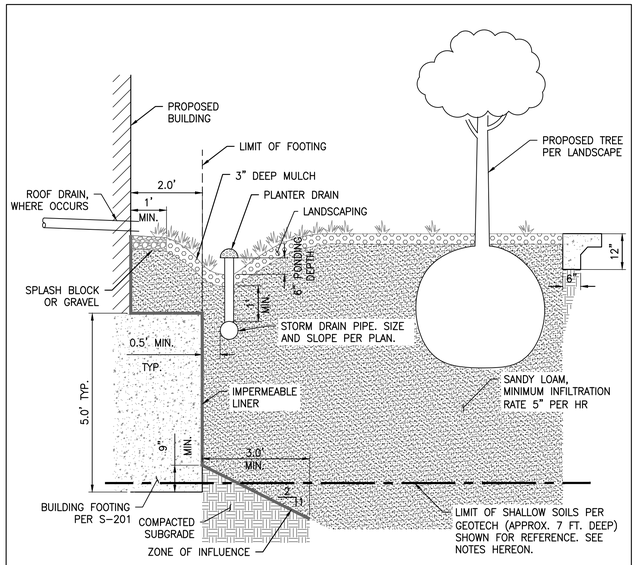
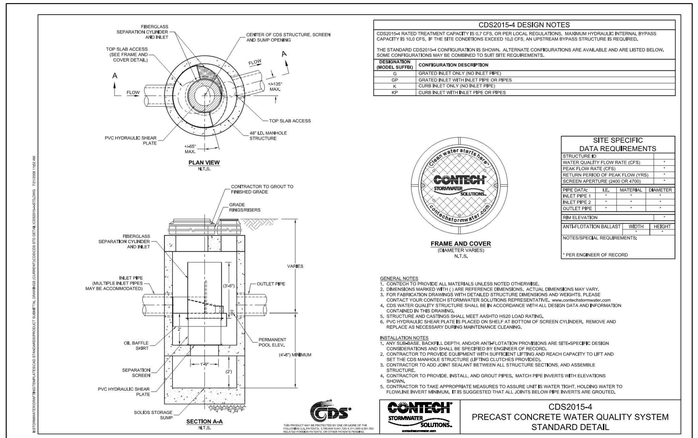


NOTES:

1. INFILTRATION RATES WERE DETERMINED BY THE GEOTECHNICAL REPORT TITLED "GEOTECHNICAL ENGINEERING PRELIMINARY REPORT OF PERMEABILITY STUDY, FULLERTON COLLEGE INSTRUCTIONAL BUILDING" BY GEOTECHNICAL SOLUTIONS, INC.
2. AT SHALLOW SOIL DEPTH TO 7 FT., SOILS WERE FOUND TO HAVE INFILTRATION RATE OF 0.77 IN/HR MAX.
3. AT SOIL DEPTH GREATER THAN 7 FT., SOILS WERE FOUND TO HAVE INFILTRATION RATE OF 0.08 IN/HR MAX.

1 STORM WATER PLANTER TYPICAL SECTION



CDS2015-4 DESIGN NOTES

CDS2015-4 RATED TREATMENT CAPACITY IS 0.7 CFS, OR PER LOCAL REGULATIONS. MAXIMUM HYDRAULIC INTERNAL BYPASS CAPACITY IS 10.0 CFS. IF THE SITE CONDITIONS EXCEED 10.0 CFS, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

THE STANDARD CDS2015-4 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

DESIGNATION (MODEL SUFFIX)	CONFIGURATION DESCRIPTION
G	GRATED INLET ONLY (NO INLET PIPE)
GP	GRATED INLET WITH INLET PIPE OR PIPES
K	CURB INLET ONLY (NO INLET PIPE)
KP	CURB INLET WITH INLET PIPE OR PIPES

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (CFS)	*
PEAK FLOW RATE (CFS)	*
RETURN PERIOD OF PEAK FLOW (YRS)	*
SCREEN APERTURE (4000 OR 4700)	*

PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*

RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES

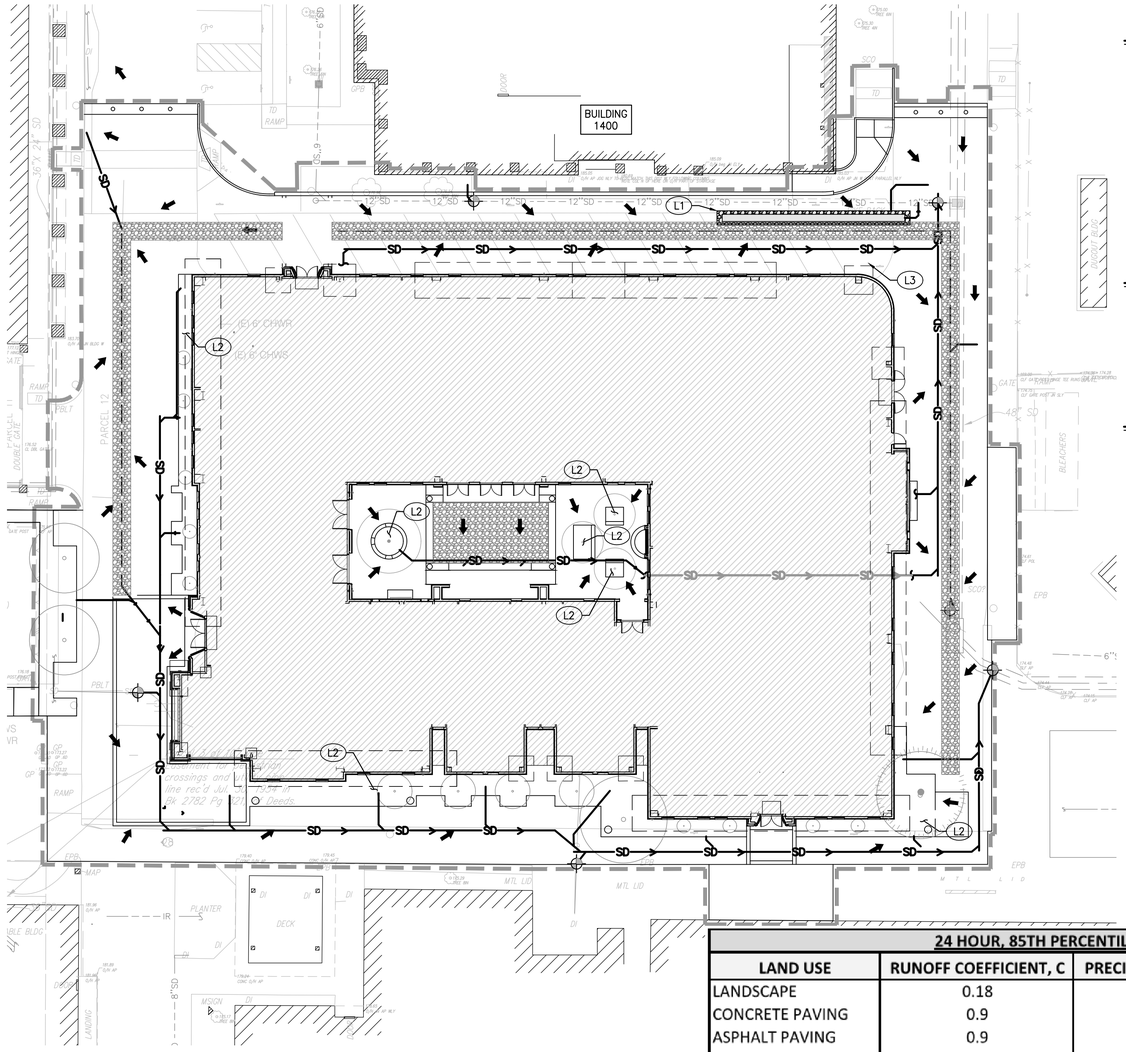
1. CDS2015-4 TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DRAWINGS MARKED WITH (*) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH STORMWATER SOLUTIONS REPRESENTATIVE, www.contechstormwater.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE AND CASTINGS SHALL MEET AASHTO H20 LOAD RATING.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE/CLEANING.

INSTALLATION NOTES

1. ANY SUBBASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
3. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
5. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CDS2015-4
PRECAST CONCRETE WATER QUALITY SYSTEM STANDARD DETAIL

CDS FILTRATION UNIT



STORMWATER LID GENERAL NOTES:

1. THE CONTRACTOR SHALL POTHOLE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF UTILITY MAIN LINE CONNECTIONS PRIOR TO INSTALLATION. IF CONDITIONS DIFFER FROM THE PLAN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND SHALL NOT BEGIN CONSTRUCTION UNTIL THE CHANGED CONDITION HAS BEEN EVALUATED.
2. INFILTRATION RATES WERE DETERMINED BY THE GEOTECHNICAL REPORT TITLED "GEOTECHNICAL ENGINEERING PRELIMINARY REPORT OF PERMEABILITY STUDY, FULLERTON COLLEGE INSTRUCTIONAL BUILDING" BY GEOTECHNICAL SOLUTIONS, INC.
3. AT SHALLOW SOIL DEPTH TO 7 FT., SOILS WERE FOUND TO HAVE INFILTRATION RATE OF 0.77 IN/HR MAX.
4. AT SOIL DEPTH GREATER THAN 7 FT., SOILS WERE FOUND TO HAVE INFILTRATION RATE OF 0.08 IN/HR MAX.

STORMWATER LID CONSTRUCTION NOTES:

- (L1) INSTALL (1) 51' LONG, 2' DIAMETER HDPE PERFORATED INFILTRATION PIPES IN A 4'X54' GRAVEL-FILLED TRENCH PER SECTION A-A, SHEET C1.51
- (L2) STORMWATER BIOFILTRATION PLANTER.
- (L3) INSTALL CDS UNIT BY CONTECH OR APPROVED EQUAL PER DETAIL 1, HEREON

STORMWATER LID LEGEND:

- LIMIT OF WORK
- PROPERTY LINE
- SD — STORM DRAIN
- PERFORATED PIPE
- POINT OF CONNECTION
- COORDINATION POINT
- CAP OR PLUG
- UTILITY MANHOLE
- UTILITY CLEANOUT
- STORM DRAIN INLET
- AREA DRAIN/PLANTER DRAIN
- TRENCH DRAIN

24 HOUR, 85TH PERCENTILE STORM VOLUME

LAND USE	RUNOFF COEFFICIENT, C	PRECIPITATION, I (IN.)	AREA, A (AC)	FLOW, Q (CFS)
LANDSCAPE	0.18	0.9	0.07	0.01
CONCRETE PAVING	0.9	0.9	0.3	0.24
ASPHALT PAVING	0.9	0.9	0.1	0.08
ROOF	0.95	0.9	0.63	0.54
PERMEABLE PAVERS	0.1	0.9	0.06	0.005
BRICK PAVING	0.85	0.9	0.04	0.03
			TOTAL:	0.905

ROOF DRAIN TREATMENT - SHALLOW INFILTRATION SYSTEM

System Sizing

Pipe Storage:	160	cf	
Porous Stone Storage:	168	cf	
Total Storage Provided:	328	cf	65.0% Of Required Storage*
Number of Barrels:	1	barrels	
Length per Barrel:	51.0	ft	
Length Per Header:	0.0	ft	*The other 35% of storage will be met via the gravel underlying permeable pavers
Rectangular Footprint (W x L):	5. ft x 54. ft		

PROPOSED BIOFILTRATION AREA TREATMENT VOLUMES

BIOFILTRATION AREA	PONDING AREA (SF)	NON-PONDING AREA (SF)	PONDING DEPTH (FT)	GRAVEL DEPTH - ALL AREA (FT)	SOIL MEDIA DEPTH - ALL AREA (FT)	STORMWATER TREATMENT VOLUME (CF)/ 1 SF BIOFILTRATION PONDING AREA	STORMWATER TREATMENT VOLUME (CF)/ 1 SF BIOFILTRATION NON-PONDING AREA	TREATMENT VOLUME (CF)
1	233	191	0.5	1	2	1.5	1	540.60
2	770	630	0.5	1	2	1.5	1	1,785.00
3	212	173	0.5	1	2	1.5	1	490.88
4	28	23	0.5	1	2	1.5	1	63.75
5	26	21	0.5	1	2	1.5	1	59.93
6	11	9	0.5	1	2	1.5	1	25.50
7	11	9	0.5	1	2	1.5	1	25.50
	1,290	1,056						2,991

*It is assumed that 55% of biofiltration storm water treatment area will be graded to allow ponding.

*TOTAL REQUIRED TREATMENT VOLUME FOR THE SITE PRODUCED BY A 24-HOUR, 85TH PERCENTILE STORM IS APPROXIMATELY 3,790 CF

PERMEABLE PAVERS:

- 1.52 CUBIC FEET OF STORM WATER TREATMENT CAPACITY PER ONE SQUARE FOOT OF PERMEABLE PAVERS
- APPROXIMATELY 2,390 SF OF PERMEABLE PAVERS PROPOSED
- (1.52 CF/SF)*(2,390 SF) = 3,633 CF STORM WATER TREATMENT CAPACITY

TOTAL STORM WATER TREATMENT CAPACITY ON SITE:

- 2,532 CF FROM BIOFILTRATION AREAS
- 328 CF FROM ROOF DRAIN SHALLOW INFILTRATION SYSTEM
- 3,633 CF FROM PERMEABLE PAVERS
- **6,493 CF TOTAL**

N

0 10' 20'

SCALE: 1"=20'

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 04-118108 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10.09.19

RNT ARCHITECTS
Roesling Nakamura Terada Architects
363 Fifth Avenue
San Diego, California
P: 619.233.1023
F: 619.233.0016
www.RNTarchitects.com

LICENSED ARCHITECT
RALPH J. ROESLING
NO. C-10987
REN: 12-31-21
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
JEFFREY B. CRAVEN
No. C59894
Exp. 12/31/19
CIVIL
STATE OF CALIFORNIA

kpff
700 South Flower Street
Suite 2100
Los Angeles, CA 90017
O: 213.418.0201
F: 213.266.5294
www.kpff.com

NORTH ORANGE COUNTY COMMUNITY COLLEGE DISTRICT

FULLERTON COLLEGE - INSTRUCTIONAL BUILDING

CONSTRUCTION DOCUMENTS

Revisions

No.	Description	Date

Sheet Name

LOW IMPACT DEVELOPMENT (LID) PLAN

RNT Job No.	810
Date	24 SEPT 2019
Drawn by	DC
Checked by	OG/HW
Sheet Number	C1.40

9/3/2019 3:15:36 PM

P:\2017\17009870 Fullerton College Instructional Building and Central Plant Expansion\DWG\SHEET\INSTRUCTIONAL BUILDING\17009870-C1.40LID.dwg, Sep 19, 2019 - 1:30pm