting brackets shall be welded on each end of lift off enclosures.
- One bracket on hinged units shall be welded on end opposite hinges.
- Hardware kits provided for mounting enclosures.
- All hinges, exposed hardware, and brackets shall be 304 S.S.
- All hardware shall be securely attached to enclosures.
- All enclosures shall withstand a minimum of 200 lbs. per square foot without any permanent deflection or distortion.
- ⅜" spacing between angle iron framework of enclosure and slab to prevent rusting. Only pipe ends to touch slab.

POWDERCOATED UNITS

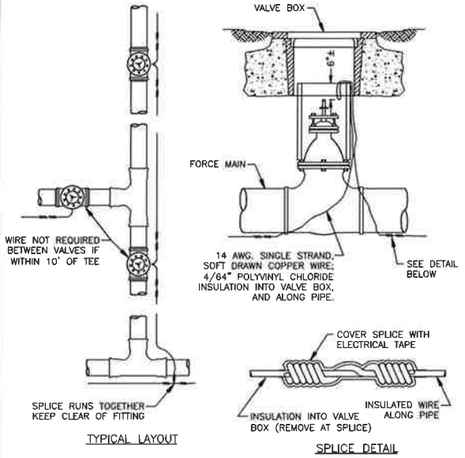
Pre–powdercoat Treatment Process
Clean GuardShack™ unit with a S–44 alkaline cleaner, overflow rinse, apply an AC–8115 iron phosphate treatment, overflow rinse and finish with a #198 sealer rinse to prevent rusting and improve adhesion.

Powdercoat Treatment Process
Units shall be preheated and coated by electrostatic application of 2.0 to 3.5 mil thickness on all surfaces. Powder shall be RAL 1019 Woodlands Tan or TCI 8810–6058 Forest Green or approved equal Impact Resistance Finish 160 inch pounds direct 160 inch pounds reverse, per ASTM D–2794 specs. Gloss Finish >85, per ASTM D–523. Adhesion to be rated excellent when tested to ASTM D–3359 standards.

STAINLESS STEEL ELECTRO-POLISH FINISH

All 304 Stainless Steel units shall be chemically electro–polished to impart a lustrous finish to the unit.

ENCLOSURE DETAIL

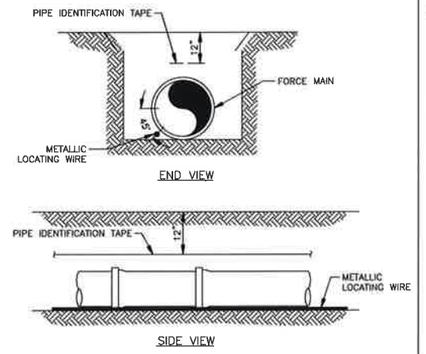


TYPICAL LAYOUT

SPLICE DETAIL

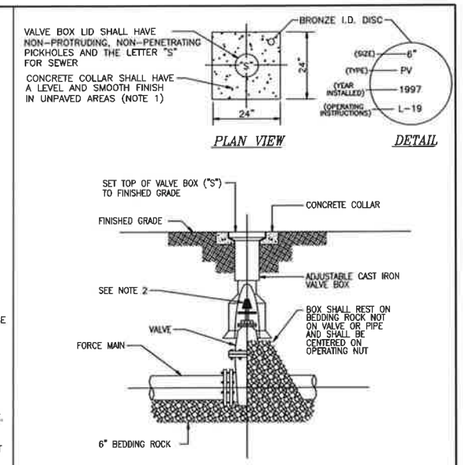
NOTES:
1. WIRE TO BE CONTINUOUS BETWEEN VALVE BOXES, EXCEPT AS NOTED.
2. LOCATING WIRE TO BE LAID AT BOTTOM OF TRENCH, NEXT TO PIPE.

FORCE MAIN LOCATING WIRE DETAIL



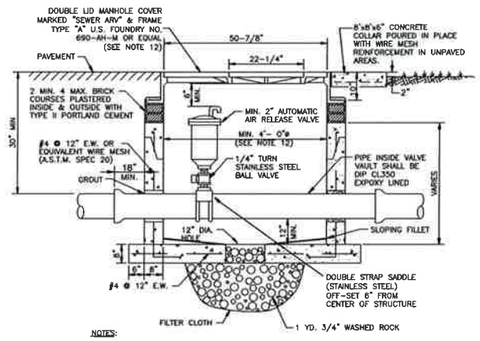
NOTES:
1. ALL PRESSURE PIPE SHALL REQUIRE INSULATED SS LOCATING WIRE CAPABLE OF DETECTION BY A CABLE LOCATOR AND SHALL BE BURIED DIRECTLY AGAINST PIPE.
2. LOCATING WIRE SHALL TERMINATE AT THE TOP OF EACH VALVE BOX AND BE CAPABLE OF EXTENDING 12" ABOVE TOP OF BOX IN SUCH A MANNER SO AS NOT TO INTERFERE WITH VALVE OPERATION.
3. USE DUCT TAPE AS NECESSARY TO HOLD WIRE DIRECTLY AGAINST THE PIPE.
4. ALL PRESSURE PIPE SHALL REQUIRE 3" ALUMINUM FOIL IDENTIFICATION TAPE INDICATING MATERIAL CONTAINED WITHIN PIPE (E.G. FORCE MAIN). TAPE SHALL BE BURIED DIRECTLY ABOVE THE CENTERLINE OF PIPE, AND UNBROKEN THE ENTIRE RUN OF PIPE.

PVC PIPE LOCATING WIRE DETAIL



NOTES:
1. CONCRETE COLLAR ALSO MAY BE FORMED AS A 24" DIA. CIRCLE.
2. IN UNPAVED AREA INSTALL VALVE BOX LID 1/2" ABOVE SURFACE.
3. PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
4. THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.

PLUG VALVE



NOTES:
1. PRECAST CONCRETE TYPE # 4000 P.S.I. A SHOP DRAWING IS REQUIRED.
2. ALL OPENINGS SHALL BE SEALED WITH A WATERPROOF NON–SHRINKING GROUT.
3. LIFT HOLES ARE PERMITTED.
4. ALL PIPE HOLES SHALL BE PRECAST OR CORE–DRILLED.
5. MANHOLE FABRICATION SHALL BE IN ACCORDANCE WITH A.S.T.M. C–478 LATEST STANDARD.
6. COAT INSIDE WITH AN APPROVED PROTECTIVE CORROSION BARRIER SYSTEM.
7. CONCRETE COLLAR REQUIRED WHEN MANHOLE IS OUTSIDE OF PAVEMENT.
8. AIR RELEASE VALVE SHALL BE 2" COMBINATION AIR VALVE FOR WASTEWATER–SHORT VERSION (STAINLESS STEEL) WITH THREADED INLET ARI D–025SS102
9. NO PIPE JOINTS INSIDE THE MANHOLE.
10. THREADED AREAS OF CORPORATION STOP SHALL BE SPIRAL WRAPPED WITH TWO WRAPS OF TEFLON TAPE.
11. FOR PIPES 12" AND SMALLER, AN ALTERNATIVE DESIGN WITH APPROVED 32" DIAMETER HINGED MANHOLE COVERS WILL BE CONSIDERED.
12. LARGER MANHOLES WILL BE REQUIRED FOR PIPES LARGER THAN 12"

PIPE SIZE	MIN. MANHOLE DIAMETER
16"–24"	60"
30"–42"	72"

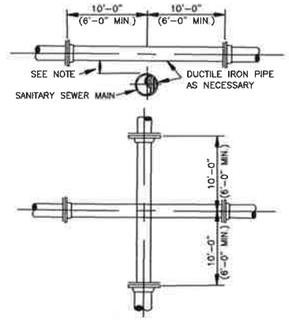
FORCE MAIN AIR RELEASE VALVE AND MANHOLE IN PAVED AREAS AND ROAD R/W

MIN. LENGTH OF PIPE (FEET) TO BE RESTRAINED

FITTING TYPE		PIPE SIZE 4"	6"	8"	10"	12"	16"	20"	24"
90° HORIZ. BEND		15	20	25	30	35	45	54	62
45° HORIZ. BEND		6	9	11	13	15	19	22	26
22.5° HORIZ. BEND		3	4	5	6	7	9	11	12
11.25° HORIZ. BEND		2	2	3	3	4	4	5	6
90° VERT. OFFSET	UPPER BEND	29	41	53	64	74	95	115	134
	LOWER BEND	7	10	13	16	19	25	30	35
45° VERT. OFFSET	UPPER BEND	14	19	24	29	34	39	48	56
	LOWER BEND	3	4	6	7	8	10	12	15
22.5° VERT. OFFSET	UPPER BEND	6	9	12	14	17	19	23	27
	LOWER BEND	1	2	4	4	4	5	6	7
11.25° VERT. OFFSET	UPPER BEND	3	4	6	7	8	9	11	13
	LOWER BEND	1	1	1	2	2	2	3	3
PLUG (DEAD END)		32	45	59	70	83	107	129	151
IN–LINE VALVE		32	45	45	45	45	55	65	80
TEE (BRANCH RESTRAINT)	4"X ø	31	–	–	–	–	–	–	–
	6"X ø	23	37	–	–	–	–	–	–
	8"X ø	18	34	47	–	–	–	–	–
	10"X ø	16	32	46	58	–	–	–	–
	12"X ø	13	30	44	57	69	–	–	–
	16"X ø	7	26	41	55	67	90	–	–
	20"X ø	1	21	38	52	65	88	109	–
	24"X ø	1	16	34	49	62	86	108	129
	30"X ø	1	8	28	44	58	83	106	127
	36"X ø	1	1	22	39	54	80	103	124
	42"X ø	1	1	15	33	49	77	100	122
	48"X ø	1	1	7	27	44	73	97	120
REDUCER (LARGER PIPE RESTRAINT)	6"X ø	23	–	–	–	–	–	–	–
	8"X ø	38	25	–	–	–	–	–	–
	10"X ø	57	43	24	–	–	–	–	–
	12"X ø	72	60	44	41	–	–	–	–
	16"X ø	99	90	78	75	45	–	–	–
	20"X ø	123	116	107	105	81	45	–	–
	24"X ø	146	140	132	131	111	82	45	–

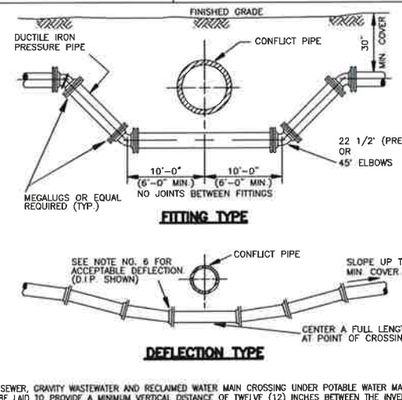
NOTES:
1. THE DATA IN THE ABOVE TABLE ARE BASED UPON THE FOLLOWING INSTALLATION CONDITIONS:
   SOIL TYPE–SAND, TEST PRESSURE–150 PSI, DEPTH OF BURY–3'
   TRENCH TYPE–3, SAFETY FACTOR– 1.5, VERTICAL OFFSET–3'
   MINIMUM PIPE LENGTH ALONG TEE RUN–5'
2. THE RESTRAINED PIPE LENGTHS APPLY TO DUCTILE IRON AND PVC PIPE.
3. ALL JOINTS BETWEEN UPPER AND LOWER BENDS SHALL BE RESTRAINED.
4. RESTRAINED PIPE LENGTHS APPLY TO PIPE ON BOTH SIDES OF VALVES AND FITTINGS.

MECHANICAL THRUST RESTRAINT MINIMUM PIPE LENGTHS



1. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY– OR VACUUM–TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES, AND PREFERABLY 12 INCHES, ABOVE OR AT LEAST 12 INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
2. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED PRESSURE–TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
3. AT THE UTILITY CROSSINGS DESCRIBED IN NOTES (1) AND (2) ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSINGS, THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM–TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER, AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY– OR PRESSURE–TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER.
4. RECLAIMED WATER SYSTEM MAIN SHALL BE IDENTIFIED AS REQUIRED.

RECLAIMED WATER MAIN, POTABLE WATER, SANITARY SEWER & STORM SEWER CONFLICT



NOTES:
1. STORM SEWER, GRAVITY WASTEWATER AND RECLAIMED WATER MAIN CROSSING UNDER POTABLE WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF TWELVE (12) INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE STORM/WASTEWATER/RECLAIMED WATER PIPE JOINTS AND POTABLE WATER MAIN JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING WITH NO LESS THAN TEN (10) FEET BETWEEN ANY TWO JOINTS, BOTH PIPES SHALL BE D.I.P., AND THE MINIMUM VERTICAL SEPARATION SHALL BE 6 INCHES. WHERE THERE IS NO ALTERNATIVE TO STORM/WASTEWATER/RECLAIMED WATER PIPES CROSSING OVER A POTABLE WATER MAIN, THE CRITERIA FOR MINIMUM 12" VERTICAL SEPARATION BETWEEN LINES AND JOINT ARRANGEMENT, AS STATED ABOVE, SHALL BE REQUIRED, AND BOTH PIPES SHALL BE D.I.P. IRRESPECTIVE OF SEPARATION. D.I.P. IS NOT REQUIRED FOR STORM SEWERS.
2. MAINTAIN MIN. SIX (6) FEET HORIZONTAL DISTANCE (WALL TO WALL) BETWEEN POTABLE WATER MAIN AND STORM SEWER, WASTEWATER MAIN, OR FORCE MAIN. MAINTAIN MIN. THREE (3) FEET HORIZONTAL DISTANCE (WALL TO WALL) BETWEEN RECLAIMED WATER MAIN AND POTABLE WATER MAIN, STORM SEWER, WASTEWATER GRAVITY MAIN OR FORCE MAIN.
3. FORCE MAIN CROSSING POTABLE WATER MAIN OR RECLAIMED WATER MAIN SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF TWELVE (12) INCHES BETWEEN THE OUTSIDE OF THE FORCE MAIN AND OUTSIDE OF THE POTABLE WATER MAIN OR RECLAIMED WATER MAIN WITH THE POTABLE WATER MAIN OR RECLAIMED WATER MAIN CROSSING OVER THE FORCE MAIN.
4. FITTINGS SHALL BE RESTRAINED WITH MEGALUGS OR EQUAL AND THRUST BLOCKS.
5. THE DEFLECTION TYPE CROSSING IS PREFERRED.
6. DO NOT EXCEED 75% OF MANUFACTURERS RECOMMENDED MAXIMUM JOINT DEFLECTION FOR DUCTILE IRON PIPE.
   NO DEFLECTION AT THE JOINT IS ALLOWED FOR P.V.C. PIPE. BENDING OF P.V.C. PIPE SHALL NOT EXCEED THE FOLLOWING PARAMETERS.

PVC PIPE SIZE (INCH)	MIN. ALLOWED RADIUS (FT.)	MAX. OFFSET (INCH) PER 20' LENGTH
6"	300	8"
8"	400	6"
10"	600	4"
12"	600	4"
16"	600	4"

7. ALL EXPOSED TIE STEEL SHALL BE COATED WITH COAL–TAR EPOXY.
8. RECLAIMED WATER SYSTEM PIPE SHALL BE IDENTIFIED AS REQUIRED.

PRESSURE PIPE CONFLICT DETAIL

PERMIT SET

REVISIONS

DATE	MARK	BY	DESCRIPTION

DRAWN: AK DATE: 11/13
CHECKED: OB DATE: 11/13
DESIGN: TN DATE: 11/13
VERIFY SCALES: IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

ENGINEER'S SEAL: No. 61612, STATE OF FLORIDA, OSCAR R. BELLO, REGISTERED PROFESSIONAL ENGINEER, 2-11-14

ENGINEER: CHEN·MOORE &ASSOCIATES
500 W. Cypress Creek Rd., Suite 630
Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER: LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH
STANDARD DETAILS - SHEET 3

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. D-3
SHEET 249 of 281

GENERAL NOTES

MILL EXISTING PAVEMENT:

1. **MILLING OF EXISTING ASPHALT PAVEMENT SHALL BE IN ACCORDANCE WITH SECTION 327 OF THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION AT TIME OF BID.**
2. THE DEPTH OF CUT FOR THE MILL WIDTH SHALL BE TAPERED FROM AN AVERAGE DEPTH OF CUT OF 1-INCH AT THE EDGE OF PAVEMENT OF CURB.
3. THE MILLED MATERIAL BECOMES THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF-SITE.
4. A 6'x6' SQUARE AREA AROUND EXISTING MANHOLE RIMS NOT INDICATED FOR ADJUSTMENT, SHALL BE MILLED IN ACCORDANCE TO THESE SPECIFICATIONS. USE OF A SMALLER MILLING MACHINE MAY BE PERMITTED FOR MILLING THESE AREAS.

ASPHALTIC CONCRETE SURFACE COURSE:

5. TACK COAT
   a. PRIOR TO INSTALLATION OF THE OVERLAY, THE SURFACE OF THE EXISTING ASPHALT SHALL BE BROOMED TO REMOVE ALL LOOSE MATERIAL WHICH MIGHT INTERFERE WITH THE ADHESION OF THE EXISTING ASPHALT AND OVERLAY.
   b. A TACK COAT SHALL BE APPLIED TO THE TOP OF THE CLEAN ASPHALT SURFACE AT A RATE OF 0.10 GALLONS/SQ. FT. IN THE PRESENCE OF THE ENGINEER'S REPRESENTATIVE.
6. ASPHALTIC CONCRETE SHALL CONFORM TO FLORIDA D.O.T. REQUIREMENTS OF TYPE S-3. CERTIFICATIONS OF ASPHALT MIX SHALL BE SUBMITTED BY THE ASPHALT PLANT TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
7. THE TEMPERATURE OF THE ASPHALT SHALL BE AT LEAST 230 DEGREES F. DURING THE LAYING OPERATION.
8. THE THICKNESS OF THE FINISHED SURFACE COURSE SHALL BE CHECKED AT VARIOUS INTERVALS TO INSURE THE CONSTRUCTED SURFACE COURSE IS WITHIN 1/8" OF THE DESIGN THICKNESS (NO NEGATIVE TOLERANCE WILL BE ACCEPTED).
9. THE FINISHED SURFACE OF THE ASPHALT SHALL BE CHECKED WITH A STRAIGHT EDGE TO INSURE THAT THE LINE, GRADE, AND CROSS-SECTION OF THE FINISHED PAVEMENT SECTION IS IN CONFORMANCE WITH THE DESIGN PLANS. THE FINISHED SURFACE SHALL BE OF UNIFORM TEXTURE AND COMPACTION. THE SURFACE SHALL HAVE NO PULLED, TORN, OR LOOSENED PORTIONS AND SHALL BE FREE OF SEGREGATION, SAND, STREAKS, SAND SPOTS, OR RIPPLES. ALL AREAS OF THE SURFACE WHICH DOES NOT MEET THE FOREGOING REQUIREMENTS SHALL BE CORRECTED TO THE ENGINEER'S SATISFACTION.

PAVEMENT MARKING SPECIFICATIONS

All Pavement markings to be installed per these typicals, plans and specifications, and as directed by the Monroe County, FKAA Engineer and shall conform to the requirements of F.D.O.T. and the manual on uniform traffic control devices.

PERMANENT MARKINGS

Installation:
- All markings shall be installed by the extruded method.
- Markings shall be free of weaves, bows, drips, drags, and other degrading items
- Chalk shall be used for all layout markings

Materials:
- All materials shall be alkyd thermoplastic meeting all State specifications.

Thickness:
- All markings shall be installed to yield 90 mils of material measured above the pavement surface.

Beads:
- Reflective beads are to be installed per FDOT specifications on all markings.

Alternate Material:
- STAYMARK marking tape, or equivalent may be used, as approved or directed by the FKAA Engineer.

Layout:
- Layout shall be made using marking chalk.
- It is recommended that marking layout be inspected by the FKAA Engineer prior to the placement of final markings.

TEMPORARY MARKINGS

Temporary markings may be used only as specified in this section, or as approved or directed by the FKAA Engineer.

Final Pavement Surface:
- Only fall backed marking tape is allowed.
- All tape shall be totally removed concurrent with permanent marking placement.

Other Pavement Surfaces:
- Intermediate pavement surfaces may be marked with FDOT approved materials, designs, and specifications.

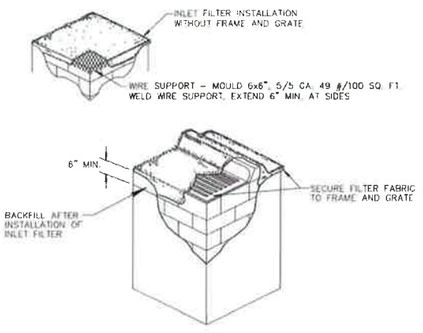
ALL PAVEMENT MARKINGS

All paved surfaces shall be properly marked prior to the hours of darkness.

RAISED PAVEMENT MARKERS

- R.P.M.s shall be installed on all lane lines and centerlines, spaced at 20' or 40'.
- R.P.M.s shall be a 4 x 4 type class "B" marker meeting FDOT specifications and shall be approved by the FKAA Engineer prior to use.
- R.P.M.'s shall be installed using alkyd thermoplastic on asphalt and epoxy on concrete.

PAVEMENT MARKING SPECIFICATIONS DETAIL



NOT TO SCALE

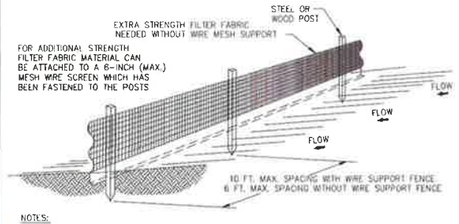
NOTES:

1. CONTRACTOR IS TO CLEAN INLET FILTER AFTER EVERY STORM.
2. CONTRACTOR TO REMOVE FABRIC JUST PRIOR TO PAVING.

A SEDIMENT TRAP WILL BE EXCAVATED BEHIND THE CURB AT THE INLET. THE BASIN SHALL BE AT LEAST 12 TO 14 INCHES IN DEPTH, APPROXIMATELY 36 INCHES IN WIDTH, AND APPROXIMATELY 7 TO 10 FEET IN LENGTH PARALLEL TO THE CURB.

STORM WATER WILL REACH THE SEDIMENT TRAP VIA CURB CUTS ADJACENT TO EACH SIDE OF THE INLET STRUCTURE. THESE OPENINGS SHALL BE AT LEAST 12 INCHES IN LENGTH. STORM WATER MAY ALSO REACH THE BASIN VIA OVERLAND FLOW LAND AREA BEHIND THE CURB. THE CURB CUTS SHALL BE REPAIRED WHEN THE SEDIMENT TRAP IS REMOVED.

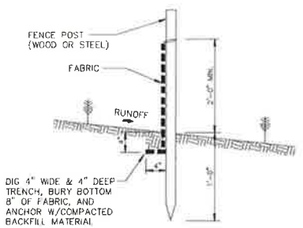
INLET FILTER DETAIL
N.T.S.



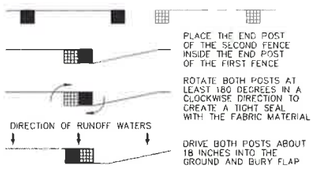
NOTES:

1. THE HEIGHT OF A SILT FENCE SHALL NOT EXCEED 36 INCHES (90 CM).
2. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS.
3. POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET (3 M) APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 12 INCHES (30 CM). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL NOT EXCEED 6 FEET (1.8 M).
4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4 INCHES (10 CM) WIDE AND 4 INCHES (10 CM) DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
5. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH (25 MM) LONG, TIE WIRES, OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES (5 CM) AND SHALL NOT EXTEND MORE THAN 36 INCHES (90 CM) ABOVE THE ORIGINAL GROUND SURFACE.
6. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8 INCHES (20 CM) OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES (90 CM) ABOVE THE ORIGINAL GROUND SURFACE.
7. THE TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.

SILT FENCE INSTALLATION DETAIL
N.T.S.



SILT FENCE SECTION



ATTACHING TWO SILT FENCES

SILT FENCE INSTALLATION DETAIL
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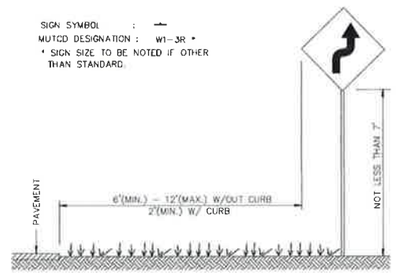
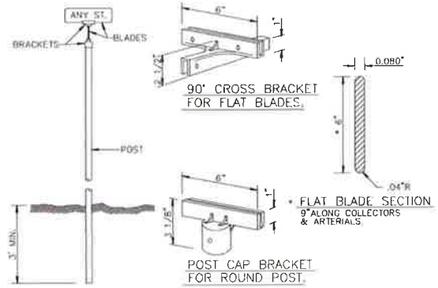


NOTES:

1. ALL SIGNS SHALL BE SPECIFIED USING THE M.U.T.C.D. DESIGNATION.
2. ALL SIGNS SHALL BE FACED WITH HIGH INTENSITY SHEETING MATERIAL OR BETTER
3. SIGNS SHALL BE MANUFACTURED WITH 0.080" ALUMINUM BLANK.
4. POSTS SHALL BE GALVANIZED CHANNEL AT 2 LBS/L.F.
5. USE SHALL FOLLOW THE M.U.T.C.D. AND F.D.O.T. STANDARD DESIGN SPECIFICATIONS
6. ANY DEVIATION FROM THIS TYPICAL SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO INSTALLATION.

STREET SIGNS DETAIL



GENERAL SPECIFICATIONS:

* BLADE: ALCOA NO.86054,6063-T6 ALLOY, ETCHED DEGREASED DEBURRED, WITH NO.1200 ALODLINE FINISH WITH HIGH INTENSITY GREEN BACKGROUND DIMENSIONS 6" OR 9" HEIGHT, 24', 30"OR 36" LENGTHS.
* LETTERS: NAME 4"SERIES "B" HIGH INTENSITY (SILVER) SUFFIX 2"SERIES "B" HIGH INTENSITY (SILVER) ALL LETTERS FOR SIGNS ALONG COLLECTOR OR ARTERIAL ROADWAYS SHALL BE 7"SERIES "B" WITH 4"SERIES "B" SUFFIX ON 9" HIGH BLADES.
* POST: STEEL FLANGED GALVANIZED CHANNEL PER A.S.T.M. A123 WITHOUT ANCHOR PLATES.
* BRACKETS: DIE CAST HIGH STRENGTH ALUMINUM ALLOY, MIN. TENSILE STRENGTH 45,000 P.S.I., DEGREASED, TUMBLED AND POLISHED, SIDES OF ALL SLOTS SHALL BE SOLID METAL WITH TWO HOLES PER SLOT (SAME SIDE) DRILLED TO 7/32" AND TAPPED TO 1/4" TO RECEIVE STAINLESS STEEL ALLENHEAD SET SCREWS, SKIRT OF POST CAP BRACKET TO BE DRILLED AND TAPPED FOR 3 SCREWS OF WHICH NO TWO IS TO BE LESS THAN 90° OR MORE THAN 135° APART. (METRO HUSKEY NO.6 OR EQUAL.)

STREET SIGN DETAIL

PERMIT SET

REVISIONS			
DATE	MARK	BY	DESCRIPTION

DRAWN: AK	DATE: 11/13	
CHECKED: OB	DATE: 11/13	
DESIGN: TN	DATE: 11/13	

VERIFY SCALES
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

ENGINEER'S SEAL
No. 61612
2-14-14
OSCAR R. BELLO
FL REG. NO. 61612

ENGINEER
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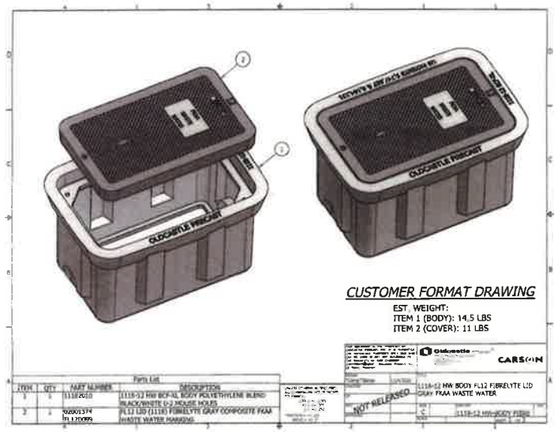
EB 0004593

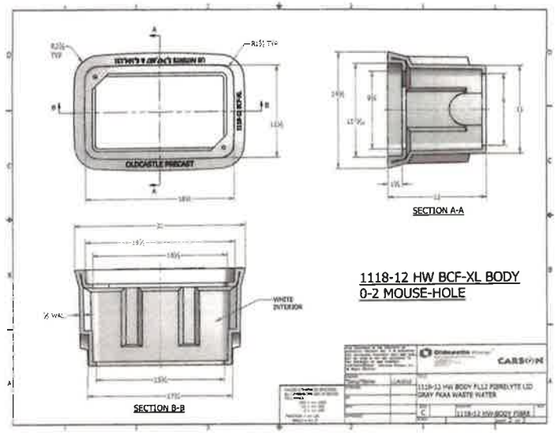
DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.
Layne

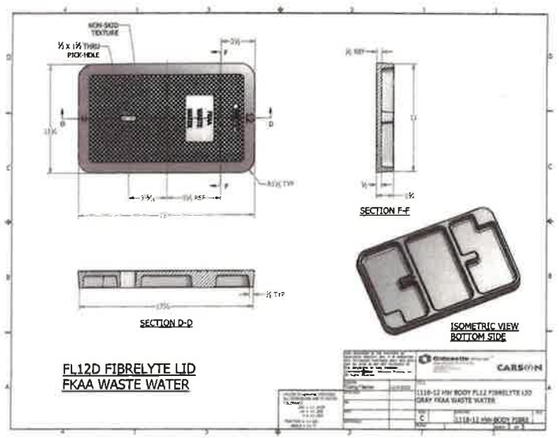
CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

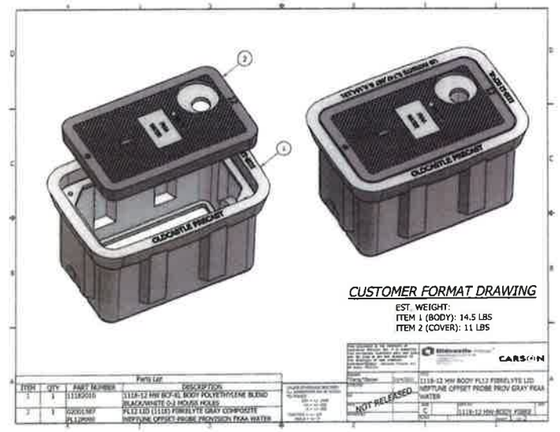
BIG PINE KEY - NORTH
STANDARD DETAILS - SHEET 4

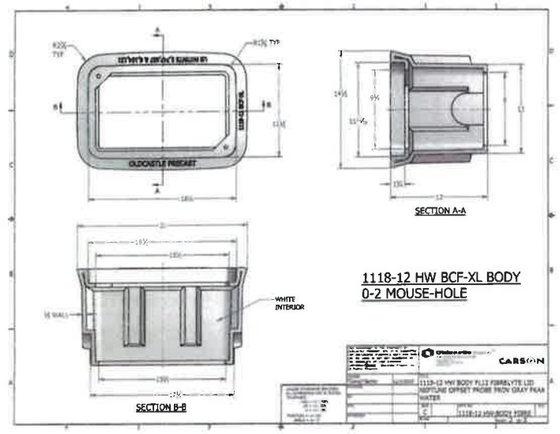
FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. D-4
SHEET 250 of 281

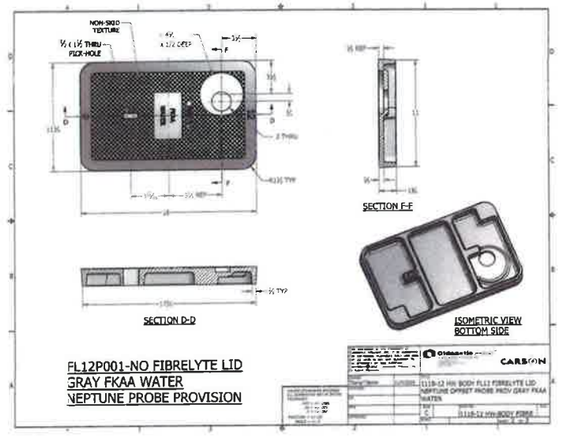












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VERIFY SCALES		
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ENGINEER'S SEAL
No. 61612
2-11-14
OSCAR R. BELLO
FL. REG. NO. 61612

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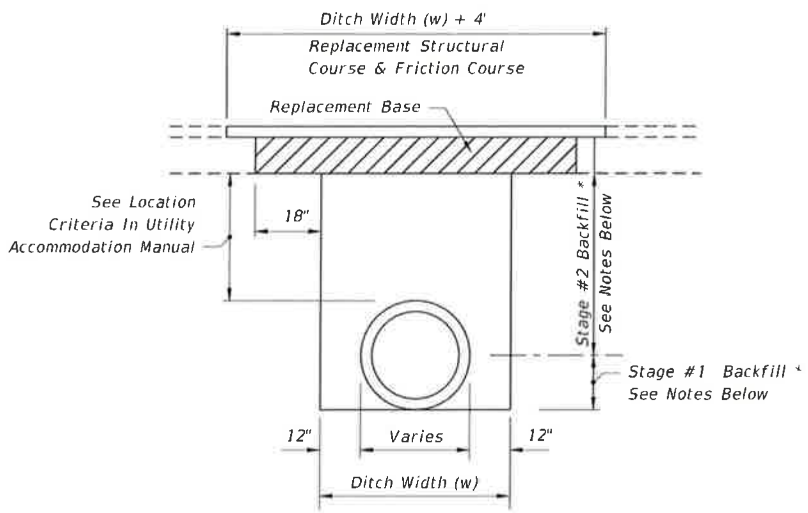
CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

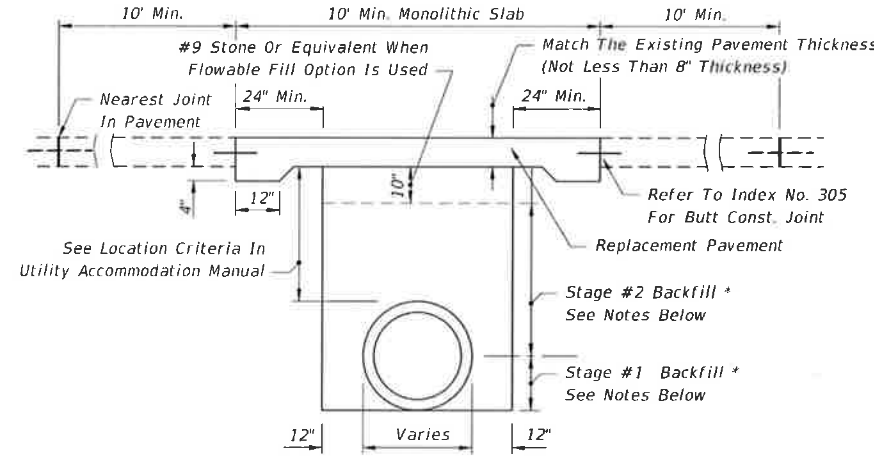
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

STANDARD DETAILS - SHEET 5

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. D-5
SHEET 251 of 281





FLEXIBLE PAVEMENT NOTES

PAVEMENT REMOVAL AND REPLACEMENT

Pavement shall be mechanically sawed.

The replacement asphalt shall match the existing structural and friction courses for type and thickness in accordance with current FDOT asphalt mix specifications.

The new base materials shall be either of the same type and composition as the materials removed or of equal or greater structural adequacy (See Index No. 514).

BACKFILL

COMPACTED AND STABILIZED FILL OPTION

Backfill material shall be placed in accordance with Section 125 of the Standard Specifications.

In Stage #1, construct compacted fill beneath the haunches of the pipe, using mechanical tamps suitable for this purpose. This compaction applies to the material placed beneath the haunches of the pipe and above any bedding.

In Stage #2, construct compacted fill along the sides of the pipe and up to the bottom of the base,with the upper 12" receiving Type B Stabilization. In lieu of Type B Stabilization, the Contractor may construct using Optional Base Group 3.

* FLOWABLE FILL OPTION

If compaction can not be achieved through normal mechanical methods then flowable fill may be used.

Flowable fill is to be placed in accordance with Section 121 of the Specifications, as approved by the Engineer.

Do not allow the utility being installed to float. If a method is provided to prevent flotation from occurring, Stages #1 and #2 can be combined, if approved by the Engineer.

In Stage #1, place flowable fill midway up on both sides of the utility. Allow to harden before placing Stage #2.

In Stage #2, place flowable fill to the bottom of the existing base course.

FLEXIBLE PAVEMENT CUT

RIGID PAVEMENT NOTES

PAVEMENT REMOVAL AND REPLACEMENT

High early strength cement concrete (3000 psi) meeting the requirements of Standard Specification 346 shall be used for rigid pavement replacement.

Pavement shall be mechanically sawed and restored to conform with existing pavement joints within 12 hours. (See Index No. 305)

GRANULAR BACKFILL

Any edgedrain system that is removed shall be replaced with the same type materials. Any edgedrain system that is damaged shall be repaired with methods approved by the Engineer.

Fill material shall be placed in accordance with the Standard Specifications. Fill material shall be special select soil in accordance with Index No. 505.

In Stage #1, construct compacted fill beneath the haunches of the pipe, using mechanical tamps suitable for this purpose. This compaction applies to the material placed beneath the haunches of the pipe and above any bedding.

In Stage #2, construct fill along the sides of the pipe and up to the bottom of replacement pavement.

* FLOWABLE FILL OPTION

If mechanical compaction can not be achieved through normal mechanical methods then flowable fill may be used.

Flowable fill is to be placed in accordance with Section 121 of the Specifications, as approved by the Engineer.

Do not allow the utility being installed to float. If a method is provided to prevent flotation from occurring, Stages #1 and #2 can be combined, if approved by the Engineer.

In Stage #1, place flowable fill midway up on both sides of the utility. Allow to harden before placing Stage #2.

In Stage #2, place flowable fill to the bottom of the stone layer.

RIGID PAVEMENT CUT

GENERAL NOTES

1. The details provided in this standard index apply to cases in which jack and bore or directional boring methods are not required by the Engineer.
2. Flowable fill shall not be placed directly over loose, or high plastic, or muck material (see Index 505) which will cause settlement due to fill weight. Where highly compressible material exists, the amount, shape and depth of flowable fill must be engineered to prevent pavement settlement.
3. These details do not apply to utility cuts longitudinal to the centerline of the roadway which may require the additional use of geotextiles, special bedding and backfill, or other special requirements.
4. Method of construction must be approved by the Engineer.
5. Some pipe may require special granular backfill up to 6" above top of pipe. Geotextiles may be required to encapsulate the special granular material.
6. Where asphalt concrete overlays exist over full slab concrete pavement, the replacement pavement shall have an overlay constructed over the replacement slab. The overlay shall match the existing asphalt pavement thickness. The replacement friction course shall match the existing friction course, except structural course may be used in lieu of dense graded friction course.
7. All shoulder pavement, curb, curb and gutter, and their substructure disturbed by utility trench cut construction shall be restored in kind.
8. The use of flowable fill to reduce the time traffic is taken off a facility is acceptable but must have prior approval by the Engineer. Flowable fill use is allowed only when properly engineered for pavement crossings, whether straight or diagonal, and shall not be installed for significant depths or lengths. The maximum length shall be fifty (50) feet and a maximum depth of six (6) feet unless supported by an engineering document prepared by a registered professional engineer that specializes in soils engineering. The engineering document shall address the evaluation of local groundwater flow interruption and settlement potential.
9. Excavatable flowable fill is to be used when the flowable fill option is selected.
10. When approved by the Engineer, in lieu of the pavement and base, non-excavatable flowable fill may be used for manhole stabilization and ring and cover adjustments. Excavatable flowable fill shall not be used within the limits of the pavement and base.

TRENCH CUTS AND RESTORATIONS ACROSS ROADWAYS

LAST REVISION	REVISION	DESCRIPTION:		FDOT DESIGN STANDARDS	MISCELLANEOUS UTILITY DETAILS	INDEX NO.	SHEET NO.
01/01/10				FY 2012/2013		307	1

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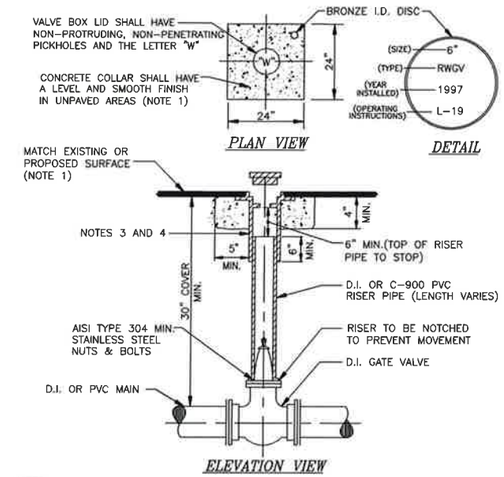
REVISIONS				DRAWN: AK DATE: 11/13	ENGINEER'S SEAL	ENGINEER:	DESIGN-BUILDER: LAYNE HEAVY CIVIL, INC.	CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS	BIG PINE KEY - NORTH	FKAA PROJECT NO. 4053-12
DATE	MARK	BY	DESCRIPTION	CHECKED: OB DATE: 11/13	No. 61612 2/11/14	CHEN·MOORE & ASSOCIATES 500 W. Cypress Creek Rd., Suite 630 Ft. Lauderdale, FL 33309 Tel: (954)730-0707 Fax: (954)730-2030 EB 0004593	Layne	FLORIDA KEYS AQUEDUCT AUTHORITY 1100 KENNEDY DRIVE KEY WEST, FLORIDA	STANDARD DETAILS - SHEET 6	FKAA FILE ID.
				DESIGN: TN DATE: 11/13	STATE OF FLORIDA					DRAWING NO. D-6
				VERIFY SCALES 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	OSCAR R. BELLO FL REG. NO. 61612					SHEET 252 of 281

FKAA Cudjoe Regional WW Collection\CAD\Plans\Big Pine\Big-Pine_N_CIVIL_DETAILS.dwg last edited on November 19, 2013 5:37 PM by tmoshonsom D-6

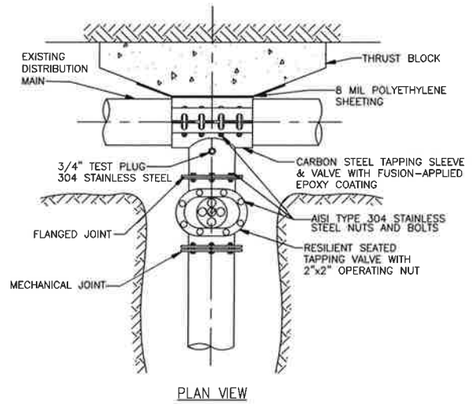


NOTES:

1. CONCRETE COLLAR ALSO MAY BE FORMED AS A 24" DIA. CIRCLE UNDER PAVEMENT.
2. IN UNPAVED AREA INSTALL VALVE BOX LID 1/2" ABOVE SURFACE.
3. U.S.F. No. 7615 OR APPROVED EQUAL WITH 6" DIA. RISER FOR VALVES 6" DIA. OR SMALLER.
4. U.S.F. No. 7630 OR APPROVED EQUAL WITH 10" DIA. RISER FOR VALVES 8" DIA. OR LARGER.

GATE VALVE & BOX

STANDARD DETAIL DRAWING NO. 6

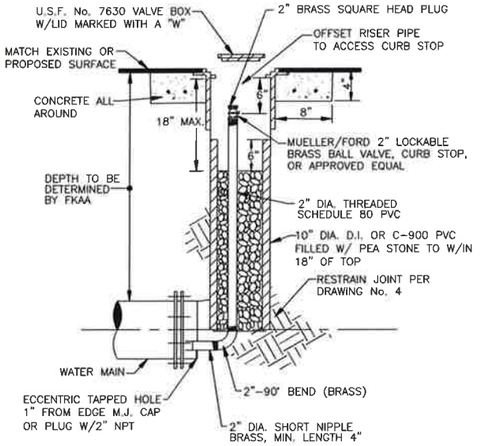


NOTES:

1. PRESSURE TEST INSTALLED TAPPING SLEEVE AND VALVE ASSEMBLY BEFORE TAPPING EXISTING MAIN. SEE FKAA MINIMUM CONSTRUCTION STANDARDS & SPECIFICATIONS.
2. SEE FKAA MINIMUM CONSTRUCTION STANDARDS & SPECIFICATIONS FOR LIST OF APPROVED TAPPING SLEEVES AND VALVES.
3. ALL TAPS SHALL BE MADE WITH AN APPROVED TAPPING DEVICE.

TAPPING SLEEVE AND VALVE FOR DISTRIBUTION MAIN

STANDARD DETAIL DRAWING NO. 7

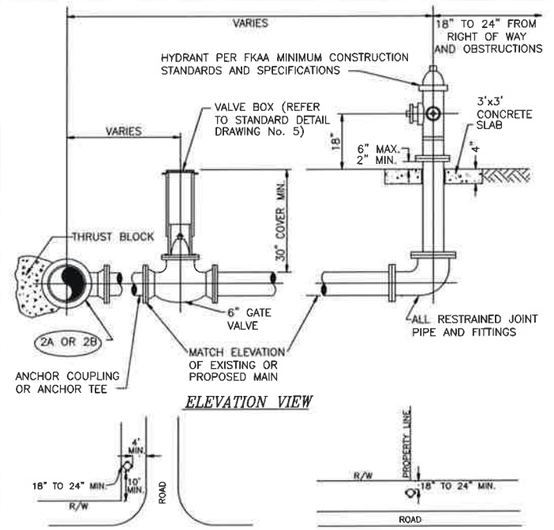


NOTES:

1. TO BE USED AT LINE END WHERE FLUSH-OUT ASSEMBLY IS SPECIFIED.
2. ALL PIPE TO BE SCHEDULE 80 PVC.
3. ALL FITTINGS TO BE BRASS.

FLUSH-OUT ASSEMBLY

STANDARD DETAIL DRAWING NO. 8



NOTES:

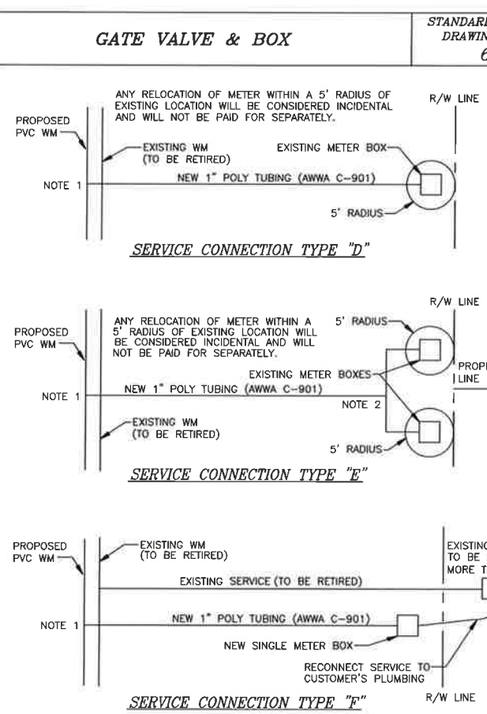
1. CONCRETE SLAB MAY BE ELIMINATED IN AREAS WHERE SIDEWALK IS INSTALLED PRIOR TO FINAL ACCEPTANCE OF THE HYDRANT.

2A. TAPPING SLEEVE AND VALVE USED WHEN EXISTING LINE IS HOT

2B. TEE-USED WHEN EXISTING LINE IS NEW

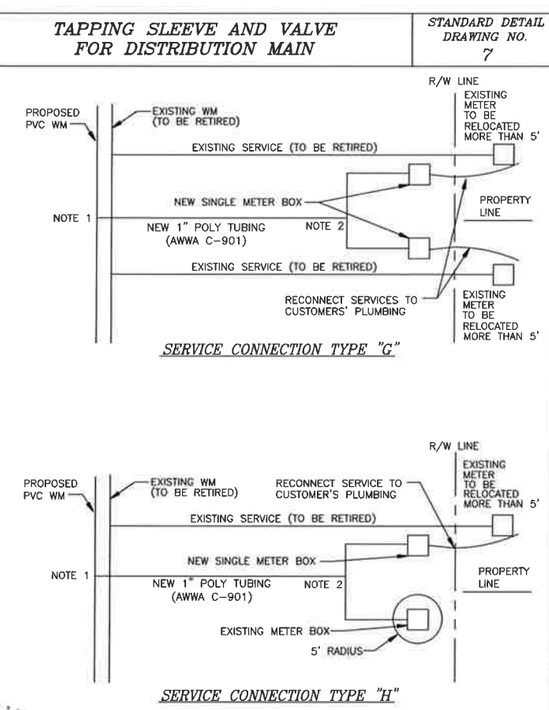
HYDRANT INSTALLATION

STANDARD DETAIL DRAWING NO. 9



TYPES OF SERVICE CONNECTIONS

STANDARD DETAIL DRAWING NO. 11 (1of3)



TYPES OF SERVICE CONNECTIONS (CONTINUED)

STANDARD DETAIL DRAWING NO. 11 (2of3)

NOTES FOR TYPES OF SERVICE CONNECTIONS:

1. REFER TO STANDARD DETAIL DRAWING No. 15 FOR SERVICE CONNECTION TO WATER MAIN.
2. REFER TO STANDARD DETAIL DRAWING No. 17 FOR BRANCH DETAILS.
3. CUT AND PLUG EXISTING SERVICE PIPES AT POINT OF CONNECTION TO EXISTING WATER MAIN.
4. REMOVE RETIRED SERVICE PIPES.
5. MAKE CONNECTIONS TO METERS WITH APPROPRIATELY SIZED COUPLINGS, FITTINGS, OR ADAPTERS.
6. METER LOCATION TO BE 6" FROM PROPERTY LINE OR 6" FROM BACK OF CONCRETE SIDEWALK. EXACT METER AND SERVICE LOCATIONS SHALL BE DETERMINED BY FKAA FIELD REPRESENTATIVE.
7. WHEN SERVICE LINE IS INSTALLED THROUGH CONCRETE, SERVICE LINE MUST BE SLEEVED.
8. DESCRIPTIONS OF SERVICE CONNECTIONS:

TYPE "D" – CONNECT TO EXISTING METER WITHIN R/W WITH NEW POLY TUBING (AWWA C-901). METER CAN BE MOVED WITHIN A 5' RADIUS OF CURRENT LOCATION.

TYPE "E" – CONNECT TO TWO EXISTING METERS W/IN R/W WITH NEW POLY TUBING (AWWA C-901). METERS CAN BE MOVED WITHIN A 5' RADIUS OF CURRENT LOCATIONS.

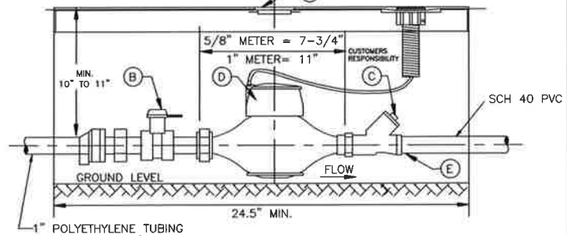
TYPE "F" – CONNECT TO NEW METER LOCATION (MORE THAN 5' FROM CURRENT LOCATION) IN R/W WITH NEW POLY TUBING (AWWA C-901). RECONNECT SERVICE TO CUSTOMER'S PLUMBING.

TYPE "G" – CONNECT TO TWO NEW METER LOCATIONS (MORE THAN 5' FROM CURRENT LOCATIONS) IN R/W WITH NEW POLY TUBING (AWWA C-901). RECONNECT SERVICES TO CUSTOMERS' PLUMBING.

TYPE "H" – CONNECT TO ONE EXISTING METER LOCATION (WITHIN 5' RADIUS OF CURRENT LOCATION) AND ONE NEW METER LOCATION (MORE THAN 5' FROM CURRENT LOCATION) IN R/W WITH NEW POLY TUBING (AWWA C-901). RECONNECT SERVICE TO CUSTOMER'S PLUMBING.

TYPES OF SERVICE CONNECTIONS (CONTINUED)

STANDARD DETAIL DRAWING NO. 11 (3of3)



A= METER BOX AND LID

BOX-OLDCASTLE PRECAST #02001032-FL12T FIBRELYTE GRAY COMPOSITE BOX (W/MOUSE HOLES)

LID-OLDCASTLE PRECAST #02001381-FL12 LID(1118)FIBRELYTE GRAY COMPOSITE NEPTUNE OFFSET-PROBE PROVISION FKAA WATER

SEE SECTION IV – MATERIAL SPECIFICATIONS

NOTE: PLASTIC BOXES MUST HAVE LIDS IN PLACE PRIOR TO POURING THE CONCRETE.

B= FORD LOCKABLE METER STOP OR APPROVED EQUAL

METER DIAMETER	METER STOP
¾" x ⅝"	No. B43-342 W*
1"	No. B43-344 W*

* "W" ON CATALOG NUMBER IS FOR PADLOCK WINGS.

C= FKAA APPROVED DUAL CHECK VALVE: MUELLER No. H-14242 OR FORD HHS 31-323, HHS 31-344, OR APPROVED EQUAL

D= SEALED REGISTER WATER METER

E= CUSTOMER TIE-IN POINT

NOTE:

1. MINIMUM DISTANCES BETWEEN METER INLETS/OUTLETS AND THE CLOSEST FITTINGS SHALL BE MAINTAINED PER METER MANUFACTURER'S REQUIREMENTS.
2. IF DOWNSTRAEAM BACKFLOW PREVENTOR(RPZ OR DCVA) IS REQUIRED, CURB STOP SHOULD BE INSTALLED IN LIEU OF DUAL CHECK.

5/8" AND 1" METER WITH DUAL CHECK VALVE

STANDARD DETAIL DRAWING NO. 12 (1of2)

DATE 3/96
REVISED 9/12
REVISED 2/13

PERMIT SET

REVISIONS			
DATE	MARK	BY	DESCRIPTION

DRAWN: AK DATE: 11/13
CHECKED: OB DATE: 11/13
DESIGN: TN DATE: 11/13
VERIFY SCALES 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

ENGINEER'S SEAL
No. 61612
2-11-14
STATE OF FLORIDA
OSCAR R. BELLO
FL. REG. NO. 61612

ENGINEER:
CHEN·MOORE &ASSOCIATES
500 W. Cypress Creek Rd., Suite 630
Ft. Lauderdale, FL 33309
Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

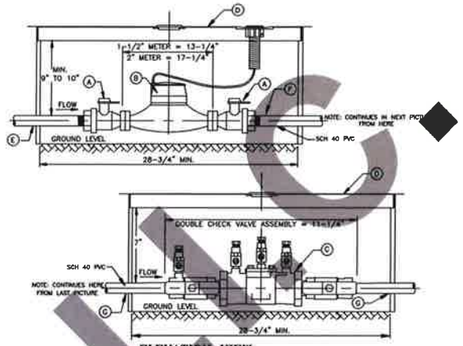
CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

STANDARD DETAILS - SHEET 7

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. D-7
SHEET 253 of 281



ELEVATION VIEW

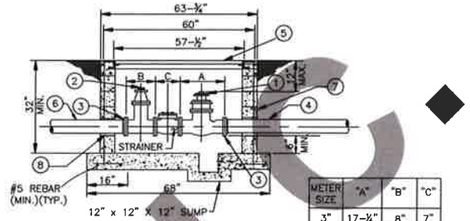
A= FORD LOCKABLE METER STOP OR APPROVED EQUAL: 1 1/2" = BF13-676 W*, 2" = BF13-777 W*
* "W" ON CATALOG NUMBER IS FOR PADLOCK WINGS
B= SEALED REGISTER WATER METER
C= USC APPROVED DOUBLE CHECK VALVE ASSEMBLY (CUSTOMER FURNISHED)*
* WITH VERTICAL TEST COCKS AND PLUGS
D= MID-STATES PLASTICS MODEL #MSBCF1730-12 OR APPROVED EQUAL
E= 1" OR 2" POLYETHYLENE TUBING (AWWA C-901)
F= CUSTOMER TIE-IN POINT
G= CUSTOMER FURNISHED PIPING/TUBING

NOTE:

MINIMUM DISTANCES BETWEEN METER INLETS/OUTLETS AND THE CLOSEST FITTINGS SHALL BE MAINTAINED PER METER MANUFACTURER'S REQUIREMENTS.

1" AND LARGER METER WITH DOUBLE CHECK VALVE ASSEMBLY

STANDARD DETAIL DRAWING NO. 13 (2of2)



SECTION VIEW

METER SIZE	"A"	"B"	"C"
3"	17-¼"	8"	7"
4"	20-¼"	9"	9"
6"	24-¼"	10-½"	9"

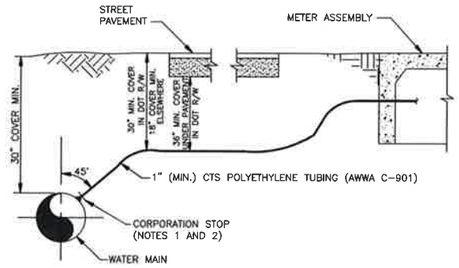
1. SINGLE REGISTER COMPOUND WATER METER
2. FLANGED RESILIENT SEAT, NON-RISING STEM GATE VALVE, MAY BE LOCATED INSIDE OR OUTSIDE OF METER VAULT
3. UNI-FLANGE OR EQUAL FLANGE PIPE ADAPTER
4. TO BACKFLOW PREVENTER (D.I. FOR PIPE DIA. GREATER THAN 3") (REFER TO STANDARD DETAIL DRAWING Nos. 20, 21, AND 22)
5. U.S. FOUNDRY TYPE AND 36"x60" ALUMINUM HATCH COVER, CAST IN PLACE (OR APPROVED EQUAL)
6. TO MAIN AND/OR VALVE (D.I. FOR PIPE DIA. GREATER THAN 3")
7. 8" CONCRETE BLOCK WALLS WITH CELLS FILLED WITH NON-SHRINK GROUT (NOTE 1)
8. GROUT AROUND PIPE TO SEAL OPENING, COMPLETELY WRAP PIPE WITH #15 FELT BEFORE GROUTING

NOTES:

1. REBAR AS SHOWN ARE MINIMUM REQUIRED. VAULT TO BE DESIGNED BY PRECASTER.
2. MINIMUM DISTANCES BETWEEN METER INLETS/OUTLETS AND THE CLOSEST FITTING SHALL BE MAINTAINED PER MANUFACTURER'S REQUIREMENTS.

3", 4" AND 6" METER ASSEMBLY

STANDARD DETAIL DRAWING NO. 14



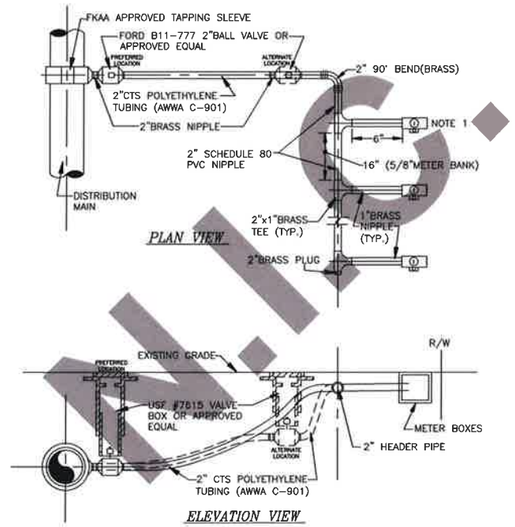
ELEVATION VIEW

NOTE:

1. CORPORATION STOPS TO HAVE AWWA TAPER INLET THREADS AND COMPRESSION FITTING. CORPORATION STOPS SHALL BE DIRECT TAP ON MAINS 6" IN DIA. OR GREATER. USE BRASS TAPPING SADDLE ROCKWELL STYLE 323, OR APPROVED EQUAL, FOR 4" DIA. MAINS.
2. USE FORD F-1000 CORPORATION STOP OR APPROVED EQUAL.

SERVICE CONNECTION

STANDARD DETAIL DRAWING NO. 15



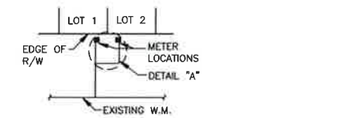
PLAN VIEW

ELEVATION VIEW

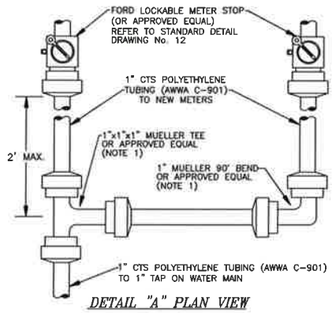
NOTE: REFER TO STANDARD DETAIL DRAWING No. 12 FOR METER ASSEMBLY.

METER BANK

STANDARD DETAIL DRAWING NO. 16



PLAN VIEW



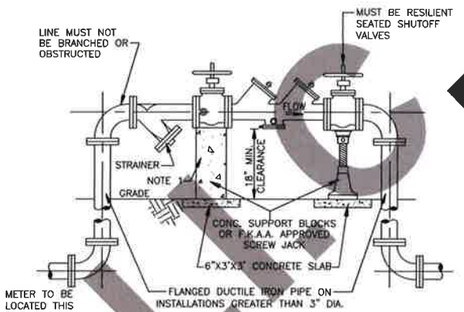
DETAIL "A" PLAN VIEW

NOTES:

1. USE MUELLER 110 CONDUCTIVE COMPRESSION CONNECTIONS FOR CTS POLYETHYLENE TUBING (AWWA C-901), OR APPROVED EQUAL.

FITTINGS FOR 1" TAP DUAL SERVICE CONNECTION

STANDARD DETAIL DRAWING NO. 17



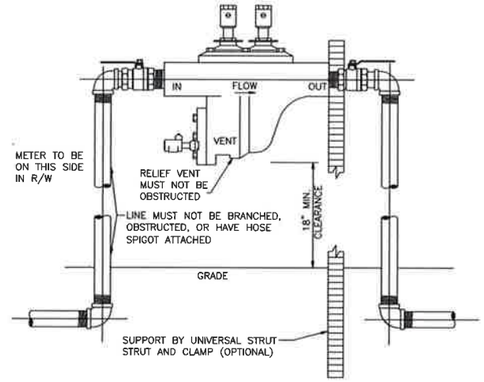
ELEVATION VIEW

NOTES:

1. CONCRETE SUPPORT BLOCKS AND "Y" TYPE STRAINER (WITH STANDARD PERFORATED SCREEN) ON 2 1/2" AND LARGER BACKFLOW PREVENTERS.
2. THE ASSEMBLY MUST BE INSTALLED WITH MINIMUM HORIZONTAL CLEARANCES OF 30" FOR THE SIDE WITH TEST COCKS AND 8" FOR THE BACK SIDE.
3. REDUCED PRESSURE ZONE ASSEMBLY MUST APPEAR ON THE APPROVED LIST FOUND IN THE FKAA MANUAL OF CROSS-CONNECTION CONTROL.

2-1/2" TO 10" REDUCED PRESSURE BACKFLOW PREVENTER INSTALLATION

STANDARD DETAIL DRAWING NO. 20



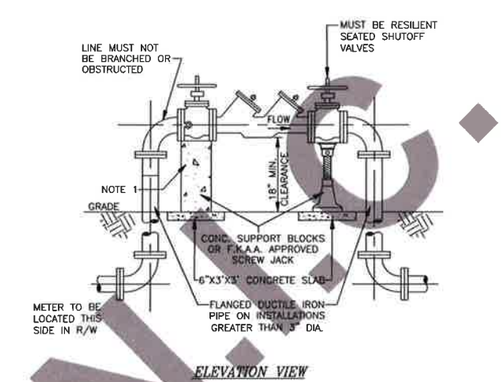
ELEVATION VIEW

NOTES:

1. THE ASSEMBLY MUST BE INSTALLED ON THE CUSTOMER'S PROPERTY, AS CLOSE TO THE METER AS PRACTICAL.
2. THE ASSEMBLY MUST BE ACCESSIBLE FOR TESTING ANNUALLY, AND FOR OVERHAUL EVERY FIVE YEARS.
3. REDUCED PRESSURE ZONE ASSEMBLY MUST APPEAR ON THE APPROVED LIST FOUND IN THE FKAA MANUAL OF CROSS-CONNECTION CONTROL.

3/4" TO 2" REDUCED PRESSURE BACKFLOW PREVENTER INSTALLATION

STANDARD DETAIL DRAWING NO. 21



ELEVATION VIEW

NOTES:

1. CONCRETE SUPPORT BLOCKS REQUIRED ON 2 1/2" AND LARGER DOUBLE CHECK VALVES.
2. THE DEVICE MUST BE INSTALLED WITH MINIMUM HORIZONTAL CLEARANCES OF 30" FOR THE SIDE WITH TEST COCKS AND 8" FOR BACK SIDE.
3. ASSEMBLY IS NOT COMPLETE UNLESS ALL TEST COCKS ARE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
4. DOUBLE CHECK VALVE ASSEMBLY MUST APPEAR ON THE APPROVED LIST FOUND IN THE FKAA MANUAL OF CROSS-CONNECTION CONTROL.

3/4" TO 10" DOUBLE CHECK VALVE ASSEMBLY INSTALLATION

STANDARD DETAIL DRAWING NO. 22

PERMIT SET

REVISIONS

DATE	MARK	BY	DESCRIPTION

DRAWN: AK	DATE: 11/13	
CHECKED: OB	DATE: 11/13	
DESIGN: TN	DATE: 11/13	

VERIFY SCALES
0 1"
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ENGINEER'S SEAL
No. 61612
2-12-14
STATE OF FLORIDA
OSCAR R. BELLO
FL. REG. NO. 61612

ENGINEER:
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Tel: (954)730-0707
Fax: (954)730-2030
EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

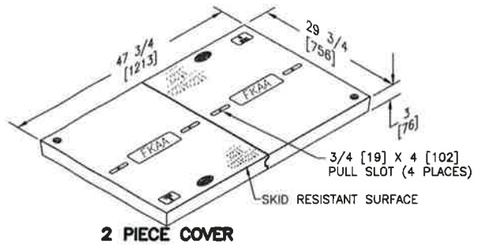
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

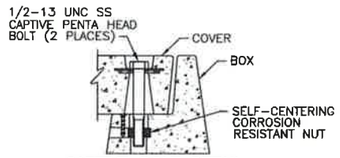
STANDARD DETAILS - SHEET 8

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. D-8
SHEET 254 of 281

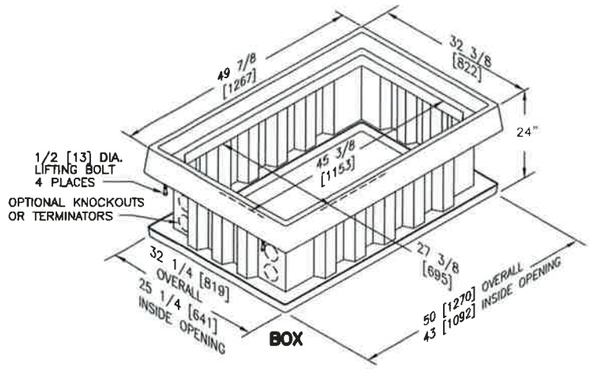
RECEIVED Feb 12, 2014
South District DEP



2 PIECE COVER

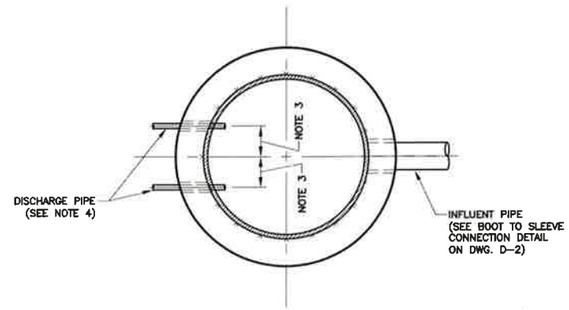


CAPTIVE BOLT DETAIL
HEX HEAD BOLTS ARE AVAILABLE ON REQUEST

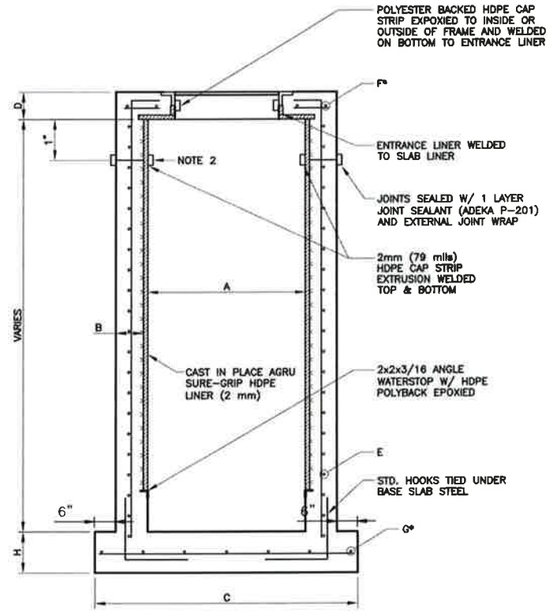


PUMP DISCHARGE VALVE BOX
30"x48" CORRUGATED WALL STYLE ASSEMBLY
MODEL No. B1B304824B W/ INTEGRAL BOTTOM

A	B	C	D	E	F*	G*	HOLDING CAPACITY (GALS./V.FT.)	H
5'-0" DIA	8"	7'-4" DIA	8"	ASTM C-478	#5 @ 6" C/C	#5 @ 12" C/C	147	1'-0"



SECTIONAL PLAN



SECTION

NOTES:
1. SPARK TEST ALL WELDED SEAMS.
2. EXTRUSION WELD
3. OFFSET DETERMINED BY PUMP MANUFACTURER.
4. THREE DISCHARGE PIPES FOR TRIPLEX STATIONS AND FOUR DISCHARGE PIPES FOR QUADPLEX STATIONS.

WET WELL/LIFT STATION STRUCTURE W/ CAST-IN HDPE LINER CONFIGURATION FOR NO FLOOR LINER
N.T.S.

PERMIT SET

REVISIONS			
DATE	MARK	BY	DESCRIPTION

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CHECKED: OB	DATE: 11/13	
DESIGN: TN	DATE: 11/13	

VERIFY SCALES
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ENGINEER'S SEAL
No. 61612
2-14-14
STATE OF FLORIDA
OSCAR R. BELLO
FL. REG. NO. 61612

ENGINEER:
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Tel: (954)730-0707
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EB 0004593

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.
Layne

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

LIFT STATION DETAILS

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. M-1
SHEET 261 of 281

GENERAL SYMBOLS (Tags)

(A)	ALARM INDICATING LIGHT
(AR)	ALARM RELAY (LOW OIL)
[AS]	THREE PHASE AMP SWITCH
(AT)	ALARM TIMER
(CR)	CONTROL RELAY
(DD)	DUCT SMOKE DETECTOR
[ETM]	ELAPSED TIME METER
[F] 30/20	FUSED DISCONNECT SWITCH (30/20: 30=SWITCH RATING, 20=FUSE RATING)
(FE)	FLOW ELEMENT
(FLT)	FAULT
[FIT]	FLOW INDICATING TRANSMITTER
(FS)	FLOW SWITCH
(G)	MODE INDICATING LIGHT
(LE)	LEVEL ELEMENT
[LIT]	LEVEL INDICATING TRANSMITTER
(LO)	LOCK OUT
(LS)	LIQUID SWITCH
(MC)	MOTOR CALL
(PM)	POWER MONITOR
(PSL)	SUCTION PRESSURE
(PS)	PRESSURE SWITCH
(R)	RUN INDICATING LIGHT
(SF)	SEAL FAIL SWITCH
(SH)	SPACE HEATER
(SV)	SOLENOID VALVE
(T)	THERMOSTAT
[TC]	TERMINATION CABINET
(TR)	TIMING RELAY
(TS)	TEMPERATURE SWITCH
(ZSH)	POSITION SWITCH
(VSF)	VARIABLE SPEED FAULT
EXISTING	SLANTED, SHADED, SOLID LINES & TEXT DENOTE EXISTING EQUIPMENT, STRUCTURES AND WORK.
FUTURE	SLANTED, NON-SHADED, DASHED LINES & TEXT DENOTE FUTURE EQUIPMENT, STRUCTURES AND WORK.
PROPOSED	NON-SLANTED, NON-SHADED, SOLID LINES & TEXT DENOTE PROPOSED EQUIPMENT, STRUCTURES AND WORK.
(10)	ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
	COMBINATION MOTOR STARTER
	CROUSE HINDS EYSR FITTING AND CORRESPONDING "CHICO" CEMENT. COMBINATION SHALL BE RATED TO SEPARATE A CLASS 1, DIVISION 2 INSTALLATION.
	FLUSH OR SURFACE MOUNTED LIGHTING PANELBOARD.
	FLUSH OR SURFACE MOUNTED POWER PANELBOARD.
[30]	DRY TYPE TRANSFORMER. NO. INDICATES KVA RATING.
	FUSE
S	SWITCH - SINGLE POLE
S_3	SWITCH - THREE WAY
S^D	SUFACE MTD SWITCH

PLAN SYMBOLS

	HOME RUN TO PANELBOARD. NO. OF ARROWS INDICATE NO. OF CIRCUITS, HASH MARKS INDICATE NO. OF #12 AWG. CONDUCTORS. NO HASH MARKS INDICATE 2 #12 CONDUCTORS.
	CONDUIT CONCEALED IN WALL, IN SLAB ABOVE, OR ABOVE CEILING
	CONDUIT CONCEALED IN OR BELOW FLOOR OR UNDERGROUND.
	CONDUIT RUN EXPOSED. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL.
S_M	MOTOR DUTY, SINGLE PHASE DISCONNECT, NEMA 4X STAINLESS STEEL
[C]	CONTROL PULLBOX
[P]	POWER MANHOLE
	1' X 8' (4) LAMP LIGHTING FIXTURE 120V.
	1' X 8' (4) LAMP LIGHTING FIXTURE 120V, WITH EMERGENCY BALLAST UNIT.
	EXIT LIGHT/SIGN
	UTILITY TRANSFORMER
	PANEL ENCLOSURE
	EQUIPMENT RACK
	DETAIL CALLOUT
	20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
	20A, 125V, 3W GROUND FAULT DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.

SINGLE LINE DIAGRAM SYMBOLS

	MOLDED CASE CIRCUIT BREAKER
	TYPICAL SELECTOR SWITCH AND CONTROL. SEE ELEMENTARY DIAGRAMS FOR EXACT TYPE.
	SERVICE OR EQUIPMENT GROUND.
	NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED.
	NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED, WITH REMOTE CONTROL STATION AS REQUIRED BY ELEMENTARY DIAGRAMS OR SPECS
	CURRENT TRANSFORMERS
	POTENTIAL TRANSFORMERS
[SS]	SURGE SUPPRESSOR

CONTROL DIAGRAM SYMBOLS

	FLOW SWITCH, NORMALLY OPEN
	FLOW SWITCH, NORMALLY CLOSED
	TEMPERATURE SWITCH, NORMALLY OPEN
	TEMPERATURE SWITCH, NORMALLY CLOSED
	NORMALLY OPEN, TIMED TO CLOSE CONTACT
	NORMALLY CLOSED, TIMED TO OPEN CONTACT
	NORMALLY CLOSED, TIMED TO CLOSE CONTACT
	NORMALLY OPEN, TIMED TO OPEN CONTACT
	DUPLEX RECEPTACLE
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	LIMIT SWITCH, NORMALLY OPEN
	LIMIT SWITCH, NORMALLY CLOSED
	FLOAT SWITCH, NORMALLY OPEN
	FLOAT SWITCH, NORMALLY CLOSED
	PRESSURE SWITCH, NORMALLY OPEN
	PRESSURE SWITCH, NORMALLY CLOSED
	MOMENTARY CONTACT PUSHBUTTON
	MOMENTARY BREAK PUSHBUTTON OR RESET
K	KEYED SWITCH
	MAINTAINED CONTACT ON-OFF SWITCH
	START/STOP (S/S) CONTROL SWITCH MAINTAINED CONTACT
	THREE POSITION MAINTAINED CONTACT SELECTOR SWITCH
	MOLDED CASE CIRCUIT BREAKER
	CONTROL POWER TRANSFORMER
	REMOTE FIELD WIRING TERMINAL
	OVERLOADS
	FULL VOLTAGE NON-REVERSING

ABBREVIATIONS

A	AMPERES
AE	ANALYZER ELEMENT
AER	AERATOR
AFF	ABOVE FINISHED FLOOR
AIC	AMPS INTERRUPTING CURRENT
AIT	ANALYZER INDICATING TRANSMITTER
AHU	AIR HANDLING UNIT
AMP	AMPERE
AUX	AUXILIARY
BKR	BREAKER
CAB	CABINET
CB	CIRCUIT BREAKER
CLF	CURRENT LIMITING FUSE
CPT	CONTROL POWER TRANSISTOR
CU	COPPER
DISC	DISCONNECT
DO	DIGITAL OUTPUT
DN	DOWN
DIW	DEEP INJECTION WELL
DWG	DRAWING
EA	EACH
EFF	EFFLUENT
ELEC	ELECTRICAL
EM	EMERGENCY
ENCL	ENCLOSURE
ETM	ELAPSED TIME METER
EXH	EXHAUST
EXST	EXISTING
F&I	FURNISH AND INSTALL
FE	FLOW ELEMENT
FIT	FLOW INDICATING TRANSMITTER
FKAA	FLORIDA KEYS AQUEDUCT AUTHORITY
FS	FLOW SWITCH
FVC	FULL VOLTAGE CONTACTOR
FVNR	FULL VOLTAGE NON-REVERSING
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
HOA	HAND-OFF-AUTOMATIC
HOLR	HAND-OFF-LOCAL-REMOTE
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
HWY	HIGHWAY
INSTR	INSTRUMENTATION
KES	KEYS ENERGY SERVICE
KVA	KILOVOLT-AMPERES
KW	KILOWATT
LA	LIGHTNING ARRESTOR
LE	LEVEL ELEMENT
LIT	LEVEL INDICATING TRANSMITTER
LTG	LIGHTING
MB	MAIN BREAKER
MAX	MAXIMUM
MFR	MANUFACTURER
MH	METAL HALIDE
MPZ	MINI POWER ZONE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MR	MOTOR RUNNING
MSC	MANUFACTURER SUPPLIED CABLE
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
NEC	NATIONAL ELECTRIC CODE
NEUT	NEUTRAL
NO.	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OH	OVERHEAD
P	POLE
PB	PULL BOX
PC	PHOTO CELL
PCP	PUMP CONTROL PANEL
PLC	PROGRAMMABLE LOGIC CONTROLLER
PM	PHASE MONITOR
PNL	PANEL
PS	PUMP STATION
PVC	POLYVINYL CHLORIDE
RA	RIGID ALUMINUM
RECPT	RECEPTACLE
RTU	RADIO TELEMENTRY UNIT
SH	SHIELDED
SS	SURGE SUPPRESSOR
STR	STARTER
SW	SWITCH
SWCP	STORM WATER CONTROL PANEL

ABBREVIATIONS (CONTINUED)

TBR	TO BE REMOVED
TC	TERMINATION CABINET
TR	TRANSFORMER
TYP	TYPICAL
TPCP	TRANSFER PUMP CONTROL PANEL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTABLE POWER SUPPLY
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
SV	SOLENOID VALVE
W	WATT
W/	WITH
WP	WEATHERPROOF
ø	PHASE

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH N.E.C. AND LOCAL CODES.
2. CONDUCTORS SHALL NOT BE SPLICED EXCEPT AS NOTED IN SPECS.
3. ALL CONDUITS SHALL HAVE A BOND WIRE SIZED PER TABLE 250-122 OF THE N.E.C. (UNLESS OTHERWISE NOTED).
4. PROVIDE 4 INCH CONCRETE EQUIPMENT PADS FOR ALL FREE- STANDING PANELS ETC.
5. ALL CONTROL PANELS SHALL BE UL LISTED, AND SHALL COMPLY WITH ARTICLE 409 OF N.E.C.
6. DO NOT SCALE THE ELECTRICAL DRAWINGS. REFER TO THE MECHANICAL, STRUCTURAL DRAWINGS, AND APPROVED MANUFACTURER'S SHOP DRAWINGS FOR THE EXACT LOCATION OF ALL EQUIPMENT.

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REVISIONS

DATE	MARK	BY	DESCRIPTION

DRAWN: RRM DATE: 1/14
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ENGINEER'S SEAL
LILLIAN M. REYES, P.E.
FL. REG. NO. 50780

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PHONE: (561) 819-5556
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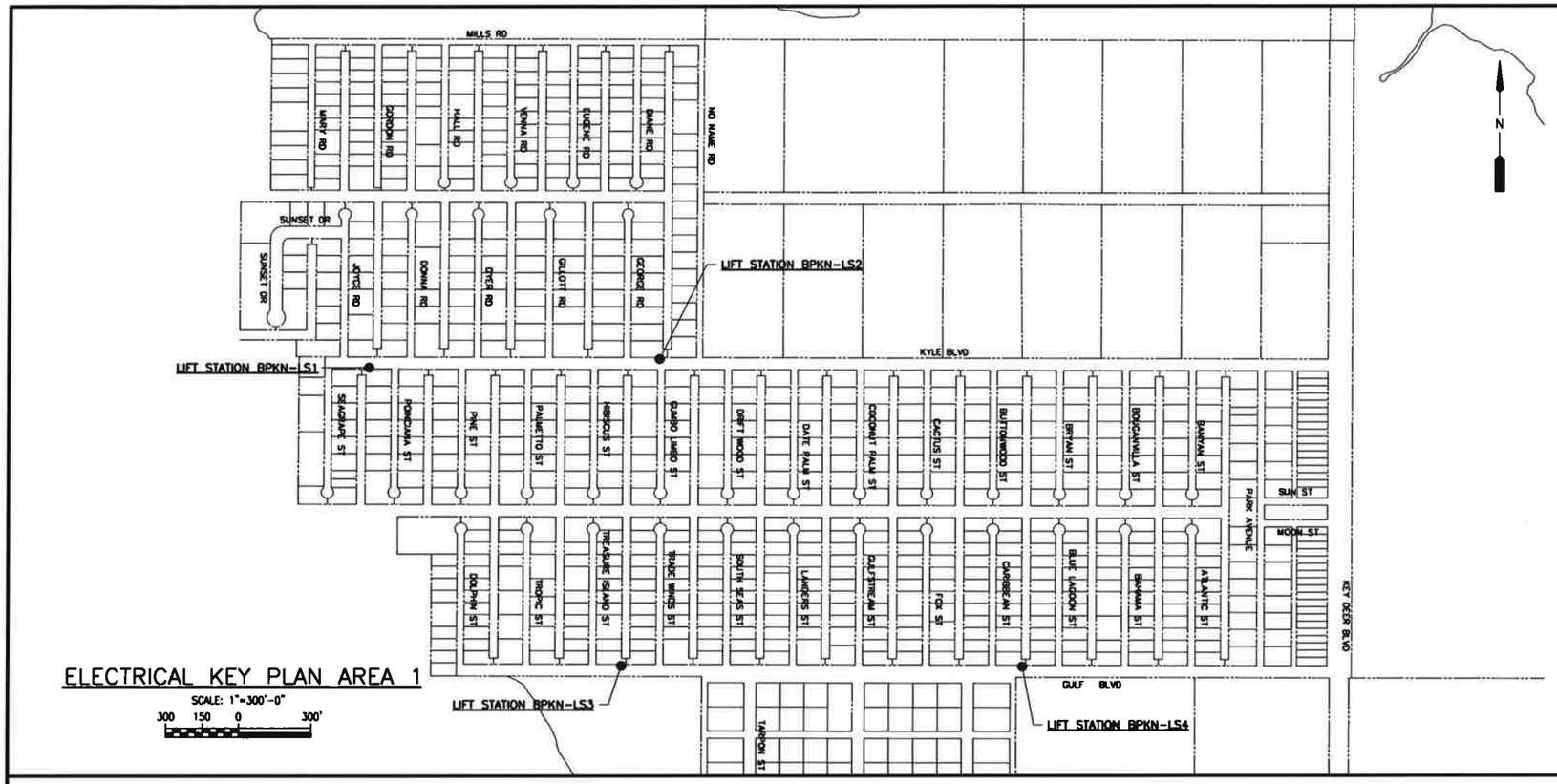
C.O.A. No. 8079
LILLIAN M. REYES, P.E.
Florida P.E. No. 50780

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH
ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS

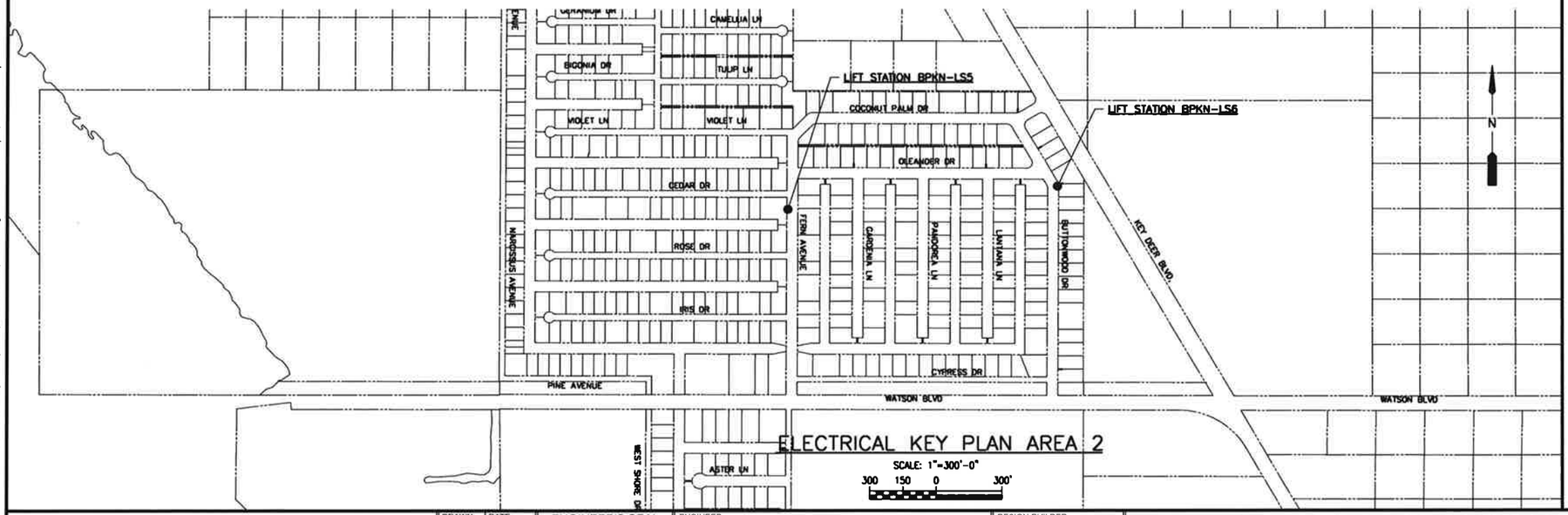
FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. E-01
SHEET 267 of 281



ELECTRICAL KEY PLAN AREA 1

SCALE: 1"=300'-0"

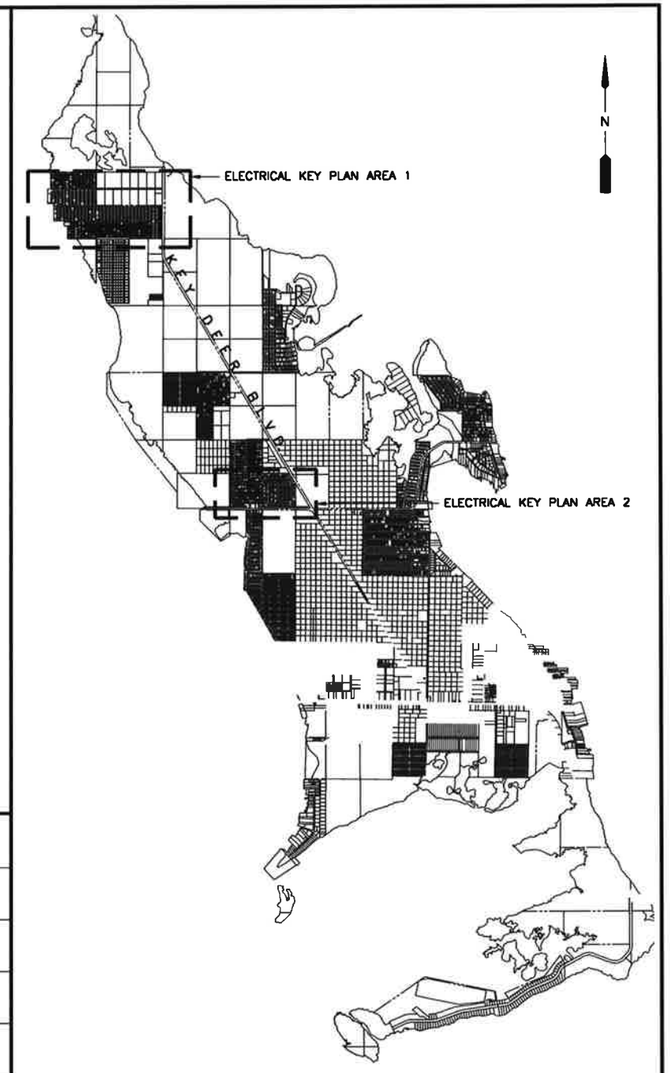
300 150 0 300'



ELECTRICAL KEY PLAN AREA 2

SCALE: 1"=300'-0"

300 150 0 300'



KEY MAP

SCALE: N.T.S.

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KEY WEST, FLORIDA

BIG PINE KEY - NORTH

KEY MAP

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. E-02
SHEET 268 of 281

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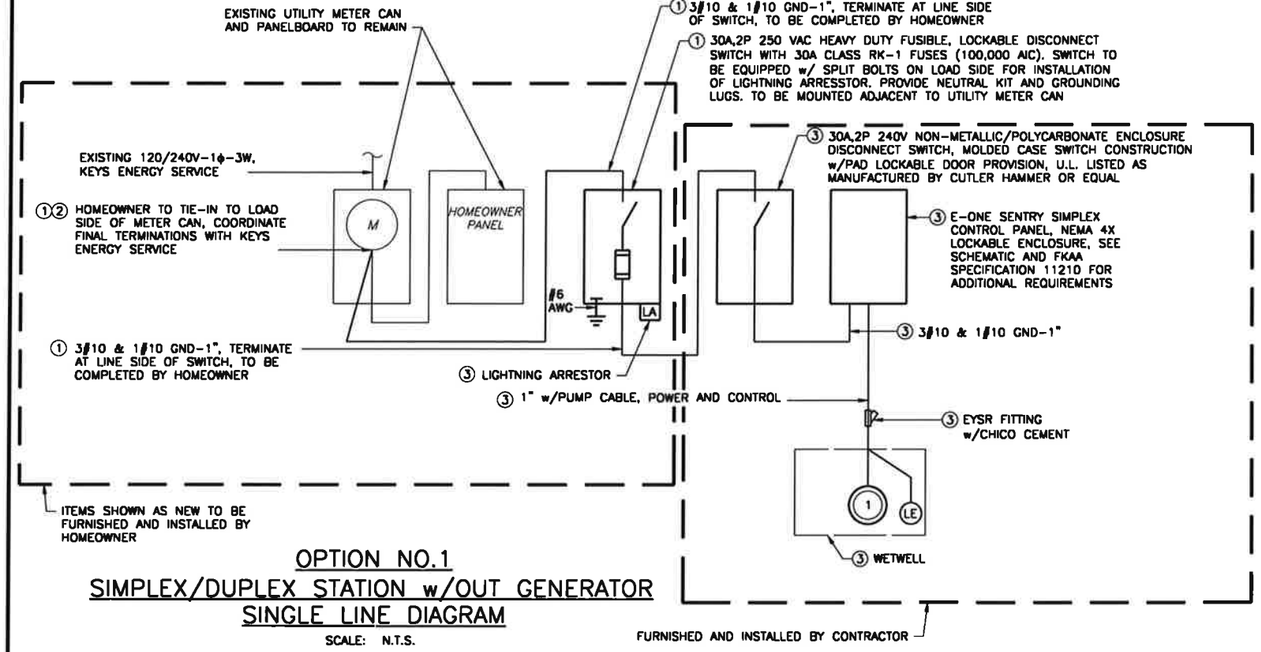
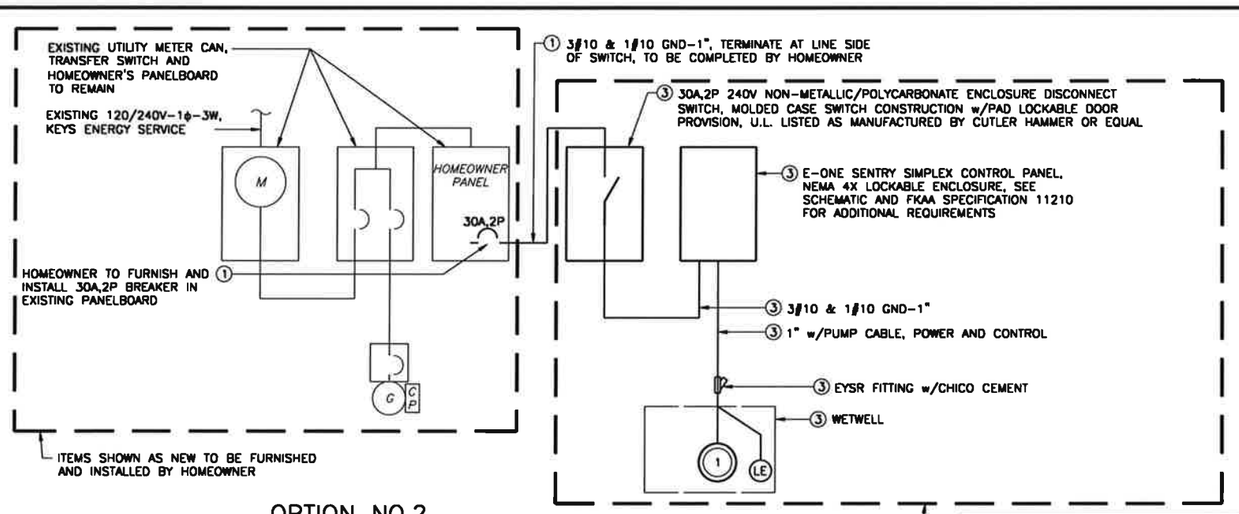


OPTION NO.1
SIMPLEX/DUPLEX STATION w/OUT GENERATOR SINGLE LINE DIAGRAM

SCALE: N.T.S.



OPTION NO.2
SIMPLEX STATION w/ GENERATOR SINGLE LINE DIAGRAM

SCALE: N.T.S.

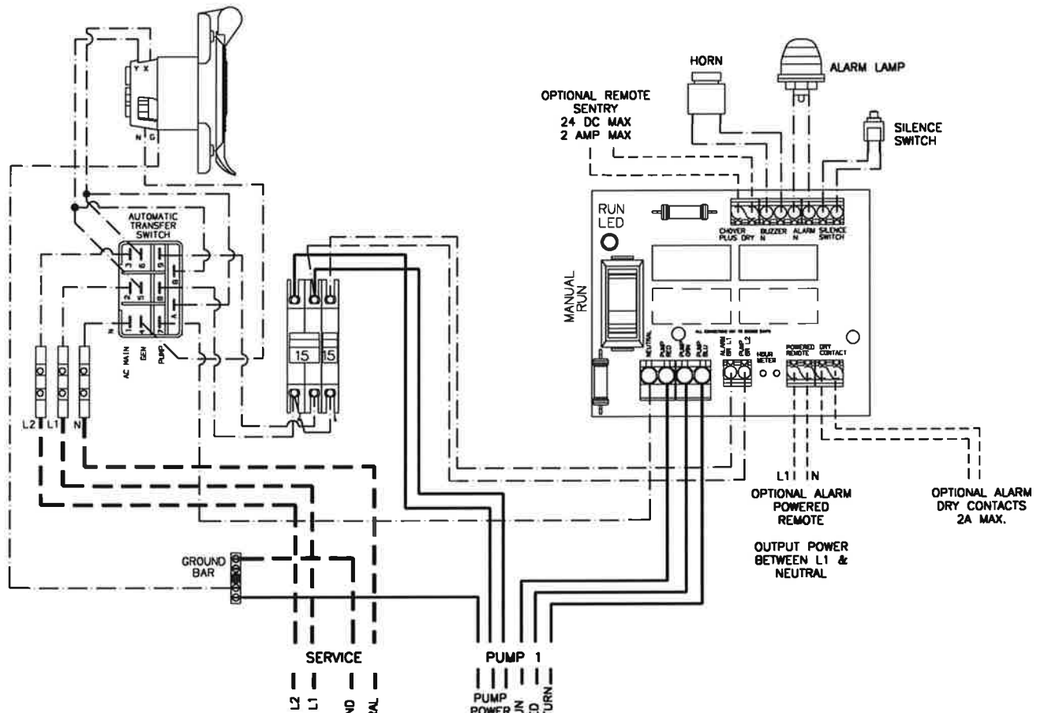
NOTES:

① HOMEOWNER TO FURNISH AND INSTALL ELECTRICAL EQUIPMENT AND ALL ASSOCIATED CONDUIT AND WIRE.

② HOMEOWNER TO COORDINATE TIE-IN AT METER IN OPTION 1 WITH KEYS ENERGY SERVICE PRIOR TO INITIATING WORK.

③ ALL WORK SHOWN TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.

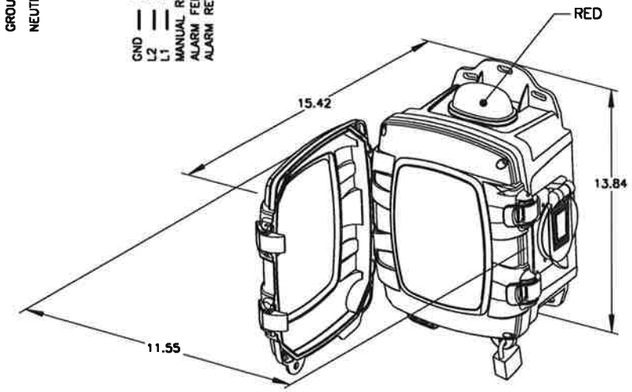
④ SEE FKAA SPECIFICATION SECTION 11210 FOR ADDITIONAL REQUIREMENTS.



LEGEND

- SUPPLIED BY OTHERS
- SUPPLY CABLE (FROM PUMP)
- FACTORY INSTALLED
- POSSIBLE OPTION

PIN	FUNCTION	2000S	EXTREME
1	MANUAL RUN	RED	BROWN
2	L1	BLACK	RED
3	L2	WHITE	BLACK
4	GND	GREEN	GRN/YEL
5	ALARM FEED	ORANGE	YELLOW
6	ALARM RETURN	BLUE	BLUE



SENTRY SIMPLEX SCHEMATIC DIAGRAM

SCALE: N.T.S.

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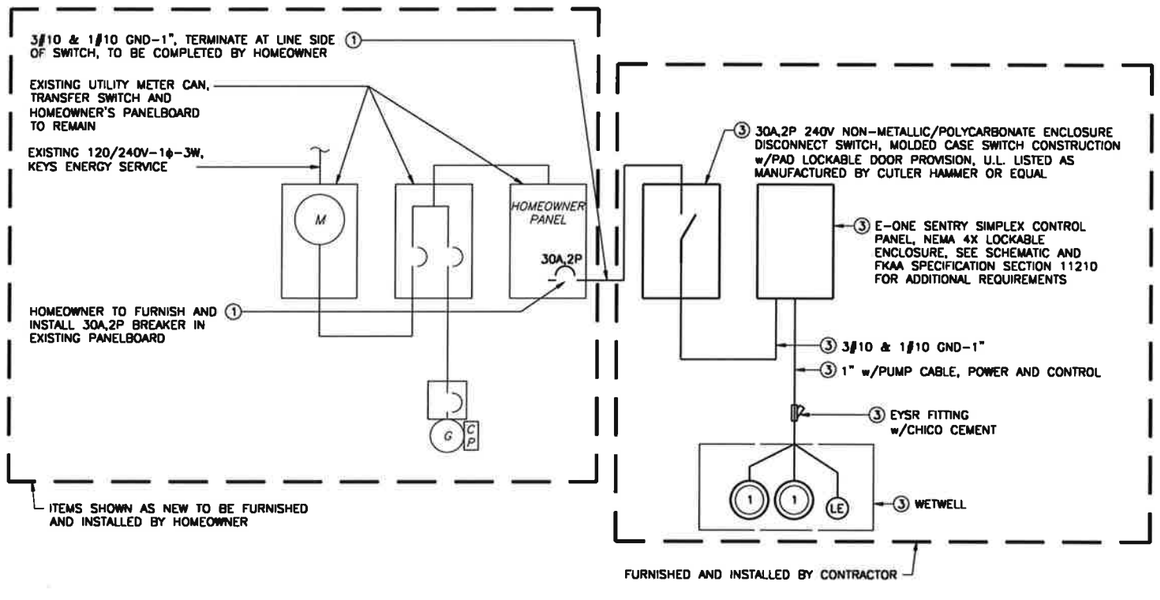
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

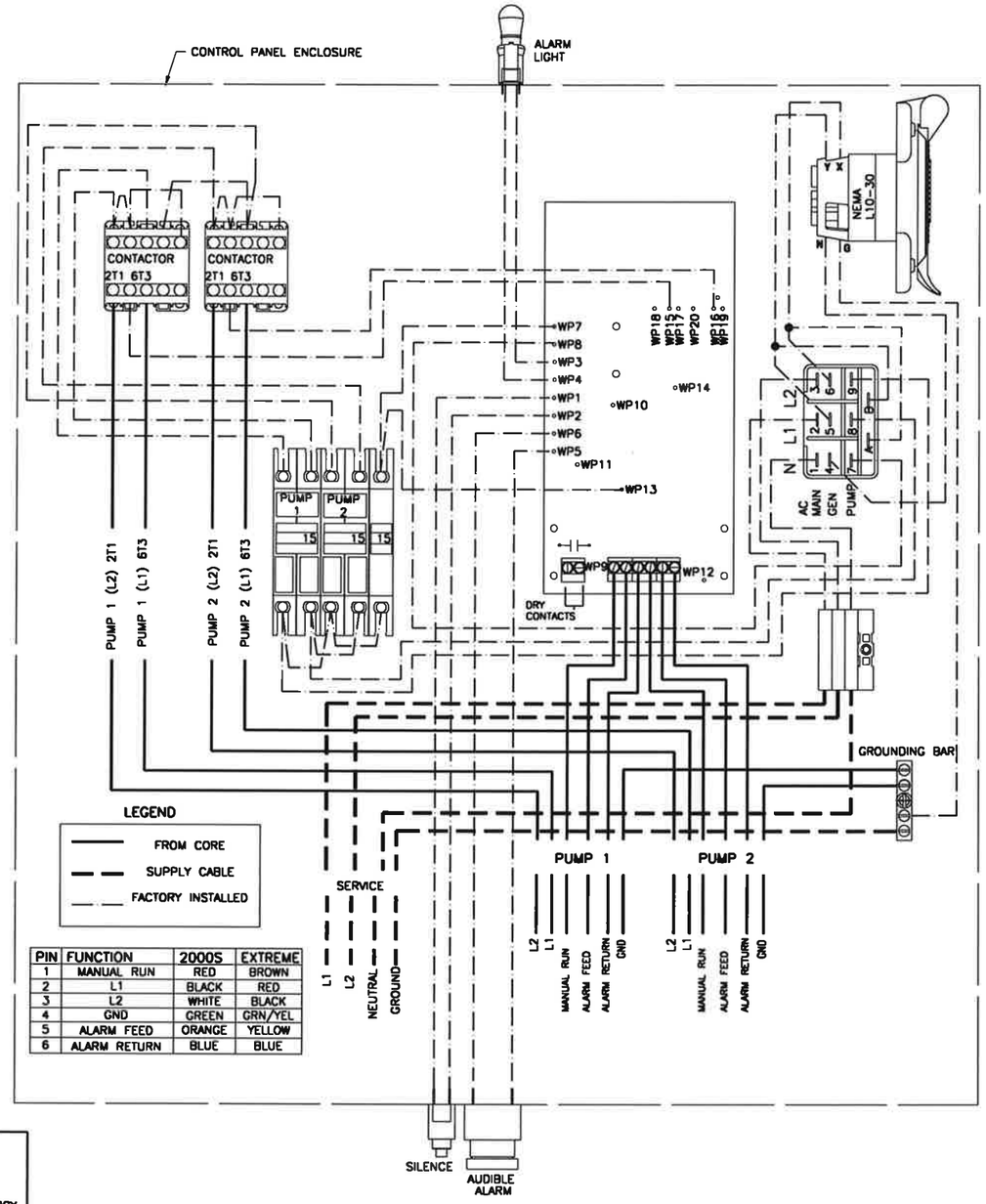
BIG PINE KEY - NORTH
LOW PRESSURE SIMPLEX STATION SINGLE LINE DIAGRAMS

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. E-03
SHEET 269 of 281



OPTION NO. 3
DUPLEX STATION w/ GENERATOR
SINGLE LINE DIAGRAM

SCALE: N.T.S.



PIN	FUNCTION	2000S	EXTREME
1	MANUAL RUN	RED	BROWN
2	L1	BLACK	RED
3	L2	WHITE	BLACK
4	GND	GREEN	GRN/YEL
5	ALARM FEED	ORANGE	YELLOW
6	ALARM RETURN	BLUE	BLUE

DUPLEX SENTRY SCHEMATIC DIAGRAM

SCALE: N.T.S.

NOTES:

1. HOMEOWNER TO FURNISH AND INSTALL ELECTRICAL EQUIPMENT AND ALL ASSOCIATED CONDUIT AND WIRE.
2. HOMEOWNER TO COORDINATE TIE-IN AT METER IN OPTION 3 WITH KEYS ENERGY SERVICE PRIOR TO INITIATING WORK.
3. ALL WORK SHOWN TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
4. SEE FKAA SPECIFICATION SECTION 11210 FOR ADDITIONAL REQUIREMENTS.

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FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH
LOW PRESSURE DUPLEX STATION SINGLE LINE DIAGRAMS

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. E-04
SHEET 270 of 281

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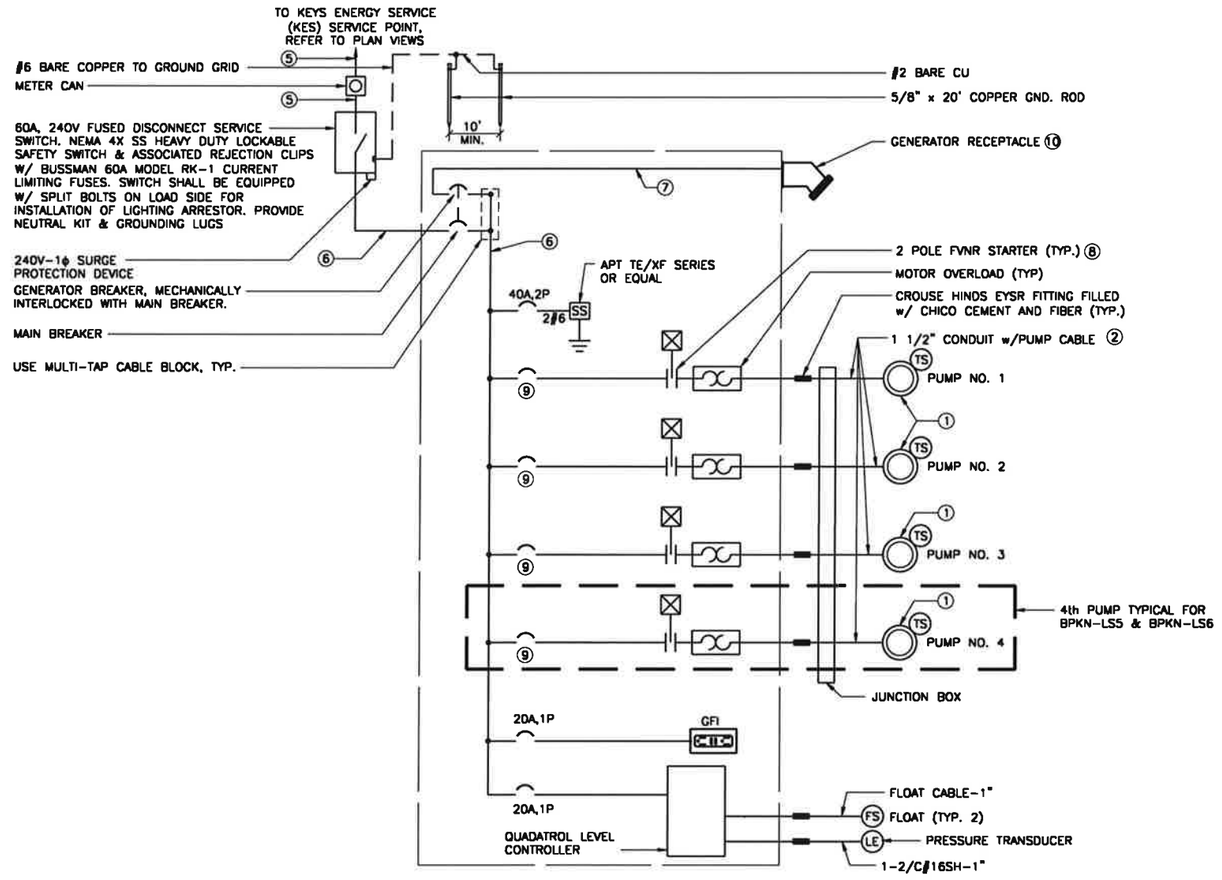

LIFT STATION CONTROL PANEL (PCP) SINGLE LINE DIAGRAM

TRIPLEX SERVICE LOAD TABULATION

SERVICE VOLTAGE: 120/240V,1ϕ,3W

DESCRIPTION	LOAD	AMPACITY
① PUMP NO. 1	1 @ 1 HP	= 4.31 AMPS
① PUMP NO. 2	1 @ 1 HP	= 4.31 AMPS
① PUMP NO. 3	1 @ 1 HP	= 4.31 AMPS
MISC LOADS		= 5.00 AMPS
	CONNECTED LOAD	= 17.93 AMPS
③ MINIMUM SERVICE ENTRANCE = 17.93 AMPS + (0.25)(4.31)		= (19.01) AMPS

QUADPLEX SERVICE LOAD TABULATION

SERVICE VOLTAGE: 120/240V,1ϕ,3W

DESCRIPTION	LOAD	AMPACITY
① PUMP NO. 1	1 @ 1 HP	= 4.31 AMPS
① PUMP NO. 2	1 @ 1 HP	= 4.31 AMPS
① PUMP NO. 3	1 @ 1 HP	= 4.31 AMPS
① PUMP NO. 4	1 @ 1 HP	= 4.31 AMPS
MISC LOADS		= 5.00 AMPS
	CONNECTED LOAD	= 22.24 AMPS
③ MINIMUM SERVICE ENTRANCE = 22.24 AMPS + (0.25)(4.31)		= (23.32) AMPS

LIFT STATION SCHEDULE

STATION NUMBER	LOCATION	SERVICE VOLTAGE	① MOTOR SIZE (HP)	② PUMP CABLE CONDUIT SIZE	③ MAIN BKR.	④ EMERGENCY BKR.	⑤ SERVICE CONDUIT CONDUCTORS	⑥ LOAD CONDUIT AND CONDUCTORS	⑦ EMERGENCY CONDUCTORS	⑧ STARTER SIZE	⑨ MOTOR BREAKER	⑩ GENERATOR RECEPTACLE
BPKN-LS1	27710 KYLE BLVD.	120/240V, 1ϕ, 3W	3 @ 1	2"	60A,2P	60A,2P	2#6, 1#6N-1"	2#6, 1#6 N, 1#6 GND-1"	2#6, 1#6 N, 1#6 GND	1	15A,2P	RUSSELL-STOLL CAT# JRSA1034H (4-PRONG)
BPKN-LS2	27910 KYLE BLVD.	120/240V, 1ϕ, 3W	3 @ 1	2"	60A,2P	60A,2P	2#6, 1#6N-1"	2#6, 1#6 N, 1#6 GND-1"	2#6, 1#6 N, 1#6 GND	1	15A,2P	RUSSELL-STOLL CAT# JRSA1034H (4-PRONG)
BPKN-LS3	27910 GULF BLVD.	120/240V, 1ϕ, 3W	3 @ 1	2"	60A,2P	60A,2P	2#6, 1#6N-1"	2#6, 1#6 N, 1#6 GND-1"	2#6, 1#6 N, 1#6 GND	1	15A,2P	RUSSELL-STOLL CAT# JRSA1034H (4-PRONG)
BPKN-LS4	28210 GULF BLVD.	120/240V, 1ϕ, 3W	3 @ 1	2"	60A,2P	60A,2P	2#6, 1#6N-1"	2#6, 1#6 N, 1#6 GND-1"	2#6, 1#6 N, 1#6 GND	1	15A,2P	RUSSELL-STOLL CAT# JRSA1034H (4-PRONG)
BPKN-LS5	1630 FERN AVENUE	120/240V, 1ϕ, 3W	4 @ 1	2"	60A,2P	60A,2P	2#6, 1#6N-1"	2#6, 1#6 N, 1#6 GND-1"	2#6, 1#6 N, 1#6 GND	1	15A,2P	RUSSELL-STOLL CAT# JRSA1034H (4-PRONG)
BPKN-LS6	1673 BUTTONWOOD DR.	120/240V, 1ϕ, 3W	4 @ 1	2"	60A,2P	60A,2P	2#6, 1#6N-1"	2#6, 1#6 N, 1#6 GND-1"	2#6, 1#6 N, 1#6 GND	1	15A,2P	RUSSELL-STOLL CAT# JRSA1034H (4-PRONG)

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ENGINEER'S SEAL
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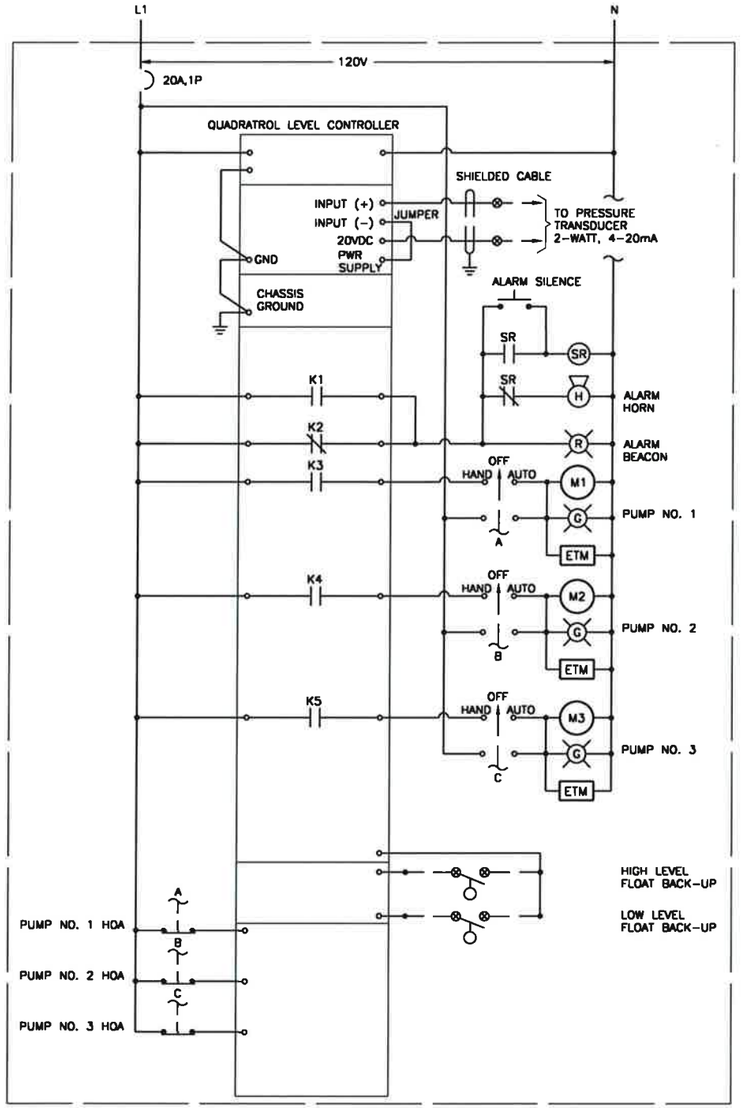
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

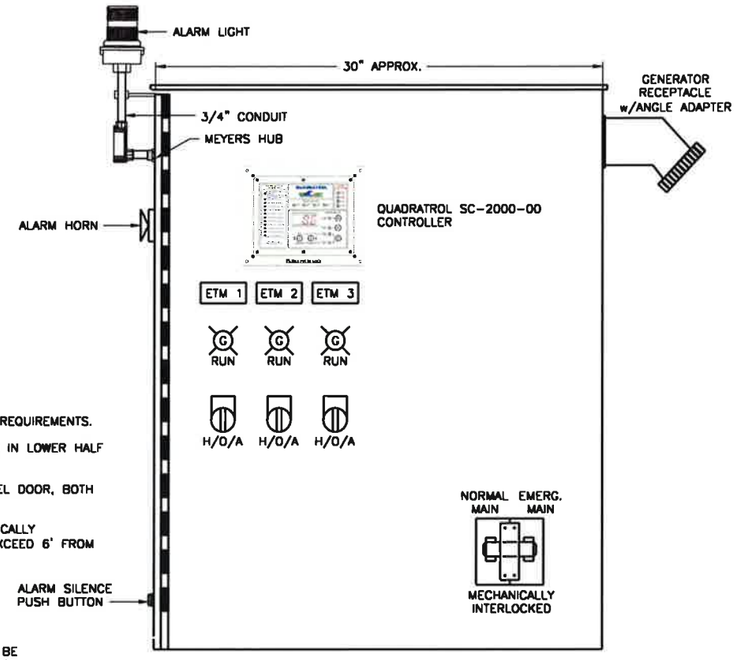
BIG PINE KEY - NORTH
LIFT STATION SINGLE LINE DIAGRAM

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. E-05
SHEET 271 of 281

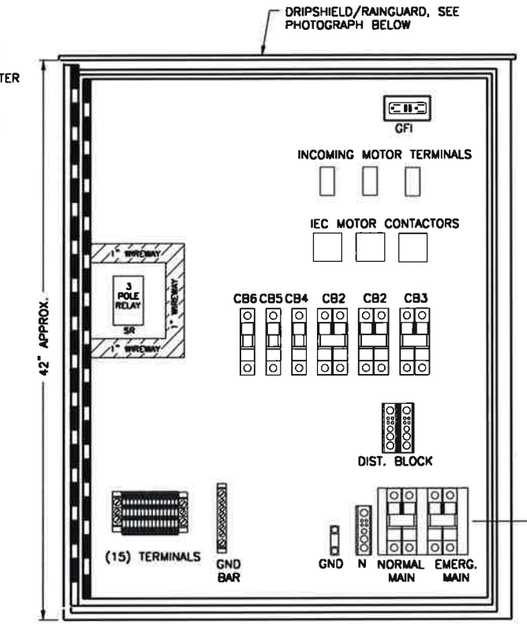


CONTROL DIAGRAM FOR TRIPLEX STATION

N.T.S.



INNERDOOR VIEW



BACKPANEL VIEW

CONTROL PANEL FRONT VIEW

N.T.S.

NOTES:

① SEE SHEET E-05 FOR ADDITIONAL REQUIREMENTS.

② WIRING DIAGRAMS TO BE INSTALLED IN LOWER HALF OF DOOR (INSIDE).

③ PROVIDE LOCKING ARM INSIDE PANEL DOOR, BOTH INNER DOOR AND EXTERIOR DOOR.

④ MOUNTING HEIGHT OF THE MECHANICALLY INTERLOCKED BREAKERS NOT TO EXCEED 6' FROM FINISHED GRADE.

GROUNDING NOTES:

1. ALL GROUND CONNECTIONS SHALL BE COPPER WIRES TO GROUND TERMINAL.
2. ALL METALLIC COMPONENTS SHALL BE BONDED TO GROUND TERMINAL.
3. PROVIDE SEPARATE GROUND WIRE FOR JUNCTION BOX.
4. GROUND TERMINAL SHALL HAVE SEPARATE TERMINAL FOR EACH WIRE.

DRIPSHIELD/RAINGUARD DETAIL

N.T.S.

BILL OF MATERIALS

ITEM	DESCRIPTION	MANUFACTURER	PART NO.	QTY.
1	ENCLOSURE, NEMA 4X, TYPE 304 STAINLESS STEEL	SCHAEFER	ESSS-363012-WMC	1
2	POWER DISTRIBUTION BLOCK, 2 POLE, 175 AMP	BUSSMAN	16220-2	1
3	NEUTRAL BLOCK, 1 POLE, 175 AMP	BUSSMAN	16220-1	1
4	CIRCUIT BREAKER, EMERGENCY MAIN/NORMAL MAIN, 2 POLE 60 AMP	CUTLER HAMMER	QC2040	2
5	CIRCUIT BREAKER, PUMPS, 2 POLE, 15 AMP	CUTLER HAMMER	QC2015	3
6	CIRCUIT BREAKER, 1 POLE, 20 AMP	CUTLER HAMMER	QC1020	2
7	CIRCUIT BREAKER, 2 POLE, 40 AMP	CUTLER HAMMER	QC2040	1
8	GEN. RECEPTACLE, 2 POLE, 3 WIRE, 60 AMP w/SUPPLIED ANGLE ADAPTER	RUSSELL-STOLL	JRSA634H	1
9	IEC MOTOR CONTACTOR, 3 POLE, 12 AMP	CUTLER HAMMER	XTCE012B10A	3
10	PUMP LEVEL CONTROLLER, QUADATROL	MP ELECTRONICS	QUADRATROL SC-2000-00	1
11	ALARM HORN, RED, PIEZIO TYPE, 120VAC	INGRAM PRODUCTS	PW120A	1
12	ALARM BEACON, RED, PIEZIO TYPE, 120VAC	INGRAM PRODUCTS	SBN120AC	1
13	RELAY, PLUG-IN, 3PDT, LED, 10 AMP, 120VAC/ w/OCTAL 11-PIN BASE	SQUARE D	RUMC3AB2F7/RUZSC3M	1/1
14	ELAPSED TIME METER, SQUARED, 115 VOLT	GRASSLIN	UWZ-48E-120	3
15	PIOLT LIGHT, 22mm OILTIGHT, GREEN, 120VAC	CUTLER HAMMER	E22HV3X44	3
16	3 POSITION SELECTOR SWITCH, 22mm OILTIGHT, MAINTAINED	CUTLER HAMMER	EM22XG61	3
17	FLUSH PUSHBOTTON SWITCH, 22mm OILTIGHT, BLACK	CUTLER HAMMER	EM22PI	1

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REVISIONS			
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DRAWN: RRM DATE: 1/14
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DESIGN: LMR DATE: 1/14
VERIFY SCALES 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

ENGINEER'S SEAL
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FL. REG. NO. 50760

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C.O.A. No. 8079
LILLIAN M. REYES, P.E.
Florida P.E. No. 50760

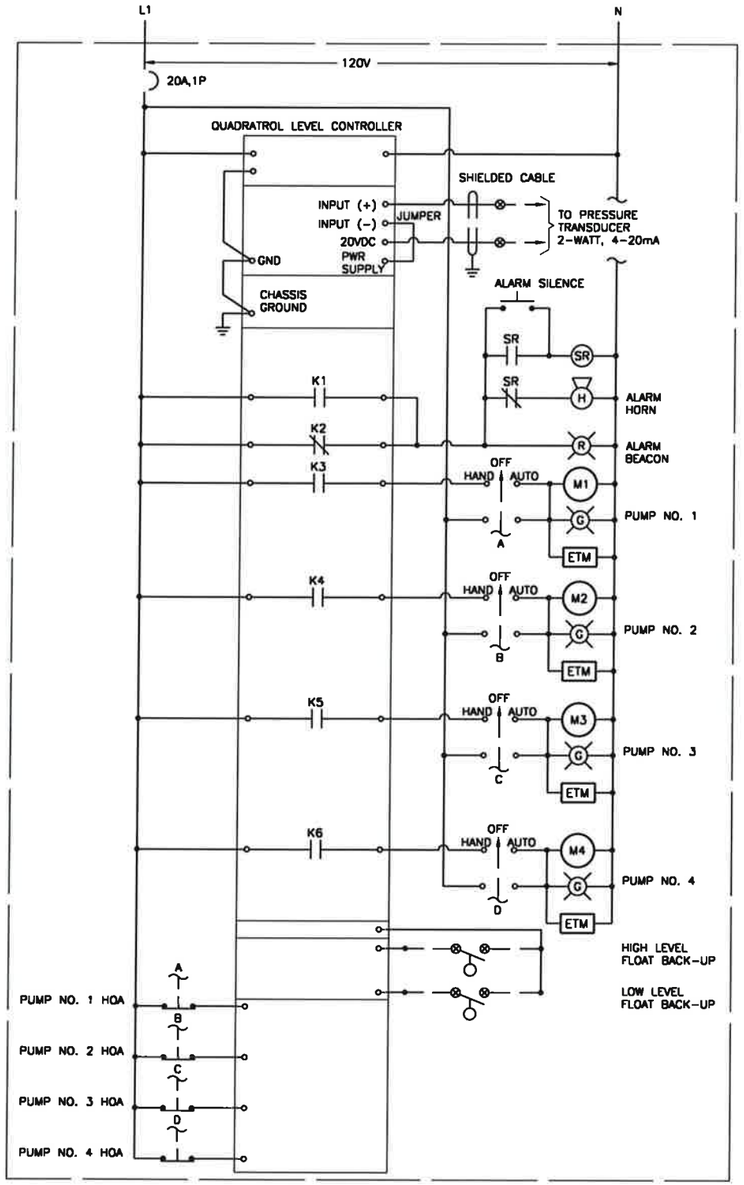
DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS
FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH
CONTROL DIAGRAM FOR TRIPLEX STATION

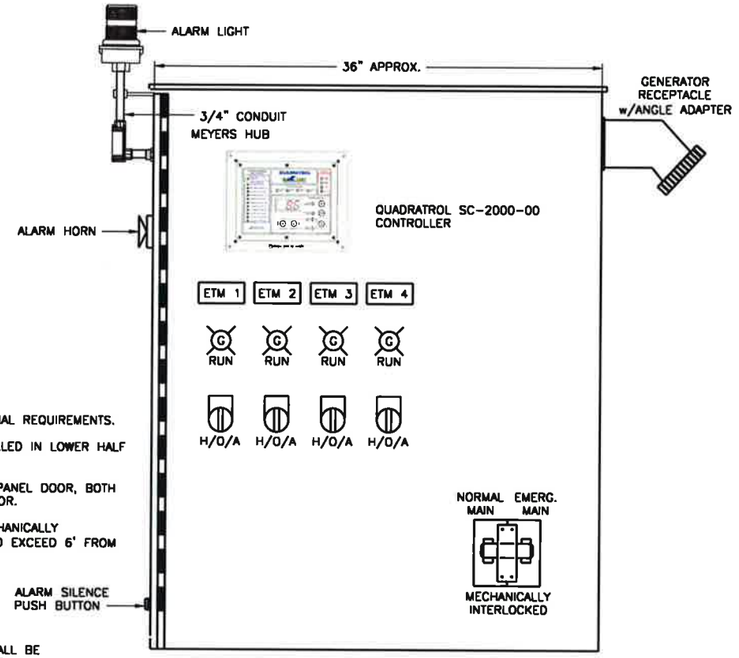
FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. E-06
SHEET 272 of 281

RECEIVED Feb 12, 2014
South District DEP

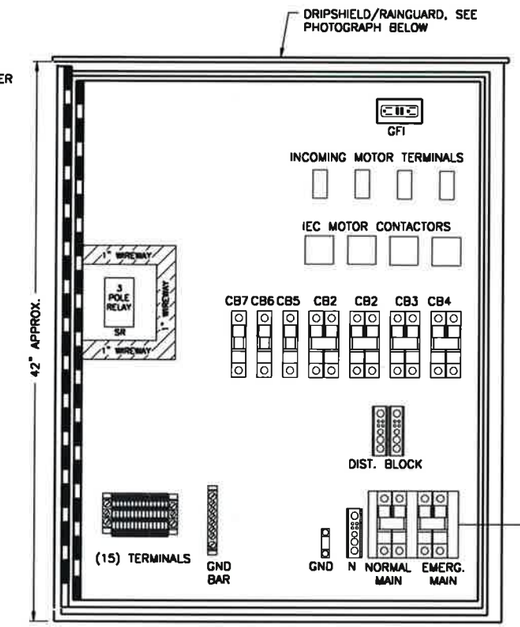


CONTROL DIAGRAM FOR QUADPLEX STATION

N.T.S.



INNERDOOR VIEW



BACKPANEL VIEW

CONTROL PANEL FRONT VIEW

N.T.S.

NOTES:

1. SEE SHEET E-05 FOR ADDITIONAL REQUIREMENTS.
2. WIRING DIAGRAMS TO BE INSTALLED IN LOWER HALF OF DOOR (INSIDE).
3. PROVIDE LOCKING ARM INSIDE PANEL DOOR, BOTH INNER DOOR AND EXTERIOR DOOR.
4. MOUNTING HEIGHT OF THE MECHANICALLY INTERLOCKED BREAKERS NOT TO EXCEED 6' FROM FINISHED GRADE.

GROUNDING NOTES:

1. ALL GROUND CONNECTIONS SHALL BE COPPER WIRES TO GROUND TERMINAL.
2. ALL METALLIC COMPONENTS SHALL BE BONDED TO GROUND TERMINAL.
3. PROVIDE SEPARATE GROUND WIRE FOR JUNCTION BOX.
4. GROUND TERMINAL SHALL HAVE SEPARATE TERMINAL FOR EACH WIRE.

DRIPSHIELD/RAINGUARD DETAIL

N.T.S.

BILL OF MATERIALS

ITEM	DESCRIPTION	MANUFACTURER	PART NO.	QTY.
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5	CIRCUIT BREAKER, PUMPS, 2 POLE, 15 AMP	CUTLER HAMMER	QC2015	4
6	CIRCUIT BREAKER, 1 POLE, 20 AMP	CUTLER HAMMER	QC1020	2
7	CIRCUIT BREAKER, 2 POLE, 40 AMP	CUTLER HAMMER	QC2040	1
8	GEN. RECEPTACLE, 2 POLE, 3 WIRE, 60 AMP w/SUPPLIED ANGLE ADAPTER	RUSSELL-STOLL	JRSA6J4H	1
9	IEC MOTOR CONTACTOR, 3 POLE, 12 AMP	CUTLER HAMMER	XTCE012B10A	4
10	PUMP LEVEL CONTROLLER, QUADATROL	MP ELECTRONICS	QUADRATROL SC-2000-00	1
11	ALARM HORN, RED, PIEZIO TYPE, 120VAC	INGRAM PRODUCTS	PW120A	1
12	ALARM BEACON, RED, PIEZIO TYPE, 120VAC	INGRAM PRODUCTS	SBN120AC	1
13	RELAY, PLUG-IN, 3PDT, LED, 10 AMP, 120VAC/ w/OCTAL 11-PIN BASE	SQUARE D	RUMC3AB2F7/RUZSC3M	1/1
14	ELAPSED TIME METER, SQUARED, 115 VOLT	GRASSLIN	UWZ-48E-120	4
15	PIOLT LIGHT, 22mm OILTIGHT, GREEN, 120VAC	CUTLER HAMMER	E22HV3X44	4
16	3 POSITION SELECTOR SWITCH, 22mm OILTIGHT, MAINTAINED	CUTLER HAMMER	EM22XG61	4
17	FLUSH PUSHBOTTON SWITCH, 22mm OILTIGHT, BLACK	CUTLER HAMMER	EM22PI	1

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DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

CONTROL DIAGRAM FOR QUADPLEX STATION

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. E-07
SHEET 273 of 281

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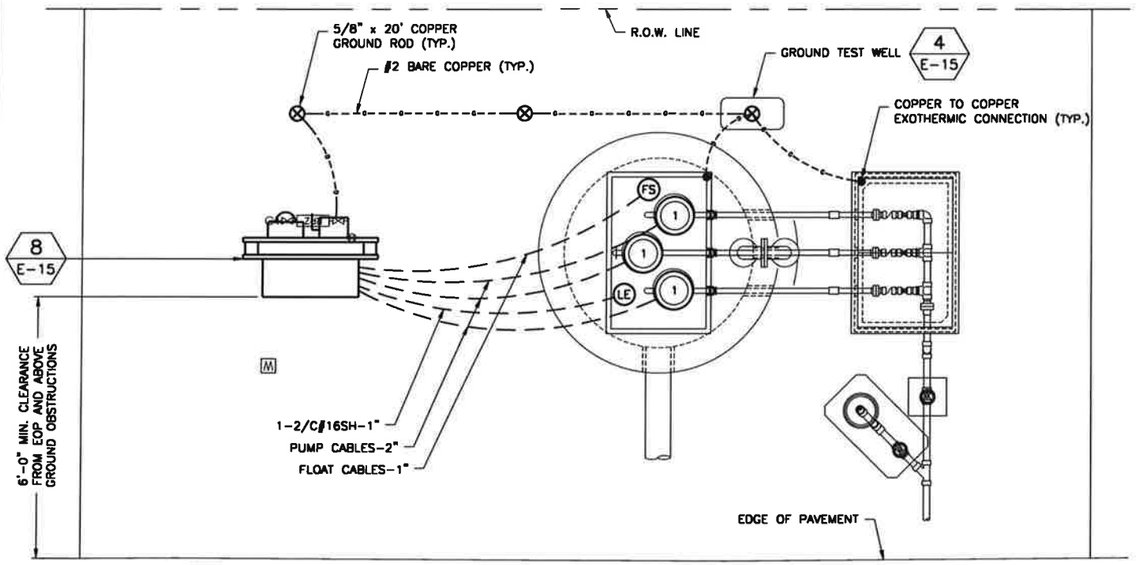


1 E-14 TYPICAL TRIPLEX LIFT STATION ELECTRICAL PLAN

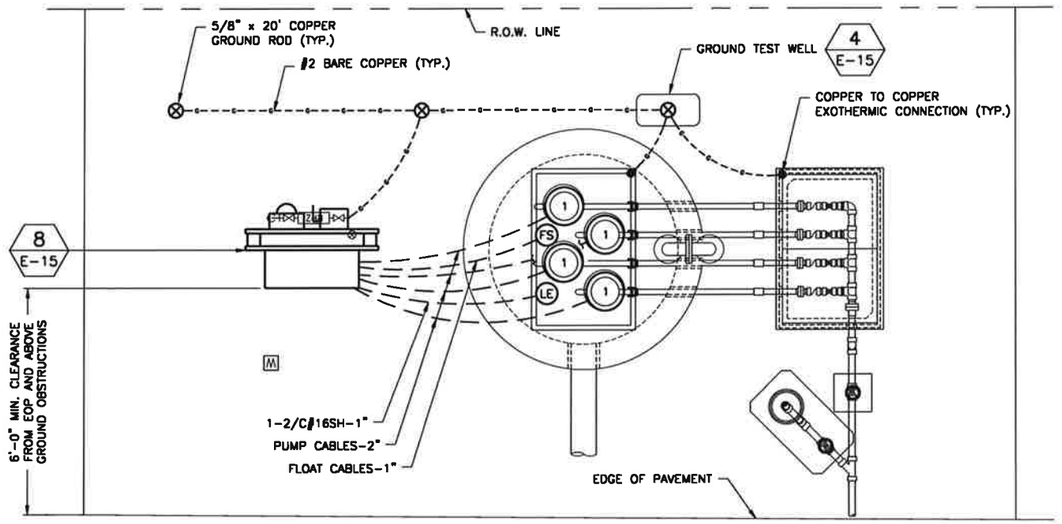
SCALE: 1/2"=1'-0"

2' 1' 0 2'

NOTES:

① FLOATS AND LEVEL ELEMENT TO BE SUSPENDED WITH STAINLESS STEEL CABLE.

② PAVEMENT, R.O.W. AND PIPING ORIENTATION VARIES FROM LIFT STATION TO LIFT STATION. REFER TO 'C' AND 'M' DRAWINGS FOR CORRECT ORIENTATION AT EACH LIFT STATION.



2 E-14 TYPICAL QUADPLEX LIFT STATION ELECTRICAL PLAN

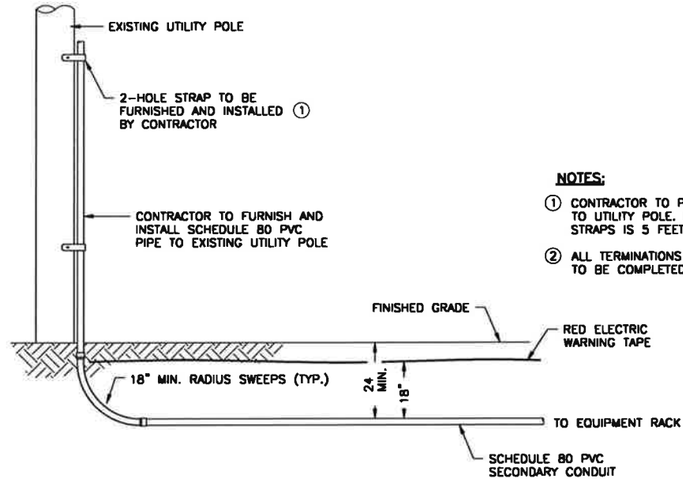
SCALE: 1/2"=1'-0"

2' 1' 0 2'

NOTES:

① FLOATS AND LEVEL ELEMENT TO BE SUSPENDED WITH STAINLESS STEEL CABLE.

② PAVEMENT, R.O.W. AND PIPING ORIENTATION VARIES FROM LIFT STATION TO LIFT STATION. REFER TO 'C' AND 'M' DRAWINGS FOR CORRECT ORIENTATION AT EACH LIFT STATION.



NOTES:

① CONTRACTOR TO PERMANENTLY ATTACH CONDUIT TO UTILITY POLE. MAXIMUM DISTANCE BETWEEN STRAPS IS 5 FEET.

② ALL TERMINATIONS TO THE OVERHEAD SERVICE TO BE COMPLETED BY KEYS ENERGY SERVICE.

3 E-14 TYPICAL UNDERGROUND 'AREA' LIFT STATION ELECTRICAL SERVICE

SCALE: 1/2"=1'-0"

2' 1' 0 2'

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LILLIAN M. REYES, P.E.
Florida P.E. No. 50780

DESIGN-BUILDER:
LAYNE HEAVY CIVIL, INC.
Layne

CUDJOE REGIONAL WASTEWATER COLLECTION SYSTEM - OUTER ISLANDS

FLORIDA KEYS AQUEDUCT AUTHORITY
1100 KENNEDY DRIVE
KEY WEST, FLORIDA

BIG PINE KEY - NORTH

TYPICAL LIFT STATION ELECTRICAL PLANS & DETAILS

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. E-14
SHEET 280 of 281

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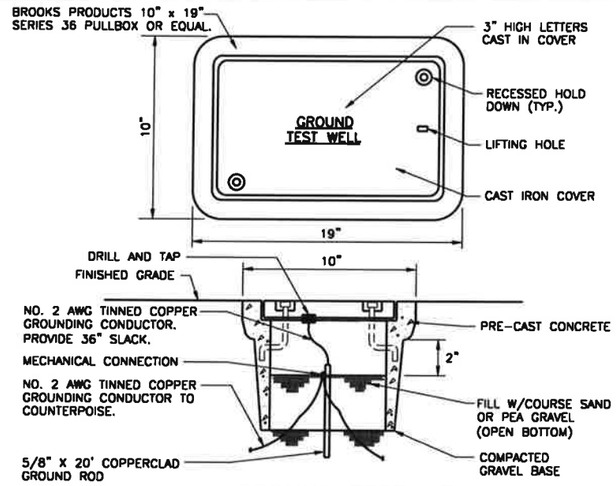
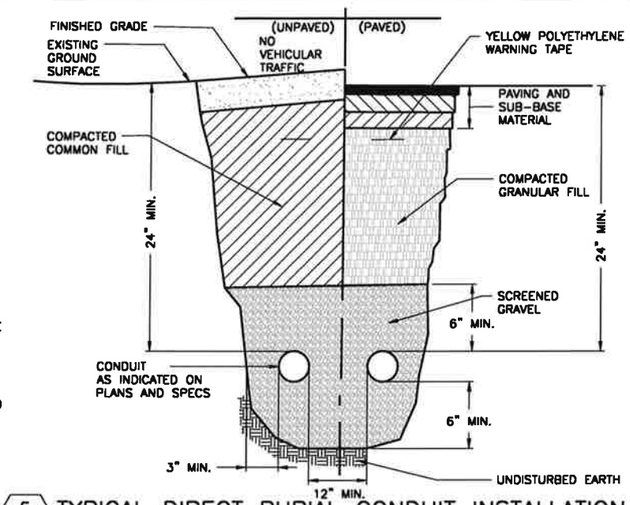


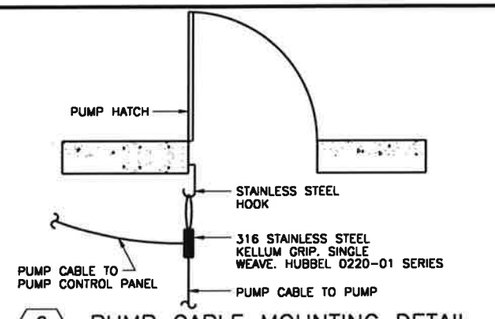
4 E-15 GROUND TEST WELL

N.T.S.



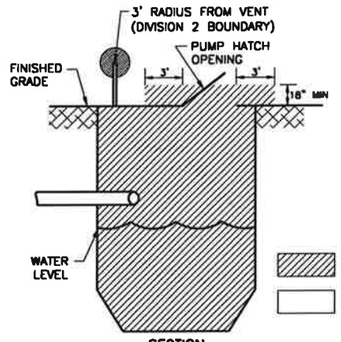
5 E-15 TYPICAL DIRECT BURIAL CONDUIT INSTALLATION

① CONDUIT EXTENDING FROM KEYS ENERGY UTILITY POLE TO SERVICE RACK AT LIFT STATION TO BE CONCRETE ENCASED. SEE TYPICAL DUCTBANK DETAIL THIS SHEET.



6 E-15 PUMP CABLE MOUNTING DETAIL

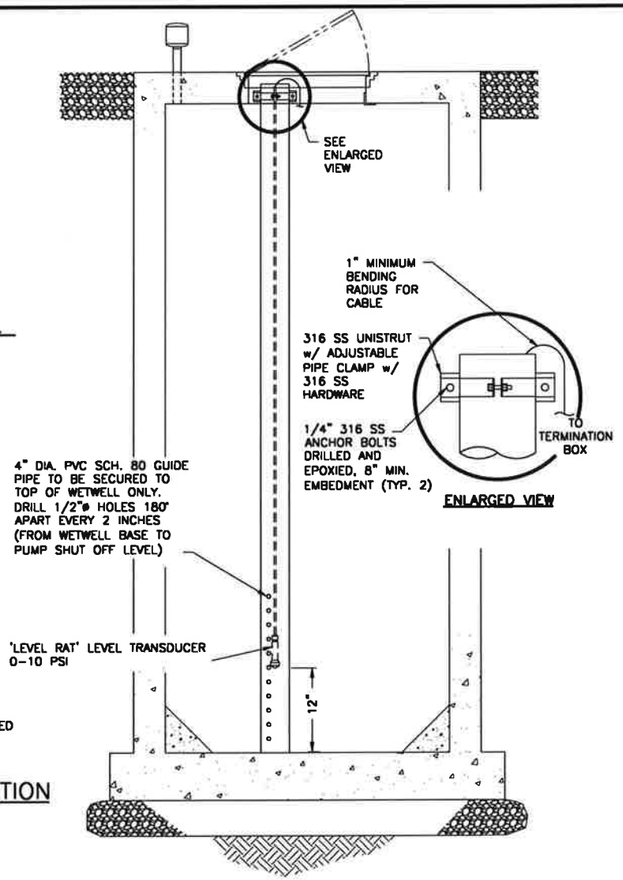
N.T.S.



SECTION

7 E-15 NFPA BOUNDARY CLASSIFICATION

N.T.S.



10 E-15 INSTRUMENT MOUNTING DETAIL

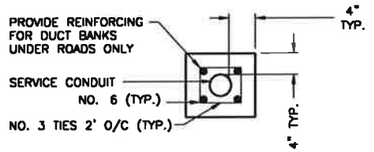
N.T.S.

NOTES:

① FLOAT TO BE SUSPENDED WITH STAINLESS STEEL CABLE/WEIGHT MOUNTING KIT (TYP.)

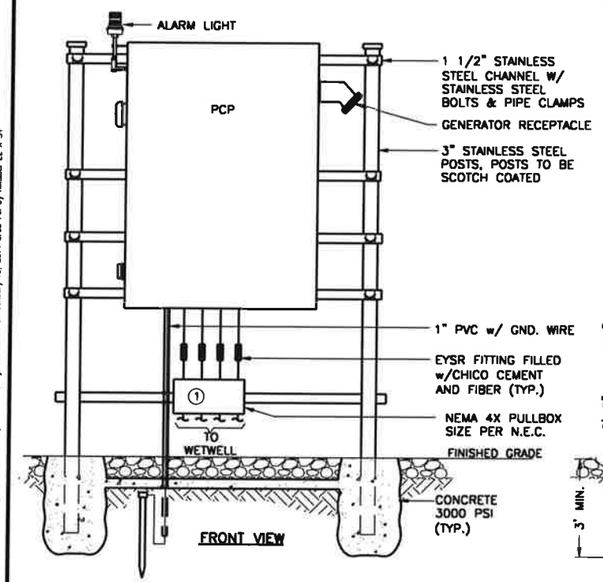
② INSTALL 'LEVEL RAT' LEVEL TRANSDUCER WITH PVC SLEEVE TO OPPOSITE WALL FROM 8" INVERT.

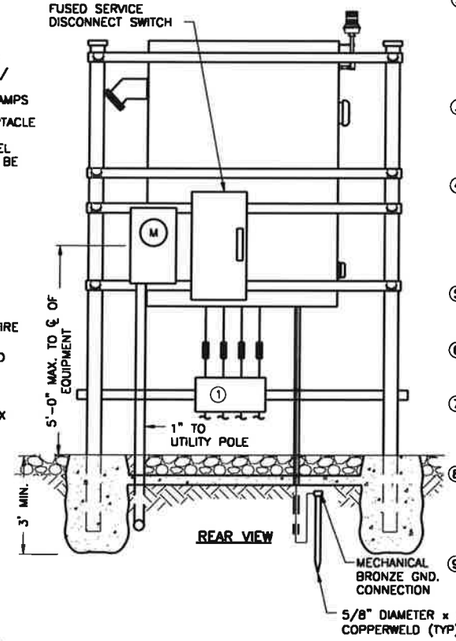
③ STILLING WELL TO BE MOUNTED BETWEEN THE RAILS ON THE TOP SLAB PORTION OF THE WETWELL.



9 E-15 TYPICAL DUCTBANK DETAIL

SCALE: NOT TO SCALE





8 E-15 LIFT STATION EQUIPMENT RACK DETAIL

N.T.S

NOTES:

① CONDUITS ENTERING BOTTOM OF PULLBOX TO BE FILLED WITH DUCTSEAL.

② NO TOP OR SIDE PENETRATIONS TO THE CONTROL PANEL, DISCONNECT OR METER CAN. IF TOP OR SIDE PENETRATION IS UNAVOIDABLE AS DETERMINED BY FKAA, THEN APPROVED BREACHES WILL REQUIRE MYERS STYLE WATERTIGHT HUBS. NO FLEXIBLE CONDUIT WILL BE ALLOWED.

③ ALL EXTERIOR PANEL LIGHTS AND SWITCHES SHALL BE BEHIND A DEADFRONT PANEL DOOR AND NOT EXPOSED TO THE WEATHER ELEMENTS UNLESS SPECIFICALLY APPROVED BY THE FKAA.

④ ALARM LIGHTS ON LIFT STATION PANELS SHOULD BE MOUNTED IN SUCH A FASHION THAT THEY WILL NOT LEAK IF THE LENS IS BROKEN OR CRACKED. LIGHT TO BE MOUNTED TO A J-BOX THAT IS THEN ATTACHED TO THE PANEL WITH 3/4" MYERS HUBS AND FILLED WITH CHICO OR CAULK.

⑤ APPROVED "VENDOR EQUIPMENT MANUFACTURER" TERMINAL STRIPS SHALL BE USED IN ALL CASES.

⑥ SQUARE D LIGHTS, SWITCHES AND RELAYS SHALL BE USED FOR ALL ELECTRICAL IMPROVEMENTS OR UPGRADES.

⑦ ALL INSTRUMENTATION EQUIPMENT SHALL BE PROVIDED WITH STAINLESS STEEL OR ALUMINUM SUNSHIELDS TO PROTECT THE TOP AND SIDES.

⑧ SUNSHIELDS SHALL BE REQUIRED ON ALL ELECTRICAL PANELS THAT INCLUDE A PLC OR INSTRUMENT. ADDITIONAL STAINLESS STEEL FLAT PANELS AND SPACERS SHALL BE WELDED TO THE TOP, SIDES AND FRONT ON THE EQUIPMENT ELECTRICAL PANEL.

⑨ ALL WIRING SHALL BE COLOR CODED IN ACCORDANCE WITH THE N.E.C.

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ELECTRICAL DETAILS

FKAA PROJECT NO. 4053-12
FKAA FILE ID.
DRAWING NO. E-15
SHEET 281 of 281

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