

NOTES:

- ① DRAINAGE SWALE (DR-**) SHALL DAYLIGHT 5-FT PRIOR TO TOP OF CREEK BANK. FLOW VELOCITY SHALL BE AT 2 FPS PRIOR TO DAYLIGHT.
- ② EDGE OF DRAINAGE SWALE SHALL REMAIN A MINIMUM OF 5-FT FROM ANY SENSITIVE WETLAND FEATURES.
- ③ OUTFALL STRUCTURE (DR-12) MAY BE PLACED WITHIN 50-FT TRANSITION ZONE. IN AREAS WHERE A TRANSITION ZONE DOES NOT EXIST, THE LOCATION OF THE OUTFALL STRUCTURE SHALL BE ONSITE OR AS APPROVED BY THE CITY ENGINEER.
- ④ IF A BIKE TRAIL IS LOCATED WITHIN THE OPEN SPACE, THEN THE OUTFALL STRUCTURE SHALL BE PLACED ON THE STREAM SIDE OF THE BIKE TRAIL.
- ⑤ VELOCITY CHECK DAMS (DR-**) SHALL BE USED WHEN FLOW VELOCITY EXCEEDS 5 FPS.
- ⑥ SEE STANDARD DETAIL DR-** FOR SWALE CROSS SECTION.
- ⑦ OVER LAND RELEASE SHALL TIE INTO HEADWALL STRUCTURE PER DETAIL DR-**.
- ⑧ SWALE LENGTH IS A FUNCTION OF CONTACT TIME AS REQUIRED FOR STORM WATER TREATMENT.

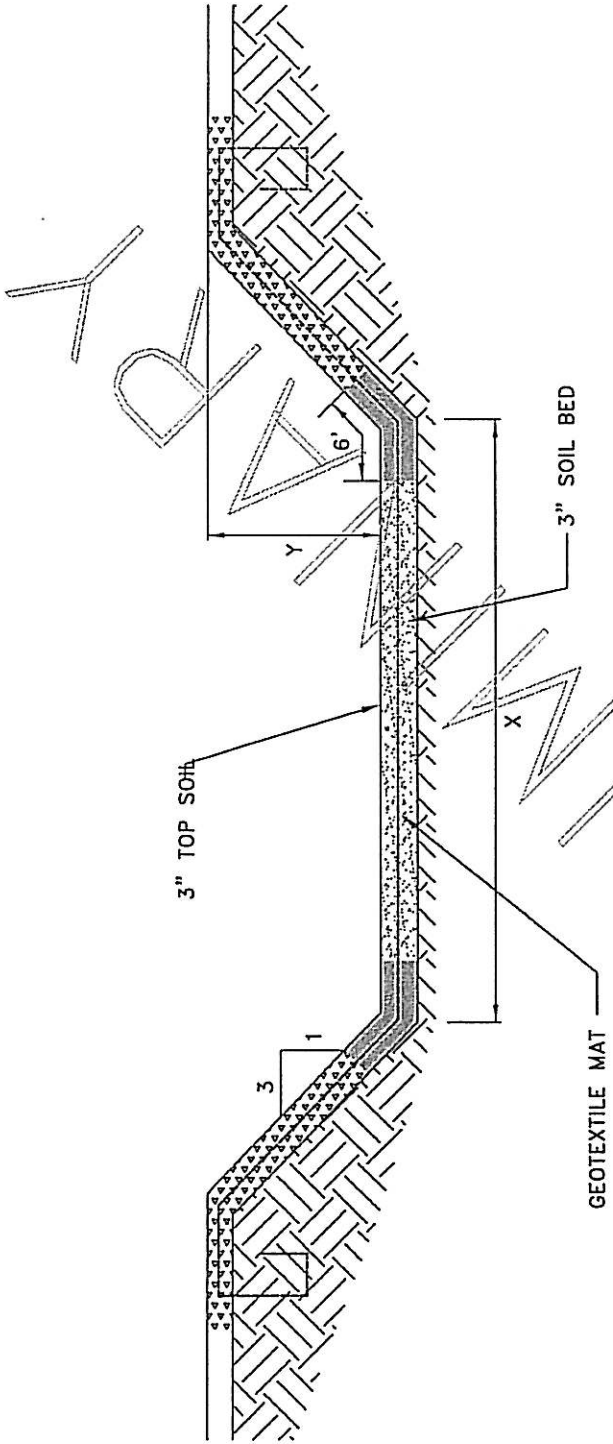
ROB JENSEN
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER

DEPARTMENT OF
PUBLIC WORKS

**WATER QUALITY OUTFALL SWALE
WITHIN OPEN SPACE**

SCALE: NONE
REVISED: APRIL 2008
DRAWN BY: STAFF
APPROVED BY: R JENSEN






DR-



NOTES:

- ① PYRAMAT HPTRM OR APPROVED EQUAL SHALL BE PLACED ON TOP OF 3-IN SEEDED SOIL BED AND WILL BE INSTALLED PER THE MANUFACTURE'S SPECIFICATIONS.
- ② SKIM COAT OF SEEDED TOPSOIL SHALL BE PLACED ON TOP OF THE TRM.
- ③ WETLAND AND UPLAND SEEDING SHALL OVERLAP AT THE TRAPEZOIDAL HINGE POINT.
- ④ IF SWALE IS BEING USED FOR STORM WATER TREATMENT, THEN THE CHANNEL GEOMETRIC DESIGN SHALL FOLLOW THE GUIDELINES FOR CONTACT TIME FROM THE STORMWATER QUALITY DESIGN MANUAL FOR THE SACRAMENTO AND SOUTH PLACER REGIONS.
- ⑤ ALL SWALES SHALL BE DESIGNED TO CONVEY THE 10-YEAR STORM EVENT.

KEY:

-  WETLAND NATIVE SEED MIX (SEE STANDARDS FOR SEED MIX)
-  UPLAND NATIVE SEED MIX (SEE STANDARDS FOR SEED MIX)
-  WETLAND & UPLAND SEED MIX
-  CHANNEL BASE
-  TOP OF CHANNEL

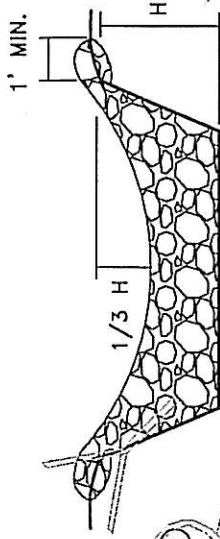
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PUBLIC WORKS

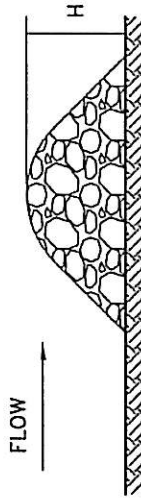
WATER QUALITY OUTFALL SWALE

SCALE: NONE
REVISED: APRIL 2008
DRAWN BY: STAFF
APPROVED BY: R JENSEN

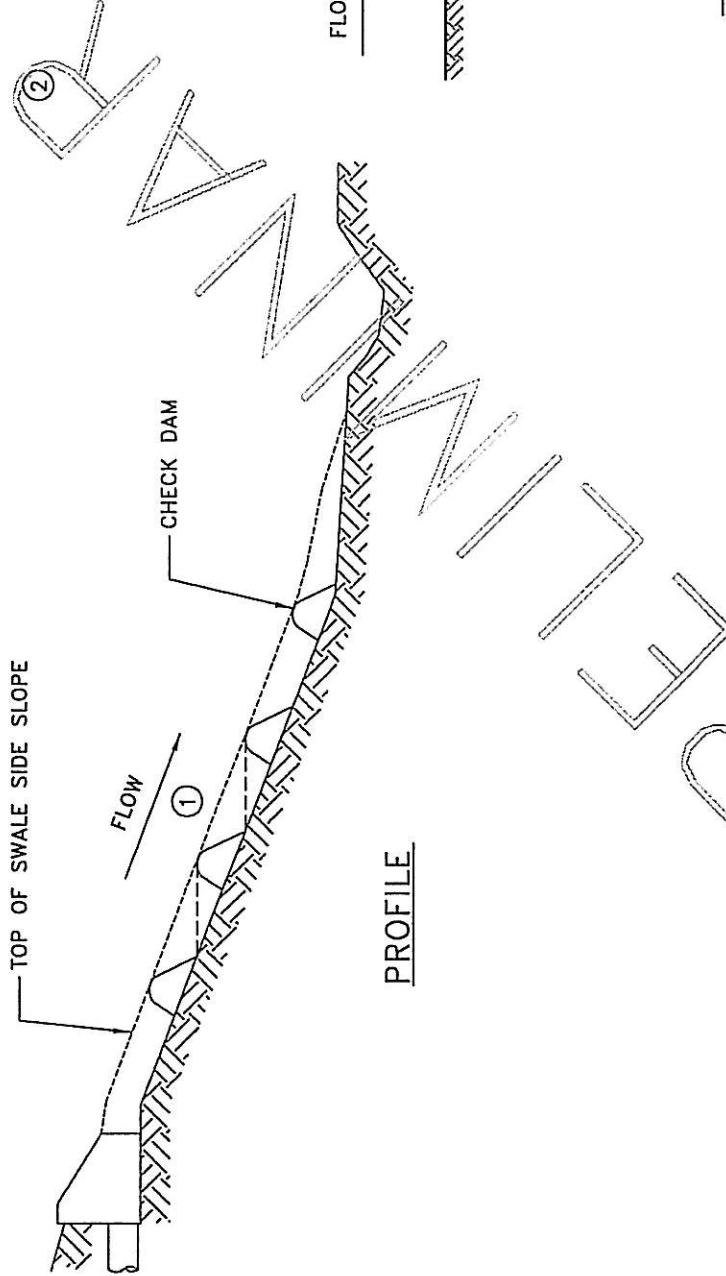
DR-



FRONT VIEW



SIDE VIEW



PROFILE

NOTES:

- ① CHECK DAMS SHALL BE SPACED SUCH THAT THE TOP OF THE DOWNSTREAM CHECK DAM ALIGNS WITH THE BOTTOM OF THE UPSTREAM CHECK DAM.
- ② RIP-RAP SHALL BE 4-INCH TO 6-INCH ANGULAR ROCK.
- ③ H = CHANNEL DEPTH

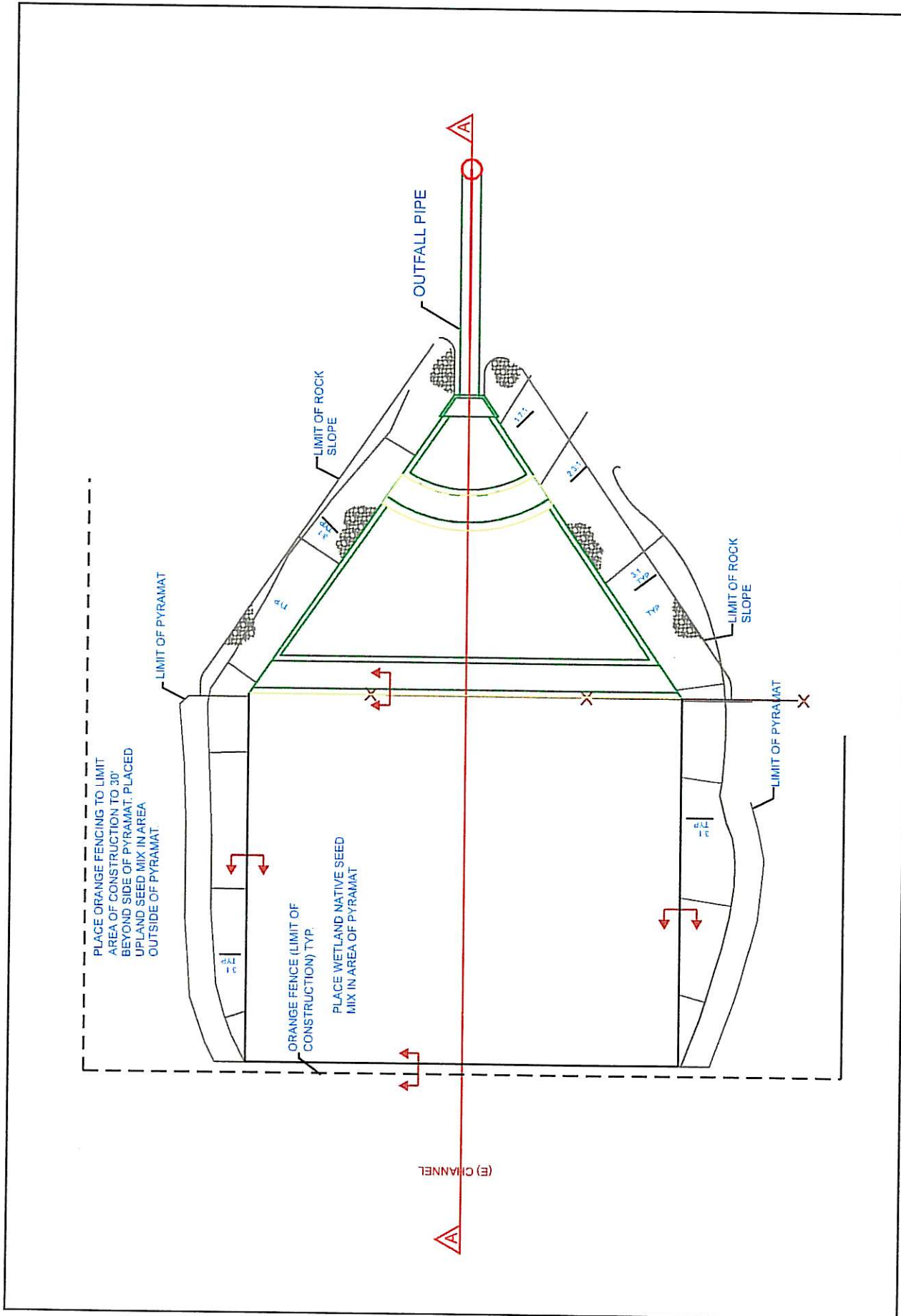
ROB JENSEN
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PUBLIC WORKS

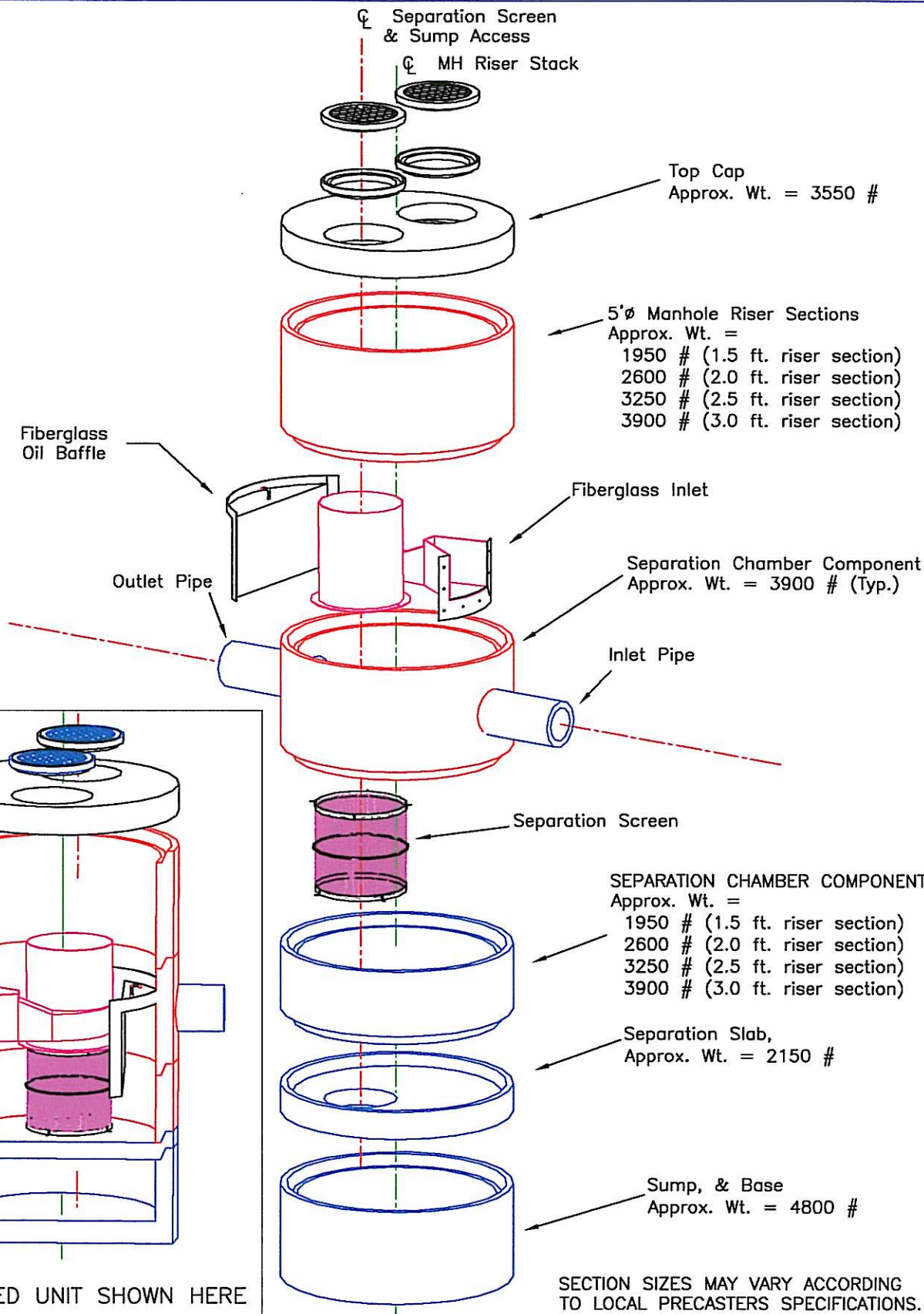
VELOCITY CHECK DAM

SCALE: NONE
REVISED: APRIL 2008
DRAWN BY: STAFF
APPROVED BY: R JENSEN

DR-



Typical Outfall Detail



LEFT-HANDED UNIT SHOWN HERE

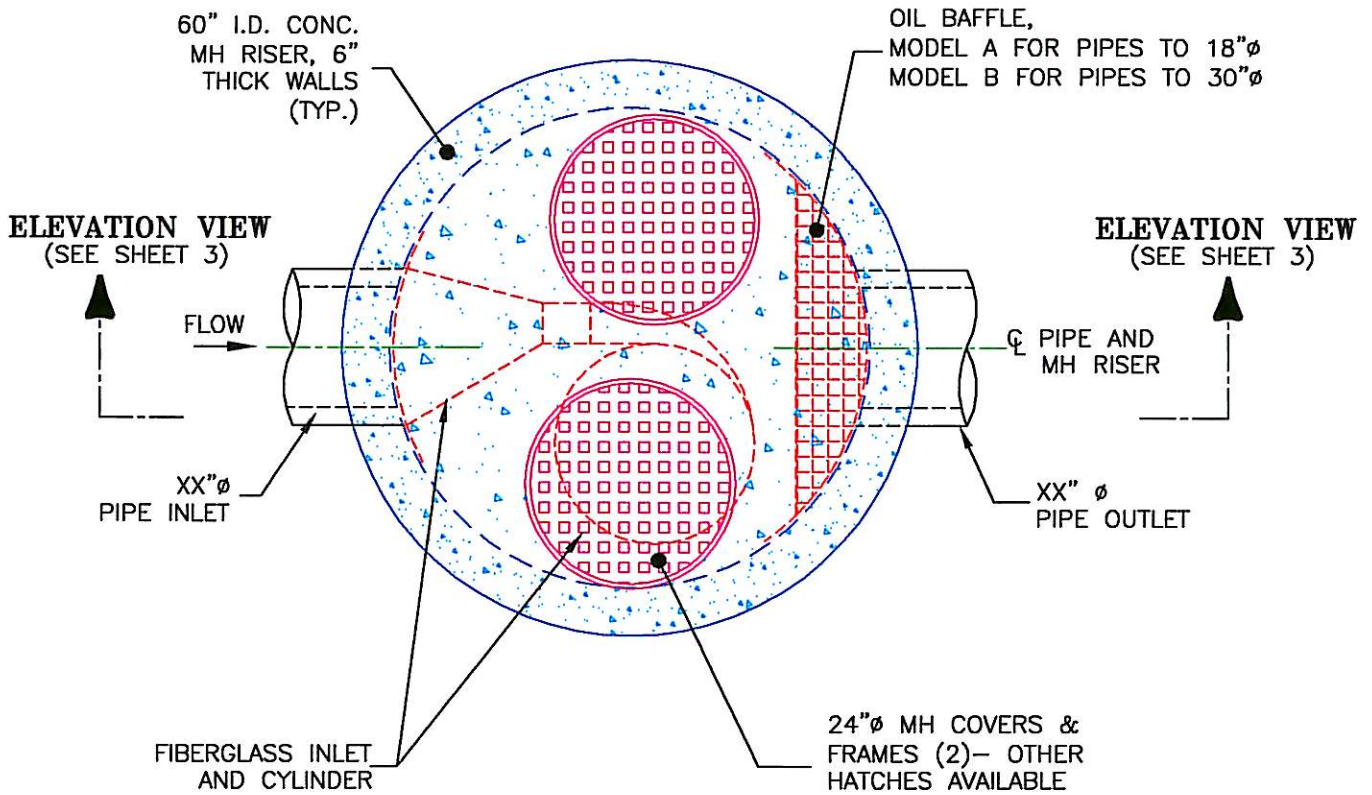
SECTION SIZES MAY VARY ACCORDING TO LOCAL PRECASTERS SPECIFICATIONS.



CDS MODEL PMSU20 TYPICAL ASSEMBLY

DATE	01/10/02	SCALE	N.T.S.
DRAWN	J.S.F.	SHEET	1
APPROV.	R. HOWARD		

TYPICAL / GENERIC INSTALLATION



NOTE:
THE INTERNAL COMPONENTS ARE SHOWN IN THE RIGHT-HAND CONFIGURATION—THESE COMPONENTS MAY BE FURNISHED IN THE MIRROR IMAGE TO THAT SHOWN (LEFT-HAND CONFIGURATION).

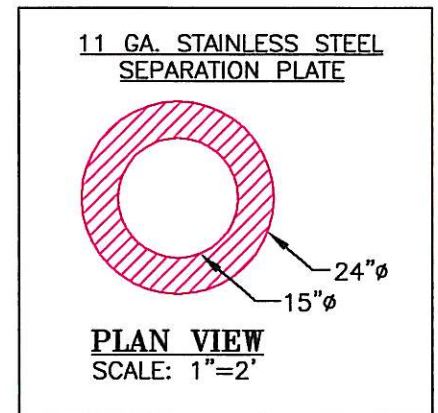
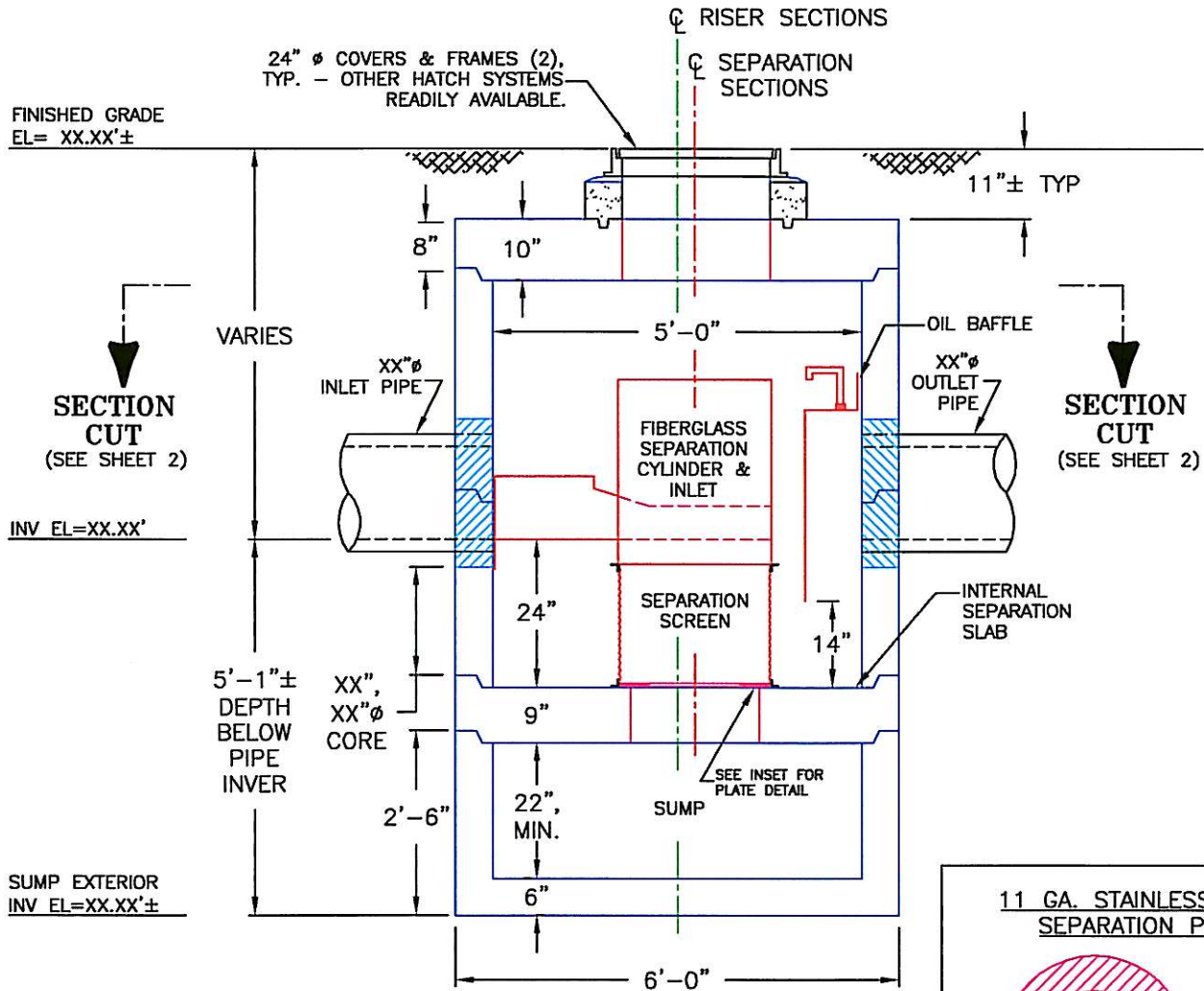
CDS MODEL PMSU20_15, 0.7 CFS CAPACITY STORM WATER TREATMENT UNIT



PROJECT NAME
CITY, STATE

DATE	12/3/01	SCALE 1"=2'
DRAWN	J.S.F.	SHEET
APPROV.		2

TYPICAL / GENERIC INSTALLATION



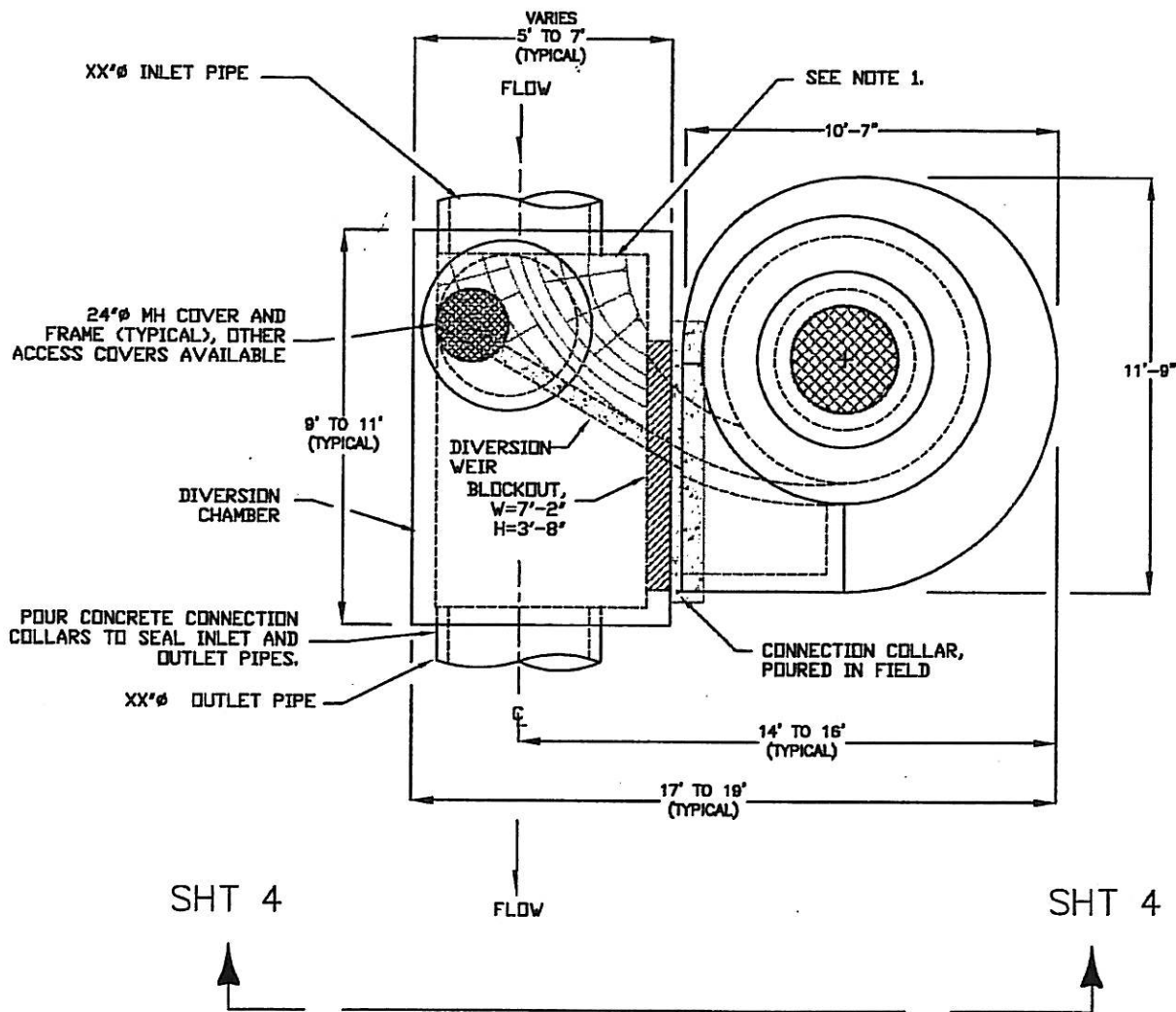
CDS MODEL PMSU20_15, 0.7 CFS CAPACITY STORM WATER TREATMENT UNIT



PROJECT NAME
CITY, STATE

DATE	12/3/01	SCALE 1"=2.5'
DRAWN	J.S.F.	SHEET
APPROV.		3

TYPICAL / GENERIC INSTALLATION (LEFT HAND UNIT SHOWN)



PLAN VIEW
CDS MODEL PSW70_70
26 CFS CAPACITY
STORM WATER TREATMENT UNIT

NOTES:

1. CREATE SMOOTH SWALE TRANSITION THROUGH DIVERSION BOX WITH SECONDARY CONCRETE POUR IN FIELD

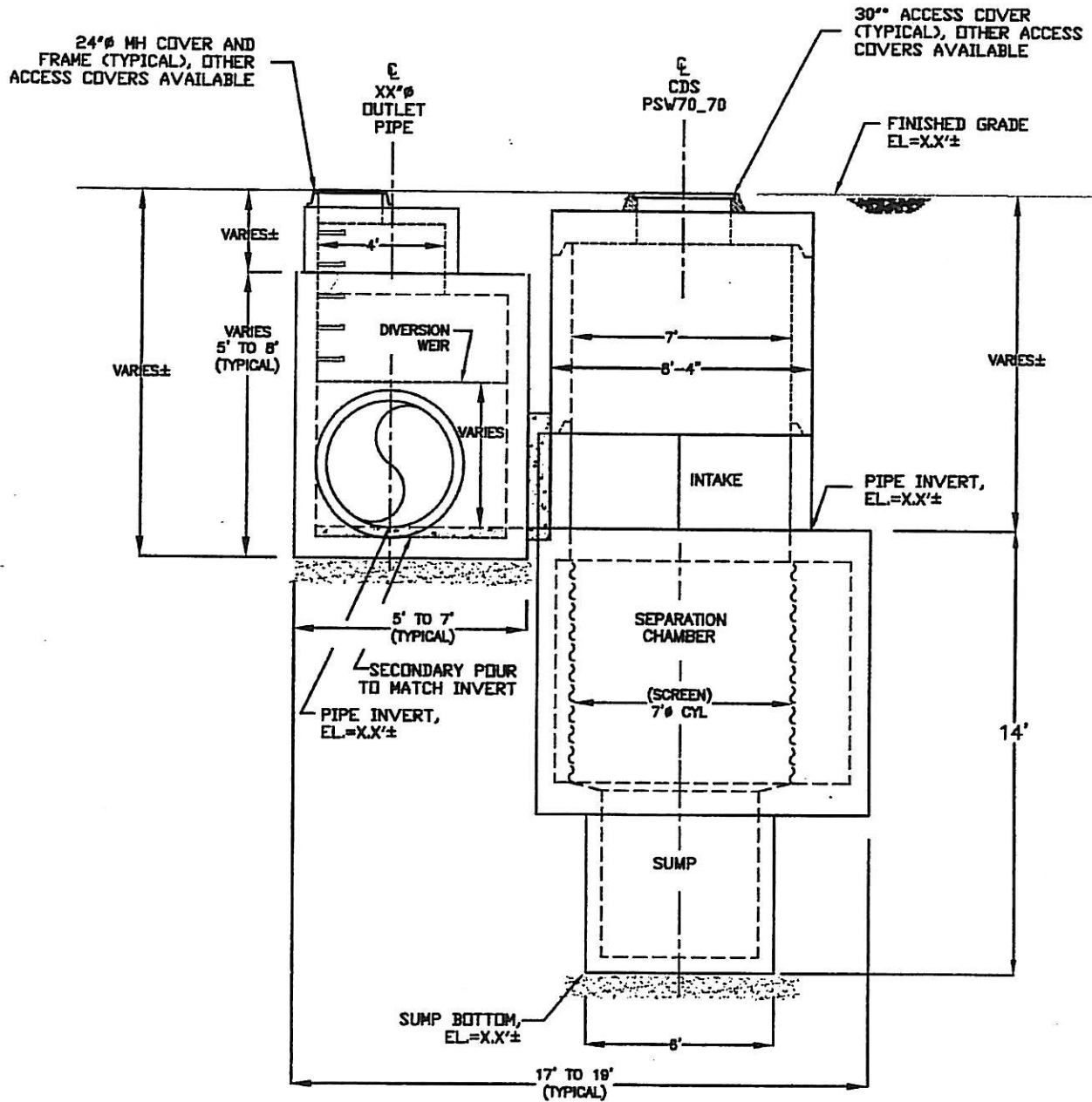
K:\DRAWING\STANDARDS\PSW70\70_TYP_P&P\PLAN & PROFILE P&P.DWG



PROJECT NAME
CITY, STATE

DATE	4/3/01	SCALE 1"=5'
DRAWN	W. STEIN	SHEET
APPROV.		3

TYPICAL / GENERIC INSTALLATION (LEFT HAND UNIT SHOWN)



**ELEVATION VIEW
CDS MODEL PSW70_70, 26 CFS CAPACITY
STORM WATER TREATMENT UNIT**

K:\DRAWING\INDARDS\PSW70_70_TYP_P&P\PLAN & PROFILE_P&P_5.DWG



**PROJECT NAME
CITY, STATE**

DATE	3/11/00	SCALE 1"=5'
DRAWN	W. STEIN	SHEET
APPROV.		4

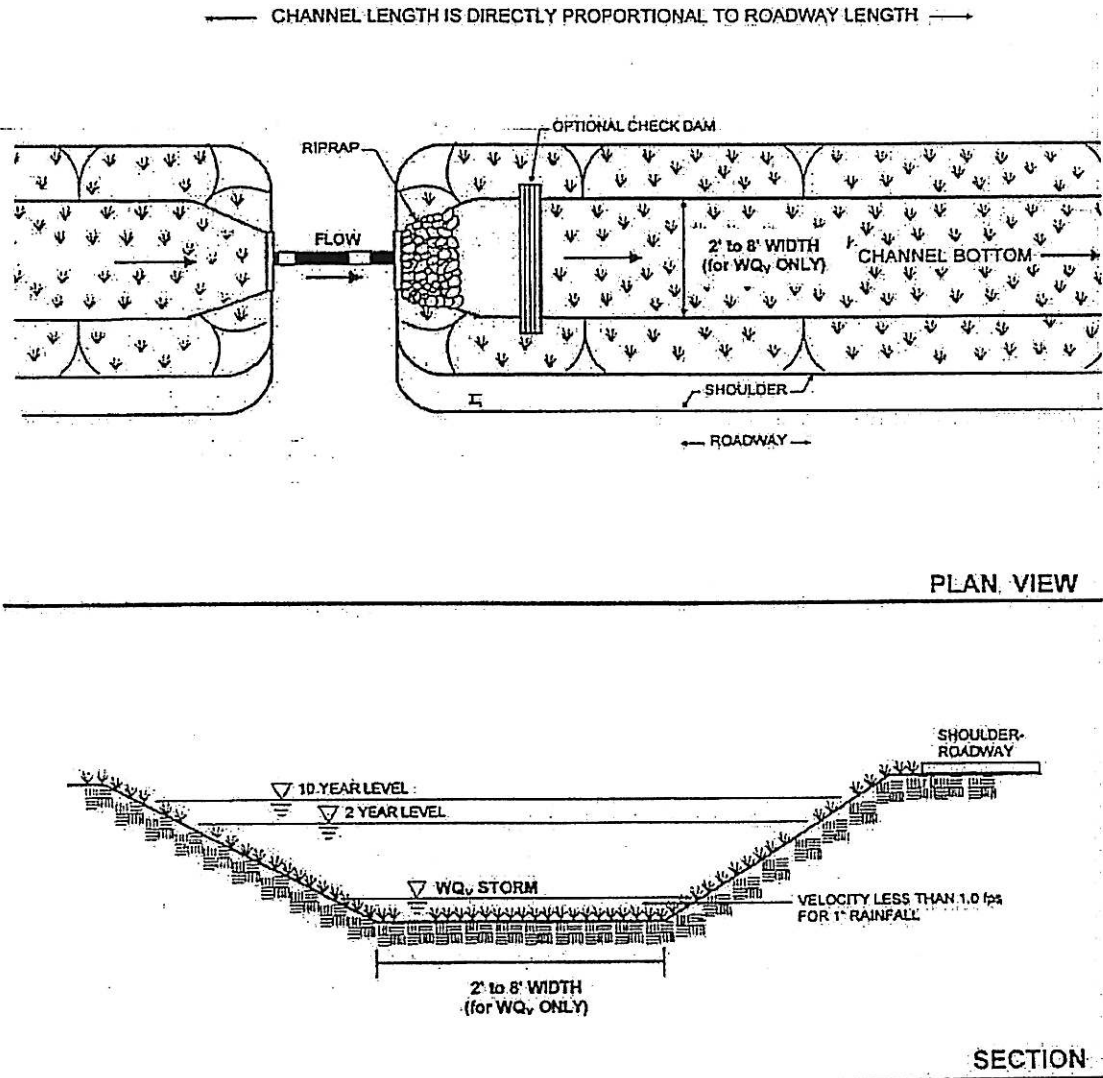


Figure 6-1 Grass Swale (MDE, 2000)

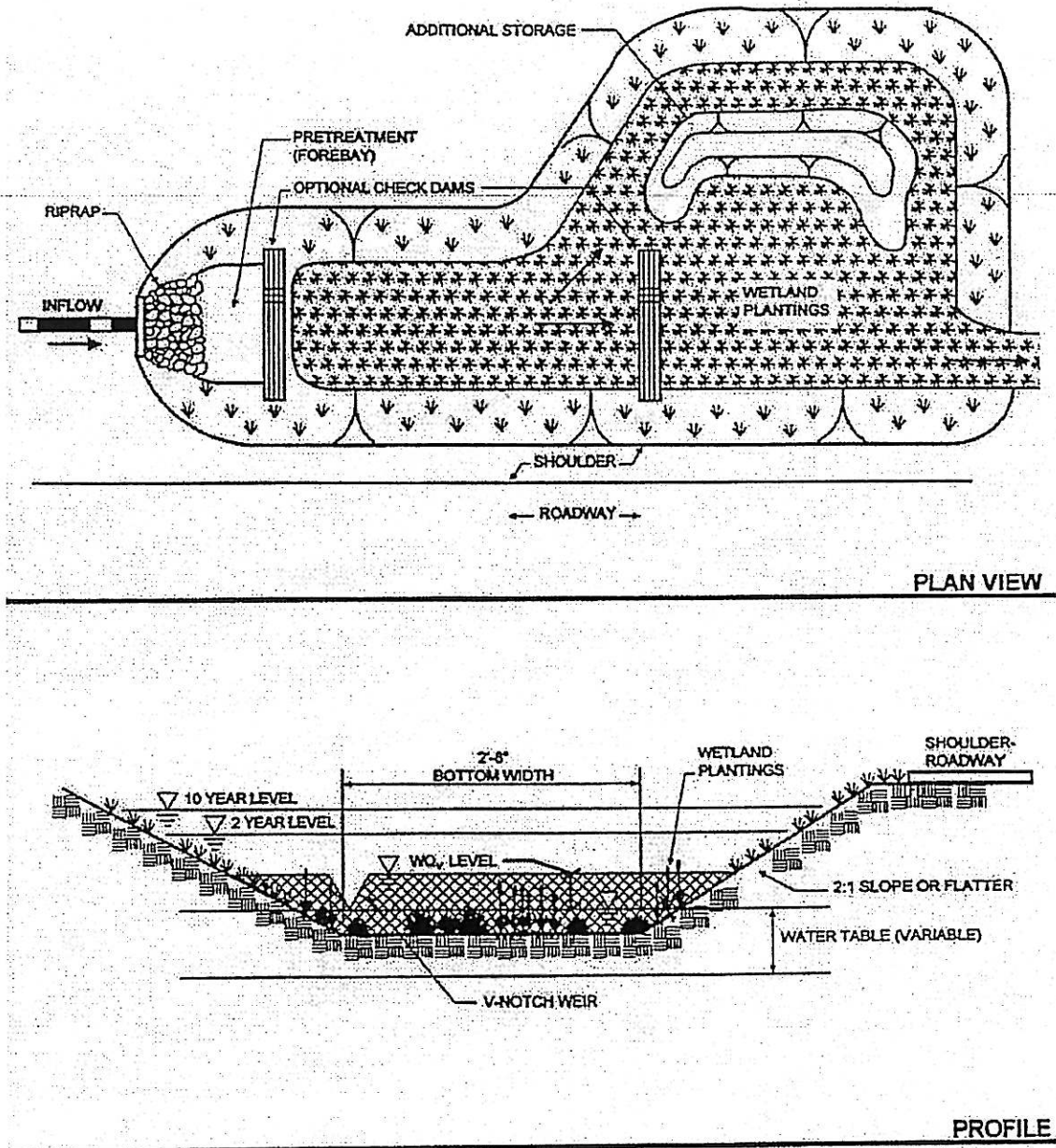
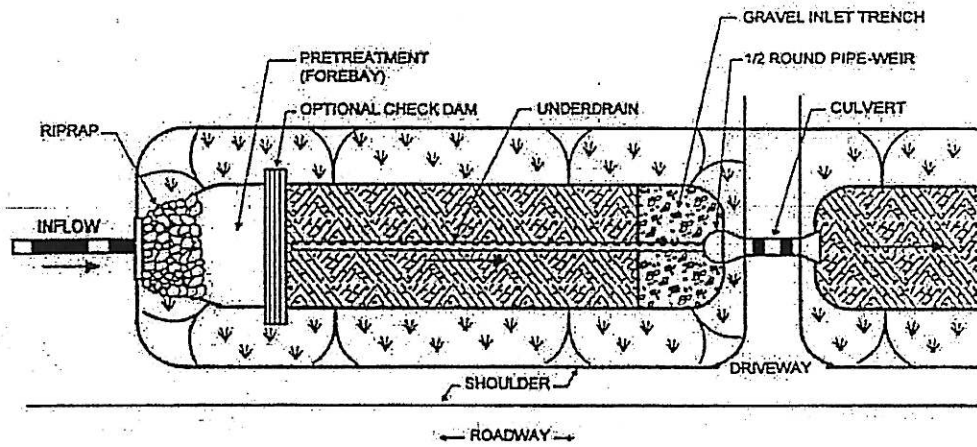
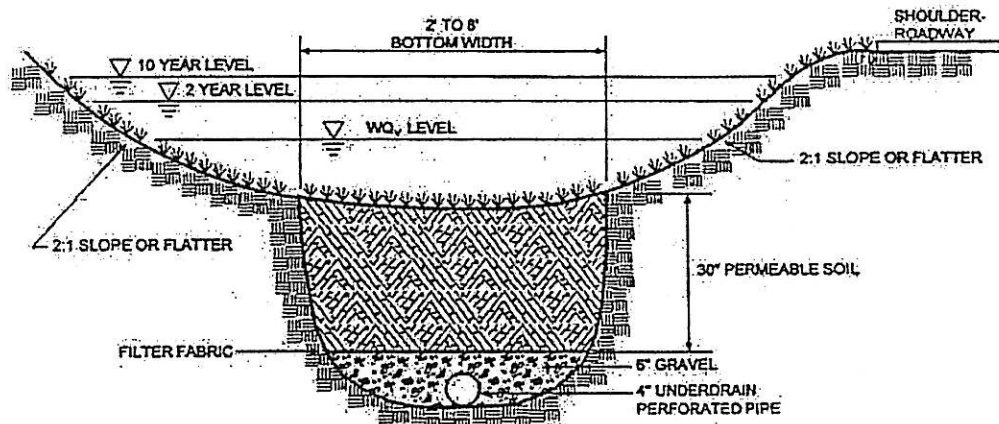


Figure 6-3 Typical Vegetative Filter Strip (CRC, 1996)



PLAN VIEW



SECTION

Figure 6-2 Wet Swale (MDE 2000)

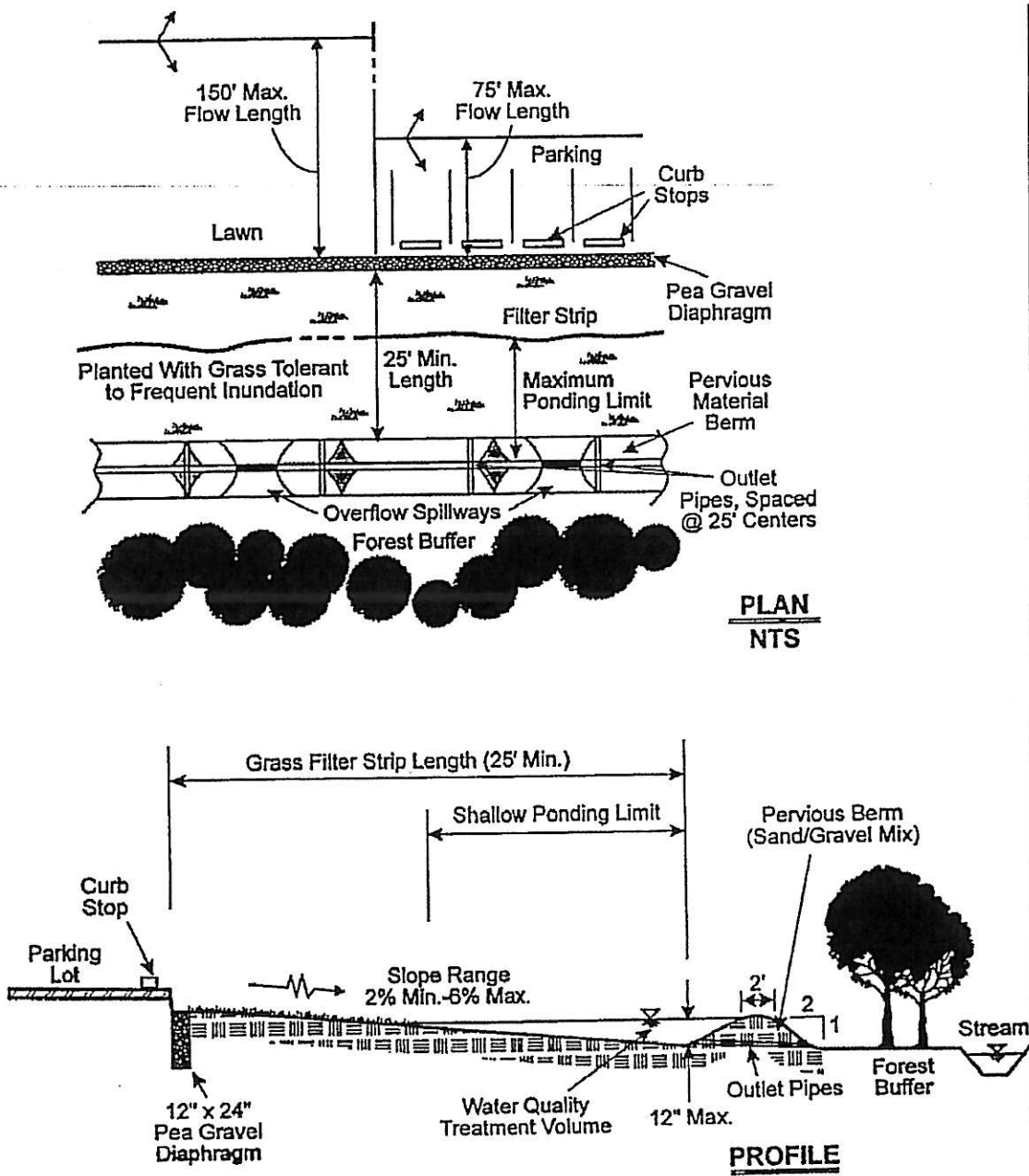
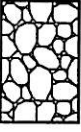


Figure 6-4 Typical Bioretention Cell (MDE, 2000)

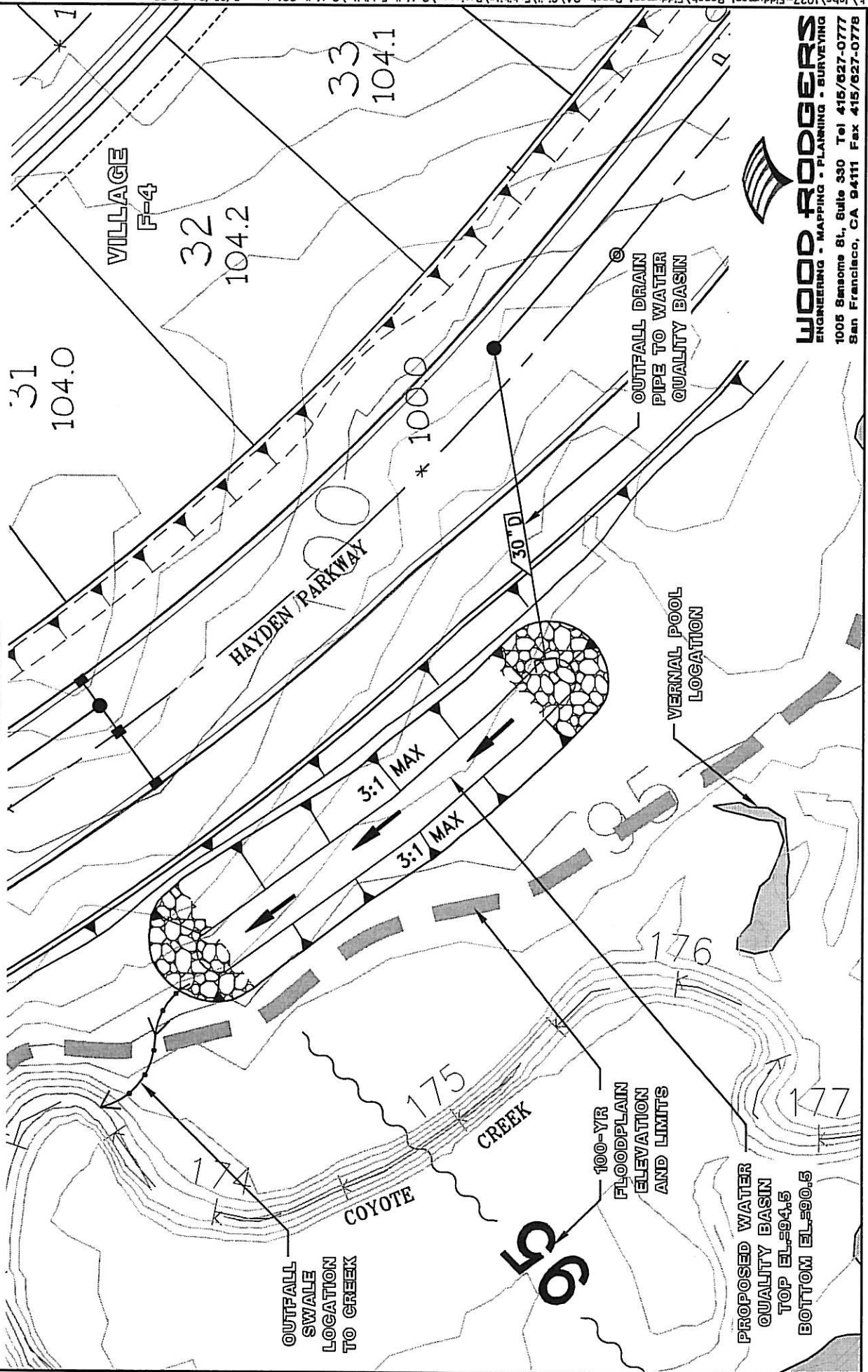
TYPICAL WATER QUALITY BASIN CONFIGURATION FOR THE FIDDYMENT DEVELOPMENT

SIGNATURE PROPERTIES

CITY OF ROSEVILLE / PLACER COUNTY, CALIFORNIA
AUGUST, 2004

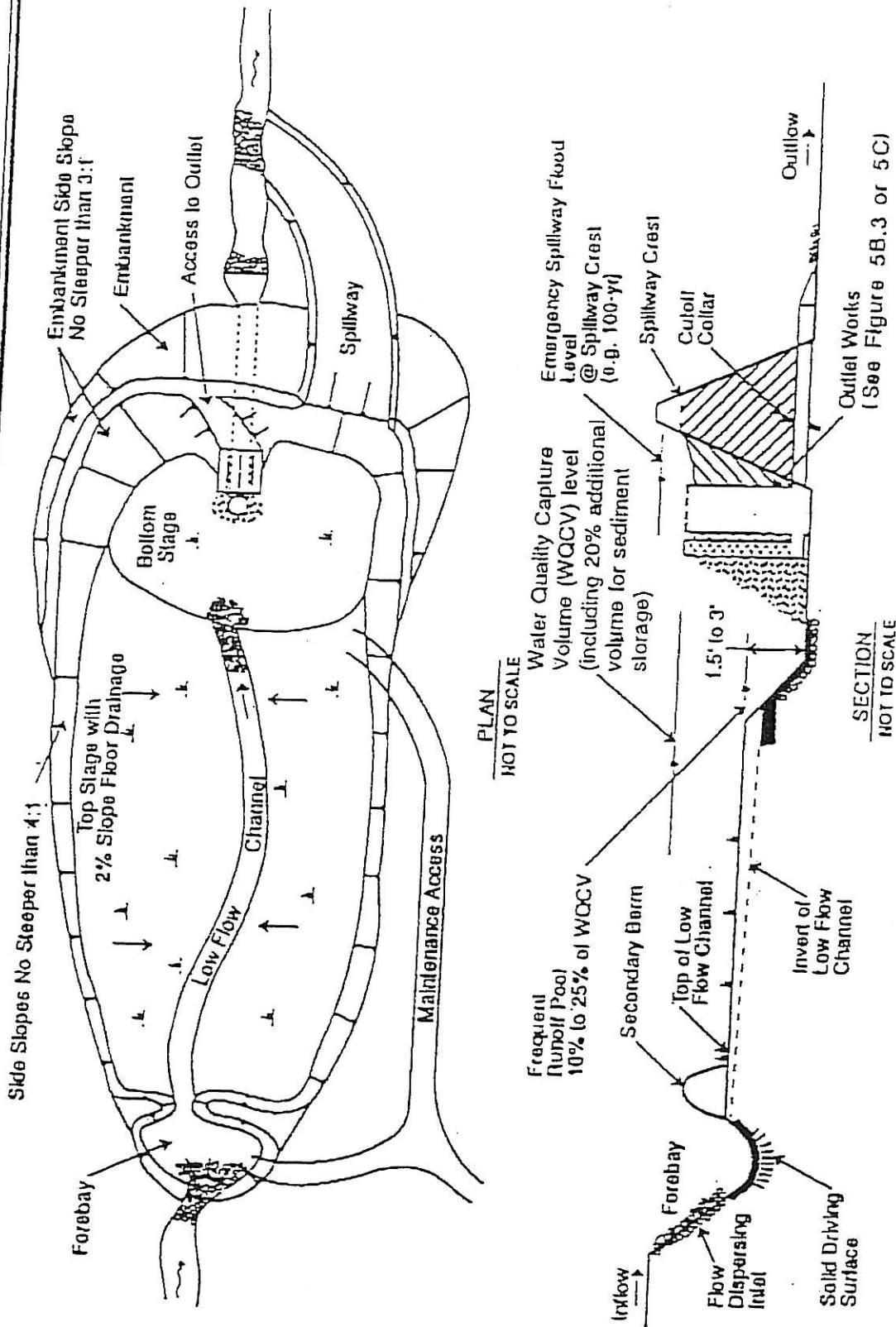


ROCK RIP-RAP
LOCATION



WOOD RODGERS
ENGINEERING • MAPPING • PLANNING • SURVEYING
1005 Sansome St., Suite 330 Tel 415/627-0777
San Francisco, CA 94111 Fax 415/627-0778

Additional Information — Extended Detention Basins

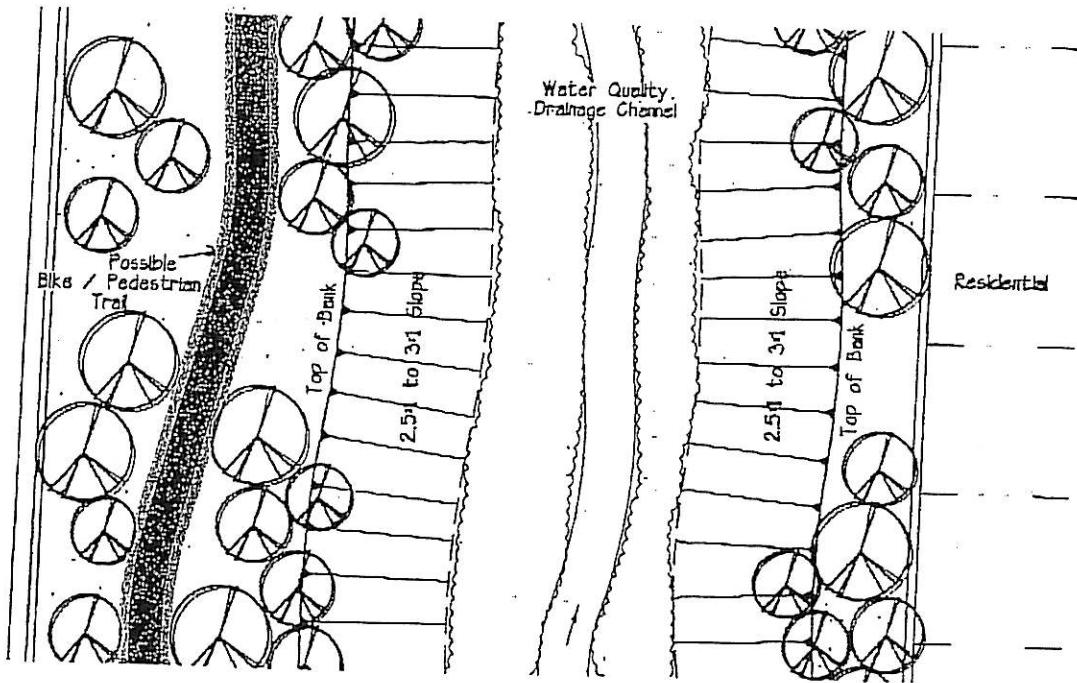
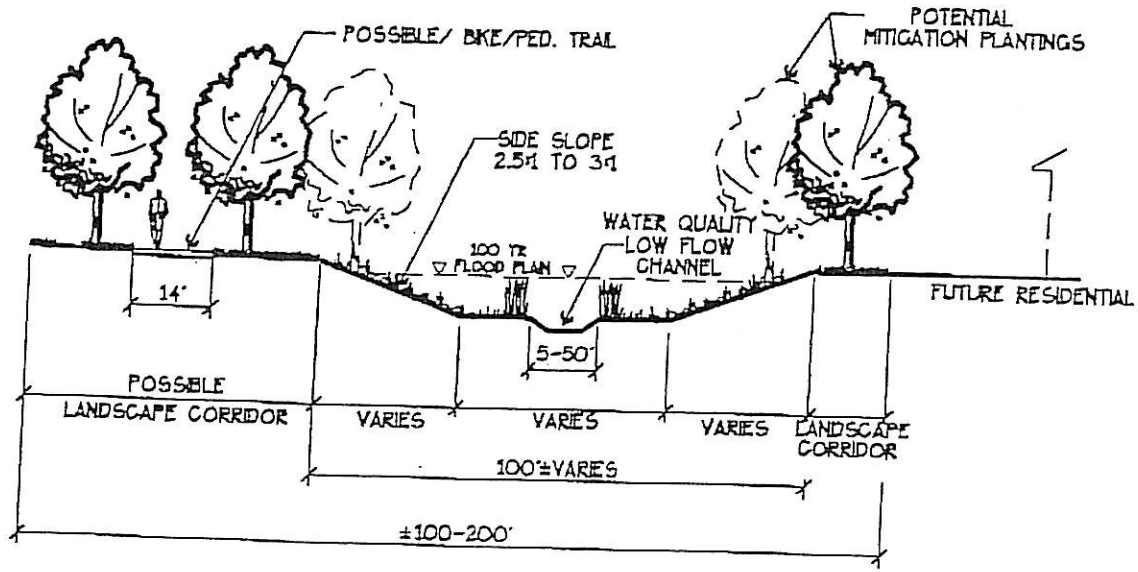


(Used By Permission, UDFCD, 1992)

FIGURE 5A. PLAN AND SECTION OF AN EXTENDED DETENTION BASIN

TC5

TYPICAL GRASSY / SWALE BIOFILTER



WATER QUALITY DRAINAGE CORRIDOR

NOT TO SCALE

FOR CONCEPTUAL PLANNING PURPOSES ONLY. ACTUAL DIMENSIONS, ROAD ALIGNMENTS, ACRESAGES AND YIELDS WILL VARY WITH MORE ACCURATE MAPPING AND DESIGN.

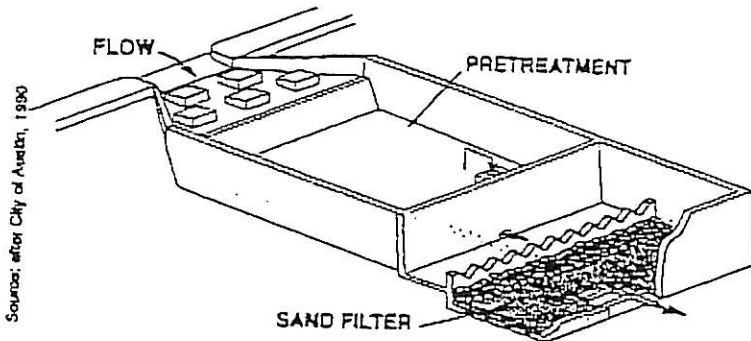


WOOD RODGERS
 ENGINEERING - MAPPING - PLANNING - SURVEYING
 3301 C St. Bldg. 100-B Tel 916.341.7780
 Sacramento, CA 95815 Fax 916.341.7767

WEST ROSEVILLE SPECIFIC PLAN

CITY OF ROSEVILLE, CALIFORNIA

BMP: MEDIA FILTRATION



Considerations

- Soils
- Area Required
- Slope
- Water Availability
- Aesthetics
- Hydraulic Head**
- Environmental Side Effects

DESCRIPTION

Consists of a settling basin followed by a filter. The most common filter media is sand; some use peat/sand mixture.

EXPERIENCE IN CALIFORNIA

- A tenant at the Port of Long Beach recently installed a sand filter. The City of Los Angeles will soon install several experimental filters.

SELECTION CRITERIA

- Objective is to remove only sediment (particulate pollutants).
- Use where unavailability of water prevents the use of wet ponds, wetlands, or biofilters.
- Can be placed underground.
- Suitable for individual developments and small tributary areas up to about 100 acres.
- May require less space than other treatment control BMPs.

LIMITATIONS

- Filter may require more frequent maintenance than most of the other BMPs.
- Head loss.
- Dissolved pollutants are not captured by sand.
- Severe clogging potential if exposed soil surfaces exist upstream.

DESIGN AND SIZING CONSIDERATIONS

- Settling basin smaller than wet or extended detention basin.
- Spread flow across filter.
- Place filter offline to protect from extreme events.
- Minimize erosion in settling basin.

CONSTRUCTION/INSPECTION CONSIDERATIONS

- Be certain filter sand is clean and the outlet device from the basin to the filter is level.

MAINTENANCE REQUIREMENTS

- Clean filter surface about twice annually; or more often if watershed is excessively erosive.

COST CONSIDERATIONS

- Filtration system may use less space than other systems.
- Smaller media improves performance but increases maintenance costs.

Targeted Constituents

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Floatable Materials
- Oxygen Demanding Substances
- Oil & Grease
- Bacteria & Viruses

- Likely to Have Significant Impact
- Probable Low or Unknown Impact

Implementation Requirements

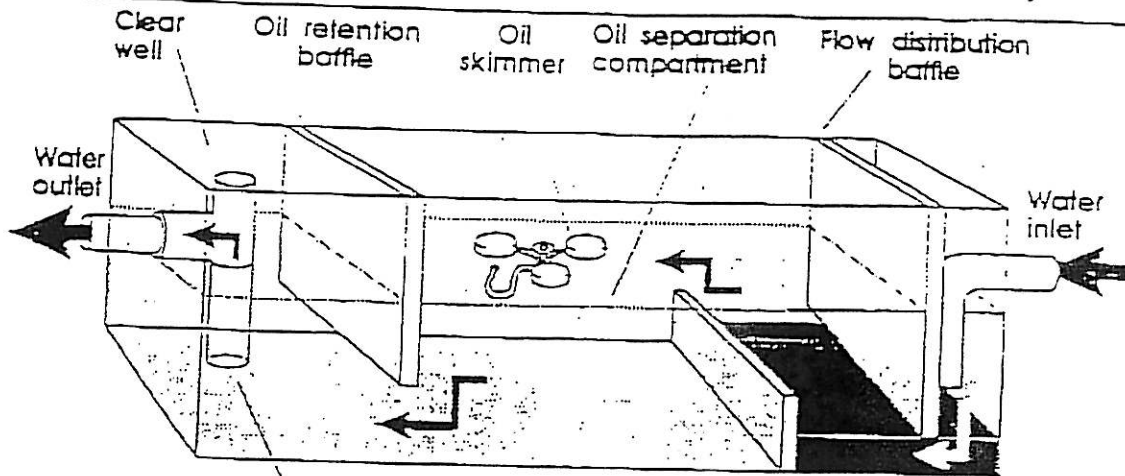
- Capital Costs
- O&M Costs
- Maintenance
- Training

- High
- Low

TC6



Additional Information — Oil/Water Separators and Water Quality Inlets

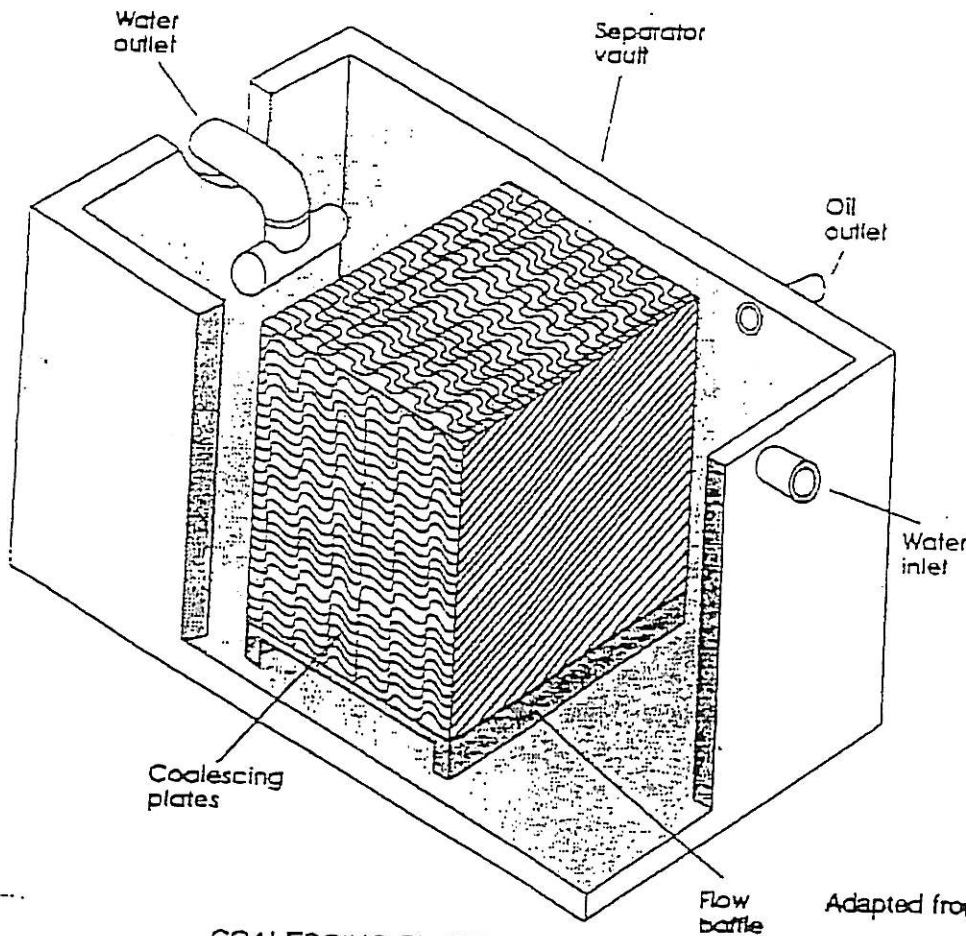


Inspection and sampling tee

CONVENTIONAL SEPARATOR

Grit/sludge removal baffle

Adapted from Romano, 1990



Water outlet

Separator vault

Oil outlet

Water inlet

Coalescing plates

Flow baffle

Adapted from Romano, 1990

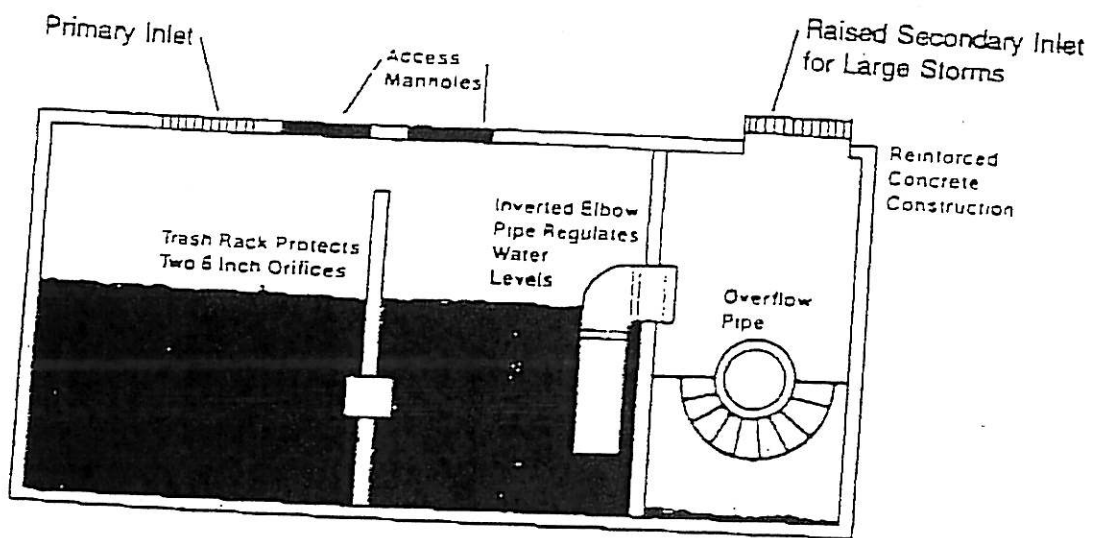
COALESCING PLATE SEPARATOR

FIGURE 7A. CONVENTIONAL AND COALESCING PLATE SEPARATORS

TC7



Additional Information — Oil/Water Separators and Water Quality Inlets

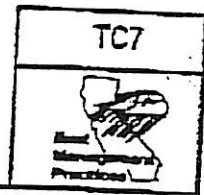


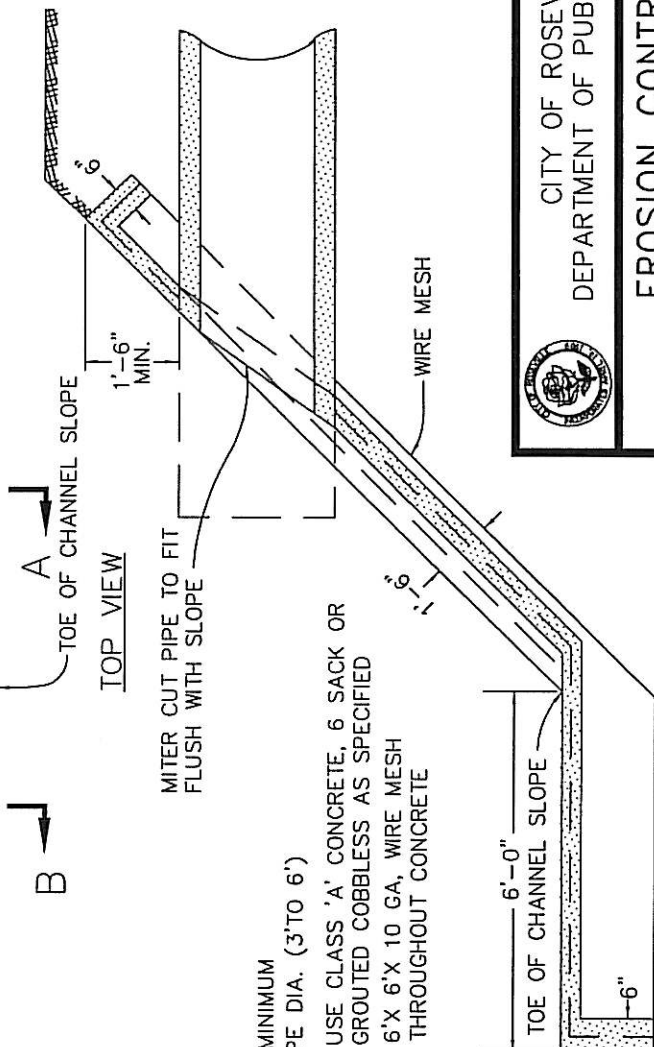
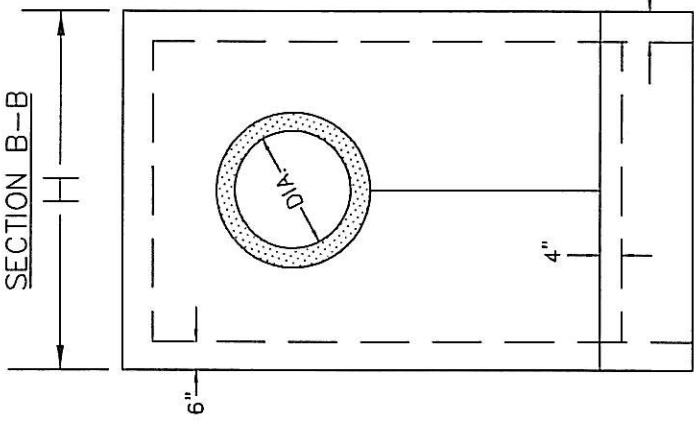
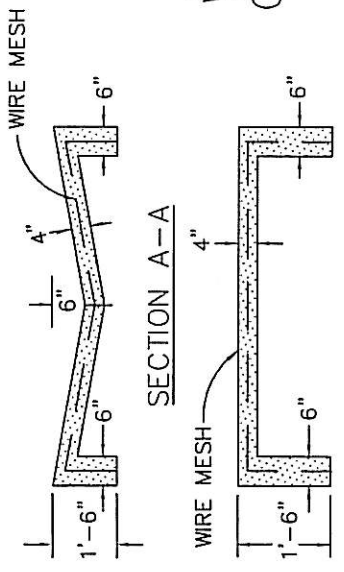
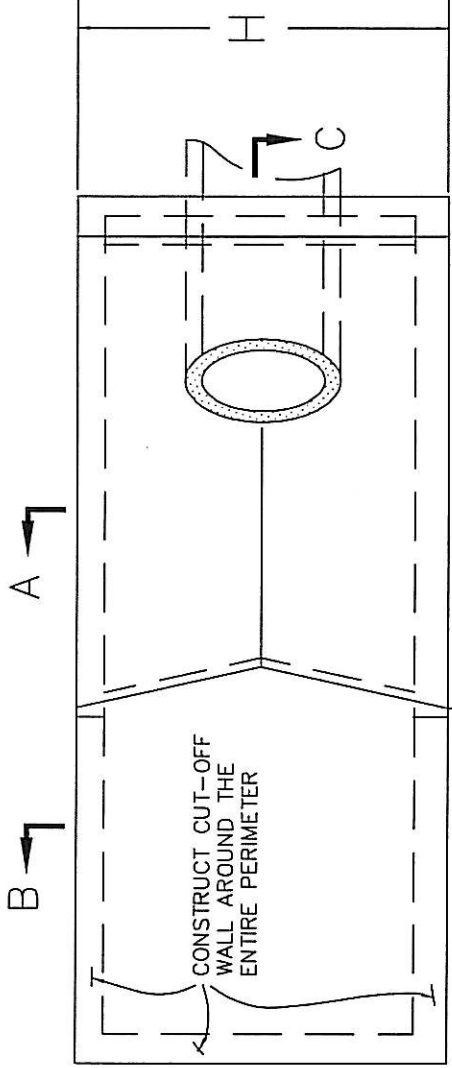
Adapted from Schueler, 1987

NOTE:

1. Size as conventional separator.
2. Design outlet orifice in elbow to limit outflow to the design rate for the unit.

FIGURE 7B. WATER QUALITY INLET





H=6'-0" MINIMUM
 H=2 x PIPE DIA. (3' TO 6')

NOTE: 1. USE CLASS 'A' CONCRETE, 6 SACK OR GROUTED COBBLES AS SPECIFIED
 2. 6'X 6'X 10 GA, WIRE MESH THROUGHOUT CONCRETE

SECTION C-C



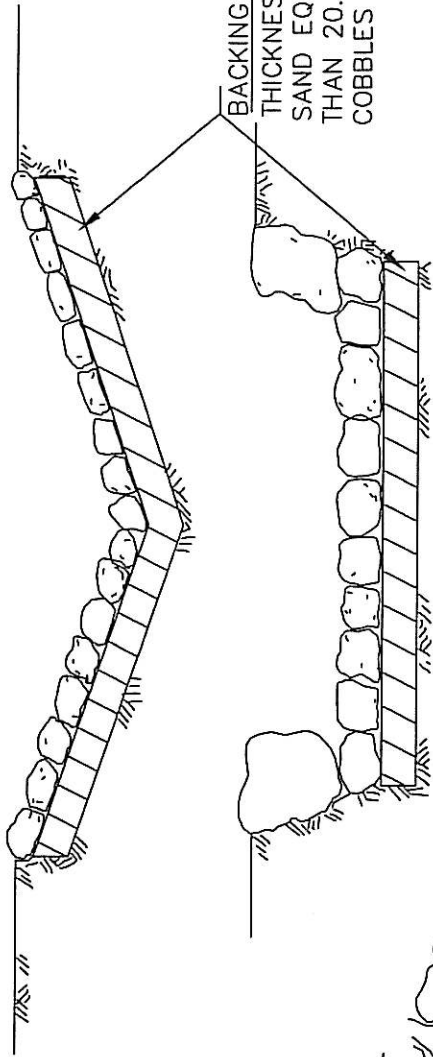
CITY OF ROSEVILLE
 DEPARTMENT OF PUBLIC WORKS

EROSION CONTROL
 PIPE DISCHARGE

SCALE: NONE
 REVISED: APRIL 1, 1997
 DRAWN BY: STAFF
 APPROVED BY:

CST
 DR-11

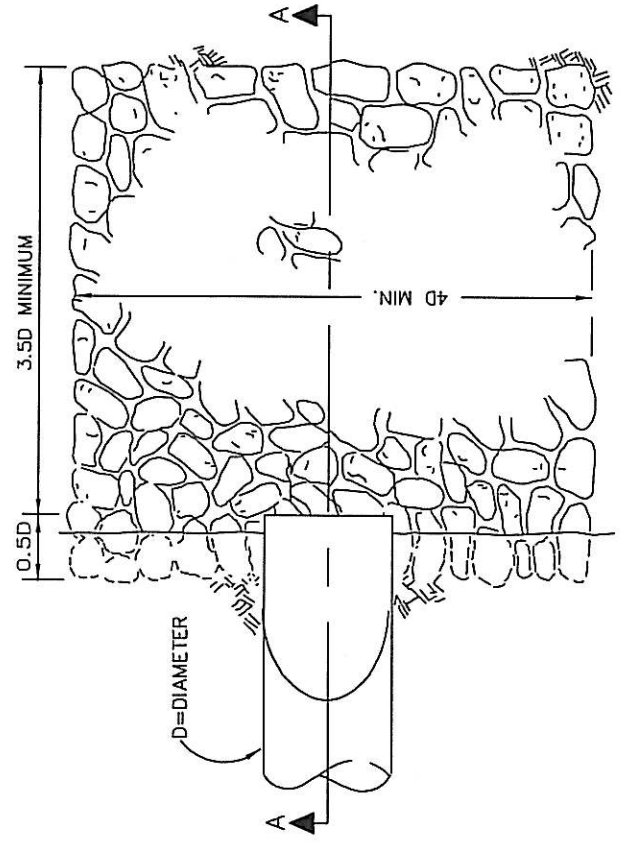
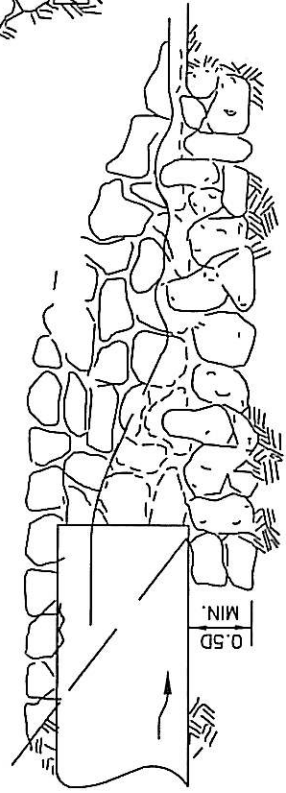
LARRY D. PAGEL
 DIRECTOR OF PUBLIC WORKS/CITY ENGINEER



BACKING AGGREGATE
THICKNESS 0.5' MINIMUM
SAND EQUIVALENT NOT LESS
THAN 20. (FOR GROUDED
COBBLES ONLY)

STREAM BANK SLOPE PROTECTION

SECTION A-A



CULVERT OUTFALL

NOTE:
STONE LINING SHALL BE GROUDED COBBLES
CONFORMING TO THE REQUIREMENTS OF
THE STANDARD CONSTRUCTION SPECIFICATIONS
OR QUARRY ROCK CONFORMING TO THE
REQUIREMENTS OF THE STANDARD CONSTRUCTION
SPECIFICATIONS.

LARRY D. PAGEL
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER



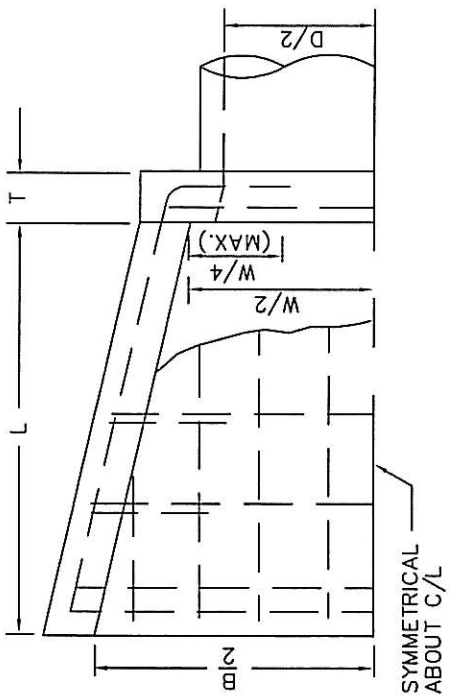
CITY OF ROSEVILLE
DEPARTMENT OF PUBLIC WORKS

**CULVERT OUTFALL & STREAM
BANK SLOPE PROTECTION**

SCALE: NONE
REVISED: APRIL 1, 1997
DRAWN BY: STAFF
APPROVED BY:

CST
DR-13

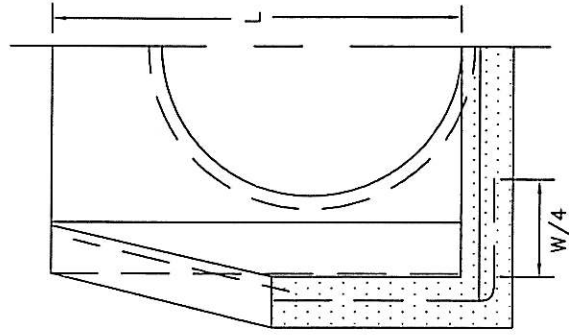
DIMENSIONS & REINFORCING



D	W	B	L	T	ALL REINFORCING
33"	3'- 5"	5'- 3"	4'- 0"	6"	# 5 @ 12"
36"	3'- 8"	5'- 8"	4'- 2"	6"	# 5 @ 12"
42"	4'- 4"	6'- 4"	4'- 8"	6"	# 5 @ 12"
48"	4'-10"	7'- 2"	5'- 2"	8"	# 6 @ 12"
54"	5'- 4"	8'- 0"	6'- 0"	8"	# 6 @ 12"
60"	6'- 0"	8'-10"	6'- 6"	8"	# 6 @ 12"

NOTES:

1. "B" MAY BE REDUCED IF REQUIRED BY CHANNEL DIMENSIONS
2. REINFORCING BAR SPACING SHOWN IS MAXIMUM SPACING.
3. USE CLASS 'A' CONCRETE, 6 SACK.



HALF SECTION A-A

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DIRECTOR OF PUBLIC WORKS/CITY ENGINEER

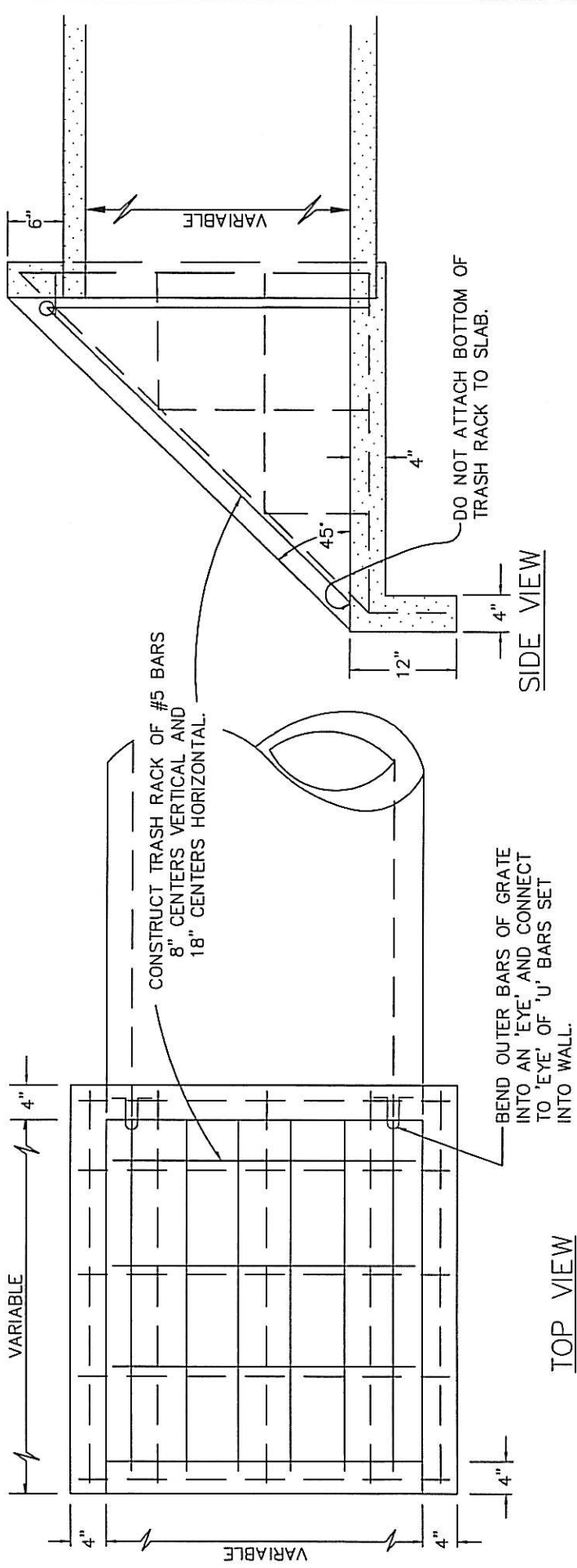


CITY OF ROSEVILLE
DEPARTMENT OF PUBLIC WORKS

PIPE INLET STRUCTURE

SCALE: NONE
REVISED: APRIL 1, 1997
DRAWN BY: STAFF
APPROVED BY:

CST
DR-14



LARRY D. PAGEL
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER



CITY OF ROSEVILLE
DEPARTMENT OF PUBLIC WORKS

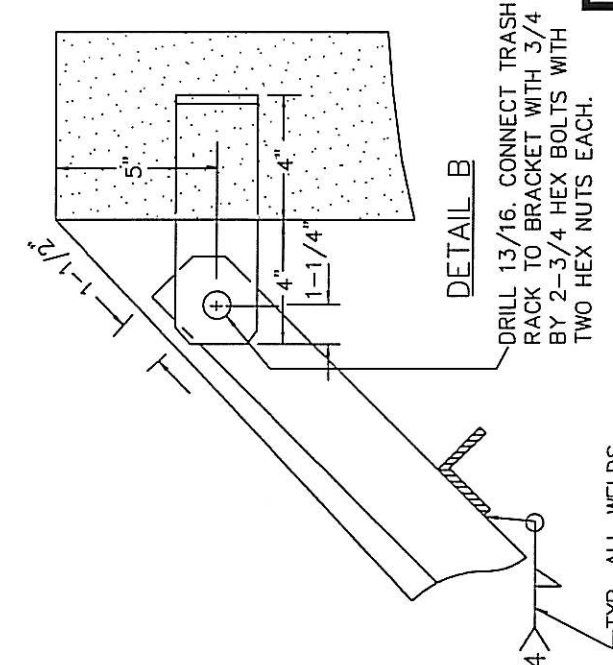
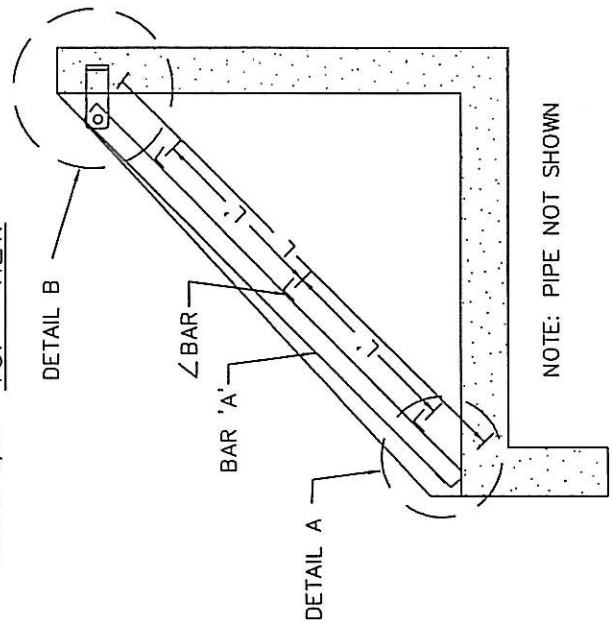
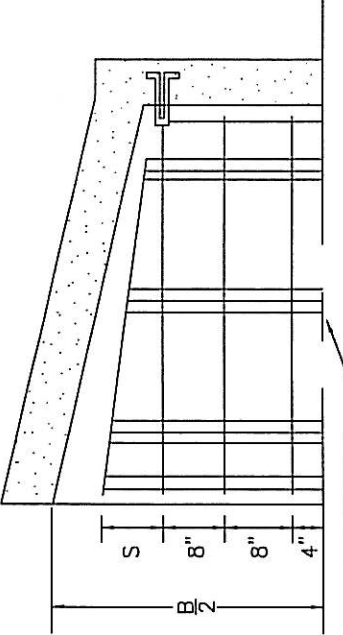
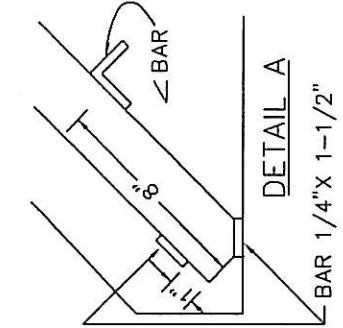
PIPE INLET STRUCTURE & TRASH RACK (30" PIPE OR SMALLER)

SCALE: NONE
REVISED: APRIL 1, 1997
DRAWN BY: STAFF
APPROVED BY: CST
DR-15

NOTE:
ALL REINFORCING TO BE #4 @ 12"
USE CLASS 'A' CONCRETE, 6 SACK.

TRASH RACK DIMENSIONS

DIA.	NUMBER & SIZE		L	L'	S	H
	BAR A	L BAR				
33"	8-3/8 X 2 1/2	3-2 X 2 X 1/4	5'-1"	1'-10"	8"	3'-8"
36"	"	"	5'-4"	1'-11"	8"	3'-10"
42"	9-3/8 X 2 1/2	"	5'-11"	2'-3"	9"	4'-4"
48"	"	4-2 X 2 X 1/4	6'-7"	1'-9"	10"	4'-10"
54"	10-3/8 X 3	4-3 X 3 X 1/4	7'-9"	2'-1 1/2"	10 1/2"	5'-8"
60"	11-3/8 X 3 1/2	"	8'-5"	2'-4"	11"	6'-2"



NOTES

1. THIS TRASH RACK MAY BE USED WITH PIPE INLET STRUCTURES.
2. MATERIAL TO CONFORM TO ASTM DESIGNATION A-36.
3. 'S' MAY VARY WITH 'B'. SEE PLATE.
4. ALL FILLET WELDS TO BE 3/16"
5. 2- HINGES REQUIRED FOR 33, 36 & 42 INCH PIPES. 3- HINGES REQUIRED FOR 48, 54 & 60 INCH PIPES.

DRILL 13/16. CONNECT TRASH RACK TO BRACKET WITH 3/4 BY 2-3/4 HEX BOLTS WITH TWO HEX NUTS EACH.

TYP. ALL WELDS

NOTE: PIPE NOT SHOWN

SIDE VIEW



CITY OF ROSEVILLE
DEPARTMENT OF PUBLIC WORKS

TRASH RACK
(33" PIPE OR LARGER)

SCALE: NONE
REVISED: APRIL 1, 1997
DRAWN BY: STAFF
APPROVED BY:

CST
DR-16

LARRY D. PAGEL
DIRECTOR OF PUBLIC WORKS/CITY ENGINEER