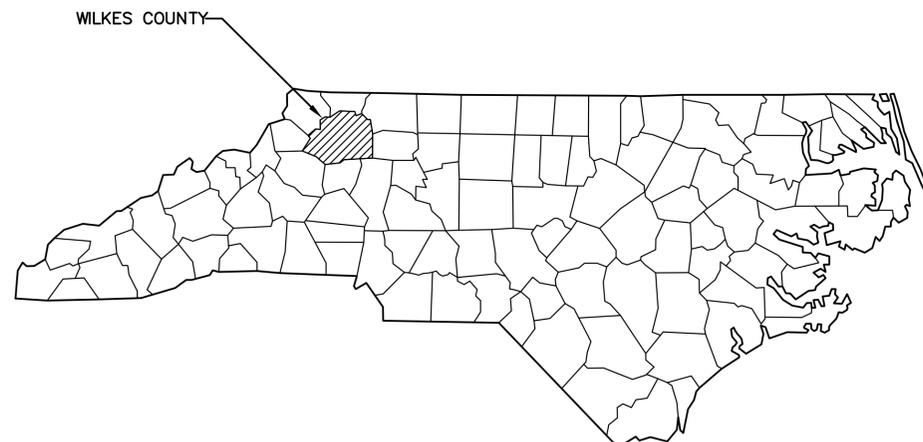


RECORD DRAWINGS FOR *NAKED CREEK* STREAM RESTORATION PROJECT

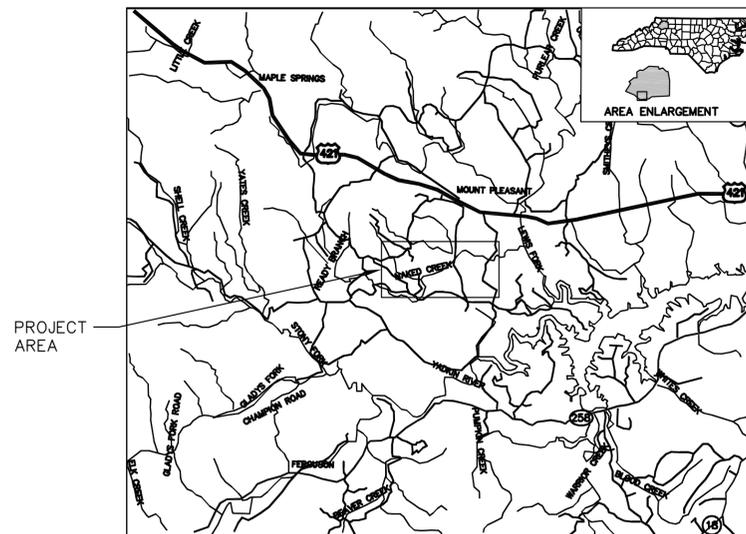
WILKES COUNTY, NORTH CAROLINA
STATE PROJECT NO.: 040619201

NC-EEP CONTACT: JULIE VANN (919) 715-1950

DISTURBED AREA: 6.1 ACRES
LATITUDE: 36.14267
LONGITUDE: -81.35841



STATE OF NORTH CAROLINA



LOCATION MAP

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	KEY SHEET
2A	GENERAL NOTES
3	STREAM MORPHOLOGY
4A-4C	VEGETATION NOTES
5	TYPICAL SECTIONS
6A-6F	DETAILS
S1-S6	PLAN SHEETS
W1	WELL LOCATIONS
C01	CHANGE ORDER #1
EC1-EC2	SEDIMENT AND EROSION CONTROL PLANS
P1-P3	PROFILE

SURVEY PREPARED BY:

CAVANAUGH

Solutions through integrity and partnership

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336/759-9001 fax: 336/759-1005 www.cavanaughassociates.com

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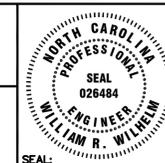
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PHONE: (919) 677-2000 FAX: (919) 677-2050

CLIENT:

**NORTH CAROLINA
ECOSYSTEM ENHANCEMENT PROGRAM**

TITLE:

COVER SHEET



DATE: 03/03/06
HORIZONTAL SCALE: N/A
VERTICAL SCALE: N/A
DRAWN BY: JJK
DESIGNED BY: ARK
CHECKED BY: WRW

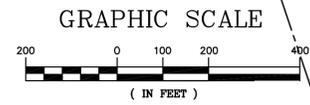
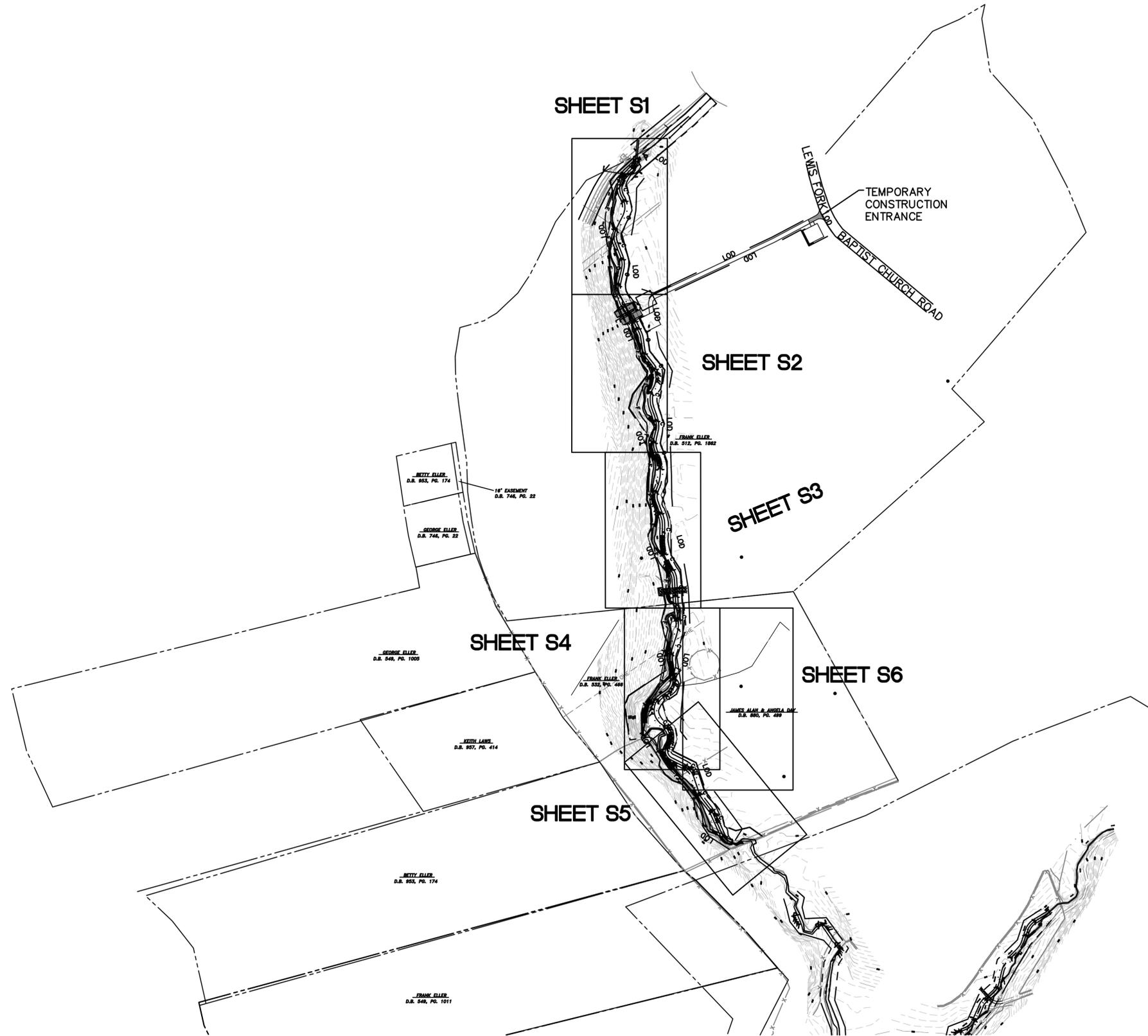
PROJECT:

NAKED CREEK

ATTACHED REFERENCE FILES:

JOB NUMBER:
011795018

SHEET NUMBER:
1



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CLIENT: **NC-EEP**
 TITLE: **KEY SHEET**

DATE: 03/03/06
 HORIZONTAL SCALE:
 VERTICAL SCALE:
 DRAWN BY: JJK
 DESIGNED BY: ARK
 CHECKED BY: WRW
 SEAL: 

PROJECT: **NAKED CREEK**
 ATTACHED REFERENCE FILES:
 JOB NUMBER: 011795018
 SHEET NUMBER: 2

General Notes:

All bearings are based on NAD '83 grid bearings. All distances and coordinates shown are horizontal (ground) values.

The Contractor shall only conduct bank and stream bed work, including all in-stream, grading, bank stabilization, and in-stream structures on a section of stream that can be entirely completed within a single day.

All graded areas shall be stabilized within 48 hours.

Every effort shall be taken to minimize disturbance in the stream channel and in gaining access to/from the work area.

Rock Silt Screens shall be constructed downstream of the construction area to reduce sediment entering the stream.

Erection of sedimentation and erosion controls shall be in accordance with state erosion control regulations.

Contractor shall keep all surrounding public roadways and drainage systems free from dirt, mud, and construction debris at all times.

Contractor shall be responsible for the repair of any items damaged during construction, including fencing, roads, etc.

Written encroachment agreement for all work in the utility right-of-way shall be obtained by the designer. However, the contractor shall be responsible for any damage incurred to any utility lines during the construction process.

All earth moving equipment shall be serviced prior to work commencing each morning. Equipment shall be maintained to prevent fuel, oil and lubricant spills in the vicinity of the stream.

The grade line elevations shown denote the finished elevation of the proposed or future surfacing at grade points shown on the typical sections. Grade lines may be adjusted at their beginning, ending and at structures as directed by the Engineer in order to secure a proper tie-in or to create a more "natural" appearance.

Subsurface:

No subsurface data is made available to the Contractor for this project. the Contractor shall be responsible for making his own subsurface investigations as they relate to this project.

Materials:

Excavated material shall be stockpiled in non-forested areas within the easement for later use as backfill of abandoned channel. Exact location of the spoil areas shall be determined by the Contractor and approved by the Engineer. The Contractor shall be responsible for installing appropriate stabilization measures outside the spoil areas to prevent erosion and sedimentation.

The Contractor shall stockpile trees (with and without root ball) with a diameter greater than 12" and rocks and cobble from excavation for use in bank stabilization and grade control structures.

Suitable native trees and shrubs that can be used as transplants (on the riparian vegetation species list on sheet 4A) shall be relocated to the new channel as directed by the Engineer.

Utilities:

The Contractor shall field locate all utilities inside the construction corridor.

The Contractor shall follow OSHA guidelines and utility owner guidelines when working near utilities.

The Contractor shall call the "Call Before You Dig" toll free phone number (1-800-632-4949), at least 48 hours before construction to make sure that utility lines are verified.

Erosion Control:

Total Area Disturbed = 6.1 acres.

Soil Types: Chewacla, and Pacolet

The contractor shall install and maintain throughout the project construction all erosion control measures shown within these plans in accordance with applicable NCDENR erosion and sediment control regulations.

All erosion control measures shall be constructed in accordance with the North Carolina erosion and sediment control regulations, U.S. Department of Agriculture, and U.S. Soil Conservation Service regulations.

All construction work shall be in compliance with regulations of the National Pollutant Discharge Elimination System (NPDES) storm water general permit.

The contractor shall diligently and continuously maintain all erosion control devices and structures to minimize erosion. The contractor shall maintain close contact with the NCDENR erosion control inspector so that periodic inspections can be performed at appropriate stages of construction.

Erosion and sediment control measures shall be maintained continuously, relocated when and as necessary, and shall be checked after every rainfall. Seeded areas shall be checked regularly and shall be watered, fertilized, reseeded and mulched as necessary to obtain a dense stand of grass.

Stabilization is the best form of erosion control. All disturbed areas which are not otherwise stabilized shall be top soiled and seeded, temporarily or permanently in accordance with the North Carolina sediment control regulations. Permanent seeding and grass establishment is required prior to project completion and acceptance.

Contractor shall provide ground cover on exposed slopes within 21 calendar days following completion of any phase of grading. Permanent ground cover for all disturbed areas shall be provided within 21 calendar days following completion of construction.

All temporary erosion and sediment control measures shall be removed within 21 days after final site stabilization or after the temporary measures are no longer needed. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner.

When a crushed stone construction entrance, or haul road has been covered with soil or has been pushed into the soil by construction traffic, it shall be replaced with a depth of stone equal to that of the original application.

All drainage inlets shall be protected from siltation. Ineffective protection devices shall be immediately replaced and the inlet cleaned. Flushing is not an acceptable method of cleaning.

During construction of the project, soil stockpiles shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as soil intentionally transported from the project site.

Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.

Stabilization measures shall be applied to structures such as dams, dikes and diversions immediately after installation.

CONSTRUCTION SEQUENCE OF EVENTS

Site/Easement:

The contractor shall be responsible for repairing any damage to existing roads, gates, fences, etc. Construction entrances shall be installed at all access locations per the plans and specifications.

The Contractor shall be responsible for any improvement to the road condition, gates, and fences, required for access during construction.

Erosion Control Measures During Construction

During construction the Contractor shall be responsible for installing additional erosion control measures not shown on the plans but necessary to control excess sediment, if determined by the Engineer.

General Sequence

The Contractor shall construct new channel sections to a stable form before moving out of the work area. A stable form shall include, but is not limited to the complete installation of in stream structures, transplants, erosion control matting, and temporary vegetation.

The Contractor shall work from upstream to downstream when doing work in the existing channel. The Contractor shall maintain a temporary rock silt screen downstream of any work in the live stream. Permanent vegetation shall be installed in conjunction with temporary seeding if construction is performed during the season specified in the Drawings and Specifications. If not, permanent vegetation shall be performed during specified planting seasons.

The area between the conservation easement and temporary construction easement shall be returned to active pasture after construction. The disturbed area shall be treated to loosen soils and planted with a mix of temporary stabilization and pasture seed. The temporary fence shall remain erected until pasture grasses have become established.

Modification/Stabilization of Existing Channel

Sections of the existing channel banks may need modification to create a stable cross section. Modification shall include grading existing vertical banks, and installation of structures such as root wads, rock cross vanes, and log vanes. All modifications shall proceed according to the construction plans. All work shall be subject to pump around operations when performed in the live channel.

Construction Channel Sections

1. Clear the trees and shrubs along the proposed new channel centerline and bankfull benches. Tree greater than 12" in diameter shall be pushed down, rather than cut in order to keep the root mass intact with the trunk. The trunk shall be cut at least 15 feet from the ball, sharpened to a point and stockpiled. Stockpiled trees shall be used later as rootwads and vanes.
2. Shrubs and trees less than 3" in diameter shall be saved for transplanting and stockpiled. All shrubs and trees shall be removed ensuring that the root mass is intact. Plants to be transplanted shall be marked with highly visible tape by the Engineer. Transplants need to be installed within 48 hours from being dug.
3. Where designated, the Contractor shall excavate new channel sections, however, the new channel shall NOT be connected to the existing channel. Four to six feet of undisturbed earth material shall be left between the new channel section and the old to prevent the normal stream form entering the newly constructed channel. Stockpile the excavated material between the new and existing channel.
4. Construction shall be completed including temporary vegetation, erosion control matting, live staking, transplants, and structures and approved by the Engineer prior to diverting stream flows into the new channel.
5. Following approval by the Engineer, the Contractor shall connect the new channel to the existing stream. Connect the newly constructed stream channel to the existing downstream channel first, then the upstream.
6. Once construction of a new channel section has been stabilized, the Contractor shall install the upstream and downstream rootwad diversion channel plugs in the "old" existing channel. The channel plugs shall be compacted material as specified.
7. The Contractor shall fill the existing channel as shown on the Drawings or as directed by the Engineer using the stockpiled material and appropriate borrow as needed. The Contractor should grade and stabilize the backfilled channel area according to specifications.

Construction Survey

The Contractor shall set/stake the stream centerline, top of left and right bankfull and limits of construction in the field per the Drawings. An electronic copy (AutoCAD) will be provided to the contractor from which to lay out the centerline of new stream. The Engineer reserves the right to adjust the location of the proposed centerline before the contractor begins any construction.

Construction Equipment

The Contractor is required to install in stream structures (rootwads, log vanes and rock cross vanes) using a back hoe with a hydraulic thumb of sufficient size to move rocks and trees as sized in the Drawing and Specifications.

Staging and Stockpiles Areas:

Specified areas shown on the plans have been established as a staging and stockpiling area. The contractor may establish additional staging and stockpiling areas along the project, as necessary, to carry out the work. All staging and stockpiling areas must be inside the limits of construction and approved by the Engineer. Silt fence shall be required in areas where loose soil has been placed in the staging and stockpiling areas.

Rain Gauge:

Contractor shall be responsible for having a rain gauge on the project site & for recording daily rainfall amounts during construction.

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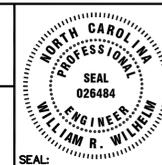
P.O. BOX 33068 - RALEIGH, NORTH CAROLINA 27636-3068
PHONE: (919) 677-2000 FAX: (919) 677-2050

CLIENT:

NC-EEP

TITLE:

GENERAL NOTES



DATE: 03/03/06
HORIZONTAL SCALE: N/A
VERTICAL SCALE: N/A
DRAWN BY: JJK
DESIGNED BY: ARK
CHECKED BY: WRW

PROJECT:

NAKED CREEK

ATTACHED REFERENCE FILES:

JOB NUMBER: 011795018

SHEET NUMBER: 2A

MORPHOLOGY CHARACTERISTICS

Restoration Site: Naked Creek, Wilkes County
 Nearest USGS Station: Station 02111180, Elk Creek at Elkville
 Reference Reaches: UT Purlear Creek, Upper Big Warrior Creek, Basin Creek, Basin Creek 2

VARIABLES	Reach Name ¹	Existing	Proposed	Reference	Reference	Reference	Reference	Regional Curve
		UTNKd - 1 & 2 (Upper UT to Naked Creek)	Upper UT to Naked Creek	UT Purlear Creek	Upper Big Warrior Creek	Basin Creek 2	Basin Creek	Rural Piedmont
	Design Station	0+00 25+62	0+00 25+62					
1. Stream Type (Rosgen)		Incised B4c	C4	B4c	B	C4	C4	
2. Drainage Area (sq. mile)		0.44	Mean: 0.44 Range: 0.34 0.53	0.57	0.7	6.8	33.2	Mean: 1.25 Range: 0.29 2.20
3. Bankfull Width (W _{bkf})		Mean: 12.7 Range:	Mean: 16.0 Range:	Mean: 12.5 Range:	Mean: 15.7 Range:	Mean: 30.7 Range:	Mean: 33.2 Range:	Mean: 24.0 Range:
4. Bankfull Mean depth (d _{bkf})		Mean: 1.0 Range:	Mean: 0.8 Range:	Mean: 0.6 Range:	Mean: 1.4 Range:	Mean: 1.9 Range:	Mean: 2.1 Range:	Mean: 1.3 Range:
5. Width/Depth Ratio (W _{bkf} /d _{bkf})		Mean: 13.4 Range:	Mean: 20.0 Range:	Mean: 20.8 Range:	Mean: 11.2 Range:	Mean: 16.2 Range:	Mean: 15.8 Range:	Mean: 17.8 Range:
6. Bankfull cross-sectional Area (Abkf)		Mean: 12.1 Range:	Mean: 13.0 Range:	Mean: 7.4 Range:	Mean: 21.9 Range:	Mean: 57.3 Range:	Mean: 68.4 Range:	Mean: 33.0 Range:
7. Bankfull Mean Velocity (V _{bkf})		Mean: 5.8 Range:	Mean: 4.8 Range: 4.5 5.8	Mean: 3.7 Range: 3.0 6.3	Mean: 3.7 Range:	Mean: 5.5 Range:	Mean: 5.5 Range:	Mean: 4.9 Range:
8. Bankfull Discharge (Q _{bkf})		Mean: 70.0 Range:	Mean: 62.4 Range: 60.0 70.0	Mean: 27.4 Range:	Mean: 0.0 Range:	Mean: 6.0 Range:	Mean: 376.2 Range:	Mean: 161.3 Range:
9. Bankfull Maximum Depth (d _{max})		Mean: 1.6 Range:	Mean: 1.0 Range:	Mean: 1.0 Range:	Mean: 1.8 Range:	Mean: 2.5 Range:	Mean: 3.1 Range:	Mean: 1.3 Range:
10. Max d _{rit} /d _{bkf} ratio		Mean: 1.7 Range:	Mean: 1.3 Range:	Mean: 1.7 Range:	Mean: 1.3 Range:	Mean: 1.3 Range:	Mean: 1.5 Range:	Mean: 1.3 Range:
11. Low Bank Height to max d _{bkf} ratio		Mean: 2.8 Range:	Mean: 1.0 Range:	Mean: 2.8 Range:	Mean: 1.3 Range:	Mean: 1.3 Range:	Mean: 1.2 Range:	Mean: 1.2 Range:
12. Width of Flood Prone Area (W _{fpa})		Mean: 18.6 Range:	Mean: 48.0 Range: 35.2 80.0	Mean: 38.0 Range:	Mean: 30.0 Range:	Mean: 85.0 Range:	Mean: 329.0 Range:	Mean: 1.3 Range:
13. Entrenchment Ratio (W _{fpa} /W _{bkf})		Mean: 1.5 Range:	Mean: 3.0 Range: 2.2 5.0	Mean: 1.4 Range:	Mean: 2.3 Range:	Mean: 2.8 Range:	Mean: 9.9 Range:	Mean: 1.3 Range:
14. Meander Length (L _m)		Mean: 102.0 Range: 43.0 164.0	Mean: 144.0 Range: 112.0 192.0	Mean: 80.0 Range:	Mean: 80.0 Range:	Mean: 350.0 Range:	Mean: 350.0 Range:	Mean: 1.3 Range:
15. Ratio of Meander Length to Bankfull Width (L _m /W _{bkf})		Mean: 8.0 Range: 3.4 12.9	Mean: 9.0 Range: 7.0 12.0	Mean: 8.4 Range:	Mean: 0.0 Range:	Mean: 11.4 Range:	Mean: 10.5 Range:	Mean: 1.3 Range:
16. Radius of Curvature (R _c)		Mean: 19.0 Range: 6.9 35.7	Mean: 48.0 Range: 32.0 84.0	Mean: 30.6 Range:	Mean: 30.6 Range:	Mean: 105.3 Range: 76.7 133.8	Mean: 51.2 Range: 40.0 69.3	Mean: 1.3 Range:
17. Ratio of Radius of Curvature to Bankfull Width (R _c /W _{bkf})		Mean: 1.5 Range: 0.5 2.8	Mean: 3.0 Range: 2.0 4.0	Mean: 1.7 Range:	Mean: 0.0 Range:	Mean: 3.4 Range:	Mean: 1.5 Range:	Mean: 1.3 Range:
18. Belt Width (W _{bt})		Mean: 35.1 Range: 17.7 44.5	Mean: 48.0 Range: 27.2 84.0	Mean: 30.6 Range:	Mean: 30.6 Range:	Mean: 105.0 Range:	Mean: 64.7 Range:	Mean: 1.3 Range:
19. Meander Width Ratio (W _{bt} /W _{bkf})		Mean: 2.8 Range: 1.4 3.5	Mean: 2.6 Range: 1.7 3.5	Mean: 1.7 Range:	Mean: 0.0 Range:	Mean: 3.4 Range:	Mean: 1.9 Range:	Mean: 1.3 Range:
20. Sinuosity (k) (Stream Length / Valley Length)		Mean: 1.0 Range:	Mean: 1.2 Range: 1.0 1.2	Mean: 1.1 Range:	Mean: 1.1 Range:	Mean: 1.4 Range:	Mean: 0.0 Range:	Mean: 1.3 Range:
21. Valley Slope (S _{valley}) (ft/ft)		Mean: 0.016 Range:	Mean: 0.016 Range: 0.010 0.020	Mean: 0.0170 Range:	Mean: 0.0170 Range:	Mean: 0.0140 Range:	Mean: 0.0140 Range:	Mean: 1.3 Range:
22. Average Stream Slope (S _{avg}) = (S _{valley} /k)		Mean: 0.016 Range:	Mean: 0.014 Range: 0.010 0.014	Mean: 0.0160 Range:	Mean: 0.0160 Range:	Mean: 0.0100 Range:	Mean: 0.0140 Range:	Mean: 1.3 Range:
23. Riffle Slope (S _{rit})		Mean: 0.023 Range: 0.0148 0.035	Mean: 0.023 Range: 0.0195 0.0250	Mean: 0.0290 Range:	Mean: 0.0290 Range:	Mean: 0.0510 Range:	Mean: 0.0210 Range:	Mean: 1.3 Range:
24. Ratio of Riffle Slope to Avg. Slope (S _{rit} /S _{avg})		Mean: 1.8 Range:	Mean: 1.5 Range: 1.0 1.8	Mean: 1.8 Range:	Mean: 1.8 Range:	Mean: 5.1 Range:	Mean: 1.5 Range:	Mean: 1.3 Range:
25. Pool Slope (S _{pool})		Mean: 0.0055 Range: 0.0011 0.009	Mean: 0.0020 Range:	Mean: 0.0020 Range:	Mean: 0.0020 Range:	Mean: 0.0055 Range:	Mean: 0.0020 Range:	Mean: 1.3 Range:
26. Ratio of Pool Slope to Avg. Slope (S _{pool} /S _{avg})		Mean: 0.1 Range:	Mean: 0.1 Range:	Mean: 0.1 Range:	Mean: 0.1 Range:	Mean: 0.6 Range:	Mean: 0.0 Range:	Mean: 1.3 Range:
27. Maximum Pool Depth (d _{pool})		Mean: 2.0 Range:	Mean: 2.4 Range:	Mean: 2.4 Range:	Mean: 2.4 Range:	Mean: 3.1 Range:	Mean: 4.8 Range:	Mean: 1.3 Range:
28. Ratio of Pool Depth to Avg. Depth (d _{pool} /d _{avg})		Mean: 2.1 Range:	Mean: 3.0 Range:	Mean: 2.2 Range:	Mean: 0.0 Range:	Mean: 1.6 Range:	Mean: 2.3 Range:	Mean: 1.3 Range:
29. Pool Width (W _{pool})		Mean: 11.3 Range:	Mean: 20.0 Range:	Mean: 12.5 Range:	Mean: 12.5 Range:	Mean: 40.6 Range:	Mean: 50.3 Range:	Mean: 1.3 Range:
30. Ratio of Pool Width to Bankfull Width (W _{pool} /W _{bkf})		Mean: 0.9 Range:	Mean: 1.3 Range:	Mean: 1.0 Range:	Mean: 0.0 Range:	Mean: 1.3 Range:	Mean: 1.5 Range:	Mean: 1.3 Range:
31. Ratio of Pool Area to Bankfull Area (A _{pool} /A _{bkf})		Mean: 1.0 Range:	Mean: 1.6 Range:	Mean: 1.1 Range:	Mean: 0.0 Range:	Mean: 1.1 Range:	Mean: 1.6 Range:	Mean: 1.3 Range:
32. Pool to Pool Spacing (p - p)		Mean: 55.5 Range:	Mean: 112.0 Range: 80.0 144.0	Mean: 100.0 Range:	Mean: 100.0 Range:	Mean: 224.0 Range:	Mean: 305.0 Range: 271.0 334.0	Mean: 1.3 Range:
33. Ratio of Pool to Pool Spacing to Bankfull Width (p-p/W _{bkf})		Mean: 4.4 Range:	Mean: 7.0 Range: 5.0 9.0	Mean: 8.0 Range:	Mean: 0.0 Range:	Mean: 7.3 Range:	Mean: 9.2 Range:	Mean: 1.3 Range:

1 Existing reaches are representative portions of design groups.

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 PHONE: (919) 677-2000 FAX: (919) 677-2050

CLIENT: **NC-EEP**

TITLE: **STREAM MORPHOLOGY**



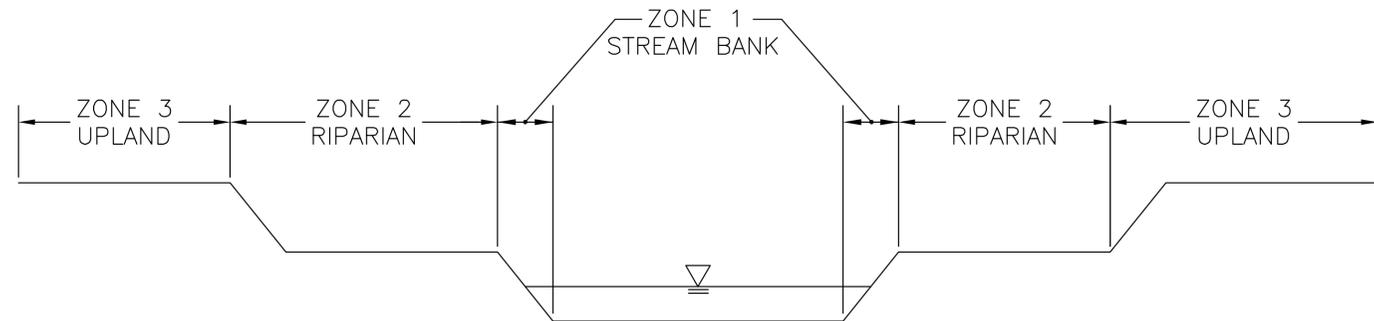
DATE: 03/03/06
 HORIZONTAL SCALE: N/A
 VERTICAL SCALE: N/A
 DRAWN BY: JIK
 DESIGNED BY: ARK
 CHECKED BY: WRW

PROJECT: **NAKED CREEK**

ATTACHED REFERENCE FILES:

JOB NUMBER: 011795018
 SHEET NUMBER: 3

Woody Vegetation Planting				
Vegetation		Community Zones with Planting Type ¹		
Scientific Name	Common Name	Stream Bank ²	Riparian	Upland
Canopy³				
<i>Acer barbatum</i>	Southern Sugar Maple		BR	
<i>Betula nigra</i>	River Birch◆	BR	BR	
<i>Carya cordififomis</i>	Bitternut Hickory		BR,CN	BR,CN
<i>Carya ovata</i>	Shagbark Hickory		BR,CN	BR,CN
<i>Celtis laevigata</i>	Sugarberry		BR	BR,CN
<i>Diospyros virginiana</i>	Persimmon◆		BR	BR,CN
<i>Fraxinus pennsylvanica</i>	Green Ash◆		BR	BR,CN
<i>Nyssa sylvatica</i>	Blackgum		BR	BR,CN
<i>Platanus occidentalis</i>	Sycamore		BR	
<i>Populus deltoides</i>	Cottonwood	0-25%		
<i>Quercus michauxii</i>	Swamp Chestnut Oak◆		BR	
<i>Quercus nigra</i>	Water Oak		BR	BR,CN
<i>Quercus phellos</i>	Willow Oak◆		BR	
<i>Quercus shumardii</i>	Shumard Oak		BR	
<i>Salix Nigra</i>	Black Willow	50%	BR	
<i>Tilia heterophylla</i>	White Basswood		BR	BR,CN
Understory⁴				
<i>Aesculus sylvatica</i>	Painted Buckeye		BR	
<i>Alnus serrulata</i>	Tag Alder◆	BR	BR	
<i>Amelanchier arborea</i>	Serviceberry		BR	BR
<i>Aronia arbutifolia</i>	Red Chokeberry◆		BR	
<i>Asimina triloba</i>	Common Pawpaw		BR	BR
<i>Calycanthus floridus</i>	Sweet-Shrub		BR	
<i>Carpinus caroliniana</i>	Ironwood		BR	
<i>Cephalanthus occidentalis</i>	Buttonbush◆		BR	
<i>Cornus alternifolia</i>	Alternate Leaf Dogwood		BR	BR
<i>Cornus amomum</i>	Silky Dogwood◆	25%	BR	
<i>Corylus Americana</i>	Hazel-Nut		BR	BR
<i>Hamamelis virginiana</i>	Witch-Hazel		BR	BR
<i>Hibiscus moscheutos</i>	Marsh Mallow		BR	
<i>Ilex deciduas</i>	Deciduous Holly		BR	
<i>Ilex verticillata</i>	Winter Berry		BR	
<i>Itea virginica</i>	Virginia Willow◆		BR	
<i>Leucothoe fontanesiana</i>	Doghobble		BR ⁵	
<i>Lindera benzoin</i>	Spicebush		BR ⁵	
<i>Lyonia ligustina</i>	Male-Berry		BR	
<i>Magnolia tripetala</i>	Umbrella Tree		BR ⁵	
<i>Morus rubra</i>	Red Mulberry		BR	
<i>Physocarpus opulifolius</i>	Ninebark		BR	
<i>Rhododendron periclymenoides</i>	Wild Azelea		BR	
<i>Rhododendron viscosum</i>	Swamp Azelea		BR	
<i>Rosa Palustris</i>	Swamp Rose◆		BR	
<i>Salix sericea</i>	Silky Willow		BR	
<i>Sambucus canadensis</i>	Elderberry	0-25%		
<i>Staphylea trifolia</i>	Bladdernut		BR ⁵	
<i>Symplocos tinctoria</i>	Sweet Leaf		BR	BR
<i>Viburnum cassinoides</i>	Withe-Rod		BR	
<i>Viburnum dentatum</i>	Southern Arrow-wood	0-25%		
<i>Xanthorhiza simplicissima</i>	Yellow-Root		BR ⁵	BR ⁵



ZONE CROSS SECTION
N.T.S.

ACTUAL PLANTED STEMS				
Stratum	Common Name	Scientific Name	Form	Planted
Canopy	Persimmon	<i>Diospyros virginiana</i>	1 Gallon Container	15
Canopy	Shagbark Hickory	<i>Carya ovata</i>	1 Gallon Container	15
Canopy	River Birch	<i>Betula nigra</i>	Bare Root	140-150
Canopy	Sugar Berry	<i>Celtis laevigata</i>	Bare Root	140-150
Canopy	Persimmon	<i>Diospyros virginiana</i>	Bare Root	140-150
Canopy	Shagbark Hickory	<i>Carya ovata</i>	Bare Root	140-150
Canopy	Blackgum	<i>Nyssa sylvatica</i>	Bare Root	140-150
Canopy	Water Oak	<i>Quercus nigra</i>	Bare Root	140-150
Canopy	Willow Oak	<i>Quercus phellos</i>	Bare Root	140-150
Canopy	Green Ash	<i>Fraxinus pennsylvanica</i>	Bare Root	140-150
Understory	Tag Alder	<i>Alnus serrulata</i>	1 Gallon Container	3-5
Understory	Chokeberry	<i>Photinia pyrifolia</i>	Bare Root	140-150
Understory	Paw Paw	<i>Asimina triloba</i>	Bare Root	140-150
Understory	Spicebush	<i>Lindera benzoin</i>	Bare Root	140-150
Understory	Ironwood	<i>Carpinus caroliniana</i>	Bare Root	140-150
Understory	Hazel-Nut	<i>Corylus americana</i>	Bare Root	140-150
Understory	Southern arrow-wood	<i>Viburnum dentatum</i>	Bare Root	140-150
Understory	Possumhaw	<i>Viburnum nudum</i>	Bare Root	140-150

1. Planting Type Abbreviations: BR - Bare Root; CN - Container
2. Stream Bank Zone composed live stake and bare root plantings. Planting distribution of live stakes provided in column.
3. Composition should include at least 8 different tree species with no more than 25% of any one species.
4. Composition should include at least 8 different shrub species with no more than 20% of any one species.
- 5: These light intolerant species should be planted in the interior areas near canopy trees.◆: Typically grows well in the field.

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PHONE: (919) 677-2000 FAX: (919) 677-2050

CLIENT: **NC-EEP**

TITLE: **VEGETATION NOTES**

DATE: 03/03/06
HORIZONTAL SCALE: N/A
VERTICAL SCALE: N/A
DRAWN BY: JJK
DESIGNED BY: ARK
CHECKED BY: WRW

PROJECT: **NAKED CREEK**

ATTACHED REFERENCE FILES:

JOB NUMBER: 011795018
SHEET NUMBER: 4A

BARE ROOT/CONTAINERIZED VEGETATION

1. General:

In order to establish vegetation in restoration areas, such as bankfull benches and slopes, bare root and containerized vegetation will be planted as shown on the plans or required in the Special Conditions.

2. Materials:

Initial vegetation material will be provided by the contractor. The contractor is responsible for correctly installing and maintaining vegetation material.

Vegetation material will consist of bare root trees and/or shrubs and containerized trees and/or shrubs. Container material will be in quart, gallon, and three-gallon plastic containers.

3. Preparation:

Planting should take place in **winter**. Immediately following delivery to the project site, all plants with bare roots, if not promptly planted, shall be heeled-in in constantly moist soil or sawdust in a manner consistent with generally accepted horticultural practices.

While plants with bare roots are being transported to and from heeling-in beds, or are being distributed in planting beds, or are awaiting planting after distribution, the contractor shall protect the plants from drying out by means of wet canvas, burlap, or straw, or by other means acceptable to Planting Supervisor and appropriate to weather conditions and the length of time the roots will remain out of the ground.

4. Installation:

Soil in the area of shrub and tree plantings shall be loosened to a depth of at least 5 inches.

Bare root vegetation may be planted in a hole made by a mattock, dibble, planting bar, or other means approved by Planting Supervisor. Rootstock shall be planted in a vertical position with the root collar approximately 1/2 inch below the soil surface. The planting trench or hole shall be deep and wide enough to permit the roots to spread out and down without J-rooting. The plant stem shall remain upright.

Soil shall be replaced around the transplanted vegetation and tamped around the shrub or tree firmly to eliminate air pockets.

LIVE STAKES

1. General:

Live stakes are to be installed on exposed stream banks to bankfull elevation of the designed stream. The Planting Supervisor reserves the right to reject any "stakes" that do not meet the above mentioned criteria. The Contractor shall replace rejected work at no additional cost to the owner.

2. Materials:

- Live stakes are to be dormant (cut fall or winter) and gathered locally or purchased from a commercial supplier.
- Stakes must be freshly cut with side branches removed, but with bark intact (ensure that the bark is not stripped during the cutting, preparation, or installation of the stake).
- Cuttings are to be collected using a saw (not an ax).

3. Preparation:

- One end must be cut at an angle for insertion into the soil and the other end must be cut square for tamping.
- Cuttings must be kept fresh and moist prior to installation.
- Cuttings must be prepared from 0.5 to 2-inch diameter stock and approximately 2 to 3 feet in length.

4. Installation:

- Install stakes the same day they are prepared.
- Start the installation nearest to the stream and work up the bank/floodplain.
- Cuttings must be installed right side up with the buds pointing upward.
- Cuttings should be tamped into the ground at right angles to the slope and angled downstream.
- They are to be tamped into the ground for approximately 4/5 of their length.
- Cuttings that split or become "mushroomed" must be replaced.
- Stakes should be installed in a random configuration to prevent gullies and promote a more natural effect in the re-vegetated area

Soil in the area of shrub and tree plantings shall be loosened to a depth of at least 5 inches.

Bare root vegetation may be planted in a hole made by a mattock, dibble, planting bar, or other means approved by Planting Supervisor. Rootstock shall be planted in a vertical position with the root collar approximately 1/2 inch below the soil surface. The planting trench or hole shall be deep and wide enough to permit the roots to spread out and down without J-rooting. The plant stem shall remain upright.

Soil shall be replaced around the transplanted vegetation and tamped around the shrub or tree firmly to eliminate air pockets.

PERMANENT SEEDING SPECIFICATIONS

1. General:

Permanent seeding will be used in combination with woody plantings on the up-slope side of the riparian areas and down to the bankfull elevation. Permanent seeding will occur in conjunction with temporary seeding where applicable. This mixture will also be used in any terrestrial (areas not inundated) riparian areas that have been disturbed by construction; designated as wetland and/or riparian enhancement; or as directed by Planting Supervisor.

2. Materials:

A riparian seed mix at the rate of 1/4 lb per 1,000 sq ft or 10 lbs per acre shall be used for seeding. The table labeled "riparian seed mix" lists an herbaceous, permanent seed mixture.

3. Preparation:

On sites where equipment can be operated safely, the seedbed shall be adequately loosened. Disking may be needed in areas where soil is compacted. Steep banks may require roughening, either by hand scarifying or by equipment, depending on site conditions. Planting Supervisor will determine condition needs onsite. If seeding is done immediately following construction, seedbed preparation may not be required except on compacted, polished or freshly cut areas. If permanent seeding is performed in conjunction with temporary seeding, seedbed preparation only needs to be executed once.

4. Installation:

This mixture shall be planted in late fall in combination with the temporary seeding operation and woody plant installations. Seeding should be done evenly over the area using a mechanical or hand seeder. A drag should be used to cover the seed with no more than 1/2 inch of soils. Where a drag cannot safely be utilized, the seed should be covered by hand raking.

Common Name	Scientific Name	%
Rice Cut Grass	<i>Leersia oryzoides</i>	5
Soft Rush	<i>Juncus effusus</i>	10
Deertongue	<i>Panicum clandestinum</i>	20
Switchgrass	<i>Panicum virgatum</i>	50
Ironweed	<i>Veronia noveboracensis</i>	5
Swamp Sunflower	<i>Helianthus angustifolius</i>	5
Joe Pye Weed	<i>Eupatorium fistulosum</i>	5

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CLIENT: **NC-EEP**

TITLE: **VEGETATION NOTES**



DATE: 03/03/06
 HORIZONTAL SCALE: NA
 VERTICAL SCALE: NA
 DRAWN BY: JJK
 DESIGNED BY: ARK
 CHECKED BY: WRW

PROJECT: **NAKED CREEK**

ATTACHED REFERENCE FILES:

JOB NUMBER: 011795018 SHEET NUMBER: **4B**

TEMPORARY SEEDING FOR
LATE WINTER AND EARLY SPRING

Seeding mixture	Rate (lb/acre)
Rye (<i>Secale cereale</i>) 30% Species	120
Browntop Millet (<i>Panicum ramosum</i>) 70%	

Soil amendments
Follow recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.

Mulch
Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

Maintenance
Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

Note: Ground cover shall be established on exposed slopes within 30 working days following completion of any phase of grading.

PERMANENT SEED MIX FOR DISTURBED
AREAS TO BE MAINTAINED AS PASTURE

Seeding mixture	Rate
Tall Fescue	25 lb/acre
Cereal Rye	1/2 bushel/acre

Seeding notes
1. After Aug. 15 use unscarified sericea seed.
2. To extend spring seeding dates into June, add 15 lb/acre hulled Bermudagrass. However, after mid-Apr. it is preferable to seed temporary cover.

Seeding dates
Spring: May 25 – June 25
Summer: August 25 – September 25

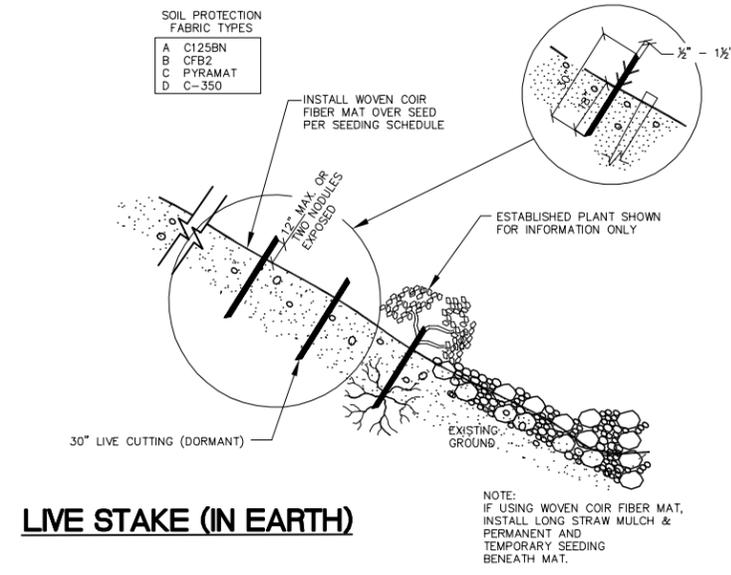
Soil amendments
Apply lime and fertilizer according to soil tests, or apply 4,000 lb/acre ground agricultural limestone and 1,000 lb/acre 10-10-10 fertilizer.

Mulch
Apply 4,000 lb/acre grain straw or equivalent cover of another suitable mulch. Anchor straw by tacking with netting, or roving or by crimping with a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

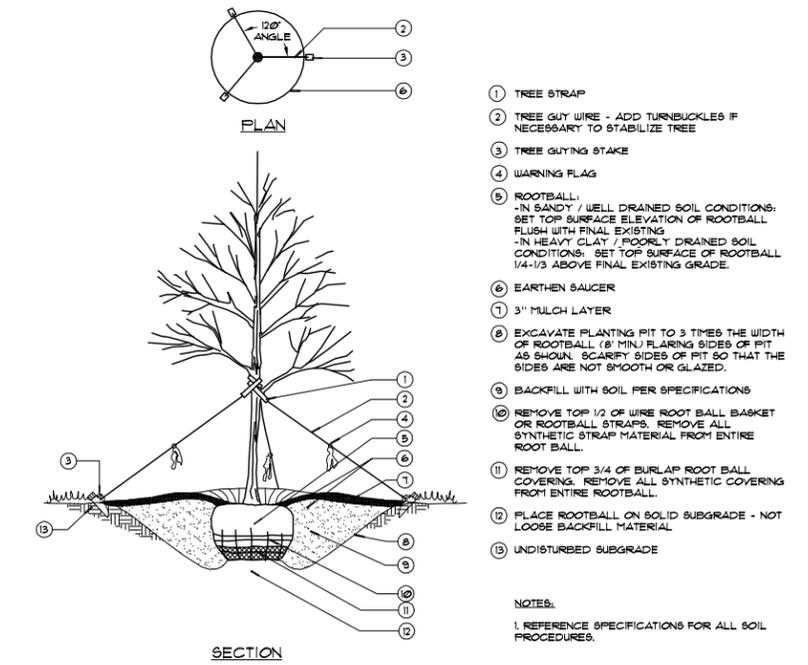
Installation
The seed may be broadcast or drilled. The seed must be covered 1/4" to 1/2" and must be dragged in and rolled. Where a drag cannot be utilized the seed should be covered by a hand rake.

Maintenance
Reseed, fertilize, and mulch damaged areas immediately.

*Species were selected based on recommendations from the NC Cooperative Extension Service office located in Wilkesboro, NC.

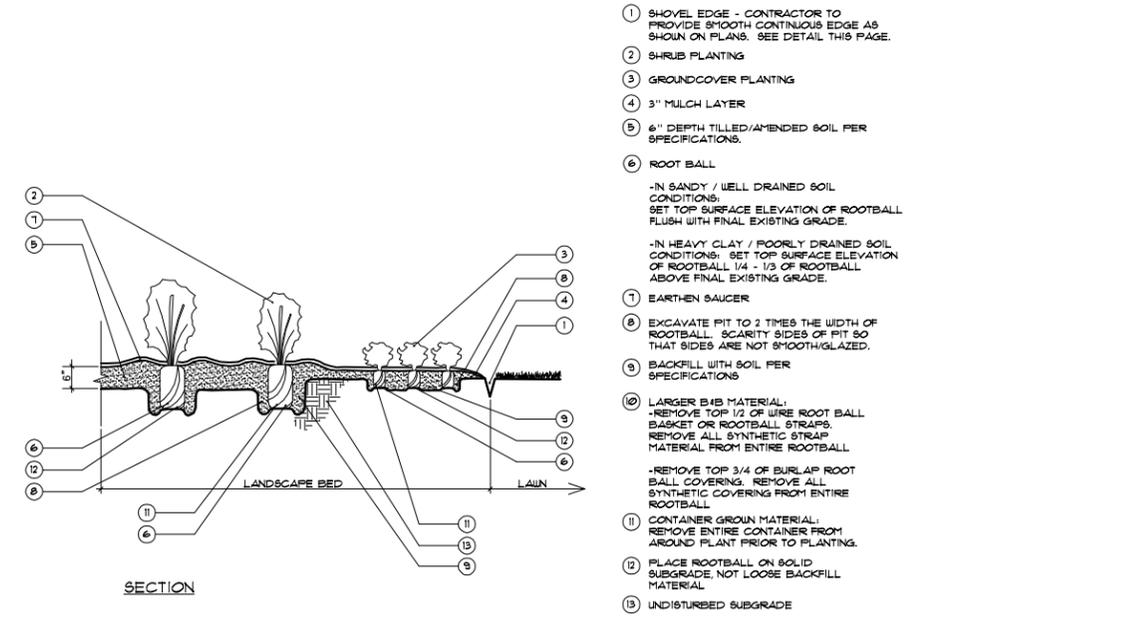


LIVE STAKE (IN EARTH)



TYPICAL TREE PLANTING / GUYING DETAIL
(FOR 12'-20' TREE HEIGHTS AT PLANTING)

NOT TO SCALE



TYPICAL LANDSCAPE BED PLANTING DETAIL (SHRUBS & GROUND COVER)

NOT TO SCALE

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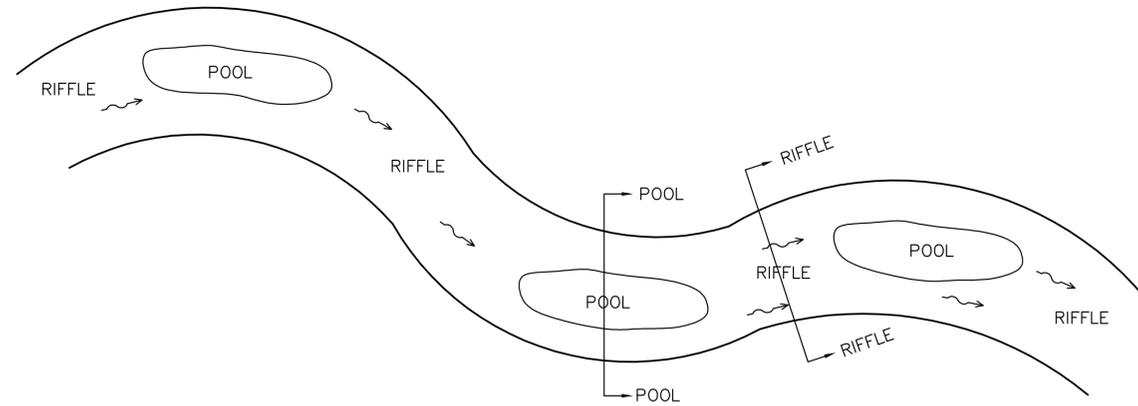
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DATE: 03/03/06
HORIZONTAL SCALE: NA
VERTICAL SCALE: NA
DRAWN BY: JIK
DESIGNED BY: ARK
CHECKED BY: WRW

PROJECT: **NAKED CREEK**

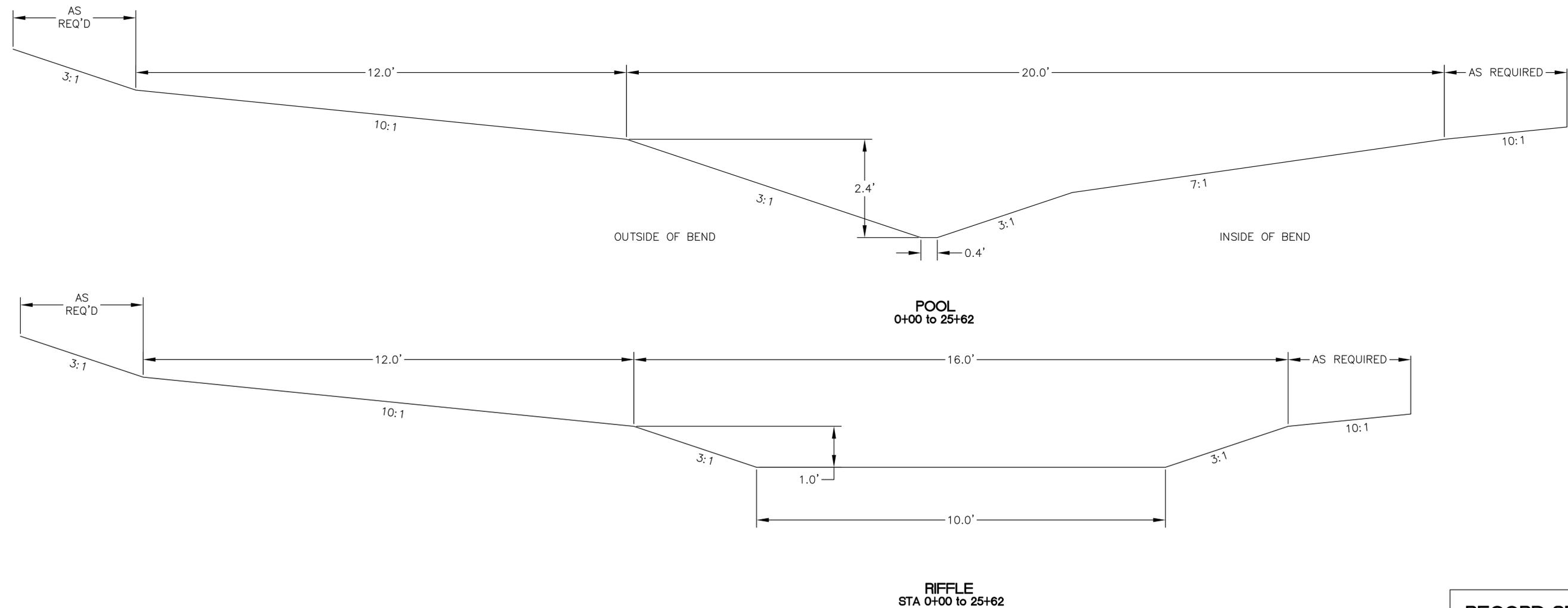
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JOB NUMBER: 011795018
SHEET NUMBER: 4C



TYPICAL PLAN VIEW SCHEMATIC

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TITLE: **TYPICALS**



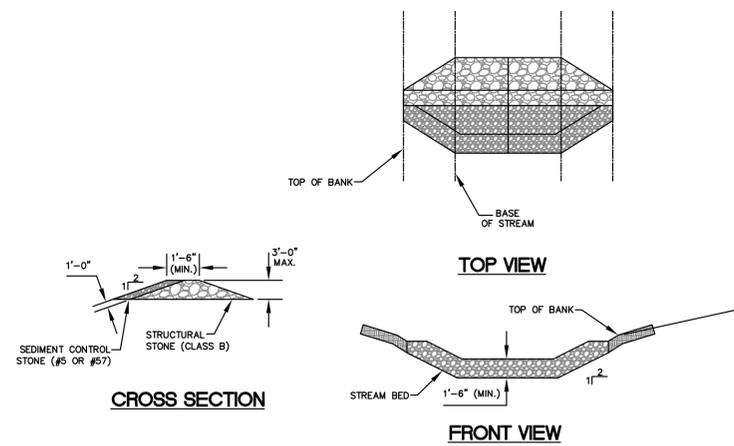
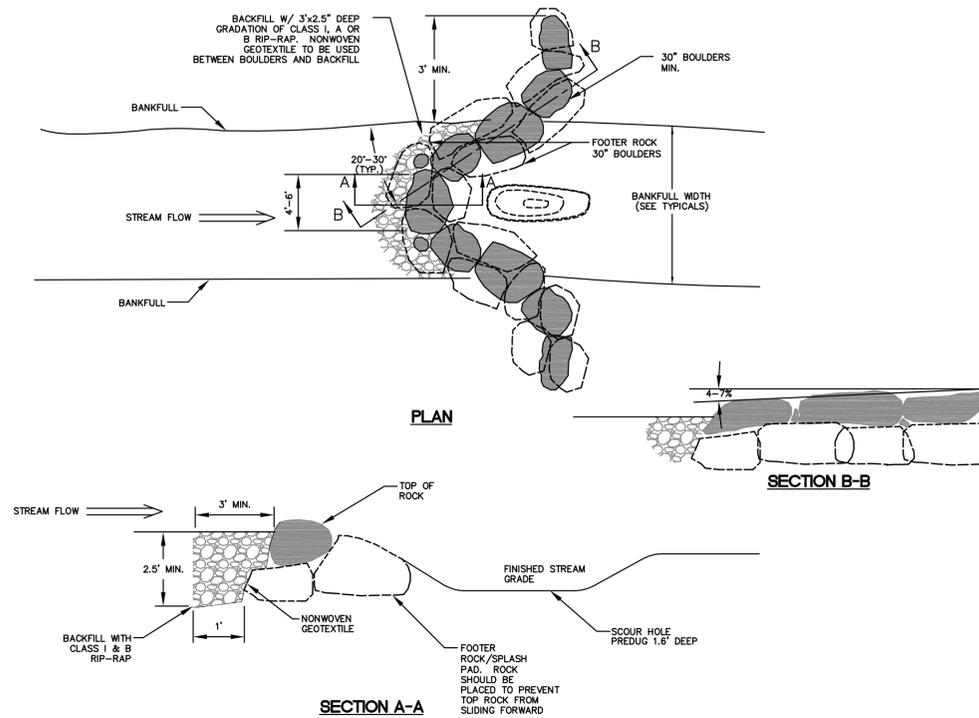
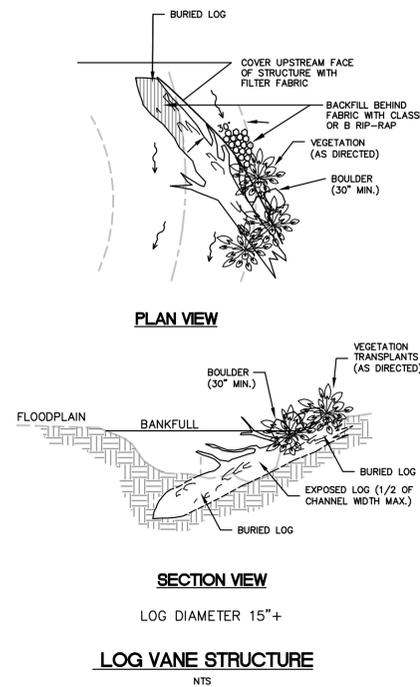
DATE: 03/03/06
HORIZONTAL SCALE: HORIZ
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DRAWN BY: JJK
DESIGNED BY: ARK
CHECKED BY: WRW

PROJECT: **NAKED CREEK**

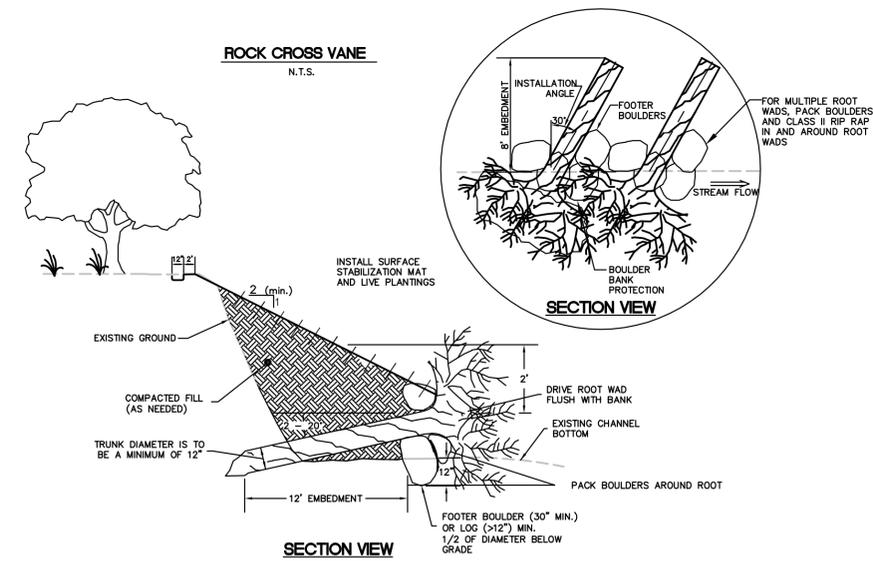
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JOB NUMBER: 011795018

SHEET NUMBER: **5**



TEMPORARY ROCK SILT CHECK
NTS
MAINTENANCE OF TEMPORARY ROCK SILT CHECK PER SECTION 1630 & 1636 OF NCDOT STANDARD SPECIFICATIONS, JANUARY 2002



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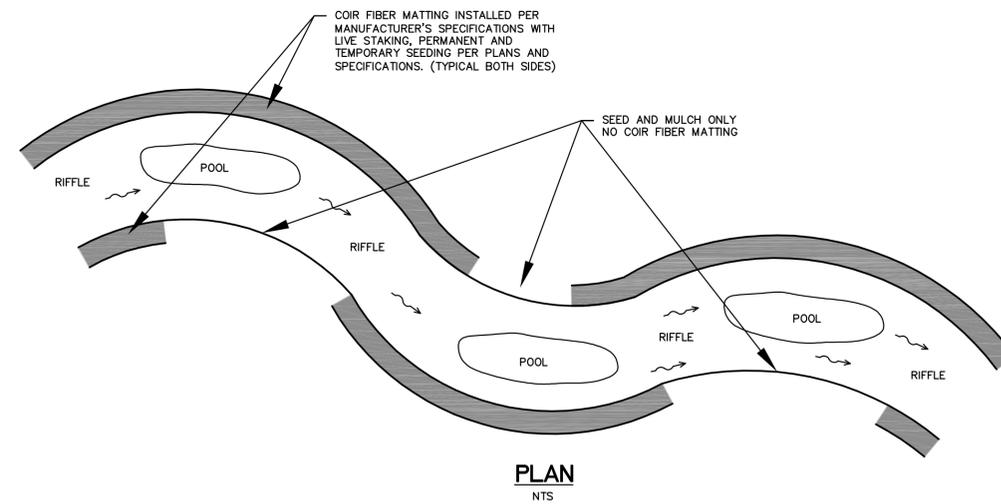
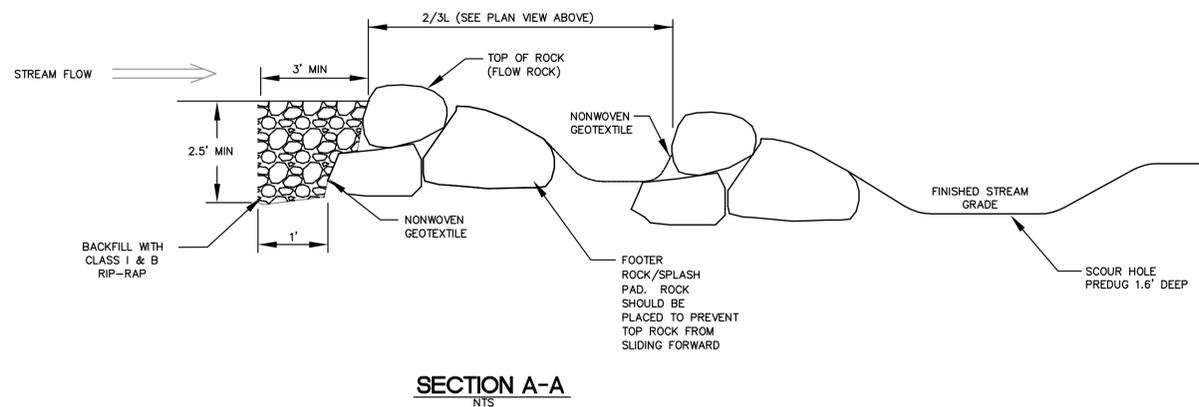
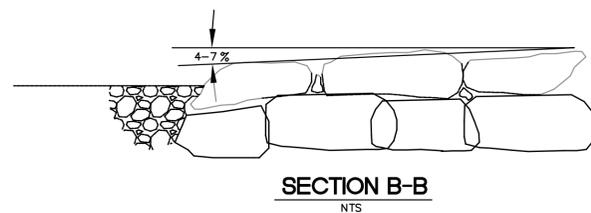
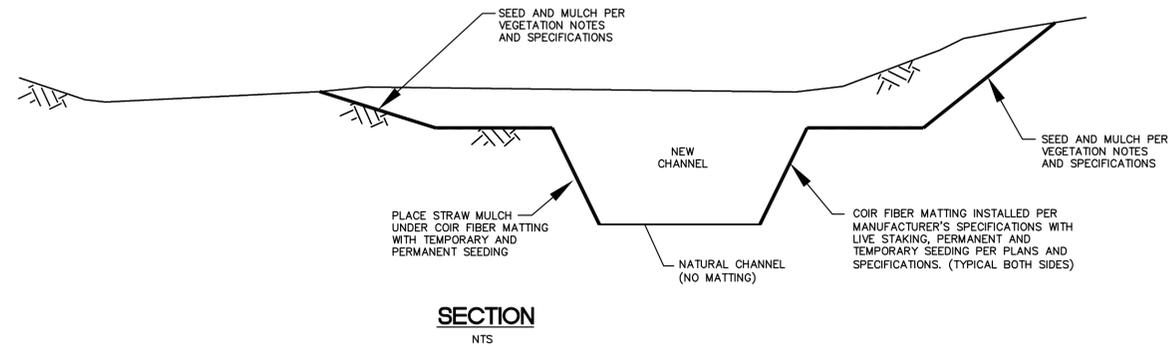
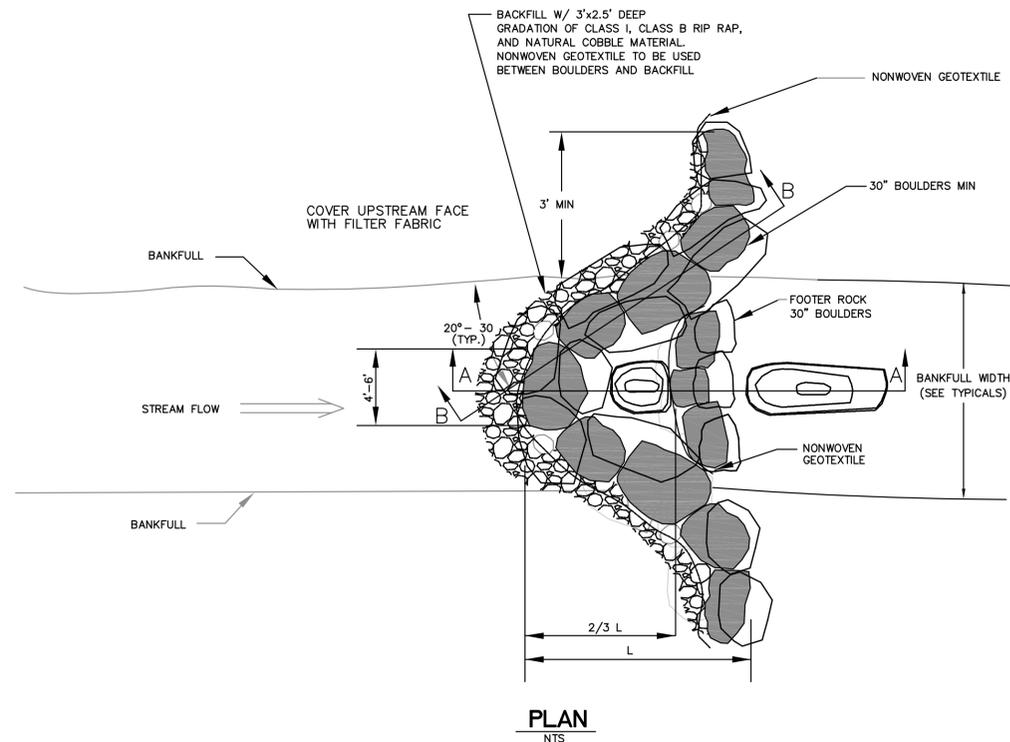
TITLE: **DETAILS**

DATE: 03/03/06
HORIZONTAL SCALE: N/A
VERTICAL SCALE: N/A
DRAWN BY: JJK
DESIGNED BY: ARK
CHECKED BY: WRW

PROJECT: **NAKED CREEK**

ATTACHED REFERENCE FILES:

JOB NUMBER: 011795018
SHEET NUMBER: 6A



MATTING INSTALLATION GUIDE
NTS

NOTE: CLASS B RIP RAP SHALL BE HAND PLACED TO FILL VOIDS BETWEEN LARGER BOULDERS.

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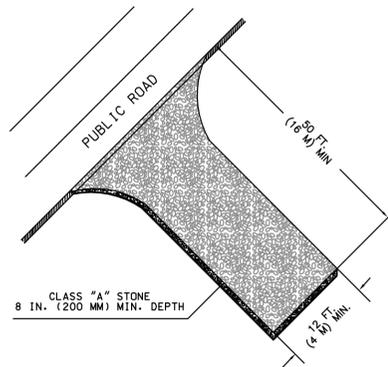
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PROJECT: **NAKED CREEK**

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SHEET NUMBER: 6B

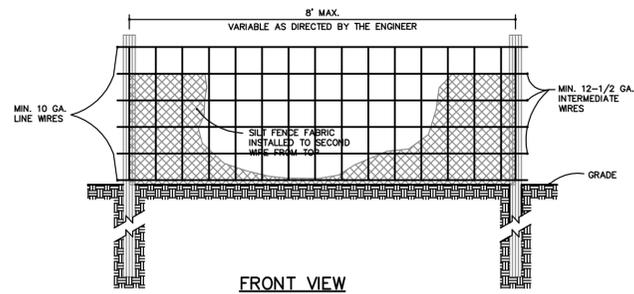


- NOTES:
- TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS SHALL BE PROVIDED.
 - ENTRANCE(S) SHOULD BE LOCATED TO PROVIDE FOR UTILIZATION BY ALL CONSTRUCTION VEHICLES.
 - MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOPDRESSING WITH STONE WILL BE NECESSARY.
 - ANY MATERIAL TRACKED ONTO THE ROADWAY MUST BE CLEANED UP IMMEDIATELY.
 - GRAVEL CONSTRUCTION ENTRANCE SHALL BE LOCATED AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED. FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE MUST BE PROVIDED.
 - NUMBER AND LOCATION OF CONSTRUCTION ENTRANCES TO BE DETERMINED BY THE ENGINEER.

NOTE: FILTER FABRIC TO BE PLACED BENEATH STONE

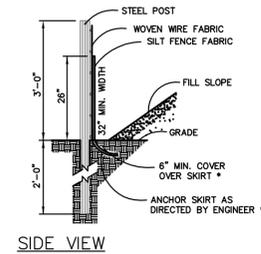
TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

NTS



FRONT VIEW

NOTE:
-USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW

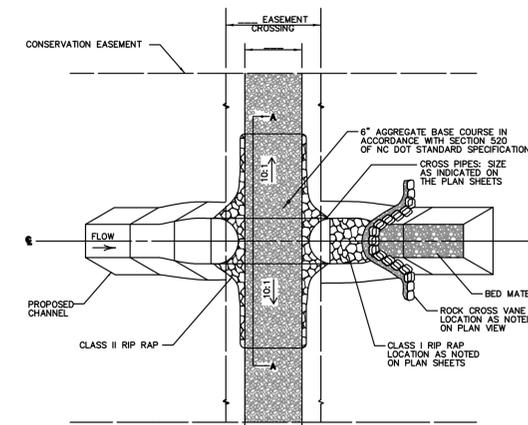


SIDE VIEW

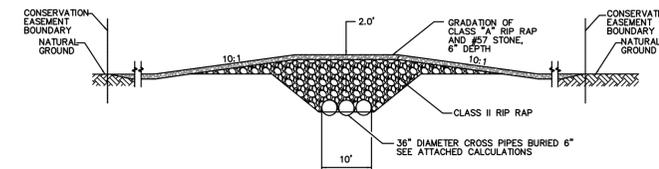
* MAINTENANCE PER SECTION 6.62 OF NCDENR EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

STANDARD TEMPORARY SILT FENCE

NTS



PLAN VIEW



SECTION A-A

TYPE I STREAM CROSSING-TRIPLE (36") CMP

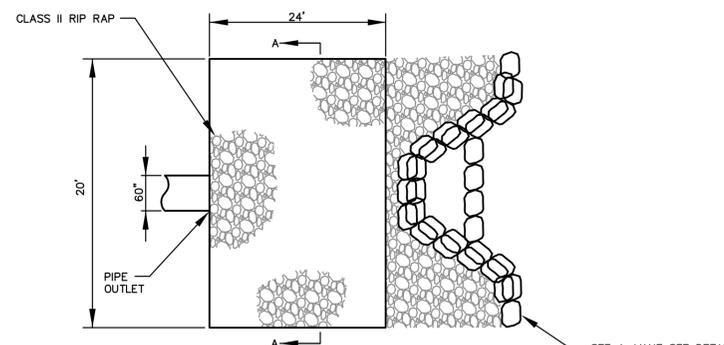
NTS

- NOTES:
- FILTER FABRIC OR COMPACTED RUN STONE SHALL BE USED AS A BASE FOR HAUL ROAD.
 - ROAD SURFACE SHALL BE MAINTAINED AS A CLEAN SURFACE. WHERE ROAD HAS BEEN COVERED BY SOIL OR HAS BEEN PUSHED INTO THE SOIL BY CONSTRUCTION TRAFFIC, IT SHALL BE REPLACED WITH A DEPTH OF STONE EQUAL TO THAT OF THE ORIGINAL APPLICATION.

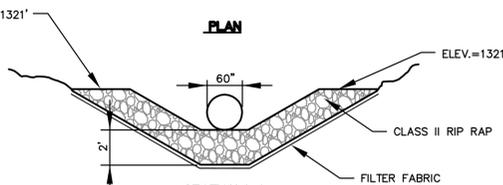


TEMPORARY HAUL ROAD

NTS



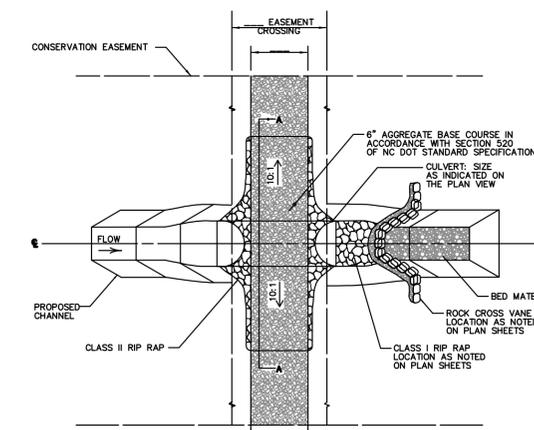
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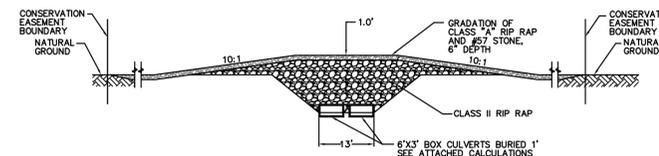
SECTION A-A

PIPE OUTLET AT ROM ELLER ROAD

NTS



PLAN VIEW



SECTION A-A

CULVERT/LIVESTOCK CROSSING-DOUBLE (6'x3') BOX CULVERTS RCBC

NTS

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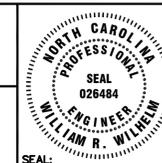
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PHONE: (919) 677-2000 FAX: (919) 677-2050

CLIENT:

NC-EEP

TITLE:

DETAILS



DATE: 03/03/06

HORIZONTAL SCALE: N/A

VERTICAL SCALE: N/A

DRAWN BY: JJK

DESIGNED BY: ARK

CHECKED BY: WRW

SEAL:

PROJECT:

NAKED CREEK

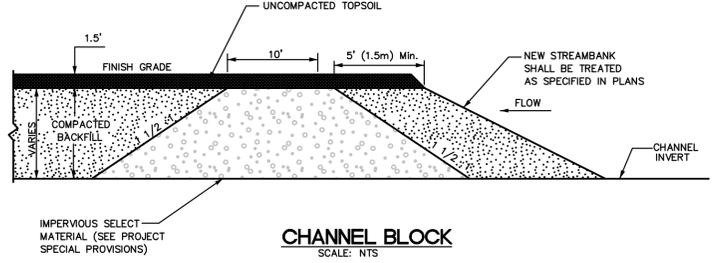
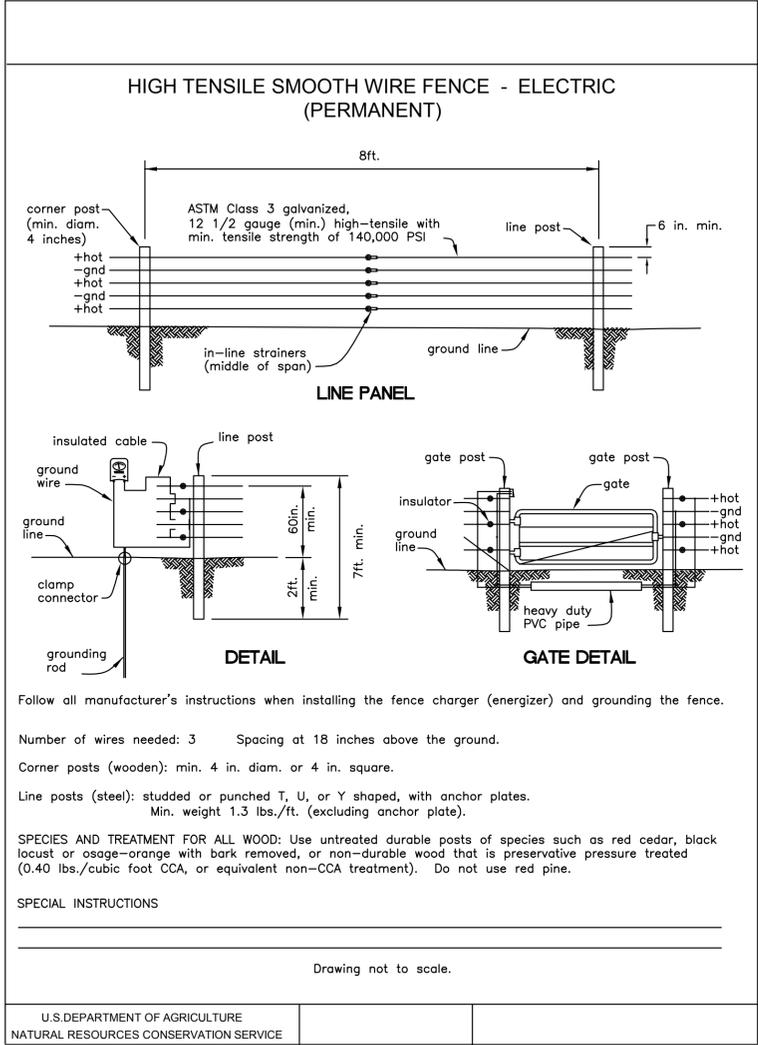
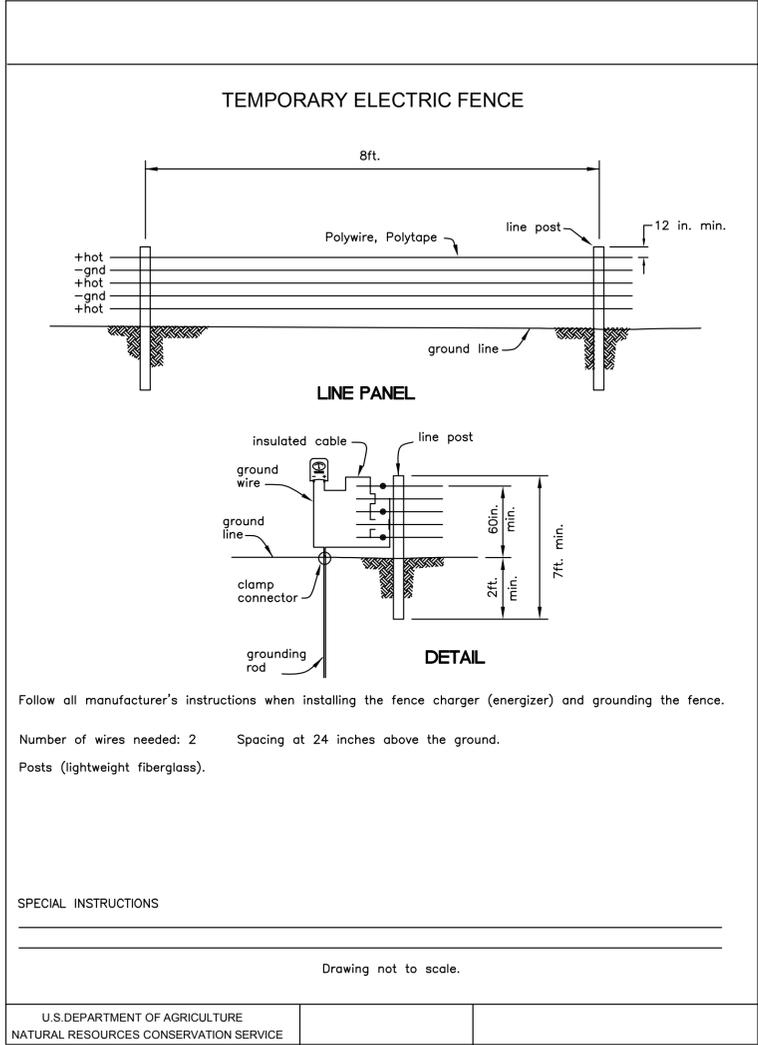
ATTACHED REFERENCE FILES:

JOB NUMBER:

011795018

SHEET NUMBER:

6C



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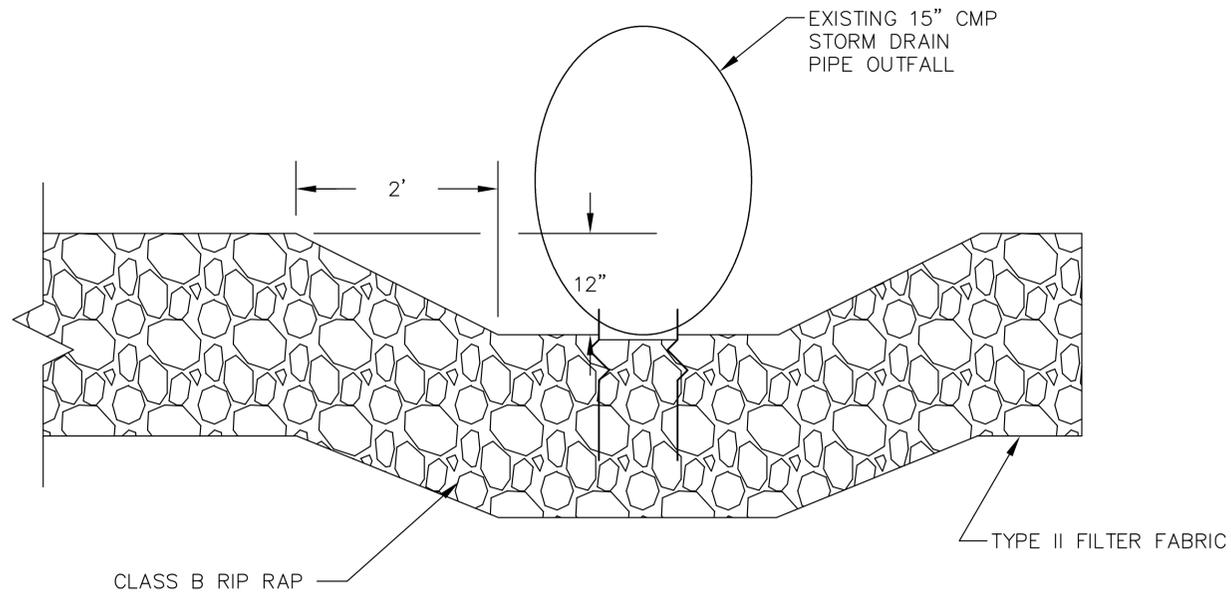
CLIENT: **NC-EEP**

TITLE: **DETAILS**

DATE: 03/03/06
 HORIZONTAL SCALE: NA
 VERTICAL SCALE: NA
 DRAWN BY: JJK
 DESIGNED BY: ARK
 CHECKED BY: WRW

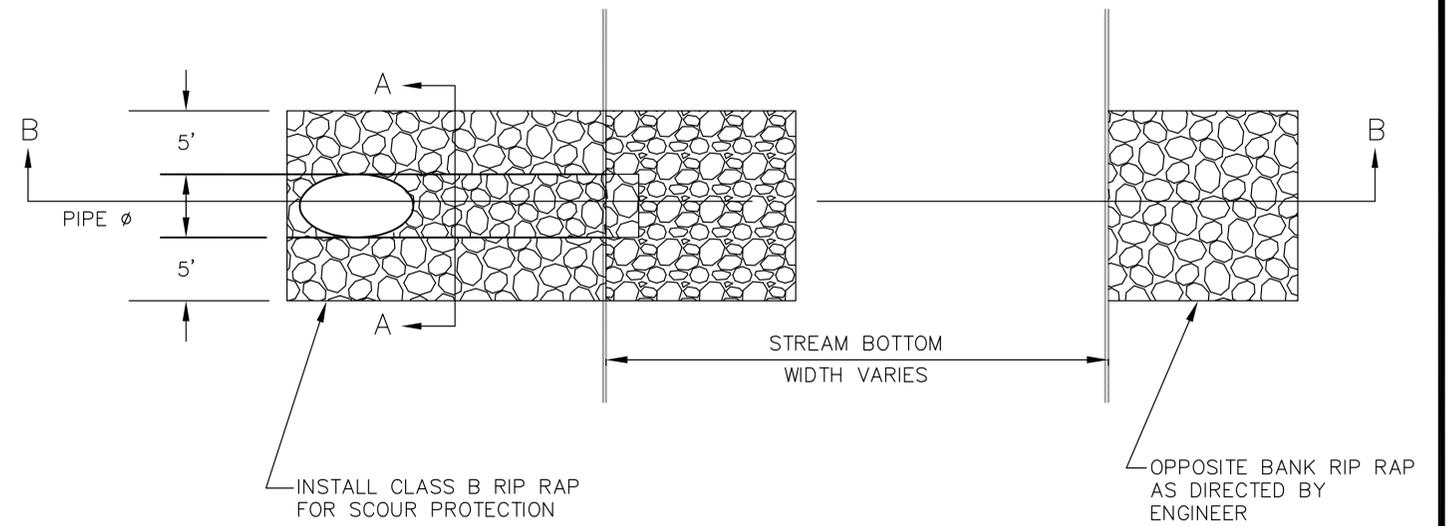
PROJECT: **NAKED CREEK**

ATTACHED REFERENCE FILES: JOB NUMBER: 011795018 SHEET NUMBER: 6D



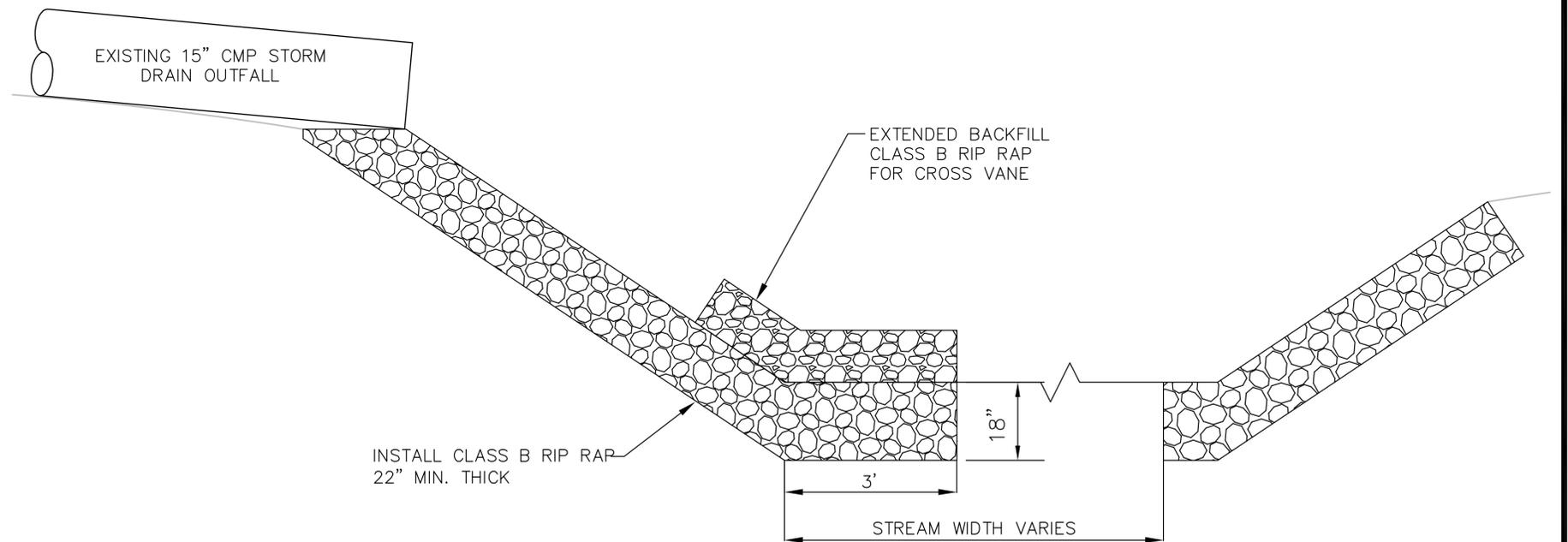
SECTION A-A

N.T.S.



PLAN VIEW

N.T.S.



SECTION B-B

N.T.S.

OUTLET WITH DITCH					
D	CLASS 'B' RIP RAP		CLASS I RIP RAP		
TONS	FILTER FABRIC (SY)	S.Y.	TONS	FILTER FABRIC (SY)	
15"	2	7	7	3	7

STORM DRAIN OUTFALL

NTS

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TITLE: **DETAILS**

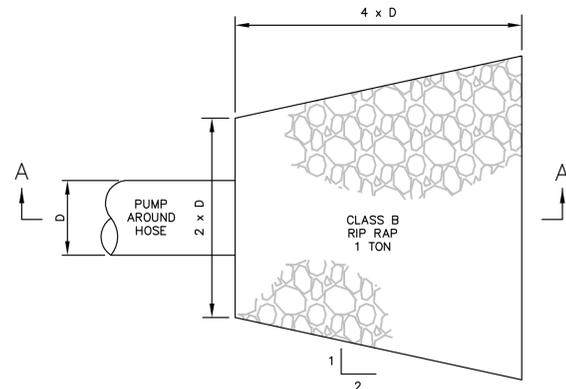


DATE: 03/03/06
 HORIZONTAL SCALE: N/A
 VERTICAL SCALE: N/A
 DRAWN BY: JJK
 DESIGNED BY: ARK
 CHECKED BY: WRW

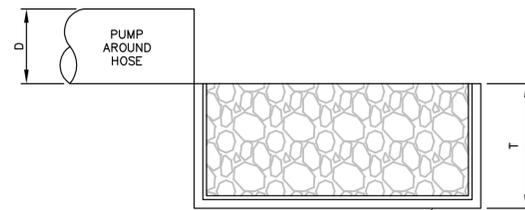
PROJECT: **NAKED CREEK**

ATTACHED REFERENCE FILES:

JOB NUMBER: 011795018
 SHEET NUMBER: 6E



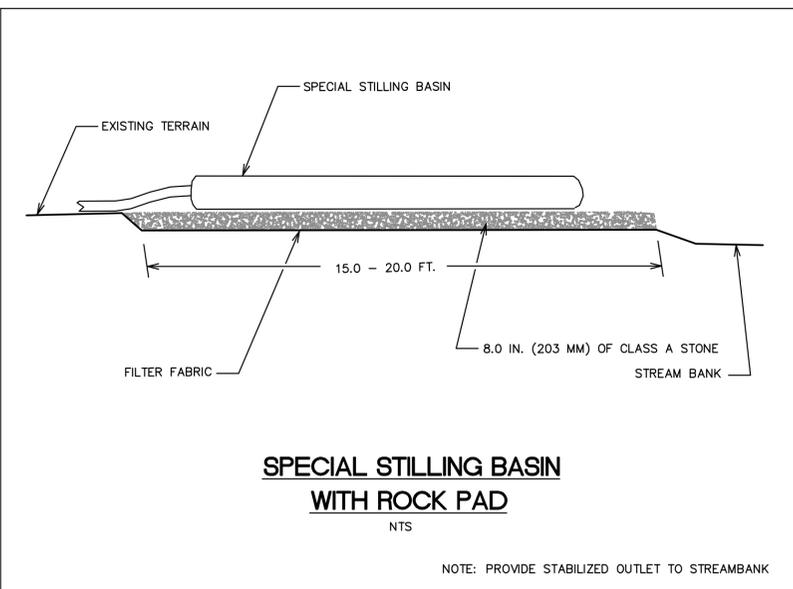
PLAN



SECTION A-A

**ENERGY DISSIPATOR FOR PUMP AROUND HOSE
(IF CLEAN WATER)**

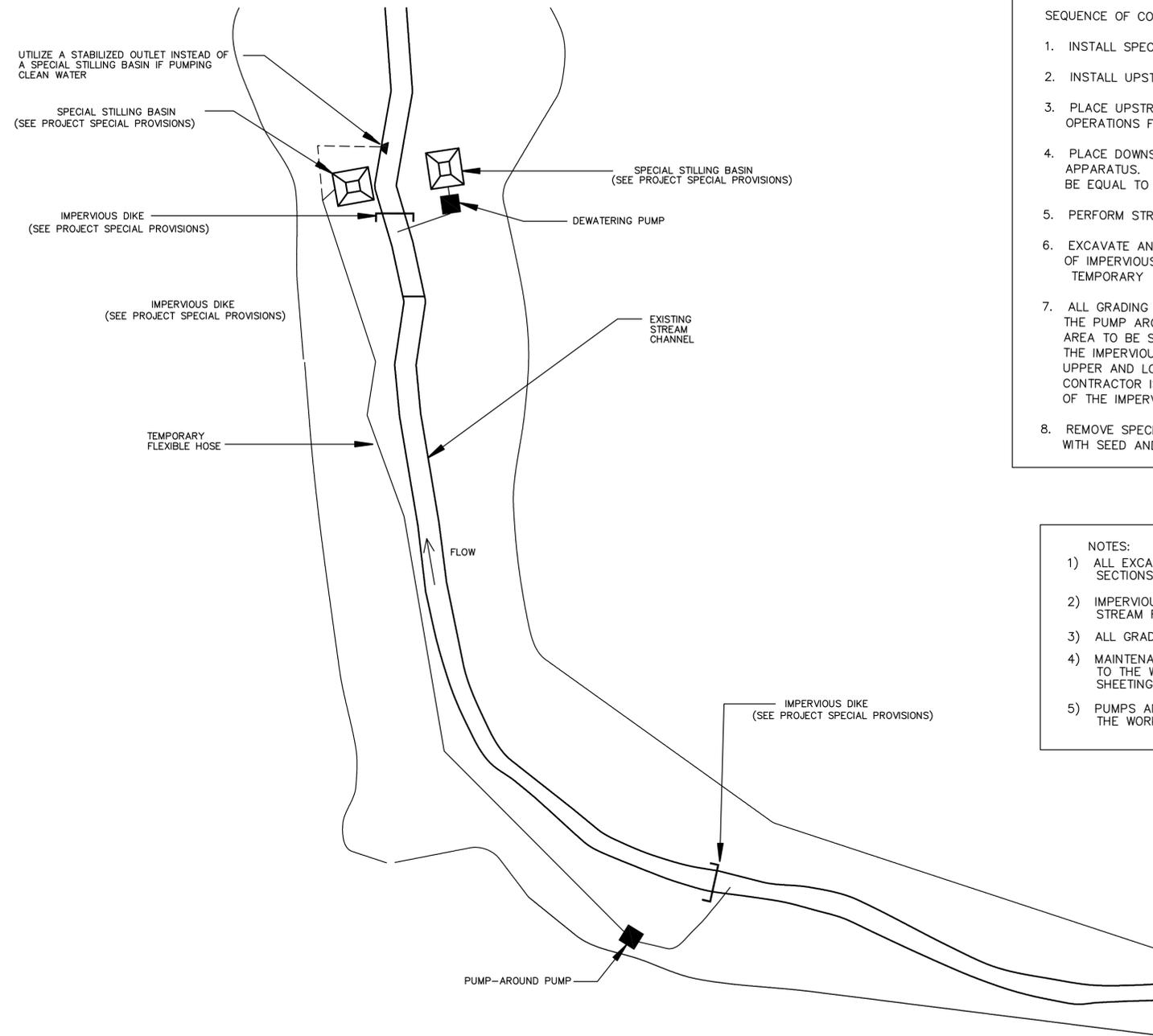
NTS



**SPECIAL STILLING BASIN
WITH ROCK PAD**

NTS

NOTE: PROVIDE STABILIZED OUTLET TO STREAMBANK



EXAMPLE OF PUMP-AROUND OPERATION

SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

1. INSTALL SPECIAL STILLING BASIN(S)..
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. PERFORM STREAM RESTORATION WORK IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. ALL GRADING AND STABILIZATION MUST BE COMPLETED IN ONE DAY WITHIN THE PUMP AROUND AREAS BETWEEN THE IMPERVIOUS DIKES. PUMP AROUND AREA TO BE STABILIZED WITH MATTING AT THE END OF EACH WORK DAY. THE IMPERVIOUS DIKE LOCATIONS AS SHOWN ON THIS SHEET ONLY SHOW THE UPPER AND LOWER EXTENT OF WORK FOR EACH STREAM SEGMENT. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION OF THE IMPERVIOUS DIKE(S) FOR EACH DAY'S WORK.
8. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

NOTES:

- 1) ALL EXCAVATION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF CHANNEL.
- 2) IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW WHEN NECESSARY.
- 3) ALL GRADED AREAS SHALL BE STABILIZED WITH MATTING WITHIN 24 HOURS.
- 4) MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES POLYETHYLENE SHEETING, DIVERSION PIPES, PUMPS AND HOSES.
- 5) PUMPS AND HOSES SHALL BE OF SUFFICIENT SIZE TO DEWATER THE WORK AREA.

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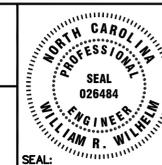
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PHONE: (919) 677-2000 FAX: (919) 677-2050

CLIENT:

NC-EEP

TITLE:

DETAILS



DATE: 03/03/06
HORIZONTAL SCALE: NA
VERTICAL SCALE: NA
DRAWN BY: JJK
DESIGNED BY: ARK
CHECKED BY: WRW

PROJECT:

NAKED CREEK

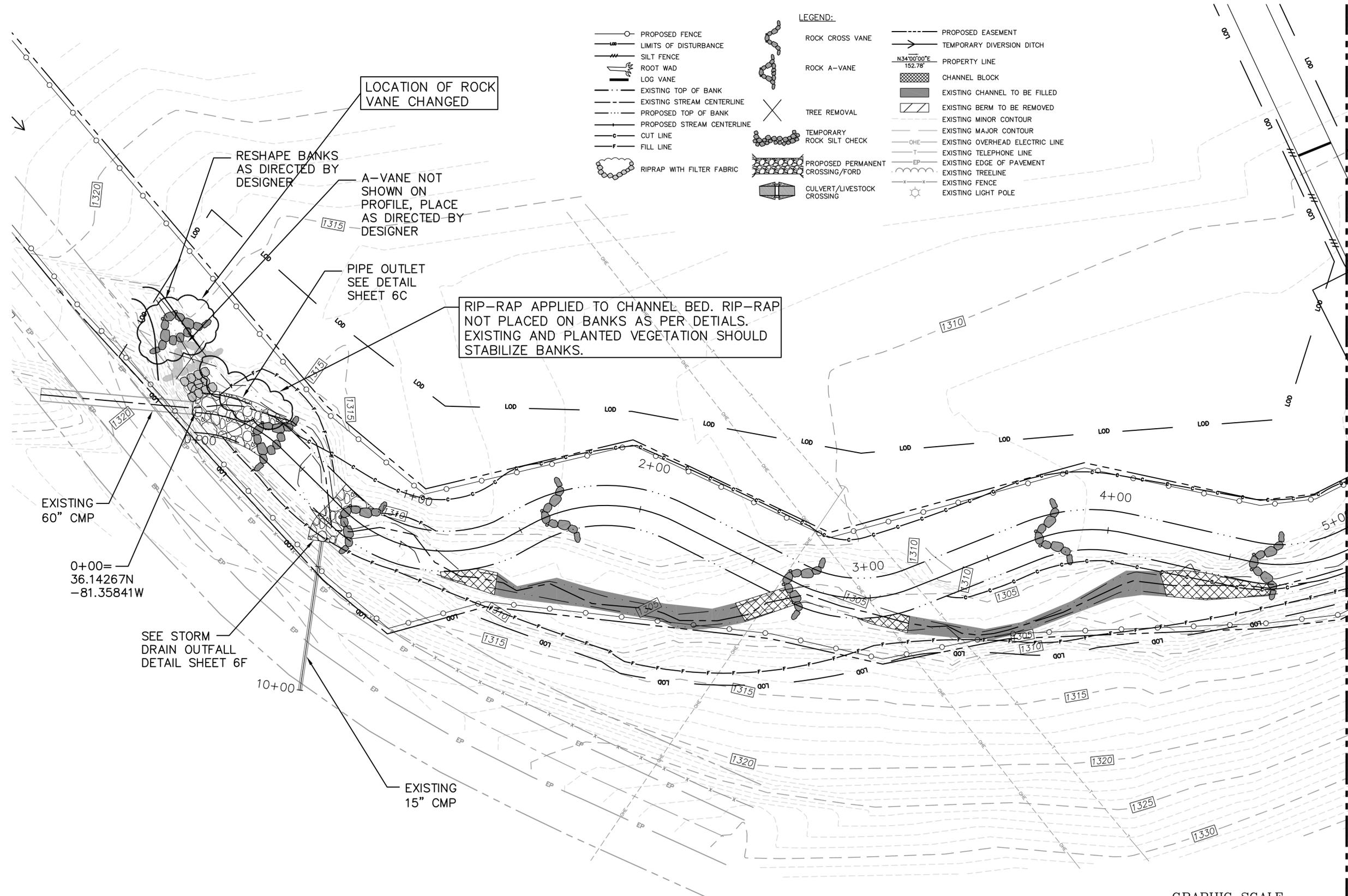
ATTACHED REFERENCE FILES:

JOB NUMBER:
011795018

SHEET NUMBER:
6F



- LEGEND:**
- PROPOSED FENCE
 - |— LIMITS OF DISTURBANCE
 - |— SILT FENCE
 - |— ROOT WAD
 - |— LOG VANE
 - |— EXISTING TOP OF BANK
 - |— EXISTING STREAM CENTERLINE
 - |— PROPOSED TOP OF BANK
 - |— PROPOSED STREAM CENTERLINE
 - |— CUT LINE
 - |— FILL LINE
 - RIPRAP WITH FILTER FABRIC
 - ROCK CROSS VANE
 - ROCK A-VANE
 - X— TREE REMOVAL
 - TEMPORARY ROCK SILT CHECK
 - PROPOSED PERMANENT CROSSING/FORD
 - CULVERT/LIVESTOCK CROSSING
 - |— PROPOSED EASEMENT
 - |— TEMPORARY DIVERSION DITCH
 - |— PROPERTY LINE
 - |— CHANNEL BLOCK
 - |— EXISTING CHANNEL TO BE FILLED
 - |— EXISTING BERM TO BE REMOVED
 - |— EXISTING MINOR CONTOUR
 - |— EXISTING MAJOR CONTOUR
 - |— EXISTING OVERHEAD ELECTRIC LINE
 - |— EXISTING TELEPHONE LINE
 - |— EXISTING EDGE OF PAVEMENT
 - |— EXISTING TREELINE
 - |— EXISTING FENCE
 - |— EXISTING LIGHT POLE



LOCATION OF ROCK VANE CHANGED

RESHAPE BANKS AS DIRECTED BY DESIGNER

A-VANE NOT SHOWN ON PROFILE, PLACE AS DIRECTED BY DESIGNER

PIPE OUTLET SEE DETAIL SHEET 6C

RIP-RAP APPLIED TO CHANNEL BED. RIP-RAP NOT PLACED ON BANKS AS PER DETAILS. EXISTING AND PLANTED VEGETATION SHOULD STABILIZE BANKS.

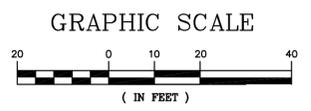
EXISTING 60" CMP

0+00= 36.14267N -81.35841W

SEE STORM DRAIN OUTFALL DETAIL SHEET 6F

EXISTING 15" CMP

MATCHLINE - STA 5+00 SEE SHEET S2



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CLIENT: **NC-EEP**

TITLE: **SITE PLAN**

DATE: 03/03/06
 HORIZONTAL SCALE: NA
 VERTICAL SCALE: NA
 DRAWN BY: JJK
 DESIGNED BY: ARK
 CHECKED BY: WRW

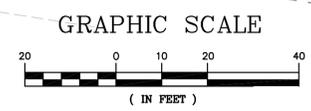
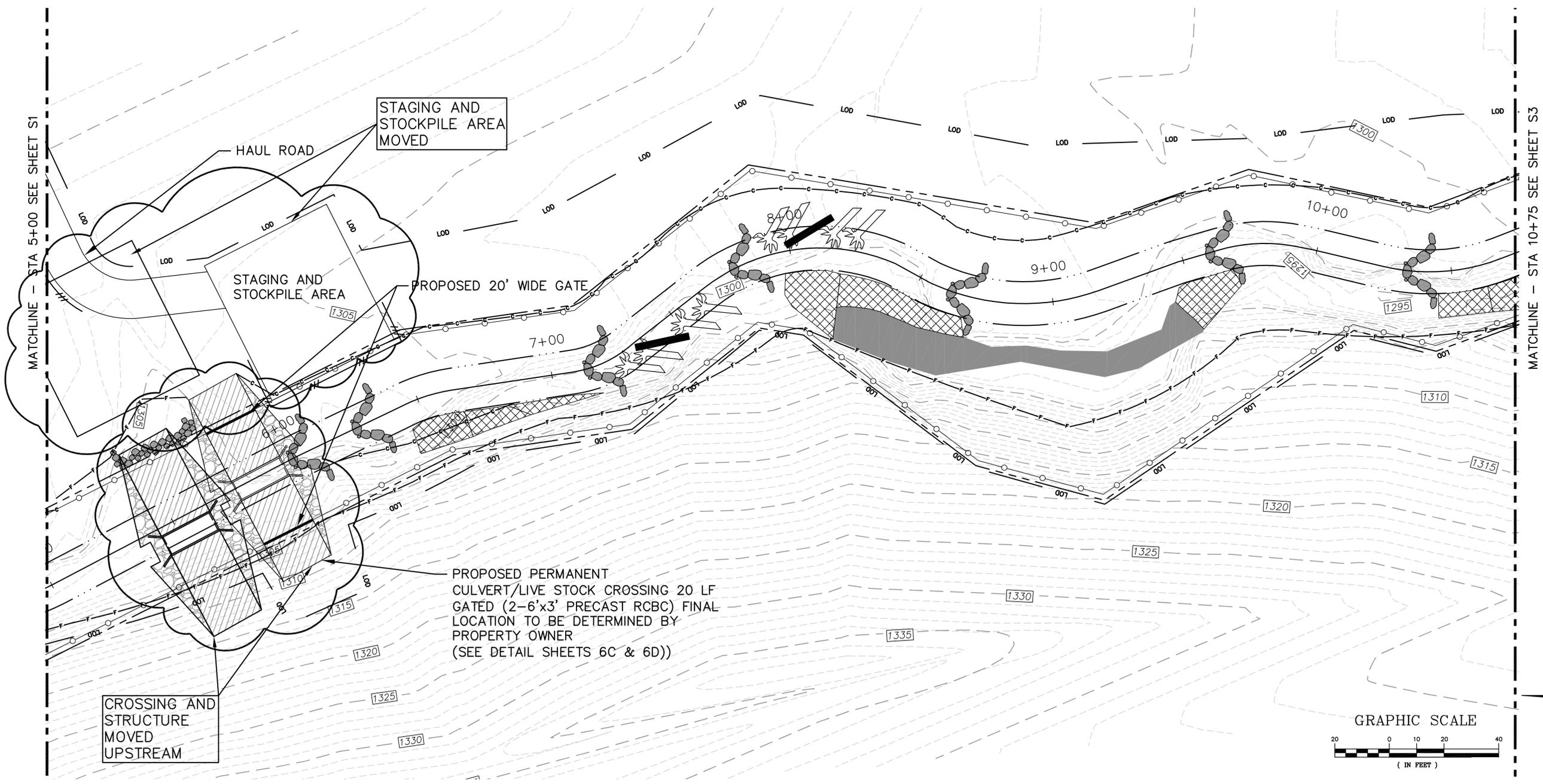
PROJECT: **NAKED CREEK**

ATTACHED REFERENCE FILES:

JOB NUMBER: 011795018
 SHEET NUMBER: **S1**



- LEGEND:**
- PROPOSED FENCE
 - LIMITS OF DISTURBANCE
 - SILT FENCE
 - ROOT WAD
 - LOG VANE
 - EXISTING TOP OF BANK
 - EXISTING STREAM CENTERLINE
 - PROPOSED TOP OF BANK
 - PROPOSED STREAM CENTERLINE
 - CUT LINE
 - FILL LINE
 - RIPRAP WITH FILTER FABRIC
 - ROCK CROSS VANE
 - ROCK A-VANE
 - TREE REMOVAL
 - TEMPORARY ROCK SILT CHECK
 - PROPOSED PERMANENT CROSSING/FORD
 - CULVERT/LIVESTOCK CROSSING
 - PROPOSED EASEMENT
 - TEMPORARY DIVERSION DITCH
 - PROPERTY LINE
 - CHANNEL BLOCK
 - EXISTING CHANNEL TO BE FILLED
 - EXISTING BERM TO BE REMOVED
 - EXISTING MINOR CONTOUR
 - EXISTING MAJOR CONTOUR
 - OHE EXISTING OVERHEAD ELECTRIC LINE
 - T EXISTING TELEPHONE LINE
 - EP EXISTING EDGE OF PAVEMENT
 - EXISTING TREELINE
 - EXISTING FENCE
 - EXISTING LIGHT POLE



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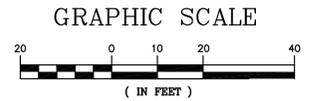
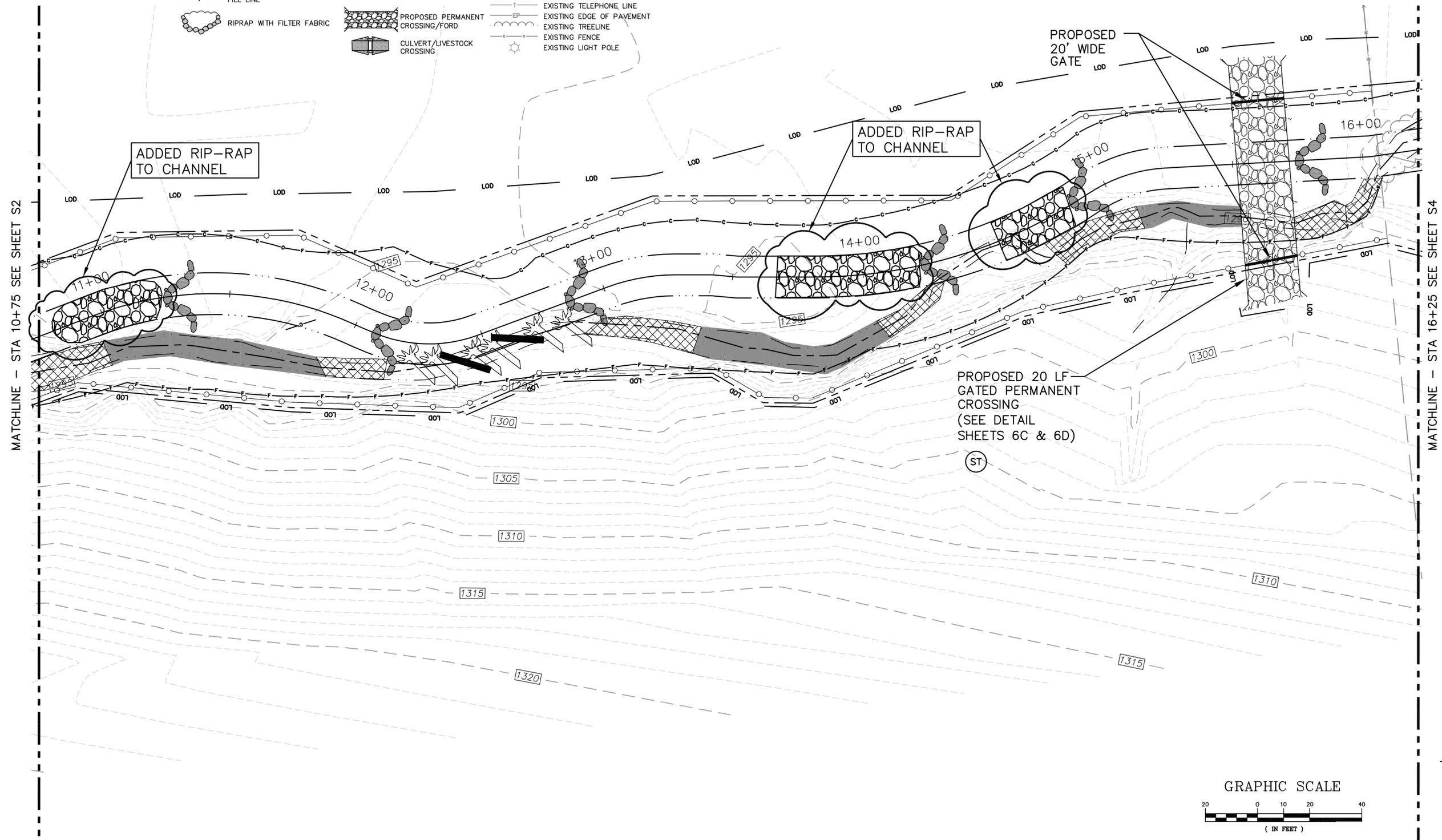
TITLE: **SITE PLAN**

DATE: 03/03/06
 HORIZONTAL SCALE: NA
 VERTICAL SCALE: NA
 DRAWN BY: JJK
 DESIGNED BY: ARK
 CHECKED BY: WRW

PROJECT: **NAKED CREEK**

ATTACHED REFERENCE FILES: JOB NUMBER: 011795018 SHEET NUMBER: S2

- LEGEND:**
- PROPOSED FENCE
 - LIMITS OF DISTURBANCE
 - SILT FENCE
 - ROOT WAD
 - LOG VANE
 - EXISTING TOP OF BANK
 - EXISTING STREAM CENTERLINE
 - PROPOSED TOP OF BANK
 - PROPOSED STREAM CENTERLINE
 - CUT LINE
 - FILL LINE
 - RIPRAP WITH FILTER FABRIC
 - ROCK CROSS VANE
 - ROCK A-VANE
 - TREE REMOVAL
 - TEMPORARY ROCK SILT CHECK
 - PROPOSED PERMANENT CROSSING/FORD
 - CULVERT/LIVESTOCK CROSSING
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TITLE: **SITE PLAN**

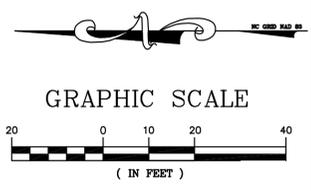
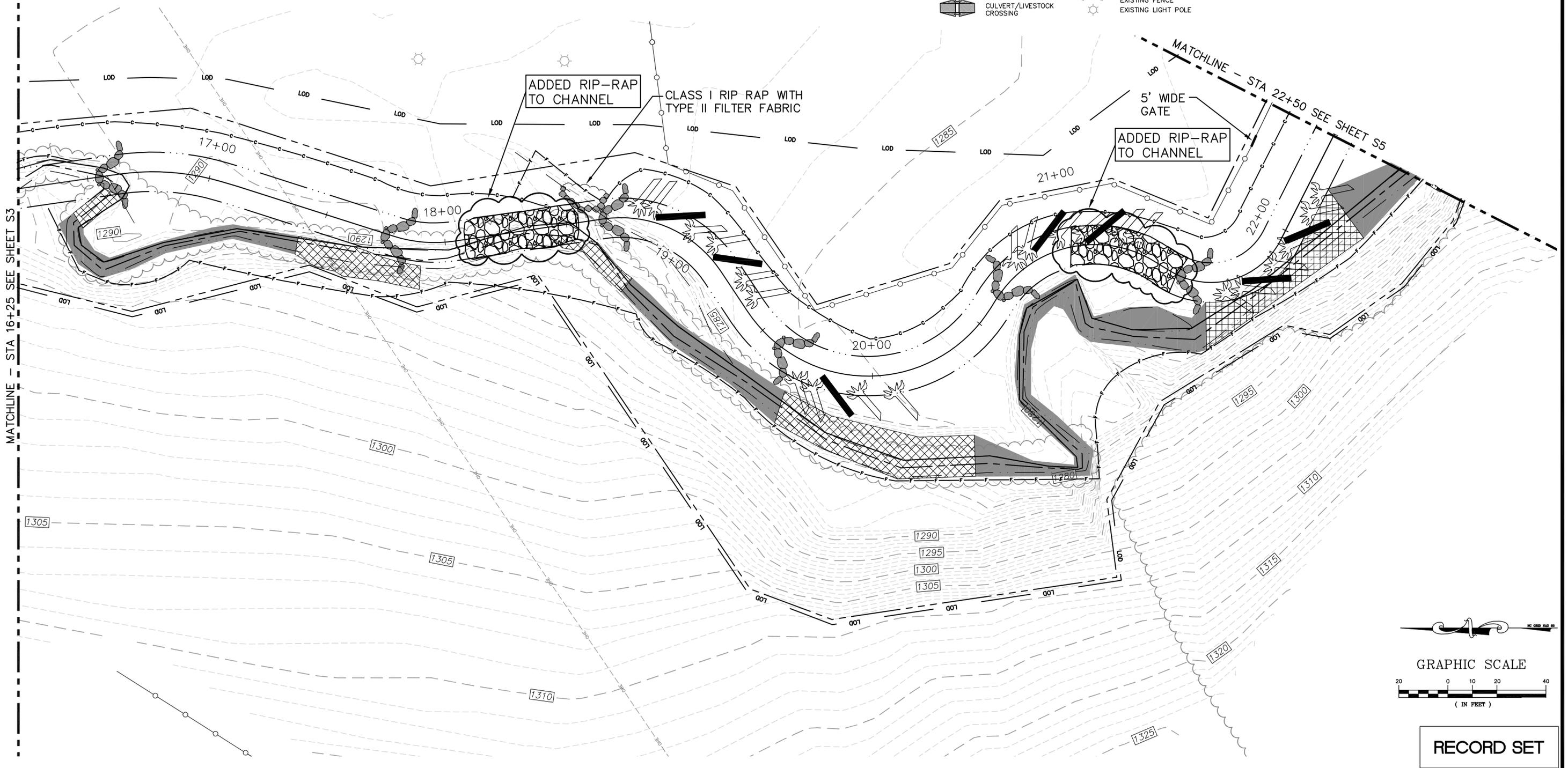
DATE: 03/03/06
HORIZONTAL SCALE:
VERTICAL SCALE: NA
DRAWN BY: JJK
DESIGNED BY: ARK
CHECKED BY: WRW

PROJECT: **NAKED CREEK**

ATTACHED REFERENCE FILES:
JOB NUMBER: 011795018
SHEET NUMBER: **S3**



- LEGEND:**
- PROPOSED FENCE
 - LIMITS OF DISTURBANCE
 - ▨ SILT FENCE
 - ▧ ROOT WAD
 - ▩ LOG VANE
 - EXISTING TOP OF BANK
 - EXISTING STREAM CENTERLINE
 - PROPOSED TOP OF BANK
 - PROPOSED STREAM CENTERLINE
 - CUT LINE
 - FILL LINE
 - RIPRAP WITH FILTER FABRIC
 - ROCK CROSS VANE
 - ROCK A-VANE
 - ✕ TREE REMOVAL
 - TEMPORARY ROCK SILT CHECK
 - ▨ PROPOSED PERMANENT CROSSING/FORD
 - ▩ CULVERT/LIVESTOCK CROSSING
 - PROPOSED EASEMENT
 - TEMPORARY DIVERSION DITCH
 - PROPERTY LINE
 - ▨ CHANNEL BLOCK
 - ▩ EXISTING CHANNEL TO BE FILLED
 - ▨ EXISTING BERM TO BE REMOVED
 - EXISTING MINOR CONTOUR
 - EXISTING MAJOR CONTOUR
 - OHE EXISTING OVERHEAD ELECTRIC LINE
 - T EXISTING TELEPHONE LINE
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TITLE: **SITE PLAN**

DATE: 03/03/06
HORIZONTAL SCALE:
VERTICAL SCALE: NA
DRAWN BY: JJK
DESIGNED BY: ZARK
CHECKED BY: WRW

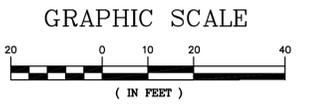
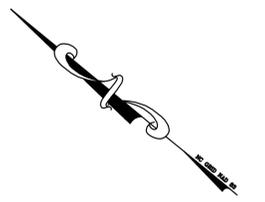
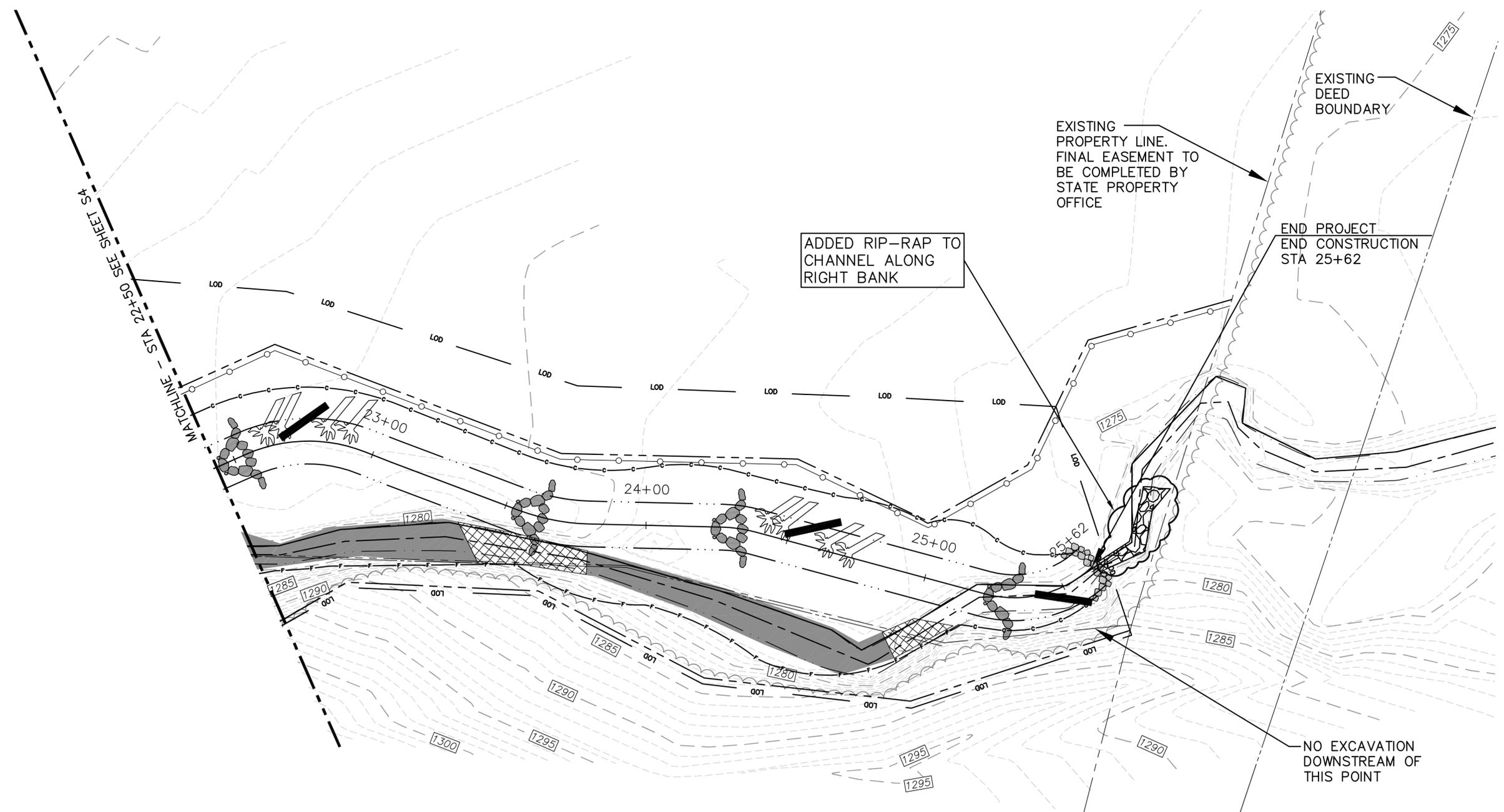
PROJECT: **NAKED CREEK**

ATTACHED REFERENCE FILES:

JOB NUMBER: 011795018
SHEET NUMBER: **S4**



- LEGEND:**
- PROPOSED FENCE
 - LIMITS OF DISTURBANCE
 - SILT FENCE
 - ROOT WAD
 - LOG VANE
 - EXISTING TOP OF BANK
 - EXISTING STREAM CENTERLINE
 - PROPOSED TOP OF BANK
 - PROPOSED STREAM CENTERLINE
 - CUT LINE
 - FILL LINE
 - RIPRAP WITH FILTER FABRIC
 - ROCK CROSS VANE
 - ROCK A-VANE
 - ✕ TREE REMOVAL
 - TEMPORARY ROCK SILT CHECK
 - PROPOSED PERMANENT CROSSING/FORD
 - CULVERT/LIVESTOCK CROSSING
 - PROPOSED EASEMENT
 - TEMPORARY DIVERSION DITCH
 - PROPERTY LINE
 - CHANNEL BLOCK
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 - EXISTING BERM TO BE REMOVED
 - EXISTING MINOR CONTOUR
 - EXISTING MAJOR CONTOUR
 - OHE EXISTING OVERHEAD ELECTRIC LINE
 - T EXISTING TELEPHONE LINE
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TITLE: **SITE PLAN**

DATE: 03/03/06

HORIZONTAL SCALE: NA

VERTICAL SCALE: NA

DRAWN BY: JJK

DESIGNED BY: ARK

CHECKED BY: WRW

PROJECT: **NAKED CREEK**

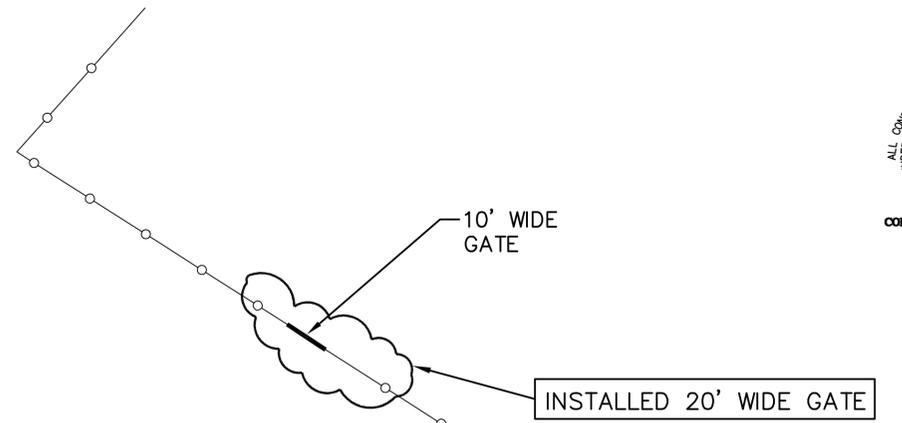
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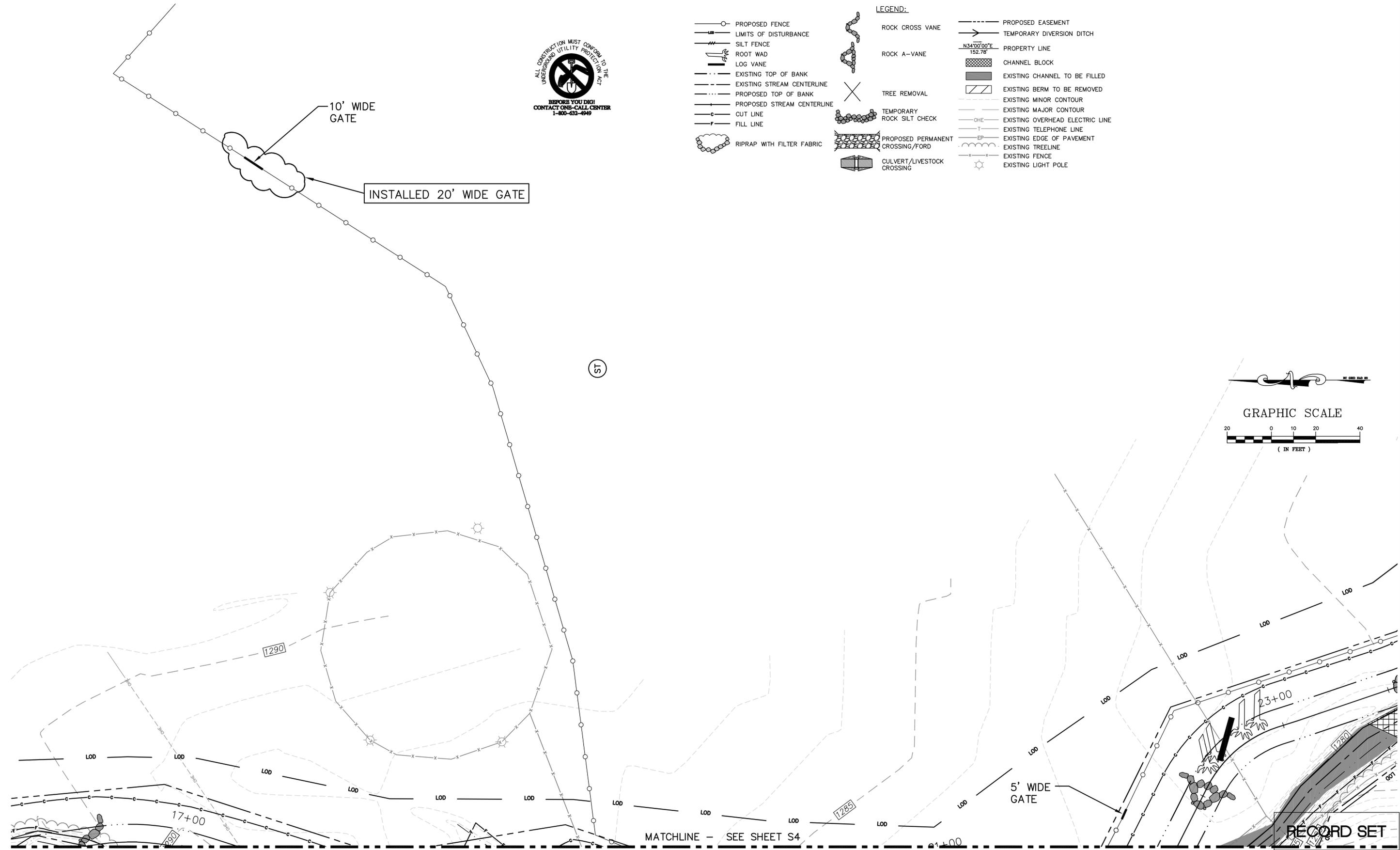
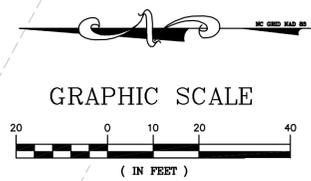
SHEET NUMBER: **S5**



- LEGEND:**
- PROPOSED FENCE
 - LIMITS OF DISTURBANCE
 - ▨ SILT FENCE
 - ▧ ROOT WAD
 - ▩ LOG VANE
 - EXISTING TOP OF BANK
 - EXISTING STREAM CENTERLINE
 - PROPOSED TOP OF BANK
 - PROPOSED STREAM CENTERLINE
 - CUT LINE
 - FILL LINE
 - RIPRAP WITH FILTER FABRIC
 - ROCK CROSS VANE
 - ROCK A-VANE
 - ✕ TREE REMOVAL
 - TEMPORARY ROCK SILT CHECK
 - PROPOSED PERMANENT CROSSING/FORD
 - CULVERT/LIVESTOCK CROSSING
 - PROPOSED EASEMENT
 - TEMPORARY DIVERSION DITCH
 - N34°00'00"E 152.76' PROPERTY LINE
 - ▨ CHANNEL BLOCK
 - ▩ EXISTING CHANNEL TO BE FILLED
 - ▨ EXISTING BERM TO BE REMOVED
 - EXISTING MINOR CONTOUR
 - EXISTING MAJOR CONTOUR
 - OHE EXISTING OVERHEAD ELECTRIC LINE
 - T EXISTING TELEPHONE LINE
 - EP EXISTING EDGE OF PAVEMENT
 - EXISTING TREELINE
 - EXISTING FENCE
 - EXISTING LIGHT POLE



(S)



MATCHLINE - SEE SHEET S4

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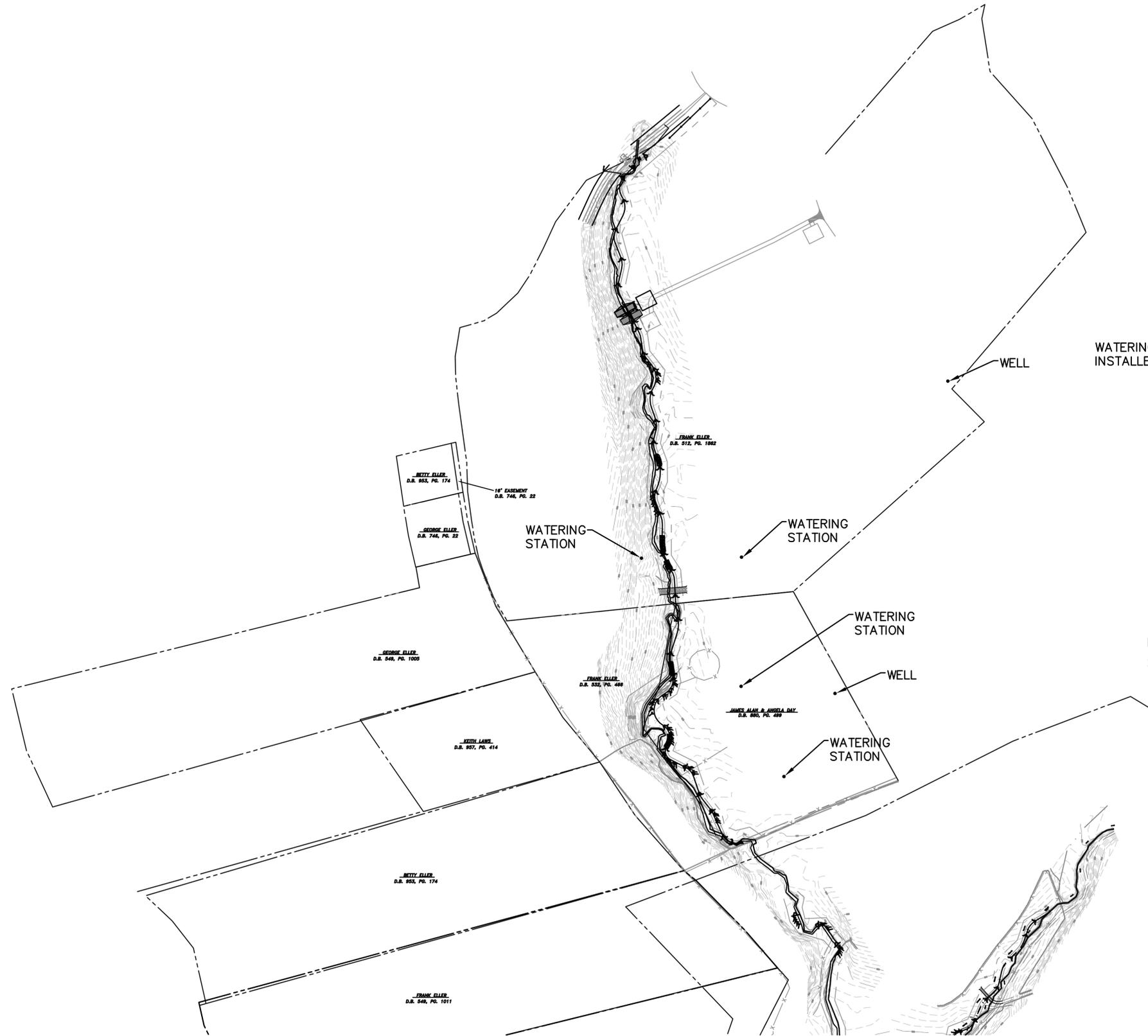
TITLE: **SITE PLAN**

DATE: 03/03/06
 HORIZONTAL SCALE: NA
 VERTICAL SCALE: NA
 DRAWN BY: JJK
 DESIGNED BY: ARK
 CHECKED BY: WRW

PROJECT: **NAKED CREEK**

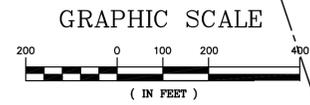
ATTACHED REFERENCE FILES: _____
 JOB NUMBER: 011795018
 SHEET NUMBER: **S6**

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WATERING FACILITIES FOR ELLER PROPERTY TO BE INSTALLED UNDER SEPARATE CONTRACT.

LOCATIONS OF WATERING STATIONS AND WELLS ARE APPROXIMATE. FINAL LOCATIONS TO BE COORDINATED WITH LANDOWNER AND ENGINEER.



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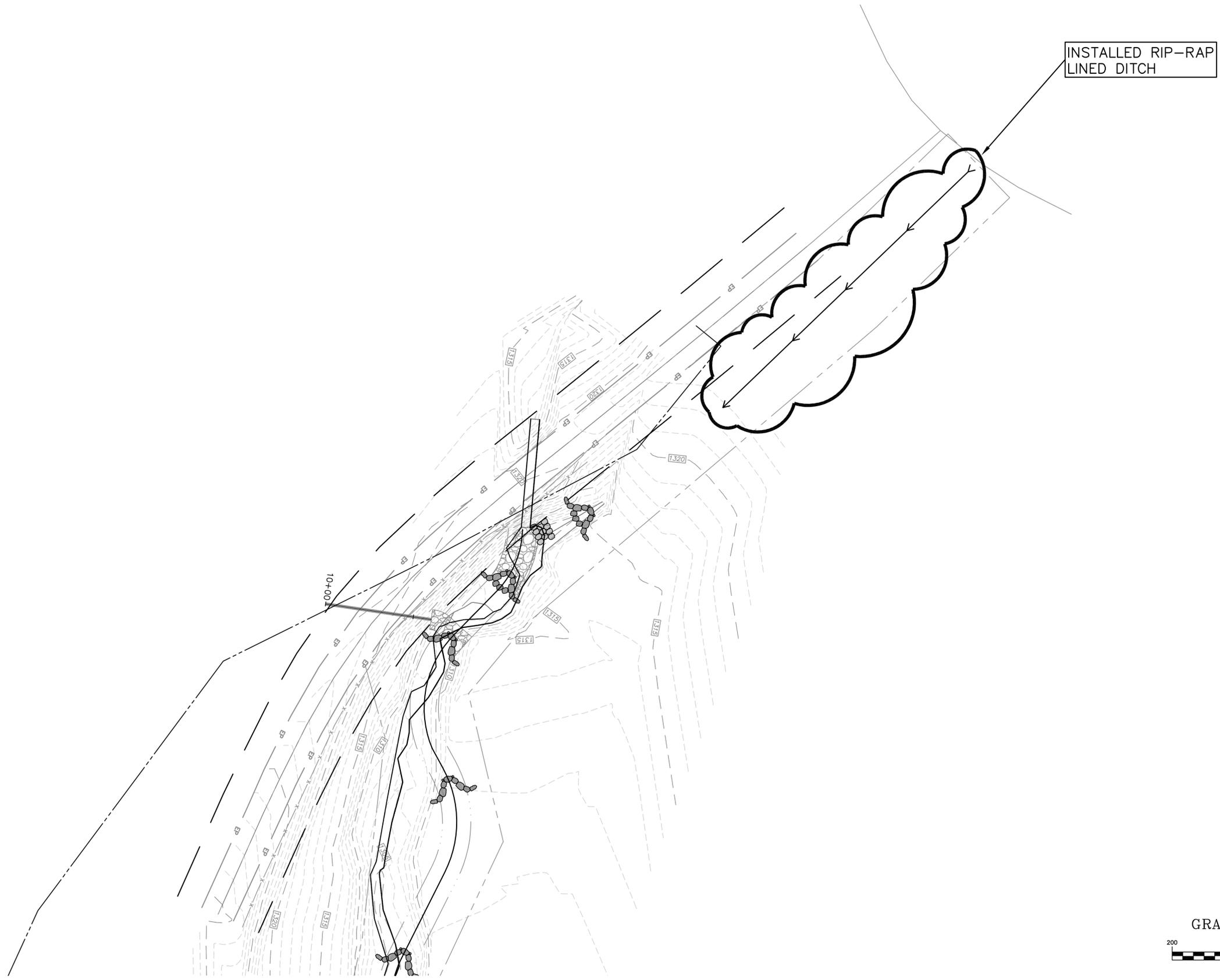
CLIENT: **NC-EEP**

TITLE: **WELL LOCATIONS**

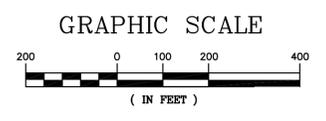
DATE: 03/03/06
PROJECT: **NAKED CREEK**

HORIZONTAL SCALE:
VERTICAL SCALE:
DRAWN BY: JJK
DESIGNED BY: ARK
CHECKED BY: WRW

ATTACHED REFERENCE FILES:
JOB NUMBER: 011795018
SHEET NUMBER: **W1**



INSTALLED RIP-RAP
LINED DITCH



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CLIENT: **NC-EEP**

TITLE: **CHANGE ORDER #1**

DATE: 03/03/06
HORIZONTAL SCALE:
VERTICAL SCALE:
DRAWN BY: JJK
DESIGNED BY: ARK
CHECKED BY: WRW

PROJECT: **NAKED CREEK**

ATTACHED REFERENCE FILES:

JOB NUMBER: 011795018 SHEET NUMBER: C01

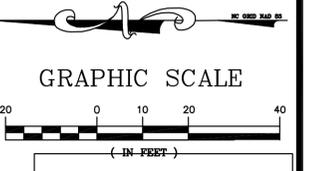
MATCHLINE - SHEET EC2

- LEGEND:**
- PROPOSED FENCE
 - LOD LIMITS OF DISTURBANCE
 - SILT FENCE
 - ROOT WAD
 - LOG VANE
 - EXISTING TOP OF BANK
 - EXISTING STREAM CENTERLINE
 - PROPOSED TOP OF BANK
 - PROPOSED STREAM CENTERLINE
 - CUT LINE
 - FILL LINE
 - RIPRAP WITH FILTER FABRIC
 - ROCK CROSS VANE
 - ROCK A-VANE
 - TREE REMOVAL
 - TEMPORARY ROCK SILT CHECK
 - PROPOSED PERMANENT CROSSING/FORD
 - CULVERT/LIVESTOCK CROSSING
 - PROPOSED EASEMENT
 - TEMPORARY DIVERSION DITCH
 - PROPERTY LINE
 - CHANNEL BLOCK
 - EXISTING CHANNEL TO BE FILLED
 - EXISTING BERM TO BE REMOVED
 - EXISTING MINOR CONTOUR
 - EXISTING MAJOR CONTOUR
 - OHE EXISTING OVERHEAD ELECTRIC LINE
 - T EXISTING TELEPHONE LINE
 - EP EXISTING EDGE OF PAVEMENT
 - EXISTING TREELINE
 - EXISTING FENCE
 - EXISTING LIGHT POLE

NOTE: NO SIDE DITCHES WILL BE CONSTRUCTED ALONG THE TEMPORARY HAUL ROAD AND MINIMAL GRADING WILL OCCUR

TEMPORARY HAUL ROAD

STAGING AND STOCKPILE AREA



RECORD SET

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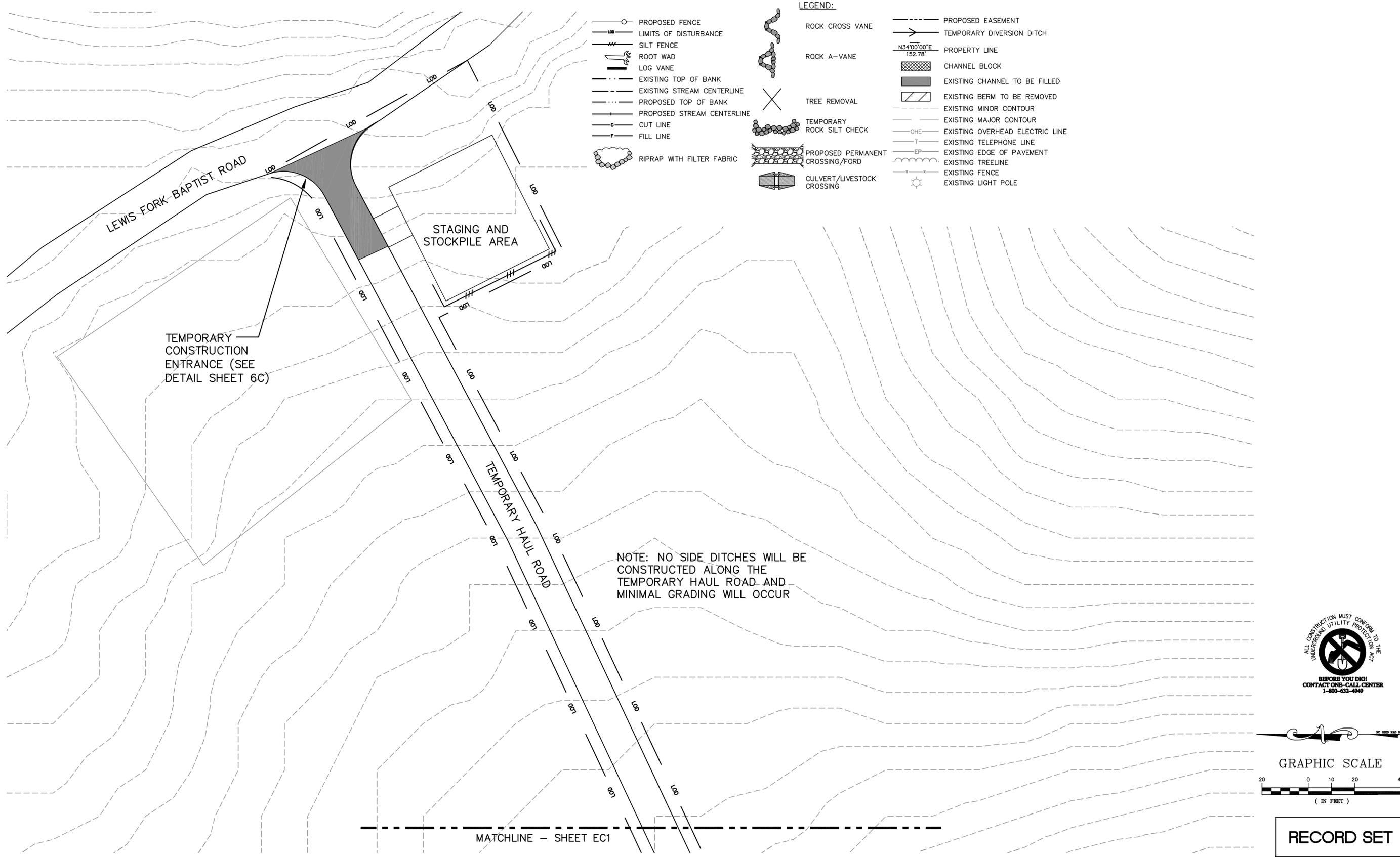
TITLE: **SEDIMENT AND EROSION CONTROL PLAN**

DATE: 03/03/06
HORIZONTAL SCALE: NA
VERTICAL SCALE: NA
DRAWN BY: JJK
DESIGNED BY: ARK
CHECKED BY: WRW

PROJECT: **NAKED CREEK**

ATTACHED REFERENCE FILES:

JOB NUMBER: 011795018
SHEET NUMBER: EC1



- LEGEND:**
- PROPOSED FENCE
 - LIMITS OF DISTURBANCE
 - /// SILT FENCE
 - √ ROOT WAD
 - LOG VANE
 - EXISTING TOP OF BANK
 - EXISTING STREAM CENTERLINE
 - PROPOSED TOP OF BANK
 - PROPOSED STREAM CENTERLINE
 - CUT LINE
 - FILL LINE
 - RIPRAP WITH FILTER FABRIC
 - ROCK CROSS VANE
 - ROCK A-VANE
 - TREE REMOVAL
 - TEMPORARY ROCK SILT CHECK
 - PROPOSED PERMANENT CROSSING/FORD
 - CULVERT/LIVESTOCK CROSSING
 - PROPOSED EASEMENT
 - TEMPORARY DIVERSION DITCH
 - N34°00'00"E 152.78' PROPERTY LINE
 - CHANNEL BLOCK
 - EXISTING CHANNEL TO BE FILLED
 - EXISTING BERM TO BE REMOVED
 - EXISTING MINOR CONTOUR
 - EXISTING MAJOR CONTOUR
 - OHE EXISTING OVERHEAD ELECTRIC LINE
 - T EXISTING TELEPHONE LINE
 - EP EXISTING EDGE OF PAVEMENT
 - EXISTING TREELINE
 - EXISTING FENCE
 - EXISTING LIGHT POLE

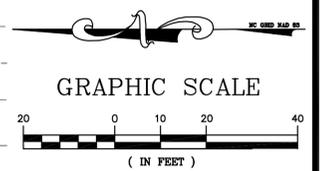
TEMPORARY CONSTRUCTION ENTRANCE (SEE DETAIL SHEET 6C)

STAGING AND STOCKPILE AREA

TEMPORARY HAUL ROAD

NOTE: NO SIDE DITCHES WILL BE CONSTRUCTED ALONG THE TEMPORARY HAUL ROAD AND MINIMAL GRADING WILL OCCUR

MATCHLINE - SHEET EC1



RECORD SET

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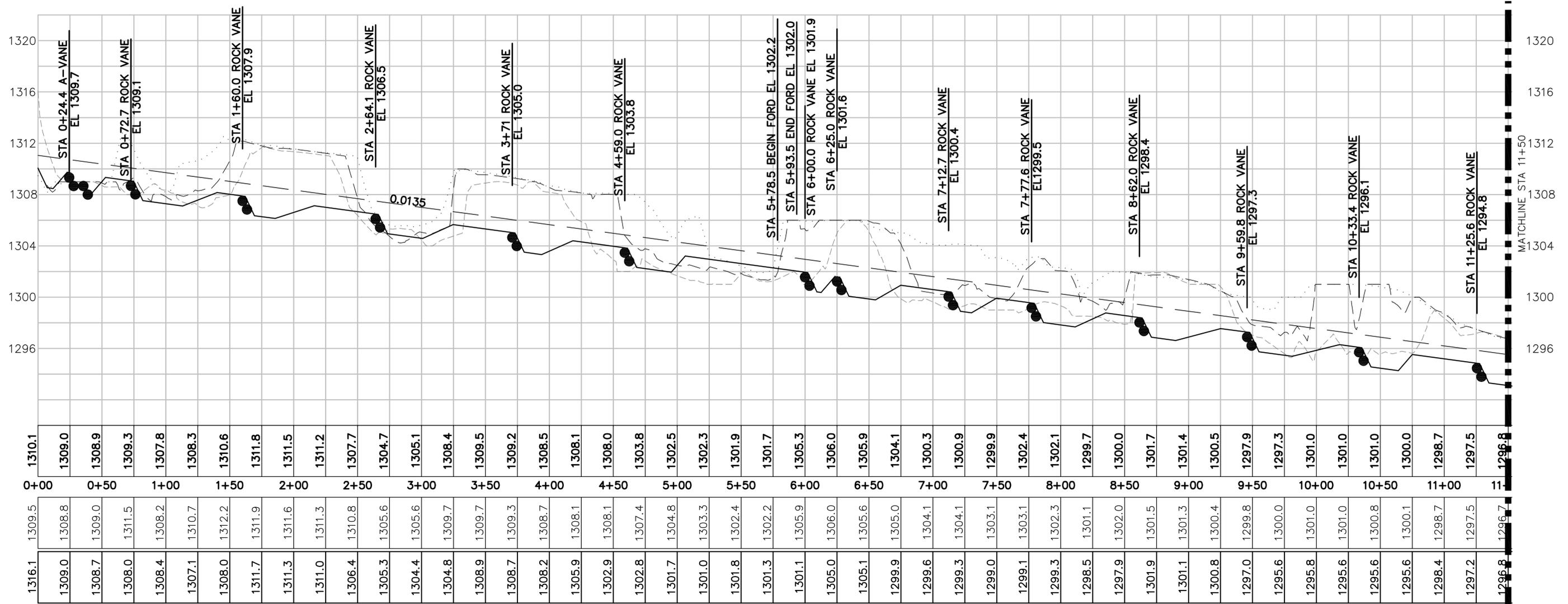
CLIENT: **NC-EEP**

TITLE: **SEDIMENT AND EROSION CONTROL PLAN**

DATE: 03/03/06
HORIZONTAL SCALE: NA
VERTICAL SCALE: NA
DRAWN BY: JJK
DESIGNED BY: ARK
CHECKED BY: WRW

PROJECT: **NAKED CREEK**

ATTACHED REFERENCE FILES: JOB NUMBER: 011795018 SHEET NUMBER: EC2

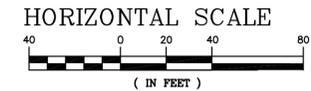


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0+00	0+50	1+00	1+50	2+00	2+50	3+00	3+50	4+00	4+50	5+00	5+50	6+00	6+50	7+00	7+50	8+00	8+50	9+00	9+50	10+00	10+50	11+00	11+50																							
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LEGEND

- TOP OF BANKFULL
- - - - - @ OF NEW CHANNEL
- - - - - EXISTING GROUND
- PROPOSED LEFT BANK ON EXISTING GROUND (13.75' OFFSET FROM @)
- PROPOSED RIGHT BANK ON EXISTING GROUND (13.75' OFFSET FROM @)
- ROCK X-VANE
- A-VANE

NOTE: BOTTOM OF POOL ELEVATION PROVIDED IS DEEPEST POINT IN POOL AT STATION, NOT ACTUAL ELEVATION AT THE CENTERLINE. REFER TO PLAN AND CROSS SECTIONS SHEETS FOR OFFSETS. POOLS SHOULD BE "OVER DUG" BY 1'-1.5' TO ACCOUNT FOR SEDIMENTATION.



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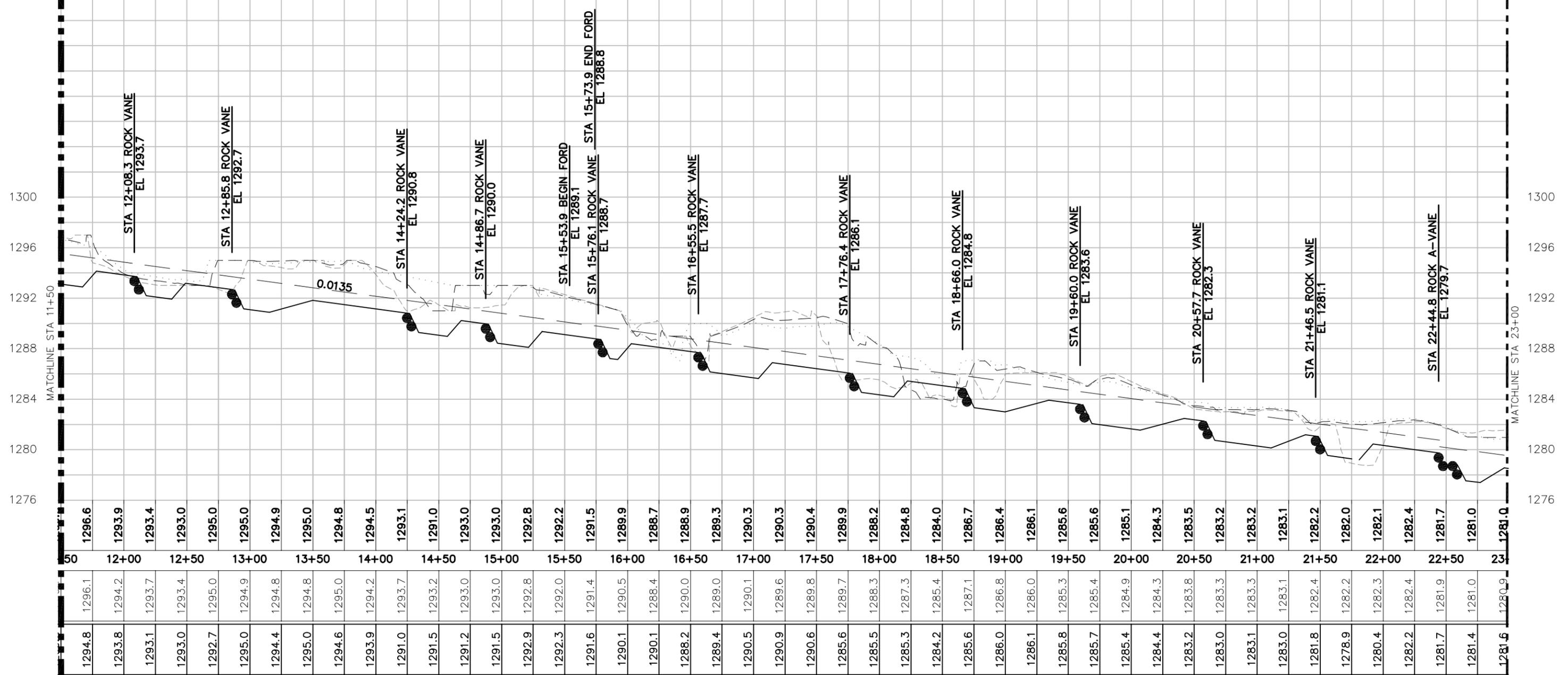
CLIENT: **NC-EEP**

TITLE: **PROFILES**

DATE: 03/03/06
 HORIZONTAL SCALE:
 VERTICAL SCALE:
 DRAWN BY: JJK
 DESIGNED BY: ARK
 CHECKED BY: WRW

PROJECT: **NAKED CREEK**

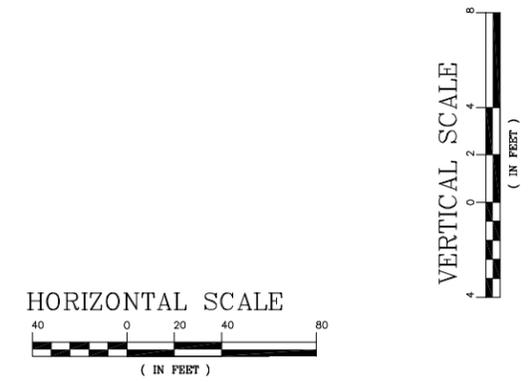
ATTACHED REFERENCE FILES:
 JOB NUMBER: 011795018
 SHEET NUMBER: P1



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- LEGEND**
- TOP OF BANKFULL
 - ☉ OF NEW CHANNEL
 - - - EXISTING GROUND
 - PROPOSED LEFT BANK ON EXISTING GROUND (13.75' OFFSET FROM ☉)
 - PROPOSED RIGHT BANK ON EXISTING GROUND (13.75' OFFSET FROM ☉)
 - ROCK X-VANE
 - A-VANE

NOTE: BOTTOM OF POOL ELEVATION PROVIDED IS DEEPEST POINT IN POOL AT STATION, NOT ACTUAL ELEVATION AT THE CENTERLINE. REFER TO PLAN AND CROSS SECTIONS SHEETS FOR OFFSETS. POOLS SHOULD BE "OVER DUG" BY 1'-1.5' TO ACCOUNT FOR SEDIMENTATION.



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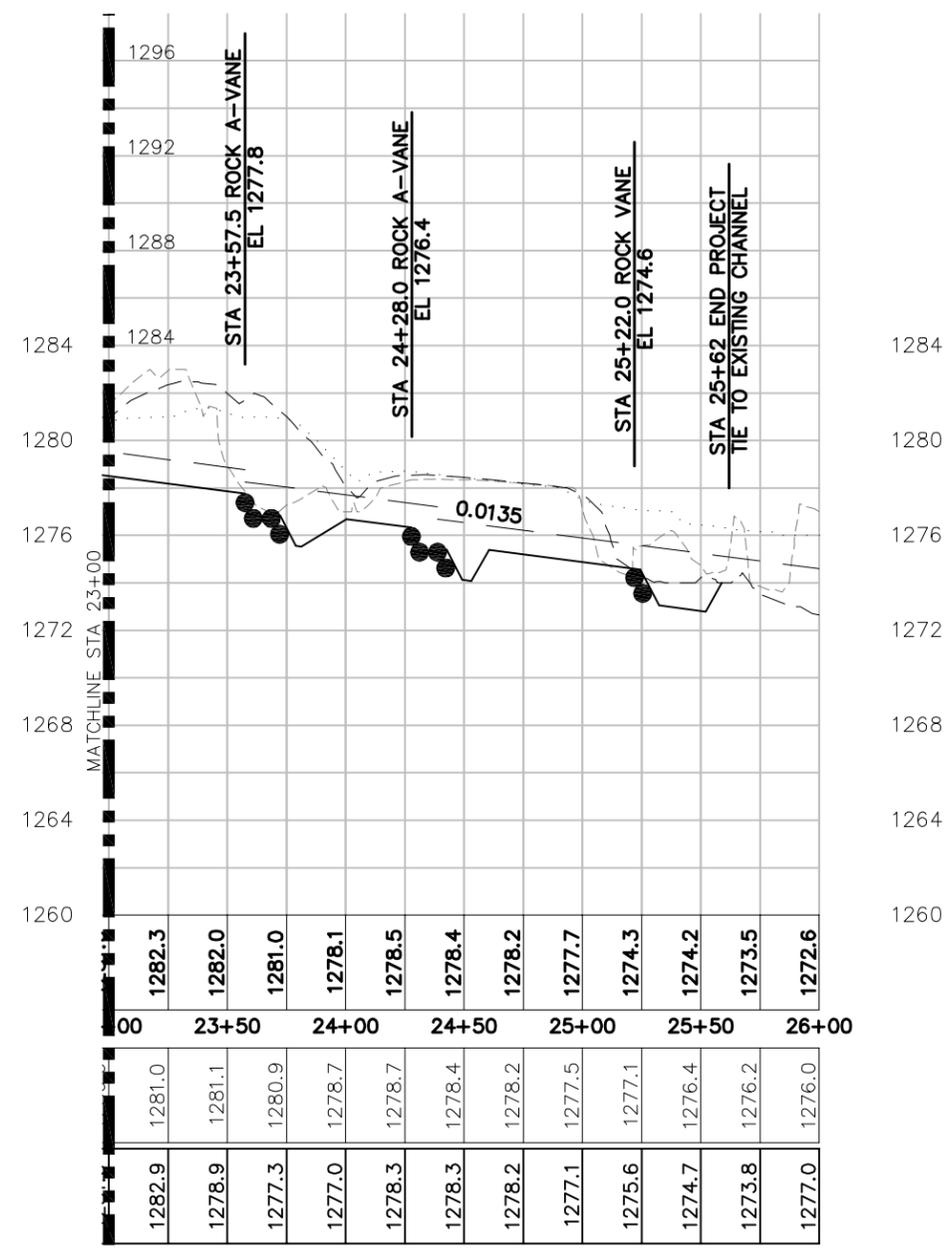
CLIENT: **NC-EEP**

TITLE: **PROFILES**

DATE: 03/03/06
 HORIZONTAL SCALE:
 VERTICAL SCALE:
 DRAWN BY: JJK
 DESIGNED BY: ARK
 CHECKED BY: WRW

PROJECT: **NAKED CREEK**

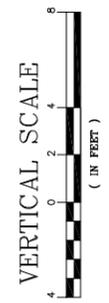
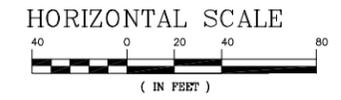
ATTACHED REFERENCE FILES:
 JOB NUMBER: 011795018
 SHEET NUMBER: P2



LEGEND

- TOP OF BANKFULL
- CL OF NEW CHANNEL
- - - EXISTING GROUND
- PROPOSED LEFT BANK ON EXISTING GROUND (13.75' OFFSET FROM CL)
- - - PROPOSED RIGHT BANK ON EXISTING GROUND (13.75' OFFSET FROM CL)
- ROCK X-VANE
- A-VANE

NOTE: BOTTOM OF POOL ELEVATION PROVIDED IS DEEPEST POINT IN POOL AT STATION, NOT ACTUAL ELEVATION AT THE CENTERLINE. REFER TO PLAN AND CROSS SECTIONS SHEETS FOR OFFSETS. POOLS SHOULD BE "OVER DUG" BY 1'-1.5' TO ACCOUNT FOR SEDIMENTATION.



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CLIENT: **NC-EEP**

TITLE: **PROFILES**

DATE: 03/03/06
DESIGNED BY: JJK
CHECKED BY: WRW

PROJECT: **NAKED CREEK**

ATTACHED REFERENCE FILES:

JOB NUMBER: 011795018
SHEET NUMBER: **P3**