STATE OF FLORIDA

CITY OF PORT ST. LUCIE

CONTRACT PLANS

ST LUCIE COUNTY (94010)

STATE ROAD NO. 5/(US-1)

FROM COUNTY LINE TO 150 FEET NORTH OF SE HUFFMAN RD.

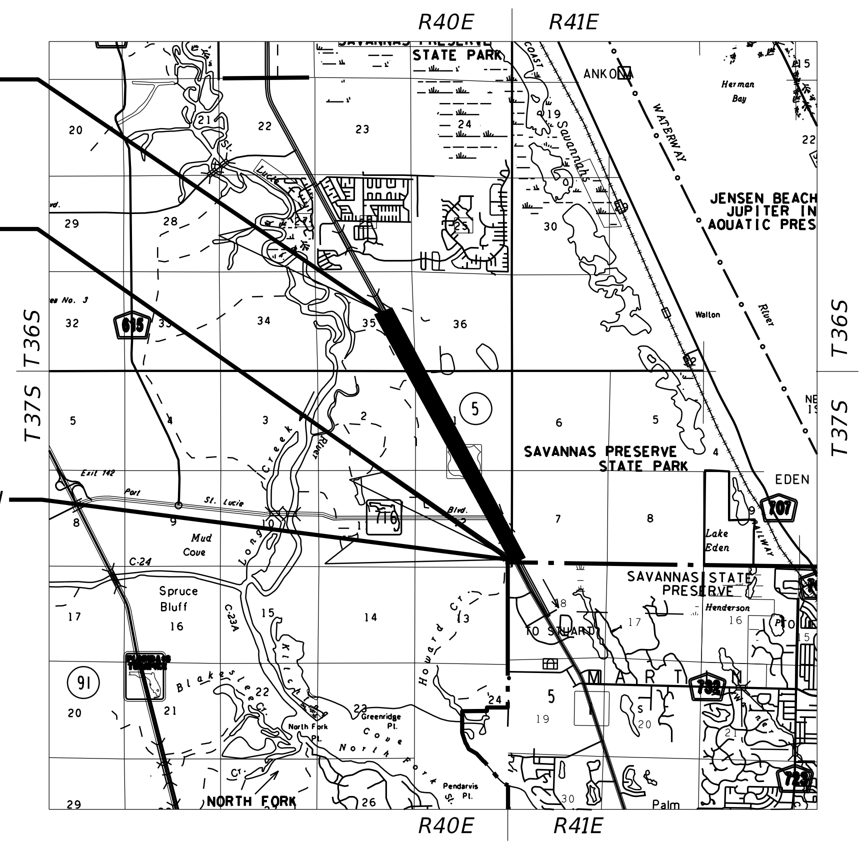
INDEX OF LANDSCAPE PLANS

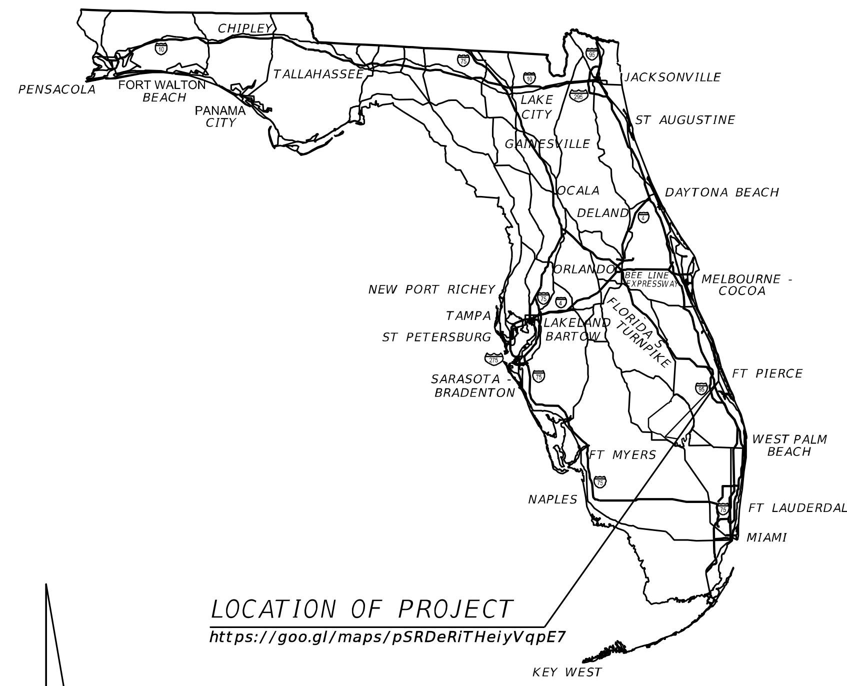
SHEET NO.	SHEET DESCRIPTION
LD-1	KEY SHEET
LD-2	SIGNATURE SHEET
LD-3	GENERAL NOTES
LD-4	LANDSCAPE PLAN LAYOUT
LD-5 THRU LD-15	LANDSCAPE PLAN
LD-16	LANDSCAPE DETAILS & GENERAL NOTES
LD-17	TEMPORARY TRAFFIC CONTROL PLANS
LD-18	TABULATION OF QUANTITIES / PLANT SCHEDULE
KEY	IRRIGATION KEY SHEET
IR-1 THRU IR-22	IRRIGATION PLAN
IR-23	IRRIGATION LEGEND
IR-24 THRU IR-26	IRRIGATION DETAILS
IR-27	MAXICOM DETAILS
IR-28	MAXICOM DETAILS & NOTES
IR-29	NETAFIM NOTES
IR-30 THRU IR-31	NETAFIM DETAILS
IR-32 THRU IR-33	IRRIGATION NOTES
IR-34	H.D.P.E. NOTES
IR-35	IRRIGATION PUMP NOTES
IR-36	IRRIGATION PUMP DETAILS
IR-37	IRRIGATION PUMP & FILTER
IR-38 THRU IR-39	AS-BUILT DRAWING

END PROJECT
END LANDSCAPE
STA. 190+08.00
MP. 3.417

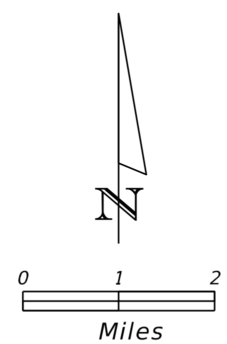
BEGIN PROJECT
BEGIN LANDSCAPE
STA. 49+60.90
MP. 0.008

COUNTY LINE
ST. LUCIE & MARTIN
MP. 0.00 ST. LUCIE
MP. 24.476 MARTIN





LOCATION OF PROJECT
https://goo.gl/maps/pSRDeRiTHeiyVqpE7



GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY 2022 - 23 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: http://www.fdot.gov/design/standardplans

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, July 2022 Standard Specifications for Road and Bridge Construction at the following website: http://www.fdot.gov/programmanagement/Implemented/SpecBooks

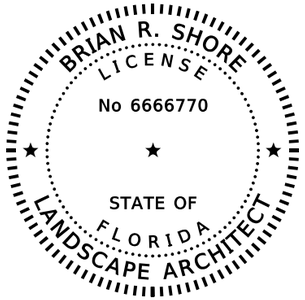
LANDSCAPE PLANS PROFESSIONAL OF RECORD:

BRIAN R. SHORE, RLA
R.L.A NO: 6666770
MILLER LEGG
5747 North Andrews Way
Fort Lauderdale, Florida 33309-2364
CONTRACT NO.: CA156
VENDOR NO.: F650563467-001

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G10-11.011, F.A.C.

2021-L-490-00004

FISCAL YEAR	SHEET NO.
21	LD-1



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ON THE DATE ADJACENT TO THE SEAL

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MILLER LEGG AND ASSOCIATES
5747 North Adrews Way,
Fort Lauderdale, Florida 33309-2364
BRIAN R. SHORE, RLA
R.L.A NO: 6666770

THE ABOVE NAMED REGISTERED LANDSCAPE ARCHITECT SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH THE RULE 61G10-11.011, F.A.C.

SHEET NO.	SHEET DESCRIPTION
LD-1	KEY SHEET
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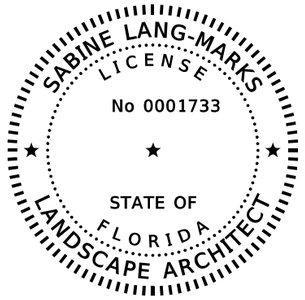

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MASUEN CONSULTING LLC
301 S. WASHINGTON, SUITE F
NEWPORT, WA 99156
SABINE LANG-MARKS, RLA
R.L.A NO: 0001733

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KEY	IRRIGATION KEY SHEET
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IR-37	IRRIGATION PUMP & FILTER
IR-38 THRU IR-39	AS-BUILT DRAWING

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
Brian R. Shore LA-6666770

MILLER LEGG
5747 North Andrews Way
Fort Lauderdale, Florida 33309-2364
954-436-7000 • www.millerlegg.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

SIGNATURE SHEET

SHEET NO.
LD-2

LANDSCAPE GENERAL NOTES:

1. LOCATE ALL UNDERGROUND UTILITIES AND FIELD CHECK ALL DIMENSIONS PRIOR TO ANY LANDSCAPE OR IRRIGATION INSTALLATION. REPORT ANY CONFLICTS AND DISCREPANCIES TO LANDSCAPE ARCHITECT & CITY.

2. CONSTRUCTION MUST COMPLY WITH LANDSCAPE PLAN SPECIFICATIONS AND CONFORM WITH FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION , DATED 2022 AND SUPPLEMENTS THERETO, PRIMARILY SECTION 580. ANY CONSTRUCTION NOT IN COMPLIANCE WILL BE REJECTED BY THE LANDSCAPE ARCHITECT AND REPLACED WITH PROPER INSTALLATION COMPLETED BY THE CONTRACTOR AT NO ADDITIONAL COST.

3. CONTRACTOR SHALL REPAIR ANY AND ALL DAMAGE DONE TO FDOT PROPERTY DURING DEMOLITION, RELOCTION &/OR INSTALLATION ACTIVITIES AT HIS SOLE EXPENSE.

4. INSTALL ONLY PLANTS GRADED FLORIDA #1 OR BETTER AS SET FORTH IN THE FLORIDA DEPARTMENT OF AGRICULTURE'S"GRADES AND STANDARDS FOR NURSERY PLANTS"SECOND ADDITION AND WHICH MEET OR EXCEED THE SIZES INDICATED ON THE TABULATION OF QUANTITIES SHEET AND IN THE DETAILS. ALL PLANTS SHALL CONFORM TO NURSERY STOCK STANDARDS BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

5. PLANT SHRUBS IN CIRCULAR PITS WITH A DIAMETER 16" GREATER THAN ROOTBALL OR CONTAINER. PLANT TREES IN CIRCULAR PITS WITH A DIAMETER 36" GREATER THAN ROOTBALL OR CONTAINER. PLACE PLANTS WITH BEST FACE "FORWARD"(TOWARD GREATER VISIBILITY).

6. FERTILIZE ALL TREES WITH A COMPLETE, SLOW-RELEASE BRAND FERTILIZER WITH APPROX. RATIO OF 4-1-2. FOLLOW MANUFACTURER'S SPECIFICATIONS FOR APPLICATION. FERTILIZE PALMS WITH SPECIAL PALM FERTILIZER CONTAINING MANGANESE AND MAGNESIUM PER MANUFACTURER'S DIRECTION. ALL FERTILIZER SHALL COMPLY WITH SECTION 982. FURNISH RECEIPTS FOR MATERIAL USED.

7. INCLUDE SOIL REPLACEMENT FOR ALL PLANTING BEDS, WITH FINISH GRADING AND THICKNESS OF SOIL LAYER AS DEPICTED IN DETAIL ON THE LANDSCAPE DETAILS & GENERAL NOTES SHEET.

8. FOLLOW MEDIAN TREE PLANTING DETAIL FOR SOIL REPLACEMENT FOR TREE PLANTING. APPROVED SOIL SOURCE TO BE PROVIDED BY CITY OF PORT ST. LUCIE.

9. TREAT ALL PLANTING BEDS WITH PRE-EMERGENT AND POST-EMERGENT HERBICIDES ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. SUBMIT RECEIPTS FOR MATERIALS USED.

10. MULCH PLANTING BEDS TO A MINIMUM 3" THICKNESS WITH CLEAN, INSECT-FREE FLORIMULCH OR APPROVED EQUAL. DO NOT COVER BRANCHES, LEAVES OR STEMS; KEEP AIRSPACE AROUND TRUNKS (MIN. 6"). WATER-IN WELL TO SECURE IN PLACE.

11. CYPRESS MULCH IS NOT PERMITTED ON FDOT RIGHT OF WAY. MULCH PERMITTED TO BE USED ARE HARDWOOD MULCH (CONTAINING NO CYPRESS PRODUCTS), RECYCLED MULCH OR APPROVED EQUAL, CERTIFIED BY THE MULCH AND SOIL COUNCIL (MSC). SUBMIT PROOF OF CERTIFICATION TO THE FDOT DISTRICT OPERATIONS PERMIT LANDSCAPE INSPECTOR UPON INSPECTION.

12. SODDED AREAS WILL BE IN ACCORDANCE WITH STANDARD PLANS INDEX 570-010 AND STANDARD SPECIFICATIONS SECTIONS 162, 570, 981, 982, 983, 987 OF THE DEPARTMENT'S LATEST EDITION OF GOVERNING DESIGN STANDARDS AND STANDARD SPECIFICATIONS. ALL DISTURBED AREAS WILL BE SODDED WITHIN ONE (1) WEEK OF INSTALLATION OF SAID PERMITTED WORK.

13. VERIFY ALL QUANTITIES IN THE PLANTING SCHEDULE AND INSTALL ALL PLANTS AND MATERIAL AS INDICATED IN THE PLAN. PROVIDE UNIT PRICES FOR EACH ITEM. UNIT COST FOR EACH PLANT IS TO INCLUDE ALL LABOR FOR SITE PREPARATION TREATMENTS, EXCAVATION, STAKING & GUYING, MAINTENANCE DURING CONSTRUCTION AND 2-YEAR WARRANTY AND ESTABLISHMENT PERIOD.

14. NOTIFY THE ENGINEER, LANDSCAPE ARCHITECT AND FDOT DISTRICT OPERATIONS MANAGER OF ANY UNFORESEEN CONDITIONS I.E. COMPACTED SOIL/SUBGRADE, POOR DRAINAGE, UTILITY CONFLICTS, ETC., PRIOR TO PROCEEDING WITH LANDSCAPE OR IRRIGATION INSTALLATION.

15. COORDINATE ALL REQUIRED MAINTENANCE AND QUARTERLY INSPECTIONS WITH THE CITY OF PORT ST. LUCIE AND WITH FDOT REPRESENTATIVES.

16. ALL PLANTS, MATERIALS, AND WORKMANSHIP ARE SUBJECT TO THE APPROVAL OF THE CITY CITY OF PORT ST. LUCIE, FDOT DISTRICT OPERATIONS MANAGER AND LANDSCAPE ARCHITECT.

17. THE LOCATIONS OF PLANTINGS SPECIFIED ON THIS PLAN ARE FINAL, BUT MAY BE ADJUSTED TO ACCOMMODATE UNFORESEEN FIELD CONDITIONS, TO COMPLY WITH HORIZONTAL CLEARANCE AND CLEAR-SIGHT REQUIREMENTS, OR AS DIRECTED/APPROVED BY THE CITY ENGINEER. PLANT MATERIAL AND INSTALLATION AND MAINTENANCE SHALL BE IN COMPLIANCE WITH FDOT STANDARD PLANS INDEX 580-001 AND FDOT DESIGN MANUAL SECTION 212 AND 215, AND FLORIDA HIGHWAY LANDSCAPE GUIDE.

18. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL VEGETATION, OBSTRUCTIONS, ETC., AS SPECIFIED IN THE PLAN. COMPLETELY REMOVE AND DISPOSE OF STUMPS. ENTIRELY REMOVE UNDERGROWTH. PERFORM CLEARING AND GRUBBING ON ALL EXISTING VEGETATION.

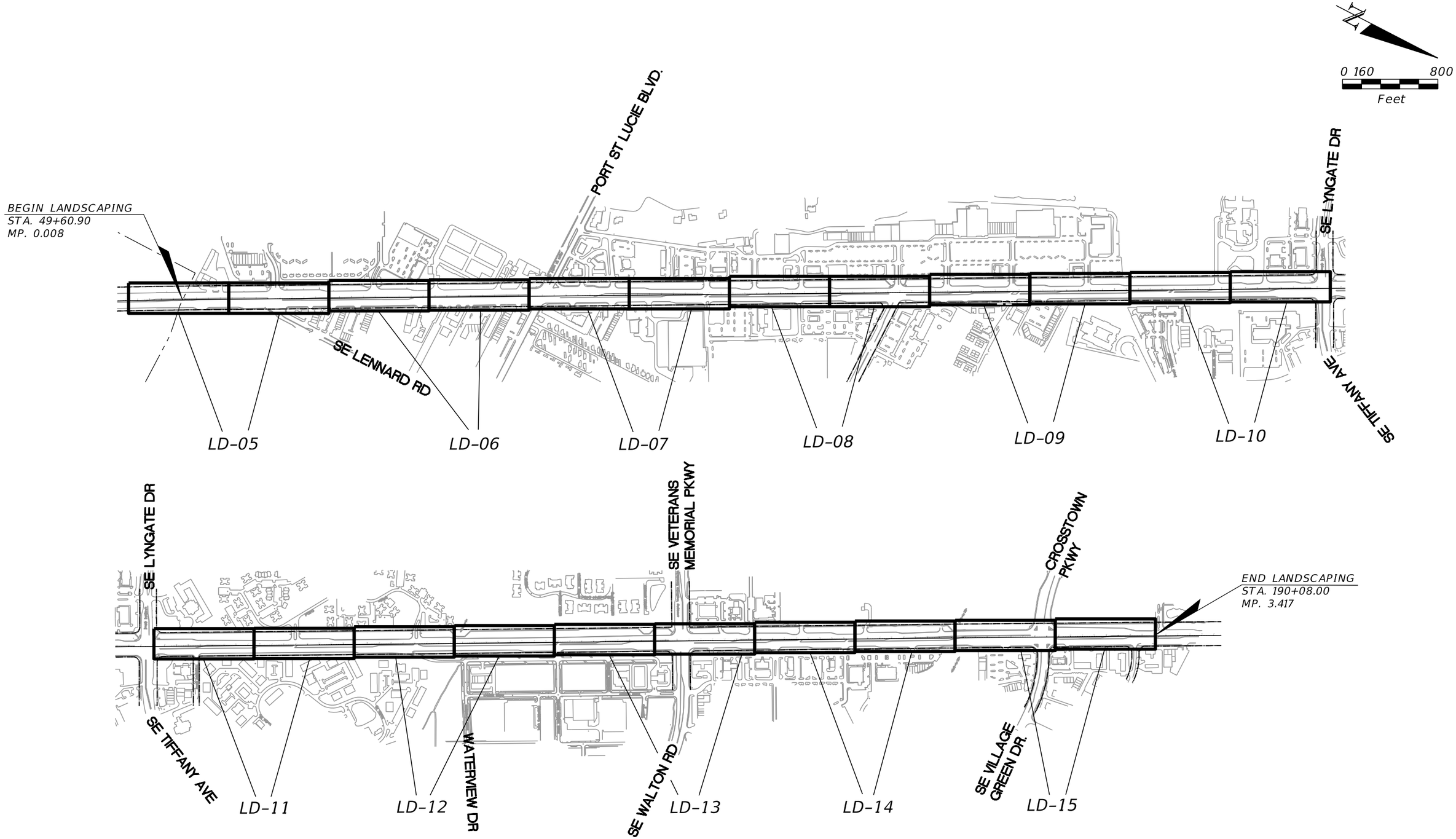
19. OWNERSHIP OF ALL SUITABLE EXCAVATED MATERIALS, AS DETERMINED BY THE DEPARTMENT, SHALL REMAIN IN THE DEPARTMENT UNTIL A FINAL ACCEPTANCE OF THE PERMITTED PROJECT IS FULFILLED. EXCAVATED MATERIALS SHALL BE HAULED BY THE PERMITTEE, AT THEIR COST & EXPENSE FROM THE SITE TO THE FDOT TREASURE COAST OPERATIONS CENTER OR STOCKPILED IN THOSE AREAS AS DIRECTED BY THE DEPARTMENT, INCLUDING ASPHALT MILLINGS.

20. DO NOT MAKE SUBSTITUTIONS OR REVISIONS. ANY REVISIONS OR MODIFICATIONS TO THE LANDSCAPE PLAN MUST HAVE PRIOR APPROVAL BY THE LANDSCAPE ARCHITECT, FDOT DISTRICT OPERATIONS MANAGER, CITY ENGINEER AND PERMITTING AUTHORITY. REVISIONS MUST BE DOCUMENTED AS REQUIRED BY APPLICABLE STATE, CITY OR COUNTY REGULATIONS.

21. DESIGN CRITERIA: DESIGN SPEED IS 45 MPH.

22. PROVIDE GPS BASED AS-BUILTS FOR THE LANDSCAPE IMPROVEMENTS.

REVISIONS				Landscape Architect of Record: Brian R. Shore LA-6666770	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			2021-L-490-00004	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	GENERAL NOTES	
				MILLER LEGG 5747 North Andrews Way Fort Lauderdale, Florida 33309-2364 954-436-7000 • www.millerlegg.com	SR 5	ST. LUCIE			LD-3



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

LANDSCAPE PLAN LAYOUT

SHEET NO. LD-4

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0 10 60
Feet

R/W LINE

1000' Sign Zone

OVERHEAD WIRES (TYP.)

SR 5/US-1 FEDERAL HIGHWAY

BEGIN PROJECT
BEGIN LANDSCAPE
STA. 49+60.90
MP 0.008

MARTIN COUNTY
ST. LUCIE COUNTY

PN 837 sf

TA 149

TF 24

CH 8

TA 48

PE 7

Tag CF488

Tag CF489

500' VEGETATION MANAGEMENT SIGN VIEW ZONE
500' OF 1000' VIEW ZONE

46 47 48 49 50 11 12 13

300' View Zone

MC TRAFFIC COUNT STATION
& DETECTOR WIRES

SIGN TYP.

24" WIDTH
STAMPED CONCRETE

STAMPED CONCRETE

COUNTY LINE

MATCHLINE STA. 13+70.00

MATCHLINE STA. 13+70.00

500' VEGETATION MANAGEMENT SIGN VIEW ZONE 500' OF 1000' VIEW ZONE

OVERHEAD WIRES (TYP.)

SIGNALIZED INTERSECTION NON-FLASHING

PE 18

TA 434

PN 579 sf

14 15 16 17 18

100' GROUND COVER ONLY PER FDM 212.11.6

24" WIDTH
STAMPED CONCRETE

SR 5/US-1 FEDERAL HIGHWAY

OVERHEAD WIRES (TYP.)

SIGNALIZED INTERSECTION NON-FLASHING

1000' Sign Zone

R/W LINE

SE LENNARD RD

PN 328 sf

TA 167

PE 11

CH 15

TF 32

VM 3

LN 2

RE 3

PN 2,029 sf

19 20 21 22

100' GROUND COVER ONLY PER FDM 212.11.6

4' LATERAL OFFSET

24" WIDTH
STAMPED CONCRETE

500' VEGETATION MANAGEMENT SIGN VIEW ZONE
500' OF 1000' VIEW ZONE

Tag CE830

MATCHLINE STA. 22+10.00

REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

LANDSCAPE PLAN

SHEET NO.
LD-5

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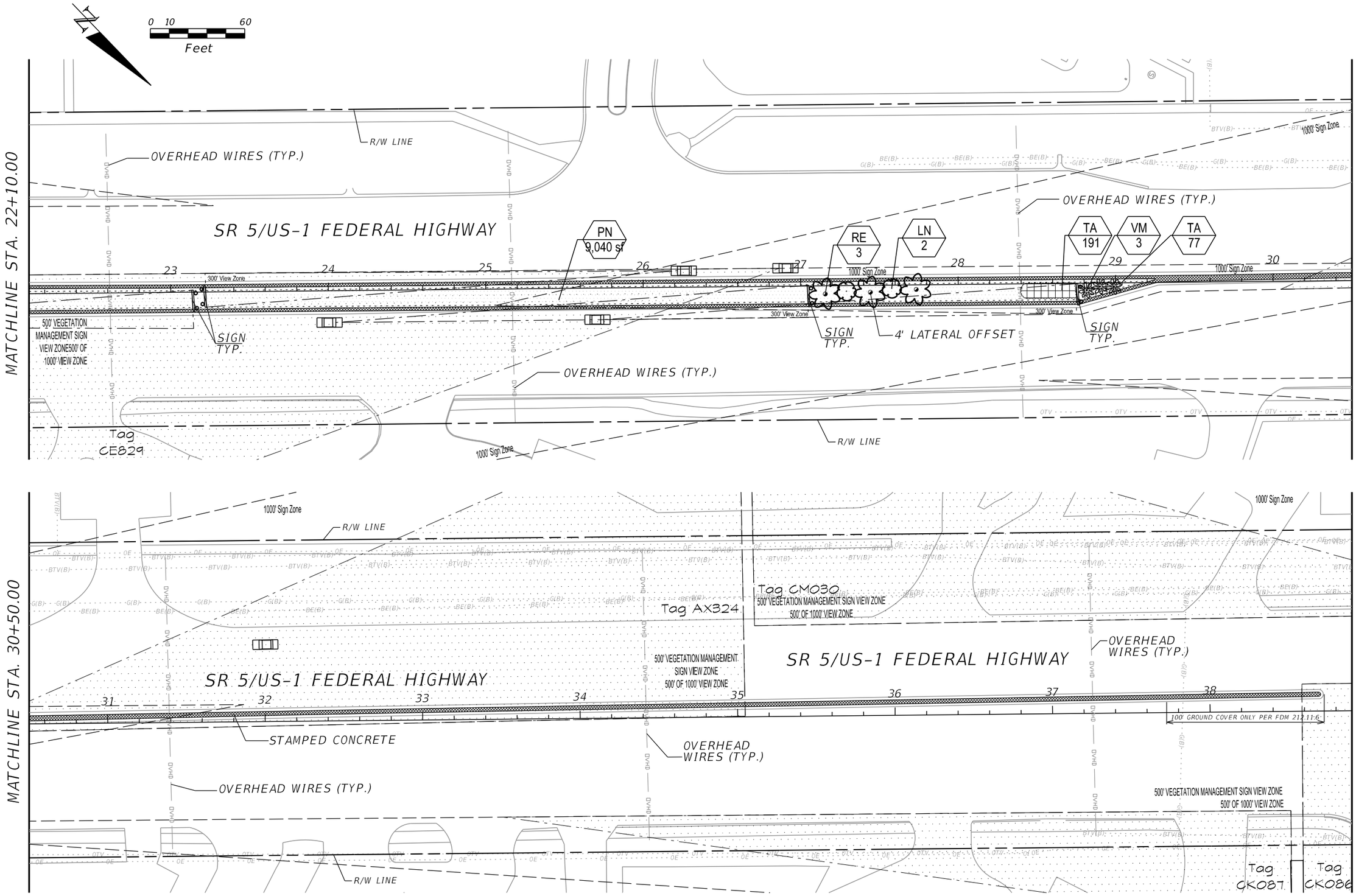

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Landscape Architect of Record:
Brian R. Shore LA-6666770

MILLER LEGG
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Fort Lauderdale, Florida 33309-2364
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STATE OF FLORIDA
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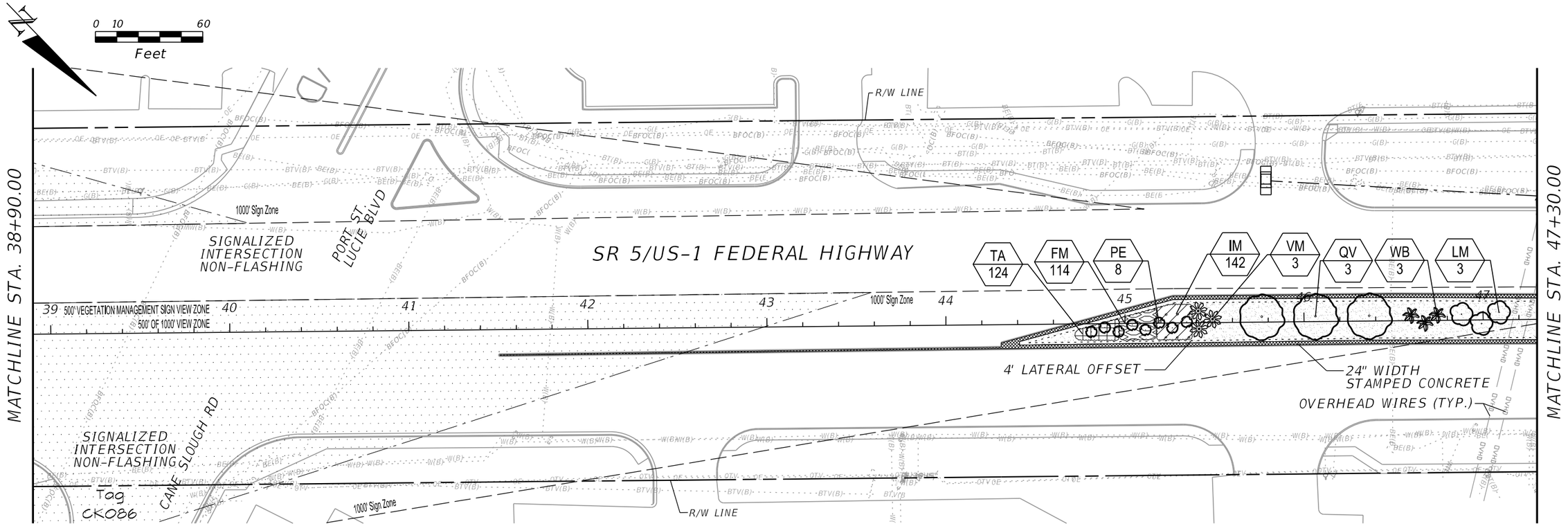
2021-L-490-00004

LANDSCAPE PLAN

SHEET NO.
LD-6



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STATE OF FLORIDA
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SR 5	ST. LUCIE	

2021-L-490-00004

LANDSCAPE PLAN

SHEET NO. LD-7

0 10 60
Feet

MATCHLINE STA. 55+70.00

R/W LINE

PE 16
TA 238
FM 24
IM 41
VM 3
SS 10,071 sf
QV 6
LM 6
WB 6
QV 6

SR 5/US-1
FEDERAL HIGHWAY

56 57 58 59 60 61 62 63 64

300' View Zone

SIGN (TYP.)

24" WIDTH STAMPED CONCRETE

4' LATERAL OFFSET

SR 5/US-1 FEDERAL HIGHWAY

R/W LINE

MATCHLINE STA. 64+10.00

MATCHLINE STA. 64+10.00

R/W LINE

VM 3
IM 67
FM 46
TA 69

SR 5/US-1 FEDERAL HIGHWAY

65 66 67 68 69 70 71 72

SIGNALIZED INTERSECTION NON-FLASHING

OVERHEAD WIRES (TYP.)

24" WIDTH STAMPED CONCRETE

4' LATERAL OFFSET

STAMPED CONCRETE

SR 5/US-1 FEDERAL HIGHWAY

SIGNALIZED INTERSECTION NON-FLASHING

STAMPED CONCRETE

1000' Sign Zone

SE JENNINGS RD

R/W LINE

R/W LINE

MATCHLINE STA. 72+50.00

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

LANDSCAPE PLAN

SHEET NO.
LD-8

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0 10 60
Feet

MATCHLINE STA. 72+50.00

R/W LINE

TA 32
CH 4
HP 17
BN 3
AA 8
TA 150
SS 2,011 sf

73 74 75 76 77 78 79 80

SR 5/US-1 FEDERAL HIGHWAY

500' VEGETATION MANAGEMENT SIGN VIEW ZONE 500' OF 1000' VIEW ZONE

300' View Zone

24" WIDTH STAMPED CONCRETE

4' LATERAL OFFSET

SIGN TYP.

STAMPED CONCRETE

da = 430'

1000' Sign Zone

R/W LINE

500' VEGETATION MANAGEMENT SIGN VIEW ZONE 500' OF 1000' VIEW ZONE

Tag AN161

Tag AN162

MATCHLINE STA. 80+90.00

MATCHLINE STA. 89+30.00

R/W LINE

OVERHEAD WIRES (TYP.)

SR 5/US-1 FEDERAL HIGHWAY

VM 5
SS 8,101 sf
LL 5
BS 6
LL 5
VM 5

81 82 83 84 85 86 87 88 89

STAMPED CONCRETE

24" WIDTH STAMPED CONCRETE

OVERHEAD WIRES (TYP.)

4' LATERAL OFFSET

SR 5/US-1 FEDERAL HIGHWAY

1000' Sign Zone

R/W LINE

REVISIONS			
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SR 5	ST. LUCIE	

2021-L-490-00004

LANDSCAPE PLAN

SHEET NO.
LD-9

lfuentes 4/5/2022 10:48:59 AM V:\Projects\2014\14-00092_-_Us1_Landscape_&_Irrigation\20140613000\landscp\planld05.dgn

0 10 60
Feet

MATCHLINE STA. 89+30.00

R/W LINE

SR 5/US-1 FEDERAL HIGHWAY

SS 36 sf

90 91 92 93 94 95 96 97

TA 82

FM 32

IM 35

VM 3

QV 2

STAMPED CONCRETE

300' View Zone

SIGN TYP.

4' LATERAL OFFSET

da = 430'

SR 5/US-1 FEDERAL HIGHWAY

STAMPED CONCRETE

R/W LINE

MATCHLINE STA. 97+70.00

MATCHLINE STA. 97+70.00

QV 2

WB 6

LM 6

SS 7,977 sf

QV 4

VM 3

IM 76

FM 104

TA 80

98 99 100 101 102 103 104 105 106

4' LATERAL OFFSET

24" WIDTH STAMPED CONCRETE

SR 5/US-1 FEDERAL HIGHWAY

STAMPED CONCRETE

SIGNALIZED INTERSECTION NON-FLASHING

SE LYNGATE DR

SE TIFFANY AVE

SIGNALIZED INTERSECTION NON-FLASHING

MATCHLINE STA. 106+10.00

R/W LINE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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SR 5	ST. LUCIE	

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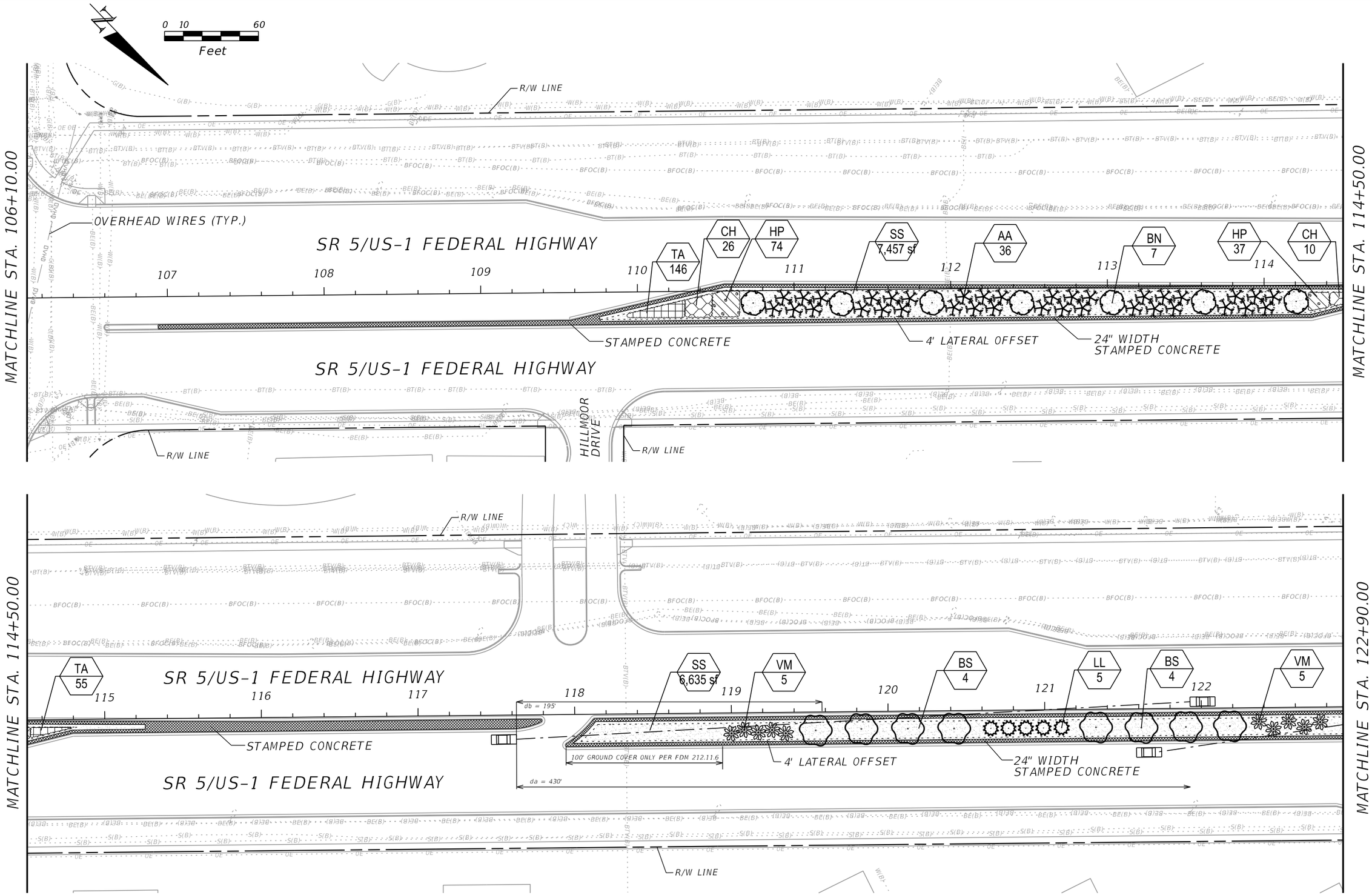
LANDSCAPE PLAN

SHEET NO.
LD-10



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LANDSCAPE PLAN

SHEET NO.
LD-11

lfuentes 4/5/2022 10:49:02 AM V:\Projects\2014\14-00092_-_Us1_Landscape_&_Irrigation\20140613000\landscp\planld07.dgn

0 10 60
Feet

MATCHLINE STA. 122+90.00

R/W LINE

SR 5/US-1 FEDERAL HIGHWAY

SS
2,531 sf

CLEAR SIGHT DISTANCE - 625'

123 124 125 126 127 128 129 130 131

VM 5

BS 3

db = 195'

da = 430'

100' GROUND COVER ONLY PER FDM 212.11.6

4' LATERAL OFFSET

24" WIDTH
STAMPED CONCRETE

STAMPED CONCRETE

4' LATERAL OFFSET

SR 5/US-1 FEDERAL HIGHWAY

R/W LINE

MATCHLINE STA. 131+30.00

MATCHLINE STA. 131+30.00

1000' Sign Zone

R/W LINE

Tag CM617

500' Sign Zone

1000' Sign Zone

BS 2

LL 5

BS 4

LL 5

BS 4

LL 5

BS 5

VM 5

SS
15,317 sf

132 133 134 135 136 137 138 139

SIGN TYP.

300' View Zone

100' GROUND COVER ONLY PER

24" WIDTH
STAMPED CONCRETE

SR 5/US-1 FEDERAL HIGHWAY

R/W LINE

MATCHLINE STA. 139.70.00

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
Brian R. Shore LA-6666770

MILLER LEGG
5747 North Andrews Way
Fort Lauderdale, Florida 33309-2364
954-436-7000 • www.millerlegg.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

LANDSCAPE PLAN

SHEET NO.

LD-12

lfuentes 4/5/2022 10:49:04 AM V:\Projects\2014\14-00092_-_Us1_Landscape_&_Irrigation\20140613000\landscp\planld08.dgn

0 10 60
Feet

MATCHLINE STA. 139+70.00

R/W LINE

1000' Sign Zone

SS 246 sf | 140
141
142
SS 168 sf | TA 191 | 143
FM 20 | IM 40 | VM 6 | 144
SS 3,893 sf | LM 5 | 145
WB 6 | IM 93 | FM 53 | TA 125 | 146
147
148

SR 5/US-1 FEDERAL HIGHWAY

db = 195'

FDM 212.11.6

STAMPED CONCRETE

EXISTING TREE TO REMOVE (TYP.)

EXISTING TREE TO REMOVE (TYP.)

4' LATERAL OFFSET

STAMPED CONCRETE

SR 5/US-1 FEDERAL HIGHWAY

R/W LINE

MATCHLINE STA. 148+10.00

MATCHLINE STA. 156+50.00

R/W LINE

VETERANS' MEMORIAL PARKWAY

R/W LINE

SIGNALIZED INTERSECTION NON-FLASHING

OVERHEAD WIRES (TYP.)

SS 2,909 sf | TA 82 | CH 9 | HP 30 | AA 12 | BN 3

SR 5/US-1 FEDERAL HIGHWAY

149
150
151
152
153
154
155
156

STAMPED CONCRETE

4' LATERAL OFFSET

24" WIDTH STAMPED CONCRETE

SR 5/US-1 FEDERAL HIGHWAY

SIGNALIZED INTERSECTION NON-FLASHING

WALTON ROADWAY

R/W LINE

R/W LINE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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Brian R. Shore LA-6666770

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

LANDSCAPE PLAN

SHEET NO.
LD-13

lfuentes 4/5/2022 10:49:06 AM V:\Projects\2014\14-00092_-_Us1_Landscape_&_Irrigation\20140613000\landscp\planld09.dgn

0 10 60
Feet

MATCHLINE STA. 156+50.00

R/W LINE

SR 5/US-1
FEDERAL HIGHWAY

AA 12
BN 2
SS 2,179 sf
HP 39
CH 11
TA 254
SS 374 sf
SS 4,981 sf
VM 6
BS 4

157 158 159 160 161 162 163 164

db = 205'
db = 195'
da = 430'

EXISTING TREE TO REMOVE (TYP.)

4' LATERAL OFFSET
100' GROUND COVER ONLY PER FDM 212.11.6
24" WIDTH STAMPED CONCRETE
4' LATERAL OFFSET
SIGN TYP.
100' GROUND COVER ONLY PER FDM 212.11.6

SR 5/US-1 FEDERAL HIGHWAY

R/W LINE

MATCHLINE STA. 164+90.00

MATCHLINE STA. 164+90.00

SR 5/US-1 FEDERAL HIGHWAY

TA 83
FM 43
IM 48
VM 5
SS 10,677 sf
LM 4
WB 6
QV 6
VM 5
IM 91

165 166 167 168 169 170 171 172 173

300' View Zone

SIGN TYP.

4' LATERAL OFFSET

24" WIDTH STAMPED CONCRETE

STAMPED CONCRETE

SR 5/US-1 FEDERAL HIGHWAY

R/W LINE

MATCHLINE STA 173+30.00

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

LANDSCAPE PLAN

SHEET NO.
LD-14

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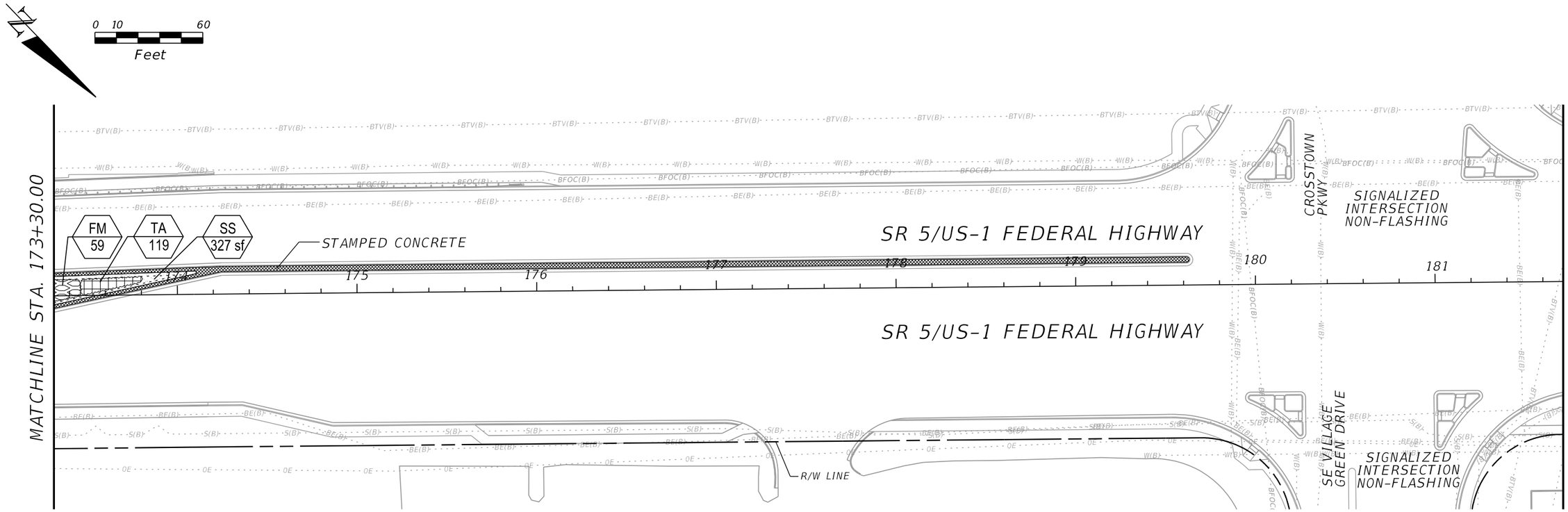

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
Brian R. Shore LA-6666770

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

LANDSCAPE PLAN

SHEET NO.
LD-15

lfuentes 4/5/2022 10:49:09 AM V:\Projects\2014\14-00092_-_Us1_Landscape_&_Irrigation\20140613000\landscp\planld11.dgn

UTILITY NOTES :

1. UTILITY INFORMATION SHOWN IN THE DRAWINGS IS SCHEMATIC IN NATURE AND A GRAPHIC DEPICTION ONLY. NO UTILITY FACILITIES WILL BE RELOCATED. IF A UTILITY IS IN CONFLICT WITH THE PROPOSED LANDSCAPE, NOTIFY THE ENGINEER IMMEDIATELY.
2. COMPLY WITH CHAPTER 556 OF THE FLORIDA STATUTES DURING THE PERFORMANCE OF EXCAVATION OR DEMOLITION OPERATIONS. NOTIFY UTILITY OWNERS THROUGH SUNSHINE STATE ONE CALL OF FLORIDA, INC. (PH# 811). HAVE ALL UTILITIES DESIGNATED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.
3. FDOT OWNED UNDERGROUND UTILITIES WILL NOT BE LOCATED THROUGH THE SUNSHINE STATE ONE CALL SYSTEM. DEPARTMENT OWNED UNDERGROUND UTILITY MAY INCLUDE BURIED ELECTRIC, INTELLIGENT TRANSPORTATION SYSTEM (ITS) FIBER OPTIC LINES, BURIED TELEPHONE, WATER, AND SEWER. THE CONTRACTOR SHALL DESIGNATE ALL DEPARTMENT OWNED UNDERGROUND UTILITY FACILITIES WITHIN THE PROJECT LIMITS AND, IF NECESSARY, PHYSICALLY EXPOSE DEPARTMENT OWNED UNDERGROUND UTILITY THAT MAY BE AFFECTED.
4. THERE WILL BE NO SEPARATE COMPENSATION FOR PERFORMING THIS UTILITY LOCATE WORK. ALL COSTS SHALL BE INCLUDED IN THE UNIT COST FOR PLANT MATERIALS.
5. EXERCISE EXTREME CARE WHILE EXCAVATING NEAR UTILITIES. TAKE RESPONSIBILITY FOR THE REPAIR OF ANY DAMAGE TO EXISTING UTILITIES CAUSED AS A RESULT OF THE WORK OF THIS CONTRACT AND FOLLOW THE GENERAL REQUIREMENT FOR THE PRESERVATION AND REPAIR OF EXISTING FACILITIES.

UTILITY CONTACTS :

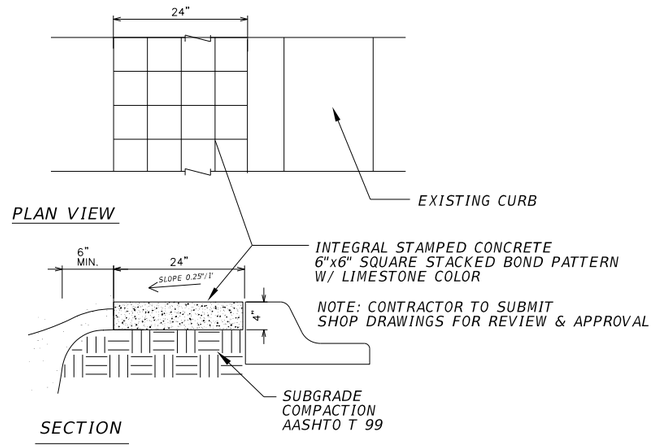
Utility Coordination Contact Chart						
Sunshine ID	Utility	Contact Name	Phone	Email	Initial Coordination Date	Coordination Confirmation
SBF02	AT&T Distribution	Luke	321-953-6173	lf2490@att.com	9/1/2021	10/4/2021
CTYGS1	City Gas Company of Florida	Elio Bustos	305-835-3618	Elio.Bustos@NextEraEnergy.com	9/13/2021	9/14/2021
PS1000	City of Port St Lucie Traffic Engineering	Paul Johnson	772-871-5182	pjohnson@cityofpsl.com	9/1/2021	9/1/2021
SLUC01	City of Port St Lucie Utility Engineering	Carlos Camacho	777-873-6419	ccamacho@cityofpsl.com	9/1/2021	9/15/2021
AC1110	Comcast-PBG	Daniel Tiburcio	561-815-6659	daniel_tiburcio2@comcast.com	9/1/2021	10/6/2021
NN1882	Crown Castle NG	Nick Belinsky	724-416-2449	nicholas.belinsky@crowncastle.com	9/1/2021	9/20/2021
FPLSUB	Florida Power & Light - Subaqueous	Nate Holzmacher	772-337-7011	Nate.Holzmacher@fpl.com	9/1/2021	10/25/2021
FPLSTL	Florida Power & Light - St Lucie	Nate Holzmacher	772-337-7011	Nate.Holzmacher@fpl.com	9/1/2021	10/25/2021

GENERAL NOTES :

1. BASELINE STATIONING IS SHOWN FOR REFERENCE ONLY. SURVEY CONTROL HAS NOT BEEN PROVIDED.
2. ROADWAY RELATED SETBACKS ARE MEASURED FROM THE EDGE OF TRAVEL LANE.
3. THE INSTALLATION OF PLANT MATERIALS SHALL BE IN CONFORMANCE WITH FDOT STANDARD PLANS FOR ROADWAY CONSTRUCTION INDEX 580-001 AND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
4. WHERE FACILITIES ARE OWNED BY FPL, THEN COMPLY WITH THEIR GUIDELINES AS APPICABLE, INCLUDING REQUIRED SETBACKS TO TRANSFORMERS.

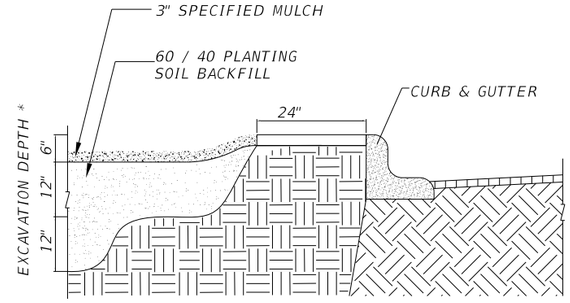
STORMWATER POLLUTION PREVENTION PLAN :

1. SUBMIT FOR REVIEW A PLAN TO MEET NPDES COMPLIANCE REQUIREMENTS TO ENGINEER.
2. POST REVIEWED PLAN ON SITE PRIOR TO AND DURING CONSTRUCTION.
3. PROVIDE ALL NPDES REPORTING TO ENGINEER.



STAMPED CONCRETE DETAIL

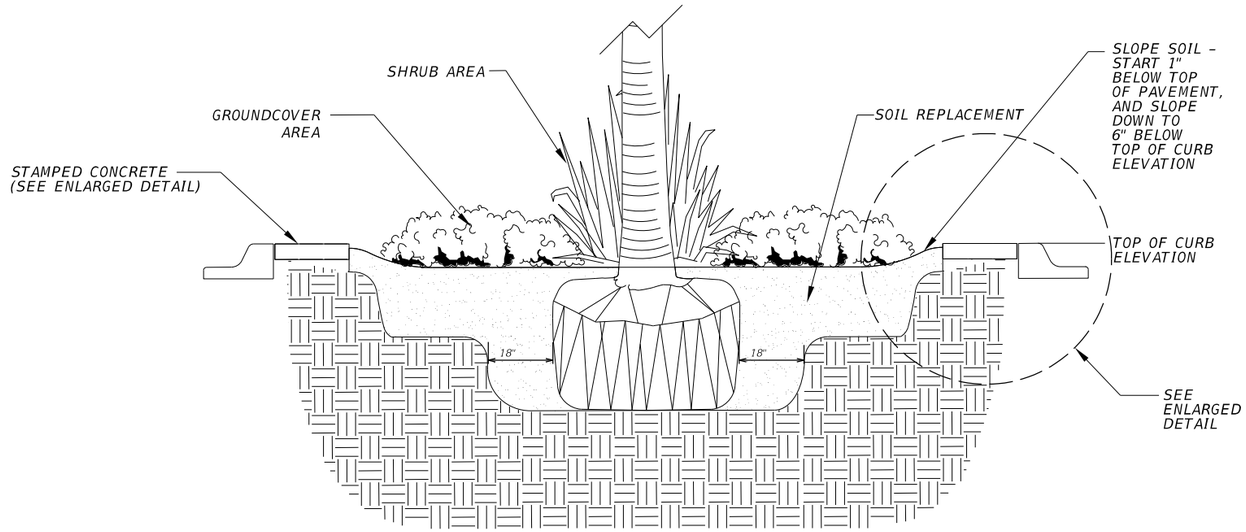
N.T.S.



* PLANT MATERIAL ACCOMODATION :
24" FOR TREES (21" SOIL + 3" MULCH)
12" FOR SHRUBS (9" SOIL + 3" MULCH)
6" SOIL EXCAVATION

SOIL REPLACEMENT DETAIL

N.T.S.



MEDIAN PLANTING GUIDE

N.T.S.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
Brian R. Shore LA-6666770

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Fort Lauderdale, Florida 33309-2364
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

LANDSCAPE DETAILS & GENERAL NOTES

SHEET NO. LD-16

GENERAL:

1. LANE CLOSURE SHALL OCCUR ONLY DURING NON-PEAK HOURS ON NON-EVENT DAYS/WEEKENDS. NON-PEAK HOURS ARE:

   FROM 9:00 AM TO 3:30 PM WEEKDAYS AND WEEKENDS
   FROM 9:00 PM TO 5:30 AM SUNDAY THROUGH THURSDAY NIGHTS
   FROM 11:00 PM TO 7:00 AM FRIDAY AND SATURDAY NIGHTS

2. REGULATORY SPEED ESTABLISHED WITHIN WORK ZONE TRAVEL WAYS SHALL BE THE POSTED SPEED.
   REDUCED SPEED AND REGULATORY SPEED SIGNS SHALL BE INSTALLED ON SEPARATE POSTS IN ACCORDANCE WITH THE STANDARD INDEXES.

3. FOUR CONSTRUCTION INFORMATION SIGNS ARE REQUIRED FOR THIS PROJECT (TWO ALONG US 1 SOUTHBOUND AND TWO ALONG US 1 NORTHBOUND.

   ADVANCE CONSTRUCTION NOTICE AT EACH APPROACH:

   PCMS MESSAGE PRIOR TO CONSTRUCTION:

CONST BEGINS XX/XX/XX	EXPECT DELAYS

   PCMS MESSAGE DURING CONSTRUCTION:

ROAD WORK AHEAD	USE CAUTION

4. PRIOR TO MOBILIZATION, SUBMIT TEMPORARY TRAFFIC CONTROL TO APPLICABLE AGENCIES. INCLUDING THE FOLLOWING INDEXES BUT NOT LIMITED TO THE FOLLOWING:

   611 - Multilane, Work Outside Shoulder
   612 - Multilane, Work on Shoulder
   613 - Multilane, Work Within the Travel Way - Median or Outside Lane
   616 - Multilane, Work Near Intersection - Median or Outside Lane

CONSTRUCTION PHASING:

PHASE I
1. PLACE TRAFFIC CONTROL SIGNING AND WARNING DEVICES AS PER INDICES 102-602, 102-603, 102-611, 102-612, 102-613, AND 102-660 AS APPLICABLE.
2. INSTALL EROSION AND SEDIMENT CONTROL DEVICES AS PER INDEX 570-001.
3. CONDUCT WORK ONLY IN A SINGLE DIRECTION OF TRAFFIC AT A TIME.
4. WORK ZONE SHALL NOT EXCEED 0.5 MILES.

TRAFFIC CONTROL NOTES:

1. SUBMIT MAINTENANCE OF TRAFFIC (M.O.T.) PLAN TO ENGINEER PRIOR TO STARTING WORK. THE M.O.T. PLAN WILL COMPLY WITH FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) DESIGN STANDARD INDEX 600 SERIES AND THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).

2. ALL EXISTING SIGNS ARE TO REMAIN. ANY SIGNS DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE REPLACED AT NO COST TO THE DEPARTMENT.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
Brian R. Shore LA-6666770

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Fort Lauderdale, Florida 33309-2364
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

TEMPORARY TRAFFIC CONTROL PLANS

SHEET NO. LD-17

LANDSCAPE TABULATION OF QUANTITIES / PLANT SCHEDULE

SYM	BOTANICAL NAME	COMMON NAME	INSTALLED SIZE	MAXIMUM MAINT'D SIZE	SPACING	REMARKS	UNIT	SHEET NUMBERS											
								LD-5		LD-6		LD-7		LD-8		LD-9		LD-10	
								PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL
BS	Bursera simuraba	Gumbo Limbo	2.5" CAL	Natural	As Shown	30G Container	EA									6			
LM	Lagerstroemia indica `Muskogee`	Muskogee` Crape Myrtle	12'-14' OA	Natural	As Shown	200G Container	EA					6		6				6	
LN	Lagerstroemia indica `Natchez`	Natchez` Crape Myrtle	12'-14' OA	Natural	As Shown	200G Container	EA	2		2									
QV	Quercus virginiana `Cathedral`	Cathedral Live Oak	4" CAL	Natural	As Shown	Field Grown	EA					6		12				8	
AA	Archontophoenix alexandrae	Alexandra Palm	10' CT	Natural	As Shown	25G Container	EA									8			
BN	Bismarckia noblis 'Silver'	Silver Bismarck Palm	8' CT	Natural	As Shown	Field Grown	EA									3			
LL	Latania lontaroides	Red Latan Palm	8' OA	Natural	As Shown	Field Grown	EA									10			
PE	Ptychosperma elegans	Solitaire Palm	12' CT	Natural	As Shown	65G Container	EA	36				33		16					
RE	Roystonea elata	Florida Royal Palm	18' GW	Natural	As Shown	Field Grown	EA	3		3									
VM	Veitchia montgomeryana	Montgomery Palm	18' CT	Natural	As Shown	Field Grown	EA	3		3		6		6		10		6	
WB	Wodyetia bifurcata	Foxtain Palm	6' GW	Natural	As Shown	45G Container	EA					10		6				6	
CH	Chrysobalanus icaco `Horizontal`	Horizontal Cocoplum	3 Gal.	Natural	36"		EA	23								4			
FM	Ficus microcarpa 'Green Island'	Green Island Ficus	3 Gal.	Natural	20"		EA					114		70				136	
HP	Hamelia patens 'Compacta'	Dwarf Firebush	3 Gal.	Natural	24"		EA									17			
IM	Ixora x 'Maui'	Maui Ixora	3 Gal.	Natural	20"		EA					142		108				111	
MC	Muhlenbergia capillaris	Pink Muhly Grass	3 Gal.	Natural	24"		EA												
SA	Schefflera arboricola 'Trinette'	Trinette Variegated Schefflera	3 Gal.	Natural	24"		EA												
TA	Trachelospermum asiaticum	Asiatic Jasmine	1 Gal.	Natural	16"		EA	798		268		1056		307		182		162	
TF	Tripsacum dactyloides	Fakahatchee Grass	1 Gal.	Natural	24"		EA	56											
PN	Paspalum notatum	Bahia Grass	Sod	Natural	Sod		SY	419		1005									
SS	Stenotaphrum secundatum	St. Augustine Grass	Sod	Natural	Sod		SY					1440		1119		1124		890	
STAMPED CONCRETE, NON-VEHICULAR AREAS																			
	Stamped Limestone-Colored Concrete	6" x 6" Stacked Bond	4-inch Thick.				SY	527		613		519		805		944		742	

LANDSCAPE TABULATION OF QUANTITIES / PLANT SCHEDULE

SYM	BOTANICAL NAME	COMMON NAME	INSTALLED SIZE	MAXIMUM MAINT'D SIZE	SPACING	REMARKS	UNIT	SHEET NUMBERS										GRAND TOTAL	
								LD-11		LD-12		LD-13		LD-14		LD-15			
								PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL
BS	Bursera simuraba	Gumbo Limbo	2.5" CAL	Natural	As Shown	30G Container	EA	8		18				4				36	
LM	Lagerstroemia indica `Muskogee`	Muskogee` Crape Myrtle	12'-14' OA	Natural	As Shown	200G Container	EA					5		4				27	
LN	Lagerstroemia indica `Natchez`	Natchez` Crape Myrtle	12'-14' OA	Natural	As Shown	200G Container	EA									3		7	
QV	Quercus virginiana `Cathedral`	Cathedral Live Oak	4" CAL	Natural	As Shown	Field Grown	EA							6				32	
AA	Archontophoenix alexandrae	Alexandra Palm	10' CT	Natural	As Shown	25G Container	EA	36				12		12				68	
BN	Bismarckia noblis 'Silver'	Silver Bismarck Palm	8' CT	Natural	As Shown	Field Grown	EA	7				3		2				15	
LL	Latania lontaroides	Red Latan Palm	8' OA	Natural	As Shown	Field Grown	EA	5		15								30	
PE	Ptychosperma elegans	Solitaire Palm	12' CT	Natural	As Shown	65G Container	EA									33		118	
RE	Roystonea elata	Florida Royal Palm	18' GW	Natural	As Shown	Field Grown	EA									2		8	
VM	Veitchia montgomeryana	Montgomery Palm	18' CT	Natural	As Shown	Field Grown	EA	10		10		6		16		4		80	
WB	Wodyetia bifurcata	Foxtain Palm	6' GW	Natural	As Shown	45G Container	EA					6		6				34	
CH	Chrysobalanus icaco `Horizontal`	Horizontal Cocoplum	3 Gal.	Natural	36"		EA	36				9		11				83	
FM	Ficus microcarpa 'Green Island'	Green Island Ficus	3 Gal.	Natural	20"		EA					73		43		59		495	
HP	Hamelia patens 'Compacta'	Dwarf Firebush	3 Gal.	Natural	24"		EA	111				30		39				197	
IM	Ixora x 'Maui'	Maui Ixora	3 Gal.	Natural	20"		EA					133		139				633	
MC	Muhlenbergia capillaris	Pink Muhly Grass	3 Gal.	Natural	24"		EA									65		65	
SA	Schefflera arboricola 'Trinette'	Trinette Variegated Schefflera	3 Gal.	Natural	24"		EA									71		71	
TA	Trachelospermum asiaticum	Asiatic Jasmine	1 Gal.	Natural	16"		EA	201				398		337		1236		4945	
TF	Tripsacum dactyloides	Fakahatchee Grass	1 Gal.	Natural	24"		EA											56	
PN	Paspalum notatum	Bahia Grass	Sod	Natural	Sod		SY											1424	
SS	Stenotaphrum secundatum	St. Augustine Grass	Sod	Natural	Sod		SY	1566		1983		802		2024		480		11428	
STAMPED CONCRETE, NON-VEHICULAR AREAS																			
	Stamped Limestone-Colored Concrete	6" x 6" Stacked Bond	4-inch Thick.				SY	727		795		623		801		610		7706	

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
Brian R. Shore LA-6666770

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5747 North Andrews Way
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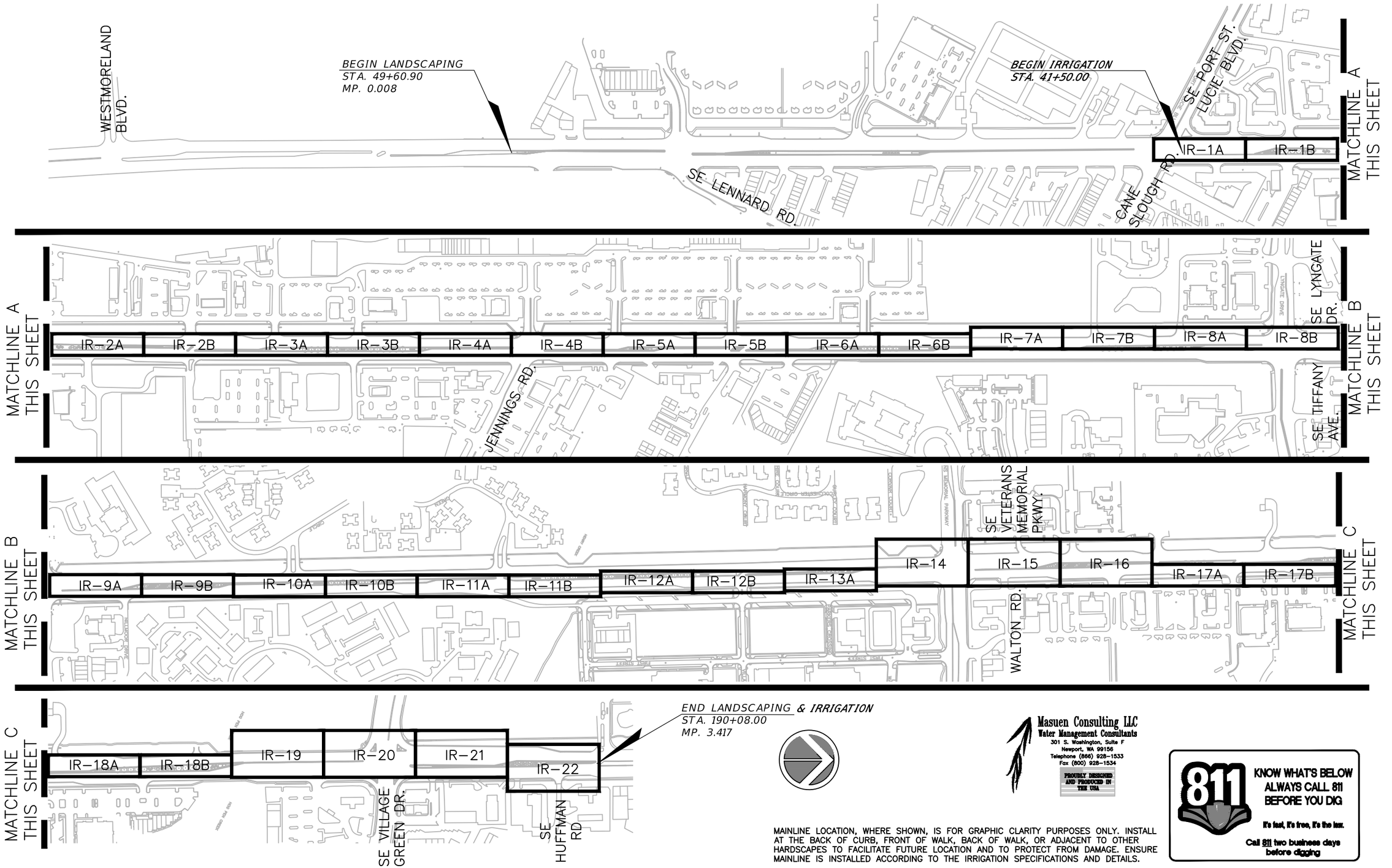
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

TABULATION OF QUANTITIES
PLANT SCHEDULE

SHEET NO.
LD-18



Masuen Consulting LLC
Water Management Consultants
301 S. Washington, Suite F
Newport, WA 99156
Telephone (866) 928-1533
Fax (800) 928-1534
PROUDLY DESIGNED AND PRODUCED IN THE USA

811 KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
It's fast, it's free, it's the law.
Call 811 two business days before digging

MAINLINE LOCATION, WHERE SHOWN, IS FOR GRAPHIC CLARITY PURPOSES ONLY. INSTALL AT THE BACK OF CURB, FRONT OF WALK, BACK OF WALK, OR ADJACENT TO OTHER HARDSCAPES TO FACILITATE FUTURE LOCATION AND TO PROTECT FROM DAMAGE. ENSURE MAINLINE IS INSTALLED ACCORDING TO THE IRRIGATION SPECIFICATIONS AND DETAILS.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
Sabine Lang-Marks LA-0001733

MASUEN CONSULTING
301 S. Washington, Suite F
Newport, WA 99156
866-928-1533 Fax: 800-928-1534

STATE OF FLORIDA
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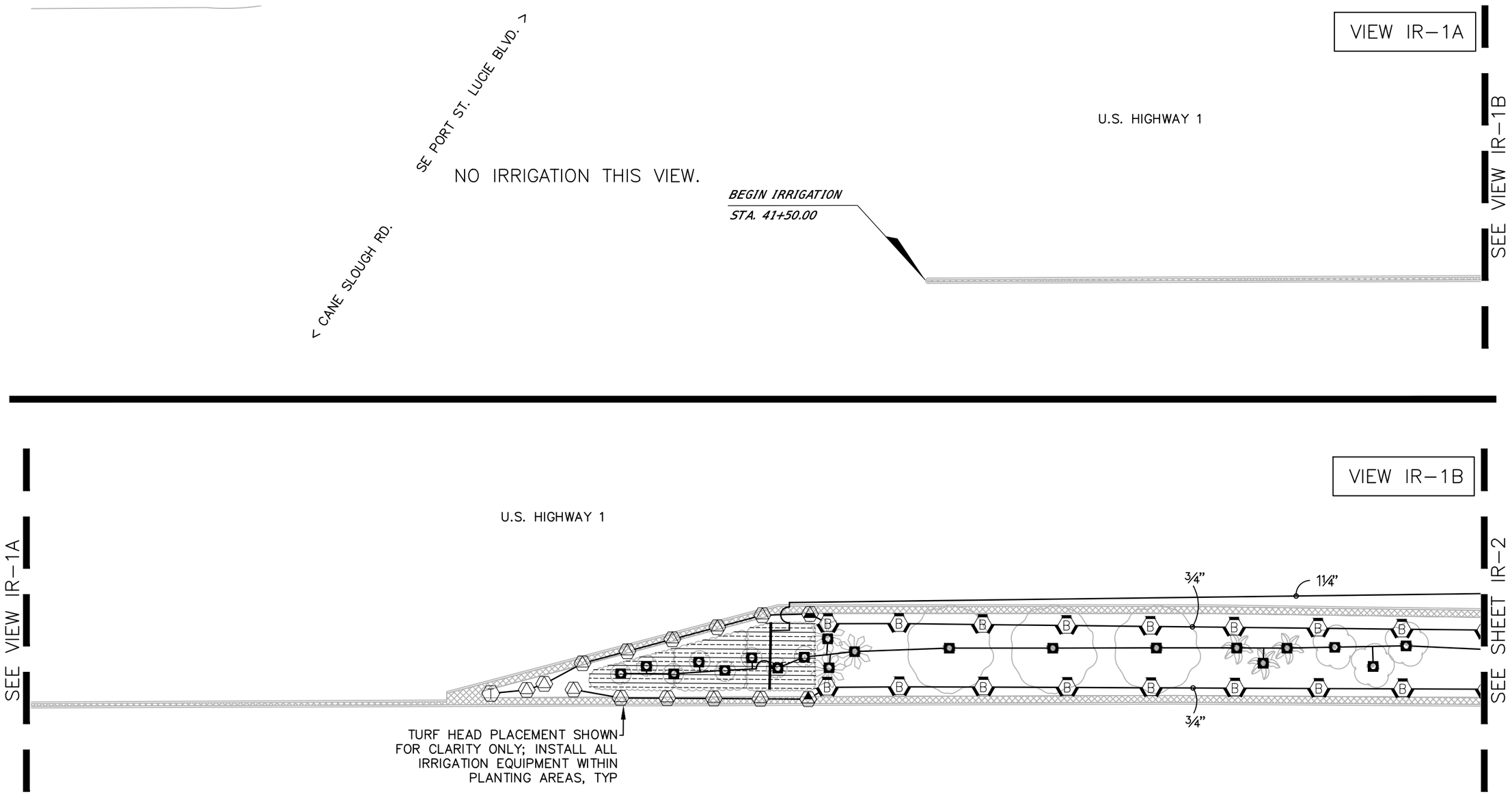
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

IRRIGATION KEY SHEET

SHEET NO.
KEY



GRAPHIC SCALE
0 15 30
(IN FEET)
1 INCH = 30 FEET

Masuen Consulting LLC
Water Management Consultants
301 S. Washington, Suite F
Newport, WA 99156
Telephone (866) 928-1533
Fax (800) 928-1534

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Call 811 two business days before digging

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
Sabine Lang–Marks LA–0001733

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Newport, WA 99156
866–928–1533 Fax: 800–928–1534

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

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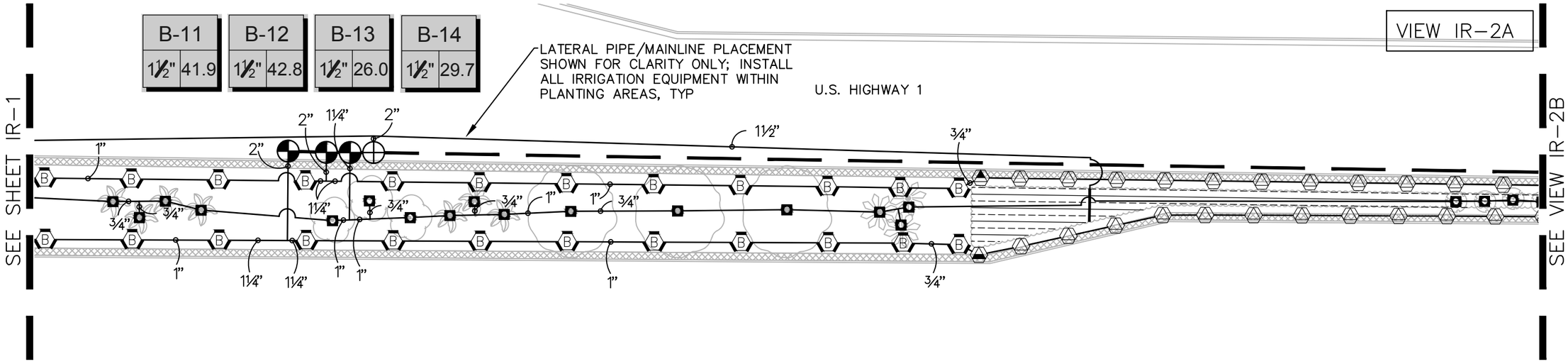
SR 5	ST. LUCIE	

2021-L-490-00004

IRRIGATION PLAN

SHEET NO.
IR–1

B-11	B-12	B-13	B-14
1½" 41.9	1½" 42.8	1½" 26.0	1½" 29.7



GRAPHIC SCALE
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(IN FEET)
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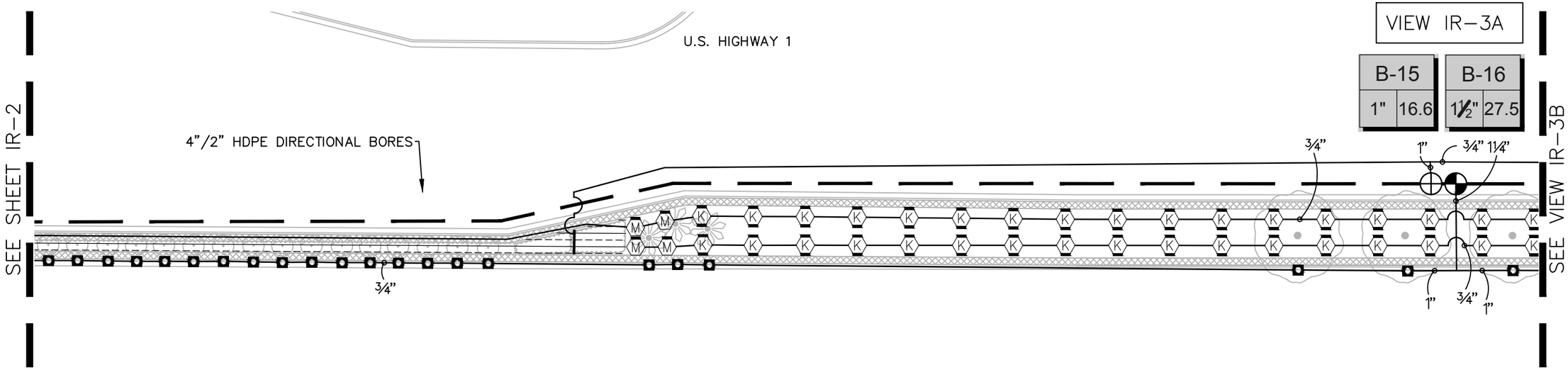
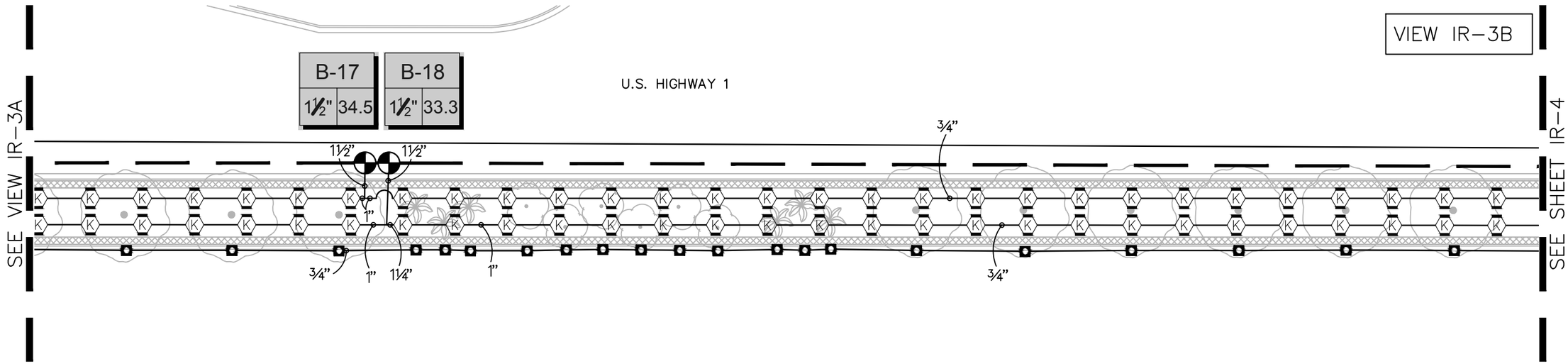
2021-L-490-00004

IRRIGATION PLAN

SHEET NO. IR-2





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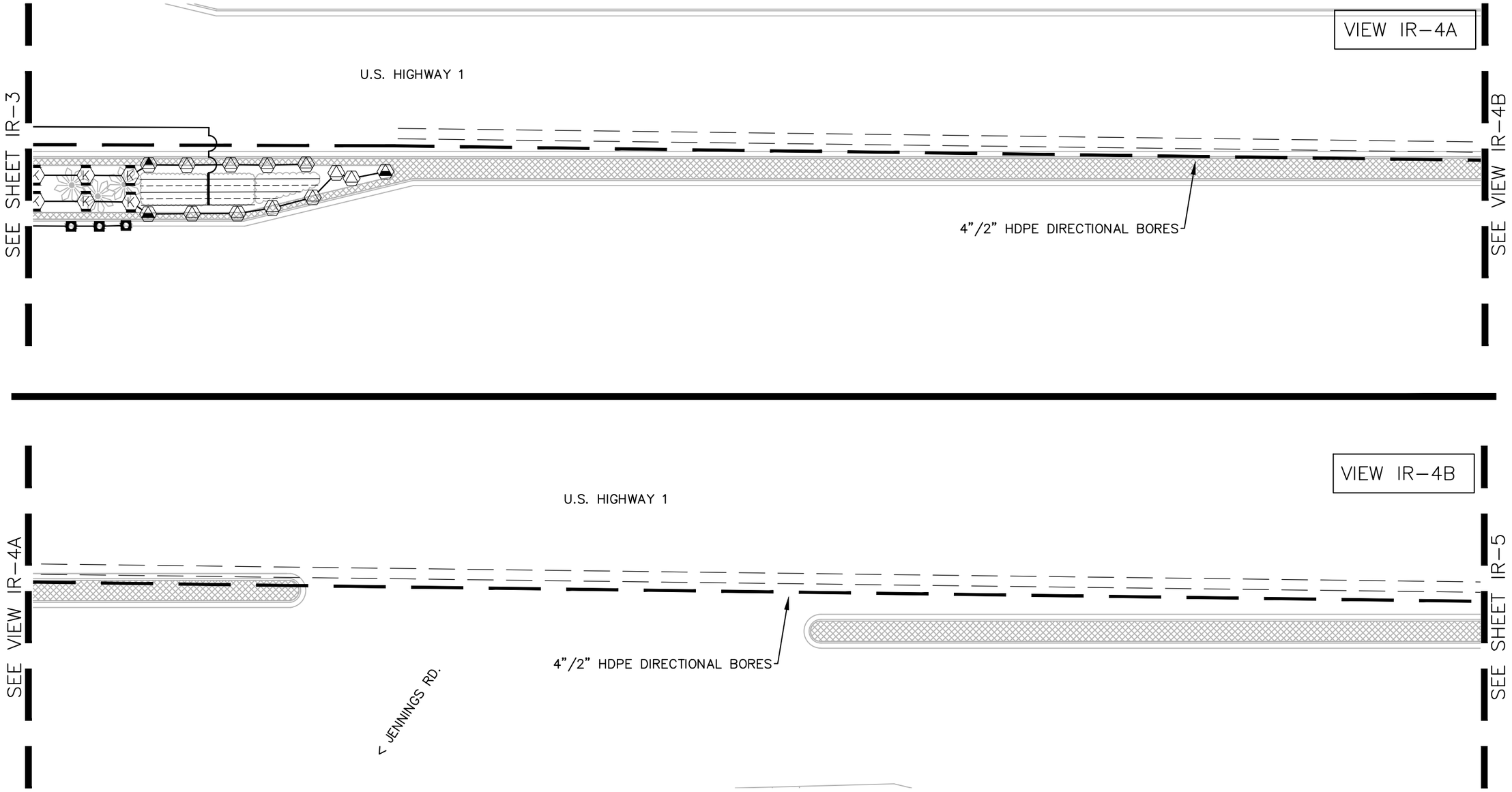
IRRIGATION PLAN

SHEET NO.
IR–3



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IRRIGATION PLAN

SHEET NO.
IR–4

EXISTING FP&L UTILITY POLE – 230V/3PH POWER REQUIRED FOR PUMP STATION IN THIS APPROXIMATE LOCATION, COORDINATE WITH FPL. CONTRACTOR TO RUN REQUIRED PRIMARY WIRES IN 2" GREY PVC ELECTRICAL CONDUIT FROM POLE/MANHOLE TO ELECTRIC METER WITHIN CHAINLINK FENCE ENCLOSURE

VIEW IR–5A

C2 B

2" CONDUIT TO PUMP PANEL

PROPOSED RAIN BIRD ESP–40SAT–S. INSTALL PHONE LINE AND ELECTRIC SERVICE

PROPOSED HOOVER PUMP 'B' AND 6" WELL

1" CONDUIT TO SOIL MOISTURE SENSOR

2"/2"/4" HDPE DIRECTIONAL BORES

2"/4"/2" HDPE DIRECTIONAL BORES

B-10		B-9		B-8	
1"	16.0	1"	5.50	1"	5.31

U.S. HIGHWAY 1

1" 3/4" 3/4" 3/4"

MS

SOIL MOISTURE SENSOR, INSTALL PER MFG. DIRECTION. RUN SENSOR WIRE TO INTERFACE IN 1" ELECTRICAL CONDUIT.

SEE SHEET IR–4

SEE VIEW IR–5B

U.S. HIGHWAY 1

VIEW IR–5B

4"/2" HDPE DIRECTIONAL BORES

SEE VIEW IR–5A

SEE SHEET IR–6

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IRRIGATION PLAN

SHEET NO.
IR–5

VIEW IR–6A

U.S. HIGHWAY 1

4"/2" HDPE DIRECTIONAL BORES

SEE SHEET IR–5

SEE VIEW IR–6B

¾"

VIEW IR–6B

SEE VIEW IR–6A

SEE SHEET IR–7

1¼" 2" ¾" 1" 1" 1" ¾" 1" 1¼" 1¼" ¾" 1" ¾"

B-7		B-6		B-5	
1½"	26.1	1½"	25.9	1"	13.0

U.S. HIGHWAY 1

GRAPHIC SCALE

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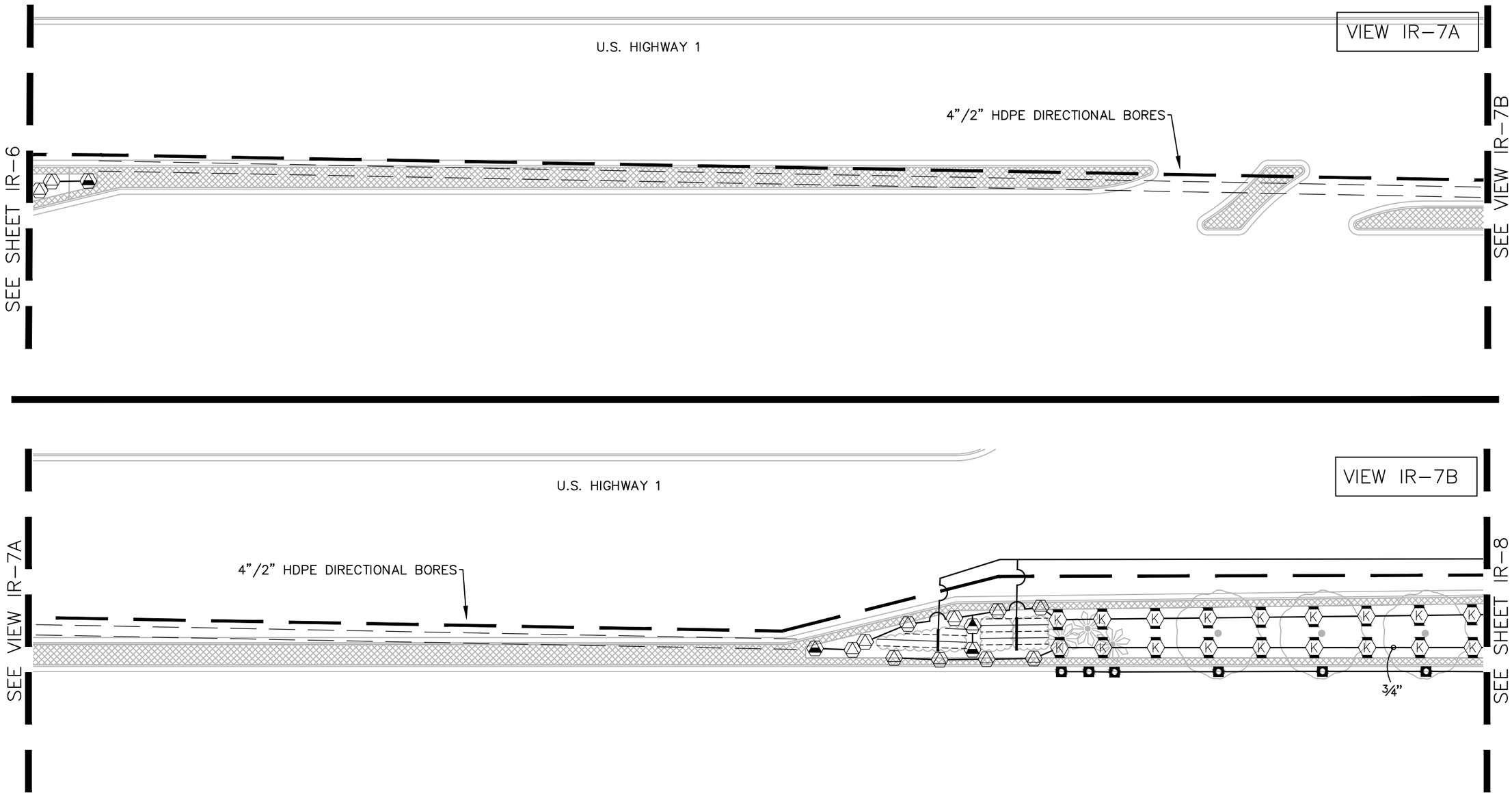
IRRIGATION PLAN

SHEET NO.

IR–6



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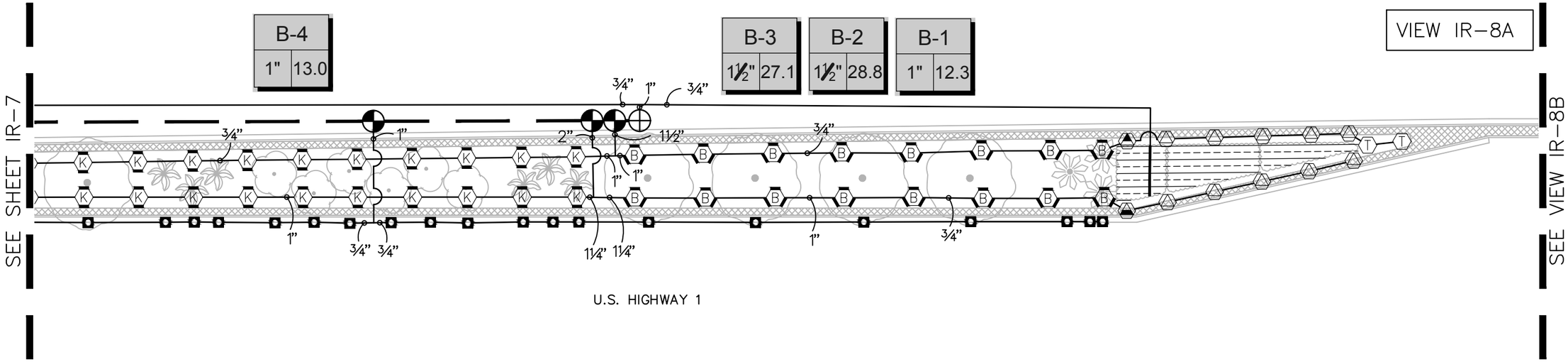
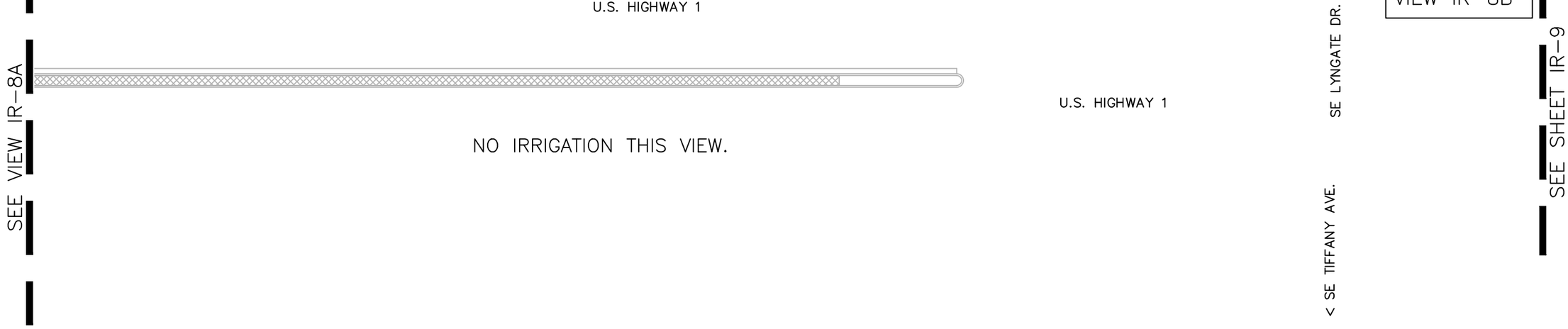
IRRIGATION PLAN

SHEET NO.
IR–7





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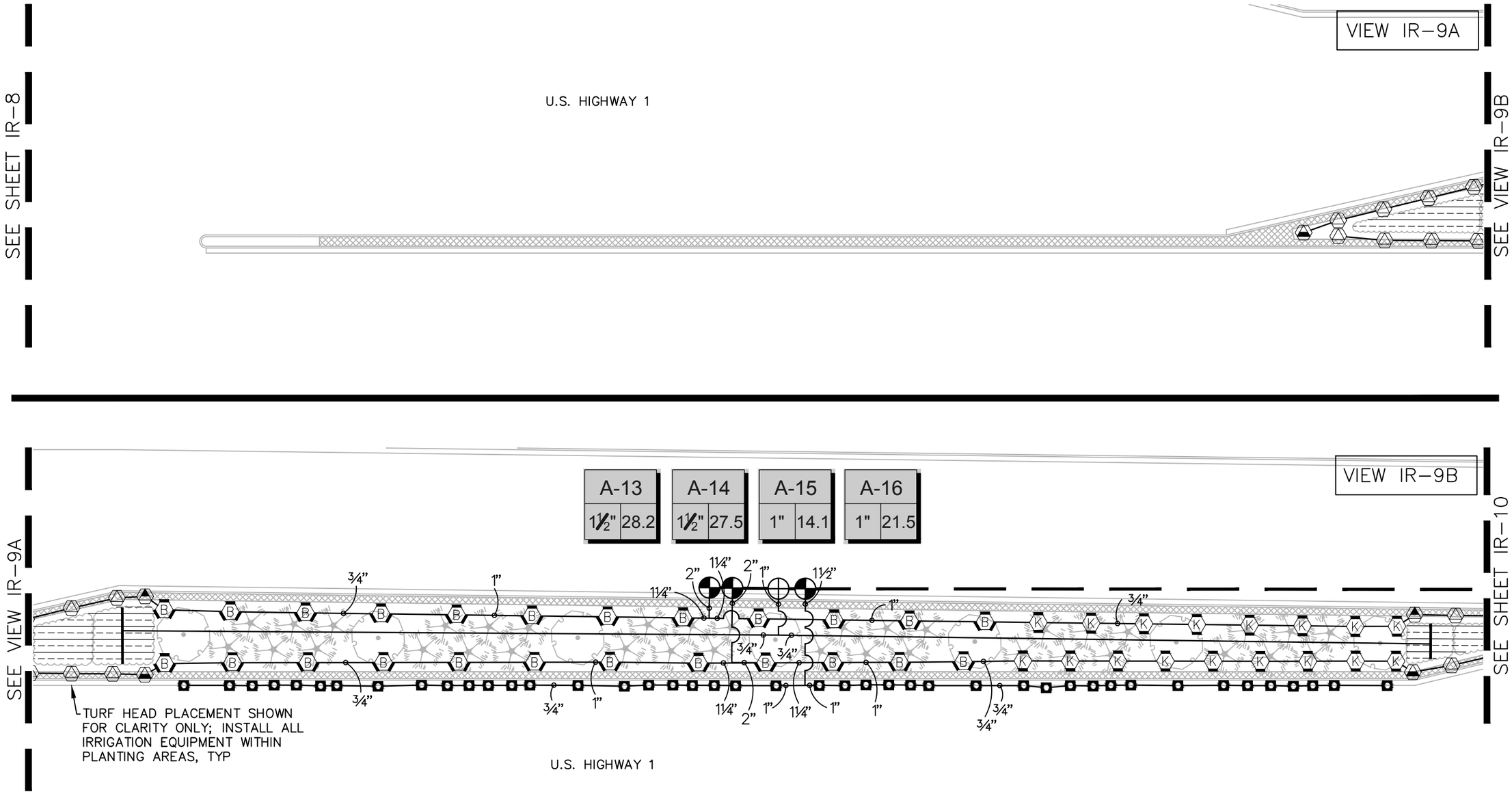
IRRIGATION PLAN

SHEET NO.
IR-8



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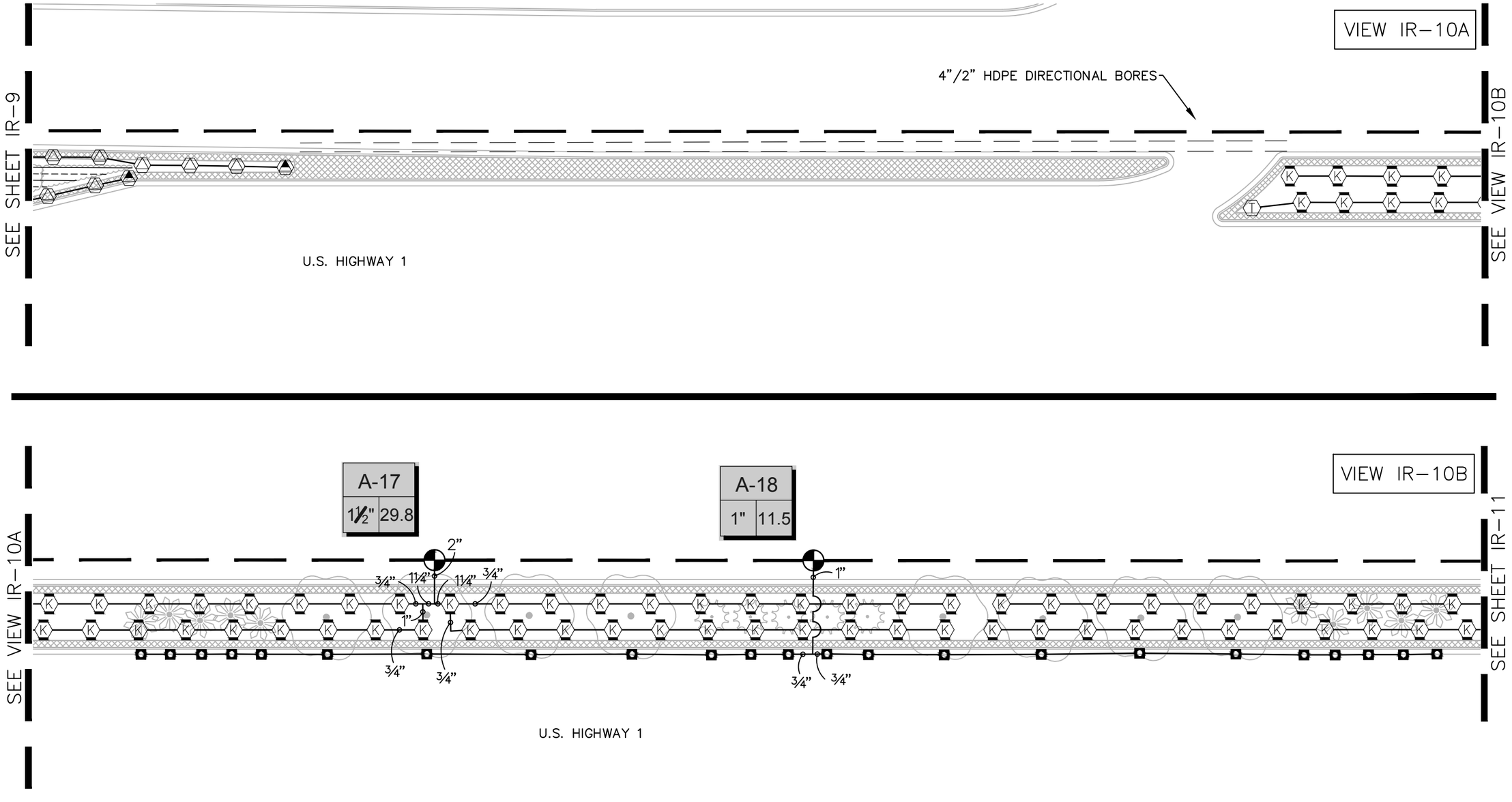
IRRIGATION PLAN

SHEET NO.
IR-9



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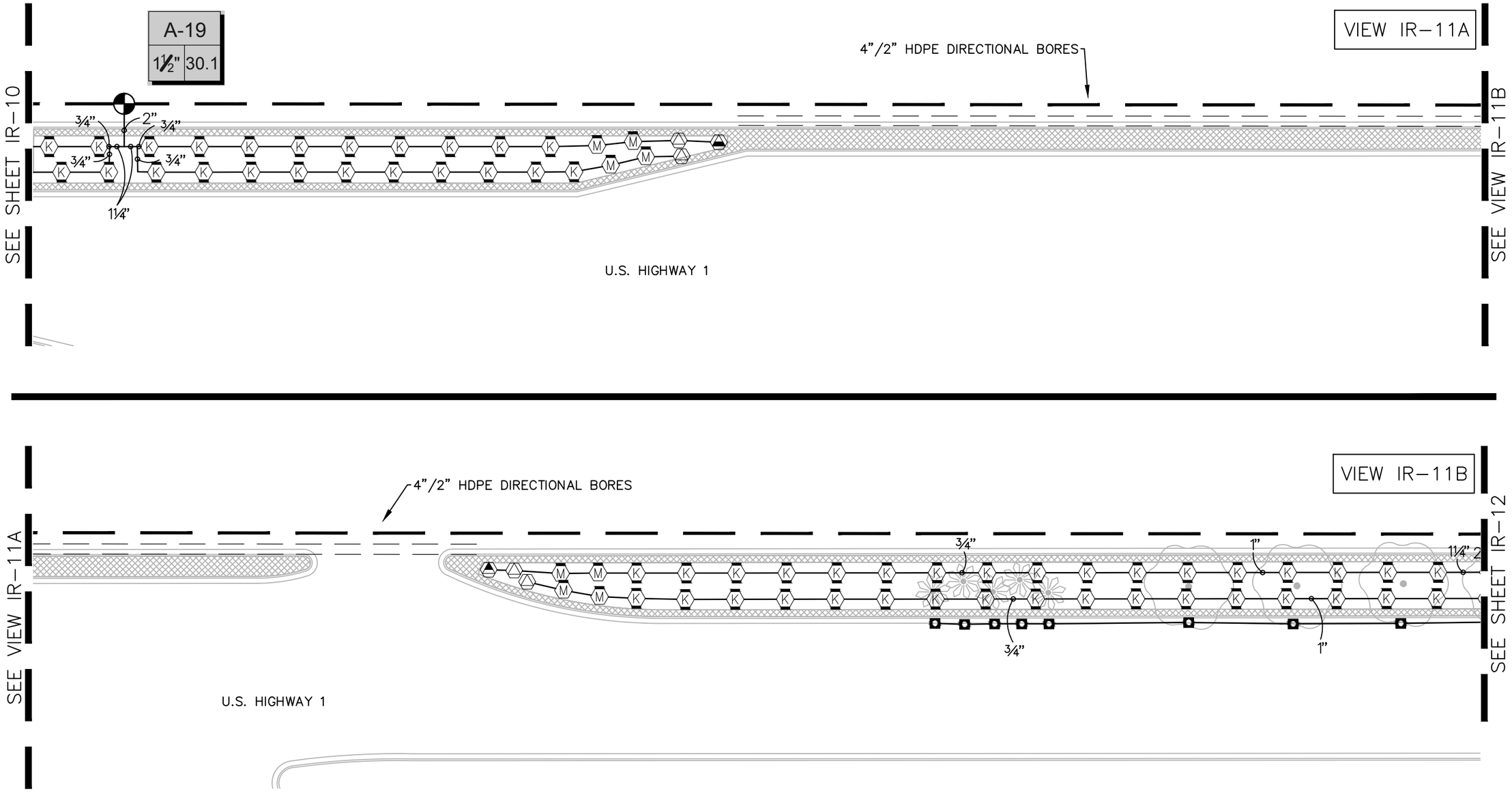
IRRIGATION PLAN

SHEET NO.
IR–10



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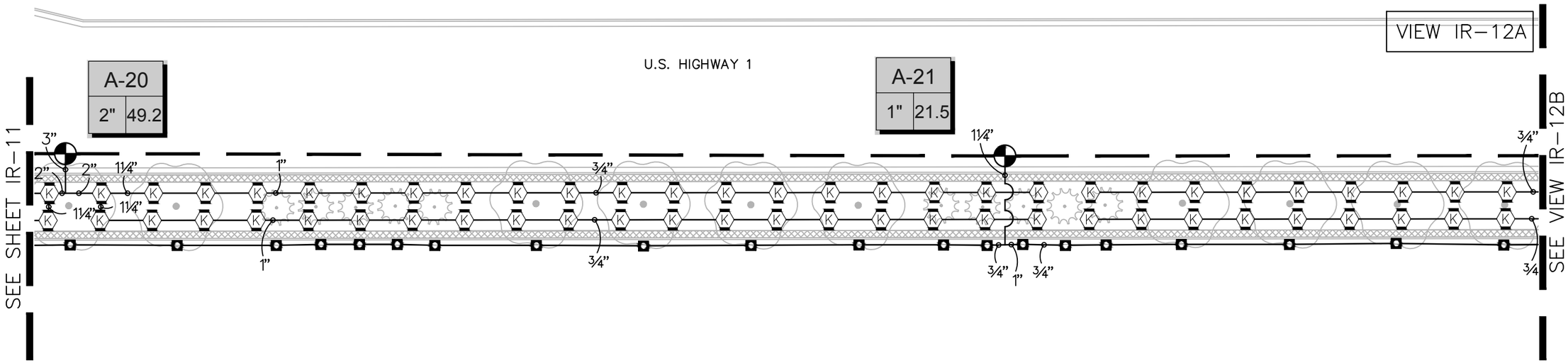
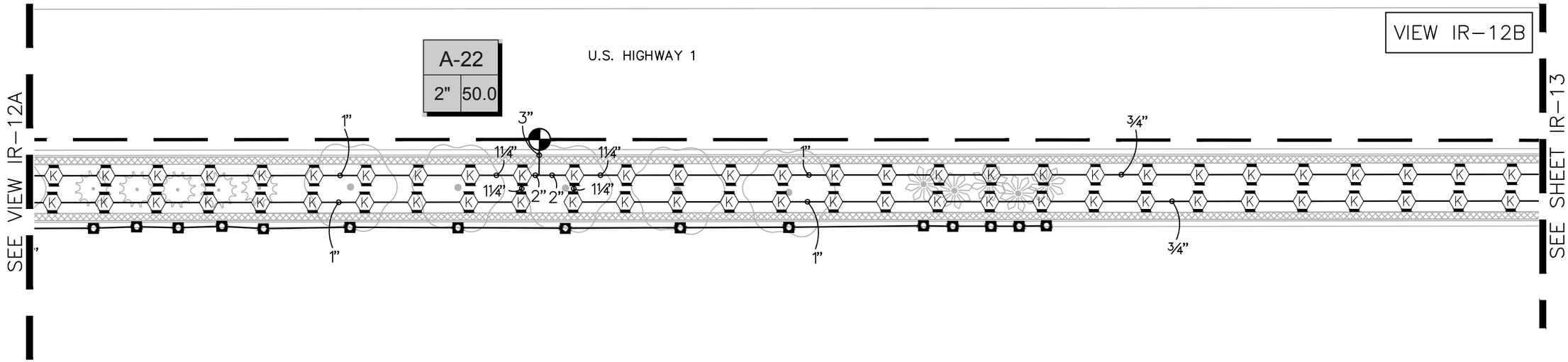
IRRIGATION PLAN

SHEET NO.
IR–11





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IRRIGATION PLAN

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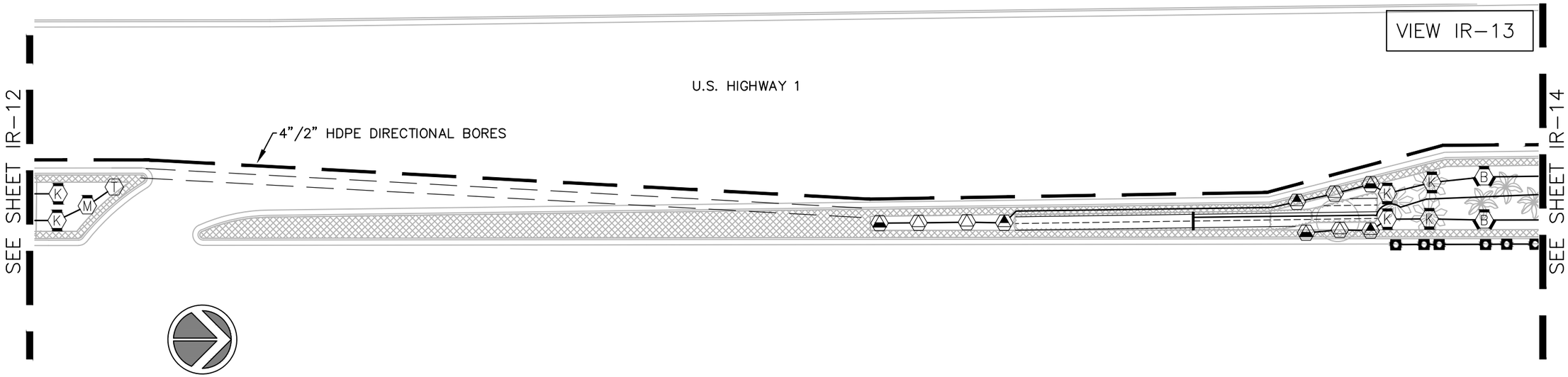
IR–12



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IRRIGATION PLAN

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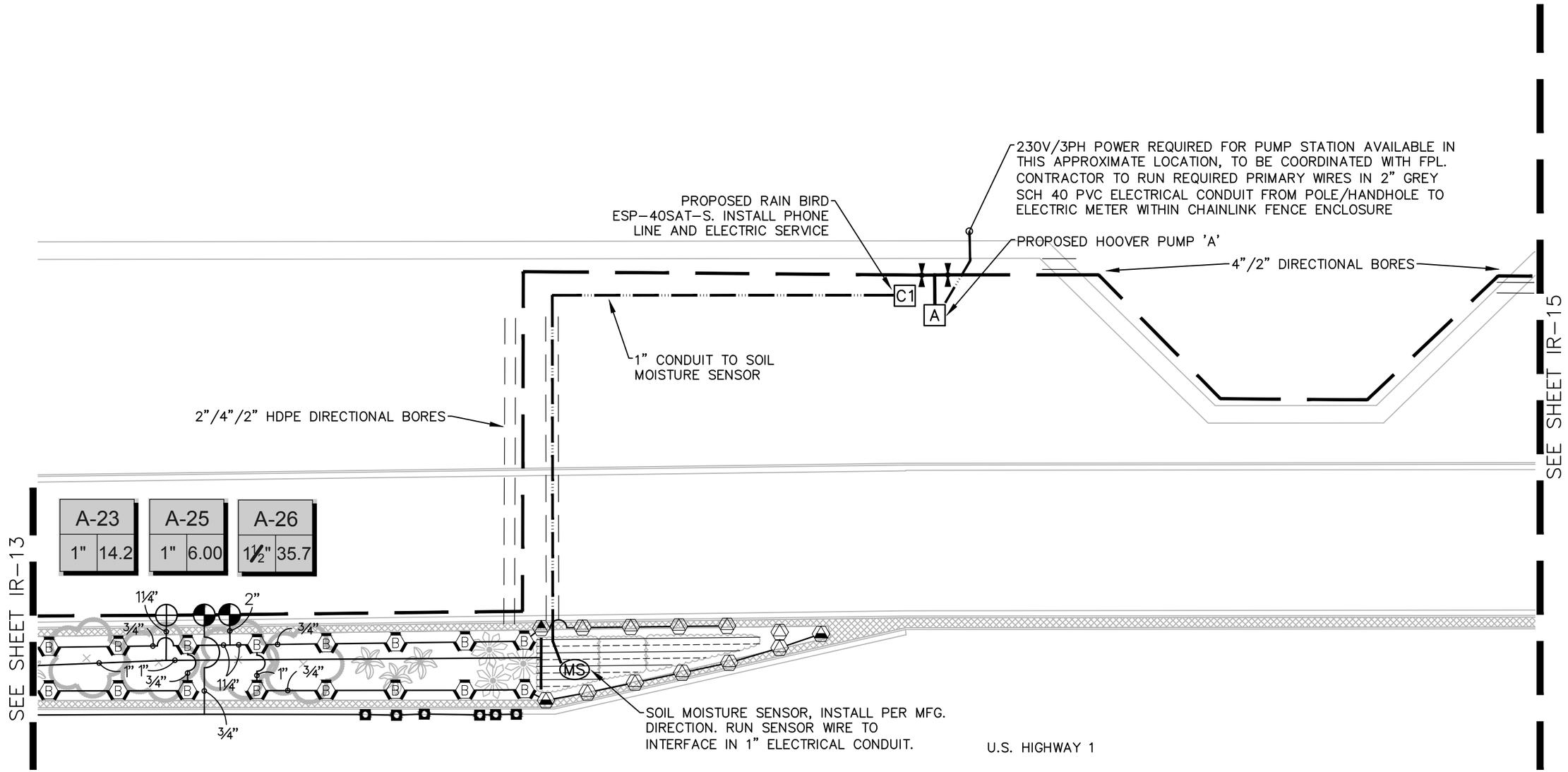

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IRRIGATION PLAN

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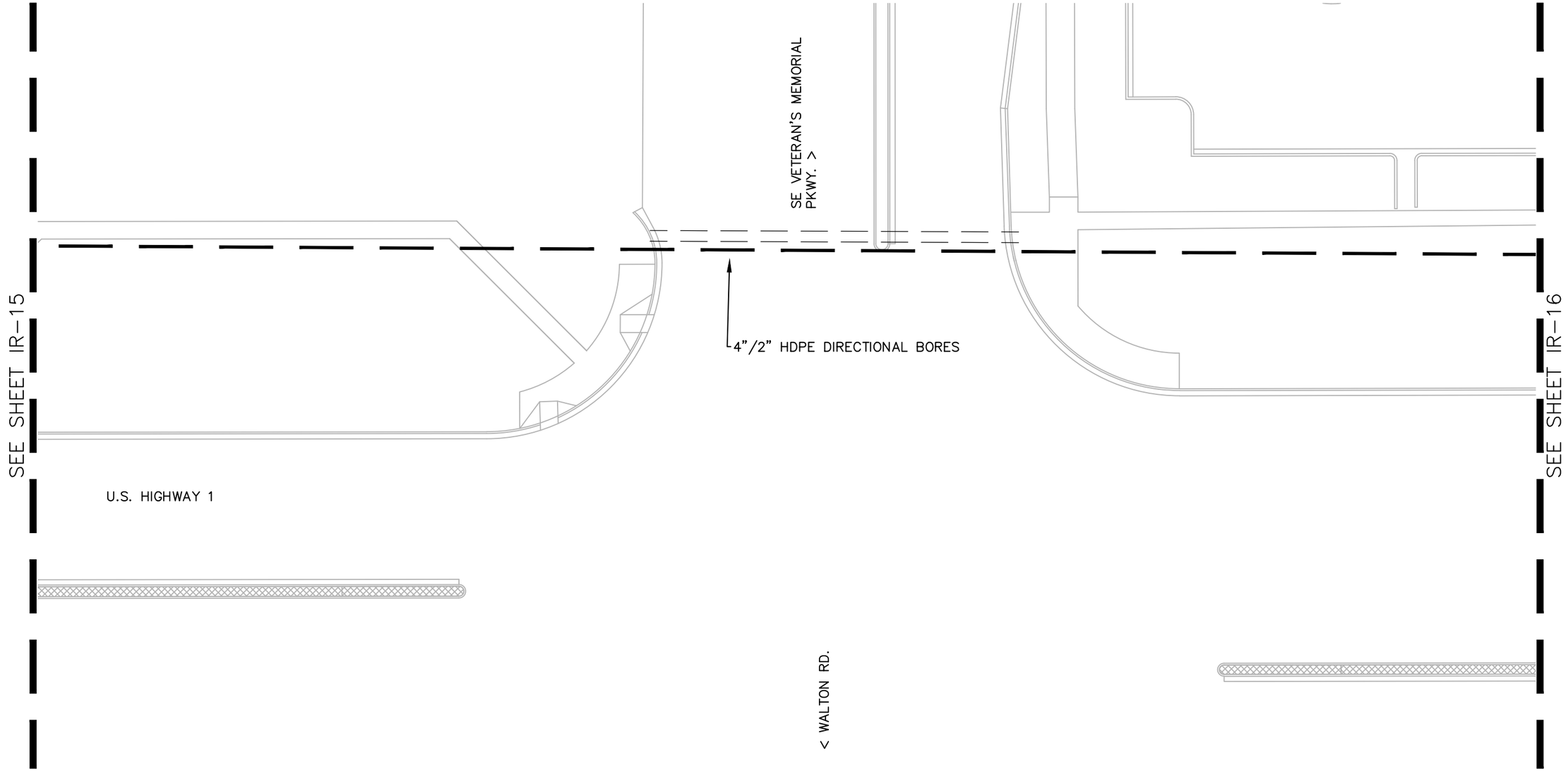
IR-14



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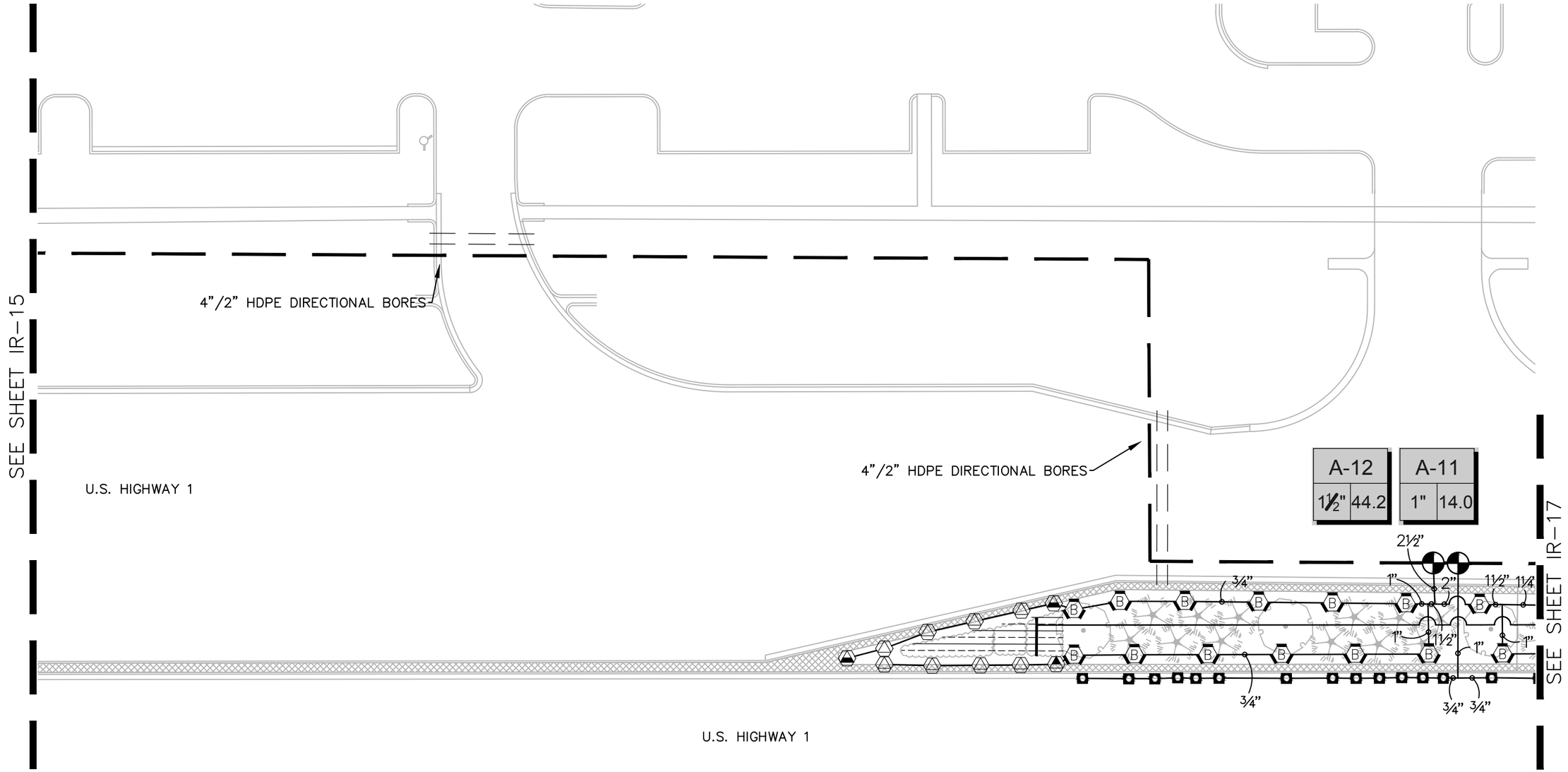
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

IRRIGATION PLAN

SHEET NO.
IR-15



GRAPHIC SCALE
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(IN FEET)
1 INCH = 30 FEET

Masuen Consulting LLC
Water Management Consultants
301 S. Washington, Suite F
Newport, WA 99156
Telephone (866) 928-1533
Fax (800) 928-1534
PROUDLY DESIGNED AND PRODUCED IN THE USA

MAINLINE LOCATION, WHERE SHOWN, IS FOR GRAPHIC CLARITY PURPOSES ONLY. INSTALL AT THE BACK OF CURB, FRONT OF WALK, BACK OF WALK, OR ADJACENT TO OTHER HARDSCAPES TO FACILITATE FUTURE LOCATION AND TO PROTECT FROM DAMAGE. ENSURE MAINLINE IS INSTALLED ACCORDING TO THE IRRIGATION SPECIFICATIONS AND DETAILS.

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
Sabine Lang-Marks LA-0001733

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IRRIGATION PLAN

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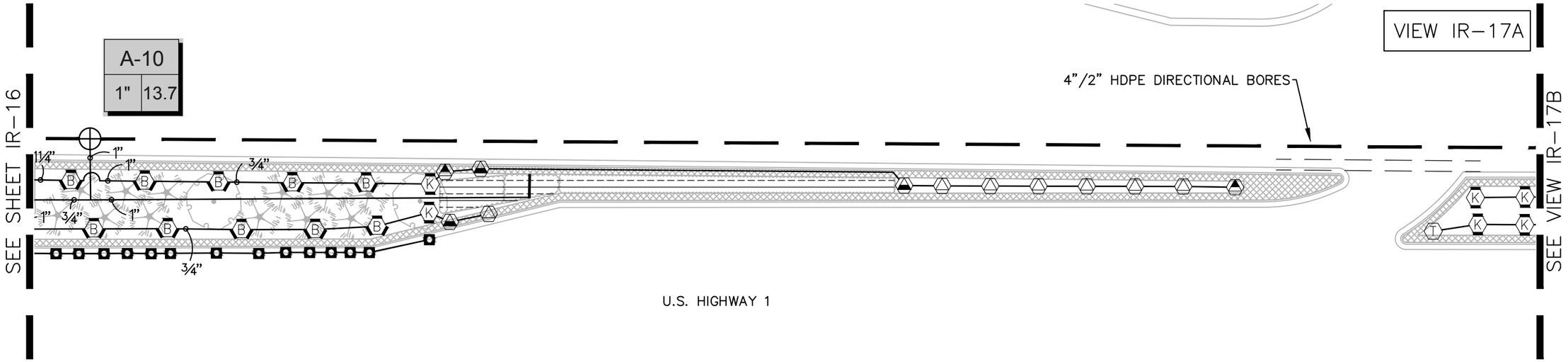
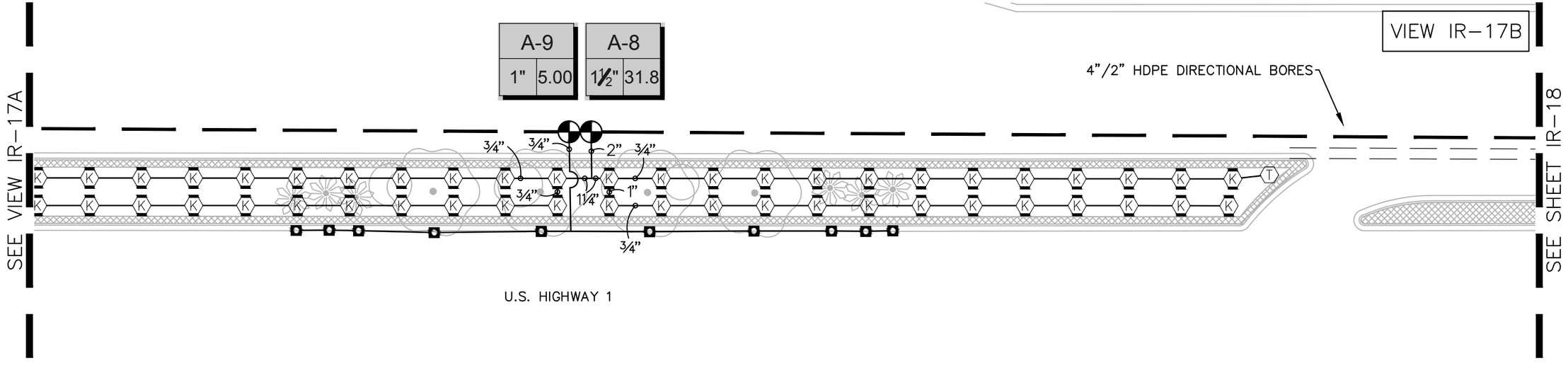
IR-16





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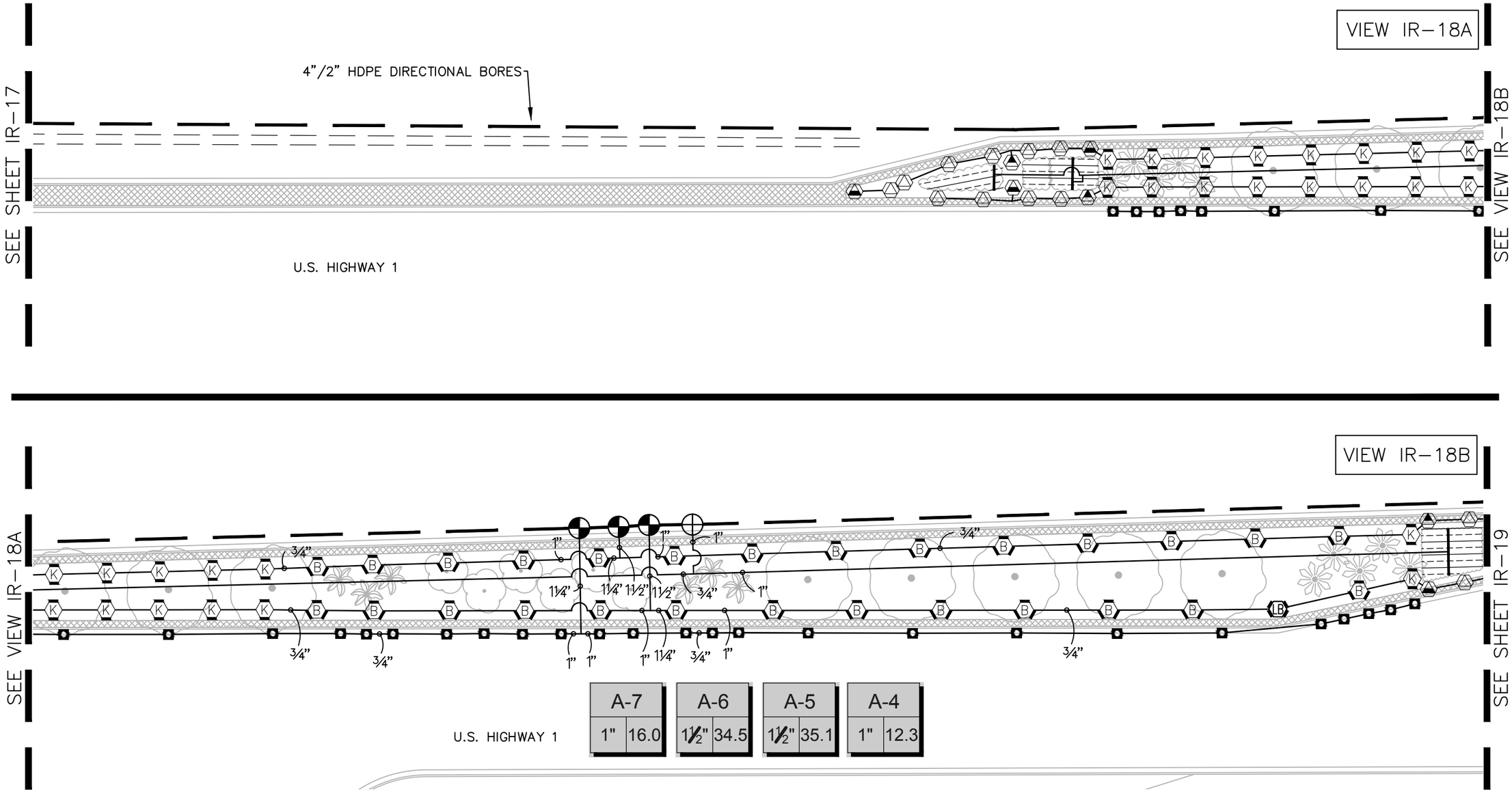
IRRIGATION PLAN

SHEET NO.
IR–17



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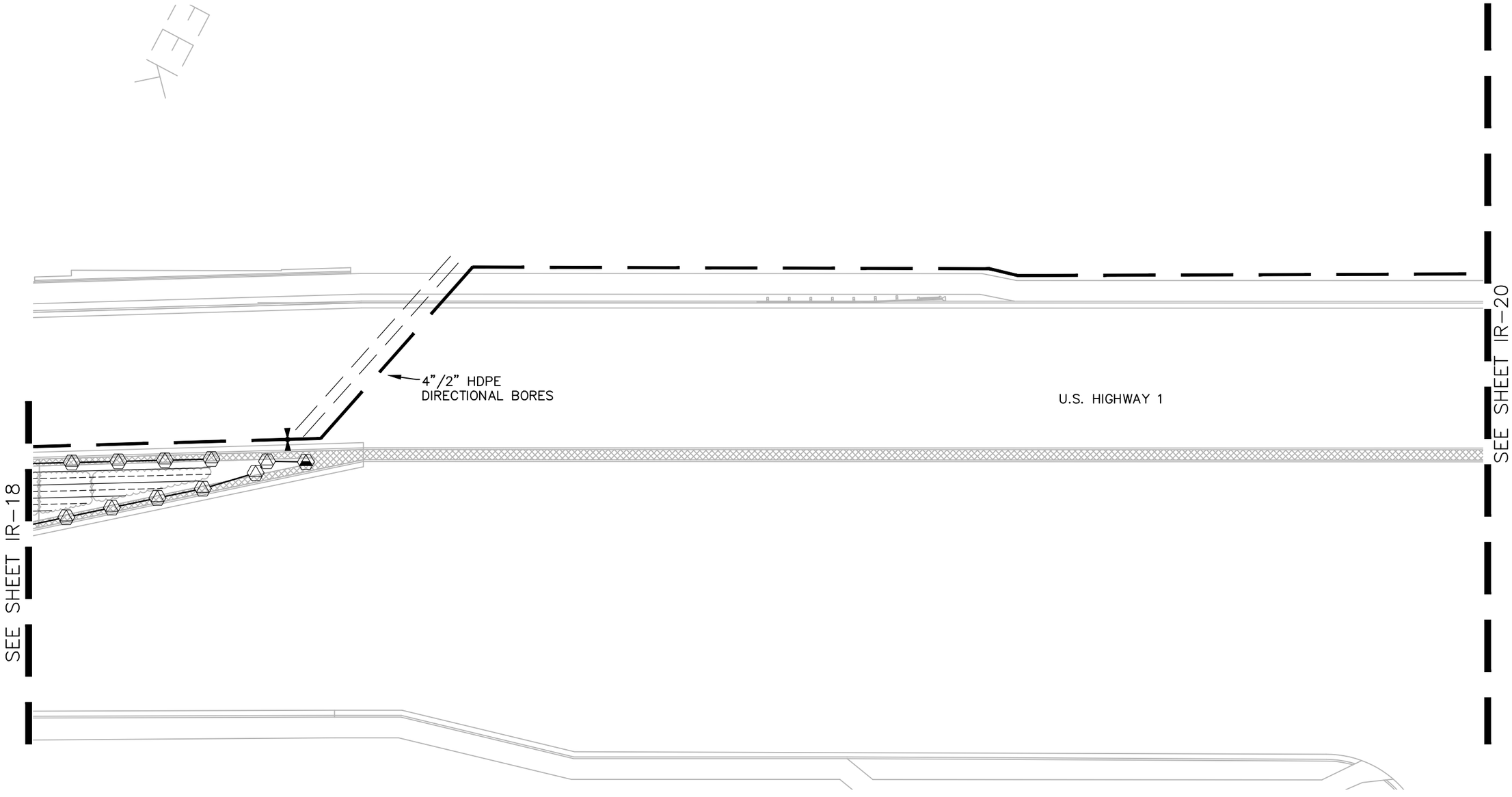
2021-L-490-00004

IRRIGATION PLAN

SHEET NO.
IR–18



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2021-L-490-00004

IRRIGATION PLAN

SHEET NO.
IR-19

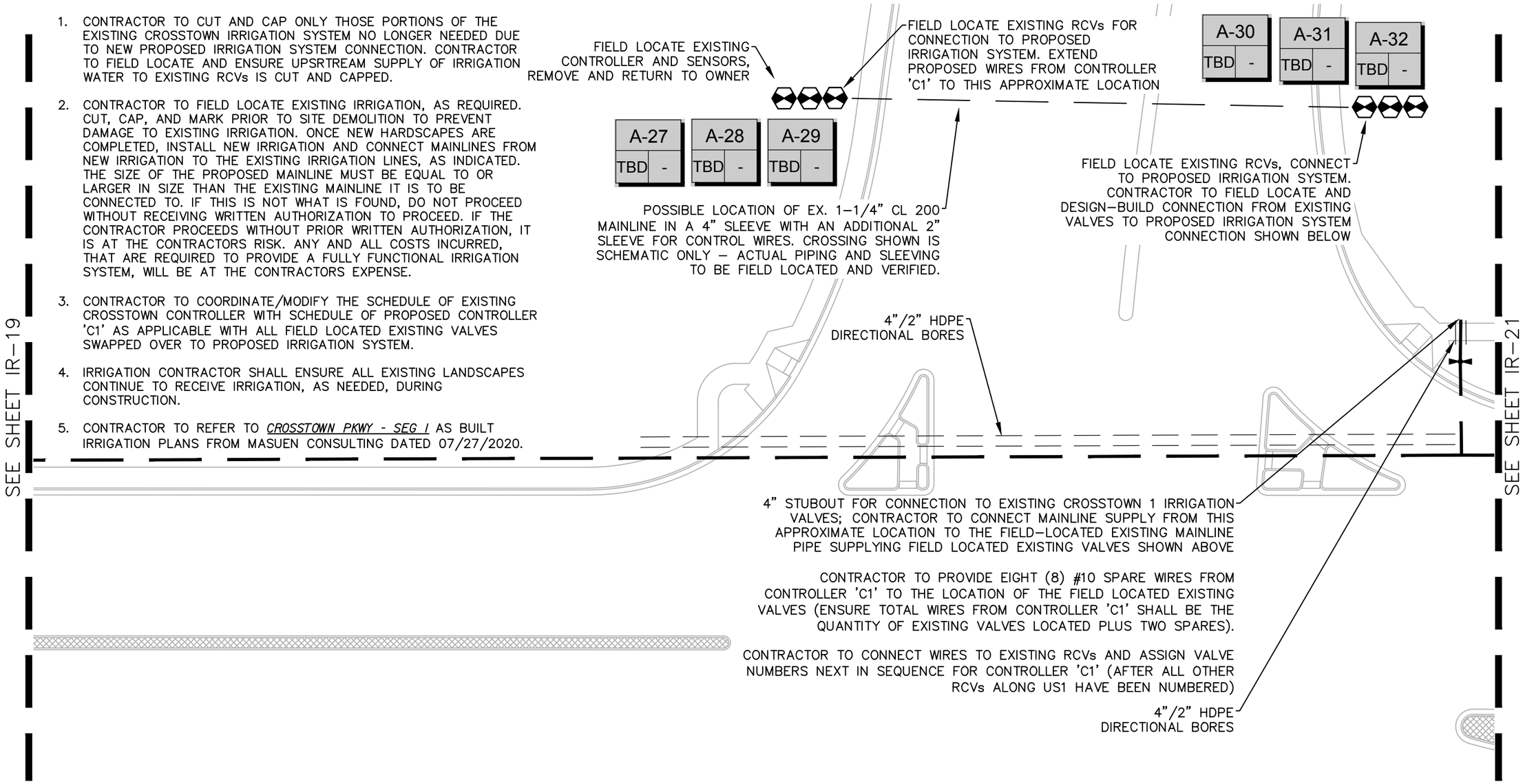
1. CONTRACTOR TO CUT AND CAP ONLY THOSE PORTIONS OF THE EXISTING CROSSTOWN IRRIGATION SYSTEM NO LONGER NEEDED DUE TO NEW PROPOSED IRRIGATION SYSTEM CONNECTION. CONTRACTOR TO FIELD LOCATE AND ENSURE UPSRTREAM SUPPLY OF IRRIGATION WATER TO EXISTING RCVs IS CUT AND CAPPED.

2. CONTRACTOR TO FIELD LOCATE EXISTING IRRIGATION, AS REQUIRED. CUT, CAP, AND MARK PRIOR TO SITE DEMOLITION TO PREVENT DAMAGE TO EXISTING IRRIGATION. ONCE NEW HARDSCAPES ARE COMPLETED, INSTALL NEW IRRIGATION AND CONNECT MAINLINES FROM NEW IRRIGATION TO THE EXISTING IRRIGATION LINES, AS INDICATED. THE SIZE OF THE PROPOSED MAINLINE MUST BE EQUAL TO OR LARGER IN SIZE THAN THE EXISTING MAINLINE IT IS TO BE CONNECTED TO. IF THIS IS NOT WHAT IS FOUND, DO NOT PROCEED WITHOUT RECEIVING WRITTEN AUTHORIZATION TO PROCEED. IF THE CONTRACTOR PROCEEDS WITHOUT PRIOR WRITTEN AUTHORIZATION, IT IS AT THE CONTRACTORS RISK. ANY AND ALL COSTS INCURRED, THAT ARE REQUIRED TO PROVIDE A FULLY FUNCTIONAL IRRIGATION SYSTEM, WILL BE AT THE CONTRACTORS EXPENSE.

3. CONTRACTOR TO COORDINATE/MODIFY THE SCHEDULE OF EXISTING CROSSTOWN CONTROLLER WITH SCHEDULE OF PROPOSED CONTROLLER 'C1' AS APPLICABLE WITH ALL FIELD LOCATED EXISTING VALVES SWAPPED OVER TO PROPOSED IRRIGATION SYSTEM.

4. IRRIGATION CONTRACTOR SHALL ENSURE ALL EXISTING LANDSCAPES CONTINUE TO RECEIVE IRRIGATION, AS NEEDED, DURING CONSTRUCTION.

5. CONTRACTOR TO REFER TO *CROSSTOWN PKWY - SEG I* AS BUILT IRRIGATION PLANS FROM MASUEN CONSULTING DATED 07/27/2020.



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2021-L-490-00004

IRRIGATION PLAN

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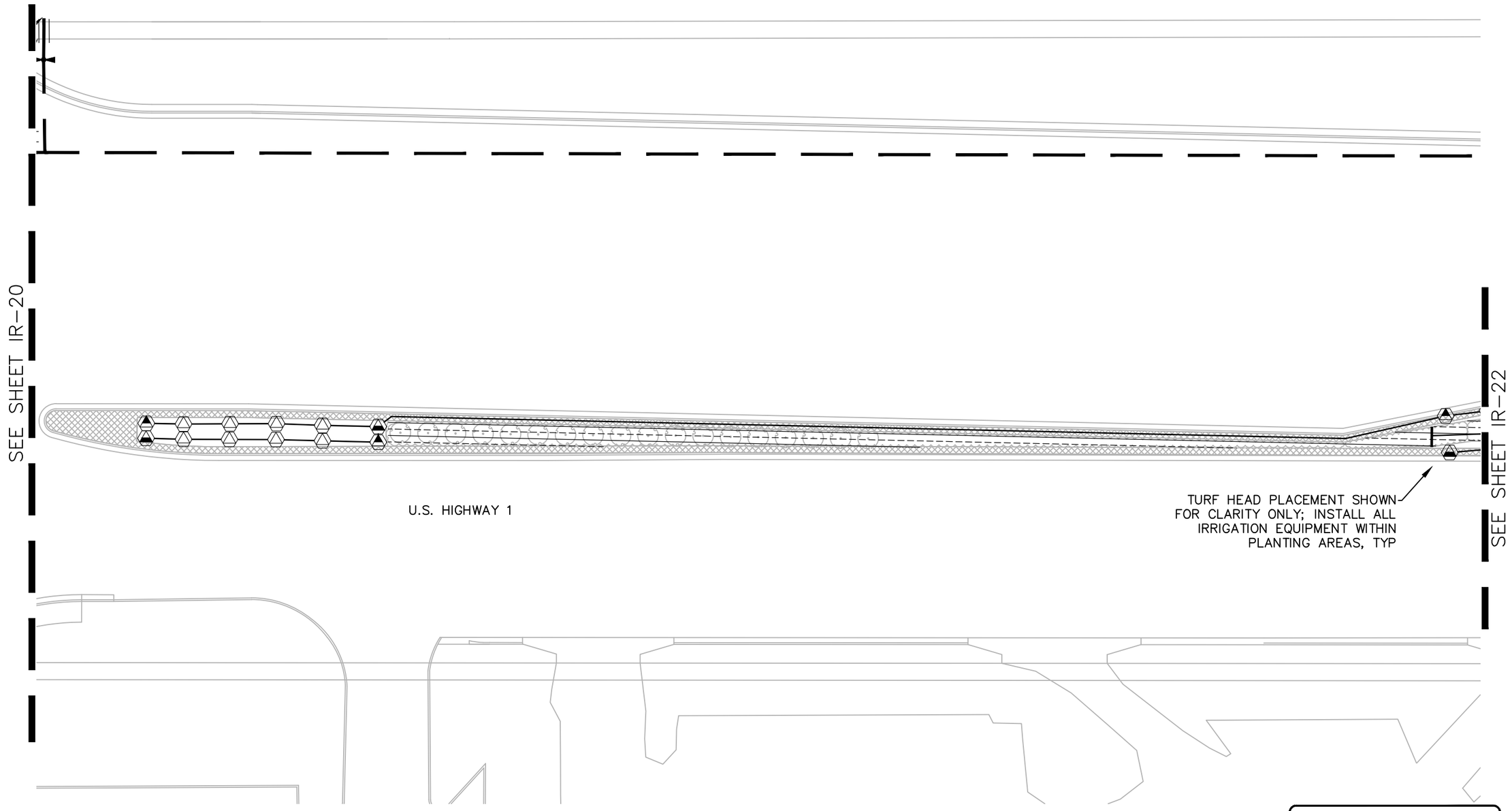
IR-20



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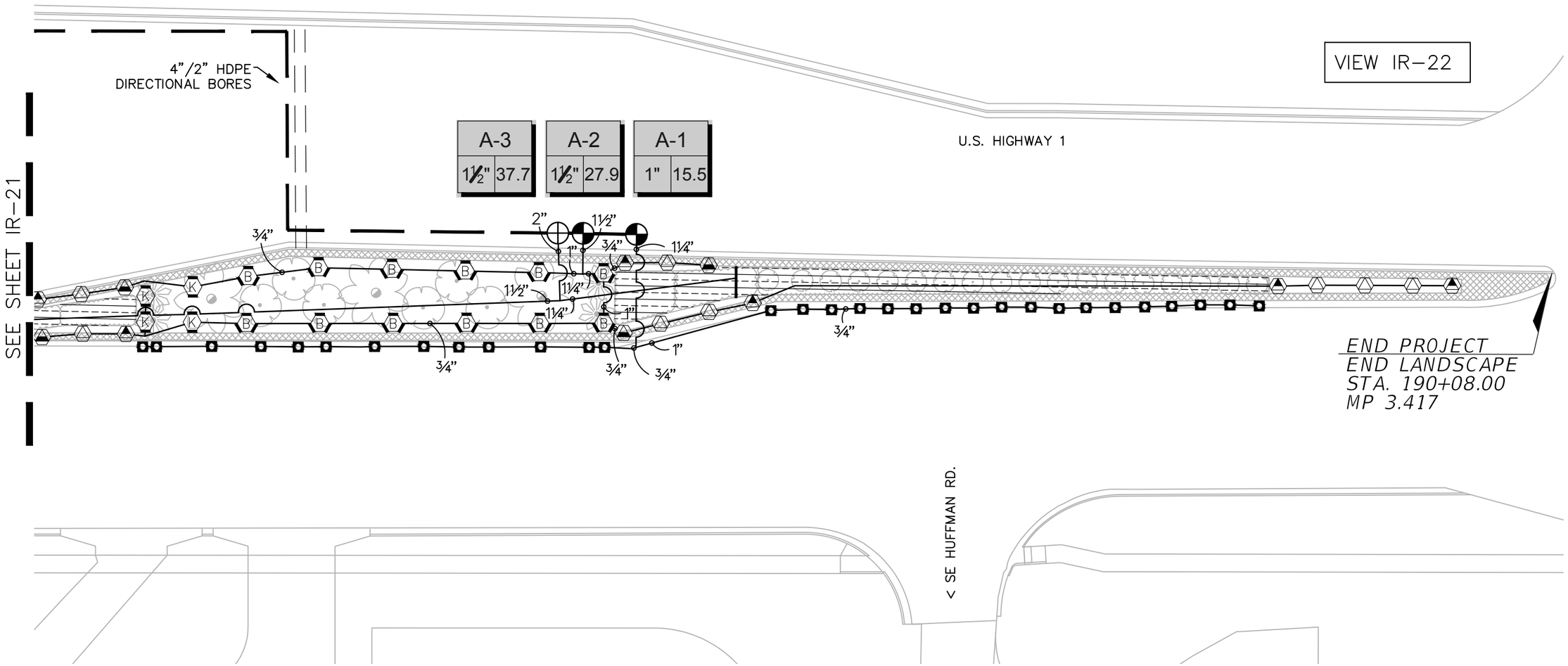
IRRIGATION PLAN

SHEET NO.
IR-21



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IRRIGATION PLAN

SHEET NO.
IR-22

IRRIGATION LEGEND

QTY	SYM	DESCRIPTION	DET.
	A-1 / 2" / 50.7	PUMP I.D. – STATION NUMBER GALLONS PER MINUTE–CATALOG FLOW VALVE SIZE	
34		RAIN BIRD PEB SERIES REMOTE CONTROL VALVE (SIZED PER PLAN) WITH A NIBCO T–113 GATE VALVE IN A CARSON 1220 JUMBO VALVE BOX WITH BOLT DOWN LID	B1
9		RAIN BIRD PEB SERIES REMOTE CONTROL VALVE WITH A #PRL303F3F OR #PR30–HF PRESSURE REGULATOR (BASED ON FLOW**), NIBCO T–113 GATE VALVE AND NETAFIM MANUAL DISC FILTER MODEL DF100/150/200 (PER MFG DIRECTION)–140, EACH IN A SEPARATE CARSON 1220 JUMBO VALVE BOX WITH BOLT DOWN LID	B2 B3
(6)		EXISTING RCVs, QTY ESTIMATED. REFER TO AS–BUILTS PLANS FOR CROSSTOWN BLVD. SEGMENT ONE DATED 07/24/2020 BY MASUSEN CONSULTING. RCVs TO BE CONNECTED TO PROPOSED MAINLINE AND CONTROLLER 'C1'	
1	A	PROPOSED HOOVER PUMPING SYSTEMS 7.5HP PUMP STATION 'A' MODEL HSF–7.5 PDV–230/3–H,M,R3,W,Z WITH MASTER VALVE/HOOVER FLOWGUARD VALVE, MAGNETIC FLOW METER, SHALL SERVE NORTH SECTION, UTILIZING A 6" WELL AS THE WATER SOURCE, NEW 230V/3PH ELECTRIC SERVICE REQUIRED. PUMP SHALL PROVIDE 55 GPM AT 50 PSI.	A1 A2
1	B	PROPOSED HOOVER PUMPING SYSTEMS 7.5HP PUMP STATION 'B' MODEL HSF–7.5 PDV–230/3–H,M,R3,W,Z WITH MASTER VALVE/HOOVER FLOWGUARD VALVE, MAGNETIC FLOW METER, SHALL SERVE MIDDLE SECTION, UTILIZING A 6" WELL AS THE WATER SOURCE, NEW 230V/3PH ELECTRIC SERVICE REQUIRED. PUMP SHALL PROVIDE 55 GPM AT 50 PSI.	A1 A2
1	C1	CONTROLLER 1, SHALL CONTROL NORTH SECTION: RAIN BIRD ESP–40SITE–S PEDESTAL MOUNT 40 STATION CONTROLLER, GROUNDING GRID, TIPPING RAIN CAN AND BASELINE WATERTEC S100 SOIL MOISTURE SENSOR INTERFACE MOUNTED IN PEDESTAL. PHONE LINE REQUIRED FOR MAXICOM CENTRAL CONTROL	C2 C3
1	C2	CONTROLLER 2, SHALL CONTROL MIDDLE SECTION: RAIN BIRD ESP–40SITE–S PEDESTAL MOUNT 40 STATION CONTROLLER, GROUNDING GRID, TIPPING RAIN CAN AND BASELINE WATERTEC S100 SOIL MOISTURE SENSOR INTERFACE MOUNTED IN PEDESTAL. PHONE LINE REQUIRED FOR MAXICOM CENTRAL CONTROL	C2 C3
2	MS	BASELINE WATERTEC S100 SOIL MOISTURE SENSOR biSENSOR INSTALLED ON SITE PER MANUFACTURER'S RECOMMENDATIONS. COMMUNICATION WIRE TO BE CONNECTED TO SMS INTERFACE AT CONTROLLER VIA 1" CONDUIT, INSTALL TO INTERRUPT THE COMMON	C3
12		AQUAFUSE CONTROLFLO DUCTILE IRON HDPE WELD–ON GATE VALVE WITH POLYETHYLENE ENDS (LINE SIZE) IN A CARSON 1419 BOX WITH BOLT DOWN LID	D
		CLASS 200 PVC LATERAL LINE W/ SCH 40 SOLVENT WELD PVC FITTINGS (SIZE PER PLAN, MINIMUM PIPE SIZE SHALL BE 3/4", NO 1/2" PIPES PERMITTED) TRANSITION FROM PVC TO HDPE DIRECTIONAL BORE IN JUMBO VALVE BOX ON EACH SIDE OF HARDSCAPE WHERE LATERALS CROSS UNDER HARDSCAPE	L
		4" DR11–4710 IPS H.D.P.E. MAINLINE WITH FUSION WELDED FITTINGS	L
		SCH 40 GRAY PVC CONDUIT W/SCH 40 SOLVENT–WELD PVC FITTINGS, SHOWN WHERE NOT WITH MAINLINE (SIZE PER PLAN)(TRANSITION FROM CONDUIT TO HDPE DIRECTIONAL BORE IN JUMBO VALVE BOX ON EACH SIDE OF HARDSCAPE WHERE CONDUIT CROSS UNDER HARDSCAPE)	
		DR11 HDPE DIRECTIONAL BORE OR CL 200 PVC SLEEVE (SIZE AND TYPE PER PLAN)	O

QUANTITIES GIVEN ARE FOR CONTRACTOR CONVENIENCE ONLY. THE ACCURACY IS NOT GUARANTEED. ALL QUANTITIES SHALL BE VERIFIED.

*DET (ON THE LEGEND) – THE LETTER IN THIS COLUMN DENOTES THE CORRESPONDING DETAIL SHOWN ON THE DETAIL SHEET.

IRRIGATION HEAD LEGEND

SYMBOL QUANTITY	SYMBOL	DESCRIPTION	DETAIL	DESIGN PSI	DESIGN GPM PER SYMBOL
392		EACH SYMBOL DENOTES TWO (2) RAIN BIRD 1804–SAM–1401 FLOOD BUBBLERS	Q	30	0.50
8	T	RAIN BIRD 1806–SAM–PRS–30 W/ HUNTER MPCORNER NOZZLE ADJ ARC 0–90	R	30	VAR
19	M	RAIN BIRD 1806–SAM–PRS–30 W/ HUNTER MP1000 NOZZLE MAROON ADJ ARC 90–210	R	30	VAR
576	K	RAIN BIRD 1806–SAM–PRS–30 W/ HUNTER MP2000 NOZZLE BLACK ADJ ARC 90–210	R	30	VAR
161	B	RAIN BIRD 1806–SAM–PRS–30 W/ HUNTER MP3000 NOZZLE BLUE ADJ ARC 90–210	R	30	VAR
1	LB	RAIN BIRD 1806–SAM–PRS–30 W/ HUNTER MP3500 NOZZLE LT. BROWN ADJ ARC 90–210	R	30	VAR
30		RAIN BIRD 1806–SAM–PRS–30 W/ HUNTER MPCORNER NOZZLE RST	R	30	VAR
40		RAIN BIRD 1806–SAM–PRS–30 W/ HUNTER MPCORNER NOZZLE LST	R	30	VAR
203		RAIN BIRD 1806–SAM–PRS–30 W/ HUNTER MPCORNER NOZZLE SST	R	30	VAR

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PUMP/WELL NOTES:

1. CONTRACTOR TO PROVIDE TWO NEW WELLS, BOTH UP TO 100' DEEP, WITH DIAMETER AS SPECIFIED. PROVIDE A LINE ITEM 'PER FOOT' COST FOR EACH ADDITIONAL FOOT OF DEPTH, IF NEEDED. CONTRACTOR SHALL NOT DRILL THE WELLS DEEPER THAN 100' WITHOUT RECEIVING PRIOR WRITTEN AUTHORIZATION. IF PRIOR AUTHORIZATION IS NOT OBTAINED, IN WRITING, NO ADDITIONAL MONIES WILL BE PAID.
2. AFTER THE WELLS ARE DRILLED, A STEP TEST MUST BE PERFORMED ON EACH WELL TO VERIFY THE WELLS CAN PRODUCE THE REQUIRED VOLUME OF WATER ON A CONTINUAL BASIS. THE STEP TEST MUST LAST 8 HOURS WITH WATER LEVEL MEASURED EACH HALF HOUR. PEAK DEMAND IS THE GPM IDENTIFIED IN THE POC NOTE ON THE NOTES SHEET:
   HOURS 1–2 – PUMP AT 50% OF PEAK DEMAND
   HOURS 3–4 – PUMP AT 75% OF PEAK DEMAND
   HOURS 5–6 – PUMP AT 100% PEAK DEMAND
   HOURS 7–8 – PUMP AT 125% OF PEAK DEMAND
   THE RESULTS OF THIS TESTS MUST BE APPROVED BY THE OWNER/OWNERS REPRESENTATIVE PRIOR TO THE INSTALLATION OF THE PUMPS OR IRRIGATION SYSTEM COMPONENTS. IF THE CONTRACTOR DOES NOT FOLLOW THESE REQUIREMENTS AND THE WELLS PROVE TO BE INSUFFICIENT, THE CONTRACTOR BEARS 100% OF THE RESPONSIBILITY AND COSTS TO CORRECT/MODIFY THE SYSTEM TO ACCOMMODATE THE EVENTUAL WATER SOURCES.
3. AFTER DRILLING THE WELLS, CHECK THE WATER QUALITY TO ENSURE THEY ARE SUITABLE FOR LANDSCAPE PLANTINGS. USE THE SERVICES OF A REPUTABLE, LICENSED LABORATORY ONLY. WATER QUALITY TESTING MUST INCLUDE pH, CONDUCTIVITY, SODIUM, POTASSIUM, CALCIUM, MAGNESIUM, CARBONATE, BICARBONATE, CHLORIDE, PHOSPHOROUS, NITRATE NO3, SULFATE SO4, BORON, IRON, TOTAL DISSOLVED SOLIDS, SODIUM ABSORPTION RATIO, AND HARDNESS. IF THE WATER IS DETERMINED SUITABLE CONTINUE IRRIGATION INSTALLATION. IF THE WATER QUALITY IS UNSUITABLE, DO NOT PROCEED WITHOUT WRITTEN DIRECTION FROM THE OWNER/OWNER'S REPRESENTATIVE.
4. IF HIGH IRON CONTENT (OR OTHER STAIN PRODUCING COMPOUND) IS DETECTED, ADVISE THE OWNER/OWNER'S REPRESENTATIVE. DO NOT PROCEED WITHOUT WRITTEN PERMISSION. IF A CHEMICAL INJECTION SYSTEM IS REQUIRED FOR EITHER PUMP/WELL, IT MUST BE DIRECTED BY THE OWNER AND INSTALLED BY THE PUMP SYSTEM MANUFACTURER.
5. THE WELL CASINGS SHALL BE GALVANIZED STEEL PIPE (SIZED PER PLAN).
6. THE PUMP DROP PIPES SHALL BE HDPE.
7. PRIOR TO INSTALLING ANY IRRIGATION SYSTEM COMPONENTS, THE CONTRACTOR SHALL OBTAIN A WATER SAMPLE FROM THE PROPOSED WATER SUPPLY. CONDUCT A PARTICLE SIZE AND COUNT ANALYSIS ON THE SAMPLE USING THE SERVICES OF A REPUTABLE LAB CERTIFIED IN SUCH ANALYSES. SUBMIT THE TEST RESULTS TO THE OWNER/OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL. DO NOT PROCEED FURTHER WITH SYSTEM INSTALLATION UNTIL GIVEN WRITTEN APPROVAL TO DO SO. IF CONTRACTOR DOES NOT COMPLY WITH THIS REQUIREMENT, ANY COSTS TO MAKE THE IRRIGATION SYSTEM OPERATE AS REQUIRED (WHICH WOULD NOT HAVE BEEN INCURRED HAD THESE REQUIREMENTS BEEN COMPLIED WITH), WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

CONTROL LEGENDS FOR THE TWO MAXICOM SYSTEMS

CONTROLLER C1
1. CONNECT THE FLOW METER AT PUMP STATION 'A' TO SENSOR PORT A
2. CONNECT THE ADJACENT TIPPING RAIN BUCKET SENSOR TO PORT B
3. CONNECT PUMP STATION MASTER VALVE TO MV1 CIRCUIT ON CONTROLLER C1
4. THE BASELINE SMS MUST BE INSTALLED TO INTERRUPT THE COMMON

CONTROLLER C2
1. CONNECT THE FLOW METER AT PUMP STATION 'B' TO SENSOR PORT A
2. CONNECT THE ADJACENT TIPPING RAIN BUCKET SENSOR TO PORT B
3. CONNECT PUMP STATION MASTER VALVE TO MV1 CIRCUIT ON CONTROLLER C2
4. THE BASELINE SMS MUST BE INSTALLED TO INTERRUPT THE COMMON

FDOT IRRIGATION NOTES

1. Provide FDOT maintenance 24–hour emergency access to water source.
2. Permittee's representative & an FDOT Inspector must be on site during all boring activities. Upon completion of the boring activities, Permittee shall provide all documentation to be in accordance with FDOT Standard Specifications, Section 555 or 556, whichever is applicable.
3. Permittee's contractors that are performing directional drilling and/or jack and bore activities shall provide the Department (Permits Office) proof of a proper state contractor's license and certificate of liability insurance prior to any commencement of permitted work.
4. Permittee will ensure that all locates have been performed prior to scheduling of any boring activities. This shall include soft digs to verify vertical and horizontal alignment. Contractor to provide 72 hrs notice to FDOT Maintenance Office prior to boring activities being performed.
5. Contractor shall provide FDOT District Operations Manager with a set of "As–Built" irrigation plans.
6. Sleeving must be 36" below the roadway. Verify with FDOT Maintenance that sleeving/directional bore is permitted at this time. A newly resurfaced road cannot be disturbed for 5 years.

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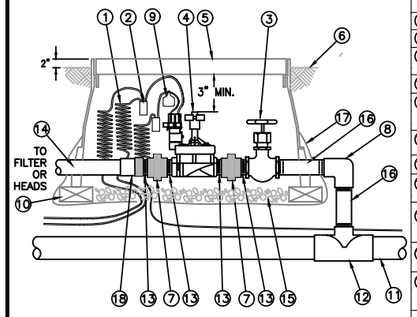
IRRIGATION LEGEND

SHEET NO.
IR–23

NOTE:
REFER TO PRODUCT LITERATURE FOR ADDITIONAL INSTALLATION AND ADJUSTMENT INFORMATION.

ALL SCH 80 NIPPLES ARE TO BE CONTINUOUS AND THREADED ON BOTH SIDES

THE INTENT OF THE FABRIC IS TO KEEP THE VALVE BOX FREE OF DIRT/DEBRIS. FILTER FABRIC SHOULD SPAN BASE OF VALVE BOX AND BE SECURED A MINIMUM OF 6" UP FROM BASE VIA DUCT TAPE AROUND SIDES OF VALVE BOX. FABRIC SHOULD CONTAIN NO HOLES EXCEPT FOR WIRE/PIPES AS APPLICABLE.



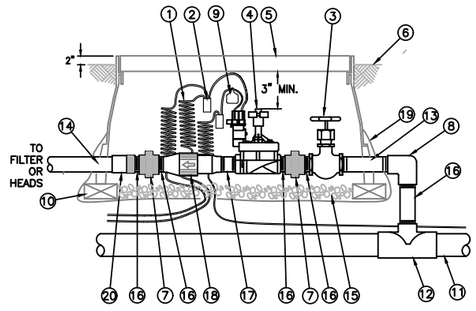
1. 30-INCH LINEAR LENGTH OF WIRE, COILED.
2. 3M DBR/Y-6 CONNECTORS PER MANUFACTURER SPEC
3. NIBCO T-113 BRONZE GATE VALVE
4. REMOTE CONTROL VALVE: RAINBIRD PEB OR PEB-PRS-D (AS DENOTED IN LEGEND)
5. CARSON 1220 JUMBO VALVE BOX W/ BOLT DOWN LID
6. FINISH GRADE/TOP OF MULCH
7. SCH 80 PVC UNION
8. PVC SCH 80 ELL
9. CHRISTY I.D. TAG (STATION/CONTROLLER)
10. COMMON BRICK (1 OF 4)
11. IRRIGATION MAINLINE - SIZE AND TYPE AS SPECIFIED
12. SERVICE TEE - SIZE, TYPE AND MAKE PER MAINLINE SPEC.
13. PVC SCH 80 CLOSE NIPPLE
14. SOLVENT WELDED PVC LATERAL PIPE
15. 3.0-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
16. PVC SCH 80 NIPPLE (SIZE AS REQUIRED)
17. SB3 LANDSCAPE FABRIC TO BE DUCT TAPED TO VALVE BOX EXTERIOR.
18. PVC SCH 80 THREADED X SLIP FEMALE ADAPTER

B1 RAIN BIRD RCV W/GATE VALVE

NOTE:
REFER TO PRODUCT LITERATURE FOR ADDITIONAL INSTALLATION AND ADJUSTMENT INFORMATION.

ALL SCH 80 NIPPLES ARE TO BE CONTINUOUS AND THREADED ON BOTH SIDES

THE INTENT OF THE FABRIC IS TO KEEP THE VALVE BOX FREE OF DIRT/DEBRIS. FILTER FABRIC SHOULD SPAN BASE OF VALVE BOX AND BE SECURED A MINIMUM OF 6" UP FROM BASE VIA DUCT TAPE AROUND SIDES OF VALVE BOX. FABRIC SHOULD CONTAIN NO HOLES EXCEPT FOR WIRE/PIPES AS APPLICABLE.



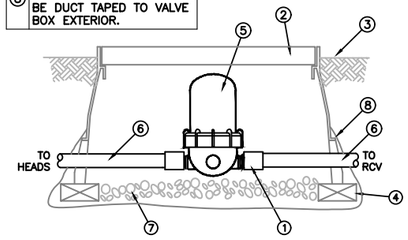
1. 30-INCH LINEAR LENGTH OF WIRE, COILED.
2. 3M DBR/Y-6 CONNECTORS PER MANUFACTURER SPEC
3. NIBCO T-113 BRONZE GATE VALVE
4. REMOTE CONTROL VALVE: RAIN BIRD PEB
5. CARSON 1220 JUMBO VALVE BOX W/ BOLT DOWN LID
6. FINISH GRADE/TOP OF MULCH
7. SCH 80 PVC UNION
8. PVC SCH 80 ELL
9. CHRISTY I.D. TAG (STATION/CONTROLLER)
10. COMMON BRICK (1 OF 4)
11. IRRIGATION MAINLINE - SIZE AND TYPE AS SPECIFIED
12. SERVICE TEE - SIZE, TYPE AND MAKE PER MAINLINE SPEC.
13. PVC SCH 80 THREADED NIPPLE (LENGTH AS REQ.)
14. SOLVENT WELDED PVC LATERAL PIPE
15. 3.0-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
16. 1"X2" PVC SCH 80 THREADED NIPPLE
17. 1"X3" PVC SCH 80 THREADED NIPPLE
18. PRESSURE REGULATOR (PER LEGEND)
19. SB3 LANDSCAPE FABRIC TO BE DUCT TAPED TO VALVE BOX EXTERIOR.
20. PVC SCH 80 THREADED X SLIP FEMALE ADAPTER

B2 RAIN BIRD RCV W/ GATE VALVE + PRESSURE REGULATOR

1. SCH 80 PVC SxT FEMALE COUPLER (1 OF 2)
2. CARSON 1220 JUMBO VALVE BOX W/ BOLT DOWN LID
3. FINISH GRADE/TOP OF MULCH
4. COMMON BRICK (1 OF 4)
5. NETAFIM DISC FILTER MODEL DF100/150/200 -140 (SIZE PER MFG DIRECTION)
6. PVC LATERAL PIPE
7. 3.0-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
8. SB3 LANDSCAPE FABRIC TO BE DUCT TAPED TO VALVE BOX EXTERIOR.

NOTE:

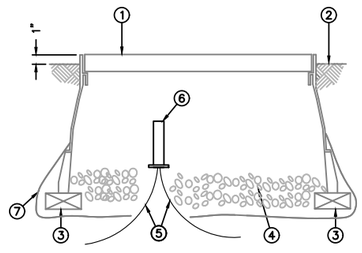
THE INTENT OF THE FABRIC IS TO KEEP THE VALVE BOX FREE OF DIRT/DEBRIS. FILTER FABRIC SHOULD SPAN BASE OF VALVE BOX AND BE SECURED A MINIMUM OF 6" UP FROM BASE VIA DUCT TAPE AROUND SIDES OF VALVE BOX. FABRIC SHOULD CONTAIN NO HOLES EXCEPT FOR WIRE/PIPES AS APPLICABLE.



B3 NETAFIM FILTER

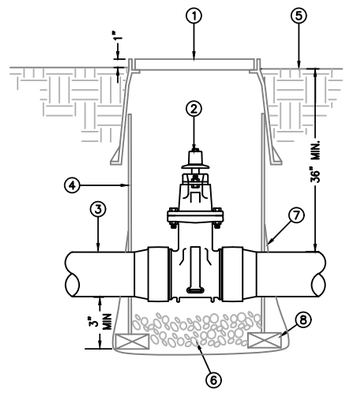
FILTER FABRIC SHOULD SPAN BASE OF VALVE BOX AND BE SECURED A MINIMUM OF 6" UP FROM BASE VIA DUCT TAPE AROUND SIDES OF VALVE BOX. FABRIC SHOULD CONTAIN NO HOLES EXCEPT FOR WIRE AND PIPES (IF APPLICABLE) AS SHOWN.

1. SPLICE BOX WITH COVER: 12-INCH SIZE
2. FINISH GRADE/TOP OF MULCH
3. BRICK (1 OF 4)
4. 3.0-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
5. DIRECT BURIAL LOW VOLTAGE CONTROL WIRE (TYP.)
6. 3M-DBY WATER PROOF CONNECTOR (TYP.)
7. US SB3 LANDSCAPE FABRIC TO BE DUCT TAPED TO VALVE BOX EXTERIOR.



C WIRE SPLICE

1. CARSON 1419 VALVE BOX W/BOLT-DOWN LID
2. AQUAFUSE CONTROLFLO DUCTILE IRON HDPE WELD-ON GATE VALVE WITH POLYETHYLENE ENDS (LINE SIZE)
3. HDPE IPS MAIN LINE - SIZE/DR PER PLANS
4. VALVE BOX EXTENSION LENGTH AS REQUIRED
5. FINSHED GRADE/SURFACE
6. 3.0-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
7. US SB3 LANDSCAPE FABRIC TO BE DUCT TAPED TO VALVE BOX EXTERIOR.
8. COMMON BRICK (1 OF 4)



FILTER FABRIC SHOULD SPAN BASE OF VALVE BOX AND BE SECURED A MINIMUM OF 6" UP FROM BASE VIA DUCT TAPE AROUND SIDES OF VALVE BOX. FABRIC SHOULD CONTAIN NO HOLES EXCEPT FOR WIRE AND PIPES (IF APPLICABLE) AS SHOWN.

D AQUAFUSE CONTROLFLO DUCTILE IRON GATE VALVE

Masuen Consulting LLC
Water Management Consultants
301 S. Washington, Suite F
Newport, WA 99156
Telephone (866) 928-1533
Fax (800) 928-1534

PROUDLY DESIGNED AND PRODUCED IN THE USA

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
Sabine Lang-Marks LA-0001733

MASUEN CONSULTING
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Newport, WA 99156
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

IRRIGATION DETAILS

SHEET NO.
IR-24

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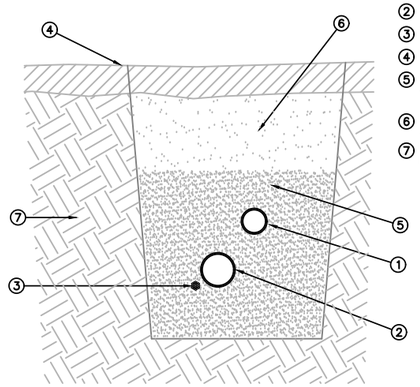
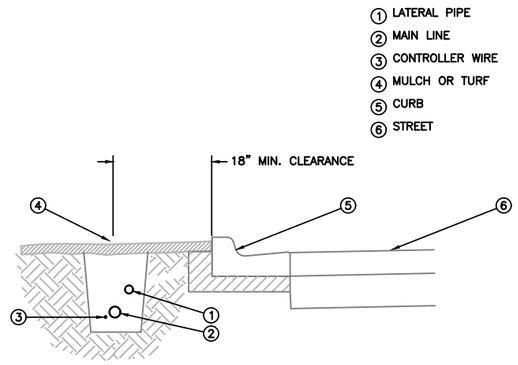


NOTES:

BACKFILL MINIMUM DEPTHS:
1. MAIN LINE – 24"
2. LATERAL PIPE – 18"

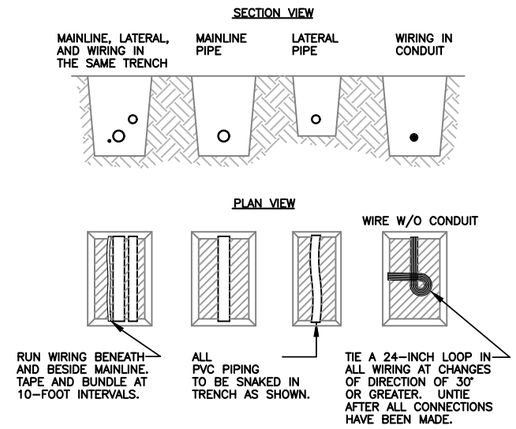
L MAINLINE AND LATERAL BACKFILL DETAIL



NOTES:

BACKFILL MINIMUM DEPTHS:
1. MAIN LINE – 24"
2. LATERAL PIPE – 18"

L MAINLINE AND LATERAL PIPING DETAIL



NOTES:
1. SLEEVE BELOW ALL HARDSCAPE ELEMENTS WITH CL 200 PVC TWICE THE DIAMETER OF THE PIPE OR WIRE BUNDLE WITHIN – MINIMUM OF 2"
2. FOR PIPE AND WIRE BURIAL DEPTHS SEE SPECIFICATIONS.

L PIPE AND WIRE TRENCHING

NOTES:

1. Contractor to duct tape ends of HDPE to keep it clean and clear.
2. Contractor to stake end of each sleeve above ground and paint florescent orange.
3. Contractor to provide a 3' minimum depth of coverage on all sleeves

O HDPE DIRECTIONAL BORE

NOTES:
1. ALL PVC IRRIGATION SLEEVES TO BE CL 200 PVC PIPE.
2. ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.
3. MECHANICALLY TAMP TO 95% PROCTOR.

O SLEEVING

REVISIONS			
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Landscape Architect of Record:
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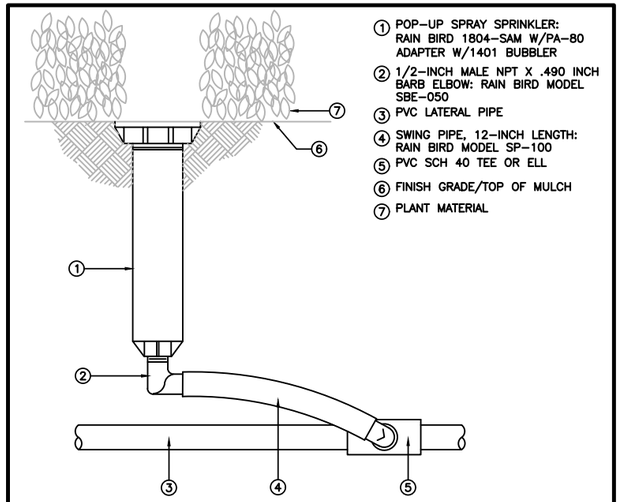
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

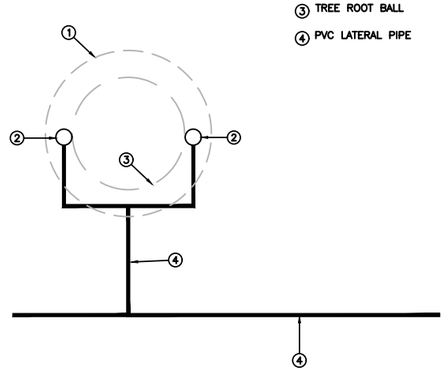
IRRIGATION DETAILS

SHEET NO.
IR–25



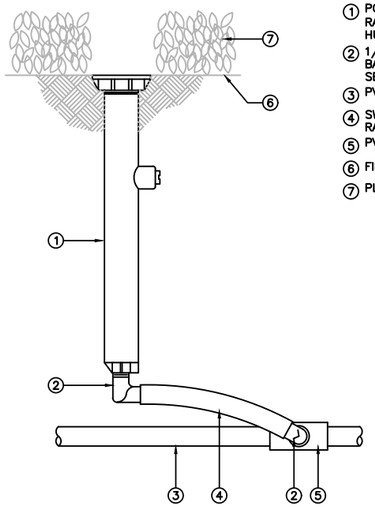
1. POP-UP SPRAY SPRINKLER: RAIN BIRD 1804-SAM W/PA-80 ADAPTER W/1401 BUBBLER
2. 1/2-INCH MALE NPT X .490 INCH BARB ELBOW: RAIN BIRD MODEL SBE-050
3. PVC LATERAL PIPE
4. SWING PIPE, 12-INCH LENGTH: RAIN BIRD MODEL SP-100
5. PVC SCH 40 TEE OR ELL
6. FINISH GRADE/TOP OF MULCH
7. PLANT MATERIAL

Q RAIN BIRD 1804-SAM POP-UP WITH 1401 BUBBLER



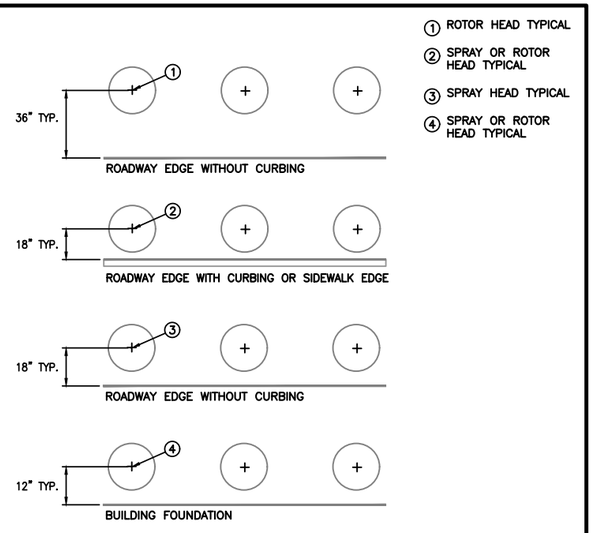
1. EARTHEN BERM – SEE LANDSCAPE PLANS
2. FLOOD BUBBLER (PER PLANS, SEE LEGEND)
3. TREE ROOT BALL
4. PVC LATERAL PIPE

Q BUBBLER PLACEMENT



1. POP-UP SPRAY SPRINKLER: RAIN BIRD 1812-SAM-PRS W/ HUNTER MP ROTATOR NOZZLE
2. 1/2-INCH MALE NPT X .490 INCH BARB ELBOW: RAIN BIRD MODEL SBE-050
3. PVC LATERAL PIPE
4. SWING PIPE, 12-INCH LENGTH: RAIN BIRD MODEL SP-100
5. PVC SCH 40 TEE OR ELL
6. FINISH GRADE/TOP OF MULCH
7. PLANT MATERIAL

S RAIN BIRD 1812 SAM-PRS SPRAY



1. ROTOR HEAD TYPICAL
2. SPRAY OR ROTOR HEAD TYPICAL
3. SPRAY HEAD TYPICAL
4. SPRAY OR ROTOR HEAD TYPICAL

T POP-UP HEAD TO HARDSCAPE LOCATION DETAIL-A

Masuen Consulting LLC
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PROUDLY DESIGNED AND PRODUCED IN THE USA

REVISIONS			
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MASUEN CONSULTING
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Newport, WA 99156
866-928-1533 Fax: 800-928-1534

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
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2021-L-490-00004

IRRIGATION DETAILS

SHEET NO.
IR-26

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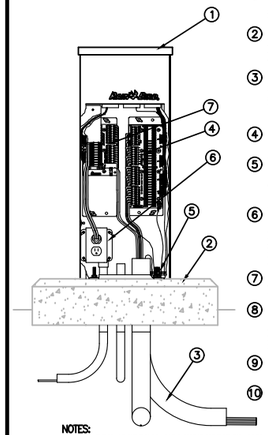


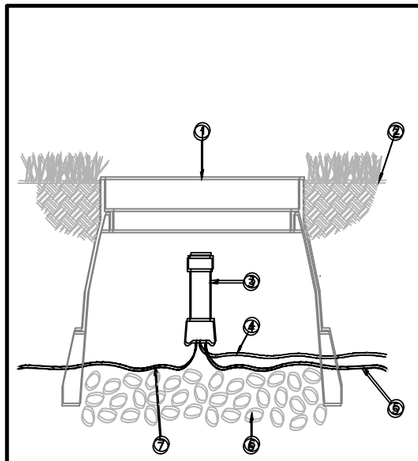
1. RAIN BIRD STAINLESS STEEL PEDESTAL WITH RAIN BIRD ESP-40SITE-S CONTROLLER (UL LISTED-OUTDOOR LAWN SPRINKLER CONTROL.)
2. MINIMUM 3,000 PSI CONCRETE BASE WITH VARIOUS CONDUIT PENETRATIONS AND SWEEP ELLS AS SHOWN. (2' X 2' X 6" SIZE)
3. SCHEDULE 40 PVC "GRAY" CONDUIT WITH SWEEP EL SIZED IN ACCORDANCE WITH NEC FOR VARIOUS WIRE SIZE AND COUNTS. (MIN. 600-VOLT INSULATION REQUIRED.)
4. ESP-SITE OUTPUT BOARD FOR STAINLESS STEEL PEDESTALS (1-24 STATION) M81000.
5. GROUND BONDING LUG PROPERLY ATTACHED TO ELECTRICAL ENCLOSURE AND SIZED TO ACCOMMODATE ALL GROUND WIRING WITH A SINGLE CONDUCTOR INSTALLED IN EACH SCREW TERMINAL.
6. SURGE SUPPRESSION RECEPTACLE. INSTALL IN A PROPERLY SIZED ENCLOSURE WITH COVER. ALL CONNECTED EQUIPMENT SHALL UTILIZE A PROPERLY SIZED "3 PRONG" POWER CORD WITH MINIMUM 600-VOLT INSULATION.
7. MSP-1 SURGE PIPE KIT-M81300 (USE SINGLE HOLE 3/4" PIPE STRAP ON WALL MOUNT APPLICATIONS.)
8. REA # PE 39 DIRECT BURIAL (#19-3) PHONE EXCHANGE CABLE (3 PAIR MINIMUM). CONNECT GROUND BONDING CLAMP FROM COMMUNICATION WIRE SHIELD TO MULTI-LUG TERMINAL.
9. ESP-SITE OUTPUT BOARD FOR STAINLESS STEEL PEDESTALS (1-24 STATIONS) M81000.
10. ESP-SITE OUTPUT BOARD FOR STAINLESS STEEL PEDESTALS (25-40 STATIONS) M81100.

NOTES:
ALL DETAILS PROVIDED ARE DIAGRAMMATIC AND MUST BE UTILIZED FOR INSTALLATION ONLY BY A LOCALLY LICENSED ELECTRICAL INSTALLER IN ACCORDANCE WITH BOTH NATIONAL AND LOCAL ELECTRICAL CODE REQUIREMENTS.

NO CHANGES, MODIFICATIONS, ADDITIONS OR DELETIONS SHALL BE MADE TO ANY UL LISTED EQUIPMENT AND INSTALLATION SHALL CONFORM TO THE ORIGINAL EQUIPMENT MANUFACTURER'S RECOMMENDATIONS OR NEC, WHICHEVER IS THE MOST CONSERVATIVE METHOD.

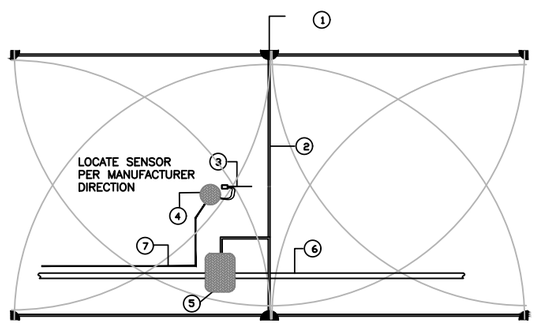
ALL WIRE, CONDUIT AND ENCLOSURES SHOWN IN THE ASSOCIATED DETAIL ARE DIAGRAMMATIC. PROPER SIZING SHALL BE THE RESPONSIBILITY OF THE LOCALLY LICENSED ELECTRICAL INSTALLER.

C2 ESP-40SITE-S CONTROLLER



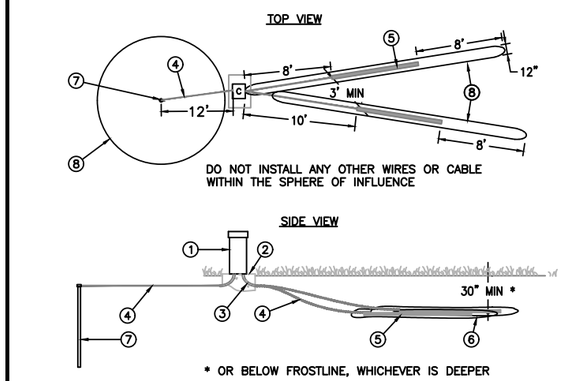
1. VALVE BOX AND COVER
2. FINISH GRADE
3. WIRE SPLICE KIT: PREFORMED LINE PRODUCTS SUPER SEAL CLOSURE
4. CABLE FROM OPTIONAL TAP SPLICE
5. CABLE TO FIELD
6. 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
7. CABLE FROM SOURCE

C PE-39 WIRE SPLICE



1. SPRINKLER HEAD
2. LATERAL LINE PER PLANS
3. BASELINE MOISTURE SENSOR
4. 6" ROUND JUNCTION BOX
5. RECTANGULAR STANDARD OR JUMBO VALVE BOX
6. MAIN LINE SIZE PER PLANS
7. BASELINE 14 GA. CONTROL WIRE TO CONTROLLER IN 1" SCH 40 PCV CONDUIT

C3 SOIL MOISTURE SENSOR



1. CONTROLLER/PUMP CONTROL PANEL (IF APPLICABLE)
2. CONCRETE PAD
3. PVC SWEEP ELL (1 1/2" OR LARGER)
4. #6 AWG INSULATED COPPER WIRES.
5. GROUND PLATE (4" X 96" X .0625")
6. EARTH CONTACT MATERIAL
7. GROUND ROD (5/8" X 10')
8. ELECTRODE SPHERE OF INFLUENCE BOUNDARIES

C GROUNDING DETAIL

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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Sabine Lang-Marks LA-0001733

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Newport, WA 99156
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STATE OF FLORIDA
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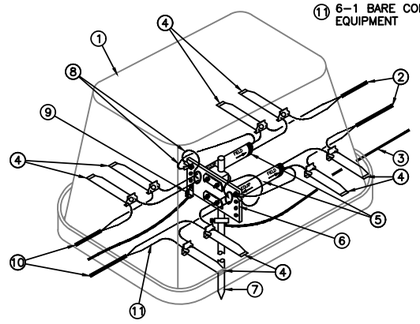
SR 5	ST. LUCIE	

2021-L-490-00004

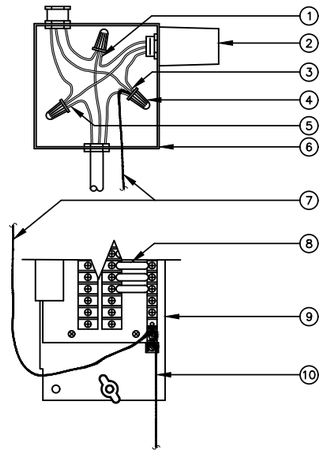
MAXICOM DETAILS

SHEET NO.
IR-27

① INSTALL A CARSON BROOKS JUMBO VALVE BOX ENCLOSING MGP-1, MSP-1, AND GROUND ROD AT GRADE FOR FUTURE ACCESS
② MAXI COMMUNICATION CABLE TO FIELD DECODERS OR SATELLITES
③ 6-1 BARE COPPER TO GROUND GRID
④ 3M DBR DIRECT BURIAL SPLICE KITS
⑤ MSP-1 SURGE ARRESTOR MOUNTED INTO MGP-1 GROUND PLATE ASSEMBLY
⑥ MGP-1 GROUNDING PLATE ASSEMBLY – CLAMPED TO GROUNDING ROD
⑦ 5/8" DIA. X 8'-0" UL LISTED COPPER CLAD GROUND ROD. TOP TO BE 6" BELOW GRADE.
⑧ MSP-1 GROUND WIRES (GREEN) – CONNECT TO GROUNDING SCREWS ON MGP-1 GROUNDING PLATE ASSEMBLY
⑨ PANDUIT CX-35 GROUND LUG (FOR GROUND WIRES AS REQ'D)
⑩ MAXI-CABLE 2-WIRE PATH FROM MIM OR LINE TERMINATION BOX (COLOR PER SPEC)
⑪ 6-1 BARE COPPER FROM CENTRAL EQUIPMENT

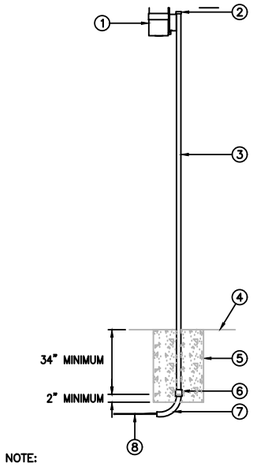


C MGP-1 GROUNDING PLATE WITH MSP-1 SURGE PIPES



① HOT WIRES
② INTERMATIC AG2401 SURGE ARRESTOR
③ GROUND WIRES (GREEN)
④ WIRE NUT (1 OF 3)
⑤ COMMON WIRES
⑥ 4"X4" ELECTRICAL BOX FOR 120 VAC POWER
GROUND WIRE FROM ELECTRICAL BOX TO GROUND STRIP OF TERMINAL BLOCK OR DIRECTLY TO THE GROUNDING ROD GRID
⑧ MOV SURGE ARRESTOR (TYPICAL)
⑨ CONTROL WIRE TERMINAL STRIP
#10 OR LARGER BASE COPPER GND WIRE RUN TO GROUNDING
⑩ ROD GRID (3 RODS SUGGESTED) MAKE GROUNDING WIRE AS SHORT AND AS STRAIGHT AS POSSIBLE

C 120 VOLT SURGE SUPPRESSION



① TIPPING BUCKET RAIN GAUGE
② 2" GALVANIZED STEEL CAP
③ 2"X14' GALVANIZED STEEL PIPE
④ FINISH GRADE
⑤ CONCRETE FOOTING – MINIMUM OF 3' DEEP BY 12" DIAMETER
⑥ 2" PVC SCH 80 FEMALE ADAPTER
⑦ 2" GRAY PVC ELECTRICAL SWEEP
⑧ WIRE FROM RAIN CAN TO CCU/SITE SAT

NOTE:
1. CONTRACTOR TO RUN WIRE FROM RAIN CAN TO CCU/SITE SAT IN 1" PVC ELECTRICAL CONDUIT BY BUSHING DOWN FROM 2" TO 1" AT SWEEP.

I RAIN CAN

Masuen Consulting LLC
Water Management Consultants
301 S. Washington, Suite F
Newport, WA 99156
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Fax (800) 928-1534

MAXICOM NOTES & SPECIFICATIONS

MAXICOM design based on Irrigation plans for the City of Port St. Lucie for US1 medians from Westmoreland to Village Green. Contractor shall refer to these plans to coordinate controller, flow sensors, wiring, etc. installation with the general contractor and any and all other affected trades.

Each system has been designed to conform with the requirements of all applicable codes. Should any conflict exist, the requirements of the codes shall prevail. It is the responsibility of the owner/installation contractor to insure the entire system is installed according to all applicable laws, rules, regulations and conventions.

THE WORK

The work specified in this section consists of furnishing, testing, and delivering all components necessary for a Rain Bird Maxicom2 central control system. This system shall fully comply with the current MAXICOM2 installation manual, Maxicom plans, specifications, notes, details and all applicable laws, regulations, codes and ordinances. This work shall include, but not be limited to, the providing of all required material (SAT Controllers, SITE SATS, flow sensors, master valves, rain cans, fittings, surge protection, grounding, wire, etc.), layout, protection to the public, excavation, assembly, installation, back filling, compacting, repair of road surfaces, controller and low voltage feeds from valves to pump station, meters, etc., cleanup, maintenance, guarantee and as-built plans.

There are two irrigation controllers proposed, C1 AND C2. Both controllers are Rain Bird MAXICOM2 ESP-40SITE-S using a phone line to access the SITE CONTROLLER/CCU to communicate between the SITE controllers and the central monitoring computer. The contractor shall coordinate the installation and setup of these phone lines. The fees associated with initial installation/connection and on going monthly fees will be paid by the City of Port Saint Lucie.

Contractor shall verify all underground utilities 72 hours prior to commencement of work.

It is the responsibility of the installation contractor to familiarize himself with all grade differences, location of walls, retaining walls, structures and utilities. Do not willfully install any components, as shown on the drawings, when it is obvious in the field that unknown obstructions, grade differences or differences in the area dimensions exist that might not have been considered in the engineering. Such obstructions, or differences, should be brought to the attention of the owner's authorized representative. In the event this notification is not performed, the installation contractor shall assume full responsibility for any revisions necessary.

The installation contractor shall repair or replace all items damaged by his work. He shall coordinate his work with other contractors for the location and installation of wire sleeves through walls, under roadways and paving, etc.

The contractor shall take immediate steps to repair, replace, or restore all services to any utilities which are disrupted due to his operations. All costs involved in disruption of service and repairs due to negligence on the part of the contractor shall be his responsibility.

ELECTRICAL POWER SUPPLY

Electrical supply for the controller to be provided by installation contractor. Contractor to coordinate with local utilities for the installation of, and connection to, site available power supply's for required electrical components as set forth in the Maxicom plans.

All electrical to comply with the National Electrical Code and any, and all, other applicable electrical codes, laws and regulations.

WIRING

Irrigation control wire shall be thermoplastic solid copper, single conductor, low voltage irrigation controller wire; for direct burial and continuous operation at rated voltages.

Tape and bundle control wires every 10'. At all turns in direction make a 2' coil of wire. Make electrical connections with 3M DBR/Y-6 connectors when connections are below grade and/or exposed to the weather.

Number all wires, using an electrical book of numbers, according to the plans. Number wires in all valve boxes, junction boxes and at the controller.

Wire sized, numbered and colored as follows for master valve control only:
#12 white for common
#12 spare black common
#12 red for hot wires
#12 spare yellow hot wire

MAXICOM2 'two wire' (for communication between flow meters/rain cans) shall be PE-39 'three pair' #19 wire installed in 1.5" PVC grey conduit using Carson 1419 valve boxes as 'pull boxes' set a maximum of 300' apart and at all changes in direction.

Controller grounding – Contractor to utilize 4"X8'X5/8" copper grounding plates, 5/8"X10' copper clad grounding rods, Cadweld 'one-shot' at all connection points, #6 bare copper wire, and earth contact material. Install these and other required components as outlined in the details. Contractor to verify that the earth to ground resistance does not exceed 10 ohms. Contractor shall provide a written certification, on an electrical contractors letter head, showing the date of the test, controller location, and test results. Each controller, CCU, and weather station shall be tested.

EQUIPMENT

All equipment shall be as specified on the plans and required in the current MAXICOM2 installation manual. All components must be installed in a manner to ensure compliance with all Federal, state, and local laws, rules, regulations, etc.

LAYOUT

Location of components, as shown on the MAXICOM2 plans, is diagrammatic in nature. The exact location of installation for each component shall be field determined and must comply with the latest MAXICOM2 installation manual. No deviations from this manual are allowed without prior written approval from the owner or owners authorized representative.

TRENCHING

Excavate straight and vertical trenches with smooth, flat or sloping bottoms. Trench width and depth should be sufficient to allow for the proper depth of coverage to provide adequate protection and comply with any and all laws, codes, regulations, etc. In no instance shall the Maxicom wire, control wires, etc. be installed with less than two (2) feet of coverage as measured from top of finished grade.

Protect existing landscaped areas. Remove and replant any damaged plant material upon job completion. The replacement material shall be of the same genus and species, and of the size of the material it is replacing. The final determination as to what needs to be replaced and the acceptability of the replacement material shall be solely up to the owner or owner's representative.

INSTALLATION

All major components are shown on the MAXICOM2 plans, notes, and details. However, all required components necessary to provide a fully functional Maxicom 2 system must be included and be in strict compliance with the current MAXICOM2 installation manual. The contractor should refer to this manual to ensure all required components, whether specifically identified in these plans or not, is included in their proposal and installation.

BACKFILL

Wiring shall be installed so the following minimum back fill depths are maintained:
24" for all wire whether installed in conduit or not.
36" for all wire installed in sleeving under roadways and walks.

Backfill shall be of suitable material free of rocks, stones, or other debris.

MAXICOM
The irrigation system shall be controlled by a Rain Bird Maxicom2 central control system. Contractor is responsible for providing a fully functional Maxicom2 system including all field components. No computer or monitoring software is included.

FINAL ACCEPTANCE

Final acceptance of the Maxicom2 control system will be given after the following documents and conditions have been completed and approved. Final payment will not be released until these conditions are satisfied.

1. Final walk-thru and correction of all punch list items.
2. Completion and acceptance of 'as-built' drawings.
3. Acceptable field demonstration of the entire Maxicom2 control system.
4. Written verification showing the grounding (earth to ground resistance) at the pump station and SITE-SAT. is less than 10 ohms.

GUARANTEE: The Maxicom2 system shall be guaranteed for a minimum of one calendar year from the time of final acceptance.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

MAXICOM DETAILS & NOTES

SHEET NO.
IR-28

NETAFIM™ IRRIGATION NOTES

PART 1 – SUBMITTALS

1.01 Submit (5) five copies of manufacturers catalog cut sheets of the following listed items:

1. Netafim dripper tubing specified with pressure compensating emitters
2. Netafim insert barbed fittings
3. Netafim in–line disc filter
4. Netafim pressure regulator
5. Stainless steel clamps
6. Metal ground stakes for tubing
7. PVC threaded and insert fittings

1.02 Spare parts – upon completion of the installation, turn over the following spare parts and specialty tool to the owner's authorized representative. Include with the following quantities of items a list of each part with appropriate part number (for ordering replacement products) and local supply store of where these parts can be purchased:

(10') Of dripper line for each dripper interval and discharge rate used on the project
(6) Barbed couplings
(6) Barbed 90 degree elbow fittings
(6) Barbed tee fittings
(6) 180 degree 2–way adapter tee fittings
(6) Male adapters with 3/4" fpt
(1) Spare filter element of the same mesh size used on the project

PART 2 – MATERIALS

2.10 Piping materials – Netafim pressure compensating landscape dripline model TLHCVXR–CS–077–12 with copper stripe, check valve and anti–siphon feature shall be of nominal sized one–half inch low density, ultraviolet resistant, linear polyethylene tubing with internal pressure–compensating, self–cleaning, integral drippers (each with a built in check valve) at a specified interval. The tubing shall be brown in color and shall conform to an outside diameter (O.D.) of .66" and an inside diameter (I.D.) of .56". The low volume tubing shall be capable of discharging .77 gallons per hour (G.P.H.) between operating pressures of 15 to 50 PSI for each dripper. The individual self–cleaning, pressure–compensating drippers shall be co–extruded to the inside of the tubing wall. The emitters are constructed of three individual pieces:

1. A black–colored dripper containing a filtration system on the inlet side, compensation cell, and recessed chamber with a water outlet.
2. A hard plastic diaphragm retainer, colored black (0.77 gph) with chamfered edges and a recessed groove in the center, the full length of the diaphragm.
3. A flexible black rubber diaphragm that allows excessive pressure to build up within the chamber to purge sediment or other debris that may not have been captured by the disc filter.

2.20 Insert barbed fittings – shall be constructed of molded, ultraviolet resistant, brown colored plastic having a nominal inside dimension (I.D.) of .56". Each fitting shall have a minimum of two ridges or barbs per outlet. All fittings shall be of one manufacturer and shall be available in one of the following end configurations:

– Barbed insert fittings
– Male pipe threads (MPT) with barbed insert fittings
– Female pipe threads (FPT) with barbed insert fittings

2.30 Pressure regulation valves –Pressure regulation is required for all drip valves. Refer to legend.

2.40 Disc filter – the disc filter body shall be molded black plastic with male pipe threads (MPT) for both the inlet and the outlet ports. A threaded cap on one end of the body shall be capable of periodic servicing by unscrewing the cap from the main filter body. On the 3/4" model, a manual shutoff valve shall be co–molded to the opposing end of the removable cap as a part of the main body. This device shall be capable of closing off the inlet port so the disc element can be removed when the main line is still pressurized. The filter elements shall be either a disc–type or a canister screen filter. The disc–type shall be color coded in one of four colors denoting filtration of 80,120,140, and 200 mesh. The canister type screen shall be available in three levels of filtration, 80,120, and 140 mesh.

2.50 Stainless steel clamps – tubing clamps shall be constructed to 304 ANSI stainless steel and shall be one 'ear' type. The 'ear' shall be capable of being pinched with a pinching tool to secure the tubing around the insert barbed fitting. The interior clamp wall shall be smooth to prevent crimping or pinching of the tubing. Wall thickness of clamps shall be .0236" with an overall band width of 1/4". Properly secured clamps shall be capable of withstanding a maximum operating pressure of 441 psi.

PART 3 – EXECUTION

3.10 Staking for lateral dripper line layout – verify existing field dimensions of the area to be irrigated using the irrigation plans for reference/accuracy. Begin dripper tubing layout 4" away from both hardscape surfaces; i.e.., concrete sidewalks, curbs, asphalt, and/or undefined edges; i.e.., shovel–cut headers. Mark tubing intervals on the ground with flags, paint, or some other markings that can be maintained throughout the installation.

3.11 Installation of dripper tubing – tubing can be installed in one of two following methods:

1. Over excavation – In small areas, where it is feasible, over–excavate the entire area to a depth of 4" below finish grade. Plant all specimen trees and shrubs, then place tubing at the row spacing interval indicated on the plans.
2. Trenching – hand or mechanically trench to the pipe depth (4") and back fill flush with finish grade. Avoid mechanically trenching within the drip line of existing trees and shrubs. Hand trench around existing trees and shrubs when root sizes greater than 1" in diameter are encountered. Remove all rock 1–1/2" in diameter and larger when excavating and remove from site. Do not back fill trenches with rock that will come in direct contact with tubing or rigid PVC piping.

3.12 Cover – Install all underground piping horizontally and as level as possible. PVC piping should be installed to the depths and in the manner outlined in the general irrigation notes. Netafim tubing should be installed to a depth of 4" in shrub areas and 6" in turf areas. Netafim tubing should be installed with the water outlets in upward or downward facing position. Offset the outlets in adjacent rows to obtain a triangular pattern throughout the tubing layout. In irregular areas, some water outlets may end up too close to fixed improvements and may have to be capped off with a dripper plug ring.

3.13 Barbed fittings – Connect dripper tubing to barbed fittings by pushing on and over both barbs until the tubing has seated against another piece of tubing or has butted against another portion of the barbed fitting. For water pressures in excess of 40 psi, use stainless steel clamps as outlined in section 3.50 (pipe clamping).

3.14 Pipe clamping – When design operating pressure exceeds 40 psi, stainless steel pipe clamps shall be used. Slip clamps over tubing before slipping tubing over insert barbed fitting. Place clamp between the first and second ridge of the barbed fittings and crimp the 'ear' of the clamp tightly. Crimp the 'ear' a second time to ensure proper seating.

3.15 Pressure regulator – If a pressure regulator is specified, install it below grade, downstream, and in line with the remote control valve. Refer to the detail sheet. If a prv is specified it will be detailed with the remote control valve. Place the regulator with the arrow, that is molded into the side of the body, pointing in the direction of the flow of water. Provide straight piping on the outlet side of the regulator for a dimension not less than three lengths of the overall body dimension.

3.16 Remote control valve – Install the remote control valves level and below grade with a minimum of 4" of clearance to the top of the inside of the valve box cover. The arrow cast or molded into the side/bottom of the remote control valve should be pointing in the direction of the flow of water. Place a minimum of one cubic foot of 3/4" gravel in the bottom of the valve box. Support each corner of the valve box with a common red brick. At finish grade, the top of the valve box shall be two inches above surrounding grades.

3.17 Disc filter – Install the disc filter, horizontally level, below grade and after the remote control valve (refer to the detail and note sheets). The position of the disc filter in the valve box shall be off–center to allow for removal of the disc element for periodic servicing. Include a minimum of 3" deep of 3/4" gravel in the bottom of the valve box. Support the valve box using a common red brick under each corner of the valve box.

3.18 Flushing – Prior to backfill and before connection of the line flushing valves, flush the entire system to remove any dirt or sediment that may have entered the system during installation.

3.19 Testing – Prior to backfill, open the remote control valve and operate each zone. Check for leakage around barbed and threaded fittings. Make the necessary repairs to stop all leaks. After repairs, re–test to insure all leaks have been repaired. Continue this process until no more leaks are observed.

3.20 Backfill – After placement of tubing, connection to rigid PVC supply header, and initial system flushing, and testing, backfill can begin. Fill remainder of trenches, or where over–excavation and grade level installation was used, place shovel fulls of dirt on piping to keep them in place and maintain row spacing intervals as required. Bring soil up to finished grade and remove any rocks larger than 1" during final grading and contouring. Compact backfill by hand to a minimum of 90% relative compaction. Maintain adequate soil levels as needed to achieve the required compaction requirement.

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

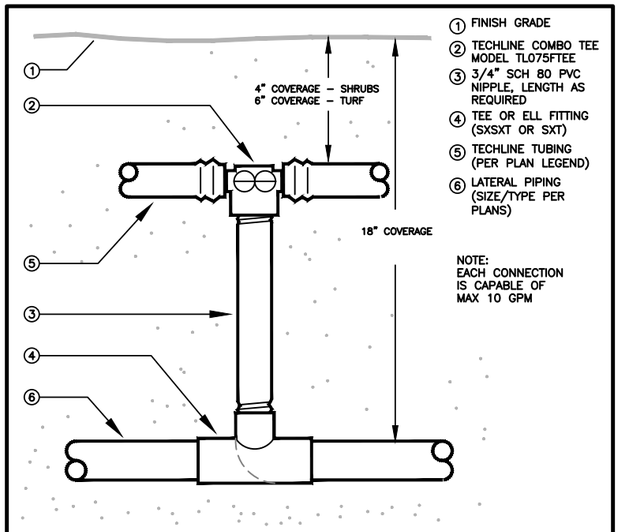
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

NETAFIM NOTES

SHEET NO.

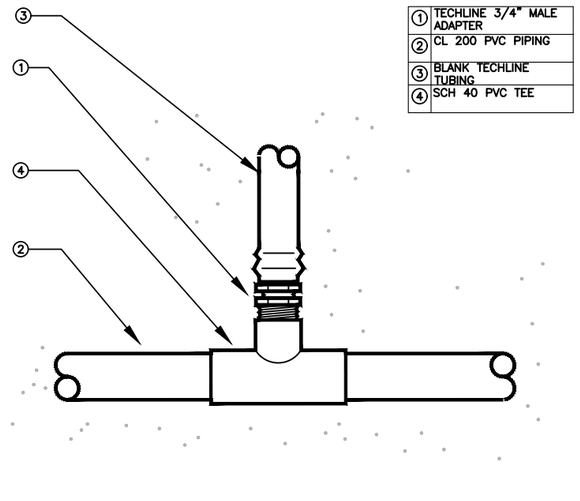
IR–29



1. FINISH GRADE
2. TECHLINE COMBO TEE MODEL TL075FTEE
3. 3/4" SCH 80 PVC NIPPLE, LENGTH AS REQUIRED
4. TEE OR ELL FITTING (SXSXT OR SXT)
5. TECHLINE TUBING (PER PLAN LEGEND)
6. LATERAL PIPING (SIZE/TYPE PER PLANS)

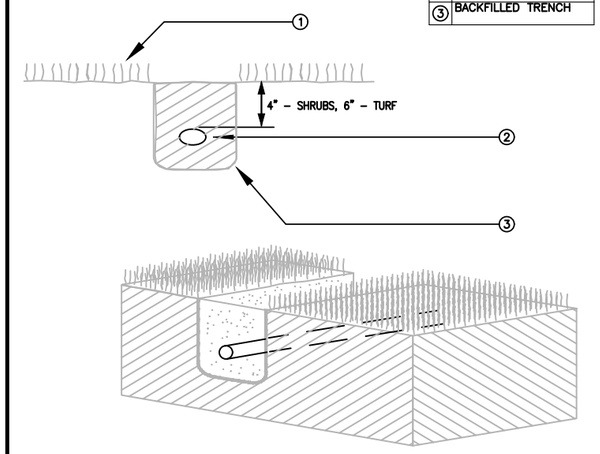
NOTE:
EACH CONNECTION IS CAPABLE OF MAX 10 GPM

M1 TECHLINE SUPPLY HEADER-DUAL FEED



1	TECHLINE 3/4" MALE ADAPTER
2	CL 200 PVC PIPING
3	BLANK TECHLINE TUBING
4	SCH 40 PVC TEE

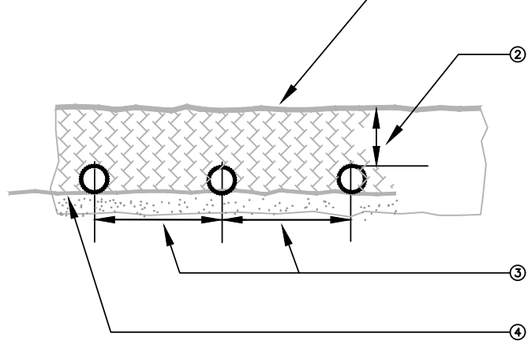
M TECHLINE TO PVC CONNECTION



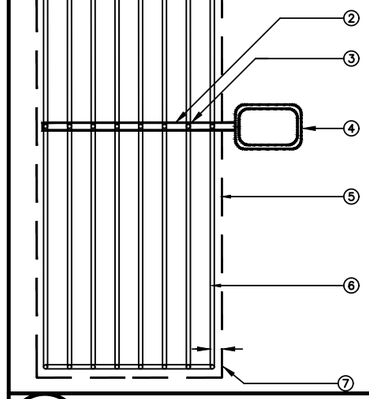
1	FINISH GRADE
2	TECHLINE TUBING
3	BACKFILLED TRENCH

M TECHLINE TRENCHING DETAIL

1	FINISH GRADE
2	4" COVERAGE FOR SHRUBS, 6" FOR TURF
3	TECHLINE SPACING IS 12" O.C.
4	SUBGRADE

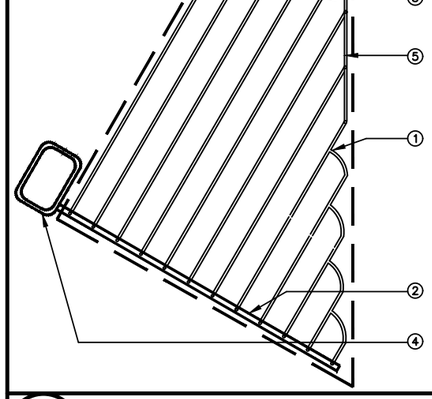


M TECHLINE SUB GRADE LAYOUT



1	TECHLINE BARBED CONNECTORS TEES AND 90'S – AS NEEDED
2	CL 200 PVC SUPPLY HEADER (SIZED PER PLAN)
3	TECHLINE START CONNECTION
4	REMOTE CONTROL VALVE WITH DISC FILTER
5	AREA PERIMETER
6	TECHLINE TUBING LATERAL
7	PERIMETER LATERALS 4" FROM EDGE

N TECHLINE DUAL FEED LAYOUT



1	TECHLINE TEE
2	CL 200 PVC SUPPLY HEADER (SIZED PER PLAN)
3	AREA PERIMETER
4	REMOTE CONTROL VALVE W/ DISC FILTER
5	TECHLINE TUBING LATERAL

N TECHLINE ODD AREA LAYOUT

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STATE OF FLORIDA
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
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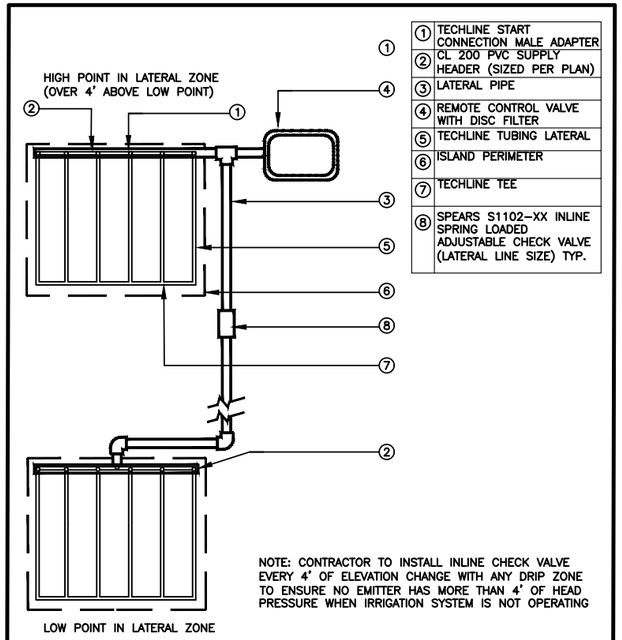
2021-L-490-00004

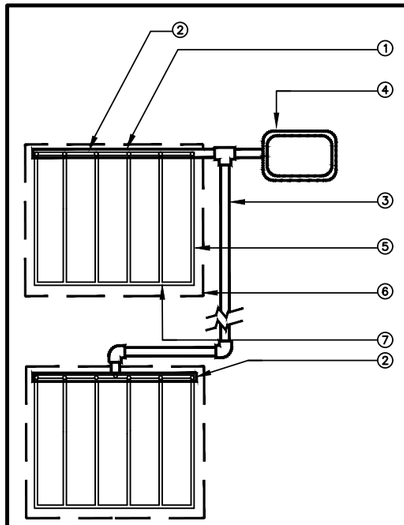
NETAFIM DETAILS

SHEET NO.
IR–30



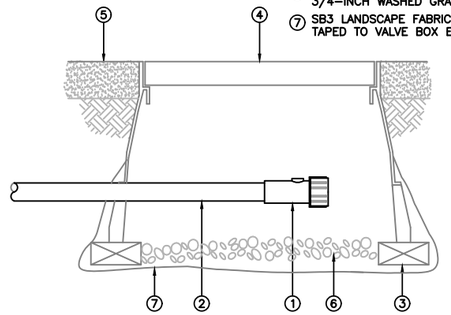
1	TECHLINE START CONNECTION MALE ADAPTER
2	CL 200 PVC SUPPLY HEADER (SIZED PER PLAN)
3	LATERAL PIPE
4	REMOTE CONTROL VALVE WITH DISC FILTER
5	TECHLINE TUBING LATERAL
6	ISLAND PERIMETER
7	TECHLINE TEE
8	SPEARS S1102-XX INLINE SPRING LOADED ADJUSTABLE CHECK VALVE (LATERAL LINE SIZE) TYP.

N **TECHLINE MULTIPLE PLANTER LAYOUT WITH CHECK VALVE**



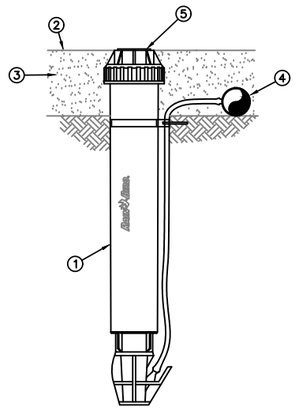
1	TECHLINE START CONNECTION MALE ADAPTER
2	CL 200 PVC SUPPLY HEADER (SIZED PER PLAN)
3	LATERAL PIPE
4	REMOTE CONTROL VALVE WITH DISC FILTER
5	TECHLINE TUBING LATERAL
6	ISLAND PERIMETER
7	TECHLINE TEE

N **TECHLINE MULTIPLE PLANTER LAYOUT**



1. NETAFIM MANUAL FLUSH VALVE (MODEL PER MFG RECOMMENDATIONS) REQUIRED ON ALL DISCHARGE HEADERS
2. PVC DISCHARGE HEADER
3. COMMON RED BRICK (1 OF 4)
4. CARSON 1419 VALVE BOX WITH BOLT DOWN LID
5. FINISHED GRADE
6. 3.0-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
7. SB3 LANDSCAPE FABRIC TO BE DUCT TAPED TO VALVE BOX EXTERIOR.

N **NETAFIM FLUSH VALVE**



1. DRIP SYSTEM OPERATION INDICATOR KIT, RAIN BIRD MODEL #OPERIND. INSTALL ONE PER DRIP HEADER, TYP
2. FINISH GRADE
3. MULCH
4. DRIPLINE (MAKE/MODEL PER PLANS)
5. POTABLE (YELLOW) OR NON-POTABLE (PURPLE) CAP (AS REQUIRED WITH WATER SOURCE)

N **RAIN BIRD OPERATION INDICATOR**

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NETAFIM DETAILS

SHEET NO.
IR-31

IRRIGATION NOTES & SPECIFICATIONS

Irrigation design based on the Miller, Legg, & Associates Landscape Plan dated 10/17/14 with the latest revision dated 04/20/2021. Contractor shall refer to these plans to coordinate sprinkler and pipe locations.

The system has been designed to conform with the requirements of all applicable codes, laws, ordinances, rules, regulations and conventions. Should any conflict exist, the requirements of the codes shall prevail. It is the responsibility of the owner/installation contractor to ensure the entire system is installed as designed. Irrigation contractor responsible for obtaining all required permits according to federal, state and local laws.

The scope of work is shown on the plans, notes and details. The Irrigation Contractor shall be certified as a CERTIFIED IRRIGATION CONTRACTOR by the Irrigation Association. The certification shall be current and in good standing.

THE WORK

The work specified in this section consists of furnishing all components necessary for the installation, testing, and delivery of a complete, fully functional automatic landscape irrigation system that complies with the irrigation plans, specifications, notes, and details. This work shall include, but not be limited to, the providing of all required material if applicable (pump(s), backflows, pipes, valves, fittings, controllers, wire, primer, glue, etc.), layout, protection to the public, excavation, assembly, installation, back filling, compacting, repair of road surfaces, controller and low voltage feeds to valves, cleanup, maintenance, guarantee and as-built plans.

All irrigated areas shall provide 100% head-to-head coverage from a fully automatic irrigation system with a rain (and freeze as appropriate) shut off device. If the rain shut off device is a rain sensor, it shall be installed to prevent activation by adjacent heads. Zones are prioritized first by public safety and then by hydraulic concerns. This sequencing will be a mandatory punch list item.

These plans have been designed to satisfy/exceed the Florida Building Code (FBC) Appendix F and the Florida Irrigation Society Standards and Specifications for Turf and Landscape Irrigation Systems, fourth edition. All products should be installed per manufacturer's recommendation. Contractor shall verify all underground utilities 72 hours prior to commencement of work.

It is the responsibility of the irrigation contractor to familiarize themselves with all grade differences, location of walls, retaining walls, structures and utilities. Do not willfully install the sprinkler system as shown on the drawings when it is obvious in the field that unknown obstruction, grade differences or differences in the area dimensions exist that might not have been considered in the engineering. Such obstructions, or differences, should be brought to the attention of the owner's authorized representative. In the event this notification is not performed, the irrigation contractor shall assume full responsibility for any revisions necessary.

Irrigation contractor shall repair or replace all items damaged by their work. Irrigation contractor shall coordinate their work with other contractors for the location and installation of pipe sleeves and laterals through walls, under roadways and paving, etc.

The contractor shall take immediate steps to repair, replace, or restore all services to any utilities which are disrupted due to their operations. All costs involved in disruption of service and repairs due to negligence on the part of the contractor shall be their responsibility.

POINT OF CONNECTION (P.O.C.)

There are two P.O.C.s on this project.

The first (north end of project, pump station 'A') and second (middle of project, pump station 'B') are both proposed Hoover Pumping Systems 7.5 HP Submersible pump stations model #HSF-7.5PDV-230/3-H,M,W,Z and a proposed 6" wells. These P.O.C.s must be capable of delivering a minimum of 55 GPM at 50 PSI downstream of the pump discharges.

Contractor to verify these minimum conditions can be met prior to ordering of materials and the beginning of installation. If the conditions can not be met, the contractor must notify the designer prior to proceeding with the work. If the contractor does not do so, the contractor proceeds at their own risk and becomes responsible for any future work required to make the system perform as required.

THE PIPE

Pipe locations shown on the plan are schematic and shall be adjusted in the field. When laying out mainlines place a maximum of 18" away from either the back of curb, front of walk, back of walk, or other hardscape to allow for ease in locating and protection from physical damage. Install all lateral pipe near edges of pavement or against buildings whenever possible to allow space for plant root balls. Always install piping inside project property's boundary.

All pipes are to be placed in planting beds. If it is necessary to have piping under hardscapes, such as roads, walks, and patios, the pipes must be sleeved using Class 200 PVC with the sleeve diameter being twice the size of the pipe it is carrying with a minimum sleeve size of 2".

Pipe sizes shall conform to those shown on the drawings. No substitutions of smaller pipe sizes shall be permitted, but substitutions of larger sizes may be approved. All damaged and rejected pipe shall be removed from the site at the time of said rejection.

Mainline shall be DR11-4710 HDPE with fusion weld fittings (size per plan).

Contractor to ensure all mainline piping is properly restrained using mechanical joint fittings, restraining collars, threaded rods, thrust blocks, etc.., as and where required. Contractor shall refer to pipe manufacturers recommended installation practices for further direction.

PVC pipe joint compound and primer: The PVC cement shall be Weld-On 711 (grey, slow-drying, heavy duty) and the primer shall be Weld-On P70 (purple tinted, compatible with cement), or approved equals.

ELECTRICAL POWER SUPPLY

Electrical supply for irrigation pumps, controllers, sensors, relays, cluster control units (CCU) to be provided by irrigation contractor. Contractor to coordinate with local utilities for the installation of, and connection to, site available power supplies for required electrical components as set forth in the irrigation plans.

All electrical work is to comply with the National Electrical Code and any, and all, other applicable electrical codes, laws and regulations. A licensed electrician shall perform all electrical hook-ups. Power for each controller/CCU shall be a dedicated 120 volt, 20 amp circuit unless otherwise specified in the plans. Power for each pump to be according to pump specifications indicated in these plans.

WIRING

Irrigation control wire shall be thermoplastic solid copper, single conductor, low voltage irrigation controller wire; suitable for direct burial and continuous operation at rated voltages.

Tape and bundle control wires every 10' and run alongside the mainline. At all turns in direction make a 2' coil of wire. At all valve boxes coil wire around a 1" piece of PVC pipe to make a coil using 30 linear inches of wire. Make electrical connections with 3M DBR/Y-6 connectors.

Number all wires, using an electrical book of numbers, according to the plans. Number wires in all valve boxes, junction boxes and at the controller.

Wire sized, numbered and colored as follows for the project north system:
- #10 white for common
- #10 spare black common
- #10 individual color coded hot wire
- #10 spare yellow hot wire

Wire sized, numbered and colored as follows for the project middle system:
- #12 white for common
- #12 spare black common
- #12 individual color coded hot wire
- #12 spare yellow hot wire

Spare wires
Leaving each controller (C1 and C2), run four spare wires in both directions (eight spare wires total). Of the four wires each direction install as 1 common and 3 hot wires.
In addition to the above listed spare wires, an additional eight (8) spare wires shall be installed from controller C1 to the stubout point for Crosstown 1 irrigation connection indicated on plans.
Loop these wires into each RCV along their path and terminate in the last valve box controlled by the wires respective controller. The loop into each valve box shall extend up into the valve box a minimum of 8" and be readily accessible by opening the valve box lid. These wires must be all numbered and color coded as required in these plans.

Controller and Pump station Control Panel grounding – Contractor to utilize 4"X8'X5/8" copper grounding plates, 5/8"X10' copper clad grounding rods, Cadweld 'One-Shot' at all connection points, #6 insulated copper wire, and earth contact material. Install these and other required components as outlined in the detail. Contractor to verify that the earth to ground resistance does not exceed 10 ohms. Contractor shall provide a written certification, on a licensed electrical contractors letter head, showing the date of the test, controller/pump location, and test results. Each controller/pump shall be so grounded and tested. Each component must have its own separate grounding grid, unless they are sitting side by side, in which case up to two controllers can share a common grounding grid.

LAYOUT

Lay out irrigation system mainlines and lateral lines. Make the necessary adjustments as required to take into account all site obstructions and limitations prior to excavating trenches.

Stake all sprinkler head locations. Adjust location and make the necessary modifications to nozzle types, etc. required to ensure 100% head to head coverage. Refer to the Edge of Pavement Detail on the Irrigation Detail Sheet.

Spray heads shall be installed 18" from sidewalks or curbed roadways and 18" from uncurbed roadways and building foundations.

Locate valves prior to excavation. Ensure that their location provides for easy access and that there is no interference with physical structures, plants, trees, poles, etc. Valve boxes must be placed a minimum of 12" and a maximum of 15" from the edge of pavement, curbs, etc. and the top of the box must be 2" above finish grade. No valve boxes shall be installed in turf areas without approval by the irrigation designer – only in shrub beds. Never install in sport field areas.

VALVES

Sequence all valves so that the farthest valve from the P.O.C. operates first and the closest to the P.O.C. operates last. The closest valve to the P.O.C. should be the last valve in the programmed sequence.

Adjust the flow control on each RCV to ensure shut off in 10 seconds after deactivation by the irrigation controller.

Using an electric branding iron, brand the valve I.D. letter/number on the lid of each valve box. This brand must be 2"-3" tall and easily legible.

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EQUIPMENT

All pop-up heads and shrub risers shall be pressure compensating. All pop-up heads shall be mounted on flex-type swing joints. All rotors shall be installed with PVC triple swing joints unless otherwise detailed.

All sprinkler equipment, not otherwise detailed or specified on these plans, shall be installed as per manufacturer's recommendations and specifications, and according to local and state laws.

TRENCHING

Excavate straight and vertical trenches with smooth, flat or sloping bottoms. Trench width and depth should be sufficient to allow for the proper vertical and horizontal separation between piping as shown in the pipe installation detail on the detail sheet.

Protect existing landscaped areas. Remove and replant any damaged plant material upon job completion. The replacement material shall be of the same genus and species, and of the same size as the material it is replacing. The final determination as to what needs to be replaced and the acceptability of the replacement material shall be solely up to the owner or owner's representative.

INSTALLATION

Solvent Weld Pipe: Cut all pipe square and deburr. Clean pipe and fittings of foreign material; then apply a small amount of primer while ensuring that any excess is wiped off immediately. Primer should not puddle or drip from pipe or fittings. Next apply a thin coat of PVC cement; first apply a thin layer to the pipe, next a thin layer inside the fitting, and finally another very thin layer on the pipe. Insert the pipe into the fitting. Insure that the pipe is inserted to the bottom of the fitting, then turn the pipe a 1/4 turn and hold for 10 seconds. Make sure that the pipe doesn't recede from the fitting. If the pipe isn't at the bottom of the fitting upon completion, the glue joint is unacceptable and must be discarded.

Pipes must cure a minimum of 30 minutes prior to handling and placing into trenches. A longer curing time may be required; refer to the manufacturer's specifications. The pipe must cure a minimum of 24 hours prior to filling with water.

BACKFILL

The Backfill 6" below, 6" above, and around all piping shall be of clean sand and anything beyond that in the trench can be of native material but nothing larger than 2" in diameter. All piping and excavations shall be backfilled and compacted to a density of 95% modified Proctor, or greater.

Mainline pipe depth measured to the top of pipe shall be:
30" minimum for 3" & 4" PVC with a 36" minimum at vehicular crossings.

Lateral line depths measured to top of pipe shall be:
18" minimum for 3/4"-3" PVC with a 30" minimum at vehicular crossings;
24" minimum for 4" PVC and above with a 30" minimum at vehicular crossings.

Contractor shall backfill all piping, both mainline and laterals, prior to performing any pressure tests. The pipe shall be backfilled with the exception of 2' on each side of every joint (bell fittings, 90's, tees, 45's, etc.). These joints shall not be backfilled until all piping has satisfactorily passed its appropriate pressure test as outlined below.

FLUSHING

Prior to the placement of valves, flush all mainlines for a minimum of 10 minutes or until lines are completely clean of debris, whichever is longer.

Prior to the placement of heads, flush all lateral lines for a minimum of 10 minutes or until lines are completely clean of debris, whichever is longer.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
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Use screens in heads and adjust heads for proper coverage avoiding excess water on walls, walks and paving.

TESTING

Soil: At a minimum of 2 locations on the site, soil tests for infiltration and texture shall be performed according to the USDA Soil Quality Test Kit Guide. The tests shall be documented in a USDA Soil Worksheet. (All of the above is available at http: //soils.usda.gov/sqi/assessment/ test_kit.html) The completed worksheet shall be submitted to the owners representative for review/approval. Do not proceed without written direction from the owner/owner's representative.

Schedule testing with Owner's Representative a minimum of three (3) days in advance of testing.

Mainline: For HDPE pipe, see HDPE notes.

If these parameters are exceeded, locate the problem; repair it; wait 24 hours and retry the test. This procedure must be followed until the mainline passes the test.

Lateral Lines: The lateral lines must be fully filled to operational pressure and visually checked for leaks. Any leaks detected must be repaired.

Operational Testing —Once the mainline and lateral lines have passed their respective tests, and the system is completely operational, a coverage test and demonstration of the system is required. The irrigation contractor must demonstrate to the owner, or his/her representative, that proper coverage is obtained and the system works automatically from the controller. This demonstration requires each zone to be turned on, in the proper sequence as shown on the plans, from the controller. Each zone will be inspected for proper coverage and function. The determination of proper coverage and function is at the sole discretion of the owner or owner's representative.

Upon completion of the operational test, run each zone until water begins to puddle or run off. This will allow you to determine the number of irrigation start times necessary to meet the weekly evapotranspiration requirements of the planting material in each zone. In fine sandy soils, it is possible no puddling will occur. If this is experienced, then theoretical calculations for run times will be required for controller programming.

SUBMITTALS

Pre—Construction: Deliver five (5) copies of submittals to Owner's Representative within ten (10) working days from date of Notice to Proceed. Furnish information in 3—ring binder with table of contents and index sheet. Index sections for different components and label with specification section number and name of component. Furnish submittals for components on material list. Indicate which items are being supplied on catalog cut sheets when multiple items are shown on one sheet. Incomplete submittals will be returned without review. In lieu of hardcopies, an electronic package in PDF format can be submitted.

After project completion:
As a condition of final acceptance, the irrigation contractor shall provide the owner with:

1. Irrigations As—builts — shall be provided utilizing a sub—foot Global Navigation Satellite System (GNSS) to accurately locate all mainlines, sleeves, remote control valves, gate valves, independent wire runs, wire splice boxes, controllers, high voltage supply sources/conduit path, control mechanisms, sensors, wells and water source connections in Florida East State Plane, NAD 83, and CORS 96 format. The data collected shall be in POINT format and include an ID for each data point with Manufacturer, Type, Size, and Depth. All mainline and independent runs of wire shall be located every 30' for straight runs and at every change of direction. Sleeves will be located at end points and every 20' of length. All underground items shall include depth in inch format. These POINTS once collected shall be imported into an AutoCAD DWG geo—referenced base file to be labeled accordingly. The completed AS—Built shall be a Geo—Referenced DWF file and delivered to the owner and FDOT District Operations Manager on a compact disk (CD).
2. Controller charts — Upon completion of "as—built" prepare controller charts; one per controller. Indicate on each chart the area controlled by a remote control valve (using a different color for each zone). This chart shall be reduced to a size that will fit inside of the controller door. The reduction shall be hermetically sealed inside two 2ml pieces of clear plastic.
3. Grounding Certification — Provide ground certification results for each controller and pump panel grounding grid installed. This must be on a licensed electrician letter head indicating location tested (using IR plan symbols), date, time, test method, and testing results.

INSPECTIONS AND COORDINATION MEETINGS REQUIRED — Contractor is required to schedule, perform, and attend the following, and demonstrate to the owner and/or owners representative to their satisfaction, as follows:

1. Pre—construction meeting — Designer and contractor to review entire install process and schedule with owner/general contractor.
2. Mainline installation inspection(s) — all mainline must be inspected for proper pipe, fittings, depth of coverage, backfill. and installation method
3. Mainline pressure test — All mainline shall be pressure tested according to this design's requirements
4. Flow Meter calibration — All flow meters must be calibrated, provide certified calibration report for all flow meters.
5. USDA Soil Quality Tests for infiltration/texture
6. Coverage and operational test
7. Final inspection
8. Punch list inspection

FINAL ACCEPTANCE

Final acceptance of the irrigation system will be given after the following documents and conditions have been completed and approved. Final payment will not be released until these conditions are satisfied.

1. All above inspections are completed, documented, and approved by owner.
2. Completion and acceptance of 'as—built' drawings.
3. Acceptance of required controller charts and placement inside of controllers.
4. All other submittals have be made to the satisfaction of the owner.

GUARANTEE: The irrigation system shall be guaranteed for a minimum of one calendar year from the time of final acceptance.

MINIMUM RECOMMENDED
IRRIGATION MAINTENANCE PROCEDURES

1. Every irrigation zone should be checked monthly and written reports generated describing the date(s) each zone was inspected, problems identified, date problems repaired, and a list of materials used in the repair. At minimum, these inspections should include the following tasks:

A. Turn on each zone from the controller to verify automatic operation.

B. Check schedules to ensure they are appropriate for the season, plant and soil type, and irrigation method. Consult an I.A. certified auditor for methods used in determining proper irrigation scheduling requirements.

C. Check remote control valve to ensure proper operation.

D. Check setting on pressure regulator to verify proper setting, if present.

E. Check flow control and adjust as needed; ensure valve closure within 10—15 seconds after deactivation by controller.

F. Check for leaks — mainline, lateral lines, valves, heads, etc.

G. Check all heads as follows:

1. Proper set height (top of sprinkler is 1" below mow height)
2. Verify head pop—up height — 6" in turf, 12" in ground cover, and pop—up on riser in shrub beds.
3. Check wiper seal for leaks — if leaking, clean head and re—inspect.
4. If still leaking, replace head with the appropriate head with pressure regulator and built—in check valve.
5. All nozzles checked for proper pattern, clogging, leaks, correct make & model, etc. — replace as needed
6. Check for proper alignment — perfectly vertical; coverage area is correct; minimize over spray onto hardscapes.
7. Riser height raised/lowered to accommodate plant growth patterns and ensure proper coverage.
8. Verify the pop—up riser retracts after operation. If not, repair/replace as needed.

H. Check controller/C.C.U. grounds for resistance (10 ohms or less) once per year. Submit written reports.

I. Check rain shut—off device monthly to ensure it functions properly.

J. Inspect all filters monthly and clean/repair/replace as needed.

K. Inspect backflow devices by utilizing a properly licensed backflow inspector. This should be done annually, at minimum.

L. Inspect all valve boxes to ensure they are in good condition, lids are in place and locked.

M. Check pump stations for proper operation, pressures, filtration, settings, etc. — refer to pump station operations manual.

N. Check and clean intake screens on all suction lines quarterly, at minimum. Clean and/or repair, as needed.

O. Winterize, if applicable, as weather in your area dictates. Follow manufacturer recommendations and blow out all lines and equipment using compressed air. Perform seasonal startup of system as per manufacturer recommendations.

P. Conduct additional inspections, maintenance tasks, etc. that are particular for your site.

SOIL MOISTURE SENSOR

1. Place all soil moisture sensor wiring in 1" SCH 40 PVC conduit
2. Soil moisture sensor should be placed in the middle of a spray or drip area as per manufacturer's recommendations.
3. Controller shall be set to the Florida Automated Weather Network's urban scheduler settings using the SMS as a moisture cut off device (like a rain switch) per manufacturer directions.

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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DEPARTMENT OF TRANSPORTATION

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IRRIGATION NOTES

SHEET NO.
IR—33

SECTION 15061

HIGH DENSITY POLYETHYLENE PIPE AND FITTINGS
(DR 11 4710)

PART 1 - GENERAL

1.1 DESCRIPTION

A. The contractor shall provide solid wall high density polyethylene pipelines which conform to AWWA, and ASTM standards and other reference documents listed under Section 1.02 with flanged and thermal butt fusion joints complete in place.

1.2 REFERENCES

A. To the extent referenced in this specification section, the standards and documents listed below are included, and made a part of this specification.
B. In the event of a conflict, the requirements of this specification section prevail.
C. Unless otherwise specified, references to documents shall mean the latest published edition of the referenced document in effect at the bid date of the project.
D. ANSI/AWWA (www.awwa.org)
   1. ANSI/AWWA C901-08 Polyethylene (PE) Pressure Pipe and Tubing, ½ In. (13 mm) Through 3 In. (76 mm) for Water Service
   2. ANSI/AWWA C906-07 Polyethylene (PE) Pressure Pipe and Fittings, 4 In. (100 mm) Through 63 In. (1,600 mm), for Water Distribution and Transmission
   3. AWWA M55 Manual of Water Supply Practices, PE Pipe–Design and Installation
E. Plastics Pipe Institute, PPI (www.plasticpipe.org)
   1. PPI Handbook of Polyethylene Pipe – 2009 (2ndEdition)
   2. PPI TR-33 Generic Butt Fusion Joining Procedure for Polyethylene Gas Pipe
   3. PPI TR-34 Disinfection of Newly Constructed Polyethylene Water Mains
   4. PPI TR-41 Generic Saddle Fusion Joining Procedure for Polyethylene Gas Piping
   5. PPI TN-42 Recommended Minimum Training Guidelines for PE Pipe Butt Fusion Joining Operators for Municipal and Industrial Projects (2009)
F. ASTM (www.astm.org)
   1. ASTM F 714 Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter
   2. ASTM F905 Standard Practice for Qualification of Polyethylene Saddle-Fused Joints
   3. ASTM F 1055 Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing
   4. ASTM F 1290 Standard Practice for Electrofusion Joining Polyolefin Pipe and Fittings
   5. ASTM F 1412 Standard Specification for Polyolefin Pipe and Fittings for Corrosive Waste Drainage Systems
   6. ASTM F1417 Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air4 December 2009
   7. ASTM F 2164 Standard Practice for Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure
   8. ASTM F2206 Standard Specification for Fabricated Fittings of Butt-Fused Polyethylene (PE) Plastic Pipe, Fittings, Sheet Stock, Plate Stock, or Block Stock
   9. ASTM D 2239 Standard Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter
   10. ASTM D 2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
   11. ASTM F 2620 Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings
   12. ASTM D 2683 Standard Specification for Socket-Type Polyethylene Fittings forOutside Diameter-Controlled Polyethylene Pipe and Tubing
   13. ASTM D 2737 Standard Specification for Polyethylene (PE) Plastic Tubing
   14. ASTM D 2774 Standard Practice for Underground Installation of Thermoplastic Pressure Piping
   15. ASTM D 3261 Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing
   16. ASTM D 3350-08 Standard Specification for Polyethylene Plastics Pipe and Fittings Materials

1.3 SYSTEM DESIGN PARAMETERS

A. The polyethylene system working pressure rating accommodates the normal operating pressure and the repetitive surges. The pressure rating applies at 80oF or less. Piping installed under this project may experience operating temperatures up to 95oF. Associated pressure rating at this elevated temperature shall not be less than 80% of the pressure rating at 90oF.

B. Per AWWA 901 and C906, the repetitive surge pressure allowance is one half the pressure class of the pipe, and the occasional surge over pressure allowance is equal to the pressure class of the pipe. Allowable Total Pressure during Recurring Surge conditions equals 1.5 times the pipe's pressure class. Allowable Total Pressure during Occasional Surge conditions equals 2.0 times the pipe's pressure class.

Table 1 gives the Pressure Class per AWWA C906, Pressure Rating and Allowable Total Pressure during Recurring and Occasional Surge for PE4710 pipe at 80°F or less.

1.4 SUBMITTALS

A. Quality Assurance / Control Submittals
   1. Affirmation that product shipped meets or exceeds the standards set forth in this specification. This shall be in the form of a written document from the manufacturer attesting to the manufacturing process meeting the standards.
   2. Manufacturers recommended fusion procedures for the products.

1.5 DELIVERY – STORAGE – HANDLING

A. Handle the pipe in accordance with the PPI Handbook of Polyethylene Pipe (2nd Edition), Chapter 2 using approved strapping and equipment rated for the loads encountered. Do not use chains, wire rope, forklifts or other methods or equipment that may gouge or damage the pipe or endanger persons or property. Field storage is to be in compliance with AWWA Manual of Practice M55 Chapter 7. B. If any gouges, scrapes, or other damage to the pipe results in loss of 10% of the pipe wall thickness, cut out that section or do not use.

PART 2 – PRODUCTS FOR 4 INCH THROUGH 54 INCH PIPE PER AWWA C906

2.1 PIPE

A. Polyethylene pipe shall be made from HDPE material having a material designation code of PE4710. The material shall meet the requirements of ASTM D 3350. The pipe segments shall be joined using flanges or the thermal butt fusion method.
B. The pipe and fittings shall meet the requirements of AWWA C906.
C. Approved manufacturers are: One of the following, or approved equal:
   1. Performance Pipe
   2. Flying W
   3. J.M. Eagle
   4. Pipeline Plastics
   5. WL Plastics

2.2 FITTINGS

A. Butt Fusion Fittings - Fittings shall be made of HDPE material with a minimum material designation code of PE4710 and with a minimum Cell Classification as noted in 2.01A. Butt Fusion Fittings shall meet the requirements of ASTM D3261. Molded and fabricated fittings shall have a pressure rating equal to the pipe unless otherwise specified on the plans. All fittings shall meet the requirements of AWWA C906.

   Markings for molded fittings shall comply with the requirements of ASTM D 3261. Fabricated fittings shall be marked in accordance with ASTM F 2206. Socket fittings shall meet ASTM D 2683.

B. Electrofusion Fittings - Fittings shall be made of HDPE material with a minimum material designation code of PE4710 and with a minimum Cell Classification as noted in 2.01A. Electrofusion Fittings shall have a manufacturing standard of ASTM F1055. Fittings shall have a pressure rating equal to the pipe unless otherwise specified on the plans. All electrofusion fittings shall be suitable for use as pressure conduits, and have nominal burst values of four times the Working Pressure Rating (WPR) of the fitting. Markings shall be according to ASTM F 1055.
C. Flanges and Mechanical Joint Adapters (MJ Adapters) – Flanges and Mechanical Joint Adapters shall have a material designation code of PE4710 and a minimum Cell Classification as noted in 2.01A. Flanged and Mechanical Joint Adapters can be made to ASTM D 3261 or if machined, must meet the requirements of ASTM F 2206. Flanges and MJ Adapters shall have a pressure rating equal to the pipe unless otherwise specified on the plans. Markings for molded or machined flange adapters or MJ Adapters shall be per ASTM D 3261. Fabricated (including machined) flange adapters shall be per ASTM F 2206.

   Van-Stone style, metallic (including stainless steel), convoluted or flat-plate, back-up rings and bolt materials shall follow the guidelines of Plastic Pipe Institute Technical Note # 38, and shall have the bolt-holes and bolt-circles conforming to one of these standards: ASME B-16.5 Class 150, ASME B-16.47 Series A Class 150, ASME B-16.1 Class 125, or AWWA C207 Class 150 Series B, D, or E. The back-up ring shall provide a long-term pressure rating equal to or greater than the pressure-class of the pipe with which the flange adapter assembly will be used, and such pressure rating shall be marked on the back-up ring. Flange assemblies shall be assembled and torqued according to PPI TN-38 "Bolt Torque for Polyethylene Flanged Joints.".

2.3 PIPE AND FITTING IDENTIFICATION

A. The pipe shall be marked in accordance with the standards to which it is manufactured.
B. Color identification by the use of stripes on pipe to identify pipe service shall be required. If used, stripes or colored exterior pipe product shall be blue for potable water, or green for wastewater/sewage, or purple (lavender) for reclaimed water.

PART 3 – EXECUTION

3.1 JOINING METHODS

A. Butt Fusion: The pipe shall be joined by the butt fusion procedure outlined in ASTM F 2620 or PPI TR-33. All fusion joints shall be made in compliance with the pipe or fitting manufacturer's recommendations. Fusion joints shall be made by qualified fusion technicians per PPI TN-42.
B. Saddle Fusion: Saddle fusion could be used to fuse branch saddles, tapping tees, and other HDPE constructs onto the wall of the main pipe. Saddle fusion shall be done in accordance with ASTM F 2620 or TR-41 or the fitting manufacturer's recommendations and PPI TR-
   41. Saddle fusion joints shall be made by qualified fusion technicians. Qualification of the fusion technician shall be demonstrated by evidence of fusion training within the past year on the equipment to be utilized on this project (ASTM F905).
C. Socket Fusion: Socket fusion is not allowed on this project.
D. Electrofusion: Electrofusion joining shall be done in accordance with the manufacturers recommended procedure. Other sources of electrofusion joining information are ASTM F 1290 and PPI TN 34. The process of electrofusion requires an electric source , a transformer, commonly called an electrofusion box that has wire leads, a method to read electronically (by laser)or otherwise input the barcode of the fitting, and a fitting that is compatible with the type of electrofusion box used. The electrofusion box must be capable of reading and storing the input parameters and the fusion results for later download to a record file. Qualification of the fusion technician shall be demonstrated by evidence of electrofusion training within the past year on the equipment to be utilized for this project.
E. Mechanical:
   1. Mechanical connection of HDPE to auxiliary equipment such as valves, pumps, and fittings shall use mechanical joint adapters and other devices in conformance with the PPI Handbook of Polyethylene Pipe, Chapter 9 and AWWA Manual of Practice M55, Chapter 6.
   2. Mechanical connections on small pipe under 3" are available to connect HDPE pipe to other HDPE pipe, or a fittings, or to a transition to another material. The use of stab-fit style couplings is allowed, along with the use of metallic couplings of brass and other materials. When a compression type or mechanical type of coupling is used, the use of a rigid tubular insert stiffener inside the end of the pipe is recommended.
   3. Mechanical couplings that wrap around the pipe and act as saddles are made by several manufacturers specifically for HDPE pipe. All such saddles, tapping saddles, couplings, clamps etc. shall be recommended by the manufacturer as being designed for use with HDPE pipe at the pressure class listed in this section.
   4. Unless specified by the fitting manufacturer, a restraint harness or concrete anchor is recommended with mechanical couplings to prevent pullout.
   5. Mechanical coupling shall be made by qualified technicians. Qualification of the field technician shall be demonstrated by evidence of mechanical coupling training within the past year. This training shall be on the equipment and pipe components to be utilized for this project.
F. Flanged: Flanged connections shall consist of the following:
   1. A polyethylene flange shall be thermally butt-fused to the stub end of the pipe.
   2. A back-up ring shall mate with another back-up ring or flange, as required.
   3. Connections shall be made with bolts and nuts.
   4. Fanged connections shall be provided with a full-face neoprene gasket.
   5. All materials shall be compatible to the application.
G. Joint Recording - The critical parameters of each fusion joint, as required by the manufacturer and these specifications, shall be recorded either manually or by an electronic data logging device. All fusion joint data shall be included in the Fusion Technician's joint report.

3.2 INSTALLATION

A. Buried HDPE pipe and fittings shall be installed in accordance with ASTM D2321 or ASTM D2774 for pressure systems and AWWA Manual of Practice M55 Chapter 7.
B. For pipe buried in normal (dry) soils:
   a. Pipe embedment - Embedment material should be Class I, Class II, or Class III, materials as defined by ASTM D-2321 Section 6. The use of Class IV and Class V materials is not recommended, however it may be used only with the approval of the engineer and appropriate compaction.
   b. Bedding: Pipe bedding shall be in conformance with ASTM D2321 Section 8. Compaction rates should be as specified in ASTM D2321. Deviations shall be approved by the engineer.
   c. Haunching and backfill shall be as specified in ASTM D 2321 Section 9 with Class I, II, or III materials. Compaction shall be in excess of 95% Proctor.
C. For pipe buried in saturated (wet) soils:
   a. Pipe embedment - Embedment material shall be #57 stone compacted in excess of 95% Proctor.
   b. Bedding: Bedding material shall be #57 stone compacted in excess of 95% Proctor.
   c. Haunching and backfill shall be rip-rap or shot-rock from blasting activities compacted in excess of 95% Proctor.

END OF SECTION

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Newport, WA 99156
Telephone (866) 928-1533
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PROUDLY DESIGNED AND PRODUCED IN THE USA

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
Sabine Lang–Marks LA–0001733

MASUEN CONSULTING
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Newport, WA 99156
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

H.D.P.E. NOTES

SHEET NO.
IR–34

FDOT CITY OF PORT ST LUCIE
PUMP A: NORTH END AND PUMP B: MIDDLE OF US1 PUMP SYSTEMS
SPECIFICATIONS

SINGLE SUBMERSIBLE PUMP SYSTEM
PRESSURE DEMAND FIBERGLASS ENCLOSED
VARIABLE FREQUENCY DRIVE (VFD)

PURPOSE:
To provide a complete prefabricated skid mounted variable frequency drive pressure demand submersible pump system from a sole source company, herein after referred to as the "manufacturer", whose primary business is the manufacture of prefabricated pump systems. The manufacturer will manufacture, install and warrant the system to meet all specified operating requirements described below and in the system detail. The system shall be a Model HSF–7.5 PDV–230/3–H,M,R3,W,Z as manufactured by Hoover Pumping Systems of Pompano Beach, Florida USA 954–971–7350 specified below and shown on the plan details. This specification describes the general components and minimal operating requirements and shall not be construed as a manufacturing guide or complete list of required system components and
The contractor shall submit seven (7) complete copies of the shop drawings to the designer for approval, prior to system order placement. The submittal shall contain cut sheets for all system components. To be considered an equal, 12 days prior to bid opening the contractor must submit the following: manufacturer brochure showing prefabricated pump systems manufacturing is the primary business of the manufacturer or division proposed to manufacture the system, written specifications, dimensioned layout detail, electrical schematic, product sheets for all main components, Underwriters Laboratory electrical control panel and "Packaged Pumping System" manufacturer's file numbers, list of 6 projects with similar operating systems with current name and phone number of person responsible for system operation, manufacturer's insurance certificate for general liability showing minimum coverage of $1 million, and written certification from the manufacturer stating the proposed system meets all requirements described in this specification, the detail and the bid documents.

If the data submitted is determined to be an equal by the designer the bidder will be notified prior to the bid date.

FIBERGLASS ENCLOSURE:
The pump station shall be protected by a fiberglass enclosure with chemical and ultraviolet resistant open mold resin with exterior finish that is uniform in color and texture, reinforced with fiberglass and stiffeners for rigidity. The enclosure shall open clear of the equipment for ease of service with the aid of gas filled struts, a stainless steel hinge and latching lockable handle. The enclosure shall be of dimensions adequate to contain the pump system mounted on the skid as shown on the system detail.

MOUNTING ASSEMBLY:
The pump station shall be mounted on a prefabricated aluminum or hot dipped galvanized skid. Pedestals shall be provided to mount the pump motor and control panel assemblies. The entire station shall be installed on a reinforced concrete slab sized as noted on the system detail.

PUMP AND MOTOR:
The pump shall be a submersible type coupled to a submersible motor rated at 7.5 HP, voltage and phase to match site electric, 60 Hz. The pump system shall be designed for operation at 3450 RPM.

Submersible Pump 4": The pump will have acetal impellers with polycarbonate diffusers, stainless steel pump shell, shaft, and coupling, with polypropylene intake screen.

The motor shall be a submersible type designed for continuous underwater operation and with a combination of a maximum water temperature and minimum velocity past the motor, such that the service factor shall be 1.15 minimum. The motor shall be of the water–filled type and fitted with a segmented plate type thrust bearing. A stainless steel cable guard for the entire bowl length shall protect the motor leads. The motor rating shall be selected so that the load at design is not greater than the name plate rating at 1.0 service factor and at no point on the curve shall the load exceed the name plate rating plus 10 percent.

The power cable shall be sized such that the voltage drop will not exceed three percent at the motor rated full load current and voltage. Cables shall be designed specifically for submersible pump service and shall consist of either individually insulated conductors or individual conductors insulated and the whole covered with an outer jacket.

IRRIGATION PUMP CONTROL PANEL:
The control panel assembly shall be Underwriters Laboratories listed in accordance with section 508A for "enclosed industrial control panels." All control devices and electronic auto–sensory circuitry shall be housed in a self–contained weather–resistant NEMA 4 control cabinet. The control cabinet shall contain the following protection and control equipment:

Operation
This station operates as a Variable Frequency Drive (VFD) pressure demand start, reduced–flow retirement system. The station automatically maintains a constant discharge pressure from a pressure transducer input regardless of varying flow demands within the station operating range. The system is equipped with a 'Hand–Off–Auto' (H–O–A) selector switch, and a 'Reset–Normal–Override' selector switch. The self–diagnostic control panel assembly includes an 'Alarm' indicator light, and an operator interface for display of status and diagnostic messages, event lists, and operation history. The operator interface also allows for viewing of system setup parameters.

Hoover–Flow Software features include flow control of pump starts, sequencing and retirement; automatic pump alternation; Loss of Prime/No–flow protection, High Pressure protection; diagnostic information, flow and pressure history, service counters, elapsed run time meters, date and time stamping; Phase Loss protection, Phase Unbalance protection, Voltage monitoring and protection, operating mode meters, Service required alerts; Remote Communication Link interface; Hoover Drive control; emergency bypass operation, cooling system control, self–cleaning intake screen control; Booster bypass control; fail–safe data protection.

Drive Fault
In case of a drive fault, including under or over voltage, over current, heatsink thermal, and ground fault, the affected pump will shut off, the 'Alarm' light will illuminate, and the operator interface will display 'Drive Fault'. The pump will remain off until the system is 'Reset'.

Hand – Off – Auto Switch
The pump is equipped with an H–O–A selector switch that operates as follows:

Position	Function
Hand–	Manual pump start. This position overrides all protective features and start controls.
Off –	Pump will not run.
Auto –	Pump will start automatically. In this position, all start controls and protective features are active.

Normal – Override Switch

Operator Interface
A mobile device or PC HMI (Human Machine Interface) shall be provided with status display and control of operating mode, I/O status, system pressure, system flow, pressure and flow setpoints, elapsed run times, fault timer values and presets, display brightness, clock time, alarm and event logs with date and time stamps, and diagnostic information including counters and alarm indicators.

Protection Equipment
- Front operated main power disconnect
- Motor fuses for motor and drive short circuit and ground fault protection
- Metal oxide varistors (MOV) for transient voltage suppression per phase
- Fused control circuitry with blown fuse lighted indicator for each circuit

PENETRATION STANDARD REQUIREMENTS:
All control panel penetrations shall be performed by a licensed electrician to minimum NEMA 4X requirements, and compliant with International Electrotechnical Commissions (IEC) IP56 rating under its IP code, to protect against dust ingression and against any harmful effects from water projected in powerful jets from any direction and protection against corrosion.

VARIABLE FREQUENCY DRIVES (VFD):
Variable Frequency Drives with the following characteristics shall be provided for each main pump motor: 32–bit microprocessor controlled Pulse Width Modulated output, IGBT transistors, line reactors, built–in adjustable PID control, acceleration ramp up and down, forced–air ventilation, variable torque control, 32 character alphanumeric English full text parameter display, single function keys, block parameter access, dual analog outputs, automatic and manual reset, opto–isolated outputs, log of last 30 events retained in memory.

MASTER/SHUTOFF VALVE WITH PRESSURE SUSTAINING PILOT:
The valve shall be 230 psi working pressure with the following features:
- Continuous duty industrial solenoid
- Large capacity disk filter on pilot control tubing
- 220 psi polyethylene control tubing with prest–o–lock fittings
- Cast iron body and bonnet with polymer coating
- 316 Stainless steel nuts, bolts, washers, shaft and spring
- Stainless steel seat

For Irrigation controller use, the solenoid shall be energized to open, the valve wires will be stubbed into a NEMA 4X junction box on the back of the pump system for connection to the controller by the irrigation contractor. For Hoover Flowguard® the solenoid shall be energized to close.

PRESSURE TRANSMITTER:
A 4–20mA–pressure transmitter shall provide a feedback signal to drive PID loops and for system pressure control. The transmitter shall be CE & UL recognized and built with an all stainless steel housing and pressure port, rated to NEMA 4, and able to withstand shock and vibration levels to MIL–STD–810E.

MAGNETIC FLOW METER:
A full–bore magnetic flow sensor shall be provided to control pump retirement and allow display of flow rate and total flow. The flow sensor shall have the following characteristics: no moving parts, unobstructed bore (no pressure loss), NEMA 5/IP 67 protection, international standard traceable calibration, stainless steel 1.4301 flow tube, 316 stainless steel electrodes, overall system accuracy for flows 1.5 fps of better than +/– 0.5% of actual rate, and for flows <1.5 fps of better than +/– 0.32/√[fps] % of actual rate.

DISCHARGE PIPE MANIFOLD:
The pipe discharge manifold shall be constructed of galvanized steel pipe with galvanized roll groove fittings. A flow–switch, pressure gauge and hose bib will be provided on the station discharge. A wafer type butterfly valve will be provided at pump station discharge.

SELF–CLEANING DISCHARGE FILTER:
1. All pump discharge water will flow through the 110 psi working pressure, 120 mesh disc filter assembly, and discharge into the irrigation main. The filter housing and disk assembly is non–corrosive. The disk assembly is readily accessed without tools. The discs shall provide a minimum 5/16" depth filtration. Screen or fabric type filters are not acceptable. Inlet and outlet solenoid actuated valves allow the filter to backflush via the controller with adjustable range pressure differential and/or adjustable timer. The backflush is done without the introduction of compressed air or use of electric motors or gears. During the backflush mode one filter battery is cleaned with filtered water and the remaining filter battery continue to supply clean water for the irrigation system. The filter discs will separate during the backflush cycle for optimal cleaning.
2. Flowguard manages the following filtration operations; Complete filtration operation, remote adjustments based on seasonal operating conditions, remote reporting of proactive filter system operating diagnostic warning and alarms. The discharge filter backwash line contains a separate magnetic flow meter for automatic subtraction of filter backwash water returning to a designated area for accurate water management CUP reporting.

PUMP DISCHARGE:
The minimum pump discharge size shall be 2" diameter or larger as required for a maximum of 15 feet per second velocity flow. The pipe shall be schedule 40 galvanized steel with galvanized roll groove or threaded fittings. Each discharge shall have a bronze poppet check valve for lines smaller than 3" and cast iron roll groove swing check valve for larger sizes located as shown on the system detail.

Well Source: Each pump will be placed in a separate well. The pump/motor assembly shall be placed directly in the well unless a flow inducer is required for adequate water velocity across the motor. The discharge pipe and submersible cable shall exit the well head through a well seal with a junction box as shown in the system detail.

FLOWGUARD3 RAIN GAUGE:
The rain gauge with the following features:
- Remotely adjustable Shutoff and Restart levels, and remotely settable drying rate.
- Measurement of rainfall, with one–hundredth of an inch resolution.
- Recording of daily rainfall amounts
- Display of today's total rainfall.
- Display of estimated time to restart when system shuts–down due to rain.

FLOWGUARD COMMUNICATION LINK:
Hoover supplied communication
- High speed modem, antenna and broadband Data communication plans

THE HOOVER FLOWGUARD
An easy to use Internet based irrigation system management tool providing real time monitoring and control that include:

-- PROACTIVE TROUBLESHOOTING TOOLS
Solve minor irrigation problems before they escalate into major landscape issues.

-- LANDSCAPE MANAGEMENT TOOL
Supplement random "wet check" expense with specifically identified irrigation repairs.
Evaluate data that can be effectively used for troubleshooting performance issues.
Field manually bypass button to override a closed Flowguard shutoff valve in two (2) hour increments each time pressed by field service personnel.
Rain sensor

-- AUTOMATED COMPLIANCE TOOLS
Daily municipal water use restrictions.
Water Management District water usage reporting
Budget water usage to assure compliance with Consumptive Water Use Permit

-- AUTOMATIC E–MAIL ALARMS & WARNINGS
Receive automatic e–mail alarms & warnings when irrigation system problems occur.
Automatic adjustable alarm shut–downs with time delay between restarts.

-- REPORTS
Daily water usage
Specific events, a comprehensive list of alarms, warnings and pump operations

COMMUNICATION
Hoover High Speed Modem and Cellular Broadband service.

-- REMOTE CONTROL access to pump control and protection features, including: sequencing and retirement controls and setup parameters.

-- DIAGNOSTIC DATA: Real time and historical graphing of flow, pressure, source water level, water salinity, booster water source pressure, rain sensor, system status and maintenance alerts.

-- WATER USE MONITORING: Set and automatically monitor Daily, Monthly, and Annual water use volumes per Water Management District Use Permit. User – set alarms and warnings, with automatic and/or manual restarts.

-- WATER USE REPORTS: Print Reports for Daily, Monthly, and Annual flow volume history. View and print reports for graphing, logs, usage, audit trails, and maintenance status.

-- SECURITY ACCESS CONTROL: Multi–user capability with User ID and password protection.

-- USER TRAINING provides new user classes, support and phone assistance to set up initial parameters such as Water Windows, budgets and other user – set functions.

WARRANTIES:
The manufacturer of the Pump and Water Management system shall warrant all hardware components for a period of one (1) year from date of manufacture.

The manufacturer of the pumping station shall warrant all components for a period of one (1) year from date of manufacture.
PN13226

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

IRRIGATION PUMP NOTES

SHEET NO.
IR–35

Power & Minimum Wire Size Electrical Service Requirements

DATE: 19 July 2021
TO: Masuen Consulting LLC
FROM: Kathleen VanKuren, Hoover Pumping Systems
RE: FDOT City of Port St Lucie Pump A: North End AND Pump B: Middle of US1
PN13226 - Irrigation Pump System Minimum Wire Size

Thank you for working with us to supply a Hoover Pumping Systems pump system specifically manufactured for the above referenced project. The Tables below show the electric service configurations required based on the voltage and phase in the order of preference. **This information must be given to the professional designing the pump system electrical service.**

Sign Approval	Voltage	Phase	Hertz	Panel Connections
	460	Three	60	4 Wires (A, B, C, Ground)
	208	Three	60	5 Wires (A, B, C, Neutral, Ground)
	230	Three	60	5 Wires (A, B, C, Neutral, Ground)
	230	Open-Delta Three	60	5 Wires (A, B, C, Neutral, Ground)
	208	Single	60	4 Wires (A, B, Neutral, Ground)
	230	Single	60	4 Wires (A, B, Neutral, Ground)

Approval Signature Print Name Date Company Name

The Hoover Pumping Systems pump station is supplied with an Underwriters Laboratories® listed enclosed Industrial Control Panel assembly. The Control Panel assembly contains all of the pump system controls, a main disconnect, and a ground connection. All panel penetrations by the installing electrician must use fittings and methods rated NEMA 4 or NEMA 4X. A separate service disconnect is required. Based on the information provided:

The **minimum** labeled wire size connection to the panel is: **To Be Determined** AWG [1] copper. Note that **larger** wires may be required to limit voltage drop. Our recommendation, for best operation, is to size conductors for **no more than 3% voltage drop** [2] at panel listed full load amperes of: **To Be Determined** Amps.

The pump station will include the following pump motor and control loads:

Load	Horsepower	Amps [3]	Service Factor
Pump#1	7.5	**TBD**	1.15
Control Panel	N/A	10	N/A

The data here may be used for selection of appropriate electrical supply equipment, including feeder, branch circuit protection, and disconnects.

Please contact Hoover Pumping Systems at (954) 971-7350 for assistance with voltage drop or other application considerations. Thank you.

[1] ref. Underwriters Laboratories 28.3 125% of largest motor FLA plus 100% of all remaining loads and table 28.1
[2] ref. NFPA 70 - National Electrical Code (N.E.C.) 210.19(A) FPN No. 4, 215.2 FPN No. 2
[3] Pump motor Full Load Amps (FLA), larger of: variable frequency drive rated input current (ref. N.E.C. 430-122), or N.E.C. tables 430-148 & 430-150, or motor nameplate

NOTE: DISCHARGE PIPES & HEADER TO IRRIGATION MAIN SHALL BE SCHED 40 GALVANIZED STEEL PIPE WITH GALV. ROLL GROOVE FITTINGS. PUMP DROP PIPE SHALL BE HDPE. SET PUMP 60' ON 2" PIPE. INSTALL MOTOR CABLE SPLICE BETWEEN MOTOR AND CONTROL PANEL IN NEMA 4X JUNCTION BOX ADJACENT TO WELL IN ACCORDANCE WITH ELECTRICAL CODES.

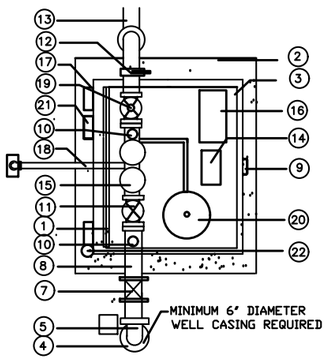
WELL DRILLER SHALL NOTIFY THE PUMP SYSTEM MANUFACTURER IN WRITING WITHIN 24 HOURS OF DEVELOPING THE WELL IF THE WELL PUMPING LEVEL IS GREATER THAN 45' BELOW FINISHED GRADE AFTER 8 HOURS OF CONTINUOUS PUMPING AT 125% OF THE DESIGN FLOW BELOW.

HOOVER FLOWGUARD WATER MANAGEMENT:
COMMUNICATION VIA CELLULAR MODEM CONNECTION.
USER DEFINED INTERNET BASED CONTROL PARAMETERS USING STANDARD WEB BROWSER WITH EVENT LOGGING AND EMAIL ALERTS FOR WARNINGS AND ALARMS AS FOLLOWS:

X HMI CONTROL INTERFACE AND DISPLAY ON CONTROL PANEL
X MAXIMUM GALLON PER MINUTE USAGE WITH ADJUSTABLE TIME DELAY AND NUMBER OF RESTART ATTEMPTS
X MINIMUM TOTAL DAILY WATER USAGE
X DAILY, MONTHLY AND ANNUAL WATER USAGE BUDGETS
X GRAPHING OF REAL TIME AND HISTORICAL FLOW, INCOMING AND DISCHARGE PRESSURE AND SYSTEM EVENTS WITH TIME AND DATE SHOWN
X RAIN GAUGE PRECIPITATION REPORTING, ADJUSTABLE SHUTDOWN
X HISTORIC WATER USAGE BY DAY AND MONTH
X VFD FAULT/STARTER OVERLOAD FAULT SHUTDOWN
X POWER OFF/ON ALERT
X CENTRIFUGAL PUMP HIGH TEMPERATURE
X PUMP RAPID CYCLE
X PUMP LOSS OF PRIME
X DISCHARGE FILTER CONTROL AND MANAGEMENT

PROVIDE MINIMUM OF 4' CLEARANCE ON ALL SIDES OF PUMP SYSTEM

* FEATURES ARE INCLUDED IF MARKED WITH AN "X"
X VARIABLE FREQUENCY DRIVE
X PRESSURE TANK FOR PRESSURE DEMAND SYSTEM



PLAN VIEW NTS

NOTE: CITY OF PORT ST. LUCIE REQUIRES A 6 FT. HT CHAIN LINK FENCE AROUND PUMP SYSTEM

ESTIMATED PUMP PERFORMANCE
55 GPM @ 120 TDH, 50 PSI

MAINTAIN 4' CLEARANCE IN FRONT OF CONTROL PANEL AND 4' ALL SIDES OF PUMP SYSTEM.

1 4' X 8' FIBERGLASS REINFORCED ENCLOSURE FOREST GREEN GELCOAT FINISH
2 10' X 10' REINFORCED CONCRETE PAD, NO OPENINGS, LEVEL BY OTHERS
3 4' X 8' GALVANIZED STEEL SKID
4 WELL SEAL
5 WELL, JUNCTION BOX & DISCHARGE PIPE
6 SUBMERSIBLE PUMP MOTOR ASSEMBLY 7.5 HP (NOT SHOWN).
7 CHECK VALVE
8 GALV. STEEL DISCHARGE
9 LOCKABLE HANDLE
10 PRESSURE TRANSDUCER
11 MAGNETIC FLOW METER WITH FLOWGUARD AND IRRIGATION CONTROLLER OUTPUTS
12 DISCHARGE ISOLATION VALVE
13 IRRIGATION MAIN
14 VARIABLE FREQUENCY DRIVE
15 AUTOMATIC BACK FLUSH SCREEN DISCHARGE FILTER 120 MESH
16 CONTROL PANEL ASSEMBLY STAINLESS STEEL UL LISTED MAINTAIN 42" CLEARANCE
17 MASTER VALVE AND FLOW SENSOR CIRCUITS FOR CONNECTION TO IRRIGATION CONTROLLER BY IRRIGATION CONTRACTOR
18 FILTER BACKWASH LINE 3" HDPE TO APPROVED LOCATION, MAXIMUM 10' OF HEAD LOSS
19 IRRIGATION CONTROLLER MASTER VALVE/HOOVER FLOWGUARD VALVE
20 PRESSURE TANK
21 ELECTRICAL SERVICE CHASEWAY TO CONTROL PANEL
22 FG3 RAIN GAUGE ON 8' POLE

HOOVER PUMPING MODEL: HSF-7.5PDV-230/3-H,M,R3,W,Z
Pompano Beach, Florida, Tel: 954-971-7350

FILE PN13226.DWG 07/21

FDOT CITY OF PORT ST. LUCIE
PUMP A: NORTH END & PUMP B MIDDLE OF US1
SUBMERSIBLE PUMP SYSTEM DETAIL
FIBERGLASS ENCLOSED SINGLE WELL SUCTION
PRESSURE DEMAND, VARIABLE FREQUENCY DRIVE (VFD)
DISCHARGE FILTER, HOOVER FLOWGUARD®

A1 **HOOVER PUMP**

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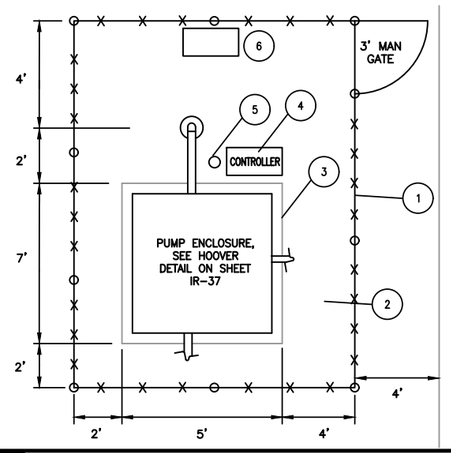
SR 5	ST. LUCIE	

2021-L-490-00004

IRRIGATION PUMP DETAILS

SHEET NO. IR-36

PLAN VIEW NTS

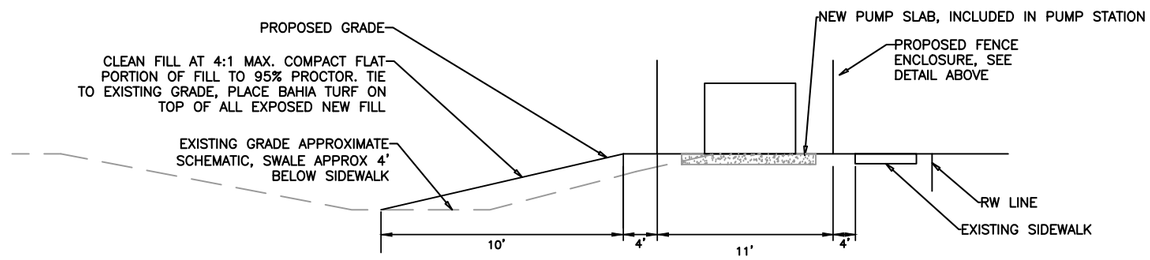


1. 6' HT, 10 GAUGE BLACK VINYL COATED GALVANIZED CHAIN LINK FENCE, 4' FROM SIDEWALK
2. 3" DEEP 3/4" GRAVEL BETWEEN SLAB AND FENCE
3. SLAB PER PUMP MFG
4. RAIN BIRD MAXICOM CONTROLLER W/ SMS (PER PLANS)
5. TIPPING RAIN CAN
6. ELECTRIC METER AND DISCONNECT INSIDE FENCED ENCLOSURE

A1 **PUMP STATION SCHEMATIC**

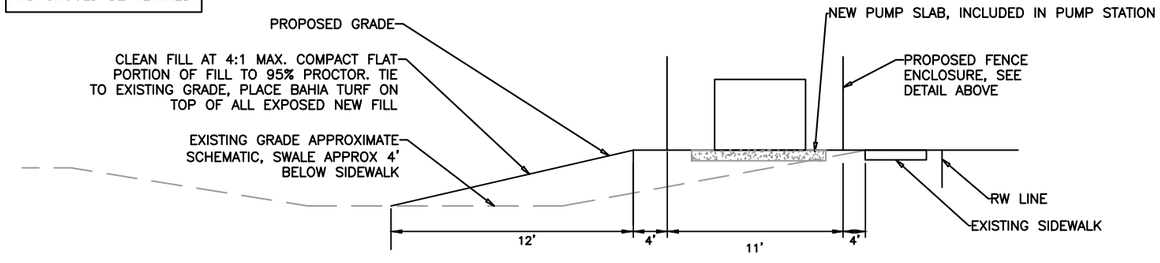
ALL DISTANCES ARE APPROXIMATE BASED ON VISUAL FIELD CONDITIONS AND SHOULD BE VERIFIED

NORTH PUMP LOCATION, GROUND LEVELING SCHEMATIC FOR PUMP SLAB



ALL DISTANCES ARE APPROXIMATE BASED ON VISUAL FIELD CONDITIONS AND SHOULD BE VERIFIED

CENTER PUMP LOCATION, GROUND LEVELING SCHEMATIC FOR PUMP SLAB



A2 **GROUND LEVELING SCHEMATIC FOR PROPOSED PUMPS**

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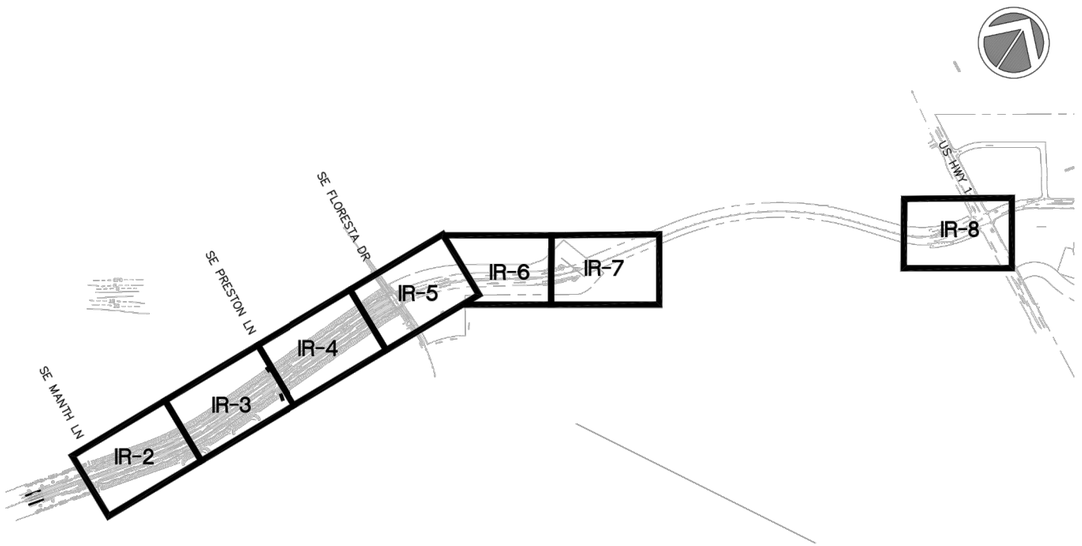
IRRIGATION PUMP & FILTER

SHEET NO.

IR-37



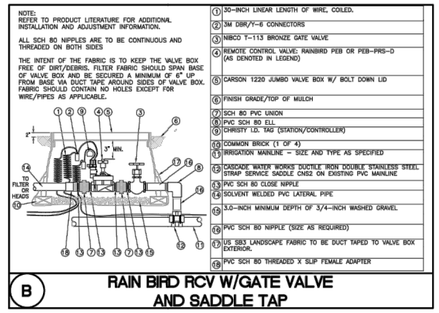
IRRIGATION LEGEND

QTY	SYM	DESCRIPTION	DET.
	F49 / 2 / 1"	ASSIGNED CONTROLLER LETTER-STATION NUMBER GALLONS PER MINUTE-CATALOG FLOW VALVE SIZE	
1	P	EXISTING HOOVER PUMPING SYSTEMS 30 HP IRRIGATION PUMP STATION ID #8791 UTILIZING THE ADJACENT LAKE AS THE WATER SOURCE	
1	RP	EXISTING HOOVER PUMPING SYSTEMS 7.5 HP RECHARGE PUMP STATION ID #8792 UTILIZING A 6" WELL AS THE WATER SOURCE	
1		EXISTING WILKINS 2" DOUBLE CHECK BACKFLOW ASSEMBLY	
13		PROPOSED RAIN BIRD PESB SERIES RCV (SIZED PER PLAN) WITH A NIBCO T-113 GATE VALVE WITH A CASCADE WATER WORKS DUCTILE IRON DOUBLE STAINLESS STEEL STRAP SERVICE SADDLE CNS2 ON EXISTING PVC MAINLINE (TAPS SHALL NOT BE LOCATED WITHIN 5' OF EXISTING VALVES) IN A CARSON 1220 JUMBO VALVE BOX WITH BOLT DOWN LID.	B
55		EXISTING RAIN BIRD REMOTE CONTROL VALVE (SIZE PER PLAN)	
1	E	EXISTING RAIN BIRD ESP-4OSAT-2S PEDESTAL MOUNT CONTROLLER	
1	F	EXISTING RAIN BIRD ESP-4OSAT-2S PEDESTAL MOUNT CONTROLLER	
1	G	EXISTING RAIN BIRD ESP-LXM 8 STATION CONTROLLER	
1	CCU	EXISTING RAIN BIRD 28 CHANNEL CLUSTER CONTROL UNIT (CCU)	
9	S	EXISTING SPLICE BOX	
8		EXISTING NIBCO P-619-RW ISOLATION VALVE (LINE SIZE)	
2	R	EXISTING RAIN SENSOR	
		EXISTING CLASS 200 GASKETED PVC MAINLINE (SIZE PER PLAN)	
		EXISTING CLASS 200 PVC SLEEVES (SIZE PER PLAN)	

QUANTITIES GIVEN ARE FOR CONVENIENCE ONLY. THE ACCURACY IS NOT GUARANTEED. ALL QUANTITIES SHALL BE VERIFIED.

*DET (ON THE LEGEND) - THE LETTER IN THIS COLUMN DENOTES THE CORRESPONDING DETAIL SHOWN ON THE DETAIL SHEET.

NOTES:
1. CONTRACTOR TO VERIFY SPARE WIRES PRIOR TO INSTALLATION
2. TYPICAL SHRUB AND TREE ZONES ARE PROVIDED FOR REFERENCE
3. ALL INSTALLATIONS MUST COMPLY WITH PORT ST. LUCIE IRRIGATION STANDARDS



B — RAIN BIRD RCV W/GATE VALVE AND SADDLE TAP

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811 KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
It's fast, its free, it's the law.
Call 811 two business days before digging

DATE: 7/21/20
SCALE: NTS
DESIGN BY: JJ
DRAWN BY: JJ
CHECKED BY: BF
APPROVED BY: MW
DESCRIPTION:
DATE:
BY:

MASUEN CONSULTING, LLC
DESIGN • CONSULT • MANAGE
TEL: (866) 928-1533 FAX: (800) 928-1534
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PROUDLY DESIGNED AND PRODUCED IN THE USA

SEAL

CROSSTOWN PKWY - SEG 1
CITY OF PORT ST. LUCIE FLORIDA

IRRIGATION AS BUILT PLAN

IR-1
SHEET 1 OF 8

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
Sabine Lang-Marks LA-0001733

MASUEN CONSULTING
301 S. Washington, Suite F
Newport, WA 99156
866-928-1533 Fax: 800-928-1534

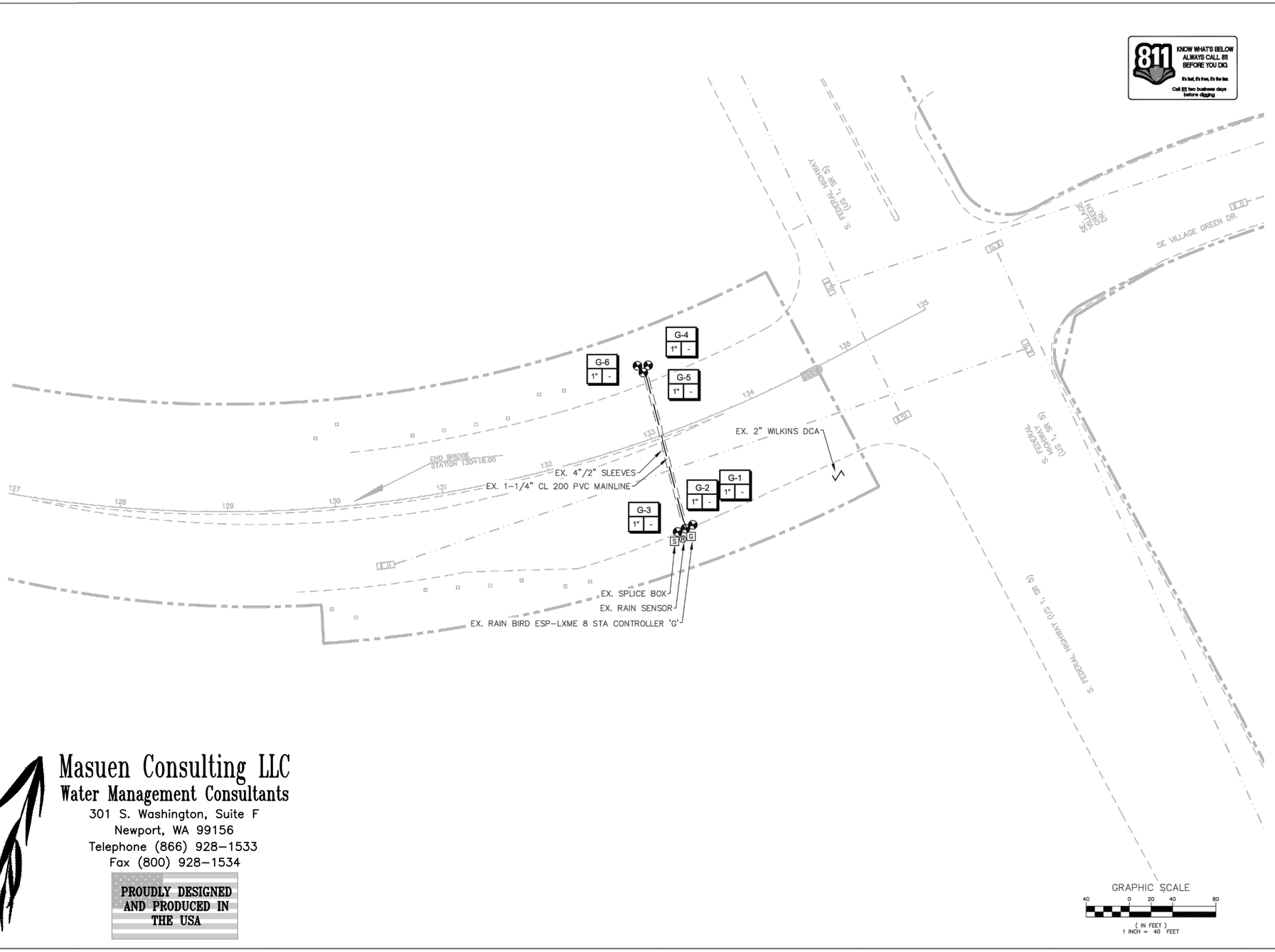
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

AS-BUILT DRAWING

SHEET NO.
IR-38



Masuen Consulting LLC
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301 S. Washington, Suite F
Newport, WA 99156
Telephone (866) 928-1533
Fax (800) 928-1534

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DESCRIPTION:	BY:	DATE:

DATE: 7/21/20
SCALE: 1"=40'
DESIGN BY: JJ
DRAWN BY: JJ
CHECKED BY: BF
APPROVED BY: MW

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SEAL

CROSSTOWN PKWY - SEG 1
CITY OF PORT ST. LUCIE FLORIDA
IRRIGATION AS BUILT PLAN

IR-8
SHEET 8 OF 8

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Landscape Architect of Record:
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Newport, WA 99156
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 5	ST. LUCIE	

2021-L-490-00004

AS-BUILT DRAWING

SHEET NO.
IR-39