

TEMPORARY SEDIMENT BASIN DESIGN SHEET

Project Name Town Center South  
 Total area draining to basin = 4.32 acres  
 Disturbed area to basin = 4.32 acres

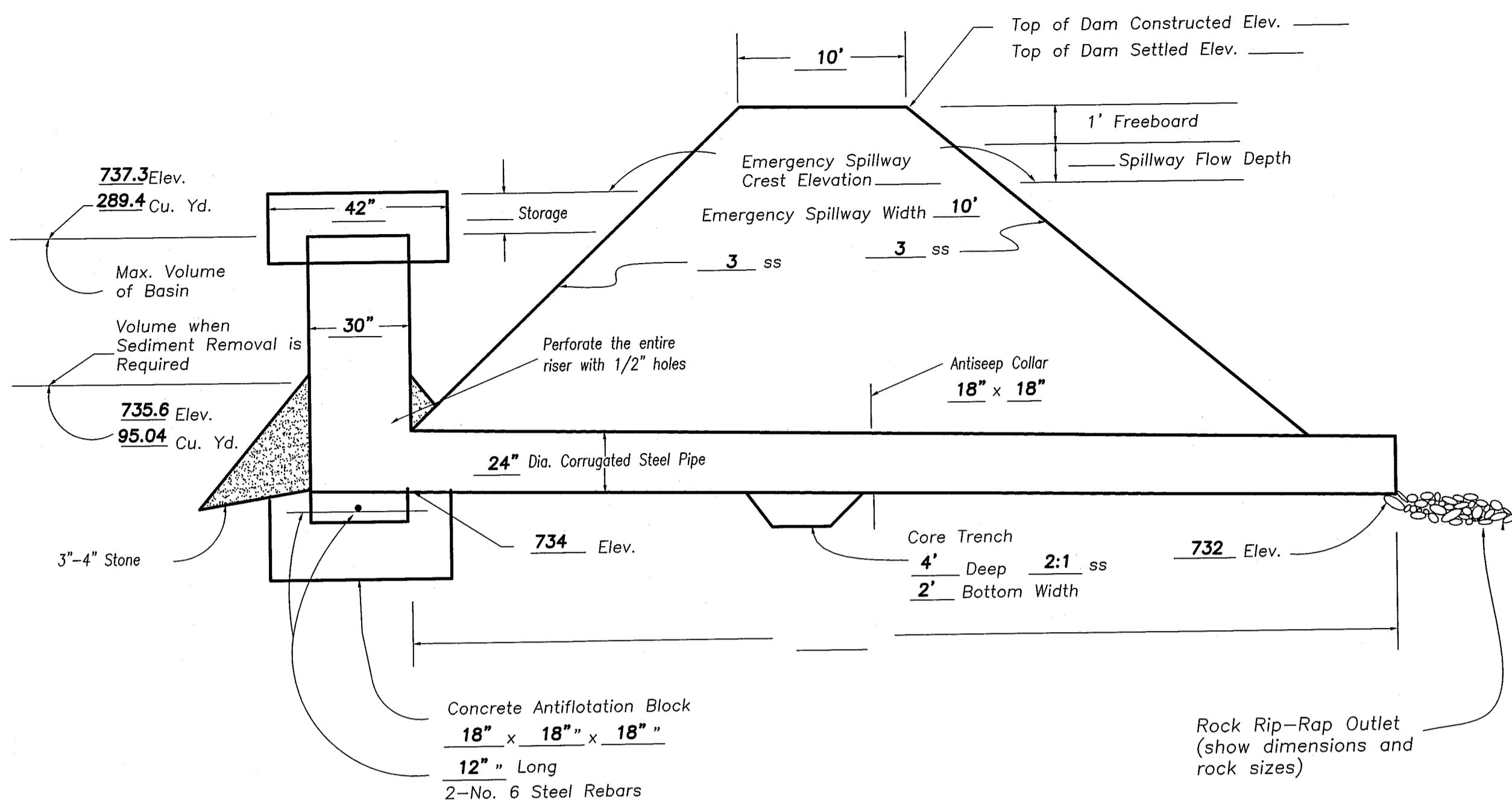
- Volume**
1. Compute the minimum required storage volume (Vs)  
 $V_s = 67 \text{ cy/ac} \times 4.32 \text{ acres} = 289.44 \text{ cy} = 7814.88 \text{ cf}$
  2. Compute the volume of the basin at clean-out (Vc)  
 $V_c = 22 \text{ cy/ac} \times 4.32 \text{ acres} = 95.04 \text{ cy} = 2666.08 \text{ cf}$
  3. Determine elevation corresponding to minimum required storage volume, Vs  
**Minimum riser crest elevation = 737.3 ft**  
 (Determined from stage/storage relationship)
  4. Determine elevation corresponding to clean-out volume, Vc  
**Clean-out elevation = 735.6 ft**  
 (Determined from stage/storage relationship)
  5. Compute length of riser  
 Riser length = Minimum elevation of riser crest - Lowest elevation of pipe at riser  
 Riser Length = 737.34 ft - 734 ft  
**Riser Length = 3.3 ft**

- Storm Water Runoff**
6. Compute peak discharge from a 2-yr, 24-hour storm event  
 $Q_2 = 0.60 \times 5.75 \text{ in/hr} \times 4.32 \text{ acres}$   
 $Q_2 = 14.9 \text{ cfs}$
  7. Compute peak discharge from 25-year, 24-hour storm event  
 $Q_{25} = 0.80 \times 8.25 \text{ in/hr} \times 4.32 \text{ acres}$   
 $Q_{25} = 21.38 \text{ cfs}$

- Surface Area/Configuration Design**
8. Compute minimum basin surface area (S<sub>amin</sub>)  
 $S_{amin} = 0.01 \text{ ac/cfs} \times Q_2$   
 $S_{amin} = 0.01 \text{ ac/cfs} \times 14.9 \text{ cfs}$   
 $S_{amin} = 0.00149 \text{ ac} = 43560 \text{ sq ft} \times 0.054 \text{ ac} = 3793.69 \text{ sq ft}$   
 Check available area at riser crest  
 Available Area = 3905 sq ft  
 (Determined by stage/storage relationship)  
 Available Area > S<sub>amin</sub> YES
  9. Compute required length to achieve 2:1 L/W ration  
**Average width = 36 ft**  
 Required Length = 2 \* Average Width  
 Required Length = 2 \* 36ft  
**Required Length = 72 ft.**  
 Actual Length = 140 ft  
 2:1 L/W ratio satisfied? YES  
 If "no", refer to Figure 6-22.2 for baffle designs. Note any required baffles on E&S plan and include calculations and detail for baffles.

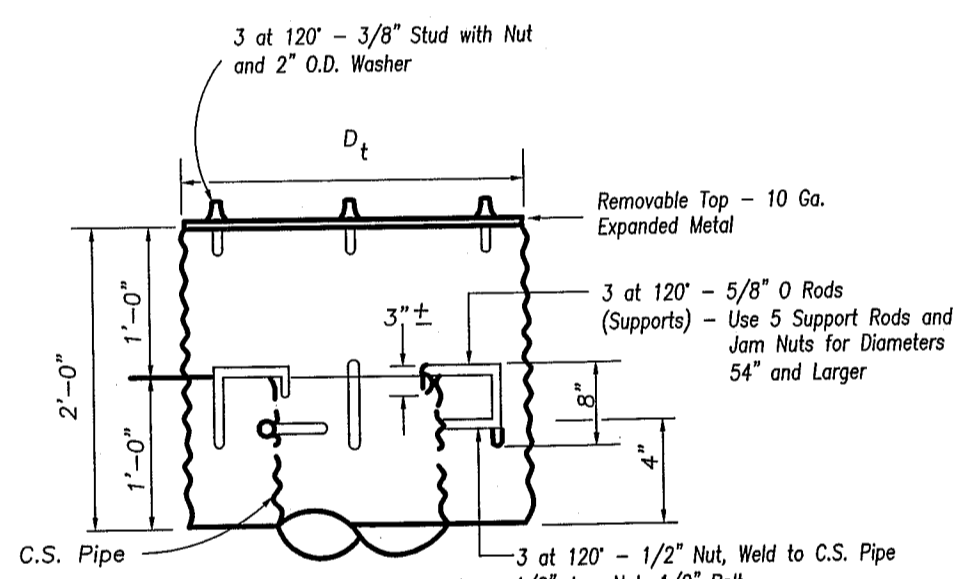
- Principal Spillway (ps)**
11. Determine maximum principal spillway capacity.  
 $Q_{max} = Q_2 = 8.71 \text{ cfs}$
  12. Compute the vertical distance between the centerline of the outlet pipe and the emergency spillway crest (H) + 1' min required storage distance  
 Head = 737.3 - 732
  13. Compute the total pipe length of the principal spillway, L, using Figure 6-22.3  
 $L = [A - (B + C)Z] + [Zu + Zd] + T + E$   
 $A = 740 \text{ ft}$   
 $B = 734 \text{ ft}$   
 $C = 732 \text{ ft}$   
 $Z = 33 \%$   
 $Zd = 50 \%$   
 $T = 20 \text{ ft}$   
 $E = 2 \text{ ft}$   
 $L = 40 \text{ ft}$  pipe length  
 Determine diameter of principal spillway (Dps) and flow through the principal spillway correction factor (Q) from Table 6-22.1 using H and Q<sub>max</sub>  
 Dps = 18 in
  15. Compute actual flow through the principal spillway, using Table 6-22.1 to determine the for pipe length, L  
 $Q_{ps} = \text{Correction Factor} \times Q$

16. Compute riser diameter (Dr).  
 $Dr = 1.5 \times Dps$   
 $Dr = 1.5 \times 18 \text{ in}$   
 $Dr = 27 \text{ in}$   
 Commonly Used (Dr).  
 $Dr = 30 \text{ in}$
17. Compute trash rack diameter (Dt).  
 $Dt = 1.5 \times Dr$   
 $Dt = 1.5 \times 27 \text{ in}$   
 $Dt = 40.5 \text{ in}$   
 Commonly Used (Dt).  
 $Dt = 42 \text{ in}$
18. Determine the minimum distance between the riser crest and the emergency spillway crest, h, using Table 6-22.2, Dr and Qps.  
 $h = 0.6 \text{ ft}$
- Concrete Riser Base Design**
19. Determine the volume of concrete per vertical foot of riser height needed, from Table 6-22.3 to prevent flotation.  
 Required volume of concrete per vertical foot = 4.29 cf/ft
20. Compute total volume of concrete required  
 Total required volume of concrete = Required volume per vertical foot \* Riser Length  
 Total required volume of concrete = 4.29 cf/ft \* 3.34 ft  
 Total volume of concrete required = 14.32 cf
21. Assume base thickness, B (usually 18")  
 $B = 18 \text{ in} = 1.5 \text{ ft}$
22. Compute required surface area  
 Required surface area = Total volume / B  
 Required surface Area = 14.32 cf / 1.5 ft  
 Required surface area = 9.54 sq ft
23. Compute riser base length (l) and width (w) (Assume square base).  
 $l = w = (\text{required surface area})^{1/2}$   
 $l = w = (9.54 \text{ sq ft})^{1/2}$   
 $l = w = 3.09 \text{ ft}$   
 Use length = width = 3.1 ft
- Anti-Seep Collar Design**
24. Determine if anti-seep collar is required. If yes, to any of the following conditions, a collar is required:  
 The settled height of the dam is greater than 15 feet  
 The principal spillway diameter (D<sub>ps</sub>) is smooth pipe larger than 8"  
 The principal spillway diameter (D<sub>ps</sub>) is corrugated metal pipe larger than 12"
25. Determine size of anti-seep collar required  
 18-inch projection (for heads (H) less than or equal to 10 feet)  
 24-inch projection (for heads (H) greater than 10 feet)
- Emergency Spillway (Es)**
26. Compute minimum capacity of emergency spillway (Qes)  
 $Q_{es} = Q_{25} - Q_{ps}$   
 $Q_{es} = 7.98 \text{ cfs}$
27. Determine stage (Hp), bottom width (b), velocity (V) and minimum exit slope (S) using Table 6-22.4 and Qes  
 $H_p = 0.6 \text{ ft}$   
 $b = 10 \text{ ft}$   
 $V = 3 \text{ fps}$   
 $S = 3.7 \%$
28. Actual entrance channel slope S<sub>e</sub> = 33 %  
 Actual exit channel slope, S<sub>o</sub> = 50 %  
 Note: If S<sub>o</sub> is steeper than S (from Table 6-22.4), then the velocity in the exit channel will increase.  
 $V_o = V (S_o/S)^{0.3} = 3 (50/3.7)^{0.3}$   
 $V_o = 6.55 \text{ fps}$   
 Note: Refer to Channel Stabilization (Ch) to determine the proper lining for the emergency spillway.  
 Grass Not Needed Rip-Rap X Concrete Not Needed
- Design Elevations**
30. Riser crest elevation = 737.3  
 Compute minimum emergency spillway crest elevation.  
 Minimum emergency spillway crest elevation = Riser crest elevation + h  
 Minimum emergency spillway crest elevation = 737.9
31. Determine design high water elevation

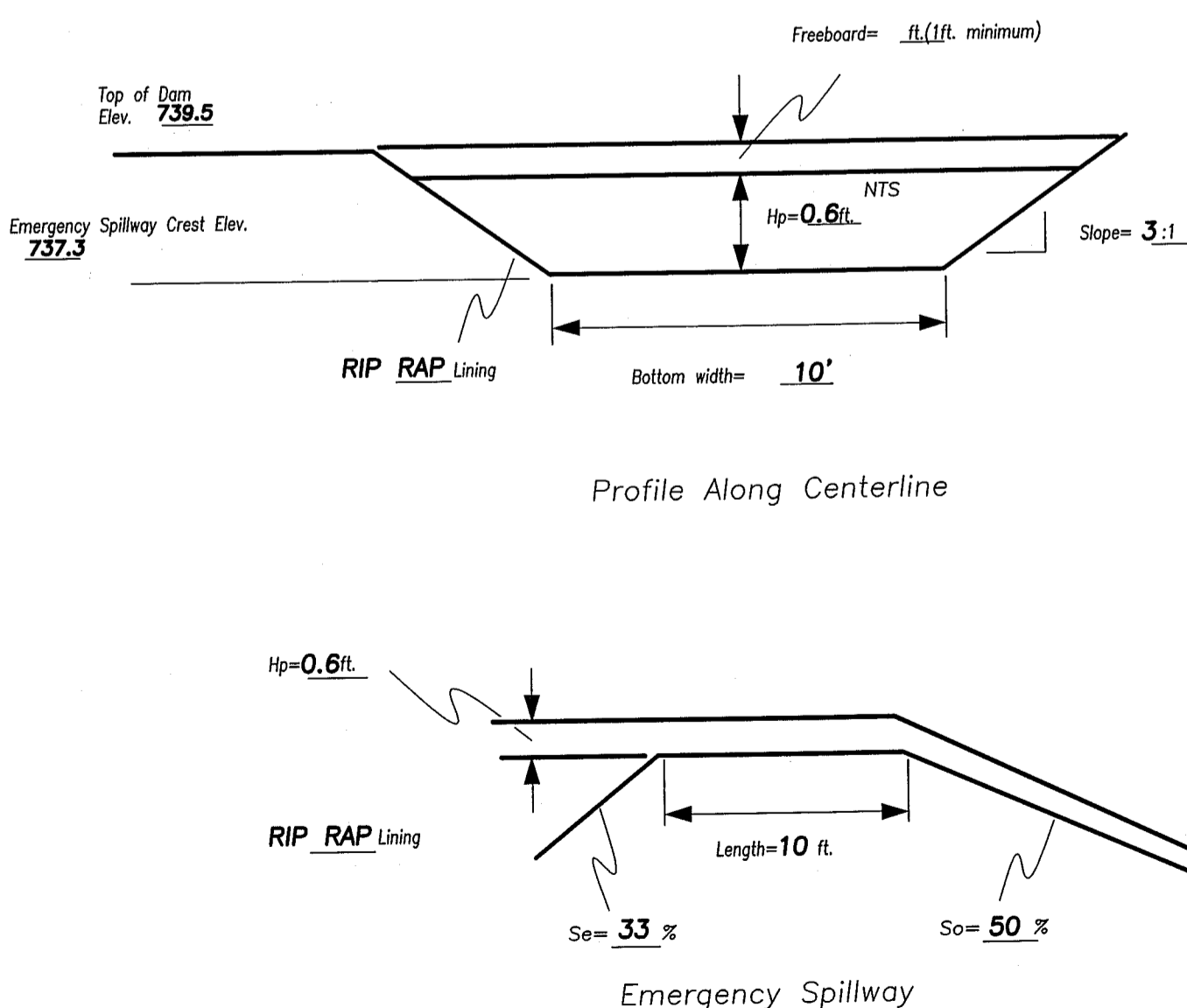


SEDIMENT BASIN CROSS SECTION

NTS

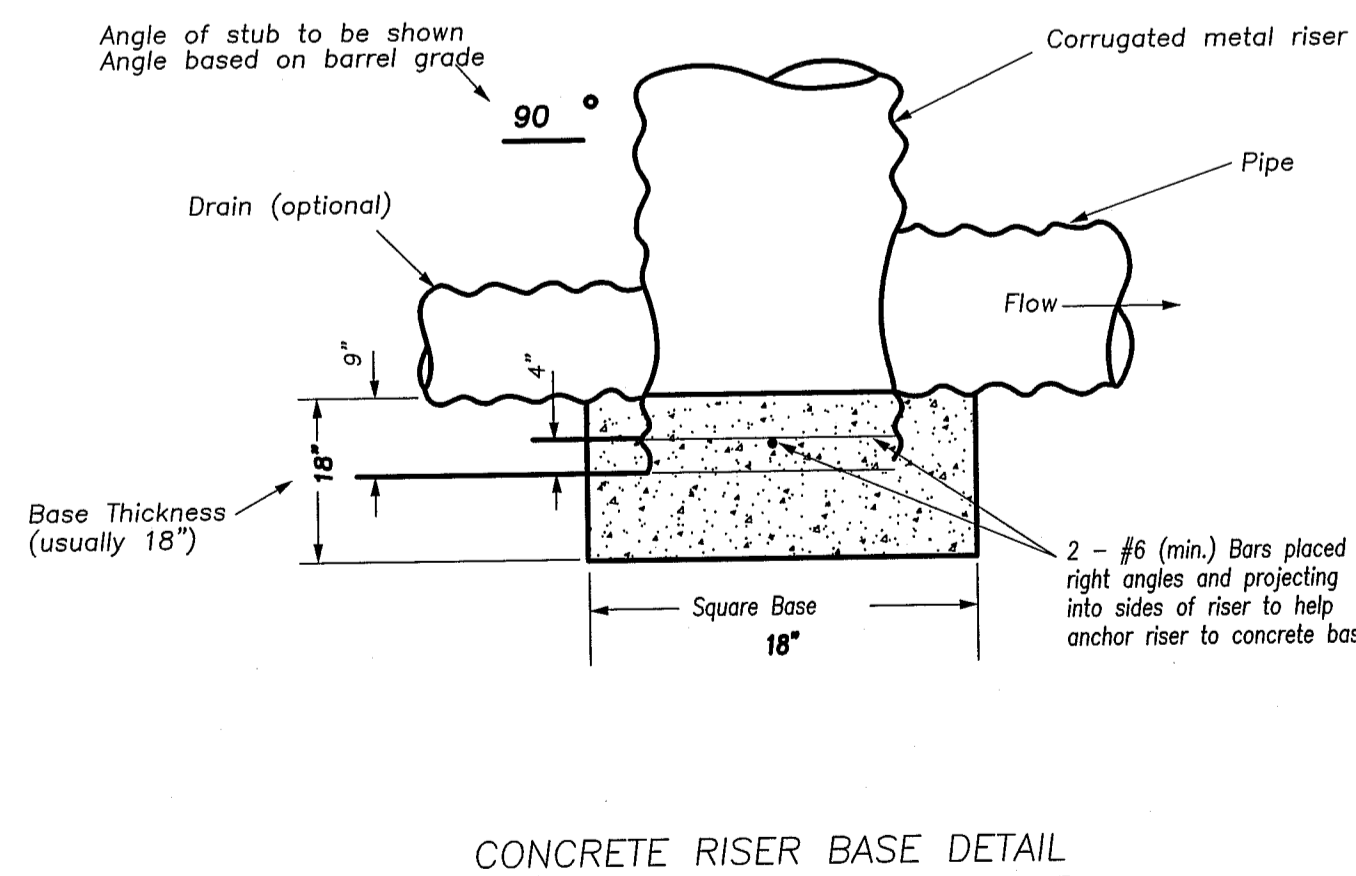


TYPICAL TRASH RACK DETAIL



EMERGENCY SPILLWAY CROSS SECTION DETAIL

NTS



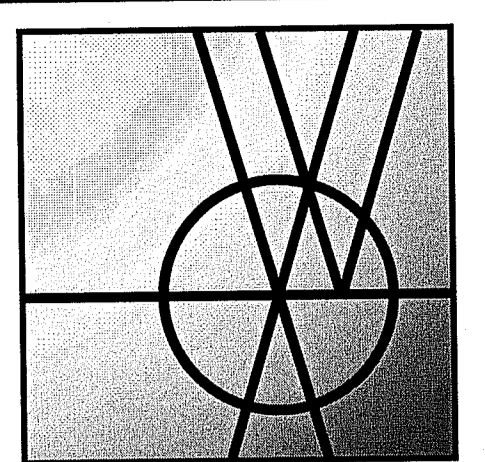
CONCRETE RISER BASE DETAIL

NTS

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST		STANDARD CONSTRUCTION PROJECTS	
SWDC - Coconino River Soil & Water Conservation District		Address: 2142 West Broad Street, Athens, GA	
Project Name: Athens Medical Center		City/County: Athens-Clarke County	
Date on Plans: Revisions Dated 12/2/2010			
Plan No.	Included	Y/N	Comments
1	Y	Y	The applicable Erosion, Sedimentation and Pollution Control Plan (ES&P) established by the Commission as of January 1 of the year in which the land-disturbing activity was permitted. (The completed Checklist must be submitted with the ES&P Plan or the Plan will not be reviewed)
2	Y	Y	Level 1 (location number issued by the Commission, signature and seal of the certified design professional. (Signature, seal and Level 1 number must be on each sheet pertaining to ES&P plan or the Plan will not be reviewed)
3	Y	Y	The name and phone number of the 24-hour local contact responsible for erosion, sedimentation and pollution controls.
4	Y	Y	Provide the name, address and phone number of primary permits.
5	Y	Y	Note total and detailed storage of the project or phase under construction.
6	Y	Y	Provide land and detail numbers for site location. Describe critical areas and any additional measures that will be utilized for these areas.
7	Y	Y	Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary.
8	Y	Y	Graphic scale and north arrow.
9	Y	Y	Existing and proposed contour lines with contour lines drawn at 10' intervals in accordance with the following: Map Scale: 1 inch = 100 feet larger scale Ground Slope: FSI 0 - 2% Rolling 2 - 8% Steep 8% + Contour Interval: 1, 2, or 2.5 ft
10	Y	Y	Boundary line survey.
11	Y	Y	Definition and acreage of contributing drainage basins on the project site.
12	Y	Y	Disturbance of on-site wetlands and all stable waters located on and within 200 feet of the project site.
13	Y	Y	Disturbance of the applicable 25-foot or 50-foot undisturbed buffers adjacent to state waters and any additional buffers required by the Local Issuing Authority. Clearly note and describe all areas of riparian habitat.
14	Y	Y	Delimit all sampling locations, perennial and intermittent streams and other water bodies into which stormwater is discharged.
15	Y	Y	Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without erosion. Identify/Define all stormwater discharge points.
16	Y	Y	Identify the project receiving waters and describe all adjacent areas including streams, lakes, residential areas, wetlands, etc. which may be affected.
17	Y	Y	Any construction activity which discharges stormwater into an Impaired Stream Segment, or within 1 linear mile upstream of and within the same watershed as, any portion of an Impaired Stream Segment must comply with Part B, C of the Permit. Include the completed Appendix 1 table all the BMPs that will be used for those areas of the site which discharge to the Impaired Stream Segment.
18	Y	Y	If a TMDL Implementation Plan for sediment has been finalized for the Impaired Stream Segment (identified in Item 18 above) at least six months prior to submittal of the ES&P Plan must address any site-specific conditions or requirements included in the TMDL Implementation Plan.
19	Y	Y	Provide hydrology study and maps of drainage basins for both the pre- and post-developed conditions.
20	Y	Y	Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the revisions.
21	Y	Y	The limits of disturbance for each phase of construction.
22	Y	Y	Limit of disturbance shall be no greater than 50 acres at any one time without prior written authorization from the EPD District Office. If EPD approves the request to disturb 50 acres or more at any one time, the plan must include at least 4 of the BMPs listed in Appendix 1 of this checklist.
23	Y	Y	A copy of the written approval by EPD must be attached to the plan for the plan to be reviewed.
24	Y	Y	Provide a minimum of 6 cubic yards of sediment storage per acre drained using a temporary sediment basin, reworked detention pond, and/or associated silt sediment traps for each common drainage location. Sediment storage volume must be in place prior to and during all land disturbance activities until final stabilization of the site has been achieved. A written rationale explaining the decision to use equivalent controls, when a sediment basin is not available must be included in the plan for each common drainage location in which a sediment basin is not provided. Worksheets from the Manual must be included for structural BMPs and all calculations used by the design professional to obtain the required sediment storage when using equivalent controls.

NA	Y	N	Y	Comments
				25. Use of alternative BMPs whose performance has been documented to be equivalent to or superior to conventional BMPs as outlined in a Stage Professional opinion prepared by EPD or the Georgia Soil and Water Conservation Commission. Please refer to the Alternative BMP Guidance Document found at <a href="http://www.gaswcc.com">www.gaswcc.com</a>
				26. Best Management Practices to minimize off-site vehicle tracking of sediments and the generation of dust
				27. BMPs for concrete washpans of both concrete mixer chutes, hoppers and the rear of the vehicle. Washout of the drum at the construction site is prohibited.
				28. Provide BMPs for the remediation of all petroleum spills and leaks.
				29. Location of Best Management Practices that are consistent with and no less stringent than the Manual for Erosion and Sediment Control in Georgia. Use uniform coding as set forth in the Manual, Chapter 6, with legend.
				30. Description of the nature of construction activity.
				31. A description of appropriate controls and measures that will be implemented at the construction site including: (1) final sediment storage requirements and perimeter control BMPs, (2) intermediate grading and drainage BMPs, and (3) final BMPs.
				32. Disruption and shorter timeline of the intended sequence of major activities which disturb soils for the major portions of the site (i.e., initial permits and sediment storage BMPs, clearing and grubbing activities, excavation activities, utility activities, temporary and final stabilization).
				33. Description of the practices that will be used to reduce the pollutants in stormwater discharges.
				34. Description of the measures that will be installed during the construction process to control pollutants in stormwater that will occur after construction operations have been completed.
				35. Design professional's certification statement and signature that the site was visited prior to development of the ES&P Plan as stated on page 14 of the permit.
				36. Design professional's certification statement and signature that the permit's ES&P Plan complies for an appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on page 14 of the permit.
				37. Certification statement and signature of the permittee or the duly authorized representative as stated in section V.G.2.4 of the state general permit.
				38. An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are completed.
				39. Indication that non-erect activities shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured to the defined wetland boundary without first acquiring the necessary variances and permits.
				40. Indication that the design professional who prepared the ES&P Plan is to be inspected the installation of the initial sediment storage requirements and perimeter control BMPs within 7 days after installation.
				41. Indication that amendments/revisions to the ES&P Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional.
				42. Indication that waste materials shall not be discharged to waters of the State, except as authorized by a Section 404 permit.
				43. Documentation that the ES&P Plan is in compliance with waste disposal, sanitary sewer, or septic tank regulations during and after construction activities have been completed.
				44. Provide complete requirements of inspections and record keeping by the primary permittee.
				45. Provide complete requirements of sampling frequency and reporting of sampling results.
				46. Provide complete details of retention of records as per Part IV, of the permit.
				47. Description of analytical methods to be used by the permittee and analyze the samples from each location.
				Appendix B rationale for silt trap locations where applicable.
				48. Clearly note statement in bold letters "The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to, or concurrent with, land disturbing activities."
				49. Clearly note maintenance statement in bold letters "Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source."
				50. Clearly note the statement in bold letters "Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding."
				51. Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia.
				52. Provide a separate plan, noting all temporary and permanent vegetation practices. Include species, planting date and seeding practice, time and seeding rates. Vegetative plan shall be specific for appropriate time of year that seeding will take place and for the appropriate geographic region of Georgia.

REVIEW SET □ BID SET □ CONSTRUCTION SET



**Williams & Associates**

ENGINEERING • SURVEYING  
 LANDSCAPE ARCHITECTURE

2470 Daniels Bridge Road, Suite 161  
 Athens, Georgia 30606  
 P. 706.310.0400  
 F. 706.310.0411

www.gaplaning.com

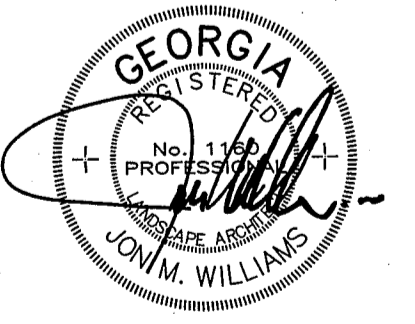
**ATHENS MEDICAL  
 COMPLEX**  
 ATHENS-CLARKE COUNTY, GEORGIA  
 4.425 ACRES - WEST BROAD STREET

DATE: 03/01/2011

REVISIONS

DATE	COMMENT
03/01/11	Per generator plan and enclosure addition and planning comments.
04/29/11	Per field change to bioretention pond.
05/12/11	Per ACCPC comments on field change to bioretention pond.

GSWCC LEVEL II  
 CERTIFICATION # 3588



ALL DRAWINGS SHALL REMAIN THE PROPERTY OF WILLIAMS & ASSOCIATES. THESE INSTRUMENTS OF SERVICE ARE TO BE USED SOLELY FOR THIS SPECIFIC PROJECT. WILLIAMS & ASSOCIATES SHALL RETAIN ALL LEGAL RIGHTS TO THE USE OF THE INSTRUMENTS OF SERVICE AND SHALL RETAIN FULL PROTECTION UNDER UNITED STATES COPYRIGHT LAW.

10047  
 ES&PC - CODING  
 & DETAILS

10.1