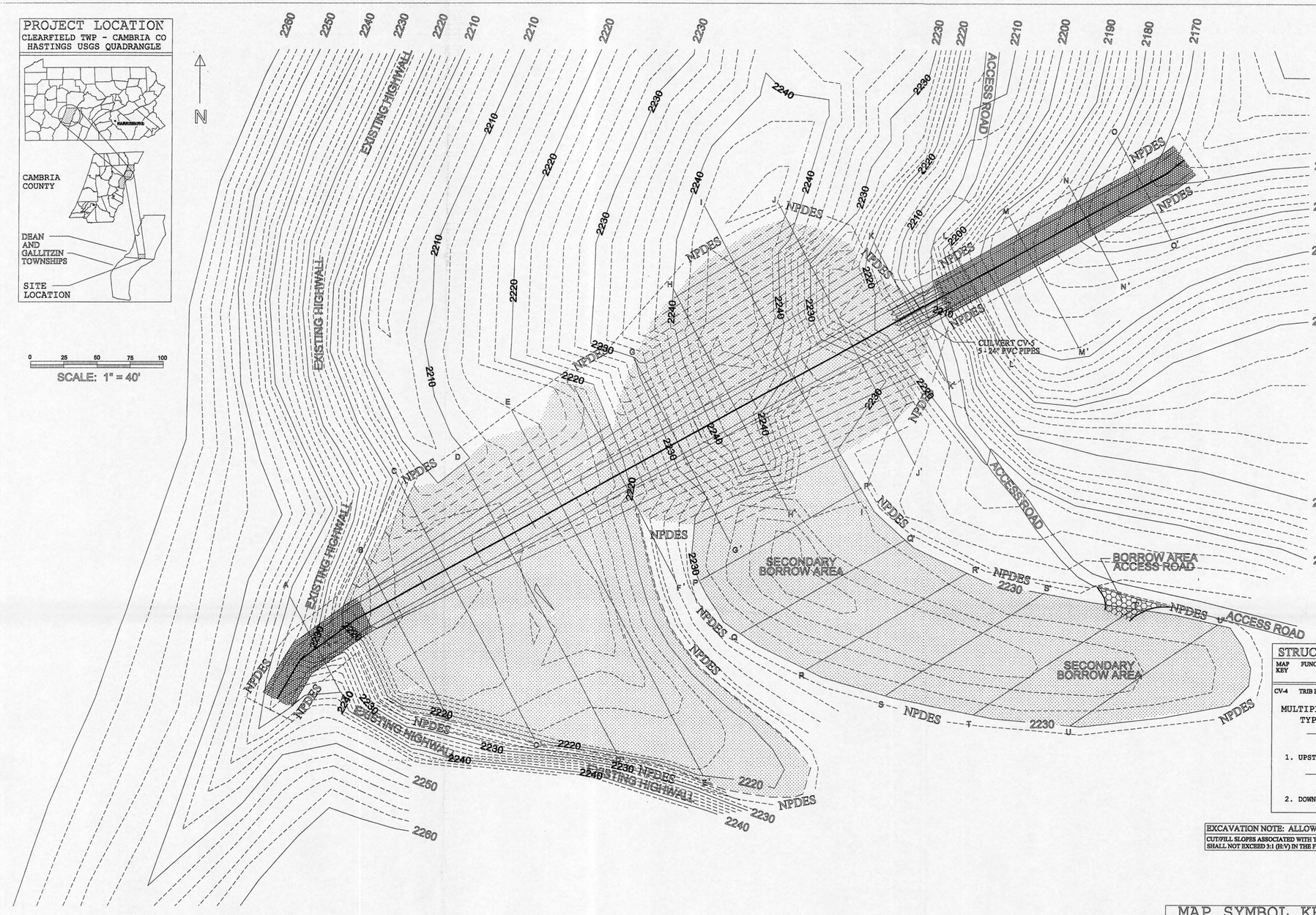
PROJECT LOCATION

CLEARFIELD TWP - CAMBRIA CO
HASTINGS USGS QUADRANGLE



SOIL AMENDMENTS / MULCH

1. AGRICULTURAL LIMESTONE	3.0 TONS/ACRE
2. FERTILIZER (N-P-K)	120 - 200 - 200 LBS./ACRE
3. MULCH (STRAW)	3.0 TONS/ACRE

SEED MIXTURES

STABILIZATION DESCRIPTION	SPECIES	RATE LB/AC	PURITY (%)	GERM (%)	WEED (%)
1. TEMPORARY STABILIZATION	ANNUAL RYEGRASS	10.0	95	85	0.15
	DERKTONGUE	8.0	95	75	0.10
2. GENERAL STABILIZATION	PERENNIAL RYEGRASS	20.0	95	85	0.15
	TALL FESCUE	15.0	95	75	0.10
	BERDSFOOT TREFOIL	15.0	98	80	0.15
3. CHANNEL STABILIZATION	TALL FESCUS	50.0	95	80	0.10

WATERS OF THE COMMONWEALTH

OVERLAND FLOW FROM BMP's ASSOCIATED WITH THIS PART OF THE PROPERTY WILL BE ROUTED TO LITTLE LAUREL RUN (CH. 93 DES: CWF)

LIMITS OF EARTH DISTURBANCE

THE LIMITS OF EARTH DISTURBANCE FOR THIS PART OF THE PROPERTY ARE COINCIDENT WITH THE NPDES BOUNDARY LINE AND INCLUDE THE GRASS CHANNEL, RIPRAP CHANNELS, ENERGY DISSIPATORS, CUT AND FILL AREAS AND THE BORROW AREA.

NPDES BOUNDARIES

THE NPDES BOUNDARY IS SHOWN ON THE MAP AND IS SPECIFIC TO THIS PART OF THE PROPOSED PROJECT AND IS LABELED AS: NPDES

GENERAL CONSTRUCTION SEQUENCE

NOTE: CONTRACTOR MUST COMPLETE EACH CONSTRUCTION ITEM BEFORE BEGINING THE NEXT CONSTRUCTION ITEM.

SITE PREPARATION
1. INSTALL DOWNGRADIENT E&S CONTROLS
2. DEVELOP ACCESS ROAD SEGMENT 6 TO BORROW AREA
3. INITIATE CLEARING/GRUBBING
4. EXCAVATE AND STOCKPILE TOPSOIL FROM AREAS TO BE AFFECTED

CHANNEL CONSTRUCTION AND RECLAMATION
BEFORE BEGINING RECHANNELIZATION ACTIVITIES, CONTRACTOR SHALL DIVERT FLOW AT BASE OF CHANNEL ST-1 ALONG THE STRIP MINE HIGHWALL.
5. CONSTRUCT RIPRAP CHANNEL ST-3 AND ASSOCIATED ENERGY DISSIPATOR
6. INSTALL CULVERT GROUP CV-4 AT JUNCTION OF ROAD SEGMENTS 3 + 4
7. EXCAVATE "CUT SECTION" OF GRASS LINED CHANNEL ST-2
8. EXCAVATE BANK SECTIONS ADJACENT TO THE GRASS LINED CHANNEL ST-2
9. PLACE MATERIAL IN "FILL SECTION" OF THE GRASS LINED CHANNEL ST-2
10. CONSTRUCT FINAL DITCH GEOMETRY IN THE GRASS LINED CHANNEL SECTION
11. STABILIZE AND REVEGETATE GRASS LINED CHANNEL ST-2
    STABILIZE AND REVEGETATE ADJACENT BANKS (CUT SECTIONS)
    STABILIZE AND REVEGETATE ADJACENT MEADOWS (FILL SECTIONS)

BEFORE COMPLETING THIS WORK, CONTRACTOR SHALL ALLOW ADEQUATE TIME FOR VEGETATION TO FULLY ESTABLISH IN GRASS LINED CHANNEL ST-2
12. CONSTRUCT RIPRAP CHANNEL ST-1 AND ASSOCIATED ENERGY DISSIPATOR
13. RESTORE "DIVERSION" SECTION OF RIPRAP CHANNEL ST-1
14. CONTINUE USE OF BORROW AREA UNTIL ALL EMBANKMENTS ARE COMPLETED AT THE TREATMENT SYSTEMS
15. ESTABLISH FINAL GRADE(S) AT BORROW AREA
16. STABILIZE AND REVEGETATE BORROW AREA

MAINTENANCE / DISPOSAL PLAN

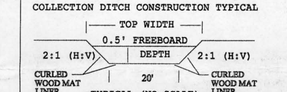
1. ALL E&S / STORMWATER MANAGEMENT STRUCTURES TO BE INSPECTED WEEKLY AND AFTER EACH STORM EVENT.
   E&S/STORMWATER MANAGEMENT STRUCTURES TO BE CLEANED/REPAIRED AS NEEDED.
2. INSPECTION AND MAINTENANCE RESPONSIBILITIES:
   a. DURING CONSTRUCTION: GENERAL CONTRACTOR
   b. POST - CONSTRUCTION: CLEARFIELD CREEK WATERSHED ASSOCIATION
   SPECIFIC MAINTENANCE INSTRUCTIONS
3. SEDIMENT LEVELS TO BE MONITORED AND REMOVED FROM COLLECTION DITCHES ANNUALLY OR WHEN ACCUMULATIONS INHIBIT VEGETATIVE GROWTH (GRASS LINER)
4. SEDIMENT LEVELS TO BE MONITORED AND REMOVED FROM CULVERTS ANNUALLY OR WHEN 10% OF INLET IS BLOCKED BY SEDIMENT (ELEV. VARIES)
5. SEDIMENT LEVELS TO BE MONITORED WEEKLY AND REMOVED IMMEDIATELY FROM SILT FENCE AREAS WHEN ACCUMULATION EXCEEDS 6". DAMAGED SECTIONS WILL BE IMMEDIATELY REPAIRED.
6. MAINTAIN ALL VEGETATED AREAS UNTIL A UNIFORM 70% COVER IS ACHIEVED.

   SPECIFIC DISPOSAL INSTRUCTIONS
7. DESIGNATED SEDIMENT DISPOSAL AREA: FILL AREA ADJACENT TO CHANNEL. (SEDIMENT TO BE PLACED NEAR BASE OF HIGHWALL IN FILL AREA.)
   PLACEMENT: SPREAD UNIFORMLY AND REVEGETATE
   a. DITCH CONSTRUCTION: EXCAVATED MATERIAL
   b. BMP MAINTENANCE: CLEAN-OUT MATERIAL
8. ALL CONSTRUCTION DEBRIS WILL BE COLLECTED AND SEGREGATED. APPROPRIATE MATERIALS WILL BE RECYCLED NON-RECYCLABLES: HAULED TO APPROVED LANDFILL

STRUCTURAL BMP's: COLLECTION DITCHES / RIPRAP CHANNELS

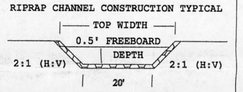
MAP KEY	CHANNEL FUNCTION	CHANNEL LINER TYPES TEMP / PERM	*WS* AREA (AC)	FLOW COMPONENTS BASE + [SCS] STORM (CFS)	(CFS) - (YR)	CHANNEL DESIGN DATA FLOW (CFS)	LENGTH (FT)	SLOPE (%)	CONSTRUCTION DIMENSIONS WIDTHS (FT) BASE	TOP	DEPTHS (FT) FLOW	w.FB
STR-1	WS OUTFLOW	12" RIPRAP (R5)	52.00	—	141.67	(100)	141.67	95	20.00	20.00	24.20	0.56	1.06
STR-2	WS OUTFLOW	W-MAT /GRASS	74.25	—	124.22	(100)	124.22	495	2.00	20.00	27.70	1.43	1.93
STR-3	WS OUTFLOW	12" RIPRAP (R5)	74.25	—	202.29	(100)	202.29	210	15.00	20.00	26.10	1.02	1.52

COLLECTION DITCH CONSTRUCTION TYPICAL



TYPICAL (NO SCALE)

RIPRAP CHANNEL CONSTRUCTION TYPICAL

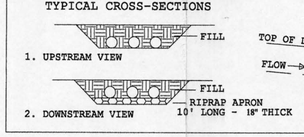


TYPICAL (NO SCALE)

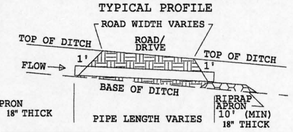
STRUCTURAL BMP's: CULVERT GROUPS / OUTLET PROTECTION

MAP KEY	FUNCTION OF CULVERT GROUP	*WS* AREA (CFS)	FLOW COMPONENTS BASE + [SCS] STORM (CFS)	(CFS) - (YR)	CULVERT GROUP: DESIGN PARAMETERS FLOW (CFS)	PIPES /SITE	FLOW /PIPE	VELOCITY at OUTLET	TAIL-WATER	CONSTRUCTION DIMENSIONS AND SPECIFICATIONS MATL	LONG (FT)	SLOPE (%)	OUTLET PROTECT	NSA (ID#)	SIZE (IN)	THICK (IN)	LONG (FT)
CV-4	TRIB FLOW: ROAD JCT - SEG 3+4	74.25	—	81.70	(100)	81.70	5	16.34	12.46	MIN.	FVC(40)	40	4.00	RR DITCH	R5	12	18

MULTIPLE CULVERT CONSTRUCTION TYPICAL CROSS-SECTIONS

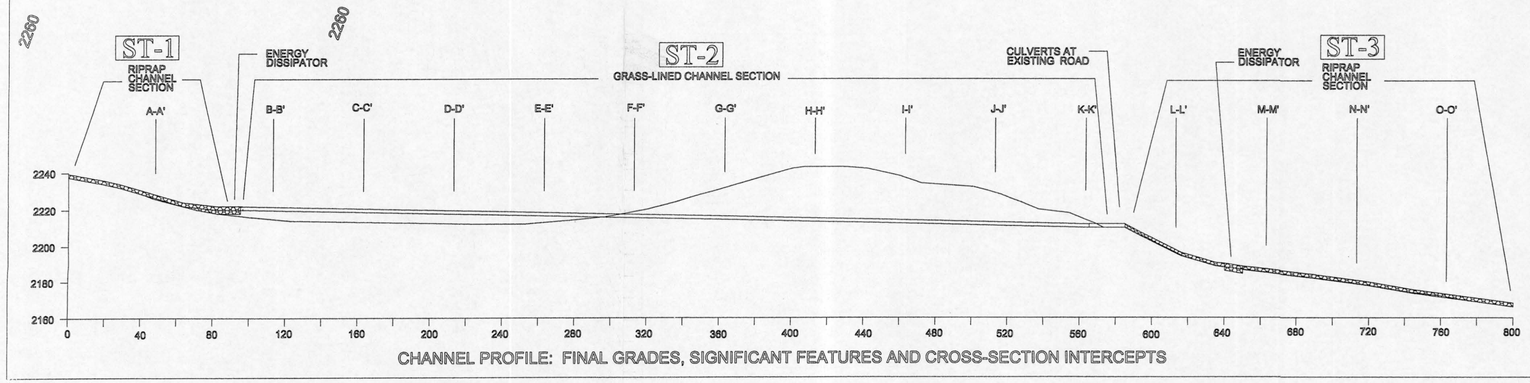


GENERAL CULVERT CONSTRUCTION TYPICAL PROFILE



EXCAVATION NOTE: ALLOWABLE SLOPES

CUT/FILL SLOPES ASSOCIATED WITH THIS PROJECT SHALL NOT EXCEED 3:1 (H:V) IN THE FIELD.



CHANNEL PROFILE: FINAL GRADES, SIGNIFICANT FEATURES AND CROSS-SECTION INTERCEPTS

MAP SYMBOL KEYS

NOT ALL SYMBOLS APPEAR ON ALL MAPS

- 2' CONTOUR
- 20' CONTOUR (USGS DATUM)
- 2' PROPOSED CONTOURS
- 20' PROPOSED CONTOURS
- 1090 CONTOUR ELEVATION LABELS
- X 1083.2 SPOT ELEVATIONS
- PERENNIAL STREAM / RIVER
- RIPRAP LINED CHANNEL SECTIONS
- GRASS LINED CHANNEL SECTIONS
- FILL AREAS
- CUT AREAS: EMBANKMENT
- CUT AREAS: BORROW AREA
- —FF— FILTER FENCE BARRIERS
- —NPDES— NPDES BOUNDARY LINE

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1519 GRANT AVENUE
ALTOONA, PA. 16602
(814) 943-6979 V/F

PLAN REVISIONS:

DATE	DESCRIPTION
	ORIGINAL SUBMISSION

4 SYSTEM DESIGN PLAN

SITE: "KRUG" TRIBUTARY CHANNEL RESTORATION
DEAN AND GALLITZIN TOWNSHIPS
CAMBRIA COUNTY, PA

OWNER:

SPONSOR:
CLEARFIELD CREEK WATERSHED ASSOCIATION
216 BELDIN HOLLOW ROAD
ASHVILLE, PA 16613

BY: US ENVIRONMENTAL RESEARCH SERVICE
1519 GRANT AVENUE
ALTOONA, PA 16602
(814) 943-6979 (V & F)

PLOT DATE: OCT 2005

SCALE: HOR: 1" = 40'
VER:

20 DU