

S. QUEBEC STREET MEDIAN, HIGHLANDS RANCH

LANDSCAPE CONSTRUCTION DOCUMENTS

SCHEDULE B



VICINITY MAP

N.T.S.

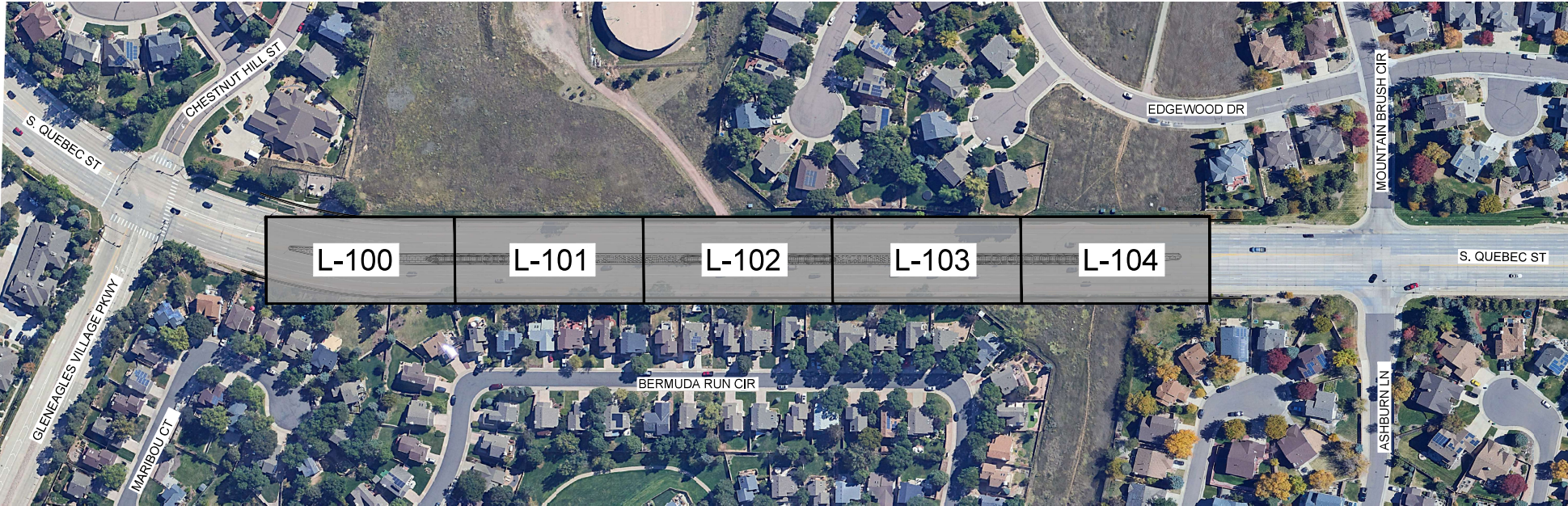
GENERAL NOTES:

1. THE BASE PLANS ON THESE DRAWINGS HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION, HOWEVER, IT IS THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL MATERIAL LOCATIONS AND NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES THAT ARE FOUND. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ALL DUE PRECAUTIONARY MEASURES TO PROTECT ANY EXISTING UTILITY LINES NOT OF RECORD OR NOT SHOWN ON THE PLANS. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THESE PLANS FOR PERTINENT INFORMATION RELATING TO SITE CONSTRUCTION.
2. THE LANDSCAPE CONTRACTOR SHALL HAVE ONE (1) APPROVED COPY OF PLANS AT THE JOB SITE AT ALL TIMES.
3. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING ALL CONSTRUCTION BARRICADES, SIGNS, AND WARNING DEVICES NECESSARY DURING CONSTRUCTION.
4. LANDSCAPE CONTRACTOR SHALL MAINTAIN A QUALIFIED SUPERVISOR ON SITE AT ALL TIMES DURING CONSTRUCTION.
5. LANDSCAPE CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE STATE AND LOCAL CODES AND SPECIFICATIONS.
6. LANDSCAPE CONTRACTOR SHALL COORDINATE AND OBTAIN ALL PERMITS AT THEIR OWN EXPENSE, WHICH ARE NECESSARY TO PERFORM ALL PROPOSED WORK AND SHALL COMPLY WITH ALL NOTIFICATION AND INSPECTION REQUIREMENTS.
7. LANDSCAPE CONTRACTOR SHALL EXAMINE THE SITE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND NOTIFY THE GENERAL CONTRACTOR IN WRITING OF UNSATISFACTORY CONDITIONS. DO NOT PROCEED UNTIL CONDITIONS HAVE BEEN CORRECTED.
8. BEFORE COMMENCING WORK, CONTACT APPROPRIATE UTILITY COMPANIES FOR UTILITY LOCATIONS, AND COORDINATE WITH THE OWNER'S REPRESENTATIVE IN REGARD TO LOCATION OF PROPOSED UTILITIES, IRRIGATION SLEEVES, CONDUITS, (ETC), LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MODIFICATIONS OR DAMAGES TO THE UTILITY LINES, STRUCTURES OR INJURIES THEREFROM, FOR EXISTING UTILITY INFORMATION CONTACT "THE UTILITY NOTIFICATION CENTER OF COLORADO" AT 1-800-922-1987, A MINIMUM OF THREE (3) BUSINESS DAY NOTICE IN ADVANCE OF LOCATIONS NEEDED ARE REQUIRED.
9. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT AREAS OUTSIDE THE CONSTRUCTION ZONE FROM STORM WATER RUNOFF, EROSION, AND/OR DEPOSITION OF DEBRIS RESULTING FROM CONSTRUCTION OF THIS PROJECT, ANY AREAS OUTSIDE THE CONSTRUCTION ZONE DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE IMMEDIATELY REPAIRED AT HIS COST.
10. THE CONTRACTOR SHALL EMPLOY ALL LABOR, EQUIPMENT, AND METHODS REQUIRED TO PREVENT HIS OPERATIONS FROM PRODUCING DUST IN AMOUNTS DAMAGING TO PROPERTY, CULTIVATED OR NATIVE VEGETATION, DOMESTIC AND NON-DOMESTIC ANIMALS, OR CAUSING A NUISANCE TO PERSONS OCCUPYING BUILDINGS IN THE VICINITY OF JOB SITE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY DUST RESULTING FROM HIS OPERATIONS.
11. WHERE PROVIDED, AREA TAKEOFFS AND QUANTITY ESTIMATES ARE PROVIDED FOR CONTRACTOR CONVENIENCE ONLY, THE CONTRACTOR IS RESPONSIBLE TO DO THEIR OWN QUANTITY TAKEOFFS FOR ALL MATERIALS AND SIZES SHOWN ON THE PLANS. IN THE CASE OF DISCREPANCIES, PLANS TAKE PRECEDENCE OVER PLANT CALL-OUTS AND/OR LISTS.
12. LANDSCAPE CONTRACTOR TO SUBMIT SAMPLES OF MISCELLANEOUS LANDSCAPE & HARDSCAPE MATERIALS TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO INSTALLATION, I.E.: WOODROCK MULCH, EDGER, NATIVE SEED, LANDSCAPE FABRIC (ETC).
13. THE LANDSCAPE CONTRACTOR SHALL CONTACT THE OWNER'S REPRESENTATIVE AND SCHEDULE A PRE-CONSTRUCTION MEETING BEFORE ANY CONSTRUCTION TAKES PLACE.
14. ALL MATERIAL AND WORKMANSHIP SHALL BE GUARANTEED AND MAINTAINED FOR ONE YEAR FROM THE DATE OF INITIAL ACCEPTANCE UNLESS OTHERWISE AGREED UPON CONTRACTUALLY BETWEEN OWNER AND CONTRACTOR, ALL REPLACEMENT COST SHALL BE BORN BY THE CONTRACTOR.
15. ALL LANDSCAPE CONSTRUCTION PRACTICES, WORKMANSHIP, AND ETHICS SHALL, BE IN ACCORDANCE WITH INDUSTRY STANDARDS SET FORTH IN THE CURRENT CONSTRUCTION HANDBOOK PUBLISHED BY THE COLORADO LANDSCAPE CONTRACTORS ASSOCIATION.
16. IT'S THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE MOST CURRENT COPY OF THE SOILS REPORT FROM HOMEOWNER AND FOLLOW ALL REQUIREMENTS PERTAINING TO IRRIGATION AND LANDSCAPE INSTALLATION AND MAINTENANCE PRACTICES. IF THESE DRAWINGS ARE IN CONFLICT IN ANYWAY WITH THE REPORT, THE CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT IMMEDIATELY TO WORK OUT A RESOLUTION.

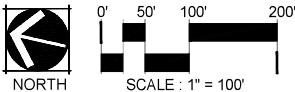
PROJECT CONTACTS

LANDSCAPE ARCHITECT
SAGE DESIGN GROUP
1500 SOUTH PEARL STREET #200
DENVER, COLORADO 80210
(303) 470-2855
CONTACT: KYNAN FRANK
KYNAN@SAGEDESIGNGROUP.COM

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FDYKSTRA@HIGHLANDSRANCH.ORG



KEY MAP



PLANTING NOTES:

MINIMUM PLANT SIZE REQUIREMENTS AND SOIL PREPARATION

1. ALL PLANT MATERIALS SHALL MEET OR EXCEED SIZE IN SCHEDULES. OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO REFUSE PLANT MATERIALS WHICH DO NOT MEET THE QUALITY REQUIRED FOR THE PROJECT. ALL DECIDUOUS TREES SHALL HAVE FULL, WELL SHAPED HEADS, PLANT MATERIAL SHALL COMPLY WITH THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1.
2. ALL TREES TO BE STAKED OR GUYED PER DETAILS ON SHEET L-200. ALL TREE LOCATIONS ARE TO BE STAKED FOR APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
3. SHRUB BED AREAS SHALL BE AMENDED WITH CLASS II COMPOST AT A RATE OF 5 CUBIC YARDS PER 1000 S.F., AMMONIUM SULFATE (20-0-0) AT A RATE OF 5 LBS PER 1000 S.F., AND SOIL SULFUR (90%-100% ELEMENTAL) AT A RATE OF 10 LBS PER 1000 S.F. AMENDMENTS SHALL BE THOROUGHLY BLENDED TO A DEPTH OF NO LESS THAN 6" AND NO MORE THAN 12" BELOW FINISH GRADE.
4. ALL BACKFILL MATERIAL PER DETAILS ON SHEET L-200.
5. PRIOR TO PLANTING ANY TREES ON SITE, THE LANDSCAPE CONTRACTOR SHALL PERFORM A SOIL PERCOLATION TEST TO DETERMINE IF THERE ARE ANY DRAINAGE PROBLEMS, THE LANDSCAPE CONTRACTOR IS REQUIRED TO DIG 3 HOLES AT DIFFERENT LOCATIONS AS DIRECTED BY OWNERS REPRESENTATIVE, THE HOLE SHALL BE EQUAL IN SIZE TO THE LARGEST TREE PIT REQUIRED FOR EACH PARTICULAR LOCATION, ADDITIONAL LOCATIONS WILL BE REQUIRED IF VARIOUS SOIL TYPES ARE FOUND AROUND THE SITE AND/OR IF THE OWNER'S REPRESENTATIVE FINDS IT NECESSARY, THE LANDSCAPE CONTRACTOR SHALL VERIFY TEST PIT LOCATIONS WITH OWNER'S REPRESENTATIVE AND FILL EACH HOLE WITH WATER AND MONITOR HOW MUCH WATER IS REMAINING IN THE HOLE AFTER 24 HOURS, MAKE A WRITTEN REPORT TO THE OWNER'S REPRESENTATIVE. IF IT IS DETERMINED THAT SOIL DRAINAGE IS A PROBLEM, A RESOLUTION WILL BE WORKED OUT BY THE OWNER AND IF NECESSARY A CHANGE ORDER WILL BE INITIATED.
6. ALL TREES AND PERENNIALS SHALL BE GUARANTEED TO REMAIN ALIVE AND HEALTHY FOR A 1-YEAR PERIOD AFTER INITIAL ACCEPTANCE, ALL REPLACEMENT COSTS SHALL BE BORN BY THE CONTRACTOR.
7. TREE WRAPPING MATERIAL SHALL BE FOUR INCHES WIDE, BITUMINOUS IMPREGNATED TAPE, CORRUGATED OR CREPE PAPER, BROWN IN COLOR, SPECIFICALLY MANUFACTURED FOR TREE WRAPPING, TREES SHALL BE WRAPPED BETWEEN OCTOBER 15 AND NOVEMBER 1 OF THE YEAR THEY ARE PLANTED, NO TREE WRAPPING SHALL BE PERMITTED UNTIL A LICENSED LANDSCAPE CONTRACTOR OR CERTIFIED ARBORIST HAS INSPECTED THE TREE. IT IS THE DUTY OF THE CONTRACTOR TO WRAP DECIDUOUS TREES DURING THE ONE-YEAR WARRANTY PERIOD.
8. ALL TREES TO BE PLANTED A MINIMUM OF (3) THREE FEET FROM ALL EDGER, (5) FIVE FEET FROM ALL CONCRETE WALKS AND (8) EIGHT FEET AWAY FROM BUILDINGS.
9. DO NOT PLANT ANY PLANT MATERIAL IN THE BOTTOM OF ANY DRAINAGE SWALE, RELOCATE AS NEEDED, CONTACT OWNERS REPRESENTATIVE IF MORE INFORMATION IS NEEDED BEFORE PLANTING.
10. CONTRACTOR TO REMOVE ALL TREE STAKING AND GUYING AFTER ONE YEAR.

PLANTING & IRRIGATION NEAR STRUCTURES

1. PLANTS AND IRRIGATION AROUND HOMES:
NO DRIP IRRIGATION OR PLANTS SHALL BE PLACED WITHIN 3' OF THE FOUNDATION. IRRIGATED GRASS SHOULD NOT BE LOCATED WITHIN 5 FEET OF THE FOUNDATION. SPRINKLERS SHOULD NOT DISCHARGE WITHIN 5 FEET OF FOUNDATIONS, SUMP PUMP DISCHARGE PIPES, SPRINKLER VALVE BOXES, AND ROOF DOWNSPOUT TERMINATIONS SHOULD ALSO BE AT LEAST 5 FEET FROM THE FOUNDATION.
2. LANDSCAPING SHOULD BE CAREFULLY DESIGNED AND MAINTAINED TO MINIMIZE IRRIGATION. PLANTS PLACED CLOSE TO FOUNDATIONS, PARTICULARLY WITHIN 5 FEET OF THE FOUNDATION, SHOULD BE LIMITED TO THOSE WITH LOW MOISTURE REQUIREMENTS AND UTILIZE ONLY SUB-SURFACE IRRIGATION SUCH AS STANDARD LOW VOLUME DRIP EMITTERS OR IN-LINE DRIP IRRIGATION. IRRIGATED GRASS, IRRIGATION MAINLINES, ABOVE-SURFACE SPRAY HEADS, ROTORS, OR OTHER ABOVE-SURFACE IRRIGATION SPRAY DEVICES SHOULD NOT BE LOCATED OR DISCHARGE ABOVE THE GROUND SURFACE WITHIN 5 FEET OF THE FOUNDATION.

SHEET INDEX

L-000	COVER SHEET
L-100 - L-104	LANDSCAPE PLAN
L-200	PLANTING DETAILS
L-300	MEDIAN DETAILS
I-101	IRRIGATION PLANS
I-102	IRRIGATION DETAILS
I-103 - I-104	IRRIGATION SPECIFICATIONS

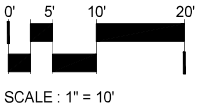
MAINTENANCE SCHEDULE

(UNLESS OTHERWISE AGREED UPON WITH THE OWNER)

1. SUBMIT 1 YEAR MAINTENANCE SCHEDULE TO OWNER AT FINAL ACCEPTANCE WALK.
2. (4) FOUR WINTER WATERING'S ON ALL TREES AND EVERGREEN SHRUBS.
3. PERENNIALS AND ORNAMENTAL GRASSES SHALL BE CUT BACK ONCE ANNUALLY IN SPRING (TYPICALLY MARCH).
4. PLANTING BEDS SHALL BE WEEDED BI-WEEKLY.
5. TREES AND SHRUBS SHALL BE FERTILIZED ONCE ANNUALLY IN THE SPRING. THIS CAN BE CONCURRENT WITH FERTILIZATION OF THE MANICURED TURF IN APRIL.
6. WEEKLY IRRIGATION SYSTEM CHECK, SPRING START UP, MAINTENANCE, WINTERIZATION, AND WATER MANAGEMENT.

SOILS REPORT:

1. IT'S THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE MOST CURRENT COPY OF THE SOILS REPORT AND FOLLOW ALL REQUIREMENTS PERTAINING TO IRRIGATION AND LANDSCAPE INSTALLATION AND MAINTENANCE PRACTICES. IF THESE DRAWINGS ARE IN CONFLICT IN ANYWAY WITH THE REPORT, THE CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT IMMEDIATELY TO WORK OUT A RESOLUTION.



CALL 3 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

QUEBEC STREET MEDIAN



S. QUEBEC STREET
MEDIAN
HIGHLANDS RANCH, CO



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DATE: 3/11/25

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COVER SHEET

SHEET NO. :

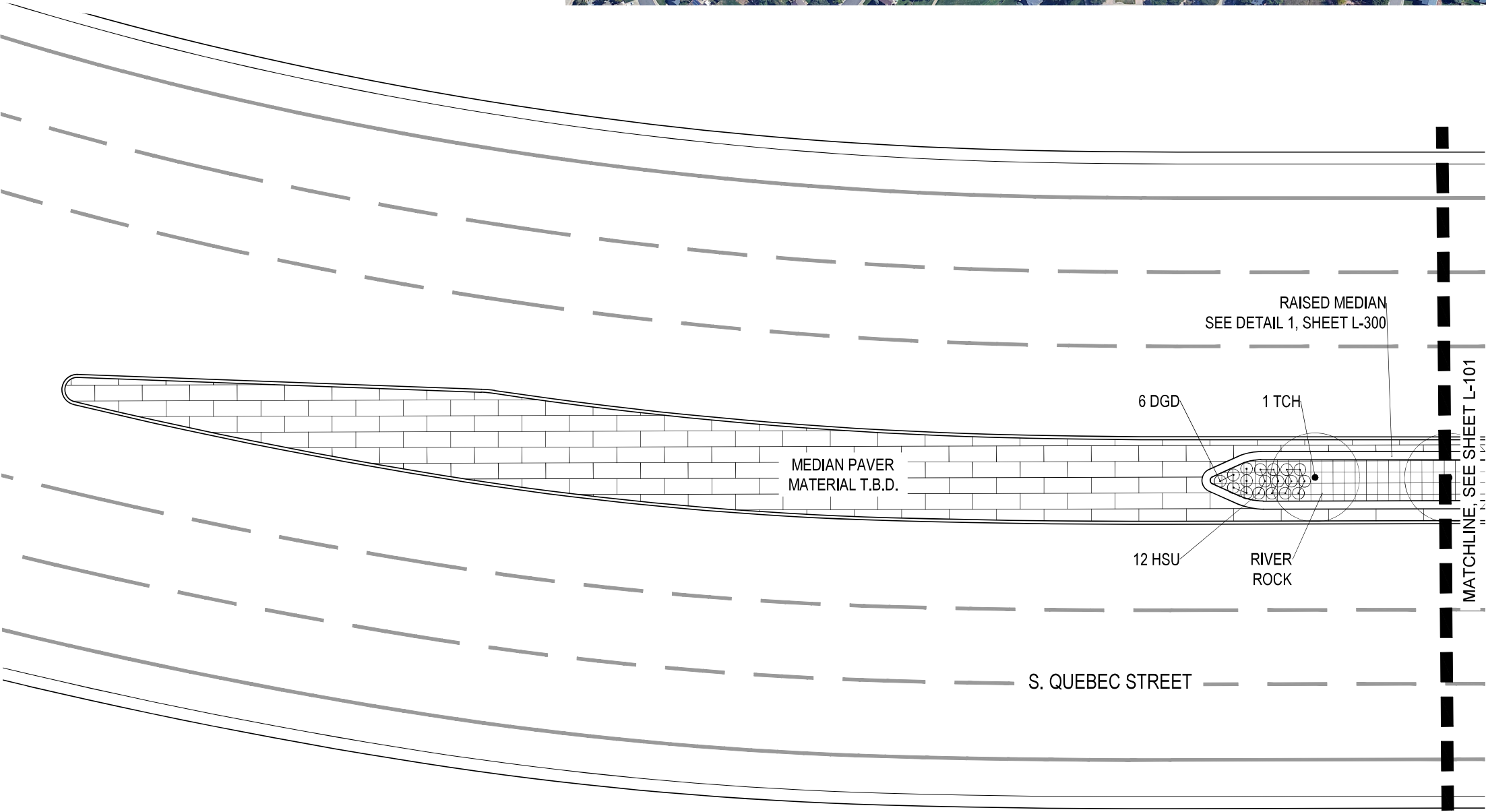
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LANDSCAPE PLANT LIST

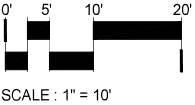
SYMBOL	COMMON NAME	BOTANICAL NAME	SIZE & CONDITION
DECIDUOUS ORNAMENTAL TREES			
CSO	CRIMSON SPIRE OAK	QUERCUS 'CRIMSCHMIDT'	2" CAL. B&B
TCH	THORNLESS COCKSPUR HAWTHORN	CRATAEGUS CRUS-GALLI 'INERMIS'	2" CAL. B&B
SUBTOTAL:			
GROUND COVERS, VINES & PERENNIAL FLOWERS			
DGD	DWARF GOLD DAYLILY	HEMEROCALLIS 'STELLA DORO'	1 GAL. CONT.
HSU	SUNSET HYSSOP	AGASTACHE	1 GAL. CONT.

KEY MAP (NOT TO SCALE)



LEGEND

- EDGER
- RIVER ROCK
- LARGE COBBLE
- DECIDUOUS TREE
- PERENNIALS



QUEBEC STREET MEDIAN

HIGHLANDS RANCH
Metro District

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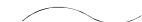
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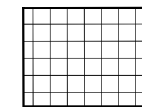
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SHEET NO. : L-100
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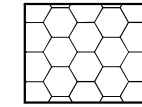
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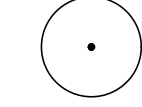
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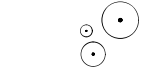
RIVER ROCK



LARGE COBBLE



DECIDUOUS TREE

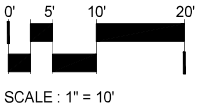
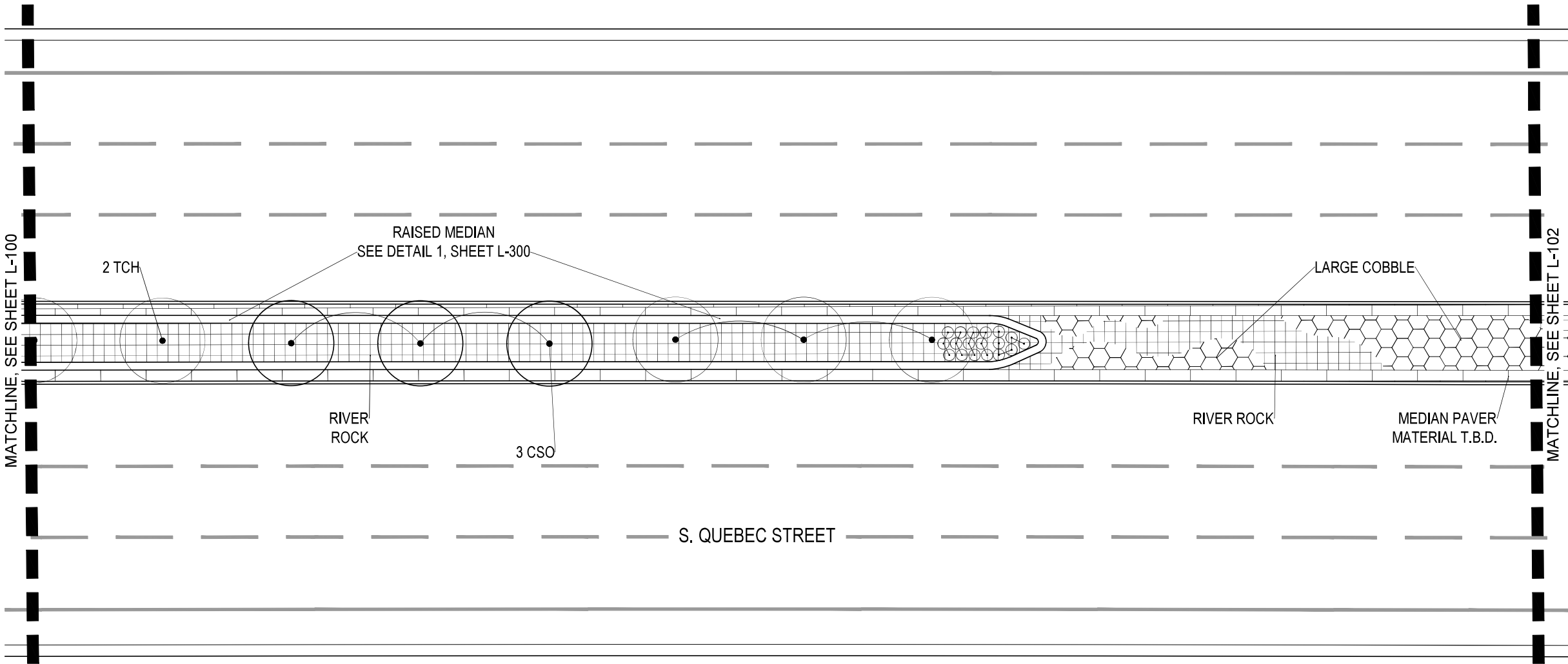


PERENNIALS


LANDSCAPE PLANT LIST

SYMBOL	COMMON NAME	BOTANICAL NAME	SIZE & CONDITION
DECIDUOUS ORNAMENTAL TREES			
CSO	CRIMSON SPIRE OAK	QUERCUS 'CRIMSCHMIDT'	2" CAL. B&B
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SUBTOTAL:			
GROUND COVERS, VINES & PERENNIAL FLOWERS			
DGD	DWARF GOLD DAYLILY	HEMEROCALLIS 'STELLA DORO'	1 GAL. CONT.
HSU	SUNSET HYSSOP	AGASTACHE	1 GAL. CONT.

KEY MAP (NOT TO SCALE)



QUEBEC STREET MEDIAN



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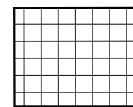
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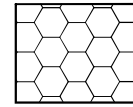
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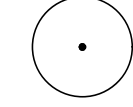
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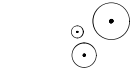
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 EDGER

 RIVER ROCK

 LARGE COBBLE

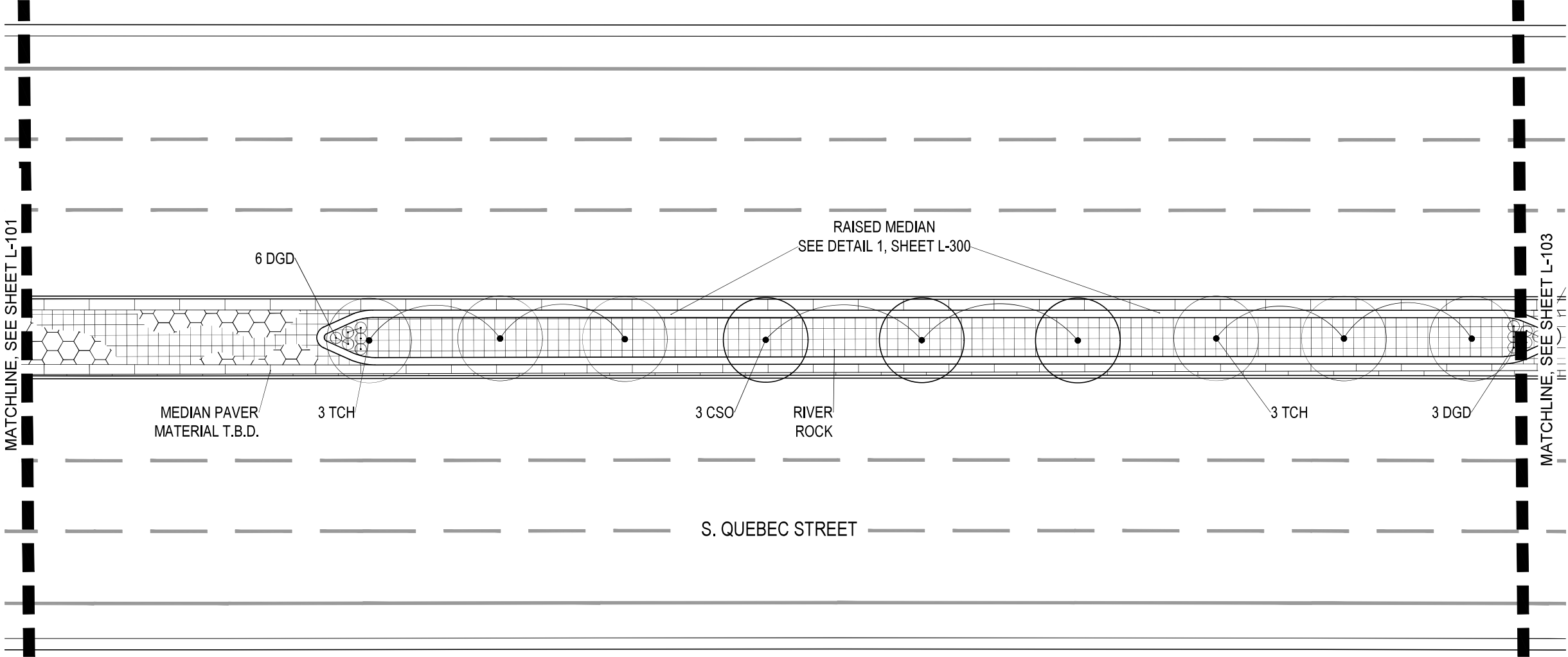
 DECIDUOUS TREE

 PERENNIALS

LANDSCAPE PLANT LIST

SYMBOL	COMMON NAME	BOTANICAL NAME	SIZE & CONDITION
DECIDUOUS ORNAMENTAL TREES			
CSO	CRIMSON SPIRE OAK	QUERCUS 'CRIMSCHMIDT'	2" CAL. B&B
TCH	THORNLESS COCKSPUR HAWTHORN	CRATAEGUS CRUS-GALLI 'INERMIS'	2" CAL. B&B
SUBTOTAL:			
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DGD	DWARF GOLD DAYLILY	HEMEROCALLIS 'STELLA DORO'	1 GAL. CONT.
HSU	SUNSET HYSSOP	AGASTACHE	1 GAL. CONT.

KEY MAP (NOT TO SCALE)



 NORTH



SCALE : 1" = 10'



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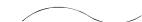
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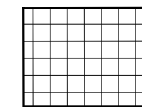
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LANDSCAPE PLAN

SHEET NO. :
L-102
QUEBEC STREET MEDIAN

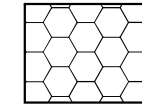
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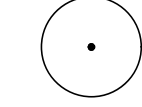
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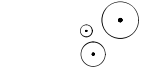
RIVER ROCK



LARGE COBBLE



DECIDUOUS TREE

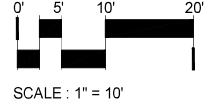
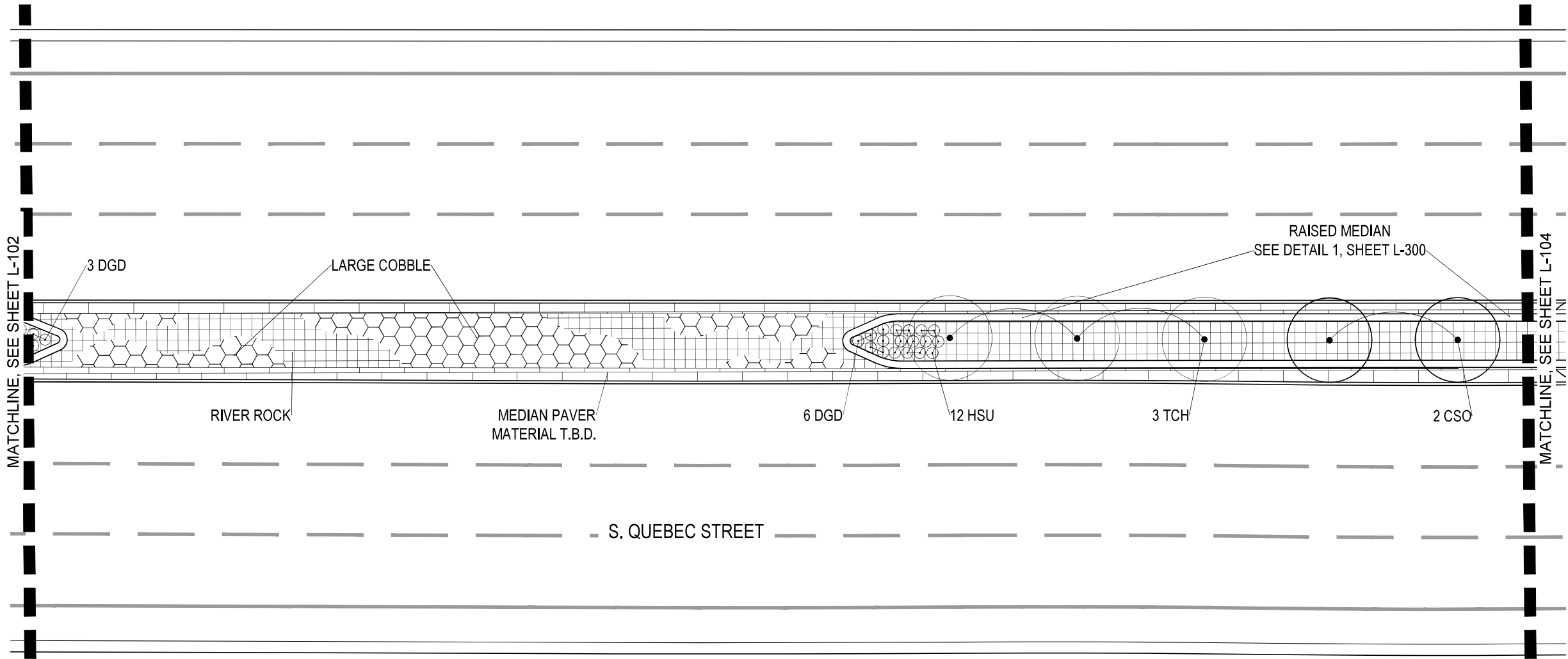


PERENNIALS

LANDSCAPE PLANT LIST

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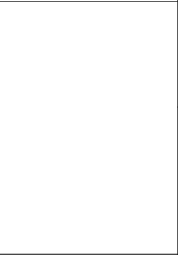
KEY MAP (NOT TO SCALE)



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S. QUEBEC STREET
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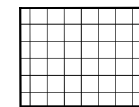
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LANDSCAPE PLAN

SHEET NO. :
L-103
QUEBEC STREET MEDIAN

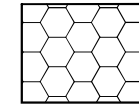
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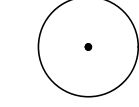
EDGER



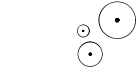
RIVER ROCK



LARGE COBBLE



DECIDUOUS TREE

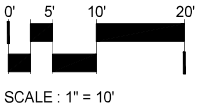
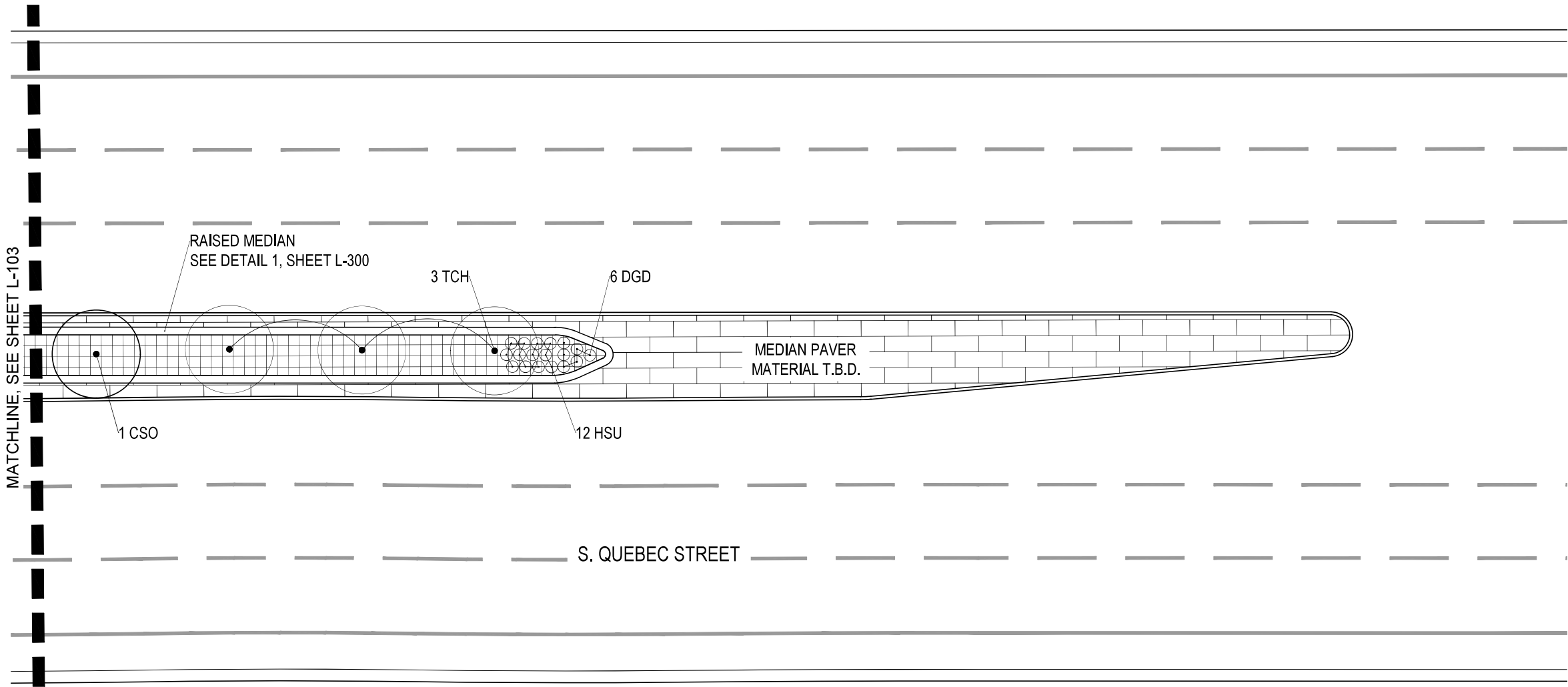
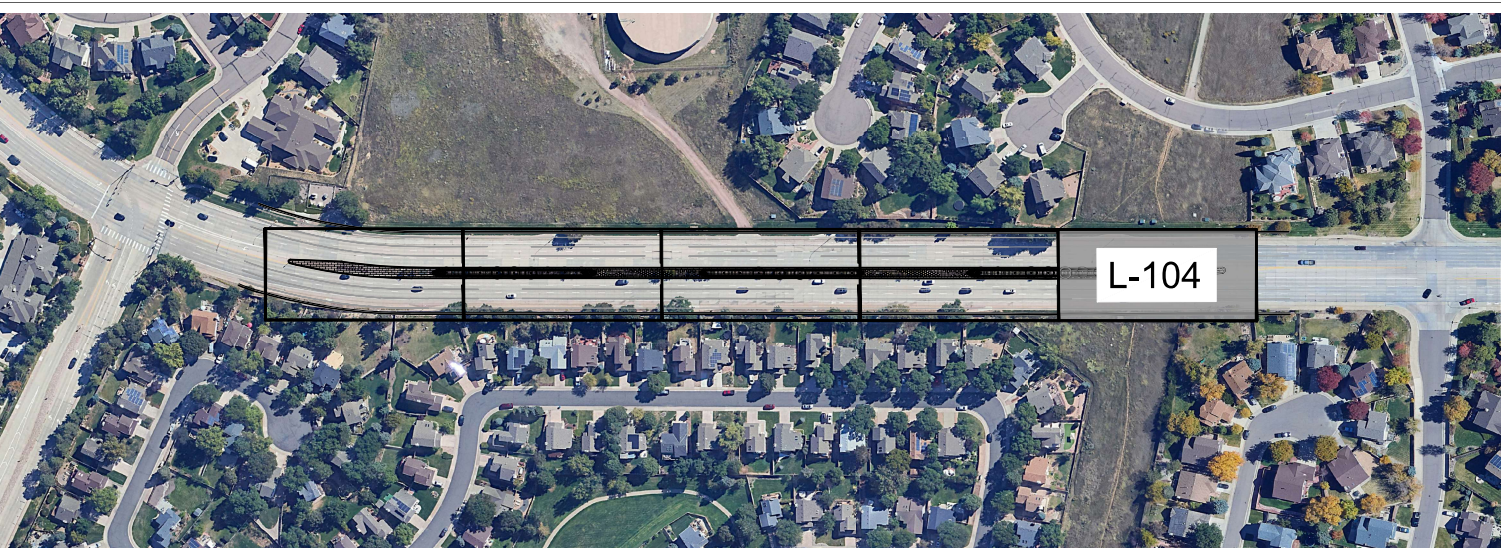


PERENNIALS

LANDSCAPE PLANT LIST

SYMBOL	COMMON NAME	BOTANICAL NAME	SIZE & CONDITION
DECIDUOUS ORNAMENTAL TREES			
CSO	CRIMSON SPIRE OAK	QUERCUS 'CRIMSCHMIDT'	2" CAL. B&B
TCH	THORNLESS COCKSPUR HAWTHORN	CRATAEGUS CRUS-GALLI 'INERMIS'	2" CAL. B&B
SUBTOTAL:			
GROUND COVERS, VINES & PERENNIAL FLOWERS			
DGD	DWARF GOLD DAYLILY	HEMEROCALLIS 'STELLA DORO'	1 GAL. CONT.
HSU	SUNSET HYSSOP	AGASTACHE	1 GAL. CONT.

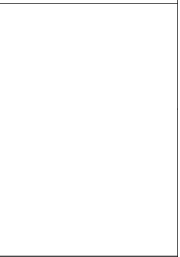
KEY MAP (NOT TO SCALE)



QUEBEC STREET MEDIAN



S. QUEBEC STREET
MEDIAN
HIGHLANDS RANCH, CO



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DATE: 3/11/25
SHEET TITLE:
LANDSCAPE PLAN
SHEET NO. :
L-104

QUEBEC STREET MEDIAN

Minimum Plant Size Requirements and Soil Preparation:

- Weed Barrier and Shrub Bed Mulch:

- Irrigation System:

- ## POST PLAN

NOTES:

- N.T.S.

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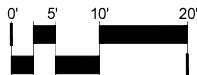
DATE: 3/11/25

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PLANTING DETAILS

SHEET NO. :

L-200













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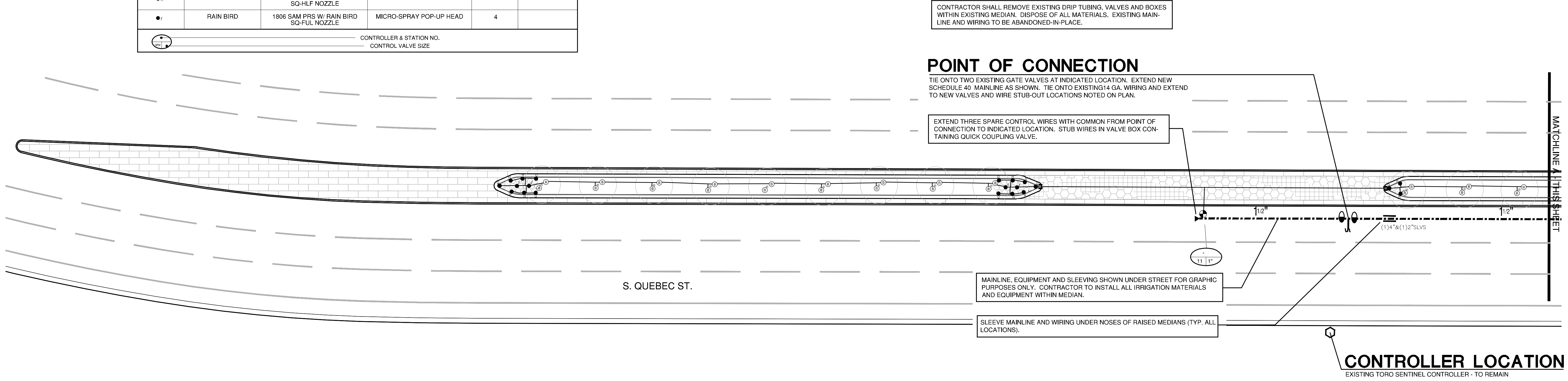


SCALE : 1" = 10'

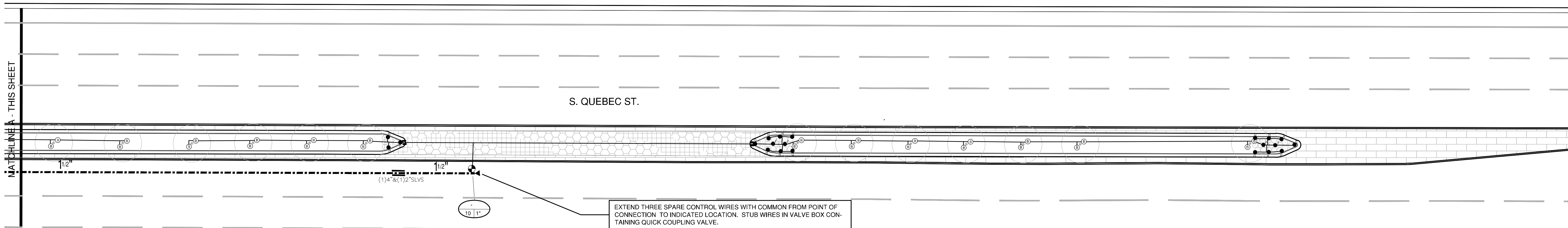


CALL 3 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

Irrigation Equipment and Materials Schedule					
SYMBOL	MANUFACTURER	MODEL NO.	DESCRIPTION	DETAIL NO.	COMMENTS
	RAIN BIRD	PEB SERIES	ELECTRIC CONTROL VALVE	1	W/ FILTER
	RAIN BIRD	1806 SAM PRS W/ SA-80 ADAPTER AND 1401 PRESS. COMP. BUBBLER	BUBBLER ASSEMBLY	4	
		EXISTING	ELECTRIC CONTROLLER	-	
	RAIN BIRD	44 LRC	QUICK COUPLING VALVE	2	
		EXISTING - 1-1/2" DIA.(NOT SHOWN)	BACKFLOW PREVENTER	-	
		EXISTING - 1-1/2" DIA. (NOT SHOWN)	WATER METER	-	
		EXISTING	GATE VALVE	-	
		SCHEDULE 40 SOLVENT WELD	PVC MAINLINE	3	
		CLASS 200 SOLVENT WELD - 1" DIA. UNLESS NOTED OTHERWISE	PVC LATERAL	3	
	RAIN BIRD	1806 SAM PRS W/ RAIN BIRD SQ-QTR NOZZLE	MICRO-SPRAY POP-UP HEAD	4	
	RAIN BIRD	1806 SAM PRS W/ RAIN BIRD SQ-HLF NOZZLE	MICRO-SPRAY POP-UP HEAD	4	
	RAIN BIRD	1806 SAM PRS W/ RAIN BIRD SQ-FUL NOZZLE	MICRO-SPRAY POP-UP HEAD	4	
 CONTROLLER & STATION NO.  CONTROL VALVE SIZE					

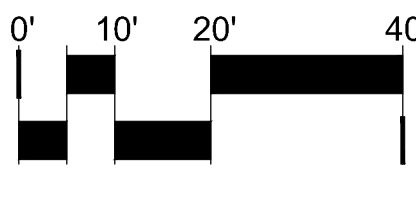


1 IRRIGATION PLAN - WEST



2 IRRIGATION PLAN - EAST

Avocet
IRRIGATION DESIGN
11757 W. KEN CARL AVE., SUITE F-508
LITTLETON, COLORADO 80127
303-562-5698
avocet@wispertel.net



QUEBEC STREET MEDIAN



S. QUEBEC STREET
MEDIAN
HIGHLANDS RANCH, CO

SAGE DESIGN GROUP

LANDSCAPE ARCHITECTURE SITE PLANNING ENTITLEMENT

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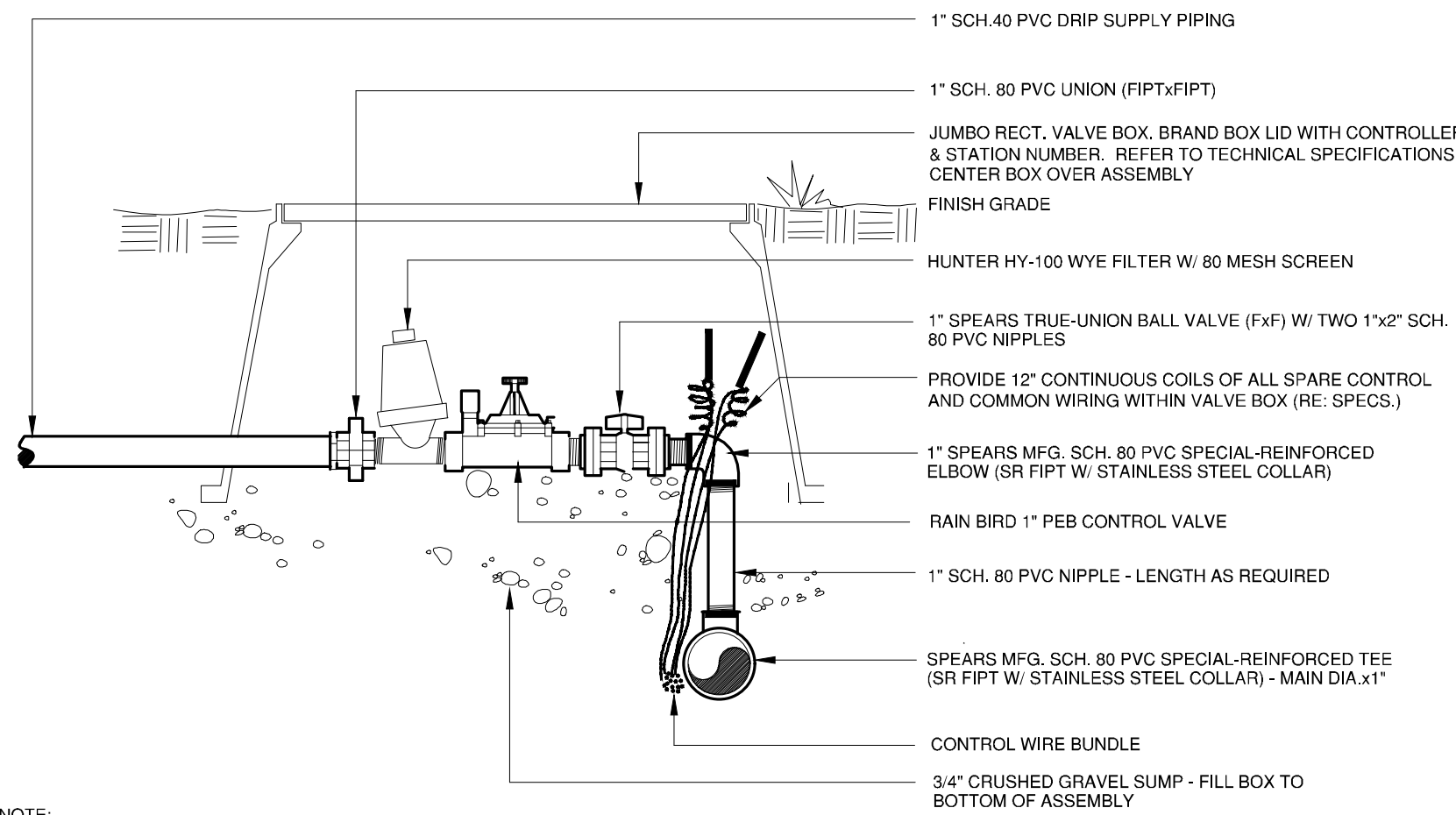
DATE: 4/10/25

SHEET TITLE:
IRRIGATION PLAN

SHEET NO. : _____

I-101

QUEBEC STREET MEDIAN



NOTE:

INSTALL ASSEMBLY TO REST ON GRAVEL SUMP. CONTAIN ENTIRE ASSEMBLY WITHIN BOX.

NO VALVE BOX EXTENSIONS WILL BE ACCEPTED

PROVIDE 2" MIN. CLEARANCE BETWEEN TOP OF FILTER AND BOTTOM OF BOX LID

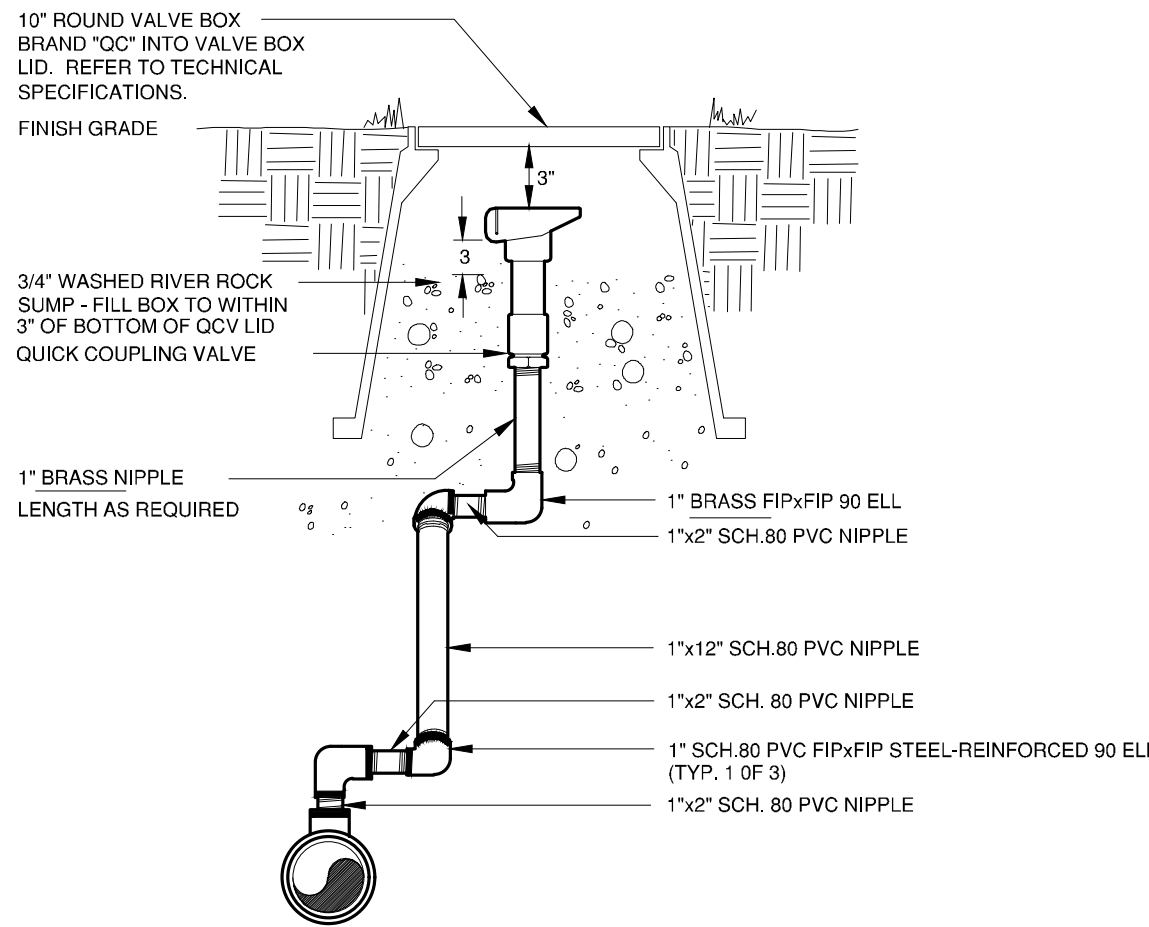
TOP OF VALVE BOX TO BE FLUSH WITH FINISH GRADE

VALVE BOX SHALL NOT REST ON DRIP TUBING/PIPING

APPLY NON-HARDENING THREAD SEALANT CONTAINING NO PETROLEUM DISTILLATES TO ALL MALE-THREADED FITTINGS (SPEARS BLUE 75 OR EQUAL)

ELECTRIC CONTROL VALVE w/ FILTER

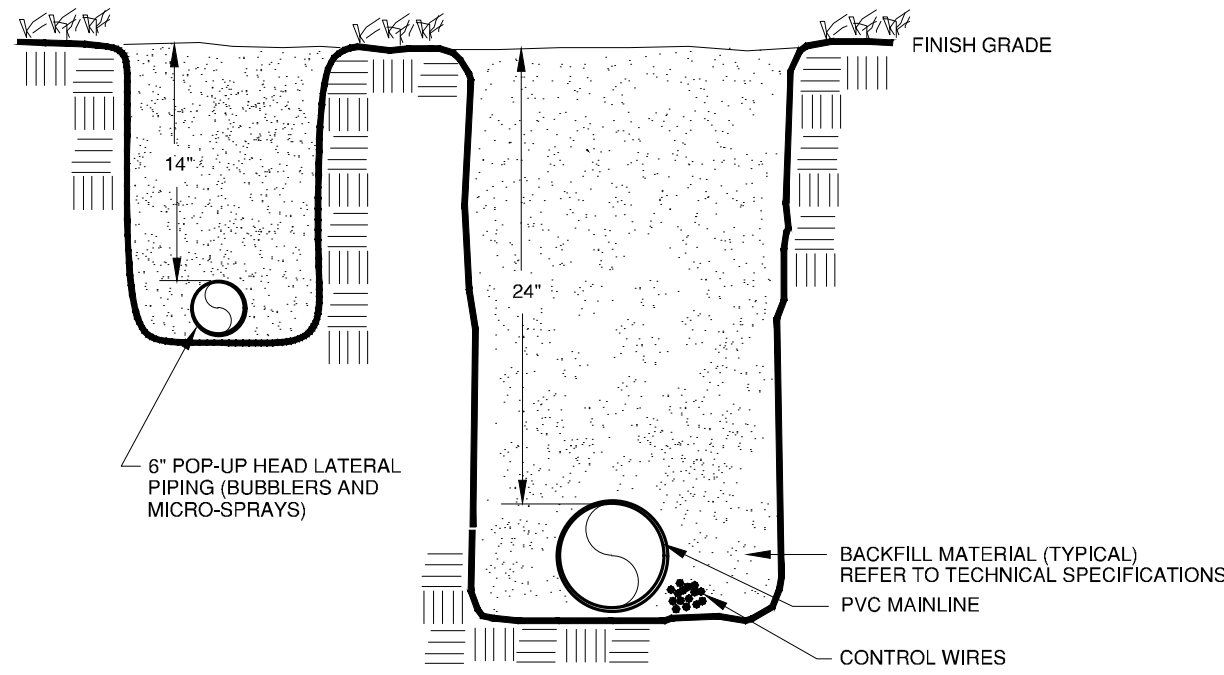
1



APPLY NON-HARDENING THREAD SEALANT CONTAINING NO PETROLEUM DISTILLATES TO ALL MALE-THREADED FITTINGS (SPEARS BLUE 75 OR EQUAL)

QUICK COUPLING VALVE

2



NOTE: REFER TO TECHNICAL SPECIFICATIONS FOR MINIMUM TRENCH WIDTHS.

TRENCHES

3

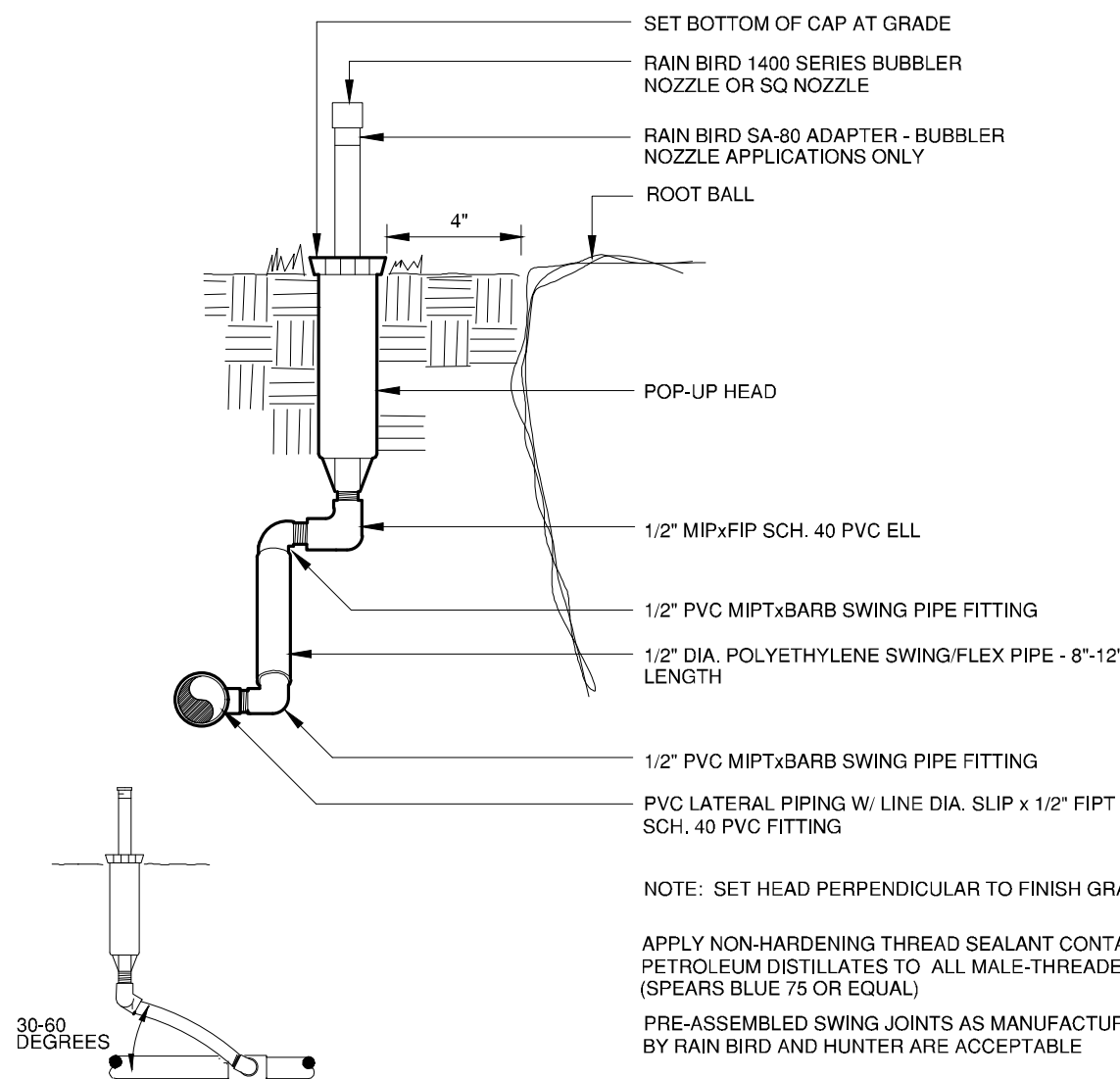
Irrigation Construction Notes

- ALL BASE INFORMATION HAS BEEN TAKEN FROM DRAWINGS PREPARED BY SAGE DESIGN GROUP.
- REFER TO TECHNICAL SPECIFICATIONS AND CONSTRUCTION DETAILS FOR INSTALLATION PROCEDURES.
- CONTRACTOR SHALL COORDINATE INSTALLATION OF SLEEVING WITH INSTALLATION OF CONCRETE FLATWORK AND CURBING. ALL SLEEVING IS BY CONTRACTOR UNLESS OTHERWISE NOTED. UNLESS NOTED OTHERWISE ON IRRIGATION PLANS INSTALL SLEEVING BASED ON SLEEVE SIZING GUIDE BELOW:

PIPE SIZE OR WIRE QUANTITY	REQUIRED SLEEVE
3/4" - 1" PIPING	1-2" PVC SLEEVE
1-1/2" - 2" PIPING	1-4" PVC SLEEVE
1-25 CONTROL WIRES	1-2" PVC SLEEVE

NOTE: EACH LENGTH OF SLEEVED PIPE SHOWN SHALL BE ROUTED THROUGH SEPARATE SLEEVE. IRRIGATION WIRE BUNDLE SHALL BE ROUTED IN SEPARATE SLEEVE/CONDUIT WITHOUT IRRIGATION PIPING

- REFER TO PLANTING PLAN FOR EXACT TREE LOCATIONS AND QUANTITIES, TREES SHOWN ON IRRIGATION PLANS ARE APPROXIMATE.
- CONTRACTOR SHALL REPAIR OR REPLACE ANY EXISTING IRRIGATION EQUIPMENT, TURF, PLANT MATERIAL OR SITE FEATURES DAMAGED DURING NEW INSTALLATION. REPLACEMENT OR REPAIR OF DAMAGED EQUIPMENT OR MATERIAL SHALL BE DETERMINED BY THE OWNER AND THE CONSULTANT.
- VALVE BOXES SHALL BE LOCATED 36" MINIMUM FROM CENTERLINE OF ALL SWALES, 60" MINIMUM FROM EDGES OF ALL WALKS, CURBS, DRIVES AND OTHER HARD SURFACE AREAS.
- REFER TO IRRIGATION TECHNICAL SPECIFICATIONS FOR PLANTING AND IRRIGATION LAY-OUT REQUIREMENTS, COORDINATION AND PRIORITIES.
- CONTRACTOR SHALL COORDINATE CONTROLLER STATION NUMBERS FOR NEW VALVES WITH HRMD STAFF.



POP-UP HEAD

4

QUEBEC STREET MEDIAN



S. QUEBEC STREET
MEDIAN
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DATE: 4/10/25

SHEET TITLE:
IRRIGATION DETAILS

SHEET NO. :

I-102

QUEBEC STREET MEDIAN

IRRIGATION SPECIFICATIONS

SECTION 32 84 00 IRRIGATION SYSTEM		f. Gate valves. g. Wire splices			
PART 1 - GENERAL		Contractor	2. Owner's Representative will not certify any pay request submitted by the if the as-built drawings are not current, and processing of pay request will not occur until Record Drawings are updated. Contractor shall provide two bond copies of completed, approved record drawings and flash drive containing Autocad and PDF files of record drawings.	1.09 MAINTENANCE:	Consultant. If Contractor fails to verify static water pressure prior to commencing work or ordering irrigation materials, Contractor shall assume responsibility for all costs required to make system operational and the costs required to replace any damaged landscape material. Damage shall include all required material costs, design costs and plant replacement costs.
1.01 WORK INCLUDED	- Work of this Section generally includes provisions for the installation of an underground landscape irrigation system including the following:	C.	Operation Instructions - Submit 3 written operating instructions including winterization procedures and start-up, with cut sheets of products, and coordinate controller/watering operation instruction with Owner maintenance personnel.		3.03 INSPECTION:
A.	Static pressure verification and coordination of irrigation system installation with landscape material installation.				A. Grading operations, with the exception of final grading, shall be completed and approved by Owner before staking or installation of any irrigation system begins.
B.	Trenching, stockpiling excavation materials, refilling and compacting trenches.				B. Underground Utilities shall be installed prior to installation of irrigation system. If irrigation installation takes place prior to utility installation, Contractor shall notify Owner of this condition in writing prior to commencement of irrigation installation.
C.	Complete irrigation system including but not limited to valves, fittings, heads, modifications to existing irrigation system, wiring, and final adjustments to insure complete coverage.				3.04 PREPARATION:
D.	Water connections.				A. Staking shall Occur as Follows:
E.	Replacement of unsatisfactory materials.				1. Mark, with powdered lime, routing of pressure supply line and flag heads for first few zones. Contact Consultant 48 hours in advance and request review of staking. Proposed locations of all trees shall be field staked by Contractor and approved by Owner/Landscape Architect prior to Consultant review of irrigation staking. Consultant will advise installer as to the amount of staking to be prepared. Review does not relieve installer from coverage problems due to improper placement of heads after staking.
F.	Clean-up, Consultant Reviews, and Project Acceptance.				2. Contractor shall contact Consultant if field spacing varies by +/- 10% of the spacing shown on the irrigation plans. If Contractor fails to notify Consultant of variances exceeding 10%, Contractor assumes full responsibility for the costs associated with any required system modifications deemed necessary by the Consultant or Owner.
G.	Testing of Irrigation System(s).				3. If Project has significant topography, freeform planting beds, or other amenities, which could require alteration of irrigation equipment layout as deemed necessary by Consultant, do not install irrigation equipment in these areas until Consultant has reviewed equipment staking.
1.02 RELATED SECTIONS		D.	Manufacturer Warranties – Contractor shall provide Owner with two copies of written manufacturer warranties that exceed one year as published by each equipment and material manufacturer for products installed on Project. Manufacturer warranty information shall be provided for controller(s), all valves, piping, heads, backflow preventer(s), enclosures and valve boxes.		B. Install sleeving under asphalt paving and concrete walks, prior to concreting and paving operations, to accommodate piping and wiring. Compact backfill IN 6 inch lifts around sleeves to 95% Modified Proctor Density within 2% of optimum moisture content in accordance with STM D1557.
A.	Examine all sections related to project work.	E.	Operating instructions and manufacturer warranty information shall be contained within 1 inch, three ring binder (one binder per set).		C. Trenching - Trench excavation shall follow, as much as possible, layout shown on Drawing. Dig trenches straight and support pipe continuously on bottom of trench. Trench bottom shall be clean and smooth with all rock and organic debris removed.
1.03 REFERENCES		1.06 DELIVERY, STORAGE, AND HANDLING	- Deliver, unload, store, and handle materials, packaging, bundling, products in dry, weatherproof, condition in manner to prevent damage, breakage, deterioration, intrusion, ignition, and vandalism. Deliver in original unopened packaging containers prominently displaying manufacturer's name, volume, quantity, contents, instructions, and conformance to local, state, and federal law. Remove and replace cracked, broken, or contaminated items or elements prematurely exposed to moisture, inclement weather, snow, ice, temperature extremes, fire, or jobsite damage.		1. Clearances: a. Piping 3 inches and Larger - Make trenches of sufficient width (12 inches minimum) to properly assemble and position pipe in trench. Minimum clearance of piping 3 inches or larger shall be 4 inches horizontally on both sides of the trench. b. Piping Smaller than 3 Inches - Trenches shall have a minimum width of 6 inches.
A.	Perform Work in accordance with requirements of Conditions of the Contract and Division 01 - General requirements as well as provisions of all applicable laws, codes, ordinances, rules, and regulations.	A.	Handling of PVC Pipe - Exercise care in handling, loading and storing, of PVC pipe. All PVC pipe shall be transported in a vehicle which allows length of pipe to lie flat so as not to subject it to undue bending or concentrated external loads. All sections of pipe that have been dented or damaged shall be discarded, and if installed, shall be replaced with new piping.		2. Pipe and Wire Depth: a. Pressure Supply Piping (Mainline) - 24 inches from top of pipe. b. PVC Sleeving – Road/Street/Drive - 24 inches minimum/28 inches maximum depth of cover as measured from top of sleeve to bottom of road surfacing material. Pedestrian and Bicycle paths/walks – Depth shall equal depth of piping and/or wiring to be contained within sleeving as indicated on plan as measured from top of sleeving to top of path/walk. c. Non-pressure Piping (6" pop-up) - 12 inches from top of pipe. d. Two-Wire Cable - Side of pressure main or at 18 inch depth if installed in a separate trench containing no mainline piping.
B.	Conform to requirements of reference information listed below except where more stringent requirements are shown or specified in Contract Documents.	1.07 JOBSITE CONDITIONS:			1. Boring will be permitted only where pipe must pass under obstruction(s) which cannot be removed. In backfilling bore, final density of backfill shall match that of surrounding soil. It is acceptable to use sleeves of suitable diameter installed first by jacking or boring, and pipe laid through sleeves. Observe same precautions as though pipe were installed in open trench.
1.	American Society for Testing and Materials (ASTM) - Specifications and Test Methods specifically referenced in this Section.	A.	Protection of Property: 1. Preserve and protect all trees, plants, monuments, structures, and paved areas from damage due to Work of this Section. In the event damage does occur, all damage to inanimate items shall be completely repaired or replaced to satisfaction of Owner, and all injury to living plants shall be repaired by Owner. All costs of such repairs shall be charged to and paid by Contractor.		4. Vibratory Plow – Not an acceptable method for installation of irrigation piping and/or wiring.
2.	Underwriters Laboratories (UL) - UL Wires and Cables.	B.	Existing Trees: 1. All trenching or other Work under limb spread of any and all evergreens or low branching deciduous material shall be done by hand or by other methods so as to prevent damage to limbs or branches. Where it is necessary to excavate adjacent to existing trees use all possible care to avoid injury to trees and tree roots. Excavation, in areas where 2 inch and larger roots occur, shall be done by hand. Roots 2 inches or larger in diameter, except directly in the path of pipe or conduit, shall be tunneled under and shall be heavily wrapped with burlap to prevent scarring or excessive drying. Where a trenching machine is operated close to trees having roots smaller than 2 inches in diameter, wall of trench adjacent to tree shall be hand trimmed, making clean cuts through roots as root damage is incurred by trenching operations. Trenches adjacent to trees shall be closed within 24 hours.		3.05 INSTALLATION - Locate equipment as near as possible to locations designated. Consultant shall review and approve deviations prior to installation.
1.04 QUALITY ASSURANCE		C.	Protection and Repair of Underground Lines: 1. Request proper utility company to stake exact location (including depth) of all underground electric, gas, or telephone lines. Take whatever precautions are necessary to protect these underground lines from damage. If damage does occur, Utility Owner shall repair all damage. Contractor shall pay all costs of such repairs unless other arrangements have been made. Request Owner, in writing, to locate all private utilities (i.e., electrical service to outside lighting) before proceeding with excavation. If, after such request and necessary staking, private utilities that were not staked are encountered and damaged by Installer, Owner shall repair them at no cost to Installer. If Contractor damages staked or located utilities, they shall be repaired by Utility Owner at Contractor's expense unless other arrangements have been made.		A. PVC Piping - Snake pipe in trench as much as possible to allow for expansion and contraction. Do not install pipe when air temperature is below 40 degree Fahrenheit. Install manual drain valves at low points and dead ends of pressure supply piping to insure complete drainage of system. Installation of multiple runs of piping in common (joint) trench is not permissible. When pipe in progress, or at end of each day, close pipe ends with tight plug or cap. Perform Work in accordance with good practices prevailing in piping trades.
A.	Installer Qualifications - Installer shall have had considerable experience and demonstrate ability in the installation of irrigation system(s) of specific type(s) in a neat orderly, and responsible manner in accordance with recognized standards of workmanship. To demonstrate ability and experience necessary for this Project, submit if requested by Consultant and/or Owner, prior to contract award the following:				1. Solvent Weld PVC Pipe - Lay pipe and make all plastic to plastic joints in accordance with manufacturer's recommendations.
1.	List of 5 projects completed in the last 2 years of similar complexity to this Project. Description of projects shall include: a. Name of project. b. Location. c. Owner. d. Brief description of work and project budget. e. Reference contact name & telephone number				B. Control Wiring: 1. Low Voltage Wiring: a. Bury wiring between controller and electric valves in pressure supply line trenches, strung as close as possible to main pipe lines with such cable to be consistently located below and to one side of pipe, or in separate trenches. b. Provide an expansion loop at every pressure pipe angle fitting and every 500 feet. Form expansion 24 inch loop by coiling cable and lay formed coil in trench prior to backfilling. c. Make all splices and electric control valve connections using 3M Company DBR/Y-6 waterproof wire splice connector kits
B.	Special Requirements: 1. Tolerances - Specified depths of mains and laterals and pitch of pipes are minimums. Settlement of trenches is cause for removal of finish grade treatment, refilling, compaction, and repair of finish grade treatment. 2. Coordination with Other Contractors - Protect, maintain, and coordinate Work with Work under other Section. 3. Damage To Other Improvements - Contractor shall replace or repair damage to grading, soil preparation, seeding, sodding, or planting done under other Sections during Work associated with installation of irrigation system at no additional cost to Owner.				d. Install all cable splices not occurring at control valve in a separate splice
C.	Pre-Construction Conference - Contractor shall schedule and conduct a conference to review in detail quality control and construction requirements for equipment, materials, and systems used to perform the Work. Conference shall be scheduled not less than 10 days prior to commencement of Work. All parties required to be in attendance shall be notified no later than 7 days prior to date of conference. Contractor shall notify qualified representatives of each party concerned with that portion of Work to attend conference, including but not limited to Architect, Consultant, Contractor's Superintendent, and Installer.	1.08 WARRANTY/GUARANTY:	- Contractor shall warrant materials, equipment and workmanship against defects for a period of one year from date of Substantial Completion.	3.02 STATIC PRESSURE VERIFICATION	- Contractor shall field verify the static pressure at the project site, prior to commencing work or ordering irrigation materials, and submit findings, in writing, to
1.	Minutes of conference shall be recorded and distributed by Contractor to all parties in attendance within five days of conference.	A.	Settling of backfilled trenches that may occur during guaranty period shall be repaired by Contractor at no expense to Owner, including complete restoration of damaged property.		
1.05 SUBMITTALS	- Prepare and make submittals in accordance with conditions of the Contract.	B.	Expenses due to vandalism prior to substantial completion shall be borne by Contractor.		
A.	Materials List - Submit PDF file of a complete materials list indicating manufacturer, model number, and description of all materials and equipment to be used. Show appropriate dimensions and adequate detail to accurately portray intent of construction.	C.	Owner will maintain turf and planting areas during warranty period, so as not to hamper proper operation of irrigation system.		
B.	Record Drawings (As-Builts): 1. At onset of irrigation installation secure Autocad 2019 files of original irrigation design from Owner. At the end of every day, revise as-built prints for work accomplished that day in red ink. Irrigation system records-as-built field prints shall be brought up-to-date at the close of the working day every Friday by a qualified draftsman. A print of record plan(s) shall be available at Project Site. Indicate zoning changes on weekly record drawings. Indicate non-pressure piping changes on record drawings. Upon completion of Project, submit for review, prior to final acceptance, final set of irrigation systems record drawings plotted on bond paper, and a flash drive containing Autocad and PDF files of record drawings. Dimensions, from two permanent points of reference (building corners, sidewalk, road intersections or permanent structures), location of following items: a. Connection to existing water lines. b. Routing of sprinkler pressure lines (dimension maximum 100 feet along routing). c. Sprinkler control valves. d. Quick coupling valves. e. Control wire routing if not with pressure mainline.				

QUEBEC STREET MEDIAN

HIGHLANDS RANCH
Metro District

S. QUEBEC STREET
MEDIAN

HIGHLANDS RANCH, CO

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LANDSCAPE ARCHITECTURE

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Denver, Colorado 80210
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DATE: 4/10/25

SHEET TITLE:
IRRIGATION
SPECIFICATIONS

SHEET NO. :

I-103

QUEBEC STREET MEDIAN

IRRIGATION SPECIFICATIONS

valve box.

- C. Electric Control Valves - Install cross-handle four inches below finished grade where shown on Drawings as detailed. When grouped together, allow at least 12 inches between valve box sides. When installed adjacent to curbing and walks, allow 36 inches between valve box and walk/curb. Install each remote control valve in a separate valve box with box centered over valve assembly. Install individual valve box flush with grade.
- D. Quick Coupling Valves - Install quick couplers on swing-joint assemblies as indicated on construction details; plumb and flush to grade. Angled nipple relative to pressure supply line shall be no more than 45 degrees and no less than 10 degrees.
- E. Valve Boxes:

1. Install one valve box for each type of valve installed as detailed. Valve box extensions are not acceptable except for master valves, pressure regulating valves, flow sensors or other irrigation equipment installed at depth of pressure mainline. Install gravel sump after compaction of all trenches. Place final portion of gravel inside valve box after valve box is backfilled and compacted.

2. Brand controller letter and station number on lid of each valve box. Letter and number size shall be no smaller than 1 inch and no greater in size than 1 1/2 inches. Depth of branding shall be no more than 1/8 inch into valve box lid.
- F. Sprinkler Heads - Install sprinkler heads where designated on Drawings or where staked. Set to finish as detailed. Spacing of heads shall not exceed the maximum indicated on Drawing unless re-staked as directed by Consultant. In no case shall the spacing exceed maximum recommended by manufacturer. Install heads on swing joints or riser assemblies as detailed. Adjust part circle heads for proper coverage. Adjust heads to correct height after sod is installed. Plant placement shall not interfere with intended sprinkler head coverage, piping, or other equipment. Consultant may request nozzle changes or adjustments without additional cost to the Owner.
- G. Backfilling - Do not begin backfilling operations until required system tests have been completed. Backfill shall not be done in freezing weather except with review by Consultant. Leave trenches slightly mounded to allow for settlement after backfilling is completed. Trenches shall be finish graded prior to walk-through of system by Consultant.

1. Materials - Excavated material is generally considered satisfactory for backfill purposes. Backfill material shall be free of rubbish, vegetable matter, frozen materials, and stones larger than 1 inch in maximum dimension. Do not mix subsoil with topsoil. Material not suitable for backfill shall be hauled away. Contractor shall be responsible for providing suitable backfill if excavated material is unacceptable or not sufficient to meet backfill, compaction, and final grade requirements.

2. Do not leave trenches open for a period of more than 48 hours. Open excavations shall be protected in accordance with OSHA regulations.

3. Compact backfill in 6 inch lifts to 90% maximum density, determined in accordance with ASTM D155-7 utilizing the following methods:

a. Mechanical tamping.

b. Puddling or ponding. Puddling or ponding and/or jetting is prohibited within 20'-0" of building or foundation walls.
- H. Piping Under Paving:

1. Provide for a minimum cover of 24 inches between the top of the pipe and the bottom of the aggregate base for all pressure and non-pressure piping installed under asphaltic concrete or concrete paving.

2. Piping located under areas where asphalt or concrete paving will be installed shall be bedded with sand (a layer 6" below pipe and 6" above pipe).

3. Compact backfill material in 6" lifts at 90% maximum density determined in accordance with ASTM D155-7 using manual or mechanical tamping devices.

4. Piping under existing walks or concrete pavement shall be done by jacking, boring, or hydraulic driving, but where cutting or breaking of walks and/or concrete is necessary, it shall be done and replaced at not cost to Owner. Obtain permission to cut or break walks and/or concrete from Owner.
- I. Water Supply and Point of Connection - Water supply shall be extended as shown from water supply lines.

3.06 FIELD QUALITY CONTROL:

- A. Flushing - After piping, risers, and valves are in place and connected, but prior to installation of sprinkler heads, quick coupler assemblies, and hose valves, thoroughly flush piping system under full head of water pressure from dead end fittings. Maintain flushing for 5 minutes through furthestmost valves. Cap risers after flushing.
- B. Testing - Conduct tests in presence of Consultant. Arrange for presence of Consultant 48 hours in advance of testing. Supply force pump and all other test equipment.

1. After backfilling, and installation of all control valves, fill pressure supply line with water, and pressurize to 40 PSI over the designated static pressure or 120 PSI, whichever is greater, for a period of 2 hours. Pressure testing of pressure supply line utilizing compressed air is not acceptable.

2. Leakage, Pressure Loss - Test is acceptable if no loss of pressure is evident during the test period.

3. Leaks - Detect and repair leaks.

4. Retest system until test pressure can be maintained for duration of test.

5. Before final acceptance, pressure supply line shall remain under pressure for a period of 48 hours.
- C. Walk-Through for Substantial Completion:

1. Arrange for Consultant's presence 48 hours in advance of walk-through. Entire system shall be completely installed and fully operational prior to scheduling of walk-through. This shall include all control valves capable of being operated via irrigation controller.

2. Electrically operate each zone in its entirety for Consultant at time of walk-through and additionally, open all valve boxes if directed.

3. Consultant shall generate a list of items to be corrected prior to Final Completion.

4. Furnish all materials and perform all work required to correct all inadequacies of coverage due to deviations from Contract Documents.

6. Supply Consultant with one set of full-size prints (not original drawings) of completed contractor-prepared irrigation as-built field drawings prior to start of substantial completion walk-through.

D. Walk-Through for Final Completion:

1. Arrange for Consultant's presence 48 hours in advance of walk-through. Show evidence to Consultant that Owner has received all accessories, charts, record drawings, and equipment as required before Final Completion walk-through is scheduled.
2. Electrically operate each zone, in its entirety for Consultant at time of walk-through to insure correction of all incomplete items.
3. Items deemed not acceptable by Consultant shall be reworked to complete satisfaction of Consultant.
4. If after request to Consultant for walk-through for Final Completion of irrigation system, Consultant finds items during walk-through which have not been properly adjusted, reworked, or replaced as indicated on list of incomplete items from previous walk-through, Contractor shall be charged for all subsequent walk-throughs. Funds will be withheld from final payment and/or retainage to Contractor, in amount equal to additional time and expenses required by Consultant to conduct and document further walk-throughs as deemed necessary to insure compliance with Contract Documents.

3.07 ADJUSTING - Upon completion of installation, "fine-tune" entire system by regulating valves, adjusting patterns and break-up arms, and setting pressure reducing valves at proper and similar pressure to provide optimum and efficient coverage. Flush and adjust all sprinkler heads for optimum performance and to prevent overspray onto walks, roadways, and buildings as much as possible. Heads of same type shall be operating at same pressure +/- 7%.

A. If it is determined that irrigation adjustments will provide proper coverage, and improved water distribution as determined by Consultant, contractor shall make such adjustments prior to Final Acceptance, as directed, at no additional cost to Owner. Adjustments may also include changes in nozzle sizes, degrees of arc, and control valve throttling.

B. All sprinkler heads shall be set perpendicular to finish grade unless otherwise noted on Construction Plans or directed by Consultant.

C. Areas which do not conform to designated operation requirements due to unauthorized changes or poor installation practices shall be immediately corrected at no additional cost to the Owner.

3.08 CLEANING - Maintain continuous cleaning operation throughout duration of work. Dispose of, off-site at no additional cost to Owner, all trash, debris and excess soil generated by installation of irrigation system.

END OF SECTION

QUEBEC STREET MEDIAN



S. QUEBEC STREET
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HIGHLANDS RANCH, CO

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ENTITLEMENT
SITE PLANNING

ALL DRAWN AND WRITTEN INFORMATION
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WRITTEN CONSENT OF SAGE DESIGN GROUP, L.L.C.

DRAWN BY: DZ
CHECKED BY: DZ

REVISION RECORD

NO.	CHANGE	DATE
1		
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DATE: 4/10/25

SHEET TITLE:
IRRIGATION
SPECIFICATIONS

SHEET NO. :

I-104

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