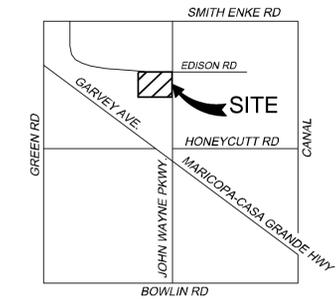


LANDSCAPE PLAN FOR: *SONORAN CREEK* *JOHN WAYNE PARKWAY & EDISON RD.*



GENERAL NOTES:

ANY CHANGES MADE TO THE PLANS AND DETAILS SHOWN ON THESE DOCUMENTS WHICH ARE NOT APPROVED BY THE LANDSCAPE ARCHITECT RELEASES RICK ENGINEERING OF ANY LIABILITY INCURRED AS A RESULT OF SAID CHANGES.

A. IT IS THE CONTRACTORS RESPONSIBILITY TO INSPECT THE JOB SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT COULD AFFECT THE INSTALLATION OF ANY WORK SET FORTH IN THESE PLANS OR SPECIFICATIONS PRIOR TO SUBMITTING A BID. BEFORE BEGINNING WORK, THE CONTRACTOR SHALL VERIFY THE ACCURACY OF THE PLANS TO THE SITE CONDITIONS AND SHALL REPORT ALL DISCREPANCIES TO THE OWNERS REPRESENTATIVE. WRITTEN DIMENSIONS AND GRADES PREVAIL OVER SCALED DIMENSIONS. NOTIFY OWNERS REPRESENTATIVE OF ANY DISCREPANCIES.

B. IF ANY UTILITIES CONFLICT WITH THE ORIGINAL PLACEMENT OF INTENDED PLANT MATERIAL ON SITE THE LANDSCAPE ARCHITECT WILL AID THE CONTRACTOR IN THE RELOCATION OR SHIFTING OF PLANT MATERIAL ON SITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY TYPE AND LOCATION OF UTILITIES AS NECESSARY TO AVOID DAMAGE THERETO. ALL UTILITIES SHALL BE LOCATED AND VERIFIED PRIOR TO ANY EXCAVATION. THE LOCATIONS OF UTILITIES, STRUCTURES AND SERVICES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNERS REPRESENTATIVE IMMEDIATELY. PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL CONTACT 1 800 227-2600 TO VERIFY LOCATIONS AND DEPTHS OF UNDERGROUND UTILITIES THAT MAY BE AFFECTED BY THIS WORK, AND SHALL BE RESPONSIBLE FOR DAMAGES TO SUCH UTILITIES CAUSED AS A RESULT OF THE WORK.

C. THE CONTRACTOR SHALL COMPLY WITH ALL LAWS, RULES AND REGULATION OF ALL AUTHORITIES HAVING JURISDICTION OVER THE PREMISES. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR THIS WORK.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL DURING CONSTRUCTION AND SHALL ACQUIRE A DUST CONTROL PERMIT IF REQUIRED FROM THE COUNTY HEALTH DEPARTMENT. ALL COSTS ASSOCIATED WITH DUST CONTROL AND PERMITS IS CONSIDERED INCIDENTAL TO THE PROJECT.

E. LANDSCAPE CONTRACTOR SHALL PROVIDE FINISH GRADING AND REMOVAL OF DEBRIS IN PLANTING AREAS TO INSURE POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES. NO GRADING IS ALLOWED WITHIN DRIP LINE OF EXISTING TREES.

F. CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN A COPY OF THE GEOTECHNICAL SOILS REPORT. CONTRACTOR SHALL OBTAIN AND REVIEW A SOILS AGRONOMY TEST PRIOR TO BEGINNING CONSTRUCTION, AND SHALL ABIDE BY IT TOWARDS THE COMPLETION OF THIS WORK. ANY DISCREPANCIES BETWEEN THE REPORT AND THESE PLANS SHOULD BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE OWNERS REPRESENTATIVE PRIOR TO CONSTRUCTION. .

G. PRIOR TO PLANTING, THE CONTRACTOR SHALL PERFORM ONE (1) PERCOLATION TEST PER 10,000 SQUARE FEET OF PLANTING AREA. THE CONTRACTOR SHALL FILL A 24" BOX SIZE HOLE WITH WATER, IF IT DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS THE CONTRACTOR SHALL NOTIFY THE OWNERS REPRESENTATIVE. TEST SHALL BE DONE UNDER THE SUPERVISION OF THE OWNERS REPRESENTATIVE. IF PROPER DRAINAGE DOES NOT OCCUR WITHIN 24 HOURS CONTRACTOR WILL BE REQUIRED TO INSTALL DRAINAGE CHIMNEYS IN PLANT PITS PER PLANTING DETAILS.

H. PRIOR TO PLANTING THE IRRIGATION SYSTEM SHALL BE FULLY OPERATIONAL AND ALL PLANTING AREAS SHALL BE THOROUGHLY SOAKED.

I. WHEN CALICHE OR HARD PAN IS ENCOUNTERED DURING PLANT PIT EXCAVATION: IF IMPERVIOUS LAYER IS LESS THAN 6" THICK, REMOVE COMPLETELY FROM PLANTING PIT. IF LAYER IS 6"-18" THICK, AUGER A HOLE THROUGH THE LAYER PER PLANTING DETAILS. IF LAYER IS GREATER THAN 18" THICK, ENLARGE THE PLANTING PIT TO TWICE THAT (IN EACH DIRECTION) CALLED OUT IN PLANTING DETAILS.

J. CONTRACTOR SHALL VERIFY ROCK AND SOIL CONDITIONS WITHIN THE PROJECT SITE PRIOR TO BIDDING. NO EXTRA PAYMENT OR TIME EXTENSION WILL BE GIVEN DUE TO ROCKY SOIL CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR CONDUCTING SITE INSPECTIONS AND CHECKING SOIL BORING LOGS TO DETERMINE SUBSURFACE CONDITIONS PRIOR TO BIDDING.

K. ROOT BARRIERS ARE REQUIRED FOR ALL TREES WITHIN 5' FEET OF WALLS, WALKWAYS, STREETS, CURBS AND OTHER HARDSCAPE AREAS. ROOT BARRIER TO EXTEND 10' IN EACH DIRECTION FROM THE CENTERLINE OF THE TREE.

L. ALL PLANT MATERIALS SHALL CONFORM TO NURSERY STANDARDS ACCORDING TO AMERICAN ASSOCIATION OF NURSERYMEN INC. DENVER AMERICAN HORTICULTURE STANDARD AND SHALL BE FREE FROM PESTS, EGGS, DISEASES AND TO BE REPRESENTATIVE OF SPECIES IN SIZE, QUALITY, FORM, COLOR AND NOT BE ROOT BOUND, DAMAGED OR SUBSTANDARD IN ANY WAY. FINAL LOCATION OF ALL PLANT MATERIAL SHALL BE APPROVED BY THE OWNERS REPRESENTATIVE PRIOR TO INSTALLATION. ANY PLANT SUBSTITUTIONS SHALL BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO PURCHASE. REMOVE NURSERY STAKES AND TIES FROM ALL CONTAINER STOCK.

M. 10% OF EACH PLANT MATERIAL SPECIES SHALL BE TAGGED WITH BOTANICAL NAME FROM NURSERY OR SUPPLIER; TAGS TO REMAIN ON PLANT MATERIAL UNTIL FINAL ACCEPTANCE.

N. NO PLANT SUBSTITUTIONS, TYPE, OR QUANTITY DEVIATIONS FROM THE APPROVED LANDSCAPE OR IRRIGATION PLANS WITHOUT PRIOR APPROVAL FROM THE OWNERS REPRESENTATIVE.

O. TREAT ALL ROCK MULCH AREAS WITH PRE-EMERGENT HERBICIDE BEFORE THE ROCK MULCH INSTALLATION.

P. TRANSPORTATION AND NURSERY STAKES SHALL BE REMOVED AT INSTALLATION. INSTALL NEW TREE STAKES PER DETAIL PROVIDED.

Q. THE PLANTING PLAN IS DIAGRAMMATIC. THE QUANTITIES AND SITE CONDITIONS SHOWN ON THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY THE ACTUAL QUANTITIES AND SITE CONDITIONS PRIOR TO BIDDING THE WORK COVERED BY THESE PLANS AND SPECIFICATIONS. CONTRACTOR SHALL NOTIFY OWNERS REPRESENTATIVE OF DISCREPANCIES BETWEEN QUANTITIES AND SYMBOLS SHOWN.

R. THE CONTRACTOR SHALL VERIFY AVAILABLE WATER PRESSURE ON THE SITE PRIOR TO BEGINNING WORK. IF THERE IS A DISCREPANCY BETWEEN THIS READING AND THE MINIMUM PRESSURE REQUIRED, AS NOTED ON PLAN, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNERS REPRESENTATIVE.

S. CONTRACTOR SHALL PROVIDE COMPLETE MAINTENANCE, SEE SPECIFICATIONS FOR DURATION, MAINTENANCE SHALL BEGIN UPON WALK FOR LANDSCAPE MAINTENANCE AND GUARANTEE PERIOD. MAINTENANCE SHALL CONSIST OF BUT NOT BE LIMITED TO KEEPING AREAS CLEAN, WEED FREE, TRIMMED, WATERED, RAKED, PEST AND DISEASE FREE AND ALL OTHER WORK NECESSARY FOR HEALTHY, VIGOROUS GROWTH AND CLEAN APPEARANCE. PRIOR TO COMMENCEMENT OF MAINTENANCE PERIOD, CONTRACTOR SHALL SUBMIT A WATERING/MAINTENANCE SCHEDULE TO THE CONSTRUCTION MANAGER FOR APPROVAL.

T. LANDSCAPE CONTRACTOR SHALL REPLACE ALL PLANT MATERIAL FOUND TO BE IN AN UNHEALTHY, DAMAGED, IMPAIRED CONDITION, MISSING OR DEAD DURING THE MAINTENANCE PERIOD.

U. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND LEGAL DISPOSAL OF ANY DEBRIS RESULTING FROM THE CONSTRUCTION. AT NO TIME SHALL ANY OF THIS MATERIAL OBSTRUCT THE NORMAL OPERATION OF ANY ADJOINING STREET ASSOCIATED WITH THIS PROJECT.

V. THE JOB SITE AT THE COMPLETION OF THE CONSTRUCTION SHALL BE CLEANED OF AN DEBRIS RESULTING FROM CONSTRUCTION. NO JOB WILL BE CONSIDERED UNTIL ALL CURBS, GUTTERS, AND PAVEMENT HAVE BEEN SWEEPED CLEAN OF ALL DIRT AND DEBRIS AND ARE IN COMPLIANCE WITH THE AGENCY SPECIFICATIONS.

W. THE CONTRACTOR IS ADVISED THAT DAMAGE TO ANY PORTION OF ANY EXISTING CURBS, GUTTERS, PAVEMENTS, FENCING, WALLS, LIGHTING AND SURROUNDING AREAS THAT ARE NOT NOTED ON THE PLANS TO BE DISTURBED ARE TO BE REPAIRED AT THE CONTRACTORS EXPENSE.

X. FINAL ACCEPTANCE- A FINAL SITE WALK INSPECTION BY OWNERS REPRESENTATIVE IS REQUIRED AT THE END OF THE LANDSCAPE MAINTENANCE PERIOD PRIOR TO FINAL PROJECT ACCEPTANCE.

OWNER/DEVELOPER

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CIVIL ENGINEER

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OPEN SPACE CALCULATION

SITE AREA:	872,927 SQ. FT. (20.04 AC.)
LANDSCAPE AREA:	71,000 SQ. FT. (1.63 AC.)
EXISTING BASIN/ POND AREA	224,315 SQ. FT. (5.15 AC.)
OPEN SPACE PROVIDED: (LANDSCAPE AREAS + EXIST. BASIN/POND)	295,315 SQ. FT. (34% OF SITE AREA) (6.78 AC.)

LANDSCAPE AREA CALCULATION*

LANDSCAPE AREA:	49,750 SQ. FT.
TREES REQUIRED:	76
TREES PROVIDED:	138
SHRUBS REQUIRED:	456
SHRUBS PROVIDED:	627
GROUND COVER: REQUIRED	40%
GROUND COVER: PROVIDED	40%

* EXCLUDING AREAS WITHIN THE TRANSPORTATION CORRIDOR OVERLAY ZONE

TRANSPORTATION CORRIDOR OVERLAY ZONE LANDSCAPE AREA CALCULATION

LANDSCAPE AREA:	21,250 SQ. FT.
TREES REQUIRED:	49
TREES PROVIDED:	49
SHRUBS REQUIRED:	294
SHRUBS PROVIDED:	297
GROUND COVER: REQUIRED	40%
GROUND COVER: PROVIDED	40%

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DESIGNED: MEF
DRAWN: MEF
PROJECT NO. 5114
DATE: 27-JUNE-2019

L-01 LANDSCAPE COVER SHEET



REVISIONS		
NO.	DESCRIPTION	DATE

PLANT MATERIAL LEGEND

SYMBOL	BOTANICAL NAME COMMON NAME	QTY.	SIZE	H x W (CALIPER)
TREES				
	CAESALPINIA CACALACO 'SMOOTHIE' CASCALOTE	19	24" BOX	7' x 4' (1.5")
	CHILOPSIS LINEARIS DESERT WILLOW	41	24" BOX	7' x 4' (1.25")
	DALBERGIA SISSOO SISSOO TREE	15	24" BOX	8' x 4' (1.5")
	PROSOPIS SEEDLES HYBRID 'AZT' SEEDLESS HYBRID MESQUITE	20	24" BOX	8' x 4' (1.5")
	QUERCUS BUCKLEI TEXAS RED OAK	14	24" BOX	7' x 4' (1.5")
	QUERCUS VIRGINIANA SOUTHERN LIVE OAK	94	24" BOX	7' x 4' (1.5")
	EXISTING TREE TO REMAIN PROTECT IN PLACE			

INORGANIC GROUNDCOVER

A MIN. 2" DEPTH LAYER OF DECORATIVE ROCK SHALL BE PLACED IN ALL PLANTING AREAS INDICATED ON THE PLANS. SIZE SHALL BE 7/8" SCREENED. COLOR SHALL BE 'APACHE BROWN' AVAILABLE THROUGH KALAMAZOO MATERIALS (520-575-9601), OR AS APPROVED BY OWNER.

LANDSCAPE BOULDER SCHEDULE

BOULDERS SHALL BE PIT RUN 'APACHE BROWN' AS AVAILABLE THROUGH KALAMAZOO MATERIALS, OR AS APPROVED BY OWNER.

	W x H x L	QTY.
	3' x 3' x 3'	38
	2' x 2' x 2'	175

SYMBOL	BOTANICAL NAME COMMON NAME	QTY.	SIZE
SHRUBS AND ACCENTS			
	CALLIANDRA CALIFORNICA BAJA FAIRY DUSTER	82	5 GAL.
	CALLISTEMON 'LITTLE JOHN' LITTLE JOHN BOTTLE BRUSH	91	5 GAL.
	CAESALPINIA PULCHERRIMA RED BIRD OF PARADISE	21	5 GAL.
	DASYLIRION WHEELERI DESERT SPOON	19	5 GAL.
	ENCELIA FARINOSA BRITTLE BUSH	163	5 GAL.
	FOUQUIERIA SPLENDENS OCOTILLO	6	3 CANE MIN.
	HESPERALOE FUNIFERA GIANT HESPERALOE	10	5 GAL.
	HESPERALOE PARVIFLORA RED YUCCA	211	5 GAL.
	DALEA CAPITATA LEMON DALEA	354	1 GAL.
	EREMOPHILA 'VALENTINE' VALENTINE SHRUB	183	5 GAL.
	LONICERA 'PAM'S PINK' PAM'S PINK HONEYSUCKLE	2	5 GAL.
	MUHLENBERGIA 'AUTUMN GLOW' AUTUMN GLOW DEER GRASS	54	5 GAL.
	PEDILANTHUS MACROCARPA SLIPPER PLANT	86	5 GAL.
	PENSTEMON EATONII FIRECRACKER PENSTEMON	128	1 GAL.
	SALVIA CLEVELANDII CLEVELAND'S SAGE	7	5 GAL.
	SALVIA GREGGII AUTUMN SAGE	18	5 GAL.
	SENNA NEMOPHILA DESERT SENNA	56	5 GAL.
	TECOMA STANS MEXICAN YELLOW BELLS	10	5 GAL.

ACCENTS IN CONCRETE PLANTERS/POTS

- AGAVE BRACREOSA
SQUID AGAVE
- ALOE 'BLUE ELF'
BLUE ELF ALOE
- LANTANA MONTEVIDENSIS
TRAILING LANTANA
- MANFREDA MACULOSA
TEXAS TUBEROSE
- PENSTEMON EATONII
FIRECRACKER PENSTEMON
- PORTULACARIA AFRA MINIMA
DWARF ELEPHANT FOOD

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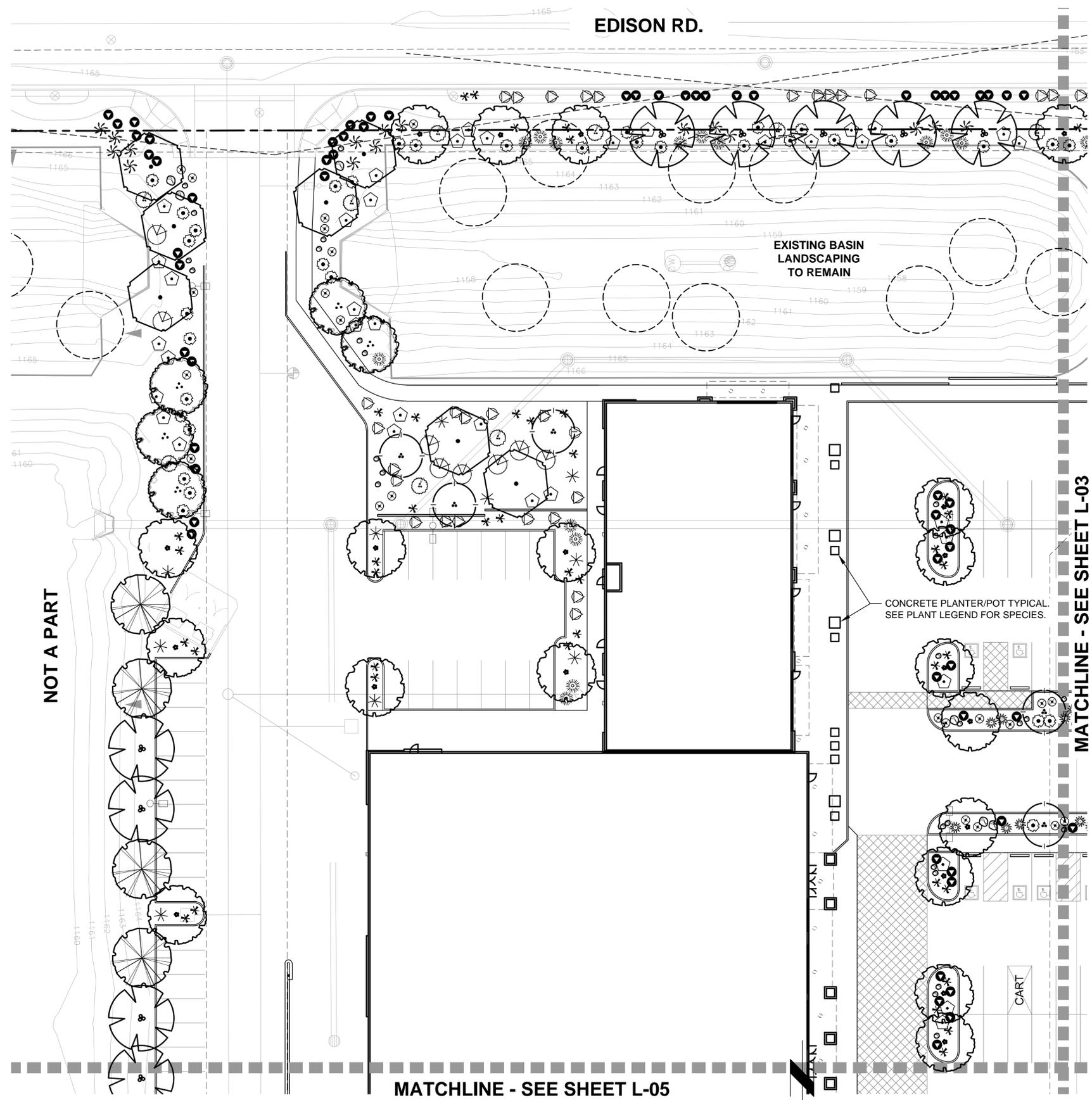


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**L-02
PLANTING LEGEND**

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MATCHLINE - SEE SHEET L-05

MATCHLINE - SEE SHEET L-03



L-04
PLANTING PLAN

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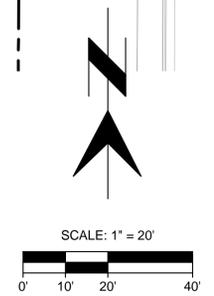
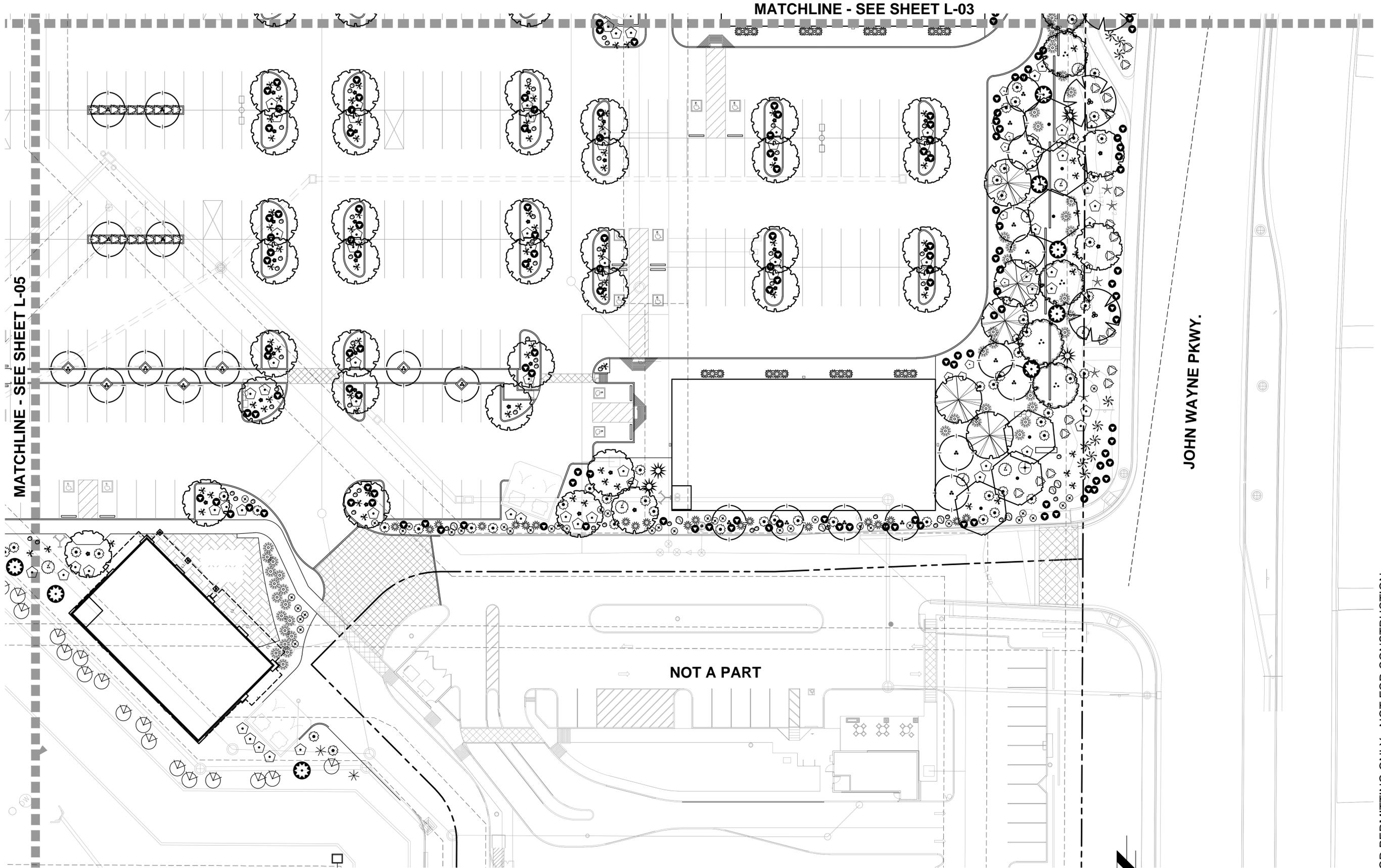
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L-06
PLANTING PLAN

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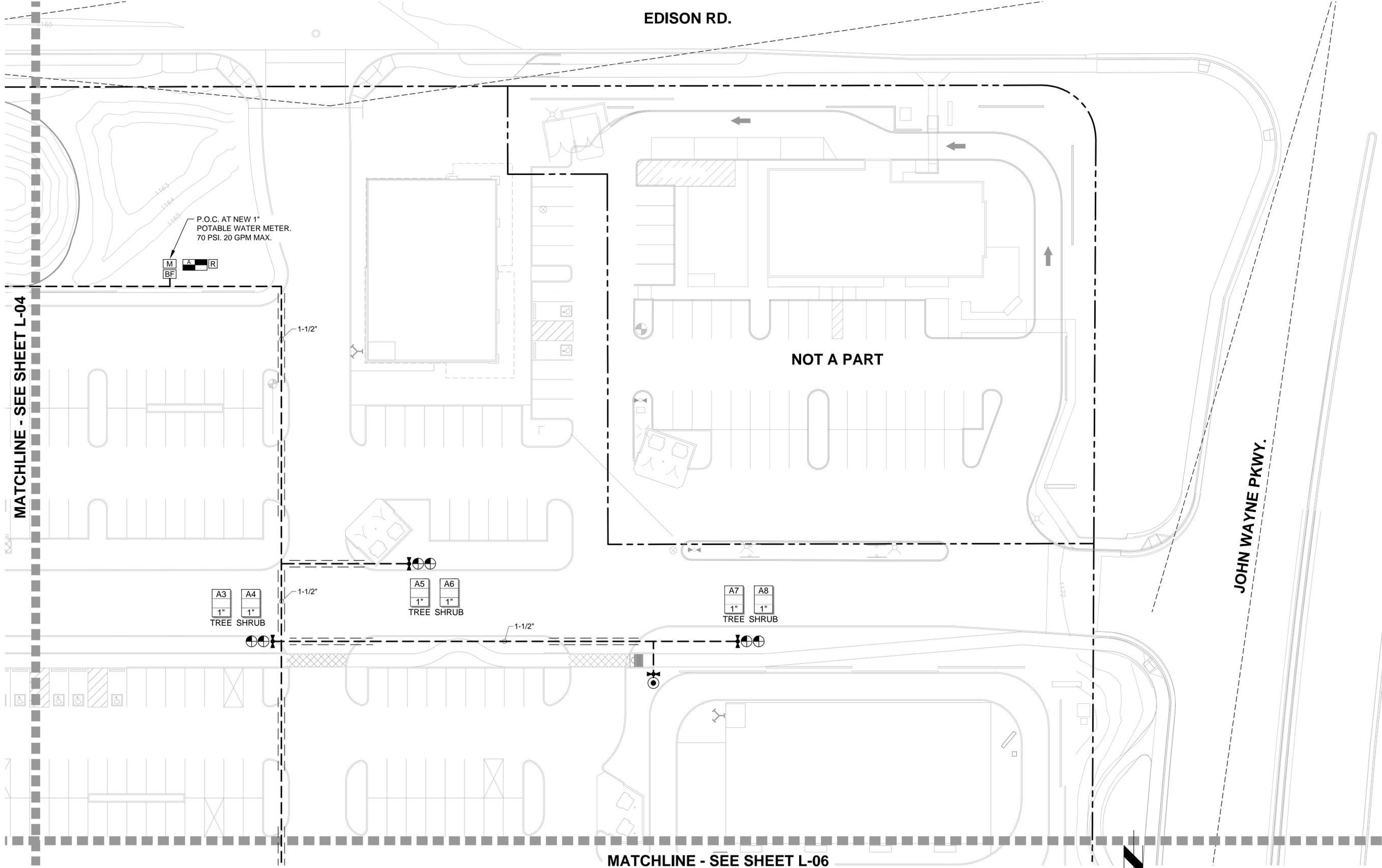
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DATE: 27-JUNE-2019

REGISTERED LANDSCAPE ARCHITECT
STATE OF ARIZONA
RICK ENGINEERING COMPANY
RICK ENGINEERING COMPANY

SONORAN CREEK
JOHN WAYNE PARKWAY & EDISON RD.
LANDSCAPE PLAN



EDISON RD.

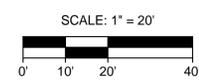
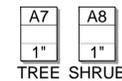
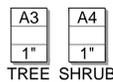
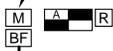
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JOHN WAYNE PKWY.

MATCHLINE - SEE SHEET L-04

MATCHLINE - SEE SHEET L-06

P.O.C. AT NEW 1" POTABLE WATER METER. 70 PSI. 20 GPM MAX.



L-11
IRRIGATION PLAN

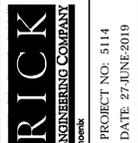
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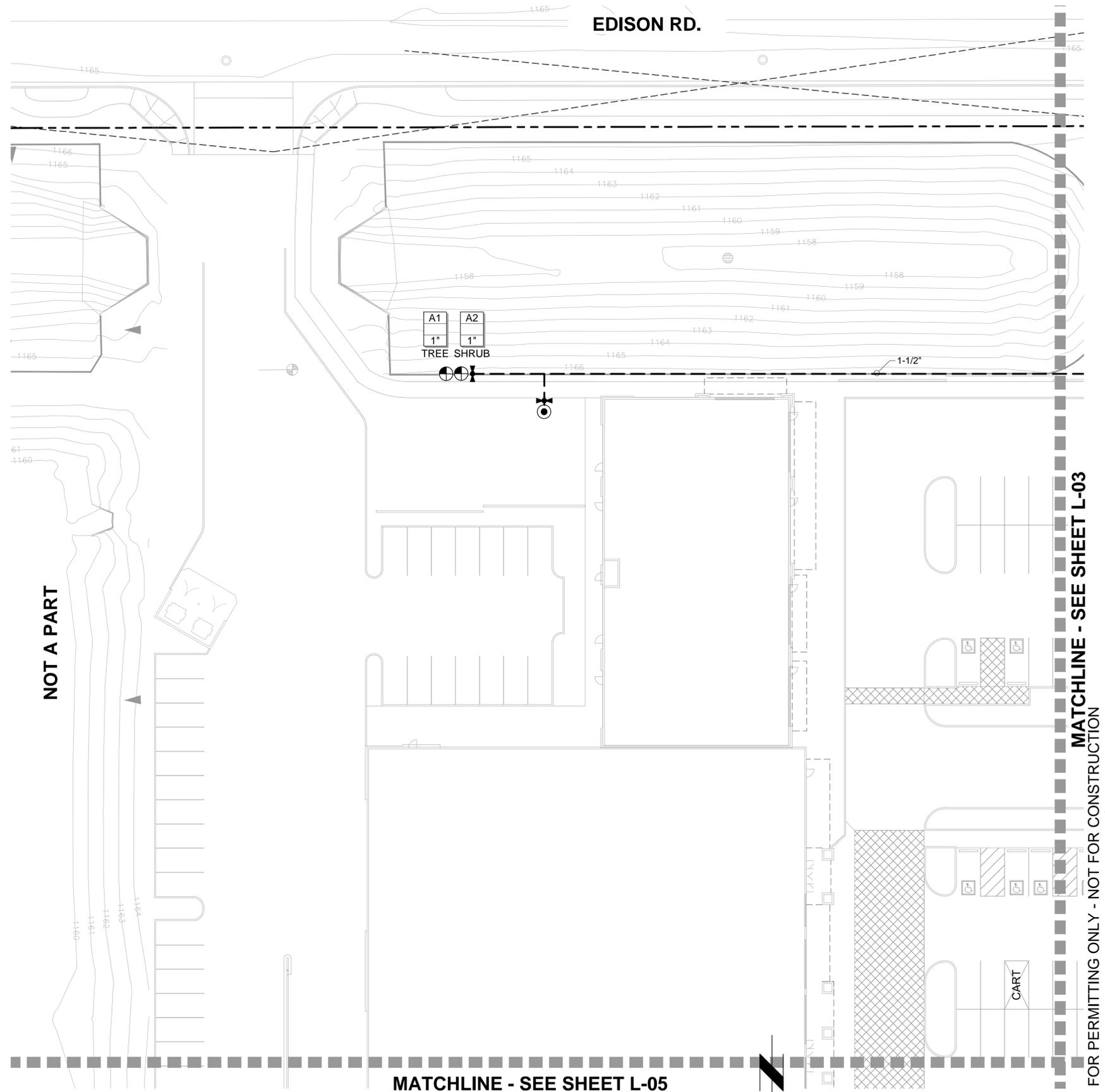
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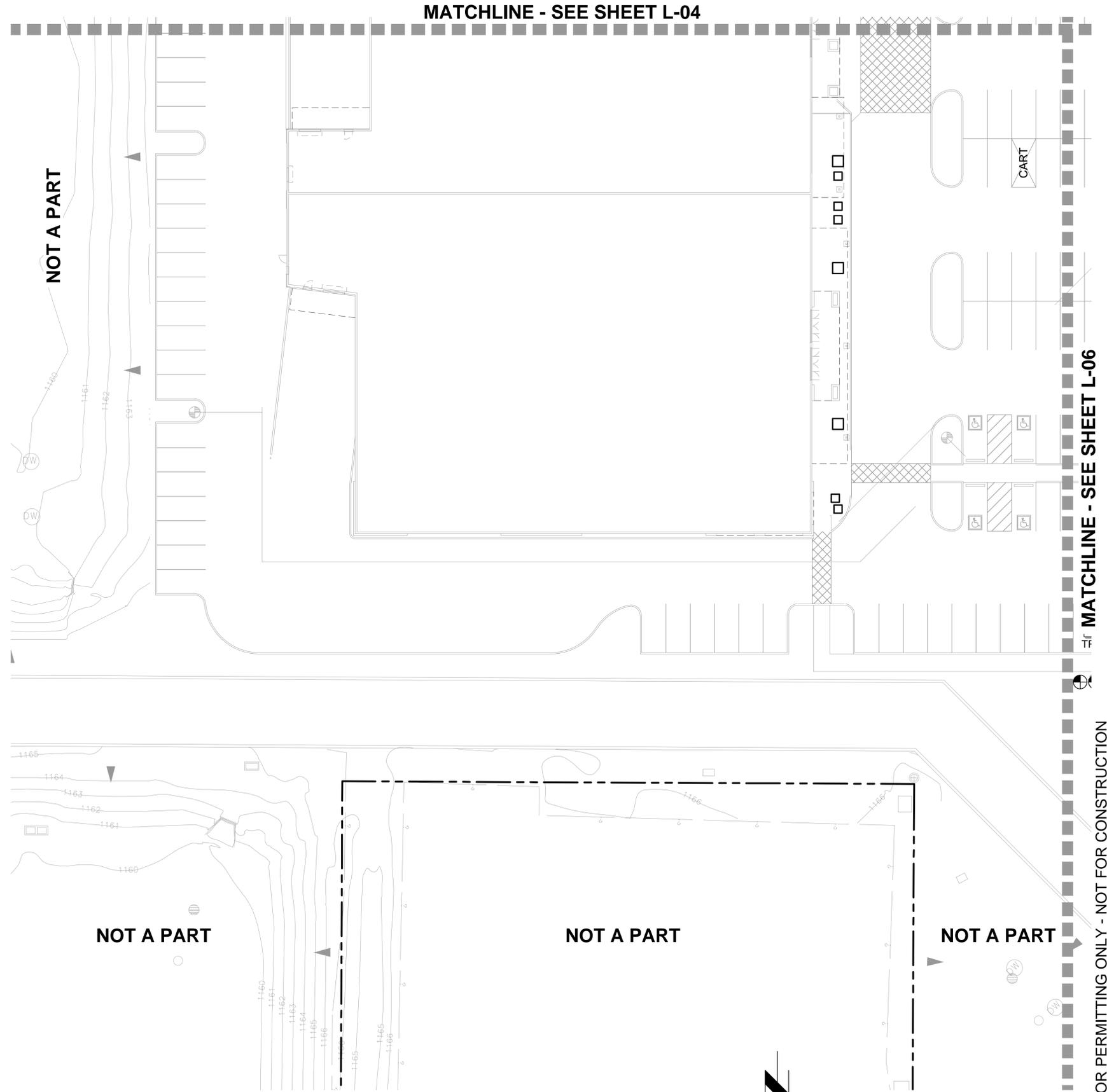
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L-12
IRRIGATION PLAN

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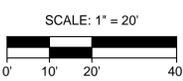
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L-13
IRRIGATION PLAN

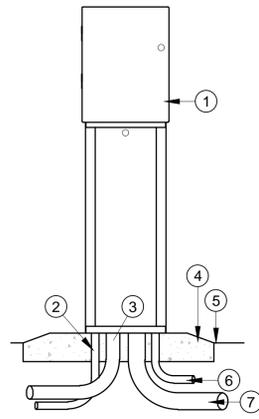
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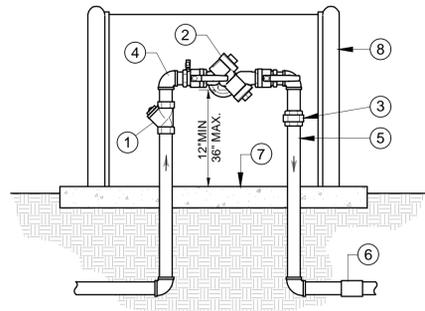
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 LANDSCAPE PLAN



- ① ENCLOSURE AND AUTOMATIC CONTROLLER PER IRRIGATION LEGEND
- ② 3/4" POWER CONDUIT: SIZE, TYPE, DEPTH PER LOCAL CODE
- ③ GROUND WIRE CONDUIT, MIN. 1-1/2". GROUND PER ASIC GUIDELINES
- ④ 6" THICK FORMED AND POURED-IN-PLACE CONCRETE BASE
- ⑤ FINISH GRADE
- ⑥ CONDUIT FOR GCBL WIRING
- ⑦ CONDUIT FOR DECODER WIRES

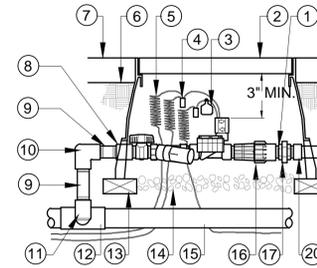
NOTES:
 1. SEE INSTRUCTION MANUAL FOR MOUNTING INSTRUCTIONS.
 2. ALL WIRING SHALL BE INSTALLED PER LOCAL CODES.
 3. 120 VOLT POWER TO BE SUPPLIED BY OWNER.

A IRRIGATION CONTROLLER NOT TO SCALE



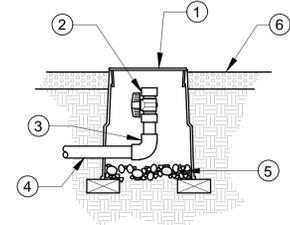
- ① BRASS WYE STRAINER (LINE SIZE).
- ② REDUCED PRESSURE BACKFLOW DEVICE WITH 2 BALL VALVES, REFER TO PLAN FOR TYPE AND SIZE
- ③ BRASS UNION
- ④ BRASS ELL (TYPICAL)
- ⑤ BRASS NIPPLE, TYPICAL
- ⑥ PVC MALE ADAPTER
- ⑦ 3" THICK CONCRETE PAD. WRAP PIPES W/ 10 MIL. TAPE. SATURATE AND COMPACT SUB-GRADE TO 90% PRIOR TO POUR.
- ⑧ ENCLOSURE PER LEGEND.

B BACKFLOW PREVENTION DEVICE NOT TO SCALE



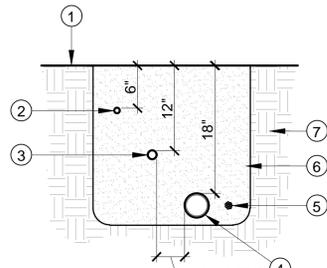
- ① PVC SCH. 80 NIPPLE (CLOSE)
- ② VALVE BOX W/ COVER: 24" SIZE
- ③ ID TAG
- ④ WATER PROOF CONNECTION (1 OF 2)
- ⑤ 30-INCH LINEAR LENGTH OF WIRE, COILED
- ⑥ FINISH GRADE
- ⑦ TOP OF MULCH
- ⑧ PVC SCH. 40 COUPLING
- ⑨ PVC SCH. 80 NIPPLE (LENGTH AS REQ'D)
- ⑩ PVC SCH. 40 ELL
- ⑪ PVC SCH. 80 NIPPLE (2" LENGTH, HIDDEN) AND PVC SCH. 40 ELL
- ⑫ PVC SCH. 40 TEE OR ELL
- ⑬ BRICK (1 OF 4)
- ⑭ 3" MIN. DEPTH OF 3/4" WASHED GRAVEL
- ⑮ PVC MAINLINE, SIZE PER PLANS
- ⑯ DRIP VALVE ASSEMBLY PER LEGEND
- ⑰ PVC SCH. 80 UNION FOR SERVICING ASSEMBLY
- ⑱ PVC SCH. 40 MALE ADAPTER

C REMOTE CONTROL VALVE (DRIP) NOT TO SCALE



- ① 6" ROUND VALVE BOX
- ② BALL VALVE PER LEGEND
- ③ 90° ELBOW
- ④ LATERAL LINE
- ⑤ 3" MIN. DEPTH OF 3/4" WASHED GRAVEL
- ⑥ FINISH GRADE OF DG.

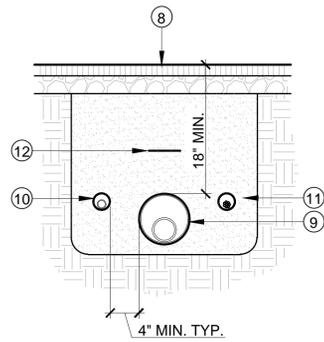
D BALL VALVE/FLUSH VALVE NOT TO SCALE



- ① FINISH GRADE
- ② POLYETHYLENE LATERAL LINE OR LANDSCAPE DRILINE.
- ③ PVC LATERAL LINE
- ④ PVC MAINLINE
- ⑤ DIRECT BURIAL LOW VOLTAGE CONTROL WIRES, BUNDLE AT 10 FT. O.C., BURY AT SAME DEPTH AS MAINLINE
- ⑥ CLEAN BACKFILL, SATURATE AND COMPACT TO 90%
- ⑦ UNDISTURBED SOIL

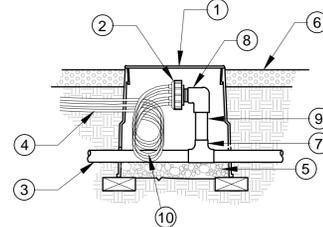
NOTE: EXTEND SLEEVE ENDS 24" BEYOND BACK OF CURB, WALK, OR PAVEMENT EDGE. A CONTINUOUS MAGNETIC MARKING TAPE SHALL BE PLACED 12 INCHES BELOW FINISHED GRADE ABOVE THE SLEEVE. AT ROAD CROSSINGS, THE CURB SHALL BE MARKED BY A STAMPED LABEL "I" (IRRIGATION SYSTEM). SLEEVE ENDS SHALL BE COVERED WITH HEAVY DUTY TAPE TO PREVENT SOIL FROM ENTERING SLEEVES UPON BACK FILLING.

E TRENCHING AND SLEEVING NOT TO SCALE



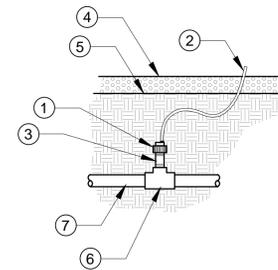
- ⑧ PAVED SURFACE
- ⑨ MAIN LINE SLEEVE
- ⑩ LATERAL LINE SLEEVE
- ⑪ CONTROL WIRE SLEEVE
- ⑫ MARKING TAPE

F MULTI-OUTLET DRIP EMITTER NOT TO SCALE

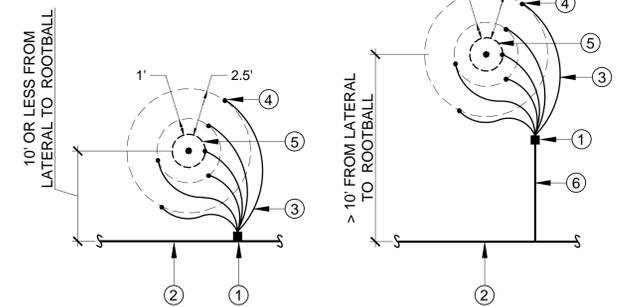


- ① 6" ROUND PURPLE RECLAIMED WATER VALVE BOX
- ② MULTI-OUTLET DRIP EMITTER PER LEGEND
- ③ 3/4" PVC LATERAL
- ④ 1/4" DISTRIBUTION TUBING
- ⑤ 3" MIN. DEPTH OF 3/4" WASHED GRAVEL
- ⑥ FINISH GRADE
- ⑦ PVC SCH 40 TEE
- ⑧ PVC SCH 40 ELL
- ⑨ 1/2" PVC RISER
- ⑩ PROVIDE 12" LOOP OF ADDITIONAL 1/4" TUBING IN EACH BOX.

G SINGLE-OUTLET DRIP EMITTER NOT TO SCALE



- ① SINGLE OUTLET 1/2" FPT INLET X BARB OUTLET EMITTER: RAIN BIRD XERI-BUG XBT EMITTER
- ② 1/4" DISTRIBUTION TUBING
- ③ PVC SCH 80 NIPPLE (LENGTH AS REQUIRED)
- ④ TOP OF MULCH
- ⑤ FINISH GRADE
- ⑥ PVC SCH 40 TEE OR ELL
- ⑦ PVC LATERAL PIPE



- ① MULTI-OUTLET DRIP EMITTER
- ② LATERAL LINE PER LEGEND
- ③ 1/4" DISTRIBUTION TUBING, TYP.
- ④ DISCHARGE POINT, TYP., TO BE 1" ABOVE FINISH GRADE
- ⑤ TREE ROOTBALL
- ⑥ INSTALL SUBLATERALS WHERE TREE ROOTBALL IS GREATER THAN 10' FROM LATERAL

H EMITTER PLACEMENT @ TREES NOT TO SCALE

SONORAN CREEK
 JOHN WAYNE PARKWAY & EDISON RD.
 LANDSCAPE PLAN

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PROJECT NO. 5114
 DATE: 27-JUNE-2019
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 DRAWN: MEF
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L-15
IRRIGATION DETAILS

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IRRIGATION SPECIFICATIONS

SECTION 02810 - IRRIGATION
PART 1 - GENERAL

1.1. RELATED DOCUMENTS:

1.1.1. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION-1 SPECIFICATION SECTIONS, APPLY TO WORK OF THIS SECTION.

1.2. REQUIREMENTS:

1.2.1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE PUBLISHED BY THE WESTERN PLUMBING OFFICIALS ASSOCIATION, ALL STATE AND LOCAL CODES AND REGULATIONS. SHOULD THE CONSTRUCTION DOCUMENTS OR INSTRUCTIONS BE AT VARIANCE WITH THE AFOREMENTIONED RULES AND REGULATIONS, NOTIFY THE MUNICIPAL WATER DISTRICT AND AWAIT THEIR INSTRUCTIONS BEFORE PROCEEDING WITH THE WORK EFFECTED.

1.2.2. MANUFACTURER'S DIRECTIONS: MANUFACTURER'S DIRECTIONS AND DETAILED DRAWINGS SHALL BE FOLLOWED IN ALL CASES WHERE THE MANUFACTURER OR ARTICLES USED IN THIS CONTRACT FURNISH DIRECTIONS COVERING POINTS NOT SHOWN IN THE DRAWINGS AND SPECIFICATIONS.

1.2.3. MANUFACTURER'S WARRANTIES: MANUFACTURER'S WARRANTIES SHALL NOT RELIEVE LIABILITIES UNDER GUARANTEE.

1.2.4. ALL WORK CALLED FOR ON THE DRAWINGS BY NOTES SHALL BE FURNISHED AND INSTALLED WHETHER OR NOT SPECIFICALLY NOTED IN THE SPECIFICATIONS. DO NOT WILLFULLY INSTALL THE SPRINKLER SYSTEM AS INDICATED ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN OBSTRUCTIONS OR GRADE DIFFERENCES EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE IRRIGATION DESIGN, OR IF DISCREPANCIES IN THE CONSTRUCTION DETAILS, LEGEND, OR SPECIFIC NOTES ARE DISCOVERED. ALL SUCH OBSTRUCTIONS OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT. IN THE EVENT THAT THIS IS NOT DONE, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR THE NECESSARY REVISIONS.

1.2.5. DUE TO THE SCALE OF DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, SLEEVES, ETC. WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISHED CONDITIONS AFFECTING ALL OF HIS WORK AND PLAN HIS WORK ACCORDINGLY, FURNISHING SUCH FITTINGS, ETC., AS MAY BE REQUIRED TO MEET SUCH CONDITIONS. DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATIVE OF THE WORK TO BE INSTALLED. THE WORK SHALL BE INSTALLED IN SUCH A MANNER AS TO AVOID CONFLICTS BETWEEN IRRIGATION SYSTEMS, PLANTING AND ARCHITECTURAL FEATURES.

1.3. PROTECTION AND DAMAGE:

1.3.1. PROTECT WORK AND MATERIALS FROM DAMAGE DURING CONSTRUCTION AND STORAGE. PVC PIPE AND FITTINGS SHALL BE PROTECTED FROM DIRECT SUNLIGHT.

1.3.2. ASSUME ALL RESPONSIBILITY FOR DAMAGE TO EXISTING CONSTRUCTION AND RESTORE TO ITS ORIGINAL CONDITION SHOULD DAMAGE OCCUR AS A RESULT OF THIS WORK.

1.3.3. CONTRACTOR SHALL SECURELY COVER OPENINGS INTO SYSTEM AND COVER APPARATUSES, EQUIPMENT, AND APPLIANCES BOTH BEFORE AND AFTER BEING SET IN PLACE TO PREVENT OBSTRUCTION IN THE PIPES AND PREVENT BREAKAGE, MISUSE, OR DISFIGUREMENT OF THE APPARATUSES, EQUIPMENT OR APPLIANCES.

1.4. DESCRIPTION OF WORK:

1.4.1. THE WORK CONSISTS OF FURNISHING LABOR, TOOLS, MACHINERY, MATERIALS, AND PROCESSES REQUIRED TO COMPLETE THE SPRINKLER IRRIGATION SYSTEM DESCRIBED HEREIN AND SHOWN ON THE DRAWINGS.

1.4.2. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO INDICATE AND SPECIFY A COMPLETE SPRINKLER SYSTEM, INSTALLED READY FOR USE WITHOUT FURTHER COST IN LABOR OR MATERIALS TO THE OWNER.

1.5. QUALITY ASSURANCE:

1.5.1. SUBCONTRACT WORK TO A SINGLE FIRM SPECIALIZING IN IRRIGATION WORK. CONTRACTOR SHALL POSSESS ALL LICENSES AND PERMITS REQUIRED TO PERFORM THE WORK OF THIS CONTRACT INCLUDING AN A-21 LANDSCAPING LICENSE.

1.6. SUBMITTALS:

1.6.1. THE CONTRACTOR SHALL FURNISH THE ARTICLES, EQUIPMENT, MATERIALS OR PROCESSES SPECIFIED BY NAME IN THE DRAWINGS AND SPECIFICATIONS. NO SUBSTITUTION WILL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY THE LANDSCAPE ARCHITECT, OR THE OWNER'S AUTHORIZED REPRESENTATIVE.

1.6.2. THE CONTRACTOR SHALL SUBMIT TO THE LANDSCAPE ARCHITECT CATALOG DATA AND FULL DESCRIPTIVE LITERATURE FOR APPROVAL OF ITEMS DIFFERENT THAN THOSE SPECIFIED.

1.6.3. EQUIPMENT OR MATERIALS INSTALLED OR FURNISHED WITHOUT THE PRIOR APPROVAL OF THE LANDSCAPE ARCHITECT MAY BE REJECTED AND THE CONTRACTOR MAY BE REQUIRED TO REMOVE SUCH MATERIALS FROM THE SITE AT HIS OWN EXPENSE.

1.6.4. APPROVAL OF ANY ITEM, ALTERNATE OR SUBSTITUTE INDICATES ONLY THAT THE PRODUCT(S) APPARENTLY MEET THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS ON THE BASIS OF THE INFORMATION OR SAMPLES SUBMITTED.

1.6.5. MANUFACTURER'S WARRANTIES SHALL NOT RELIEVE THE CONTRACTOR OF HIS LIABILITY UNDER THE GUARANTEE. SUCH WARRANTY SHALL ONLY SUPPLEMENT THE GUARANTEE.

1.7. GUARANTEE:

1.7.1. FURNISH GUARANTEE IN ACCORDANCE WITH THE GENERAL CONDITIONS, FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE - AT THE CONCLUSION OF THE MAINTENANCE PERIOD - ON COMPLETE WATER IRRIGATION SYSTEM, INCLUDING NON-SETTLING OF THE BACKFILL IN TRENCHES, WHICH, IF OCCURS, SHALL BE CORRECTED, INCLUDING REPAIRS AND/OR REPLACEMENT OF ANY MATERIAL DAMAGED THEREBY OR THERE FROM.

1.7.2. MANUFACTURER'S WARRANTIES SHALL NOT RELIEVE THE CONTRACTOR OF HIS LIABILITY UNDER THE GUARANTEE. SUCH WARRANTY SHALL ONLY SUPPLEMENT THE GUARANTEE.

PART 2 - PRODUCTS

2.1. MATERIALS:

2.1.1. PRESSURE PIPE: COMPLY WITH FOLLOWING:

2.1.1.1. PVC PLASTIC PRESSURE LINES: FOR PIPING UPSTREAM OF REMOTE CONTROL VALVES AND QUICK COUPLERS. ALL TWO (2) INCHES AND LARGER SHALL BE CLASS 315 POLYVINYL CHLORIDE (PVC) SIMPSON OR APPROVED EQUAL. ALL ONE AND ONE-HALF (1-1/2) INCHES AND SMALLER SHALL BE TYPE I, GRADE 2, DESIGNATED AS PVC 1220, SCHEDULE 40.

2.1.1.2. NON-PRESSURE PIPE: (DOWNSTREAM FROM REMOTE CONTROL VALVES): COMPLY WITH FOLLOWING:

2.1.2. PLASTIC NON-PRESSURE LINES: FOR PIPING DOWNSTREAM OF REMOTE CONTROL VALVES, TYPE 1, GRADE 2 (IMPACT MODIFIED), AS DESIGNATED AS PVC 1220, CLASS 200, (SDR21), CONFORMING TO COMMERCIAL STANDARDS CS256-63.

2.1.3. POLYETHYLENE NON-PRESSURE TUBING: FOR PIPING DOWNSTREAM OF REMOTE CONTROL DRIP VALVES, CONFORMING TO ASTM D-2239 REQUIREMENTS FOR SIDR 19, NSF LISTED.

2.1.4. PIPE SLEEVES SHALL BE PVC SCHEDULE 40.

2.1.5. IDENTIFICATION: FURNISH PLASTIC PIPE CONTINUOUSLY AND PERMANENTLY MARKED WITH FOLLOWING INFORMATION: MANUFACTURER'S NAME OR TRADE MARK, SIZE, CLASS AND TYPE OF PIPE, WORKING PRESSURE AT 73.4 DEGREES F., AND NATIONAL SANITATION FOUNDATION (NSF) RATING.

2.1.6. BRASS PIPE: BRASS PIPE SHALL BE IPS STANDARD WEIGHT 125 POUNDS, 85% RED BRASS.

2.1.7. PIPE FITTINGS AND CONNECTIONS: COMPLY WITH FOLLOWING:

2.2. FITTINGS AND CONNECTIONS:

2.2.1. POLYVINYL CHLORIDE PIPE FITTINGS AND CONNECTIONS: TYPE II, GRADE 1, SCHEDULE 40, HIGH IMPACT MOLDED FITTINGS, MANUFACTURED FROM VIRGIN COMPOUNDS AS SPECIFIED FOR PIPING TAPERED SOCKET OR MOLDED THREAD TYPE, SUITABLE FOR EITHER SOLVENT WELD OR SCREWED CONNECTIONS. MACHINE THREADED FITTINGS AND PLASTIC SADDLE AND FLANGE FITTINGS ARE NOT ACCEPTABLE. FURNISH FITTINGS PERMANENTLY MARKED WITH FOLLOWING INFORMATION: NOMINAL PIPE SIZE, TYPE AND SCHEDULE OF MATERIAL, AND NATIONAL SANITATION FOUNDATION (NSF) SEAL OF APPROVAL. PVC FITTING SHALL CONFORM TO ASTM D2464 AND D2466.

2.2.1.1. ALL PVC THREADED NIPPLES SHALL BE STANDARD WEIGHT SCHEDULE 80 WITH MOLDED THREADS AND SHALL CONFORM TO ASTM D1785:

2.2.2. BRASS PIPE FITTINGS AND CONNECTIONS: STANDARD 125 POUND CLASS 85% RED BRASS FITTINGS AND CONNECTIONS.

2.2.3. FLEXIBLE TUBING SHALL BE OF LINE SIZE IPS, PVC PLASTIC BARB ADAPTORS SECURELY HELD TO HEAVY-DUTY PVC FLEX TUBING, PRESSURE RATED TO 150 POUND MINIMUM. HUNTER OR APPROVED EQUAL.

2.2.4. SOLVENT CEMENTS SHALL COMPLY WITH ASTM D2564. SOCKET JOINTS SHALL BE MADE PER RECOMMENDED PROCEDURES FOR JOINING PVC PLASTIC PIPE AND FITTINGS WITH PVC SOLVENT CEMENT BY THE PIPE AND FITTING MANUFACTURER AND PROCEDURES OUTLINED IN THE APPENDIX OF ASTM D2564.

2.2.5. THREAD LUBRICANT SHALL BE TEFLON RIBBON-TYPE, OR APPROVED EQUAL, SUITABLE FOR THREADED INSTALLATIONS AS PER MANUFACTURER'S RECOMMENDATIONS.

2.3. VALVES: MANUFACTURER'S STANDARD, OF TYPE AND SIZE INDICATED, AND AS FOLLOWS:

2.3.1. REMOTE CONTROL VALVES SHALL BE OF THE MANUFACTURER SIZE, AND TYPE INDICATED ON THE PLANS. VALVE SHALL BE OPERABLE MANUALLY WITHOUT ELECTRICITY.

2.3.2. DRIP VALVE ASSEMBLY SHALL BE OF THE MANUFACTURER SIZE, AND TYPE INDICATED ON THE PLANS AND SHALL CONSIST OF A REMOTE CONTROL VALVE, WYE FILTER, AND PRESSURE REGULATING DEVICE.

2.4. BACKFLOW PREVENTER ASSEMBLY:

2.4.1. BACKFLOW PREVENTERS SHALL BE BRASS, BRONZE, OR EPOXY COATED CAST IRON BODIES WITH ALL BRONZE OR STAINLESS STEEL TRIM AND ALL MOVING PARTS OF NON-CORROSIVE MATERIALS, AND SHALL COMPLETELY AND POSITIVELY PREVENT BACK-SIPHONING OF WATER. THE BACKFLOW PREVENTER ASSEMBLY SHALL INCLUDE INLET AND DISCHARGE SHUTOFF GATE VALVES WITH ALL RISERS, CONNECTORS, AND APPURTENANCES OF CLASS 1 RED BRASS PIPE, CONFORMING TO WW-P-351, AND RED BRASS FITTINGS WITH PRESSURE RATING 1 CONFORMING TO WW-P-460. BACKFLOW PREVENTERS SHALL BE OF THE TYPE AND SIZE DESIGNATED ON THE DRAWINGS AND INSTALL IN ACCORDANCE WITH REQUIREMENTS SET FORTH IN THE LOCAL CODES AND AGENCIES.

2.5. VALVE BOXES:

2.5.1. FOR REMOTE CONTROL VALVES: TAN STANDARD 12" NOM. PLASTIC VALVE BOX SHALL BE MANUFACTURED BY ARMOR (PART# 170106)

2.5.2. FOR DRIP ASSEMBLY VALVE: TAN JUMBO PLASTIC VALVE BOX SHALL BE MANUFACTURED BY ARMOR (PART# 190106)

2.5.3. FOR MULTI-OUTLET DRIP EMITTER: TAN 6" DIAMETER VALVE BOX SHALL BE MANUFACTURED BY ARMOR (PART# 182101)

2.6. CONCRETE THRUST BLOCK AND SUPPORTS:

2.6.1. ALL CONCRETE WORK SHALL BE 2,000 PSI MINIMUM COMPRESSIVE STRENGTH AT TWENTY-EIGHT (28) DAYS, 5 SACK MIX, TOOL FINISHED ON EXPOSED SURFACES.

2.7. AUTOMATIC CONTROL SYSTEM:

2.7.1. GENERAL: FURNISH LOW VOLTAGE SYSTEM MANUFACTURED EXPRESSLY FOR CONTROL OF AUTOMATIC CIRCUIT VALVES OF UNDERGROUND IRRIGATION SYSTEMS. PROVIDE UNIT OF CAPACITY TO SUIT NUMBER OF CIRCUITS AS INDICATED.

2.7.2. AUTOMATIC CONTROLLER:

2.7.2.1. CONTROLLER SHALL BE FURNISHED AND INSTALLED COMPLETE WITH ALL ELECTRICAL CONNECTIONS, READY FOR OPERATION.

2.7.2.2. CONTROLLER SHALL BE THE LATEST MODEL OF THE PARTICULAR MANUFACTURER SUPPLIED.

2.7.2.3. UNIT SHALL HAVE AN INPUT OF 110/120 VOLT, 60 CYCLE AND BE COMPLETELY AUTOMATIC.

2.7.3. IRRIGATION CONTROLLER ENCLOSURE SHALL BE OF THE MANUFACTURER SIZE, AND TYPE INDICATED ON THE PLANS.

2.7.4. IRRIGATION ASSEMBLY AND OPTIONS SHALL BE OF THE MANUFACTURER SIZE, AND TYPE INDICATED ON THE PLANS.

2.8. AUTOMATIC CONTROL WIRE:

2.8.1. ELECTRIC WIRING RUNS FROM CONTROLLER TO THE AUTOMATIC CONTROL VALVES SHALL BE SOLID, SINGLE CONDUCTOR, COPPERWIRE, 4/64 IN. INSULATION, 4/64 IN. NEOPRENE JACKET, STYLE DB (DIRECT BURIAL) OR EQUAL, COLOR CODE WIRES TO EACH VALVE, COMMON WIRE SHALL BE BLACK. (EXCEPT AS NOTED ON DRAWINGS FOR CITY STANDARD REQUIREMENTS). WIRES SHALL CONFORM TO FEDERAL SPECIFICATION JC-30.

2.9. DRIP IRRIGATION EMITTERS

2.9.1. SINGLE OUTLET EMITTERS SHALL HAVE A 1/2 INCH FEMALE NATIONAL PIPE THREAD (FNPT) INLET FOR CONNECTING TO THE PIPING SYSTEM OR A 1/4 INCH BARBED INLET FOR CONNECTING TO THE PIPING SYSTEM, AS SPECIFIED ON THE PLANS AND SHALL HAVE AN OUTLET PORT THAT IS BARBED TO RETAIN 1/4 INCH DRIP EMITTER TUBING PROVIDING A LEAK-FREE COMPRESSION FIT..

2.9.2. MULTI-OUTLET EMITTERS SHALL HAVE A 1/2 INCH FEMALE NATIONAL PIPE THREAD (FNPT) INLET FOR CONNECTING TO THE PIPING SYSTEM OR A 1/4 INCH BARBED INLET FOR CONNECTING TO THE PIPING SYSTEM, AS SPECIFIED ON THE PLANS AND SHALL HAVE SIX OUTLET PORTS THAT ARE BARBED TO RETAIN 1/4 INCH DRIP EMITTER TUBING PROVIDING A LEAK-FREE COMPRESSION FIT.

2.9.3. THE EMITTER SHALL OPERATE WITHIN A PRESSURE RANGE OF 5-50 PSI.

2.9.4. THE EMITTER BODY SHALL BE CONSTRUCTED OF DURABLE HEAT-RESISTANT ACETYL PLASTIC (UV RESISTANT). THE FLOW REGULATING DIAPHRAGM SHALL BE OF SILICONE RUBBER.

2.9.5. PRODUCTS: THE EMITTER SHALL BE THE MANUFACTURER SIZE, AND TYPE INDICATED ON THE PLANS.

2.10. DRIP EMITTER TUBING

2.10.1. DRIP EMITTER TUBING SHALL BE 1/4 INCH POLYETHYLENE TUBING MADE FROM EXTRUDED LINEAR LOW-DENSITY POLYETHYLENE RESIN.

2.10.2. INSIDE DIAMETER SHALL BE SUCH THAT A LEAK-FREE SEAL IS ACHIEVED WITH THE BARBED FITTINGS OF THE SPECIFIED EMITTERS.

2.11. DRIP WYE FILTER

2.11.1. WYE FILTER SHALL BE OF THE MANUFACTURER SIZE AND TYPE INDICATED ON THE PLANS.

2.12. DRIP PRESSURE REGULATOR

2.12.1. PRESSURE REGULATOR SHALL BE OF THE MANUFACTURER SIZE AND TYPE INDICATED ON THE PLANS.

2.13. DRIP FLUSH VALVE

2.13.1. FLUSH VALVE SHALL BE OF THE MANUFACTURER SIZE AND TYPE INDICATED ON THE PLANS.

2.13.2. FLUSH VALVE SHALL OPERATE AUTOMATICALLY WITH THE OPERATION OF THE CONTROL VALVE.

PART 3 - EXECUTION

3.1 SYSTEM DESIGN:

3.1.1. ALL SCALED DIMENSIONS ARE APPROXIMATE. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS ON THE SITE PRIOR TO PROCEEDING WITH WORK UNDER THIS CONTRACT.

3.1.2. THE CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING UTILITIES SUCH AS POWER, TELEPHONE, DOMESTIC WATER, WATER, AND TILE DRAINS. EXTREME CARE SHALL BE TAKEN BY THE CONTRACTOR WHEN EXCAVATING OR WORKING IN THESE AREAS, AND COORDINATION AND COOPERATION BETWEEN THE OWNER'S REPRESENTATIVE AND THE CONTRACTOR IS REQUIRED AS THE WORK PROGRESSES TO THE AREA. CONTRACTOR SHALL GIVE 24 HOURS NOTICE TO REPRESENTATIVE AS WORK PROGRESSES OF UNDERGROUND UTILITY AREAS. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY UTILITIES.

3.1.3. SHOULD UTILITIES NOT LOCATED OR MARKED BE FOUND DURING EXCAVATION, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER AND SHALL DISCONTINUE WITH WORK IN THE AREA, EXCEPT FOR NECESSARY EMERGENCY WORK, TO REPAIR OR PREVENT DAMAGE UNTIL INSTRUCTIONS ARE GIVEN TO THE CONTRACTOR BY THE OWNER'S REPRESENTATIVE.

3.1.4. FAILURE TO NOTIFY THE OWNER OF DISCOVERY OF SUCH UTILITIES OR DAMAGE THERETO WILL RESULT IN THE CONTRACTOR BEING LIABLE FOR ANY AND ALL DAMAGE CAUSED TO THE UTILITIES AS A RESULT OF HIS ACTIONS.

3.1.5. THE CONTRACTOR SHALL, BEFORE STARTING WORK ON THE SPRINKLER SYSTEM, CAREFULLY NOTE ALL FINISH GRADES IN ORDER TO SATISFY HIMSELF THAT HE MAY PROCEED WITH THE WORK, AND TO RESTORE FINISH GRADES TO ORIGINAL CONTOURS BEFORE COMPLETION.

3.1.6. THE INSTALLATION OF ALL IRRIGATION MATERIALS, INCLUDING PIPE, SHALL BE COORDINATED WITH THE LANDSCAPE DRAWINGS TO AVOID INTERFERING WITH THE TREES, SHRUBS, OR OTHER PLANTING.

3.1.7. LAY OUT EQUIPMENT AND MAKE ANY MINOR ADJUSTMENTS REQUIRED DUE TO DIFFERENCE BETWEEN SITE AND DRAWINGS. ANY SUCH DEVIATIONS IN LAYOUT SHALL BE WITHIN THE INTENT OF THE ORIGINAL DRAWINGS, AND WITHOUT ADDITIONAL COST TO THE OWNER. WHEN DIRECTED BY THE OWNER, THE LAYOUT SHALL BE APPROVED BEFORE INSTALLATION.

3.1.8. DO NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM AS INDICATED ON THE DRAWING WHEN IT IS OBVIOUS IN THE FIELD THAT PREVIOUSLY UNKNOWN OBSTRUCTIONS OR GRADE DIFFERENCES EXIST, THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. SUCH OBSTRUCTIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.

3.1.9. WATER SUPPLY: THE CONTRACTOR SHALL CONNECT TO THE WATER SOURCE AS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL VERIFY STATIC PRESSURE AS STATED ON THE PLANS PRIOR TO BEGINNING WORK. IF STATIC PRESSURE OR POINT OF CONNECTION DIFFER FROM THAT SHOWN ON THE PLANS, THE CONTRACTOR WILL PROMPTLY NOTIFY LANDSCAPE ARCHITECT BEFORE STARTING WORK.

3.1.10. WORKMANSHIP AND PROCEDURE: THE ROUTING OF THE PRESSURE SUPPLY LINES AS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC. LOCATE ALL PRESSURE SUPPLY LINES IN PLANTING AREAS. CROSS PERPENDICULAR UNDER PAVEMENT IN A SLEEVE AS DESCRIBED IN THESE SPECIFICATIONS.

3.2 INSTALLATION:

3.2.1. GENERAL: UNLESS OTHERWISE INDICATED, COMPLY WITH REQUIREMENTS OF UNIFORM PLUMBING CODE.

3.2.1.1. EXCAVATION OF TRENCHES: EXCAVATE TRENCHES, PREPARE SUBGRADE, AND BACKFILL TO LINE AND GRADE WITH SUFFICIENT ROOM FOR PIPE FITTINGS, TESTING AND INSPECTING OPERATIONS. DO NOT BACKFILL UNTIL THE PIPE SYSTEM HAS BEEN SUBJECTED TO A HYDROSTATIC TEST AS SPECIFIED.

3.2.1.2. DEPTH OF TRENCH:

3.2.1.2.1. POLYVINYL CHLORIDE PRESSURE LINE 18" MIN.
3.2.1.2.2. POLYVINYL CHLORIDE NON-PRESSURE LINE 12" MIN.
3.2.1.2.3. POLYETHYLENE NON-PRESSURE LINE 8" MIN.

3.2.1.3. SUBSOIL SHALL BE FREE OF ALL ROCKS OVER ONE (1) INCH DIAMETER, DEBRIS, AND LITTER PRIOR TO USE AS BACKFILL.

3.2.1.4. REPAIR ANY LEAKS AND REPLACE ALL DEFECTIVE PIPE OR FITTINGS UNTIL LINES MEET TEST REQUIREMENTS. DO NOT COVER ANY LINES UNTIL THEY HAVE BEEN CHECKED AND APPROVED FOR TIGHTNESS, QUALITY OF WORKMANSHIP AND MATERIALS.

3.2.1.5. BACKFILL TRENCHES, AFTER APPROVAL OF PIPING, WITH SUITABLE AND APPROVED MATERIAL, TAMPING SOIL AROUND PIPE AND THOROUGHLY COMPACTING ALL TRENCH FILLS UNTIL 90% COMPACTION HAS BEEN ACHIEVED.

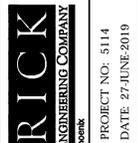
3.2.1.6. BACKFILL MATERIAL SHALL BE AN APPROVED SOIL, FREE FROM ROCKS AND CLODS. PROVIDE BACKFILL UNDER, AROUND AND ABOVE TOP OF PIPE FOR PVC PLASTIC PIPE AND BRASS PIPING.

3.2.1.7. PIPES INSTALLED IN COMMON TRENCH SHALL HAVE A 4" MINIMUM SPACE BETWEEN PIPES.

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SHEET 16 OF 17



REVISIONS		
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IRRIGATION SPECIFICATIONS

3.2.2. INSTALLATION OF POLYVINYL CHLORIDE PIPE:

3.2.2.1. BECAUSE OF THE NATURE OF PLASTIC PIPE AND FITTINGS, EXERCISE CAUTION IN HANDLING, LOADING AND STORING, TO AVOID DAMAGE.

3.2.2.2. THE PIPE AND FITTINGS SHALL BE STORED UNDER COVER UNTIL USING, AND SHALL BE TRANSPORTED IN A VEHICLE WITH A BED LONG ENOUGH TO ALLOW THE LENGTH OF PIPE TO LAY FLAT SO AS NOT BE SUBJECTED TO UNDUE BENDING OR CONCENTRATED EXTERNAL LOAD AT ANY POINT.

3.2.2.3. ANY PIPE THAT HAS BEEN DENTED OR DAMAGED SHALL BE DISCARDED UNLESS SUCH DENT OR DAMAGED SECTION IS CUT OUT AND PIPE REJOINED WITH A COUPLING.

3.2.2.4. TRENCH DEPTH SHALL BE AS SPECIFIED ABOVE FROM THE FINISH GRADE TO THE TOP OF THE PIPE. THE BOTTOM OF THE TRENCH SHALL BE FREE OF ROCKS, CLODS, AND OTHER SHARP-EDGED OBJECTS.

3.2.2.5. PIPE ENDS AND FITTINGS SHALL BE WIPED WITH "MEK" PRIMER, OR APPROVED EQUAL, BEFORE WELDING SOLVENT IS APPLIED. WELDED JOINTS SHALL BE GIVEN A MINIMUM OF 15 MINUTES TO SET BEFORE MOVING OR HANDLING. ALL FIELD CUTS SHALL BE BEVELED TO REMOVE BURRS AND EXCESS MATERIAL BEFORE FITTING AND GLUING TOGETHER.

3.2.2.6. PIPE SHALL BE SNAKED FROM SIDE-TO-SIDE OF TRENCH BOTTOM TO ALLOW FOR EXPANSION AND CONTRACTION.

3.2.2.7. CENTER LOAD PIPE WITH SMALL AMOUNT OF BACKFILL TO PREVENT ARCHING AND SLIPPING UNDER PRESSURE. LEAVE JOINTS EXPOSED FOR SITE OBSERVATION DURING TESTING.

3.2.2.8. NO WATER SHALL BE PERMITTED IN THE PIPE UNTIL SITE OBSERVATION HAS BEEN COMPLETED AND A PERIOD OF AT LEAST 24 HOURS HAS ELAPSED FOR SOLVENT WELD SETTING AND CURING.

3.2.2.9. PLASTIC TO METAL JOINTS SHALL BE MADE WITH PLASTIC MALE ADAPTERS, METAL NIPPLE HAND TIGHTENED, PLUS ONE TURN WITH A STRAP WRENCH.

3.2.2.10. ALL THREADED PLASTIC TO PLASTIC CONNECTIONS SHALL BE ASSEMBLED USING TEFLON TAPE.

3.2.2.11. SOLVENT-WELD JOINTS: ASSEMBLE PER MANUFACTURER'S RECOMMENDATIONS.

3.2.2.12. PIPE SLEEVE UNDER EXISTING OR FUTURE PAVING SHALL BE INSTALLED PRIOR TO PAVING OR RE-PAVING AND SHALL EXTEND 12" BEYOND EACH SIDE OF PAVING EDGE. SLEEVE SHALL BE A MINIMUM OF TWO TIMES THAN PIPE OR WIRE BUNDLE IT ENCLOSURES. INSTALL ONLY ONE PIPE PER SLEEVE.

3.2.3.3. TRENCH DEPTH SHALL BE AS SPECIFIED ABOVE FROM THE FINISH GRADE TO THE TOP OF THE PIPE. THE BOTTOM OF THE TRENCH SHALL BE FREE OF ROCKS, CLODS AND SHARP-EDGED OBJECTS.

3.2.4. INSTALLATION OF METAL PIPE:

3.2.4.1. CUT BRASS PIPING BY POWER HACKSAW, CIRCULAR CUTTING MACHINE USING AN ABRASIVE WHEEL, OR HAND HACKSAW. CUT NO PIPING WITH METALLIC WHEEL CUTTER OF ANY DESCRIPTION. REAM AND REMOVE ROUGH EDGES OF BURRS SO SMOOTH AND UNOBSTRUCTED FLOW IS OBTAINED.

3.2.4.2. CAREFULLY AND SMOOTHLY PLACE THREAD LUBRICANT ON MALE THREAD ONLY. TIGHTEN SCREWED JOINTS WITH TONGS OR WRENCHES. CAULKING IS NOT PERMITTED.

3.2.5. REMOTE CONTROL WIRING:

3.2.5.1. DIRECT BURIAL CONTROL WIRE SIZES: AS SHOWN AND SPECIFIED HEREIN BEFORE.

3.2.5.2. PROVIDE ONE CONTROL WIRE AND ONE COMMON GROUND WIRE TO SERVICE EACH VALVE IN SYSTEM. PROVIDE 4 FOOT MINIMUM EXPANSION LOOP AT EACH VALVE TO PERMIT REMOVAL AND MAINTENANCE OF VALVES.

3.2.5.3. INSTALL CONTROL WIRES AT LEAST 12" BELOW FINISH GRADE AND MINIMUM OF 4" FROM ANY PIPE OR FITTINGS EXCEPT AT TERMINAL POINTS. ALL WIRE SHALL FOLLOW THE PRESSURE MAIN INsofar AS POSSIBLE.

3.2.5.4. INSTALL CONTROL WIRES AND IRRIGATION PIPING IN COMMON TRENCHES WHEREVER POSSIBLE.

3.2.5.5. IN CASE OF DAMAGE TO ANY COMMON OR CONTROL WIRE, CONTRACTOR IS TO RUN AN EXTRA COMMON AND CONTROL WIRE ON EACH LEG OF MAINLINE TO THE FARTHEST RCV BACK TO THE CONTROLLER.

3.2.5.6. CONTROL WIRE SPLICES: ALLOW ONLY ON RUNS OF MORE THAN 300-FEET, SPLICES AS FOLLOWS:

3.2.5.6.1. STRIP OFF MINIMUM OF 2-1/2" OF INSULATION FROM EACH WIRE.

3.2.5.6.2. TWIST ON SCOTCHLOK ELECTRICAL SPRING CONNECTOR, MINIMUM FOUR COMPLETE TURNS.

3.2.5.6.3. SEAL CONNECTOR IN EPOXY RESIN.

3.2.5.6.4. TAPE COMPLETED SPLICE WITH SCOTCH 33 ELECTRICAL TAPE.

3.2.5.7. NUMBERING AND TAGGING: IDENTIFY DIRECT BURIAL CONTROL WIRES FROM AUTOMATIC VALVES TO TERMINAL STRIPS OF CONTROLLER AT TERMINAL STRIP BY TAGGING WIRE WITH NUMBER OF CONNECTED VALVES.

3.2.6. AUTOMATIC CONTROLLER:

3.2.6.1. AUTOMATIC CONTROLLER SHALL BE INSTALLED AS SHOWN AND AS DETAILED ON THE PLANS. CONTROLLER SHALL BE TESTED WITH COMPLETE ELECTRICAL CONNECTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY POWER TO THE CONTROLLER FOR OPERATION AND TESTING PURPOSES.

3.2.6.2. CONNECTIONS TO CONTROL WIRING SHALL BE MADE WITHIN AUTOMATIC CONTROLLER ENCLOSURE.

3.2.6.3. ELECTRICAL WIRING SHALL BE ON A RIGID PVC PLASTIC CONDUIT FROM CONTROLLER TO ELECTRICAL OUTLET. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL WIRING TO THE SUB-PANELS, CLOCKS, OR ELSEWHERE AS REQUIRED, IN ORDER TO COMPLETE THIS INSTALLATION.

3.2.6.4. CONTRACTOR SHALL SUPPLY AND INSTALL BATTERY IN CONTROLLER TO PREVENT LOSS OF PROGRAM.

3.2.6.5. IRRIGATION CONTROLLER ENCLOSURE SHALL BE INSTALLED AS SHOWN ON PLANS AND PER THE MANUFACTURER'S REQUIREMENTS.

3.2.6.6. IRRIGATION CONTROLLER ASSEMBLY SHALL BE INSTALLED AS SHOWN ON PLANS AND PER THE MANUFACTURER'S REQUIREMENTS.

3.2.7. REMOTE CONTROL VALVES:

3.2.7.1. INSTALL REMOTE CONTROL VALVES IN LOCATIONS APPROXIMATELY AS SHOWN ON THE DRAWINGS, WITH A COVER OF 8 INCHES MINIMUM OVER TOP OF FLOW CONTROL STEM. FIT WITH PLASTIC VALVE BOX AND COVER.

3.2.8. VALVE BOX:

3.2.8.1. INSTALL VALVE BOXES AS SHOWN ON DETAIL. INSTALL NO MORE THAN ONE VALVE PER BOX. VALVE BOXES SHALL BE LOCATED IN SHRUBS AREAS WHEREVER POSSIBLE.

3.2.9. OTHER VALVES:

3.2.9.1. INSTALL DRIP VALVE ASSEMBLY AS DETAIL AND SHOWN ON PLANS.

3.2.10. BACKFLOW PREVENTER:

3.2.10.1. BACKFLOW PREVENTER ASSEMBLY SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS, LOCATED AND AS DIRECTED ON DRAWINGS, AND SHALL CONFORM TO ALL APPLICABLE CODE AND ORDINANCE REQUIREMENTS.

3.2.10.2. EXACT LOCATION AND POSITIONING SHALL BE VERIFIED ON THE SITE.

3.2.11. THRUST BLOCKS AND FOOTINGS:

3.2.11.1. THRUST BLOCKS AND FOOTINGS SHALL BE PLACED ON NINETY-PERCENT (90%) MINIMUM COMPACTED OR UNDISTURBED SUBGRADE. CONSTRUCT TO SHAPES SPECIFIED AND PARALLEL TO WALKWAYS. TOOL FINISH EXPOSED SURFACE.

3.2.12. DRIP IRRIGATION EMITTERS:

3.2.12.1. INSTALL DRIP IRRIGATION EMITTER AS DETAILED AND SHOWN ON PLANS.

3.3 FLUSHING AND TESTING OF SYSTEMS:

3.3.1. AFTER PIPING AND RISERS ARE IN PLACE, BUT PRIOR TO THE INSTALLATION OF THE SPRINKLER HEADS, A FULL HEAD OF WATER SHALL BE USED TO FLUSH OUT THE SYSTEM. AFTER SYSTEM IS THOROUGHLY FLUSHED, CAP ALL RISERS:

3.3.2. PRESSURE TEST:

3.3.2.1. ALL PRESSURE LINES SHALL BE TESTED UNDER HYDROSTATIC PRESSURE OF 125 LBS. PER SQUARE INCH AND ALL NON-PRESSURE LINES SHALL BE TESTED UNDER THE EXISTING STATIC PRESSURE AND BOTH BE PROVEN WATERTIGHT. (CONTRACTOR TO SUPPLY ALL EQUIPMENT NEEDED FOR TESTING.)

3.3.2.2. PRESSURE SHALL BE SUSTAINED IN THE LINES FOR NOT LESS THAN FOUR HOURS. IF LEAKS DEVELOP, THE JOINTS SHALL BE REPLACED AND THE TEST REPEATED UNTIL THE ENTIRE SYSTEM IS PROVEN WATERTIGHT.

3.4 RECORD DRAWINGS:

3.4.1. BEFORE FINAL ACCEPTANCE OF WORK, THE CONTRACTOR SHALL PROVIDE A "REDLINE" RECORD SET OF DRAWINGS SHOWING THE SPRINKLER SYSTEM WORK:

3.4.2. ANY CHANGES IN LOCATION OF ITEMS OR TYPE OF INSTALLATIONS FROM THAT SHOWN ON DRAWINGS SHALL BE SO INDICATED ON THE RECORD DRAWINGS:

3.4.3. VALVES SHALL BE NUMBERED AND CORRESPONDING NUMBERS SHALL BE SHOWN ON THE RECORD DRAWINGS:

3.4.4. ALL REMOTE CONTROL VALVES, SHUT-OFF VALVES, QUICK COUPLER VALVES SHALL BE LOCATED BY MEASURED DIMENSIONS. DIMENSIONS SHALL BE GIVEN TO PERMANENT OBJECTS AND SHALL BE TO THE NEAREST ONE-HALF FOOT:

3.4.5. ON THE INSIDE SURFACE OF THE COVER OF EACH AUTOMATIC CONTROLLER, PREPARE AND MOUNT A COLOR-CODED CHART SHOWING THE VALVES, MAINLINE, AND SPRINKLER HEADS SERVICED BY THAT PARTICULAR CONTROLLER. ALL VALVES SHALL BE NUMBERED TO MATCH THE OPERATION SCHEDULE AND THE DRAWINGS. ONLY THOSE AREAS CONTROLLED BY THAT CONTROLLER SHALL BE SHOWN. THIS CHART SHALL BE A PLOT PLAN, ENTIRE OR PARTIAL, SHOWING BUILDING, WALKS, ROADS AND WALLS. A PHOTOSTATIC PRINT OF THIS PLAN, REDUCED AS NECESSARY AND LEGIBLE IN ALL DETAILS, SHALL BE MADE TO A SIZE THAT WILL FIT INTO THE CONTROLLER COVER. THIS PRINT SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT AND SHALL BE HERMETICALLY SEALED BY PLASTIC. THIS PLAN SHALL THEN BE SECURED TO THE BACK OF THE ENCLOSURE DOOR:

3.4.6. IMMEDIATELY UPON THE INSTALLATION OF ANY BURIED PIPE OR EQUIPMENT, THE CONTRACTOR SHALL INDICATE ON THE DRAWINGS THE LOCATIONS OF SAID EQUIPMENT. DIMENSIONS SHALL BE GIVEN FROM PERMANENT OBJECTS SUCH AS BUILDINGS, SIDEWALKS, CURBS AND DRIVEWAYS:

END OF SECTION 02810

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DRAWN: MEF

PROJECT NO. 5114
DATE: 27-JUNE-2019

L-17

IRRIGATION SPECIFICATIONS



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