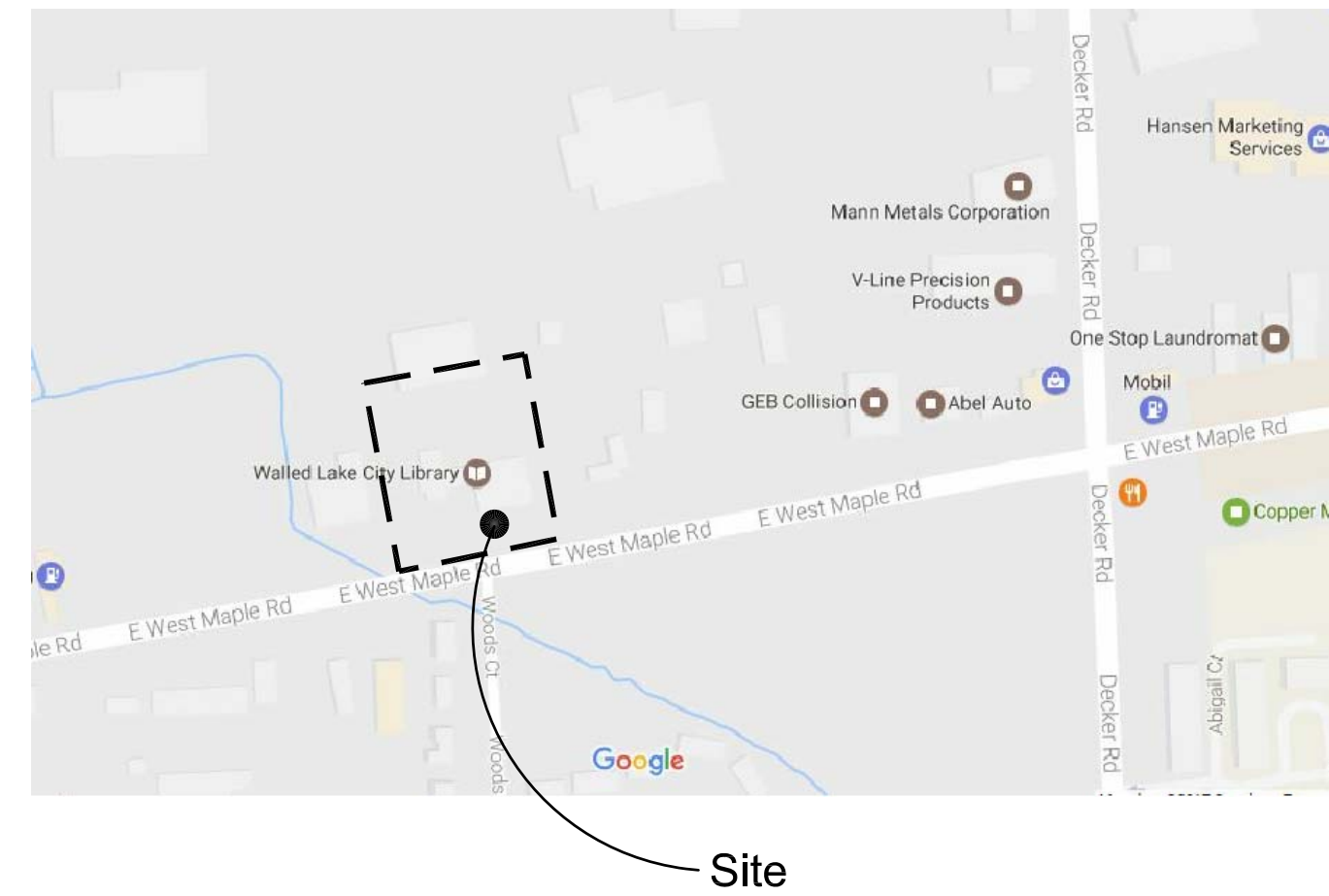


City Campus Landscape Improvement

City of Walled Lake, Michigan

Project Area



Applicant:

City of Walled Lake
1499 E. West Maple Road
Walled Lake, Michigan 48390
248.624.4847

Landscape Architect:

MCKenna
ASSOCIATES

Contact: Jim Allen, RLA
235 East Main Street, Suite 105
Northville, Michigan 48167
p. (248) 596-0920 f. (248) 596-0930

Sheet Legend

L-1	Landscape Plan
L-2	Landscape Details
IR-1	Irrigation Plan

Issued:

03.30.17 Review

Midwest Mesic Pollinator

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses		
<i>Schizachyrium scoparium</i>	Little Bluestem	36.00
<i>Sorghastrum nutans</i>	Indian Grass	2.00
<i>Sporobolus heterolepis</i>	Prairie Dropseed	6.00
	Total	44.00
Forbs		
<i>Aquilegia canadensis</i>	Lavender Hyssop	2.00
<i>Amaranthus retrofractus</i>	Lead Plant	2.00
<i>Asclepias tuberosa</i>	Common Milkweed	11.00
<i>Asclepias tuberosa</i>	Butterfly Weed	2.00
<i>Baptisia bracteata</i>	Cream Wild Indigo	1.00
<i>Chamaecrista fasciculata</i>	Partridge Pea	8.00
<i>Cirsium discolor</i>	Field Thistle	2.00
<i>Dalea candida</i>	White Prairie Clover	2.50
<i>Echinacea pallida</i>	Pale Purple Coneflower	3.50
<i>Echinacea purpurea</i>	Broad-Leaved Purple Coneflower	8.00
<i>Eryngium yuccifolium</i>	Rattlesnake Master	4.00
<i>Liatis aspera</i>	Rough Blazing Star	1.00
<i>Lupinus perennis</i>	Wild Lupine	4.00
<i>Monarda fistulosa</i>	Wild Bergamot	2.00
<i>Penstemon digitalis</i>	Foxglove Beard Tongue	1.50
<i>Pycnanthemum virginianum</i>	Common Mountain Mint	0.50
<i>Silphium perfoliatum</i>	Cup Plant	0.50
<i>Solidago speciosa</i>	Showy Goldenrod	2.00
<i>Symphotrichum ericoides</i>	Heath Aster	0.50
<i>Symphotrichum laeve</i>	Smooth Blue Aster	1.50
<i>Tradescantia ohioensis</i>	Common Spiderwort	2.00
<i>Verbena striata</i>	Hearty Vervain	2.00
<i>Verbesina alternifolia</i>	Wingsstem	2.00
<i>Vernonia fasciculata</i>	Common Ironweed	1.00
	Total	66.50

Mix by Cardno JFNew
Apply 6.91 lbs. per Acre
2,660 s.f. of Area

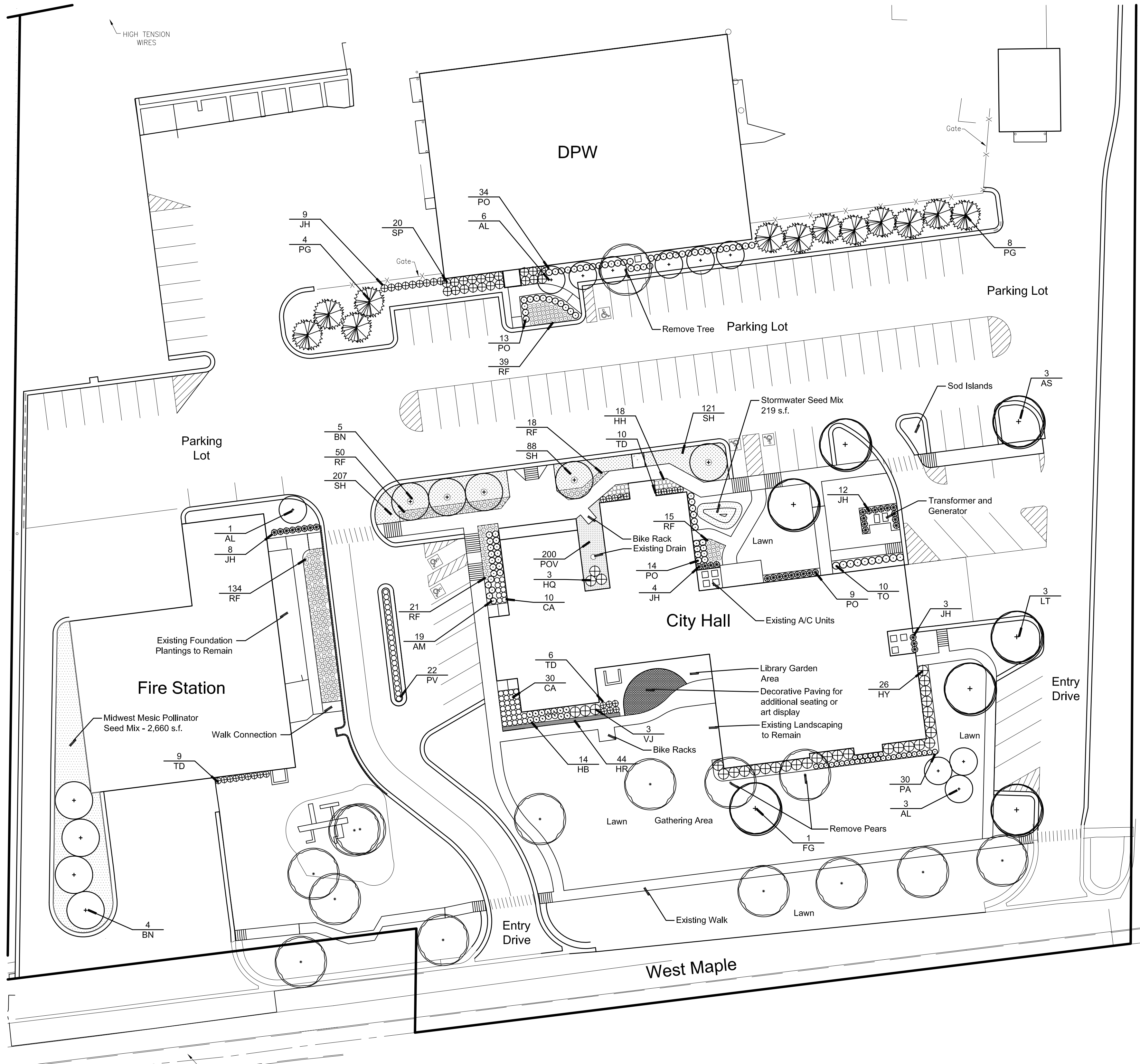
Storm Water Seed Mix

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
<i>Bolboschoenus luvatilis</i>	River Bulrush	0.25
<i>Carex cristatella</i>	Crested Oval Sedge	2.00
<i>Carex lurida</i>	Bottlebrush Sedge	3.00
<i>Carex vulpinoidea</i>	Brown Fox Sedge	6.00
<i>Elymus virginicus</i>	Virginia Wild Rye	13.50
<i>Glyceria striata</i>	Fowl Manna Grass	1.25
<i>Juncus effusus</i>	Common Rush	2.00
<i>Leersia oryzoides</i>	Rice Cut Grass	1.00
<i>Panicum virgatum</i>	Switch Grass	2.00
<i>Schoenoplectus tabernaemontani</i>	Softstem Bulrush	3.00
<i>Scirpus atrovirens</i>	Dark Green Rush	2.00
<i>Scirpus cyperinus</i>	Wool Grass	1.00
	Total	37.00
Temporary Cover		
<i>Avena sativa</i>	Common Oat	360.00
<i>Lolium multlorum</i>	Annual Rye	100.00
	Total	460.00
Forbs		
<i>Alisma spp.</i>	Water Plantain Mix	4.25
<i>Asclepias incarnata</i>	Swamp Milkweed	1.50
<i>Bidens spp.</i>	Bidens Mix	2.00
<i>Helianthus autumnale</i>	Sneezeweed	2.00
<i>Iris virginica</i>	Blue Flag	4.00
<i>Lycopus americanus</i>	Common Water Horehound	0.25
<i>Mimulus ringens</i>	Monkey Flower	1.00
<i>Oligoneuron riddellii</i>	Riddell's Goldenrod	0.50
<i>Penthorum sedoides</i>	Ditch Stonecrop	0.50
<i>Polygonum spp.</i>	Pinkweed Mix	4.00
<i>Rudbeckia subtomentosa</i>	Sweet Black-Eyed Susan	1.00
<i>Rudbeckia triloba</i>	Brown-Eyed Susan	1.50
<i>Sagittaria latifolia</i>	Common Arrowhead	1.00
<i>Senna hebecarpa</i>	Wild Senna	1.00
<i>Symphotrichum novae-angliae</i>	New England Aster	1.50
<i>Thalictrum dasycarpum</i>	Purple Meadow Rue	2.00
	Total	28.00

Mix by Cardno JFNew
Apply 32.81 lbs. per Acre
219 s.f. of Area

Plant List

Trees								
sym.	qty.	botanical name	common name	size	spacing	root	ht/spd	comments
AL	10	Amelanchier laevis	Dowry Serviceberry			B&B	8' ht	Minimum 5 Stems
AS	3	Acer saccharum	Green Mountain Sugar Maple	2.5'	as shown	B&B		
BN	9	Betula nigra 'Heritage'	Heritage River Birch		as shown	B&B	14' ht.	Minimum 3 stems
FG	1	Fagus grandifolia	American Beech	2.0'	as shown	B&B		
LT	3	Liriodendron tulipifera	Tulip Tree	2.5'	as shown	B&B		
PG	12	Picea glauca	White Spruce	8'	as shown	B&B		
Shrubs								
AM	19	Aronia melanocarpa 'Iroquois Beauty'	Iroquois Beauty Black Chokeberry	5 gal.	as shown	cont.		Well Rooted
HB	14	Hydrangea p. 'Bobo'	Bobo Hydrangea	5 gal.	as shown	cont.		Well Rooted
HQ	3	Hydrangea q. 'Snow Queen'	Snow Queen Oakleaf Hydrangea	5 gal.	as shown	cont.	30' ht.	Well Rooted
HY	26	Hydrangea 'Lime Light'	Lime Light Hydrangea	5 gal.	as shown	cont.		Well Rooted
JH	36	Juniperus c. 'Hetzi Columnaris'	Hetz Columnar Juniper		as shown	B&B	5' ht.	Matched
PO	70	Physocarpus o. 'Summer Wine'	Summer Wine Ninebark	5 gal.	as shown	cont.		Well rooted
TD	25	Taxus x m. 'Densiflomis'	Dense Yew		as shown	B&B	24' ht.	Trim to uniform hedge
TO	10	Thuja occidentalis 'Techny'	Techny Arborvitae		as shown	B&B	6'	
VJ	3	Viburnum x. juddi	Judd Fragrant Viburnum		as shown	B&B	36' ht.	
Perennials								
CA	40	Calamagrostis a. 'Karl Foerster'	Karl Foerster Feather Reed Grass	3 gal.	as shown	cont.		Well rooted
HH	18	Hosta s. 'Halcyon'	Halcyon Hosta	2 gal.	as shown	cont.		Well Rooted
HR	44	Hemerocallis 'Happy Returns'	Happy Returns Daylily	1 gal.	18" o.c.	cont.		Well Rooted, 3 fan minimum
POV	200	Polygonatum o. 'Variegatum'	Variegated Solomon's Seal	1 gal.	18" o.c.	cont.		Well Rooted
PA	30	Pennisetum a. 'Hamelii'	Dwarf Fountain Grass	1 gal.	as shown	cont.		Well Rooted
PV	22	Panicum v. 'Shenandoah'	Shenandoah Switchgrass	3 gal.	as shown	cont.		Well Rooted
RF	277	Rudbeckia f. 'Goldstrum'	Black-eyed Susan	1 gal.	as shown	cont.		Well Rooted
SH	371	Sporobolus heterolepis 'Tara'	Tara Prairie Dropseed	1 gal.	18" o.c.	cont.		Well Rooted
Seed Mix								
	2,660	Midwest Mesic Pollinator Seed Mix						
	219	Stormwater Seed Mix						



Overall Plan

Notes:
All Disturbed Lawn Areas to be Finish Graded and Seeded.
All Existing Lawn to Remain.

811
Know what's below.
Call before you dig.

0' 15' 30' 60'

North

McKenna ASSOCIATES
General Contact: info@mkca.com
Headquarters: NORTHVILLE, MICHIGAN
235 East Main Street, Suite 105
Tel: (888) 226-4326 Fax: (248) 596-0930

REVISIONS:

1	10/13/2017	
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PROJECT CLIENT:	City of Walled Lake 1499 East Maple Walled Lake, Michigan 48390 248.024.4847
PROJECT LOCATION:	Walled Lake, Michigan

SHEET TITLE:	Landscape Plan
PROJECT MGR:	MID
DRAWN BY:	JA
DATE:	02.14.17
SCALE:	1"=30'
PROJECT #:	85002

L-1	SHEET 1 OF 3
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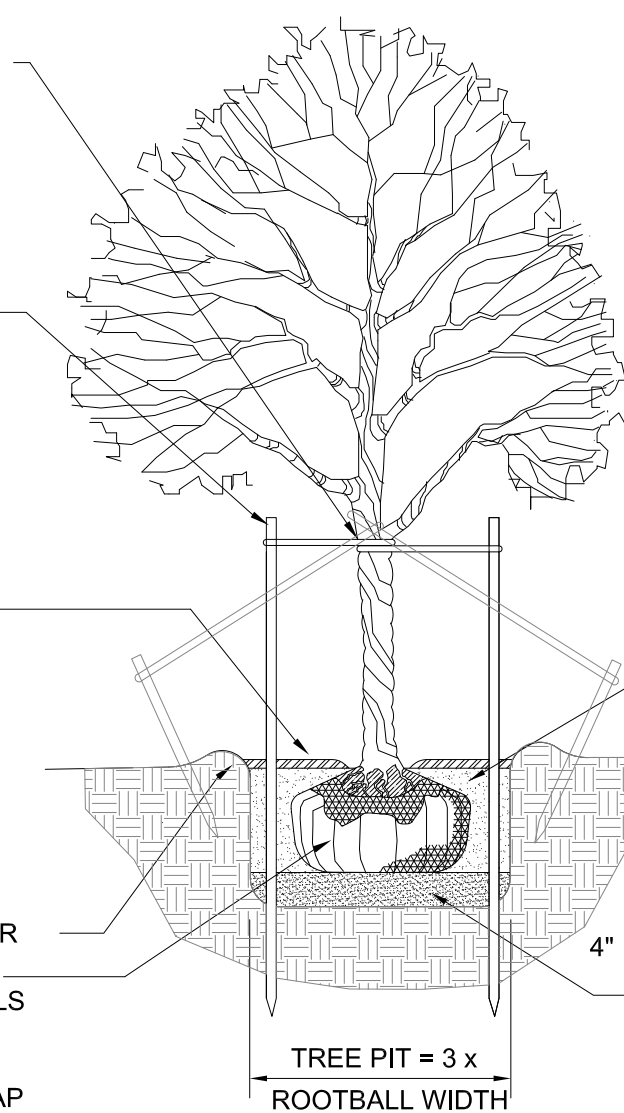
NOTE:
GUY DECIDUOUS TREES ABOVE
3" CAL... STAKE DECIDUOUS
TREES BELOW 3" CAL.

STAKE TREES AT FIRST BRANCH
USING 2"-3" WIDE BELT-LIKE
NYLON OR PLASTIC STRAPS.
ALLOW FOR SOME MINIMAL
FLEXING OF THE TREE.
REMOVE AFTER ONE YEAR.

2" X 2" HARDWOOD STAKES,
MIN. 36" ABOVE GROUND FOR
UPRIGHT, 18" IF ANGLED. DRIVE
STAKES A MIN. 18" INTO
UNDISTURBED GROUND
OUTSIDE ROOTBALL. REMOVE
AFTER ONE YEAR.

MULCH 4" DEPTH WITH
SHREDDED HARDWOOD BARK.
NATURAL IN COLOR. LEAVE 3"
CIRCLE OF BARE SOIL AT BASE
OF TREE TRUNK. PULL ANY
ROOT BALL DIRT EXTENDING
ABOVE THE ROOT FLARE AWAY
FROM THE TRUNK SO THE ROOT
FLARE IS EXPOSED TO AIR.

MOUND EARTH TO FORM SAUCER
REMOVE ALL
NON-BIODEGRADABLE MATERIALS
COMPLETELY FROM THE
ROOTBALL. CUT DOWN WIRE
BASKET AND FOLD DOWN BURLAP
FROM TOP 1/2 OF THE ROOTBALL.



NOTE:
TREE SHALL BEAR SAME
RELATION TO FINISH GRADE AS
IT BORE ORIGINALLY OR
SLIGHTLY HIGHER THAN FINISH
GRADE UP TO 6" ABOVE GRADE,
IF DIRECTED BY LANDSCAPE
ARCHITECT FOR HEAVY CLAY
SOIL AREAS.

DO NOT PRUNE TERMINAL
LEADER. PRUNE ONLY DEAD OR
BROKEN BRANCHES.

REMOVE ALL TAGS, STRING,
PLASTICS AND OTHER
MATERIALS THAT ARE
UNSIGHTLY OR COULD CAUSE
GIRDLING.

PLANTING MIXTURE:
AMEND SOILS PER
SITE CONDITIONS
AND REQUIREMENTS
OF THE PLANT
MATERIAL.

SCARIFY SUBGRADE
AND PLANTING PIT
SIDES. RECOMPACT
BASE OF TO 4"
DEPTH.

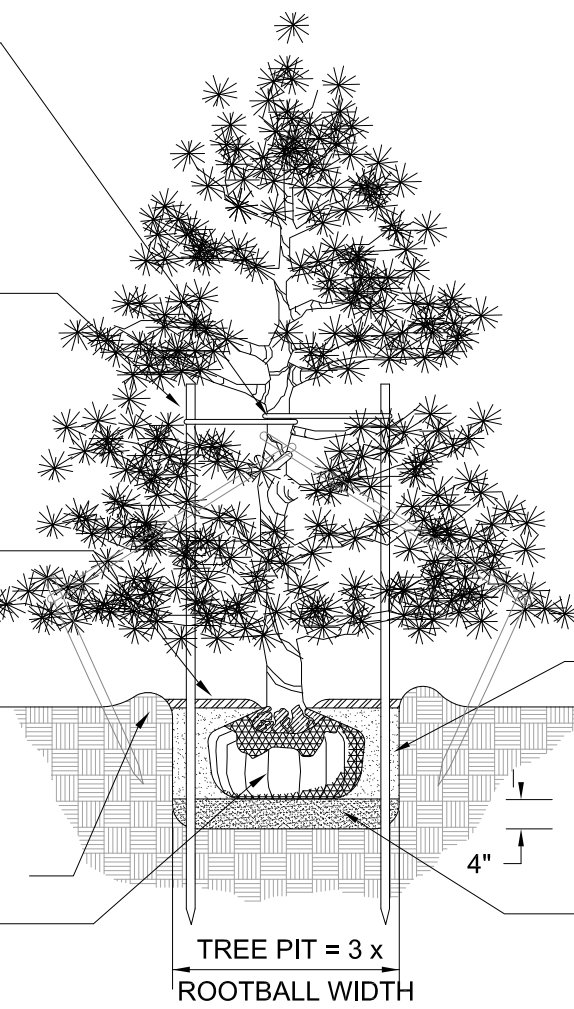
NOTE:
GUY EVERGREEN TREES ABOVE
12' HEIGHT. STAKE EVERGREEN
TREE BELOW 12' HEIGHT.

STAKE TREES AT FIRST BRANCH
USING 2"-3" WIDE BELT-LIKE
NYLON OR PLASTIC STRAPS.
ALLOW FOR SOME MINIMAL
FLEXING OF THE TREE.
REMOVE AFTER ONE YEAR.

2" X 2" HARDWOOD STAKES,
MIN. 36" ABOVE GROUND FOR
UPRIGHT, 18" IF ANGLED. DRIVE
STAKES A MIN. 18" INTO
UNDISTURBED GROUND
OUTSIDE ROOTBALL. REMOVE
AFTER ONE YEAR.

MULCH 4" DEPTH WITH
SHREDDED HARDWOOD BARK.
NATURAL IN COLOR. LEAVE 3"
CIRCLE OF BARE SOIL AT BASE
OF TREE TRUNK. PULL ANY
ROOT BALL DIRT EXTENDING
ABOVE THE ROOT FLARE AWAY
FROM THE TRUNK SO THE ROOT
FLARE IS EXPOSED TO AIR.

MOUND EARTH TO FORM SAUCER
REMOVE ALL
NON-BIODEGRADABLE MATERIALS
COMPLETELY FROM THE
ROOTBALL. CUT DOWN WIRE
BASKET AND FOLD DOWN BURLAP
FROM TOP 1/2 OF THE ROOTBALL.



NOTE:
TREE SHALL BEAR SAME
RELATION TO FINISH GRADE AS
IT BORE ORIGINALLY OR
SLIGHTLY HIGHER THAN FINISH
GRADE UP TO 6" ABOVE GRADE,
IF DIRECTED BY LANDSCAPE
ARCHITECT FOR HEAVY CLAY
SOIL AREAS.

DO NOT PRUNE TERMINAL
LEADER. PRUNE ONLY DEAD OR
BROKEN BRANCHES.

REMOVE ALL TAGS, STRING,
PLASTICS AND OTHER
MATERIALS THAT ARE
UNSIGHTLY OR COULD CAUSE
GIRDLING.

PLANTING MIXTURE:
AMEND SOILS PER
SITE CONDITIONS
AND REQUIREMENTS
OF THE PLANT
MATERIAL.

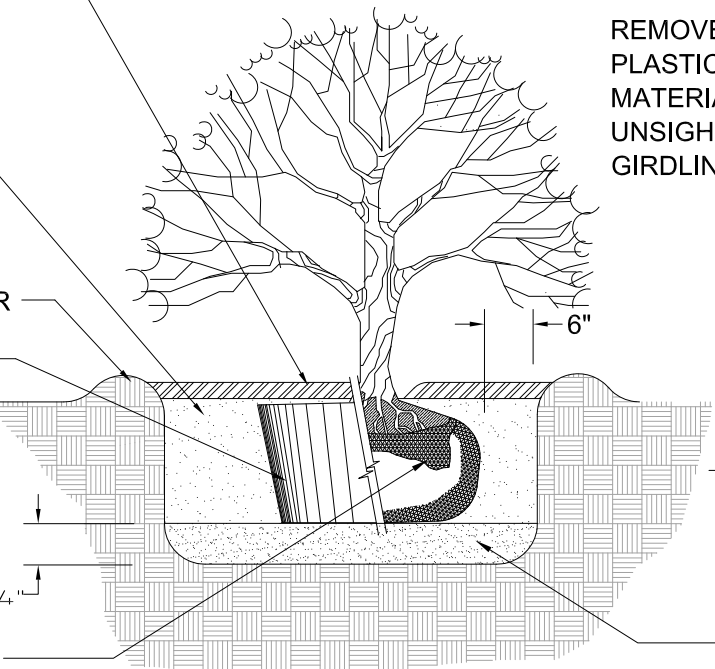
SCARIFY SUBGRADE
AND PLANTING PIT
SIDES. RECOMPACT
BASE OF TO 4"
DEPTH.

MULCH 3" DEPTH WITH
SHREDDED HARDWOOD BARK.
NATURAL IN COLOR. PULL BACK
3" FROM TRUNK.

PLANTING MIXTURE:
AMEND SOILS PER
SITE CONDITIONS
AND REQUIREMENTS
OF THE PLANT
MATERIAL.
MOUND EARTH TO FORM SAUCER

REMOVE COLLAR OF ALL FIBER
POTS. POTS SHALL BE CUT TO
PROVIDE FOR ROOT GROWTH.
REMOVE ALL NONORGANIC
CONTAINERS COMPLETELY.

REMOVE ALL
NON-BIODEGRADABLE MATERIALS
COMPLETELY FROM THE
ROOTBALL. FOLD DOWN BURLAP
FROM TOP 1/2 OF THE ROOTBALL.



NOTE:
TREE SHALL BEAR SAME
RELATION TO FINISH GRADE AS
IT BORE ORIGINALLY OR
SLIGHTLY HIGHER THAN FINISH
GRADE UP TO 4" ABOVE GRADE,
IF DIRECTED BY LANDSCAPE
ARCHITECT FOR HEAVY CLAY
SOIL AREAS.

PRUNE ONLY DEAD OR BROKEN
BRANCHES.

REMOVE ALL TAGS, STRING,
PLASTICS AND OTHER
MATERIALS THAT ARE
UNSIGHTLY OR COULD CAUSE
GIRDLING.

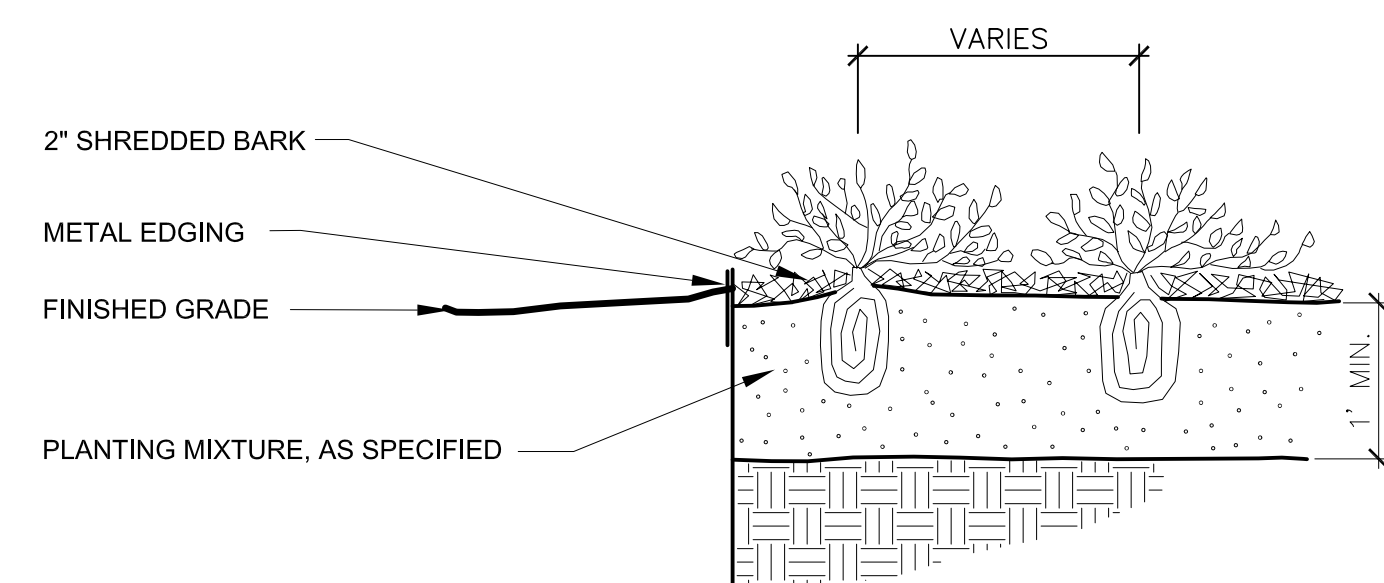
SCARIFY SUBGRADE
AND PLANTING PIT
SIDES. RECOMPACT
BASE OF TO 4"
DEPTH.

DECIDUOUS TREE PLANTING DETAIL

EVERGREEN TREE PLANTING DETAIL

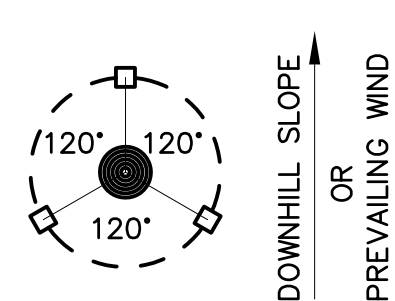
SHRUB PLANTING DETAIL

NOT TO SCALE



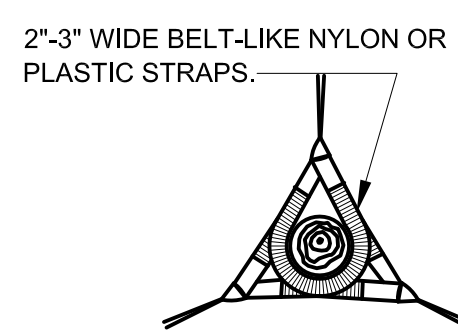
PERENNIAL PLANTING DETAIL

Not to scale

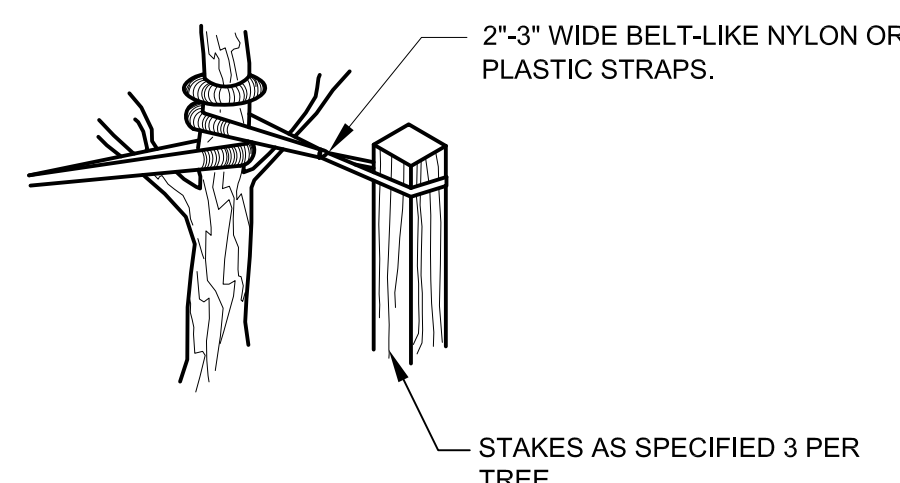


STAKING/GUYING LOCATION

NOTE:
ORIENT STAKING/GUYING TO PREVAILING
WINDS. EXCEPT ON SLOPES GREATER
THAN 3:1 ORIENT TO SLOPE.
USE SAME STAKING/GUYING
ORIENTATION FOR ALL PLANTS WITHIN
EACH GROUPING OR AREA



GUYING DETAIL



STAKING DETAIL

TREE STAKING DETAIL

Not to scale

LANDSCAPE NOTES

- All plants shall be north Midwest American region grown, No. 1 grade plant materials, and shall be true to name, free from physical damage and wind burn.
- Plants shall be full, well-branched, and in healthy vigorous growing condition.
- Plants shall be watered before and after planting is complete.
- All trees must be staked, fertilized and mulched and shall be guaranteed to exhibit a normal growth cycle for at least one (1) full year following City approval.
- All material shall conform to the guidelines established in the most recent edition of the American Standard for Nursery Stock.
- Provide clean backfill soil, using material stockpiled on site. Soil shall be screened and free of any debris, foreign material, and stone.
- "Agriform" tabs or similar slow-release fertilizer shall be added to the planting pits before being backfilled.
- Amended planting mix shall consist of 1/3 screened topsoil, 1/3 sand and 1/3 peat, mixed well and spread to the depth as indicated in planting details.
- All plantings shall be mulched per planting details located on this sheet.
- The Landscape Contractor shall be responsible for all work shown on the landscape drawings and specifications.
- No substitutions or changes of location, or plant types shall be made without the approval of the Landscape Architect.
- The Landscape Architect shall be notified of any discrepancies between the plans and field conditions prior to installation.
- The Landscape Contractor shall be responsible for maintaining all plant material in a vertical condition throughout the guaranteed period.
- The Landscape Architect shall have the right, at any stage of the installation, to reject any work or material that does not meet the requirements of the plans and specifications, if requested by owner.
- Contractor shall be responsible for checking plant quantities to ensure quantities on drawings and plant list are the same. In the event of a discrepancy, the quantities on the plans shall prevail.
- The Landscape Contractor shall seed and mulch or sod (as indicated on plans) all areas disturbed during construction, throughout the contract limits.
- A pre-emergent weed control agent, "Preen" or equal, shall be applied uniformly on top of all mulching in all planting beds.
- All landscape areas shall be provided with an underground automatic sprinkler system.
- Sod shall be two year old "Baron/Cheridolph" Kentucky Blue Grass grown in a sod nursery on loam soil.

SEAL:

REVISIONS:	
1	Rev. March 30, 2017
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PROJECT CLIENT:	City Of Walled Lake 1499 East Maple Walled Lake, Michigan 48390 248.024.4847
PROJECT LOCATION:	Walled Lake, Michigan

SHEET TITLE:	Landscape Details
PROJECT MGR:	
DRAWN BY:	JA
DATE:	02.14.17
SCALE:	1"=30'
PROJECT #:	85002

PROJECT MGR:	
DRAWN BY:	JA
DATE:	02.14.17
SCALE:	1"=30'
PROJECT #:	85002



IRRIGATION LEGEND:

FIXED SPRAY POP-UP (12")
 #0 Series #12 Series #5 Series #Strip Series

Hunter
 PROS-12

▲ FIXED SPRAY POP-UP (12") w/ 4' radius nozzle
 ◆ FIXED SPRAY POP-UP (12") w/ .5 gpm bubbler

PROS-12

FIXED SPRAY POP-UP (4") w/ MPR nozzle
 ○ MP1000 ● MP2000 ○ MP3000 ● MPSS530/MPLC(RC)15

PROS-12
 PROS-04 PRS40-CV

⊕ ELECTRIC MASTER VALVE - LINE SIZE W/DECODER

ICV-Series

⊕ ELECTRIC VALVE WITH DECODERS

ICV-Series

⊕ QUICK COUPLER VALVE

HQ3-RC

⊕ ELECTRIC CONTROLLER

ICORE-m-DUAL

⊕ PRESSURE VACUUM BREAKER

FEBCO 765P150

⊕ RAIN SENSOR DEVICE (Install at all controller locations)
 ⊕ POINT OF CONNECTION TO WATER SOURCE

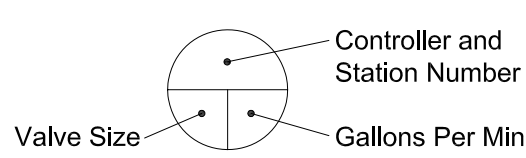
SOLAR SYNC (wireless)
 See note this sheet

— PVC MAINLINE, SDR 26, BE, Size as shown

— POLYETHYLENE PIPE, 100#, NSF APPROVED, Size as shown

— PVC SLEEVES - SDR 26 - Size as shown

VALVE DESIGNATION:



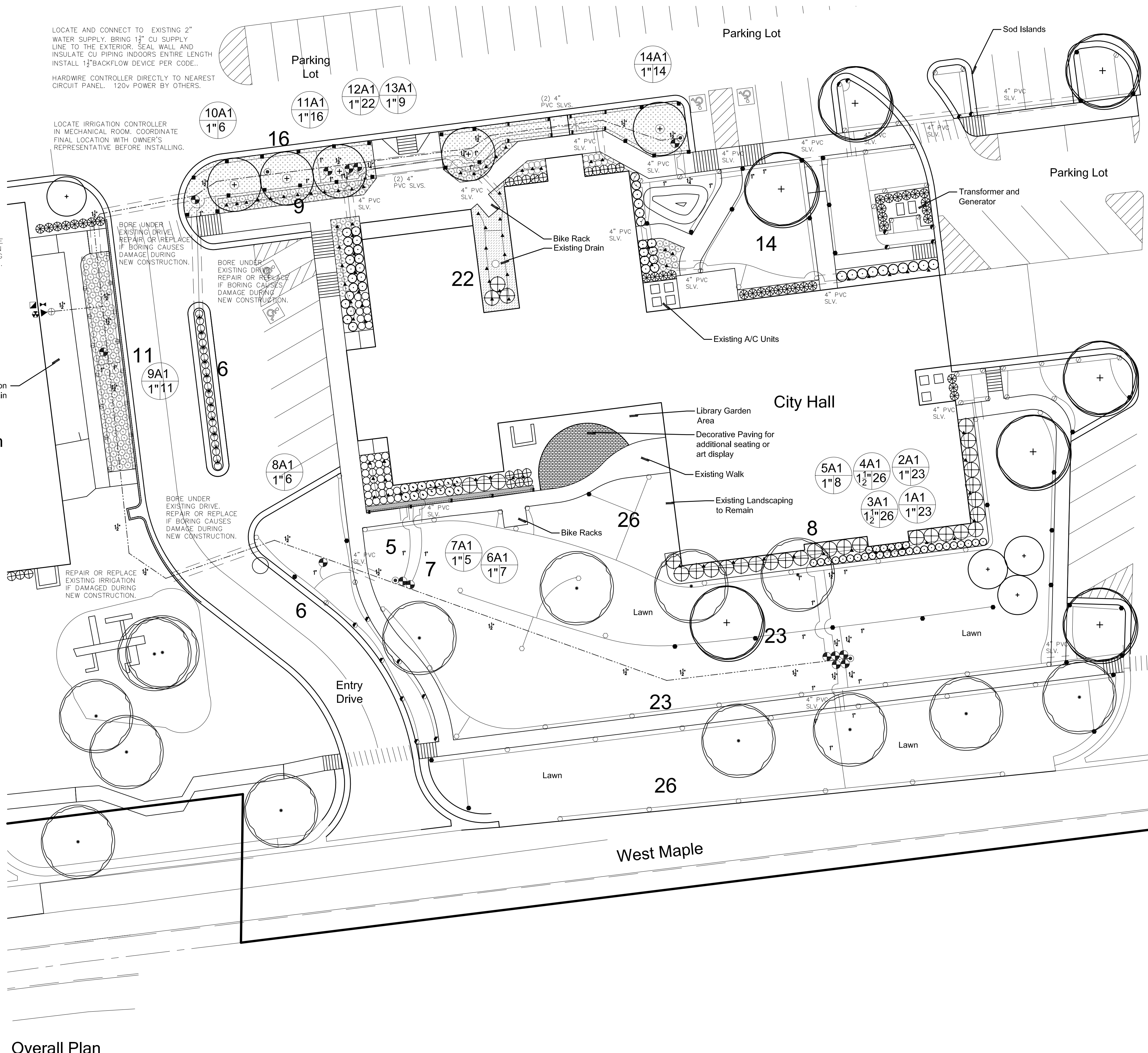
WATER REQUIREMENTS: 26 GPM @ 60 PSI
 (CONTRACTOR TO VERIFY PSI AVAILABLE ON SITE PRIOR TO SYSTEM INSTALLATION)

PIPE SIZE CHART

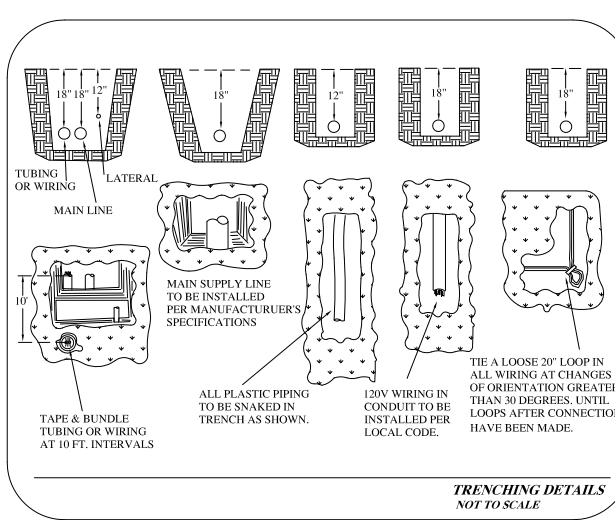
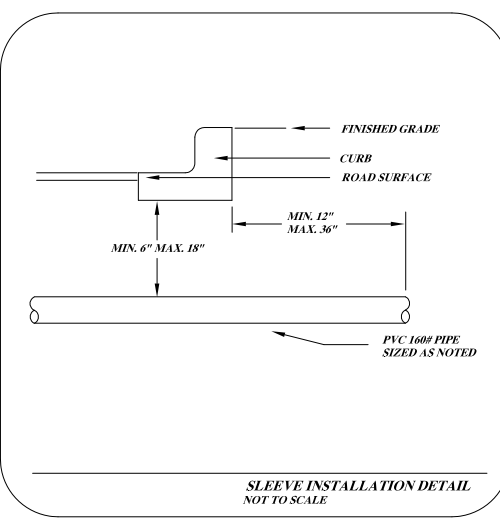
0-12 GPM = 1" DIAMETER POLYETHYLENE PIPE
 12-24 GPM = 1 1/4" DIAMETER POLYETHYLENE PIPE
 24-30 GPM = 1 1/2" DIAMETER POLYETHYLENE PIPE
 30-60 GPM = 2" DIAMETER POLYETHYLENE PIPE

NOTES:

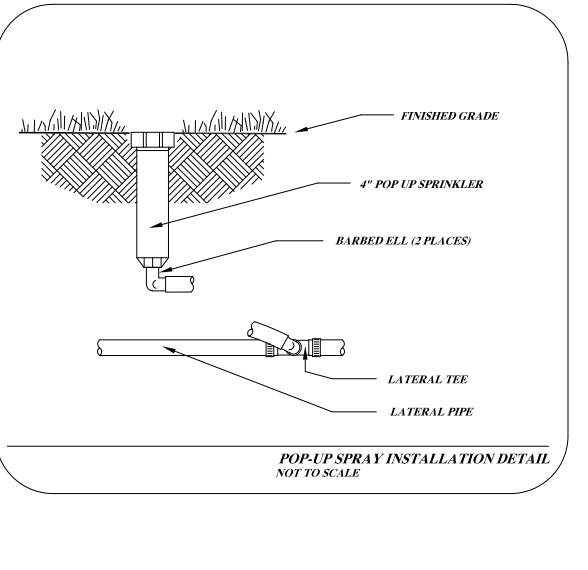
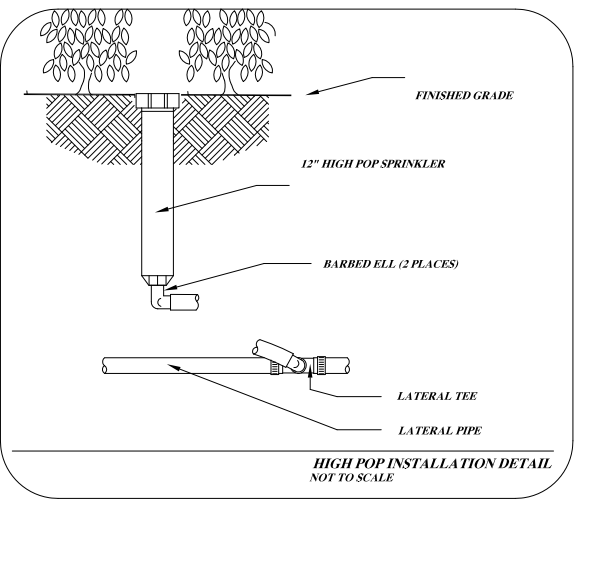
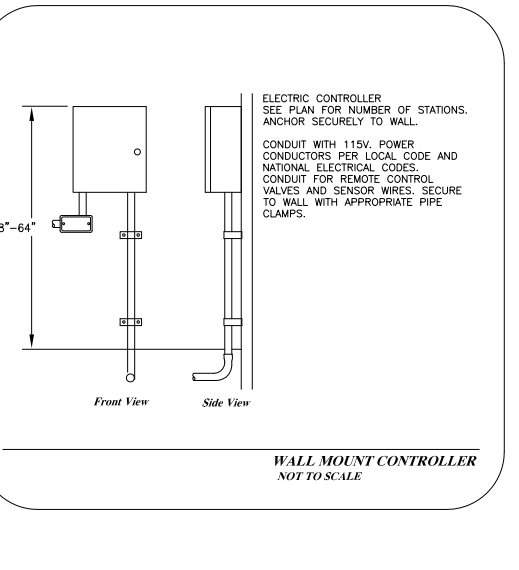
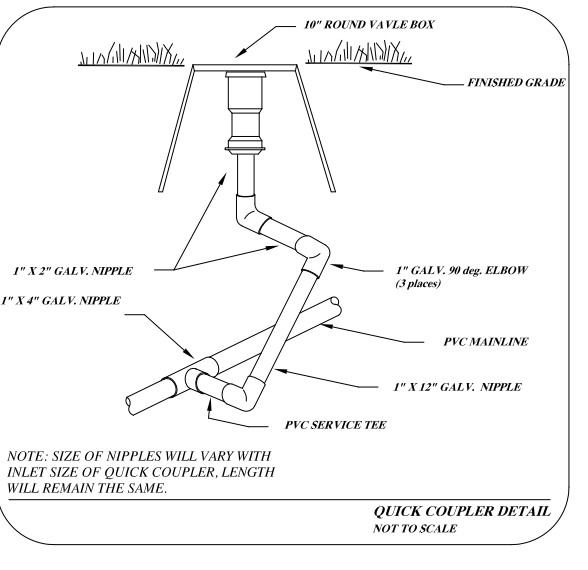
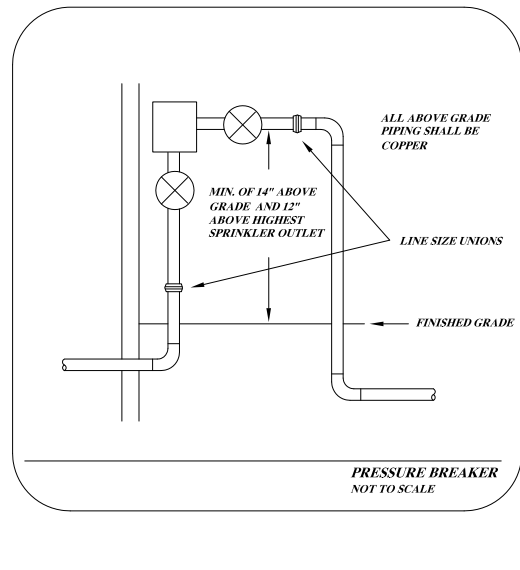
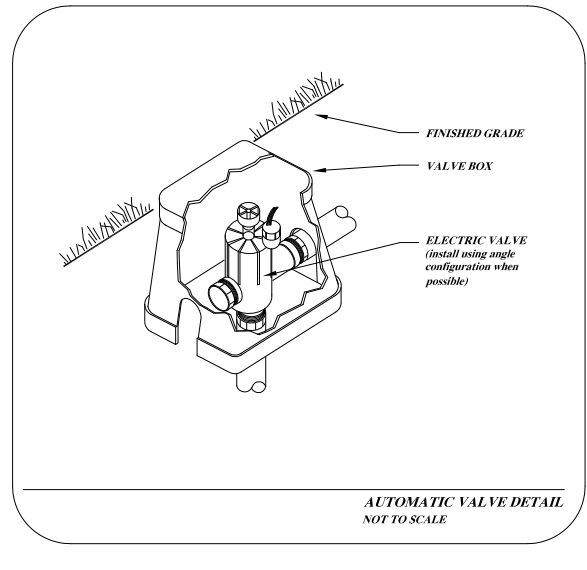
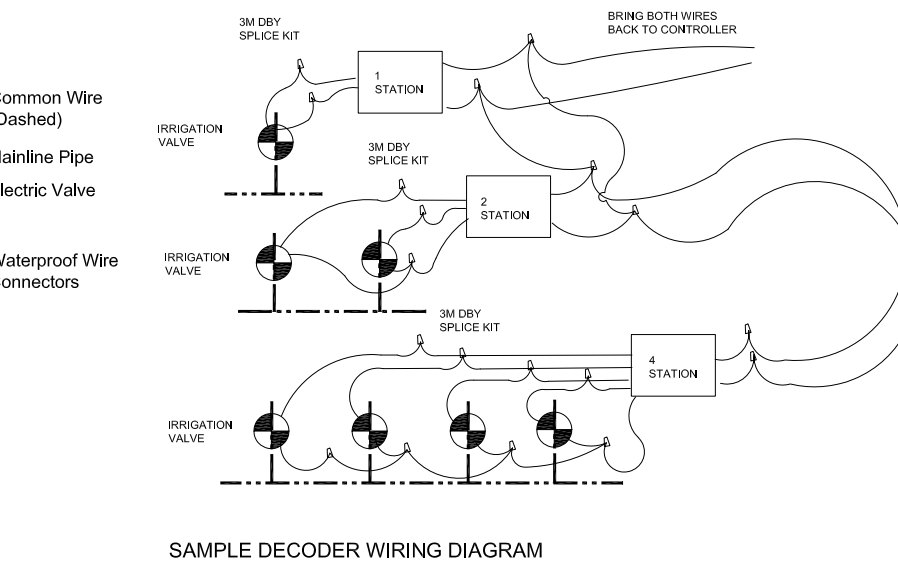
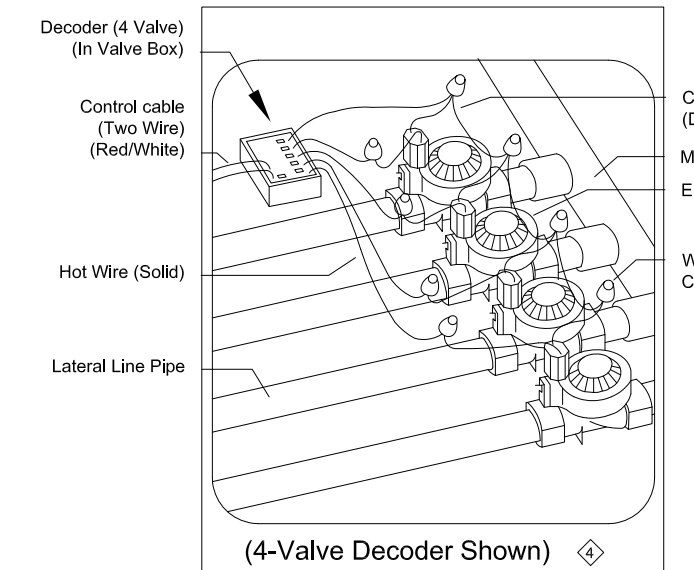
- Refer to the specifications for installation details and descriptions, as well as, construction methods which will be accepted.
- All work shall be in compliance with all local, state, and federal codes and ordinances.
- All electrical connections shall be made using 3m DBY-6 splice kits.
- All control wiring downstream of the controller shall be HUNTER IDWIRE UL approved for direct bury.
- All polyethylene lateral pipe clamps shall be stainless steel worm gear type clamps. Lateral pipes 1-1/2" or larger shall be double clamped.
- Pipe routing is schematic. All heads are to be field adjusted to within 2' to take into consideration any obstruction. Final head placements are subject to the landscape architects approval.
- All sprinkler heads shall be mounted on 2 elbow poly swing joints as specified.
- Contractor to verify final controller location with owner's authorized representative prior to installation.
- All pipe not sized downstream of control valve is 1".
- Irrigation contractor's point of connection to water source shall be as noted on this sheet.
- Locate and connect to indicated water source. All pipe installed above grade shall be copper type "M".
- 120v power to the controller locations should be provided others. Coordinate with owner's representative. Hardwire controller directly to nearest circuit panel. Place all wires in conduit per code.
- Design pressure does not take into account seasonal supply fluctuations. Periods of drought may cause temporary pressure losses to the city water supply resulting in inadequate irrigation system performance. Irrigation design is based on normal weather conditions and typical municipal water supply abilities.
- Irrigation contractor shall be responsible for determining and maintaining the irrigation schedule during the project construction and throughout the length of the warranty period.
- The irrigation schedule shall deliver 1" of precipitation per week +/- natural rainfall quantities for turf grass.
- Landscape material shall receive adjusted amounts of precipitation to maintain proper plant health.
- Landscape and turf grass shall be irrigated separately.
- Rotors and spray zones may not be combined to operate at the same time.
- When specified, follow manufacturer's product recommendations concerning proper installation of water flow sensors. Allow proper straight pipe distances before and after flow sensors.



Overall Plan



Typical Decoder Detail



LIQUID ASSETS
 IRRIGATION DESIGN & WATER MANAGEMENT
 4843 Kitterly NW
 Comstock Park, Michigan 49321
 248 789 0330
 email: abarnes@ldassets.org
 www.ldassets.org



McKenna ASSOCIATES
 General Contact: info@mecha.com
 Headquarters: NORTHVILLE, MICHIGAN
 235 East Main Street, Suite 105
 Tel: (888) 226-4326 Fax: (248) 596-0930

SEAL:

REVISIONS:

1	Rev. March 20, 2017

PROJECT CLIENT:
 City of Walled Lake
 1499 East Maple
 Walled Lake, Michigan 48390
 248.024.4847

PROJECT LOCATION:
 Walled Lake, Michigan

SHEET TITLE:
Irrigation Plan

PROJECT MGR:
 MID

DRAWN BY:
 ajb

DATE: 02.14.17

SCALE: 1"=30'

PROJECT #: 85002

IR-1
 SHEET 3 OF 3