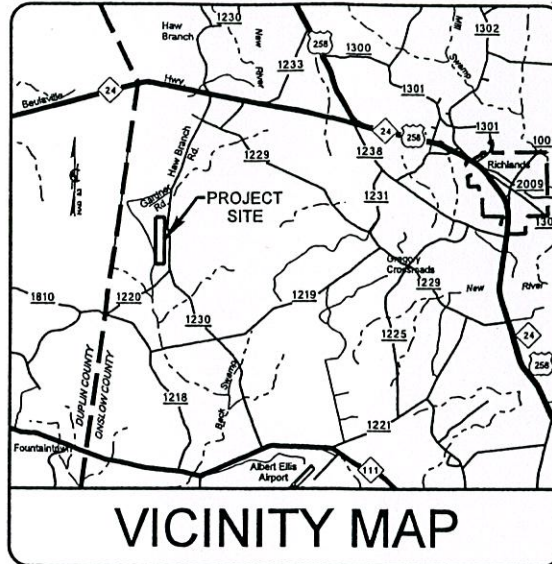


PROJECT: 0211R HAW BRANCH



INDEX OF SHEETS

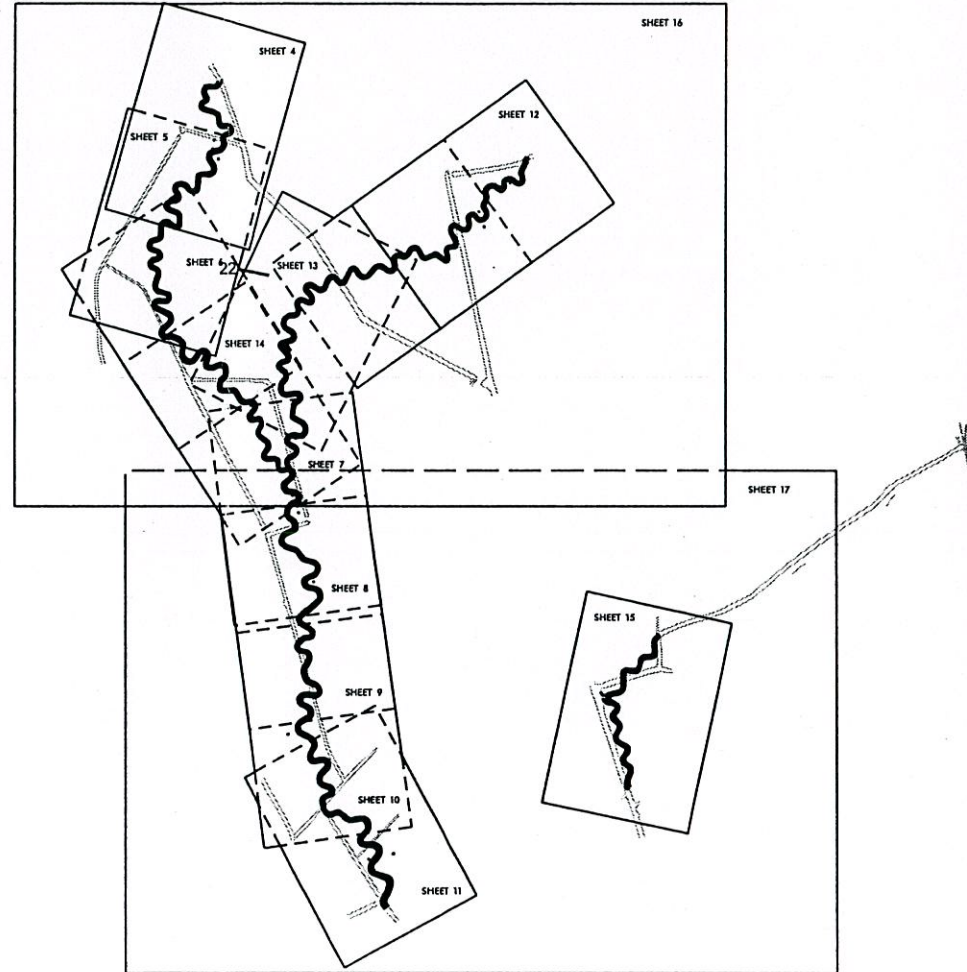
- 1..... TITLE SHEET
- 1-A..... STREAM CONVENTIONAL SYMBOLS
GENERAL NOTES, STANDARD
SPECIFICATIONS, AND
VEGETATION SELECTION
- 1-B..... CONVENTIONAL SYMBOLS
- 2 TO 2-B..... TYPICAL POOL AND
RIFFLE CROSS SECTIONS,
STRUCTURE DETAILS
- 4 TO 15..... PLAN VIEW OF PROPOSED AND
EXISTING STREAM DESIGN
- 16 TO 17..... WETLAND OVERVIEW

EBX NEUSE I, LLC
HAW BRANCH

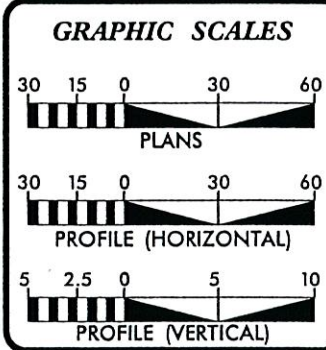
ONSLOW COUNTY

LOCATION: SOUTH OF TOWN OF HAW BRANCH
ALONG SR 1230

TYPE OF WORK: AS-BUILT PLANS



STATE	BUCK PROJECT EXPERIENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	0211R	1	32
NO.	DATE	CHECKED BY	APPROVED BY
1	5/15/06	JOHN HUTTON	KEVIN TWEEDY



DESIGN SUMMARY

EXISTING STREAM LENGTH	= 4,370 FEET
AS-BUILT STREAM LENGTH	= 10,005 FEET
AS-BUILT RIVERINE WETLAND RESTORATION	= 25.0 ACRES

PREPARED FOR THE OFFICE OF:
EBX NEUSE I, LLC

2530 MERIDIAN PARKWAY, SUITE 200
DURHAM, NORTH CAROLINA 27713

EBX CONTACT:
THOMAS L. RINKER
PROJECT MANAGER

PREPARED IN THE OFFICE OF:

BUCK ENGINEERING
8000 Regency Parkway Suite 200
Cary, North Carolina 27511
Phone: 919-463-5488
Fax: 919-463-5490

December 2005
COMPLETION DATE:

PROJECT ENGINEER

SEAL
027337
ENGINEER
KEVIN L. TWEEDY





























KEVIN TWEEDY, PE
PROJECT ENGINEER

JOHN HUTTON
PROJECT MANAGER

[Signature]

2/26/03




CONVENTIONAL SYMBOLS SUPERCEDES SHEET 1B

- | | | | |
|---|-----------------------------|---|---------------------------|
|  | ROCK J-HOOK |  | SAFETY FENCE |
|  | ROCK VANE |  | TAPE FENCE |
|  | OUTLET PROTECTION |  | 100 YEAR FLOOD PLAIN |
|  | ROCK CROSS VANE |  | CONSERVATION EASEMENT |
|  | DOUBLE DROP ROCK CROSS VANE |  | EXISTING MAJOR CONTOUR |
|  | SINGLE WING DEFLECTOR |  | EXISTING MINOR CONTOUR |
|  | DOUBLE WING DEFLECTOR |  | FOOT BRIDGE |
|  | TEMPORARY SILT CHECK |  | TEMPORARY STREAM CROSSING |
|  | ROOT WAD |  | PERMANENT STREAM CROSSING |
|  | LOG J-HOOK |  | TRANSPLANTED VEGETATION |
|  | LOG VANE |  | TREE REMOVAL |
|  | LOG WEIR |  | TREE PROTECTION |
|  | LOG CROSS VANE | | |
|  | CONSTRUCTED RIFFLE | | |
|  | BOULDER CLUSTER | | |
|  | ROCK STEP POOL | | |

**NOTE: ALL ITEMS ABOVE MAY NOT BE USED ON THIS PROJECT

GENERAL NOTES

1. THE CONTRACTOR IS REQUIRED TO INSTALL INSTREAM STRUCTURES USING A TRACK HOE WITH A HYDRAULIC THUMB OF SUFFICIENT SIZE TO MOVE BOULDERS 3FT X 3FT X 2FT (APPROXIMATELY 2TONS).
2. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE, AT A MINIMUM, TWO OPERATORS AT ALL TIMES DURING CONSTRUCTION OF THE NEW STREAM CHANNEL. IN GENERAL, ONE OPERATOR WILL CUT THE NEW CHANNEL WITH A TRACK HOE, WHILE THE OTHER OPERATOR FOLLOWS AND INSTALLS INSTREAM STRUCTURES, BANK STABILIZATION PRACTICES, AND TRANSPLANTS. DURING CONSTRUCTION OF THE NEW STREAM CHANNEL, THE CONTRACTOR WILL BE REQUIRED TO HAVE TWO TRACK HOES AND ONE LOADER ON-SITE.
3. CONSTRUCTION IS SCHEDULED TO BEGIN JUNE 2005.

PROJECT REFERENCE NO. 0211R	SHEET NO. 1-A
PROJECT ENGINEER	
	
APPROVED BY: 	
DATE: 4-4-06	
	

STANDARD SPECIFICATIONS

*EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL
DECEMBER 1993*

- 6.60 TEMPORARY SEDIMENT TRAP
- 6.62 SILT FENCE

VEGETATION SELECTION

The following table lists bare-root vegetation selection for the project site. Species shall be planted at a density of 680 stems per acre. Exact placement of species will be determined prior to site planting and based on apparent wetness of planting locations.

Common Name	Scientific Name	Percent Planted by Species	Total Number of Stems	Wetness Tolerance
River Birch	<i>Betula nigra</i>	17%	5,472	moderate
Sugarberry	<i>Celtis laevigata</i>	15%	4,869	moderate
Green Ash	<i>Fraxinus pennsylvanica</i>	2%	765	moderate
Black Walnut	<i>Juglans nigra</i>	2%	765	weak - moderate
Swamp Tupelo	<i>Nyssa sylvatica var. biflora</i>	17%	5,472	tolerant
Sycamore	<i>Platanus occidentalis</i>	3%	1,020	moderate
Overcup Oak	<i>Quercus lyrata</i>	17%	5,472	moderate
Swamp Chestnut Oak	<i>Quercus michauxii</i>	3%	1,020	weak
Willow Oak	<i>Quercus phellos</i>	15%	4,869	weak - moderate
Bald Cypress	<i>Taxodium distichum</i>	9%	2,736	tolerant
		Total	32,460	

Permanent seed mixtures for the restoration site. Permanent seed mixtures shall be applied with temporary seed, as defined in the construction specifications.

Common Name	Scientific Name	Percent of Mixture	Seeding Density (lbs/acre)	Wetness Tolerance
Floodplain and Buffer Areas				
Virginia wildrye	<i>Elymus virginicus</i>	25%	2	FAC
Switchgrass	<i>Panicum virgatum</i>	37.5%	3	FAC+
Fox sedge	<i>Carex vulpinoidea</i>	37.5%	3	OBL
Restored Streambanks				
Soft rush	<i>Juncus effusus</i>	25%	2	FACW+
Hop sedge	<i>Carex lupulina</i>	37.5%	3	OBL
Fox Sedge	<i>Carex vulpinoidea</i>	37.5%	3	OBL

The following table temporary seed mix for the project site. All disturbed areas will be stabilized using mulch and temporary seed.

Common Name	Rate	Dates
ANNUAL RYE (COOL SEASON)	130 LBS/ACRE	SEPTEMBER TO MARCH
MILLET (WARM SEASON)	40 LBS/ACRE	APRIL TO AUGUST

LIVE STAKING

Live staking will be applied to all restored streambanks following the details in this plan set and according to the construction specifications.

Common Name	Scientific Name	Number of Stems	Wetness Tolerance
Restored Streambanks			
Buttonbush	<i>Cephalanthus occidentalis</i>	3,530	OBL
Black Willow	<i>Salix nigra</i>	3,690	OBL
Silky Willow	<i>Salix sericea</i>	1,700	OBL

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

*S.U.E = SUBSURFACE UTILITY ENGINEER

ROADS & RELATED ITEMS

Edge of Pavement	----
Curb	-----
Prop. Slope Stakes Cut	-----C-----
Prop. Slope Stakes Fill	-----F-----
Prop. Woven Wire Fence	○-----○
Prop. Chain Link Fence	□-----□
Prop. Barbed Wire Fence	◇-----◇
Prop. Wheelchair Ramp	⊕
Curb Cut for Future Wheelchair Ramp	⊕
Exist. Guardrail	-----
Prop. Guardrail	-----
Equality Symbol	⊕
Pavement Removal	XXXXXX

RIGHT OF WAY

Baseline Control Point	◆
Existing Right of Way Marker	△
Exist. Right of Way Line w/Marker	-----△-----
Prop. Right of Way Line with Proposed	-----▲-----
R/W Marker (Iron Pin & Cap)	▲
Prop. Right of Way Line with Proposed (Concrete or Granite) RW Marker	▲
Exist. Control of Access Line	⊕
Prop. Control of Access Line	⊕
Exist. Easement Line	-----E-----
Prop. Temp. Construction Easement Line	-----E-----
Prop. Temp. Drainage Easement Line	-----TDC-----
Prop. Perm. Drainage Easement Line	-----PDC-----

HYDROLOGY

Stream or Body of Water	-----
River Basin Buffer	-----RBB-----
Flow Arrow	→
Disappearing Stream	-----
Spring	○
Swamp Marsh	⊕
Shoreline	-----
Falls, Rapids	-----
Prop Lateral, Tail, Head Ditches	-----

STRUCTURES

MAJOR	
Bridge, Tunnel, or Box Culvert	[CONC]
Bridge Wing Wall, Head Wall and End Wall) CONC WW (

MINOR	
Head & End Wall	CONC HW
Pipe Culvert	=====
Footbridge	----->-----
Drainage Boxes	□ CB
Paved Ditch Gutter	-----

UTILITIES

Exist. Pole	•
Exist. Power Pole	•
Prop. Power Pole	•
Exist. Telephone Pole	•
Prop. Telephone Pole	•
Exist. Joint Use Pole	•
Prop. Joint Use Pole	•
Telephone Pedestal	□
UG Telephone Cable Hand Hold	□
Cable TV Pedestal	□
UG TV Cable Hand Hold	□
UG Power Cable Hand Hold	□
Hydrant	⊕
Satellite Dish	⊕
Exist. Water Valve	⊕
Sewer Clean Out	⊕
Power Manhole	⊕
Telephone Booth	⊕
Cellular Telephone Tower	⊕
Water Manhole	⊕
Light Pole	⊕
H-Frame Pole	⊕
Power Line Tower	⊕
Pole with Base	⊕
Gas Valve	⊕
Gas Meter	⊕
Telephone Manhole	⊕
Power Transformer	⊕
Sanitary Sewer Manhole	⊕
Storm Sewer Manhole	⊕
Tank; Water, Gas, Oil	⊕
Water Tank With Legs	⊕
Traffic Signal Junction Box	⊕
Fiber Optic Splice Box	⊕
Television or Radio Tower	⊕
Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement	-----

Recorded Water Line	-----
Designated Water Line (S.U.E.*)	-----
Sanitary Sewer	-----SS-----
Recorded Sanitary Sewer Force Main	-----FSS-----
Designated Sanitary Sewer Force Main(S.U.E.*)	-----FSS-----
Recorded Gas Line	-----G-----
Designated Gas Line (S.U.E.*)	-----G-----
Storm Sewer	-----S-----
Recorded Power Line	-----P-----
Designated Power Line (S.U.E.*)	-----P-----
Recorded Telephone Cable	-----T-----
Designated Telephone Cable (S.U.E.*)	-----T-----
Recorded UG Telephone Conduit	-----TC-----
Designated UG Telephone Conduit (S.U.E.*)	-----TC-----
Unknown Utility (S.U.E.*)	-----TUTL-----
Recorded Television Cable	-----TV-----
Designated Television Cable (S.U.E.*)	-----TV-----
Recorded Fiber Optics Cable	-----FO-----
Designated Fiber Optics Cable (S.U.E.*)	-----FO-----
Exist. Water Meter	○
UG Test Hole (S.U.E.*)	⊕
Abandoned According to UG Record	ATTUR
End of Information	E.O.I.

BOUNDARIES & PROPERTIES

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Property Line Symbol	FP
Exist. Iron Pin	⊕
Property Corner	⊕
Property Monument	⊕
Property Number	⊕
Parcel Number	⊕
Fence Line	-----X-----
Existing Wetland Boundaries	-----WW & ISBW-----
High Quality Wetland Boundary	-----HO WLB-----
Medium Quality Wetland Boundaries	-----MO WLB-----
Low Quality Wetland Boundaries	-----LO WLB-----
Proposed Wetland Boundaries	-----WLB-----
Existing Endangered Animal Boundaries	-----EAB-----
Existing Endangered Plant Boundaries	-----EPB-----

BUILDINGS & OTHER CULTURE

Buildings	⊕
Foundations	⊕
Area Outline	⊕
Gate	⊕
Gas Pump Vent or UG Tank Cap	⊕
Church	⊕
School	⊕
Park	⊕
Cemetery	⊕
Dam	⊕
Sign	⊕
Well	⊕
Small Mine	⊕
Swimming Pool	⊕

TOPOGRAPHY

Loose Surface	-----
Hard Surface	-----
Change in Road Surface	-----
Curb	-----
Right of Way Symbol	R/W
Guard Post	⊕ GP
Paved Walk	-----
Bridge	-----
Box Culvert or Tunnel	-----
Ferry	-----
Culvert	-----
Footbridge	-----
Trail, Footpath	-----
Light House	⊕

VEGETATION

Single Tree	⊕
Single Shrub	⊕
Hedge	-----
Woods Line	-----
Orchard	⊕
Vineyard	⊕

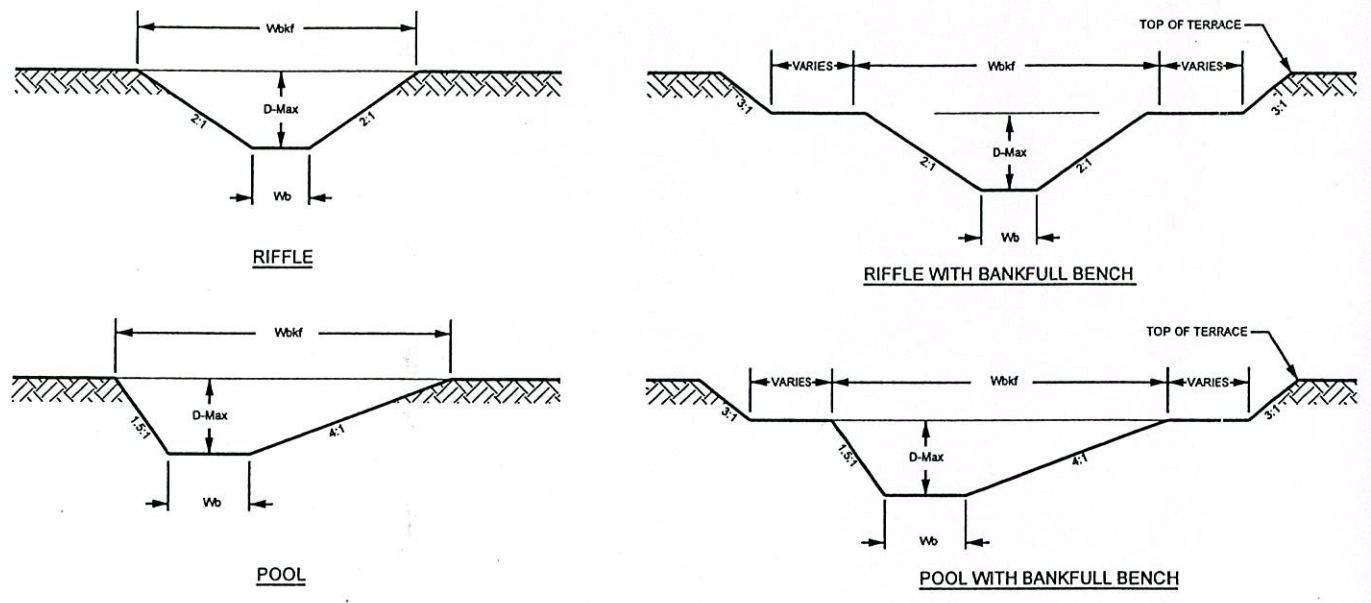
RAILROADS

Standard Gauge	-----
RR Signal Milepost	⊕
Switch	⊕

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TYPICAL RIFFLE, POOL, AND BANKFULL BENCH CROSS SECTIONS



RIFFLE

RIFFLE WITH BANKFULL BENCH

POOL

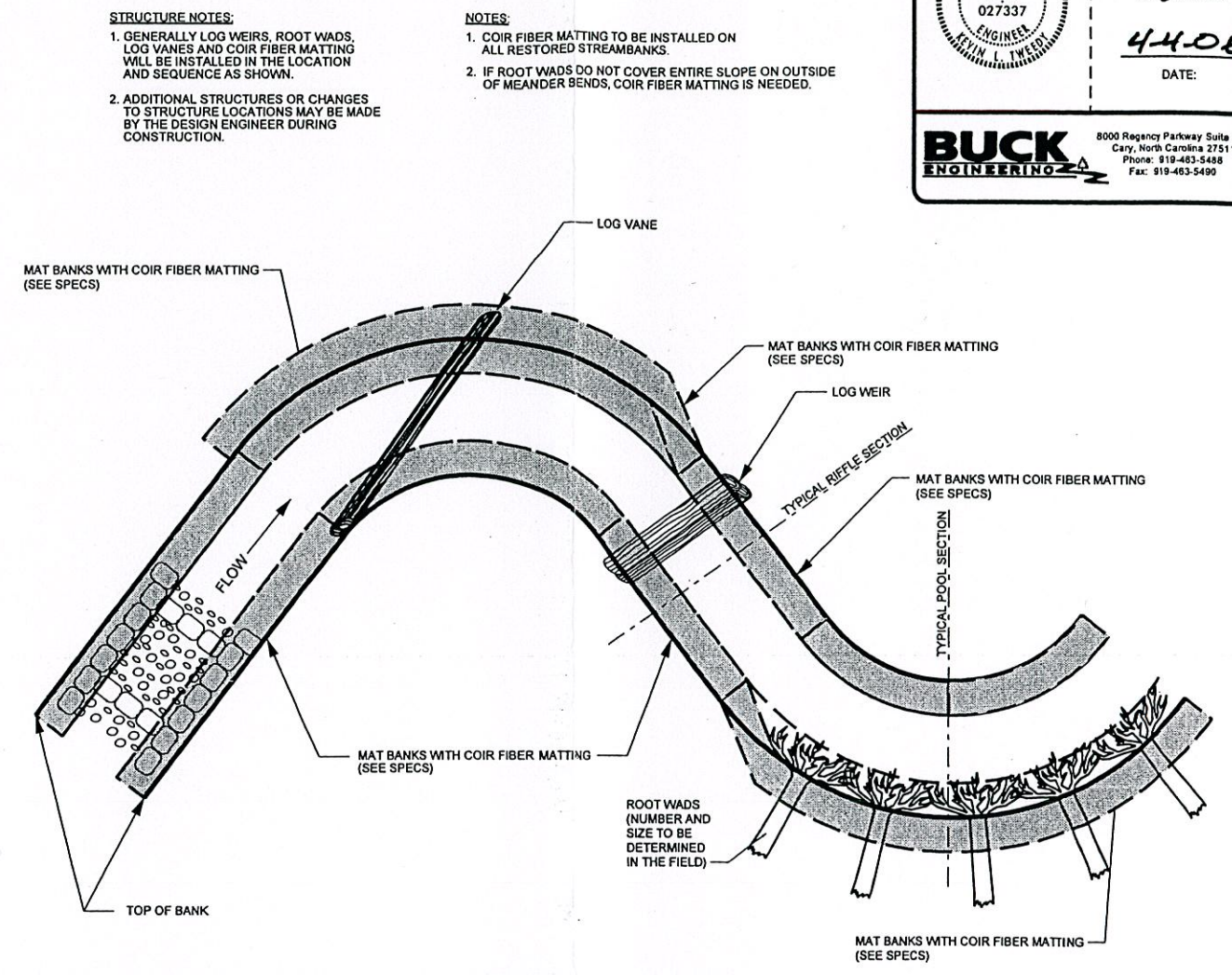
POOL WITH BANKFULL BENCH

UT 1A		UT 1B		UT 2		UT 3	
RIFFLE	POOL	RIFFLE	POOL	RIFFLE	POOL	RIFFLE	POOL
8.4	11.0	10.6	13.0	7.5	9.0	6.7	9.0
0.8	0.8	0.8	1.0	0.5	0.7	0.7	0.8
0.7	1.2	0.9	1.5	0.8	1.1	1.1	1.5
14.0	13.1	14.0	12.7	14.0	12.3	9.0	11.1
5.0	9.2	8.0	13.3	4.0	6.6	5.0	7.3
5.5	4.4	8.9	4.8	4.9	3.0	2.2	0.8

WIDTH OF BANKFULL (Wbkf)
 AVERAGE DEPTH
 MAXIMUM DEPTH RATIO (D-Max)
 WIDTH TO DEPTH RATIO (bkd WD)
 BANKFULL AREA (Abkf)
 BOTTOM WIDTH (Wb)

NOTES:
 1. DURING CONSTRUCTION CORNERS OF DESIGN CHANNEL WILL BE ROUNDED AND A THALWEG WILL BE SHAPED PER DIRECTION OF ENGINEER.
 2. POOLS SHOWN ABOVE ARE LEFT POOLS ONLY.

TYPICAL STRUCTURE PLACEMENT

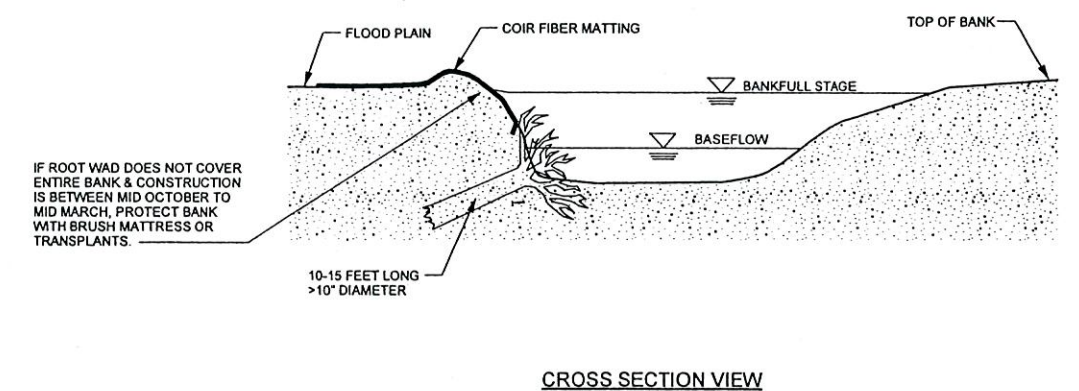


STRUCTURE NOTES:
 1. GENERALLY LOG WEIRS, ROOT WADS, LOG VANES AND COIR FIBER MATTING WILL BE INSTALLED IN THE LOCATION AND SEQUENCE AS SHOWN.
 2. ADDITIONAL STRUCTURES OR CHANGES TO STRUCTURE LOCATIONS MAY BE MADE BY THE DESIGN ENGINEER DURING CONSTRUCTION.

NOTES:
 1. COIR FIBER MATTING TO BE INSTALLED ON ALL RESTORED STREAMBANKS.
 2. IF ROOT WADS DO NOT COVER ENTIRE SLOPE ON OUTSIDE OF MEANDER BENDS, COIR FIBER MATTING IS NEEDED.

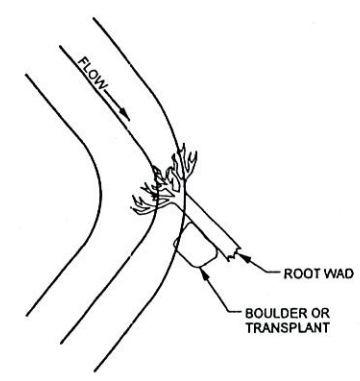
PROJECT REFERENCE NO. 0211R	SHEET NO. 2
PROJECT ENGINEER	
APPROVED BY: 	
DATE: 4-4-06	
8000 Regency Parkway Suite 200 Cary, North Carolina 27511 Phone: 919-483-5488 Fax: 919-483-5490	

ROOT WADS

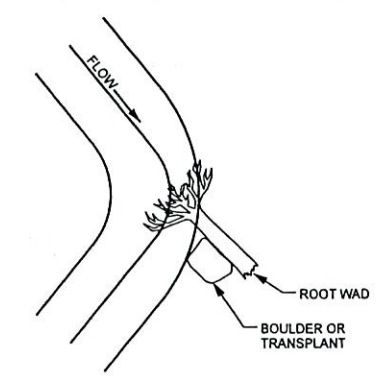


IF ROOT WAD DOES NOT COVER ENTIRE BANK & CONSTRUCTION IS BETWEEN MID OCTOBER TO MID MARCH, PROTECT BANK WITH BRUSH MATTRESS OR TRANSPLANTS.

CROSS SECTION VIEW



PLAN VIEW
DRIVE POINT METHOD

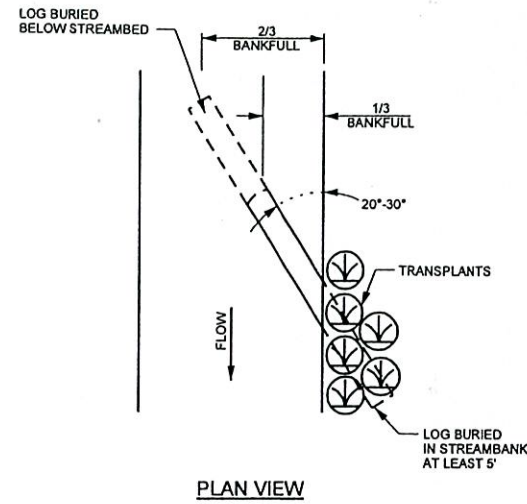


PLAN VIEW
TRENCHING METHOD

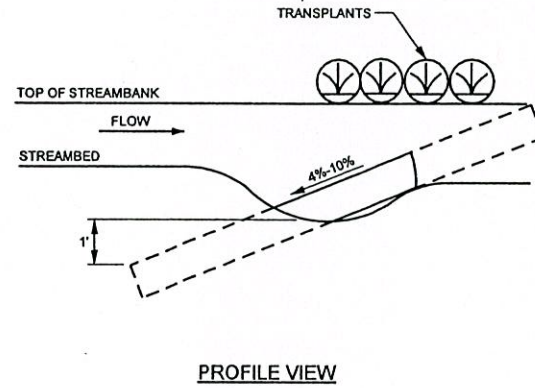
NOTE:
 DRIVE POINT METHOD:
 SHARPEN THE END OF THE LOG WITH A CHAINSAW BEFORE "DRIVING" IT INTO THE BANK. ORIENT ROOT WADS UPSTREAM SO THAT THE STREAM FLOW MEETS THE ROOT WAD AT A 90-DEGREE ANGLE, DEFLECTING THE WATER AWAY FROM THE BANK. A TRANSPLANT OR BOULDER SHOULD BE PLACED ON THE DOWNSTREAM SIDE OF THE ROOT WAD. THE BOULDER SHALL BE APPROXIMATELY 4' X 3' X 2' OR LARGER.
 TRENCHING METHOD:
 IF THE ROOT WAD CANNOT BE DRIVEN INTO THE BANK OR THE BANK NEEDS TO BE RECONSTRUCTED, THE TRENCHING METHOD SHOULD BE USED. THIS METHOD REQUIRES THAT A TRENCH BE EXCAVATED FOR THE LOG PORTION OF THE ROOT WAD. ONE-THIRD OF THE ROOT WAD SHOULD REMAIN BELOW NORMAL BASE FLOW CONDITIONS.

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LOG VANE



PLAN VIEW



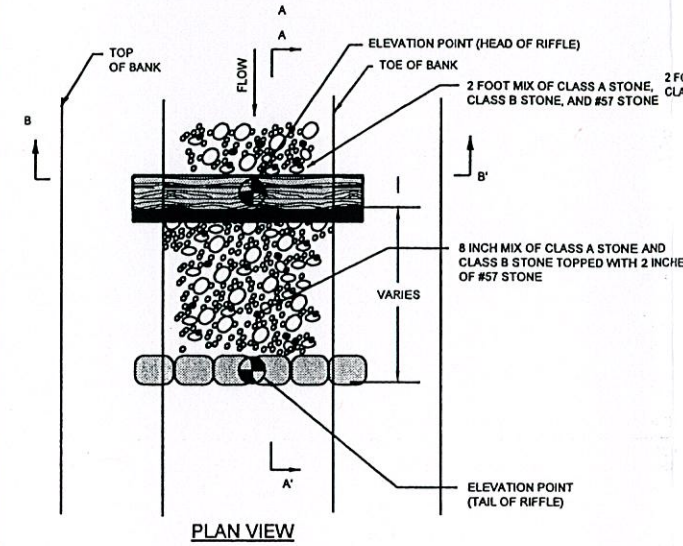
PROFILE VIEW

- NOTES:**
- LOGS SHOULD BE AT LEAST 10" IN DIAMETER, RELATIVELY STRAIGHT, HARDWOOD, AND RECENTLY HARVESTED.
 - SOIL SHOULD BE COMPACTED WELL AROUND BURIED PORTIONS OF LOG.
 - TRANSPLANTS ARE PLACED ALONG THE TOP OF THE BANK OVER THE BURIED LOG VANE TO PROTECT AGAINST EROSION DURING HIGH FLOWS.

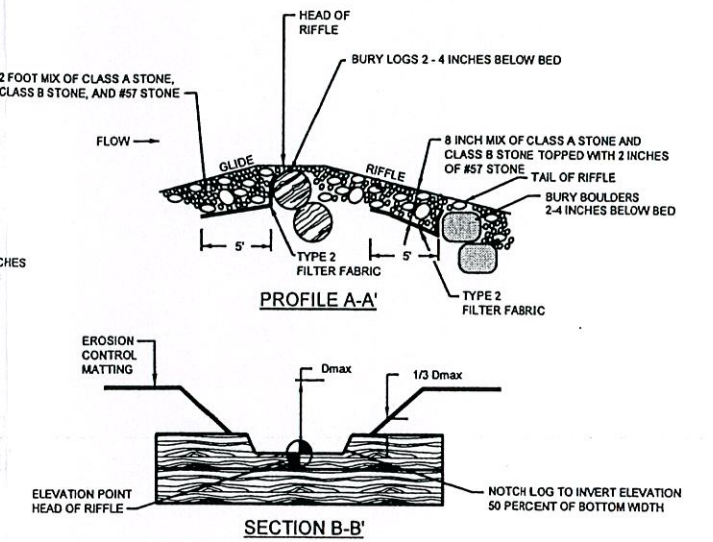
CONSTRUCTED RIFFLE

Reach	Beginning Station	Beginning Elevation	End Station	End Elevation
UT1	70+79	83.04	70+95	82.73
UT2	38+75	87.83	38+90	87.82

- NOTES:**
- LOGS MUST BE AT LEAST 10 INCHES IN DIAMETER AND 15 FEET LONG.
 - DIG A TRENCH BELOW THE BED FOR THE UPSTREAM FOOTER LOGS AND PLACE FOOTER LOGS FIRST AND THEN HEADER (TOP) LOG. SET HEADER LOG APPROXIMATELY 3 INCHES ABOVE THE INVERT ELEVATION.
 - CUT A NOTCH IN THE HEADER LOG APPROXIMATELY 50 PERCENT OF THE CHANNEL BOTTOM WIDTH AND EXTENDING DOWN TO THE INVERT ELEVATION.
 - PLACE FOOTER ROCK FIRST AT TAIL OF RIFFLE AND THEN HEADER ROCK.
 - FOR BOTH INVERTS, INSTALL FILTER FABRIC FOR DRAINAGE BEGINNING AT THE MIDDLE OF THE HEADER AND EXTENDING DOWNWARD TO THE DEPTH OF THE FOOTER, AND THEN UPSTREAM TO A MINIMUM OF FIVE FEET.
 - FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH 2 FOOT MIX OF CLASS A STONE, CLASS B STONE, AND #57 STONE TO THE ELEVATION OF THE TOP OF THE HEADER LOG.
 - UNDERCUT RIFFLE BETWEEN INVERTS BY 8 INCHES, BACKFILL BETWEEN LOGS WITH A 8 INCH MIX OF CLASS A AND B STONE TOP WITH 2 INCHES OF #57 STONE.

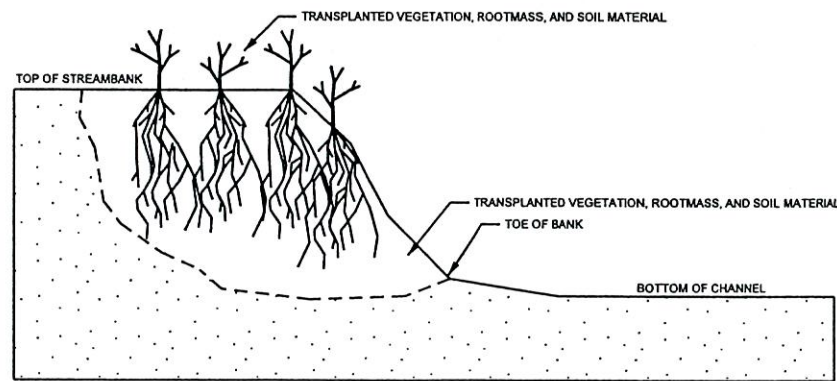


PLAN VIEW

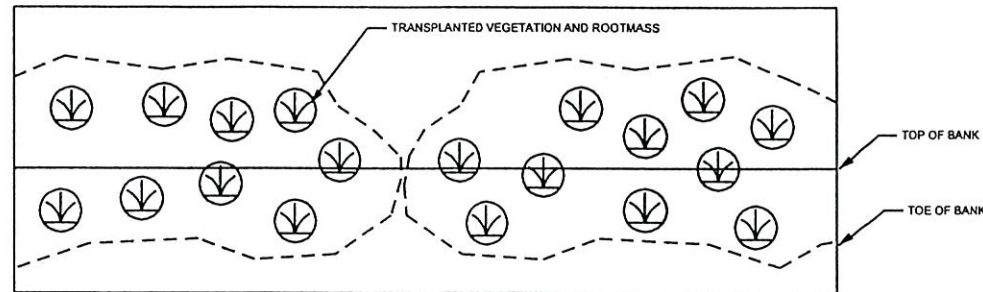


SECTION B-B'

TRANSPLANTED VEGETATION



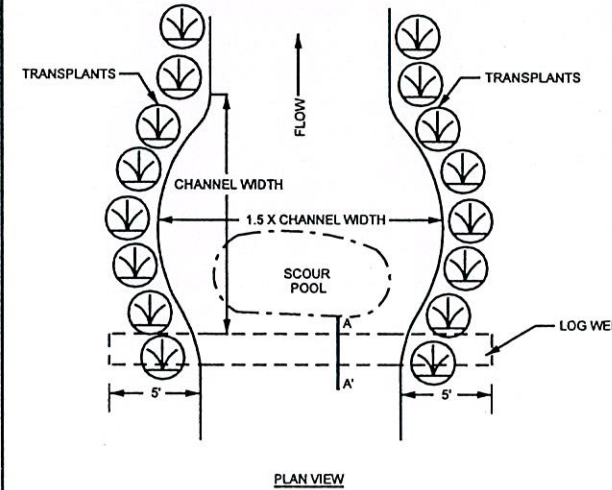
CROSS SECTION VIEW



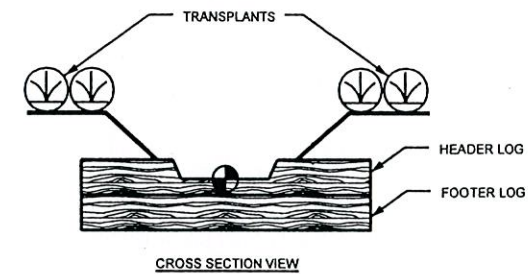
PLAN VIEW

- NOTES:**
- EXCAVATE A HOLE IN THE BANK TO BE STABILIZED THAT WILL ACCOMMODATE THE SIZE OF TRANSPLANT TO BE PLACED. BEGIN EXCAVATION AT THE TOE OF THE BANK.
 - EXCAVATE TRANSPLANT USING A FRONT END LOADER. EXCAVATE THE ENTIRE ROOT MASS AND AS MUCH ADDITIONAL SOIL MATERIAL AS POSSIBLE. IF ENTIRE ROOT MASS CAN NOT BE EXCAVATED IN ONE BUCKET LOAD, THE TRANSPLANT IS TOO LARGE AND ANOTHER SHOULD BE SELECTED.
 - PLACE TRANSPLANT IN THE BANK TO BE STABILIZED SO THAT VEGETATION IS ORIENTATED VERTICALLY.
 - FILL IN ANY HOLES AROUND THE TRANSPLANT AND COMPACT.
 - ANY LOOSE SOIL LEFT IN THE STREAM SHOULD BE REMOVED.
 - PLACE MULTIPLE TRANSPLANTS CLOSE TOGETHER SUCH THAT THEY TOUCH.

LOG WEIR

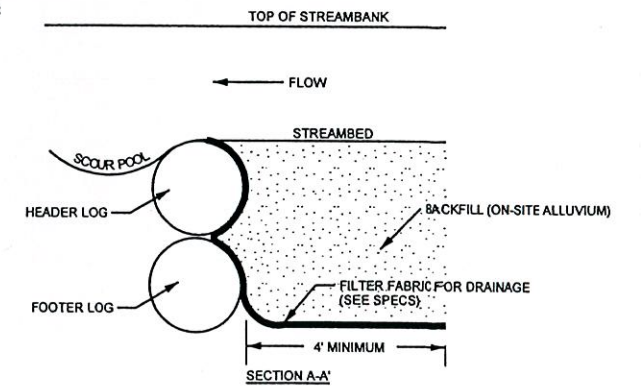


PLAN VIEW



CROSS SECTION VIEW

- NOTES:**
- LOGS SHOULD BE AT LEAST 12 INCHES IN DIAMETER, RELATIVELY STRAIGHT, HARDWOOD, AND RECENTLY HARVESTED.
 - LOGS >24 INCHES IN DIAMETER MAY BE USED ALONE WITHOUT AN ADDITIONAL LOG. FILTER FABRIC SHOULD STILL BE USED TO SEAL AROUND LOG.
 - PLACE FOOTER LOGS FIRST AND THEN HEADER (TOP) LOG. SET HEADER LOG APPROXIMATELY 3 INCHES ABOVE THE INVERT ELEVATION.
 - CUT A NOTCH IN THE HEADER LOG APPROXIMATELY 50 PERCENT OF THE CHANNEL BOTTOM WIDTH AND EXTENDING DOWN TO THE INVERT ELEVATION.
 - USE FILTER FABRIC FOR DRAINAGE TO SEAL GAPS BETWEEN LOGS.
 - PLACE TRANSPLANTS FROM TOE OF STREAMBANK TO TOP OF STREAMBANK.



SECTION A-A'

Reach	#	Log Wier Station	Invert Elevation
UT1A	1	10+64	90.15
UT1A	2	12+46	90.01
UT1A	3	15+36	89.77
UT1A	4	21+61	89.28
UT1A	5	30+65	88.56
UT1A	6	39+02	87.9
UT1B	7	43+75	87.33
UT1B	8	50+90	86.77
UT1B	9	59+48	85.84
UT1B	10	65+34	85.15
UT1B	11	68+98	84.34
UT1B	12	69+92	83.6
UT2	13	11+77	89.21
UT2	14	19+66	88.8
UT2	15	29+31	88.31
UT3	16	10+88	83.67
UT3	17	14+38	82.7
UT3	18	19+27	81.37


PROJECT REFERENCE NO. **0211R** SHEET NO. **2-A**

PROJECT ENGINEER

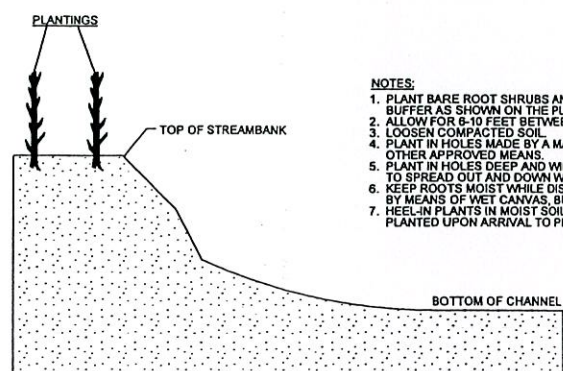
APPROVED BY: *[Signature]*

DATE: **4-4-06**

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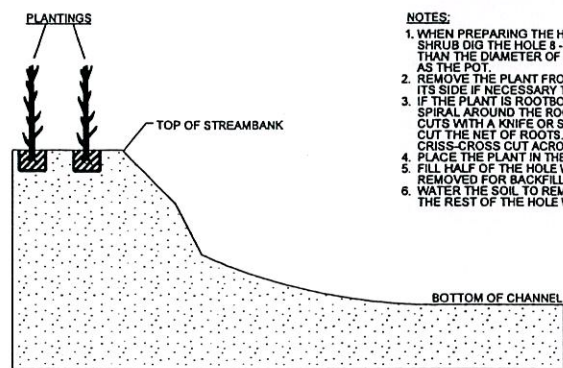
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PROJECT ENGINEER	
	
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DATE: 4-4-06	
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PLANTING SPECIFICATIONS



CROSS SECTION VIEW OF BARE ROOT PLANTING

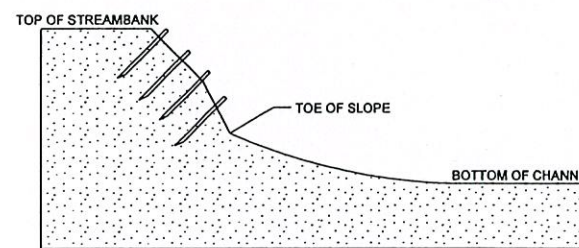
- NOTES:**
1. PLANT BARE ROOT SHRUBS AND TREES TO THE WIDTH OF THE BUFFER AS SHOWN ON THE PLANS.
 2. ALLOW FOR 6-10 FEET BETWEEN PLANTINGS, DEPENDING ON SIZE.
 3. LOOSEN COMPACTED SOIL.
 4. PLANT IN HOLES MADE BY A MATTOCK, DIBBLE, PLANTING BAR, OR OTHER APPROVED MEANS.
 5. PLANT IN HOLES DEEP AND WIDE ENOUGH TO ALLOW THE ROOTS TO SPREAD OUT AND DOWN WITHOUT J-ROOTING.
 6. KEEP ROOTS MOIST WHILE DISTRIBUTING OR WAITING TO PLANT BY MEANS OF WET CANVAS, BURLAP, OR STRAW.
 7. HEEL-IN PLANTS IN MOIST SOIL OR SAND/DIRT IF NOT PROMPTLY PLANTED UPON ARRIVAL TO PROJECT SITE.



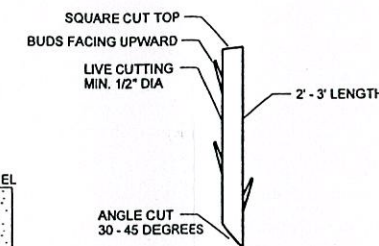
CROSS SECTION VIEW OF CONTAINER PLANTING

- NOTES:**
1. WHEN PREPARING THE HOLE FOR A POTTED PLANT OR SHRUB DIG THE HOLE 8 - 12 INCHES LARGER THAN THE DIAMETER OF THE POT AND THE SAME DEPTH AS THE POT.
 2. REMOVE THE PLANT FROM THE POT. LAY THE PLANT ON ITS SIDE IF NECESSARY TO REMOVE THE POT.
 3. IF THE PLANT IS ROOTBOUND (ROOTS GROWING IN A SPIRAL AROUND THE ROOT BALL), MAKE VERTICAL CUTS WITH A KNIFE OR SPADE, JUST DEEP ENOUGH TO CUT THE NET OF ROOTS. ALSO MAKE A CRISS-CROSS CUT ACROSS THE BOTTOM OF THE BALL.
 4. PLACE THE PLANT IN THE HOLE.
 5. FILL HALF OF THE HOLE WITH SOIL (SAME SOIL REMOVED FOR BACKFILL).
 6. WATER THE SOIL TO REMOVE AIR POCKETS AND FILL THE REST OF THE HOLE WITH THE REMAINING SOIL.

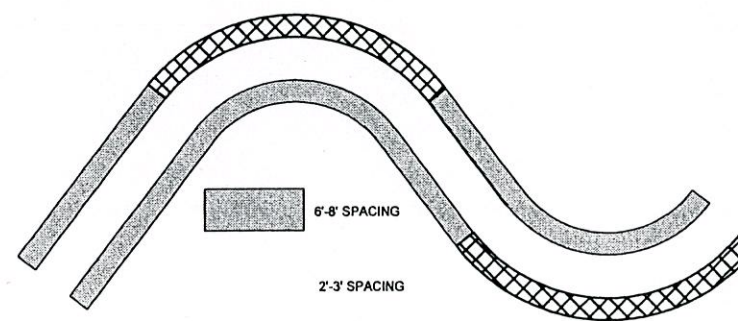
LIVE STAKING



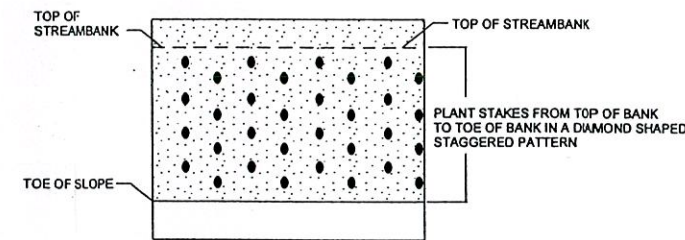
CROSS SECTION VIEW



LIVE STAKE DETAIL



PLAN VIEW

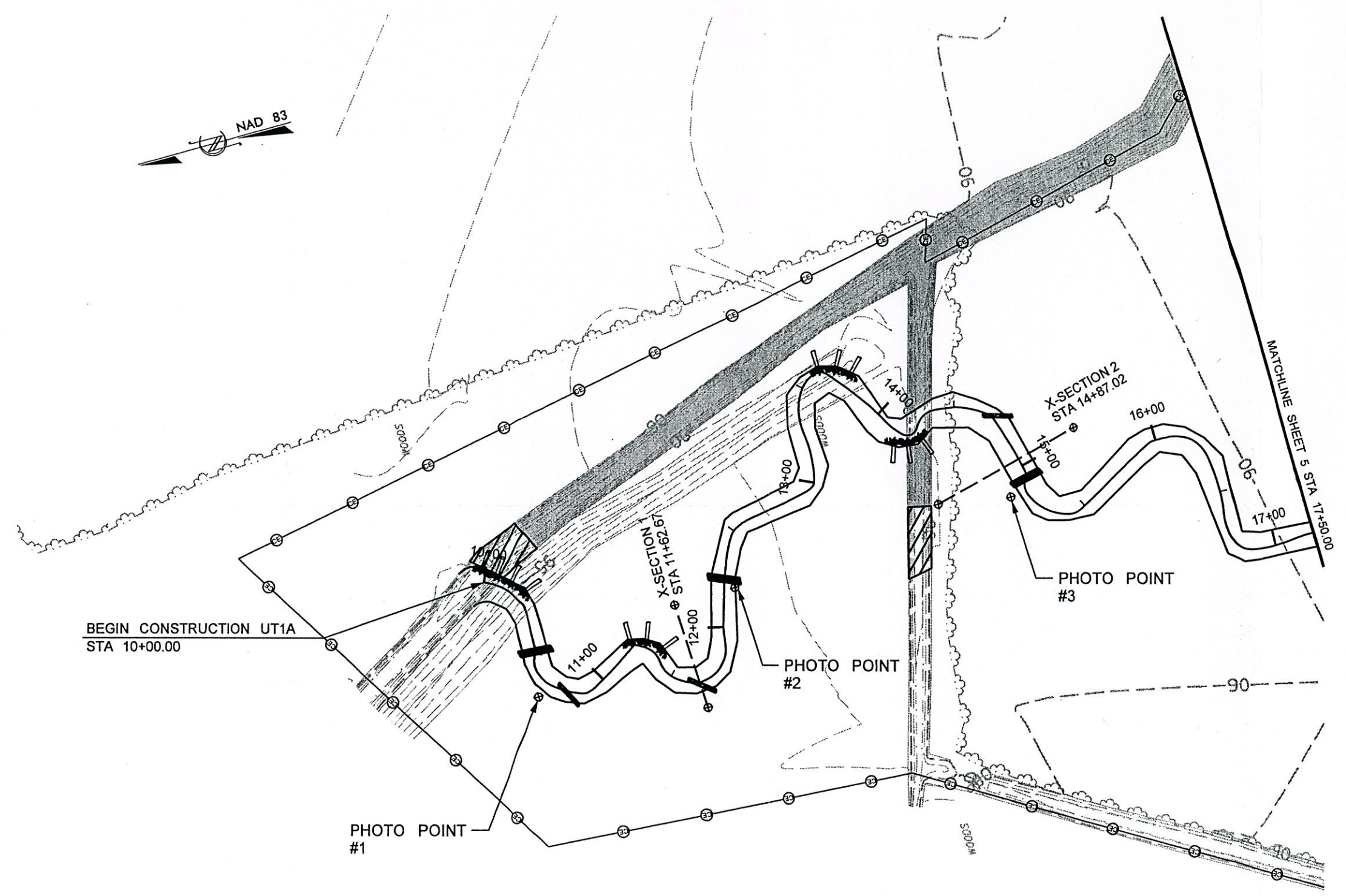


PLAN VIEW

- NOTES:**
1. STAKES SHOULD BE CUT AND INSTALLED ON THE SAME DAY.
 2. DO NOT INSTALL STAKES THAT HAVE BEEN SPLIT.
 3. STAKES MUST BE INSTALLED WITH BUDS POINTING UPWARDS.
 4. STAKES SHOULD BE INSTALLED PERPENDICULAR TO BANK.
 5. STAKES SHOULD BE 1/2 TO 2 INCHES IN DIAMETER AND 2 TO 3 FT LONG.
 6. STAKES SHOULD BE INSTALLED LEAVING 1/5 OF STAKE ABOVE GROUND.

2/26/03

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BEGIN CONSTRUCTION UT1A
STA 10+00.00

PHOTO POINT
#1

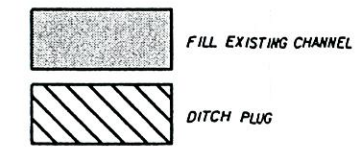
X-SECTION 1
STA 11+62.67

PHOTO POINT
#2

X-SECTION 2
STA 14+87.02

PHOTO POINT
#3

MATCHLINE SHEET 5
STA 17+50.00



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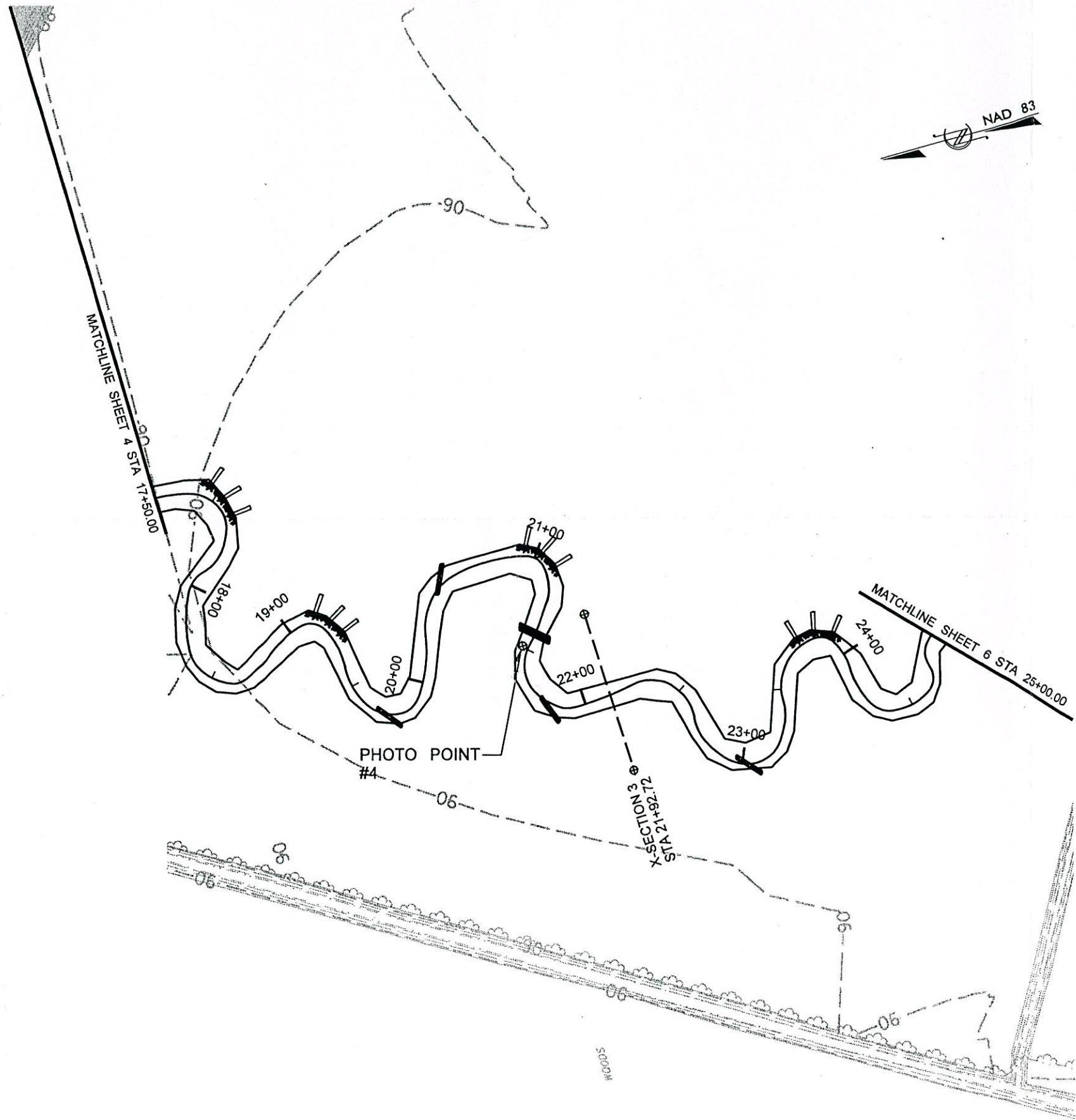
**PLAN VIEW
AS-BUILT**

SCALE (FT)

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FILL EXISTING CHANNEL

**PLAN VIEW
AS-BUILT**

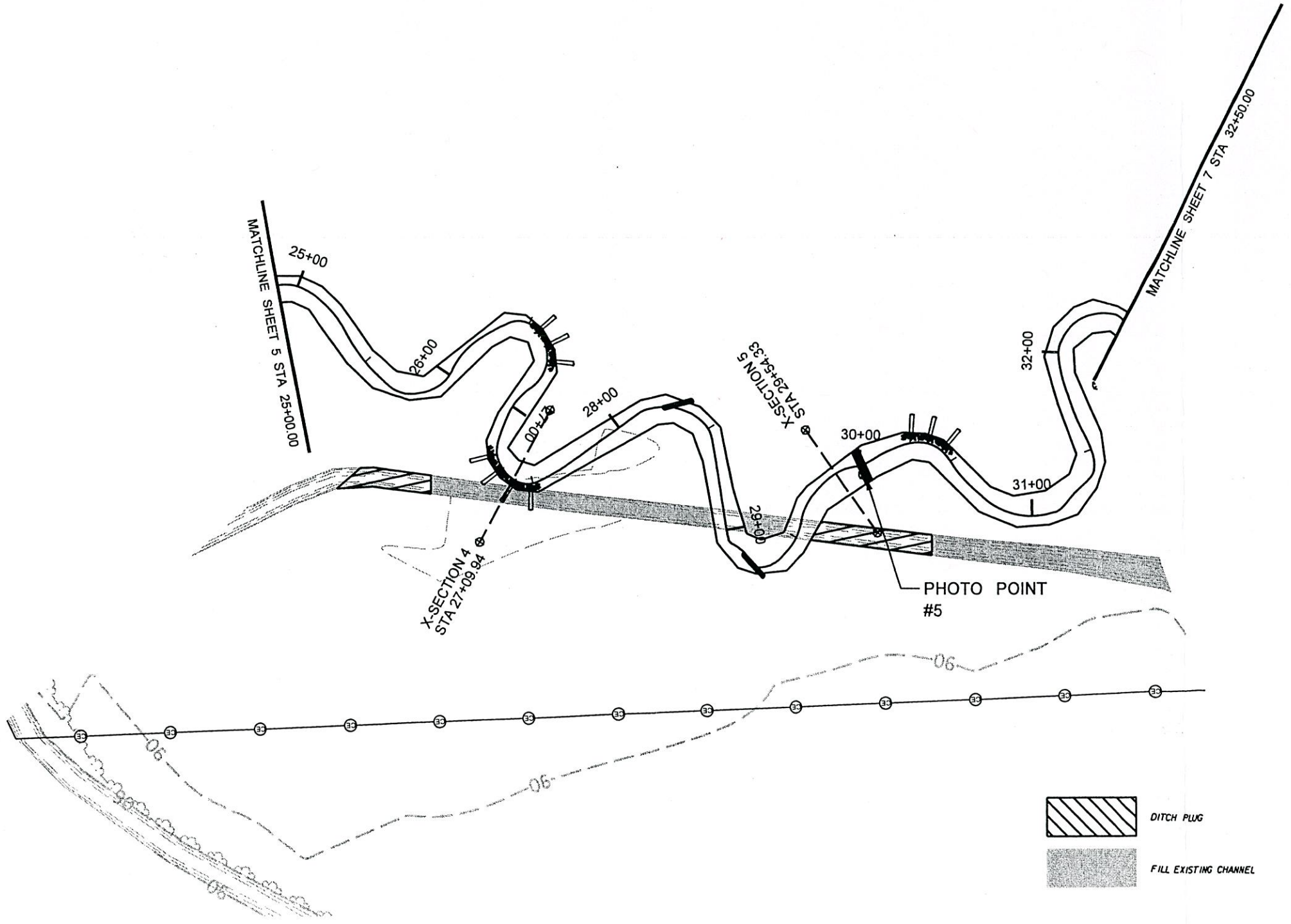
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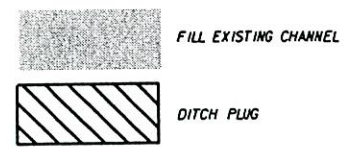
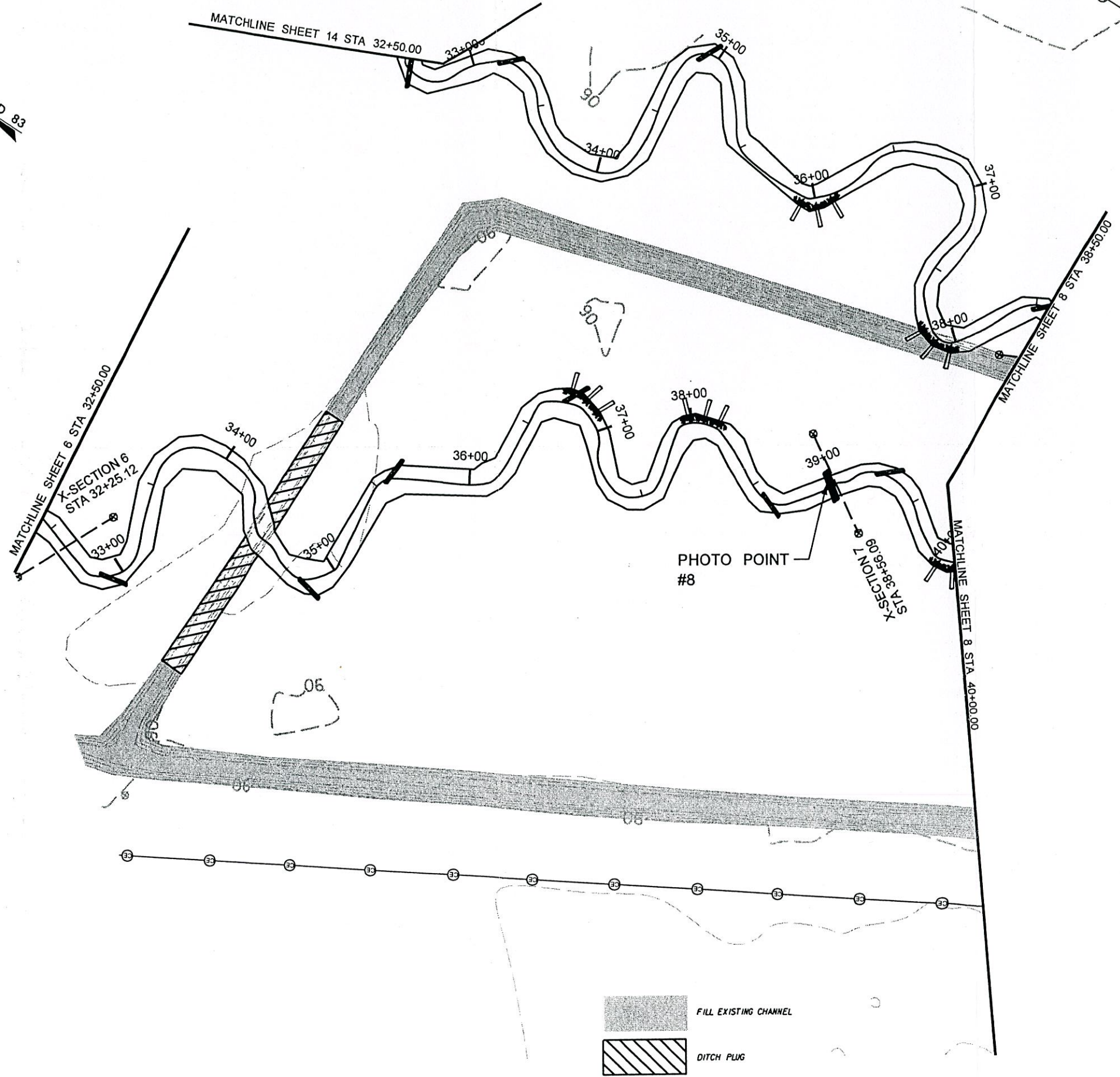
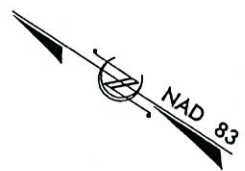
DITCH PLUG
 FILL EXISTING CHANNEL

**PLAN VIEW
AS-BUILT**

 SCALE (FT)

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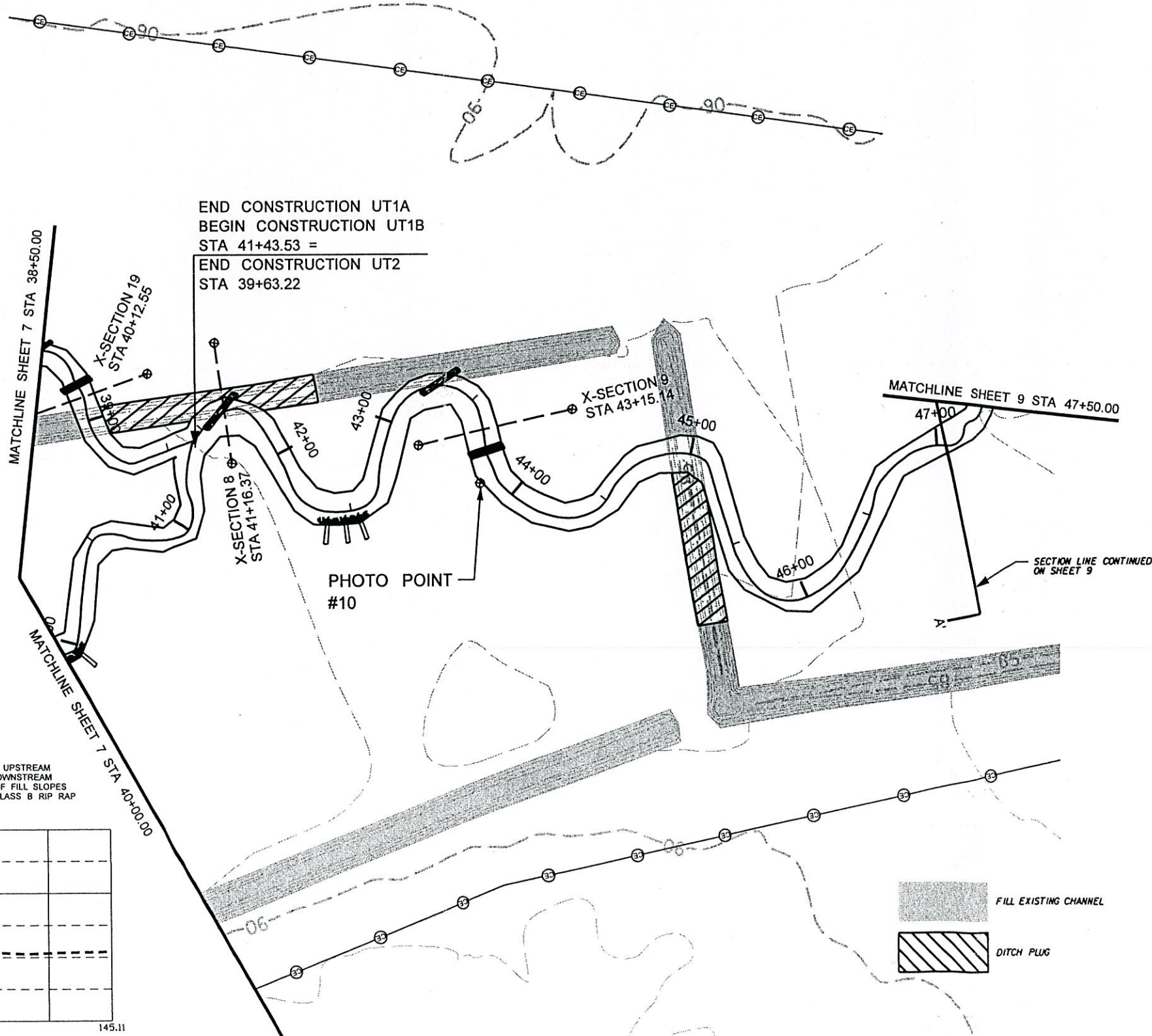
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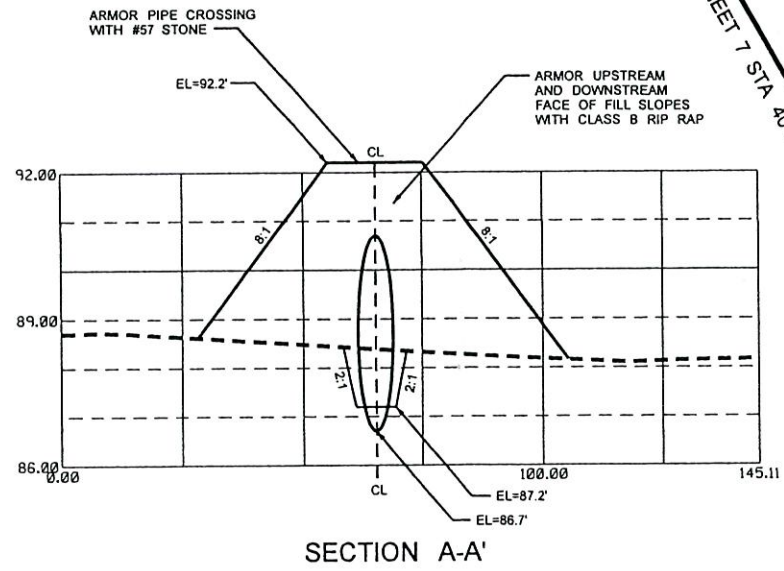
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**PLAN VIEW
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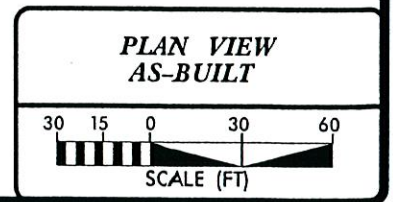
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END CONSTRUCTION UT1A
 BEGIN CONSTRUCTION UT1B
 STA 41+43.53 =
 END CONSTRUCTION UT2
 STA 39+63.22



 FILL EXISTING CHANNEL
 DITCH PLUG

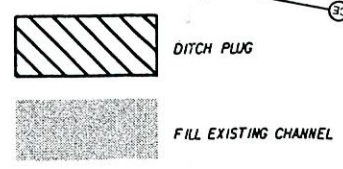
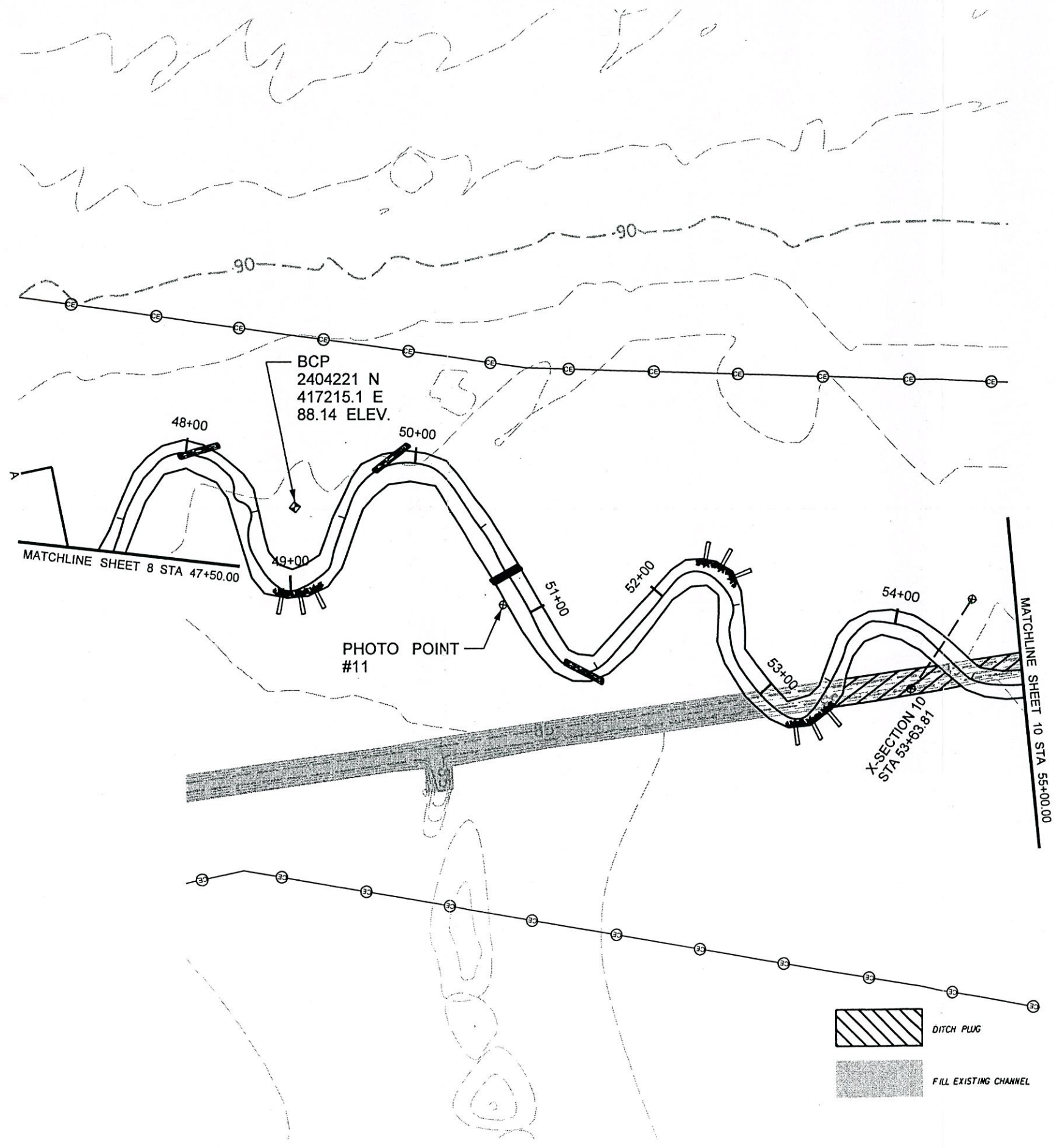


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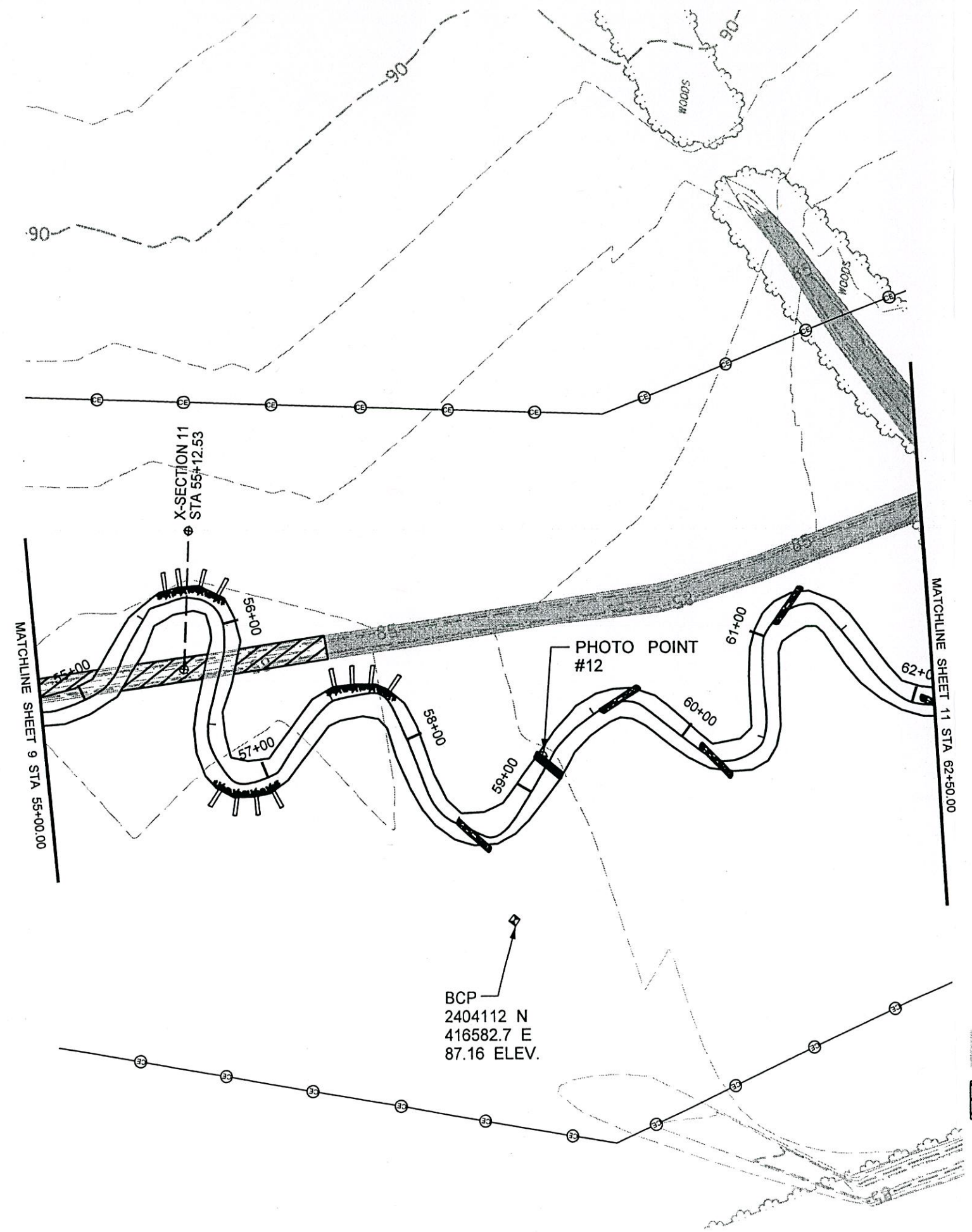
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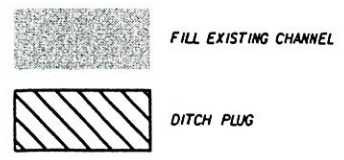
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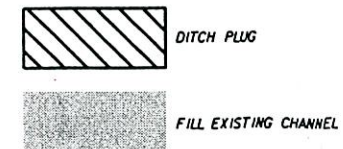
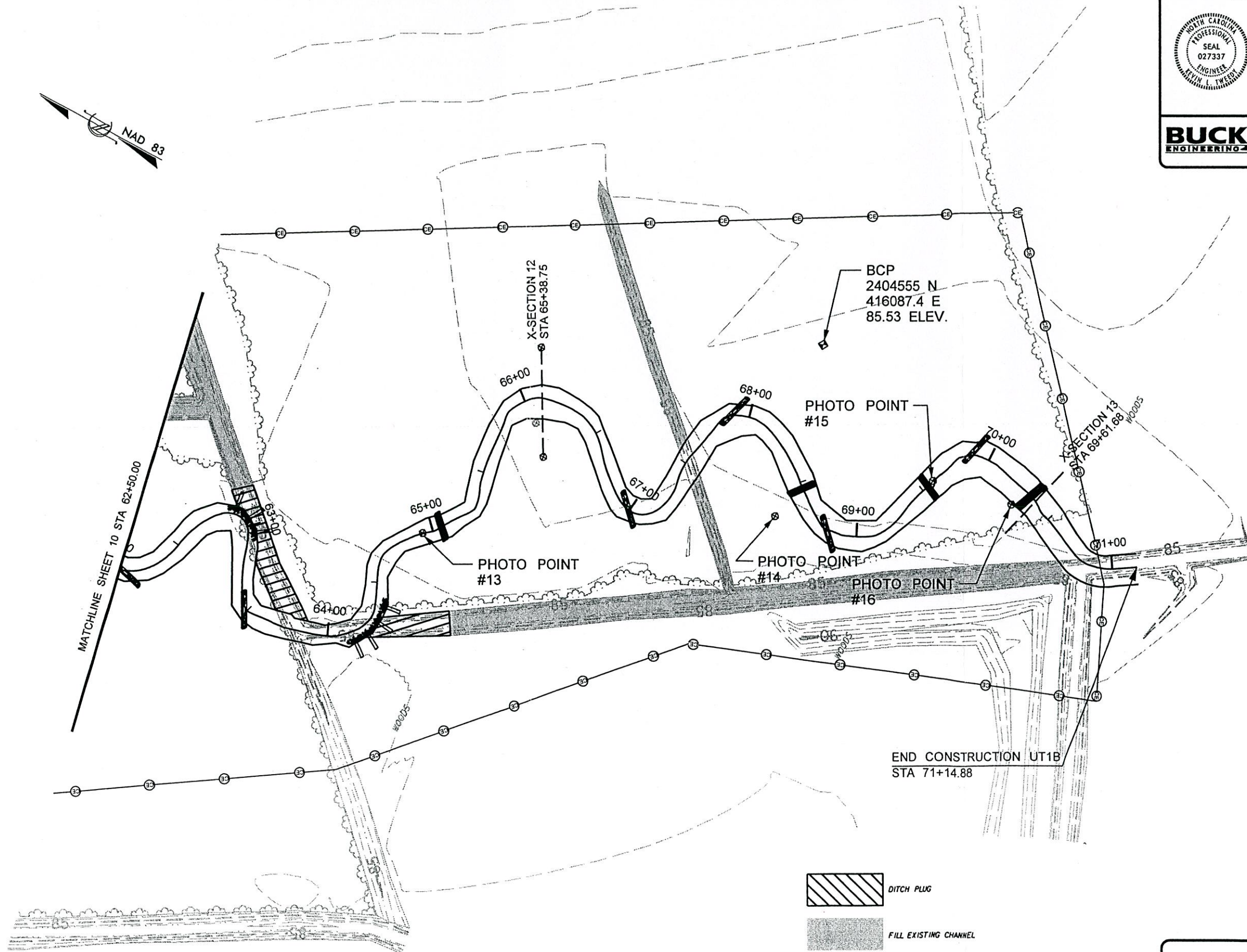
**PLAN VIEW
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SCALE (FT)

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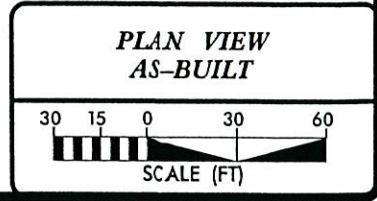
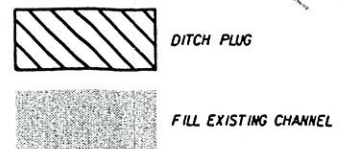
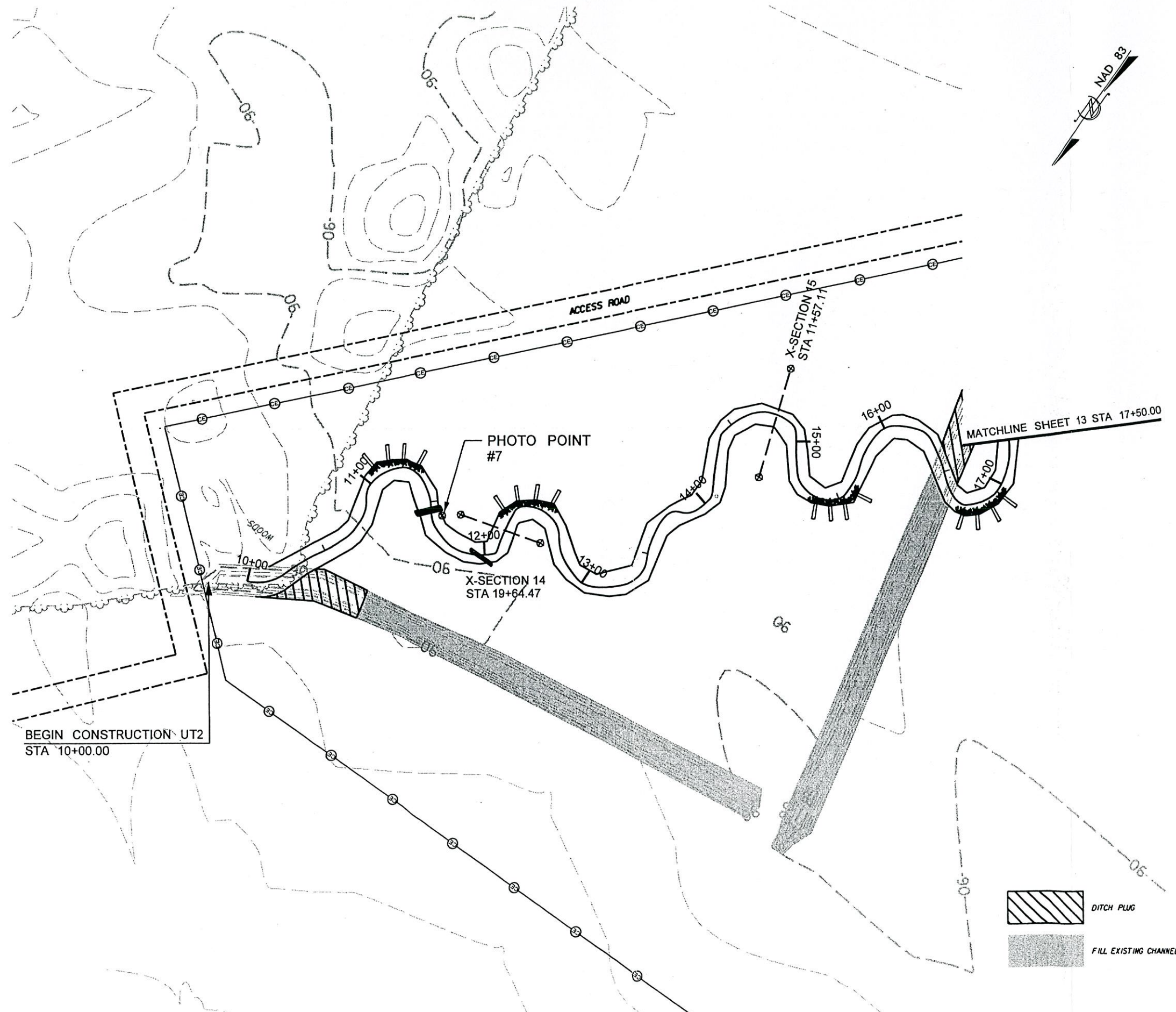
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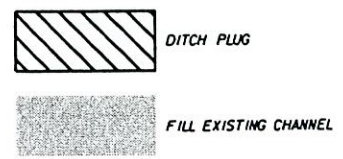
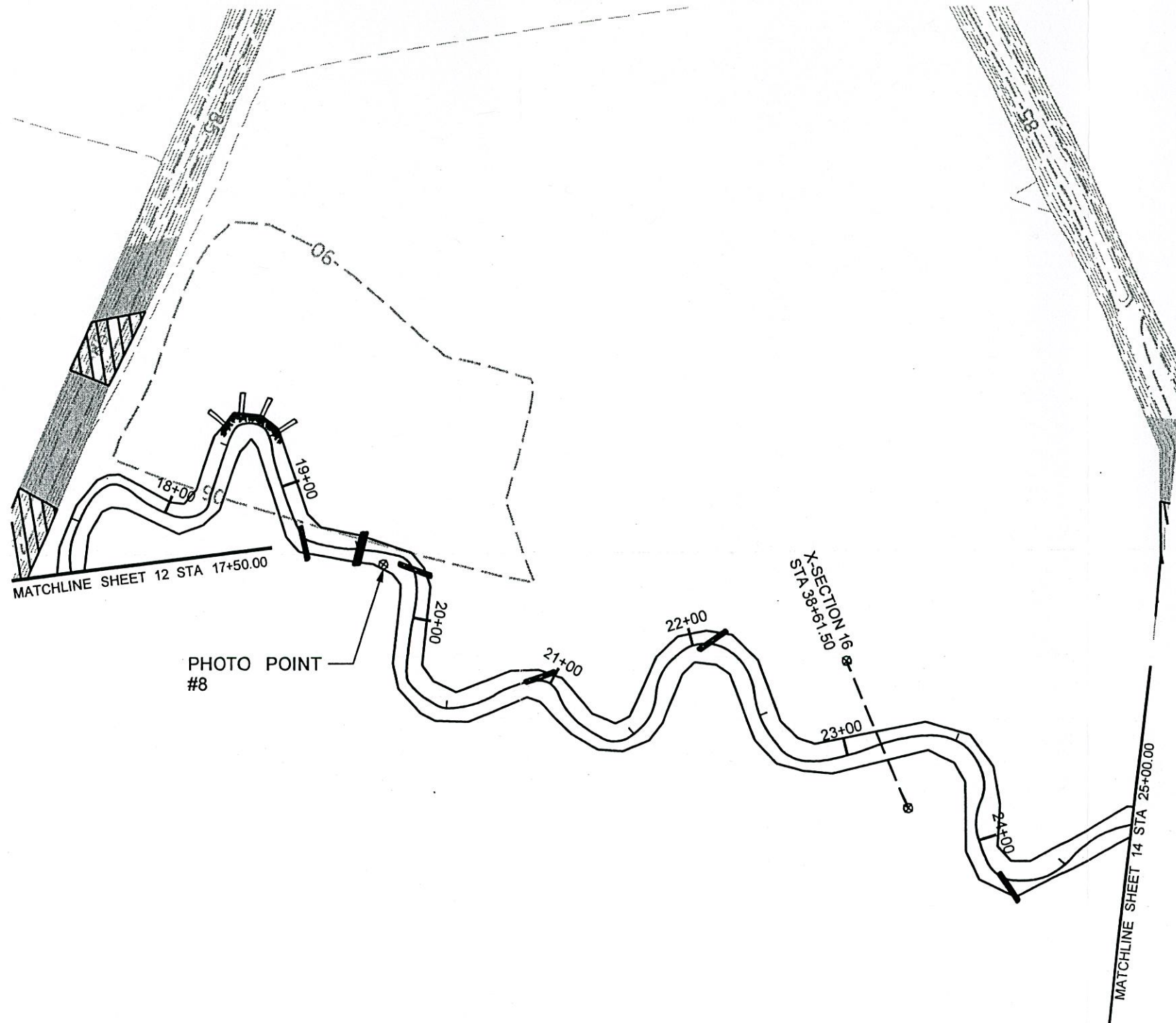


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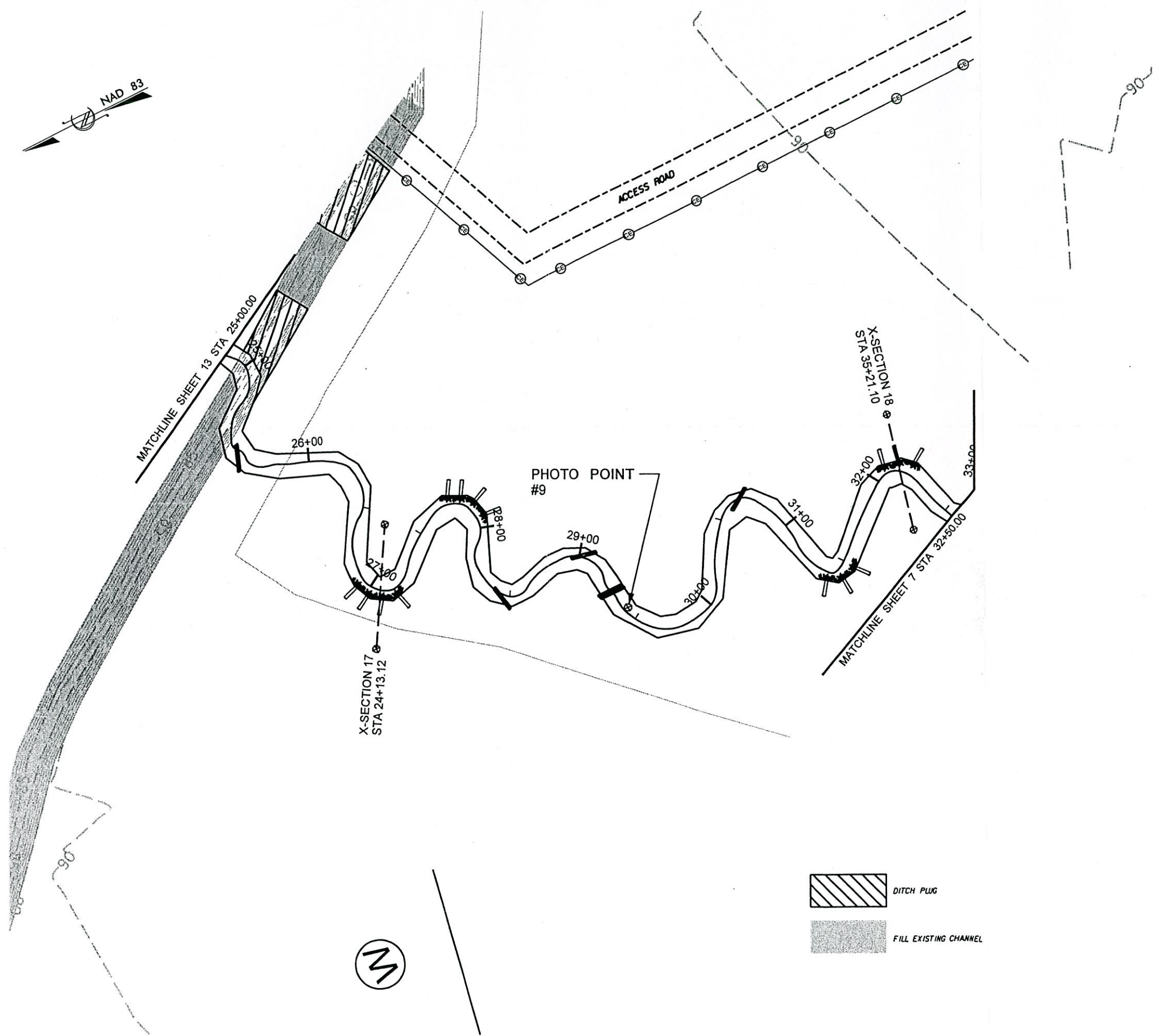
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PLAN VIEW
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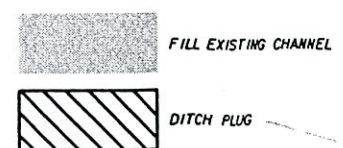
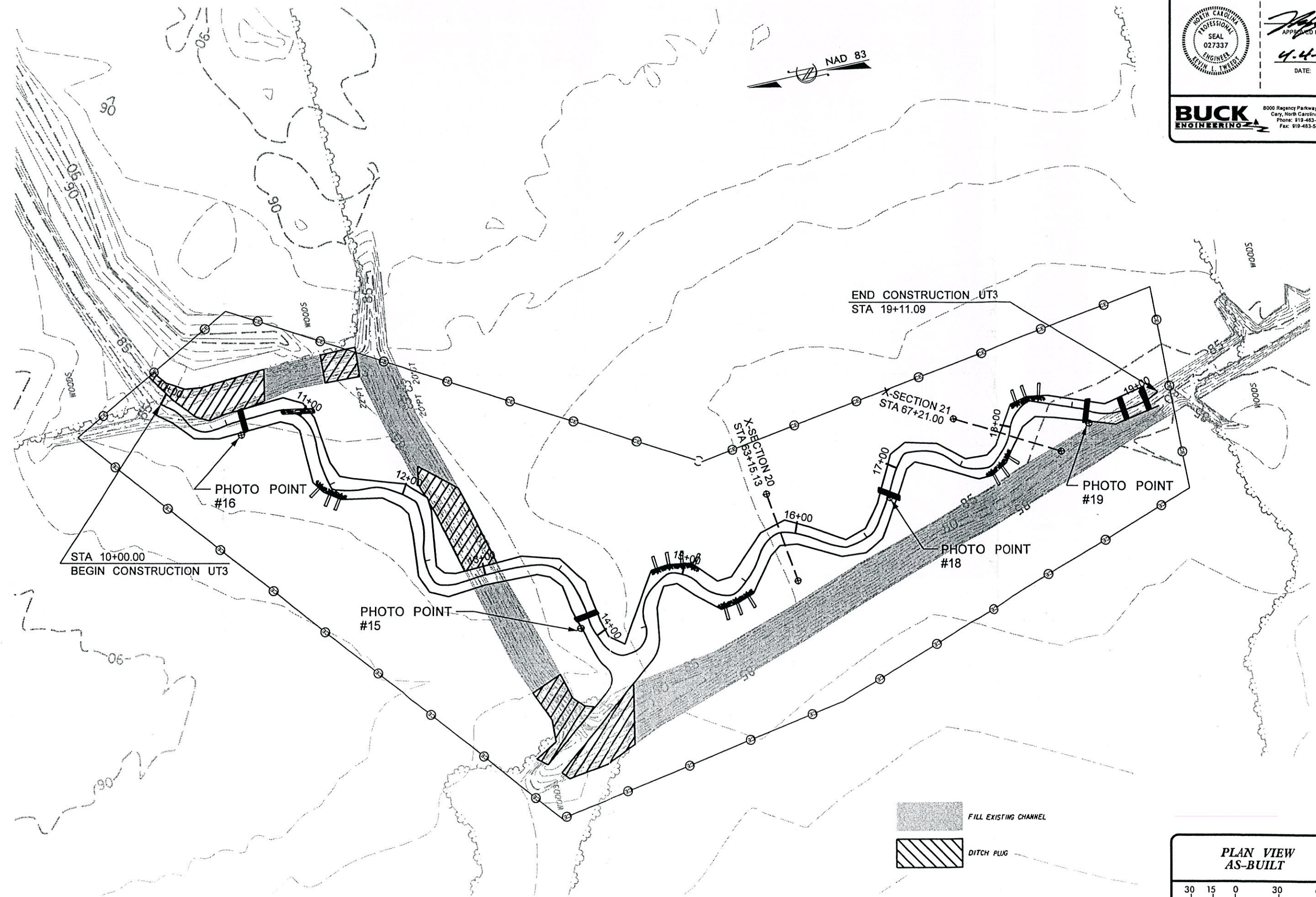
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**PLAN VIEW
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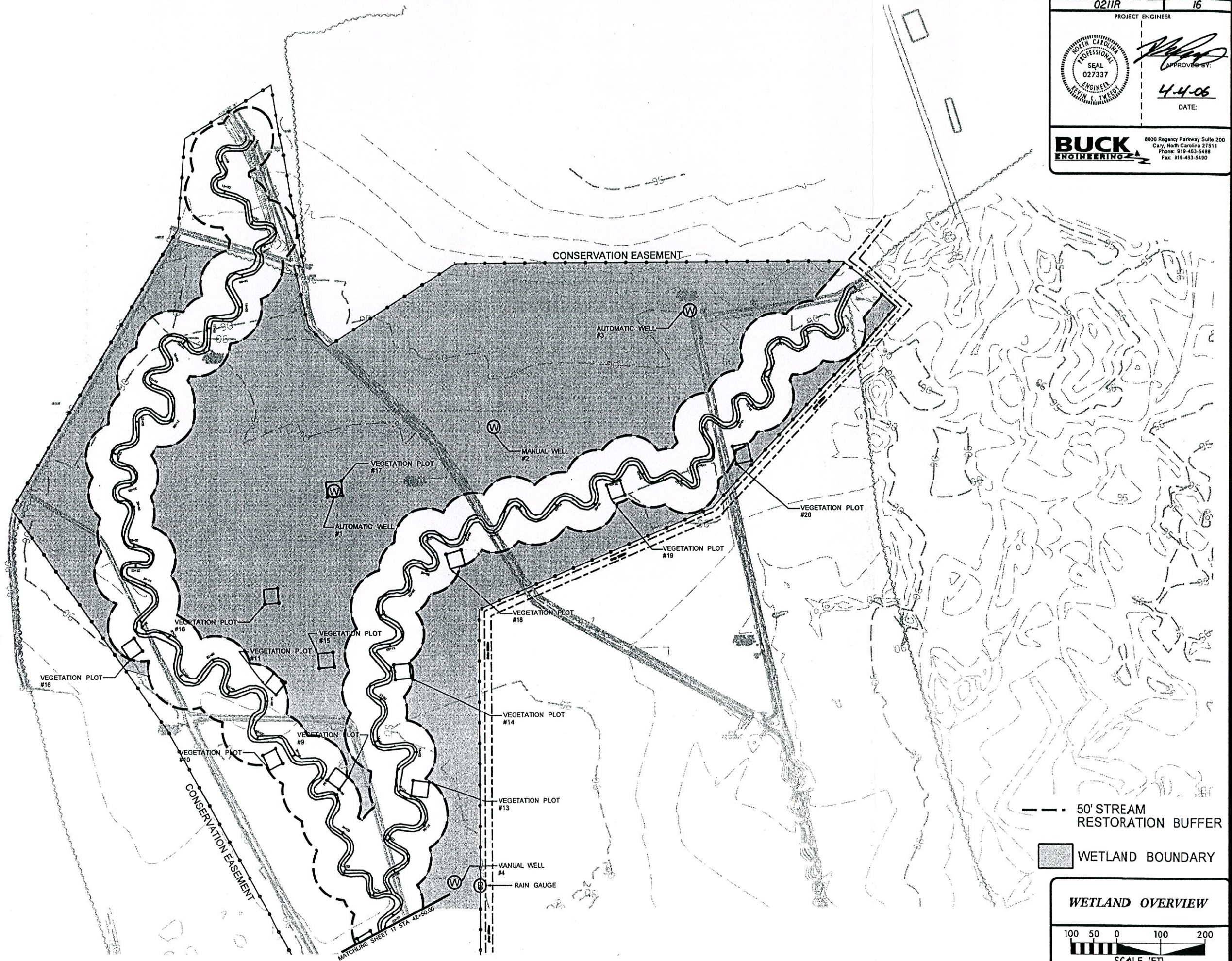
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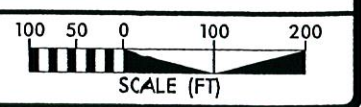
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--- 50' STREAM RESTORATION BUFFER

■ WETLAND BOUNDARY

WETLAND OVERVIEW

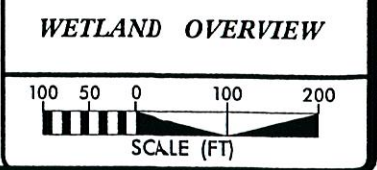


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--- 50' STREAM RESTORATION BUFFER
 [Shaded Box] WETLAND BOUNDARY



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