

**NOTES**

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH TOWN OF CARY STANDARD SPECIFICATIONS AND DETAILS REVISED APRIL 8, 2001.
- THE CONTRACTOR SHALL USE EXTREME CARE TO AVOID DISTURBING EXISTING STREAM CHANNELS DURING LINE CONSTRUCTION. ALL SANITARY SEWER PIPE STREAM CROSSINGS AND DISTURBANCES SHALL BE PROTECTED WITH 22" CLASS B RIP-RAP WITH FABRIC UNDERLINER.
- ALL MANHOLES LOCATED OUTSIDE OF PAVED AREAS SHALL HAVE A RIM ELEVATION ONE FOOT ABOVE FINISHED GRADE.
- WATER LINE SHALL BE 2' MINIMUM OFF EDGE OF CURB UNLESS SHOWN OTHERWISE.
- WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY MEASURED EDGE TO EDGE FROM EXISTING OR PROPOSED SANITARY OR STORM SEWER UNLESS THE ELEVATIONS OF THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER WITH A HORIZONTAL SEPARATION OF AT LEAST 3 FEET.  
WHERE A WATER MAIN AND A SANITARY SEWER CROSS, AND THE VERTICAL SEPARATION IS LESS THAN 18 INCHES OR THE WATER LINE PASSES UNDER THE SANITARY SEWER, THE SEWER MAIN SHALL BE DUCTILE IRON PIPE.  
ALL WATER LINES SHALL BE DUCTILE IRON PIPE.
- ALL WATER SERVICES SHALL BE 3/4" TYPE K COPPER AND ALL SEWER SERVICES SHALL BE 4" SCHEDULE 40 PVC.
- CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL STRUCTURES DURING THE LIFE OF THE PROJECT.
- CONTRACTOR SHALL CONSTRUCT DIVERSION DITCHES AS NECESSARY TO ENSURE ALL SEWAGE IS DIRECTED INTO EROSION CONTROL MEASURES.
- ALL CATCH BASINS SHALL BE PROTECTED PER TOC STD. 4.14 UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHOWN ON PLANS IS BASED ON BEST AVAILABLE INFORMATION BUT CAN BE CONSIDERED ONLY AS APPROXIMATE.
- BENCHMARK IS NAIL IN GREEN LEVEL DURHAM ROAD AT FUTURE PANTHER CREEK PARKWAY INTERSECTION. ELEV. IS 311.72
- DENUDED AREA = 3.0 ACRES
- TOPOGRAPHIC INFORMATION FROM SURVEY BY WITHERS & RAVENEL.
- WHERE THE STATIC WATER PRESSURE IS IN EXCESS OF 80 PSI, A PRESSURE REDUCING VALVE SHALL BE PROVIDED INSIDE THE BUILDING IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLUMBING CODE.
- CONTRACTOR SHALL INSTALL SILT FENCE AND SEDIMENT BASINS AT PIPE ENDS AND DIVERSION DITCHES AND THEN BEGIN GRADING WORKS.
- CONTRACTOR SHALL ENSURE GRADING OPERATION IS CONDUCTED IN A MANNER THAT DOES NOT ALLOW ANY STORM WATER TO POND.
- STORM WATER DISCHARGES INTO PANTHER CREEK.
- ALL STORM DRAINAGE PIPE SHALL BE PROTECTED DURING CONSTRUCTION IN ACCORDANCE WITH TOC STD. DETAIL 4.12.
- CONTRACTOR SHALL PROVIDE RIP RAP LINED TAIL DITCHES AT THE STORM DRAINAGE PIPE DISCHARGE POINTS AS REQUIRED TO ENSURE POSITIVE DRAINAGE.
- SANITARY SEWER MAINS INSTALLED WITH A DEPTH OF COVER OF 14 FEET TO 20 FEET SHALL REQUIRE SPECIAL BEDDING IN ACCORDANCE WITH CARY STANDARD 7.16. SEWER SERVICES INSTALLED WITH A DEPTH OF COVER OF 14 FEET TO 20 FEET SHALL REQUIRE CLASS 1 BEDDING FROM 4" BELOW THE SERVICE TO 4" INCHES OVER THE SERVICE LINE. SEWER MAINS AND SERVICES INSTALLED WITH A DEPTH OF COVER OVER 20 FEET SHALL REQUIRE DUCTILE IRON PIPE FOR THE ENTIRE RUN BETWEEN MANHOLES OR CLEANOUTS.
- MINIMUM SLOPE FOR FOUR INCH SANITARY SEWER SERVICES SHALL BE  $\frac{1}{8}$ . CLEANOUTS SHALL BE PROVIDED AS SHOWN ON THE PLANS BUT SHALL BE SPACED AT NO GREATER THAN 75 LF FOR 4 SERVICES. ALL CLEANOUTS SHALL EXTEND A MINIMUM OF 8 INCHES ABOVE FINISH GRADE OR MEET THE OPTIONAL CLEANOUT REQUIREMENT METHODS AS SPECIFIED IN CARY STANDARD 7.01. CLEANOUTS LOCATED IN PAVED AREAS MUST HAVE CAST IRON RISERS, HITINGS & BRASS CAPS.
- SEDIMENT BASINS SHALL BE KEPT OUT OF WETLAND AREAS.
- A PRECONSTRUCTION MEETING MAY BE REQUIRED FOR THIS CONSTRUCTION.
- PERMANENT GROUND COVER SHALL BE ESTABLISHED EITHER IN 15 WORKING DAYS OR 90 CALENDAR DAYS, WHICHEVER IS SHORTER, PER TOWN OF CARY REQUIREMENTS AFTER CONSTRUCTION IS COMPLETE.
- TOPSOIL SHALL BE WASTED AT EXISTING APPROVED LOCATION WITHIN THE PUD OR IN LOT FIL AREAS SHOWN ON THE PLAN.
- EACH LOT SHALL BE CLEARED INDIVIDUALLY. IF LOTS ARE CLEARED JOINTLY AND THE DENUDED AREA IS OVER 12,000 SQ. FT. AN EROSION CONTROL PLAN SHALL BE SUBMITTED TO THE TOWN PRIOR TO CLEARING.
- TREE PROTECTION FENCING SHALL BE INSTALLED AND INSPECTED PRIOR TO ISSUANCE OF A GRADING PERMIT. FENCING SHALL NOT BE REQUIRED ADJACENT TO AREAS WITHOUT WOODED VEGETATION.
- BLOWOFF ASSEMBLIES IN TRAFFIC AREAS SHALL BE INSTALLED PER TOWN OF CARY TRAFFIC AREA REQUIREMENTS.
- ALL STORM DRAINAGE FRAMES, GRATES & HOODS SHALL BE STAMPED "DRAINS TO CAPE FEAR RIVER" IN ACCORDANCE WITH CARY STANDARDS.
- SANITARY SEWER SHALL BE PROTECTED DURING CONSTRUCTION IN ACCORDANCE WITH CARY STANDARD DETAIL 7.08.
- BUILDING RESTRICTION FLOOD LINE IS 2' ABOVE THE 100 YEAR FLOOD PLAN ELEVATIONS. THIS BUILDING RESTRICTION FLOOD LINE IS NOT LOCATED WITHIN ANY OF THE LOT AREAS FOR THE PROJECT.

**AS-BUILT STORM DRAINAGE SUMMARY**

FROM	TO	TYPE/IRIM	GRATE	DIAM (IN)	LENGTH (FT)	SLOPE (%)	POST C10 (CFS)	PRE C10 (CFS)	UPSTREAM INVERT	D. STREAM INVERT
CB 25	CB 24	CB 26294.33	G	15	44.40	1.97%	1.8	1.2	280.20	280.30
CB 24	CB 23	CB 24293.78	F	15	27.23	0.73%	7.1	4.1	288.78	288.86
CB 23	CB 22	CB 23293.26	G	15	122.19	3.21%	8.2	4.0	288.31	288.26
CB 22	CB 21	CB 22288.43	E	18	26.81	0.76%	10.0	6.5	283.93	283.73
CB 21	FE8 20	CB 21298.33	F	18	110.97	3.06%	12.8	6.8	280.53	278.54
CB 32	CB 31	CB 32200.00	G	15	26.92	1.71%	3.8	3.0	301.20	300.74
CB 31	CB 30	CB 31200.04	F	15	N/A	N/A	6.0	3.8	300.04	300.04
HW 41	HW 40	N/A	N/A	72	136	2.93%	* 218	170	272.80	268.90
Y1 51	FE8 50	Y1 51013.36	N/A	18	294.45	0.51%	* 6.2	6.2	300.32	307.95

ALL CONSTRUCTION IS TO BE IN ACCORDANCE WITH CURRENT TOWN OF CARY STANDARD SPECIFICATIONS AND DETAILS  
 \*RIM ELEVATION GIVEN FOR CB 18 TOP OF CURB AND FOR Y1 18 TOP OF GRATE  
 \*\*ALL PIPE IS TYPE III RSP UNLESS NOTED OTHERWISE  
 \*Y1 IS NCDOT STD. 846.14  
 \*\*HW IS PRECAST HEADWALL ON NCDOT STANDARD HEADWALL  
 \*INDICATES 225  
 \*\*REFER TO DETAIL ON SHEET 7 FOR DETENTION BASIN INFORMATION

**GRAVEL & RIP RAP FILTER BASIN DESIGN**

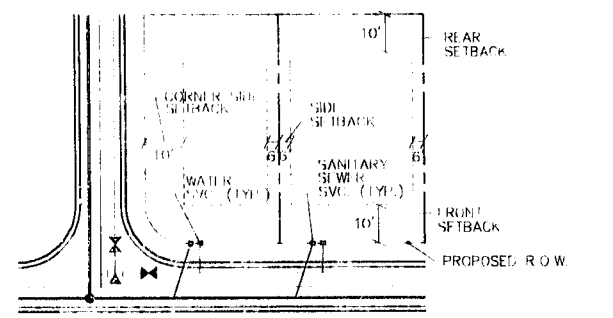
Basin #	DENUDED AREA (ACS)	DRAINAGE AREA (ACS)	BASIN DEPTH (FT)	BASIN LENGTH (FT)	BASIN WIDTH (FT)	WEIR LENGTH (FT)	VOLUME PROVIDED (CF)	CLEANOUT FREQ (MONTHS)	VOLUME REQUIRED (CF)
10	0.30	4.40	6	18	9	4	648	12	540
20	0.30	3.20	6	18	9	4	648	12	540
30	1.90	3.00	6	42	21	8	3,024	12	3,420
40	0.30	0.50	6	18	9	4	648	12	540
REVISION: 1.7	1.7	1.7	6	20	40	6	3,200	12	3,083

REVISION: 1.7  
 EXISTING: 1.7  
 NOTES: \*IF 1 INCH OR MORE IS PROVIDED FOR EACH BASIN

**DISSIPATOR DESIGN**

OUTLET TO (INCHES)	INLET DIA (INCHES)	V10 (FT/SEC)	APPROX LENGTH (FEET)	OUTLET WIDTH (FEET)	D. STREAM WIDTH (FEET)	RIP RAP THICKNESS (INCHES)	RIP RAP CLASS	SIZE (INCHES)
FE8200	18	16.1	12	4.5	16.5	22	13	13
FE8300	15	13.8	10	4.0	14.0	22	13	13
HW40	72	15.7	70	4.5	50.0	27	18	18
FE8400	18	6.0	6	4.0	10	0	A	3

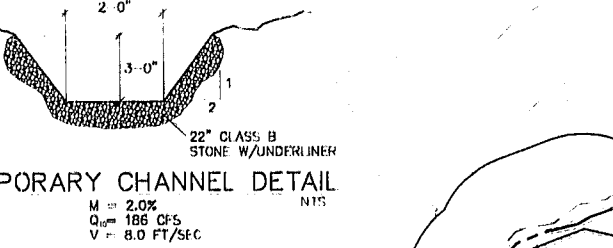
ALL DESIGN VALUES SHALL HAVE A BUILT UNDERLINER



**CROSS DRAINAGE PIPE INSTALLATION PROCEDURES**

THE CONTRACTOR SHALL CONSTRUCT THE 72" PIPE BY CONSTRUCTING A COFFER DAM JUST UPSTREAM OF THE CROSSING AND TEMPORARILY PUMPING AROUND THE PIPE INSTALLATION. THIS MUST BE DONE IN A TWO DAY PERIOD OF GOOD WEATHER.

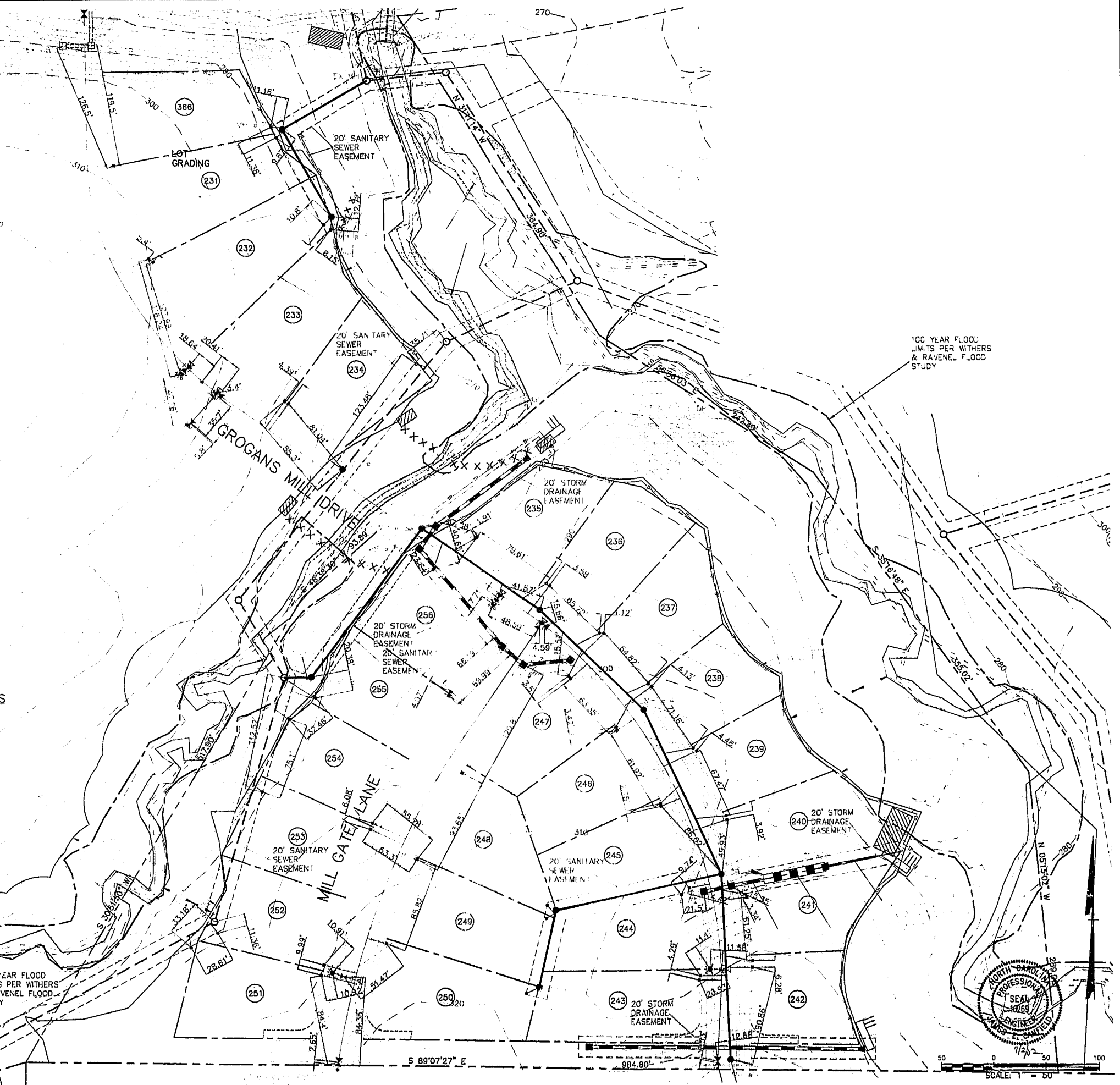
IF FOR ANY REASON THIS CANNOT BE ACCOMPLISHED, TEMPORARY DIVERSION CHANNELS MUST BE CONSTRUCTED IN ACCORDANCE WITH DETAIL ON THIS SHEET AT THE LOCATION SHOWN. CROSSING OF THE TEMPORARY CHANNEL SHALL BE DONE PER THE TEMPORARY STREAM CROSSING DETAIL (TOC STD. 4.11)



**LEVEL SPREADER DESIGN**

OUTLET #	C10 (CFS)	ENTRANCE WIDTH (FT)	DEPTH (FT)	END WIDTH (FT)	LENGTH (FT)
30	5	10	0.5	3	10
20	12.8	16	0.6	3	20
50	5.5	10	0.5	3	10

NOTE: REFER TO SHEET 7 FOR LEVEL SPREADER DETAIL



**EROSION CONTROL LEGEND**

- RIIP RAP FILTER BASIN
- SILT FENCE
- DIVERSION DITCH
- CHECK DAM
- WETLANDS
- TREE PROTECTION FENCING
- LEVEL SPREADER

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**Revisions**

No.	Description	Date	By

**CARY PARK PARCEL SF-8a**  
 CARY PARK P.U.D.

**WATER, SANITARY SEWER, STORM DRAINAGE AND EROSION CONTROL -- AS-BUILT**

Designer: W&R	Scale: 1"=50'	CAD File: SH12.DWG
Drawn By: JEC	Date: 6/14/02	Sheet No. 2 of 2
Checked By: JEC	Job No: 201135	