



RESTROOM FACILITY IRRIGATION

VA PROJECT #846CM3040

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CEMETERY
MAIN GATE

JBSA FT SAM HOUSTON
MAIN CANTONMENT

LOCATION MAP

N.T.S.

		CONSULTANTS:				ARCHITECT/ENGINEERS:		Drawing Title PROJECT COVER SHEET, INDEX, AND PROJECT LOCATION MAP		Project Title FSH NATIONAL CEMETERY RESTROOM FACILITY IRRIGATION		VA Project Number 846CM3040		Office of Construction and Facilities Management	
						 US ARMY CORPS OF ENGINEERS FORT WORTH DISTRICT ENGINEERING / CONSTRUCTION DIVISION DESIGN BRANCH		Approved: Project Director - VAPAHCS PLANNING AND ENGINEERING		Location SAN ANTONIO TX		Building Number N/A			
										Date JANUARY 2017		Checked -		Drawing Number G-001 Dwg.-- of --	
Revisions: Date														 Department of Veterans Affairs	

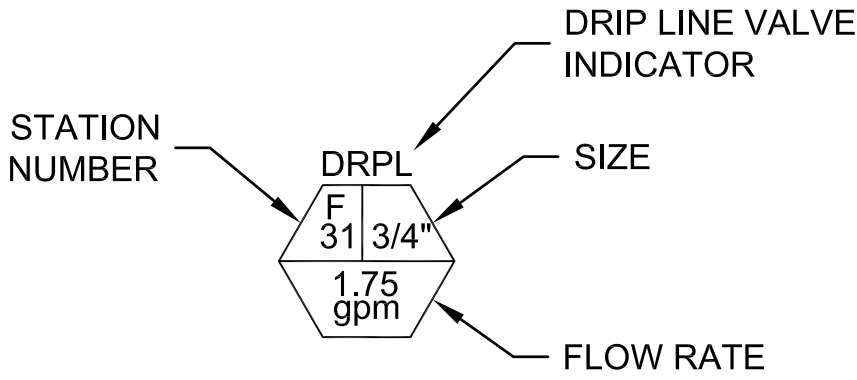
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IRRIGATION SPRINKLER LEGEND & DATA

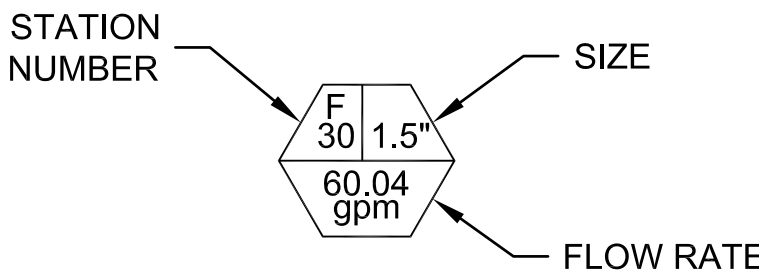
SYMBOL	DESCRIPTION	PRESSURE (PSI)	FLOW (GPM)	RATED RADIUS (FT)	DESIGN RADIUS (FT)	P.R. Δ (IN/HR)
	RAINBIRD POP-UP MODEL 1804-SAM SERIES WITH U-15F NOZZLE (O.A.E.)	25	3.30	14.0	12.6	1.87
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DRIP LINE NOTES

- CONTROL VALVE FOR DRIP LINE ZONE SHALL BE RAINBIRD MODEL XCZ-075-PRF (O.A.E.)
- DRIPLINE SHALL BE RAINBIRD XFS DRIPLINE, PURPLE IN COLOR, HAVING 0.4 GPH EMITTERS SPACED AT 18" (O.A.E.). LATERAL SPACING BETWEEN DRIPLINES SHALL BE 18" OR AS RECOMMENDED BY MANUFACTURER.
- CONTRACTOR SHALL NOTIFY COR IF VARIANCE FROM LATERAL AND EMITTER SPACING IS PROPOSED.
- CONSTRUCTION OF THE "MANIFOLD" PROVIDING WATER TO THE DRIPLINES SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS.



DRIPLINE CONTROL VALVE
(SEE GENERAL NOTES)



SPRINKLER CONTROL VALVE
(SEE GENERAL NOTES)

IRRIGATION INSTALLATION PROCEDURES:

- REFER TO WRITTEN SPECIFICATIONS FOR PROCEDURE THAT THE CONTRACTOR SHALL FOLLOW WHEN INSTALLING THE IRRIGATION.
- BEFORE TRENCHING, THE CONTRACTOR SHALL STAKE THE IRRIGATION HEAD LOCATIONS, INCLUDING ADJACENT EXISTING HEADS AND PROPOSED.
- THE SPRINKLER HEADS ARE SPACED BASED ON 45% OF THE SPRINKLER DESIGN DIAMETER (90% OF THE SPRINKLER DESIGN RADIUS) .
- REFER TO THE IRRIGATION SPRINKLER LEGEND AND DATA (THIS SHEET) FOR THE INDIVIDUAL SPRINKLER HEAD RADII. USE THE DESIGN RADII SHOWN TO LAYOUT THE ROTOR AND POP-UP SPRINKLER HEAD LOCATIONS. DO NOT USE A SCALE TO MEASURE AND LOCATE THE HEADS.
- AFTER STAKING THOSE LOCATIONS, THERE SHOULD BE 100% COVERAGE WITH NO GAPS. THE DESIGN RADII SHOWN ON THE IRRIGATION LEGEND IS BASED ON A WIND SPEED LESS THAN 10 MPH.
- THE CONTRACTOR SHALL VERIFY TO THE OWNER'S REPRESENTATIVE IN WRITING THAT THE 100% COVERAGE WITH NO GAPS HAS BEEN ACHIEVED.
- THE CONTRACTOR SHALL NOT PROCEED WITH THE IRRIGATION INSTALLATION UNTIL HE HAS DEMONSTRATED THAT THESE REQUIREMENTS HAVE BEEN ACHIEVED.

GENERAL NOTES

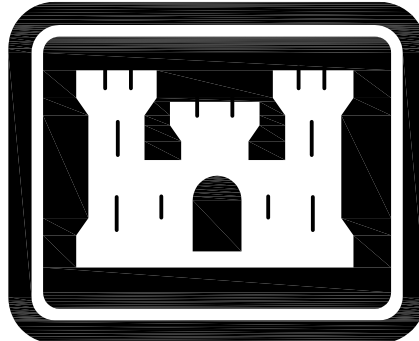
- ANY REFERENCE TO A PARTICULAR MANUFACTURER BY NAME WITHIN THESE DRAWINGS MAY BE SUBSTITUTED WITH AN APPROVED EQUAL AS DETERMINED BY THE VA.
- SPRINKLER LATERALS AND DRIPLINES SHOWN ARE DIAGRAMMATIC BUT SHOULD BE FOLLOWED AS CLOSELY AS POSSIBLE. SLIGHT VARIANCES MAY BE APPROVED BUT CONTRACTOR SHALL NOTIFY THE COR PRIOR TO CONSTRUCTING.
- SPRINKLER HEAD LOCATIONS SHALL BE VERIFIED BY THE CONTRACTOR. THE DESIGN SPACING INDICATED IN THE IRRIGATION SPRINKLER LEGEND SHALL NOT BE EXCEEDED WITHOUT PRIOR AUTHORIZATION FROM THE COR.
- SPRINKLER LATERAL PIPE SIZES SHOWN ARE REQUIRED. PORTIONS OF PIPE NOT HAVING A SIZE INDICATED SHALL BE 3/4-INCH. ALL PIPING AND FITTINGS SHALL BE SCHEDULE 40 PVC.
- A MINIMUM OF 3-INCHES OF CLEARANCE SHALL BE PROVIDED BETWEEN SPRINKLER HEADS AND ADJACENT STRUCTURES INCLUDING BUT NOT LIMITED TO SIDEWALKS, CURB & GUTTER, AND BUILDING FOUNDATIONS.
- EXISTING IRRIGATION SHOWN ON PLANS WAS TAKEN FROM AS-BUILT DRAWINGS AND MAY NOT MATCH EXACTLY WHAT EXISTS WITHIN OR ADJACENT TO THE PROJECT LIMITS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS.
- WHERE EXISTING IRRIGATION IS SHOWN ADJACENT TO OR NEAR THE NEW PROPOSED IRRIGATION, THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE EXISTING SPRINKLER HEADS. CONTRACTOR SHALL VERIFY THE COVERAGE FROM THE NEW AND EXISTING SPRINKLER HEADS AND VERIFY THAT ADEQUATE COVERAGE IS PROVIDED. IF COVERAGE IS NOT DEEMED ADEQUATE, THE CONTRACTOR SHALL NOTIFY THE COR AND ADD OR ADJUST SPRINKLER HEADS AND PIPING AS NECESSARY TO PROVIDE COVERAGE REQUIRED. SEE IRRIGATION INSTALLATION PROCEDURES FOR SPACING AND COVERAGE REQUIREMENTS.
- LOCATIONS OF UTILITIES SHOWN HERON ARE APPROXIMATE AND PROVIDED FROM PAST SURVEYS AND AS-BUILT DRAWINGS. CONTRACTOR SHALL FIELD VERIFY ALL UTILITIES SHOWN. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY LOCATING SERVICES PRIOR TO COMMENCING CONSTRUCTION.
- NEW SLEEVING SHOWN SHALL EXTEND 6-INCHES BEYOND THE EDGE OF THE PROPOSED SIDEWALKS.
- IN ALL LOCATIONS WHERE PROPOSED IRRIGATION PIPE IS CONNECTED TO EXISTING IRRIGATION PIPE, THE CONTRACTOR SHALL TAKE CAUTION TO PREVENT CONTAMINATING THE EXISTING IRRIGATION SYSTEM WITH DEBRIS. CLEANING DEBRIS FROM THE EXISTING IRRIGATION SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR SHALL INSTALL ALL NEW IRRIGATION EQUIPMENT. REFURBISHED OR USED IRRIGATION EQUIPMENT SHALL NOT BE ALLOWED.
- SEE SHEETS I-301 AND I-302 FOR CONSTRUCTION DETAILS.
- AFTER CONSTRUCTION COMPLETE, VERIFY THAT ALL REMAINING ADJACENT IRRIGATION HEADS ARE OPERATIONAL. CONTRACTOR SHALL MAKE THE REPAIRS NECESSARY TO CONNECT ANY PORTION OF THE EXISTING IRRIGATION SYSTEM THAT ARE FOUND NOT TO BE CONNECTED OR OPERATIONAL.
- REMOTE CONTROL IRRIGATION VALVES SHALL BE SUPERIOR MODEL 950PRS (O.A.E.), SIZE AS INDICATED ON THE PLANS.
- DRIPLINE IRRIGATION CONTROL VALVE SHALL BE RAINBIRD LOW FLOW VALVE KIT MODEL XCZ-075-PRF (O.A.E.)

LEGEND

NEW	EXISTING	DEMOLISH	DESCRIPTION
			BUBBLERS
			IRRIGATION CONTROL VALVE (CALLOUTS PROVIDED FOR DEMOLISHED)
			SPRINKLER LATERAL
			DRIP IRRIGATION LINE
			SLEEVING UNDER PAVEMENTS

CONSULTANTS:

ARCHITECT/ENGINEERS:



US ARMY CORPS OF ENGINEERS
FORT WORTH DISTRICT

ENGINEERING / CONSTRUCTION DIVISION
DESIGN BRANCH

Drawing Title
LEGEND AND NOTES

Approved: Project Director

VAPAHCS PLANNING AND ENGINEERING

Project Title
**FSH NATIONAL CEMETERY
RESTROOM FACILITY
IRRIGATION**

Location
SAN ANTONIO TX

Date
JANUARY 2017

Checked
J. MCKENZIE

Drawn
B. JENSEN

VA Project Number
846CM3040

Building Number
N/A

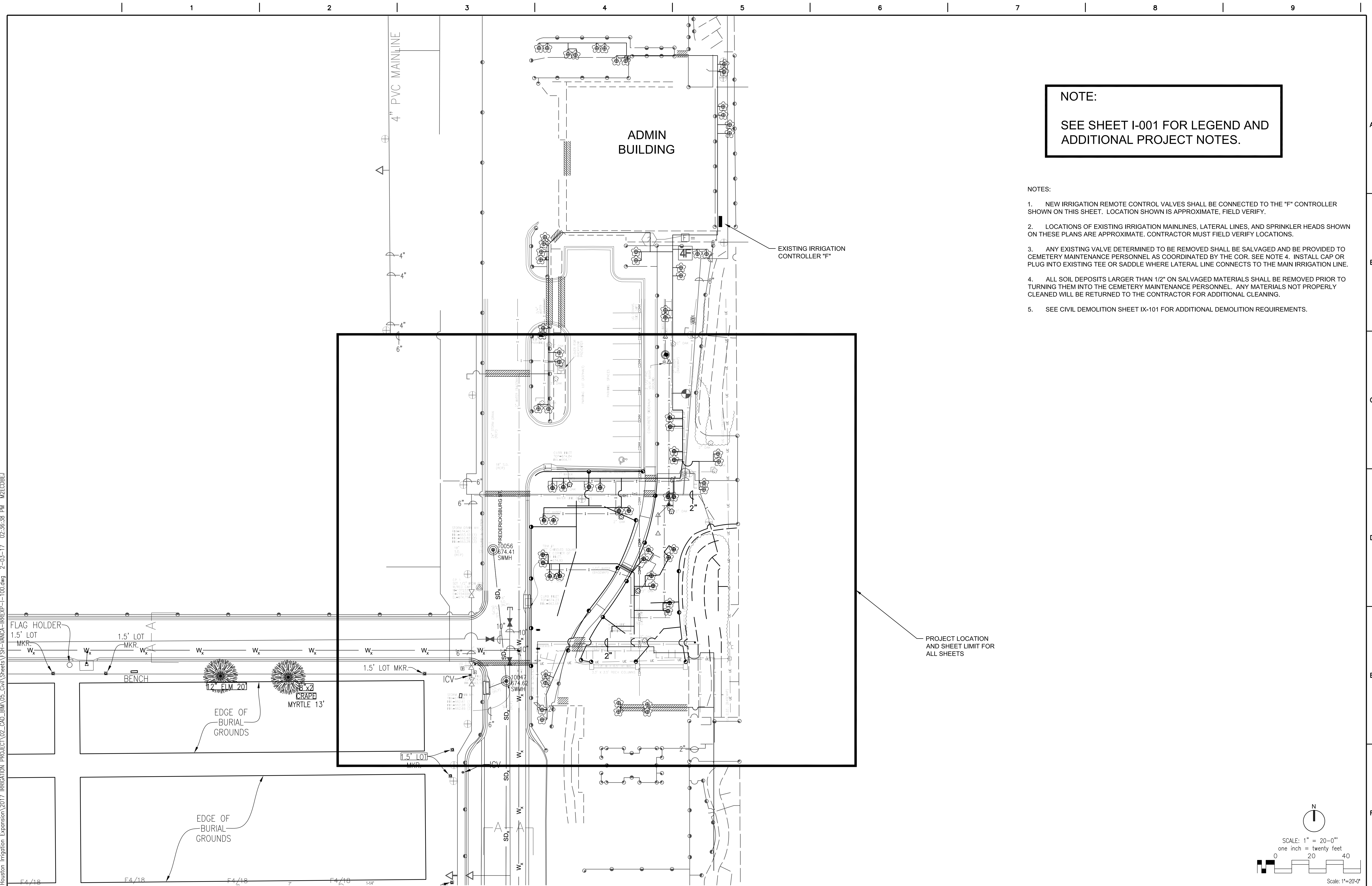
Drawing Number

I-001

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Office of
Construction
and Facilities
Management





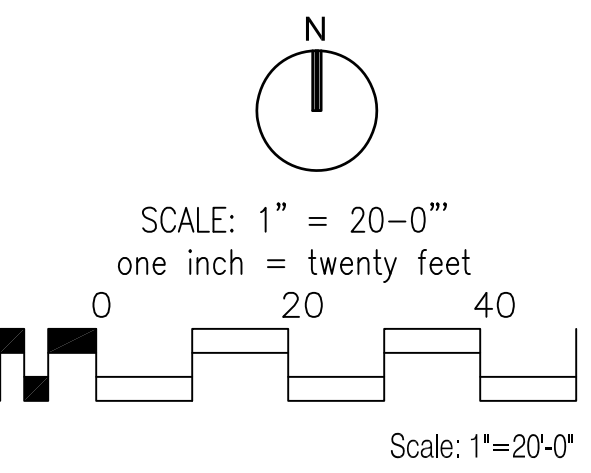
NOTE:

SEE SHEET I-001 FOR LEGEND AND
ADDITIONAL PROJECT NOTES.

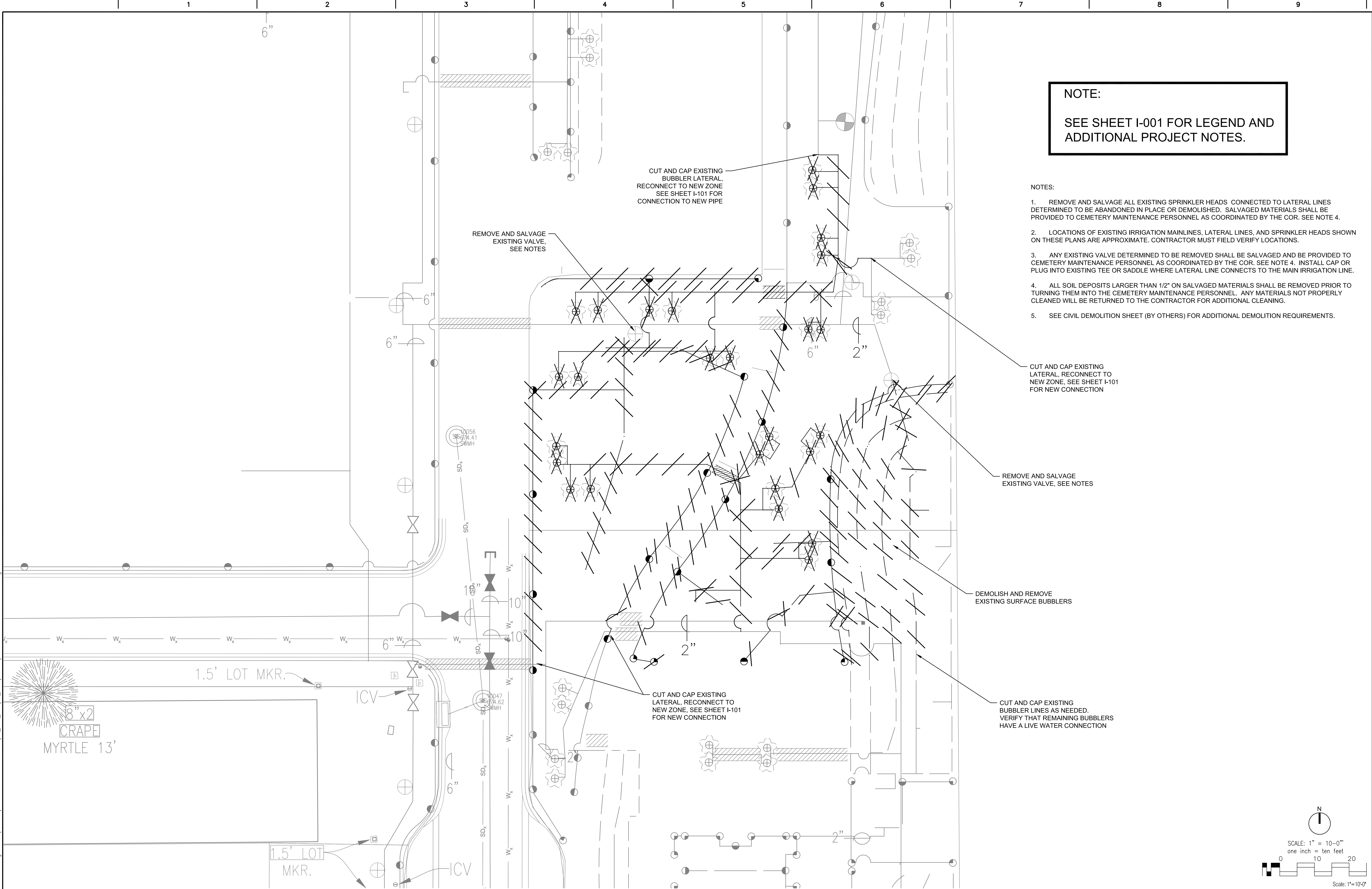
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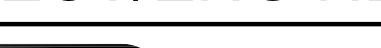
1. NEW IRRIGATION REMOTE CONTROL VALVES SHALL BE CONNECTED TO THE "F" CONTROLLER SHOWN ON THIS SHEET. LOCATION SHOWN IS APPROXIMATE, FIELD VERIFY.
2. LOCATIONS OF EXISTING IRRIGATION MAINLINES, LATERAL LINES, AND SPRINKLER HEADS SHOWN ON THESE PLANS ARE APPROXIMATE. CONTRACTOR MUST FIELD VERIFY LOCATIONS.
3. ANY EXISTING VALVE DETERMINED TO BE REMOVED SHALL BE SALVAGED AND BE PROVIDED TO CEMETERY MAINTENANCE PERSONNEL AS COORDINATED BY THE COR. SEE NOTE 4. INSTALL CAP OR PLUG INTO EXISTING TEE OR SADDLE WHERE LATERAL LINE CONNECTS TO THE MAIN IRRIGATION LINE.
4. ALL SOIL DEPOSITS LARGER THAN 1/2" ON SALVAGED MATERIALS SHALL BE REMOVED PRIOR TO TURNING THEM INTO THE CEMETERY MAINTENANCE PERSONNEL. ANY MATERIALS NOT PROPERLY CLEANED WILL BE RETURNED TO THE CONTRACTOR FOR ADDITIONAL CLEANING.
5. SEE CIVIL DEMOLITION SHEET IX-101 FOR ADDITIONAL DEMOLITION REQUIREMENTS.

— PROJECT LOCATION
AND SHEET LIMIT FOR
ALL SHEETS

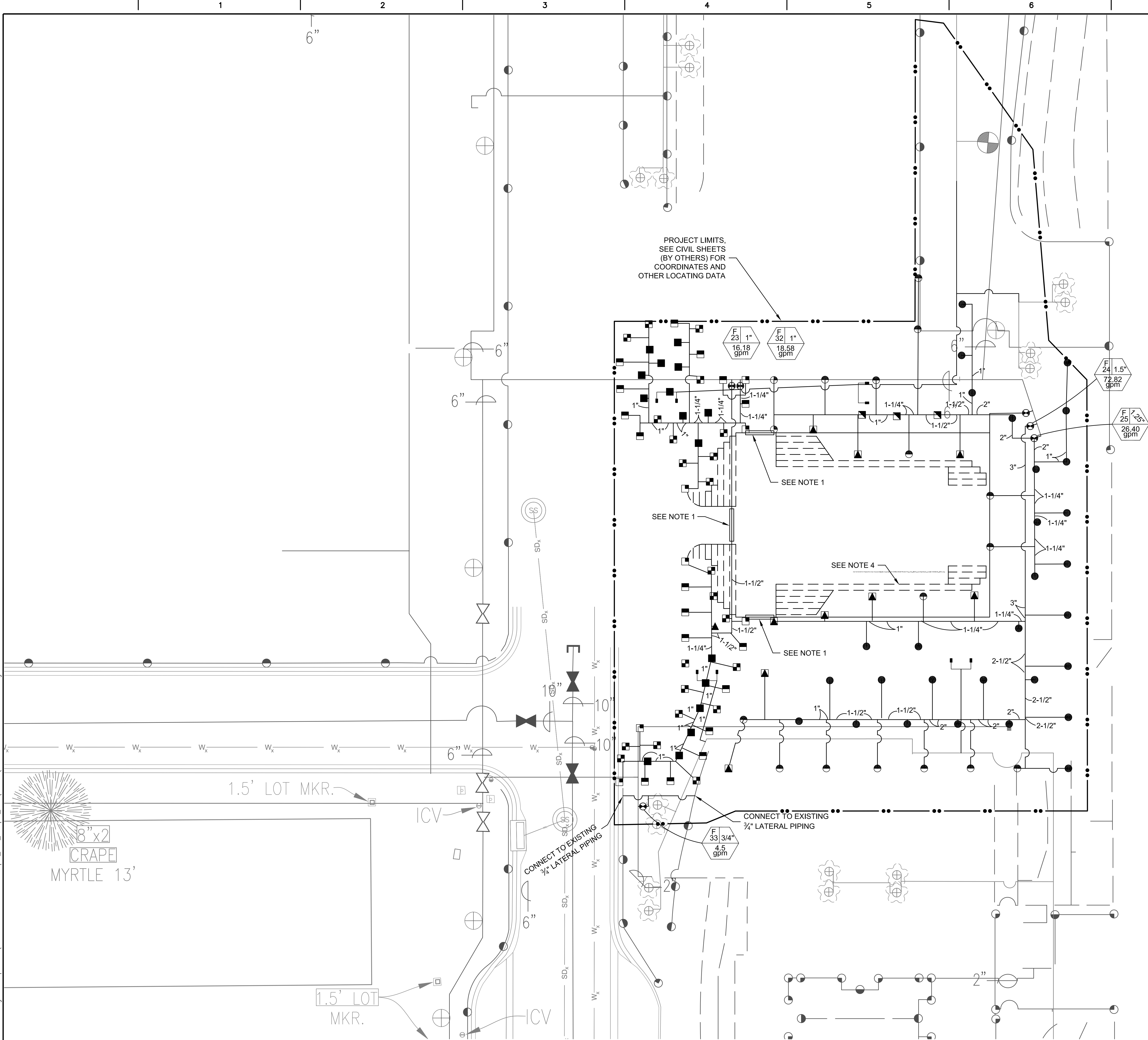
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		CONSULTANTS:				ARCHITECT/ENGINEERS:		Drawing Title IRRIGATION DEMOLITION PLAN		Project Title FSH NATIONAL CEMETERY RESTROOM FACILITY IRRIGATION		VA Project Number 846CM3040		Office of Construction and Facilities Management	
						<div></div> <div>US ARMY CORPS OF ENGINEERS FORT WORTH DISTRICT</div> <div>ENGINEERING / CONSTRUCTION DIVISION DESIGN BRANCH</div>		Approved: Project Director VAPAHCS PLANNING AND ENGINEERING		Location SAN ANTONIO TX		Building Number N/A			
										Date JANUARY 2017		Checked J. MCKENZIE		Drawing Number IX101	
												Drawn B. JENSEN		Dwg.--- of ---	
Revisions:														Department of Veterans Affairs	
Date															

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NOTE:

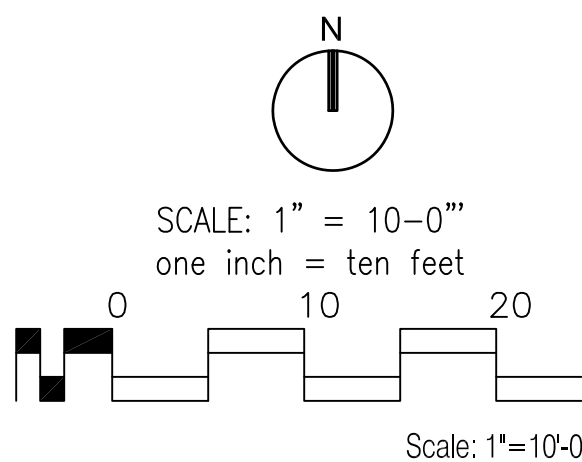
SEE SHEET I-001 FOR LEGEND AND
ADDITIONAL PROJECT NOTES.

NOTES:

1. PROVIDE AND INSTALL 3" DIAMETER PVC CONDUITS, 2 EACH, UNDER SIDEWALK.
2. LOCATIONS OF EXISTING IRRIGATION MAINLINES, LATERAL LINES, AND SPRINKLER HEADS SHOWN ON THESE PLANS ARE APPROXIMATE. CONTRACTOR MUST FIELD VERIFY LOCATIONS.
3. LANDSCAPING AND SITE PLANS BY OTHERS.
4. SEE SHEET I-102 FOR BUBBLER PLAN
5. INSTALL IRRIGATION COMPONENTS IN ACCORDANCE WITH DETAILS PROVIDED ON SHEETS I-301 AND I-302.

IRRIGATION SPRINKLER LEGEND & DATA

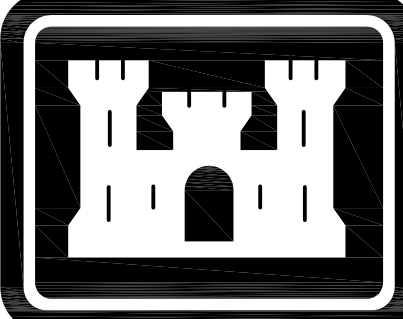
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Revisions	Date

CONSULTANTS:

ARCHITECT/ENGINEERS:




US ARMY CORPS OF ENGINEERS
FORT WORTH DISTRICT
ENGINEERING / CONSTRUCTION DIVISION
DESIGN BRANCH

Drawing Title IRRIGATION SPRINKLER PLAN
Approved: Project Director VAPAHCS PLANNING AND ENGINEERING

Project Title FSH NATIONAL CEMETERY RESTROOM FACILITY IRRIGATION
Location SAN ANTONIO TX
Date JANUARY 2017
Checked J. MCKENZIE
Drawn B. JENSEN

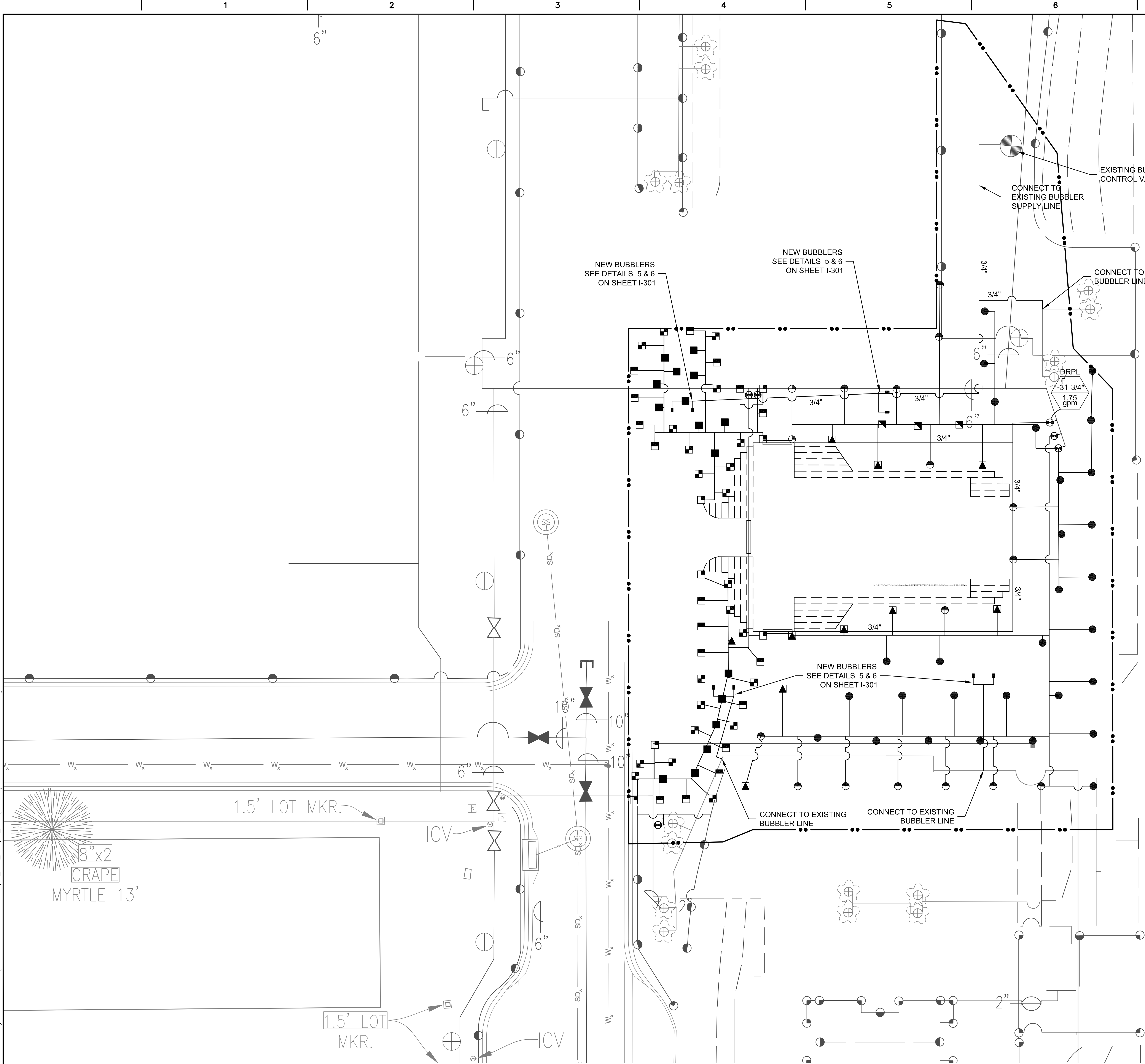
VA Project Number 846CM3040
Building Number N/A
Drawing Number I-101
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Office of
Construction
and Facilities
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Department of
Veterans Affairs

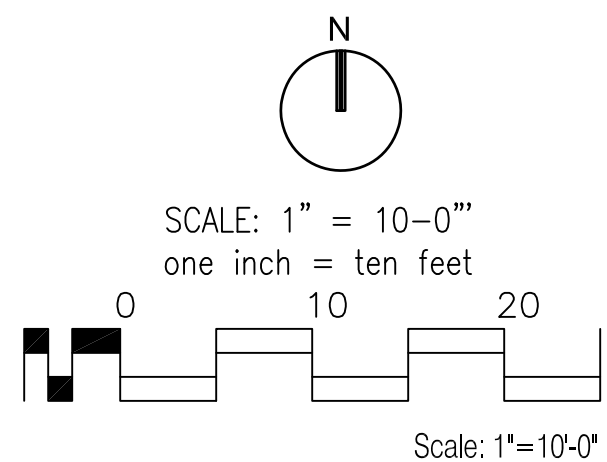
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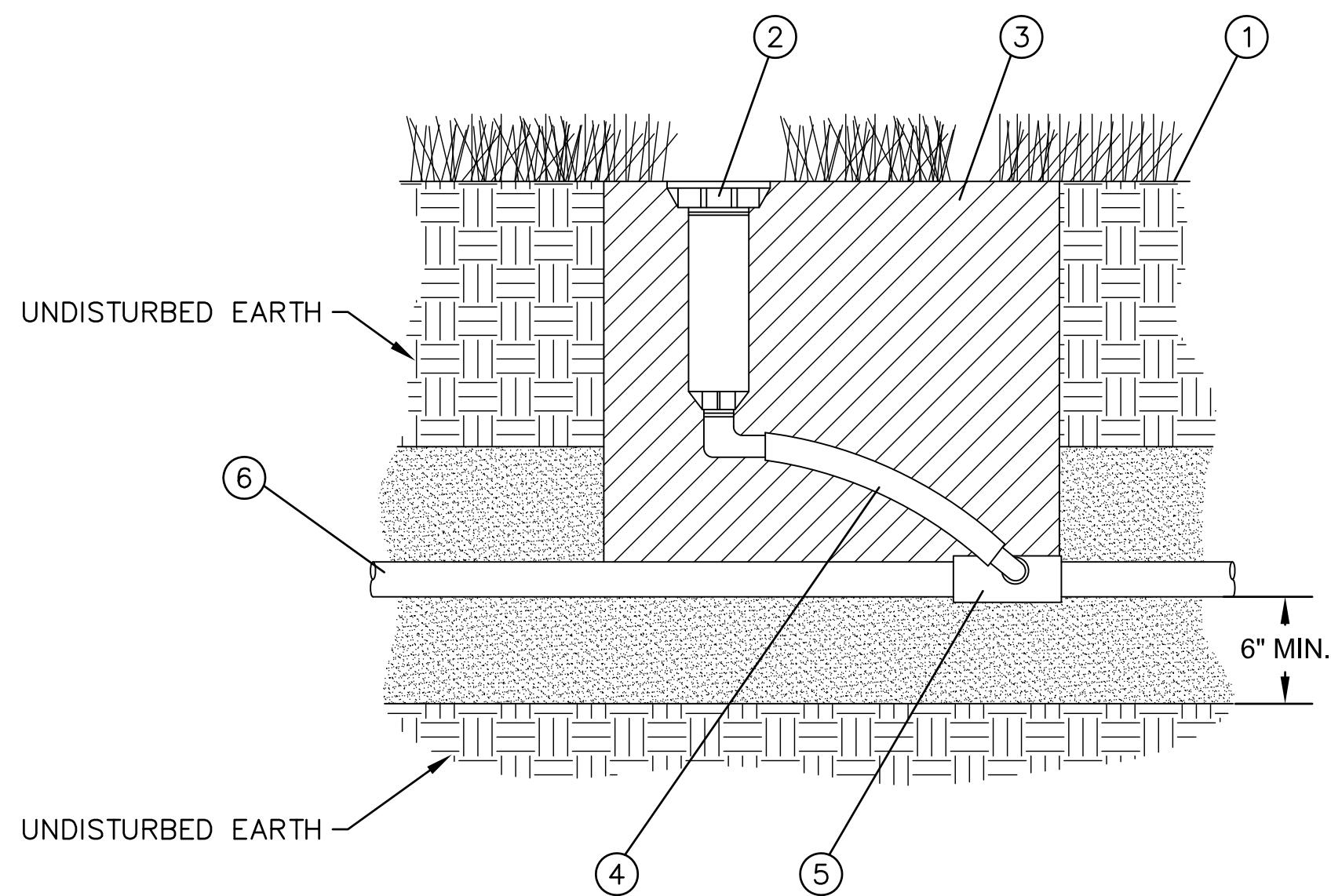
NOTE:
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<table><tr><td>Revisions</td><td>Date</td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></table>		Revisions	Date															CONSULTANTS:		ARCHITECT/ENGINEERS:		Drawing Title IRRIGATION BUBBLER PLAN	Project Title FSH NATIONAL CEMETERY RESTROOM FACILITY IRRIGATION	VA Project Number 846CM3040	Office of Construction and Facilities Management
Revisions	Date																								
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				US ARMY CORPS OF ENGINEERS FORT WORTH DISTRICT ENGINEERING / CONSTRUCTION DIVISION DESIGN BRANCH		Date JANUARY 2017	Checked J. MCKENZIE	Drawn B. JENSEN																	
								Drawing Number I-102	Dwg.-- of --																



NOTE:
COMPACTED FILL WITHIN 12-INCHES OF ALL FITTINGS AND SPRINKLER HEAD
SHALL NOT CONTAIN ANY ROCKS OR GRAVEL MEASURING GREATER THAN
3/4" IN ANY DIRECTION.

- 1

FINISHED GRADE
- 2

SPRAY POP-UP SPRINKLER HEAD, SEE PLANS FOR LOCATION
AND SHEET I-001 FOR MODEL AND NOZZLE REQUIREMENTS
- 3

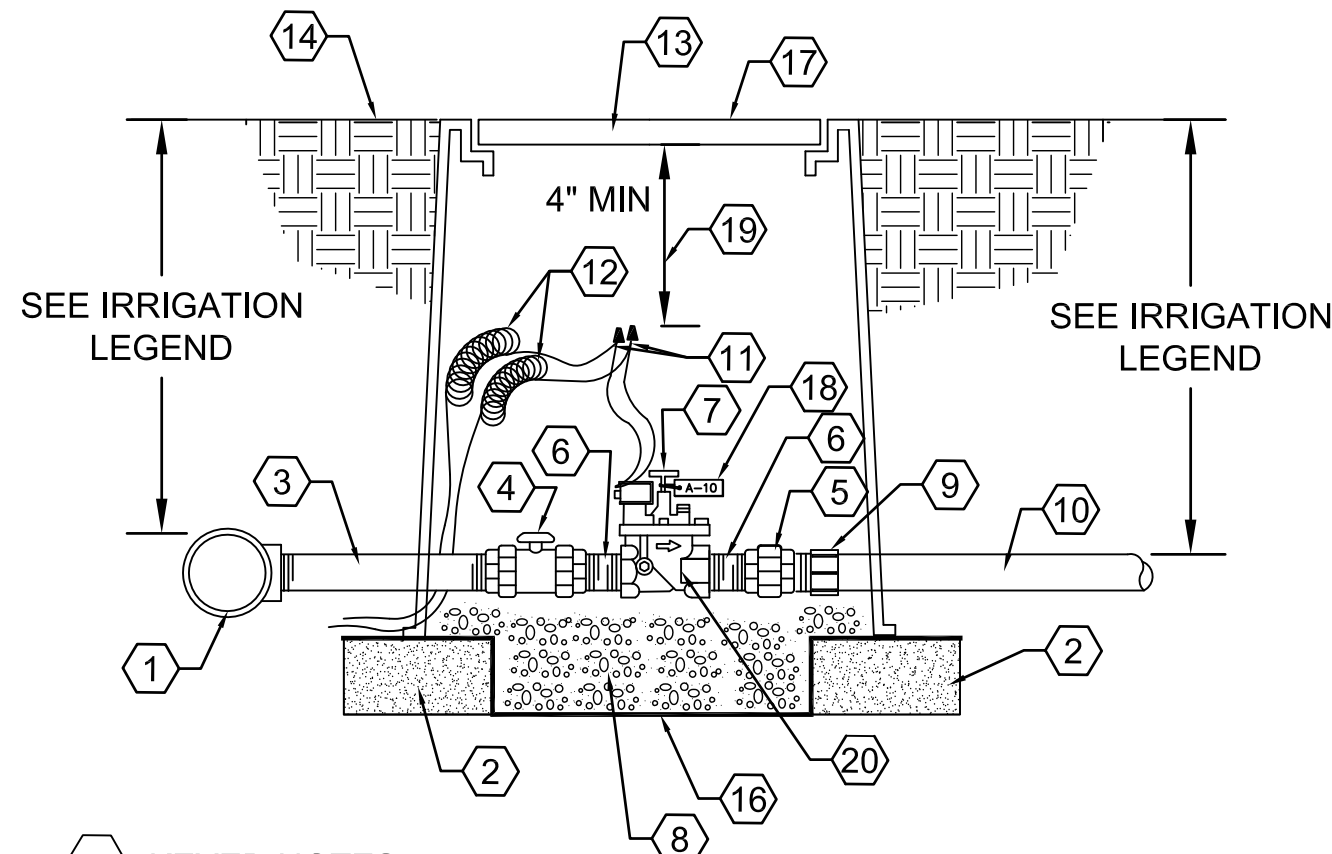
COMPACTED NATIVE SOIL
- 4

RAIN BIRD SA-1205050 W/SB FITTINGS
(O.A.E.) EMBEDDED IN COMPACTED NATIVE SOIL
- 5

PVC SCH 40 TEE OR ELL
- 6

SCH 40 LATERAL PVC LINE, SEE PLAN FOR SIZE

1 TYPICAL POP-UP SPRINKLER DETAIL
N.T.S.



- 1

SERVICE TEE
- 2

8"x8"x16" SOLID CMU BLOCK, ONE
PER CORNER, 4 TOTAL PER BOX
- 3

SCH. 80 PVC NIPPLE, LENGTH AS
REQUIRED
- 4

SPEARS TRUE UNION SCH. 80 PVC
BALL VALVE WITH UNIONS
- 5

SPEARS SCH. 80 PVC UNION
- 6

SCH. 80 PVC NIPPLE - 3" LENGTH
- 7

AUTOMATIC VALVE (SEE LEGEND)
- 8

1" DIAMETER WASHED ROCK, 8"
DEPTH
- 9

SCH. 40 PVC MALE ADAPTER
- 10

LATERAL PIPING (SEE LEGEND)
- 11

WATERPROOF WIRE CONNECTOR
- 12

36" WIRE EXPANSION LOOPS
- 13

APPLIED ENGINEERING 1730-18 BLACK VALVE
BOX WITH PURPLE BOLT DOWN COVER AND
EXTENSIONS AS REQUIRED
- 14

FINISH GRADE
- 15

NOT USED
- 16

FILTER FABRIC
- 17

FACTORY-BRANDED LID WITH 1" TALL BY 3/16"
DEEP LETTERS AND NUMBERS IDENTIFYING
VALVE STATION NUMBER I.E.: "V-12" FOR
REMOTE CONTROL VALVES (REFERENCING
IRRIGATION PLANS FOR VALVE NUMBERS)
- 18

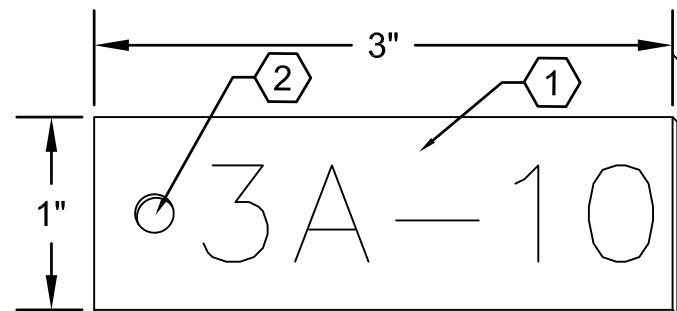
ATTACH VALVE ID TAG TO VALVE STEM WITH
NYLON CABLE TIE (REFERENCE DETAIL
B7/I-132)
- 19

4" MIN CLEARANCE BETWEEN VALVE BOX LID
AND HIGHEST OBJECT IN BOX
- 20

BUCKNER IRRIGATION-SUPERIOR IRRIGATION
CONTROL VALVE MODEL 950PRS. SEE PLANS
FOR SIZE.

2 REMOTE CONTROL VALVE ASSEMBLY
N.T.S.

NOTE: ATTACH VALVE TAG TO VALVE STEM WITH NYLON
CABLE TIE



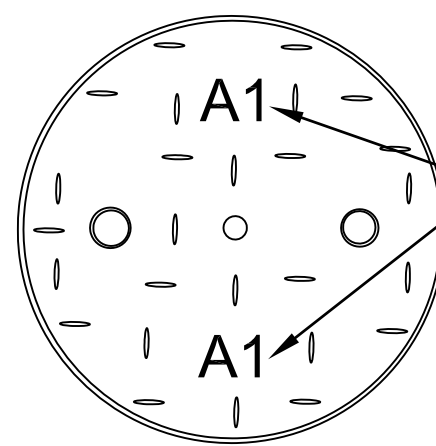
- KEYED NOTES

1. 1/8" THICK RIGID 2-PLY LAMINATE PLASTIC TAG AS AVAILABLE
FROM KOLBI PIPE MARKER COMPANY, 1-800-499-8450 (OR
APPROVED EQUAL). TAG SHALL BE ENGRAVED WITH VALVE
NUMBER AS IDENTIFIED ON THE IRRIGATION PLAN. TAG
COLOR SHALL BE PURPLE WITH WHITE LETTERING.

2. 3/16" DIAMETER DRILLED HOLE

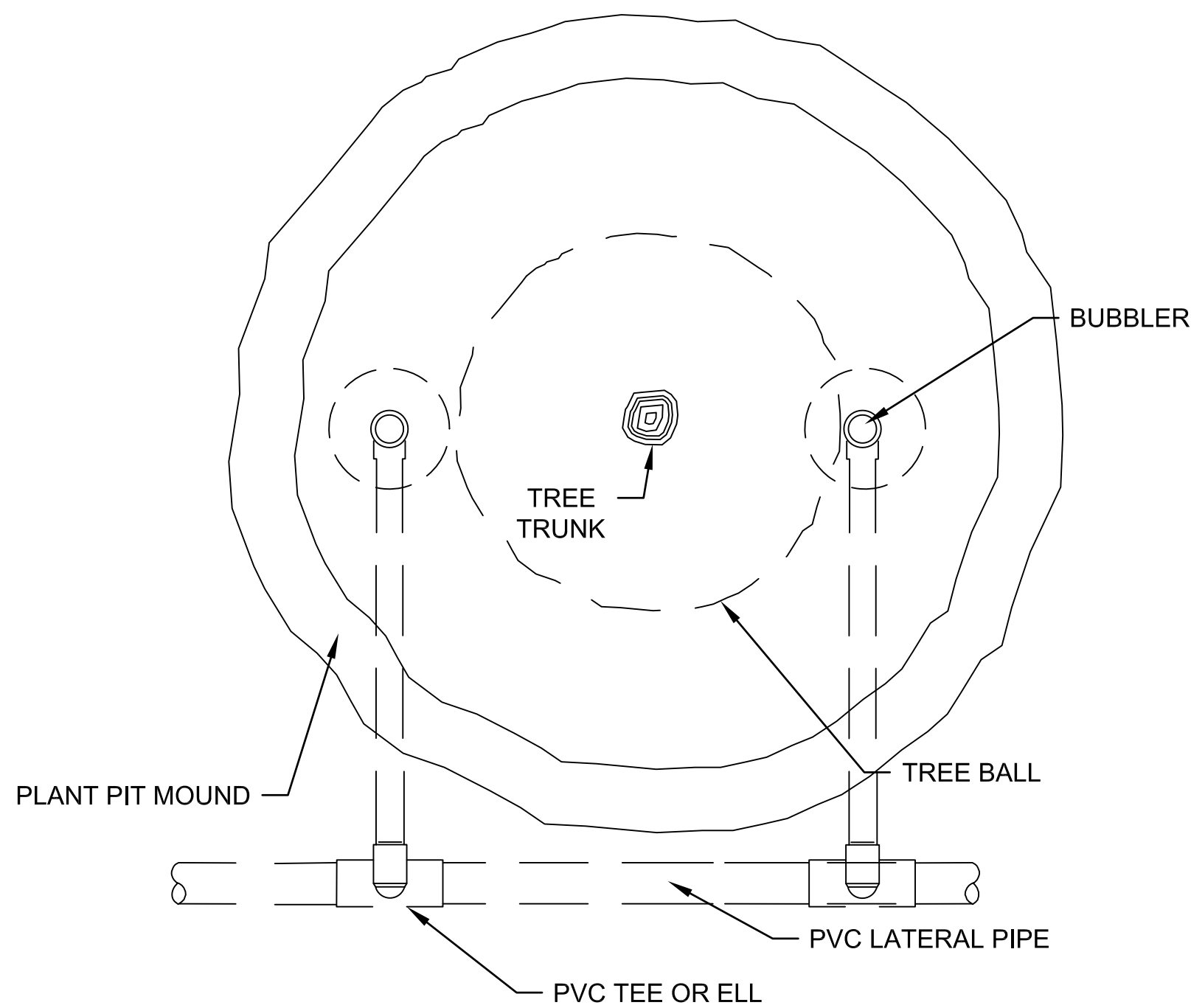
3 PLASTIC VALVE TAG
N.T.S.

PLAN VIEW OF VALVE BOX LID

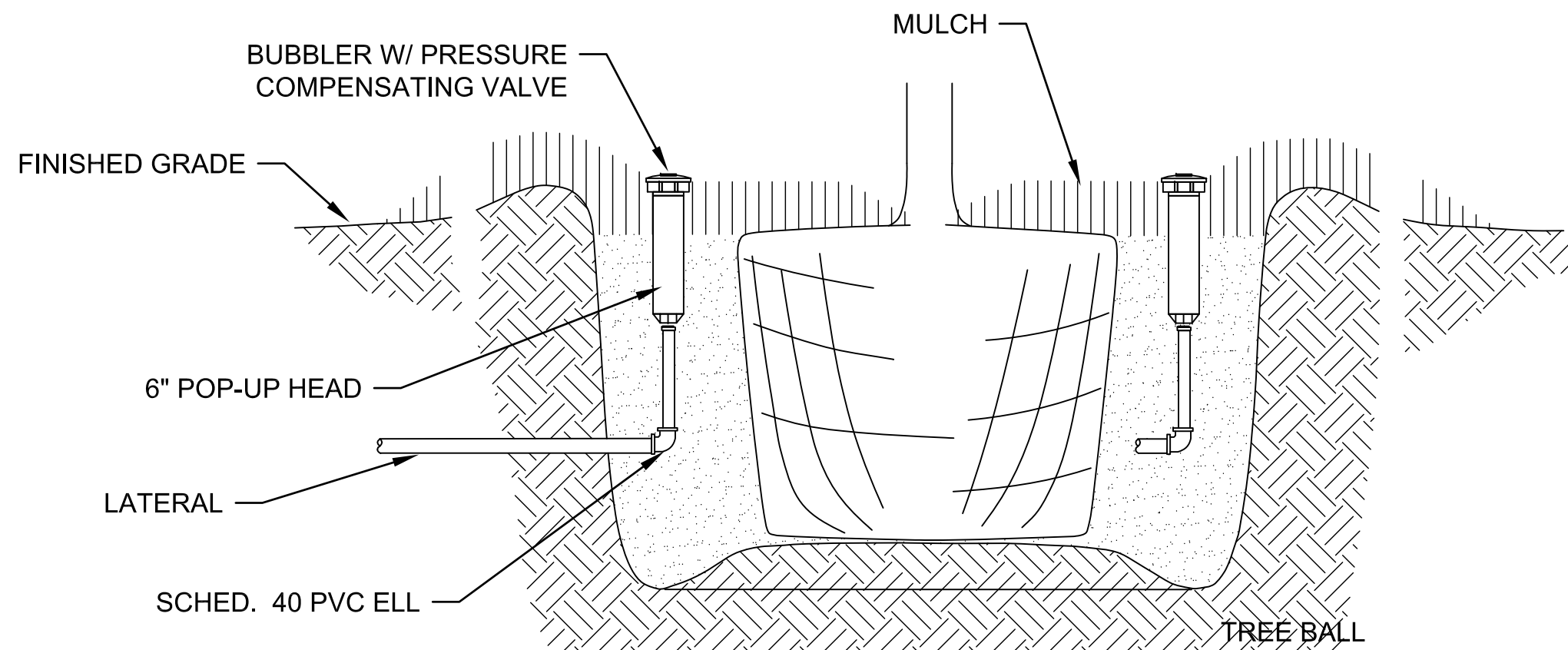


HOT BRAND TWO 3" HIGH, 3/8" WIDE AND 3/16"
DEEP LABELS DESIGNATING CONTROLLER
LETTER AND STATION NUMBER. USE MV
FOR MASTER VALVE. REFERENCE
SPECIFICATIONS

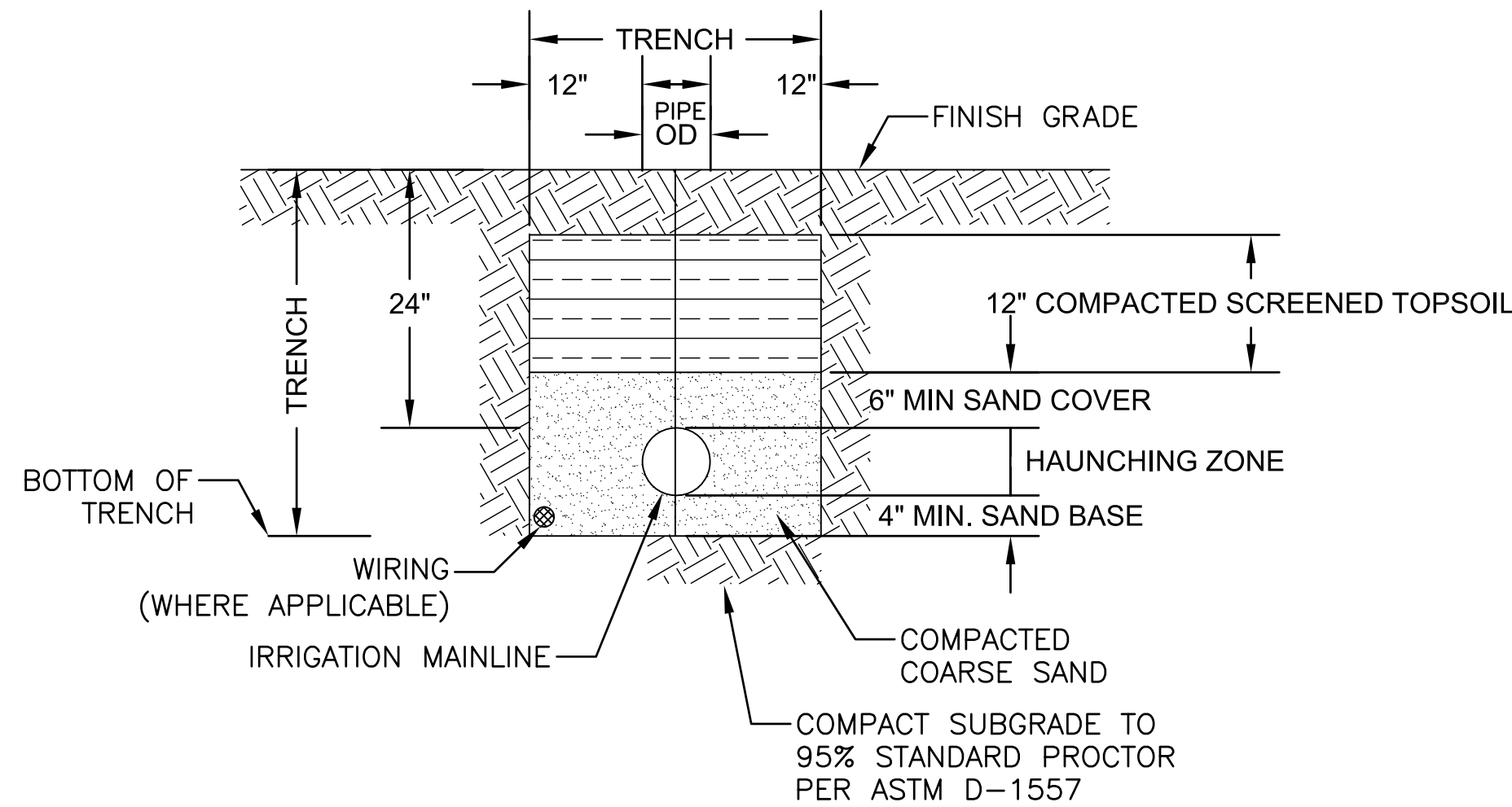
4 HOT BRANDING VALVE BOX LID
N.T.S.



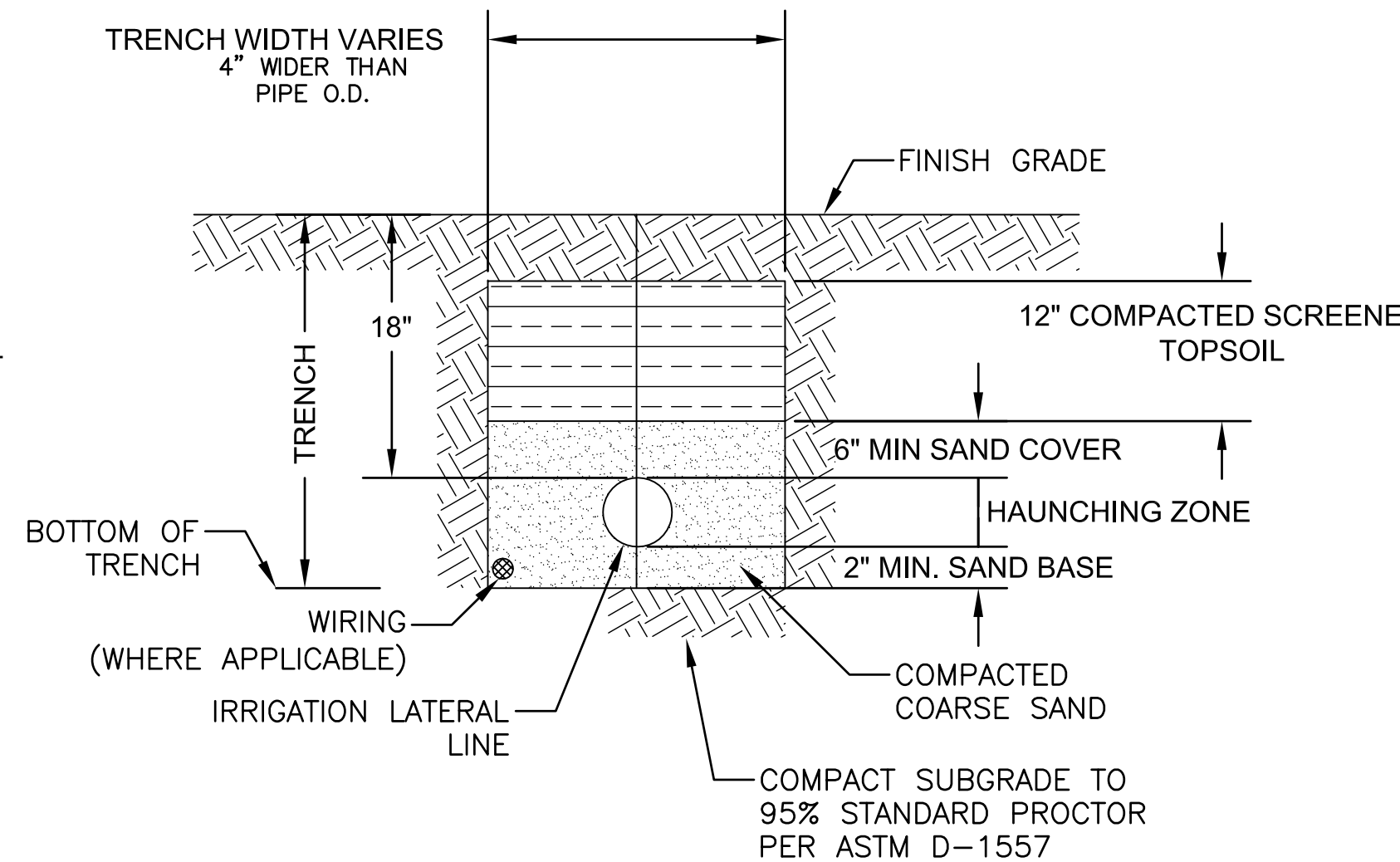
5 BUBBLER AT TREE INSTALLATION DETAIL
N.T.S.



6 BUBBLER AT TREE - SECTION
N.T.S.



7 IRRIGATION MAIN TRENCH DETAIL
N.T.S.

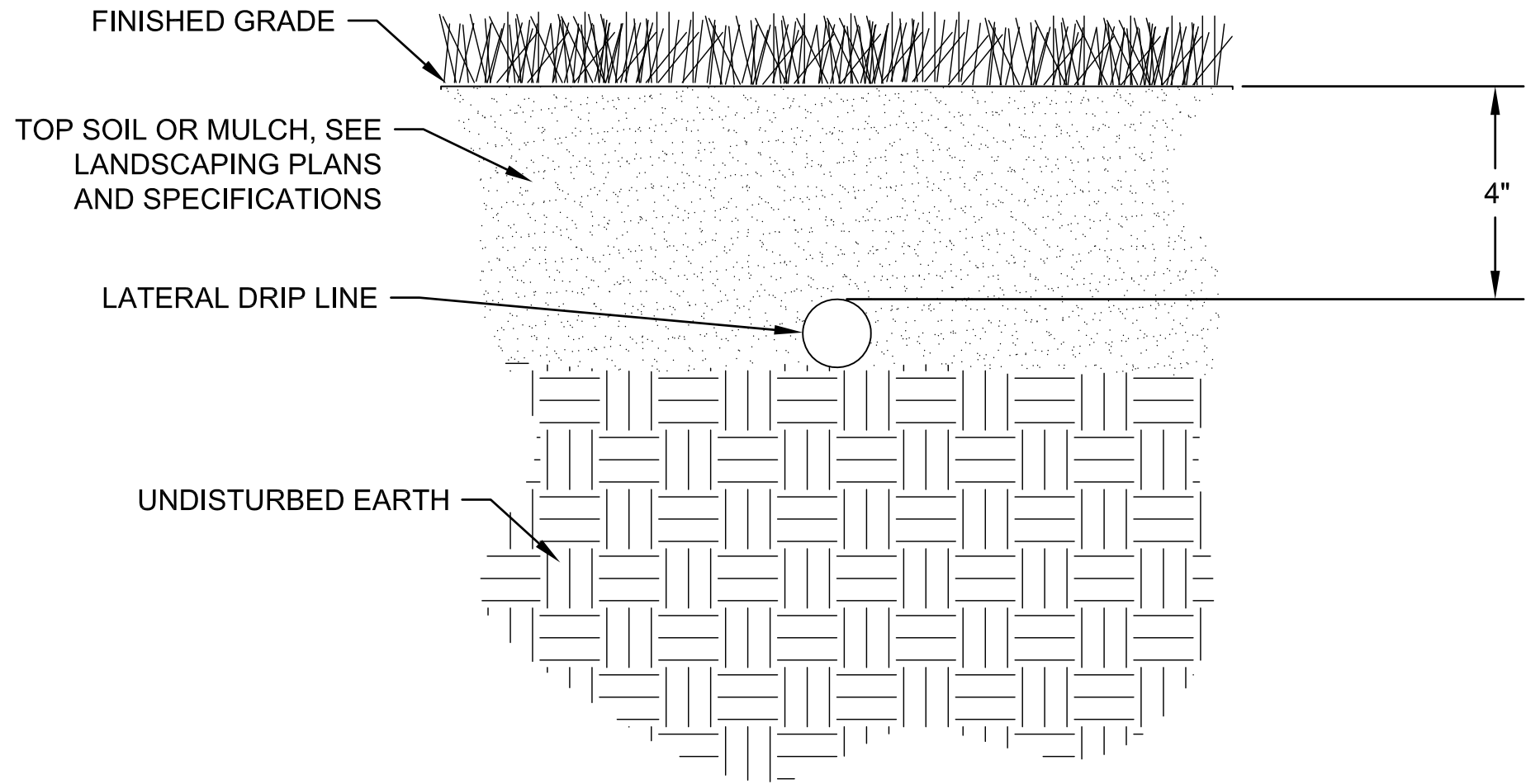


8 IRRIGATION LATERAL TRENCH DETAIL
N.T.S.

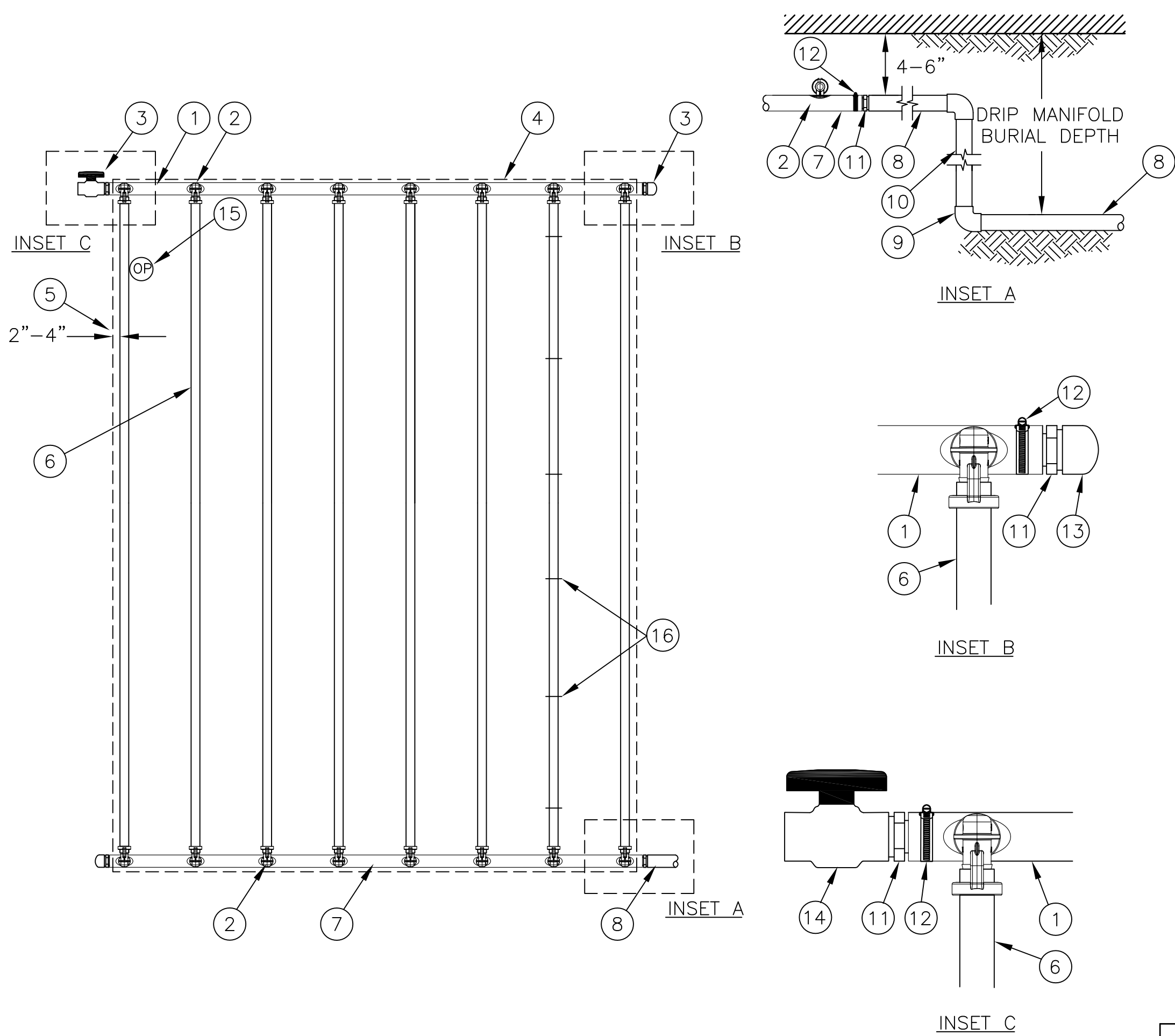
NOTE:
TEFLON TAPE, PASTE, OR DOPE SHALL NOT BE USED ON ANY PVC PIPE
THREAD. THREAD SEALANT MUST BE NON-HARDENING, COMPATIBLE WITH PVC,
AND APPROVED BY THE PIPE FITTING MANUFACTURER.
(LOCTITE MR5438 OR APPROVED EQUAL)

		CONSULTANTS:		ARCHITECT/ENGINEERS:	<div>Drawing Title IRRIGATION DETAILS I</div> <div>Approved: Project Director VAPAHCS PLANNING AND ENGINEERING</div>	<div>Project Title FSH NATIONAL CEMETERY RESTROOM FACILITY IRRIGATION</div> <div>Location SAN ANTONIO TX</div> <div>Date JANUARY 2017</div> <div>Checked J. MCKENZIE</div> <div>Drawn B. JENSEN</div>	<div>VA Project Number 846CM3040</div> <div>Building Number N/A</div> <div>Drawing Number I-301</div> <div>Dwg.-- of --</div>	<div>Office of Construction and Facilities Management</div> <div>Department of Veterans Affairs</div>
Revisions	Date							

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1 DRIPLINE LATERAL TRENCH DETAIL
N.T.S.



- NOTES:
1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING SHALL BE 18".
 2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM SPACING SHOWN IN THE ACCOMPANYING TABLE.

2 XFS SUB-SURFACE DIPLINE
END FEED LAYOUT OF QF HEADER N.T.S.

- 1 QF-FLUSH HEADER
- 2 PRE-INSTALLED BARB FITTING
- 3 FLUSH POINT WITH PVC CAP OR OPTIONAL PVC BALL VALVE
- 4 PERIMETER OF AREA
- 5 PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
- 6 RAIN BIRD XFS SERIES DRIPLINE (TYPICAL)
- 7 QF-SUPPLY HEADER
- 8 PVC DRIP MANIFOLD FROM RAIN BIRD CONTROL ZONE VALVE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
- 9 PVC SCH 40 ELL (TYPICAL)
- 10 PVC SCH 40 RISER PIPE
- 11 MALE ADAPTER INSERT
- 12 STAINLESS STEEL, OETIKER OR MURRAY CLAMP
- 13 PVC SCH 40 CAP
- 14 PVC SCH 40 BALL VALVE
- 15 OPERATION INDICATOR RAIN BIRD MODEL: OPERIND
- 16 XF SERIES TIE-DOWN STAKES (TDS-050) REFER TO RAIN BIRD DRIPLINE DESIGN GUIDE FOR PROPER SPACING

XFS Dripline Maximum Lateral Lengths (Feet)						
Inlet Pressure psi	12" Spacing		18" Spacing		24" Spacing	
	Nominal Flow (gph)		Nominal Flow (gph)		Nominal Flow (gph)	
	0.6	0.9	0.6	0.9	0.6	0.9
15	273	155	314	250	424	322
20	318	169	353	294	508	368
30	360	230	413	350	586	414
40	395	255	465	402	652	474
50	417	285	528	420	720	488
60	460	290	596	455	780	514

NOTE:
TEFLON TAPE, PASTE, OR DOPE SHALL NOT BE USED ON ANY PVC PIPE THREAD. THREAD SEALANT MUST BE NON-HARDENING, COMPATIBLE WITH PVC, AND APPROVED BY THE PIPE FITTING MANUFACTURER.
(LOCTITE MR5438 OR APPROVED EQUAL)

		CONSULTANTS:		ARCHITECT/ENGINEERS:		Drawing Title IRRIGATION DETAILS II		Project Title FSH NATIONAL CEMETERY RESTROOM FACILITY IRRIGATION		VA Project Number 846CM3040		Office of Construction and Facilities Management Department of Veterans Affairs	
						Approved: Project Director VAPAHCS PLANNING AND ENGINEERING		Location SAN ANTONIO TX		Building Number N/A			
								Date JANUARY 2017		Checked J. MCKENZIE			Drawn B. JENSEN
Revisions		Date								Drawing Number I-302		Dwg.-- of --	