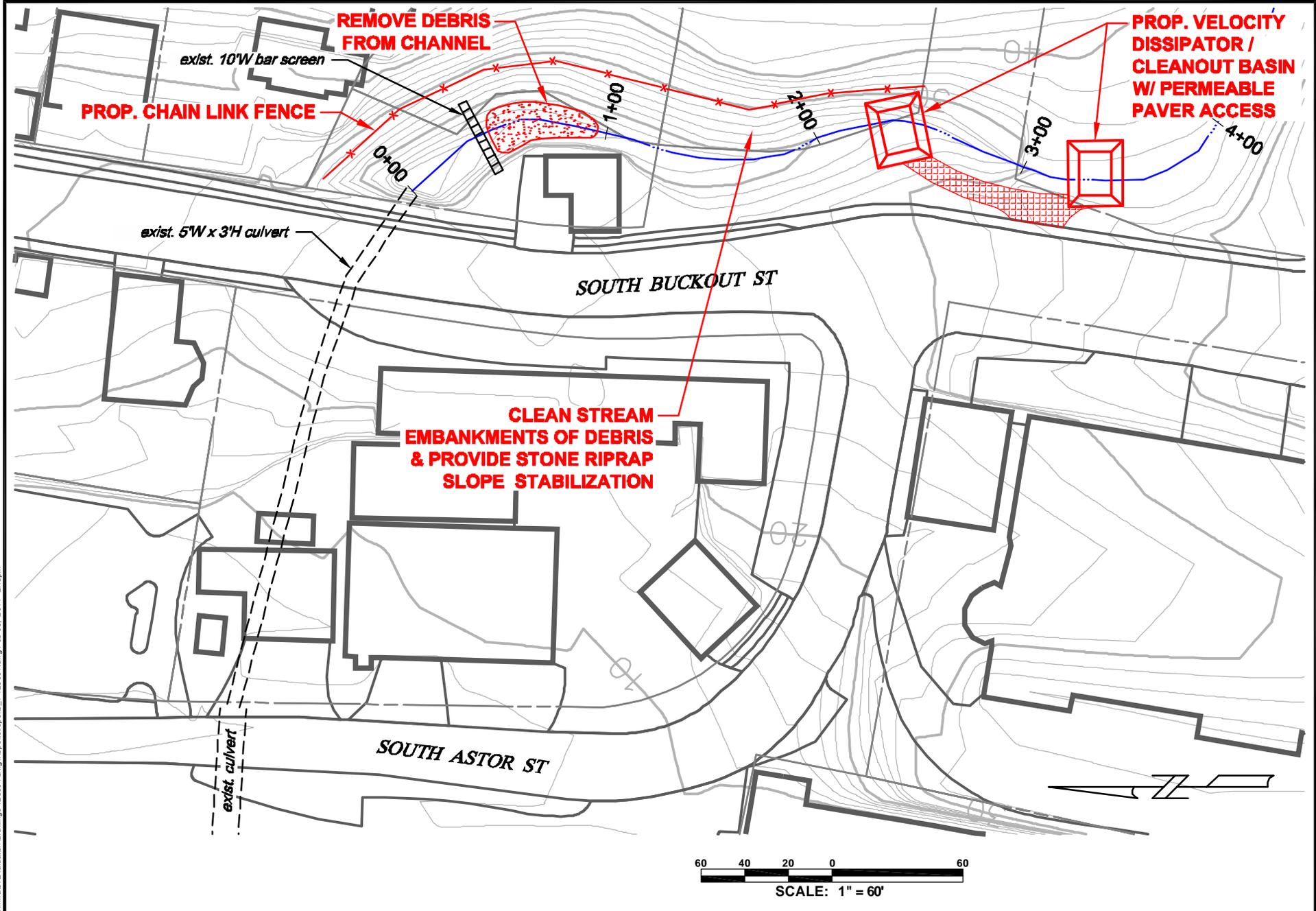


APPENDIX

K



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Hahn Engineering
 Putnam Business Park
 1689 Route 22
 Brewster, New York 10509
 Tel: (845) 279-2220

REV.	DATE	DESCRIPTION

TITLE
CONCEPTUAL PLAN #1 (ALTERNATIVE #1)

PROJECT
FLOOD STUDY
 VILLAGE OF IRVINGTON, WESTCHESTER COUNTY, NY

SCALE
 1" = 60'

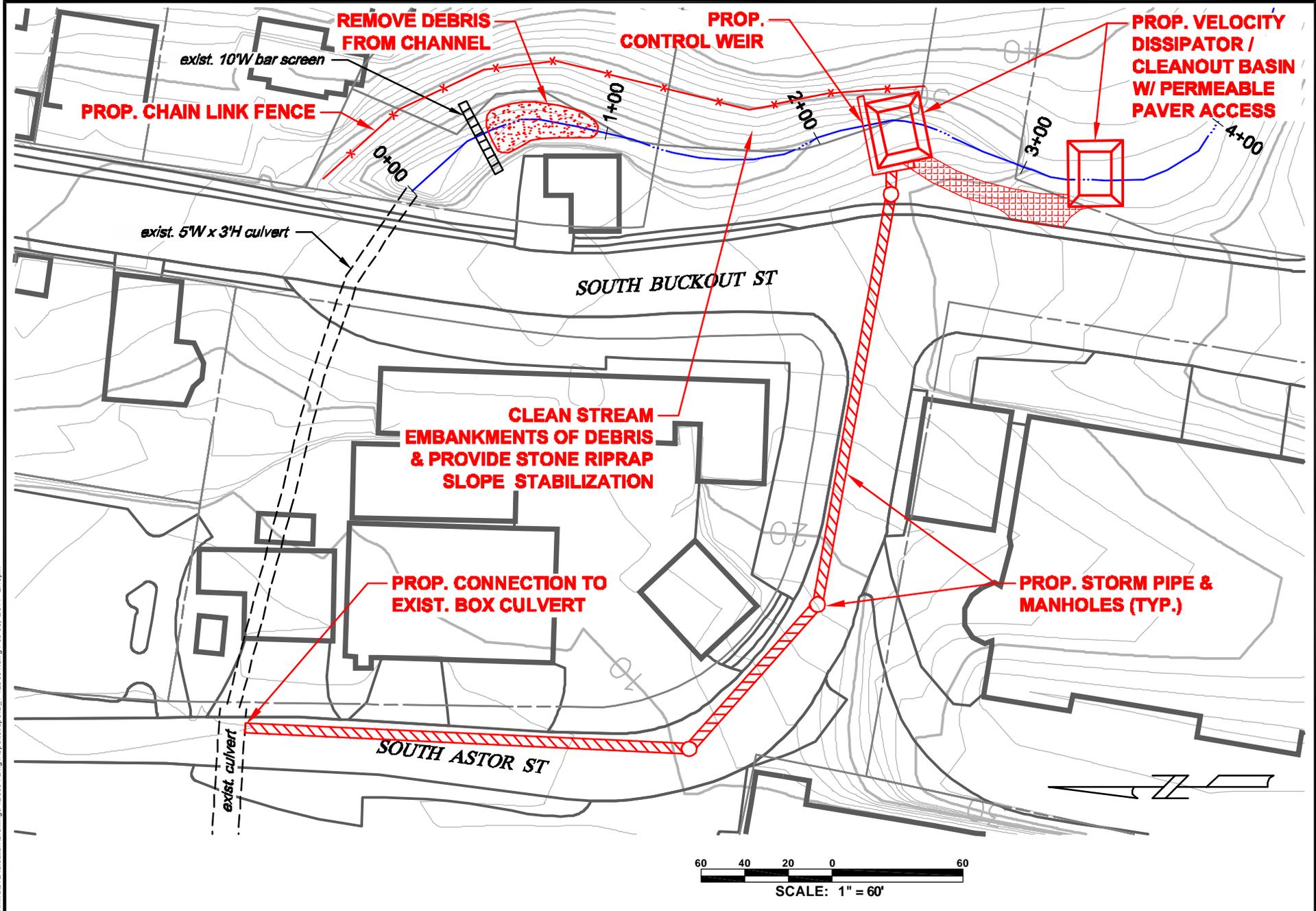
DRAWING NO.
1A

DATE
 08/27/10

SHEET NO.
 OF

**Preliminary Cost Estimate
for
FLOOD STUDY CONCEPTUAL PLAN #1(ALT.1)
Village of Irvington
September 2010**

Bid Item	Est. Quantity	Unit	Unit Price	Total Cost
Furnish and Install Chain Link Fence	400	LF	\$60.00	\$24,000.00
Clearing and Grubbing	1	LS	\$5,000.00	\$5,000.00
Concrete Curbs	60	LF	\$25.00	\$1,500.00
Concrete Pavers	1200	SF	\$25.00	\$30,000.00
Concrete Sidewalks and Ramps (5" Concrete Only)	240	SF	\$9.00	\$2,160.00
Erosion Control Devices	1	LS	\$20,000.00	\$20,000.00
Furnish and Place Crushed Stone or Gravel (Item 304.05)	100	CY	\$40.00	\$4,000.00
Landscaping	1	LS	\$4,000.00	\$4,000.00
Protection of Existing Trees & Site Features to Remain	NP	NP	NP	NP
Furnish and Install Rip-Rap	500	SY	\$100.00	\$50,000.00
Restoration	NP	NP	NP	NP
Sediment Removal	1	LS	\$2,000.00	\$2,000.00
Unclassified Excavation, Filling & Grading	1	LS	\$80,000.00	\$80,000.00
			Sub Total	\$222,660.00
Admin., Surveying, Legal Fees, Inspection & Engineering (15%)				\$33,399.00
Contingency (15%)				\$38,408.85
			Total	\$294,467.85



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Hahn Engineering
 Putnam Business Park
 1689 Route 22
 Brewster, New York 10509
 Tel: (845) 279-2220

REV.	DATE	DESCRIPTION

TITLE	CONCEPTUAL PLAN #1 (ALTERNATIVE #2)
PROJECT	FLOOD STUDY VILLAGE OF IRVINGTON, WESTCHESTER COUNTY, NY

SCALE	DATE
1" = 60'	08/27/10
DRAWING NO.	SHEET NO.
1B	OF

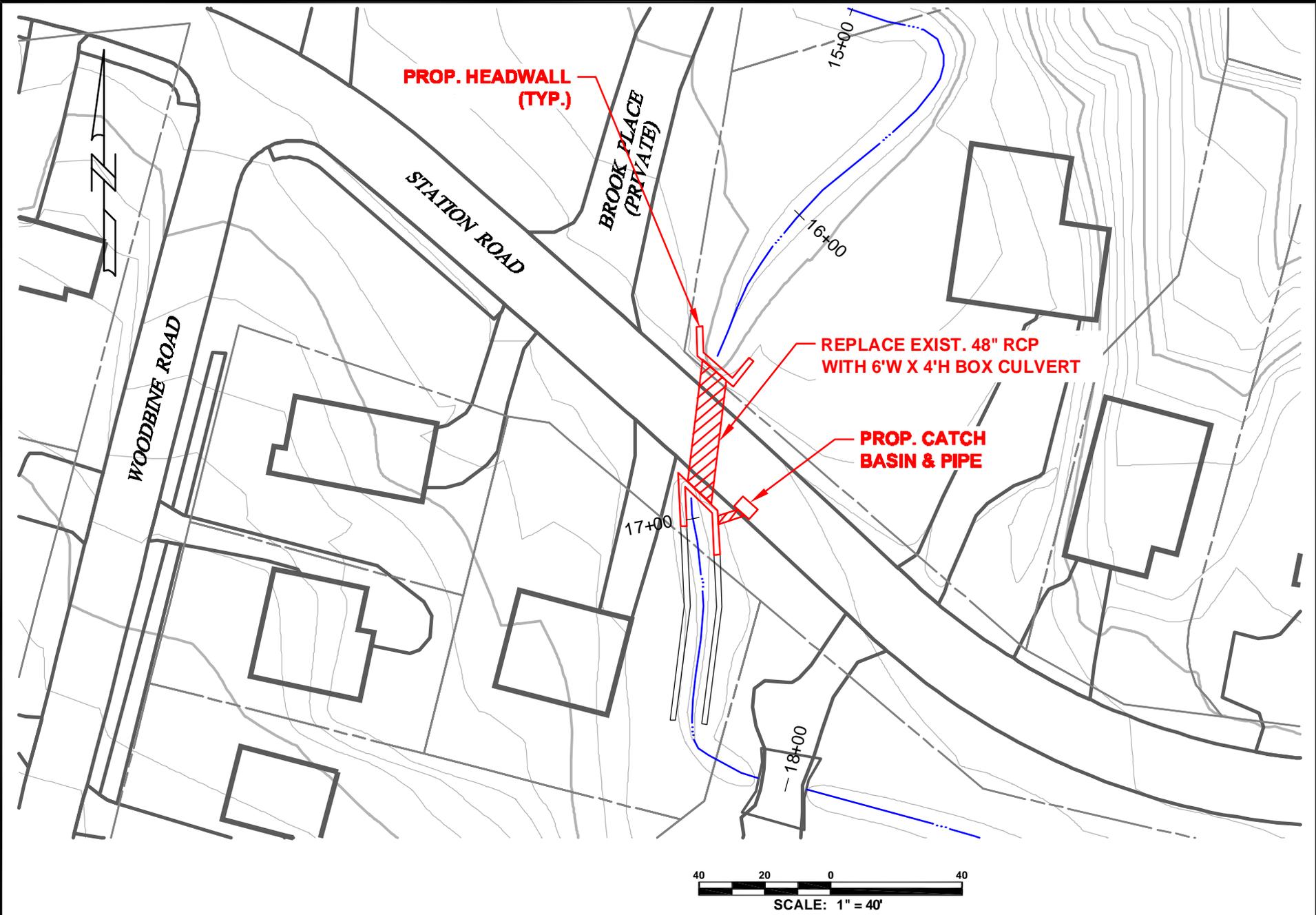
**Preliminary Cost Estimate
for
FLOOD STUDY CONCEPTUAL PLAN #1(ALT.2)
Village of Irvington
September 2010**

Bid Item	Est. Quantity	Unit	Unit Price	Total Cost
Bituminous Base Course (2.5")	50	Tons	\$95.00	\$4,750.00
Bituminous Top Course (1.5")	25	Tons	\$100.00	\$2,500.00
Catch Basins	2	EA	\$4,500.00	\$9,000.00
Furnish and Install Chain Link Fence	400	LF	\$60.00	\$24,000.00
Clearing and Grubbing	1	LS	\$5,000.00	\$5,000.00
Concrete Curbs	60	LF	\$25.00	\$1,500.00
Concrete Pavers	1200	SF	\$25.00	\$30,000.00
Concrete Sidewalks and Ramps (5" Concrete Only)	240	SF	\$9.00	\$2,160.00
Connecting to Existing Drainage Structure	1	EA	\$3,000.00	\$3,000.00
Dense Fill	100	CY	\$120.00	\$12,000.00
Drain Manhole (Deep)	1	EA	\$10,000.00	\$10,000.00
Erosion Control Devices	1	LS	\$20,000.00	\$20,000.00
Furnish and Place Crushed Stone or Gravel (Item 304.05)	100	CY	\$40.00	\$4,000.00
Landscaping	1	LS	\$4,000.00	\$4,000.00
Maintenance and Protection of Traffic	1	LS	\$75,000.00	\$75,000.00
Pavement Markings (Epoxy - 4")	600	LF	\$2.00	\$1,200.00
Pavement Markings (Epoxy - 12")	25	LF	\$4.00	\$100.00
Saw Cutting	NP	NP	NP	NP
Protection of Existing Trees & Site Features to Remain	NP	NP	NP	NP
Furnish and Install Rip-Rap	500	SY	\$100.00	\$50,000.00
Reinforced Concrete Pipe	440	lf	\$450.00	\$198,000.00
Reinforced Concrete (Weir)	1	CY	\$10,000.00	\$10,000.00
Relocate Utilities	1	Allow.	\$50,000.00	\$50,000.00
Restoration	NP	NP	NP	NP

**Preliminary Cost Estimate
for
FLOOD STUDY CONCEPTUAL PLAN #1(ALT.2)
Village of Irvington
September 2010**

Bid Item	Est. Quantity	Unit	Unit Price	Total Cost
Rock Excavation & Disposal	75	CY	\$100.00	\$7,500.00
Sediment Removal	1	LS	\$2,000.00	\$2,000.00
Unclassified Excavation, Filling & Grading	1	CY	\$80,000.00	\$80,000.00
			Sub Total	\$605,710.00
Admin., Surveying, Legal Fees, Inspection & Engineering (15%)				\$90,856.50
Contingency (15%)				\$104,484.98
			Total	\$801,051.48

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HAHN ENGINEERING
Putnam Business Park
1689 Route 22
Brewster, New York 10509
Tel: (845) 279-2220

REV.	DATE	DESCRIPTION

TITLE
CONCEPTUAL PLAN #2

PROJECT
FLOOD STUDY
VILLAGE OF IRVINGTON, WESTCHESTER COUNTY, NY

SCALE
1" = 40'

DRAWING NO.
2

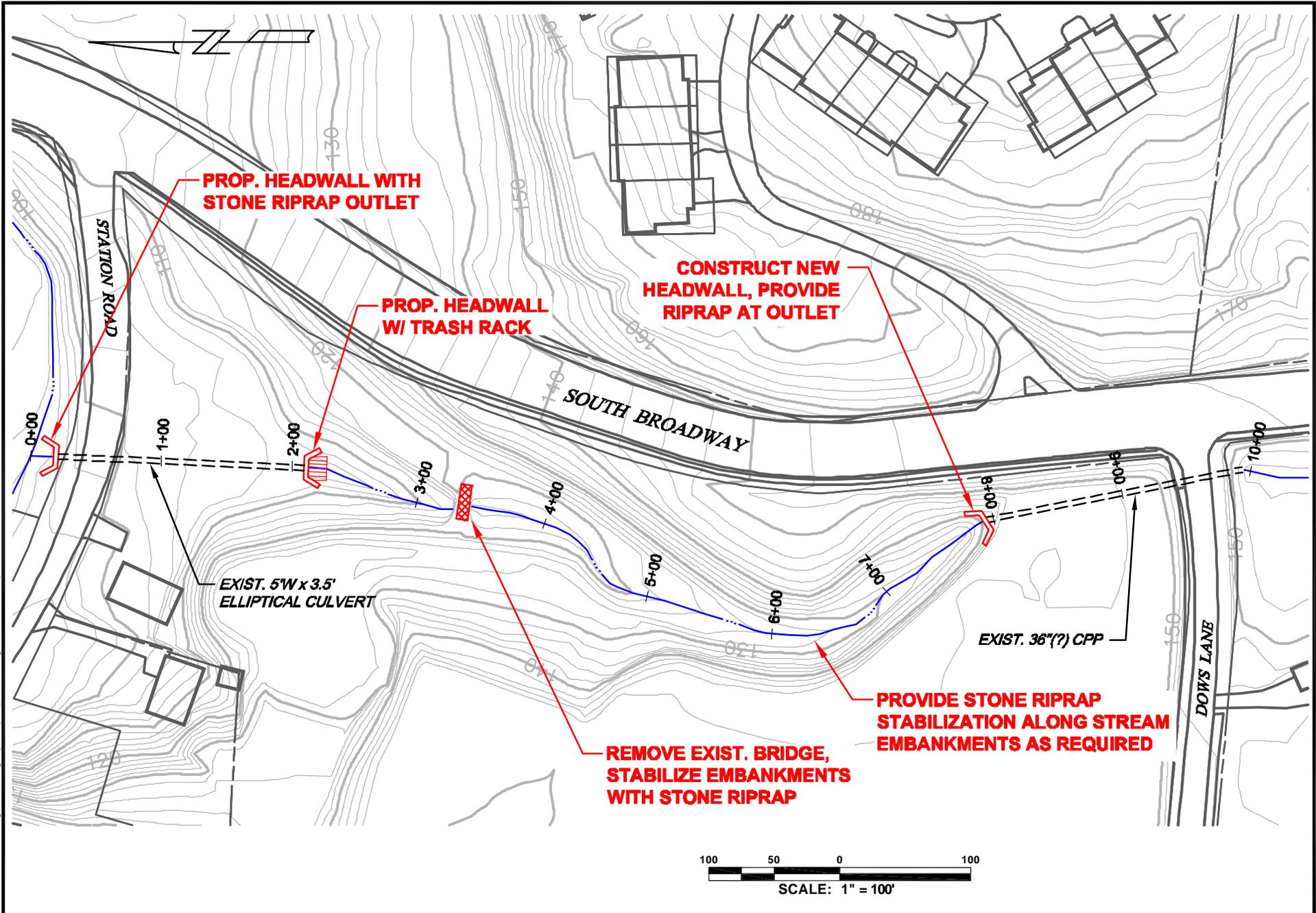
DATE
08/27/10

SHEET NO.
OF

**Preliminary Cost Estimate
for
FLOOD STUDY CONCEPTUAL PLAN #2
Village of Irvington
September 2010**

Bid Item	Est. Quantity	Unit	Unit Price	Total Cost
Bituminous Base Course (2.5")	8	Tons	\$100.00	\$800.00
Bituminous Top Course (1.5")	6	Tons	\$110.00	\$660.00
Catch Basins	1	EA	\$3,200.00	\$3,200.00
Concrete Curbs	60	LF	\$1,000.00	\$60,000.00
Erosion Control Devices	1	LS	\$3,000.00	\$3,000.00
Furnish and Place Crushed Stone or Gravel (Item 304.05)	20	CY	\$40.00	\$800.00
Furnish and Install Corrugated Polyethelyene Pipe (12 inch)	20	lf	\$60.00	\$1,200.00
Maintenance and Protection of Traffic	1	LS	\$5,000.00	\$5,000.00
Pavement Markings (Epoxy - 4")	80	LF	\$2.00	\$160.00
Saw Cutting	NP	NP	NP	NP
Protection of Existing Trees & Site Features to Remain	NP	NP	NP	NP
Furnish and Install Rip-Rap	50	SY	\$100.00	\$5,000.00
Reinforced Concrete Pipe Box Culvert	1	lf	\$80,000.00	\$80,000.00
Restoration	NP	NP	NP	NP
Unclassified Excavation, Filling & Grading	20	CY	\$30.00	\$600.00
			Sub Total	\$160,420.00
Admin., Surveying, Legal Fees, Inspection & Engineering (15%)				\$24,063.00
Contingency (15%)				\$27,672.45
			Total	\$212,155.45

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HAHN ENGINEERING
 Putnam Business Park
 1689 Route 22
 Brewster, New York 10509
 Tel: (845) 279-2220

REV.	DATE	DESCRIPTION

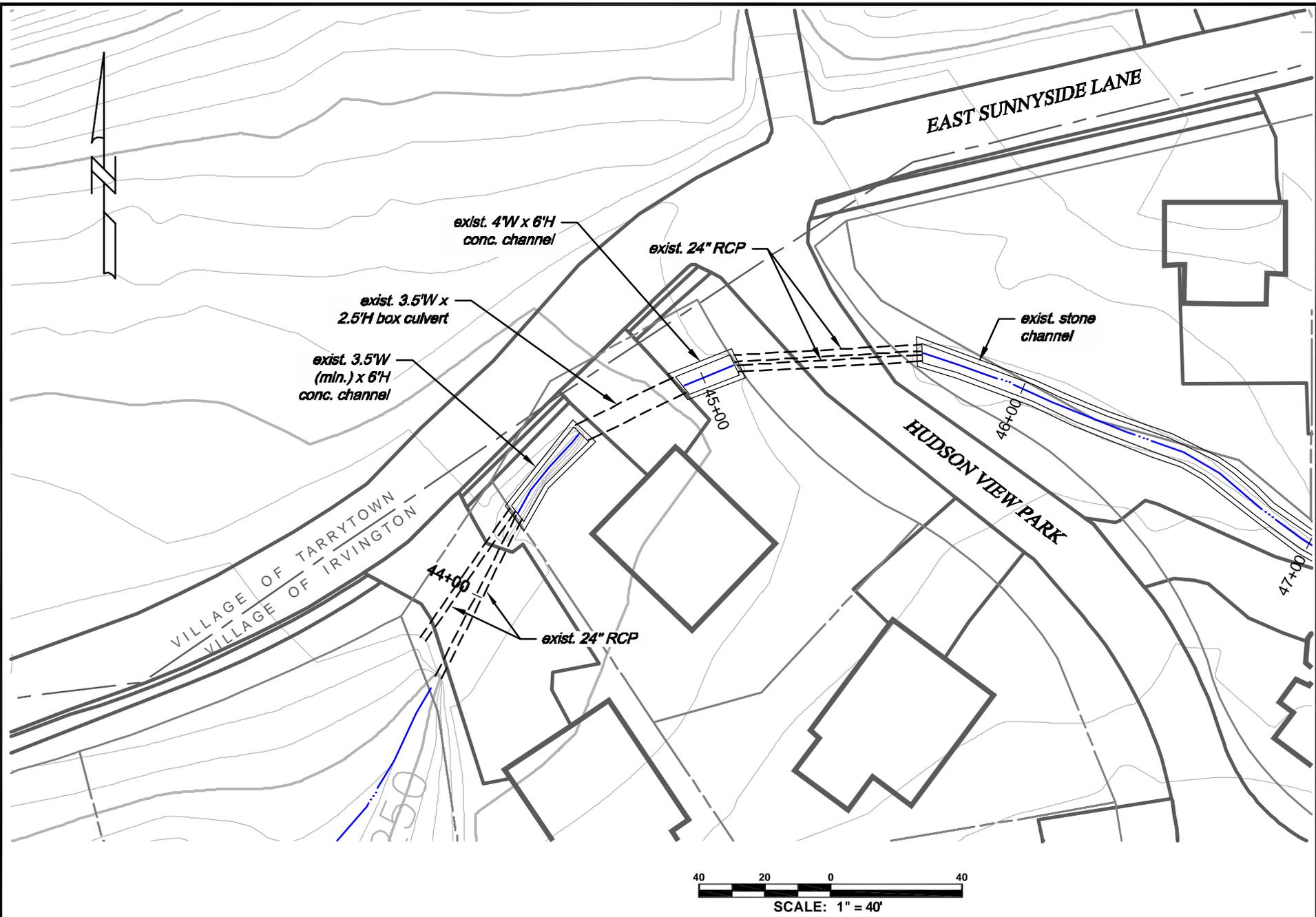
TITLE	CONCEPTUAL PLAN #3
PROJECT	FLOOD STUDY
	VILLAGE OF IRVINGTON, WESTCHESTER COUNTY, NY

SCALE	1" = 100'
DRAWING NO.	3

DATE	08/27/10
SHEET NO.	OF

**Preliminary Cost Estimate
for
FLOOD STUDY CONCEPTUAL PLAN #3
Village of Irvington
September 2010**

Bid Item	Est. Quantity	Unit	Unit Price	Total Cost
Bituminous Base Course (2.5")	4	Tons	\$100.00	\$400.00
Bituminous Top Course (1.5")	2	Tons	\$110.00	\$220.00
Concrete Curbs	40	LF	\$25.00	\$1,000.00
Concrete Sidewalks and Ramps (5" Concrete Only)	60	SF	\$9.00	\$540.00
Demolition and Removal	1	LS	\$40,000.00	\$40,000.00
Dense Fill	10	CY	\$120.00	\$1,200.00
Erosion Control Devices	1	LS	\$5,000.00	\$5,000.00
Furnish and Place Crushed Stone or Gravel (Item 304.05)	100	CY	\$40.00	\$4,000.00
Landscaping	1	LS	\$20,000.00	\$20,000.00
Maintenance and Protection of Traffic	1	LS	\$2,000.00	\$2,000.00
Pavement Markings (Epoxy - 4")	80	LF	\$2.00	\$160.00
Saw Cutting	NP	NP	NP	NP
Protection of Existing Trees & Site Features to Remain	NP	NP	NP	NP
Furnish and Install Rip-Rap	50	SY	\$100.00	\$5,000.00
Reinforced Concrete (Headwall(s))	50	CY	\$700.00	\$35,000.00
Restoration	NP	NP	NP	NP
Rock Excavation & Disposal	10	CY	\$100.00	\$1,000.00
Unclassified Excavation, Filling & Grading	50	CY	\$30.00	\$1,500.00
			Sub Total	\$117,020.00
Admin., Surveying, Legal Fees, Inspection & Engineering (15%)				\$17,553.00
Contingency (15%)				\$20,185.95
			Total	\$154,758.95



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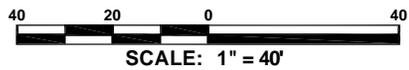
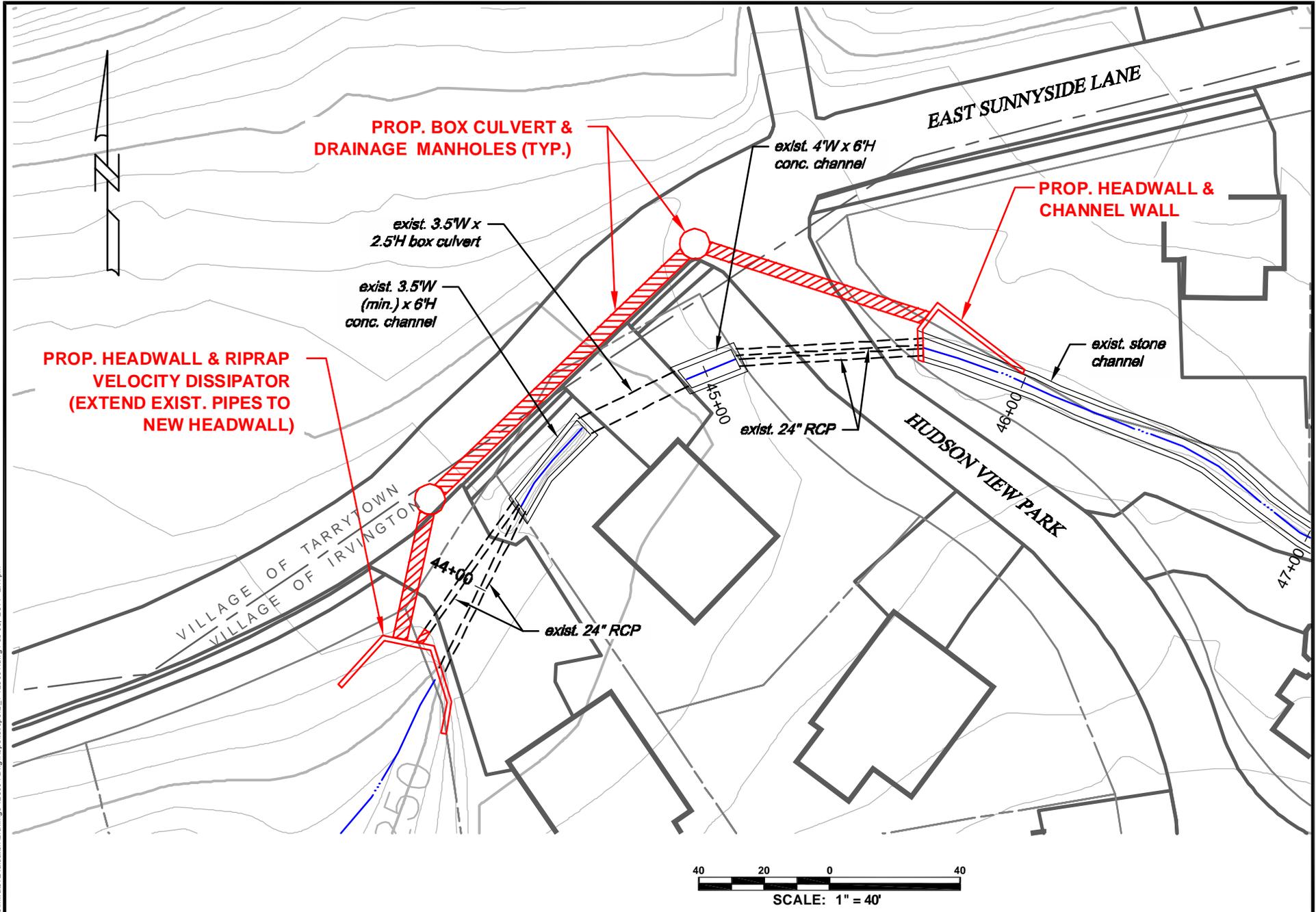
REV.	DATE	DESCRIPTION

TITLE	CONCEPTUAL PLAN #4 (EXISTING CONDITIONS)
PROJECT	FLOOD STUDY
	VILLAGE OF IRVINGTON, WESTCHESTER COUNTY, NY

SCALE	1" = 40'
DRAWING NO.	4A

DATE	08/27/10
SHEET NO.	OF

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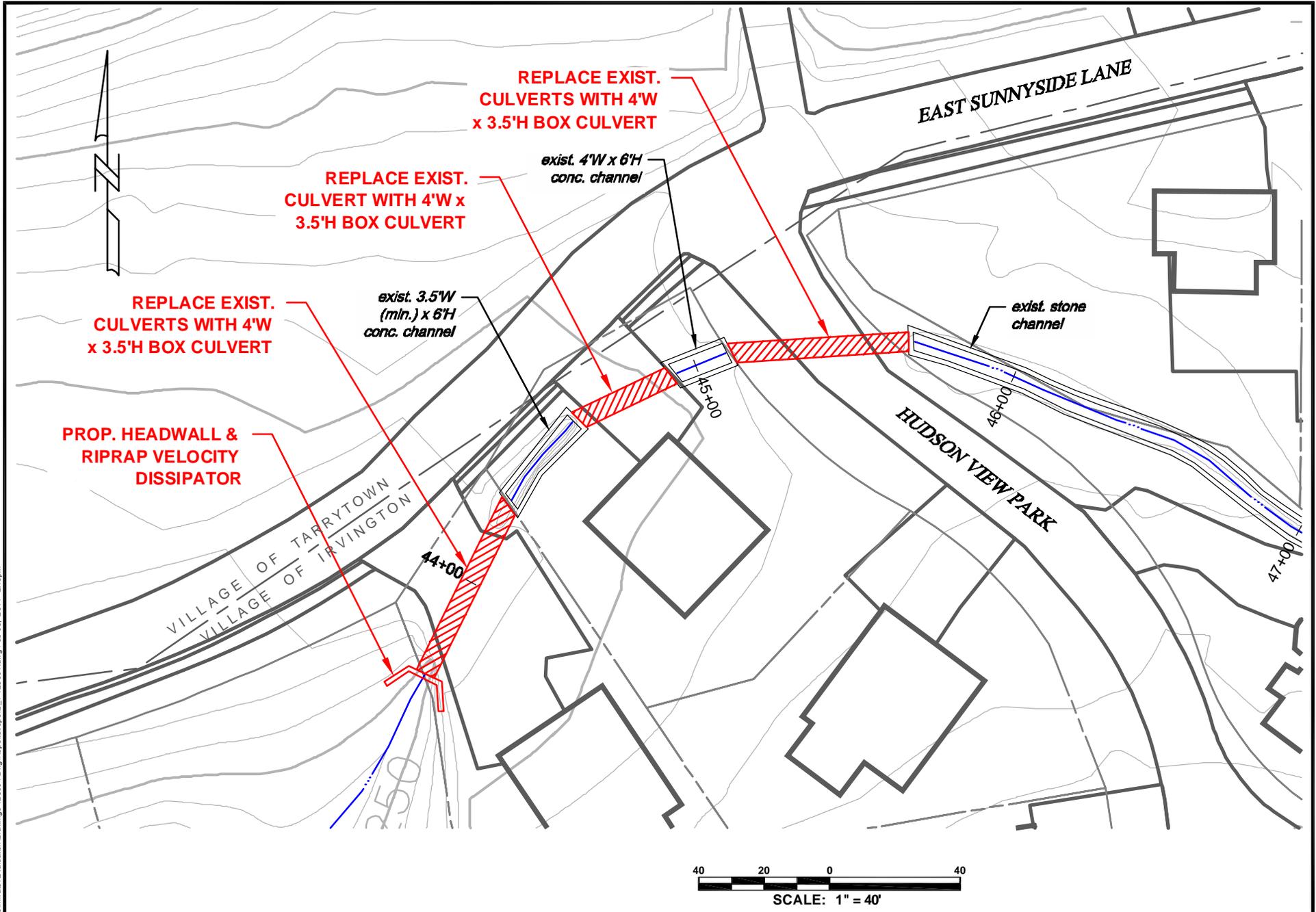


HAHN ENGINEERING Putnam Business Park 1689 Route 22 Brewster, New York 10509 Tel: (845) 279-2220				TITLE	CONCEPTUAL PLAN #4 (ALTERNATIVE #1)	SCALE	1" = 40'	DATE	08/27/10
				PROJECT	FLOOD STUDY	DRAWING NO.	4B	SHEET NO.	
					VILLAGE OF IRVINGTON, WESTCHESTER COUNTY, NY			OF	
	REV.	DATE	DESCRIPTION						

**Preliminary Cost Estimate
for
FLOOD STUDY CONCEPTUAL PLAN #4 (ALT.1)
Village of Irvington
September 2010**

Bid Item	Est. Quantity	Unit	Unit Price	Total Cost
Asphalt Driveway Apron	600	sf	\$4.00	\$2,400.00
Bituminous Base Course (2.5")	30	Tons	\$95.00	\$2,850.00
Bituminous Top Course (1.5")	20	Tons	\$100.00	\$2,000.00
Clearing and Grubbing	1	LS	\$3,000.00	\$3,000.00
Concrete Curbs	20	LF	\$25.00	\$500.00
Dense Fill	20	CY	\$120.00	\$2,400.00
Drain Manhole (Deep)	2	EA	\$10,000.00	\$20,000.00
Erosion Control Devices	1	LS	\$3,000.00	\$3,000.00
Furnish and Place Crushed Stone or Gravel (Item 304.05)	30	CY	\$35.00	\$1,050.00
Maintenance and Protection of Traffic	1	LS	\$60,000.00	\$60,000.00
Pavement Markings (Epoxy - 4")	120	LF	\$2.00	\$240.00
Saw Cutting	NP	NP	NP	NP
Protection of Existing Trees & Site Features to Remain	NP	NP	NP	NP
Furnish and Install Rip-Rap	50	SY	\$100.00	\$5,000.00
Reinforced Concrete Box Culvert (48"x42")	240	lf	\$750.00	\$180,000.00
Reinforced Concrete (Headwall(s))	20	CY	\$600.00	\$12,000.00
Relocate Utilities	1	Allow.	\$100,000.00	\$100,000.00
Restoration	NP	NP	NP	NP
Rock Excavation & Disposal	30	CY	\$100.00	\$3,000.00
Temporary Pavement	75	SY	\$20.00	\$1,500.00
Unclassified Excavation, Filling & Grading	50	CY	\$30.00	\$1,500.00
			Sub Total	\$400,440.00
Admin., Surveying, Legal Fees, Inspection & Engineering (15%)				\$60,066.00
Contingency (15%)				\$69,075.90
			Total	\$529,581.90

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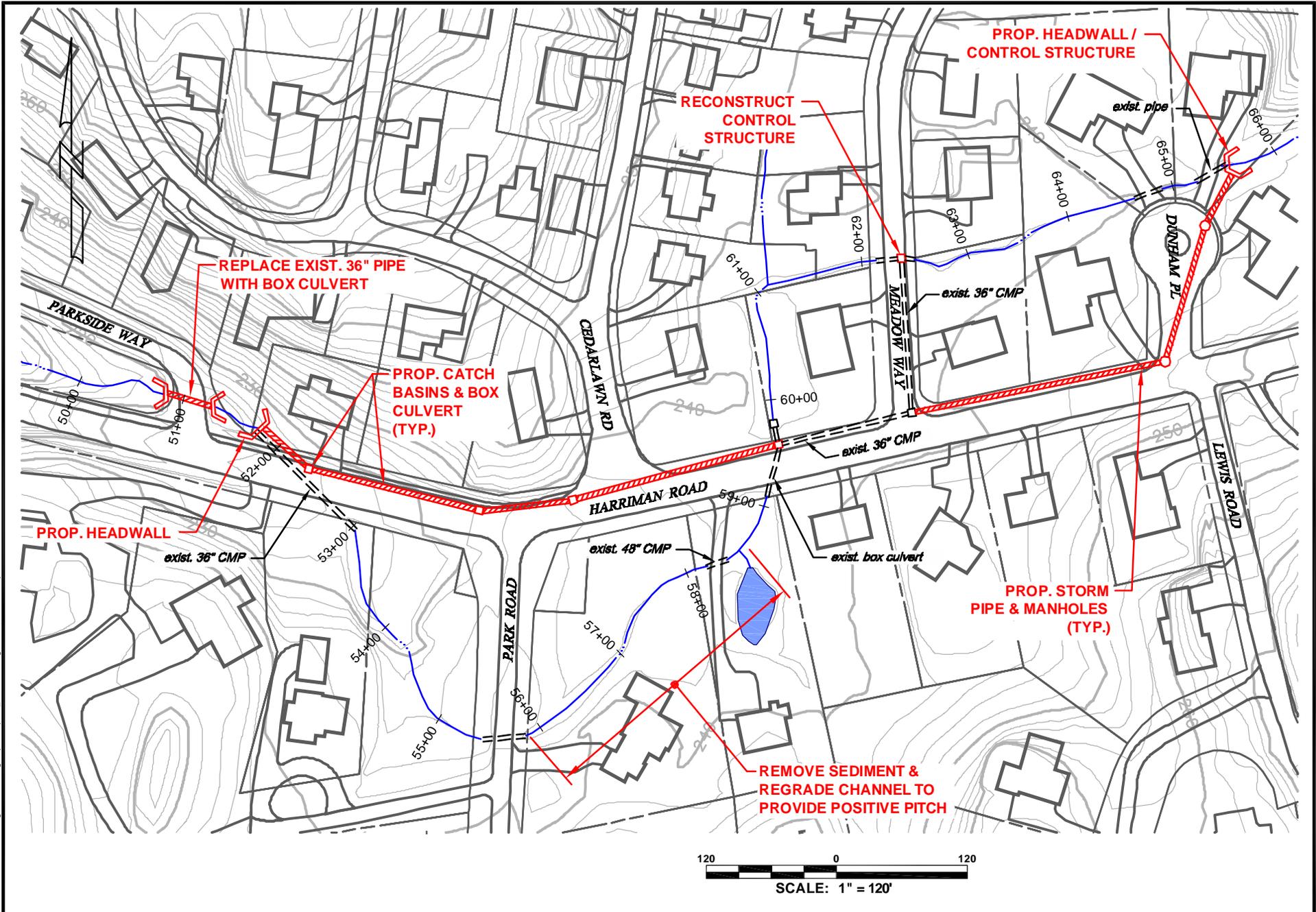


HAHN ENGINEERING Putnam Business Park 1689 Route 22 Brewster, New York 10509 Tel: (845) 279-2220				TITLE	CONCEPTUAL PLAN #4 (ALTERNATIVE #2)	SCALE	1" = 40'	DATE	08/27/10
				PROJECT	FLOOD STUDY	DRAWING NO.	4C	SHEET NO.	
					VILLAGE OF IRVINGTON, WESTCHESTER COUNTY, NY			OF	
	REV.	DATE	DESCRIPTION						

**Preliminary Cost Estimate
for
FLOOD STUDY CONCEPTUAL PLAN #4 (ALT.2)
Village of Irvington
September 2010**

Bid Item	Est. Quantity	Unit	Unit Price	Total Cost
Asphalt Driveway Apron	2400	sf	\$4.00	\$9,600.00
Bituminous Base Course (2.5")	4	Tons	\$100.00	\$400.00
Bituminous Top Course (1.5")	2	Tons	\$110.00	\$220.00
Clearing and Grubbing	1	LS	\$3,000.00	\$3,000.00
Concrete Curbs	40	LF	\$25.00	\$1,000.00
Concrete Sidewalks and Ramps (5" Concrete Only)	40	SF	\$9.00	\$360.00
Dense Fill	10	CY	\$120.00	\$1,200.00
Erosion Control Devices	1	LS	\$3,000.00	\$3,000.00
Furnish and Place Crushed Stone or Gravel (Item 304.05)	20	CY	\$40.00	\$800.00
Landscaping	1	LS	\$3,000.00	\$3,000.00
Maintenance and Protection of Traffic	1	LS	\$30,000.00	\$30,000.00
Pavement Markings (Epoxy - 4")	40	LF	\$2.00	\$80.00
Saw Cutting	NP	NP	NP	NP
Protection of Existing Trees & Site Features to Remain	NP	NP	NP	NP
Furnish and Install Rip-Rap	15	SY	\$100.00	\$1,500.00
Reinforced Concrete Pipe Box Culvert (48"x42")	150	lf	\$1,200.00	\$180,000.00
Reinforced Concrete (Headwall(s))	10	CY	\$600.00	\$6,000.00
Restoration	NP	NP	NP	NP
Rock Excavation & Disposal	15	CY	\$100.00	\$1,500.00
Temporary Pavement	25	SY	\$20.00	\$500.00
Unclassified Excavation, Filling & Grading	20	CY	\$30.00	\$600.00
			Sub Total	\$242,760.00
Admin., Surveying, Legal Fees, Inspection & Engineering (15%)				\$36,414.00
Contingency (15%)				\$41,876.10
			Total	\$321,050.10

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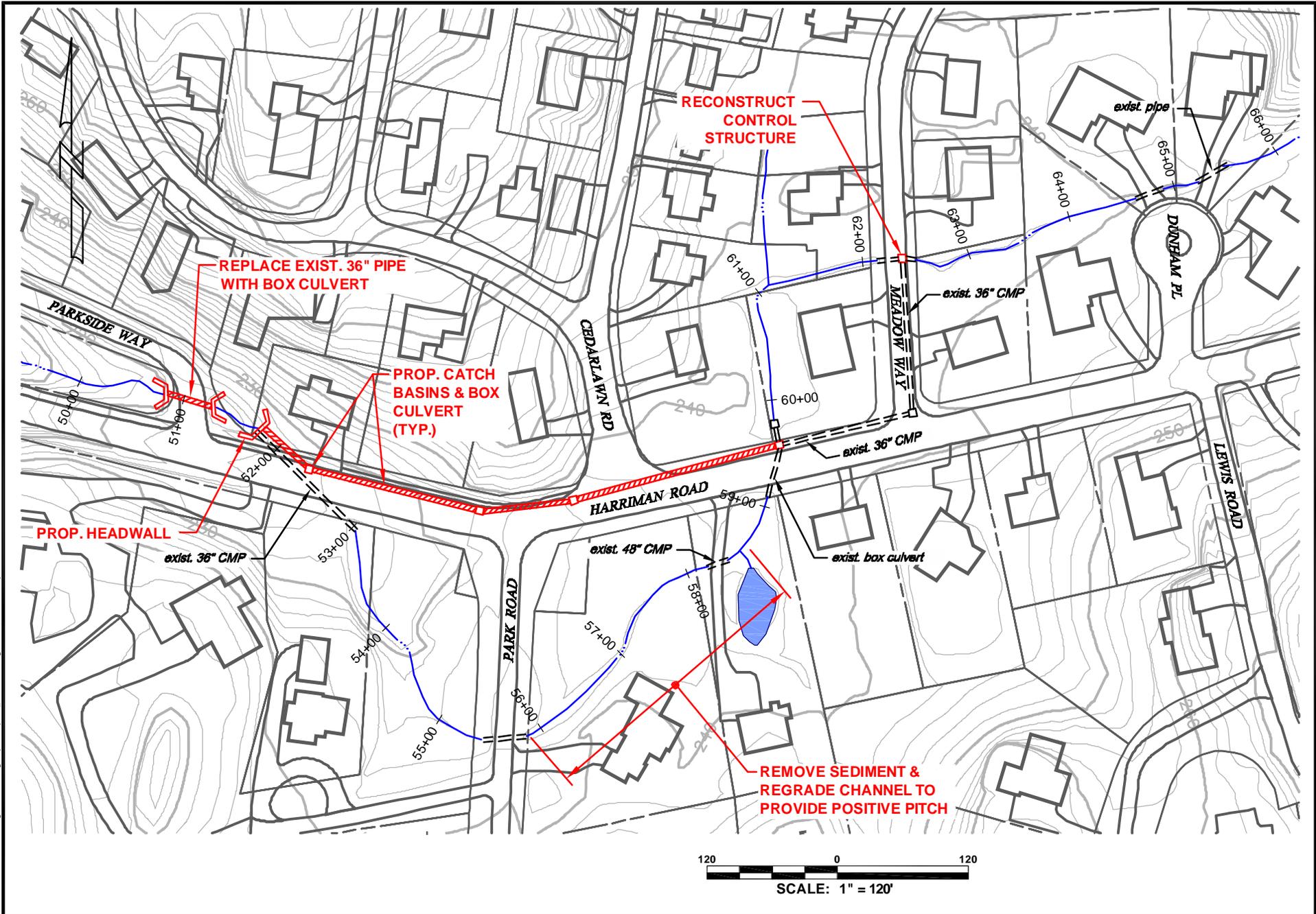


HAHN ENGINEERING Putnam Business Park 1689 Route 22 Brewster, New York 10509 Tel: (845) 279-2220				TITLE	CONCEPTUAL PLAN #5 (ALTERNATIVE #1)	SCALE	1" = 120'	DATE	08/27/10
	REV.	DATE	DESCRIPTION	PROJECT	FLOOD STUDY VILLAGE OF IRVINGTON, WESTCHESTER COUNTY, NY	DRAWING NO.	5A	SHEET NO.	OF

**Preliminary Cost Estimate
for
FLOOD STUDY CONCEPTUAL PLAN #5(ALT.1)
Village of Irvington
September 2010**

Bid Item	Est. Quantity	Unit	Unit Price	Total Cost
Bituminous Base Course (2.5")	40	Tons	\$95.00	\$3,800.00
Bituminous Top Course (1.5")	25	Tons	\$100.00	\$2,500.00
Catch Basins	6	EA	\$4,200.00	\$25,200.00
Clearing and Grubbing	1	LS	\$3,000.00	\$3,000.00
Concrete Curbs	160	LF	\$25.00	\$4,000.00
Concrete Sidewalks and Ramps (5" Concrete Only)	1600	SF	\$9.00	\$14,400.00
Concrete Sidewalks and Ramps (7" Concrete Only)	200	SF	\$10.00	\$2,000.00
Dense Fill	100	CY	\$120.00	\$12,000.00
Drain Manhole (Deep)	2	EA	\$10,000.00	\$20,000.00
Erosion Control Devices	1	LS	\$3,000.00	\$3,000.00
Furnish and Place Crushed Stone or Gravel (Item 304.05)	200	CY	\$40.00	\$8,000.00
Landscaping	1	LS	\$5,000.00	\$5,000.00
Maintenance and Protection of Traffic	1	LS	\$100,000.00	\$100,000.00
Pavement Markings (Epoxy - 4")	700	LF	\$2.00	\$1,400.00
Saw Cutting	NP	NP	NP	NP
Protection of Existing Trees & Site Features to Remain	NP	NP	NP	NP
Furnish and Install Rip-Rap	50	SY	\$100.00	\$5,000.00
Relocate Utilities	1	Allow.	\$80,000.00	\$80,000.00
Reinforced Concrete Pipe 42"	500	lf	\$400.00	\$200,000.00
Reinforced Concrete Box Culvert 60"x42"	540	lf	\$800.00	\$432,000.00
Reinforced Concrete (Headwall(s))	75	CY	\$600.00	\$45,000.00
Restoration	NP	NP	NP	NP
Rock Excavation & Disposal	60	CY	\$100.00	\$6,000.00
Sediment Removal	1	LS	\$20,000.00	\$20,000.00
Temporary Pavement	75	SY	\$20.00	\$1,500.00
Unclassified Excavation, Filling & Grading	50	CY	\$30.00	\$1,500.00
			Sub Total	\$995,300.00
Admin., Surveying, Legal Fees, Inspection & Engineering (15%)				\$149,295.00
Contingency (15%)				\$171,689.25
			Total	\$1,316,284.25

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HAHN ENGINEERING Putnam Business Park 1689 Route 22 Brewster, New York 10509 Tel: (845) 279-2220				TITLE	CONCEPTUAL PLAN #5 (ALTERNATIVE #2)	SCALE	1" = 120'	DATE	08/27/10
	REV.	DATE	DESCRIPTION	PROJECT	FLOOD STUDY VILLAGE OF IRVINGTON, WESTCHESTER COUNTY, NY	DRAWING NO.	5B	SHEET NO.	OF

**Preliminary Cost Estimate
for
FLOOD STUDY CONCEPTUAL PLAN #5(ALT.2)
Village of Irvington
September 2010**

Bid Item	Est. Quantity	Unit	Unit Price	Total Cost
Bituminous Base Course (2.5")	40	Tons	\$95.00	\$3,800.00
Bituminous Top Course (1.5")	20	Tons	\$100.00	\$2,000.00
Catch Basins	5	EA	\$4,200.00	\$21,000.00
Clearing and Grubbing	1	LS	\$3,000.00	\$3,000.00
Concrete Curbs	160	LF	\$25.00	\$4,000.00
Concrete Sidewalks and Ramps (5" Concrete Only)	200	SF	\$9.00	\$1,800.00
Concrete Sidewalks and Ramps (7" Concrete Only)	40	SF	\$10.00	\$400.00
Dense Fill	150	CY	\$120.00	\$18,000.00
Erosion Control Devices	1	LS	\$3,000.00	\$3,000.00
Furnish and Place Crushed Stone or Gravel (Item 304.05)	75	CY	\$40.00	\$3,000.00
Maintenance and Protection of Traffic	1	LS	\$80,000.00	\$80,000.00
Pavement Markings (Epoxy - 4")	500	LF	\$2.00	\$1,000.00
Saw Cutting	NP	NP	NP	NP
Protection of Existing Trees & Site Features to Remain	NP	NP	NP	NP
Furnish and Install Rip-Rap	40	SY	\$100.00	\$4,000.00
Relocate Utilities	1	Allow.	\$65,000.00	\$65,000.00
Reinforced Concrete Pipe 42"	420	lf	\$400.00	\$168,000.00
Reinforced Concrete Box Culvert 60"x42"	100	lf	\$800.00	\$80,000.00
Reinforced Concrete (Headwall(s))	55	CY	\$600.00	\$33,000.00
Restoration	NP	NP	NP	NP
Rock Excavation & Disposal	40	CY	\$100.00	\$4,000.00
Sediment Removal	1	LS	\$20,000.00	\$20,000.00
Temporary Pavement	50	SY	\$20.00	\$1,000.00
Unclassified Excavation, Filling & Grading	40	CY	\$30.00	\$1,200.00
			Sub Total	\$517,200.00
Admin., Surveying, Legal Fees, Inspection & Engineering (15%)				\$77,580.00
Contingency (15%)				\$89,217.00
			Total	\$683,997.00