

Legend

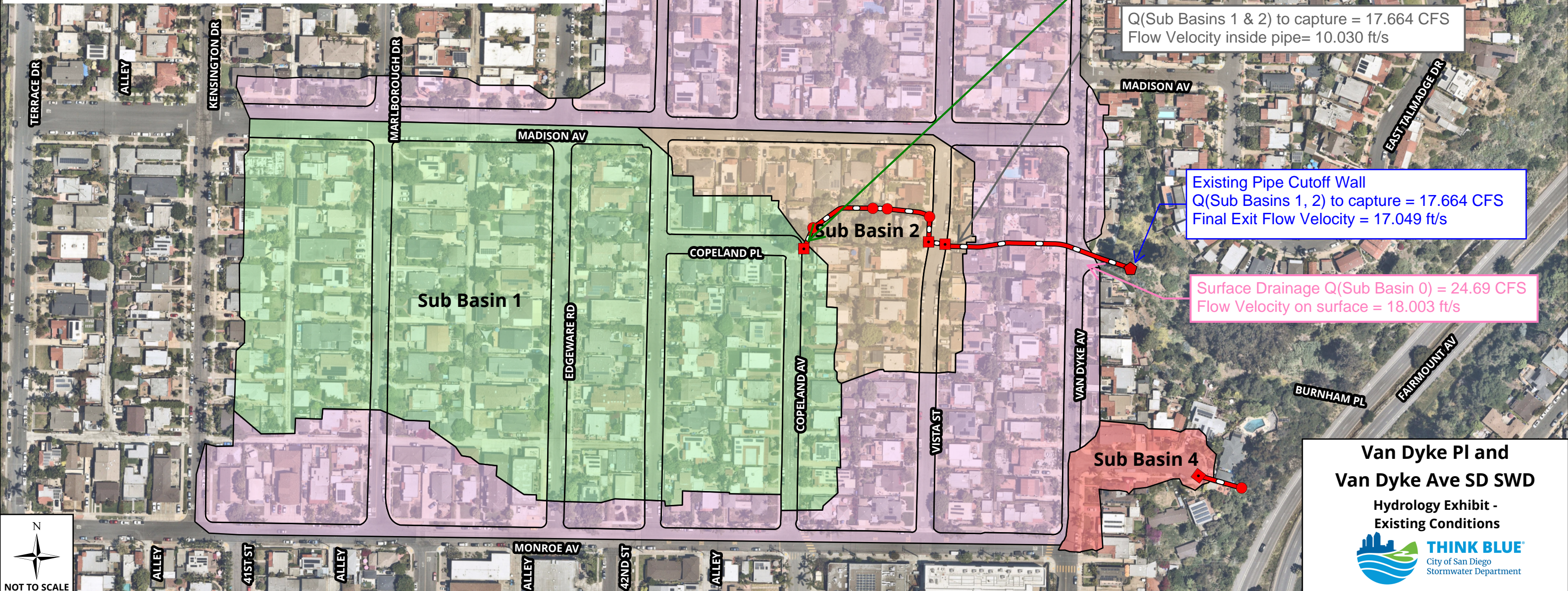
- Existing Inlet
- Existing Structure
- ◆ Existing Cutoff Wall
- Existing Pipe

Existing Conditions: The project site consists of multiple sub basins draining into the adjacent urban canyon. A curb inlet and corrugated metal pipe collects and conveys surface drainage from Sub Basin 4, shown in red. Three curb inlets and storm drain pipes collect and convey surface drainage from Sub Basin 1 and Sub Basin 2, shown in green and orange, and discharge the flow into the urban canyon from an existing pipe cutoff wall that has eroded. The total flow exiting the outfall is 17.664 CFS with a final exit velocity of 17.049 ft/sec.

Sub Basin 0 (24.69 CFS), shown in pink, flows as surface runoff into the urban canyon with a velocity of 18.003 ft/sec.

Both existing velocities are beyond the permissible velocity of 3.75 ft/sec for this location.

Summary: To maintain the existing stormwater system and improve system performance, it is recommended that the surface drainage in this site is properly collected to meet current City design standards and to maintain continued and controlled drainage into the adjacent urban canyon where stormwater already flows.



Q(Sub Basin 1) to capture = 14.421 CFS
Flow Velocity inside pipe = 16.460 ft/s

Q(Sub Basins 1 & 2) to capture = 17.664 CFS
Flow Velocity inside pipe = 10.030 ft/s

Existing Pipe Cutoff Wall
Q(Sub Basins 1, 2) to capture = 17.664 CFS
Final Exit Flow Velocity = 17.049 ft/s

Surface Drainage Q(Sub Basin 0) = 24.69 CFS
Flow Velocity on surface = 18.003 ft/s



**Van Dyke Pl and
Van Dyke Ave SD SWD**

Hydrology Exhibit -
Existing Conditions

Legend

- Proposed Structure
- ◆ Remove and Replace Outlet
- Abandon Existing Structure
- Existing Inlet
- Existing Structure
- Proposed RCP
- Remove and Replace Existing Pipe
- Abandon Existing CMP
- Existing Pipe

Proposed Conditions:

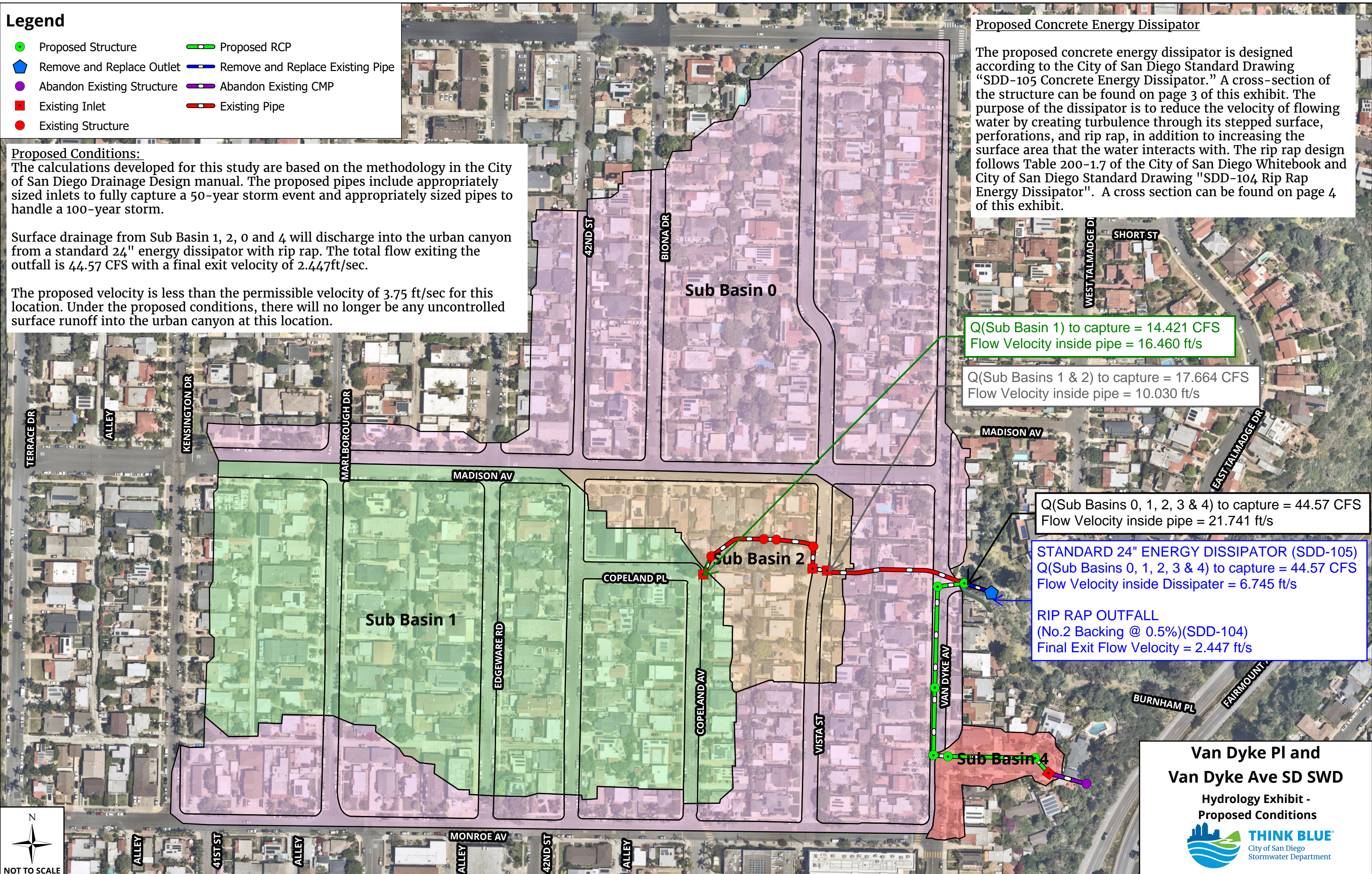
The calculations developed for this study are based on the methodology in the City of San Diego Drainage Design manual. The proposed pipes include appropriately sized inlets to fully capture a 50-year storm event and appropriately sized pipes to handle a 100-year storm.

Surface drainage from Sub Basin 1, 2, 0 and 4 will discharge into the urban canyon from a standard 24" energy dissipator with rip rap. The total flow exiting the outfall is 44.57 CFS with a final exit velocity of 2.447ft/sec.

The proposed velocity is less than the permissible velocity of 3.75 ft/sec for this location. Under the proposed conditions, there will no longer be any uncontrolled surface runoff into the urban canyon at this location.

Proposed Concrete Energy Dissipator

The proposed concrete energy dissipator is designed according to the City of San Diego Standard Drawing "SDD-105 Concrete Energy Dissipator." A cross-section of the structure can be found on page 3 of this exhibit. The purpose of the dissipator is to reduce the velocity of flowing water by creating turbulence through its stepped surface, perforations, and rip rap, in addition to increasing the surface area that the water interacts with. The rip rap design follows Table 200-1.7 of the City of San Diego Whitebook and City of San Diego Standard Drawing "SDD-104 Rip Rap Energy Dissipator". A cross section can be found on page 4 of this exhibit.



Q(Sub Basin 1) to capture = 14.421 CFS
Flow Velocity inside pipe = 16.460 ft/s

Q(Sub Basins 1 & 2) to capture = 17.664 CFS
Flow Velocity inside pipe = 10.030 ft/s

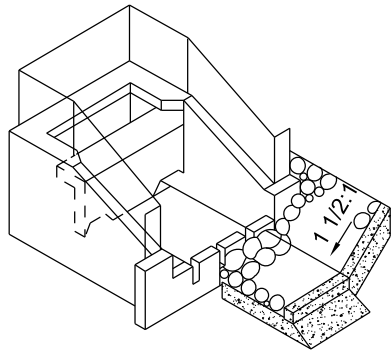
Q(Sub Basins 0, 1, 2, 3 & 4) to capture = 44.57 CFS
Flow Velocity inside pipe = 21.741 ft/s

STANDARD 24" ENERGY DISSIPATOR (SDD-105)
Q(Sub Basins 0, 1, 2, 3 & 4) to capture = 44.57 CFS
Flow Velocity inside Dissipator = 6.745 ft/s

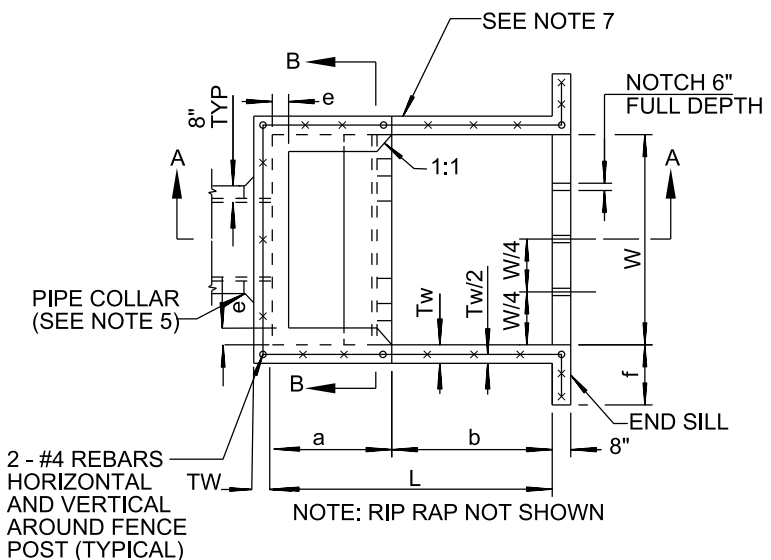
RIP RAP OUTFALL
(No.2 Backing @ 0.5%)(SDD-104)
Final Exit Flow Velocity = 2.447 ft/s

**Van Dyke Pl and
Van Dyke Ave SD SWD**
Hydrology Exhibit -
Proposed Conditions

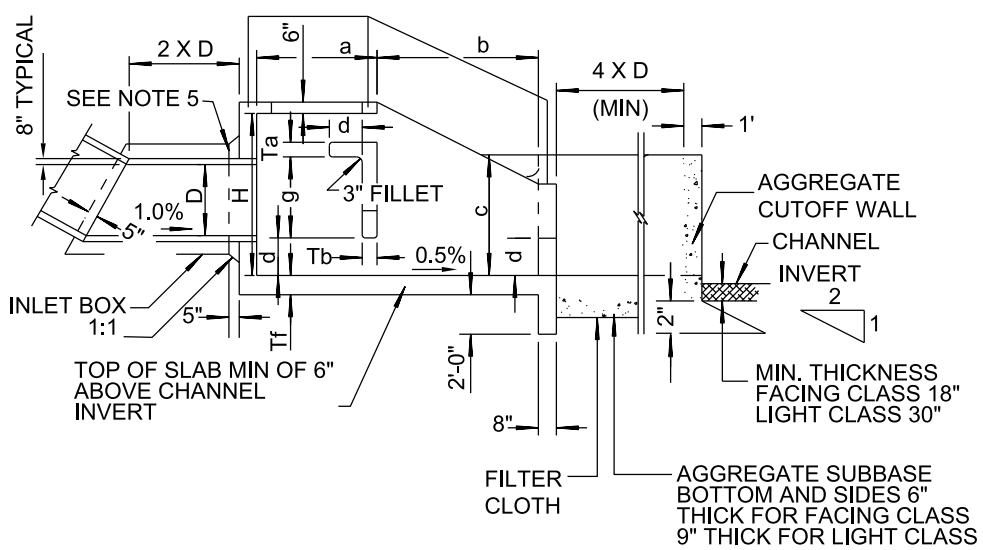




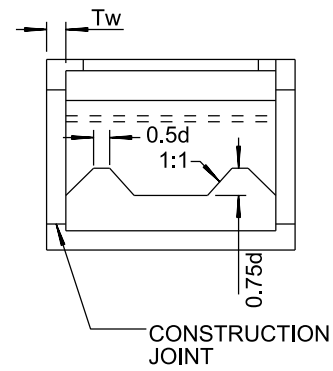
PICTORIAL VIEW



PLAN



SECTION A-A



SECTION B-B

NOTES

SEE TABLE ON SHEET 2 FOR DIMENSIONS, SEE NOTES ON SHEET 2.

REVISION	BY	APPROVED	DATE
ORIGINAL*	KA	J. NAGELVOORT	01/12
UPDATED	BD	J. NAGELVOORT	08/15
UPDATED	AB	J. NAGELVOORT	02/16
REDRAFTED	CD	J. NAGELVOORT	09/18
UPDATED	CG	J. NAGELVOORT	12/19

CITY OF SAN DIEGO – STANDARD DRAWING

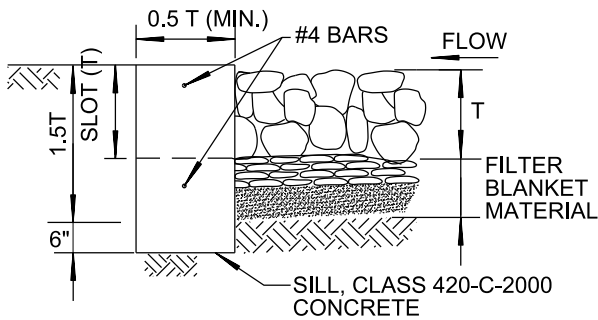
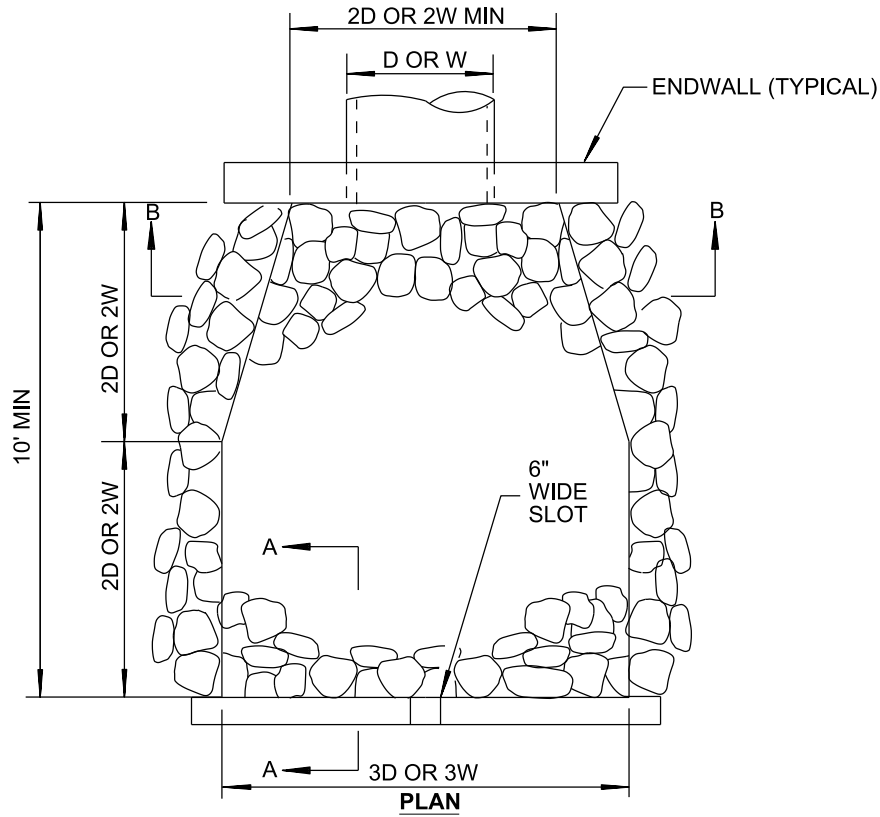
CONCRETE ENERGY DISSIPATOR

RECOMMENDED BY THE CITY OF SAN DIEGO STANDARDS COMMITTEE

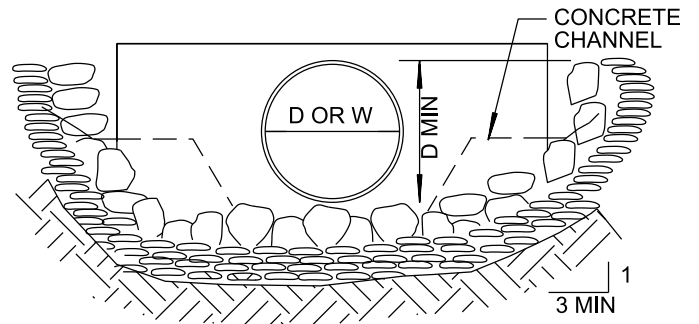
Chungga 12/18/19

COORDINATOR R.C.E. 56523 DATE

DRAWING NUMBER **SDD-105**



SECTION A-A



SECTION B-B

D = PIPE DIAMETER
W = BOTTOM WIDTH OF CHANNEL

NOTES

1. PLANS SHALL SPECIFY:
 - A) ROCK CLASS AND THICKNESS (T).
 - B) FILTER BLANKET MATERIAL, NUMBER OF LAYERS AND THICKNESS
2. RIP RAP SHALL BE EITHER QUARRY STONE OR BROKEN CONCRETE (IF **SHOWN ON THE PLANS**). COBBLES ARE NOT ACCEPTABLE.
3. RIP RAP SHALL BE PLACED OVER A GEOTEXTILE FILTER FABRIC. FILTER BLANKET MATERIAL SHALL BE PLACED UNDER THE FABRIC WHEN SPECIFIED.
4. **SEE WHITE BOOK** FOR SELECTION OF FILTER MATERIAL.
5. RIP RAP ENERGY DISSIPATORS SHALL BE DESIGNATED AS EITHER TYPE 1 OR TYPE 2. TYPE 1 SHALL BE WITH CONCRETE SILL; TYPE 2 SHALL BE WITHOUT SILL.
6. FOR STRUCTURAL DETAILS, **SEE D-42** FOR PIPELINE SIZES FROM 18" TO 30" AND **SEE D-43** FOR PIPELINE SIZES FROM 36" TO 72".
7. FOR RIP RAP SELECTION **SEE TABLE 200-1.7 OF THE WHITEBOOK.**

<small>REVISION</small>	<small>BY</small>	<small>APPROVED</small>	<small>DATE</small>	CITY OF SAN DIEGO – STANDARD DRAWING	<small>RECOMMENDED BY THE CITY OF SAN DIEGO STANDARDS COMMITTEE</small>
ORIGINAL*	KA	J. NAGELVOORT	01/12		RIP RAP ENERGY DISSIPATOR
UPDATED	AB	J. NAGELVOORT	02/16		
REDRAFTED	CD	J. NAGELVOORT	09/18		
				<small>DRAWING NUMBER</small>	SDD-104