

2. DAILY REPORTS

2.2 DAILY WORK FORCE ACCOUNTS

The "Contractor's Daily Workforce Account" is a special form offered as a time saving feature for recording the contractor's labor and equipment on site, on a daily basis. This feature is optional to the resident engineer. If the resident engineer chooses to use the form, it must be filled out on a daily basis, for each day of the contract. The completed forms must be stored in separate folder, note book or three-ring binder for easy access.

The form itself is a double sided pre-printed numbered form. The front side outlines labor and equipment most commonly found on a wastewater construction site. The back side of the form provides ample room for the resident engineer to record any comments regarding labor and equipment on the job site.

Exhibit 2-C.1 is an example of how this form is used to record the daily labor and equipment. First, the date is entered at the top of the form. Next, the contractors names are placed at the top, diagonal area. This area is reserved for the contractor(s) who is on site and performing work. The actual quantity, for either labor or equipment, is entered in its respective column and line. If there is a particular labor description or piece of equipment

which is not listed on the form, it should be added in the area designated. The resident engineer is to identify each piece of equipment as detailed as possible (i.e. name, model, year etc.). At the bottom of the page the resident engineer is to enter the book and page number of the contract diary which the above work force pertains to, and signs and dates the form. Backup information should be recorded on the backside of the form.

In Exhibit 2-C.1, the date shown is April 2, 1990. There are three contractors on site (Northern Continental, E.Z.Electric and Ajax Plumbing). The work force for Northern Continental was; one superintendent and engineer, 2 labor foreman, 8 laborers, 7 carpenters, 5 operators and 2 ironworkers. The workforce for E.Z.Electric was; two electricians and a helper. The workforce for Ajax Plumbing was; two plumbers and two journeymen. The equipment for Northern Continental included a 1987 pickup truck, a power saw, a 580E backhoe, a 1160 bulldozer, a 5 cubic yd. front end loader, a Mack 10 wheel truck, a hydraulic - 25 ton crane and a 40' storage trailer. E.Z. Electric also had a storage trailer and a mechanical pipe bender. Ajax also had a utility trailer and welding machine. The above workforce is referenced to page 26 of his/her contract diary. The resident engineer, Wally Waterman signed the form on April 3, 1990. Note: Idle equipment is not listed in this section but in the comment section of the back page. The equipment which appears on the workforce account form should only be the equipment permanently stored on site and not equipment such as small tools or vehicles removed from the

site at end of the day.

Exhibit 2-C.2 indicates there were four comments made by the resident engineer. Comment 1 indicates that there was a labor compliance spot check made by Sally Sugarman and no discrepancies were discovered. Comment 2 notes that the 580 backhoe broke down once again. Comment 3 notes a laborer went home sick with the flu. Comment 4 lists any idle equipment on the job site.

On the backside of the form the resident engineer is encouraged to make whatever comments he wants regarding the equipment and/or labor matters. For instance, the resident engineer may want to enter the names of persons belonging to a particular work crew or a piece of equipment which is not operational or perhaps he may want to note a delivery of materials and the labor and equipment involved in the delivery, etc.

An example of how this form is used is indicated in Exhibit 2-C.3. Note the example used is a record of the daily activities by the resident engineer for April 2, 1990. Notice it is very similar to the entries shown in Exhibit 2-B.1 with the exception of Item's 3 and 3a. In this example the labor and equipment forces are recorded using the "Contractor's Daily Workforce Account" form. The comment "See WF 02002" refers to the form number as shown in Exhibit 2-C.1. This type of a comment found in the Contract Diary

indicates the field staff are utilizing the Contractor's Daily Workforce Account forms in lieu of entering the job's labor and equipment on a daily or weekly basis.

Exhibit 2-C.4 shows another example in which Contractor's Daily Workforce Account form can be illustrated. In this example the resident engineer shows neither the Contractor or subcontractors came to work due to rain (Even though there was no work on this day, the resident engineer is still required to update the contract diary).

CONTRACTOR'S DAILY WORKFORCE ACCOUNT

Date: 4 / 2 / 90

LABOR				
	NORTHERN	E.Z. ELECTRIC	ATAK PLUMB.	
SUPERINTENDENT	1			
ASSIT. SUPER				
ENGINEER	1			
LABOR FOREMAN	2			
CARP. FOREMAN	1			
CARPENTER	6			
BRICKLAYER				
PLUMBER			2	
ELECTRICIANS		2		
LABORER	8			
WELDER				
LOADER OPR.	1			
OILER				
BULLDOZER OPR.	1			
TRUCK DRIVER	1			
TECHNICIAN				
CRANE OPERATOR	1			
GENERATOR OPR.				
BACKHOE OPR.	1			
COMPRESSOR OPR.				
PUMP OPERATOR				
DOCKWORKER				
SANDHOG WORKER				
IRONWORKER	2			
CEM. FIN. FOREMAN				
CEM. FINISHER				
PAINTER				
SHT. MET'L. WKR				
ROOFER				
PIPEFITTER				
PILE DRIVER				
MILLWRIGHT				
MINER				
HELPER		1		
JOURNEYMEN			2	

EQUIPMENT				
	NORTHERN	E.Z. ELECT.	ATAK PLUMB.	
CAR				
PICKUP (1987)	1			
POWER SAW	1			
FINISHING MACHINE				
MORTAR MIXER				
PIPE CUTTER				
LIGHT PLANT				
MOTOR BUGGIES				
BACKHOE (580E)	1			
BACKHOE ()				
BULLDOZER	1			
FRONT END LOADER				
()	1			
CONCRETE PUMP				
COMPRESSOR				
PUMP ()				
TRUCK (MACK 10)	1			
SCRAPER				
GRADER				
ROLLER				
GENERATOR				
CRANE (MECHANICAL)				
CRANE (HYDRAULIC)	1			
WELDING MACHINE			1	
BOBCAT				
JACK HAMMER				
CONC. /BIT. PAVER				
COMPACTOR				
VIBRATOR				
FORKLIFT				
PILE HAMMER				
ROAD SWEEPER				
TRAILER (Equip)	1			
TRAILER (UTILITY)		1	1	
Mech Pipe Bender		1		

CONTRACTOR'S DAILY WORKFORCE ACCOUNT

COMMENTS:

- ① A labor compliance check was performed by Sally Sugarman on Ajax Plumbing employees. Sally interviewed: Jose Pina, Rod Sanchez, Kelly Rossi and Leroy Washington. No problems were found.
- ② The 580 Backhoe broke down for the third time in a row. Contractor needs bigger Backhoe.
- ③ 1 laborer went home sick due to apparent flu.
- ④ Idle Equipment: Bulldozer (1170)
Crane (Hydraulic)

MONDAY, HOURS WKD. 7:00 to 3:30

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WEATHER: A.M. - CLEAR & MILD, TEMP. 50°
 NOON - SAME " 68°
 P.M. - SAME " 65°

1. MWIRA PERSONNEL: W. W. WATERMAN, P.E. (SCE)
 H. H. HINDUNIT, O.E. (JCE)
 S. SUGARMAN, INSP. (JCE)
 D. LIKEM, INSP. (GLI)
2. G. WHIZZ SURVEYORS: ART ALDONE, CHIEF
 HERB SAWIT, TRANSITMAN
 BEN BALL, RODMAN

3 & 3a (SEE W.F. #02002)

4. CONTRACTOR HAS 2 CREWS WORKING ON FORMING FDN. WALLS FOR PUMP STATION, AND ONE CREW WORKING ON CLEARING & GRUBBING AT SO. EAST PART OF THE PUMP STA. (REF #1001-53). ALSO, CONTRACTOR STARTED EXCAVATING & INSTALLING NEW 48" R.C.P. ON EAST WATER ST. FROM STA. 107+00 TO STA. 109.75, (REF #1031-15).
 FORMING CREW - 3 CARR., 2 LABORERS, 1 IRONWKR., 1 OPER.
 CLEARING CREW - 4 LABORERS, 2 OPERS.
 PIPE CREW - 4 LABORERS, 1 OPR., 1 DRIVER
- 4a. BOTH ELECTRICAL & PLUMBING SUBS. ARE INSTALLING UNDERGROUND CONDUIT FOR BASE SLAB, (REF #1031-15).

5, 5a, 5b: NO CONTACT

6. SET UP SCHEDULE FOR MONTHLY PROGRESS MEETING W/ Supt. - J. CALAHANN.

REMINDED CONTRACTOR (J. CALAHANN) THAT CERTIFIED PAYROLLS ARE NOT BEING RECEIVED ON A BI-WEEKLY BASIS AS REQUIRED.

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CONTRACTOR'S DAILY WORKFORCE ACCOUNT

Date: 4 / 4 / 90

LABOR	NORTHERN EZ ELECTRIC ATAK PLUMB.					EQUIPMENT	NORTHERN EZ ELECTRIC ATAK PLUMB.				
SUPERINTENDENT					CAR						
ASSIT. SUPER					PICKUP 1987	/					
ENGINEER					POWER SAW	/					
LABOR FOREMAN					FINISHING MACHINE						
CARP. FOREMAN					MORTAR MIXER						
CARPENTER					PIPE CUTTER						
BRICKLAYER					LIGHT PLANT						
PLUMBER					MOTOR BUGGIES						
ELECTRICIANS					BACKHOE (580E)	/					
LABORER					BACKHOE ()						
WELDER					BULLDOZER	/					
LOADER OPR.					FRONT END LOADER						
OILER					()	/					
BULLDOZER OPR.					CONCRETE PUMP						
TRUCK DRIVER					COMPRESSOR						
TECHNICIAN					PUMP ()						
CRANE OPERATOR					TRUCK (MACK 10)	/					
GENERATOR OPR.					SCRAPER						
BACKHOE OPR.					GRADER						
COMPRESSOR OPR.					ROLLER						
PUMP OPERATOR					GENERATOR						
DOCKWORKER					CRANE (MECHANICAL)						
SANDHOG WORKER					CRANE (HYDRAULIC)	/					
IRONWORKER					WELDING MACHINE		/				
CEM. FIN. FOREMAN					BOBCAT						
CEM. FINISHER					JACK HAMMER						
PAINTER					CONC. / BIT. PAVER						
SHT. MET'L. WKR					COMPACTOR						
ROOFER					VIBRATOR						
PIPEFITTER					FORKLIFT						
PILE DRIVER					PILE HAMMER						
MILLWRIGHT					ROAD SWEEPER						
MINER					TRAILER (EQUIP)	/					
					TRAILER (UTILITY)	/	/				
					MECH PIPE BENDER	/					

NO WORK - RAIN OUT

2. DAILY REPORTS

2.5 QUANTITY CONTROL LEDGER

The purpose of having a Quantity Control Ledger (QCL) is to provide a procedure for permanently recording quantities of work performed by the contractor on a wastewater construction contract. The QCL is an up-to-date account of the contract quantities and/or approved schedule of values. It is designed to aid the resident engineer in the tracking of quantities of the contract. The QCL also serves as a cross-reference to ensure the work completed and submitted for payment by the contractor is consistent with the contract quantities. The resident engineer is responsible for maintaining a neat and orderly QCL throughout the contract. The information recorded in the QCL becomes a permanent part of the job records. As soon as possible, but no later than 24 hours after the resident engineer receives a pay slip from the inspector, he/she shall incorporate the information into the ledger.

There are two versions of the quantity control ledgers, one for funded projects and one for non-funded projects. Basically, the only difference between the two ledgers is that funded projects require a breakdown between eligible and ineligible work. Eligible work is contract work in which all or a portion of its costs are reimbursed under a Federal grant, and ineligible work is contract work in which the Authority is responsible for its entire cost. If the resident engineer

is not sure if the contract is funded, he/she should contact either the project manager or the construction coordinator. The QCL itself is made up of three separate forms; the Title Sheet, the Control Sheet and the Work Sheet. They are made of heavy weight index paper for durability and are kept in a three ring binder with separators for easy access. Extra forms can be obtained through the project manager or the construction coordinator.

Exhibit 2-F.1 is an example of the Title Sheet. The title sheet contains essential information regarding the type, length and costs of the project. The resident engineer is to enter the required information at the beginning of the job and update it accordingly. If a new title sheet is necessary, the resident engineer provides a new sheet but will retain the old title sheet for historical purposes.

The example shows the contract as the Southern Point CSO Facility. It is a funded job with an eligible cost \$16,100,100.00 and an ineligible cost of \$49,011.00. These costs may change as modifications and change order are incurred. The lower right-hand part of the page shows the Award Date, Notice to Proceed, Contract Time and Completion Date. This information, once recorded, will not change, however the Revised Completion Date will depend on whether any time extensions have been granted throughout the contraction duration. At the end of the project the resident engineer shall complete the form by recording the Substantial and Final Completion Dates and the Final Contract Price. In addition, the resident engineer shall attach to the title sheet section copies of any correspondence or information which document any

changes made on the title sheet.

Exhibit 2-F.2 is an example of the Control Sheet. The quantity control sheet is designed to keep track of each individual bid item of the contract or, in the case of a lump sum contract, the quantity control sheet is used to keep track of each line item of an approved schedule of values. Depending on the type of job, the resident engineer shall maintain at least one control sheet for each bid item or line item of the schedule of values. If the contractor submits a breakdown of the schedule of values where the line items are broken down according to work disciplines, it is suggested the resident engineer maintain a separate quantity control sheet for each work discipline. Exhibit 2-F.2 shows how the resident engineer is to maintain a quantity control sheet for a certain bid item (Item #5b, 48" reinforced concrete pipe - RCP). The quantity of 48" RCP to be installed is 3500 l.f. and the bid price is \$280.00 per lineal foot.

The body of the form is where the information is to be entered. At the left-hand column is where the date the work was completed is entered. In this example, the installation began on August 30th and was continuing on through October 18th. The next two columns show the book and page number of the inspector's pay slip or Item 5 of the daily report. Note that manifold book No.997 was used from 8/30 to 9/14 and manifold book No.1029 starting on 9/15 to 10/18. The next column indicates the initials of the inspector providing the information. In this example, the information was provided by Sally Sugerman (S.S.). The fifth column from the left indicates the location of the work. In this example,

the general location is East Water Street followed by the exact stations where the installation was performed. The next two columns show what quantity of pipe was installed that day and the cumulative total of pipe installed to date. The next column indicates the pay period in which the was installed. In this example, 398 lineal feet of 48" RCP was installed and paid under Pay Estimate No. 1 and a total of 1055 l.f. of pipe was paid under Pay Estimate No.2 (398 l.f. during the first pay period plus 657 l.f. during the second pay period for a total of 1055 l.f. to date). The next column; Total Quantity is where total measured quantity or the final quantity is recorded. This column is where the resident engineer, either by actual field measurement or by calculations, verifies the quantities submitted by the inspector. If the measured quantity differs from the cumulative totals offered by the inspector, the resident engineer shall recommend the measured quantity for payment. The final (Total) quantity must be balanced with the original bid quantity. If it is a bid item, any overruns and underruns must be explained in writing. If it is a lump sum line item, it must not exceed 100% complete. The last column on the right is used to entered whatever comments or remarks there may be relative to the work being performed.

Exhibit 2-F.3 is an example of the Work Sheet form. This form is used as backup or support document to the Control Sheet. The work sheet is a form made up of a 5 1/2 inch by 10 inch quadrille ruled face. The grids are 1/4 inch. The work sheets are often used as a supplement to the inspector's field survey book in determining quantities. It can also be used for records of work

performed in the field, i.e. sketches, diagrams, dimensions, elevations, tabulations, and types of notes which will justify the quantities being requested by the contractor. All Work Sheets shall be cross-referenced to the Control Sheet associated with the work. In this particular example, page 1, we show actual measured quantity for the installation of the 48" RCP line for Pay Period #1 and Pay Period #2. All information relating to the 48" RCP line appears on the sketch; including manhole installations, boulder and unsuitable material removal. There are additional references made to other Work Sheets regarding the boulder and unsuitable removal. Note: at the upper left corner of the sheet, next to the word "Worksheet" the number 1 appears inside a circle. This indicates that this particular Work Sheet was the first work sheet used on the project. Each subsequent work sheet shall be numbered in a sequential manner.

Exhibit 2-F.4 is another example of how a Work Sheet can be utilized. In this case calculations are performed to determine the actual quantity of unsuitable material removed at Sta. 82+35 to Sta. 82+51. A comment is added to the bottom of the indicating how the dimensions were obtained and where they can be found. In the upper left corner appears the number 2; indicating this sketch was the second work sheet used on the project.

MASSACHUSETTS WATER RESOURCE AUTHORITY
 CONSTRUCTION UNIT
 QUANTITY CONTROL LEDGER
 (Funded Projects)
 TITLE SHEET

MWRA Contract No. 6759 EPA Project No. 250-460-23

Contract: SOUTHERN POINT CSO FACILITY Location: DORCHESTER, MASS.

Contractor: NORTHERN CONTINENTAL CONSTRUCTION CO. INC. Resident: WALLY WATERMAN Company: MWRA

Contract Price:		Award Date:	<u>6/3/89</u>
Eligible Amount:	<u>16,100,100.00</u>	Notice to Proceed:	<u>8/25/89</u>
Ineligible Amount:	<u>42,011.00</u>	Time of Performance:	<u>721 days</u>
Total Bid Amount:	<u>16,142,111.00</u>	Date of Completion:	<u>2/30/91</u>
Final Contract Price		Revised Compl. Date:	<u>10/3/90</u>
Eligible Amount:		Substantial Completion Date:	
Ineligible Amount:		Final Completion Date:	
Total Amount:			

MASSACHUSETTS WATER RESOURCES AUTHORITY
 QUANTITY CONTROL LEDGER
 CONTRACT NO. 6759 Page 1 of
 Item No. 56 Item: 48" RCP SEWER
 Est. Quantity 3500 LF Price 282.00 per LF

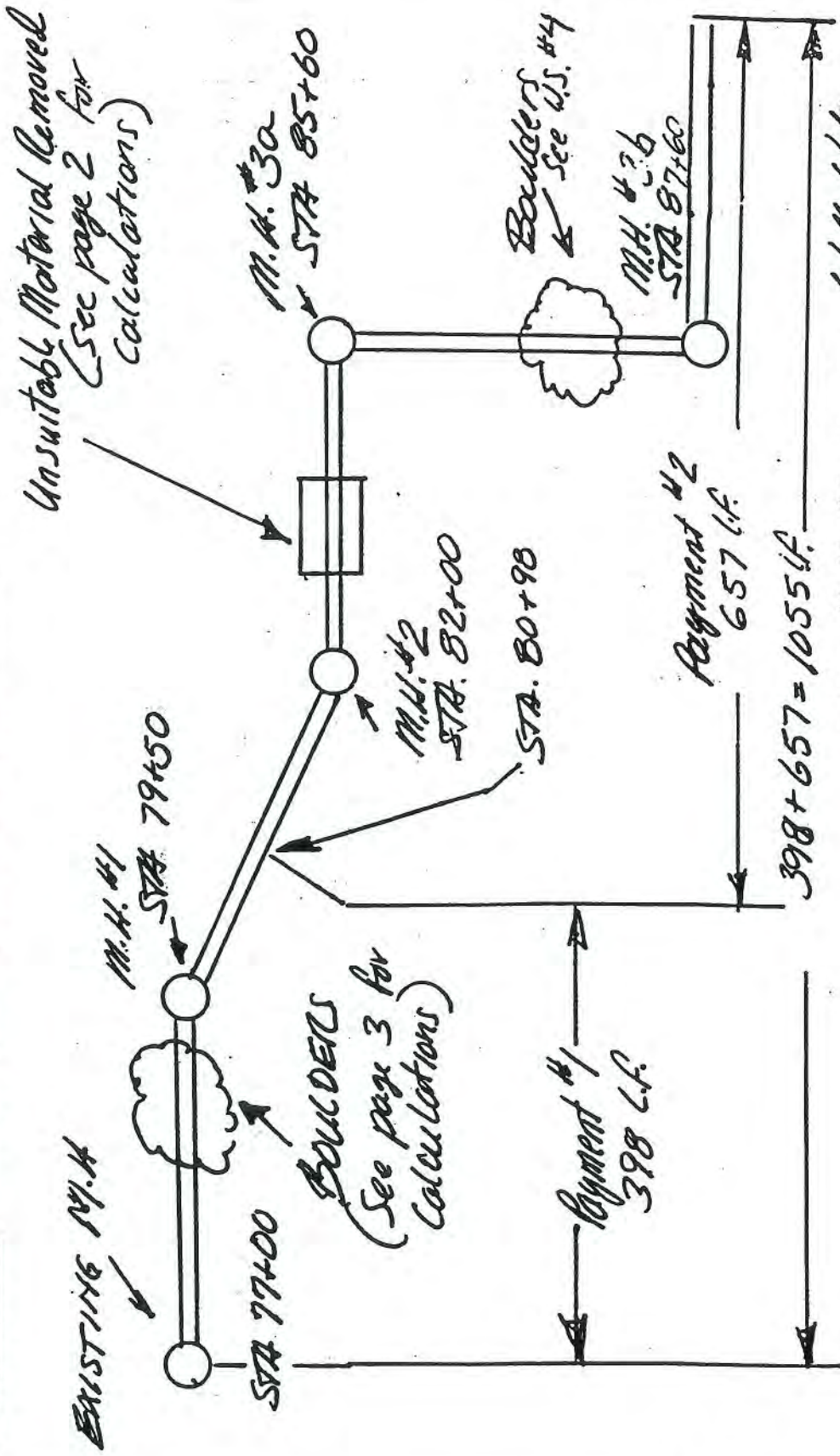
CONTROL SHEET (Non-funded Projects)

Date	Reference Book Page	Engr Insp	Location	Quantity	Amount To Date	Est. No.	Total Quantity	Remarks
8/30	997 61	S.S.	EAST WATER STREET 77+00 - 77+35	35	35	1		BENCH MARK GIVEN BY SHIMMEYER
8/31	63		77+35 - 77+95	40	75			
9/1	65		77+75 - 78+05	30	105			
9/5	66		78+05 - 78+40	35	140			
9/6	67		78+40 - 78+50	10	150			
9/7	69		78+50 - 78+75	25	175			BUCKLE UP SEE WORK SHEET #3
9/8	70		78+75 - 78+99	24	199			
9/11	72		78+99 - 79+42	43	242			M.H. #10 STA. 79+50
9/12	73		79+42 - 79+83	41	283			
9/13	74		79+83 - 80+13	30	313			
9/14	75		80+13 - 80+60	47	360			STA. 80+98
9/15	1029 01		80+60 - 80+98	38	398	1	398	(280.00) = 111,440.00
9/18	12	S.S.	80+98 - 81+30	32	430	2		
9/19	05		81+30 - 81+60	30	460			
9/20	07		81+60 - 81+95	35	495			
9/21	09		81+95 - 82+25	30	525			M.H. #2 @ STA. 82+00
9/22	10		82+25 - 82+60	35	560			STA. 82+35 to 82+51
9/25	12		82+60 - 83+05	45	605			199704 UNAVAILABLE MAT. Approved See sheet sheet #2

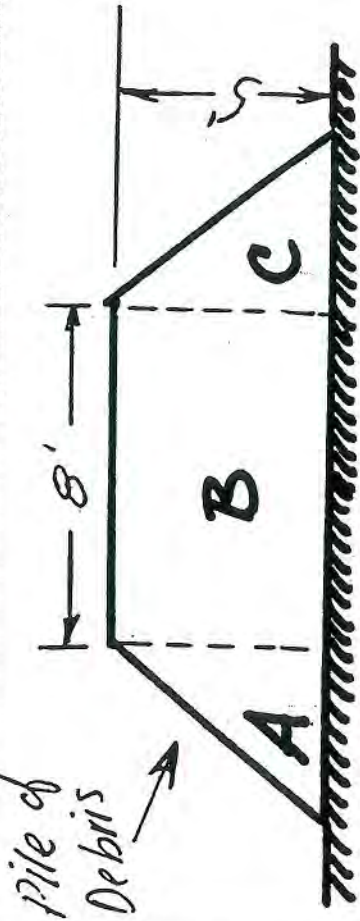
Date	Reference Book	Page	Engr Insp	Location	Quantity	Amount To Date	Est. No.	Total Quantity	Remarks
9/26	1029	14	SS	83+05 - 83+35	30	635	2		MA# 30 @ STA 83+10
9/27		15		83+35 - 83+75	40	675			1/2 Day - BMM
10/2		16		83+75 - 83+95	20	695			
10/3		18		83+95 - 84+45	50	745			
10/4		22		84+45 - 84+90	45	790			
10/5		24		84+90 - 85+30	40	830			
10/6		26		85+30 - 85+75	45	875			MA# 36 @ STA 85+60
10/9		30		85+75 - 86+05	30	905			
10/10		31		86+05 - 86+50	45	950			
10/11		33		86+50 - 86+75	25	975			BOULDERS SEE WHITE LABEL #4
10/12		35		86+75 - 87+15	40	1015			
10/13		39	✓	87+15 - 87+55	40	1055	2	1055	(280.00) = \$295400.00
10/16	1029	40	SS	87+55 - 87+90	35	1090	3		
10/17		42		87+90 - 88+25	35	1125			MA# 4 @ STA 88+10
10/18		43		88+25 - 88+50	25	1150			

MASSACHUSETTS WATER RESOURCES AUTHORITY Contract No. 6759 Page 1 of
 CONSTRUCTION UNIT Description PLAN VIEW OF 48" RCP LINE
 QUANTITY CONTROL LEDGER Reference: From STA. 77+00 To 87+
 #1 WORKSHEET

Reference: Item #56 of All Control Sheet



Date 10/18/90 Signature Libby M. K. [unclear]



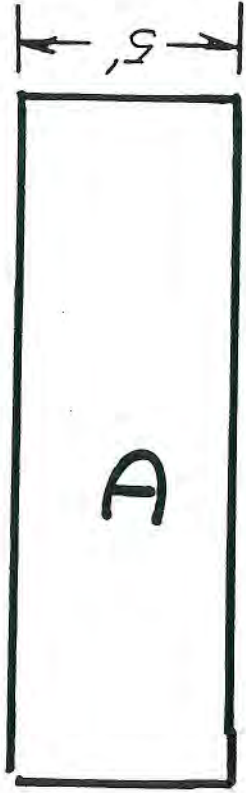
$A = 5 \times 4 \div 2 = 10 \text{ sf}$
 $C = A = 10 \text{ sf}$
 $B = 8 \times 5 = 40 \text{ sf}$
 $D = 5 \text{ ft}$

$A + B + C \times D = 9^2$

$60 \times 5 = 300 \text{ f}^3$

$300 / 27 = 11.11 \text{ cy}$

11.11 cy



See Field Survey book, page 76 for actual measurements taken by Inspector Dewey Likem.

Date 4/6/90 signature Libby Whitman