Livermore Amador Valley
TRANSIT AUTHORITY

February 8, 2022

To: All Interested Parties

From: Tamara Edwards
Director of Finance
Livermore Amador Valley Transit Authority

Re: IFB #2021-08 LAVTA Rutan Landscaping Construction Project – Addendum Number 3

Addendum Number 3 to the above referenced IFB provides revisions to Special Provision #25, Payment and Invoicing Instructions, and responds to the Questions Posed by potential bidders with LAVTA narrative responses.

Revisions to Special Provision #25, Payment and Invoicing Instructions: The first and second paragraphs of Special Provision #25 are deleted and replaced with the following:

"The Authority will make lump sum payments to the Contractor, which shall include compensation for furnishing all labor, tools, equipment, and incidentals necessary to complete the work. The Contractor may invoice the Authority for 90% of the Grand Total Bid Price after the Authority's final acceptance of the demolition and installation work. The Contractor may invoice the Authority for maintenance work on a monthly basis during the maintenance period. The remaining 10% "retention" of the Grand Total Bid Price from the demolition and installation work may be invoiced at the end of the maintenance period. No additional compensation will be allowed without the prior authorization from the Authority's Executive Director. The Authority will inspect all work prior to payment. Payment will be made at the Grand Total Bid Price amount included on contractor's bid form.

After Final Acceptance of the demolition and installation work and maintenance work, the Contractor shall thereupon furnish to the Authority satisfactory evidence that all liens, claims and demands of Subcontractors, laborers and materialmen, arising out of such work, are fully satisfied, and that all of the work is fully released from all liens, claims and demands of whatever kind and nature and whether just or otherwise. The Authority shall thereupon record a notice of completion and Contractor may invoice the Authority for final payment. The Authority shall make payment to the Contractor within 30 days of receipt of proper statements or invoices for the completed work. If the Authority fails to make payment in a timely manner, it shall pay interest to the Contractor at the legal rate set forth in Section 685.010(a) of the California Code of Civil Procedure."

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O. (925) 455-7555 | F. (925) 443-1375
wheelsbus.com

The following are questions and/or requests for clarification received from bidders by the required deadline of 4 PM on January 17, 2022.

	Question	Answers
1	*There are several old stumps from large shrubs in various locations, are these to be removed?*	Yes, these shrubs were in place at the time of the drawings and their removal is part of the project.
2	*Bark mulch is not on the bid form, where shall we include it?*	Apologies. When we converted the bid form from an Excel spreadsheet to a PDF the bid form lines were cut off. An amended bid form is included as attachment #1.
3	*There are many trees with surface roots. Are these roots to be removed?* *If so, will an Arborist be on-site to provide direction?* *If roots are to remain, how are we to address soil prep and shrub planting in these areas as the roots are likely to interfere?*	*No, the surface roots are not to be removed, but this was an anticipated problem.* *Soil preparation here will be done per planting pit, amended the backfill mix. Placement will be as the roots dictate. Typically roots 1" and larger should not be cut without the approval of an arborist.*

4	*Please verify that the maintenance period is 6 months and where it should be included on the bid form. If the maintenance period is 6 months will we have to wait until completion before billing since it's a single payment contract?*	Apologies. When we converted the bid form from an Excel spreadsheet to a PDF the bid form lines were cut off. A corrected bid form is included as attachment #1. The contractor may invoice the Authority for demolition and installation work prior to the maintenance and warranty period (with a 10% retention to be paid after the maintenance period ends). The maintenance work may be billed on a monthly basis during the maintenance period.
5	*Where is the electrical pull box located for Controller #2 (wall mount installation)?*	There isn't one nearby but according to our electrician one could be created right at the corner by drilling through the wall. If that is desired by the contractor LAVTA can have their electrician do the work at LAVTA's cost.
6	*Shall all existing sprinkler heads be removed and lateral lines abandoned in place?*	Yes
7	Please confirm that page B-3 is bid form is just for schedule of value not for bidding because quantities not given by owner and every estimator has on number because of this it may vary from bidders and grant total amount can be very different. To be able to complete this page either quantities given by owner or just the filling out unit cost for giving schedule	Please see attachment #1 for updated B-3 bid form
8	Is there engineering estimate for this project	No
9	This project has 120 days to finish after there is any maintenance period or not ?	Page TS-3 "The period for warranty and maintenance of plants/shrubs/trees shall be no less than six months and the irrigation system shall be no less than one year".

10	Refer to note 3 in sheet L-6, please provide limit of work for existing mounded locations for soil preparation per the snip below. 3) Thoroughly prepare soil prior to planting. See sheet L-6 for preparation specifications. For existing mounded locations, follow recommendations for sample 2. All other areas shall use recommendations from sample 1. 4) Incorporate 4 cy of compost per 1000 sf, 6" into native soil. 5) Spread 3" of recycled wood chip mulch (Prochip Mahogany or equal).	See plan markup attachment 3.
11	Please provide landscape technical specifications.	Attachment #5 are general specifications
12	Please provide technical specification for tree protection.	See question #3
13	Refer to irrigation legend on sheet L11 stating backflow preventor, master valve, flow sensor may be required on this project. For bidding purposes, please confirm if these items will be required in the bid. If so, please provide installation details for backflow preventor, flow sensor, master valve.	Since we do not know if these will be required, if they are required they will need to be addressed in a change order.
14	Please provide installation details for irrigation controller and gate valve.	Please see update Sheet L 11 attachment #4.
15	Please provide locations and depths where import soil is required. Will these areas be left low?	No soil import is specified at this time.
16	Please provide locations for quick coupler valves.	Need TBD in field.
17	Refer to sheet L5, please provide material type and installation detail for decorative gravel.	See updated sheet L 1 for specification attachment #2

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18	Please provide manufacturer and model numbers for Irrigation security blankets.	See updated sheet L 1 for specification attachment #2
19	Please provide bid items for mulch, landscape maintenance and drip remote control valves.	See updated bid form
20	According to section 7, the work/TS-2, Landscape demolition does not address irrigation removals. Will existing sprinkler heads and lateral line be removed or capped and abandoned in place?	See question #6
21	Bidder has to be a signatory of the union to be able to bid this project if not could you confirm that bidder doesn't have to be signatory of union please	This project is a public works project and therefore prevailing wage must be paid. However, there are no requirements regarding unions.

Other than those specifically listed above, no other sections, terms or conditions of the above cited solicitation are being altered at this time. All other sections, conditions and language not specifically cited as altered in this document are still in full and original effect.

Attachments:

1. B-3 Bid Form Revised
2. Plan L1- Revised
3. Plan L1-Redlined
4. Plan L11- Revised
5. Specifications

Submitted:

Tamara Edwards

Tamara Edwards, Director of Finance

February 8, 2022

Date

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Attachment 1 "B-3 Bid Form" in Excel format is posted on our website for viewing.

Date:

Item No.	Item Description	Unit	Qty	Unit Cost	Total Cost
Landscaping Work Bid Items					
1	Landscape Demolition	SF	31,500		$0.00
2	Soil Preparation	SF	31,500		$0.00
3	Decorative Gravel	CY	6		$0.00
4	Pressure testing existing mainline	LS	4 hour test		$0.00
5	Irrigation Controllers	EA	3		$0.00
6	Irrigation Quick Couplers	EA	6		$0.00
7	Irrigation Security Blankets	EA	1		$0.00
8	Irrigation Master Valve (tbd)	EA	1		$0.00
9	Irrigation Flow Sensor (tbd)	EA	1		$0.00
10	Irrigation Gate Valves	EA	1		$0.00
11	Irrigation Control Valves	EA	27		$0.00
12	Irrigation Filters	EA	27		$0.00
13	Irrigation Pressure Reducers	EA	27		$0.00
14	Irrigation Round Valve Box	EA	10		$0.00
15	Irrigation Rectangular Valve Box	EA	27		$0.00
16	Sleeving	LF	0		$0.00
17	1” Irrigation Lateral Line	LF	50		$0.00
18	¾” Irrigation Lateral Line	LF	350		$0.00
19	Drip Mainline	LF	5000		$0.00
20	Drip Supply Tubing	LF	34,000		$0.00
21	Drip Emitters	EA	3430		$0.00
22	Tree Bubblers	EA	22		$0.00
23	Plants 1 Gallon	EA	970		$0.00
24	Plants 5 Gallon	EA	467		$0.00
25	Trees 15 Gallon	EA	22		$0.00
26	Trees 24" Box	EA	11		$0.00
27	Tree Ties	EA	44		$0.00
28	Tree Stakes	EA	22		$0.00
29	Mulch	CY	300		$0.00
30	Maintenance	Months	6		$0.00
					$0.00

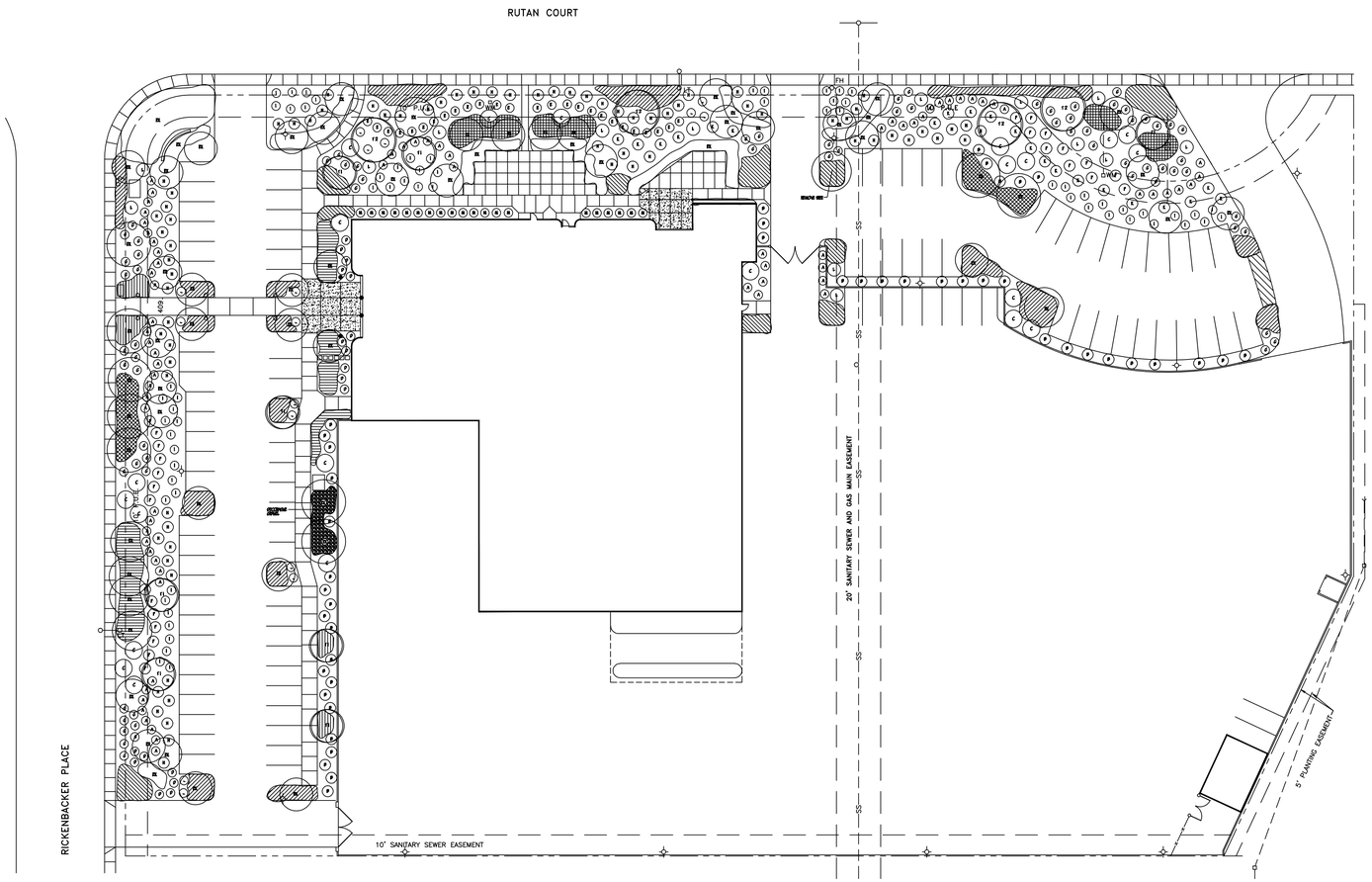
The following items are not part of the bid but may be needed which would necessitate a Change Order

Soil Import
Tree protection measures
Irrigation maintenance
Mainline (including trenching and backfill) 20'
Irrigation Backflow
Control Valve Wire

PLANT LEGEND AND NOTES

Symbol	Species	Size	Water	WUCOLS	Number
	Achillea Moonshine/ Yarrow @ 24" oc	1 gallon	low	3	tbd
	Carex divulsa/ Berkeley Sedge @ 36" oc	1 gallon	low	3	tbd
	Erigeron karvinskianus/ Santa Barbara Daisy @ 36" oc	1 gallon	low	3	tbd
	Lavandula Munstead/ Dwarf Lavendar @ 36" oc	1 gallon	low	3	tbd
	Teucrium chamraedus/ Germander @ 30" oc	1 gallon	low	3	tbd
	Perovskia Lacey Blue/ Dwarf Russian Sage @ 36" oc	1 gallon	low	3	tbd
A	Lomandra Breeze	5 gallon	low	3	72
B	Loropetalum Suzanne	5 gallon	low	3	45
C	Cotinus Golden Spirit/ Smoke Tree	15 gallon	low	3	22
D	Nandina Harbor Dwarf	5 gallon	low	3	18
E	Dietes vegeta/ Fortnight Lily	5 gallon	low	3	26
F	Nerium oleandar Petite Pink	5 gallon	low	3	25
G	Cistus Dwarf Pink/ Rockrose	5 gallon	low	3	71
H	Coleonema Sunset Gold	5 gallon	med	.5	75
I	Rosa White Carpet	5 gallon	med	.5	65
J	Aniqozanthos Red/ Kangaroo Paw	5 gallon	low	3	16
K	Salvia Santa Barbara/ Sage	5 gallon	low	3	20
L	Phormium Apricot Queen/ Flax	5 gallon	low	3	14
M	Chondropetalum tectorum/ Cape Rush	5 gallon	low	3	20
T1	Lagerstroemia Tuscorora std./ Crape Myrtle	24" box	low	3	6
T2	Pistachia chinensis Keith Davey/ Chinese Pistache	24" box	low	3	4

1) Verify all plant removals prior to construction.
2) Protect all existing trees and shrubs to remain from damage. This includes hand digging any irrigation trenches within the canopy area of trees.
3) Thoroughly prepare soil prior to planting. See sheet L-6 for preparation specifications. For existing mounded locations, follow recommendations for sample 2. All other areas shall use recommendations from sample 1.
4) Incorporate 4 cy of compost per 1000 sf, 6" into native soil.
5) Spread 3" of recycled wood chip mulch (Prochip Mahagony or equal).
6) Decorative Gravel: 1 ½" Lin Creek Pebbles - 3" layer set on top of Tupar, or equal landscape fabric. Cut around existing Pine trees.



OVERALL PLANTING PLAN

1/32" = 1'-0"

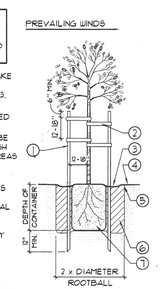

ACHILLEA CAREX ERIGERON LAVANDULA TEUCRIUM PEROVSKIA


LOMANDRA LOROPETALUM COTINUS NANDINA DIETES NERIUM


CISTUS COLEONEMA ROSA ANIGOZANTHOS SALVIA PHORMIUM CHONDROPETALUM LAGERSTROEMIA PISTACHIA

NOTES:
1. CROWN OF ROOTBALL TO BE 1" ABOVE FINISH GRADE.
2. FOR ADDITIONAL INFORMATION REFER TO PLANTING NOTES AND SPECIFICATIONS.

1. 2"x 4" MINIMUM X 10' LODGE POLE STAKE BOTH SIDES OR TOMAHAWK TREE STABILIZER SYSTEM® (800) 845-3343, OR APPROVED EQUAL
2. CINCH TIE, ARBOR TIE, OR APPROVED EQUAL
3. A SHALLOW BASIN 2" DEEP SHALL BE FORMED AROUND BALL BELOW FINISH GRADE. TREES PLANTED IN TURF AREAS SHALL NOT HAVE BASINS.
4. FINISH GRADE
5. TREES INSTALLED WITHIN TURF AREAS SHALL BE INSTALLED WITH 'ARBOR-GARD' OR APPROVED EQUAL AT BASE OF TRUNK.
6. BACKFILL IN ACCORDANCE WITH PROJECT AGRICULTURAL SUITABILITY SOILS REPORT
7. ROOTBALL



A TREE PLANTING DETAIL

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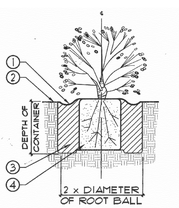

B SHRUB PLANTING DETAIL

Attachment 2

W. Jeffrey Held
Landscape Architect
C-2235

6179 Oneida Drive
San Jose, California 95123

tel 408 691-5207
fax 408 226-6085
email wjheldasla@comcast.net

REVISED 9/9/21
REVISED 10/20/21
REVISED 11/29/21
REVISED 1/18/22

REGISTERED LANDSCAPE ARCHITECT No. 2235 Signature EXPIRATION DATE: 08/30/2023 STATE OF CALIFORNIA

LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY

for:
1362 RUTAN COURT
SUITE 100
LIVERMORE, CA. 94551

OVERALL PLANTING PLAN

date: 9/2/21
scale: NOTED
drawn by: WJH
job no. 202165
sheet L1
of shts

PLANT LEGEND AND NOTES

Symbol	Species	Size	Water	WUCOLS
	Achillea Moonshine/ Yarrow @ 24" oc	1 gallon	low	3
	Carex divulsa/ Berkeley Sedge @ 36" oc	1 gallon	low	3
	Eriqeron karvinskianus/ Santa Barbara Daisy @ 36" oc	1 gallon	low	3
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	Teucrium chamraedus/ Germander @ 30" oc	1 gallon	low	3
	Perovskia Lacey Blue/ Dwarf Russian Sage @ 36" oc	1 gallon	low	3
A	Lomandra Breeze	5 gallon	low	3
B	Loropetalum Suzanne	5 gallon	low	3
C	Cotinus Golden Spirit/ Smoke Tree	15 gallon	low	3
D	Nandina Harbor Dwarf	5 gallon	low	3
E	Dietes vegeta/ Fortnight Lily	5 gallon	low	3
F	Nerium oleandar Petite Pink	5 gallon	low	3
G	Cistus Dwarf Pink/ Rockrose	5 gallon	low	3
H	Coleonema Sunset Gold	5 gallon	med	.5
I	Rosa White Carpet	5 gallon	med	.5
J	Aniqozanthos Red/ Kangaroo Paw	5 gallon	low	3
K	Salvia Santa Barbara/ Sage	5 gallon	low	3
L	Phormium Apricot Queen/ Flax	5 gallon	low	3
M	Chondropetalum tectorum/ Cape Rush	5 gallon	low	3
T1	Lagerstroemia Tuscorora std./ Crape Myrtle	24" box	low	3
T2	Pistachia chinensis Keith Davey/ Chinese Pistache	24" box	low	3

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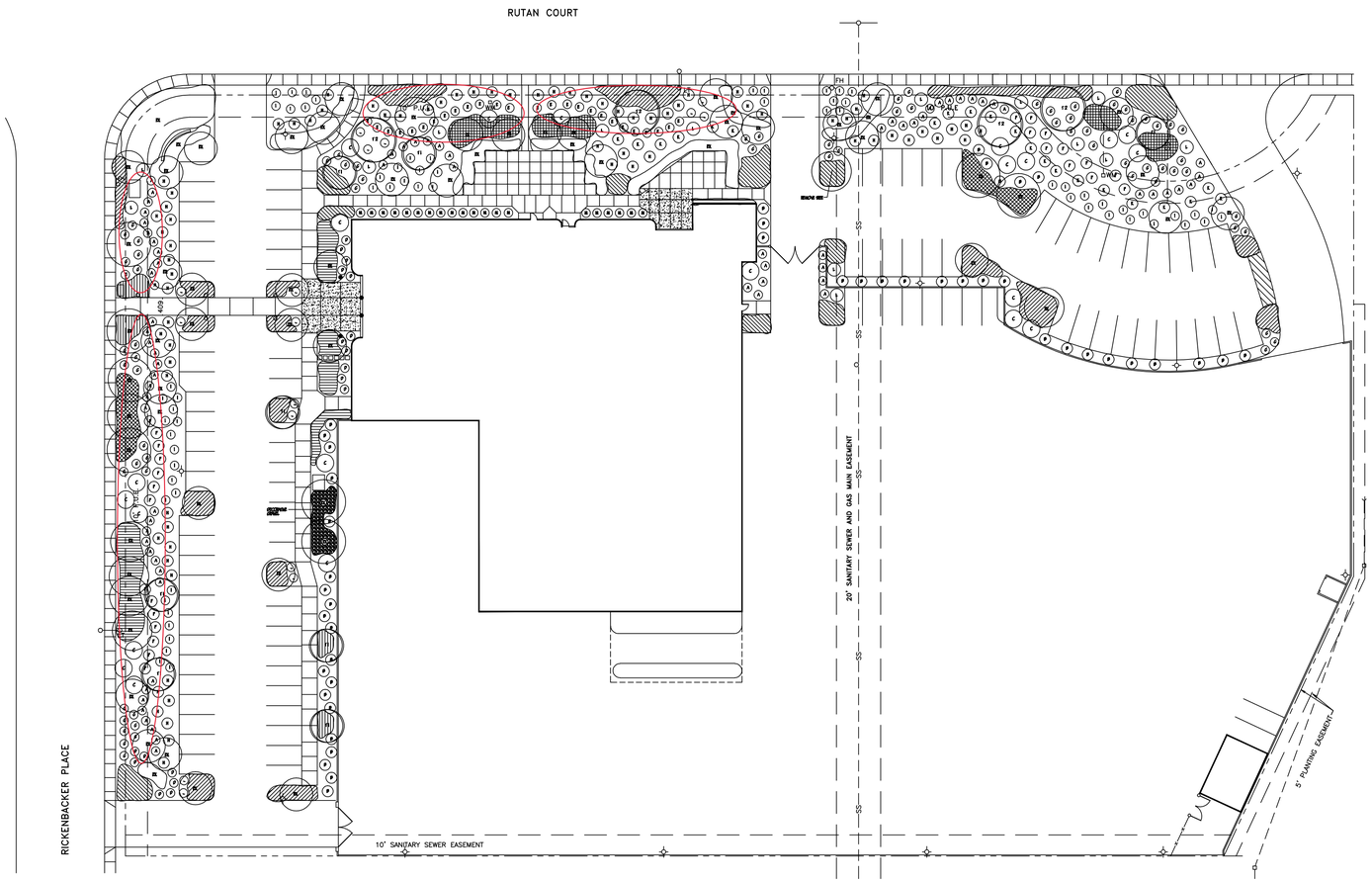

OVERALL PLANTING PLAN

1/32" = 1'-0"

APPROXIMATE AREA CONSIDERED "MOUNDED" FOR SOIL PREPARATION MEASURES


ACHILLEA CAREX ERIGERON LAVANDULA TEUCRIUM PEROVSKIA


LOMANDRA LOROPETALUM COTINUS NANDINA DIETES NERIUM


CISTUS COLEONEMA ROSA ANIGOZANTHOS SALVIA PHORMIUM CHONDROPETALUM LAGERSTROEMIA PISTACHIA

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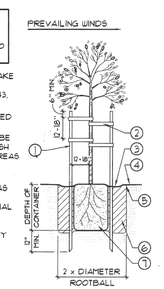
4. FINISH GRADE
5. TREES INSTALLED WITHIN TURF AREAS SHALL BE INSTALLED WITH 'ARBOR-GARD' OR APPROVED EQUAL AT BASE OF TRUNK.
6. BACKFILL IN ACCORDANCE WITH PROJECT AGRICULTURAL SUITABILITY SOILS REPORT
7. ROOTBALL



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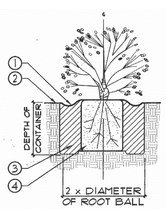

B SHRUB PLANTING DETAIL

Attachment 3

W. Jeffrey Held
Landscape Architect
C-2235

6179 Oneida Drive
San Jose, California 95123

tel 408 691-5207
fax 408 226-6085
email wjheldasla@comcast.net

REVISED 9/9/21
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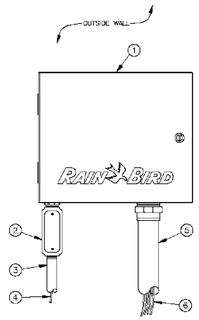
REGISTERED LANDSCAPE ARCHITECT No. 2235 Signature EXPIRATION DATE: 08/30/2023 STATE OF CALIFORNIA

LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY

for:
1362 RUTAN COURT
SUITE 100
LIVERMORE, CA. 94551

OVERALL PLANTING PLAN

date: 9/2/21
scale: NOTED
drawn by: WJH
job no. 202165
sheet L1
of shts



1. IRRIGATION CONTROLLER: RAIN BIRD ESP-LXME CONTROLLER IN LXMM METAL CABINET WITH OUTSIDE WALL MOUNT. INSTALL CONTROLLER AND CABINET ON WALL PER MANUFACTURER'S RECOMMENDATIONS.
2. JUNCTION BOX
3. 1-INCH CONDUIT AND FITTINGS TO POWER SUPPLY
4. POWER SUPPLY WIRE
5. 2-INCH CONDUIT AND FITTINGS FOR STATION WIRES
6. WIRES TO REMOTE CONTROL VALVES

NOTES:
1. ESP-LXME CONTROLLER IS AVAILABLE IN 8- OR 12-STATION BASE MODELS. ADDITIONAL MODULES IN 4-, 8- AND 12-STATION VERSIONS MAY BE ADDED TO BRING THE CONTROLLER UP TO 48 STATIONS MAXIMUM.
2. FOR EASE OF INSTALLATION INTO A CONTROLLER WITH MORE THAN 24 STATIONS, INSTALL A JUNCTION BOX AT THE BASE OF CONTROLLER AND TRANSITION LARGER VALVE AND COMMON WIRES FROM FIELD TO 18 AWG MULTI CONDUCTOR WIRE TO BE USED IN CONTROLLER.
3. USE STEEL CONDUIT FOR ABOVE GRADE AND SCH 40 PVC CONDUIT FOR BELOW GRADE CONDITIONS.
4. PROVIDE PROPER GROUNDING COMPONENTS TO ACHIEVE GROUND RESISTANCE OF 10 OHMS OR LESS.

D ESP-LXME CONTROLLER IN METAL CABINET — N.T.S. — 01-13-11

LXM001.DWG

1. IRRIGATION CONTROLLER: RAIN BIRD ESP-LXMEF CONTROLLER WITH FLOW SMART MODULE IN LXMM METAL CABINET AND LXMMPED METAL PEDESTAL. INSTALL CONTROLLER, CABINET AND PEDESTAL PER MANUFACTURER'S RECOMMENDATIONS.
2. CONCRETE PAD: 6-INCH MINIMUM THICKNESS
3. FINISH GRADE
4. POWER SUPPLY WIRE
5. 1-INCH SCH 40 PVC CONDUIT, FITTINGS AND SWEEP ELL FOR POWER SUPPLY
6. COMPACTED SUBGRADE
7. 3-INCH SCH 40 PVC CONDUIT, FITTINGS AND SWEEP ELL FOR STATION WIRES
8. FLOW SENSOR WIRE (PE 39, 89 OR 54) TO FLOW SENSOR
9. MASTER VALVE AND REMOTE CONTROL VALVE WIRES

NOTES:
1. ESP-LXMEF CONTROLLER IS AVAILABLE IN 8- OR 12-STATION BASE MODELS. ADDITIONAL MODULES IN 4-, 8- AND 12-STATION VERSIONS MAY BE ADDED TO BRING THE CONTROLLER UP TO 48 STATIONS MAXIMUM.
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3. PROVIDE PROPER GROUNDING COMPONENTS TO ACHIEVE GROUND RESISTANCE OF 10 OHMS OR LESS.

D ESP-LXMEF CONTROLLER WITH FLOW SMART MODULE IN METAL PEDESTAL — N.T.S. — 01-13-11

LXM102.DWG

9/19/2022 | Page 1 of 2

NIBCO
ahead of the flow

NIBCO
1516 Middlebury Street
Elkhart, IN 46516-4740
Phones 574.295.3000 • Fax: 800.234.0557
E-Mail: info@nibco.com • Web site: www.nibco.com

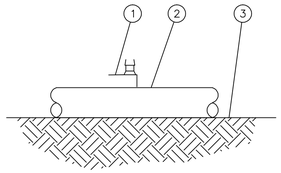
Material Number NL0300D, T-113 - Gate Valve - Bronze, Non-Rising Stem, Threaded

The NIBCO® bronze gate valve may be used in commercial and industrial applications, including hot and cold water, HVAC, steam, compressed air, gas and other general utility services. Please refer to NIBCO technical data sheets, chemical resistance guides and catalogs for engineering and installation information. Choose NIBCO® gate valves for the most specified, versatile and economical valve option in commercial, mechanical and industrial applications. NIBCO® gate valves are backed by the NIBCO

more

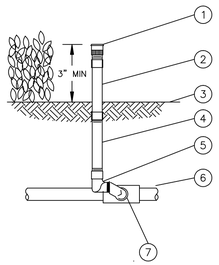
Specifications	
UPC Code	039923614193
Type	Gate Valve
Valve Size	2 in
Material	BRZ Cast Bronze
Description	T113 2 THD 125# NRS GATE BRZ
Turns / Operation	Multi-Turn
Seat / Seal Material	Bronze
Connection Type	T – Female NPT Thread (FIPT)
Valve Gate Stem Design	NRS - Non-Rising Stem
Valve Multi-Turn Bonnet Design	Screw-in Bonnet
Operation Type	Standard Handwheel

1. SINGLE-OUTLET BARB INLET X BARB OUTLET EMITTER: RAIN BIRD XERI-BUG EMITTER
2. 5/8" POLYETHYLENE TUBING: RAIN BIRD XF SERIES TUBING OR RAIN BIRD XT-700 XERI-TUBE OR RAIN BIRD XBS BLACK STRIPE TUBING
3. FINISH GRADE



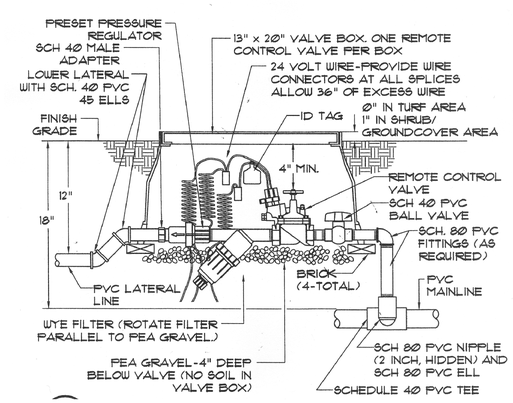
NOTES:
1. USE RAIN BIRD XERIMAN TOOL XM-TOOL TO INSERT EMITTER DIRECTLY INTO ½" POLYETHYLENE TUBING.
2. RAIN BIRD XERI-BUG BARB X BARB EMITTERS ARE AVAILABLE IN THE FOLLOWING MODELS:
XB-05PC 0.5 GPH XB-10PC 1.0 GPH XB-20PC 2.0 GPH

A XERI-BUG INTO 1/2-INCH TUBING OPTION 1 — N.T.S. — 1-14-10



1. PRESSURE COMPENSATING FULL CIRCLE BUBBLER: RAIN BIRD 1400
2. KBI FLEX RISER
3. FINISH GRADE/TOP OF MULCH
4. SCHEDULE 80 RISER (LENGTH AS REQUIRED)
5. 2 1/2" MARLEX FITTINGS TO CREATE SWING JOINT
6. SCHEDULE 40 PVC LATERAL PIPE
7. PVC SCH 40 TEE OR ELL

B PRESSURE COMPENSATING FULL-CIRCLE BUBBLER 1400 SERIES ON RISER — N.T.S.



C CONTROL VALVE DETAIL

IRRIGATION LEGEND

CI	Replace existing controller with (3) Rainbird ESP12LXMEF-LXMM with satellite option - verify placement and electrical - verify use and operation of all existing control valve wiring install and verify placement of Rainbird WR2-RFC rain sensors
	Verify operation of existing irrigation backflow preventer, maintain and reuse as possible, or replace with Febco #825-Y- 2" reduced pressure backflow preventer - provide lockable cover Frost Guard, or equal, FG-3-R30 insulated blanket - provide lock and 2 keys to owner verify location point of connection and install per manufacturers specifications
	Where system allows and to isolate new sections, install T-113 gate valves, sized per mainline
	As may be required of the project, include Superior 3100 master valve and Creative Sensor Tech FSI-110-001 flow sensor tied to master valve and controller
	2" schedule 40 pvc mainline - min. depth 18" where needed
	Rainbird PEB series 1" control valves with in line pressure reducer set to 35 psi and Y filter and/ or Rainbird XCZ1F-100-PRF drip valve kit, or sized per field conditions install below grade in 1419 valve boxes
	Schedule 40 pvc lateral lines - min. depth 12"
	Schedule 40 pvc sleeving - verify placement under patio and walks
	Rainbird Rainbuq drip emitters - 1 gph pressure compensating emitters (2) per 1 gallon plants (3) per 5 gallon and (4) per 15 gallon plants - locate on opposite sides of the rootball
	Rainbird #1401 bubbler (2 per tree)
3A	Controller and valve number

1) The irrigation design assumes the salvaging and reuse of the existing irrigation mainline. Contractor shall test for any leaks and confirm both operation and location. Any issues shall be brought to the attention of the owner and architect.
2) Existing controller and control valve wires shall be abandoned and replaced with new.
3) The irrigation design also assumes the existence of sleeving under all existing pavement, based on the original irrigation design and plans. The contractor shall confirm this in the field, especially throughout the parking lot area, and reuse same sleeving if needed for any drip line or control wire access. Any issues shall be brought to the attention of the owner and architect.
4) The intent of the irrigation design is to divide the area into three separately controlled areas. Site electrician has identified locations for electrical connections. These shall be confirmed in the field. All electrical work shall be according to local and state electrical codes. The electrical connection shall be a direct connection leading to new wall or pedestal mount controllers. Controllers #1 and #3 shall be pedestal mount. #2 shall be a wall mount application.
5) All existing control valves shall be upgraded with new, located below grade in valve box.
6) Confirm water source and existing backflow preventer. Backflow preventer shall be covered and secured with locking cover.
7) Verify site water pressure at 65 psi - notify architect prior to construction if found to be different.
8) Verify electrical source and controller placement. New controllers shall be installed in lockable, weather proof box.
9) Verify operation of system before backfilling trenches. Drip line to be secured to grade with stakes and covered with final mulch.
10) System layout is diagrammatic, actual field conditions will dictate final layout, addition of drip line, etc.
11) Verify control wire placement and operation of valves.
12) Verify placement of rain sensor in field.
13) Contractor shall be responsible for setting and monitoring irrigation system to apply adequate water for establishment, but to eliminate runoff and soil saturation.
14) Contractor to submit maintenance and irrigation schedule to owner at completion of installation and maintenance/ warrantee period.
15) Contractor shall verify location of all underground utilities prior to any trenching or excavation.
16) Contractor shall verify existing and/ or coordinate installation of sleeving and/ or mainline and lateral lines access under all pavement.
17) Contractor shall provide all necessary safety precautions throughout construction. This shall include signage and barriers.

Attachment 4

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Landscape Architect
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REVISED 1/18/22

REGISTERED LANDSCAPE ARCHITECT
No. 2235
Signature
EXPIRATION DATE: 08/30/2023
STATE OF CALIFORNIA

LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY

for:
1362 RUTAN COURT
SUITE 100
LIVERMORE, CA. 94551

IRRIGATION DETAILS

date: 10/20/21
scale: NOTED
drawn by: WJH
job no. 202165
sheet
L 11
of shts

GENERAL SPECIFICATIONS FOR:

LIVERMORE/AMADOR VALLEY TRANSIT AUTHORITY
1362 Rutan Court, Suite 100
Livermore, Ca. 94551

January 2022

W. Jeffrey Heid/Landscape Architect
6179 Oneida Drive
San Jose, CA. 95123
wjheidasla@gmail.com

LANDSCAPE SPECIFICATIONS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. General:

1. The work includes all services, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings and as specified. The conditions of the contract apply to this section as fully as if repeated herein.

1.02 SUBMITTALS

A. General:

1. Submit a list of all soil amendments, fertilizers to be used as part of the project.

1.03 OBSERVATION

A. General:

1. Observation is suggested for the following parts of the work, by the Landscape Architect, as approved by the Owner/Client or designated representative. It is the responsibility of the contractor or Owner/Client, or their representative, to contact the Landscape Architect, in a timely manner, regarding their desire to have him present at these meeting times.
   a. Pre-job meeting: explain architect and inspectors role to contractor, project manager, and job superintendent.
   b. Review of finish grade after soil preparation and installation of irrigation system.
   c. Pre-final observation: upon completion of all planting operations with working irrigation system.
   d. Final job observation.

1.04 GENERAL REQUIREMENTS

A. General:

1. The term "planting area" shall mean all areas to be planted.
2. Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practice.
3. All rock and other growth or debris accumulated during the duration of the project shall be removed from the site.
4. Prior to construction operations, locate all underground utility lines still in use and take proper precautions to avoid damage to such utilities. In the event of a conflict of any kind, notify the Architect, and/or Owner Client. The Contractor assumes responsibility for making repairs for damages resulting from work herein specified.
5. Grading and soil preparation work shall be performed only during the period when beneficial and optimum results may be obtained. If the moisture content of the soil should reach such a level that working it would destroy soil structure, spreading and grading operations shall be suspended until moisture content is increased or reduced to acceptable levels and the desired results are likely to be obtained.
6. Scaled dimensions are approximate. Before proceeding with work, Contractor shall carefully check and verify dimensions and immediately inform the Architect of discrepancies between the drawings and specifications and actual conditions.
7. Adequately stake, barricade, and protect irrigation equipment manholes, utility lines, landscaping to remain and other existing property during all phases of the soil amending and grading operations.

PART 2 – PRODUCTS

2.01 SOIL AMENDMENTS AND FERTILIZER

A. General:

1. Soil conditioner and/or amendment, shall be as follows:
    a. Per site specific analysis and recommendations through Waypoint Analytical.
2. Preplant fertilizer shall be of a homogeneous granular composition suitable for application with approved equipment.
3. Postplant fertilizer shall be of a homogenous granular or tablet form that is organic or slow releasing in nature (Milorganic, Gropower, Agriform) and shall be at the highest recommended rate given by the manufacturer. Maintenance fertilization shall consist of periodic applications of ammonioum sulfate in rotaion with 16-6-8 or similiar on a 3:1 basis. The appropriate rates of application are those resulting in use of 1# nitrogen/lOOO sqft/feeding.
    a. Submit product information to Owner/Client or representative.

2.02 WEED CONTACT

A. General:

1. Only as specified.

PART 3 – EXECUTION

3.01 SOIL CONDITIONING, FERTILIZING AND ROTOTILLING

A. General:

1. After the project areas have been cleaned of debris, the rates as specified for soil conditioning and amendment material shall be thoroughly blended with existing soil prior to backfilling around the root ball.
2. Fertilizer (preplant) shall be incorporated into the soil mix as specified.
3. The thoroughness of the incorporation of the soil conditioners/amendments, shall be acceptable to the Architect and/or Owner/Client.
4. Landscape area shall be raked to remove clods, weeds, and debris. Area shall be graded to a smooth and even surface.

3.02 FINISH GRADING

A. General:

1. All undulations and irregularities in the planting surfaces resulting from tillage, rototilling and all other operations shall be leveled and floated out before planting operations are initiated.
2. Take every precaution to protect and avoid damage to existing plants to remain, irrigation lines, and other underground utilities during grading and conditioning operations.
3. Final grades shall insure positive drainage of the site with all surface drainage away from building walls, and towards roadways, drains and catch basins.
4. Final grades shall be acceptable to the Architect and/or Owner/Client before planting operations will be allowed to begin.
5. Planting surfaces shall be graded with no less than 1% surface slope for positive drainage.
6. Final grade shall be set to 1" +/- below finish grade of abutting pavement. This to allow for thickness of new sod. The same grade difference shall occur around existing drain inlets.

3.03 FINAL SOIL AMENDMENT QUANTITIES

A. General:

1. Per site specific soil preparation specifications.

3.04 PLANTING

A. General:

1. Schedule deliveries to coincide with soil amendment operations.

B. Storage:

1. Plants and all project materials shall be stored inside the property fence.

C. Planting operations:

1. Shall not be done during rainy weather, or weather where the temperature exceeds 100 degress.

3.05 TEMPORARY UTILITIES

A. General:

1. All utilities (water and electricity) used during the installation and maintenance of the landscaping and irrigation systems for this project shall be paid by the owner/Client.

PART 4 - CLEAN-UP

4.01 PROJECT CLEAN-UP

A. General:

1. As project progresses, Contractor shall maintain all areas in a neat manner and remove unsightly debris as necessary.
2. After completion of project, Contractor shall remove all debris and containers used in accomplishing work. He/she shall sweep and clean all sidewalks, asphalt and concrete areas adjacent to planting areas.

PART 5 - GUARANTEES AND REPLACEMENTS

5.01 PROJECT GUARANTEES

A. General:

1. Plants shall be guaranteed for 90 days

5.02 Any plants found to be dead and not in a vigorous condition noted within the Guarantee Period, shall be replaced within fourteen (14) days.

PART 6 – MAINTENANCE

A. General:

1. The maintenance period shall begin on the first day after all landscape and irrigation work on this project is complete, accepted, and approval from the Architect and/or Owner/Client is given to begin the Maintenance Period, and shall continue thereafter for no less than sixty (60) continuous calendar days.
2. The Contractor shall continuously maintain all involved areas during the progress of the work and during the maintenance period until the final acceptance of the work.
3. Regular maintenance operation shall begin immediately after the project is completed.
4. The Contract completion date of the contract maintenance period will be extended, when in the opinion of the Architect and/or Owner/Client, improper maintenance or possible poor or unhealthy condition of planted material are evident at the termination of the scheduled maintenance period. The Contractor shall be responsible for additional maintenance of the work until work is completed and acceptable.

End of Section

IRRIGATION SPECIFICATIONS

PART 1 GENERAL

1.01 WORK INCLUDED

A. General:

1. The work includes all services, labor, materials, transportation and equipment necessary to perform the work indicated on the drawings and as specified.

1.02 SUBMITTALS

A. General:

1. Submit a list of all irrigation equipment to be used, manufacturer's brochures, maintenance manuals, guarantees and operating instructions.

1.03 OBSERVATIONS

A. General:

1. Observation is suggested for the following parts of the work, by the Landscape Architect, as approved by the owner/Client or designated representative. It is the responsibility of the contractor or Owner/Client, or their representative, to contact the Landscape Architect in a timely manner, regarding their desire to have him present at these meeting times.
   a. Pre-job meeting: explain architect and inspectors role to contractor, project manager, and job superintendent.
   b. Irrigation observation: upon installation and testing of mainlines under pressure.
   c. Pre-final observation: upon completion of all irrigation work for preparation of punch list.
   d. Final job observation and performance test.

1.04 TESTING

A. General:

1. All PVC main and lateral lines shall be subjected to a pressure test of 125 psi for a period of 4 hours. All testing shall be in the presence of the Architect for the final part of the test. Approval shall be received before complete backfilling of trench. Certain coverage of piping may be required for safety reasons. A minimum 48 hour notice shall be required.

1.05 RECORD DRAWINGS

A. General:

1. Before final acceptance of work, provide a record set of drawings showing the sprinkler system layout different from the plans and any changes in the equipment schedule. Plan shall be legible and understandable.
   a. Valves shall be numbered and corresponding numbers shall be shown on the record drawings.
   b. 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.
2. On the inside surface of the cover of each automatic controller, prepare and mount a chart showing the valves and sprinkler heads serviced by the 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 buildings, walks, roads and walls. A photostatic print of this plan, reduced if necessary and legible in all details, shall be made to a size that will fit into the controller. This print shall be reviewed and shall be hermetically sealed in plastic. This shall then be secured to the inside of the cover.
3. Immediately upon the installation of any buried pipe or equipment, the contractor shall indicate on the drawings the locations of said equipment.

1.06 GENERAL REQUIREMENTS

A. General:

1. Code requirements shall be those of the State and Municipal codes and Regulations locally governing this work, providing that any requirements of the drawings and specifications, not conflicting therewith but exceeding the Code Requirements shall govern, unless written permissions to the contrary is granted by the Owner.
2. Extreme care shall be exercised in excavating and working in the area due to existing utilities. Contractor shall be responsible for damages caused by his operations.
3. Connections shall be made at approximately the locations shown on the drawings. Contractor shall be responsible for minor changes caused by actual site conditions.
4. Scaled dimensions are approximate. Before proceeding with any work, the contractor shall carefully check and verify all dimensions.
5. Plan locations of heads, valves, controller and pipe lines are diagrammatic and indicate the spacing and relative locations of all installations.
6. All lines shall have a minimum clearance of six (6) inches from each other, and from lines of other trades. Parallel lines shall not be installed directly over one another.
7. Dielectric bushings shall be used in any connections with piping of dissimilar metal materials.
8. Point of connection shall be as shown on drawings. Connect new underground piping and valves and provide all flanges, adapters or other necessary fittings for connection where needed. Contractor shall verify whether a stubout for irrigation is available, to be provided, or if cutting into supply will be required.

9. Permission to shut off any existing in-use water line must be obtained 48 hours in advance, in writing from the Owner. The contractor shall receive instructions from the Owner as to the exact length of time of each shut-off.
10. Contractor shall acquaint himself/herself with all site conditions.
11. Contractor is responsible for providing all necessary barricades and safety features to maintain a safe project site throughout the construction period.

PART 2 – PRODUCTS

2.01 PIPING

A. General:

1. Pipe sizes shown are nominal inside diameter unless otherwise notes.

B. Polyvinal Chloride Pipe:

1. PVC plastic pressure lines: for piping upstream of remote control valves and quick couplers, shall be Schedule 40 ringtite pipe for 3" and larger and standard Schedule 40 for under 3" diameter.
2. Plastic non pressure lines: for piping downstream of remote control valves, Class 200, or as noted, within planter areas and Schedule 40 under pavement.
3. Identification: furnish plastic pipe continuously and permanently marked with the following information:
   a. Manufacturers name or trade mark, size, class and type of pipe, working pressure at 73.4 degrees F and National Sanitation Foundation rating.

C. Brass Pipe:

1. Shall be IPS Standard weight 125 pounds, 85% red brass.

D. Galvanized Iron Pipe:

1. Shall be standard weight manufactured in accordance with ASTM A120-80.

2.02 FITTING AND CONNECTIONS:

A. Polyvinyl Cholride Pipe fitting and connections:

1. Type II, Grade 1 Schedule 40, high impact molded fitting manufactured from virgin compounds as specified for piping, tapered socket or molded thread type, suitable for either solvent weld or screwed connections. Machine threaded fitting and plastic saddle and flange fittings are not acceptable. Furnish fittings permanently marked with the following information: Nominal pipe size, type and schedule of material, and National sanitation Foundation seal of approval. PVC fitting shall conform to ASTM D 2464-76 and D2466-78.

B. Brass Pipe Fittings and Connections:

1. Standard 125 pound class 85% red brass fitting and connections.

C. Galvanized Iron Pipe Fittings and Connections:

1. Shall be standard weight galvanized iron pipe manufactured in accordance with ASTM A120-80.

2.03 AUTOMATIC CONTROL WIRE:

A. Electric wiring which runs from controller to the automatic control valves, shall be No. 14 solid, single conductor, copper wire, 4/64" insulation, 4/64" neoprene jacket. Type BR (direct burial) or equal as approved. Color code wires to each valve, common wire shall be white.

2.04 AUTOMATIC CONTROLLER:

A. The irrigation system controller shall be as specified on the drawings. It shall be housed in a wall/pedestal mountable heavy duty weatherproof lockable cabinet, as specified.

1. The controller shall operate on a minimum of 117 volts A.C. power input and be capable of operating 24 volt A.C. electric remote control valves. The controller shall have a reset circuit breaker to protect it from power overload.
2. The controller shall have the number of stations indicated on the drawings, as a minimum. The controller shall have two independent programs. Each station on the controller shall be assigned to either or both programs. The controller shall have 14-day programming for flexibility in programming day starts. During operation, the controller shall provide a monitoring indicating station in operation and time remaining. It shall be the responsibility of the contractor to program said controller and to adjust the amount of time for each station, as required.
3. The controller shall be capable of being operated manually at any time. A manual "single station" operation for programmed time or new time setting shall be possible without affecting the original program.
4. The controller shall have a factory preset back-up program for standby operation in the event of a power loss and a rechargeable battery back-up to maintain program during power loss.
5. Concrete footing for pedestal mount shall be 2,000 psi concrete at 28 days.
6. Contractor shall provide to the Owner two keys for opening and locking each automatic controller.

2.05 CONTROL VALVES:

A. Remote control valves shall be as specified on the drawings. Valve shall be provided with an adjustable flow control stem and shall be operable manually without electricity.

2.06 VALVE BOX:

A. For remote control valves: 91/2" x 16" x 11" plastic remote control valve box with cover marked RCV.

B. For gate valve or shutoff valves: 83/4" diameter x 12" plastic valve box with cover marked water.

2.07 QUICK COUPLER VALVES:

A. Quick coupler valves shall be 3/4" size, double lugged, locking cap, with vinyl yellow cap, or equal, and brass with model and manufacturer as specified.

2.08 GATE VALVES:

A. Gate valves 3" and smaller shall be 150 pound base, all brass/bronze construction, single wedge disc, integral taper seats, non-rising stem, screwed bonnets, bronze cross handle and a brass/bronze ground joint union connection at the downstream outlet. Valves shall

be capable of being repacked while under pressure. Valves shall be as required of the project.

2.09 BACKFLOW PREVENTER:

A. Unit shall be as specified on the drawings and/or as local codes require and shall be installed according to manufacturer's specifications.

2.10 PRESSURE REGULATOR:

A. Excessive pressure may require the use of one or more pressure regulators. Specification of valve shall be either as noted on the drawings, or as the contractors deems necessary. Should excessive pressure be found at the project, contractor shall notify Landscape Architect immediately before proceeding with work.

PART 3 – EXECUTION

3.01 PROJECT INTENT:

A. General:

1. Locations on drawing are diagrammatic and approximate only. Contractor shall make adjustments as necessary or if directed, to meet the requirements of the project and provide complete water coverage. The contractor shall be responsible for achieving this coverage. Locate and stake all work and obtain approval, as may be requested, before any installation.
2. Should any problems with the system arise during construction; whether it be source, water pressure, water coverage, site conditions, etc., it shall be the responsibility of the contractor to contact all parties, including the Landscape Architect, immediately before proceeding with the work, for advisement.
3. Install and extend the system as shown on the drawings, to carry out the intent of the drawings and specifications.
4. Locate all existing lines, valves, and any other underground utilities and receive approval from the Owner/ or their representative, before proceeding with any trenching operations.

3.02 EXCAVATION AND BACKFILLING OF TRENCHES:

A. Methods:

1. Excavate trenches, prepare subgrade, and backfill to line and grade with sufficient room for pipe fitting, testing and inspecting operations. Do not backfill until the pipe system has been subjected to a hydro static test as specified.
2. Depth of trench:
    a. PVC Pressure line or mainline: 18" min.
    b. PVC non-pressure line or lateral line: 12" min.
    c. PVC under pavement: 24" min.
3. Trenching through areas where topsoil has been spread: deposit topsoil on one side of trench and subsoil on opposite side. Excess subsoil will be disposed of elsewhere.
4. Subsoil shall be free of all rock over one inch diameter debris and litter prior to use as backfill where so indicated.
5. Repair leaks and replace defective pipe or fittings until lines meet test requirements. Do not cover any lines until they have been inspected by the Architect, General

contractor, or Owner, and approved for tightness quality of workmanship and materials.

6. Backfill trenches, after approval of piping, with suitable and approved material, tamping soil around and pipe and thoroughly compacting trench fills until 90% compaction has been achieved. Trenches that have settled will be scarified, soil added, and re-compacted to meet required grade.

3.03 INSTALLATION OF PVC PIPE:

A. General:

1. Because of the nature of plastic pipe and fittings, exercise caution in handling, loading and storing, to avoid damage.
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 to be subjected to undue bending or concentrated external load at any point.
3. Pipe that has been dented or damaged shall be discarded until such dent or damaged section is cut and rejoined with a coupling.

B. Methods:

1. Trench depth shall be as specified, 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.
2. Pipe ends and fitting shall be wiped with MEK or equal approved, 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 before fitting and gluing together.
3. Pipe shall be snaked from side-to-side of trench bottom to allow for expansion and contraction.
4. Center load pipe with small amount of backfill to prevent arching and slipping under pressure. Leave joints exposed for observation during testing.
5. No water shall be permitted in the pipe until a period of at least 24 hours has elapsed for solvent weld setting and curing.
6. Plastic to metal joints shall be made with plastic male adapters. Joints shall be hand tightened with one turn with a strap wrench. Teflon tape shall be used at all threaded connections.
7. Plastic to plastic joints shall be solvent welded using solvent recommended by pipe manufacturer, or as specified. Assemble per manufacturer's recommendation.
8. Thrust blocks shall be installed on all changes in the mainline 45 degrees or greater, as required, and/or as specified.

3.04 INSTALLATION OF BRASS PIPE: as may be required of the project

A. Methods:

1. Cut brass piping by power hacksaw, etc., cut no piping with metallic wheel cutter of any description. Ream and remove rough edges or burrs so smooth and unobstructed flow is obtained.
2. Carefully and smoothly place on male thread only.
3. Tighten screwed joints with tongs or wrenches.

3.05 INSTALLATION OF GALVANIZED IRON PIPE: as may be required

A. Methods:

1. As per 3.04 above

3.06 REMOTE CONTROL WIRING:

A. General:

1. Direct burial control wire sizes, as specified or required.

B. Methods:

1. Provide two control wires and one common ground wire to service each valve in system. Provide 2-4' min. expansion loop at each valve to permit removal and maintenance of valve.
2. Install control wires and irrigation piping in common trenches wherever possible. Wiring shall be set to the side of the piping, not atop or below the pipe.
3. Control wire splices: allowed only on runs of more than 300', splices as follows:
   a. Strip off minimum of 2 ½" of insulation from each wire.
   b. Twist of Scotchlock electrical spring connector.
   c. Seal connector in epoxy resin.
   d. Tape complete splice with Scotch 33 electrical tape.

C. Numbering and tagging:

1. Identify direct burial control wires from automatic valves to terminal strips of controller at terminal strip by tagging wire with number of connected valve.

3.07 AUTOMATIC SPRINKLER CONTROLLER:

A. General:

1. Controller shall be installed as specified, as per manufacturer's recommendation and/or as directed. Location shall be as specified, but verified in field. Electrical service shall be verified before construction begins. Controller shall be tested with complete electrical connections. Contractor shall be responsible for temporary power to the controller for operation and testing purposes.
2. Electrical service wiring shall be in a rigid schedule 80, or better, PVC plastic conduit from controller to electrical outlet. Installation of wiring and disconnect switch to the subpanel, clocks or elsewhere as required, shall be included as part of this contract or as verified as part of this contract, in order to complete the installation as required.
3. Pedestal mount controllers, as specified, shall be set on a concrete base as detailed or as required by manufacturer's specifications.

3.08 REMOTE CONTROL VALVES:

A. General:

1. Install control valves in general locations as indicated on plans. Group valves as practical and locate near curb lines or walks, as possible, for access. Install valves with min. 6" cover over top of flow control stem. Fit into valve box with cover, maximum two valves per box.

3.09 VALVE BOX:

A. General

1. Install valve boxes as indicated with valve locations. Install no more than two valves per box. Stencil valve number and controller letter on underside of valve box lid.

3.10 DRIPLINE:

A. General:

1. All dripline shall be installed as indicated on plans, or as site conditions direct.
2. Locate additional emitters and dripline, as may be needed, to provide complete irrigation coverage for landscape material.

3.11 QUICK COUPLER ASSEMBLY:

A. General:

1. Verify with owner desire for any quick couplers.

3.12 GATE VALVES

A. General:

1. Install as indicated on the plans.

3.13 BACKFLOW PREVENTER

A. General:

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.
2. Exact location and positioning shall be verified on site.

3.14 PRESSURE REGULATOR:

A. General:

1. As may be required of the project, because of excessive water pressure, shall be installed as indicated on the plans or as required. Verify location in field.

PART 4 - CLEAN-UP

4.01 PROJECT CLEAN-UP

A. General:

1. As project progresses, maintain all areas in a neat manner and remove unsightly debris as necessary and as directed. After completion of project, remove all debris and containers used in accomplishing work. Sweep and clean all sidewalks, asphalt and concrete areas as necessary.

PART 5 – WARRANTY

5.01 IRRIGATION WARRANTY:

A. General:

1. The irrigation system shall be warranted for one (1) year, after final acceptance of the irrigation installation. This shall be for parts and labor, and shall cover but not be limited to defects in equipment, poor installation or malfunctioning of the system.

End of Section