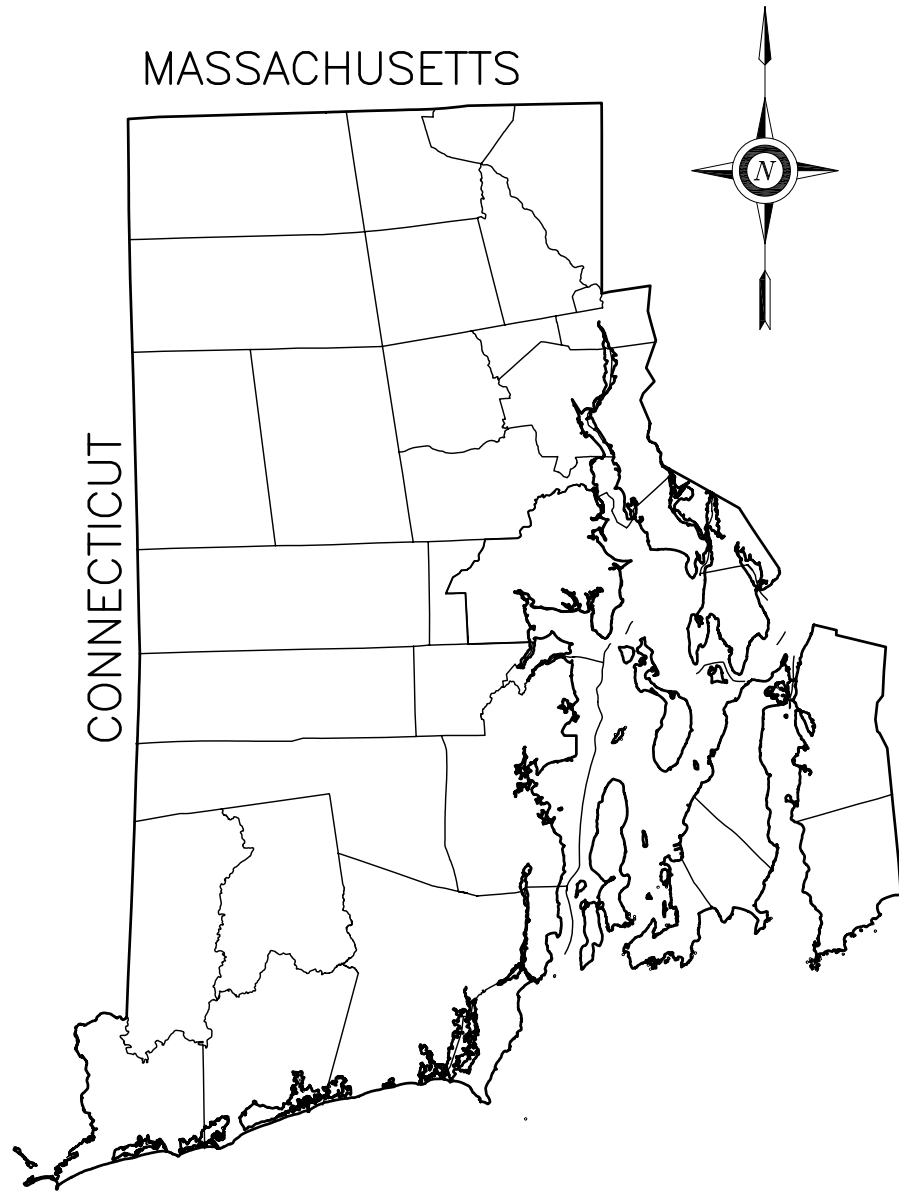


MASSACHUSETTS

CONNECTICUT



**COOPERATOR'S REVIEW AND APPROVAL STATEMENT**

I HAVE REVIEWED THE PLANS AND SPECIFICATIONS AND AGREE TO COMPLETE THE WORK ACCORDINGLY. MODIFICATION OF THESE PLANS AND SPECIFICATIONS MUST BE APPROVED BY THE NATURAL RESOURCES CONSERVATION SERVICE BEFORE INSTALLATION. FAILURE TO MEET THESE PLANS AND SPECIFICATIONS MAY JEOPARDIZE MY STATE OR FEDERAL COST-SHARE FUNDING.

I AM RESPONSIBLE FOR CLEARLY LOCATING AND MARKING ALL PRIVATE UTILITIES AND TILE LINES WITHIN THE WORK AREA. FAILURE TO LOCATE PRIVATE UTILITIES AND TILE LINES MAY INCREASE MY CONSTRUCTION COSTS. I AM RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS AND COMPLETING THE WORK IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS. I AM RESPONSIBLE FOR ALL NEGOTIATIONS AND AGREEMENTS WITH THE CONTRACTOR(S). I WILL BE AVAILABLE DURING CONSTRUCTION TO DISCUSS POTENTIAL MODIFICATIONS AND CONDUCT NECESSARY NEGOTIATIONS WITH THE CONTRACTOR(S).

COOPERATOR'S SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

PLANS FOR THE CONSTRUCTION OF AN

\_\_\_\_\_

for

\_\_\_\_\_

in

\_\_\_\_\_

PREPARED BY

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

PRACTICE STANDARD: CODE 560  
JOB CLASS: I  
LIMITING FACTOR: CULVERT, AREA = 4 SQFT

QUANTITIES		
ITEM	AMOUNT	UNIT
SEDIMENT FENCE		LF
SEEDING/MULCHING		SF
EXCAVATION		CY
HDPE PIPE (24" DIA.)		LF
BANK RUN GRAVEL		CY
PROCESSED GRAVEL		CY
ROCK RIPRAP (D50=4")		CY
NON-WOVEN GEOTEXTILE		SF
WOVEN GEOTEXTILE		SF

INDEX OF DRAWINGS	
PAGE #	CONTENT
1	COVER SHEET
2	PLAN VIEW
3a-3e	PROFILE/WATER BAR DETAILS
4	SECTION AND CULVERT/OUTLET DETAILS

THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXISTENCE AND LOCATION OF UTILITIES AND IS LIABLE FOR ANY DAMAGE BY CONSTRUCTION ACTIVITY. UTILITY LOCATIONS ARE APPROXIMATE. ADDITIONAL UTILITIES MAY EXIST EVEN THOUGH NOT SHOWN.

CALL RI DIG SAFE:  
1-888-344-7233

**GENERAL NOTES:**

1. CONSTRUCTION MATERIALS SHALL MEET THE NATURAL RESOURCES CONSERVATION SERVICE (NRCS) STANDARDS AND SPECIFICATIONS. ANY MODIFICATIONS SHALL BE CLEARLY INDICATED ON THE DRAWINGS AND SHALL BE APPROVED BY NRCS PRIOR TO INSTALLATION.
2. ALL PERMITS NEEDED TO INSTALL AND OPERATE THIS SYSTEM ARE THE RESPONSIBILITY OF THE OWNER AND SHALL BE OBTAINED BEFORE CONSTRUCTION BEGINS.
3. CONTACT THE NRCS RHODE ISLAND STATE OFFICE (401-828-1300) BEFORE ANY CONSTRUCTION TAKES PLACE.
4. OPERATION & MAINTENANCE PLAN MUST BE FOLLOWED WHEN PRACTICE HAS BEEN CERTIFIED COMPLETE BY NRCS.

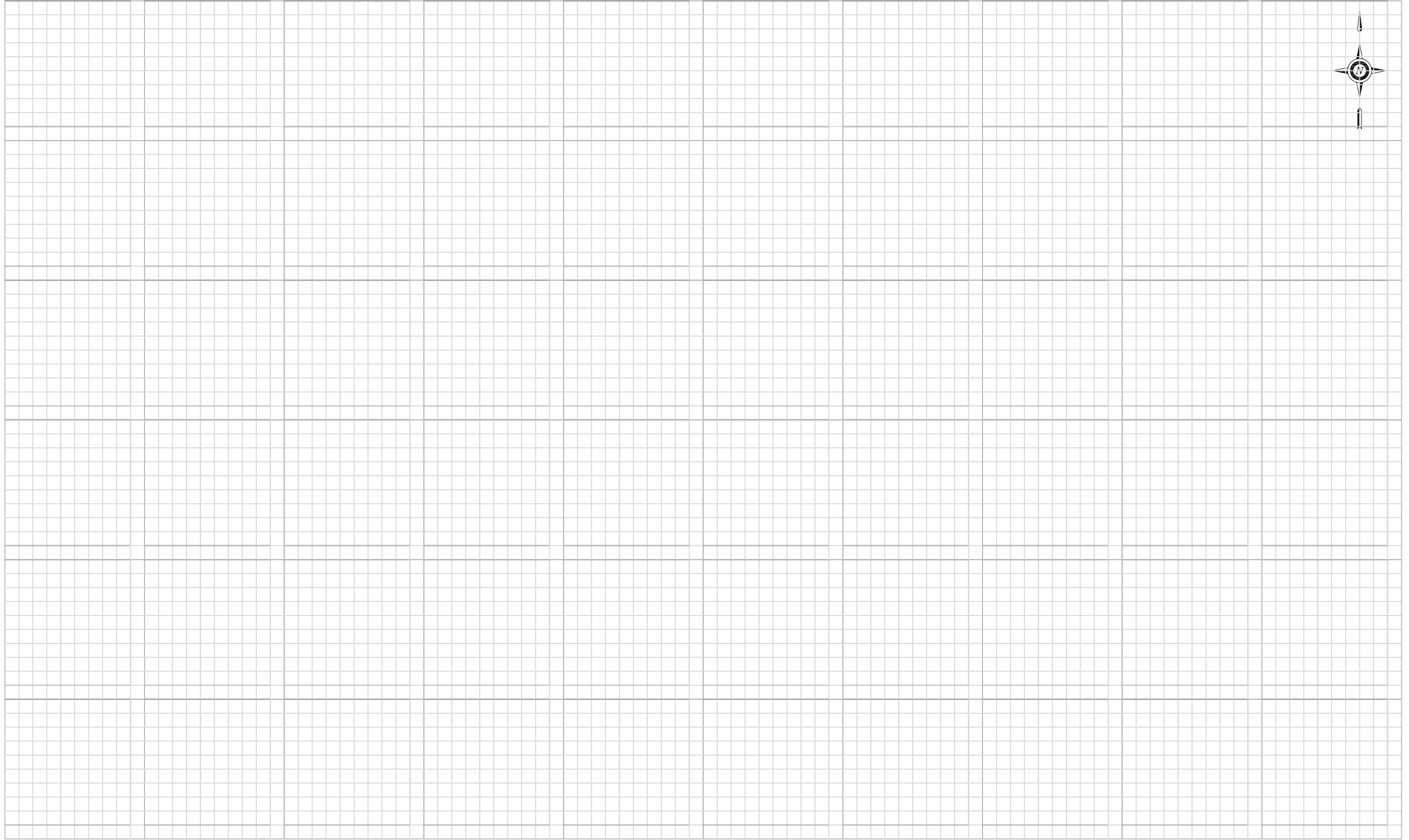
Date 02/2011  
Designed J/V  
Drawn J/V  
Checked  
Approved

ACCESS ROAD STANDARD DESIGN  
Cover Sheet



File No. Access road standard drawing\_JN.dwg

Drawing No.



PLAN VIEW: NOT TO SCALE

Designed	JN	Date	02/2011
Drawn	JN		02/2011
Checked			
Approved			

ACCESS ROAD STANDARD DESIGN  
Plan View

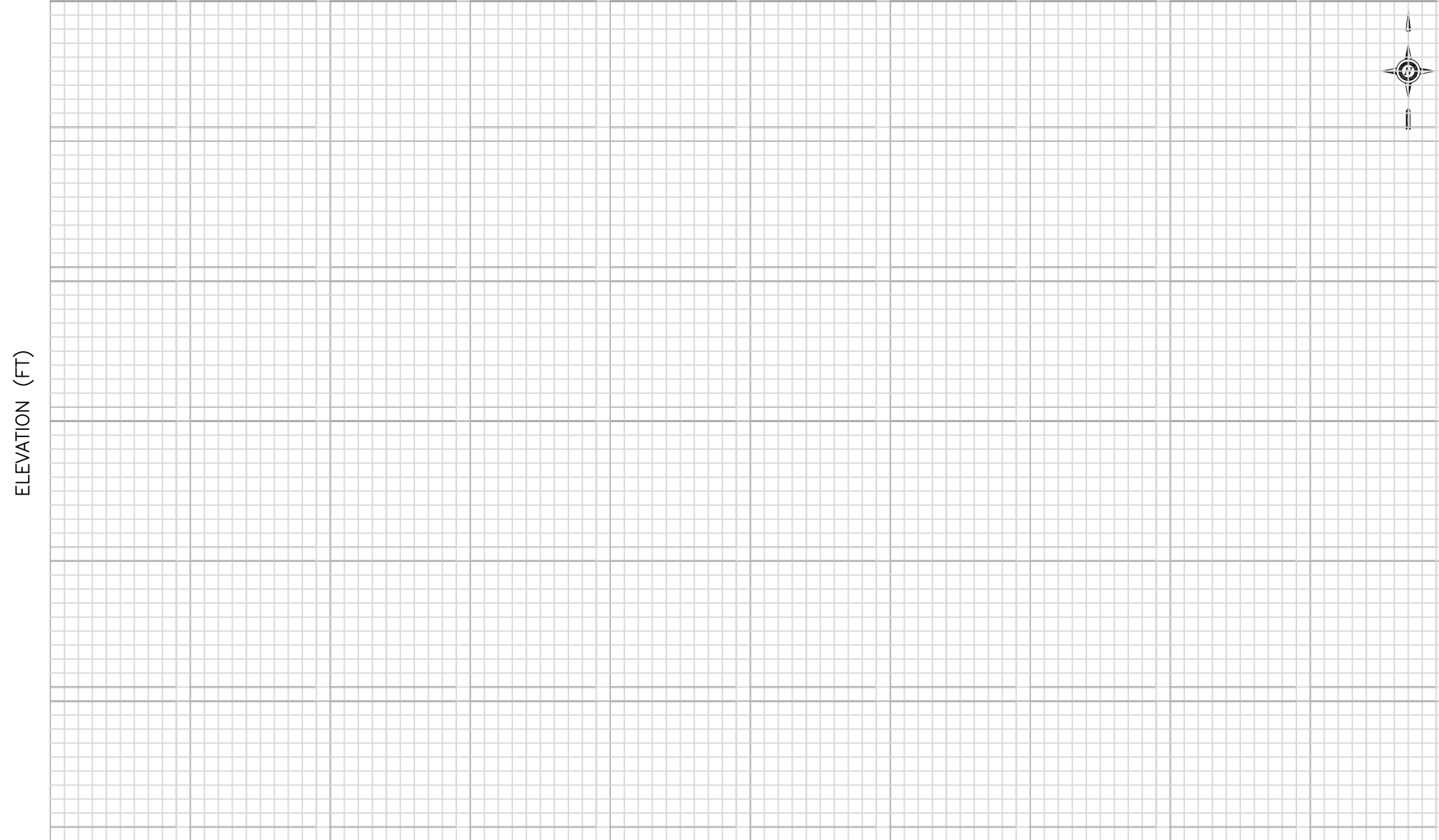


File No.  
Access road standard drawing\_JN.dwg

Drawing No.

----- County, Rhode Island

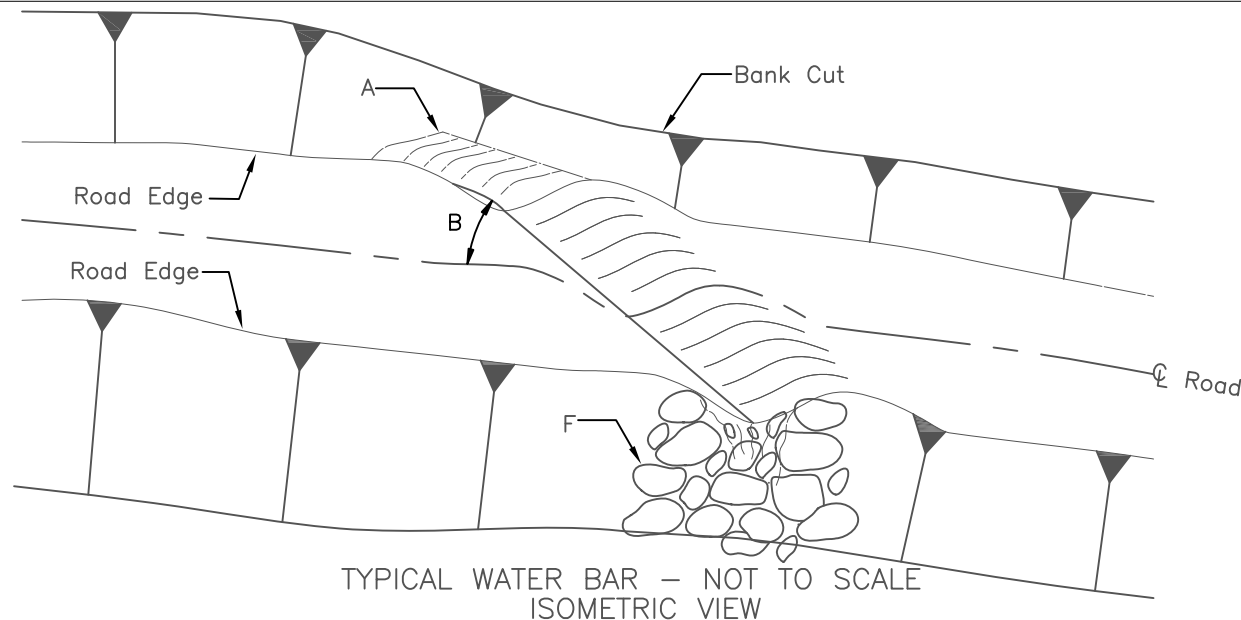
ACCESS ROAD PROFILE FOR 0-2% ROAD GRADES (NO WATER BARS REQUIRED)



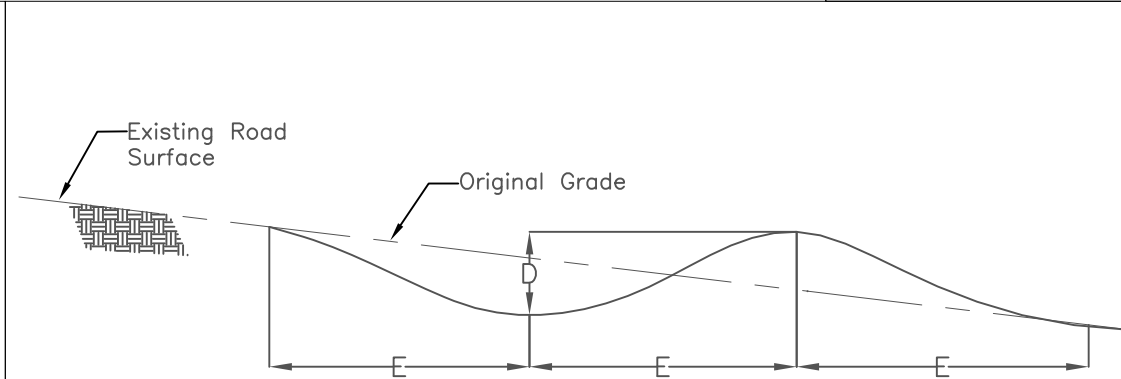
1+00

ACCESS ROAD PROFILE A-A (ALONG CENTERLINE)

NOT TO SCALE:



TYPICAL WATER BAR - NOT TO SCALE  
ISOMETRIC VIEW



TYPICAL WATER BAR - NOT TO SCALE  
WATER BAR - SECTION VIEW

WATER BAR CONSTRUCTION FOR FOREST OR FARM  
FIELD ROADS

- A: Bar fill extends to Bank Cut slope
- B: Angle drain 30° degrees from  $\phi$  of road
- D: Depth 1 ft maximum
- E: 3 ft to 4 ft minimum
- F: Outlet water bars into drainage ditch. Erosion protective constructed outlet for drainage ditch/water bars:

Outlet Material

Materials: D50=4 inch Riprap  
 Thickness: 12 inches (minimum)  
 Design length: 22 feet  
 Design width: 17 feet

\*Place rock over Class I non-woven geotextile

1. For 2-4% road grades, install water bars every 400 ft. For 4-8% road grades, install water bars every 300 ft.

2. Specifications are typical, adjust to site conditions.

NOTES:

- This standard drawing requires supporting technical documentation prior to use and must be adapted to the specific site.
- Water bar outlets will be free of woody debris, dams, or any obstructions that prohibit drainage from the lower end of the water bar.
- Use D50=4" angular rock riprap for outlet.
- Disturbed areas and slopes shall be seeded and mulched according to specification upon completion.

Date	02/2011
Designed	J/V
Drawn	J/V
Checked	
Approved	

ACCESS ROAD STANDARD DESIGN  
Profile/Water Bar Details

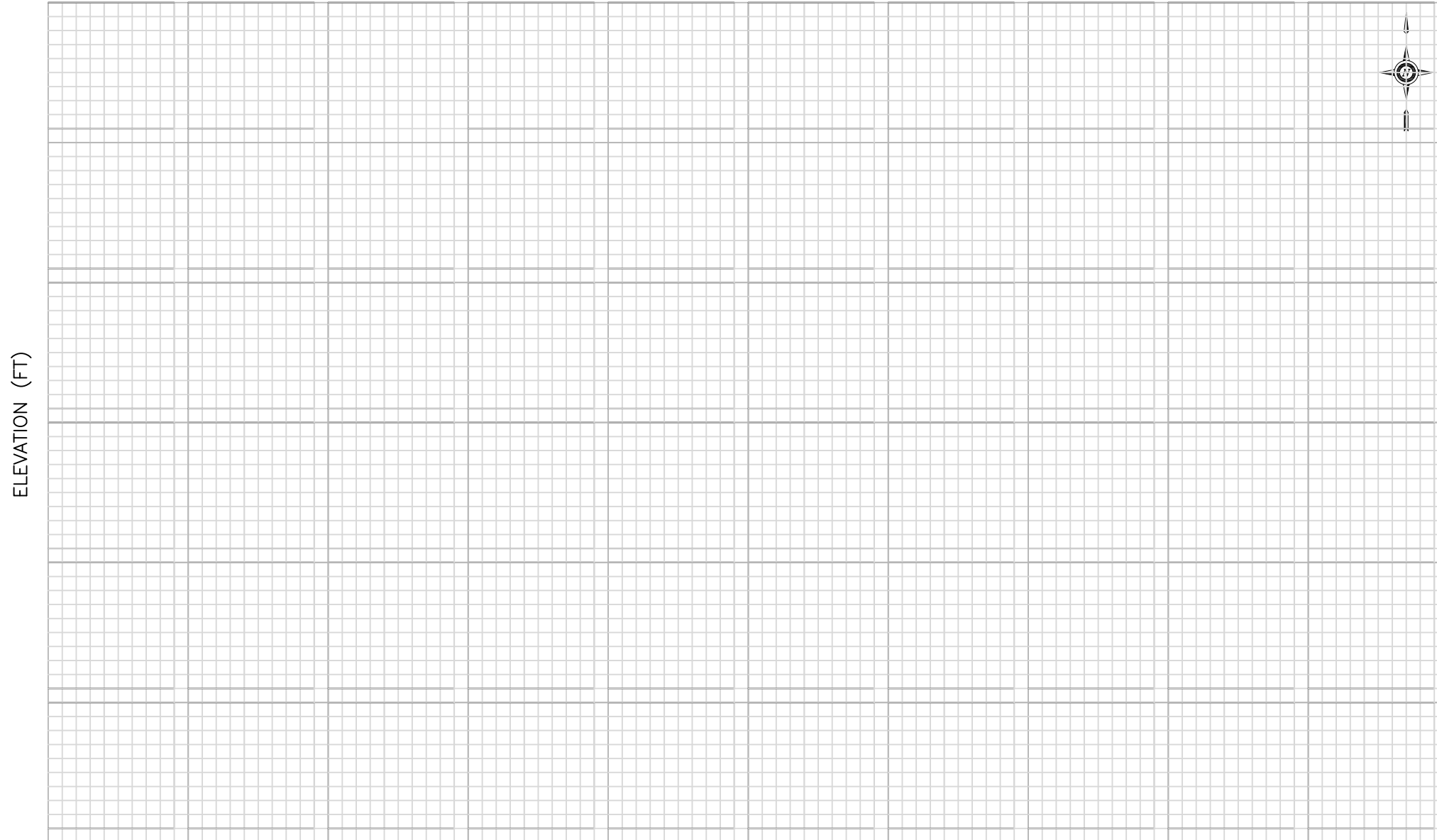
County, Rhode Island



File No.  
Access road standard  
drawing\_JN.dwg

Drawing No.

ACCESS ROAD PROFILE FOR 2-4% ROAD GRADES, UP TO 500 FT. LENGTH



1+00

ACCESS ROAD PROFILE A-A (ALONG CENTERLINE)

NOT TO SCALE:

WATER BAR CONSTRUCTION FOR FOREST OR FARM FIELD ROADS

- A: Bar fill extends to Bank Cut slope
- B: Angle drain 30° degrees from  $\phi$  of road
- D: Depth 1 ft maximum
- E: 3 ft to 4 ft minimum
- F: Outlet water bars into drainage ditch. Erosion protective constructed outlet for drainage ditch/water bars:

Outlet Material

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 Thickness: 12 inches (minimum)  
 Design length: 22 feet  
 Design width: 17 feet

\*Place rock over Class I non-woven geotextile

1. For 2-4% road grades, install water bars every 400 ft. For 4-8% road grades, install water bars every 300 ft.

2. Specifications are typical, adjust to site conditions.

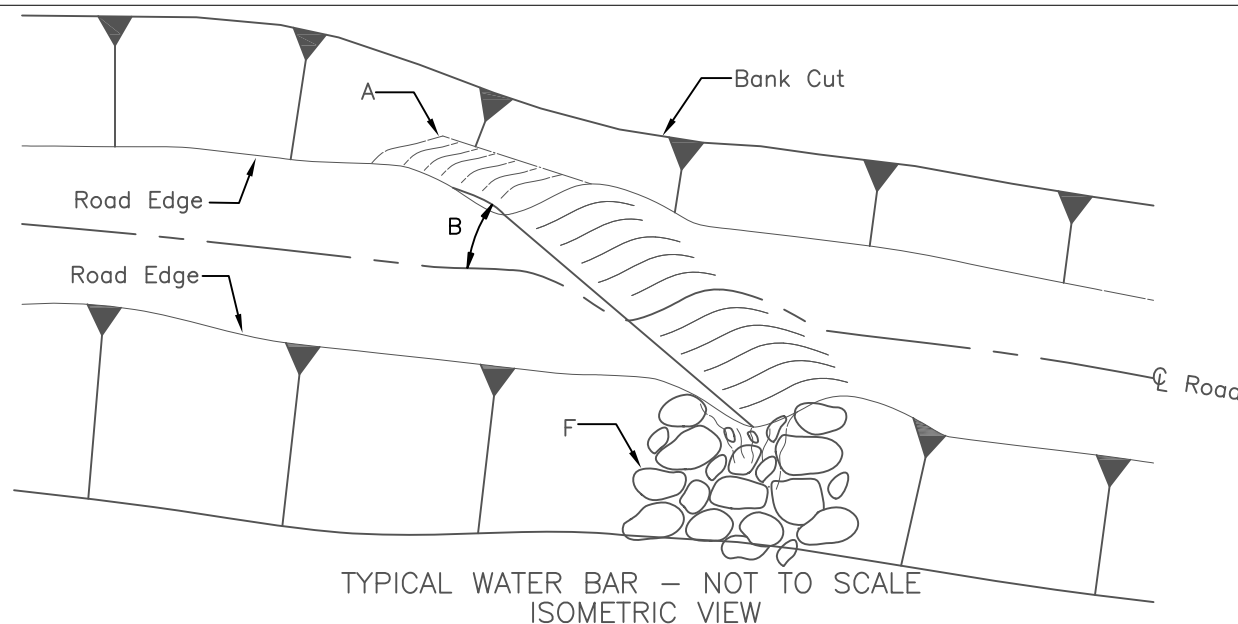
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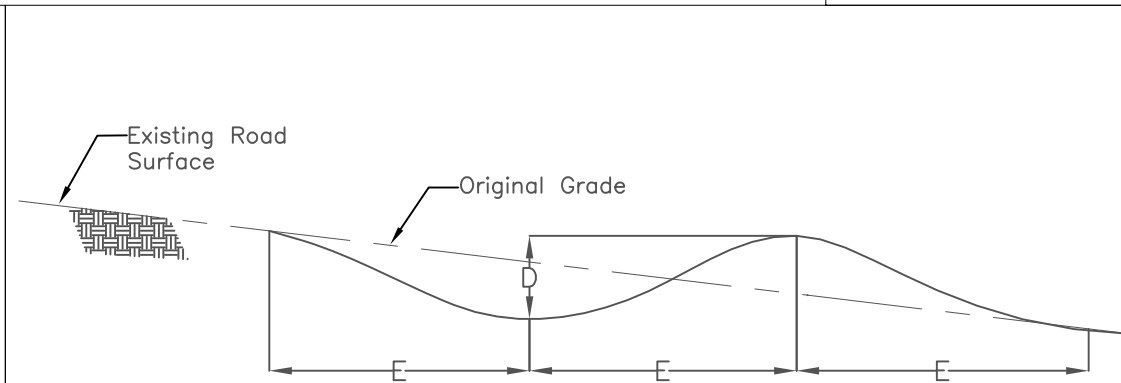
Date	02/2011
Designed	J/V
Drawn	J/V
Checked	
Approved	

ACCESS ROAD STANDARD DESIGN  
 Profile/Water Bar Details

County, Rhode Island



TYPICAL WATER BAR - NOT TO SCALE  
 ISOMETRIC VIEW



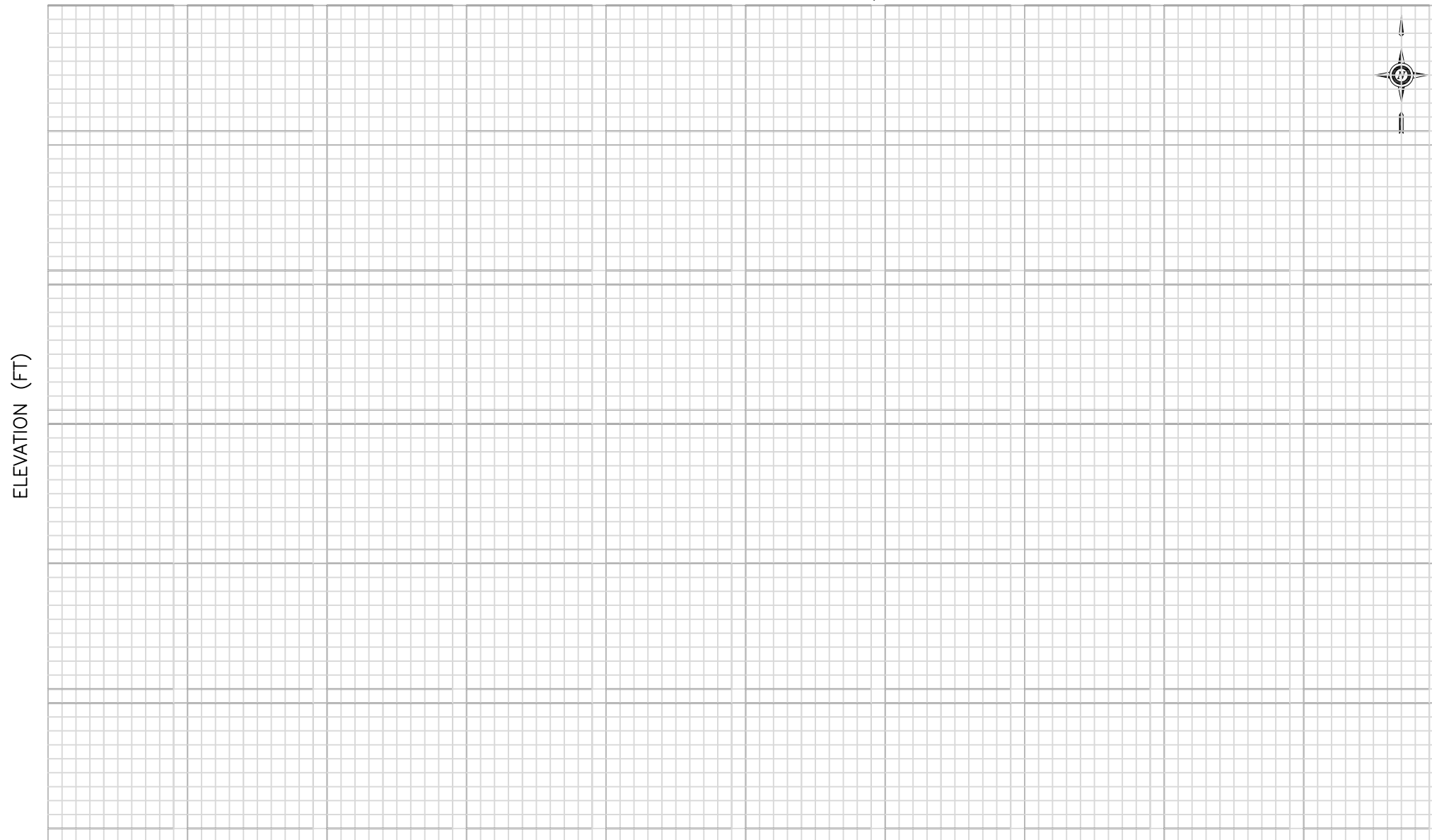
TYPICAL WATER BAR - NOT TO SCALE  
 WATER BAR - SECTION VIEW



File No.  
 Access road standard drawing\_JN.dwg

Drawing No.

ACCESS ROAD PROFILE FOR 2-4% ROAD GRADES, 500-1000 FT. LENGTH



1+00

ACCESS ROAD PROFILE A-A (ALONG CENTERLINE)

NOT TO SCALE:

WATER BAR CONSTRUCTION FOR FOREST OR FARM FIELD ROADS

- A: Bar fill extends to Bank Cut slope
- B: Angle drain 30° degrees from  $\phi$  of road
- D: Depth 1 ft maximum
- E: 3 ft to 4 ft minimum
- F: Outlet water bars into drainage ditch. Erosion protective constructed outlet for drainage ditch/water bars:

Outlet Material

Materials: D50=4 inch Riprap  
 Thickness: 12 inches (minimum)  
 Design length: 22 feet  
 Design width: 17 feet

\*Place rock over Class I non-woven geotextile

1. For 2-4% road grades, install water bars every 400 ft. For 4-8% road grades, install water bars every 300 ft.

2. Specifications are typical, adjust to site conditions.

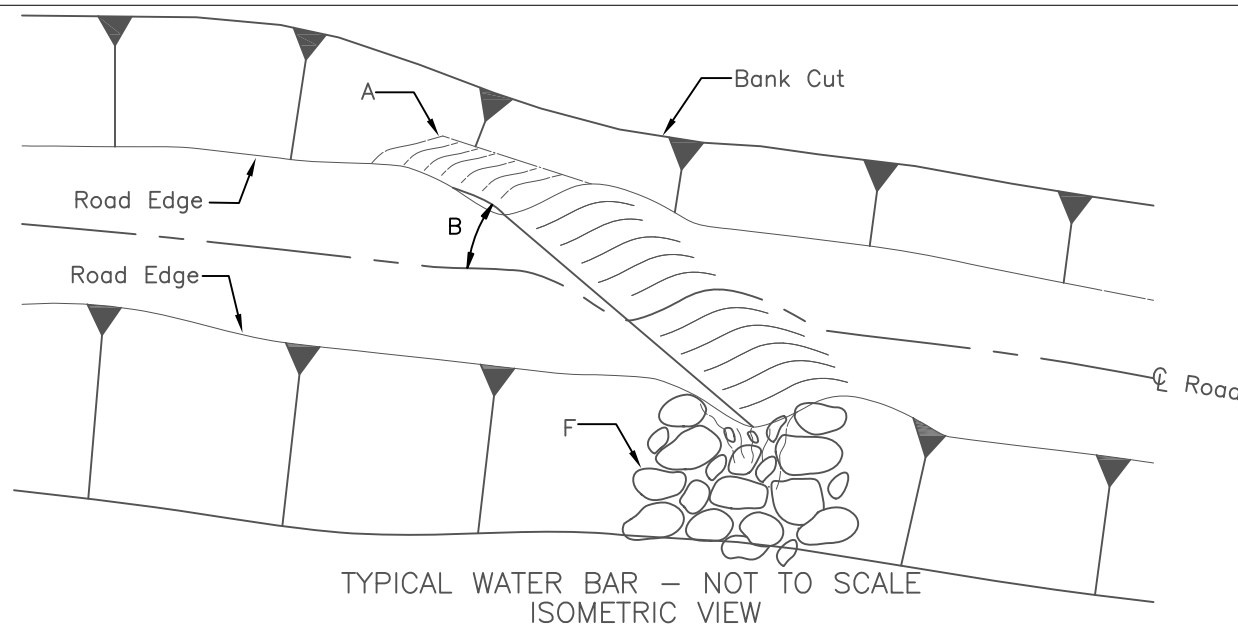
NOTES:

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- Water bar outlets will be free of woody debris, dams, or any obstructions that prohibit drainage from the lower end of the water bar.
- Use D50=4" angular rock riprap for outlet.
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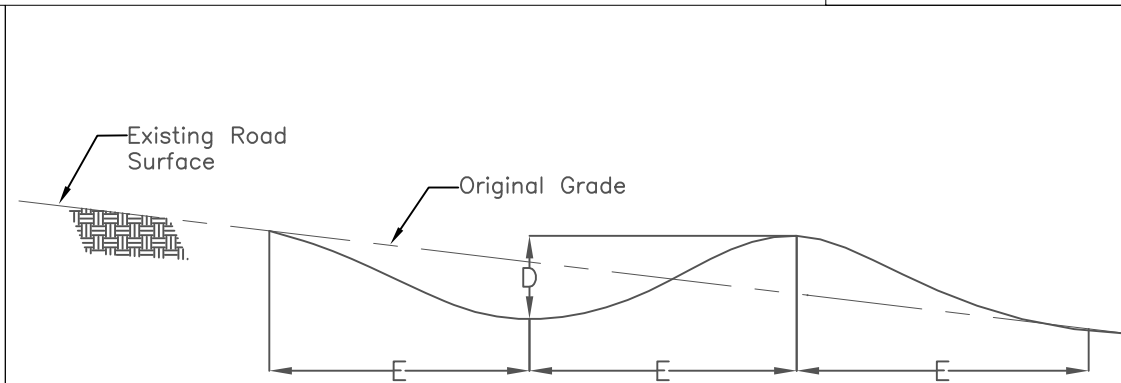
Date	02/2011
Designed	J/V
Drawn	J/V
Checked	
Approved	

ACCESS ROAD STANDARD DESIGN  
 Profile/Water Bar Details

County, Rhode Island



TYPICAL WATER BAR - NOT TO SCALE  
 ISOMETRIC VIEW



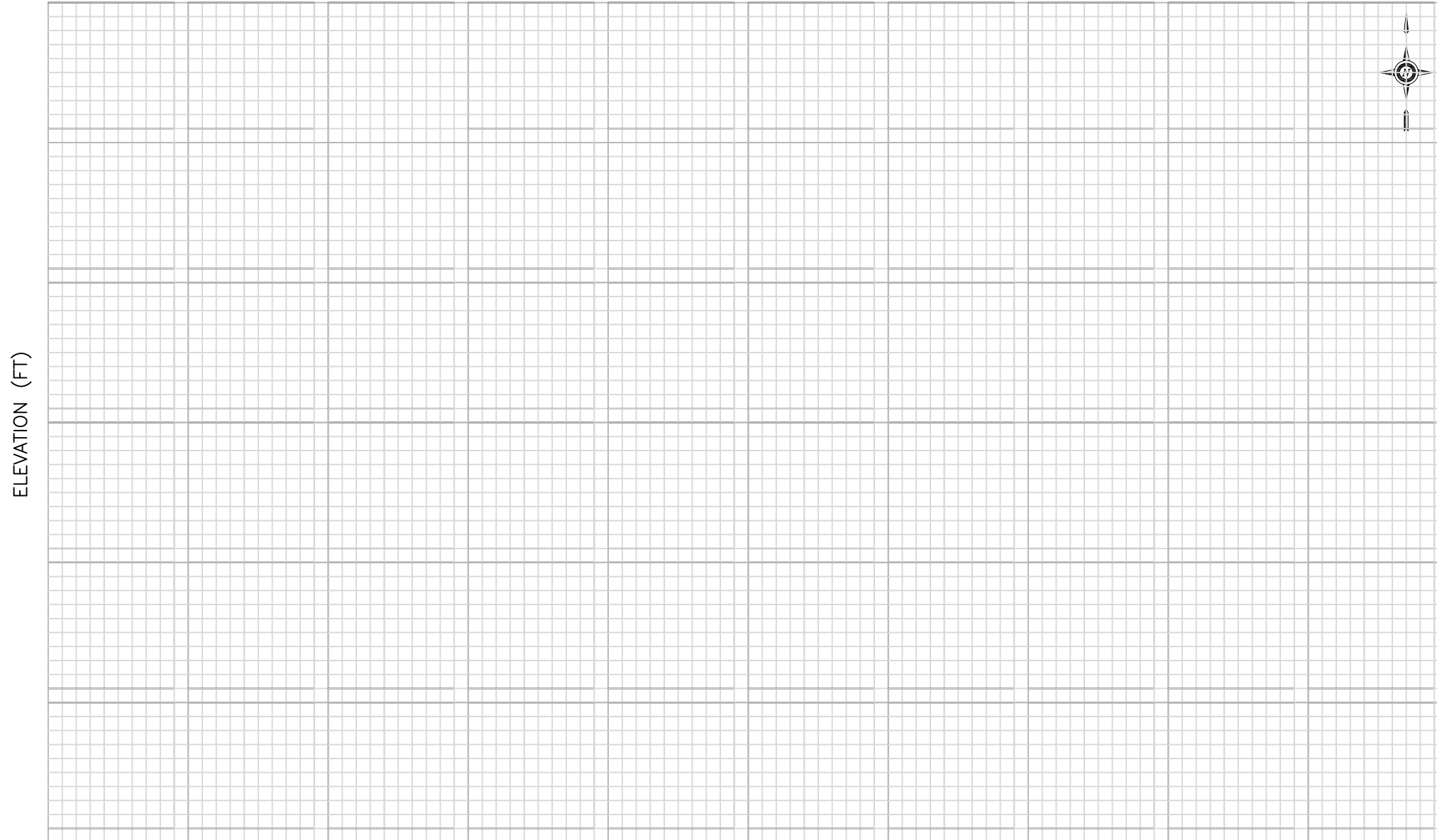
TYPICAL WATER BAR - NOT TO SCALE  
 WATER BAR - SECTION VIEW



File No.  
 Access road standard drawing\_JN.dwg

Drawing No.

ACCESS ROAD PROFILE FOR 4-8% ROAD GRADES, UP TO 500 FT. LENGTH



1+00

ACCESS ROAD PROFILE A-A (ALONG CENTERLINE)

NOT TO SCALE:

WATER BAR CONSTRUCTION FOR FOREST OR FARM FIELD ROADS

- A: Bar fill extends to Bank Cut slope
- B: Angle drain 30° degrees from  $\phi$  of road
- D: Depth 1 ft maximum
- E: 3 ft to 4 ft minimum
- F: Outlet water bars into drainage ditch. Erosion protective constructed outlet for drainage ditch/water bars:

Outlet Material

Materials: D50=4 inch Riprap  
 Thickness: 12 inches (minimum)  
 Design length: 22 feet  
 Design width: 17 feet

\*Place rock over Class I non-woven geotextile

1. For 2-4% road grades, install water bars every 400 ft. For 4-8% road grades, install water bars every 300 ft.

2. Specifications are typical, adjust to site conditions.

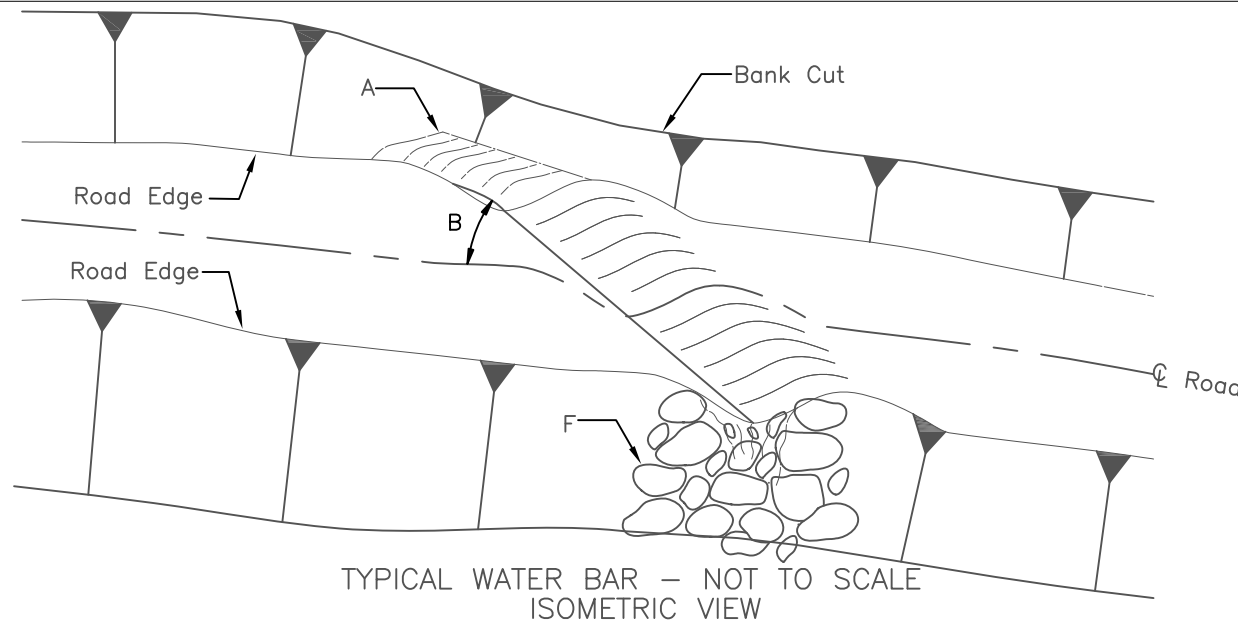
NOTES:

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- Use D50=4" angular rock riprap for outlet.
- Disturbed areas and slopes shall be seeded and mulched according to specification upon completion.

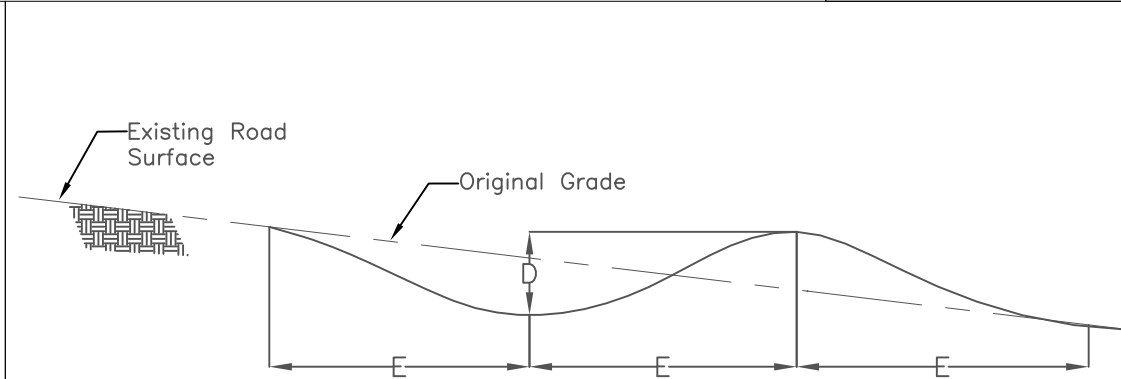
Date	02/2011
Designed	J/V
Drawn	J/V
Checked	
Approved	

ACCESS ROAD STANDARD DESIGN  
 Profile/Water Bar Details

County, Rhode Island



TYPICAL WATER BAR - NOT TO SCALE  
 ISOMETRIC VIEW



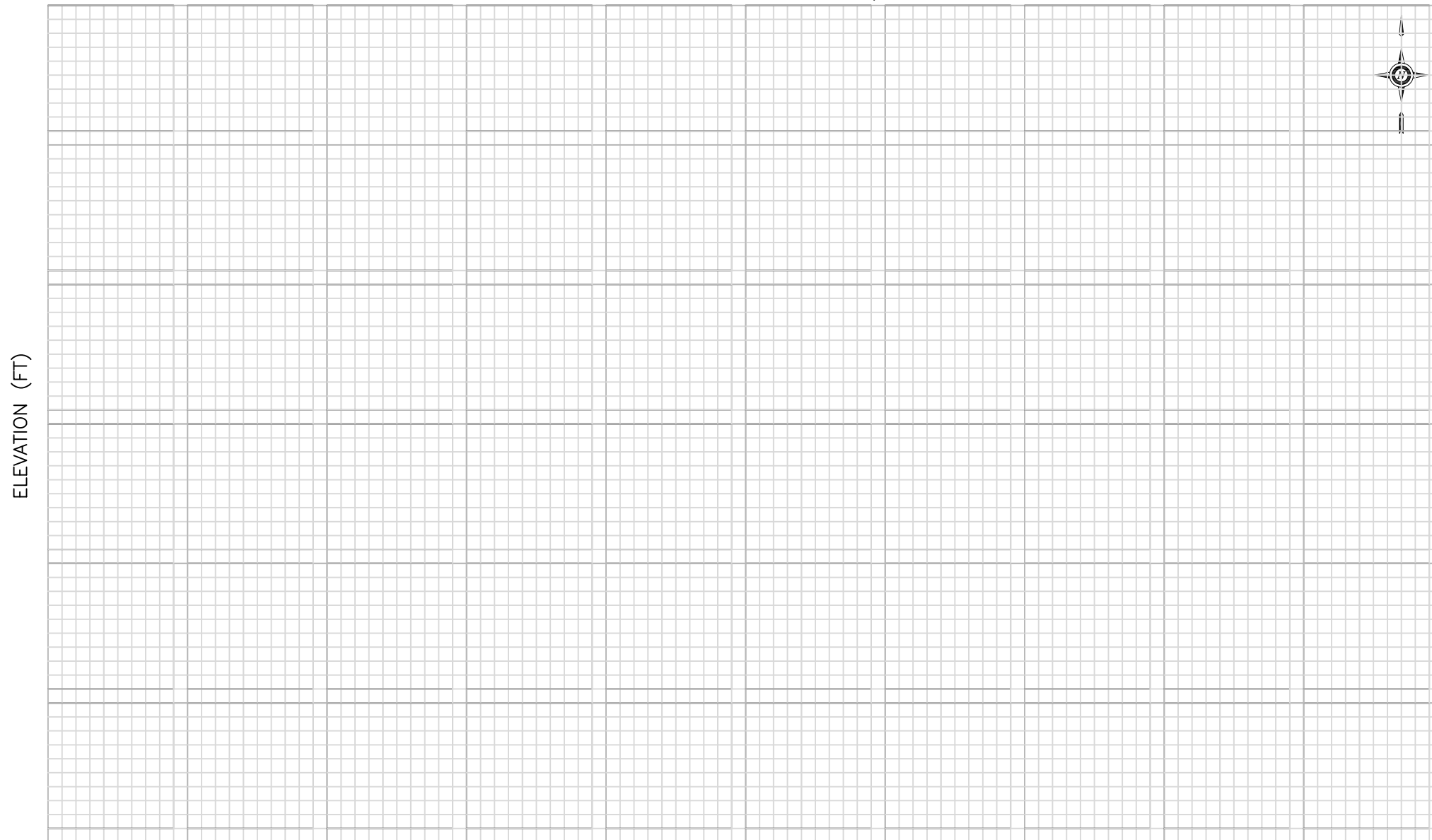
TYPICAL WATER BAR - NOT TO SCALE  
 WATER BAR - SECTION VIEW



File No.  
 Access road standard drawing\_JN.dwg

Drawing No.

ACCESS ROAD PROFILE FOR 4-8% ROAD GRADES, 500-1000 FT. LENGTH



1+00

ACCESS ROAD PROFILE A-A (ALONG CENTERLINE)

NOT TO SCALE:

WATER BAR CONSTRUCTION FOR FOREST OR FARM FIELD ROADS

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- F: Outlet water bars into drainage ditch. Erosion protective constructed outlet for drainage ditch/water bars:

Outlet Material

Materials: D50=4 inch Riprap  
 Thickness: 12 inches (minimum)  
 Design length: 22 feet  
 Design width: 17 feet

\*Place rock over Class I non-woven geotextile

1. For 2-4% road grades, install water bars every 400 ft. For 4-8% road grades, install water bars every 300 ft.

2. Specifications are typical, adjust to site conditions.

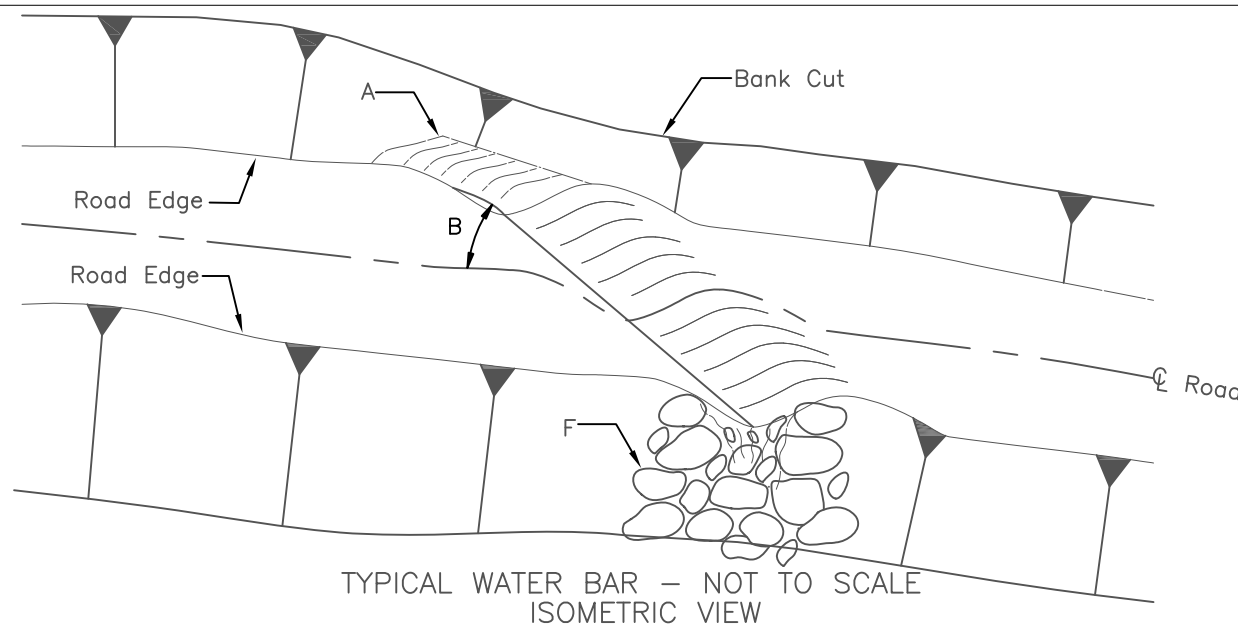
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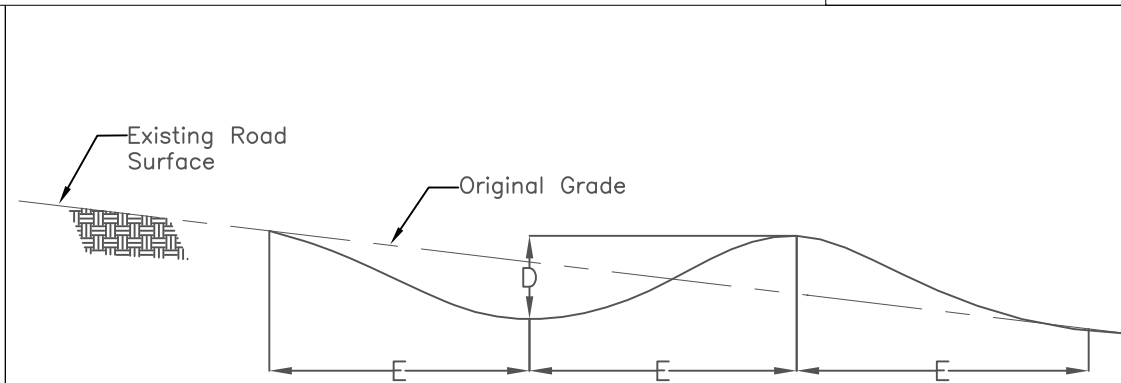
Date	02/2011
Designed	J/V
Drawn	J/V
Checked	
Approved	

ACCESS ROAD STANDARD DESIGN  
 Profile/Water Bar Details

County, Rhode Island



TYPICAL WATER BAR - NOT TO SCALE  
 ISOMETRIC VIEW

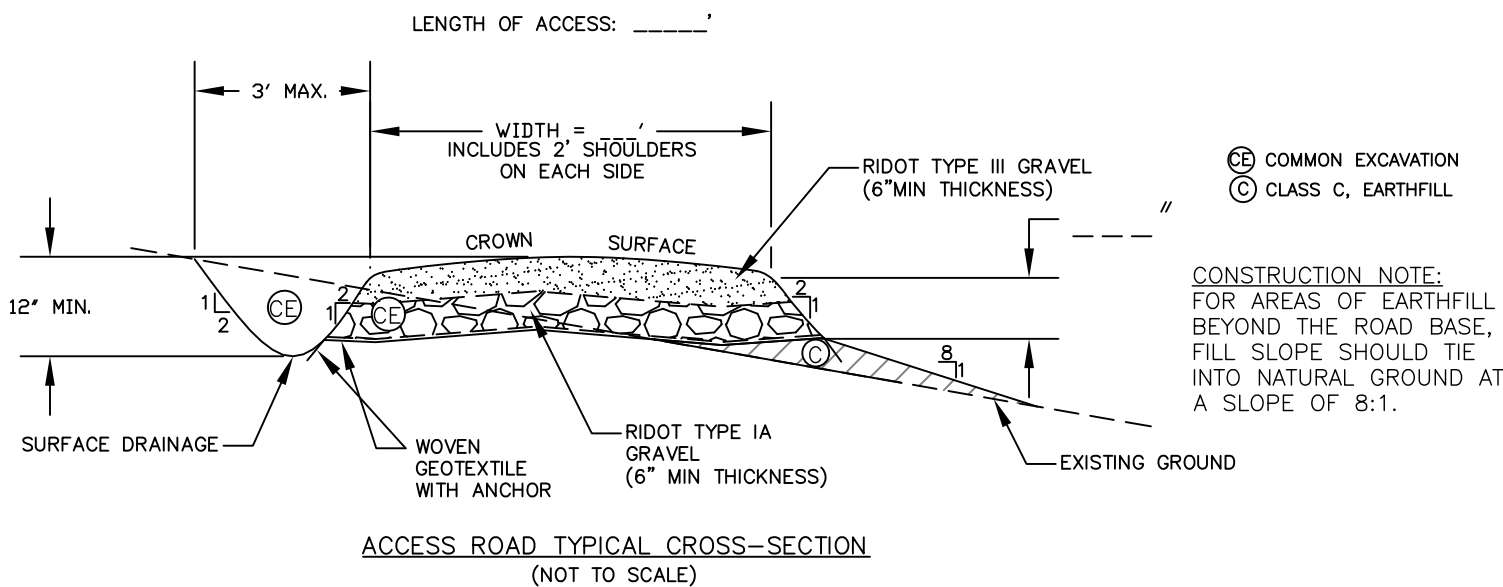


TYPICAL WATER BAR - NOT TO SCALE  
 WATER BAR - SECTION VIEW



File No.  
 Access road standard drawing\_JN.dwg

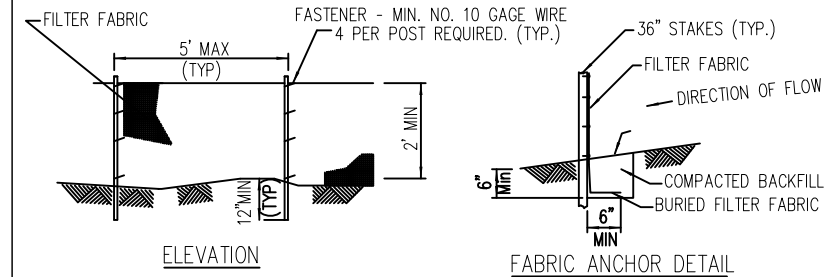
Drawing No.



GRAVEL GRADATIONS

RIDOT TYPE III GRAVEL GRADATION	
SIEVE SIZE	% PASSING
1"	100
3/4"	90-100
1/2"	20-55
3/8"	0-20
#4	0-5

BANK RUN GRAVEL GRADATION (RI DOT TYPE Ia)	
SIEVE SIZE	% PASSING
3"	60-100
1/2"	50-85
3/8"	45-80
#4	40-75
#40	0-45
#200	0-10



NOTES:

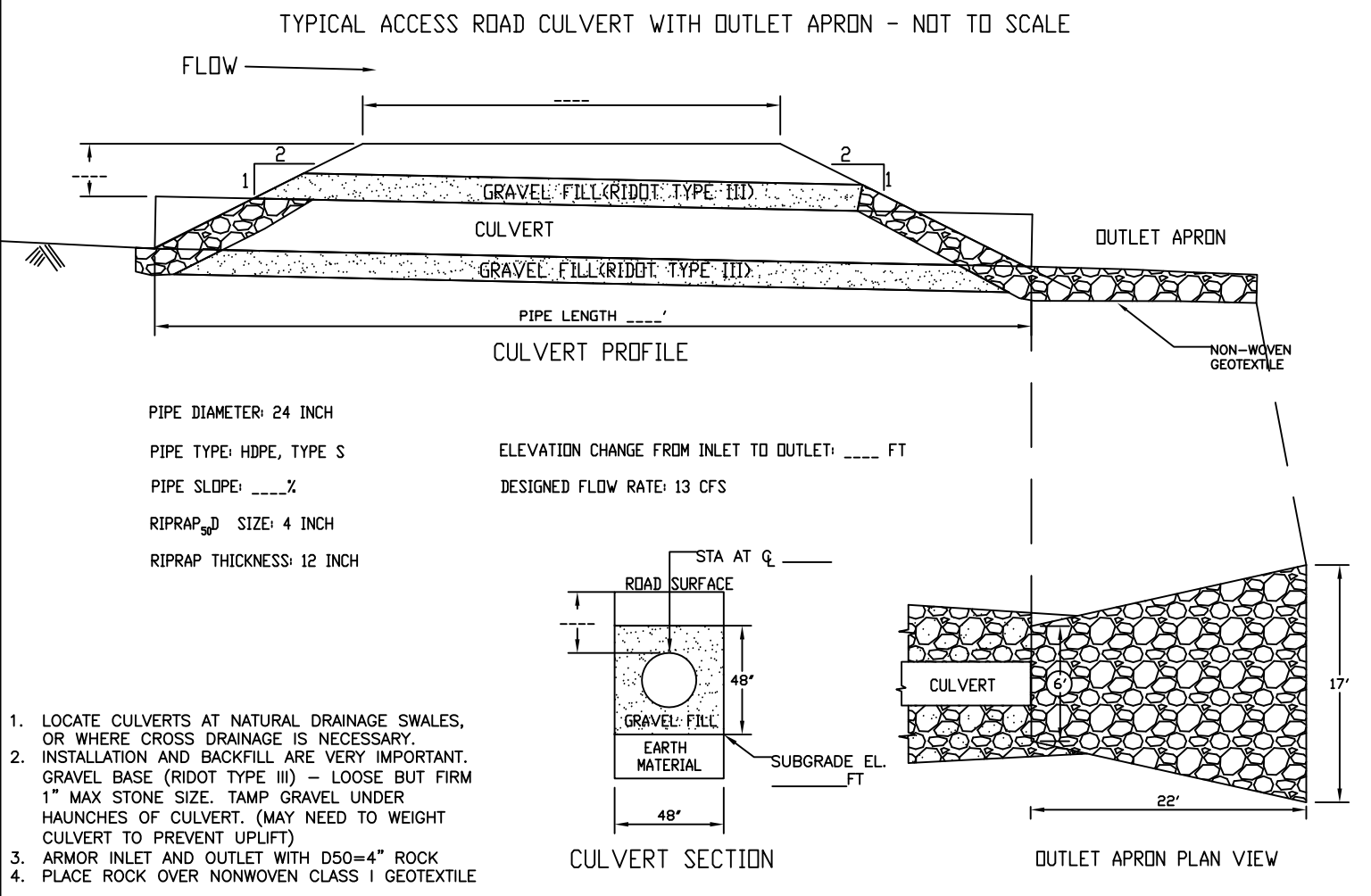
- NO CONSTRUCTION SHALL TAKE PLACE UNTIL EROSION CONTROL MEASURES AS SHOWN ON ARE INSTALLED.
- SET POSTS A MIN. DEPTH OF 12" & EXCAVATE A 6"x6" TRENCH UPSLOPE ALONG THE LINE OF POSTS. STAPLE WIRE FENCING TO THE POSTS.
- ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH A MINIMUM OF 6".
- BACKFILL AND COMPACT THE EXCAVATED SOIL AT LEAST 6" ABOVE FABRIC IN TRENCH.

Date: 02/2011  
Designed: J/V  
Drawn: J/V  
Checked:  
Approved:

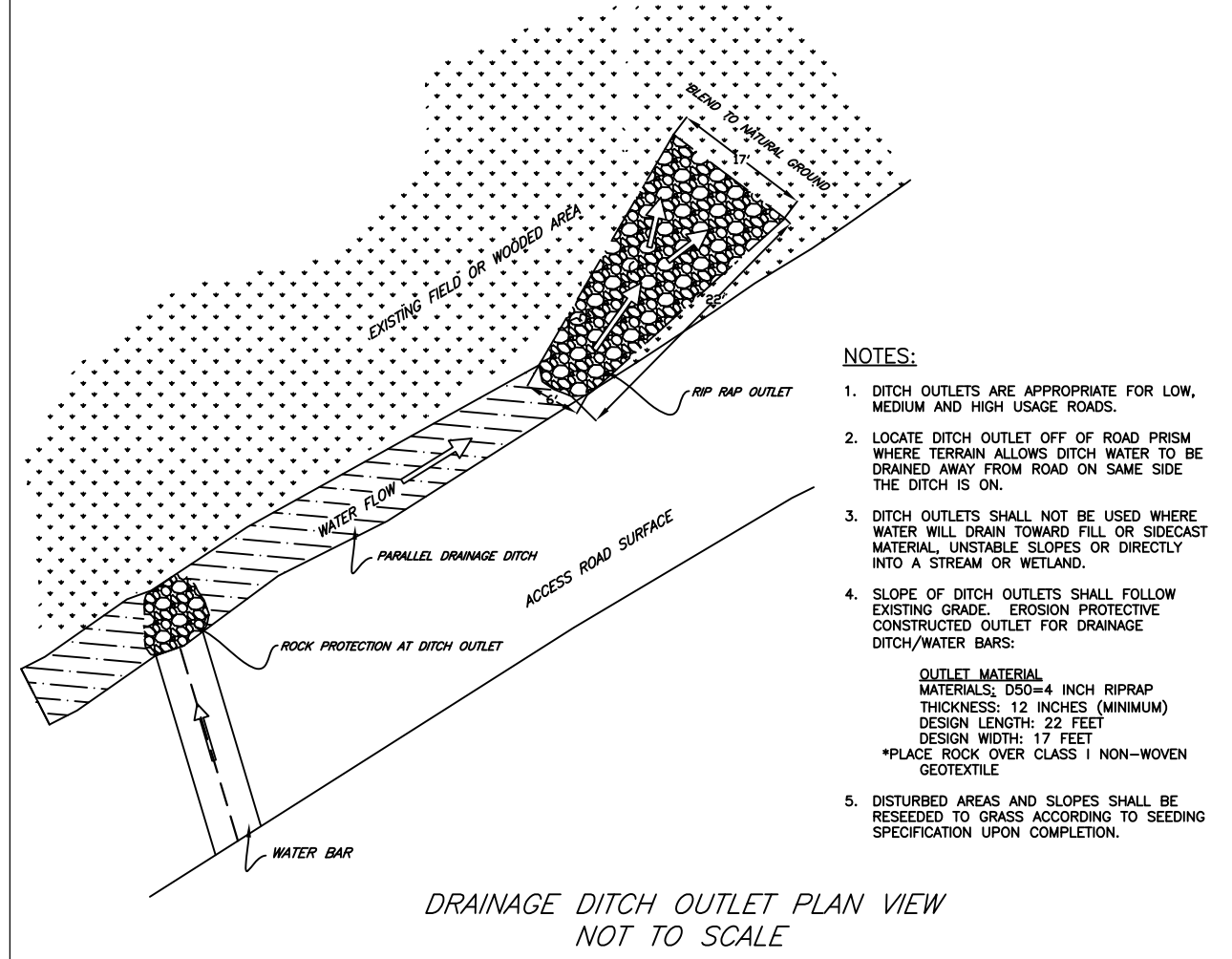
ACCESS ROAD STANDARD DESIGN  
Section and Culvert/Outlet Details



File No.  
Access road standard drawing\_JN.dwg  
Drawing No.



- LOCATE CULVERTS AT NATURAL DRAINAGE SWALES, OR WHERE CROSS DRAINAGE IS NECESSARY.
- INSTALLATION AND BACKFILL ARE VERY IMPORTANT. GRAVEL BASE (RIDOT TYPE III) - LOOSE BUT FIRM 1" MAX STONE SIZE. TAMP GRAVEL UNDER HAUNCHES OF CULVERT. (MAY NEED TO WEIGHT CULVERT TO PREVENT UPLIFT)
- ARMOR INLET AND OUTLET WITH D50=4" ROCK
- PLACE ROCK OVER NONWOVEN CLASS I GEOTEXTILE



NOTES:

- DITCH OUTLETS ARE APPROPRIATE FOR LOW, MEDIUM AND HIGH USAGE ROADS.
- LOCATE DITCH OUTLET OFF OF ROAD PRISM WHERE TERRAIN ALLOWS DITCH WATER TO BE DRAINED AWAY FROM ROAD ON SAME SIDE THE DITCH IS ON.
- DITCH OUTLETS SHALL NOT BE USED WHERE WATER WILL DRAIN TOWARD FILL OR SIDECAST MATERIAL, UNSTABLE SLOPES OR DIRECTLY INTO A STREAM OR WETLAND.
- SLOPE OF DITCH OUTLETS SHALL FOLLOW EXISTING GRADE. EROSION PROTECTIVE CONSTRUCTED OUTLET FOR DRAINAGE DITCH/WATER BARS:  
OUTLET MATERIAL MATERIALS: D50=4 INCH RIPRAP  
THICKNESS: 12 INCHES (MINIMUM)  
DESIGN LENGTH: 22 FEET  
DESIGN WIDTH: 17 FEET  
\*PLACE ROCK OVER CLASS I NON-WOVEN GEOTEXTILE
- DISTURBED AREAS AND SLOPES SHALL BE RESEED TO GRASS ACCORDING TO SEEDING SPECIFICATION UPON COMPLETION.

SEEDING SPECIFICATION:

- LIME AND FERTILIZE AT THE FOLLOWING RATES:  
90 LBS. LIME/1,000 SQ. FT.  
11 LBS. 10-20-20/1,000 SQ. FT.
- BROADCAST WITH HAND HELD SPREADER
- ORGANIC FERTILIZER MAY BE USED IN LIEU OF COMMERCIAL FERTILIZER.
- SEED ALL DISTURBED AREAS TO THE FOLLOWING:  
SEED MIX LBS./ACRE  
RED FESCUE (PENN LAWN) 40  
PERENNIAL RYE GRASS 10  
(IMPROVED TURF TYPE)  
COLONIAL BENTGRASS (EXETER) 5  
BIRDSFOOT TREFLOIL (VIKING) 5  
SWITCHGRASS (TRAILBLAZER) 20
- APPLY MULCH TO COVER 75% OF THE GROUND SURFACE.
- SEEDING DATES APRIL 1 TO JUNE 15TH OR AUGUST 15TH TO SEPTEMBER 30TH.

CONSTRUCTION NOTES:

- ANY EXCESS EXCAVATED MATERIAL CANNOT BE USED FOR EARTHFILL AND SHALL BE DISPOSED OF OFFSITE IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
- GEOTEXTILE FOR ROAD SHALL BE WOVEN AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. OVERLAP ALL SPLICES A MINIMUM OF 18 INCHES. THE EXPOSED SURFACE OF THE GEOTEXTILE IS PLACED ON NRCS APPROVED SUBGRADE MATERIAL. AVOID PLACEMENT OVER SHARP OBJECTS.
- ALL EARTHFILL MATERIAL SHALL MEET THE GRADATION REQUIREMENTS OF RIDOT TYPE Ia GRAVEL AND MUST BE APPROVED BY NRCS PRIOR TO PLACEMENT. THIS BACKFILL SHALL BE COMPACTED BY BY 4 PASSES OVER THE ENTIRE FILL LAYER WITH HEAVY CONSTRUCTION EQUIPMENT OR OTHER SUITABLE COMPACTION EQUIPMENT. HEAVY CONSTRUCTION EQUIPMENT SHOULD BE KEPT A SAFE DISTANCE WITHIN OR OVER ANY STRUCTURE OR PIPE SO AS NOT TO CAUSE ANY STRUCTURAL DAMAGE.
- ALL ORGANIC MATERIAL SHALL BE EXCAVATED OUT, PRIOR TO PLACEMENT OF GRAVEL MATERIAL. THE EXCAVATED MATERIALS SHALL BE USED FOR SHOULDERS ON THE ACCESS ROAD, AND RESEEDED ACCORDING TO SEEDING SPECIFICATION.
- ALL CONSTRUCTION ACTIVITIES SHALL STAY WITHIN THE FOOTPRINT OF EXISTING ACCESS ROAD IN REGULATED AREAS.