PPM
Initial
11/1/94

DYSART DRAIN IMPROVEMENT PROJECT

FINAL SUBMITTAL
ENGINEERS ESTIMATE AND QUANTITY CALC'S

BRIDGES AND CARRIER PIPES (FCD 94-36)
DETENTION BASIN AND
COLLECTOR CHANNELS (FCD 94-37)

NBS LOWRY

ENGINEERS & PLANNERS

SEE 11/7/94 FOR FINAL QNTY'S

DYSART DRAIN IMPROVEMENT PROJECT

FINAL SUBMITTAL
ENGINEERS ESTIMATE AND QUANTITY CALC'S

BRIDGES AND CARRIER PIPES (FCD 94-36)
DETENTION BASIN AND
COLLECTOR CHANNELS (FCD 94-37)

Prepared For:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
AND
LUKE AIR FORCE BASE

- PRELIMINARY - NOT FOR CONSTRUCTION -

Prepared By:

NBS/LOWRY, ENGINEERS & PLANNERS
2600 North 44th Street
Phoenix, Arizona 85008

NBS/Lowry Project No. P81-194-019
OCTOBER, 1994

BRIDGES AND CARRIER PIPES

HBS - FINAL #2
11/1/94

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP PERMITS	LS	1	$6,000	$6,000.00
202	MOBILIZATION	LS	1	$110,000	$110,000.00
206	STRUCTURAL BACKFILL $18,766	CY	1,706 ~~4,280~~	$11	~~$47,080.00~~
301	SUBGRADE PREPARATION	SY	2,368	$3.30	$7,814.40
310	AGGREGATE BASE COURSE	TON	1,115	$17	$18,955.00
315	BITUMINOUS PRIME COAT	TON	9	$275	$2,475.00
321-1	ASPHALTIC CONCRETE PAVEMENT (D-1/2)	TON	1,357	$38	$51,566.00
321-2	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	525	$38	$19,950.00
329	BITUMINOUS TACK COAT	TON	33	$275	$9,075.00
340-1	CONCRETE CURB AND GUTTER	LF	462	$11	$5,082.00
340-2	CONCRETE DRIVEWAY ENTRANCE	SF	740	$5.50	$4,070.00
345	ADJUST FRAMES, COVERS, AND BOXES	EA	11	$330	$3,630.00
350-1	REMOVE STRUCTURES	LS	1	$110,000	$110,000.00
350-2	REMOVE AC PAVEMENT	LS	1	$11,000	$11,000.00
350-3	MISCELLANEOUS REMOVALS	LS	1	$28,000	$28,000.00
401	TRAFFIC CONTROL	LS	1	$55,000	$55,000.00
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	2	$300	$600.00
420	CHAIN LINK FENCE, 4'	LF	428	$17	$7,276.00
502-1	DRILLED SHAFTS (30 INCH)	LF	2,010	$82	$164,820.00
502-2	DRILLED SHAFTS (24 INCH)	LF	76	$82	$6,232.00
502-3	DYSART ROAD SHOOFLY	LS	1	$77,000	$77,000.00
502-4	MORTON SALT SHOOFLY	LS	1	$11,000	$11,000.00
505-1	CLASS "AA" CONCRETE	CY	418	$300	$125,400.00
505-2	CLASS "AA" CONCRETE (WITH ADMIXTURE)	CY	74	$340	$25,160.00
505-3	CLASS "A" CONCRETE	CY	1,013	$220	$222,860.00
505-4	CLASS "A" CONCRETE (WITH ADMIXTURE)	CY	95	$250	$23,750.00
505-5	REINFORCING STEEL	LB	405,125	$0.44	$178,255.00
505-6	EPOXY COATED REINFORCING STEEL	LB	25,110	$0.77	$19,334.70
505-7	VERTICAL RESTRAINERS	EA	10	$90	$900.00
505-8	HEADWALLS (MAG 501-1)	EA	4	$825	$3,300.00
505-9	CONCRETE CHANNEL LINING	CY	111	$275	$30,525.00
506	PRESTRESSED CONCRETE GIRDERS	EA	23	$5,800	$133,400.00
515	STEEL CARRIER PIPES	LF	238	$440	$104,720.00
520	HANDRAILS	LF	214	$55	$11,770.00
610-1	WATERLINE, 3"	LF	249	$44	$10,956.00
610-2	RECLAIMED WATERLINE, 16"	LF	478	$66	$31,548.00
	TOTAL				~~$1,678,504.10~~
					$1,650,190.10

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP PERMITS	LS	1	$5,000	$5,000
202	MOBILIZATION	LS	1	$100,000	$100,000
206	STRUCTURAL BACKFILL	CY	4280	$10	$42,800
301	SUBGRADE PREPARATION	SY	2368	$3.00	$7,104
310	AGGREGATE BASE COURSE	TON	1115	$15	$16,725
315	BITUMINOUS PRIME COAT	TON	9	$250	$2,250
321-1	ASPHALTIC CONCRETE PAVEMENT (D-1/2)	TON	1357	$35	$47,495
321-2	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	525	$35	$18,375
329	BITUMINOUS TACK COAT	TON	33	$250	$8,250
340-1	CONCRETE CURB AND GUTTER	LF	462	$10	$4,620
340-2	CONCRETE DRIVEWAY ENTRANCE	SF	740	$5.00	$3,700
345	ADJUST FRAMES, COVERS, AND BOXES	EA	11	$300	$3,300
350-1	REMOVE STRUCTURES	LS	1	$100,000	$100,000
350-2	REMOVE AC PAVEMENT	LS	1	$10,000	$10,000
350-3	MISCELLANEOUS REMOVALS	LS	1	$25,000	$25,000
401	TRAFFIC CONTROL	LS	1	$50,000	$50,000
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	2	$250	$500
420	CHAIN LINK FENCE, 4'	LF	428	$15	$6,420
502-1	DRILLED SHAFTS (30 INCH)	LF	2010	$75	$150,750
502-2	DRILLED SHAFTS (24 INCH)	LF	76	$75	$5,700
502-3	DYSART ROAD SHOOFLY	LS	1	$70,000	$70,000
502-4	MORTON SALT SHOOFLY	LS	1	$10,000	$10,000
505-1	CLASS "AA" CONCRETE	CY	418	$270	$112,860
505-2	CLASS "AA" CONCRETE (WITH ADMIXTURE)	CY	74	$310	$22,940
505-3	CLASS "A" CONCRETE	CY	1013	$200	$202,600
505-4	CLASS "A" CONCRETE (WITH ADMIXTURE)	CY	95	$230	$21,850
505-5	REINFORCING STEEL	LB	405125	$0.40	$162,050
505-6	EPOXY COATED REINFORCING STEEL	LB	25110	$0.70	$17,577
505-7	VERTICAL RESTRAINERS	EA	10	$80	$800
505-8	HEADWALLS (MAG 501-1)	EA	4	$750	$3,000
505-9	CONCRETE CHANNEL LINING	CY	111	$250	$27,750
506	PRESTRESSED CONCRETE GIRDERS	EA	23	$5,250	$120,750
515	STEEL CARRIER PIPES	LF	238	$400	$95,200
520	HANDRAILS	LF	214	$50	$10,700
610-1	WATERLINE, 3"	LF	249	$40	$9,960
610-2	RECLAIMED WATERLINE, 16"	LF	478	$60	$28,680

TOTAL	WITHOUT D/B WAGES	$1,524,706
	WITH D/B WAGES	$1,678,504
	COST INCREASE	10.09%

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	P02	P03	P04	P05	P06	P07	U01	D01	D02	DYSART BRIDGE	ELMIRAGE BRIDGE	M. SALT BRIDGE
107	NPDES/SWPPP PERMITS	LS												
202	MOBILIZATION	LS												
206	STRUCTURAL BACKFILL	CY										2165	1390	725
301	SUBGRADE PREPARATION	SY			2063			305						
310	AGGREGATE BASE COURSE	TON			971			144						
315	BITUMINOUS PRIME COAT	TON			8.04			1						
321-1	ASPHALTIC CONCRETE PAVEMENT (D-1/2)	TON	121	385	347	385	119							
321-2	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON			458			67						
329	BITUMINOUS TACK COAT	TON	3	9	8.04	9.1	3	1						
340-1	CONCRETE CURB AND GUTTER	LF			462									
340-2	CONCRETE DRIVEWAY ENTRANCE	SF			740									
345	ADJUST FRAMES, COVERS, AND BOXES	EA	1	2	4	3	1							
350-1	REMOVE STRUCTURES	LS												
350-2	REMOVE AC PAVEMENT	LS			10500SF			4200SF						
350-3	MISCELLANEOUS REMOVALS	LS												
401	TRAFFIC CONTROL	LS												
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA			1			1						
420	CHAIN LINK FENCE, 4'	LF										214	214	
502-1	DRILLED SHAFTS (30 INCH)	LF										900	810	300
502-2	DRILLED SHAFTS (24 INCH)	LF								76				
502-3	DYSART ROAD SHOOFLY	LS												
502-4	MORTON SALT SHOOFLY	LS												
505-1	CLASS "AA" CONCRETE	CY										209	209	
505-2	CLASS "AA" CONCRETE (WITH ADMIXTURE)	CY												74
505-3	CLASS "A" CONCRETE	CY								9		464	376	164
505-4	CLASS "A" CONCRETE (WITH ADMIXTURE)	CY												95
505-5	REINFORCING STEEL	LB								2465		190840	178815	33005
505-6	EPOXY COATED REINFORCING STEEL	LB												25110
505-7	VERTICAL RESTRAINERS	EA										4	4	2
505-8	HEADWALLS (MAG 501-1)	EA								4				
505-9	CONCRETE CHANNEL LINING	CY										39	47	25
506	PRESTRESSED CONCRETE GIRDERS	EA										10	10	3
515	STEEL CARRIER PIPES	LF								238				
520	HANDRAILS	LF												214
610-1	WATERLINE, 3"	LF			249									
610-2	RECLAIMED WATERLINE, 16"	LF							478					

FINAL #1 10/28/94

DYSART DRAIN IMPROVEMENT PROJECT

W/ O/B WAGES

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP PERMITS	LS	1	$6,000	$6,000.00
202	MOBILIZATION	LS	1	$110,000	$110,000.00
206	STRUCTURAL BACKFILL	CY	4,280	$11	$47,080.00
301	SUBGRADE PREPARATION	SY	2,368	$3.30	$7,814.40
310	AGGREGATE BASE COURSE	TON	1,115	$17	$18,955.00
315	BITUMINOUS PRIME COAT	TON	9	$275	$2,475.00
321-1	ASPHALTIC CONCRETE PAVEMENT (D-1/2)	TON	1,357	$38	$51,566.00
321-2	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	525	$38	$19,950.00
329	BITUMINOUS TACK COAT	TON	33	$275	$9,075.00
340-1	CONCRETE CURB AND GUTTER	LF	462	$11	$5,082.00
340-2	CONCRETE DRIVEWAY ENTRANCE	SF	740	$5.50	$4,070.00
345	ADJUST FRAMES, COVERS, AND BOXES	EA	11	$330	$3,630.00
350-1	REMOVE STRUCTURES	LS	1	$110,000	$110,000.00
350-2	REMOVE AC PAVEMENT	LS	1	$11,000	$11,000.00
350-3	MISCELLANEOUS REMOVALS	LS	1	$28,000	$28,000.00
401	TRAFFIC CONTROL	LS	1	$55,000	$55,000.00
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	2	$300	$600.00
420	CHAIN LINK FENCE, 4'	LF	428	$17	$7,276.00
502-1	DRILLED SHAFTS (30 INCH)	LF	2,010	$82	$164,820.00
502-2	DRILLED SHAFTS (24 INCH)	LF	76	$82	$6,232.00
502-3	DYSART ROAD SHOOFLY	LS	1	$77,000	$77,000.00
502-4	MORTON SALT SHOOFLY	LS	1	$11,000	$11,000.00
505-1	CLASS "AA" CONCRETE	CY	418	$300	$125,400.00
505-2	CLASS "AA" CONCRETE (WITH ADMIXTURE)	CY	74	$340	$25,160.00
505-3	CLASS "A" CONCRETE	CY	1,013	$220	$222,860.00
505-4	CLASS "A" CONCRETE (WITH ADMIXTURE)	CY	95	$250	$23,750.00
505-5	REINFORCING STEEL	LB	405,125	$0.44	$178,255.00
505-6	EPOXY COATED REINFORCING STEEL	LB	29,280	$0.77	$22,545.60
505-7	VERTICAL RESTRAINERS	EA	10	$90	$900.00
505-8	HEADWALLS (MAG 501-1)	EA	4	$825	$3,300.00
505-9	CONCRETE CHANNEL LINING	CY	111	$275	$30,525.00
506	PRESTRESSED CONCRETE GIRDERS	EA	23	$5,800	$133,400.00
515	STEEL CARRIER PIPES	LF	238	$440	$104,720.00
520	HANDRAILS	LF	214	$55	$11,770.00
610-1	WATERLINE, 3"	LF	249	$44	$10,956.00
610-2	RECLAIMED WATERLINE, 16"	LF	478	$66	$31,548.00
		TOTAL			$1,681,715.00

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP PERMITS	LS	1	$5,000	$5,000
202	MOBILIZATION	LS	1	$100,000	$100,000
206	STRUCTURAL BACKFILL	CY	4280	$10	$42,800
301	SUBGRADE PREPARATION	SY	2368	$3.00	$7,104
310	AGGREGATE BASE COURSE	TON	1115	$15	$16,725
315	BITUMINOUS PRIME COAT	TON	9	$250	$2,250
321-1	ASPHALTIC CONCRETE PAVEMENT (D-1/2)	TON	1357	$35	$47,495
321-2	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	525	$35	$18,375
329	BITUMINOUS TACK COAT	TON	33	$250	$8,250
340-1	CONCRETE CURB AND GUTTER	LF	462	$10	$4,620
340-2	CONCRETE DRIVEWAY ENTRANCE	SF	740	$5.00	$3,700
345	ADJUST FRAMES, COVERS, AND BOXES	EA	11	$300	$3,300
350-1	REMOVE STRUCTURES	LS	1	$100,000	$100,000
350-2	REMOVE AC PAVEMENT	LS	1	$10,000	$10,000
350-3	MISCELLANEOUS REMOVALS	LS	1	$25,000	$25,000
401	TRAFFIC CONTROL	LS	1	$50,000	$50,000
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	2	$250	$500
420	CHAIN LINK FENCE, 4'	LF	428	$15	$6,420
502-1	DRILLED SHAFTS (30 INCH)	LF	2010	$75	$150,750
502-2	DRILLED SHAFTS (24 INCH)	LF	76	$75	$5,700
502-3	DYSART ROAD SHOOFLY	LS	1	$70,000	$70,000
502-4	MORTON SALT SHOOFLY	LS	1	$10,000	$10,000
505-1	CLASS "AA" CONCRETE	CY	418	$270	$112,860
505-2	CLASS "AA" CONCRETE (WITH ADMIXTURE)	CY	74	$310	$22,940
505-3	CLASS "A" CONCRETE	CY	1013	$200	$202,600
505-4	CLASS "A" CONCRETE (WITH ADMIXTURE)	CY	95	$230	$21,850
505-5	REINFORCING STEEL	LB	405125	$0.40	$162,050
505-6	EPOXY COATED REINFORCING STEEL	LB	29280	$0.70	$20,496
505-7	VERTICAL RESTRAINERS	EA	10	$80	$800
505-8	HEADWALLS (MAG 501-1)	EA	4	$750	$3,000
505-9	CONCRETE CHANNEL LINING	CY	111	$250	$27,750
506	PRESTRESSED CONCRETE GIRDERS	EA	23	$5,250	$120,750
515	STEEL CARRIER PIPES	LF	238	$400	$95,200
520	HANDRAILS	LF	214	$50	$10,700
610-1	WATERLINE, 3"	LF	249	$40	$9,960
610-2	RECLAIMED WATERLINE, 16"	LF	478	$60	$28,680

TOTAL	WITHOUT D/B WAGES	$1,527,625
	WITH D/B WAGES	$1,681,715
	COST INCREASE	10.09%

DYSART DRAN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	P02	P03	P04	P05	P06	P07	L01	D01	D02	DYSART BRIDGE	ELMIRAGE BRIDGE	M. SALT BRIDGE
107	NPDES/SWPPP PERMITS	LS												
202	MOBILIZATION	LS												
206	STRUCTURAL BACKFILL	CY										2165	1390	725
301	SUBGRADE PREPARATION	SY			2063			305						
310	AGGREGATE BASE COURSE	TON			971			144						
315	BITUMINOUS PRIME COAT	TON			8.04			1						
321-1	ASPHALTIC CONCRETE PAVEMENT (D-1/2)	TON	121	385	347	385	119							
321-2	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON			458			67						
329	BITUMINOUS TACK COAT	TON	3	9	8.04	9.1	3	1						
340-1	CONCRETE CURB AND GUTTER	LF			462									
340-2	CONCRETE DRIVEWAY ENTRANCE	SF			740									
345	ADJUST FRAMES, COVERS, AND BOXES	EA	1	2	4	3	1							
350-1	REMOVE STRUCTURES	LS												
350-2	REMOVE AC PAVEMENT	LS			10500SF			4200SF						
350-3	MISCELLANEOUS REMOVALS	LS												
401	TRAFFIC CONTROL	LS												
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA			1			1						
420	CHAIN LINK FENCE, 4'	LF										214	214	
502-1	DRILLED SHAFTS (30 INCH)	LF										900	810	300
502-2	DRILLED SHAFTS (24 INCH)	LF								76				
502-3	DYSART ROAD SHOOFLY	LS												
502-4	MORTON SALT SHOOFLY	LS												
505-1	CLASS "AA" CONCRETE	CY										209	209	
505-2	CLASS "AA" CONCRETE (WITH ADMIXTURE)	CY												74
505-3	CLASS "A" CONCRETE	CY								9		464	376	164
505-4	CLASS "A" CONCRETE (WITH ADMIXTURE)	CY												95
505-5	REINFORCING STEEL	LB								2465		190840	178815	33005
505-6	EPOXY COATED REINFORCING STEEL	LB												29280
505-7	VERTICAL RESTRAINERS	EA										4	4	2
505-8	HEADWALLS (MAG 501-1)	EA								4				
505-9	CONCRETE CHANNEL LINING	CY										39	47	25
506	PRESTRESSED CONCRETE GIRDERS	EA										10	10	3
515	STEEL CARRIER PIPES	LF								238				
520	HANDRAILS	LF												214
610-1	WATERLINE, 3"	LF			249									
610-2	RECLAIMED WATERLINE, 16"	LF							478					

"W/ 10% FOR D/B"

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP PERMITS	LS	1	$6,000	$6,000
202	MOBILIZATION	LS	1	$110,000	$110,000
206	STRUCTURAL BACKFILL	CY	4,280	$11	$47,080
301	SUBGRADE PREPARATION	SY	2,368	$3.50	$8,288
310	AGGREGATE BASE COURSE	TON	1,062	$16	$16,992
315	BITUMINOUS PRIME COAT	TON	9	$250	~~$2,260~~ 2250
321-1	ASPHALTIC CONCRETE PAVEMENT (D-1/2)	TON	1,357	$40	$54,280
321-2	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	525	$40	$21,000
329	BITUMINOUS TACK COAT	TON	33	$250	~~$8,285~~ 8250
340-1	CONCRETE CURB AND GUTTER	LF	462	$11	$5,082
340-2	CONCRETE DRIVEWAY ENTRANCE	SF	740	$6.00	$4,440
345	ADJUST FRAMES, COVERS, AND BOXES	EA	11	$350	$3,850
350-1	REMOVE STRUCTURES	LS	1	$110,000	$110,000
350-2	REMOVE AC PAVEMENT	LS	1	$12,000	$12,000
350-3	MISCELLANEOUS REMOVALS	LS	1	$30,000	$30,000
401	TRAFFIC CONTROL	LS	1	$55,000	$55,000
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	2	$300	$600
420	CHAIN LINK FENCE, 4'	LF	428	$17	$7,276
502-1	DRILLED SHAFTS (30 INCH)	LF	2,010	$82	$164,820
502-2	DRILLED SHAFTS (24 INCH)	LF	76	$82	$6,232
502-3	DYSART ROAD SHOOFLY	LS	1	$80,000	$80,000
502-4	MORTON SALT SHOOFLY	LS	1	$12,000	$12,000
505-1	CLASS "AA" CONCRETE	CY	418	$300	$125,400
505-2	CLASS "AA" CONCRETE (WITH ADMIXTURE)	CY	74	$340	$25,160
505-3	CLASS "A" CONCRETE	CY	1,013	$220	$222,860
505-4	CLASS "A" CONCRETE (WITH ADMIXTURE)	CY	95	$250	$23,750
505-5	REINFORCING STEEL	LB	405,125	$0.45	$182,306.25
505-6	EPOXY COATED REINFORCING STEEL	LB	29,280	$0.80	$23,424
505-7	VERTICAL RESTRAINERS	EA	10	$100	$1,000
505-8	HEADWALLS (MAG 501-1)	EA	4	$850	$3,400
505-9	CONCRETE CHANNEL LINING	CY	111	$220	$24,420
506	PRESTRESSED CONCRETE GIRDERS	EA	23	$5,800	$133,400
515	STEEL CARRIER PIPES	LF	238	$450	$107,100
520	HANDRAILS	LF	214	$55	$11,770
610-1	WATERLINE, 3"	LF	249	$44	$10,956
610-2	RECLAIMED WATERLINE, 16"	LF	478	$66	$31,548
	TOTAL				~~$1,691,979~~

$ 1,691,934.25

DYSART DRAIN IMPROVEMENT PROJECT

$1,689,742

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP PERMITS	LS	1	$5,000	$5,000
202	MOBILIZATION	LS	1	$100,000	$100,000
206	STRUCTURAL BACKFILL	CY	4,280	$10	$42,800
301	SUBGRADE PREPARATION	SY	2,368	$3.00	$7,104
310	AGGREGATE BASE COURSE	TON	1,062	$15	$15,930
315	BITUMINOUS PRIME COAT	TON	9	$250	~~$2,260~~ 2,250
321-1	ASPHALTIC CONCRETE PAVEMENT (D-1/2)	TON	1,357	$40	$54,280
321-2	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	525	$40	$21,000
329	BITUMINOUS TACK COAT	TON	33	$250	~~$8,285~~ 8,250
340-1	CONCRETE CURB AND GUTTER	LF	462	$11	$5,082
340-2	CONCRETE DRIVEWAY ENTRANCE	SF	740	$5.00	$3,700
345	ADJUST FRAMES, COVERS, AND BOXES	EA	11	$350	$3,850
350-1	REMOVE STRUCTURES	LS	1	$110,000	$110,000
350-2	REMOVE AC PAVEMENT	LS	1	$12,000	$12,000
350-3	MISCELLANEOUS REMOVALS	LS	1	$30,000	$30,000
401	TRAFFIC CONTROL	LS	1	$55,000	$55,000
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	2	$300	$600
420	CHAIN LINK FENCE, 4'	LF	428	$17	$7,276
502-1	DRILLED SHAFTS (30 INCH)	LF	2,010	~~$66~~ 75	~~$132,660~~ 150,750
502-2	DRILLED SHAFTS (24 INCH)	LF	76	~~$66~~ 75	~~$5,016~~ 5,700
502-3	DYSART ROAD SHOOFLY	LS	1	$70,000	$70,000
502-4	MORTON SALT SHOOFLY	LS	1	$10,000	$10,000
505-1	CLASS "AA" CONCRETE	CY	418	$270	$112,860
505-2	CLASS "AA" CONCRETE (WITH ADMIXTURE)	CY	74	$310	$22,940
505-3	CLASS "A" CONCRETE	CY	1,013	$200	$202,600
505-4	CLASS "A" CONCRETE (WITH ADMIXTURE)	CY	95	$230	$21,850
505-5	REINFORCING STEEL	LB	405,125	$0.40	$162,050
505-6	EPOXY COATED REINFORCING STEEL	LB	29,280	$0.70	$20,496
505-7	VERTICAL RESTRAINERS	EA	10	$100	$1,000
505-8	HEADWALLS (MAG 501-1)	EA	4	$750	$3,000
505-9	CONCRETE CHANNEL LINING	CY	111	$200	$22,200
506	PRESTRESSED CONCRETE GIRDERS	EA	23	$5,250	$120,750
515	STEEL CARRIER PIPES	LF	238	$400	$95,200
520	HANDRAILS	LF	214	$50	$10,700
610-1	WATERLINE, 3"	LF	249	$40	$9,960
610-2	RECLAIMED WATERLINE, 16"	LF	478	$60	$28,680
	SUBTOTAL				~~$1,536,129~~ 1,554,858
	DAVIS/BACON WAGES (10%)				$153,613
	CONSTRUCTION TOTAL				$1,689,742

+ D/B 10% = $1,700,000 ±

PRE-FINAL

DYSART DRAIN IMPROVEMENT PROJECT

DYSART DRAIN IMPROVEMENT PROJECT
QUANTITY SUMMARY BY SHEET

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP	LS	1	$5,000	$5,000
202	MOBILIZATION	LS	1	~~$80,000~~ 100,000	~~$80,000~~ 100,000
301	SUBGRADE PREPARATION	SY	2,368	~~$2.00~~ 3	~~$4,736~~ 7,104
310	AGGREGATE BASE COURSE	TON	1,062	~~$10~~ 15	~~$10,620~~ 15,930
315	BITUMINOUS PRIME COAT	TON	9	$200	~~$1,808~~ 1,800
321-1	ASPHALTIC CONCRETE PAVEMENT (D-1/2)	TON	1,357	$35	$47,495
321-2	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	525	$35	$18,375
329	BITUMINOUS TACK COAT	TON	33	~~$200~~ 250	~~$6,628~~ 8,250
340-1	CONCRETE CURB AND GUTTER	LF	~~498~~ 462	$10	~~$4,980~~ 4,620
340-2	CONCRETE DRIVEWAY ENTRANCE	SF	~~560~~ 740	~~$3.00~~ 5	~~$1,680~~ 3,700
345	ADJUST FRAMES, COVERS, AND BOXES	EA	11	$300	$3,300
350-1	REMOVE STRUCTURES	LS	1	$100,000	$100,000
350-2	REMOVE AC PAVEMENT	LS	1	$10,000	$10,000
350-3	MISCELLANEOUS REMOVALS	LS	1	$25,000	$25,000
401	TRAFFIC CONTROL	LS	1	$50,000	$50,000
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	2	$250	$500
420	CHAIN LINK FENCE, 4'	LF	~~501~~ 428	$15	~~$7,515~~ 6,420
502-1	DRILLED SHAFTS (30 INCH)	LF	2,010	~~$60~~ 75	~~$120,600~~ 150,750
502-2	DRILLED SHAFTS (24 INCH)	LF	76	~~$60~~ 75	~~$4,560~~ 5,700
502-3	DYSART ROAD SHOOFLY	LS	1	~~$50,000~~ 70,000	~~$50,000~~ 70,000
~~502-4~~	~~EL MIRAGE SHOOFLY~~	~~LS~~	~~1~~	~~$15,000~~	~~$15,000~~
502-54	MORTON SALT SHOOFLY	LS	1	$10,000	$10,000
505-1	CLASS "AA" CONCRETE	CY	418	~~$220~~ 270	~~$91,960~~ 112,860
505-2	CLASS "AA" CONCRETE (WITH ADMIXTURE)	CY	74	~~$260~~ 310	~~$19,240~~ 22,940
505-34	CLASS "A" CONCRETE (WITH ADMIXTURE)	CY	95	~~$180~~ 230	$17,100 21,850
505-43	CLASS "A" CONCRETE	CY	1,013	~~$150~~ 200	~~$151,950~~ 202,600
505-5	REINFORCING STEEL ~~(GRADE 60)~~	LB	405,125	~~$0.35~~ .40	~~$141,794~~ 162,050
505-6	EPOXY COATED REINFORCING STEEL	LB	29280 ~~24,980~~	~~$0.65~~ .70	~~$16,237~~ 20,496
505-7	VERTICAL RESTRAINERS	EA	10	$80	$800
505-8	HEADWALLS (MAG 501-1)	EA	4	~~$500~~ 750	~~$2,000~~ 3,000
505-9	CONCRETE CHANNEL LINING	CY	~~366~~ 107	$200	~~$73,200~~ 21,400
506	PRESTRESSED CONCRETE GIRDERS	EA	23	$5,250	$120,750
515	STEEL CARRIER PIPES	LF	~~216~~ 238	$400	~~$86,400~~ 95,200
520	HANDRAILS	LF	214	$50	$10,700
610-1	WATERLINE, 3" ~~(ASTM D2241)~~	LF	~~238~~ 249	~~$20~~ 40	~~$4,760~~ 9,960
610-2	RECLAIMED WATERLINE, 16" ~~(AWWA C-305)~~	LF	476	~~$30~~ 60	~~$14,340~~ 28,680
	SUBTOTAL				~~$1,324,028~~ 1,477,230
	~~CONTINGENCY~~ (10%) D/B WAGES				~~$132,403~~ 147,723
	CONSTRUCTION TOTAL				⊛ ~~$1,456,431~~ 1,624,953

① 206 - STRUC. BACK.

⊛ PLUS 206 B.I. &

DYSART DRAIN IMPROVEMENT PROJECT
QUANTITY SUMMARY BY SHEET

ITEM NO.	ITEM	UNIT	P02	P03	P04	P05	P06	P07	U01	D01	D02	DYSART BRIDGE
202	MOBILIZATION	LS										
301	SUBGRADE PREPARATION	SY			2063			305				
310	AGGREGATE BASE COURSE	TON			925			137				
315	BITUMINOUS PRIME COAT	TON			8.04			1				
321-1	ASPHALTIC CONCRETE PAVEMENT (D-1/2)	TON	121	385	347	385	119					
321-2	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON			458			67				
329	BITUMINOUS TACK COAT	TON	3	9	8.04	9.1	3	1				
340-1	CONCRETE CURB AND GUTTER	LF			~~498~~ 462							
340-2	CONCRETE DRIVEWAY ENTRANCE	SF			~~560~~ 740							
345	ADJUST FRAMES, COVERS, AND BOXES	EA	1	2	4	3	1					
350-1	REMOVE STRUCTURES	LS										
350-2	REMOVE AC PAVEMENT	LS			10500SF			4200SF				
350-3	MISCELLANEOUS REMOVALS	LS										
401	TRAFFIC CONTROL	LS										
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA			1			1				
420-1	CHAIN LINK FENCE, 4'	LF			73							214
502-1	DRILLED SHAFTS (30 INCH)	LF										900
502-2	DRILLED SHAFTS (24 INCH)	LF								76		
502-3	DYSART ROAD SHOOFLY	LS										
502-4	EL MIRAGE SHOOFLY	LS										
502-5	MORTON SALT SHOOFLY	LS										
505-1	CLASS "AA" CONCRETE	CY										209
505-2	CLASS "AA" CONCRETE (WITH ADMIXTURE)	CY										
505-3	CLASS "A" CONCRETE (WITH ADMIXTURE)	CY										
505-4	CLASS "A" CONCRETE	CY								9		464
505-5	REINFORCING STEEL (GRADE 60)	LB								2465		190840
505-6	EPOXY COATED REINFORCING STEEL	LB										
505-7	VERTICAL RESTRAINERS	EA										4
505-8	HEADWALLS (MAG 501)	EA								4		
505-9	CONCRETE CHANNEL LINING	CY									111	105
506	PRESTRESSED CONCRETE GIRDERS	EA										10
515	STEEL CARRIER PIPES	LF								216		
520	HANDRAILS	LF										
610-1	WATERLINE, 3" (ASTM D2241)	LF			238							
610-2	RECLAIMED WATERLINE, 16" (AWWA C-905)	LF							478			

DYSART DRAIN IMPROVEMENT PROJECT
QUANTITY SUMMARY BY SHEET

ITEM NO.	ITEM	UNIT	ELMIRAGE BRIDGE	M. SALT BRIDGE
202	MOBILIZATION	LS		
301	SUBGRADE PREPARATION	SY		
310	AGGREGATE BASE COURSE	TON		
315	BITUMINOUS PRIME COAT	TON		
321-1	ASPHALTIC CONCRETE PAVEMENT (D-1/2)	TON		
321-2	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON		
329	BITUMINOUS TACK COAT	TON		
340-1	CONCRETE CURB AND GUTTER	LF		
340-2	CONCRETE DRIVEWAY ENTRANCE	SF		
345	ADJUST FRAMES, COVERS, AND BOXES	EA		
350-1	REMOVE STRUCTURES	LS		
350-2	REMOVE AC PAVEMENT	LS		
350-3	MISCELLANEOUS REMOVALS	LS		
401	TRAFFIC CONTROL	LS		
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA		
420-1	CHAIN LINK FENCE, 4'	LF	214	
502-1	DRILLED SHAFTS (30 INCH)	LF	810	300
502-2	DRILLED SHAFTS (24 INCH)	LF		
502-3	DYSART ROAD SHOOFLY	LS		
502-4	EL MIRAGE SHOOFLY	LS		
502-5	MORTON SALT SHOOFLY	LS		
505-1	CLASS "AA" CONCRETE	CY	209	
505-2	CLASS "AA" CONCRETE (WITH ADMIXTURE)	CY		74
505-3	CLASS "A" CONCRETE (WITH ADMIXTURE)	CY		95
505-4	CLASS "A" CONCRETE	CY	376	164
505-5	REINFORCING STEEL (GRADE 60)	LB	178815	33005
505-6	EPOXY COATED REINFORCING STEEL	LB		~~24980~~ 29,280
505-7	VERTICAL RESTRAINERS	EA	4	2
505-8	HEADWALLS (MAG 501)	EA		
505-9	CONCRETE CHANNEL LINING	CY	95	55
506	PRESTRESSED CONCRETE GIRDERS	EA	10	3
515	STEEL CARRIER PIPES	LF		
520	HANDRAILS	LF		214
610-1	WATERLINE, 3" (ASTM D2241)	LF		
610-2	RECLAIMED WATERLINE, 16" (AWWA C-905)	LF		

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP PERMITS	LS	1	$6,000	$6,000.00
202	MOBILIZATION	LS	1	$110,000	$110,000.00
206	STRUCTURAL BACKFILL	CY	4,280	$11	$47,080.00
301	SUBGRADE PREPARATION	SY	2,368	$3.30	$7,814.40
310	AGGREGATE BASE COURSE	TON	1,115	$17	$18,955.00
315	BITUMINOUS PRIME COAT	TON	9	$275	$2,475.00
321-1	ASPHALTIC CONCRETE PAVEMENT (D-1/2)	TON	1,357	$38	$51,566.00
321-2	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	525	$38	$19,950.00
329	BITUMINOUS TACK COAT	TON	33	$275	$9,075.00
340-1	CONCRETE CURB AND GUTTER	LF	462	$11	$5,082.00
340-2	CONCRETE DRIVEWAY ENTRANCE	SF	740	$5.50	$4,070.00
345	ADJUST FRAMES, COVERS, AND BOXES	EA	11	$330	$3,630.00
350-1	REMOVE STRUCTURES	LS	1	$110,000	$110,000.00
350-2	REMOVE AC PAVEMENT	LS	1	$11,000	$11,000.00
350-3	MISCELLANEOUS REMOVALS	LS	1	$28,000	$28,000.00
401	TRAFFIC CONTROL	LS	1	$55,000	$55,000.00
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	2	$300	$600.00
420	CHAIN LINK FENCE, 4'	LF	428	$17	$7,276.00
502-1	DRILLED SHAFTS (30 INCH)	LF	2,010	$82	$164,820.00
502-2	DRILLED SHAFTS (24 INCH)	LF	76	$82	$6,232.00
502-3	DYSART ROAD SHOOFLY	LS	1	$77,000	$77,000.00
502-4	MORTON SALT SHOOFLY	LS	1	$11,000	$11,000.00
505-1	CLASS "AA" CONCRETE	CY	418	$300	$125,400.00
505-2	CLASS "AA" CONCRETE (WITH ADMIXTURE)	CY	74	$340	$25,160.00
505-3	CLASS "A" CONCRETE	CY	1,013	$220	$222,860.00
505-4	CLASS "A" CONCRETE (WITH ADMIXTURE)	CY	95	$250	$23,750.00
505-5	REINFORCING STEEL	LB	405,125	$0.44	$178,255.00
505-6	EPOXY COATED REINFORCING STEEL	LB	29,280	$0.77	$22,545.60
505-7	VERTICAL RESTRAINERS	EA	10	$90	$900.00
505-8	HEADWALLS (MAG 501-1)	EA	4	$825	$3,300.00
505-9	CONCRETE CHANNEL LINING	CY	111	$275	$30,525.00
506	PRESTRESSED CONCRETE GIRDERS	EA	23	$5,800	$133,400.00
515	STEEL CARRIER PIPES	LF	238	$440	$104,720.00
520	HANDRAILS	LF	214	$55	$11,770.00
610-1	WATERLINE, 3"	LF	249	$44	$10,956.00
610-2	RECLAIMED WATERLINE, 16"	LF	478	$66	$31,548.00
	TOTAL				$1,681,715.00

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP PERMITS	LS	1	$5,000	$5,000
202	MOBILIZATION	LS	1	$100,000	$100,000
206	STRUCTURAL BACKFILL	CY	4280	$10	$42,800
301	SUBGRADE PREPARATION	SY	2368	$3.00	$7,104
310	AGGREGATE BASE COURSE	TON	1115	$15	$16,725
315	BITUMINOUS PRIME COAT	TON	9	$250	$2,250
321-1	ASPHALTIC CONCRETE PAVEMENT (D-1/2)	TON	1357	$35	$47,495
321-2	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	525	$35	$18,375
329	BITUMINOUS TACK COAT	TON	33	$250	$8,250
340-1	CONCRETE CURB AND GUTTER	LF	462	$10	$4,620
340-2	CONCRETE DRIVEWAY ENTRANCE	SF	740	$5.00	$3,700
345	ADJUST FRAMES, COVERS, AND BOXES	EA	11	$300	$3,300
350-1	REMOVE STRUCTURES	LS	1	$100,000	$100,000
350-2	REMOVE AC PAVEMENT	LS	1	$10,000	$10,000
350-3	MISCELLANEOUS REMOVALS	LS	1	$25,000	$25,000
401	TRAFFIC CONTROL	LS	1	$50,000	$50,000
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	2	$250	$500
420	CHAIN LINK FENCE, 4'	LF	428	$15	$6,420
502-1	DRILLED SHAFTS (30 INCH)	LF	2010	$75	$150,750
502-2	DRILLED SHAFTS (24 INCH)	LF	76	$75	$5,700
502-3	DYSART ROAD SHOOFLY	LS	1	$70,000	$70,000
502-4	MORTON SALT SHOOFLY	LS	1	$10,000	$10,000
505-1	CLASS "AA" CONCRETE	CY	418	$270	$112,860
505-2	CLASS "AA" CONCRETE (WITH ADMIXTURE)	CY	74	$310	$22,940
505-3	CLASS "A" CONCRETE	CY	1013	$200	$202,600
505-4	CLASS "A" CONCRETE (WITH ADMIXTURE)	CY	95	$230	$21,850
505-5	REINFORCING STEEL	LB	405125	$0.40	$162,050
505-6	EPOXY COATED REINFORCING STEEL	LB	29280	$0.70	$20,496
505-7	VERTICAL RESTRAINERS	EA	10	$80	$800
505-8	HEADWALLS (MAG 501-1)	EA	4	$750	$3,000
505-9	CONCRETE CHANNEL LINING	CY	111	$250	$27,750
506	PRESTRESSED CONCRETE GIRDERS	EA	23	$5,250	$120,750
515	STEEL CARRIER PIPES	LF	238	$400	$95,200
520	HANDRAILS	LF	214	$50	$10,700
610-1	WATERLINE, 3"	LF	249	$40	$9,960
610-2	RECLAIMED WATERLINE, 16"	LF	478	$60	$28,680

TOTAL	WITHOUT D/B WAGES	$1,527,625
	WITH D/B WAGES	$1,681,715
	COST INCREASE	10.09%

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	P02	P03	P04	P05	P06	P07	U01	D01	D02	DYSART BRIDGE	ELMIRAGE BRIDGE	M. SALT BRIDGE
107	NPDES/SWPPP PERMITS	LS												
202	MOBILIZATION	LS												
206	STRUCTURAL BACKFILL	CY										2165	1390	725
301	SUBGRADE PREPARATION	SY			2063			305						
310	AGGREGATE BASE COURSE	TON			971			144						
315	BITUMINOUS PRIME COAT	TON			8.04			1						
321-1	ASPHALTIC CONCRETE PAVEMENT (D-1/2)	TON	121	385	347	385	119							
321-2	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON			458			67						
329	BITUMINOUS TACK COAT	TON	3	9	8.04	9.1	3	1						
340-1	CONCRETE CURB AND GUTTER	LF			462									
340-2	CONCRETE DRIVEWAY ENTRANCE	SF			740									
345	ADJUST FRAMES, COVERS, AND BOXES	EA	1	2	4	3	1							
350-1	REMOVE STRUCTURES	LS												
350-2	REMOVE AC PAVEMENT	LS			10500SF			4200SF						
350-3	MISCELLANEOUS REMOVALS	LS												
401	TRAFFIC CONTROL	LS												
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA			1			1						
420	CHAIN LINK FENCE, 4'	LF										214	214	
502-1	DRILLED SHAFTS (30 INCH)	LF										900	810	300
502-2	DRILLED SHAFTS (24 INCH)	LF								76				
502-3	DYSART ROAD SHOOFLY	LS												
502-4	MORTON SALT SHOOFLY	LS												
505-1	CLASS "AA" CONCRETE	CY										209	209	
505-2	CLASS "AA" CONCRETE (WITH ADMIXTURE)	CY												74
505-3	CLASS "A" CONCRETE	CY								9		464	376	164
505-4	CLASS "A" CONCRETE (WITH ADMIXTURE)	CY												95
505-5	REINFORCING STEEL	LB								2465		190840	178815	33005
505-6	EPOXY COATED REINFORCING STEEL	LB												29280
505-7	VERTICAL RESTRAINERS	EA										4	4	2
505-8	HEADWALLS (MAG 501-1)	EA								4				
505-9	CONCRETE CHANNEL LINING	CY										39	47	25
506	PRESTRESSED CONCRETE GIRDERS	EA										10	10	3
515	STEEL CARRIER PIPES	LF								238				
520	HANDRAILS	LF												214
610-1	WATERLINE, 3"	LF			249									
610-2	RECLAIMED WATERLINE, 16"	LF							478					

NBS LOWRY ENGINEERS & PLANNERS

DATE 1-15-11

JOB NO P81-194.019

BY MLH

CK'D

SHEET 1 OF

DYSART DRAIN

PAVING - DYSART ROAD

* 8.33 lbs/GAL (TACK COAT)

SHEET P02

STA 122+87.5 to STA 126+00 7 1" OVERLAY

AC (D-1/2)

$312.5 \times 65.16 \times .08 = 1629 ft^3 \times 148 lb/ft^3 = \frac{241092}{2000} = 121$ TONS

TACK COAT *

$325 \times 65.16 = \frac{2117}{9} SF = 235 SY \times .30 gal/SY = \frac{705.90}{240} = 2.94$ TONS

SHEET P03

STA 126+00 to STA 136+00 7 1" OVERLAY

AC (D-1/2)

$1000 \times 65.16 \times .08 = 5212.8 ft^3 \times 148 lb/ft^3 = \frac{771494.4}{2000} = 385.$ TONS

TACK COAT

$1000 \times 65.16 = \frac{65160}{9} SF = 7240 SY \times .30 gal/SY = \frac{2172}{240} = 9.1$ TONS

NBS LOWRY ENGINEERS & PLANNERS

DYSART DRAIN

DATE 1-15-94
JOB NO P81-194.019
BY MLH
CK'D ~~BJS~~
SHEET 2 OF

PAVING - DYSART ROAD

SHEET P04

STA 136+00 to STA 139+00 7 1" OVERLAY

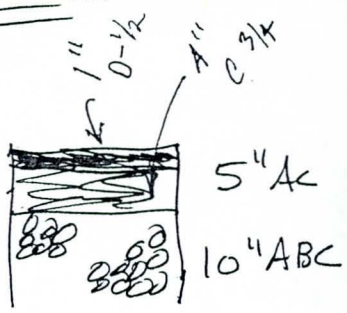
AC (D-1/2)

$300 \times 65.16 \times .08 = 1563.84 ft^3 \times 148 = \frac{231,448.32}{2000} = 116$ TONS

TACK

$300 \times 65.16 = \frac{19548}{9} = 2172 \times .30 = \frac{651.6}{240} = 2.72$ TONS

STA 139+00 to STA 143 NEW PAVEMENT
-115' for Bridge & Approach Slabs



AC

$(400' - 115' BR)(65.16) \times \frac{5}{12} = 7738 \times 148 = \frac{1145187}{2000} = 573$ TONS

$(D - 1/2) = \frac{573}{5} = 115$

$(C-3/4) = 573 \times \frac{4}{5} = 458$ TONS

TACK

$(400 - 115' BR)(65.16) = \frac{18571}{9} = 2063.54 \times .30 = \frac{619}{240} = 2.6$ TONS

PRIME COAT

SAME AS TACK COAT 2.6 TONS

NBS LOWRY ENGINEERS & PLANNERS

DYSART DRAIN

DATE 1-15-94
JOB NO P81-194.019
BY MLH
CK'D
SHEET 3 OF

PAVING — DYSART ROAD

SHEET P04

ABC

(400' - 115' BR)(65.16)(.83) = 15414 ft³ x 126 lb/ft³ = 1942164 / 2000 = 971 TONS

SUB-PREP

(400 - 115 BR)(65.16) = 18571 / 9 = 2063 SY

CURB & GUTTER

(400 x 2) = 800 − (16 + 16 + 16 + 60 + 230) = 462 LF

NEW SURVEY MARKER — 1 EA

DRIVEWAYS − [(26 x 3) + (70)] (5') = 740 SF

REMOVE EXISTING PAVING — 350 x 30 = 10,500 SF

STA 143+00 to STA 146+00 > 1" OVERLAY

AC (D-1/2)

300 x 65.16 x .08 = 1563.8 x 148 = 231448.32 / 2000 = 116 TONS

TACK

300 x 65.16 = 19548 / 9 = 2172 x .30 = 651.6 / 240 = 2.72 TONS

NBS/L 1-01 Rev. 10/93

NBS LOWRY ENGINEERS & PLANNERS

DYSART DRAIN

DATE 7-15-97
JOB NO P81-194.019
BY MCH
CK'D BJT
SHEET 4 OF

PAVING - DYSART DRAIN
SHEET P05
STA 146+00 to STA 156+00 > 1" OVERLAY

AC (D-1/2)

1000 x 65.16 x .08 = 5212.8 ft³ x 148 = 771494.4 / 2000 = 385 TONS

TACK

1000 x 65.16 = 65160 / 9 = 7240 x .30 = 2172 / 240 = 9.1 TONS

SHEET P06

STA 156+00 to STA 159+07.5 1" OVERLAY

AC (D-1/2)

307.5 x 65.16 x .08 = 1602.9 x 148 = 237234.52 / 2000 = 119 TONS

TACK

320 x 65.16 = 20851 / 9 = 2316 x .30 = 695 / 240 = 2.9 TONS

NBS LOWRY ENGINEERS & PLANNERS

DATE JUL-1 15

JOB NO P81-194.019

BY MLH

CK'D

SHEET 5 OF

DYSART RD.

SHEET P02

ADJUST MANHOLE 1 ✓

SHEET P03

ADJUST MANHOLE 2 ✓

SHEET P04

ADJUST MANHOLE 4 ✓

SHEET P05

ADJUST MANHOLE 3 ✓

SHEET P06

ADJUST MANHOLE 1 ✓

P04 Relocate 2 gates
Install 249 LF 3" W/L

NBS LOWRY ENGINEERS & PLANNERS

DATE 11/16/94

JOB NO P81-194.019

BY MLH

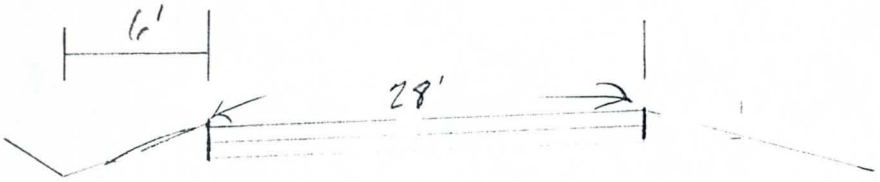
CK'D

SHEET 1 OF

DYSART DRAIN

QUANTY CALCULATIONS - ELMIRAGE RD.

SHEET P07



(CC-314)
4" AC
10" ABC

(CC-314)
AC - (200 LF - 102' BR) x (28) x .33 = 906 x 148 lbs/ft³ = 134,017 lbs / 2000 lbs/Ton = 67 tons

TACK - (200 LF - 102' BR) x (28) = 2744 / 9 SF = 305 SY x .30 gal/SY

91.5 gal / 240 gal/Ton = 0.38 Ton SAY 0.5 TONS

PRIME COAT - SAME AS TACK - 0.5 TONS

ABC - 98 LF x 28' x .83 = 2278 ft³ x 126 PCF = 286967 lbs

286967 lbs / 2000 lbs/Ton = 144 TONS

SUB-PREP - 28 x 98 LF = 2744 / 9 = 305 SY

SURVEY MONUMENT - 1 EA.

REMOVE AC PAVEMENT - 150 x 28 = 4200 SF

UNITS: $kip \equiv 1000 \cdot lbf$ $TOL = 0.01$

$plf \equiv \frac{lbf}{ft}$ $psf \equiv \frac{lbf}{ft^2}$ $pcf \equiv \frac{lbf}{ft^3}$ $psi \equiv \frac{lbf}{in^2}$ $pci \equiv \frac{lbf}{in^3}$ $pft \equiv lbf \cdot ft$

$klf \equiv \frac{kip}{ft}$ $ksf \equiv \frac{kip}{ft^2}$ $kcf \equiv \frac{kip}{ft^3}$ $ksi \equiv \frac{kip}{in^2}$ $kci \equiv \frac{kip}{in^3}$ $kft \equiv kip \cdot ft$

$CY \equiv 27 \cdot ft^3$

QUANTITIES OF DRILLED SHAFTS FOR CARRIER PIPE AT STA. 59+64

CONCRETE, Class A

Diameter of drilled shaft: $\phi_d := 24 \cdot in$

Length of drill shaft at B: $L_B := 18.93 \cdot ft$

Length of drill shaft at C $L_C := 18.80 \cdot ft$

Cross sectional area of drill shaft: $A_d := \frac{\pi \cdot \phi_d^2}{4}$ $A_d = 3.142 \cdot ft^2$

Quantity of drilled shafts: $Q := A_d \cdot (L_B + L_C)$ $Q = 4.39 \cdot CY$

STEEL

Main bars

Length of each main bar: $L_{mb} := \frac{L_B + L_C}{2}$ $L_{mb} = 18.865 \cdot ft$

Size of the bar: $BS_{ds} := 10$

Number of bars in each shaft: $N_{bd} := 6$

Total number of shafts: $N_{ds} := 2$

Weight of #10 bars pre L.F.: $W_{10} := 4.303 \cdot plf$

Quantity of main steel: $Q_{ds} := N_{ds} \cdot N_{bd} \cdot W_{10} \cdot L_{mb}$ $Q_{ds} = 974 \cdot lbf$

Stirrups

Spacing of stirrups: $S_{ds} := 6 \cdot in$

Number of stirrups in each shaft: $N_{sd} := \frac{L_B}{S_{ds}} + 6$ $N_{sd} = 43.86$

Length of each stirrup: $L_{sd} := \sqrt{\left[\pi \cdot \left(\phi_d - 2 \cdot 4 \cdot in\right)\right]^2 + (6 \cdot in)^2}$ $L_{sd} = 4.219 \cdot ft$

Weight of #4 bars pre L.F.: $W_4 := 0.668 \cdot plf$

Total quantity of stirrups in all drill shafts: $Q_{sd} := N_{sd} \cdot N_{ds} \cdot L_{sd} \cdot W_4$ $Q_{sd} = 247 \cdot lbf$

Total steel in drilled shafts: $Q_d := Q_{ds} + Q_{sd}$ $Q_d = 1221 \cdot lbf$

Summary of Quantities at Sta. 59+64

Total quantity of concrete, Class A: $Q = 4.39 \cdot CY$

Total quantity of steel: $Q_d = 1221 \cdot lbf$

Total length of drilled shafts : $L_d := L_B + L_C$ $L_d = 37.73 \cdot ft$

UNITS: $kip \equiv 1000 \cdot lbf$ $TOL \equiv 0.01$

$plf \equiv \frac{lbf}{ft}$ $psf \equiv \frac{lbf}{ft^2}$ $pcf \equiv \frac{lbf}{ft^3}$ $psi \equiv \frac{lbf}{in^2}$ $pci \equiv \frac{lbf}{in^3}$ $pft \equiv lbf \cdot ft$

$klf \equiv \frac{kip}{ft}$ $ksf \equiv \frac{kip}{ft^2}$ $kcf \equiv \frac{kip}{ft^3}$ $ksi \equiv \frac{kip}{in^2}$ $kci \equiv \frac{kip}{in^3}$ $kft \equiv kip \cdot ft$

$CY \equiv 27 \cdot ft^3$

QUANTITIES OF DRILLED SHAFTS FOR CARRIER PIPE AT STA. 65+80

CONCRETE, Class A

Diameter of drilled shaft: $\phi_d := 24 \cdot in$

Length of drill shaft at B: $L_B := 19.53 \cdot ft$

Length of drill shaft at C $L_C := 18.85 \cdot ft$

Cross sectional area of drill shaft: $A_d := \frac{\pi \cdot \phi_d^2}{4}$ $A_d = 3.142 \cdot ft^2$

Quantity of drilled shafts: $Q := A_d \cdot (L_B + L_C)$ $Q = 4.47 \cdot CY$

STEEL

Main bars

Length of each main bar: $L_{mb} := \frac{L_B + L_C}{2}$ $L_{mb} = 19.19 \cdot ft$

Size of the bar: $BS_{ds} := 10$

Number of bars in each shaft: $N_{bd} := 6$

Total number of shafts: $N_{ds} := 2$

Weight of #10 bars pre L.F.: $W_{10} := 4.303 \cdot plf$

Quantity of main steel: $Q_{ds} := N_{ds} \cdot N_{bd} \cdot W_{10} \cdot L_{mb}$ $Q_{ds} = 991 \cdot lbf$

Stirrups

Spacing of stirrups: $S_{ds} := 6 \cdot in$

Number of stirrups in each shaft: $N_{sd} := \frac{L_B}{S_{ds}} + 6$ $N_{sd} = 45.06$

Length of each stirrup: $L_{sd} := \sqrt{\left[\pi \cdot \left(\phi_d - 2 \cdot 4 \cdot in\right)\right]^2 + (6 \cdot in)^2}$ $L_{sd} = 4.219 \cdot ft$

Weight of #4 bars pre L.F.: $W_4 := 0.668 \cdot plf$

Total quantity of stirrups in all drill shafts: $Q_{sd} := N_{sd} \cdot N_{ds} \cdot L_{sd} \cdot W_4$ $Q_{sd} = 254 \cdot lbf$

Total steel in drilled shafts: $Q_d := Q_{ds} + Q_{sd}$ $Q_d = 1245 \cdot lbf$

Summary of Quantities at Sta. 65+80

Total quantity of concrete, Class A: $Q = 4.47 \cdot CY$

Total quantity of steel: $Q_d = 1245 \cdot lbf$

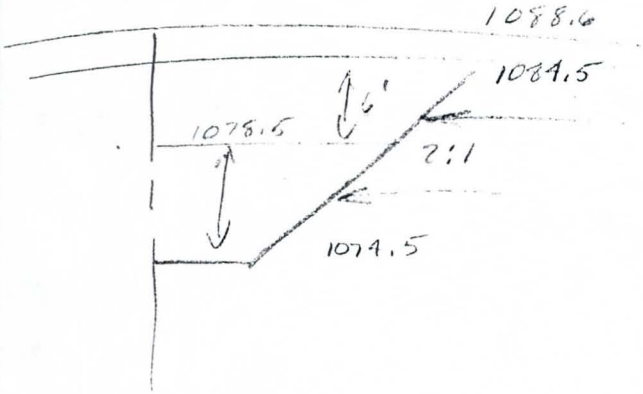
Total length of drilled shafts : $L_d := L_B + L_C$ $L_d = 38.38 \cdot ft$

NBS LOWRY ENGINEERS & PLANNERS

DATE 10/17/94
JOB NO P81-194.019
BY [illegible]
CK'D [illegible]
SHEET 1 OF

Dysart Rd. Bridge

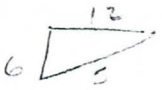
Channel Repair per detail 2 sht. D02/2



← PER AS BUILTS

remove & repair $L = 93' \pm$

NO Removal



$S = \sqrt{6^2 + 12^2} = 13.4'$

remove $(2)\left(\frac{6}{12}\right)(13.4')(93') / 27 = \underline{46 \text{ CY CONC. removal}}$

replacement depth assume 5'

$(2)\left(\frac{6}{12}\right)(11.2)(93) / 27 = \underline{39 \text{ CY repair}}$ $S = \sqrt{5^2 + 10^2} = 11.2'$

STEEL –

Typical 1 SF SECTION – 2 LF #4 Rebar

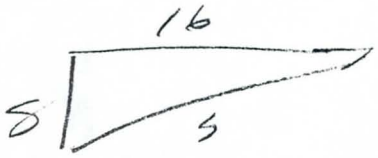
AREA = (11.2)(93)(2) = 2084 (2084)(2) = 4168 LF Rebar

4168 X 0.668 #/LF = <u>2784 lbs steel</u>

Channel

Morton Salt Lining Repair

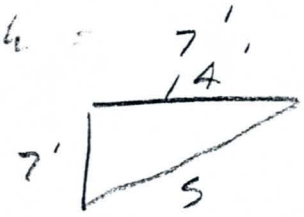
assume 2' deeper than dysart Bridge



$S = \sqrt{8^2 + 16^2} = 17.9'$ $\quad L = 43'$

$$\frac{(2)\left(\frac{6}{12}\right)(17.9')(43')}{27} = \underline{29\ CY} \text{ removal}$$

assume replacement depth = 7'



$$\frac{2\left(\frac{6}{12}\right)(15.7)(43')}{27} =$$

$S = \sqrt{7^2 + 14^2} = 15.7'$

<u>25 CY replacement</u>

Typical 1 SF section contains 2 LF steel (#4)

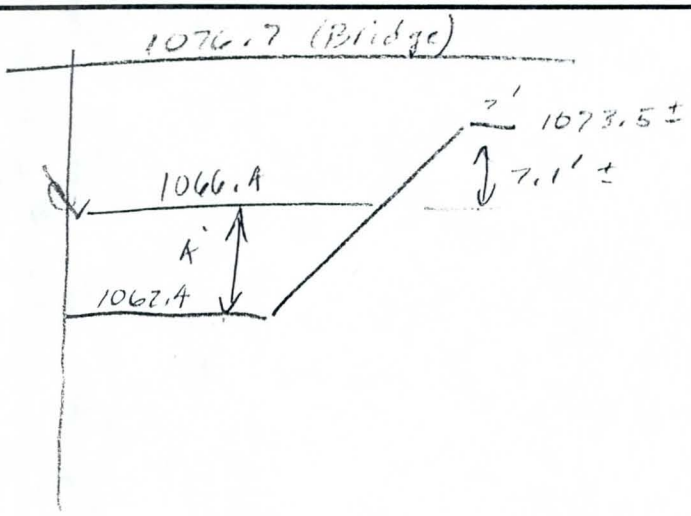
AREA = (15.7')(43)(2) = 1350 SF

(1350)(2 LF) = 2700 LF steel x .668 = <u>1804 lbs</u> steel

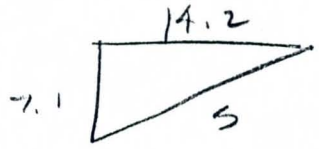
NBS LOWRY ENGINEERS & PLANNERS

DATE 10/18/94
JOB NO PSI-194-019
BY [illegible]
CK'D [illegible]
SHEET 3 OF

CHANNEL lining
EL MIRAGE Rd. Bridge Repair



Per AS BUILTS



$S = \sqrt{7.1^2 + 14.2^2} = 15.9'$

$L = 95' \pm$

$$\frac{(2)(\frac{6}{12})(15.9' + 2')(95' \pm)}{27} = \underline{63\ CY\ removal}$$

ASSUME repair depth ≈ 6' S = 13.4'

$$\frac{(2)(\frac{6}{12})(13.4')(95')}{27} = \underline{47\ CY\ repair}$$

typical 1 SF section contains 2 LF Steel (#4)

AREA = 2(13.4')(95') = 2546 SF

2546 (2LF) = 5092 LF × .668 = <u>3401 lbs steel</u>

DETENTION BASIN AND COLLECTOR CHANNELS

NBS - FINAL #2
11/1/94

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP PERMITS	LS	1	$22,000	$22,000.00
202	MOBILIZATION	LS	1	$190,000	$190,000.00
206	STRUCTURAL BACKFILL	CY	375 ~~359~~ ~~396~~	$11	~~$3,949.00~~ 4,356
215-1	CHANNEL EXCAVATION	CY	68659 ~~68,802~~	$4.40	~~$302,728.80~~ ⊗,
215-2	DETENTION BASIN EXCAVATION	CY	1,103,600	$1.10	$1,213,960.00
220-1	GROUTED RIPRAP TYPE I	CY	645	80 ~~$60~~	~~$38,700.00~~ 51,600
220-2	GROUTED RIPRAP TYPE II	CY	1,262 ~~1,288~~	90 ~~$70~~	~~$90,160.00~~ 113,580
220-3	PLAIN RIPRAP	CY	165 ~~147~~	50 ~~$44~~	~~$6,468.00~~ 8,250
301	SUBGRADE PREPARATION	SY	11,712	$3.30	$38,649.60
310-1	AGGREGATE BASE COURSE	TON	3,929	$17	$66,793.00
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON	6,979	$17	$118,643.00
311	SOIL CEMENT	SY	17,476	15 ~~$13~~	~~$227,188.00~~ 262,140
315	BITUMINOUS PRIME COAT	TON	10	$300	~~$3,090.00~~ 3,000
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	1,699	$38	$64,562.00
329	BITUMINOUS TACK COAT	TON	5	$300	~~$1,560.00~~ 1,500
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF	350	$11	$3,850.00
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF	79	$17	$1,343.00
350-1	REMOVE STRUCTURES	LS	1	$55,000	$55,000.00
350-2	REMOVE AC PAVEMENT	LS	1	$11,000	$11,000.00
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS	1	$5,500	$5,500.00
350-4	MISCELLANEOUS REMOVALS	LS	1	$55,000	$55,000.00
401	TRAFFIC CONTROL	LS	1	$55,000	$55,000.00
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	1	$300	$300.00
421-1	WIRE FENCE	LF	15,683 ~~15,679~~	$3.30	$51,740.70
421-2	WIRE FENCE GATES	EA	14	$550	$7,700.00
505-1	CLASS "A" CONCRETE	CY	518 ~~522~~ ~~472~~	$245	~~$115,640.00~~ 127,890
505-2	REINFORCING STEEL 62,083	LB	~~62,283~~ ~~61,093~~	$0.44	~~$26,880.92~~ 27,404.52
505-3	CONCRETE CHANNEL LINING	CY	4,650 ~~4,646~~ ~~4,410~~	$220	~~$970,200.00~~ 1,022,120
505-4	CONCRETE CATCH BASIN MAG 501	EA	2	$2,750	$5,500.00
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA	1	$2,200	$2,200.00
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA	3	$11,500	$34,500.00
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA	3	$9,500	$28,500.00
525	SHOTCRETE	SY	9,916	$17	$168,572.00
609	WELL CLOSURE	LS	1	$1,000	$1,000.00
610-1	WATERLINE (12 INCH ASTM D2241)	LF	203 ~~188~~	$44	~~$8,272.00~~ 8,932
610-2	WATERLINE (12 INCH AWWA C900)	LF	79 ~~98~~	$66	~~$6,468.00~~ 5,214
610-3	WATERLINE (16 INCH)	LF	1,493	$77	$114,961.00
618	REINFORCED CONCRETE PIPE (30")	LF	120	$120	$14,400.00
621-1	CORRUGATED METAL PIPE (21 INCH)	LF	299	$110	$32,890.00
621-2	CORRUGATED METAL PIPE (24 INCH)	LF	172	$88	$15,136.00
621-3	CORRUGATED METAL PIPE (30 INCH)	LF	188	$94	$17,672.00
635-1	CONCRETE-LINED IRRIGATION DITCH	LF	1,303	$44	$57,332.00
635-2	CONCRETE-LINED IRRIGATION DITCH WITH LINER	LF	58	$115	$6,670.00
		TOTAL			~~$4,261,679.02~~ $4,398,460.42

⊗, $302,099.60

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT		UNIT	
107	NPDES/SWPPP PERMITS	LS	1	$20,000	$20,000
202	MOBILIZATION	LS	1	$175,000	$175,000
206	STRUCTURAL BACKFILL	CY	359	$10	$3,590
215-1	CHANNEL EXCAVATION	CY	68802	$4.00	$275,208
215-2	DETENTION BASIN EXCAVATION	CY	1103600	$1.00	$1,103,600
220-1	GROUTED RIPRAP TYPE I	CY	645	$55	$35,475
220-2	GROUTED RIPRAP TYPE II	CY	1288	$65	$83,720
220-3	PLAIN RIPRAP	CY	147	$40	$5,880
301	SUBGRADE PREPARATION	SY	11712	$3.00	$35,136
310-1	AGGREGATE BASE COURSE	TON	3929	$15	$58,935
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON	6979	$15	$104,685
311	SOIL CEMENT	SY	17476	$12	$209,712
315	BITUMINOUS PRIME COAT	TON	10.3	$250	$2,575
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	1699	$35	$59,465
329	BITUMINOUS TACK COAT	TON	5.2	$250	$1,300
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF	350	$10	$3,500
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF	79	$15	$1,185
350-1	REMOVE STRUCTURES	LS	1	$50,000	$50,000
350-2	REMOVE AC PAVEMENT	LS	1	$10,000	$10,000
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS	1	$5,000	$5,000
350-4	MISCELLANEOUS REMOVALS	LS	1	$50,000	$50,000
401	TRAFFIC CONTROL	LS	1	$50,000	$50,000
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	1	$250	$250
421-1	WIRE FENCE	LF	15679	$3.00	$47,037
421-2	WIRE FENCE GATES	EA	14	$500	$7,000
505-1	CLASS "A" CONCRETE	CY	472	$225	$106,200
505-2	REINFORCING STEEL	LB	61093	$0.40	$24,437
505-3	CONCRETE CHANNEL LINING	CY	4410	$200	$882,000
505-4	CONCRETE CATCH BASIN MAG 501	EA	2	$2,500	$5,000
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA	1	$2,000	$2,000
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA	3	$10,500	$31,500
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA	3	$8,500	$25,500
525	SHOTCRETE	SY	9916	$15	$148,740
609	WELL CLOSURE	LS	1	$1,000	$1,000
610-1	WATERLINE (12 INCH ASTM D2241)	LF	188	$40	$7,520
610-2	WATERLINE (12 INCH AWWA C900)	LF	98	$60	$5,880
610-3	WATERLINE (16 INCH)	LF	1493	$70	$104,510
618	REINFORCED CONCRETE PIPE (30")	LF	120	$110	$13,200
621-1	CORRUGATED METAL PIPE (21 INCH)	LF	299	$100	$29,900
621-2	CORRUGATED METAL PIPE (24 INCH)	LF	172	$80	$13,760
621-3	CORRUGATED METAL PIPE (30 INCH)	LF	188	$85	$15,980
635-1	CONCRETE-LINED IRRIGATION DITCH	LF	1303	$40	$52,120
635-2	CONCRETE-LINED IRRIGATION DITCH WITH LINER	LF	58	$105	$6,090

TOTAL

WITHOUT D/B WAGES	$3,873,590
WITH D/B WAGES	$4,261,679
PERCENT INCREASE	10.02%

ITEM NO.	ITEM	UNIT	C01	C02	C03	C04	C05	C06	C07	C08	C09	P02
107	NPDES/SWPPP PERMITS	LS										
202	MOBILIZATION	LS										
206	STRUCTURAL BACKFILL	CY	140	~~83~~ 120						136		
215-1	CHANNEL EXCAVATION	CY	7023	8186	4220	2390	10020	6870	3360	18820	7770	
215-2	DETENTION BASIN EXCAVATION	CY										
220-1	GROUTED RIPRAP TYPE I	CY							645			
220-2	GROUTED RIPRAP TYPE II	CY	375					615	148	23	~~26~~	
220-3	PLAIN RIPRAP	CY									~~147~~ 105	
301	SUBGRADE PREPARATION	SY		940	2042							2861
310-1	AGGREGATE BASE COURSE	TON										1585
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON	424	579	554							
311	SOIL CEMENT	SY										7072
315	BITUMINOUS PRIME COAT	TON										4
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON										550
329	BITUMINOUS TACK COAT	TON										1
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF										
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF										
350-1	REMOVE STRUCTURES	LS										
350-2	REMOVE AC PAVEMENT	LS										2822SY
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS										
350-4	MISCELLANEOUS REMOVALS	LS										
401	TRAFFIC CONTROL	LS										
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA										
421-1	WIRE FENCE	LF	1432 ~~1285~~	2042 ~~2124~~	~~1752~~ 1744							
421-2	WIRE FENCE GATES	EA	2	4	3							
505-1	CLASS "A" CONCRETE	CY	168 ~~164~~	131 ~~127~~	38					107 ~~65~~		
505-2	REINFORCING STEEL	LB	22472 ~~22272~~	~~16376~~ 16576	~~2329~~ 2619					14116		
505-3	CONCRETE CHANNEL LINING	CY	710 ~~702~~	949 ~~723~~	725 ~~723~~	284	857	534		417	170	
505-4	CONCRETE CATCH BASIN MAG 501	EA						1			1	
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA									1	
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA	1	1						1		
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA	1	1						1		
525	SHOTCRETE	SY										
609	WELL CLOSURE	LS										
610-1	WATERLINE (12 INCH ASTM D2241)	LF			~~188~~ 203							
610-2	WATERLINE (12 INCH AWWA C900)	LF										
610-3	WATERLINE (16 INCH)	LF										
618	REINFORCED CONCRETE PIPE (30")	LF										
621-1	CORRUGATED METAL PIPE (21 INCH)	LF										
621-2	CORRUGATED METAL PIPE (24 INCH)	LF						125				
621-3	CORRUGATED METAL PIPE (30 INCH)	LF									188	
635-1	CONCRETE-LINED IRRIGATION DITCH	LF										
635-2	CONCRETE-LINED IRRIGATION DITCH WITH LINER	LF										

ITEM NO.	ITEM	UNIT	P03	P04	P05	B01	B02	B03	B04	B05	B06
107	NPDES/SWPPP PERMITS	LS									
202	MOBILIZATION	LS									
206	STRUCTURAL BACKFILL	CY									
215-1	CHANNEL EXCAVATION	CY									
215-2	DETENTION BASIN EXCAVATION	CY									
220-1	GROUTED RIPRAP TYPE I	CY									
220-2	GROUTED RIPRAP TYPE II	CY						101			
220-3	PLAIN RIPRAP	CY									
301	SUBGRADE PREPARATION	SY	2333	2644	892						
310-1	AGGREGATE BASE COURSE	TON	1098	1246							
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON				587	812	541	826	370	328
311	SOIL CEMENT	SY	6146	4258							
315	BITUMINOUS PRIME COAT	TON	3	3.3							
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	602	547							
329	BITUMINOUS TACK COAT	TON	3	1.2							
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF		350							
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF		79							
350-1	REMOVE STRUCTURES	LS									
350-2	REMOVE AC PAVEMENT	LS	2333SY	2644SY							
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS									
350-4	MISCELLANEOUS REMOVALS	LS									
401	TRAFFIC CONTROL	LS									
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA		1							
421-1	WIRE FENCE	LF				1380	1100	1272	750		700
421-2	WIRE FENCE GATES	EA				1		2			
505-1	CLASS "A" CONCRETE	CY									
505-2	REINFORCING STEEL	LB									
505-3	CONCRETE CHANNEL LINING	CY									
505-4	CONCRETE CATCH BASIN MAG 501	EA									
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA									
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA									
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA									
525	SHOTCRETE	SY						1813			1550
609	WELL CLOSURE	LS				1					
610-1	WATERLINE (12 INCH ASTM D2241)	LF									
610-2	WATERLINE (12 INCH AWWA C900)	LF									
610-3	WATERLINE (16 INCH)	LF						493			700
618	REINFORCED CONCRETE PIPE (30")	LF									
621-1	CORRUGATED METAL PIPE (21 INCH)	LF									
621-2	CORRUGATED METAL PIPE (24 INCH)	LF									
621-3	CORRUGATED METAL PIPE (30 INCH)	LF									
635-1	CONCRETE-LINED IRRIGATION DITCH	LF						493			700
635-2	CONCRETE-LINED IRRIGATION DITCH WITH LINER	LF									

ITEM NO.	ITEM	UNIT	B07	B08	B09	B10	B11	B12	U02	FCDMC
107	NPDES/SWPPP PERMITS	LS								
202	MOBILIZATION	LS								
206	STRUCTURAL BACKFILL	CY								
215-1	CHANNEL EXCAVATION	CY								~~143~~
215-2	DETENTION BASIN EXCAVATION	CY								
220-1	GROUTED RIPRAP TYPE I	CY								
220-2	GROUTED RIPRAP TYPE II	CY								
220-3	PLAIN RIPRAP	CY								
301	SUBGRADE PREPARATION	SY								
310-1	AGGREGATE BASE COURSE	TON								
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON		478	827	141		400		112
311	SOIL CEMENT	SY								
315	BITUMINOUS PRIME COAT	TON								
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON								
329	BITUMINOUS TACK COAT	TON								
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF								
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF								
350-1	REMOVE STRUCTURES	LS								
350-2	REMOVE AC PAVEMENT	LS								
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS								
350-4	MISCELLANEOUS REMOVALS	LS								
401	TRAFFIC CONTROL	LS								
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA								
421-1	WIRE FENCE	LF	750		800	1316	1100	~~1350~~ 1295		
421-2	WIRE FENCE GATES	EA				1		1		
505-1	CLASS "A" CONCRETE	CY								78 *
505-2	REINFORCING STEEL	LB								~~6000~~ * 6500
505-3	CONCRETE CHANNEL LINING	CY								
505-4	CONCRETE CATCH BASIN MAG 501	EA								
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA								
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA								
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA								
525	SHOTCRETE	SY		2600	1780	1900	273			
609	WELL CLOSURE	LS								
610-1	WATERLINE (12 INCH ASTM D2241)	LF								
610-2	WATERLINE (12 INCH AWWA C900)	LF							79 ~~98~~	
610-3	WATERLINE (16 INCH)	LF			300					
618	REINFORCED CONCRETE PIPE (30")	LF								120
621-1	CORRUGATED METAL PIPE (21 INCH)	LF								299
621-2	CORRUGATED METAL PIPE (24 INCH)	LF								47
621-3	CORRUGATED METAL PIPE (30 INCH)	LF								
635-1	CONCRETE-LINED IRRIGATION DITCH	LF			110					
635-2	CONCRETE-LINED IRRIGATION DITCH WITH LINER	LF								58

FINAL #1 - 10/28/94

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP PERMITS	LS	1	$22,000	$22,000.00
202	MOBILIZATION	LS	1	$190,000	$190,000.00
206	STRUCTURAL BACKFILL	CY	359	$11	$3,949.00
215-1	CHANNEL EXCAVATION	CY	68,802	$4.40	$302,728.80
215-2	DETENTION BASIN EXCAVATION	CY	1,103,600	$1.10	$1,213,960.00
220-1	GROUTED RIPRAP TYPE I	CY	645	80 ~~$60~~	~~$38,700.00~~
220-2	GROUTED RIPRAP TYPE II	CY	1,288	90 ~~$70~~	~~$90,160.00~~
220-3	PLAIN RIPRAP	CY	147	50 ~~$44~~	$6,468.00
301	SUBGRADE PREPARATION	SY	18,102	$3.30	$59,736.60
310-1	AGGREGATE BASE COURSE	TON	3,929	$17	$66,793.00
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON	6,979	$17	$118,643.00
311	SOIL CEMENT	SY	17,476	15 ~~$13~~	~~$227,188.00~~
315	BITUMINOUS PRIME COAT	TON	10	$300	$3,090.00
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	1,699	$38	$64,562.00
329	BITUMINOUS TACK COAT	TON	5	$300	$1,560.00
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF	350	$11	$3,850.00
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF	79	$17	$1,343.00
350-1	REMOVE STRUCTURES	LS	1	$55,000	$55,000.00
350-2	REMOVE AC PAVEMENT	LS	1	$11,000	$11,000.00
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS	1	$5,500	$5,500.00
350-4	MISCELLANEOUS REMOVALS	LS	1	$55,000	$55,000.00
401	TRAFFIC CONTROL	LS	1	$55,000	$55,000.00
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	1	$300	$300.00
421-1	WIRE FENCE	LF	15,679	$3.30	$51,740.70
421-2	WIRE FENCE GATES	EA	14	$550	$7,700.00
505-1	CLASS "A" CONCRETE	CY	472	$245	$115,640.00
505-2	REINFORCING STEEL	LB	61,093	$0.44	$26,880.92
505-3	CONCRETE CHANNEL LINING	CY	4,410	$220	$970,200.00
505-4	CONCRETE CATCH BASIN MAG 501	EA	2	$2,750	$5,500.00
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA	1	$2,200	$2,200.00
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA	3	$11,500	$34,500.00
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA	3	$9,500	$28,500.00
525	SHOTCRETE	SY	9,916	$17	$168,572.00
609	WELL CLOSURE	LS	1	$1,000	$1,000.00
610-1	WATERLINE (12 INCH ASTM D2241)	LF	188	$44	$8,272.00
610-2	WATERLINE (12 INCH AWWA C900)	LF	98	$66	$6,468.00
610-3	WATERLINE (16 INCH)	LF	1,493	$77	$114,961.00
618	REINFORCED CONCRETE PIPE (30")	LF	120	$120	$14,400.00
621-1	CORRUGATED METAL PIPE (21 INCH)	LF	299	$110	$32,890.00
621-2	CORRUGATED METAL PIPE (24 INCH)	LF	172	$88	$15,136.00
621-3	CORRUGATED METAL PIPE (30 INCH)	LF	188	$94	$17,672.00
635	CONCRETE-LINED IRRIGATION DITCH	LF	1,386	$44	$60,984.00
		TOTAL			$4,279,748.02

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT		UNIT	
107	NPDES/SWPPP PERMITS	LS	1	$20,000	$20,000
202	MOBILIZATION	LS	1	$175,000	$175,000
206	STRUCTURAL BACKFILL	CY	359	$10	$3,590
215-1	CHANNEL EXCAVATION	CY	68802 ~~68802~~	~~$4.00~~	~~$275,208~~
215-2	DETENTION BASIN EXCAVATION	CY	1103600	$1.00	$1,103,600
220-1	GROUTED RIPRAP TYPE I	CY	645	$55	$35,475
220-2	GROUTED RIPRAP TYPE II	CY	1288	$65	$83,720
220-3	PLAIN RIPRAP	CY	147	$40	$5,880
301	SUBGRADE PREPARATION	SY	18102	$3.00	$54,306
310-1	AGGREGATE BASE COURSE	TON	3929	$15	$58,935
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON	6979	$15	$104,685
311	SOIL CEMENT	SY	17476	$12	$209,712
315	BITUMINOUS PRIME COAT	TON	10.3	$250	$2,575
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	1699	$35	$59,465
329	BITUMINOUS TACK COAT	TON	5.2	$250	$1,300
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF	350	$10	$3,500
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF	79	$15	$1,185
350-1	REMOVE STRUCTURES	LS	1	$50,000	$50,000
350-2	REMOVE AC PAVEMENT	LS	1	$10,000	$10,000
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS	1	$5,000	$5,000
350-4	MISCELLANEOUS REMOVALS	LS	1	$50,000	$50,000
401	TRAFFIC CONTROL	LS	1	$50,000	$50,000
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	1	$250	$250
421-1	WIRE FENCE	LF	15679	$3.00	$47,037
421-2	WIRE FENCE GATES	EA	14	$500	$7,000
505-1	CLASS "A" CONCRETE	CY	472	$225	$106,200
505-2	REINFORCING STEEL	LB	61093	$0.40	$24,437
505-3	CONCRETE CHANNEL LINING	CY	4410	$200	$882,000
505-4	CONCRETE CATCH BASIN MAG 501	EA	2	$2,500	$5,000
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA	1	$2,000	$2,000
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA	3	$10,500	$31,500
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA	3	$8,500	$25,500
525	SHOTCRETE	SY	9916	$15	$148,740
609	WELL CLOSURE	LS	1	$1,000	$1,000
610-1	WATERLINE (12 INCH ASTM D2241)	LF	188	$40	$7,520
610-2	WATERLINE (12 INCH AWWA C900)	LF	98	$60	$5,880
610-3	WATERLINE (16 INCH)	LF	1493	$70	$104,510
618	REINFORCED CONCRETE PIPE (30")	LF	120	$110	$13,200
621-1	CORRUGATED METAL PIPE (21 INCH)	LF	299	$100	$29,900
621-2	CORRUGATED METAL PIPE (24 INCH)	LF	172	$80	$13,760
621-3	CORRUGATED METAL PIPE (30 INCH)	LF	188	$85	$15,980
635	CONCRETE-LINED IRRIGATION DITCH	LF	1386	$40	$55,440

TOTAL

WITHOUT D/B WAGES	$3,889,990
WITH D/B WAGES	$4,279,748
PERCENT INCREASE	10.02%

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	C01	C02	C03	C04	C05	C06	C07	C08	C09	P02
107	NPDES/SWPPP PERMITS	LS										
202	MOBILIZATION	LS										
206	STRUCTURAL BACKFILL CALCS	CY	140	83						136		
215-1	CHANNEL EXCAVATION	CY	7023	8186	4220	2390	10020	6870	3360	18820	7770	
215-2	DETENTION BASIN EXCAVATION	CY										
220-1	GROUTED RIPRAP TYPE I	CY							645			
220-2	GROUTED RIPRAP TYPE II	CY	375					615	148	23	26	
220-3	PLAIN RIPRAP CALCS	CY									147	
301	SUBGRADE PREPARATION	SY	1132	4000	4901							2861
310-1	AGGREGATE BASE COURSE	TON										1585
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON	424	579	554							
311	SOIL CEMENT	SY										7072
315	BITUMINOUS PRIME COAT	TON										4
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON										550
329	BITUMINOUS TACK COAT	TON										1
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF										
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF										
350-1	REMOVE STRUCTURES	LS										
350-2	REMOVE AC PAVEMENT	LS										2822SY
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS										
350-4	MISCELLANEOUS REMOVALS	LS										
401	TRAFFIC CONTROL	LS										
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA										
421-1	WIRE FENCE	LF	1285	2124	1752							
421-2	WIRE FENCE GATES	EA	2	4	3							
505-1	CLASS "A" CONCRETE	CY	164	127	38					65		
505-2	REINFORCING STEEL	LB	22272	16376	2329					14116		
505-3	CONCRETE CHANNEL LINING	CY	702	723	723	284	857	534		417	170	
505-4	CONCRETE CATCH BASIN MAG 501	EA						1			1	
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA									1	
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA	1	1						1		
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA	1	1						1		
525	SHOTCRETE	SY										
609	WELL CLOSURE	LS										
610-1	WATERLINE (12 INCH ASTM D2241)	LF			188							
610-2	WATERLINE (12 INCH AWWA C900)	LF										
610-3	WATERLINE (16 INCH)	LF										
618	REINFORCED CONCRETE PIPE (30")	LF										
621-1	CORRUGATED METAL PIPE (21 INCH)	LF										
621-2	CORRUGATED METAL PIPE (24 INCH)	LF						125				
621-3	CORRUGATED METAL PIPE (30 INCH)	LF									188	
635	CONCRETE-LINED IRRIGATION DITCH	LF										

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	P03	P04	P05	B01	B02	B03	B04	B05	B06
107	NPDES/SWPPP PERMITS	LS									
202	MOBILIZATION	LS									
206	STRUCTURAL BACKFILL	CY									
215-1	CHANNEL EXCAVATION	CY									
215-2	DETENTION BASIN EXCAVATION	CY									
220-1	GROUTED RIPRAP TYPE I	CY									
220-2	GROUTED RIPRAP TYPE II	CY						101			
220-3	PLAIN RIPRAP	CY									
301	SUBGRADE PREPARATION	SY	2333	1983	892						
310-1	AGGREGATE BASE COURSE	TON	1098	1246							
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON				587	812	541	826	370	328
311	SOIL CEMENT	SY	6146	4258							
315	BITUMINOUS PRIME COAT	TON	3	3.3							
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	602	547							
329	BITUMINOUS TACK COAT	TON	3	1.2							
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF		350							
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF		79							
350-1	REMOVE STRUCTURES	LS									
350-2	REMOVE AC PAVEMENT	LS	2333SY	2644SY							
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS									
350-4	MISCELLANEOUS REMOVALS	LS									
401	TRAFFIC CONTROL	LS									
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA		1							
421-1	WIRE FENCE	LF				1380	1100	1272	750		700
421-2	WIRE FENCE GATES	EA				1		2			
505-1	CLASS "A" CONCRETE	CY									
505-2	REINFORCING STEEL	LB									
505-3	CONCRETE CHANNEL LINING	CY									
505-4	CONCRETE CATCH BASIN MAG 501	EA									
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA									
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA									
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA									
525	SHOTCRETE	SY						1813			1550
609	WELL CLOSURE	LS				1					
610-1	WATERLINE (12 INCH ASTM D2241)	LF									
610-2	WATERLINE (12 INCH AWWA C900)	LF									
610-3	WATERLINE (16 INCH)	LF						493			700
618	REINFORCED CONCRETE PIPE (30")	LF									
621-1	CORRUGATED METAL PIPE (21 INCH)	LF									
621-2	CORRUGATED METAL PIPE (24 INCH)	LF									
621-3	CORRUGATED METAL PIPE (30 INCH)	LF									
635	CONCRETE-LINED IRRIGATION DITCH	LF						493			700

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	B07	B08	B09	B10	B11	B12	U02	FCDMC
107	NPDES/SWPPP PERMITS	LS								
202	MOBILIZATION	LS								
206	STRUCTURAL BACKFILL	CY								
215-1	CHANNEL EXCAVATION	CY								143
215-2	DETENTION BASIN EXCAVATION	CY								
220-1	GROUTED RIPRAP TYPE I	CY								
220-2	GROUTED RIPRAP TYPE II	CY								
220-3	PLAIN RIPRAP	CY								
301	SUBGRADE PREPARATION	SY								
310-1	AGGREGATE BASE COURSE	TON								
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON		478	827	141		400		112
311	SOIL CEMENT	SY								
315	BITUMINOUS PRIME COAT	TON								
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON								
329	BITUMINOUS TACK COAT	TON								
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF								
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF								
350-1	REMOVE STRUCTURES	LS								
350-2	REMOVE AC PAVEMENT	LS								
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS								
350-4	MISCELLANEOUS REMOVALS	LS								
401	TRAFFIC CONTROL	LS								
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA								
421-1	WIRE FENCE	LF	750		800	1316	1100	1350		
421-2	WIRE FENCE GATES	EA				1		1		
505-1	CLASS "A" CONCRETE	CY								78 *
505-2	REINFORCING STEEL	LB								6000 *
505-3	CONCRETE CHANNEL LINING	CY								
505-4	CONCRETE CATCH BASIN MAG 501	EA								
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA								
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA								
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA								
525	SHOTCRETE	SY		2600	1780	1900	273			
609	WELL CLOSURE	LS								
610-1	WATERLINE (12 INCH ASTM D2241)	LF								
610-2	WATERLINE (12 INCH AWWA C900)	LF							98	
610-3	WATERLINE (16 INCH)	LF			300					
618	REINFORCED CONCRETE PIPE (30")	LF								120
621-1	CORRUGATED METAL PIPE (21 INCH)	LF								299
621-2	CORRUGATED METAL PIPE (24 INCH)	LF								47
621-3	CORRUGATED METAL PIPE (30 INCH)	LF								
635	CONCRETE-LINED IRRIGATION DITCH	LF			110					~~83~~ 57'

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP PERMITS	LS	1	$20,000	$20,000
202	MOBILIZATION	LS	1	$175,000	$175,000
206	STRUCTURAL BACKFILL	CY	359	$10	$3,590
215-1	CHANNEL EXCAVATION	CY	68,801	$4.50	$309,607
215-2	DETENTION BASIN EXCAVATION	CY	1,103,600	$1.10	$1,213,960
220-1	GROUTED RIPRAP TYPE I	CY	645	$60	$38,700
220-2	GROUTED RIPRAP TYPE II	CY	1,411	$70	$98,770
220-3	GROUTED ANGULAR RIPRAP TYPE II	CY	492	$80	$39,360
220-4	PLAIN RIPRAP	CY	147	$40	$5,880
301	SUBGRADE PREPARATION	SY	19,072	$3.00	$57,216
310-1	AGGREGATE BASE COURSE	TON	3,741	$15	$56,115
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON	6,892	$15	$103,374
311	SOIL CEMENT	SY	17,476	$9	$157,284
315	BITUMINOUS PRIME COAT	TON	10	$250	$2,575
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	1,699	$40	$67,960
329	BITUMINOUS TACK COAT	TON	5	$250	$1,300
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF	350	$11	$3,850
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF	79	$15	$1,185
350-1	REMOVE STRUCTURES	LS	1	$80,000	$80,000
350-2	REMOVE AC PAVEMENT	LS	1	$11,000	$11,000
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS	1	$2,500	$2,500
350-4	MISCELLANEOUS REMOVALS	LS	1	$55,000	$55,000
401	TRAFFIC CONTROL	LS	1	$110,000	$110,000
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	1	$300	$300
421-1	WIRE FENCE	LF	15,679	$3.50	$54,877
421-2	WIRE FENCE GATES	EA	14	$500	$7,000
505-1	CLASS "A" CONCRETE	CY	472	$200	$94,456
505-2	REINFORCING STEEL	LB	61,593	$0.40	$24,637
505-3	CONCRETE CHANNEL LINING	CY	4,409	$200	$881,896
505-4	CONCRETE CATCH BASIN MAG 501	EA	2	$3,000	$6,000
505-5	CONCRETE CATCH BASIN ADOT C-15.60	EA	1	$2,500	$2,500
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA	3	$12,000	$36,000
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA	3	$10,000	$30,000
525	SHOTCRETE	SY	9,916	$16	$158,656
609	WELL CLOSURE	~~EA~~ LS	1	$2,000	$2,000
610-1	WATERLINE (12 INCH ASTM D2241)	LF	70	$30	$2,100
610-2	WATERLINE (12 INCH AWWA C900)	LF	188	$50	$9,400
610-3	WATERLINE (16 INCH)	LF	1,493	$60	$89,580
618	REINFORCED CONCRETE PIPE (30")	LF	120	$70	$8,400
621-1	CORRUGATED METAL PIPE (21 INCH)	LF	299	$70	$20,930
621-2	CORRUGATED METAL PIPE (24 INCH)	LF	172	$60	$10,320
621-3	CORRUGATED METAL PIPE (30 INCH)	LF	188	$65	$12,220
635	CONCRETE-LINED IRRIGATION DITCH	LF	1,386	$40	$55,440
		SUBTOTAL			$4,120,936
		DAVIS/BACON WAGES (10%)			$412,094
		CONSTRUCTION TOTAL			$4,533,031

PRE-FINAL

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP PERMITS	LS	1	$20,000	$20,000
202	MOBILIZATION	LS	1	$175,000	$175,000
① ~~211~~	~~FILL CONSTRUCTION~~	~~CY~~	~~426~~	~~$1.25~~	~~$533~~
215-1	CHANNEL EXCAVATION	CY	68,801	$4.00	$275,206
215-2	DETENTION BASIN EXCAVATION	CY	1,103,600	$1.00	$1,103,600
220-1	GROUTED RIPRAP TYPE I	CY	606	$55	$33,330
220-2	GROUTED RIPRAP TYPE II	CY	1,372	$65	$89,180
② 301	SUBGRADE PREPARATION	SY	19,072	$2.00	$38,144
③ 310-1	AGGREGATE BASE COURSE	TON	10,633	$10	$106,326
311	SOIL CEMENT	SY	17,476	$8	$139,808
315	BITUMINOUS PRIME COAT	TON	10	$200	$2,060
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	1,699	$35	$59,465
329	BITUMINOUS TACK COAT	TON	5	$200	$1,040
④ 340	CONCRETE CURB	LF	429	$10	$4,290
350-1	REMOVE STRUCTURES	LS	1	$75,000	$75,000
⑤ 350-2	REMOVE AC PAVEMENT	LS	1	$10,000	$10,000
350-~~3~~4	MISCELLANEOUS REMOVALS	LS	1	$50,000	$50,000
401	TRAFFIC CONTROL	LS	1	$100,000	$100,000
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	1	$250	$250
421-1	WIRE FENCE	LF	15,679	$3.00	$47,037
421-2	WIRE FENCE GATES	EA	14	$400	$5,600
505-1	CLASS "A" CONCRETE	CY	472	$200	$94,456
⑥ ~~505-2~~	~~CLASS "B" CONCRETE~~	~~CY~~	~~21~~	~~$175~~	~~$3,675~~
505-~~3~~2	REINFORCING STEEL	LB	61,593	$0.35	$21,558
505-~~4~~3	CONCRETE CHANNEL LINING	CY	4,274	$200	$854,896
505-~~5~~4	CONCRETE CATCH BASIN MAG 501	EA	2	$2,500	$5,000
505-~~6~~5	CONCRETE CATCH BASIN ADOT C-15.80	EA	1	$2,000	$2,000
505-~~7~~6	CONCRETE OUTLET WINGS ADOT B-04.10	EA	3	$10,500	$31,500
505-~~8~~7	CONCRETE INLET WINGS ADOT B-04.30	EA	3	$8,500	$25,500
525	SHOTCRETE	SY	9,916	$15	$148,740
609	WELL CLOSURE	~~EA~~ LS	1	$1,000	$1,000
610-1	WATERLINE, 12" (ASTM D2241)	LF	258	$27	$6,966
610-2	WATERLINE, ~~16"~~ 12" (AWWA C900)	LF	1,493	$45	$67,185
⑦ 618	REINFORCED CONCRETE PIPE (30")	LF	120	$70	$8,400
621-1	CORRUGATED METAL PIPE (21")	LF	299	$70	$20,930
621-2	CORRUGATED METAL PIPE (24")	LF	172	$60	$10,320
621-3	CORRUGATED METAL PIPE (30")	LF	188	$65	$12,220
635	CONCRETE LINED IRRIGATION DITCH	LF	1,386	$40	$55,440
		SUBTOTAL			$3,705,654
		CONTINGENCY (10%)			$370,565
		CONSTRUCTION TOTAL			$4,076,219

✓ ① 204 - STRUC. BACK.

✓ ② 220-3 - PLAIN RIP RAP

✓ ③ 310-2 - ABC (0 & IN ROAD)

✓ ④ 340-1 -

340-2 -

✓ ⑤ 350-3 -

✓ ⑥ 505-2 - WHY? WHAT? MAKE INCIDENTAL OR CLASS 'A'

✓ ⑦ 610-3 -

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP PERMITS	LS	1	$20,000	$20,000
202	MOBILIZATION	LS	1	$175,000	$175,000
~~211~~	~~FILL CONSTRUCTION~~	~~CY~~	~~426~~	~~$1.25~~	~~$533~~
215-1	CHANNEL EXCAVATION	CY	68,801	$4.00	$275,206
215-2	DETENTION BASIN EXCAVATION	CY	1,103,600	$1.00	$1,103,600
220-1	GROUTED RIPRAP TYPE I	CY	606	~~$55~~ 80	~~$33,330~~
220-2	GROUTED RIPRAP TYPE II	CY	1,372	~~$65~~ 90	~~$89,180~~
301	SUBGRADE PREPARATION	SY	19,072	~~$2.00~~ 3	~~$38,144~~
310	AGGREGATE BASE COURSE	TON	10,633	~~$10~~ 15	~~$106,326~~
311	SOIL CEMENT	SY	17,476	~~$8~~ 12	~~$139,808~~
315	BITUMINOUS PRIME COAT	TON	10	$200	$2,060
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	1,699	$35	$59,465
329	BITUMINOUS TACK COAT	TON	5	~~$200~~ 250	~~$1,040~~
340	CONCRETE CURB	LF	429	$10	$4,290
350-1	REMOVE STRUCTURES	LS	1	~~$75,000~~ 50,000	~~$75,000~~
350-2	REMOVE AC PAVEMENT	LS	1	$10,000	$10,000
350-3	MISCELLANEOUS REMOVALS	LS	1	$50,000	$50,000
401	TRAFFIC CONTROL	LS	1	~~$100,000~~ 50,000	~~$100,000~~
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	1	$250	$250
421-1	WIRE FENCE	LF	15,679	$3.00	$47,037
421-2	WIRE FENCE GATES	EA	14	~~$400~~ 500	$5,600
505-1	CLASS "A" CONCRETE	CY	472	~~$200~~ 225	$94,456
~~505-2~~	~~CLASS "B" CONCRETE~~	~~CY~~	~~21~~	~~$175~~	~~$3,675~~
505-3	REINFORCING STEEL	LB	61,593	~~$0.35~~ .40	~~$21,558~~
505-4	CONCRETE CHANNEL LINING	CY	4,274	$200	$854,896
505-5	CONCRETE CATCH BASIN MAG 501	EA	2	$2,500	$5,000
505-6	CONCRETE CATCH BASIN ADOT C-15.80	EA	1	$2,000	$2,000
505-7	CONCRETE OUTLET WINGS ADOT B-04.10	EA	3	$10,500	$31,500
505-8	CONCRETE INLET WINGS ADOT B-04.30	EA	3	$8,500	$25,500
525	SHOTCRETE	SY	9,916	$15	$148,740
609	WELL CLOSURE	EA	1	$1,000	$1,000
610-1	WATERLINE, 12"	LF	258	~~$27~~ 40	~~$6,966~~
610-2	WATERLINE, 16"	LF	1,493	~~$45~~ 60	~~$67,185~~
618	REINFORCED CONCRETE PIPE (30")	LF	120	~~$70~~ 110	~~$8,400~~
621-1	CORRUGATED METAL PIPE (21")	LF	299	$70	$20,930
621-2	CORRUGATED METAL PIPE (24")	LF	172	~~$60~~ 80	~~$10,320~~
621-3	CORRUGATED METAL PIPE (30")	LF	188	~~$65~~ 100	~~$12,220~~
635	CONCRETE LINED IRRIGATION DITCH	LF	1,386	$40	$55,440
		SUBTOTAL			$3,705,654
		CONTINGENCY (10%)			$370,565
		CONSTRUCTION TOTAL			$4,076,219

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	C01	C02	C03	C04	C05	C06	C07	C08	C09	P02	P03	P04
107	NPDES/SWPPP PERMITS	LS												
202	MOBILIZATION	LS												
211	FILL CONSTRUCTION	CY	10	16	203									
215-1	CHANNEL EXCAVATION	CY	7023	8185.48	4220	2390	10020	6870	3360	18820	7770			
215-2	DETENTION BASIN EXCAVATION	CY												
220-1	GROUTED RIPRAP TYPE I	CY							606					
220-2	GROUTED RIPRAP TYPE II	CY	375					615	142	116	23			
301	SUBGRADE PREPARATION	SY	2262	4006	4735							2861	2333	1983
310	AGGREGATE BASE COURSE	TON	403.61	551	515							1509	1046	1186
311	SOIL CEMENT	SY										7072	6146	4258
315	BITUMINOUS PRIME COAT	TON										4	3	3.3
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON										550	602	547
329	BITUMINOUS TACK COAT	TON										1	3	1.2
340	CONCRETE CURB	LF												429
350-1	REMOVE STRUCTURES	LS												
350-2	REMOVE AC PAVEMENT	LS										2822SY	2333SY	2644SY
350-3	MISCELLANEOUS REMOVALS	LS												
401	TRAFFIC CONTROL	LS												
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA												1
421-1	WIRE FENCE	LF	1285	2124	1752									
421-2	WIRE FENCE GATES	EA	2	4	3									
505-1	CLASS "A" CONCRETE	CY	164.28	127	38					65				
505-2	CLASS "B" CONCRETE	CY	4	9	4									
505-3	REINFORCING STEEL	LB	22272	16376	2329					14116				
505-4	CONCRETE CHANNEL LINING	CY	702	722.48	723	270	857	534		336	130			
505-5	CONCRETE CATCH BASIN MAG 501	EA						1			1			
505-6	CONCRETE CATCH BASIN ADOT C-15.80	EA									1			
505-7	CONCRETE OUTLET WINGS ADOT B-04.10	EA	1	1						1				
505-8	CONCRETE INLET WINGS ADOT B-04.30	EA	1	1						1				
525	SHOTCRETE	SY												
609	WELL CLOSURE	EA												
610-1	WATERLINE, 12"	LF			188									
610-2	WATERLINE, 16"	LF												
618	REINFORCED CONCRETE PIPE (30")	LF												
621-1	CORRUGATED METAL PIPE (21")	LF												
621-2	CORRUGATED METAL PIPE (24")	LF						125						
621-3	CORRUGATED METAL PIPE (30")	LF									188			
635	CONCRETE LINED IRRIGATION DITCH	LF												
		SUBTO												

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	P05	B01	B02	B03	B04	B05	B06	B07	B08	B09	B10
107	NPDES/SWPPP PERMITS	LS											
202	MOBILIZATION	LS											
211	FILL CONSTRUCTION	CY	197										
215-1	CHANNEL EXCAVATION	CY											
215-2	DETENTION BASIN EXCAVATION	CY											
220-1	GROUTED RIPRAP TYPE I	CY											
220-2	GROUTED RIPRAP TYPE II	CY				101							
301	SUBGRADE PREPARATION	SY	892										
310	AGGREGATE BASE COURSE	TON		587	812	541	826	370	328		478	827	141
311	SOIL CEMENT	SY											
315	BITUMINOUS PRIME COAT	TON											
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON											
329	BITUMINOUS TACK COAT	TON											
340	CONCRETE CURB	LF											
350-1	REMOVE STRUCTURES	LS											
350-2	REMOVE AC PAVEMENT	LS											
350-3	MISCELLANEOUS REMOVALS	LS											
401	TRAFFIC CONTROL	LS											
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA											
421-1	WIRE FENCE	LF		1380	1100	1272	750		700	750		800	1316
421-2	WIRE FENCE GATES	EA		1		2							1
505-1	CLASS "A" CONCRETE	CY											
505-2	CLASS "B" CONCRETE	CY				4							
505-3	REINFORCING STEEL	LB											
505-4	CONCRETE CHANNEL LINING	CY											
505-5	CONCRETE CATCH BASIN MAG 501	EA											
505-6	CONCRETE CATCH BASIN ADOT C-15.80	EA											
505-7	CONCRETE OUTLET WINGS ADOT B-04.10	EA											
505-8	CONCRETE INLET WINGS ADOT B-04.30	EA											
525	SHOTCRETE	SY				1813			1550		2600	1780	1900
609	WELL CLOSURE	EA		1									
610-1	WATERLINE, 12"	LF											
610-2	WATERLINE, 16"	LF				493			700			300	
618	REINFORCED CONCRETE PIPE (30")	LF											
621-1	CORRUGATED METAL PIPE (21")	LF											
621-2	CORRUGATED METAL PIPE (24")	LF											
621-3	CORRUGATED METAL PIPE (30")	LF											
635	CONCRETE LINED IRRIGATION DITCH	LF				493			700			110	
		SUBTO											

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	B11	B12	U02	FCDMC
107	NPDES/SWPPP PERMITS	LS				
202	MOBILIZATION	LS				
211	FILL CONSTRUCTION	CY				
215-1	CHANNEL EXCAVATION	CY				143
215-2	DETENTION BASIN EXCAVATION	CY				
220-1	GROUTED RIPRAP TYPE I	CY				
220-2	GROUTED RIPRAP TYPE II	CY				
301	SUBGRADE PREPARATION	SY				
310	AGGREGATE BASE COURSE	TON		400		112
311	SOIL CEMENT	SY				
315	BITUMINOUS PRIME COAT	TON				
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON				
329	BITUMINOUS TACK COAT	TON				
340	CONCRETE CURB	LF				
350-1	REMOVE STRUCTURES	LS				
350-2	REMOVE AC PAVEMENT	LS				
350-3	MISCELLANEOUS REMOVALS	LS				
401	TRAFFIC CONTROL	LS				
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA				
421-1	WIRE FENCE	LF	1100	1350		
421-2	WIRE FENCE GATES	EA		1		
505-1	CLASS "A" CONCRETE	CY				78 *
505-2	CLASS "B" CONCRETE	CY				
505-3	REINFORCING STEEL	LB				6500 *
505-4	CONCRETE CHANNEL LINING	CY				
505-5	CONCRETE CATCH BASIN MAG 501	EA				
505-6	CONCRETE CATCH BASIN ADOT C-15.80	EA				
505-7	CONCRETE OUTLET WINGS ADOT B-04.10	EA				
505-8	CONCRETE INLET WINGS ADOT B-04.30	EA				
525	SHOTCRETE	SY	273			
609	WELL CLOSURE	EA				
610-1	WATERLINE, 12"	LF			70	
610-2	WATERLINE, 16"	LF				
618	REINFORCED CONCRETE PIPE (30")	LF				120
621-1	CORRUGATED METAL PIPE (21")	LF				299
621-2	CORRUGATED METAL PIPE (24")	LF				47
621-3	CORRUGATED METAL PIPE (30")	LF				
635	CONCRETE LINED IRRIGATION DITCH	LF				83
		SUBTO				

DYSART DRAIN IMPROVEMENT PROJECT

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
107	NPDES/SWPPP PERMITS	LS	1	$22,000	$22,000.00
202	MOBILIZATION	LS	1	$190,000	$190,000.00
206	STRUCTURAL BACKFILL	CY	359	$11	$3,949.00
215-1	CHANNEL EXCAVATION	CY	68,802	$4.40	$302,728.80
215-2	DETENTION BASIN EXCAVATION	CY	1,103,600	$1.10	$1,213,960.00
220-1	GROUTED RIPRAP TYPE I	CY	51,600 645	80 ~~$60~~	~~$38,700.00~~
220-2	GROUTED RIPRAP TYPE II	CY	115,920 1,288	90 ~~$70~~	~~$90,160.00~~
220-3	PLAIN RIPRAP	CY	7,350 147	50 ~~$44~~	~~$6,468.00~~
301	SUBGRADE PREPARATION	SY	11,712	$3.30	$38,649.60
310-1	AGGREGATE BASE COURSE	TON	3,929	$17	$66,793.00
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON	6,979	$17	$118,643.00
311	SOIL CEMENT	SY	262,140 17,476	15 ~~$13~~	~~$227,188.00~~
315	BITUMINOUS PRIME COAT	TON	3,000 10	$300	~~$3,090.00~~
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	1,699	$38	$64,562.00
329	BITUMINOUS TACK COAT	TON	1,500 5	$300	~~$1,560.00~~
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF	350	$11	$3,850.00
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF	79	$17	$1,343.00
350-1	REMOVE STRUCTURES	LS	1	$55,000	$55,000.00
350-2	REMOVE AC PAVEMENT	LS	1	$11,000	$11,000.00
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS	1	$5,500	$5,500.00
350-4	MISCELLANEOUS REMOVALS	LS	1	$55,000	$55,000.00
401	TRAFFIC CONTROL	LS	1	$55,000	$55,000.00
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	1	$300	$300.00
421-1	WIRE FENCE	LF	15,679	$3.30	$51,740.70
421-2	WIRE FENCE GATES	EA	14	$550	$7,700.00
505-1	CLASS "A" CONCRETE	CY	472	$245	$115,640.00
505-2	REINFORCING STEEL	LB	61,093	$0.44	$26,880.92
505-3	CONCRETE CHANNEL LINING	CY	4,410	$220	$970,200.00
505-4	CONCRETE CATCH BASIN MAG 501	EA	2	$2,750	$5,500.00
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA	1	$2,200	$2,200.00
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA	3	$11,500	$34,500.00
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA	3	$9,500	$28,500.00
525	SHOTCRETE	SY	9,916	$17	$168,572.00
609	WELL CLOSURE	LS	1	$1,000	$1,000.00
610-1	WATERLINE (12 INCH ASTM D2241)	LF	188	$44	$8,272.00
610-2	WATERLINE (12 INCH AWWA C900)	LF	98	$66	$6,468.00
610-3	WATERLINE (16 INCH)	LF	1,493	$77	$114,961.00
618	REINFORCED CONCRETE PIPE (30")	LF	120	$120	$14,400.00
621-1	CORRUGATED METAL PIPE (21 INCH)	LF	299	$110	$32,890.00
621-2	CORRUGATED METAL PIPE (24 INCH)	LF	172	$88	$15,136.00
621-3	CORRUGATED METAL PIPE (30 INCH)	LF	188	$94	$17,672.00
635-1	CONCRETE-LINED IRRIGATION DITCH	LF	58,476 1329 ~~1,386~~	$44	~~$60,984.00~~
635-2	" " " w/LINER	LF	57	$105	$ 5,985
		TOTAL			~~$4,258,661.02~~
					4,336,482

ITEM NO.	ITEM	UNIT		UNIT	
107	NPDES/SWPPP PERMITS	LS	1	$20,000	$20,000
202	MOBILIZATION	LS	1	$175,000	$175,000
206	STRUCTURAL BACKFILL	CY	359	$10	$3,590
215-1	CHANNEL EXCAVATION	CY	68802	$4.00	$275,208
215-2	DETENTION BASIN EXCAVATION	CY	1103600	$1.00	$1,103,600
220-1	GROUTED RIPRAP TYPE I	CY	645	$55	$35,475
220-2	GROUTED RIPRAP TYPE II	CY	1288	$65	$83,720
220-3	PLAIN RIPRAP	CY	147	$40	$5,880
301	SUBGRADE PREPARATION	SY	11712	$3.00	$35,136
310-1	AGGREGATE BASE COURSE	TON	3929	$15	$58,935
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON	6979	$15	$104,685
311	SOIL CEMENT	SY	17476	$12	$209,712
315	BITUMINOUS PRIME COAT	TON	10.3	$250	$2,575
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	1699	$35	$59,465
329	BITUMINOUS TACK COAT	TON	5.2	$250	$1,300
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF	350	$10	$3,500
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF	79	$15	$1,185
350-1	REMOVE STRUCTURES	LS	1	$50,000	$50,000
350-2	REMOVE AC PAVEMENT	LS	1	$10,000	$10,000
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS	1	$5,000	$5,000
350-4	MISCELLANEOUS REMOVALS	LS	1	$50,000	$50,000
401	TRAFFIC CONTROL	LS	1	$50,000	$50,000
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA	1	$250	$250
421-1	WIRE FENCE	LF	15679	$3.00	$47,037
421-2	WIRE FENCE GATES	EA	14	$500	$7,000
505-1	CLASS "A" CONCRETE	CY	472	$225	$106,200
505-2	REINFORCING STEEL	LB	61093	$0.40	$24,437
505-3	CONCRETE CHANNEL LINING	CY	4410	$200	$882,000
505-4	CONCRETE CATCH BASIN MAG 501	EA	2	$2,500	$5,000
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA	1	$2,000	$2,000
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA	3	$10,500	$31,500
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA	3	$8,500	$25,500
525	SHOTCRETE	SY	9916	$15	$148,740
609	WELL CLOSURE	LS	1	$1,000	$1,000
610-1	WATERLINE (12 INCH ASTM D2241)	LF	188	$40	$7,520
610-2	WATERLINE (12 INCH AWWA C900)	LF	98	$60	$5,880
610-3	WATERLINE (16 INCH)	LF	1493	$70	$104,510
618	REINFORCED CONCRETE PIPE (30")	LF	120	$110	$13,200
621-1	CORRUGATED METAL PIPE (21 INCH)	LF	299	$100	$29,900
621-2	CORRUGATED METAL PIPE (24 INCH)	LF	172	$80	$13,760
621-3	CORRUGATED METAL PIPE (30 INCH)	LF	188	$85	$15,980
635	CONCRETE-LINED IRRIGATION DITCH	LF	1386	$40	$55,440

TOTAL

WITHOUT D/B WAGES	$3,870,820
WITH D/B WAGES	$4,258,661
PERCENT INCREASE	10.02%

ITEM NO.	ITEM	UNIT	C01	C02	C03	C04	C05	C06	C07	C08	C09	P02
107	NPDES/SWPPP PERMITS	LS										
202	MOBILIZATION	LS										
206	STRUCTURAL BACKFILL	CY	140	83						136		
215-1	CHANNEL EXCAVATION	CY	7023	8186	4220	2390	10020	6870	3360	18820	7770	
215-2	DETENTION BASIN EXCAVATION	CY										
220-1	GROUTED RIPRAP TYPE I	CY							645			
220-2	GROUTED RIPRAP TYPE II	CY	375					615	148	23	26	
220-3	PLAIN RIPRAP	CY									147	
301	SUBGRADE PREPARATION	SY		940	2042							2861
310-1	AGGREGATE BASE COURSE	TON										1585
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON	424	579	554							
311	SOIL CEMENT	SY										7072
315	BITUMINOUS PRIME COAT	TON										4
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON										550
329	BITUMINOUS TACK COAT	TON										1
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF										
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF										
350-1	REMOVE STRUCTURES	LS										
350-2	REMOVE AC PAVEMENT	LS										2822SY
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS										
350-4	MISCELLANEOUS REMOVALS	LS										
401	TRAFFIC CONTROL	LS										
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA										
421-1	WIRE FENCE	LF	1285	2124	1752							
421-2	WIRE FENCE GATES	EA	2	4	3							
505-1	CLASS "A" CONCRETE	CY	164	127	38					65		
505-2	REINFORCING STEEL	LB	22272	16376	2329					14116		
505-3	CONCRETE CHANNEL LINING	CY	702	723	723	284	857	534		417	170	
505-4	CONCRETE CATCH BASIN MAG 501	EA						1			1	
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA									1	
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA	1	1						1		
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA	1	1						1		
525	SHOTCRETE	SY										
609	WELL CLOSURE	LS										
610-1	WATERLINE (12 INCH ASTM D2241)	LF			188							
610-2	WATERLINE (12 INCH AWWA C900)	LF										
610-3	WATERLINE (16 INCH)	LF										
618	REINFORCED CONCRETE PIPE (30")	LF										
621-1	CORRUGATED METAL PIPE (21 INCH)	LF										
621-2	CORRUGATED METAL PIPE (24 INCH)	LF						125				
621-3	CORRUGATED METAL PIPE (30 INCH)	LF									188	
635	CONCRETE-LINED IRRIGATION DITCH	LF										

ITEM NO.	ITEM	UNIT	P03	P04	P05	B01	B02	B03	B04	B05	B06
107	NPDES/SWPPP PERMITS	LS									
202	MOBILIZATION	LS									
206	STRUCTURAL BACKFILL	CY									
215-1	CHANNEL EXCAVATION	CY									
215-2	DETENTION BASIN EXCAVATION	CY									
220-1	GROUTED RIPRAP TYPE I	CY									
220-2	GROUTED RIPRAP TYPE II	CY						101			
220-3	PLAIN RIPRAP	CY									
301	SUBGRADE PREPARATION	SY	2333	2644	892						
310-1	AGGREGATE BASE COURSE	TON	1098	1246							
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON				587	812	541	826	370	328
311	SOIL CEMENT	SY	6146	4258							
315	BITUMINOUS PRIME COAT	TON	3	3.3							
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON	602	547							
329	BITUMINOUS TACK COAT	TON	3	1.2							
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF		350							
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF		79							
350-1	REMOVE STRUCTURES	LS									
350-2	REMOVE AC PAVEMENT	LS	2333SY	2644SY							
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS									
350-4	MISCELLANEOUS REMOVALS	LS									
401	TRAFFIC CONTROL	LS									
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA		1							
421-1	WIRE FENCE	LF				1380	1100	1272	750		700
421-2	WIRE FENCE GATES	EA				1		2			
505-1	CLASS "A" CONCRETE	CY									
505-2	REINFORCING STEEL	LB									
505-3	CONCRETE CHANNEL LINING	CY									
505-4	CONCRETE CATCH BASIN MAG 501	EA									
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA									
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA									
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA									
525	SHOTCRETE	SY						1813			1550
609	WELL CLOSURE	LS				1					
610-1	WATERLINE (12 INCH ASTM D2241)	LF									
610-2	WATERLINE (12 INCH AWWA C900)	LF									
610-3	WATERLINE (16 INCH)	LF						493			700
618	REINFORCED CONCRETE PIPE (30")	LF									
621-1	CORRUGATED METAL PIPE (21 INCH)	LF									
621-2	CORRUGATED METAL PIPE (24 INCH)	LF									
621-3	CORRUGATED METAL PIPE (30 INCH)	LF									
635	CONCRETE-LINED IRRIGATION DITCH	LF						493			700

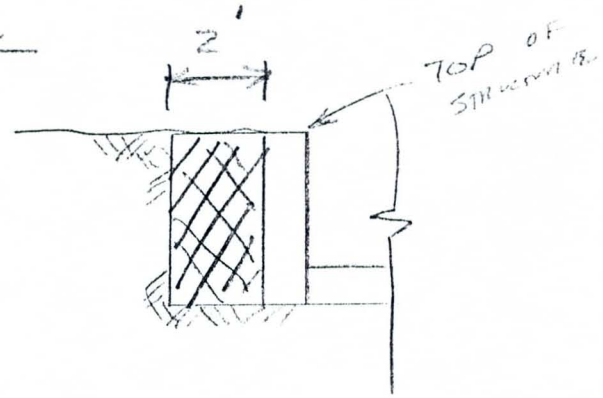
ITEM NO.	ITEM	UNIT	B07	B08	B09	B10	B11	B12	U02	FCDMC
107	NPDES/SWPPP PERMITS	LS								
202	MOBILIZATION	LS								
206	STRUCTURAL BACKFILL	CY								
215-1	CHANNEL EXCAVATION	CY								143
215-2	DETENTION BASIN EXCAVATION	CY								
220-1	GROUTED RIPRAP TYPE I	CY								
220-2	GROUTED RIPRAP TYPE II	CY								
220-3	PLAIN RIPRAP	CY								
301	SUBGRADE PREPARATION	SY								
310-1	AGGREGATE BASE COURSE	TON								
310-2	AGGREGATE BASE COURSE (O&M ROAD)	TON		478	827	141		400		112
311	SOIL CEMENT	SY								
315	BITUMINOUS PRIME COAT	TON								
321	ASPHALTIC CONCRETE PAVEMENT (C-3/4)	TON								
329	BITUMINOUS TACK COAT	TON								
340-1	CONCRETE CURB (MAG DET. 222, TYPE 'A')	LF								
340-2	CONCRETE CURB AND GUTTER(MAG DET. 220, TYPE 'A')	LF								
350-1	REMOVE STRUCTURES	LS								
350-2	REMOVE AC PAVEMENT	LS								
350-3	REMOVAL AND REPAIR OF IRRIGATION FACILITIES	LS								
350-4	MISCELLANEOUS REMOVALS	LS								
401	TRAFFIC CONTROL	LS								
405	SURVEY MONUMENTS (MAG 120-2, TYPE E)	EA								
421-1	WIRE FENCE	LF	750		800	1316	1100	1350		
421-2	WIRE FENCE GATES	EA				1		1		
505-1	CLASS "A" CONCRETE	CY								78 *
505-2	REINFORCING STEEL	LB								6000 *
505-3	CONCRETE CHANNEL LINING	CY								
505-4	CONCRETE CATCH BASIN MAG 501	EA								
505-5	CONCRETE CATCH BASIN ADOT C-15.80	EA								
505-6	CONCRETE OUTLET WINGS ADOT B-04.10	EA								
505-7	CONCRETE INLET WINGS ADOT B-04.30	EA								
525	SHOTCRETE	SY		2600	1780	1900	273			
609	WELL CLOSURE	LS								
610-1	WATERLINE (12 INCH ASTM D2241)	LF								
610-2	WATERLINE (12 INCH AWWA C900)	LF							98	
610-3	WATERLINE (16 INCH)	LF			300					
618	REINFORCED CONCRETE PIPE (30")	LF								120
621-1	CORRUGATED METAL PIPE (21 INCH)	LF								299
621-2	CORRUGATED METAL PIPE (24 INCH)	LF								47
621-3	CORRUGATED METAL PIPE (30 INCH)	LF								
635	CONCRETE-LINED IRRIGATION DITCH	LF			110					83

NBS LOWRY ENGINEERS & PLANNERS

DATE 10/26/94
JOB NO P01-194.019
BY
CK'D
SHEET 1 OF 3

DYSART DRAIN QUANTITIES
EAST COLLECTOR CHANNEL

STRUCTURAL BACKFILL



Sheet C01

IRRIGATION JUNCTION BOX

L = 11'10" W = 7'1" H = 3'

PERIMITER = 37.8'

$$\frac{37.8' \times 3' \times 2'}{27} = \underline{\underline{8 \text{ CY}}}$$

BOX CULVERT AT 10+00

L = 64' H = 4' t = 10.5"

$$(2)\ \frac{(64') \times (4' + 10.5" + 10.5" + 2") \times 2'}{27} = \underline{\underline{56 \text{ CY}}}$$

STRUCTURAL BACKFILL (CONT)

Sheet C01

INLET STRUCTURE (reference qty calcs Sh 15)

$$\text{AREA} = \left[\left(\frac{6.25' + 11.5}{2}\right) \times 13.5' \times 2\text{ EA}\right] + (2.5' \times 20.88') + \left[(20.88' \times 3') \times 2\text{ EA}\right]$$

$$= 417\text{ SF}$$

$$\frac{488 \times 2'}{27} = \cancel{31}\ 36\text{ CY}$$

OUTLET STRUCTURE

$$A = \left[\left(\frac{6' + 7.5'}{2}\right) \times 13.5' \times 2\text{ EA}\right] + (20.88' \times 2.5') + (6' \times 13.5' \times 2\text{ EA}) + (5' \times 20.88' \times 2\text{ sides})$$

$$= \frac{605\text{ SF} \times 2'}{27} = 45\text{ CY}$$

TOTAL Sheet C01
8 + 56 + 31 + 45 = 140 CY

SHEET C02

Box CULVERT $L = 42'$ $H = 4$ $t = 10.5''$

$$\frac{2\text{ sides} \times 42' \times (4' + 10.5'' + 10.5'' + 2'') \times 2'}{27} = 37\text{ CY}$$

STRUCTURAL BACKFILL (CONT)

Sheet C02 (CONT)

OUTLET STRUCTURE

$$A = \left[\left(\frac{5' + 7.5'}{2}\right) \times 14.5' \times 2\ EA\right] + (2.67' \times 20.83') + (6' \times 14.5' \times 2EA) + (5' \times 20.83 \times 2\ EA)$$

$A = 619\ SF$ $\qquad \frac{619 \times 2'}{27} = \underline{\underline{46\ CY}}$

INLET STRUCTURE

$$A = \left[\left(\frac{6.25' + 13'}{2}\right) \times 14.5' \times 2EA\right] + (4.5' \times 20.83') + (20.83' \times 3' \times 2\ sides)$$

$= 498\ SF$

$\frac{498 \times 2}{27} = \underline{\underline{37\ CY}}$

TOTAL Sheet C02

$46 + 37 = \cancel{83}\ \underline{\underline{CY}}$

120

NEED C08 CALCS FOR STRUC. BACK.

NBS LOWRY ENGINEERS & PLANNERS

DATE REV. 7/15/94

JOB NO

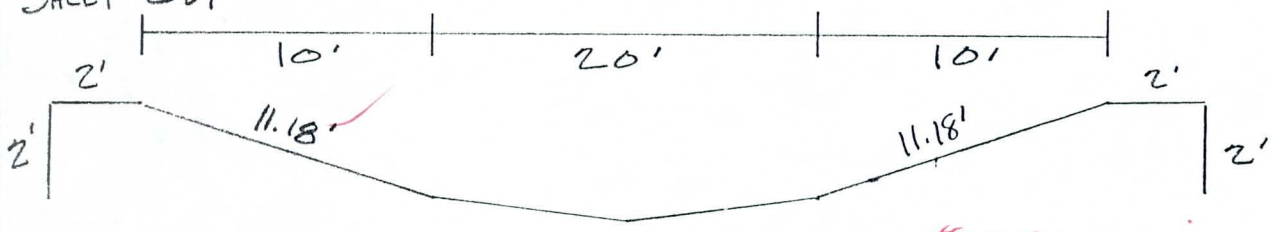
BY MLH

CK'D

SHEET 1 OF

DYSART DRAIN PROJECT
EAST COLLECTOR CHANNEL
QUANTITIES

SHEET C01



CBC wing

STA 10+25 to STA 17+00
8" CONCRETE LINING

$.67 \times \cancel{20}\ 680 \times \cancel{675}\ 680 = \frac{9045}{27} = \cancel{335}\ CY\ 340$

6" CONCRETE LINING

$[(\overset{22.36}{11.18 \times 2}) + (\overset{4}{2(2)}) + (\overset{3}{1.5(2)}) = 29.36] \times .5 \times \cancel{675}\ 680 = \frac{9909}{27} = \cancel{367}\ CY\ 370$

CONCRETE SWALE

$[(5.03(2)] \times .67 \times 14' = \frac{94}{27} = 4\ CY$

add w/ 505.1 conc. "A"

NBS LOWRY ENGINEERS & PLANNERS

DATE REV 1/12/94

JOB NO

BY MLH

CK'D BGT

SHEET 2 OF

DYSART DRAIN PROJECT

EAST COLLECTOR CHANNEL

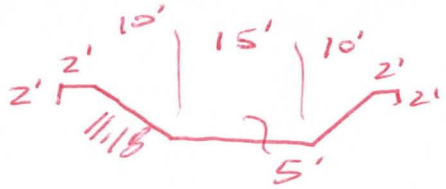
QUANTITIES

SHEET C02 (see Sht 1 for typ sect)

8" CONCRETE LINING
STA 17+00 to STA 22+~~30~~ 43

$.67 \times 20 \times \cancel{530}\ 543 = \frac{7102}{27} = \cancel{263}\ 270$ cy

STA 22+~~98~~ 87 to STA 27+00



$.67 \times \cancel{20}\ 15 \times \cancel{402}\ 413 = \frac{5386}{27} = \cancel{200}\ 154$ cy

6" CONCRETE LINING
STA 17+00 to STA 22+30 (west side only)

$14.68 \times .5 \times 530 = \frac{3890}{27} = \cancel{144}$ cy

STA 22+98 to STA 27+00 (west side only)

$14.68 \times .5 \times 402 = \frac{2950.68}{27} = \cancel{109}$ cy

why not entire length on both sides =>

$29.36 \times .5 \times 946 = 514$ cy

NBS LOWRY ENGINEERS & PLANNERS

DATE KEV 9/13/94

JOB NO

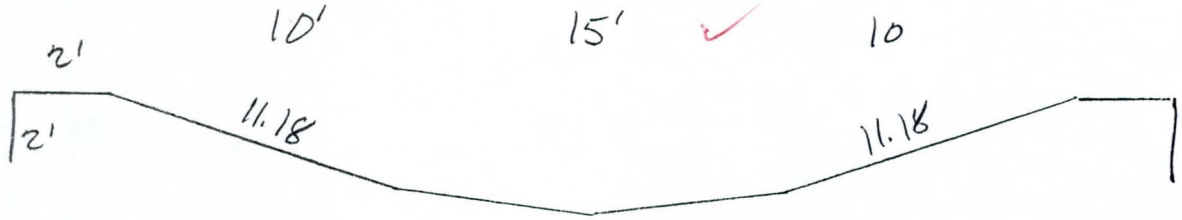
BY MLH

CK'D

SHEET 3 OF

DYSART DRAIN PROJECT
EAST COLLECTOR CHANNEL

SHEET C03



8" CONCRETE LINING
STA 27+00 to STA 30+75

$.67 \times 15 \times 375 = \frac{3768.75}{27} = \underline{140 \text{ cy}}$

6" CONCRETE LINING
STA 27+00 to STA 30+75

$.5 \times 29.36 \times 375 = \frac{5505}{27} = \underline{204 \text{ cy}}$

8" CONCRETE LINING
STA 30+75 to STA 35+06.29 L = 431.29

$.67 \times 10 \times 431.3 = \frac{2889.7}{27} = \underline{107 \text{ CY}}$

6" CONCRETE LINING

$.5 \times 29.36 \times 431.3 = \frac{6331.5}{27} = \underline{235 \text{ cy}}$

Sheet C03

Invert Access Ramp

L = 47.48

S = 10:1

4.74

47.48

S = 47.7

Area @ 35+06.29

8" bottom: .67 x 10 = 6.7 ft²

6" SS : .5 x 29.36 = 14.7 ft²

21.4 ft²

Area @ 35+53.77

29' x .67 = 19.4

~~2(1.17²)~~ x .5 = ~~1.17~~ 3.5 ft²

7

~~20.6~~ ft²

22.9

Avg end area

(~~20.6~~ 22.9 + 21.4) ÷ 2 = ~~21.0~~ 22 ft²

~~21.0~~ 22 x 47.7 = 1001.7 / 27 = ~~37~~ 39 cy

NBS LOWRY ENGINEERS & PLANNERS

DATE 10/28/94
JOB NO P81-194.019
BY
CK'D
SHEET 1 OF 1

EAST COLLECTOR CHANNEL

EXCAVATION

TOTAL CUT = 15119 CY (PER X-SECTION PRINTOUT TO TOP OF LINING)

CUT @ RIP RAP CHANNEL = 2162 CY

CONC. LINING QTY = 2148 CY

19429 CY

PER Spreadsheet

CO1 = 7023

CO2 = 8188

CO3 = 4220

19431 CY

NBS LOWRY ENGINEERS & PLANNERS

TO: Don Renick

AT: FCDMC

FAX # 506 4601

FROM: Chuck

NBS/LOWRY ENGINEERS & PLANNERS - PHOENIX REGIONAL OFFICE
2600 North 44th Street, Suite 200, Phoenix, Arizona 85008
(602) 468-1688 Tel (602) 956-4538 Fax

DATE: 10/28/94 **TIME:** _____ AM___ PM___

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COMMENTS: Verification of channel excavation quantities

NBS LOWRY ENGINEERS & PLANNERS

DATE

JOB NO P81-194.019

BY

CK'D

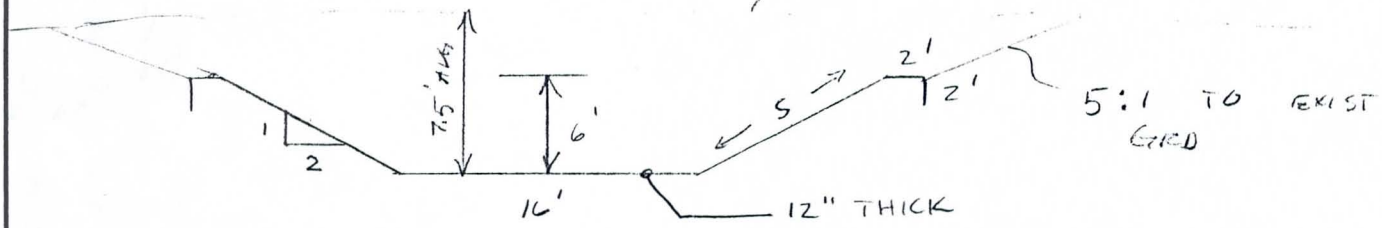
SHEET OF

Sheet C01

EAST COLLECTOR CHANNEL

STA 7+43.84 TO 9+47

12" Grouted rip-rap type II



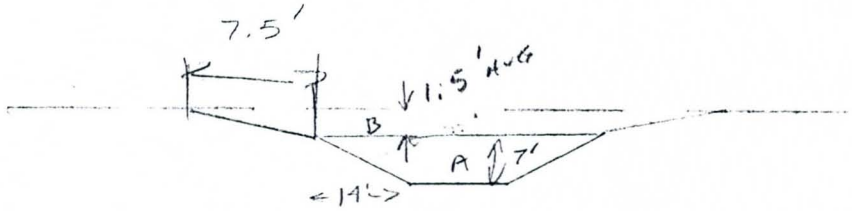
$S = \sqrt{6^2 + 12^2} = 13.4'$

$2(1.5' + 2' + 13.4' + 8') = \frac{49.8 \text{ CF/LF}}{27} = 1.844 \text{ CY/LF}$

$L = 947 - 743.8 = 203.2 \text{ LF}$

$203.2 \times 1.844 = \underline{375 \text{ CY RIP RAP}}$

EXCAVATION -



AREA A -

$(14 + 16)(7) = 210$

$\frac{210 + 77.25}{27} = 10.639 \text{ CY/LF}$

AREA B -

$(44 + 7.5)(1.5) = 77.25$

$10.639 \times 203.2 = \underline{2162 \text{ CY}}$

NBS LOWRY ENGINEERS & PLANNERS

DATE 7/20/94

JOB NO

BY MLH

CK'D

SHEET 5 OF

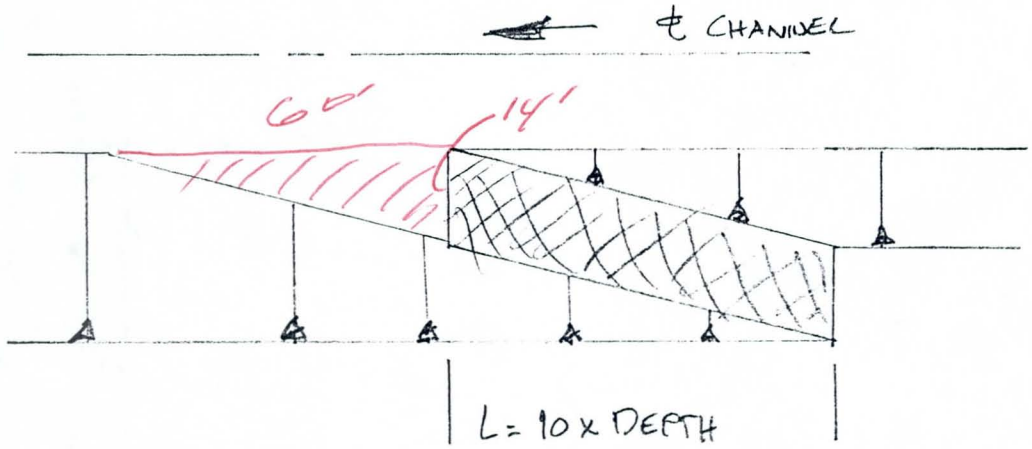
CONCRETE

EAST COLLECTOR CHANNEL

SHEET C02

MAINTENANCE ACCESS

SEE DETAIL 3 SHT D06



$50' \times .5 \times 14' = \frac{\cancel{175}\ 350\ ft^3}{27} = \frac{\cancel{6.48}\ 13\ cy}{}$

$60 \times 14 \times .67 \Rightarrow 11\ cy$

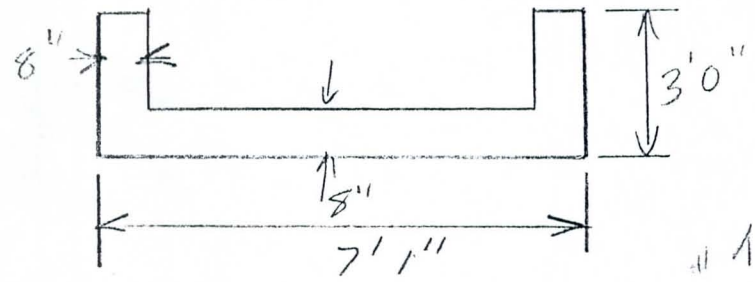
C02 lining total

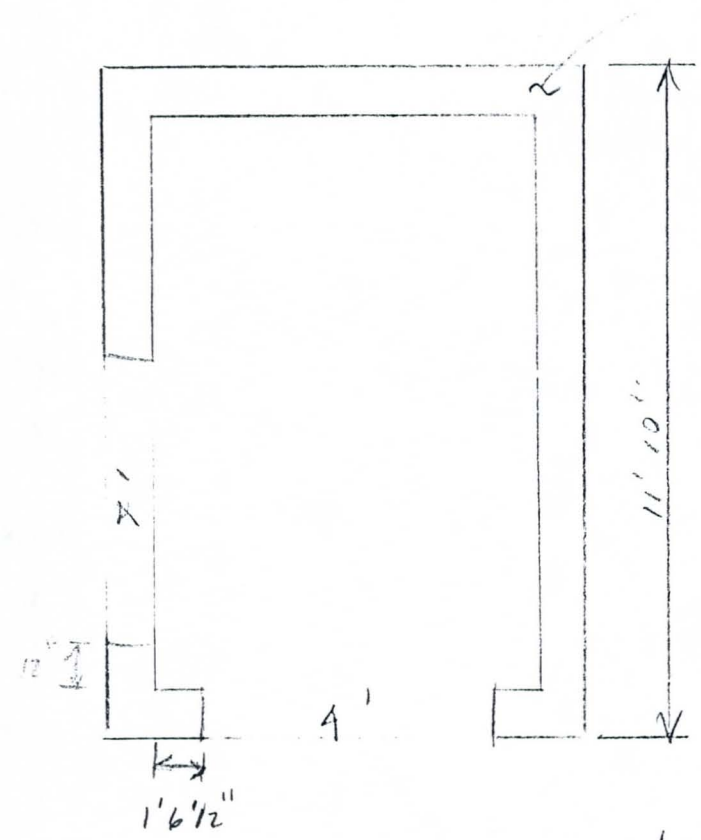
NBS LOWRY ENGINEERS & PLANNERS

DATE 10/10/17
JOB NO P81-19A.019
BY GM
CK'D GM
SHEET ____ OF ____

C01

IRR. JUNCTION BOX AT FARM Rd.





FLOOR – 7.083 × 11.833 = 83.8 SF

WALLS –

$\left(5.5 + 1 + 1.54 + 1.54 + 11.833 + 7.083\right)(2.33)$

= 66.4 SF

2 – 21" CMP – AREA =

$\left(\frac{\pi \left(\frac{21}{12}\right)^2}{4}\right)(2) = 2.4$ SF

$\frac{(83.8 + 66.4 - 2.4)\left(\frac{8}{12}\right)}{27} = 3.65$

SAY 4 CY

STEEL Perimeter = 37.83' − 8' = 29.8' × 3 BARS
= 89.5 LF

wall vertical L = 3.5 × (12 + 18 − 5) = 87.5 LF

FLOOR – L = (7.6' × 9) + (12.33' × 6) = 142.5 LF

weight = (89.5 + 87.5 + 142.5)(0.668) = 215 lbs steel

NBS LOWRY ENGINEERS & PLANNERS

DATE JULY 23, 1997

JOB NO

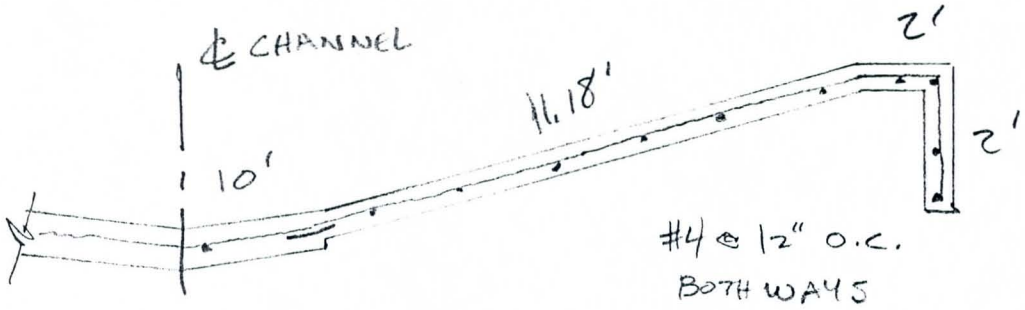
BY MLH

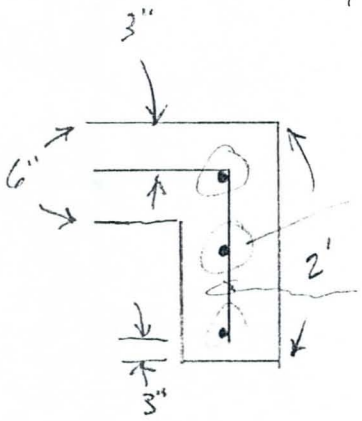
CK'D

EAST COLLECTOR CHANNEL

SHEET 6 OF

SHEET C01 REINFORCEMENT





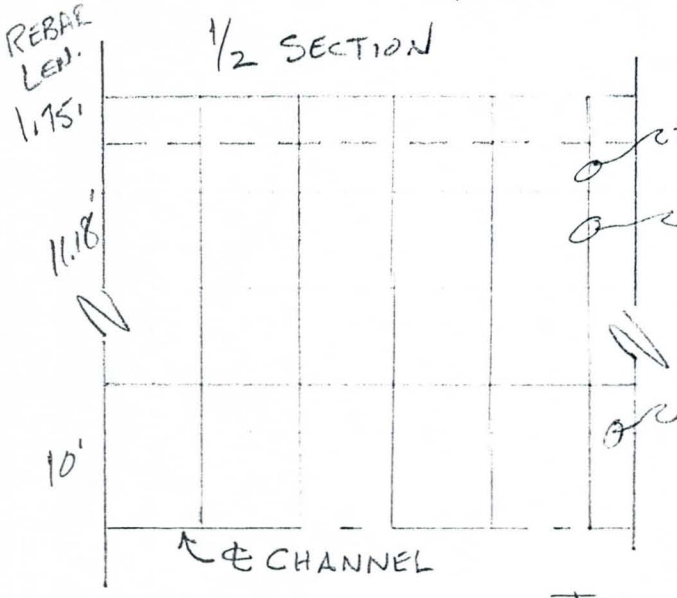
STA 10+25 to 17+00

3 BARS × 675 LF = 2025 LF × 0.668 = 1352.7#

1.5' × 675 BARS = 1012.5 × 0.668 = 676.35#

2029 #

TOTAL = 2029 × 2 SIDES = 4058 #'s

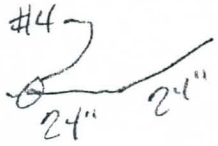


TOTAL FOR CHANNEL
STA 10+25 to STA 17+00

22.93 × 675 = 15477.75# × .668
10339 #

23 BARS × 675 LF = 15525 × .668 = 10,370.70

TOTAL 20,709.7 × 2 SIDES = 41,419.40 #'s



675 × 4' = 2700 × .668 = 1803.60 #'s

1803.60 × 2 SIDES = 3607.20 #'s

NBS LOWRY ENGINEERS & PLANNERS

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JOB NO
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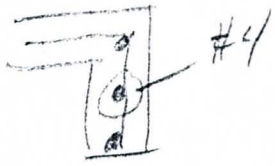
SHEET 7 OF

EAST COLLECTOR CHANNEL

SHEET C01 REINFORCEMENT

STA 17+00 to STA 22+45 TURN DOWN



WEST SIDE

3 BARS X 545 = 1635 x 0.668 = 1092.18 #'s
1.75LF x 545 BAR = 953.75 x .668 = 637.10 #'s

STA 17+00 to STA 20+57

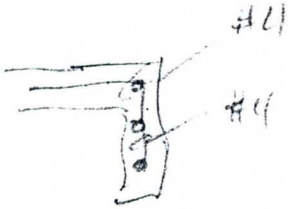
3 BARS x 357 LF = 1071 x .668 = 715.49 #'s
1.75 x 357 = 624.75 x .668 = 429.82 #'s

EAST SIDE

STA 21+57 to STA 22+45

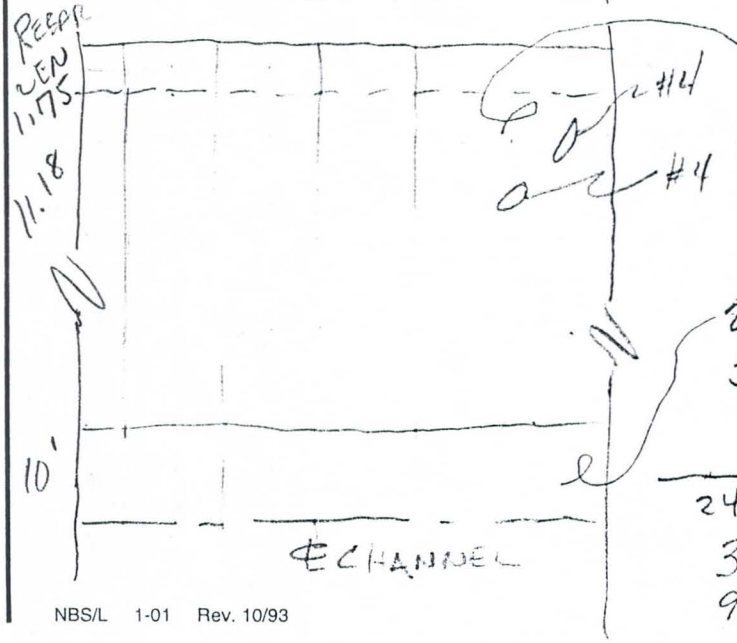
3 BARS x 88 = 264 x .668 = 176.35 #'s
1.5 x 88 = 132 x .668 = 88.18 #'s

@ MAINTENANCE ACCESS Rd.



3 BARS x 110 = 330 x .668 = 220.44 #'s

STA 17+00 to STA 20+57



BARS
22.93 x 357 = 8186 x .668 = 5468.25 #
5468.25 # x 2 SIDES = 10,936.51 #'s

23 BARS #4 x 357 = 8211 x .668 = 5484.94 #'s
5484.94 x 2 SIDE = 10969.88 #'s

24" 24"

357 x 4' = 1428 x .668 = 953.90 #'s
953.9 x 2 SIDES 1907.80 #'s

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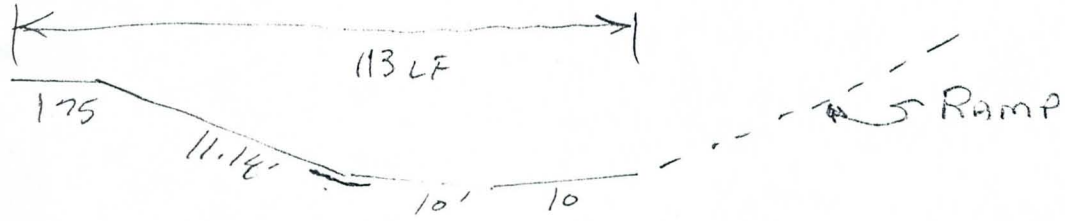
SHEET 8 OF

EAST COLLECTOR CHANNEL

SHEET C02 REINFORCEMENT

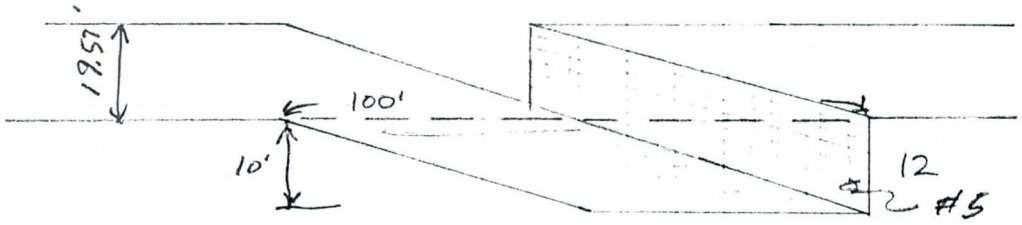
@ MAINTENANCE RAMP STA 20+57 + 21+70

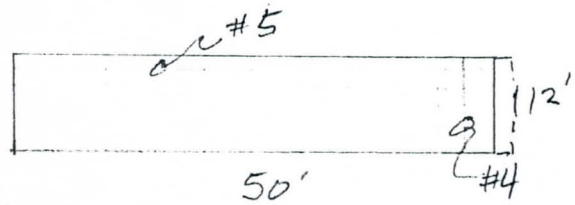
WEST SIDE



32.93 x 113 BAR = 3721.09# x .668 = 2485.67#'S

24" 24" 113 x 4' = 452 x .668 = 301.94#'s





#5 BAR

13B x 50' = 650 x 1.043 = 677.95#'s

BAR

19.57 x 113 = 2211.40 x .668 = 1477.22#'s

10 x 100 = 1000 x .668 = 668#'s

113 x 4 = 452 x .668 = 301.94#'s

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EAST COLLECTOR CHANNEL

SHEET 9 OF

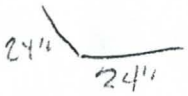
SHEET C02 REINFORCEMENT

SIDES

STA 21+70 to 22+45

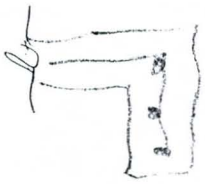
22.93 x 75 BARS = 1719.75 x .668 = 1148.79# x 2 SIDES = 2297.59#'s

23 x 75 = 1725 x .668 = 1152.3# x 2 SIDES = 2304.60#'s



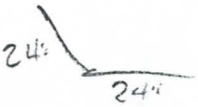
75B. x 4' = 300 x .668 = 200.4 x 2 SIDE = 400.80 #s

STA 22+87 to STA 27+00



3 x 413 = 1239 x .668 = 827.65 x 2 SIDES = 1655.30#s

1.75 x 413 = 722.75 x .668 = 482.80 x 2 SIDES = 965.60#'s



4 x 413 = 1652 x .668 = 1103.54 x 2 = 2207.07#s

20.43 x 413 = 8437.59 x .668 = 5636.31 x 2 SIDES = 11272.62 #s

23 x 413 LF = 9499 x .668 = 6345.33 x 2 SIDES = 12690.66#s

NBS LOWRY ENGINEERS & PLANNERS

DATE 4/20/11

JOB NO

BY MLH

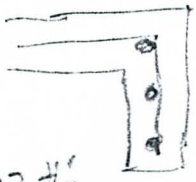
CK'D

EAST COLLECTOR CHANNEL

SHEET 10 OF

SHEET C03 REINFORCEMENT

STA 27+00 to 30+75



3x 375 = 1125 x .668 = 751.5 #'s x2 = 1503 #'s

1.75x 375 = 656.25 x .668 = 438.38 x 2 = 876.75 #'s

20.43x 375 = 7661.25 x .668 = 5117.72# x 2 = 10,235.43 #'s

20 x 375 = 7500 x .668 = 5010# x 2 = 10,020 #'s

24" 24" 4 x 375 = 1500 x .668 = 1002 x 2 = 2004 #'s

STA 30+75 to STA 35+33

3 x 458 = 1374 x .668 = 917.83 x 2 = 1835.66 #'s

1.75x 458 = 801.5 x .668 = 535.40 x 2 = 1070.80 #'s

17.93 x 458 = 8211.94 x .668 = 5485.58 x 2 = 10971.16 #'s

18 x 458 = 8244 x .668 = 5506.99 x 2 = 11013.98 #'s

24" 24" 4 x 458 = 1832 x .668 = 1223.78 x 2 = 2447.55 #'s

NBS LOWRY ENGINEERS & PLANNERS

DATE 1/21/11
JOB NO P81-194-019
BY MLH
CK'D
SHEET 15 OF

EAST COLLECTOR CHANNEL

SHEET C-01

BOX CULVERT @ STA 10+00

DOUBLE 10'x4'x64' ADOT STD. B-02.20

ADOT STD. B-02.70

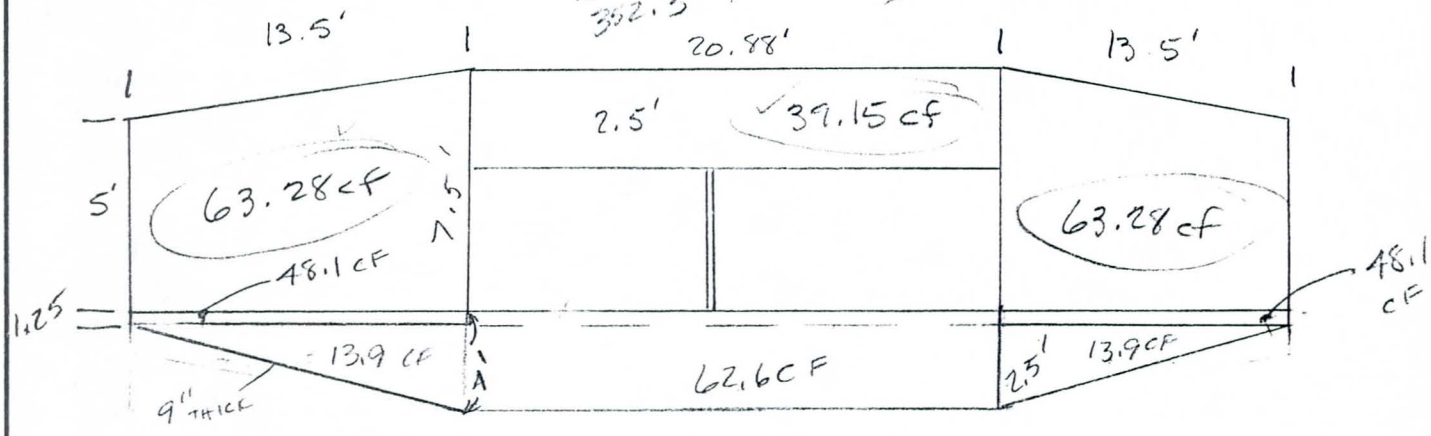
CONC 2.067 cy x 64 LF = 132.28 cy

STEEL 310 lbs x 64 LF 19840 lbs

INLET WINGS

L, M = 5'-0"
θ = 59°
E, G = 13'-6"
H + T = 7.5'
(4:1) 30° SKEW

39.15
63.28
63.28
48.1
48.1
13.9
13.9
62.6
352.3 cf = 13 cy CONC.



ASSUME 76 lbs steel/cy (TYPICAL)

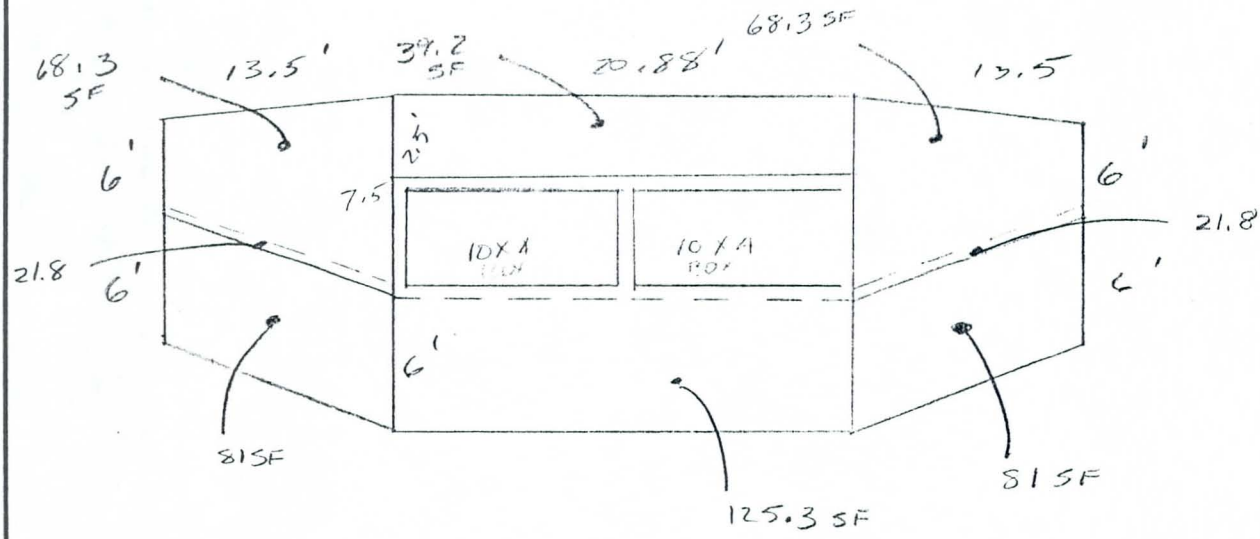
76 x 13 = 988 lbs steel

NBS LOWRY ENGINEERS & PLANNERS

DATE 10/18/94
JOB NO P81-194.019
BY [illegible]
CK'D [illegible]
SHEET ____ OF ____

Sheet CO1

Outlet Wings



39.2
68.3
68.3
21.8
21.8
81.0
81.0
+ 125.3

504.7 CF ÷ 27 = 19 CY

ASSUME 76 lbs / CY steel

76 X 19 = 1444 lbs STEEL

O/M ROAD APRON = 3.5 cy conc.
#4 @ 0.664 #/LF ⇒ 200# REBAR

NBS/L 1-01 Rev. 10/93

NBS LOWRY · ENGINEERS & PLANNERS

DATE 7/20/7

JOB NO

BY MLH

CK'D

SHEET 11 OF

BOX CULVERT

EAST COLLECTOR CHANNEL

C-01 - BOX CULVERT

~~DOUBLE BARREL BOX CULVERT ADOT B-02.20~~

~~10' x 4' x 49' (for QUANTITIES SEE B-02.70)~~

~~QUANTITIES FROM ADOT STD. HIGHWAY DIV. STRUCTURES SEC. TABLE 1~~

~~CONCRETE - 2.067 CY/LF x 49 LF = 101.28 CY~~

~~REINFORCEMENT - 310 #'S/LF x 49 LF = 15,190 #'S~~

C-02

DOUBLE BARREL BOX CULVERT ADOT B-02.20

10' x 4' x 42' (for quantities see B-02.70

CONCRETE - 2.067 CY/LF x 44 LF = 91 CY CONC

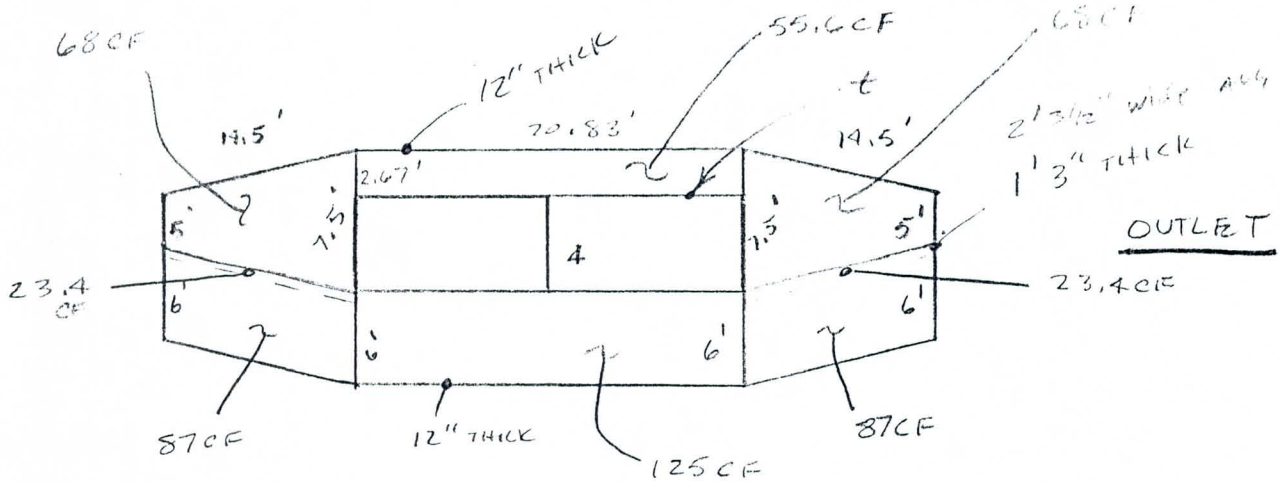
REINFORCEMENT - 310 #'S/LF x 44 LF = 13,640 lbs steel

NBS LOWRY ENGINEERS & PLANNERS

DATE
JOB NO
BY
CK'D
SHEET OF

Sheet C02

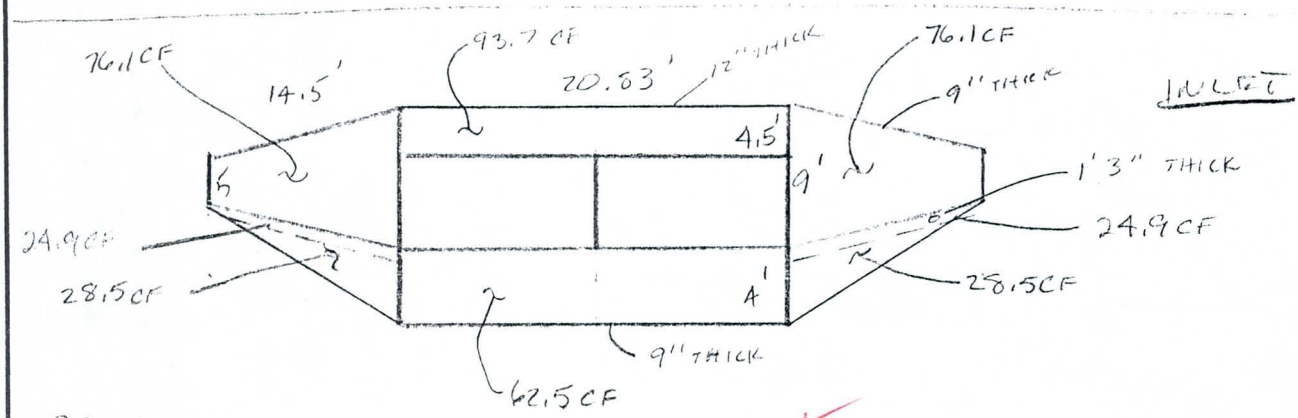
t = 10"



55.6
68.0
68.0
23.4
23.4
87.0
87.0
+125.0

537 CF ÷ 27 = 20 CY

76 X 20 = 1520 lbs steel



93.7
76.1
76.1
24.9
24.9
28.5
28.5
+62.5

415.2 ÷ 27 = 16 CY

76 X 16 = 1216 lbs steel

O/M ROAD CONC. APRON = 3.5 cy

200# ROBAR

NBS/L 1-01 Rev. 10/93

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DATE 1/23/99

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BY MLH

CK'D

EAST COLLECTOR CHANNEL

SHEET 12 OF

SHEET C01-

O&M ROAD 4" ABC

$706 \times 14 \times .33 = 3261.72 \times \cancel{120}^{126} \cancel{165}/\cancel{113} = \frac{391406}{2000} = 195.7 \times 2 =$ ~~391.41~~ 411 TONS

$22 \times 14 \times .33 = 101.64 \times \cancel{120}^{126} = \frac{12196.8}{2000} = \cancel{6.09}^{6.5} \times 2 = \cancel{12.2}^{13}$ TONS

TOTAL ~~404~~ 424 TONS

FENCE — ~~1285~~ 1432 LF

GATES — 2 EA

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SHEET 13 OF

EAST COLLECTOR CHANNEL

SHEET C:02

O&M ROAD 4" ABC

2000 - 10 - 10 + 17 = 1967 LF @ 14' WIDE

$14 \times 1967 = 27538 \times \frac{4}{12} = 9179 CF \times \cancel{120}\ 124\ PCF = \frac{\cancel{1,101,520}\ 1156596}{2000}$

$= \cancel{551}\ 579$ TONS

SUBGRADE PREP. (FARM ROAD)
L = 423' W = 20'

$\frac{423 \times 20}{9} = 940\ 54$

FENCE = ~~2124~~ 2044 LF

GATES = 4

NBS LOWRY ENGINEERS & PLANNERS

DATE
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CK'D
SHEET 14 OF

EAST COLLECTOR CHANNEL

SHEET C-03

O&M ROAD 4" ABC 27+00 TO 36+19 ± L = 919 LF

(919)(2 EA)(14' wide) = 25732 SF

25732 X $\frac{4}{12}$ X $\frac{\cancel{120}\ 126\ PCF}{2000}$ = ~~515~~ 541 TONS

FENCE — ~~1740~~ 1744 LF Plain wire

GATE = 3 - 16' double swing

ABC (4") North of Spillway

20' X 30' = 600 SF

600 $\left(\frac{4}{12}\right)\left(\frac{\cancel{120}\ 126}{2000}\right)$ = ~~12~~ 13 TONS

SUBGRADE PREP. (FARM ROAD)

L = 919' W = 20'

$\frac{919 \times 20}{9}$ = 2042 SY

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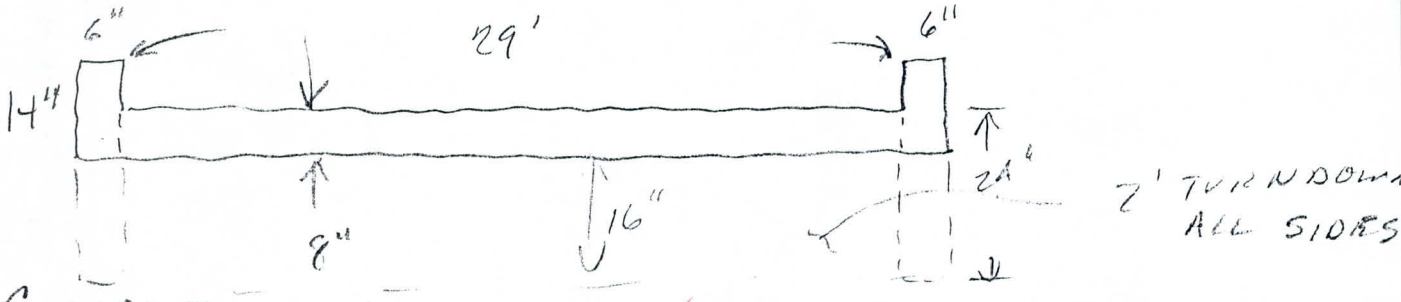
SHEET 1 OF

EAST COLLECTOR CHANNEL

SHEET C03

SPILLWAY



CONCRETE

$45' \times 29 \times .67 = \frac{870}{27} = \underline{32\ cy}$

CURB

$1.17 \times 45' \times .5 = \frac{26.32}{27} = 1\ cy \times (2) = \underline{2\ cy}$

TURNDOWNS $\frac{((2\times45)+(2\times30)) \times (\frac{16}{12})(\frac{6}{12})}{27} = \underline{4\ cy}$

38 CY CONC

REINFORC.

$31 \times 44' = 1364 \times \cancel{.668} = \cancel{911}$ 1.043 (#5) 1423#

$44 \times \cancel{29'} = 1276 \times .668 = \cancel{852}$ 882#

30'

~~2114~~ lbs steel

TOTAL = 2,619#

TURNDOWN Typ L = 18" 3 BARS — 3.5 LF

150 LF x 3.5 525 LF #4 BARS x 0.668 = 351 lbs

#5 IN TURNDOWN ⇒ add 35#

NBS/L 1-01 Rev. 10/93

EAST COLLECTOR CHANNEL

Path: A:\
File: COLLECT1.OUT 9,033 .a.. 8-04-94 10:24:32 am

Project: dysart
Site: collect1 Surface 1: ditch Surface 2: cc-3d Volume tag: cc-2

EARTHWORKS END AREA VOLUME LISTING

Station	Cut Area (sqft)	Fill Area (sqft)	Cut 1.0000 Volume (yds)	Fill 1.0000 Volume (yds)	Cut 1.0000 Tot Vol (yds)	Fill 1.0000 Tot Vol (yds)	Mass Ordinate
10+00	214	1					
			338	1	338	1	337
10+50	152	0					
			281	1	620	2	618
11+00	152	0					
			282	1	902	3	899
11+50	152	0					
			282	1	1184	3	1181
12+00	152	0					
			281	1	1465	4	1461
12+50	151	1					
			281	1	1746	5	1740
13+00	152	1					
			285	1	2030	6	2024
13+50	155	1					
			287	1	2318	7	2310
14+00	155	1					
			286	1	2604	9	2595
14+50	154	1					
			286	1	2889	10	2879
15+00	155	0					
			293	0	3182	10	3172
15+50	162	0					
			310	0	3493	10	3482
16+00	173	0					
			326	0	3819	10	3809
16+50	179	0					
			340	0	4159	10	4149
17+00	188	0					
			353	0	4512	10	4502
17+50	193	0					
			364	0	4876	10	4865
18+00	200	0					
			377	0	5253	10	5243
18+50	208	0					
			391	0	5645	10	5634
19+00	215	0					
			403	0	6048	10	6037
19+50	221	0					
			411	0	6459	11	6448
20+00	223	0					
			418	0	6876	11	6865
20+50	228	0					
			466	0	7342	11	7331
21+00	275	0					

21+50	262	0	497	0	7839	11	7828
22+00	249	1	474	1	8313	12	8301
22+50	412	0	612	1	8925	13	8912
23+00	183	0	551	0	9477	13	9464
23+50	154	0	312	0	9789	13	9776
24+00	147	0	279	0	10068	13	10055
24+50	146	0	272	0	10340	14	10326
25+00	141	1	266	1	10606	15	10591
25+50	142	1	263	2	10869	17	10851
26+00	136	1	258	2	11127	19	11108
26+50	134	1	251	1	11377	20	11357
27+00	130	2	245	2	11622	22	11599
27+50	128	2	239	3	11861	26	11835
28+00	126	3	235	4	12096	30	12066
28+50	133	1	240	3	12336	34	12303
29+00	127	2	241	3	12577	36	12540
29+50	122	4	230	5	12807	42	12765
30+00	119	5	223	8	13030	50	12979
30+50	121	5	222	10	13252	60	13191
31+00	100	4	204	9	13456	69	13387
31+50	95	5	181	8	13636	77	13559
32+00	92	7	173	11	13810	88	13722
32+50	89	10	167	16	13977	103	13874
33+00	88	10	163	18	14140	122	14018
33+50	93	8	167	16	14308	138	14169
34+00	91	8	171	15	14478	153	14325

34+50	91	8	169	15	14647	168	14478
35+00	91	10	168	16	14815	185	14631
35+50	99	9	175	18	14990	202	14788
36+00	41	19	129	26	15119	229	14891

NBS LOWRY ENGINEERS & PLANNERS

DATE [illegible]

JOB NO

BY MLH

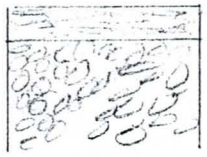
CK'D

SHEET 1 OF

DYSART DRAIN

QUANTY CALCULATIONS - REEMS ROAD

SHEET P02



3" AC

10" ABC

NEW

AC - RAD - $\frac{80^2 - 35\ 40^2}{4}$ = 343 SF x 2 x .25 = 172 CF x 148 lb/CF = 25408 lb / 2000

13 TONS

FULL - 448 LF x 40 x .25 = 4480 CF x 148 lb/CF = 663040 lb / 2000 = 332 TONS

1/2 - 340 LF x 21 x .25 = 1785 CF x 148 lb/CF = 264180 lb / 2000 = 132 TONS

OVERLAY = 340 LF x 17 x .17 = 982 CF x 148 lb/CF = 145425 / 2000 = 73 TONS

TOTAL AC = 550 TONS

TACK (OVERLAY ONLY)

340 LF x 17 = 5780 / 9 = 642 x .30 gal/SY = 193 / 240 = 0.80 TONS

PRIME

[(343 x 2) + (448 x 40) + (340 x 21)] = 25746 / 9 = 2860.6751 x .30 gal/SY = 858 ~~lb~~ gal / 240 ~~lb~~ gal / TON

3.6 TONS

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NBS LOWRY ENGINEERS & PLANNERS

DATE 1/16/94

JOB NO

BY MLH

CK'D

SHEET 2 OF

DYSART DRAIN

REEMS ROAD

SHEET P02

ABC - RAD - 343 x 2 x .83 = 569 ft³ x 120 lbs/ft³ = 68325 / 2000 = 34 TONS

FULL - (448) x (40 + (1.38 x 2) + 4.62) x .83 = 1767 x 120 = 211040 lb / 2000

1057 TONS

1/2 - (340) x (22.38 + 2.31) x .83 = 6968 x 120 = 836102 / 2000 = 418 TONS

(2861 x 9 x 120)/(2000) = 1352 TONS

TOTAL 1509 TONS

SUB-PREP - ((343 x 2) + (448 x 40) + (340 x 21)) = 25746 / 9 = 2861 SY

REMOVE CURB & GUTTER — 500 LF

AC PAVEMENT REMOVAL

RAD. = 80² - π 40² / 4 = 343 SF / 9 = 38 SY

FULL - 448 x 40 = 17920 SF / 9 = 1991 SY

NBS/L 1-01 Rev. 10/93

NBS LOWRY ENGINEERS & PLANNERS

DATE 1/16/17

JOB NO

BY MLH

CK'D

SHEET 3 OF

DYSART DRAIN

REEM RD.

SHEET P02

AC - REMOVAL

$340 \times 21 = \frac{7140}{9} = 793$ SY

TOTAL = 2822 SY

Soil Cement

$\frac{63649 \text{ SF}}{9} = 7072$ SY

SHEET P03

AC - NEW

$1000 \text{ LF} \times 21 \times .25 = 5250 \text{ ft}^3 \times 148 \text{ lb/ft}^3 = \frac{777000 \text{ lb}}{2000} = 388$ TONS

OVERLAY

$1000 \text{ LF} \times 17 \times .17 = 2890 \times 148 = \frac{427,720}{2000} = 214$ TONS

TOTAL 602

TACK (OVERLAY ONLY)

$1000 \text{ LF} \times 17 = \frac{17000}{9} = 1888.88 \times .30 = \frac{566.66}{240} = 2.4$ TONS

NBS LOWRY ENGINEERS & PLANNERS

DATE 1/16/97
JOB NO
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CK'D
SHEET 4 OF

REEMS RD

SHEET P03

PRIME COAT –

1000 LF x 21 = $\frac{21000}{9}$ = 2333.33 x .30 = $\frac{700}{240}$ = 2.90 TONS

SOIL CEMENT

$\frac{55313}{9}$ = 6146 SY

ABC

1000 LF x 21' x .83 = 17430 x ~~120~~ 126 = ~~2091600~~ 2196180 / 2000 = ~~1046~~ 1098 TONS

SUB-PREP

1000 LF x 21' = $\frac{21000}{9}$ SF = 2333 SY

REMOVE CURB & GUTTER = 1000 LF

REMOVE AC PAVEMENT

1000 LF x 21 = $\frac{21000}{9}$ SF = 2333 SY

REMOVE CONCRETE IRR. DITCH – STA 23+48 to 28+00
1' wide

452 LF

NBS/L 1-01 Rev. 10/93

NBS LOWRY ENGINEERS & PLANNERS

DATE 1/16/97

JOB NO

BY MLH

CK'D

REEMS RD.

SHEET 5 OF

SHEET P04.

AC -

NEW

STA 28+00 to STA 36+50 / L = 850'

(850'LF x 21 x .25) = 4463 SY x 148 lb/SY = 660450 / 2000 = 330 TONS

STA 33+00 to 36+50 L = 350'

(350' x 17 x .25) = 1488 SY x 147 lb/SY = 220150 / 2000 = 110 TONS

2" OVERLAY 28+00 - 33+00 L = 500'

(500 x 17' x .17) = 1445 x 148 = 213860 / 2000 = 107 TONS

TOTAL = 547 TONS

TACK (OVERLAY ONLY)

500 x 17 = 8500 / 9 = 944 SY x .30 lb/SY = 283 lbs / 240 = 1.2 TONS

PRIME COAT

(850 x 21) = 17850 / 9 = 1983 x .30 = 595 / 240 = 2.5 TONS

(350 x 17) = 5950 / 9 = 661 x .30 = 198 / 240 = 0.8 TONS

TOTAL = 3.3 TONS

SOIL CEMENT

38320 SF ÷ 9 = 4258 SY

NBS/L 1-01 Rev. 10/93

NBS LOWRY ENGINEERS & PLANNERS

DATE
JOB NO
BY MLH
CK'D
SHEET 6 OF

REEMS ROAD

SHEET 4

ABC

(850 X 21 1.83 = 14816 X 120 lb/ft³ = 1777860 / 2000 = 890 TONS

(350 X 17 X .83) = 4939 X 120 = 592620 / 2000 = 296 TONS

TOTAL = 1186 TONS

NEW CURB & GUTTER
STA 33+00 STA 36+50 > 6" Single CURB — 350 LF
STA 35+71 STA 36+50 > 6" Single CURB & GUTTER 79 LF
~~STA 36+30 STA 36+50 > DEPRESSED CURB 20 LF~~

REMOVE CURB & GUTTER
STA 33+00 to STA 36+50 WEST SIDE — 350 LF TOTAL 1200
STA 28+00 to STA 36+50 EAST SIDE — 850
REMOVE IRR. DITCH — STA 28+00 TO STA 35+75 = 775 LF

SUB-PREP

(850 X 21) = 17850 / 9 = 1983 SY

(350 X 17) = 5950 / 9 = 661 SY

TOTAL = 2644 SY

NEW SURVEY MONUMENT — 1 ea

PAVEMENT REMOVAL = (850 X 21) = 17850
(350 X 17) = 5950
23800 ÷ 9 = 2644 SY

NBS/LOWRY
ENGINEERS & PLANNERS

DATE 8-8-94
JOB NO
BY MLH CHK'D
SHEET 1 OF
R.C.E.

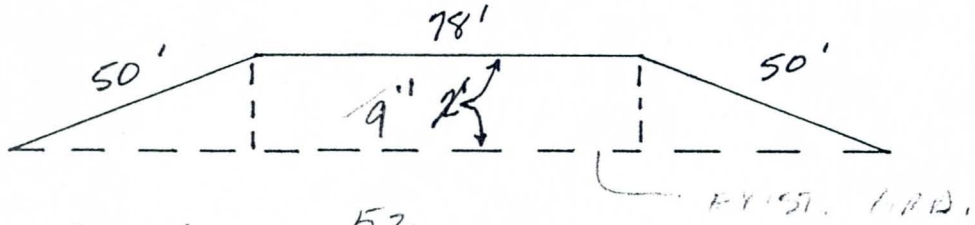
DYSART DRAIN

SHEET P05 FARM ROADS

STA 10+00 (SOUTH ROAD) section is 24' wide

SUB-PREP- 178' x 24' = 4272 SF / 9 = 475 SY

FILL



78 x 24 x ~~.2~~ .75 = ~~3744 ft³~~ 1404 / 27 = ~~138~~ 52 cy

50 x 24 x ~~.2~~ .75' = ~~2400~~ 900 / 27 = ~~89~~ 33 cy

TOTAL ~~227~~ 85 cy

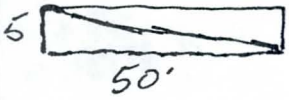
section varies 15'-20' wide

STA 22 + 67

SUB-PREP - 100' x 20 = 2000 / 9 = 222 SY

50' x 15' = 750 / 9 = 83 SY x 2 = 167 SY

(2 SIDES)



50' x 5' = 250 / 9 = 28 SY

TOTAL 417 SY

NBS/L 015

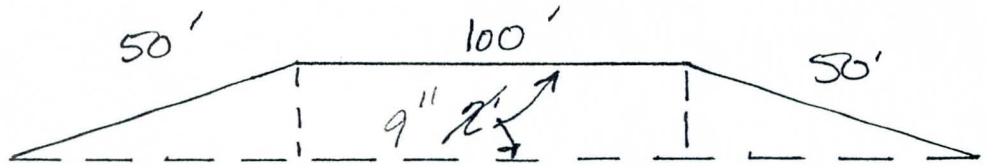
NBS/LOWRY
ENGINEERS & PLANNERS

DYSART DRAIN

DATE 8-8-94
JOB NO
BY MLH CHK'D
SHEET 2 OF
R.C.E.

SHEET P05

STA 22+00



FILL

$100 \times 20' \times \cancel{2'}\ 9'' = \frac{\cancel{4000}\ 1500}{27} = \cancel{148}\ 56$ cy

$50 \times 15 \times \cancel{2'}\ 9'' = \frac{\cancel{1500}\ 563}{27} = \cancel{56}\ 21 \times 2 = \cancel{112}\ 42$ cy

$50 \times 5 \times 9''/12 = \frac{375}{27} = 14$ cy

TOTAL $\cancel{260}\ 112$ cy

NBS/L 015

NBS LOWRY ENGINEERS & PLANNERS

DYSART DRAIN PROJECT

DATE 11/29/71

JOB NO

BY MLH

CK'D

SHEET 1 OF

SHEET B03

NEW 16" WATER LINE — 493 LF

CONCRETE LINE DITCH - 493 LF

SHEET B06

NEW 16" WATER LINE — 700 LF

CONCRETE LINE DITCH - 700 LF

SHEET B09

CONCRETE LINE DITCH - 110 LF

NEW 16" WATER LINE - 300 LF

WOOD, PATEL & ASSOCIATES, INC.
Civil Engineers, Hydrologists, Land Surveyors
1550 East Missouri Suite 203
PHOENIX, ARIZONA 85014
(602) 234-1344
FAX 234-1322

LETTER OF TRANSMITTAL

DATE 10/27/94	JOB NO. 93030
ATTENTION CHUCK	
RE: DYSART DRAIN	

TO NBS LOWRY
2600 N. 44th STREET
PHOENIX, AZ

WE ARE SENDING YOU ☑ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
2			QUANTITY CALCS (FINAL)
			RECEIVED
			OCT 27 1994
			NBS/LOWRY-PHX

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☑ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Need "B" Sheet fence & road, etc quantities

COPY TO _____

SIGNED: JAMES TAILLON

If enclosures are not as noted, kindly notify us at once.

WOOD / PATEL ASSOCIATES
Civil Engineers
Hydrologists
Land Surveyors

PROJECT: DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 1 OF 22
CALCULATED BY: JGT DATE: 7/22/94
CHECKED BY: TCP DATE: 8/94

ESTIMATED QUANTITIES * REV. 9/29/94

SHEET C04 DETENTION BASIN & COLLECTOR CHANNELS

- N. COLLECTOR CHANNEL — CONCRETE

  - STA 20+00 to STA 20+99.97 = 99.97 LF
    SO. SIDE H = (7.28+8.27)/2 = 7.78 AVE
    SO. SIDE SLOPE LENGTH = $\sqrt{7.78^2+(7.78\times1.5)^2}$ = 14.02'
    NO. SIDE H = (9.81+11.63)/2 = 10.72' AVE
    NO. SIDE SLOPE LENGTH = $\sqrt{(10.72)^2+(10.72\times1.5)^2}$ = 19.3'

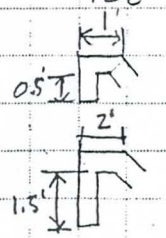
    (14.02' + 12' BOTTOM + 19.3') = 45.3'
    (45.3 × 99.97 × 0.5')/27 — 84 CY

  - STA. 20+99.97 to STA 21+31.10 = 31.1 LF
    H = 8.03'
    SLOPE LENGTH = $\sqrt{(8.03)^2+(8.03\times1.5)^2}$ = 14.48'
    (14.48 + 12 + 14.48) = 40.96
    (40.96 × 31.1 × 0.5')/27 = 24 CY

  - STA. 21+31.10 to 23+16.10 = 185.1 LF
    H = (8.03 + 4.61)/2 = 6.32
    SLOPE LENGTH = $\sqrt{(6.32)^2+(6.32\times1.5)^2}$ = 11.4
    (11.4' + 12' + 11.4') = 34.8
    (34.8 × 185.1 × 0.5')/27 = 119 CY

  - STA 23+16.1 to 23+76.1 = 60 LF
    H = (0 + 4.61)/2 = 2.31'
    SLOPE LENGTH = $\sqrt{2.31^2+(2.31\times1.5)^2}$ = 4.16'
    (4.16' + 12' + 4.16') = 20.3
    (20.3' × 60' × 0.5')/27 = 22 CY

TOE DOWN



0.75 SF + 1.25 SF = 2.5 SF/LF
2376.1 − 2000 = 376.1
(1.25 × 376.1)/27 — 35 CY *
1.75

284 CY

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PROJECT: DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 2 OF 22
CALCULATED BY: JGT DATE: 7/22/94
CHECKED BY: [illegible] DATE: 8/94

ESTIMATED QUANTITIES
DETENTION BASIN & COLLECTOR CHANNELS

SHEET C05

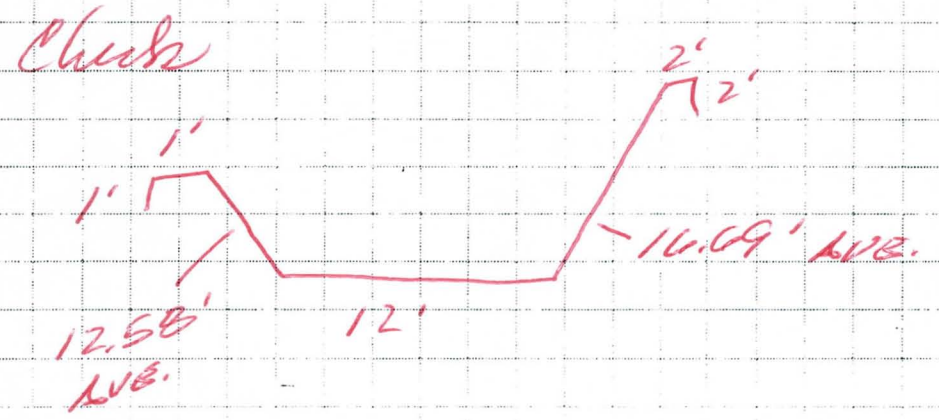
CONCRETE

- N. COLLECTOR CHANNEL

STA 10+00 to STA 20+00 = 1000 LF
SO. SIDE H = (6.68 + 7.28)/2 = 6.98'
SO. SIDE SLOPE LENGTH $\sqrt{(6.98)^2+(6.98\times1.5)^2}$ = 12.58
NO. SIDE H = (8.71 + 9.81)/2 = 9.26'
NO SIDE SLOPE LENGTH $\sqrt{(9.26)^2+(9.26\times1.5)^2}$ = 16.7
(12.58' + 12' bottom + 16.69') = 41.27'
(41.27' × 1000' × 0.5') / 27 — 764 CY

TOE DOWN
0.75 SF/LF SO + 1.75 SF/LF NO = 2.5 SF/LF
(2.5 × 1000') / 27 = 93
857 CY

Check

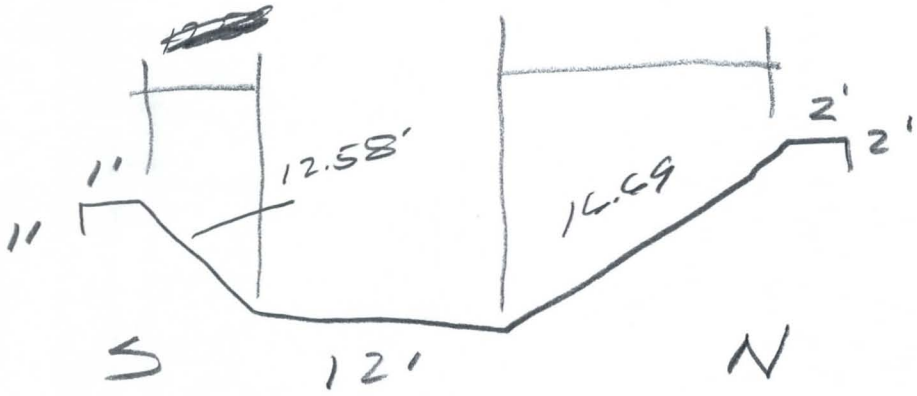


41.27 × .5 × 1000' = 856.85 cy

C05

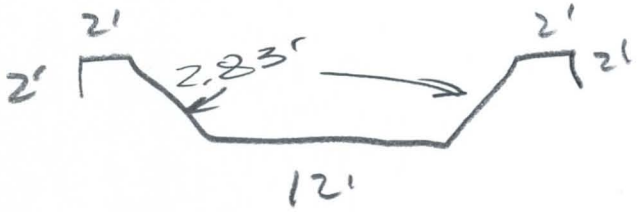
N = 8.71' + 9.81 => 9.26 13.89

S = 7.28 + 6.68 => 6.98 10.47



46.27 x .5 x 1000 => 856

C08



24.66 x .5 x 867.73 = 396.26 cy

RAMP => .5 x 57 x 20 x .5 = 11 cy

TOTAL = 408 cy

US 417 cy

OK

WOOD / PATEL ASSOCIATES
Civil Engineers
Hydrologists
Land Surveyors

PROJECT: DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 3 OF 22
CALCULATED BY: JGT DATE: 7/22/94
CHECKED BY: ACV DATE: 8/94

REV. 10/27/94 (ANGULAR RIP RAP)

ESTIMATED QUANTITIES

SHEET C06 DETENTION BASIN AND COLLECTOR CHANNELS

CONCRETE

N. COLLECTOR CHANNEL (CONCRETE)

STA (10+00) - (3+60.8) = 639.2'
So. SIDE H. = (5.07 + 6.68)/2 = 5.88
So SIDE SLOPE LENGTH = $\sqrt{(5.88^2 + (5.88 \times 1.5)^2)}$ = 10.6
No. SIDE H. = (8 + 8.71)/2 = 8.36
No SIDE SLOPE LENGTH = $\sqrt{(8.36)^2 + (8.36 \times 1.5)^2}$ = 15.1
(10.6 + 12 + 15.1) = 37.7
(37.7 × 639.2 × 0.5)/27 = 446 CY
RAMP (110 LF × 14' × 0.5')/27 29 CY
TOE DOWN
(2.5 SF/LF × 639.2)/27 59 CY
534 CY

(RIP RAP TYPE II)

	TYPE II	TYPE II ANGULAR
STA -01+35 to 01+33.15 = 3321 SF (MEASURED)		
(3321 × 1)/27 =	123 CY	
STA (01+33.15) to (01+92.66) = 59.51 LF		
AVE. H. = 5.8', SLOPE LENGTH = 11.53'		
((11.53 + 12 + 11.53) × 59.51 × 1' THICK)/27 =		77 CY
STA 01+92.66 to STA 3+60.8 = 268.14		
So. SIDE SLOPE LENGTH = 12.28		
No. SIDE SLOPE LENGTH = 14.42		
((12.28 + 12 + 14.42) × 268.14 × 1)/27 =		384 CY
TOE DOWN		
((2.5 SF × (360.8 - 29.15))/27 =		31 CY
RIP RAP	123 CY	492 CY

NORTH FILL AREA DRAIN

PIPE COLLAR	0.5 CY CONC (CLASS B)	15 LB STEEL
24" CMP	125 LF	
CB MAG 501 (W/INLET) (SEE STD DET 501 FOR QUANTITIES)	1 CY CONC (CLASS A)	92 LB STEEL

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PROJECT DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 4 OF 22
CALCULATED BY JGT DATE 7/25/94
CHECKED BY HV DATE 8/94

ESTIMATED QUANTITIES * RBN. 9/29/94

SHEET C07 DETENTION BASIN AND COLLECTOR CHANNELS

- REEMS ROAD COLLECTOR CHANNEL

RIP RAP OUTLET PROTECTION

MEASURED AREA (3820 SF X 1')/27 = 142 CY (TYPE II RIP RAP)

PLUS 2' TOEDOWN ON SOUTH SIDE (80 LF X 2 SF/LF)/27 = 6 CY *

148 CY

- STA 0+00 to STA 0+70.19

MEASURED AREA (3000 SF X 1')/27 = 111 CY (TYPE I)

STA 0+70.19 to STA 2+90.29 = 220.1 LF

LT SIDE H = (5.75 + 4.5)/2 = 5.13

LT SIDE SLOPE LENGTH = 11.47

RT SIDE H = (6.23 + 5.8)/2 = 6.02

RT SIDE SLOPE LENGTH = 13.46

(11.47' + 20' BOTTOM + 13.46') x 8" THICK / 12" = 30 SF/LF

(30 SF/LF x 220.1 LF)/27 = 244 CY (TYPE I)

STA. 2+90.29 to STA. 4+25 = 134.71 LF

LT. SIDE H = (4.5 + 5.09)/2 = 4.8

LT. SIDE SLOPE LENGTH = 10.73

RT. SIDE H = (5.8 + 5.8)/2 = 5.8

RT SIDE SLOPE LENGTH = 12.97

(10.73 + 20' BOTTOM + 12.97) x 8"/12" = 29.1 SF/LF

(29.13 SF/LF x 134.71 LF)/27 = 145 CY (TYPE I)

STA 4+25 to 4+50 = 25 LF

LT SIDE H = (5.09 + 4.5)/2 = 4.8

LT SIDE SLOPE LENGTH = 10.72

RT SIDE H = (5.8 + 6.54)/2 = 6.17

RT SIDE SLOPE LENGTH = 13.8

(10.72 + 20 + 13.8) x 8"/12" = 29.7 SF/LF

(29.7 x 25)/27 = 27.5 CY (TYPE I)

ESTIMATED QUANTITIES * REV. 9/29/94

DETENTION BASIN AND COLLECTOR CHANNELS

SHEET C 07 CONTINUED

REEMS ROAD

STA 4+50 to STA 5+33.01 = 83.01 LF

LT SIDE H = (4.5 + 2.8)/2 = 3.65'

LT SIDE SIDE SLOPE LENGTH = 8.16'

RT SIDE H = (6.54 + 2.8)/2 = 4.67

RT SIDE SIDE SLOPE = 10.44

(8.16' + 20' + 10.44) x 9"/12" = 25.74 SF/LF

(25.74 x 83.01)/27 = 79 cy (TYPE I)

* ADD 2' TOE DOWN @ SOIL CEMENT ON WEST/SOUTH SIDE

AREA = 2' x 1' = 2 SF/LF

LENGTH = 524'

(524 LF x 2 SF/LF)/27 CF/cy = 38 cy

TOTAL 645 cy

WOOD / PATEL ASSOCIATES
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PROJECT: DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 6 OF 22
CALCULATED BY: JGT DATE 7/25/94
CHECKED BY: TGP DATE 8/94

ESTIMATED QUANTITIES * REV. 9/29/94

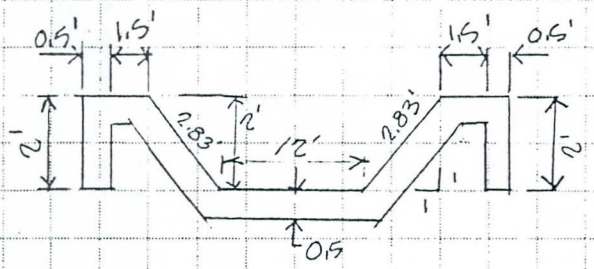
SHEET C 08 DETENTION BASIN & COLLECTOR CHANNELS

RIP RAP TYPE II AT BASIN OUTLET BOX

AREA MEASURED = (71' x 5' x 1')/27 = 13 cy
(50' x 5' x 1')/27 = 10 cy
23 cy (TYPE II)

BOX & WINGS AT OUTLET FROM BASIN	CONC	STEEL
INLET WING (SEE BELOW FOR MODIFIED WING QUANTITY)	17.4 cy	1275 LB
BOX (6' x 7' x 75') (0.86 cy/LF)	64.5 cy	11003 LB
OUTLET WINGS (6' x 7' BOX, 6:1 SLOPE, B 05.30)	26.7 cy	1838 LB
	108.6 cy	14116 LB

CONCRETE CHANNEL (LOW FLOW)



(2 + 1.5 + 2.83 + 12 + 2.83 + 1.5 + 2) = 24.7'

STA 230+80 to STA 222+00 = 880 LF
(24.7 SF/LF x 880 LF x 0.5)/27 — CONC 402 cy *

0.5 cy to be deducted so channel area = 337 cy

Ramp (AREA MEASURED) = (316 SF x 0.5)/27 — 15 cy
417 cy *

USE 65+42 cy ⇒

Box @ BASIN OUTFALL ADOT B 04.30 — CBC B 02.10 = 65 cy

INLET HEADWALL QUANTITIES FOR MODIFIED HEADWALL

STD BOX E & G = 17'-0" — MODIFIED BOX E & G = 21'-6"
L & M = 6.08' — L & M = 4'-7"
H = 7.79' — H = 7.79'

AREA = $\frac{7.79 + 6.08}{2}$ x 17' = 118 SF — AREA = $\left(\frac{4.58 + 7.79}{2}\right)$ x 17' = 133 SF

133/118 = 1.127

STD. BOX CONC 15.47 cy x 1.127 = 17.4 cy — OUTLET = ? cy
STEEL 1131 LB x 1.127 = 1275 LB

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PROJECT: DYSART DRAIN
PROJECT NO. 93030.00 SHEET NO. 7 OF 22
CALCULATED BY: JGT DATE 7/25/94
CHECKED BY: AW DATE 9/94

REV. 8/12/94
* REV. 9/29/94

ESTIMATED QUANTITIES

SHEET C-09 DETENTION BASIN & COLLECTOR CHANNELS

CONCRETE

- STA 222+00 to STA 219+22.66 = 277.34 LF
  (24.7 SF/LF X 277.3 LF X 0.5)/27 = 126 BCY

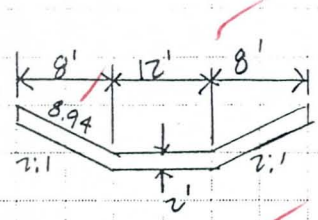
- STA 219+22.66 to STA 219+05 = 17.66 LF
  AREA = 2+1.5+5.66+12+5.66+1.5+2 = 30.3 LF
  30.3 SF/LF X 17.66 LF X 0.5)/27 — 9.9 CY

- STA 219+05 to STA 218+95 = 10'
  (30.3 X 10' X 0.5)/27 — 5.6
- STA 219+95 - 218+75 (30.3+30)/2 = (33.1 X 20 X .5)/27 — 12.3
- RAMP (AREA MEASURED) = (816 SF X 0.5')/27 = 15 CY
  170 CY

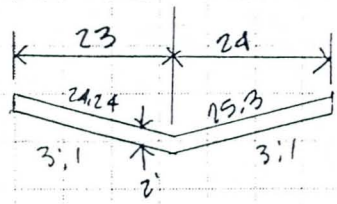
- SOUTH FILL AREA DRAIN

30" CMP — 188 LF
CB MAG 501 (W/INLET) (SEE MAG STD DET 501 FOR QUANT) 1.5 CY CLASS "A" CONC. — 112 LB STEEL
CB ADOT C-15.8 (W/APRON) 1 EA 1.4 CY CONC CLASS "B", 88 LB STEEL
(SEE SHEET 10 FOR QUANT)

- * RIP RAP OUTLET PROTECTION (LOOSE)



60 SF/LF



99 SF/LF

~~NEED CALC FOR GROUTED TOE DOWN 23 CY ±~~

$[(\frac{60+99}{2}) \times \cancel{50'}] \div 27 = \cancel{147}$ CY ✓
56'
164

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PROJECT: DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 8 OF 22
CALCULATED BY: JGT DATE 7/25/94
CHECKED BY: AH DATE 8/94

C-22

ESTIMATED QUANTITIES
CHANNEL PLANS

REV. 8/12/94
* REV. 9/29/94

* · STA 218+95 - 218+75 REMOVE LINING (SEE SHEET 7) 30.3 SF/LF x 20 LF = 606 SF
* · STA 218+95 - 218+80.41 NEW CHANNEL (30.3 SF/LF x 14.60 LF)/27 = 16 CY NEW LINING
* · REMOVE RIP RAP (SEE SHEET 7) 147 CY
· INLET/OUTLET WINGS - USING ADOT RET WALL DET. B 18.1

NORTHERN AVE BOX & WINGS

	CONCRETE	STEEL
- SPECIAL CURB (3'H x 16.7'L x 0.75'W)/27 =	1.4 CY	8 LB/LF x 16.7 LF = 134 LB
- CUT OFF WALL (4'H x 16.7 L x 0.75'W)/27 =	1.85 CY	5 LB/LF x 16.7 LF = 84 LB
- WINGS $\left(\frac{12.46+9.04}{2}\right)$ = 10.75'H = 0.71 CY/LF x 10 LF x 2 EA =	14.2 CY	62.5 LB/LF x 10 LF x 2 EA = 1250 LB
	17.45 CY	1,468 LB

INLET / OUTLET WING - USING ADOT RET. WALL DET. B-18.1

- SPECIAL CURB (3'H x 16.7'L x 0.75'W)/27 =	1.39 CY	8 LB/LF x 16.7 LF = 134 LB
- CUTOFF WALL (6'H x 16.7'L x 0.75'W)/27 =	2.78 CY	12 LB/LF x 16.7 LF = 200 LB
- WINGS 11.67'H = 0.776 CY/LF x 15 LF x 2 EA =	23.3 CY	61.7 LB/LF x 15' x 2 EA = 1851 LB
	27.5 CY	2,185 LB

* OUTFALL BOX

BOX 2 BARREL 6'x6'x159.2

(1.394 CY/LF x 158.4 LF) = 222 CY 203.3 LB/LF x 159.2 LF = 32,365 LB

TOTAL 36,018 LB

GROUTED RIP RAP TYPE II

(43 LF x 5' WIDE x 1' THICK)/27 = 8 CY

WOOD / PATEL ASSOCIATES
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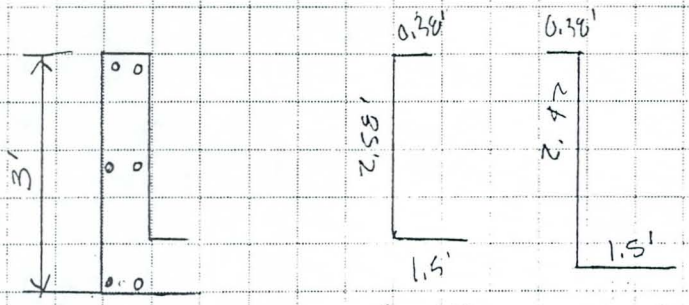
PROJECT: DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 9 OF 22
CALCULATED BY: UGT DATE: 7/28/94
CHECKED BY: [illegible] DATE: 8/94

(MISC. CALCS.)

SPECIAL CURB STEEL

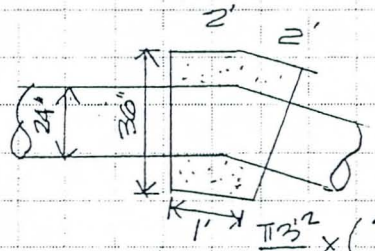


(4.46') (4.3')

6 LF/FT $\left(\frac{4.46+4.3}{18''}\right) \times 12'' = 5.84$ FT/LF

11.84 LF/FT #4 @ 0.0668 LB/FT = 8 LB/LF

PIPE COLLAR



$\frac{\pi 3'^2}{4} \times \left(\frac{4+1}{2}\right) = 17.7$ CF

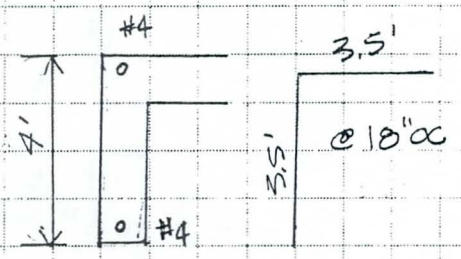
$\pi \left(\frac{2^2}{4}\right) \times 2.5' = 7.9$ CF

$\frac{9.8}{27} = 0.36$ CY

9 REBARS $\times (4'+1)/2 = 23$ LF

23×0.0668 LB/LF = 15 LB

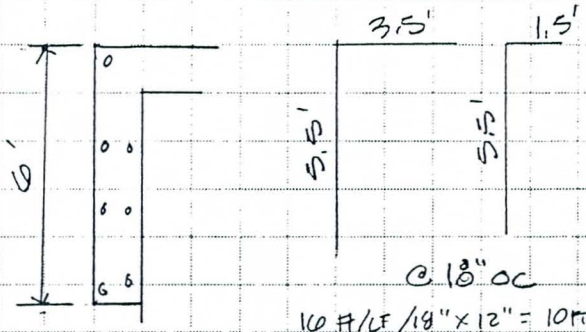
INLET CUT OFF WALL



2 FT/LF 4.666 FT/LF

$2 + 4.666 = 6.66$ LF #4 @ 0.0668 LB/FT = 4.5 LB/LF

OUTLET CUTOFF



10 FT/LF / 18" × 12" = 10 FT/LF

7-#4 = 7' + 10' = 17 LF #4 @ 0.0668 LB/FT = 11.4 LB/L

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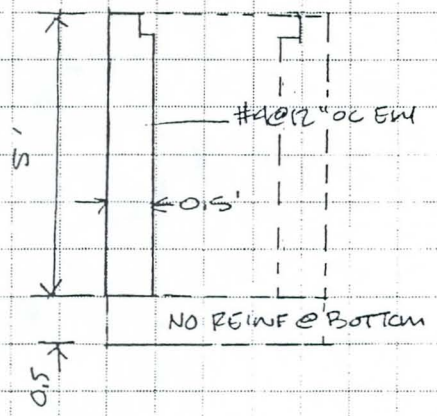
PROJECT: DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 10 OF 22
CALCULATED BY: JGT DATE: 7/28/94
CHECKED BY: AGV DATE: 8/94

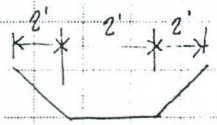
- ADOT C-15.80 (MISC. CALCS.) * REV. 9/29/94



STEEL
4'+4'+2'+2' SIDE WIDTHS
= 12 LF × 5.5'H = 66 SF
66 SF × 2 (#4 EW) = 132 LF
132 LF × 0.668 LB/LF = 88 LB

CONC (CLASS B)
BOTTOM 4.5' × 3' × 0.5' = 6.75 cf
WALL (4' × 5' × 0.5') × 2 = 20 cf
WALL (2' × 5' × 0.5') × 2 = 10 cf
36.75 cf / 27 = 1.4 CY

- EXIST. CHANNEL LINING



±6 SF/LF OF LINING

* CHANNEL LINING REMOVALS

LF OF CHANNEL LINING

B01	B02	B03	B04	B05	B06	B07	B08	B09	B10	B11	B12
300 (E)	—	—	845	100	—	—	1000	830			
	—	—									
	—	—	845	100	—	—	1000	830	—	—	—
×6			×6	×6			×6	×6	(6 SF/LF)		
1,800			5070	600			6,000	4,980		= 25,980 SF	

GROUTED RIP RAP (TYPE II) IN BASIN
@ EAST COLLECTOR @ INLET TO BASIN.
AREA @ OUTLET MEASURED @ 2720 × 1' THICK ÷ 27 cf/cy = 101 cy

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PROJECT: PYSART DRAIN
PROJECT NO. 93030 SHEET NO. 11 OF 22
CALCULATED BY: JGT DATE: 8/1/94
CHECKED BY: [illegible] DATE: 8/94

C-04 CHANNEL EARTWORK

EARTHWORK EST.

NORTH COLLECTOR CHANNEL

- STA 20+00 to STA 20+99.97 = L = 99.97 LF
  SO. SIDE H = 7.78', W = 7.78 × 1.5 = 11.67
  NO SIDE H = 10.72, W = 10.72 × 1.5 = 16.08
  BOTTOM H = $\frac{7.78+10.72}{2}$ = 9.25, W = 12'

  AREA = $\left[\left(\frac{7.78' \times 11.67}{2}\right) + \left(\frac{10.72 \times 16.08}{2}\right)\right] + (9.25 \times 12') = 242$ SF/LF
  VOLUME = (242 SF × 99.97 LF)/27 = : 898 cy

- STA 20+99.97 to STA 21+31.10 = 31.1 LF
  H = 8.03' W = 8.03 × 1.5 = 12.04'
  BOTTOM, H = 8.03', W = 12'
  AREA = $\left(\frac{8.03 \times 12.04}{2}\right)$ × 2 SIDES + (8.03 × 12) = 193 SF
  VOLUME = (193 SF × 31.1 LF)/27 = 222 cy

- STA 21+31.1 to STA 23+16.1 = 185.1 LF
  H = 6.32, W = 6.32 × 1.5 = 9.48
  BOTTOM H = 6.32, W = 12'
  AREA = $\left(\frac{9.48 \times 6.32}{2}\right)$ × 2 SIDES + (6.32' × 12') = 135 SF/LF
  VOLUME = (135 SF × 185.1)/27 = 926 cy

- STA 23+16.1 to STA 23+76.1 = 60 LF
  H = 2.31', W = 2.31 × 1.5 = 3.46'
  BOTTOM H = 2.31, W = 12'
  AREA = $\left(\frac{2.31 \times 3.46}{2}\right)$ × 2 SIDES + (2.31 × 12) = 35 SF/LF
  VOLUME = (35 SF × 60 LF)/27 = 78 cy

- VOLUME OF LINER (FROM SHEET 1) = 270 cy

2,394 cy

WOOD / PATEL ASSOCIATES

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PROJECT: DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 12 OF 22
CALCULATED BY: JGT DATE: 8/1/94
CHECKED BY: [illegible] DATE: 8/9/94

C-05 CHANNEL EARTHWORK

EARTHWORK ESTIMATE

NORTH COLLECTOR CHANNEL

- STA 10+00 to STA 20+00 = 1000 LF

So. SIDE H. = 6.98', W = 6.98 × 1.5 = 10.47'

No. SIDE H. = 9.26', W = 9.26 × 1.5 = 13.9'

BOTTOM H = $\frac{10.47+13.9}{2}$ = 12.2, W = 12'

AREA = $\left(\frac{6.98 \times 10.47}{2}\right) + \left(\frac{9.26 \times 13.9}{2}\right) + 12.2 \times 12$ = 248 SF

VOLUME = (248 SF × 1000 LF)/27 = 9,162 cy

- VOLUME OF LINING (FROM SHEET 2) = 857 cy

10,020 cy

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PROJECT: DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 13 OF 22
CALCULATED BY: JGT DATE: 8/1/94
CHECKED BY: [illegible] DATE: 8/94

C-06 CHANNEL EARTHWORK

EARTHWORK ESTIMATE
H. COLLECTOR CHANNEL

- STA 10+00 to STA 3+60.8 = 639.2
  SO. SIDE H = 5.88, W = (5.88 × 1.5) = 8.82'
  NO. SIDE H = 8.36, W = (8.36 × 1.5) = 12.54'
  BOTTOM H = $\left(\frac{5.88+8.36}{2}\right)$ = 7.12' W = 12'
  AREA = $\left(\frac{5.88 \times 8.82}{2}\right) + \left(\frac{8.36 \times 12.54}{2}\right) + 7.12 \times 12$ = 164 SF
  VOLUME = (164 SF × 639.2 LF)/27 = 3,878 cy

- STA 360.8 to 0+92.66 = 268.14
  SO. SIDE H = 6.8 W = 6.8 × 1.5 = 10.2
  NO. SIDE H = 8', W = 8 × 1.5 = 12'
  BOTTOM H = $\left(\frac{6.8+8}{2}\right)$ = 7.4', W = 12'
  AREA = $\left(\frac{6.8 \times 10.2}{2}\right) + \left(\frac{8 \times 12}{2}\right) + 7.4' \times 12'$ = 171 SF
  VOLUME = (171 × 268.14)/27 = 1,698 cy

- STA 0+92.66 to STA 0+33.15 = 59.51
  H = 5.8', W = 5.8 × 1.5 = 8.7'
  BOTTOM H = 5.8', W = 8.7'
  AREA = $\left(\frac{5.8 \times 8.7}{2}\right)$ × 2 SIDES + (5.8 × 12) = 120 SF
  VOLUME = (120 × 59.51)/27 = 264 cy

- VOLUME OF LINER (SEE SHEET 3 OF THESE CALCS.) = 534 + 77 + 384 + 31 = 1026 cy

6,866 cy

C-07 CHANNEL EARTHWORK

EARTHWORK ESTIMATE
REEMS ROAD CHANNEL

- STA 0+70.19 to STA 2+90.29 = 220.1 LF
  LT HT = 5.13', W = 5.13×2 = 10.26'
  RT HT = 6.02, W = 6.02×2 = 12.04
  BOTTOM H = $\frac{6.02+5.13}{2}$ = 5.57', W = 20'
  AREA = $\left(\frac{5.13\times10.26}{2}\right)+\left(\frac{6.02\times12.04}{2}\right)+5.57\times20$ = 174 SF
  VOLUME = (174 SF × 220.1 LF)/27 = 1418 cy

- STA 2+90.29 to STA 4+25 = 134.71
  LT HT = 4.8', W = 4.8×2 = 9.6'
  RT HT = 5.8', W = 5.8×2 = 11.6
  BOTTOM H = $\frac{4.8+5.8}{2}$ = 5.3', W = 20'
  AREA = $\left(\frac{4.8\times9.6}{2}\right)+\left(\frac{5.8\times11.6}{2}\right)+5.3\times20$ = 163 SF
  VOLUME = (163 × 134.71)/27 = 812 cy

- STA 4+25 to STA 4+50 = 25 LF
  LT H = 4.8, W = 4.8×2 = 9.6
  RT H = 6.17, W = 6.17×2 = 12.34
  BOTTOM H = $\frac{4.8+6.17}{2}$ = 5.48, W = 20'
  AREA = $\left(\frac{4.8\times9.6}{2}\right)+\left(\frac{6.17\times12.34}{2}\right)+5.48\times20$ = 171 SF
  VOLUME = (171 × 25)/27 = 158 cy

- STA 4+50 to STA 5+33.01 = 83.01
  LT H = 3.76, W = 3.76×2 = 7.52'
  RT H = 4.67 W = 4.67×2 = 9.34
  BOTTOM H $\left(\frac{3.76+4.67}{2}\right)$ = 4.21, W = 20'
  AREA = $\left(\frac{3.76\times7.52}{2}\right)+\left(\frac{4.67\times9.34}{2}\right)+4.21\times20$ = 120 SF = 369 cy
  VOLUME = (120 × 83.01)/27

- VOLUME OF LINER (FROM SHEET 5) w/o TIE DOWN = 606 cy

3,363 cy

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PROJECT: DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 15 OF 22
CALCULATED BY: JGT DATE 8/1/94
CHECKED BY: AGL DATE 8/94

C-08 CHANNEL EARTHWORK

EARTHWORK ESTIMATE
OUTFALL CHANNEL

- STA 230+67.55 to STA 229+89.42 = 78.13 LF
  H = (10.78 + 10.26)/2 = 10.52', W = 52.6'
  BOTTOM = H = 10.52, W = 12'
  AREA = $\left(\frac{10.26 \times 52.6}{2}\right)$ × 2 SIDES + (10.52 × 12) = 6660 SF
  VOLUME = (6660 × 78.13)/27 = 1927 CY

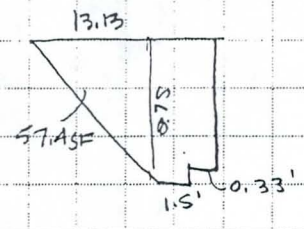
- STA 229+98.42 to STA 222+00 = 798.42
  H = (10.52 + 9.14)/2 = 9.83 W = (41 + 49.15)/2 = 45'
  BOTTOM H = 9.83', W = 12'
  AREA = (9.83 × 45/2) × 2 SIDES + 9.83 × 12 = 560 SF
  VOLUME = (560 × 798.42)/27 = 16,560 CY

- VOLUME OF LINER (FROM SHEET 6) = 336 CY

18,823 CY

BOX CULVERT
STRUCTURAL EXCAVATION
W = 1.5 + 0.33 + 0.75 + 6' + 0.75 + 0.33 + 1.5 = 11.16'
L = 75' + [(8.75 × 2) × 2 SIDES] = 110 LF
H = 12'
VOLUME = (11.16 × 110 × 12)/27 = 546 CY

STRUCTURAL BACKFILL



A = [(13.13 × 8.75/2) + (8.75 × 1.83)] × 2 SIDES = 147 SF
L = 75 + 2(7) = 89 LF
VOLUME = (147 × 89)/27 = 484 CY

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PROJECT: DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 16 OF 22
CALCULATED BY: JGT DATE: 8/1/94
CHECKED BY: [illegible] DATE: 8/94

C09

CHANNEL EARTHWORK

EARTHWORK ESTIMATE
OUTFALL CHANNEL

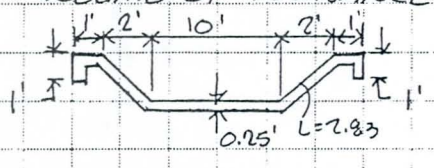
- STA 222+00 to STA 218+75 = 325 LF
  H = (9.14 + 8.71)/2 = 8.93', W = (41 + 49.15)/2 = 45'
  BOTTOM H = 8.93', W = 12'
  AREA (8.93 x 45/2) x 2 SIDES + 8.93 x 12 = 509 SF
  VOLUME = (509 x 325)/27 = 6,127 cy

VOLUME OF LINING (FROM SHEET 7) 130 cy + 23 = 153 cy

VOLUME FROM NORTHERN AVE. CHANNEL (SEE NEXT SHEET) 1490 cy

7,770 cy

VOLUME OF NUISANCE FLOW CHANNEL



AREA = (2x2) + (10x2) = 24 SF
+ 0.25'(0.5 + 1 + 2.83 + 10 + 2.83 + 1 + 0.5) = 4.7
= 24 + 4.7 = 28.7 SF/LF
L = 4540'
VOLUME = (28.7 x 4540)/27 = 4,825 cy

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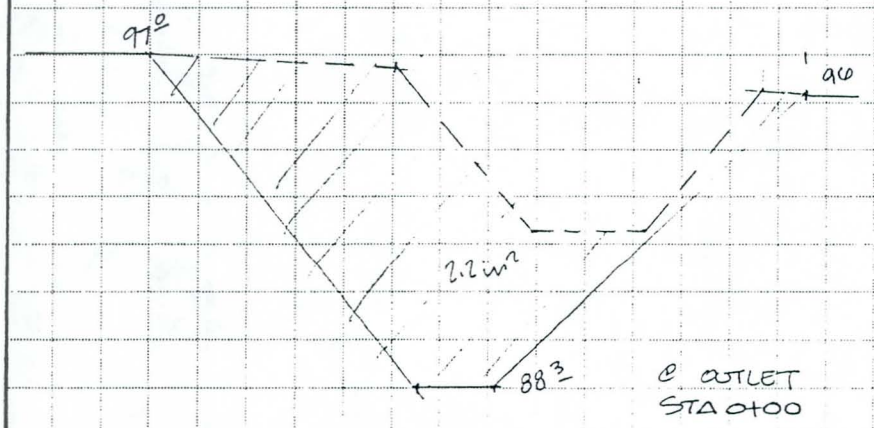
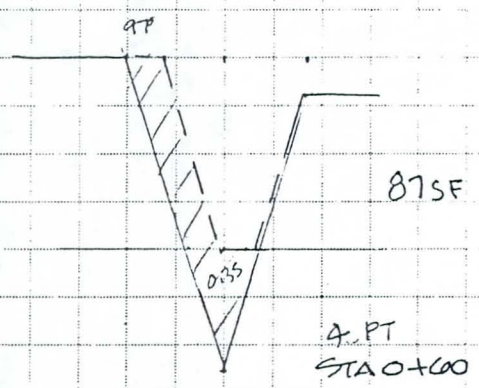
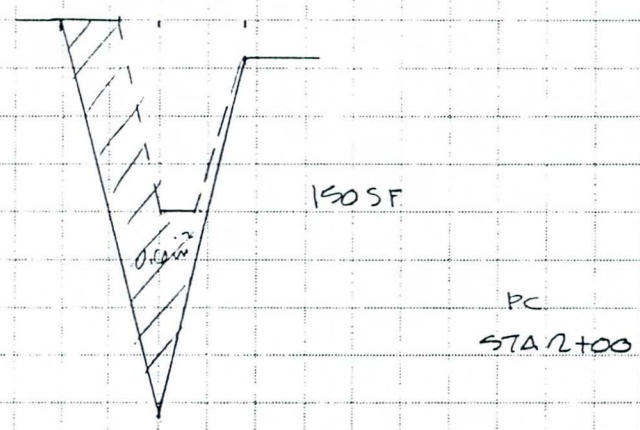
PROJECT DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 17 OF 22
CALCULATED BY JGT DATE 8/1/94
CHECKED BY HCL DATE 10/94

NORTHERN AVE CHANNEL
(ADDED TO SHEET C09)
CHANNELS

HORZ 1" = 50'
VERT 1" = 5'







VOLUME OF CUT

$$\left[\left(\frac{550+87}{2}\times 60\right)+\left(\frac{87+150}{2}\times 140\right)+\left(\frac{150+0}{2}\times 60\right)\right]/27 = 1{,}490 \text{ cy CUT}$$

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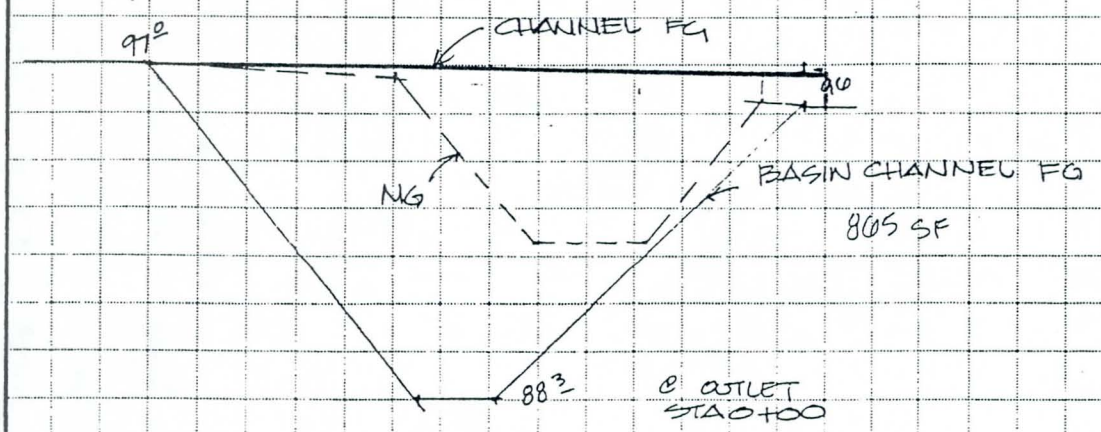
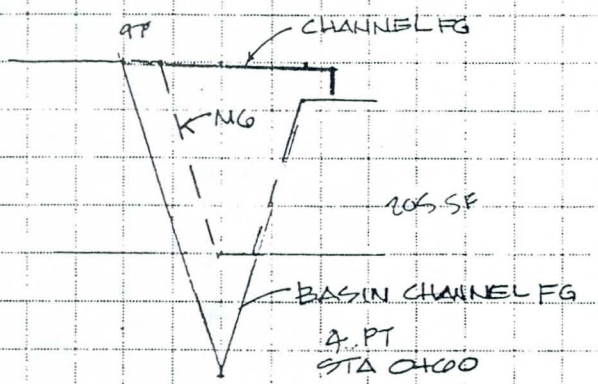
PROJECT: DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 18 OF 22
CALCULATED BY: JGT DATE: 8/1/94
CHECKED BY: [illegible] DATE: 8/94

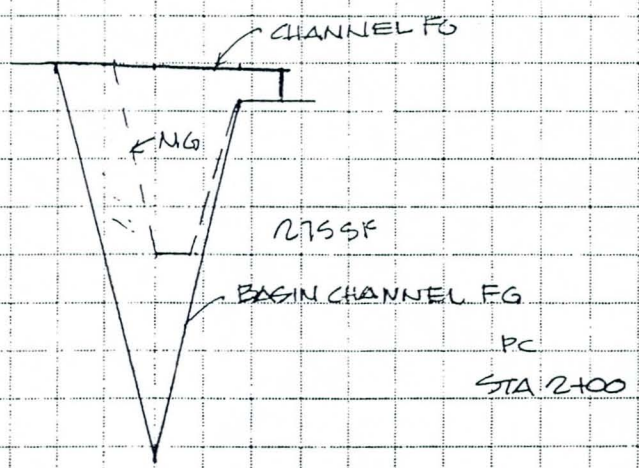
C-22

ESTIMATED QUANTITIES
CHANNEL PLANS

NORTHERN AVE CHANNEL FILL & BOX EXCAVATION CALCS.







VOLUME OF FILL

$$\left[\left(\frac{865+205}{2}\times 60\right)+\left(\frac{205+215}{2}\times 140\right)+\left(\frac{275+0}{2}\times 60\right)\right]/27 = 2740\text{ cy FILL}$$

BOX CULVERT EXCAVATION

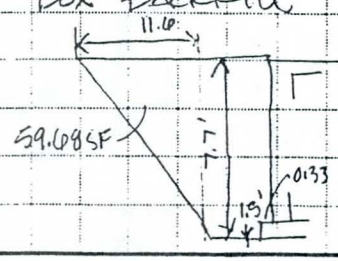
W = 1.5' + 0.33' + 0.67' + 6' + 0.67' + 6' + 0.67' + 0.33' + 1.5' = 17.67'

L = 158.4' + [(7.75 × 2) × 2 SIDES] = 189.4'

H = 9.5'

V = (17.67' × 189.4' × 9.5')/27 = 1177 cy CUT

BOX BACKFILL



[(11.6 × 7.7/2) + (7.7 × 1.83)] × 2 SIDES = 118 SF

L = 158.4' + 2(6) = 170.4'

118 × 170.4/27 = 714 cy FILL

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PROJECT DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 19 OF 22
CALCULATED BY JGT DATE 8/2/94
CHECKED BY AEP DATE 10/94

*ADDED 9/29/94

ABC MAINTENANCE ROAD QUANTITIES

SHEET NO.	LF		WIDTH		THICKNESS	CY (÷27)	TOTAL TONS
B01	1257	x	14'	x	4"/12"	217 x 1.7 T/CY	369
B02	1740		"		"	300	510
B03	1160		"		"	200	340
B04	1770		"		"	306	520
B05	794		"		"	137	233
B06	702		"		"	121	206
B07	—		—		—	—	
B08	1025		"		"	177	301
B09	1772		"		"	306	520
B10	302		"		"	52	88
B11	330		"		"	57	97
B12	857	x	14	x	4"/12"	148 x 1.7 T/CY	252
							3436 TONS ✓

ABC = (125 LB/CF ± x 27 CF/CY) ÷ 2000 LB/TON = 1.7 TONS/CY

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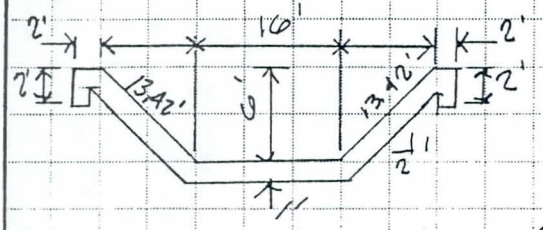
PROJECT: DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 20 OF 22
CALCULATED BY: JGT DATE: 9/29/94
CHECKED BY: AH DATE: 10/94

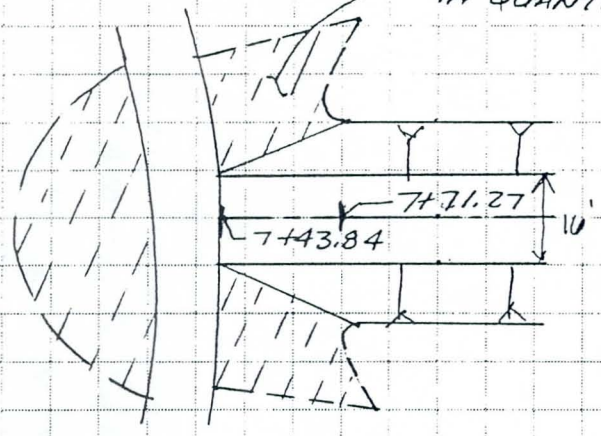
ADDED 9/29/94

EAST COLLECTOR CHANNEL (RIP RAP TYPE II WITHIN BASIN)



AREA = (1+2+13.42+16+13.42+2+1) = 48.84 x 1' THICK
AREA = 48.84 SF/LF
STA 9+51 - STA 7+71.27 = 179.73 LF
(48.84 SF/LF x 179.73 LF)/27 CF/CY = 325 CY

SHADED RIP RAP IS INCLUDED IN QUANTITIES FOR SHEET B03.



AREA @ STA 7+71.27 = 48.84 SF/LF
AREA @ STA 7+43.84 = 16' x 1' THICK = 16 SF/LF
(48.84 + 16)/2 = 32.42 SF/LF
STA 771.83 - STA 743.84 = 28 LF
(32.42 x 28)/27 = 34 CY

TOTAL TYPE II RIP RAP = 359 CY

EST. QUANTITIES - EARTHWORK

dysart drain/retention basin

Project: 931204

Wed May 25 08:49:55 1994

Subsite Volume Table: Unadjusted

Stratum	Surf1	Surf2	Cut yards	Fill yards	Net yards	
Subsite: MIDDEL						
vol1	eg	fg	1118724.62	233.18	1118491.44	(C)
Subsite: NORTH						
vol1	eg	fg	18488.72	476113.81	457625.08	(F)
Subsite: SOUTH						
vol1	eg	fg	20358.22	510489.63	490131.41	(F)
			1,157,571	986,837		
			+ 550 (a)	+ 484 (c)		
			1,158,121	987,300		
			- 54,580 (b)			
			1,103,600 ±			

(a) CUT @ BASIN OUTFALL BOX

(b) CHANNEL EXCAVATION (C04-C09, + NUISANCE CHAN + BASIN OUTFALL BOX CUT), separate bid item

(c) BACKFILL @ OUTFALL BOX

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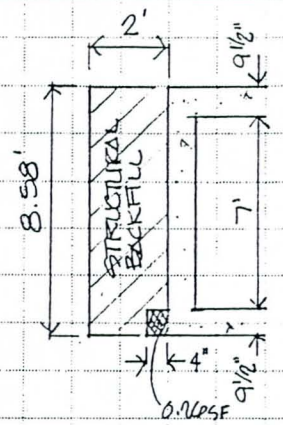
PROJECT: DYSART DRAIN
PROJECT NO. 93030 SHEET NO. 22 OF 22
CALCULATED BY: JGT DATE: 10/27/94
CHECKED BY: ATA DATE: 10/94

C-08

STRUCTURAL BACKFILL AT BASIN OUTLET BOX CULVERT & WINGS

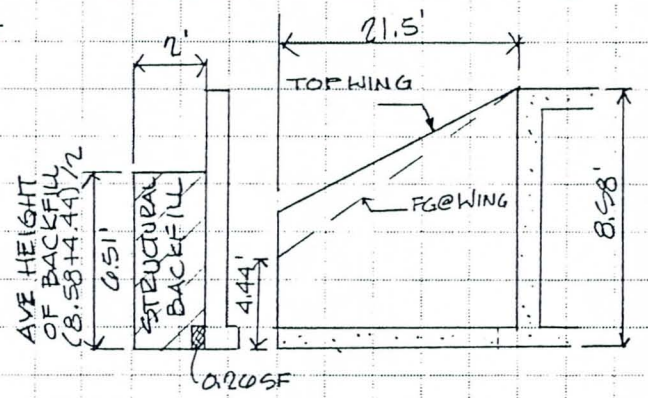
- BOX

AREA OF BACKFILL = 8.58' x 2' − 0.26 SF = 16.9 SF/LF
BOX LENGTH = 75 LF
VOLUME @ BOX = (16.9 SF/LF x 75 LF x 2 SIDES)/27 cf/cy
= 94 cy



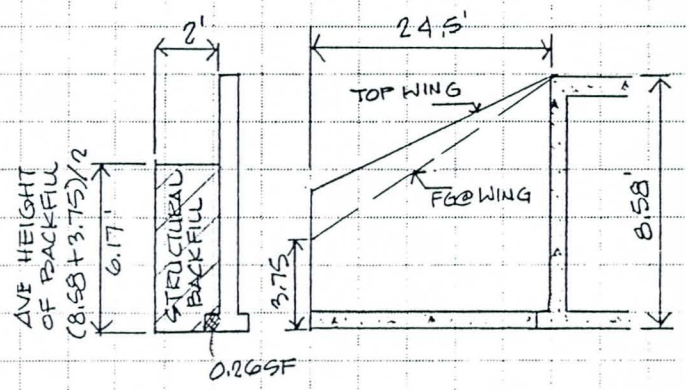
- INLET WING

AREA OF BACKFILL = 6.51' x 2' − 0.26 = 12.76 SF/LF
WING LENGTH = 21.5 LF
VOLUME @ INLET WING =
(12.76 SF x 21.5 LF x 2 SIDES)/27 cf/cy
= 20.3 cy



- OUTLET WINGS

AREA OF BACKFILL = 6.17' x 2' − 0.26 = 12.08 SF/LF
WING LENGTH = 24.5'
VOLUME @ OUTLET WING =
(12.08 SF/LF x 24.5 LF x 2 SIDES)/27 cf/cy
= 22 cy



TOTAL STRUCTURAL BACKFILL
BOX + INLET HW + OUTLET HW
94 cy + 20.3 cy + 22 cy = 136 cy