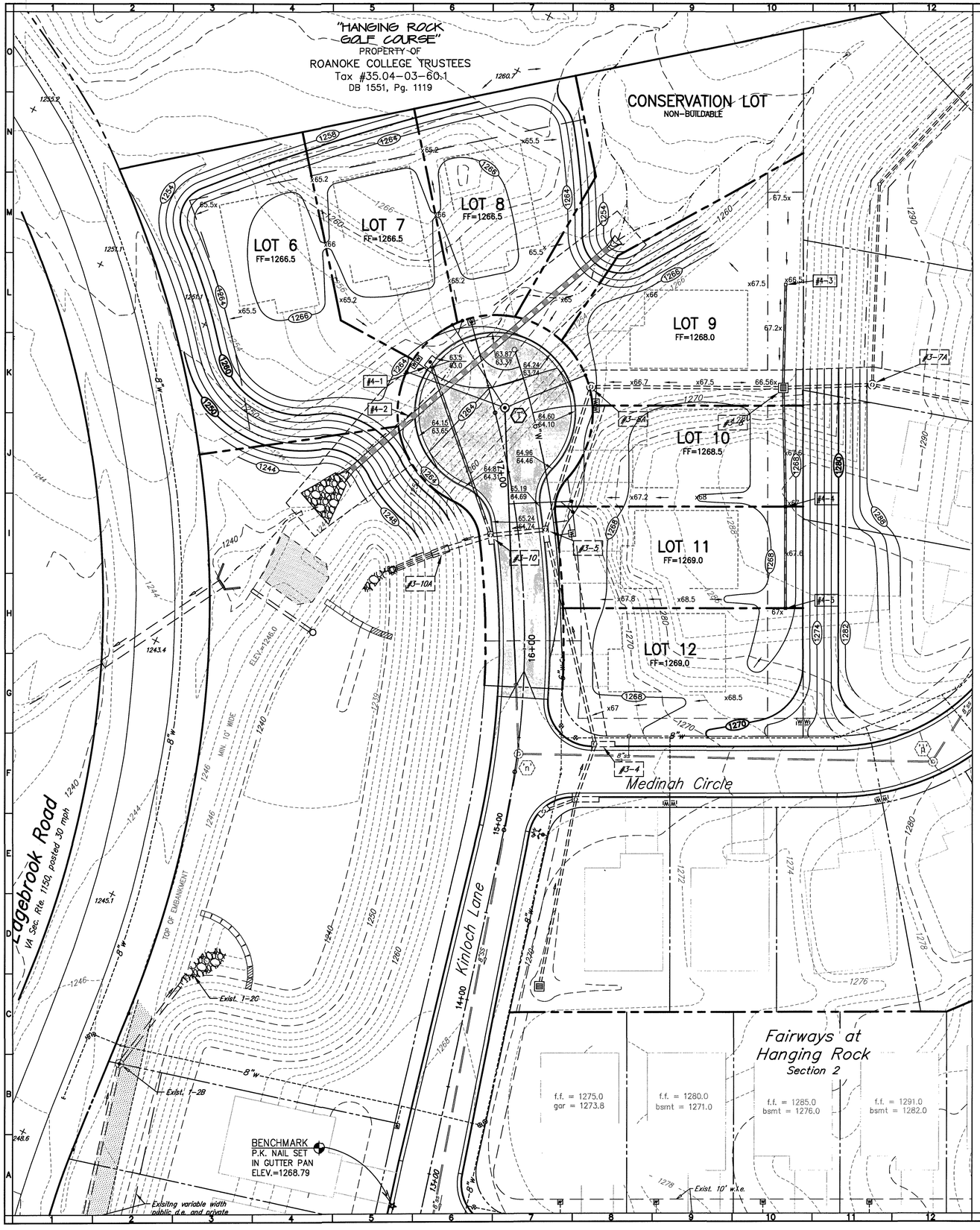


STORM DRAIN SCHEDULE

- 4-1: VDOT STANDARD DI-3C W/ IS-1
  THROAT LENGTH = 12 FT.
  TOP = 1263.5
  INV. OUT = 1257.0
- 4-1 — 3-10: APPROX. 93' OF 15" RCP @ 1.06%
- 4-2: 36" CLASS IV RCP PIPE
  CULVERT @ 4.13% SLOPE
  INV. IN = 1251.0
  INV. OUT = 1242.5
- 4-3: NYLOPLAST YARD INLET
  18" SQUARE GRATE
  TOP = 1266.5
  INV. = 1264.5
- 4-3 — 3-8: 58' OF 10" N-12 HDPE PIPE @ 2.0%
- 4-4: NYLOPLAST YARD INLET
  18" SQUARE GRATE
  TOP = 1267.0
  INV. = 1263.86
- 4-5 — 4-4: 57' OF 10" N-12 HDPE PIPE @ 2.0%
- 4-5: NYLOPLAST YARD INLET
  18" SQUARE GRATE
  TOP = 1267.0
  INV. OUT = 1265.0
- 4-4 — 3-8: 66' OF 10" N-12 HDPE PIPE @ 2.0%
- 3-5: *Ex. curb inlet*
  Top = 1265.30
  Inv. In = 1256.55 (18")
  Inv. In = 1256.50 (18")
  Inv. Out = 1256.45 (24")
- 3-8: *Ex. grate inlet*
  Top = 1266.56
  Inv. In = 1261.87
  Inv. Out = 1261.77
  NEW INV. IN = 1263.34
  NEW INV. IN = 1262.54
- 3-8A: *Ex. storm manhole*
  Top = 1265.73
  Inv. In = 1258.93 (18")
  Inv. Out = 1258.93 (18")
- 3-10: *Ex. curb inlet*
  Top = 1265.31
  Inv. In = 1255.31 (24")
  Inv. Out = 1255.31 (30")
  NEW INV. IN = 1255.91 (15")
- 3-10A: *Outfall of ex. 30" rcp*
  Inv. Out = 1254.91

SANITARY SEWER SCHEDULE

- T: STA. 17+35.5; 6.0' RIGHT
  WWA S-1
  TOP = 1264.13
  INV. IN = 1259.36
  INV. OUT = 1259.26
- n: Existing s.s.mh.
  Top = 1266.40
  Inv. In = 1257.28
  Inv. In = 1257.26
  Inv. Out = 1257.16
- T — n: APPROX. 153' OF 8" SDR-35 PIPE @ 1.02%

W.V.W.A. SERVICE LATERAL INFORMATION

LOT	DOWNSTREAM MANHOLE	DIST.	TOP OF S.S. MAIN	MIN. F.F. ELEVATION	LOWEST SERVICEABLE F.F. ELEV.	APPROX. WATER PRESSURE
6	'T'	0'	1260.0	1263.0	1266.5	102
7	'T'	0'	1260.0	1263.0	1266.5	102
8	'T'	0'	1260.0	1263.0	1266.5	102
9	'T'	0'	1260.0	1263.0	1268.0	103
10	'n'	140'	1259.4	1262.4	1268.5	103
11	'n'	140'	1259.4	1262.4	1269.0	103
12	'n'	58'	1261.9	1264.9	1269.0	100

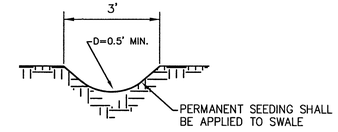
THE MIN. FLOOR ELEVATION IS BASED ON SEC. 200.02-2-G-1-h OF THE WESTERN VIRGINIA WATER AUTHORITY WATER & SEWER REGULATIONS. LOT OWNERS REQUESTING A LOWER SERVICE ELEVATION WILL REQUIRE THE USE OF A PRIVATE SEWAGE PUMP FACILITY, INSTALLED AND MAINTAINED BY THE HOMEOWNER.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

OVERLOT GRADING NOTES:
1. G.C. SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL PROPOSED DWELLINGS.
2. OVERLOT GRADING SHOWN IS CONCEPTUAL. A SEPARATE BPPP WILL NEED TO BE SUBMITTED TO ROANOKE COUNTY PRIOR TO HOUSE CONSTRUCTION.
3. HOUSE LOCATIONS AND FINISHED FLOOR ELEVATIONS ARE APPROXIMATE. EXACT HOUSE LOCATIONS AND FINISHED FLOOR ELEVATIONS TO BE SHOWN ON THE BPPP.
4. WATERPROOFING SHALL BE PROVIDED FOR ALL WALLS WHERE THE FINISHED FLOOR WILL BE LOCATED BELOW FINISHED GRADE.



YARD SWALE SECTION

NO SCALE

EARTH FILL:
Material — The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials.
Placement — Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8-inch thick (before compaction) layers which are to be continuous over the entire length of the fill.
Compaction — The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.
When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).
STRUCTURE BACKFILL:
Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.
PIPE CONDUITS:
All pipes shall be circular in cross section.
Plastic Pipe — The following criteria shall apply for plastic pipe:
Ø Materials — PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" — 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.
Ø Joints and connections to anti-seep collars shall be completely watertight.
Ø Bedding —The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
Ø Backfilling shall conform to recommendations of the pipe manufacturer.
CONCRETE:
Concrete shall meet the requirements of your local Department of Transportation or State Highway Administration Standard Specifications for Construction and Materials.
ROCK RIPRAP:
Rock riprap shall meet the requirements of the local Department of Transportation or State Materials Testing Agency.
Geotextile shall be placed under all riprap and shall meet the requirements of the local Department of Transportation or State Materials Testing Agency.
CARE OF WATER DURING CONSTRUCTION:
All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.
EROSION AND SEDIMENT CONTROL:
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Refer to the construction plans for detailed erosion and sediment control measures.

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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
10/15/13
PROFESSIONAL ENGINEER

FAIRWAYS at HANGING ROCK
SECTION 4

GRADING PLAN

CATAWBA DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 8/16/2013
SCALE 1" = 30'

REVISIONS:
9/18/2013
9/23/2013
10/15/2013

APPROVED

SHEET NO.
C05
JOB NO. R0500377.04