VALLEY-WIDE
RECREATION AND PARK DISTRICT

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AWARD WINNING CALIFORNIA PARKS

BASIN DESIGN ADDENDUM

November 18, 2019

Section 10.0 Basin & Channel Design Guidelines of current adopted standards remain in place with the following exceptions:

1. Section 10.1, J, indicates, *all basins shall be engineered to drain within 48 hours of any rain event.* Based on current County of Riverside standards, 72 hours should be the maximum allowed drawdown time period. With this in place, careful consideration of plant material at lower portions of basins will be made, to ensure acceptable lifespan of vegetation.

2. Section 10.2 Grading, C, indicates, *low flow drainage must be installed per Valley-Wide low-flow drainage typical detail.* Included within this addendum is a Typical Basin Sub-drain Exhibit.
   In addition to this, each project must comply with the County's Low Impact Design Manual.

3. Section 10.6 Basin or Channel Planting, B, indicates, *typical tree varieties to be Platanus racemose and Liquidambar S. "Burgundy' trees*. It is required for trees to be evergreen to minimize defoliation of leaves within water quality basins or channels.

4. Section 10.3 Basin or Channel Planting, D, indicates, *all slopes to receive 1 gal. groundcover at 3' O.C.* Plant material can be spaced out as much as 5' O.C. depending on the specified plant growth characteristics. Towards the toe of slope, adjacent to water quality treatment areas, two rows of planted container grasses at 3' O.C. should be used to minimize potential slope erosion into the water quality treatment areas.

Additional New Standards Related to Valley-Wide Maintained Water Quality Treatment Areas

1. All improvement plans with items to be maintained by Valley-Wide must be reviewed and approved in writing by Valley-Wide as a condition of maintenance acceptance. Valley-Wide's review comments will be provided directly to the County.

2. Improvement plans with items to be maintained by Valley-Wide must list all required inspections, submittals and certifications on plan title sheets. Items must include:

   a. Note to read, "Valley-Wide Inspector shall be invited and attend the Riverside County preconstruction meeting prior to commencement of work".
   b. Note to read, "Project material submittals for Valley-Wide maintained features must be approved by Valley-Wide prior to the commencement of work".

c. Note to read, "All improvements to be maintained by Valley-Wide must be inspected by Valley-Wide designated representative".
d. Note to read, "Soil media samples with certified infiltration rates must be provided prior to shipment of any material."
e. Note to read, "All rock must be clean washed material".
f. Note to read, "Independent testing of basin infiltration rates shall be performed to ensure compliance with approved WQMP and LID Manual requirements, prior to Valley-Wide acceptance. Provide a minimum of one (1) test per basin and one (1) test per every 10,000 square feet."
g. Note to read, "Provide basin bottom subgrade, toe of slope and top of slope grade certification prior to installation of basin gravel, sub-drains and media."

3. All water quality treatment areas to be maintained by Valley-Wide must have concrete forebays with a design volume of at least 0.5% V_{BMP} and a minimum 1 foot high concrete splash wall per the LID Manual.

4. Curb inlets adjacent to water quality treatment areas must have inlet filters as directed by County of Riverside Transportation Department.

5. Basin sub-drains must meet the following standards:

   a. All piping must be 6" diameter SCH 40 PVC piping.
   b. All piping fittings must be SCH 40 PVC.
   c. All piping must have a minimum slope of 0.50% and should match the basin bottom slope of 0.50%.
   d. Horizontal piping must be spaced no further than 10 feet apart within all water quality treatment areas.
   e. All pipe fittings with change of directions cannot exceed 45 degrees.
   f. All clean-outs must be installed with 6" SCH 40 PVC combination wyes and 1/8 bends with risers exposed 6" above the media surface with removable caps to access piping for maintenance operations. Clean-outs must be provided at 50' spacing.
   g. All pipe ends must have clean-out risers with 6" SCH 40 PVC "Long Sweep" elbows.
   h. Whenever possible, piping runs should flow directly towards outlet structures not exceeding 45 degree change of direction.
   i. Perforated pipe and rock must be protected with nonwoven geotextile filter fabric Mirafi® 140N or approved equal. The use of appropriately sized filtering aggregates may be used in place of filter fabric, as approved by Valley-Wide.
   j. Multiple pipe connections into outlet structures are required for basin areas over 3,000 square feet.
   k. A 6" diameter SCH 40 PVC observation well shall be provided prior to each connection to the outlet structure.

6. The Bio-filtration section must be:

   a. 18-36" Media (60~80% clean sand, 20% topsoil & Mulch)
   b. 3" Sand
   c. 3" Pea Gravel (1/4"– 1/2")
   d. 2"~24" Gravel (AASHTO #57)

7. Basin and channel bottoms must be irrigated with large radius rotors and necessary piping placed on side slopes 24 horizontal inches above from the toe of slope. Center

rotors and lateral lines shall be used only when necessary to achieve coverage for larger areas.

8. It is understood that some projects may have water quality treatment areas smaller than basin bottoms. These areas must have 1% minimum slope towards treatment areas or outlet structures and irrigated and planted, to ensure soil stabilization adjacent to the water quality treatment areas. No ponding within these non-treatment areas will be allowed.

Prior to design work, we encourage each design consultant to meet with Valley-Wide's planning team and County of Riverside staff to discuss project specifics.

For reference, Section 10.0 Basin & Channel Design Guidelines of our 2012 Standards and Specifications are included within the update. Complete Standards and Specifications are available online at https://www.gorecreation.org/standards-and-specifications

TYPICAL BASIN SUBDRAINS
VALLEY-WIDE MAINTAINED DRAINS

1. STORM DRAIN OUTLET STRUCTURE
2. SOLID 6" DIA. SCH 40 PVC PIPING (FROM EDGE OF MEDIA TO OUTLET TYP.)
3. PERFORATED 6" DIA. SCH 40 PIPING TYP. (10' O.C. THROUGHOUT MEDIA)
4. 6" DIA. SCH 40 PVC CAP, PIPE RISER AND TEE FITTING (OBSERVATION WELL)
5. 6" DIA. SCH 40 PVC COMBINATION WYE & ⅛ BEND CLEAN-OUT AT 50' O.C. TYP. (BEND FACING DOWNSTREAM TYP.)
6. 6" DIA. SCH 40 PVC WYE (NO 90 DEGREE FITTINGS ALLOWED)
7. 6" DIA. SCH 40 PVC DOUBLE WYE
8. 6" DIA. SCH 40 PVC LONG SWEEP CLEANOUT (AT ALL ENDS TYP.)
9. 6" DIA. SCH 40 PVC CAP WITH 6" DIA. SOLID PVC RISER (DO NOT GLUE TO RISER) RISER TO EXTEND 6" ABOVE TOP OF MEDIA TYP.
10. LIMIT OF MEDIA AREA

DRAINAGE NOTES:

THIS EXHIBIT IS INTENDED TO DEPICT THE TYPICAL SUB-DRAIN LAYOUT FOR WATER QUALITY BASINS MAINTAINED BY VALLEY-WIDE. ALL DRAINAGE MUST COMPLY WITH THE LID MANUAL, PROJECT WQMP AND VWRPD STANDARDS AND SPECIFICATIONS AND BASIN DESIGN ADDENDUM.

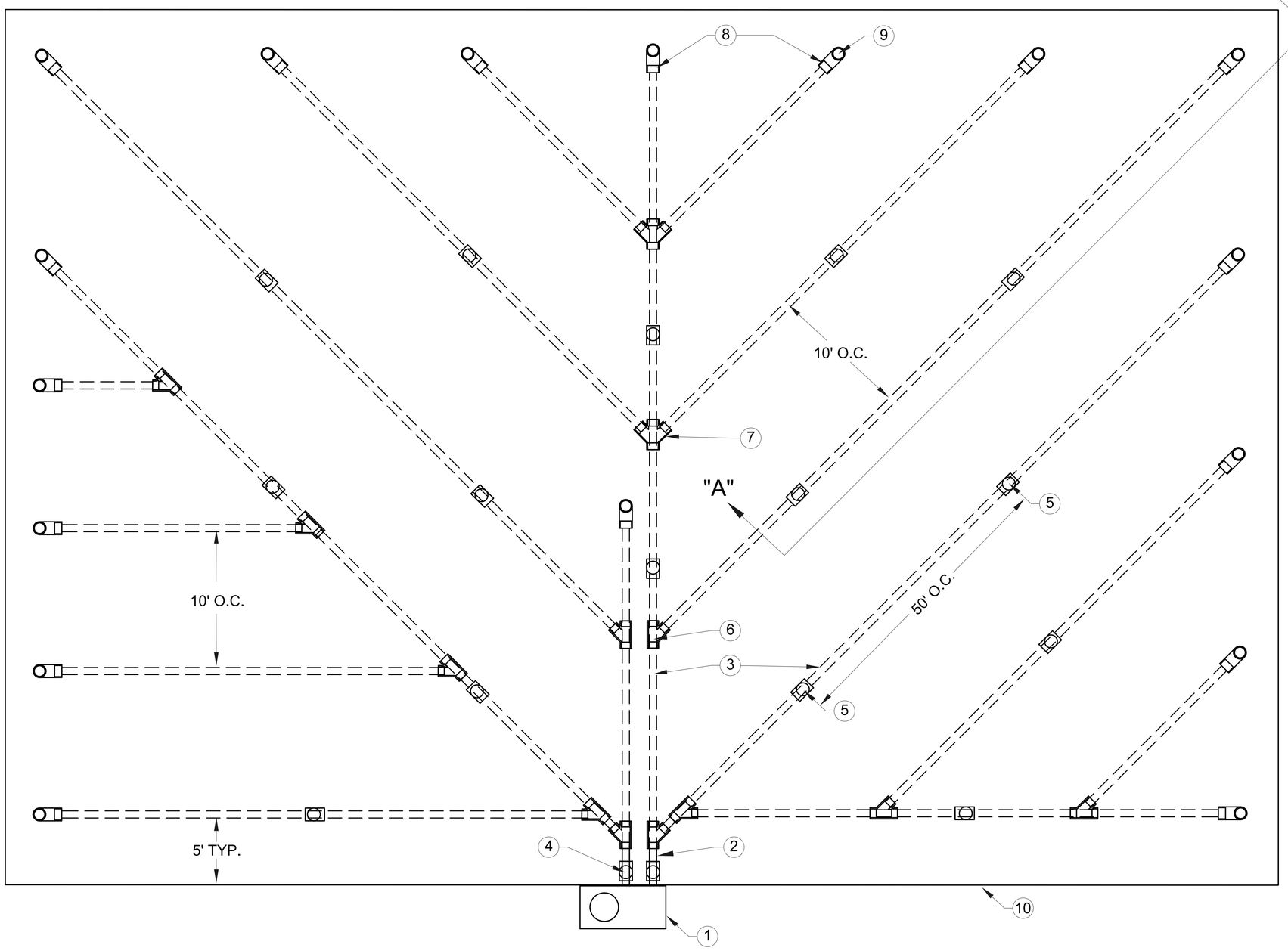
ALL PIPING MUST BE 6" DIA. SCH 40 PVC AND MUST HAVE 0.50% MINIMUM SLOPE.

ALL FITTINGS MUST BE SCH 40 PVC WYE'S OR SWEEPS. NO 90 DEGREE CHANGE OF DIRECTION IS ALLOWED.

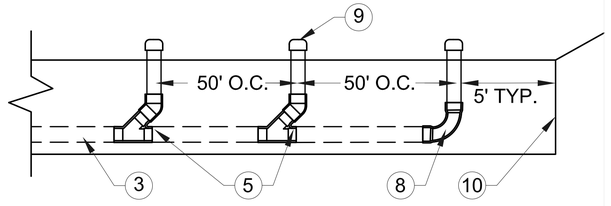
ALL CLEAN-OUT RISERS MUST HAVE SCH 40 PVC CAPS (NOT GLUED)

ONE (1) 6" DIA. SCH 40 PIPE CONNECTION TO OUTLET MUST BE PROVIDED FOR EVERY 3,000 SQUARE FEET OF MEDIA AREA. DOUBLE WYE FITTINGS CAN BE USED WHEN SINGLE PIPE CONNECTION IS USED FOR AREAS 3,000 SQUARE FEET AND SMALLER.

ALL DRAINAGE MUST BE INSPECTED AND APPROVED BY VALLEY-WIDE AND COUNTY OF RIVERSIDE GRADING INSPECTOR, PRIOR TO BACKFILL.



PLAN VIEW



SECTION "A" VIEW

MARK	BY	DATE	REVISIONS	APPR.	DATE
ENGINEER					

COUNTY OF RIVERSIDE TRANSPORTATION DEPARTMENT

RCTD APPROVAL
NAME: PATRICIA ROMO
TITLE: DIRECTOR OF TRANSPORTATION
SIGNATURE:
DATE:

VALLEY-WIDE RECREATION AND PARK DISTRICT

VALLEY-WIDE APPROVAL
NAME: DEAN WETTER
TITLE: GENERAL MANAGER
SIGNATURE:
DATE:

SCALE:	AS SHOWN
DESIGN:	
DRAWN:	JP
CHECKED:	
APPROVED:	
DATE:	11-12-19

SITE ID NO. I.P. No. xxxxx

TYPICAL BASIN SUBDRAINS
FOR VALLEY-WIDE MAINTAINED WQ BASINS

SHEET NO. 1 OF 1 SHTS

FOR: VWRPD | W.O. | FILE NO.