

COMP.

WJ

WILSON
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LOC.

FILE 90-809

CK

PROJ. Shooks Run

SHEET 32

DATE February 4, 1993

SUBJ Estimate of Probable OF
Construction Costs - Soft-Lined

R.O.W Acquisition - (Commercial - Mostly outside Floodplain) - 0.2 AC @ \$50,000 = \$10,000

- Commercial Buildings - 23,900 SF @ \$35 = \$836,500

- Residences - 2 Each @ \$75,000 = \$150,000

Remove Commercial Bldg - Large - 2 Each @ \$50,000 = \$100,000

Remove Residences - 2 Each @ \$10,000 = \$20,000

\$1,185,500

+ 20% Eng, Admin, & Cont

\$ 237,000\$1,422,500 $\Rightarrow$ Use \$1,425,000Sta. 222+50 to 223+30 - Replace Culvert at Madison Street w/ 3-10'x5'RCB

Remove Exist Culvert - L.S. = \$10,000

Stave Excav - $[45(5)(80) + (25)(4)(80)]/27 = 1000 \text{ CY} @ \$6 = \$6,000$ Stave Back - $[(10)(80)(7) + (45)(80)(1)]/27 = 500 \text{ CY} @ \$7 = \$3,500$ Embankment - $(45)(80)(1)/27 = 200 \text{ CY} @ \$4 = \$1,000$ Bedding - $(45)(80)(0.5)/27 = 100 \text{ CY} @ \$15 = \$1,500$ Stave Cone - 3-10'x5'RCB - $[(3)(1.52 - 12)(7)(1)/27](80) = 323$ Hd walls - $(2)(34)(0.09) = 6$ Wings - $(5' \text{ Ave H} - 20' L) = (4)(20)(0.36) = 29$

360 CY @ \$275 = \$99,000

Pip up - $(35)(50)(3)/27 = 200 \text{ CY} @ \$40 = \$8,000$

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SHEET 33

DATE February 4, 1993

SUBJ. Estimate of Probable
Construction Costs - Soft-LinedCurb and Gutter - $(2)(55) = 110 \text{ LF} @ \$8 = \$1,000$ Sidewalk - $(2)(4)(55)/9 = 50 \text{ SY} @ \$17 = \$1,000$ Guardrail - $(2)(34) + (4)(20) = 148 \text{ LF} @ \$15 = \$2,500$ Asp Punt Replmt - $(55)(36)/9 = 225 \text{ SY} @ \$12 = \$3,000$

\$136,500

+ 20% Eng, Admin, & Cont

\$ 27,500

\$164,000 $\Rightarrow$ Use \$165,000Sta 223+30 to Sta 226+25 - New open channel between Madison Street and Monroe StreetClearing - $(50)(295)/43560 = 0.3 \text{ Ac} @ \$20,000 = \$6,000$ Earthwork - $(0.6)(354)(295)/27 = 2500 \text{ CY} @ \$4 = \$10,000$ 5' High Rock Retain Wall - $(2)(0.2)(295) = 118 \text{ LF} @ \$100 = \$12,000$ Landscaping - $(110)(295)/43560 = 0.7 \text{ Ac} @ \$35,000 = \$24,500$ Asp Path - $(15)(295)/9 = 500 \text{ SY} @ \$6 = \$3,000$

R.O.W. Acquisition - Residences - 3 Each @ \$75,000 = \$225,000

- Partial Residential Lots - 3 Each @ \$5,000 = \$15,000

Remove Residences - 3 Each @ \$10,000 = \$30,000

\$325,500

+ 20% Eng, Admin, & Cont

\$ 65,000

\$390,500 $\Rightarrow$ Use \$390,000

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PROJ. Shooks Run

SHEET 34

DATE

February 4, 1993

SUBJ. Estimate of Probable OF
Construction Costs - Soft-Lined

Sta. 226+25 to Sta 227+05 - Replace Culvert at Monroe Street w/ 3-10'x5' PCB

Remove Exist Culvert - L.S. = \$10,000

Struct Excav - $[(45)(4)(80) + (25)(4)(80)]/27 = 1000 \text{ CY} @ \$6 = \$6,000$ Struct Back - $[(10)(7)(80) + (45)(80)(1)]/27 = 500 \text{ CY} @ \$7 = \$3,500$ Bedding - $(45)(80)(0.5)/27 = 100 \text{ CY} @ \$15 = \$1,500$ Struct Conc - 3-10'x5' PCB - $[(3)(1.52) - (2)(7)(1)]/27 (80) = 323$ Hd walls - $(2)(34)(0.09) = 6$ Wings - $(5' \text{ Ave H} - 20' \text{ L}) = (4)(20)(0.36) = 29$ $360 \text{ CY} @ \$275 = \$99,000$ Riprap - $(35)(50)(3)/27 = 200 \text{ CY} @ \$40 = \$8,000$ Curb and Gutter - $(2)(55) = 110 \text{ LF} @ \$8 = \$1,000$ Sidewalk - $(2)(4)(55)/9 = 50 \text{ SY} @ \$17 = \$1,000$ Guardrail - $(2)(34) + (4)(20) = 148 \text{ LF} @ \$15 = \$2,500$ Asp Punct Replment - $(55)(36)/9 = 225 \text{ SY} @ \$12 = \$3,000$

\$135,500

+20% Eng, Admin, & Cont

\$27,000

\$162,500 $\Rightarrow$ Use \$165,000

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SHEET 35

DATE

February 4, 1993

SUBJ. Estimate of Available OF
Construction Costs - Soft-Lined

Sta. 227+05 to Sta. 229+70 - New open channel between Monroe Street and Jackson Street

Clearing - $(50)(265)/43560 = 0.3 \text{ AC} @ \$20000 = \$6,000$

Earthwork - $(0.6)(354)(265)/27 = 2000 \text{ CY} @ \$4 = \$8,000$

5' High Rock Retain Wall - $(2)(0.2)(265) = 106 \text{ LF} @ \$100 = \$10,500$

Landscaping - $(10)(265)/43560 = 0.7 \text{ AC} @ \$35000 = \$24,500$

Asp Path - $(15)(265)/9 = 450 \text{ SY} @ \$6 = \$3,000$

R.O.W. Acquisition - Residences - 5 Each @ $\$75000 = \$375,000$

- Partial Residential Properties - 1 Each @ $\$5000 = \$5,000$

Remove Residences - 5 Each @ $\$10000 = \$50,000$

$\$482,000$

+ 20000 Eng., Admin., & Cont

$\$96,500$

$\$578,500 \Rightarrow \underline{\underline{\text{Use } \$580,000}}$

Sta. 229+70 to Sta 234+15 - Replace culvert at Jackson Street / LaSalle Street w/ 3-10' X 5' RCB

Remove Exist Culvert - $\$55,000$

Shut Excav - $[(45)(4)(445) + (25)(4)(445)]/27 = 5000 \text{ CY} @ \$6 = \$30,000$

Shut Back - $[(10)(7)(445) + (45)(1)(445)]/27 = 2000 \text{ CY} @ \$7 = \$14,000$

Bedding - $(45)(445)(0.5)/27 = 400 \text{ CY} @ \$15 = \$6,000$

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SHEET 36

DATE February 4, 1993

SUBJ. Estimate of Probable OF
Construction Costs - Soft-Lined

$$\text{Struct Conc} - 3-10' \times 5' \text{ RCB} - [(3)(1.52) - (2)(7)(1)/27](445) = 1798$$

$$\text{Hd walls} - (2)(34)(0.09) = 6$$

$$\text{Wings} - (5' \text{ Ave H} - 20L) = (4)(20)(0.36) = 29$$

$$1835 \text{ CY} @ \$275 = \$505,000$$

$$\text{Prop} - (35)(50)(3)/27 = 200 \text{ CY} @ \$40 = \$8,000$$

$$\text{Curb and Gutter} - (4)(55) = 220 \text{ LF} @ \$9 = \$2,000$$

$$\text{Sidewalk} - (4)(4)(55)/9 = 100 \text{ SY} @ \$17 = \$2,000$$

$$\text{Guardrail} - (2)(34) + (4)(20) = 148 \text{ LF} @ \$15 = \$2,500$$

$$\text{Asp Punt Replmt} - [(55)(26) + (55)(34)(0.5) + (55)(36)]/9 = 1425 \text{ SY} @ \$12 = \$17,000$$

$$\text{R.O.W. Acquisition (Church - Mostly Outside Floodplain)} - 0.5 \text{ Ac} @ \$50,000 = \$25,000$$

$$\$666,500$$

+20% Eng, Admin, & Cont

$$\$133,500$$

$$\Rightarrow \text{Use } \$800,000$$

Sta. 234+15 to Sta 235+40 - New open channel between La Salle Street
and Pedestrian Path

$$\text{Clearing} - (50)(125)/43560 = 0.1 \text{ Ac} @ \$20,000 = \$2,000$$

$$\text{Earthwork} - (0.16)(354)(125)/27 = 1000 \text{ CY} @ \$4 = \$4,000$$

$$5' \text{ High Rock Retain Wall} - (2)(0.2)(125) = 50 \text{ LF} @ \$100 = \$5,000$$

$$30' \text{ Wide Drop Structure} - 1 \text{ Each} @ \$20,000 = \$20,000$$

$$\text{Landscaping} - (110)(125)/43560 = 0.3 \text{ Ac} @ \$35,000 = \$10,500$$

$$\text{Asp Path} - (15)(125)/9 = 200 \text{ SY} @ \$6 = \$1,500$$

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DATE

February 4, 1993

SUBJ. Estimate of Probable OF
Construction Costs - Soft-Lined

R.O.W. Acquisition - Residences - 2 Each @ \$5000 = \$10,000

Remove Residences - 2 Each @ \$10000 = \$20,000

\$213,000

+ 20% Eng, Admin, & Cont

\$42,500

\$255,500 $\Rightarrow$ Use \$255,000Sta. 235+40 to Sta 235+90 - Replace Culvert at Pedestrian Path - W/3-10' x 5' RCB

Remove Exst Culvert - \$5000

Stave Excav - $[(45)(5)(50) + (35)(4)(50)]/27 = 1000 \text{ CY} @ \$6 = \$6,000$ Stave Back - $[(10)(7)(50) + (45)(1)(50)]/27 = 500 \text{ CY} @ \$7 = \$3,500$ Bedding - $(45)(50)(0.5)/27 = 50 \text{ CY} @ \$15 = \$1,000$ Stave Conc - 3-10' x 5' RCB - $[(3)(1.52) - (2)(7)(1)/27](50) = 202$ Hd walls - $(2)(34)(0.09) = 6$ Wing S - (5' Ave H - 20' L) = $(4)(20)(0.36) = 29$

240 CY @ \$275 = \$66,000

Riprap - $(35)(50)(3)/27 = 200 \text{ CY} @ \$40 = \$8,000$ Guardrail - $(2)(34) + (4)(20) = 148 \text{ LF} @ \$15 = \$2,500$ Asp Point Replant - $(55)(15)/9 = 100 \text{ SY} @ \$6 = \$1,000$

\$93,000

+ 20% Eng, Admin, & Cont

\$18,500

\$111,500 $\Rightarrow$ Use \$115,000

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PROJ. Shooks Run

SHEET 38

DATE February 4, 1993

SUBJ. Estimate of Probable of

Construction Costs - Soft-Lined

Sta 235+90 to Sta 236+20 - New open channel between Pedestrian Path
and C.P.I.P. Railroad

Cleaning - $(50)(30)/43560 = 0.1 \text{ Ac} @ \$20000 = \$2,000$

Earthwork - $(0.6)(354)(50)/27 = 500 \text{ CY} @ \$4 = \$2,000$

5' High Rock Retain Wall - $(2)(0.2)(50) = 20 \text{ LF} @ \$100 = \$2,000$

Landscaping - $(110)(50)/43560 = 0.1 \text{ Ac} @ \$35000 = \$3,500$

Asp Path - $(15)(50)/9 = 100 \text{ SY} @ \$6 = \$1,000$

\$10,500

+ 200% Eng'g, Admin, & Cont \$2,500

\$13,000 $\Rightarrow$ Use \$15,000

Sta. 236+20 to Sta 236+75 - Replace Culvert at C.P.I.P. Railroad
w/ 2-9' x 5' PCB

Remove Exist Culvert - L.S. = \$10,000

Struct Excav - $[(30)(5)(55) + (10)(6)(55)]/27 = 500 \text{ CY} @ \$6 = \$3,000$

Stone Back - $[(10)(7)(55) + (30)(1)(55)]/27 = 250 \text{ CY} @ \$7 = \$2,000$

Embankment - $(30)(3)(55)/27 = 250 \text{ CY} @ \$4 = \$1,000$

Struct Conc - 2-9' x 5' PCB - $[(2)(1.31) - (1)(7)(1)/27](55) = 130$

Hd walls - $(2)(21)(0.09) = 4$

D/S Wings - $(5' \text{ Ave H} - 20' \text{ L}) = (2)(20)(0.36) = 14$

150 CY @ \$275 = \$41,500

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Shook's Run

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DATE

February 4, 1993

SUBJ.

Estimate of Probable of
Construction Costs - Soft-Lined

$$\text{Riprap} - (20)(50)(3)/27 = 125 \text{ CY} @ \$40 = \$5,000$$

$$\text{Guardrail} - (2)(21) + (2)(20) = 82 \text{ LF} @ \$15 = \$1,500$$

$$\text{Railroad Track Replmt} - 50 \text{ LF} @ \$100 = \$5,000$$

$$\$69,000$$

+ 20% Engr, Admin, & Cont

$$\$14,000$$

$$\$83,000 \Rightarrow \underline{\underline{\text{Use } \$85,000}}$$

Templeton Gap Road at Van Buren Channel - Replace Culvert w/ 2-11' x 6' PCB

$$\text{Remove Exst Culvert} - \text{L.S.} = \$15,000$$

$$\text{Stave Excav} - [(35)(2)(100) + (20)(8)(100)]/27 = 1000 \text{ CY} @ \$6 = \$6,000$$

$$\text{Stave Back} - [(10)(8)(100) + (35)(1)(100)]/27 = 500 \text{ CY} @ \$7 = \$3,500$$

$$\text{Embankment} - (35)(1)(100)/27 = 250 \text{ CY} @ \$4 = \$1,000$$

$$\text{Stave Conc} - 2-11' \times 6' \text{ PCB} - [(2)(1/6) - (1)(8)(1/27)](100) = 292$$

$$\text{Hd walls} - (2)(25)(0.09) = 5$$

$$\text{Channel Transitions} - (2)[(7.2)(2) + 11](0.67)(25)/27 = 32$$

$$330 \text{ CY} @ \$27 = \$9,000$$

$$\text{Curb and Gutter} - (2)(45) = 90 \text{ LF} @ \$8 = \$1,000$$

$$\text{Sidewalk} - (2)(4)(45)/9 = 50 \text{ SY} @ \$17 = \$1,000$$

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Shooks Run

SHEET

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DATE

February 4, 1993

SUBJ

Estimate of Probable OF
Construction Costs - Soft-LinedGuardrail - $(2)(25) + (4)(25) = 150 \text{ LF} @ \$15 = \$2,500$ Asp Pmnt Replmt - $(45)(60)/9 = 300 \text{ SY} @ \$12 = \$4,000$

\$125,000

+ 20% Engg, Admin, & Gnt

\$25,000

=> Use\$150,000REACH 7 TOTAL - \$4,785,000ALTERNATIVE TOTAL - \$55,950,000

**H. ESTIMATE OF PROBABLE CONSTRUCTION COSTS
FOR STRUCTURAL FULL IMPROVEMENT
ALTERNATIVE**

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FILE 90-809

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Shooks Run

SHEET

1

DATE

February 10, 1993

SUBJ.

Estimate of Probable OF
Construction Costs - StructuralESTIMATE OF PROBABLE CONSTRUCTION COSTS - STRUCTURAL ALTERNATIVEReach 1 - Fountain Creek to Abandoned RailroadSta. 0+25 to Sta. 9+75 - New open channel between Fountain Creek
and Las Vegas StreetClearing - $(115)(950)/43560 = 2.5 \text{ Ac} @ \$20000 = \$50,000$ Earthwork - $(0.3)(780)(950)/27 = 8500 \text{ CY} @ \$4 = \$34,000$ Bedding - $(70)(950)(0.5)/27 = 1225 \text{ CY} @ \$15 = \$18,500$ 10' High Conc Retaining Wall - $[1+1.4](950) = 2280 \text{ LF} @ \$200 = \$456,000$ Struct Conc Bottom - $(60-4)(950)(1)/27 = 1970 \text{ CY} @ \$275 = \$542,000$ Landscaping - $(115-60)(950)/43560 = 1.2 \text{ Ac} @ \$35000 = \$42,000$ 4" Thick Asphalt Path - $(15)(950)/9 = 1600 \text{ SY} @ \$6 = \$10,000$ R.O.W. Acquisition (Commercial/Industrial - Mostly in Floodplain) - $2.5 \text{ Ac} @ \$25000 = \$62,500$

\$1,215,000

+ 20% Eng, Admin, & Cont

\$ 243,000

\$1,458,000 $\Rightarrow$ Use \$1,460,000Sta. 9+75 to Sta. 10+80 - Replace Exist. Bridge and Dissipator at Las Vegas
Street w/ 5-12' X 10' RCB and Dissipator

Remove Exist Bridge and Dissipator - L.S. = \$50,000

Struct. Excav. - $(35)(105)(13)/27 = 2000 \text{ CY} @ \$6 = \$12,000$ Struct. Back - $[(10)(105)(12) + (75)(70)(1)]/27 = 1000 \text{ CY} @ \$7 = \$7,000$

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FILE 90-809

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PROJ Shooks Run

SHEET 2

DATE February 10, 1993

SUBJ Estimate of Probable
Construction Costs - Structural

$$\text{Bedding} - (75)(0.5)(105)/27 = 200 \text{ CY} @ \$15 = \$3,000$$

$$\text{Struc. Conc.} - 5 - 12' \times 10' \text{ RCB} - [(5)(1.99) - (4)(12)(1)/27](70) = 572$$

$$\text{Hd Walls} - (2)(66)(0.09) = 12$$

$$\text{Dissipator Floor} - (64)(40)(1)/27 = 95$$

$$\text{Dissipator Blocks} - (40)(0.5) = 20$$

$$700 \text{ CY} @ \$275 = \$192,500$$

$$\text{Riprap} - (65)(50)(3)/27 = 375 \text{ CY} @ \$40 = \$15,000$$

$$\text{Curb and Gutter} - (2)(85) = 170 \text{ LF} @ \$8 = \$1,500$$

$$\text{Sidewalk} - (2)(4)(85)/9 = 75 \text{ SY} @ \$17 = \$1,500$$

$$\text{Guardrail} - (2)(66) + (2)(40) = 212 \text{ LF} @ \$50 = \$11,000$$

$$8' \text{ Thick Asp Pmnt Replmt} - (85)(66)/9 = 575 \text{ SY} @ \$12 = \$7,000$$

$$\$285,500$$

$$+ 20\% \text{ Eng, Admin, Cont} = \$57,000$$

$$\$342,500 \Rightarrow \text{Use } \$345,000$$

Sta. 10+80 to Sta. 11+20 - Replace concrete transition channel between
Las Vegas Street and A.T.S.F. & D.R.G.W. Railroad

$$\text{Remove Exst Walk} - (2)(10)(40) = 800 \text{ SF} @ \$5 = \$4,000$$

$$\text{Remove Exst Conc. Pmnt} - (42)(40)/9 = 200 \text{ SY} @ \$10 = \$2,000$$

$$\text{Struc Excav} - \left(\frac{10+35}{2}\right)(15)(40)/27 = 500 \text{ CY} @ \$6 = \$3,000$$

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DATE

February 10, 1993

SUBJ

Estimate of Probable OF
Construction Costs - Structural

$$\text{Stucc Back} - (10)(15)(40)/27 = 500 \text{ CY} @ \$7 = \$3,500$$

$$\text{Bedding} - \left(\frac{75+55}{2} \right) (0.5)(40)/27 = 100 \text{ CY} @ \$15 = \$1,500$$

$$\text{Stucc Conc} - \left[(2)(14) + \left(\frac{44+64}{2} \right) \right] (1)(40)/27 = 125 \text{ CY} @ \$275 = \$34,500$$

$$\text{Fence Replant} - (2)(40) = 80 \text{ LF} @ \$5 = \$500$$

$$\text{Watertight m.H. Covers} = 2 \text{ Ea} @ \$500 = \$1,000$$

#50,000

$$+20\% \text{ Engr, Admin \& Cont } \$10,000$$

$$\Rightarrow \text{Use } \$60,000$$

Sta. 11+65 to Sta. 15+60 - New open channel between A.T.S.F. & D.R.G.W.
Railroad and Abandoned Railroad

$$\text{Clearing} - (120)(395)/43560 = 1.1 \text{ Ac} @ \$20,000 = \$22,000$$

$$\text{Earthwork} - 0.2 \left[(1320)(395) \right] / 27 = 4000 \text{ CY} @ \$4 = \$16,000$$

$$\text{Bedding} - (55)(395)(0.5)/27 = 40 \text{ CY} @ \$15 = \$6,000$$

$$10' \text{ High Conc Retaining Wall} - (2)(22)(395) = 1740 \text{ LF} @ \$200 = \$348,000$$

$$\text{Stucc Conc Bottom} - (45-4)(395)(1)/27 = 600 \text{ CY} @ \$275 = \$165,000$$

$$\text{Landscaping} - (120-45)(395)/43560 = 0.7 \text{ Ac} @ \$35,000 = \$24,500$$

$$4" \text{ Thick Asp Path} - (15)(395)/9 = 675 \text{ SY} @ \$6 = \$4,500$$

$$\text{R.O.W. Acquisition (Commercial/Industrial - Mostly outside Flood plain)} - 1.1 \text{ Ac} @ \$50,000 = \$55,000$$

#641,000

$$+20\% \text{ Engr, Admin \& Cont } \$128,500$$

$$\$769,500 \Rightarrow \text{Use } \$770,000$$

REACH 1 TOTAL - \$2,635,000

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PROJ. Shocks Run

SHEET

4

DATE February 10, 1993

SUBJ. Estimate of Probable OF
Construction Costs - StructuralReach 2 - Abandoned Railroad to Costilla StreetSta. 16+20 to Sta. 24+00 - Clear existing channel between Abandoned Railroad and Fountain BoulevardClearing - $(100 \pm)(780)/43560 = 1.8 \text{ AC} @ \$20,000 = \$36,000$ Asp Path - $(15)(500 \pm)/9 = 850 \text{ SY} @ \$6 = \$5,500$

\$4,500

+20% Eng, Admin, & Cont \$8,500

Use $\Rightarrow$ \$50,000Sta. 24+00 to Sta. 25+50 - Replace Culverts at Fountain Boulevard w/ 4-12' x 10' PCB

Remove Exist. Culverts - L.S. = \$65,000

Struct. Excav - $[(65)(150)(13) + (25)(150)(12)]/27 = 6500 \text{ CY} @ \$6 = \$39,000$ Struct. Back - $[(10)(150)(12) + (65)(150)(1)]/27 = 1000 \text{ CY} @ \$7 = \$7,000$ Embankment $(65)(150)(12)/27 = 4500 \text{ CY} @ \$4 = \$18,000$ Bedding - $(65)(150)(0.5)/27 = 200 \text{ CY} @ \$15 = \$3,000$ Struct. Conc - 4-12' x 10' PCB - $[(4)(1.99) - (3)(12)(1)/27](150) = 994$ Hd walls - $(2)(53)(0.09) = 10$ Wings (7' Ave H - 25' L) - $(4)(25)(0.46) = 46$

1050 CY @ \$275 = \$289,000

Ziplap - $(115)(100)(3)/27 = 1275 \text{ CY} @ \$40 = \$51,000$ Curb and Gutter - $(2)(75) = 150 \text{ LF} @ \$8 = \$1,500$

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PROJ. Shooks Run

SHEET 5

DATE February 10, 1993

SUBJ. Estimate of Probable of

Construction Costs - Structural

Sidewalk - $(4)(75)/9 = 50 \text{ SY} @ \$17 = \$1,000$ Guardrail - $(2)(75) = 150 \text{ LF} @ \$15 = \$2,500$ Asp Pavmt Replmt - $(75)(72)/9 = 600 \text{ SY} @ \$12 = \$7,500$

\$484,500

+20% Engr, Admin & Cont \$97,000\$581,500 $\Rightarrow$ Use \$585,000Sta. 25+50 to Sta. 48+65 - Clear Channel and Stabilize West Bank between
Fountain Boulevard and Costilla StreetClearing - $(90)(2315)/43560 = 4.8 \text{ AC} @ \$20000 = \$96,000$ Earthwork - $(0.4)(200)(2315)/27 = 41500 \text{ CY} @ \$4 = \$166,000$ 10' High Conc Retaining Wall - $(3)(12)(2315) = 8340 \text{ LF} @ \$200 = \$1,668,000$ Landscaping - $(90)(2315)/43560 = 4.8 \text{ AC} @ \$35000 = \$168,000$ R.O.W. Acquisition (Commercial/Industrial - Mostly outside Floodplain) - $4.8 \text{ AC} @ \$50000 = \$240,000$ Commercial/Industrial Building - $2500 \text{ SF} @ \$35 = \$87,500$ Remove Commercial Building - Small - 1 Each $@ \$20000 = \$20,000$

\$2,445,500

+20% Engr, Admin & Cont

\$489,000\$2,934,500 $\Rightarrow$ Use \$2,935,000

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PROJ. Shooks Run

SHEET 6

DATE February 10, 1993

SUBJ. Estimate of Probable OF
Construction Costs - StructuralSta. 48+65 to Sta. 50+65 - Replace Culvert at Costilla Street w/ 4-10'x10'RCBRemove Exist. Culvert - $L.S. = \$35,000$ Struct. Excav - $[(55)(200)(10) + (35)(200)(12)] / 27 = 7500 \text{ CY} @ \$6 = \$45,000$ Struct. Back - $[(10)(200)(12) + (55)(200)(1)] / 27 = 1500 \text{ CY} @ \$7 = \$10,500$ Embankment - $(55)(200)(9) / 27 = 4000 \text{ CY} @ \$4 = \$16,000$ Bedding - $(55)(200)(0.5) / 27 = 300 \text{ CY} @ \$15 = \$4,500$ Struct. Conc - 4-10'x10'RCB - $[(4)(1.82) - (3)(12)(1) / 27](200) = 1189$ Adwalls - $(2)(45)(0.09) = 8$ Wings / 7' Ave H - 25' L - $(2)(25)(0.46) = 23$ $1220 \text{ CY} @ \$275 = \$335,500$ Riprap - $(105)(100)(3) / 27 = 1175 \text{ CY} @ \$40 = \$47,000$ Curb and Gutter - $(2)(65) = 130 \text{ LF} @ \$8 = \$1,000$ Sidewalk - $(2)(4)(65) / 9 = 50 \text{ SY} @ \$17 = \$1,000$ Guardrail - $(2)(45) + (4)(25) = 190 \text{ LF} @ \$15 = \$3,000$ Asp. Pmnt Replmt - $(65)(56) / 9 = 425 \text{ SY} @ \$12 = \$5,500$ Conc. Pmnt Replmt - $(65)(80 \pm) / 9 = 600 \text{ SY} @ \$40 = \$24,000$ $\$528,000$ + 20% Eng., Admin., & Cont $\$105,500$ $\$633,500 \Rightarrow \underline{\underline{\text{Use } \$635,000}}$ REACH 2 TOTAL - \$4,205,000

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FILE 90-809

CK.

PROJ. Shooks Run

SHEET

7

DATE February 11, 1993

SUBJ. Estimate of Probable OF
Construction Costs - StructuralReach 3 - Costilla Street to Boulder StreetSta 50+65 to Sta 71+55 - New open channel between Costilla Street and El Paso Street (South)Clearing - $(145)(2090)/43560 = 7.0 \text{ Ac} @ \$20000 = \$140,000$ Remove Exist Conc Retaining Wall - $(8)(400) = 3200 \text{ SF} @ \$5 = \$16,000$ Earthwork - $(0.5)(1840)(2090)/27 = 71500 \text{ CY} @ \$4 = \$286,000$ Bedding - $(60)(2090)(1)/27 = 2325 \text{ CY} @ \$15 = \$35,000$ 10' High Conc Retaining Wall - $(2)(3.4)(2090) = 14220 \text{ LF} @ \$200 = \$2,844,000$ Structural Conc Bottom - $(50)(4)(2090)(1)/27 = 3565 \text{ CY} @ \$275 = \$980,500$ Landscaping - $(90)(2090)/43560 = 4.3 \text{ Ac} @ \$35000 = \$150,500$ Reconst. 8" Aerial San Sewer Crossing - $50 \text{ LF} @ \$150 = \$7,500$ Reconst. 18" Aerial San Sewer Crossing - $50 \text{ LF} @ \$200 = \$10,000$ Asp Path - $(15)(2090)/9 = 3500 \text{ SY} @ \$6 = \$21,000$ R.O.W. Acquisition - (Commercial/Industrial - Mostly Outside Floodplain) - $7.0 \text{ Ac} @ \$50000 = \$350,000$ Commercial/Industrial Buildings - $16000 \text{ SF} @ \$35 = \$560,000$ Partial Residential Lots - $3 \text{ Each} @ \$5000 = \$15,000$

Remove Commercial/Industrial Buildings -

Small - $6 \text{ Each} @ \$20000 = \$120,000$

\$ 5,500,500

+ 20% Eng, Admin, & Cont

\$ 1,100,000

\$6,600,500 $\Rightarrow$ Use \$6,600,000

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SHEET 8

DATE February 11, 1993

SUB. Estimate of Probable OF
Construction Costs - Structural

Sta. 71+55 to Sta 72+80 - Replace Culvert at El Paso Street (South)
w/ 5-14' X 10' PCB

Remove Exist Culvert - C.S. - \$20,000

Struct. Excav - $[(85)(125)(1) + (65)(12)(125)] / 27 = 4000 \text{ CY} @ \$6 = \$24,000$

Struct. Back - $[(10)(125)(12) + (85)(125)(1)] / 27 = 1000 \text{ CY} @ \$7 = \$7,000$

Bedding - $(85)(125)(0.5) / 27 = 200 \text{ CY} @ \$15 = \$3,000$

Structural Conc - 5-14' X 10' PCB - $[(5)(227) - (4)(12)(1) / 27](125) = 1197$

Headwalls - $(2)(76)(0.09) = 14$

$1215 \text{ CY} @ \$275 = \$334,500$

Curb and Gutter - (2) 1 = LF @ \$8 = \$1,500

Sidewalk - $(2)(4)(95) / 9 = 190 \text{ SY} @ \$17 = \$1,500$

Guardrail - $(2)(76) + (4)(25) = 252 \text{ LF} @ \$15 = \$4,000$

Asp Pmt Repmt - $(95)(30) / 9 = 325 \text{ SY} @ \$12 = \$4,000$

\$ 400,000

+ 20% Eng, Admin, & Cont

\$ 80,000

⇒ Use \$480,000

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SHEET 9

DATE February 11, 1993

SUBJ. Estimate of Probable
Construction Costs - Structural

Sta. 72+80 to Sta 76+80 - New open channel between El Paso Street (South)
and Pikes Peak Avenue

Clearing - $(100 \times 400) / 43560 = 0.9 \text{ Ac} @ \$20000 = \$18,000$

Remove Exist Conc. Retain Wall - $(6) / (125) = 750 \text{ SF} @ \$5 = \$4,000$

Earthwork - $(0.6 \times (1820 \times 400) / 27 = 16500 \text{ CY} @ \$4 = \$66,000$

Bedding - $(80 \times 400 \times 0.5) / 27 = 600 \text{ CY} @ \$15 = \$9,000$

10' High Conc Retain Wall - $(2 \times 2.2 \times 400) = 1760 \text{ LF} @ \$200 = \$352,000$

Stucc Conc Bottom - $(70 \times 4) \times 400 \times (1) / 27 = 980 \text{ CY} @ \$275 = \$269,500$

Landscaping - $(70 \times 400) / 43560 = 0.6 \text{ Ac} @ \$35000 = \$21,000$

Asp Path - $(15 \times 400) / 9 = 700 \text{ SY} @ \$6 = \$4,500$

R.O.W. Acquisition (Commercial/Industrial - Mostly outside Floodplain) - $1.3 \text{ Ac} @ \$50000 = \$65,000$

Commercial/Industrial Buildings - $1500 \text{ SF} @ \$35 = \$52,500$

Remove Commercial/Industrial Buildings -

Small - 1 Each @ $\$20000 = \$20,000$

$\$881,500$

+20% Eng'g, Admin, & Cont

$\$176,500$

$\$1,058,000 \Rightarrow \underline{\underline{\text{Use } \$1,060,000}}$

Sta. 76+80 to Sta. 85+60 - Replace Culvert at Pikes Peak Avenue / El Paso Street
(North) w/ 5-14' X 10' RCB

Remove Exist Culvert - L.S. - $\$150,000$

Stucc Excav - $[(85 \times 8)(175) + (65)(14)(175) + (85 \times 7)(285) + (65)(12)(285)$

$(85 \times 7)(190) + (55)(21)(190)] / 27 = 37500 \text{ CY} @ \$6 = \$225,000$

Stucc Back - $[(10 \times 650)(12) + (85 \times 650)(1)] / 27 = 5000 \text{ CY} @ \$7 = \$35,000$

Embankment - $(85 \times 650)(9) / 27 = 18500 \text{ CY} @ \$4 = \$74,000$

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FILE 70-809

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PROJ. Shooks Run

SHEET 10

DATE February 11, 1992

SUBJ Estimate of Probable
Construction Costs - Structural

$$\text{Bedding} - (85 \times 650)(0.5)/27 = 1000 \text{ CY} @ \$15 = \$15,000$$

$$\text{Structural Conc} - 5-14' \times 10' \text{ PCB} - [(5)(227) + (4)(12)(1)/27](650) = 6222$$

$$\text{Hdwalks} - (2)(76)(0.09) = 14$$

$$\text{Wings} - (7' \text{ Area} - 25' \text{ L}) = (2)(25)(0.46) = 23$$

$$6260 \text{ CY} @ \$275 = \$1,721,500$$

$$\text{Curb and Gutter} - (4)(95) = 380 \text{ LF} @ \$8 = \$3,000$$

$$\text{Sidewalk} - [(4)(4)(95) + (8)(95)]/9 = 250 \text{ SY} @ \$17 = \$4,500$$

$$\text{Guardrail} - (2)(76) + (4)(25) = 252 \text{ LF} @ \$15 = \$4,000$$

$$\text{Asp Pmnt Replmt} - [(95)(60) + (95)(32)]/9 = 975 \text{ SY} @ \$12 = \$12,000$$

$$\text{Landscaping} - (140)(375)/43560 \text{ 1/2 Ac} @ \$35000 = \$42,000$$

$$\text{Asp Path} - (15)(375)/9 = 625 \text{ SY} @ \$6 = \$4,000$$

$$\text{R.O.W Acquisition} - (\text{Commercial Industrial} - \text{Mostly Inside Floodplain}) - 1.1 \text{ Ac} @ \$25000 = \$27,500$$

$$\text{Residence} - 1 \text{ Each} @ \$75000 = \$75,000$$

$$\text{Remove Residence} - 1 \text{ Each} @ \$10000 = \$10,000$$

$$\$2,402,500$$

$$+ 20\% \text{ Eng., Admin., \& Cont} \quad \$480,500$$

$$\$2,883,000 \Rightarrow \underline{\underline{\text{Use } \$2,885,000}}$$

$\Rightarrow$ Replace Culvert at Kiowa Street w/ 4- 14' x 10' PCB

$$\text{Remove Exist Culvert} - \text{L.S.} = \$25,000$$

$$\text{Stucc Excav} - [(70)(3)(150) + (50)(14)(150)]/27 = 5000 \text{ CY} @ \$6 = \$30,000$$

$$\text{Stucc Back} - [(10)(150)(12) + (70)(150)(1)]/27 = 1000 \text{ CY} @ \$7 = \$7,000$$

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FILE 90-809

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PROJ. Shooks Run

SHEET 11

DATE February 11, 1993

SUBJ. Estimate of Probable of
Construction Costs - Structural

$$\text{Embankment} - (70)(150)(4)/27 = 1500 \text{ CY} @ \$4 = \$6,000$$

$$\text{Bedding} - (70)(150)(0.5)/27 = 200 \text{ CY} @ \$15 = \$3,000$$

$$\text{Structural Conc} - 4 - 14' \times 10' \text{ RCB} - [(4)(2.2) - (3)(12)(1)/27] 150 = 1162$$

$$\text{Hdwalks} - (2)(61)(0.09) =$$

$$\text{Wings} - (7' \text{ Ave H} - 25' \text{ L}) = (2)(25)(0.46) = 23$$

$$1200 \text{ CY} @ \$275 = \$330,000$$

$$\text{Riprap} - (70)(50)(3)/27 = 400 \text{ CY} @ \$40 = \$16,000$$

$$\text{Curb and Gutter} - (2)(80) = 160 \text{ LF} @ \$8 = \$1,500$$

$$\text{Sidewalk} - (2)(4)(80)/9 = 75 \text{ SY} @ \$17 = \$1,500$$

$$\text{Guardrail} - (2)(61) + (4)(25) = 222 \text{ LF} @ \$15 = \$3,500$$

$$\text{Asp Pmnt Replmt} - (80)(60)/9 = 550 \text{ SY} @ \$12 = \$6,500$$

$$\$430,000$$

$$+ 20\% \text{ Engr, Admin, \& Cont} \quad \$86,000$$

$$\$516,000 \Rightarrow \underline{\underline{\text{Use } \$520,000}}$$

Sta. 85+60 to Sta. 89+95 - New open channel between Kiowa Street and Bijou Street

$$\text{Clearing} - (100)(435)/43560 = 1.0 \text{ Ac} @ \$20,000 = \$20,000$$

$$\text{Remove Exst Conc. Retain Wall} - (15)(365) = 5475 \text{ SF} @ \$5 = \$27,500$$

$$\text{Earthwork} - (0.5)(960)(435)/27 = 8000 \text{ CY} @ \$4 = \$32,000$$

$$\text{Bedding} - (60)(435)(0.5)/27 = 500 \text{ CY} @ \$15 = \$7,500$$

$$10' \text{ High Conc Retain Wall} - (2)(1.7)(435) = 1480 \text{ LF} @ \$200 = \$296,000$$

$$\text{Struc Conc Bottom} - (50 - 4)(435)(1)/27 = 745 \text{ CY} @ \$275 = \$205,000$$

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FILE 90-809

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PROJ. Shooks Run

SHEET 12

DATE February 11, 1993

SUBJ. Estimate of Probable OF
Construction Costs - StructuralLandscaping - $(70)(435)/43560 = 0.7 \text{ Ac} @ \$35000 = \$24,500$ Asp Path - $(15)(435)/9 = 725 \text{ SY} @ \$6 = \$4,500$ R.O.W. Acquisition - (Commercial/Industrial - Mostly outside Flood plain) $0.4 \text{ Ac} @ \$50000 = \$20,000$ Commercial/Industrial Buildings - $1500 \text{ SF} @ \$35 = \$52,500$ Residences - 2 Each @ $> \$5000 = \$150,000$ Partial Residential Lots - 3 Each @ $\$5000 = \$15,000$

Remove Commercial/Industrial Buildings -

- Small - 1 Each @ $\$20000 = \$20,000$ Remove Residences - 2 Each @ $\$10000 = \$20,000$ $\$874,500$

+20% Eng, Admin, & Cont

 $\$175,000$ $\$1,049,500 \Rightarrow \underline{\underline{\text{Use } \$1,050,000}}$ Sta. 89+95 to Sta. 94+50 - Replace Culvert at Bijou Street w/ 4-14' x 10' RCBRemove Exist Culvert - L.S. - $\$75,000$ Stave Excav - $[(70)(3)(455) + (50)(12)(455)]/27 = 14000 \text{ CY} @ \$6 = \$84,000$ Stave Back - $[(10)(455)(12) + (70)(455)(1)]/27 = 3500 \text{ CY} @ \$7 = \$24,500$ Embankment - $(70)(455)(2)/27 = 2500 \text{ CY} @ \$4 = \$10,000$ Bedding - $(70)(455)(0.5)/27 = 600 \text{ CY} @ \$15 = \$9,000$

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FILE 90-809

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PROJ. Shooks Run

SHEET 13

DATE

February 11, 1993

SUBJ. Estimate of Probable of
Construction Costs - Structural

$$\text{Structural Conc} - 4-14' \times 10' \text{ RCB} - [(4)(2.27) - (3)(2)(1)/2](435) = 3370$$

$$\text{Hd walls} - (2)(61)(0.09) = 11$$

$$3385 \text{ CY} @ \$275 = \$931,000$$

$$\text{Curb and Gutter} - (80)(4) = 320 \text{ LF} @ \$8 = \$2,500$$

$$\text{Sidewalk} - (4)(4)(80)/9 = 150 \text{ SY} @ \$17 = \$2,500$$

$$\text{Guardrail} - (2)(61) + (4)(25) = 222 \text{ LF} @ \$15 = \$3,500$$

$$\text{Asp Pmnt Replmt} - [(80)(24) + (80)(56)]/9 = 725 \text{ SY} @ \$12 = \$9,000$$

$$\text{Landscaping} - (1/10)(300)/43560 = 0.8 \text{ Ac} @ \$35,000 = \$28,000$$

$$\text{Asp Path} - (15)(300)/9 = 500 \text{ SY} @ \$6 = \$3,000$$

$$\text{R.O.W. Acquisition} - \text{Residence} - 1 \text{ Each} @ \$75,000 = \$75,000$$

$$- \text{Partial Residential Property} - 1 \text{ Each} @ \$5,000 = \$5,000$$

$$\text{Remove Residence} - 1 \text{ Each} @ \$10,000 = \$10,000$$

$$\$1,272,000$$

+ 20% Engr, Admin, & Cont

$$\$254,500$$

$$\$1,526,500 \Rightarrow \underline{\underline{\text{Use } \$1,530,000}}$$

Sta. 94+50 to Sta 98+10 - New open channel between Bijou Street and Platte Avenue

$$\text{Clearing} - (50)(360)/43560 = 0.4 \text{ Ac} @ \$20,000 = \$8,000$$

$$\text{Earthwork} - (0.5)(960)(360)/27 = 6500 \text{ CY} @ \$4 = \$26,000$$

$$\text{Bedding} - (60)(360)(0.5)/27 = 400 \text{ CY} @ \$15 = \$6,000$$

$$10' \text{ High Conc Retain Wall} - (2)(1.7)(360) = 1225 \text{ LF} @ \$200 = \$245,000$$

$$\text{Struct Conc Bottom} - (50-4)(360)(1)/27 = 615 \text{ CY} @ \$275 = \$169,500$$

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FILE 90-809

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SHEET 14

DATE

February 11, 1993

SUBJ.

Estimate of Probable OF
Construction Costs-StructuralLandscaping - $(70)(360)/43560 = 0.6 \text{ Ac} @ \$35000 = \$21,000$ R.O.W. Acquisition - Residences - 2 Each @ $> \$5000 = \$150,000$
Partial Residential Lot - 1 Each @ $\$5000 = \$5,000$ Remove Residences - 2 Each @ $\$10000 = \$20,000$

\$650,500

+20% Eng, Admin, & Cont

\$130,000

\$780,500 $\Rightarrow$ Use \$780,000Sta 98+10 to Sta 106+30 - Replace Culvert at Platte Avenue / School
Athletic Field and Bridge at Boulder Street
w/ 4-12' X 10' PCBRemove Exst. Culvert & Bridge - L.S. = $\$140,000$ Remove Exst Conc Retain Wall - $(2)(65)(7) = 925 \text{ SF} @ \$5 = \$5,000$ Stave Excav - $[(65)(8)(600) + (45)(13)(600) + (25)(17)(100)]/27 = 26500 \text{ CY} @ \$6 = \$159,000$ Stave Back - $[(110)(12)(700) + (65)(11)(700)]/27 = 5000 \text{ CY} @ \$7 = \$35,000$ Embankment - $[(65)(8)(600) + (65)(4)(100)]/27 = 12500 \text{ CY} @ \$4 = \$50,000$ Bedding - $(65)(700)(0.5)/27 = 850 \text{ CY} @ \$15 = \$13,000$ Structural Concrete - 4-12' X 10' PCB - $[(4)(11.99) - (3)(12)(1)/27](700) = 4639$ Sidewalks - $(2)(53)(0.09) = 10$ 4650 CY @ $\$275 = \$1,279,000$

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SHEET 15

DATE

February 11, 1993

SUB Estimate of Probable OF
Construction Costs - StructuralCurb and Gutter - $(75)(4) = 300 \text{ LF} @ \$8 = \$2,500$ Sidewalk - $(4)(4)(75)/9 = 150 \text{ SY} @ \$17 = \$2,500$ Guardrail - $(2)(53) + (4)(25) = 206 \text{ LF} @ \$15 = \$3,000$ Retain Wall Replmt - $(7' \pm H) = (2)(0.51)(65) = 70 \text{ CY} @ \$275 = \$19,500$ Asp Punt Replmt - $[(75)(96) + (75)(60)]/9 = 1300 \text{ SY} @ \$12 = \$16,000$ Landscaping - $(110)(500)/43560 = 1.3 \text{ Ac} @ \$35000 = \$45,500$ Asp Path - $(15)(500)/9 = 850 \text{ SY} @ \$6 = \$5,000$ R.O.W. Acquisition - (School - Inside Floodplain) - $1.3 \text{ Ac} @ \$25000 = \$32,500$

\$1,807,500

+ 20% Eng, Admin, & Cont

\$ 361,500

\$2,169,000 $\Rightarrow$ Use \$2,170,000REACH 3 - TOTAL - \$17,075,000Reach 4 - Boulder Street to Cache La Poudre StreetSta. 106+30 to Sta 112+35 - New open channel between Boulder Street and St. Vrain StreetClearing - $(85)(605)/43560 = 1.2 \text{ Ac} @ \$20000 = \$24,000$ Earthwork - $(0.4)(500)(605)/27 = 4500 \text{ CY} @ \$4 = \$18,000$ Bedding - $(60)(605)(0.5)/27 = 675 \text{ CY} @ \$15 = \$10,500$ 10' High Conc Retain Wall - $(2)(1)(605) = 1210 \text{ LF} @ \$200 = \$242,000$ Struct Conc Bottom - $(50-4)(605)(1)/27 = 1035 \text{ CY} @ \$275 = \$285,000$ Landscaping - $(30)(605)/43560 = 0.4 \text{ Ac} @ \$35000 = \$14,000$ Asp Path - $(15)(605)/9 = 1000 \text{ SY} @ \$6 = \$6,000$

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SHEET 16

DATE

February 11, 1993

SUBJ. Estimate of Probable OF

Construction Costs - Structural

R.O.W. Acquisition-

- Partial Residential Lots 1 - Each @ \$5000 = \$5,000\$604,500

+ 20% Eng., Admin., & Cont

\$121,000\$725,500 $\Rightarrow$ Use \$725,000Sta. 112+35 to Sta 113+40 - Replace Culvert at St. Vrain Street w/4-10'x10'PCB

Remove Exist Culvert - L.S. = \$20,000

Stave Excav - $[(55)(1)(105) + (35)(14)(105)]/27 = 2500 \text{ CY} @ \$6 = \$15,000$ Stave Back - $[(10)(105)(12) + (55)(1)(105)]/27 = 750 \text{ CY} @ \$7 = \$5,500$ Embankment - $[(55)(2)(105)]/27 = 500 \text{ CY} @ \$4 = \$2,000$ Bedding - $(55)(105)(0.15)/27 = 100 \text{ CY} @ \$15 = \$1,500$ Stave Conc - 4-10'x10'PCB - $[(4)(11.82) - (3)(12)(1)/27](105) = 624$ Hd walks - $(2)(45)(0.09) = 8$ 635 CY @ \$275 = \$175,000Curb and Gutter - $(65)(2) = 130 \text{ LF} @ \$8 = \$1,000$ Sidewalk - $(2)(4)(65)/9 = 75 \text{ SY} @ \$17 = \$1,500$

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FILE 90-809

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PROJ. Shooks Run

SHEET 17

DATE

February 11, 1993

SUBJ.

Estimate of Probable OF
Construction Costs - Structural

$$\text{Guardrail} - (2)(45) + (4)(25) = 190 \text{ LF} @ \$15 = \$3,000$$

$$\text{Asp Pmnt Rep/mt} - (65)(50)/9 = 375 \text{ SY} @ \$12 = \$4,500$$

\$229,000

$$+20\% \text{ Engr, Admin, \& Cont} \quad \$46,000$$

$$\Rightarrow \text{Use } \$275,000$$

Sta. 113+40 to Sta 117+75 - New open channel between St Urain Street and Willamette Street

$$\text{Clearing} - (120)(435)/43560 = 1.2 \text{ Ac} @ \$20000 = \$24,000$$

$$\text{Earthwork} - (0.3)(625)(435)/27 = 3000 \text{ CY} @ \$4 = \$12,000$$

$$\text{Bedding} - (55)(435)(0.5)/27 = 450 \text{ CY} @ \$15 = \$7,000$$

$$10' \text{ High Conc Retain Wall} - (2)(1.4)(435) = 1220 \text{ LF} @ \$200 = \$244,000$$

$$\text{Stucc Conc Bottom} - (45-4)(435)(1)/27 = 665 \text{ CY} @ \$275 = \$183,000$$

$$\text{Landscaping} - (70)(435)/43560 = 0.7 \text{ Ac} @ \$35000 = \$24,500$$

$$\text{Asp Path} - (15)(435)/9 = 725 \text{ SY} @ \$6 = \$4,500$$

R.O.W. Acquisition -

$$\text{Partial Residential Lots} - 3 \text{ Each} @ \$5000 = \$15,000$$

\$514,000

$$+20\% \text{ Engr, Admin, \& Cont}$$

\$103,000

$$\$617,000 \Rightarrow \text{Use } \$620,000$$

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SHEET 18

DATE

February 12, 1993

SUBJ.

Estimate of Probable OF
Construction Costs - Structural

Sta. 117+75 to Sta 119+80 - Replace Culvert at Willamette Street
w/ 3-10' X 10' PCB

Remove Exist Culvert - L.S. = \$35,000

Stave Excav - $[(45)(6)(205) + (25)(15)(205)] / 27 = 5000 \text{ CY} @ \$6 = \$30,000$

Stave Back - $[(10)(205)(12) + (45)(205)(1)] / 27 = 1500 \text{ CY} @ \$7 = \$10,500$

Embankment $(45)(8)(205) / 27 = 3000 \text{ CY} @ \$4 = \$12,000$

Bedding - $(45)(205)(0.5) / 27 = 175 \text{ CY} @ \$15 = \$3,000$

Structural Conc - 3-10' X 10' PCB - $[(3)(1.82) - (2)(12)(1) / 27](205) = 937$

Hd walls - $(2)(34)(0.09) = 6$

$945 \text{ CY} @ \$275 = \$260,000$

Curb and Gutter - $(4)(55) = 220 \text{ LF} @ \$8 = \$2,000$

Sidewalk - $(2)(4)(55) / 9 = 50 \text{ SY} @ \$17 = \$1,000$

Guardrail - $(2)(34) + (4)(25) = 168 \text{ LF} @ \$15 = \$2,500$

Asp Punt Replmt - $(2)(55)(26) / 9 = 325 \text{ SY} @ \$12 = \$4,000$

\$360,000

+ 20% Engr, Admin, & Cont

\$72,000

\$432,000 $\Rightarrow$ Use \$435,000

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SUBJ.

Estimate of Probable of
Construction Costs - Structural

Sta. 119+80 to Sta 135+15 - New Open Channel between Willamette Street and Cache La Poudre Street

Clearing - $(110)(1535)/43560 = 3.9 \text{ Ac} @ \$20000 = \$78,000$

Earthwork - $(0.12)(966)(1535)/27 = 11000 \text{ CY} @ \$4 = \$44,000$

Bedding - $(45)(1535)(0.5)/27 = 1275 \text{ CY} @ \$15 = \$19,500$

10' High Conc Retain Wall - $(2)(2)(1535) = 6140 \text{ LFC} @ \$200 = \$1,128,000$

Struc Conc Bottom - $(35-4)(1535)(1)/27 = 1765 \text{ CY} @ \$275 = \$485,500$

Landscaping - $(70)(1535)/43560 = 2.5 \text{ Ac} @ \$35000 = \$87,500$

Replace Pedestrian Bridge - $(80)(8) = 640 \text{ SF} @ \$60 = \$38,500$

\$1,981,000

+ 20% Eng, Admin & Cont

\$ 396,500

\$ 2,377,500 $\Rightarrow$ Use \$2,380,000

Sta. 135+15 to Sta. 137+05 - Replace Culvert at Cache La Poudre w/ 3-10'X10'RCB

Remove Exist Culvert - LS₁ = \$30,000

Struc Excav - $[(45)(2)(190) + (25)(14)(190)]/27 = 3000 \text{ CY} @ \$6 = \$18,000$

Struc Back - $[(10)(190)(12) + (45)(1)(190)]/27 = 1500 \text{ CY} @ \$7 = \$10,500$

Embankment - $[(45)(3)(190)]/27 = 1000 \text{ CY} @ \$4 = \$4,000$

Bedding - $(45)(190)(0.5)/27 = 150 \text{ CY} @ \$15 = \$2,500$

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DATE

February 12, 1993

SUBJ.

Estimate of Probable OF
Construction Costs - Structural

$$\text{Structural Conc} - 3-10' \times 10' \text{ RCB} - [(3)(1182) - (2)(12)(1)/27](190) = 869$$

$$\text{Hd walls} - (2)(34)(0.09) = 6$$

$$875 \text{ CY} @ \$275 = \$241,000$$

$$\text{Curb and Gutter} - (2)(55) = 110 \text{ LF} @ \$8 = \$1,000$$

$$\text{Sidewalk} - (2)(4)(55)/9 = 50 \text{ SY} @ \$17 = \$1,000$$

$$\text{Guardrail} - (2)(34) + (4)(25) = 168 \text{ LF} @ \$15 = \$2,500$$

$$\text{Asp. Pmnt Replmt} - (55)(32)/9 = 200 \text{ SY} @ \$12 = \$2,500$$

$$\text{R.O.W. Acquisition} - \text{Partial Residential Lots} - 2 \text{ Each} @ \$5,000 = \$10,000$$

$$\$323,000$$

$$+ 20\% \text{ Eng., Admin., \& Cont}$$

$$\$65,000$$

$$\$388,000 \Rightarrow \underline{\underline{\text{Use } \$390,000}}$$

$\Rightarrow$ Replace Exist Pedestrian Bridge over Cache La Poudre Culvert Crossing

$$\text{Remove Exist Bridge} - \text{L.S.} = \$20,000$$

$$\text{Struct Excav} - (2)(10)(25 \pm) \left(\frac{60+20}{2} \right) / 27 = 1000 \text{ CY} @ \$6 = \$6,000$$

$$\text{Struct Back} - (2)(10)(25 \pm) \left(\frac{60+20}{2} \right) / 27 = 1000 \text{ CY} @ \$7 = \$7,000$$

$$\text{Struct Conc} - (2)(3)(25 \pm) \left(\frac{60+20}{2} \right) / 27 = 225 \text{ CY} @ \$275 = \$62,000$$

$$\text{Reset Twin Tee} - \text{L.S.} = \$2,000$$

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FILE 70-809

CK.

PROJ. Shooks RunSHEET 21

DATE

February 12, 1993

SUBJ.

Estimate of Probable OF
Construction Costs- StructuralSidewalk - $(2)(15)(25)/9 = 100 \text{ CY} @ \$17 = \$2,000$ Fence - $(4)(25) = 100 \text{ LF} @ \$7 = \$1,000$ \$100,000+ 200% Engy, Admin, & Cont \$20,000⇒ Use \$120,000REACH 4 TOTAL - \$4,945,000Reach 5 - Cache La Poudre Street to Patty Jewett Golf CourseSta. 137+05 to Sta 152+45 - New open channel between Cache La Poudre
Street and Uintah StreetClearing - $(110)(1540)/43560 = 3.9 \text{ Ac} @ \$20000 = \$78,000$ Earthwork - $(0.12)(1120)(1540)/27 = 13000 \text{ CY} @ \$4 = \$52,000$ Bedding - $(45)(1540)(0.5)/27 = 1300 \text{ CY} @ \$15 = \$19,500$ 10' High Conc Retain Wall - $(2)(22)(1540) = 6780 \text{ LF} @ \$200 = \$1,356,000$ Stucco Conc Bottom - $(35-4)(1540)(1)/27 = 1770 \text{ CY} @ \$275 = \$487,000$ Landscaping - $(70)(1540)/43560 = 2.5 \text{ Ac} @ \$35000 = \$87,500$ Asp Path - $(15)(1540)/9 = 2575 \text{ SY} @ \$6 = \$15,500$ P.D.W. Acquisition - (Commercial/Industrial - Mostly outside Floodplain) - $1.1 \text{ Ac} @ \$50000 = \$55,000$

Residences - 1 Each @ \$75000 = \$75,000

Partial Residential Lots - 14 Each @ \$5000 = \$70,000

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FILE 90-809

CK.

PROJ. Shooks Run

SHEET 22

DATE

February 12, 1993

SUBJ. Estimate of Probable of
Construction Costs - Structural

Remove Residences - 1 Each @ \$10,000 = \$10,000

\$2,305,500

+ 20% Eng., Admin., & Cont \$ 461,000

\$2,766,500 $\Rightarrow$ Use \$2,770,000Sta. 152+45 to Sta. 153+55 - Replace Vintah Street Culvert w/ 2-14'x10' PCB

Remove Exst Culvert - L.S. = \$20,000

Struct Excav - $[(40)(11)(150) + (20)(13)(150)]/27 = 4000 \text{ CY} @ \$6 = \$24,000$ Struct Back - $[(10)(150)(12) + (40)(150)(11)]/27 = 1000 \text{ CY} @ \$7 = \$7,000$ Embankment - $(40)(150)(11)/27 = 2500 \text{ CY} @ \$4 = \$10,000$ Bedding - $(40)(150)(0.5)/27 = 125 \text{ CY} @ \$15 = \$2,000$ Struct Conc - 2-14'x10' PCB - $[(2)(2)(27) - (1)(12)(1)/27]/150 = 614$ Hdwalks - $(2)(31)(0.09) = 6$

620 CY @ \$275 = \$170,500

Curb and Gutter - $(2)(50) = 100 \text{ LF} @ \$8 = \$1,000$ Sidewalk - $(2)(4)(50)/9 = 50 \text{ SY} @ \$17 = \$1,000$

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FILE 90-809

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PROJ. Shooks Run

SHEET 23

DATE

February 12, 1993

SUBJ.

Estimate of Probable of
Construction Costs - Structural

$$\text{Guardrail} - (2)(31) + (4)(25) = 162 \text{ LF} @ \$15 = \$2,500$$

$$\text{Asp Pmnt Replmt} - (50)(26)/9 = 150 \text{ SY} @ \$12 = \$2,000$$

\$240,000

+20% Engr, Admin, & Cont

\$ 48,000

\$288,000 $\Rightarrow$ Use \$290,000

Sta 153+55 to Sta 157+55 - New open channel between Uintah Street and San Miguel Street

$$\text{Clearing} - (105)(400)/43560 = 1.0 \text{ Ac} @ \$20,000 = \$20,000$$

$$\text{Earthwork} - (0.2)(1020)(400)/27 = 3000 \text{ CY} @ \$4 = \$12,000$$

$$\text{Bedding} - (40)(400)(0.5)/27 = 300 \text{ CY} @ \$15 = \$4,500$$

$$10' \text{ High Conc Retain Wall} - (2)(2.2)(400) = 1760 \text{ LF} @ \$200 = \$352,000$$

$$\text{Stucc Conc Bottom} - (30-4)(400)(1)/27 = 385 \text{ CY} @ \$275 = \$106,000$$

$$\text{Landscaping} - (170)(400)/43560 = 0.6 \text{ Ac} @ \$35,000 = \$21,000$$

$$\text{Asp Path} - (15)(400)/9 = 675 \text{ SY} @ \$6 = \$4,000$$

$$\text{R.O.W. Acquisition - Residences} - 1 \text{ Each} @ \$75,000 = \$75,000$$

$$\text{Remove Residences} - 1 \text{ Each} @ \$10,000 = \$10,000$$

\$609,500

+20% Engr, Admin, & Cont \$122,000

\$731,500 $\Rightarrow$ Use \$735,000

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FILE 90-809

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PROJ. Shooks Run

SHEET 24

DATE

February 12, 1993

SUBJ. Estimate of Probable OF
Construction Costs - Structural

Sta 157+55 to Sta 158+40 - Replace Culvert at San Miguel Street
w/ 2-14' x 10' PCB

Remove Exist Culvert - L.S. - \$15,000

Stave Excav - $[(40 \times 8)(85) + (20 \times 13)(85)] / 27 = 2000 \text{ CY} @ \$6 = \$12,000$

Stave Back - $[(10 \times 85 \times 12) + (40 \times 85 \times 1)] / 27 = 500 \text{ CY} @ \$7 = \$3,500$

Embankment - $(40 \times 85 \times 8) / 27 = 1000 \text{ CY} @ \$4 = \$4,000$

Bedding - $(40 \times 85 \times 0.5) / 27 = 75 \text{ CY} @ \$15 = \$1,500$

Stave Conc - 2-14' x 10' PCB - $[(2)(2.27) - (1)(12 \times 1) / 27](85) = 348$

Hd walls - $(2)(31)(0.09) = 6$

$355 \text{ CY} @ \$275 = \$98,000$

Curb and Gutter - $(2)(50) = 100 \text{ LF} @ \$8 = \$1,000$

Sidewalk - $(2)(4 \times 50) / 9 = 50 \text{ SY} @ \$17 = \$1,000$

Guardrail - $(2)(31) + (4)(25) = 162 \text{ LF} @ \$15 = \$2,500$

Asp Pmt Replmt - $(50 \times 36) / 9 = 200 \text{ SY} @ \$12 = \$2,500$

\$141,000

+ 20% Eng, Admin, & Cont

\$28,500

\$169,500 $\Rightarrow$ Use \$170,000

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FILE 90-809

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PROJ. Shocks Run

SHEET 25

DATE

February 12, 1993

SUBJ. Estimate of Possible
Construction Costs - Structural

Sta 158+40 to Sta 167+35 - New open channel between San Miguel Street
and Pedestrian Bridge

Clearing - $(125 \times 895) / 43560 = 2.6 \text{ Ac} @ \$20000 = \$52,000$

Earthwork - $(0.2)(1590)(895) / 27 = 10500 \text{ CY} @ \$4 = \$42,000$

Bedding - $(40)(895)(0.5) / 27 = 675 \text{ CY} @ \$15 = \$10,500$

10' High Conc Retain Wall - $(2)(2.9)(895) = 5200 \text{ LF} @ \$200 = \$1,040,000$

Stucc Conc Bottom - $(30-4)(895)(1) / 27 = 865 \text{ CY} @ \$275 = \$238,000$

Landscaping - $(110 \times 895) / 43560 = 2.3 \text{ Ac} @ \$35000 = \$80,500$

Asp Path - $(15 \times 895) / 9 = 1500 \text{ SY} @ \$6 = \$9,000$

R.O.W. Acquisition - Residences - 2 Each @ \$75000 = \$175,000

Partial Residential Lot - 9 Each @ \$5000 = \$45,000

School - Mostly outside Floodplain - 0.6 Ac @ \$50,000 = \$30,000

Remove Residences - 2 Each @ \$10000 = \$20,000

\$1,717,000

+ 200% Eng., Admin. & Cont

\$343,500

\$2,060,500 $\Rightarrow$ Use \$2,060,000

Sta. 167+35 to Sta 176+25 - New open channel between Pedestrian Bridge
and Patty Jewett Golf Course South Boundary

Clearing - $(150 \times 890) / 43560 = 3.1 \text{ Ac} @ \$20000 = \$62,000$

Earthwork - $(0.2)(2160)(890) / 27 = 14500 \text{ CY} @ \$4 = \$58,000$

Bedding - $(40)(890)(0.5) / 27 = 675 \text{ CY} @ \$15 = \$10,500$

10' High Conc Retain Wall - $(2)(3.4)(890) = 6060 \text{ LF} @ \$200 = \$1,212,000$

Stucc Conc Bottom - $(30-4)(890)(1) / 27 = 860 \text{ CY} @ \$275 = \$236,500$

Landscaping - $(110)(890) / 43560 = 2.2 \text{ Ac} @ \$35000 = \$77,000$

Asp Path - $(15 \times 1050) / 9 = 1750 \text{ SY} @ \$6 = \$10,500$

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FILE 90-B09

CK.

PROJ.

Shooks Run

SHEET

26

DATE

February 12, 1993

SUBJ.

Estimate of Probable
Construction Costs - Structural

Replace Pedestrian Bridge - (8)(120) = 960 SF @ \$80 = \$77,000

R.O.W. Acquisition -

- Partial Residential Lots - 10 Each @ \$5,000 = \$50,000
 - School - Mostly outside floodplain - 1.5 Ac @ \$50,000 = \$75,000

\$1,868,500

+ 20% Eng, Admin, & Cont

\$ 374,000

\$2,242,500 ⇒ Use \$2,245,000

REACH 5 TOTAL - \$ 8,270,000REACH 6 - Patty Jewett Golf CourseSta 176+25 to Sta 189+05 - New open channel between Patty Jewett
Golf Course South Boundary and Espanola Street

Clearing - (100)(1280)/43560 = 2.9 Ac @ \$20,000 = \$58,000

Earthwork - (0.8)(1020)(1280)/27 = 39,000 CY @ \$4 = \$156,000

Bedding - (40)(1280)(0.15)/27 = 9,500 CY @ \$1.5 = \$14,250

10' High Conc Retaining Wall - (2)(2)(1280) = 5,120 SF @ \$200 = \$1,024,000

Struct Conc Bottom - (30 - 4)(1280)(1)/27 = 12,350 CY @ \$27.5 = \$339,625

Replace 2 Golf Course Bridges - (2)(8)(75) = 1,200 SF @ \$60 = \$72,000

Reset Exist Golf Cart Bridge - 2 Each @ \$10,000 = \$20,000

Landscaping - (30)(1280)/43560 = 0.9 Ac @ \$35,000 = \$31,500

\$1,820,000

+ 20% Eng, Admin, & Cont

\$ 364,000

\$2,184,000 ⇒ Use \$2,185,000

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PROJ Shooks Run

SHEET 27

DATE February 12, 1993

SUBJ Estimate of Probable of
Construction Costs - Structural

Sta. 189+05 to Sta 190+85 - Replace culvert at Espanola Street
w/ 3-12' X 10' RCB

Remove Exist Culvert - L.S. = \$45,000

Struct Excav - $[(50)(3)(180) + (35)(10)(180)] / 27 = 3500 \text{ CY} @ \$6 = \$21,000$

Struct Back - $[(10)(180)(12) + (50)(180)(1)] / 27 = 1500 \text{ CY} @ \$7 = \$10,500$

Bedding - $(50)(0.5)(180) / 27 = 175 \text{ CY} @ \$15 = \$3,000$

Struct Conc - 3-12' X 10' RCB = $[(13)(1.99) - (2)(12)(1) / 27](180) = 915$

sidewalks - $(2)(40)(0.09) = 7$

925 CY @ \$275 = \$254,500

Guardrail - $(2)(40) + (4)(25) = 180 \text{ LF} @ \$15 = \$3,000$

Asp Pmnt Replmt - $(60)(24) / 9 = 175 \text{ SY} @ \$12 = \$2,500$

\$339,500

+20% Engr, Admin, & Cont \$68,000

\$407,500 $\Rightarrow$ Use \$410,000

Sta 190+85 to Sta 198+45 - New open channel between Espanola Street
and End of Existing Channel Lining

Remove Conc Pmnt - $[(8.5)(2) + 10](760) / 9 = 2300 \text{ SY} @ \$10 = \$23,000$

Earthwork - $(0.5)(255)(760) / 27 = 3500 \text{ CY} @ \$4 = \$14,000$

Bedding - $[(2)(13.5) + 50](760)(0.5) / 27 = 800 \text{ CY} @ \$15 = \$12,000$

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PROJ. Shooks Run

SHEET 28

DATE

February 12, 1993

SUBJ. Estimate of Probable

Construction Costs - Structural

Struct Conc Lining - $[(2)(13.5) + 30] / (760)(11) / 27 = 1600 \text{ CY} @ \$275 = \$440,000$

Replace 4 Golf Cart Bridges - $(4)(8 \times 55) = 1760 \text{ SF} @ \$70 = \$123,500$

Landscaping - $(30 \times 760) / 43560 = 0.5 \text{ Ac} @ \$35000 = \$17,500$

\$630,000

+20% Eng, Admin, & Cont

\$126,000

\$756,000 $\Rightarrow$ Use \$760,000

Sta 198+45 to Sta 216+40 -

Channel Lining and Paved Road

Clearing - $(70)(260) / 43560 = 0.4 \text{ Ac} @ \$20000 = \$8,000$

Earthwork - $(0.12 \times 155)(1795) / 27 = 2000 \text{ CY} @ \$4 = \$8,000$

Bedding - $[(2)(9) + 30] (1795)(0.5) / 27 = 1600 \text{ CY} @ \$15 = \$24,000$

Struct Conc Lining - $[(2)(9) + 30] (1795)(11) / 27 = 3200 \text{ CY} @ \$275 = \$880,000$

Replace 2 Golf Cart Bridges - $(2)(8 \times 50) = 800 \text{ SF} @ \$70 = \$56,000$

Landscaping - $(30 \times 1795) / 43560 = 1.2 \text{ Ac} @ \$35000 = \$42,000$

\$1,018,000

+20% Eng, Admin, & Cont.

\$203,500

\$1,221,500 $\Rightarrow$ Use \$1,225,000

REACH 6 TOTAL - \$4,580,000

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FILE 90-809

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PROJ. Shocks Run

SHEET 29

DATE February 12, 1993

SUBJ. Estimate of Probable of
Construction Costs - StructuralReach 7- Paced Road to Van Buren Channel DiversionSta. 216+40 to Sta 216+95 - Replace Culvert at Paced Road w/ 3-10'x5'RCB

Remove Exist Culvert - L.S. = \$15,000

Stave Excav - $[(45)(3)(55) + (20)(5)(55)] / 27 = 500 \text{ CY} @ \$6 = \$3,000$ Stave Back - $[(10)(55)(7) + (45)(55)(1)] / 27 = 300 \text{ CY} @ \$7 = \$2,000$ Bedding - $(45)(55)(0.5) / 27 = 50 \text{ CY} @ \$15 = \$1,000$ Stave Conc - 3-10'x5' RCB = $[(3)(1.52) - (2)(7)(1) / 27](55) = 222$ Adwalls - $(2)(34)(0.09) = 6$ $230 \text{ CY} @ \$275 = \$63,500$ Curb and Gutter - $(2)(55) = 110 \text{ LF} @ \$8 = \$1,000$ Sidewalk - $(2)(4)(55) / 9 = 50 \text{ SY} @ \$17 = \$1,000$ Guardrail - $(2)(34) + (4)(20) = 148 \text{ LF} @ \$15 = \$2,500$ Asp Punt Replmt - $(55)(36) / 9 = 225 \text{ SY} @ \$12 = \$3,000$

\$92,000

+ 20% Eng, Admin, & Cont

\$18,500

\$110,500 $\Rightarrow$ Use \$110,000

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FILE 90-809

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PROJ. Shooks Run

SHEET 30

DATE

February 12, 1993

SUBJ. Estimate of Probable

Construction Costs-Structural

Sta 216+45 to Sta 218+30 - New open channel between Paseo Road and Jefferson Street

Cleaning - $(50)(135)/43560 = 0.12 \text{ Ac} @ \$20000 = \$4,000$

Earthwork - $(0.12)(210)(135)/27 = 500 \text{ CY} @ \$4 = \$2,000$

Bedding - $(40)(135)(0.5)/27 = 100 \text{ CY} @ \$15 = \$1,500$

10' High Conc Retain Wall - $(2)(0.7)(135) = 190 \text{ LF} @ \$200 = \$38,000$

Stucc Conc Bottom - $(30-4)(135)(1)/27 = 130 \text{ CY} @ \$275 = \$36,000$

Landscaping - $(30)(135)/43560 = 0.1 \text{ Ac} @ \$35000 = \$3,500$

Asp Path - $(15)(135)/9 = 225 \text{ SY} @ \$6 = \$1,500$

R.O.W. Acquisition - Residences - 2 Each @ $\$75000 = \$150,000$

Partial Residential Lot - 1 Each @ $\$5000 = \$5,000$

Remove Residences - 2 Each @ $\$10000 = \$20,000$

$\$261,500$

+ 20% Eng., Admin., & Cont $\$52,500$

$\$314,000 \Rightarrow \underline{\text{Use } \$315,000}$

Sta. 218+30 to 219+10 - Replace Culvert at Jefferson Street w/ 3-10'x5' RCB

Remove Exist Culvert - L.S. = $\$10,000$

Stucc Excav - $[(45)(4)(80) + (25)(4)(80)]/27 = 1000 \text{ CY} @ \$6 = \$6,000$

Stucc Back - $[(10)(80)(7) + (45)(80)(1)]/27 = 500 \text{ CY} @ \$7 = \$3,500$

Bedding - $(45)(80)(0.5)/27 = 100 \text{ CY} @ \$15 = \$1,500$

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Shooks Run

SHEET 31

DATE

February 12, 1993

SUBJ.

Estimate of Probable of
Construction Costs - Structural

$$\text{Struc Conc} - 3-10' \times 5' \text{ ECB} - [(3)(1.52) - (2)(7)(1)/27](80) = 323$$

$$\text{Hdwalls} - (2)(34)(0.09) = 6$$

$$330 \text{ CY} @ \$275 = \$91,000$$

$$\text{Curb and Gutter} - (2)(55) = 110 \text{ LF} @ \$8 = \$1,000$$

$$\text{Sidewalk} - (2)(4)(55)/9 = 50 \text{ SY} @ \$17 = \$1,000$$

$$\text{Guardrail} - (2)(34) + (4)(20) = 148 \text{ LF} @ \$15 = \$2,500$$

$$\text{Asp Pmnt Replmt} - (55)(36)/9 = 225 \text{ SY} @ \$12 = \$3,000$$

$$\$119,500$$

$$+ 20\% \text{ Engr, Admin, \& Cont} \quad \$24,000$$

$$\$143,500 \Rightarrow \underline{\underline{\text{Use } \$145,000}}$$

Sta 219+10 to 222+50 - New open channel between Jefferson Street and Madison Street

$$\text{Clearing} - (50)(340)/43560 = 0.4 \text{ Ac} @ \$20,000 = \$8,000$$

$$\text{Earthwork} - (0.2)(210)(340)/27 = 500 \text{ CY} @ \$4 = \$2,000$$

$$\text{Bedding} - (40)(340)(0.5)/27 = 250 \text{ CY} @ \$15 = \$4,000$$

$$10' \text{ High Conc Retain Wall} - (2)(0.7)(340) = 480 \text{ LF} @ \$200 = \$96,000$$

$$\text{Struc Conc Bottom} - (30-4)(340)(1)/27 = 330 \text{ CY} @ \$275 = \$91,000$$

$$\text{Landscaping} - (30)(340)/43560 = 0.2 \text{ Ac} @ \$35000 = \$7,000$$

$$\text{Asp Path} - (15)(340)/9 = 575 \text{ SY} @ \$6 = \$3,500$$

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PROJ. Shooks Run

SHEET 32

DATE February 15, 1993

SUBJ Estimate of Probable of
Construction Costs - Structural

R.O.W. Acquisition - (Commercial - Mostly outside Floodplain) - 0.2 Ac @ \$50,000 = \$10,000

- Residences - 2 Each @ \$75,000 = \$150,000

Remove Residences - 2 Each @ \$10,000 = \$20,000

\$ 391,500

+ 20% Eng, Admin, & Cont \$ 78,500

 $\Rightarrow$ Use \$470,000Sta. 222+50 to 223+30 - Replace Culvert at Madison Street w/ 3-10' x 5' RCB

Remove Exist Culvert - L.S. = \$10,000

Stave Excav - $[45(5)(80) + (25)(4)(80)] / 27 = 1000 \text{ CY} @ \$6 = \$6,000$ Stave Back - $[(10)(80)(7) + (45)(80)(1)] / 27 = 500 \text{ CY} @ \$7 = \$3,500$ Embankment - $(45)(80)(1) / 27 = 200 \text{ CY} @ \$4 = \$1,000$ Bedding - $(45)(80)(0.5) / 27 = 100 \text{ CY} @ \$15 = \$1,500$ Stave Conc - 3-10' x 5' RCB - $[(3)(1.52 - (2)(7)(1)) / 27](80) = 323$ Hd walls - $(2)(34)(0.09) = 6$

330 CY @ \$275 = \$91,000

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FILE 70-809

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PROJ. Shooks Run

SHEET 33

DATE February 15, 1993

SUBJ. Estimate of Probable
Construction Costs - StructuralCurb and Gutter - $(2)(55) = 110 \text{ LF} @ \$8 = \$1,000$ Sidewalk - $(2)(4)(55)/9 = 50 \text{ SY} @ \$17 = \$1,000$ Guardrail - $(2)(34) + (4)(20) = 148 \text{ LF} @ \$15 = \$2,500$ Asp Punct Replmt - $(55)(36)/9 = 225 \text{ SY} @ \$12 = \$3,000$

\$120,500

+ 20% Eng, Admin, & Cont

\$24,000

\$144,500 $\Rightarrow$ Use \$145,000Sta 223+30 to Sta 226+25 - New open channel between Madison Street and
Monroe StreetClearing - $(50)(295)/43560 = 0.3 \text{ Ac} @ \$20000 = \$6,000$ Earthwork - $(0.2)(210)(295)/27 = 500 \text{ CY} @ \$4 = \$2,000$ Bedding - $(40)(295)(0.5)/27 = 225 \text{ CY} @ \$15 = \$3,500$ 10" High Conc Retain Wall - $(2)(0.7)(295) = 420 \text{ LF} @ \$200 = \$84,000$ Struct Conc Bottom - $(30-4)(295)(1)/27 = 285 \text{ CY} @ \$275 = \$78,500$ Landscaping - $(30)(295)/43560 = 0.2 \text{ Ac} @ \$35000 = \$7,000$ Asp Path - $(15)(295)/9 = 500 \text{ SY} @ \$6 = \$3,000$

R.O.W. Acquisition - Residences - 3 Each @ \$75,000 = \$225,000

- Partial Residential Lots - 3 Each @ \$5000 = \$15,000

Remove Residences - 3 Each @ \$10000 = \$30,000

\$454,000

+ 20% Eng, Admin, & Cont

\$91,000

 $\Rightarrow$ Use \$545,000

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PROJ. Shooks Run

SHEET 34

DATE

February 15, 1993

SUBJ. Estimate of Probable OF

Construction Costs - Structural

Sta. 226+25 to Sta 227+05 - Replace Culvert at Monroe Street w/ 3'-10" x 5' PCB

Remove Exst Culvert - L.S. = \$10,000

Struct Excav - $[(45)(4)(80) + (25)(4)(80)]/27 = 1000 \text{ CY} @ \$6 = \$6,000$ Struct Back - $[(10)(7)(80) + (45)(80)(1)]/27 = 500 \text{ CY} @ \$7 = \$3,500$ Bedding - $(45)(80)(0.5)/27 = 100 \text{ CY} @ \$15 = \$1,500$ Struct Conc - 3'-10" x 5' PCB - $[(3)(1.52) - (2)(7)(1)]/27(80) = 323$ Hd walls - $(2)(34)(0.09) = 6$

330 CY @ \$275 = \$91,000

Curb and Gutter - $(2)(55) = 110 \text{ LF} @ \$8 = \$1,000$ Sidewalk - $(2)(4)(55)/9 = 50 \text{ SY} @ \$17 = \$1,000$ Guardrail - $(2)(34) + (4)(20) = 148 \text{ LF} @ \$15 = \$2,500$ Asp Pmnt Replmnt - $(55)(36)/9 = 225 \text{ SY} @ \$12 = \$3,000$

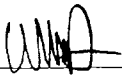
\$119,500

+ 20% Eng., Admin., & Cont

\$24,000

\$143,500 $\Rightarrow$ Use \$145,000

COMP.


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FILE 90-809

CK.

PROJ. Shooks Run

SHEET 35

DATE

February 15, 1993

SUBJ. Estimate of Probable
Construction Costs - Structural

Sta. 227+05 to Sta. 229+70 - New open channel between Monroe Street and Jackson Street

Clearing - $(50)(265)/43560 = 0.3 \text{ AC} @ \$20000 = \$6,000$

Earthwork - $(0.12)(210)(265)/27 = 500 \text{ CY} @ \$4 = \$2,000$

Bedding - $(40)(265)(0.5)/27 = 200 \text{ CY} @ \$15 = \$3,000$

10' High Conc Retain Wall - $(2)(0.17)(265) = 380 \text{ LF} @ \$200 = \$76,000$

Struc Conc Bottom - $(30-4)(265)(1)/27 = 255 \text{ CY} @ \$275 = \$70,500$

Landscaping - $(30)(265)/43560 = 0.2 \text{ AC} @ \$35000 = \$7,000$

Asp Path - $(15)(265)/9 = 450 \text{ SY} @ \$6 = \$3,000$

R.O.W. Acquisition - Residences - 3 Each @ \$75000 = \$225,000

- Partial Residential Properties - 3 Each @ \$5000 = \$15,000

Remove Residences - 3 - Each @ \$10000 = \$30,000

\$437,500

+ 20% Eng., Admin., & Cont.

\$87,500

⇒ Use \$525,000

Sta. 229+70 to Sta 234+15 - Replace culvert at Jackson Street / LaSalle Street w/ 3-10' X 5' RCB

Remove Exist Culvert - \$55,000

Stave Excav - $[(45)(4)(445) + (25)(4)(445)]/27 = 5000 \text{ CY} @ \$6 = \$30,000$

Stave Back - $[(10)(7)(445) + (45)(1)(445)]/27 = 2000 \text{ CY} @ \$7 = \$14,000$

Bedding - $(45)(445)(0.5)/27 = 400 \text{ CY} @ \$15 = \$6,000$

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PROJ. Shooks Run

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SUBJ. Estimate of Probable
Construction Costs - Structural

$$\text{Stucc Conc} - 3-10' \times 5' \text{ RCB} - [(3)(1.52) - (2)(7)(1)/27](445) = 1798$$

$$\text{Hd walls} - (2)(34)(0.09) = 6$$

$$1805 \text{ CY} @ \$275 = \$496,500$$

$$\text{Curb and Gutter} - (4)(55) = 220 \text{ LF} @ \$8 = \$2,000$$

$$\text{Sidewalk} - (4)(4)(55)/9 = 100 \text{ SY} @ \$17 = \$2,000$$

$$\text{Guardrail} - (2)(34) + (4)(20) = 148 \text{ LF} @ \$15 = \$2,500$$

$$\text{Asp Paved Replmt} - [(55)(26) + (55)(34)(0.5) + (55)(36)]/9 = 1425 \text{ SY} @ \$12 = \$17,000$$

$$\text{R.O.W. Acquisition (Church - Mostly Outside Floodplain)} - 0.5 \text{ Ac} @ \$50,000 = \$25,000$$

$$\$650,000$$

$$+20\% \text{ Engr, Admin, \& Cont}$$

$$\$130,000$$

$$\Rightarrow \underline{\underline{\text{Use } \$780,000}}$$

Sta. 234+15 to Sta 235+40 - New open channel between LaSalle Street
and Pedestrian Path

$$\text{Clearing} - (50)(125)/43560 = 0.1 \text{ Ac} @ \$20000 = \$2,000$$

$$\text{Earthwork} - (0.2)(210)(125)/27 = 500 \text{ CY} @ \$4 = \$2,000$$

$$\text{Bedding} - (40)(125)(0.5)/27 = 100 \text{ CY} @ \$15 = \$1,500$$

$$10' \text{ High Conc Retain Wall} - (2)(0.7)(125) = 180 \text{ LF} @ \$200 = \$36,000$$

$$\text{Stucc Conc Bottom} - (30-4)(125)(1)/27 = 120 \text{ CY} @ \$275 = \$33,000$$

$$\text{Landscaping} - (30)(125)/43560 = 0.1 \text{ Ac} @ \$35000 = \$3,500$$

$$\text{Asp Path} - (15)(125)/9 = 200 \text{ SY} @ \$6 = \$1,500$$

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SUBJ Estimate of Probable of
Construction Costs - Structural

R.O.W. Acquisition - Residences - 1 Each @ \$75,000 = \$75,000

Remove Residences - 1 Each @ \$10,000 = \$10,000

\$164,500

+ 200% Engg Admin, & Cont

\$33,000

\$197,500 $\Rightarrow$ Use \$200,000Sta 235+40 to Sta 235+90 - Replace Culvert at Pedestrian Path - w/ 3-10' x 5' PCP

Remove Exst Culvert - \$5,000

Stave Excav - $[(45)(5)(50) + (35)(4)(50)]/27 = 1000 CY @ \$6 = \$6,000$ Stave Back - $[(10)(7)(50) + (45)(1)(50)]/27 = 500 CY @ \$7 = \$3,500$ Bedding - $(45)(50)(0.5)/27 = 50 CY @ \$15 = \$1,000$ Stave Conc - 3-10' x 5' PCP - $[(3)(1.52) - (2)(7)(1)/27](50) = 202$ Hd walls - $(2)(34)(0.09) = 6$

210 CY @ \$275 = \$58,000

Guardrail - $(2)(34) + (4)(20) = 148 LF @ \$15 = \$2,500$ Asp. Point Replant - $(55)(15)/9 = 100 SY @ \$6 = \$1,000$

\$77,000

+ 200% Engg Admin, & Cont

\$15,500

\$92,500 $\Rightarrow$ Use \$95,000

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Estimate of Probable of
Construction Costs - Structural

Sta 235+90 to Sta 236+20 - New open channel between Pedestrian Path and C.P.I.P. Railroad

Cleaning - $(50)(30)/43560 = 0.1 \text{ Ac} @ \$20000 = \$2,000$

Earthwork - $(0.2)(140)(50)/27 = 100 \text{ CY} @ \$4 = \$500$

Bedding - $(30)(50)(0.5)/27 = 25 \text{ CY} @ \$15 = \$500$

10' High Concrete Arm Wall - $(2)(0.7)(50) = 70 \text{ LF} @ \$200 = \$14,000$

Struct Conc Bottom - $(20-4)(50)(1)/27 = 30 \text{ CY} @ \$275 = \$8,500$

Landscaping - $(30)(50)/43560 = 0.1 \text{ Ac} @ \$35000 = \$3,500$

Asp Path - $(15)(50)/9 = 100 \text{ SY} @ \$6 = \$1,000$

\$30,000

+ 20% Engr, Admin, & Cont \$6,000

\$36,000 $\Rightarrow$ Use \$40,000

Sta. 236+20 to Sta 236+75 - Replace Culvert at C.P.I.P. Railroad w/ 2-9'x5' PCB

Remove Exist Culvert - L.S. = \$10,000

Struct Excav - $[(30)(5)(55) + (10)(6)(55)]/27 = 500 \text{ CY} @ \$6 = \$3,000$

Struct Back - $[(10)(7)(55) + (30)(1)(55)]/27 = 250 \text{ CY} @ \$7 = \$2,000$

Embankment - $(30)(3)(55)/27 = 250 \text{ CY} @ \$4 = \$1,000$

Struct Conc - 2-9'x5' PCB - $[(2)(1.31) - (1)(7)(1)/27](55) = 130$

Ad walls - $(2)(21)(0.09) = 4$

135 CY @ \$275 = \$37,500

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Estimate of Probable
Construction Costs - Structural

$$\text{Guardrail} - (2)(21) + (2)(20) = 82 \text{ LF} @ \$15 = \$1,500$$

$$\text{Railroad Track Replmt} - 50 \text{ LF} @ \$100 = \$5,000$$

$$\$60,000$$

$$+20\% \text{ Eng, Admin, \& Cont} \quad \$12,000$$

$$\$72,000 \Rightarrow \underline{\underline{\text{Use } \$75,000}}$$

Templeton Gap Road at Van Buren Channel - Replace Culvert w/ 2-11' x 6' PCB

$$\text{Remove Exist Culvert} - \text{L.S.} = \$15,000$$

$$\text{Stave Excav} - [(35)(2)(100) + (20)(8)(100)] / 27 = 1000 \text{ CY} @ \$6 = \$6,000$$

$$\text{Stave Back} - [(10)(8)(100) + (35)(1)(100)] / 27 = 500 \text{ CY} @ \$7 = \$3,500$$

$$\text{Embankment} - (35)(1)(100) / 27 = 250 \text{ CY} @ \$4 = \$1,000$$

$$\text{Stave Conc} - 2-11' \times 6' \text{ PCB} - [(2)(1.61) - (1)(8)(1) / 27](100) = 292$$

$$\text{Hd walls} - (2)(25)(0.09) = 5$$

$$\text{Channel Transitions} - (2)[(7.2)(2) + 11](0.67)(25) / 27 = 32$$

$$330 \text{ CY} @ \$275 = \$91,000$$

$$\text{Curb and Gutter} - (2)(45) = 90 \text{ LF} @ \$8 = \$1,000$$

$$\text{Sidewalk} - (2)(4)(45) / 9 = 50 \text{ SY} @ \$17 = \$1,000$$

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SUBJ.

Estimate of Probable of
Construction Costs - StructuralGuardrail - $(2)(25) + (4)(25) = 150 \text{ LF} @ \$15 = \$2,500$ Asp Pmnt Replmt - $(45)(60)/9 = 300 \text{ SY} @ \$12 = \$4,000$

\$125,000

+ 20% Engr, Admin, & Cont

\$25,000

=> Use \$150,000REACH 7 TOTAL - \$3,740,000ALTERNATIVE TOTAL - \$45,450,000

**I. ESTIMATE OF PROBABLE CONSTRUCTION COSTS
FOR SOFT-LINED FULL IMPROVEMENT WITH
COMPLETE SHOOKS RUN DIVERSION AT
THE VAN BUREN CHANNEL ALTERNATIVE**

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PROJ. Shocks Run SHEET 1
SUBJ. Estimate of Probable OF
Construction Costs - Diversion

ESTIMATE OF PROBABLE CONSTRUCTION COSTS-DIVERSION ALTERNATIVE

Reach 1 - Fountain Creek to Abandoned Railroad

Sta. 0+25 to Sta. 9+75 - New open channel between Fountain Creek and Las Vegas Street

Clearing - $(230)(950)/43560 = 5.0 \text{ Acre} @ \$20000 = \$100,000$

Earthwork - $(0.6)(1430)(950)/27 = 30500 \text{ CY} @ \$4 = \$122,000$

5' High Rock Retaining Wall - $[(2)(3)+1](950) = 6650 \text{ LF} @ \$100 = \$665,000$

Landscaping - $5.0 \text{ Acre} @ \$35000 = \$175,000$

4" Thick Asphalt Path - $(15)(950)/9 = 1600 \text{ SY} @ \$6 = \$10,000$

R.O.W. Acquisition (Commercial/Industrial - Mostly in Floodplain) - $5.0 \text{ Acre} @ \$25000 = \$125,000$

Relocate Mobile Homes - 8 Each @ $\$2000 = \$16,000$

\$1,213,000

+20% Eng., Admin. & Cont. \$242,500

\$1,455,500 $\Rightarrow$ Use \$1,455,000

Sta. 9+75 to Sta. 10+80 - Replace Exist Bridge and Dissipator at Las Vegas Street w/ 5 - 12' x 10' RCB and Dissipator

Remove Exist Bridge and Dissipator - L.S. = $\$50,000$

Struct. Excav. - $(35)(105)(13)/27 = 2000 \text{ CY} @ \$6 = \$12,000$

Struct. Back - $[(10)(105)(12) + (75)(70)(13)]/27 = 1000 \text{ CY} @ \$7 = \$7,000$

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Estimate of Probable
Construction Costs - Diversion

$$\text{Bedding} - (75)(0.5)(105)/27 = 200 \text{ CY} @ \$15 = \$3,000$$

$$\text{Struct Conc} - 5-12' \times 10' \text{ PCB} - [(5)(1.99) - (4)(12)(1)/27](70) = 572$$

$$\text{4d Nails} - (2)(66)(0.09) = 12$$

$$\text{D/Swings} - (10' \text{ Ave H} - 40' \text{ L}) = (2)(40)(0.61) = 49$$

$$\text{Dissipator Floor} - (64)(40)(1)/27 = 95$$

$$\text{Dissipator Blocks} - (40)(0.5) = 20$$

$$750 \text{ CY} @ \$275 = \$206,500$$

$$\text{Riprap} - (65)(50)(3)/27 = 375 \text{ CY} @ \$40 = \$15,000$$

$$\text{Curb and Gutter} - (2)(85) = 170 \text{ LF} @ \$8 = \$1,500$$

$$\text{Sidewalk} - (2)(4)(85)/9 = 75 \text{ SY} @ \$17 = \$1,500$$

$$\text{Guardrail} - (2)(66) + (2)(40) = 212 \text{ LF} @ \$50 = \$11,000$$

$$8" \text{ Thick Asp Punct Replmt} - (85)(60)/9 = 575 \text{ SY} @ \$12 = \$7,000$$

$$\$314,500$$

$$+ 20\% \text{ Engr, Admin, \& Cont} \quad \$63,000$$

$$\$377,500 \Rightarrow \underline{\underline{\text{Use } \$380,000}}$$

Sta. 10+80 to Sta. 11+20 - Replace concrete transition channel between
Las Vegas Street and A.T.S.F. & D.R.G.W. Railroad

$$\text{Remove Exst. Walls} - (2)(10)(40) = 800 \text{ SF} @ \$5 = \$4,000$$

$$\text{Remove Exst. Conc. Punct} - (42)(40)/9 = 200 \text{ SY} @ \$10 = \$2,000$$

$$\text{Struct Excav} - \left(\frac{10+35}{2}\right)(15)(40)/27 = 500 \text{ CY} @ \$6 = \$3,000$$

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Estimate of Probable
Construction Costs - Division

$$\text{Stucc Back} - (10/15)(40)/27 = 500 \text{ CY} @ \$7 = \$3,500$$

$$\text{Bedding} - \left(\frac{75+55}{2} \right) (0.5)(40)/27 = 100 \text{ CY} @ \$15 = \$1,500$$

$$\text{Stucc Conc} - \left[(2)(14) + \left(\frac{44+64}{2} \right) \right] (1)(40)/27 = 125 \text{ CY} @ \$275 = \$34,500$$

$$\text{Fence Replant} - (2)(40) = 80 \text{ LF} @ \$5 = \$500$$

$$\text{Watertight MH Covers} - 2 \text{ Ea} @ \$500 = \$1,000$$

$$\$50,000$$

$$+ 20\% \text{ Eng, Admin, \& Cont} \quad \$10,000$$

$$\Rightarrow \text{Use } \$60,000$$

Sta. 11+65 to Sta 15+60 - New open channel between A.T.S.F. & D.P.G.W. Railroad
and Abandoned Railroad

$$\text{Clearing} - (245)(395)/43560 = 2.2 \text{ Ac} @ \$20,000 = \$44,000$$

$$\text{Earthwork} - 0.8 \left[(2850)(395) \right] / 27 = 33500 \text{ CY} @ \$4 = \$134,000$$

$$5' \text{ High Rock Retaining Wall} - (2)(4)(395) = 3160 \text{ LF} @ \$100 = \$316,000$$

$$45' \text{ Wide Drop Structure} - 1 \text{ Each} @ \$25,000 = \$25,000$$

$$\text{Landscaping} - 2.2 \text{ Ac} @ \$35,000 = \$77,000$$

$$4" \text{ Thick Asp Path} - (15)(395)/9 = 6755 \text{ Y} @ \$6 = \$4,500$$

$$\text{R.O.W. Acquisition (Commercial/Industrial - Mostly Outside Floodplain)} - 2.2 \text{ Ac} @ \$50,000 = \$110,000$$

$$\$710,500$$

$$+ 20\% \text{ Eng, Admin, \& Cont} \quad \$142,000$$

$$\$852,500 \Rightarrow \text{Use } \$855,000$$

$$\text{REACH 1 TOTAL} - \$2,750,000$$

Reach 2 - Abandoned Railroad to Costilla Street

Sta. 16+20 to Sta. 24+00 - Clear Existing Channel between Abandoned Railroad and Fountain Boulevard

$$\text{Clearing} - (100 \pm)(780)/43560 = 1.8 \text{ AC} @ \$20000 = \$36,000$$

$$\text{Asp Path} - (15)(500 \pm)/9 = 850 \text{ SY} @ \$6 = \$5,500$$

$$\$41,500$$

$$+200\% \text{ Engr, Admin, \& Cont } \$8,500$$

$$\text{Use} \Rightarrow \$50,000$$

Sta. 24+00 to Sta 25+50 - Replace Culverts at Fountain Boulevard w/ 4-11'x10'RCB

$$\text{Remove Exist Culverts} - \text{LS} = \$65,000$$

$$\text{Stave Excav} - [(60)(150)(13) + (20)(150)(12)]/27 = 6000 \text{ CY} @ \$6 = \$36,000$$

$$\text{Stave Back} - [(10)(150)(12) + (60)(150)(1)]/27 = 1000 \text{ CY} @ \$7 = \$7,000$$

$$\text{Embankment} - (60)(150)(12)/27 = 4000 \text{ CY} @ \$4 = \$16,000$$

$$\text{Bedding} - (60)(150)(0.5)/27 = 175 \text{ CY} @ \$15 = \$3,000$$

$$\text{Stave Conc} - 4-11' \times 10' \text{ RCB } [(4)(11.90) - (3)(12)(1)/27](150) = 940$$

$$\text{Hd walls} - (2)(49)(0.09) = 9$$

$$\text{Wings} - (7' \text{ Ave H} - 25' \text{ L}) - (4)(25)(0.46) = 46$$

$$995 \text{ CY} @ \$275 = \$274,000$$

$$\text{Riprap} - (110)(100)(3)/27 = 1225 \text{ CY} @ \$40 = \$49,000$$

$$\text{Curb and Gutter} - (2)(70) = 140 \text{ LF} @ \$8 = \$1,500$$

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PROJ. Shocks Run

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SUBJ. Estimate of Probable
Construction Costs - DiversionSidewalk - $(4 \times 70) / 9 = 50 \text{ SY} @ \$17 = \$1,000$ Guardrail - $(2 \times 70) = 140 \text{ LF} @ \$15 = \$2,500$ Hsp Punt Replmt - $(70)(72) / 9 = 575 \text{ SY} @ \$12 = \$7,000$

\$462,000

+20% Engr, Admin & Cont

\$92,500

\$554,500 $\Rightarrow$ Use \$555,000Sta. 25+50 to Sta 48+65 - Clear channel and stabilize West Bank between Fountain
Boulevard and Costilla StreetClearing - $(150 \pm)(2315) / 43560 = 8.0 \text{ Ac} @ \$20,000 = \$160,000$ Earthwork - $(0.17)(2100)(2315) / 27 = 126000 \text{ CY} @ \$4 = \$504,000$ 5' High Rock Retaining Wall - $(6)(2315) = 13890 \text{ LF} @ \$100 = \$1,389,000$ Landscaping - $(150)(2315) / 43560 = 8.0 \text{ Ac} @ \$35,000 = \$280,000$ R.O.W. Acquisition - (Commercial/Industrial - Mostly Outside Floodplain) - $8.0 \text{ Ac} @ \$50,000 = \$400,000$ Commercial/Industrial Building - $2500 \text{ SF} @ \$35 = \$87,500$ Remove Commercial/Industrial Building - Small - 1 Each @ $\$20,000 = \$20,000$

\$2,840,500

+20% Engr, Admin, & Cont

\$568,000

\$3,408,500 $\Rightarrow$ Use \$3,410,000

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SUBJ.

Estimate of Probable
Construction Costs - Diversion

Sta. 48+65 to Sta. 50+65 - Replace Culvert at Costilla Street w/ 4-10'x10'PCB

Remove Exist. Culvert - L.S. = \$35,000

Struct. Excav - $[(55)(200)(10) + (35)(200)(12)] / 27 = 7500 \text{ CY} @ \$6 = \$45,000$ Struct. Back - $[(10)(200)(12) + (55)(200)(1)] / 27 = 1500 \text{ CY} @ \$7 = \$10,500$ Embankment - $(55)(200)(9) / 27 = 4000 \text{ CY} @ \$4 = \$16,000$ Bedding - $(55)(200)(0.5) / 27 = 300 \text{ CY} @ \$15 = \$4,500$ Struct. Conc - 4-10'x10'PCB - $[(4)(182) - (3)(12)(1)] / 27 (200) = 1189$ Adwalls - $(2)(45)(0.09) = 8$ Wings (7' Ave H - 25' L) = $(4)(25)(0.46) = 46$ $1245 \text{ CY} @ \$275 = \$342,500$ Piprap - $(105)(100)(3) / 27 = 1175 \text{ CY} @ \$40 = \$47,000$ Curb and Gutter - $(2)(65) = 130 \text{ LF} @ \$8 = \$1,000$ Sidewalk - $(2)(4)(65) / 9 = 50 \text{ SY} @ \$17 = \$1,000$ Guardrail - $(2)(45) + (4)(25) = 190 \text{ LF} @ \$15 = \$3,000$ Asp Pmnt Replmt - $(65)(56) / 9 = 425 \text{ SY} @ \$12 = \$5,500$ Conc. Pmnt Replmt - $(65)(80\pm) / 9 = 600 \text{ SY} @ \$40 = \$24,000$

\$535,000

+ 20% Eng, Admin, & Cont \$107,000

\$642,000 $\Rightarrow$ Use \$645,000REACH $\geq$ TOTAL - \$4,690,000

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Construction Costs - Diversion

Reach 3 - Costilla Street to Boulder StreetSta 50+65 to Sta 71+55 - New open channel between Costilla Street and El Paso Street (South)Clearing - $(150)(2090)/43560 = 7.2 \text{ Ac} @ \$20000 = \$144,000$ Remove Exist Conc Retaining Wall - $(8)(400) = 3200 \text{ SF} @ \$5 = \$16,000$ Earthwork - $(0.8)(4100)(2090)/27 = 254000 \text{ CY} @ \$4 = \$1,016,000$ 5' High Rock Retaining Wall - $(6+4)(2090) = 20900 \text{ LF} @ \$100 = \$2,090,000$ 50' Wide Drop Structure - 2 Each @ $\$25000 = \$50,000$ Landscaping - $(290)(2090)/43560 = 13.9 \text{ Ac} @ \$35000 = \$486,500$ Reconst. 8" Aerial San Sewer Crossing - $140 \text{ LF} @ \$150 = \$21,000$ Reconst. 18" Aerial San Sewer Crossing - $50 \text{ LF} @ \$200 = \$10,000$ Asp Path - $(15)(2090)/9 = 3500 \text{ SY} @ \$6 = \$21,000$ R.O.W. Acquisition - (Commercial/Industrial - Mostly Outside Floodplain) - $13.3 \text{ Ac} @ \$50000 = \$665,000$ Commercial/Industrial Buildings - $72500 \text{ SF} @ \$35 = \$2,537,500$ Residences - 3 Each @ $\$75000 = \$225,000$ Remove Commercial/Industrial Buildings - Large - 4 Each @ $\$50000 = \$200,000$ Small - 7 Each @ $\$20000 = \$140,000$ Remove Residences - 3 Each @ $\$10000 = \$30,000$ $\$7,652,000$ + 20% Engr, Admin, & Cont $\$1,530,500$ $\$9,182,500 \Rightarrow \text{Use } \$9,185,000$

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DATE February 4, 1993

SUBJ. Estimate of Probable
Construction Costs - Diversion

Sta. 71+55 to Sta 72+80 - Replace Culvert at El Paso Street (South)
w/ 5-13' X 10' PCB

Remove Exist Culvert - L.S. - \$20,000

Struc. Excav - $[(80)(125)(1) + (60)(12)(125)] / 27 = 4000 \text{ CY} @ \$6 = \$24,000$

Struc Back - $[(10)(125)(12) + (80)(125)(1)] / 27 = 1000 \text{ CY} @ \$7 = \$7,000$

Bedding - $(80)(125)(0.5) / 27 = 200 \text{ CY} @ \$15 = \$3,000$

Structural Conc - 5-13' X 10' PCB - $[(5)(2.08) - (4)(12)(1) / 27](125) = 1078$

Headwalls - $(2)(71)(0.09) = 13$

Wings - $(7' \text{ Ave H} - 25' \text{ L}) = (4)(25)(0.46) = 46$

1140 CY @ \$275 = \$313,500

Pipe - $(70)(50)(3) / 27 = 400 \text{ CY} @ \$40 = \$16,000$

Curb and Gutter - $(2)(90) = 180 \text{ LF} @ \$8 = \$1,500$

Sidewalk - $(2)(4)(90) / 9 = 75 \text{ SY} @ \$17 = \$1,500$

Guardrail - $(2)(71) + (4)(25) = 242 \text{ LF} @ \$15 = \$4,000$

Asp Pmt Replmt - $(90)(30) / 9 = 300 \text{ SY} @ \$12 = \$4,000$

\$394,500

+20% Engr, Admin, & Cont

\$79,000

\$473,500 $\Rightarrow$ Use \$475,000

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SUBJ. Estimate of Probable
Construction Costs - Division

Sta. 72+80 to Sta 76+80 - New open channel between El Paso Street (South)
and Pikes Peak Avenue

$$\text{Clearing} - (100)(400)/43560 = 0.9 \text{ Ac} @ \$20000 = \$18,000$$

$$\text{Remove Exst Conc. Retain Wall} - (6)(125) = 750 \text{ SF} @ \$5 = \$4,000$$

$$\text{Earthwork} - (0.8)(3400)(400)/27 = 40500 \text{ CY} @ \$4 = \$162,000$$

$$5' \text{ High Rock Retain Wall} - (2)(4)(400) = 3200 \text{ LF} @ \$100 = \$320,000$$

$$\text{Landscaping} - (275)(400)/43560 = 2.5 \text{ Ac} @ \$35000 = \$87,500$$

$$\text{Asp Path} - (15)(400)/9 = 700 \text{ SY} @ \$6 = \$4,500$$

$$\text{R.O.W. Acquisition (Commercial/Industrial - Mostly outside Floodplain)} - 2.5 \text{ Ac} @ \$50000 = \$125,000$$

$$\text{Commercial/Industrial Buildings} - 15350 \text{ SF} @ \$35 = \$537,500$$

$$\text{Remove Commercial/Industrial Buildings - Large} - 1 \text{ Each} @ \$50000 = \$50,000$$

$$\text{Small} - 2 \text{ Each} @ \$20000 = \$40,000$$

$$\$1,348,500$$

+20% Eng, Admin, & Cont

$$\$270,000$$

$$\$1,618,500 \Rightarrow \underline{\underline{\text{Use } \$1,620,000}}$$

Sta. 76+80 to Sta. 85+60 - Replace Culvert at Pikes Peak Avenue / El Paso Street
(North) w/ 5-13' X 10' RCB

$$\text{Remove Exst Culvert} - \text{L.S.} - \$150,000$$

$$\text{Struct Excav} - [(80)(8)(175) + (60)(14)(175) + (80)(7)(285) + (60)(12)(285)$$

$$+ (80)(7)(190) + (50)(21)(190)] / 27 = 34500 \text{ CY} @ \$6 = \$207,000$$

$$\text{Struct Back} - [(10)(650)(12) + (80)(650)(1)] / 27 = 5000 \text{ CY} @ \$7 = \$35,000$$

$$\text{Embankment} - (80)(650)(9) / 27 = 17,500 \text{ CY} @ \$4 = \$70,000$$

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SUBJ. Estimate of Probable
Construction Costs - Division

$$\text{Bedding} - (80)(650)(0.5)/27 = 1000 \text{ CY} @ \$15 = \$15,000$$

$$\text{Structural Conc} - 5-13' \times 10' \text{ PCB} - [(5)(2.08) - (4)(12)(1)/27](650) = 5604$$

$$\text{Hdwalks} - (2)(71)(0.09) = 13$$

$$\text{Wings} - (7' \text{ Avett} - 25' \text{ L}) = (4)(25)(0.46) = 46$$

$$5665 \text{ CY} @ \$275 = \$1,558,000$$

$$\text{Riprap} - (70)(50)(3)/27 = 400 \text{ CY} @ \$40 = \$16,000$$

$$\text{Curb and Gutter} - (4)(90) = 360 \text{ LF} @ \$8 = \$3,000$$

$$\text{Sidewalk} - [(4)(4)(90) + (8)(90)]/9 = 250 \text{ SY} @ \$17 = \$4,500$$

$$\text{Guardrail} - (2)(71) + (4)(25) = 242 \text{ LF} @ \$15 = \$4,000$$

$$\text{Asp Pmnt Replmt} - [(90)(60) + (90)(32)]/9 = 925 \text{ SY} @ \$12 = \$11,000$$

$$\text{Landscaping} - (140)(375)/43560 \times 1.2 \text{ Ac} @ \$35000 = \$42,000$$

$$\text{Asp Path} - (15)(375)/9 = 625 \text{ SY} @ \$6 = \$4,000$$

$$\text{R.O.W Acquisition} - (\text{Commercial Industrial} - \text{Mostly Inside Floodplain}) - 1.1 \text{ Ac} @ \$25000 = \$27,500$$

$$\text{Residence} - 1 \text{ Each} @ \$75000 = \$75,000$$

$$\text{Remove Residence} - 1 \text{ Each} @ \$10000 = \$10,000$$

$$\$2,232,000$$

$$+ 20\% \text{ Eng, Admin, \& Cont} \quad \$46,500$$

$$\$2,678,500 \Rightarrow \underline{\underline{\text{Use } \$2,680,000}}$$

$\Rightarrow$ Replace Culvert at Kiowa Street w/ 4-11' x 10' PCB

$$\text{Remove Exist Culvert} - \text{L.S.} = \$25,000$$

$$\text{Stucc Excav} - [(60)(3)(150) + (40)(14)(150)]/27 = 4500 \text{ CY} @ \$6 = \$27,000$$

$$\text{Stucc Back} - [(10)(150)(12) + (60)(150)(1)]/27 = 1000 \text{ CY} @ \$7 = \$7,000$$

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FILE 90-809

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PROJ. Shooks Run

SHEET 11

DATE

February 4, 1993

SUBJ.

Estimate of Probable
Construction Costs - DiversionEmbankment - $(60)(150)(4)/27 = 1500 \text{ CY} @ \$4 = \$6,000$ Bedding - $(60)(150)(0.5)/27 = 200 \text{ CY} @ \$15 = \$3,000$ Structural Conc - 4-11' x 10' RCB - $[(4)(1.90) - (3)(12)(1)/27] 150 = 940$ Hd walls - $(2)(49)(0.09) = 9$ Wings - $(7' \text{ Ave H} - 25' \text{ L}) = (4)(25)(0.46) = 46$ $995 \text{ CY} @ \$275 = \$274,000$ Riprap - $(60)(50)(3)/27 = 350 \text{ CY} @ \$40 = \$14,000$ Curb and Gutter - $(2)(70) = 140 \text{ LF} @ \$8 = \$1,500$ Sidewalk - $(2)(4)(70)/9 = 75 \text{ SY} @ \$17 = \$1,500$ Guardrail - $(2)(49) + (4)(25) = 198 \text{ LF} @ \$15 = \$3,000$ Asp Pmnt Replmt - $(70)(60)/9 = 475 \text{ SY} @ \$12 = \$6,000$ $\$368,000$

+ 20% Eng, Admin, & Cont

 $\$73,500$ $\$441,500 \Rightarrow \underline{\underline{\text{Use } \$445,000}}$ Sta. 85+60 to Sta. 89+95 - New open channel between Kiowa Street
and Bijou StreetClearing - $(100)(435)/43560 = 1.0 \text{ Ac} @ \$20,000 = \$20,000$ Remove Exst Conc. Retain Wall - $(15)(365) = 5475 \text{ SF} @ \$5 = \$27,500$ Earthwork - $(0.7)(1350)(435)/27 = 15500 \text{ CY} @ \$4 = \$62,000$ 5' High Rock Retain Wall - $(2)(3)(435) = 2610 \text{ LF} @ \$100 = \$261,000$ 50' wide Drop Structure - 1 Each @ $\$25,000 = \$25,000$

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SHEET 12

DATE

February 5, 1993

SUBJ. Estimate of Probable
Construction Costs - DiversionLandscaping - $(160)(435)/43560 = 1.6 \text{ Ac} @ \$35000 = \$56,000$ Asp Path - $(15)(435)/9 = 725 \text{ SF} @ \$6 = \$4,500$ R.O.W. Acquisition - (Commercial/Industrial - Mostly outside Flood plain) $0.6 \text{ Ac} @ \$50000 = \$30,000$ Commercial/Industrial Buildings - $5250 \text{ SF} @ \$35 = \$184,000$ Residences - 4 Each @ $> \$5000 = \$300,000$ Partial Residential Property - 1 Each @ $\$5000 = \$5,000$ Remove Commercial/Industrial Buildings - Large - 1 Each @ $\$50000 = \$50,000$ - Small - 1 Each @ $\$20000 = \$20,000$ Remove Residences - 4 Each @ $\$10000 = \$40,000$ $\$1,085,000$

+20% Eng & Admin, & Cont

 $\$217,000$ $\$1,302,000 \Rightarrow \underline{\underline{\text{Use } \$1,305,000}}$ Sta. 89+95 to Sta. 94+50 - Replace Culvert at Bjou Street w/ 4-11' x 10' PCBRemove Exist Culvert - L.S. - $\$75,000$ Stave Excav - $[(60)(3)(455) + (40)(12)(455)]/27 = 11500 \text{ CY} @ \$6 = \$69,000$ Stave Back - $[(10)(455)(12) + (60)(455)(1)]/27 = 3000 \text{ CY} @ \$7 = \$21,000$ Embankment - $(60)(455)(2)/27 = 2000 \text{ CY} @ \$4 = \$8,000$ Bedding - $(60)(455)(0.5)/27 = 500 \text{ CY} @ \$15 = \$7,500$

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SHEET 13

SUBJ Estimate of Probable OF
Construction Costs - Division

$$\text{Structural Conc} - 4 - 11' \times 10' \text{ RCB} - [(4)(1.90) - (3)(12)(1)/27](435) = 2726$$

$$\text{Hd walls} - (2)(44)(0.09) = 9$$

$$\text{Wings} - (7' \text{ Ave H} - 25' \text{ L}) = (4)(25)(0.46) = 46$$

$$2785 \text{ CY} @ \$275 = \$766,000$$

$$\text{Riprap} - (50)(50)(3)/27 = 275 \text{ CY} @ \$40 = \$11,000$$

$$\text{Curb and Gutter} - (70)(4) = 280 \text{ LF} @ \$8 = \$2,500$$

$$\text{Sidewalk} - (4)(4)(70)/9 = 125 \text{ SY} @ \$17 = \$2,500$$

$$\text{Guardrail} - (2)(44) + (4)(25) = 198 \text{ LF} @ \$15 = \$3,000$$

$$\text{Asp Pmnt Replmt} - [(70)(24) + (70)(56)]/9 = 625 \text{ SY} @ \$12 = \$7,500$$

$$\text{Landscaping} - (100)(300)/43560 = 0.7 \text{ Ac} @ \$35,000 = \$24,500$$

$$\text{Asp Path} - (15)(300)/9 = 500 \text{ SY} @ \$6 = \$3,000$$

$$\text{R.O.W. Acquisition} - \text{Residence} - 1 \text{ Each} @ \$75,000 = \$75,000$$

$$- \text{Partial Residential Property} - 1 \text{ Each} @ \$5,000 = \$5,000$$

$$\text{Remove Residence} - 1 \text{ Each} @ \$10,000 = \$10,000$$

$$\$1,090,500$$

+ 20% Engr, Admin, & Cont

$$\$218,000$$

$$\$1,308,500 \Rightarrow \underline{\underline{\text{Use } \$1,310,000}}$$

Sta. 94+50 to Sta 98+10 - New open channel between Bijou Street and Platte Avenue

$$\text{Clearing} - (50)(360)/43560 = 0.4 \text{ Ac} @ \$20,000 = \$8,000$$

$$\text{Earthwork} - (0.9)(1025)(360)/27 = 12500 \text{ CY} @ \$4 = \$50,000$$

$$\text{5' High Rock Retain Wall} - (3)(360) = 1080 \text{ LF} @ \$100 = \$108,000$$

$$\text{50' Wide Drop Structure} - 1 \text{ Each} @ \$25,000 = \$25,000$$

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PROJ Shooks Run

SHEET 14

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February 5, 1993

SUBJ Estimate of Probable
Construction Costs - DivisionLandscaping - $(120)(360)/43560 = 1.0 \text{ Ac} @ \$35000 = \$35,000$ R.O.W. Acquisition - Residences - 4 Each @ $> \$5000 = \$300,000$ Partial Residential Lots - 1 Each @ $\$5000 = \$5,000$ Remove Residences - 4 Each @ $\$10000 = \$40,000$ $\$571,000$

+20% Eng, Admin, & Cont

 $\$114,500$ $\$685,500 \Rightarrow \underline{\underline{\text{Use } \$685,000}}$ Sta 98+10 to Sta 106+30 - Replace Culvert at Platte Avenue / School
Athletic Field and Bridge at Boulder Street
w/ 4-10' x 10' PCBRemove Exst. Culvert & Bridge - L.S. = $\$140,000$ Remove Exst Conc Retain Wall - $(2)(55)(7) = 775 \text{ SF} @ \$5 = \$4,000$ Stave Excav - $[(55)(8)(600) + (35)(13)(600) + (15)(17)(100)]/27 = 21000 \text{ CY} @ \$6 = \$126,000$ Stave Back - $[(110)(12)(700) + (35)(11)(700)]/27 = 4000 \text{ CY} @ \$7 = \$28,000$ Embankment - $[(55)(8)(600) + (55)(4)(100)]/27 = 11000 \text{ CY} @ \$4 = \$44,000$ Bedding - $(55)(700)(0.5)/27 = 725 \text{ CY} @ \$15 = \$11,000$ Structural Concrete - 4-10' x 10' PCB - $[(4)(1.82) - (3)(12)(1)/27](700) = 4163$ Sidewalks - $(2)(45)(0.09) = 8$ Wings - $(7' \text{ Ave H} - 25' L) = (4)(25)(0.46) = 46$ $4220 \text{ CY} @ \$275 = \$1,160,500$ Pipe - $(50)(50)(3)/27 = 275 \text{ CY} @ \$40 = \$11,000$

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SUB- Estimate of Probable
Construction Costs - DivisionCurb and Gutter - $(65)(4) = 260 \text{ LF} @ \$8 = \$2,000$ Sidewalk - $(4)(4)(65)/9 = 125.54 @ \$17 = \$2,500$ Guardrail - $(2)(45) + (4)(25) = 190 \text{ LF} @ \$15 = \$3,000$ Retain Wall Replmt - $(7' \pm H) = (2)(0.51)(55) = 60 \text{ CY} @ \$275 = \$16,500$ Asp Pmnt Replmt - $[(65)(96) + (65)(60)]/9 = 1125.54 @ \$12 = \$13,500$ Landscaping - $(100)(500)/43560 = 1.1 \text{ Ac} @ \$35000 = \$38,500$ Asp Path - $(15)(500)/9 = 850.54 @ \$6 = \$5,000$ R.O.W. Acquisition - (School - Inside Floodplain) - $1.1 \text{ Ac} @ \$25000 = \$27,500$

\$1,633,000

+ 20% Eng., Admin., & Cont

\$326,500

\$1,959,500 $\Rightarrow$ Use \$1,960,000REACH 3 - TOTAL - \$1,965,000Reach 4 - Boulder Street to Cache La Poudre StreetSta. 106+30 to Sta 112+35 - New open channel between Boulder Street and St. Vrain StreetClearing - $(150)(605)/43560 = 2.1 \text{ Ac} @ \$20000 = \$42,000$ Earthwork - $(0.17)(950)(605)/27 = 15000 \text{ CY} @ \$4 = \$60,000$ 5' High Rock Retain Wall - $(2)(2)(605) = 2420 \text{ LF} @ \$100 = \$242,000$ Landscaping - $(170)(605)/43560 = 2.4 \text{ Ac} @ \$35000 = \$84,000$ Asp Path - $(15)(605)/9 = 1000.54 @ \$6 = \$6,000$

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PROJ. Shooks Run

SHEET 16

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February 5, 1993

SUBJ. Estimate of Probable OF

Construction Costs - Diversion

R.O.W. Acquisition - Residences - 3 Each @ \$75,000 = \$225,000
 - Partial Residential Lots - 7 Each @ \$5,000 = \$35,000
 Remove Residences - 3 Each @ \$10,000 = \$30,000

\$724,000

+ 20% Engr, Admin, & Cont

\$145,000

\$869,000 $\Rightarrow$ Use \$870,000

Sta. 112+35 to Sta 113+40 - Replace Culvert at St. Vrain Street w/3-11' x 10' PCB

Remove Exist Culvert - L.S. = \$20,000

Stave Excav - $[(50)(1)(105) + (30)(14)(105)]/27 = 2000 \text{ CY} @ \$6 = \$12,000$ Stave Back - $[(10)(105)(12) + (50)(1)(105)]/27 = 750 \text{ CY} @ \$7 = \$5,500$ Embankment $[(50)(2)(105)]/27 = 500 \text{ CY} @ \$4 = \$2,000$ Bedding - $(50)(105)(0.5)/27 = 100 \text{ CY} @ \$15 = \$1,500$ Stave Conc - 3-11' x 10' PCB - $[(3)(1.90) - (2)(12)(1)/27](105) = 50 \text{ S}$ Hd walks - $(2)(37)(0.09) = 7$ Wings - $(7' \text{ Ave H} - 25' \text{ L}) = (4)(25)(0.46) = 46$

560 CY @ \$275 = \$154,000

Pipup - $(50)(50)(3)/27 = 275 \text{ CY} @ \$40 = \$11,000$ Curb and Gutter - $(60)(2) = 120 \text{ LF} @ \$8 = \$1,000$ Sidewalk - $(2)(4)(60)/9 = 50 \text{ SY} @ \$17 = \$1,000$

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SUBJ.

Estimate of Probable
Construction Costs - DiversionGuardrail - $(2)(37) + (4)(25) = 174 \text{ LF} @ \$15 = \$3,000$ Asp Pmnt Replmt - $(60)(50)/9 = 350 \text{ SY} @ \$12 = \$4,500$

\$215,500

+20% Eng, Admin, & Cont

\$43,000

\$258,500 $\Rightarrow$ Use \$260,000Sta. 113+40 to Sta 117+75 - New open channel between St. Urban Street
and Willamette StreetClearing - $(150)(435)/43560 = 1.5 \text{ Ac} @ \$20,000 = \$30,000$ Earthwork - $(0.7)(1250)(435)/27 = 14000 \text{ CY} @ \$4 = \$56,000$ 5' High Rock Retain Wall - $(2)(2.4)(435) = 2088 \text{ LF} @ \$100 = \$209,000$ Landscaping - $(205)(435)/43560 = 2.0 \text{ Ac} @ \$35,000 = \$70,000$

Replace Double Tennis Court - L.S. = \$75,000

Asp Path - $(15)(435)/9 = 725 \text{ SY} @ \$6 = \$4,500$

R.O.W. Acquisition - Residences - 4 Each @ \$75,000 = \$300,000

Partial Residential Lots - 2 Each @ \$5,000 = \$10,000

Remove Residences - 4 Each @ \$10,000 = \$40,000

\$794,500

+20% Eng, Admin, & Cont

\$159,000

\$953,500 $\Rightarrow$ Use \$955,000

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SUBJ.

Estimate of Probable OF
Construction Costs - DiversionSta. 117+75 to Sta 119+80 - Replace Culvert at Willamette Street
w/ 2-12' x 10' PCB

Remove Exist Culvert - L.S. = \$35,000

Shut Excav - $[(30)(6)(205) + (10)(15)(205)]/27 = 3500 \text{ CY} @ \$6 = \$21,000$ Shut Back - $[(10)(205)(12) + (30)(205)(1)]/27 = 1500 \text{ CY} @ \$7 = \$10,500$ Embankment $(30)(8)(205)/27 = 2000 \text{ CY} @ \$4 = \$8,000$ Bedding - $(30)(205)(0.5)/27 = 125 \text{ CY} @ \$15 = \$2,000$ Structural Conc - 2-12' x 10' PCB - $[(2)(1.99) - (1)(12)(1)/27](205) = 725$ Hd walls - $(2)(27)(0.09) = 5$ Wings - $(7' \text{ Ave H} - 25' \text{ L}) - (4)(25)(0.46) = 46$ $780 \text{ CY} @ \$275 = \$214,500$ Riprap - $(45)(50)(3)/27 = 250 \text{ CY} @ \$40 = \$10,000$ Curb and Gutter - $(4)(40) = 160 \text{ LF} @ \$8 = \$1,500$ Sidewalk - $(2)(4)(40)/9 = 50 \text{ SY} @ \$17 = \$1,000$ Guardrail - $(2)(27) + (4)(25) = 154 \text{ LF} @ \$15 = \$2,500$ Asp Punt Replmt - $(2)(40)(26)/9 = 350 \text{ SY} @ \$12 = \$3,000$

\$309,000

+ 20% Engr, Admin, & Cont

\$62,000

\$371,000 $\Rightarrow$ Use \$375,000

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SUBJ.

Estimate of Probable of
Construction Costs - DIVISION

Sta. 119+80 to Sta 135+15 - New Open Channel between Willamette Street
and Cache La Poudre Street

Clearing - $(150)(1535)/43560 = 5.3 \text{ Ac} @ \$20000 = \$106,000$

Earthwork - $(0.6)(1930)(1535)/27 = 66000 \text{ CY} @ \$4 = \$264,000$

5' High Rock Retain Wall - $(2)(3.6)(1535) = 11052 \text{ LFC} @ \$100 = \$1,105,500$

25' Wide Drop Structure - 1 Each @ $\$15,000 = \$15,000$

Landscaping - $(215)(1535)/43560 = 7.6 \text{ Ac} @ \$55000 = \$266,000$

Replace Pedestrian Bridge - $(185)(8) = 1480 \text{ SF} @ \$60 = \$89,000$

R.O.W. Acquisition - Residences - 4 Each @ $\$75000 = \$300,000$

- Partial Residential Lots - 1 Each @ $\$5000 = \$5,000$

Remove Residences - 4 Each @ $\$10000 = \$40,000$

$\$2,190,500$

+ 20% Eng, Admin & Cont $\$438,000$

$\$2,628,500 \Rightarrow \underline{\underline{\text{Use } \$2,630,000}}$

Sta. 135+15 to Sta. 137+05 - Replace Culvert at Cache La Poudre w/ 2-12'X10'RCB

Remove Exist Culvert - LS₁ = $\$30,000$

Struct Excav - $[(40)(2)(190) + (20)(14)(190)]/27 = 2500 \text{ CY} @ \$6 = \$15,000$

Struct Back - $[(10)(190)(12) + (40)(1)(190)]/27 = 1500 \text{ CY} @ \$7 = \$10,500$

Embankment - $[(40)(3)(190)]/27 = 1000 \text{ CY} @ \$4 = \$4,000$

Bedding - $(40)(190)(0.5)/27 = 150 \text{ CY} @ \$15 = \$2,500$

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SUBJ.

Estimate of Probable
Construction Costs - Diversion

$$\text{Structural Conc} - 2 - 12' \times 10' \text{ RCB} - [(2)(1.99) - (1)(12)(1)/27](190) = 672$$

$$\text{Hdwalls} - (2)(27)(0.09) = 5$$

$$\text{Wings} - (7' \text{ Ave H} - 25') = (4)(25)(0.46) = 46$$

$$725 \text{ CY} @ \$275 = \$199,500$$

$$\text{Riprap} - (30)(50)(3)/27 = 175 \text{ CY} @ \$40 = \$7,000$$

$$\text{Curb and Gutter} - (2)(50) = 100 \text{ LF} @ \$8 = \$1,000$$

$$\text{Sidewalk} - (2)(4)(50)/9 = 50 \text{ SY} @ \$17 = \$1,000$$

$$\text{Guardrail} - (2)(34) + (4)(25) = 168 \text{ LF} @ \$15 = \$2,500$$

$$\text{Asp. Pmt Replmt} - (50)(32)/9 = 175 \text{ SY} @ \$12 = \$2,500$$

$$\text{R.O.W. Acquisition} - \text{Partial Residential Lots} - 2 \text{ Each} @ \$5000 = \$10,000$$

$$\$285,500$$

$$+ 20\% \text{ Engr, Admin, \& Cont}$$

$$\$57,500$$

$$\$342,500 \Rightarrow \text{Use } \$345,000$$

$\Rightarrow$ Replace Exist Pedestrian Bridge over Cache La Poudre Culvert Crossing

$$\text{Remove Exist Bridge} - \text{L.S.} = \$20,000$$

$$\text{Struct Excav} - (2)(10)(25 \pm) \left(\frac{60+20}{2} \right) / 27 = 1000 \text{ CY} @ \$6 = \$6,000$$

$$\text{Struct Back} - (2)(10)(25 \pm) \left(\frac{60+20}{2} \right) / 27 = 1000 \text{ CY} @ \$7 = \$7,000$$

$$\text{Struct Conc} - (2)(3)(25 \pm) \left(\frac{60+20}{2} \right) / 27 = 225 \text{ CY} @ \$275 = \$62,000$$

$$\text{Reset Twin Tee} - \text{L.S.} = \$2,000$$

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SUBJ.

Estimate of Probable OF
Construction Costs - DiversionSidewalk - $(2)(15)(25)/9 = 100 \text{ CY} @ \$17 = \$2,000$ Fence - $(4)(25) = 100 \text{ LF} @ \$7 = \$1,000$ \$100,000+ 200% Engy, Admin, & Cont \$20,000⇒ Use \$120,000REACH 4 TOTAL - \$5,555,000Reach 5 - Cache La Poudre Street to Patty Jewett Golf CourseSta. 137+05 to Sta 152+45 - New open channel between Cache La Poudre
Street and Vintah StreetClearing - $(125)(1540)/43560 = 4.4 \text{ AC} @ \$20,000 = \$88,000$ Earthwork - $(0.6)(2300)(1540)/27 = 79,000 \text{ CY} @ \$4 = \$316,000$ 5' High Rock Retain Wall - $(2)(4)(1540) = 12,320 \text{ LF} @ \$100 = \$1,232,000$

25' Wide Drop Structure - 1 Each @ \$15,000 = \$15,000

Landscaping - $(215)(1540)/43560 = 7.6 \text{ AC} @ \$35,000 = \$266,000$ Asp Path - $(15)(1540)/9 = 2,575 \text{ SY} @ \$6 = \$15,500$

R.D.W. Acquisition - (Commercial/Industrial - Mostly outside Floodplain) - 2.1 AC @ \$50,000 = \$105,000

Residences - 8 Each @ \$75,000 = \$600,000

Residential Lots - 2 Each @ \$20,000 = \$40,000

Partial Residential Lots - 11 Each @ \$5,000 = \$55,000

Apartments (10 Unit Small) - L.S. - \$150,000

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SUBJ. Estimate of Probable of
Construction Costs - Division

Remove Residences - 8 Each @ \$10,000 = \$80,000

Remove Apartment Bldg - 1 Each @ \$50,000 = \$50,000

\$3,012,500

+ 20% Engr, Admin, & Cont

\$602,500

=> Use \$3,615,000Sta 152+45 to Sta 153+55 - Replace Vintah Street Culvert w/ 2-10'x10'PCB

Remove Exst Culvert - L.S. = \$20,000

Stave Excav - $[(35)(11)(150) + (15)(13)(150)]/27 = 3500 \text{ CY} @ \$6 = \$21,000$ Stave Back - $[(10)(150)(12) + (35)(150)(11)]/27 = 1000 \text{ CY} @ \$7 = \$7,000$ Embankment - $(35)(150)(11)/27 = 2500 \text{ CY} @ \$4 = \$10,000$ Bedding - $(35)(150)(0.5)/27 = 100 \text{ CY} @ \$15 = \$1,500$ Stave Conc - 2-10'x10'PCB - $[(2)(182) - (1)(12)(1)/27]/150 = 479$ Hdwalks - $(2)(23)(0.09) = 4$ Wings - (7' Ave H - 25' L) = $(4)(25)(0.46) = 46$

530 CY @ \$275 = \$146,000

Riprap - $(25)(50)(3)/27 = 150 \text{ CY} @ \$40 = \$6,000$ Curb and Gutter - $(2)(45) = 90 \text{ LF} @ \$8 = \$1,000$ Sidewalk - $(2)(4)(45)/9 = 50 \text{ SY} @ \$17 = \$1,000$

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SUBJ. Estimate of Probable of
Construction Costs - Diversion

$$\text{Guardrail} - (2)(23) + (4)(25) = 146 \text{ LF} @ \$15 = \$2,500$$

$$\text{Asp Pmnt Replmnt} - (45)(26)/9 = 150 \text{ SY} @ \$12 = \$2,000$$

\$ 218,000

+20% Eng., Admin., & Cont

\$ 43,500

\$ 261,500 $\Rightarrow$ Use \$ 265,000

Sta 153+55 to Sta 157+55 - New open channel between Uintah Street and San Miguel Street

$$\text{Clearing} - (125)(400)/43560 = 1.1 \text{ Ac} @ \$20,000 = \$22,000$$

$$\text{Earthwork} - (0.6)(2050)(400)/27 = 18500 \text{ CY} @ \$4 = \$74,000$$

$$\text{5' High Rock Retain Wall} - (2)(4)(400) = 3200 \text{ LF} @ \$100 = \$320,000$$

$$\text{20' Wide Drop Structure} - 1 \text{ Each} @ \$15,000 = \$15,000$$

$$\text{Landscaping} - (200)(400)/43560 = 1.8 \text{ Ac} @ \$35,000 = \$63,000$$

$$\text{Asp Path} - (15)(400)/9 = 675 \text{ SY} @ \$6 = \$4,000$$

$$\text{R.O.W. Acquisition - Residences} - 2 \text{ Each} @ \$75,000 = \$150,000$$

$$\text{Apartments (8 Unit - Medium) - L.S.} - \$160,000$$

$$\text{Apartments (12 Unit - Large) - L.S.} - \$300,000$$

$$\text{Remove Residences} - 2 \text{ Each} @ \$10,000 = \$20,000$$

$$\text{Remove Apartment Bldg} - 3 \text{ Each} @ \$50,000 = \$150,000$$

\$ 1,278,000

+20% Eng., Admin., & Cont

\$ 255,500

\$ 1,533,500 $\Rightarrow$ Use \$ 1,535,000

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FILE 90-809

CK.

PROJ. Shooks Run

SHEET 24

DATE

February 8, 1993

SUBJ. Estimate of Probable OF
Construction Costs - Division

Sta 157+55 to Sta 158+40 - Replace Culvert at San Miguel Street
w/ 2-10' x 10' RCB

Remove Exist Culvert - L.S. - \$15,000

Stave Excav - $[(35 \times 8)(85) + (15 \times 13)(85)] / 27 = 1500 \text{ CY} @ \$6 = \$9,000$

Stave Back - $[(10 \times 85 \times 12) + (35 \times 85 \times 1)] / 27 = 500 \text{ CY} @ \$7 = \$3,500$

Embankment - $(35 \times 85 \times 8) / 27 = 1000 \text{ CY} @ \$4 = \$4,000$

Bedding - $(35 \times 85 \times 0.5) / 27 = 50 \text{ CY} @ \$15 = \$1,000$

Stave Conc - 2-10' x 10' RCB - $[(2)(1.82) - (1)(12 \times 1) / 27](85) = 272$

Hd walls - $(2)(23)(0.09) = 4$

Wings - $(7' \text{ Ave H} - 25' L) - (4)(25)(0.46) = 46$

$325 \text{ CY} @ \$275 = \$89,500$

Pi pipe - $(25)(50 \times 3) / 27 = 150 \text{ CY} @ \$40 = \$6,000$

Curb and Gutter - $(2)(45) = 90 \text{ LF} @ \$8 = \$1,000$

Sidewalk - $(2)(4 \times 45) / 9 = 50 \text{ SY} @ \$17 = \$1,000$

Guardrail - $(2)(23) + (4)(25) = 146 \text{ LF} @ \$15 = \$2,500$

Asp Pmt Replmt - $(45 \times 36) / 9 = 200 \text{ SY} @ \$12 = \$2,500$

$\$135,000$

+ 20% Engr, Admin, & Cont

$\$27,000$

$\$162,000 \Rightarrow \underline{\underline{\text{Use } \$165,000}}$

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PROJ. Shooks Run

SHEET 25

DATE February 8, 1993

SUBJ. Estimate of Probable OF
Construction Costs - Diversion

Sta 158+40 to Sta 167+35 - New open channel between San Miguel Street and Pedestrian Bridge

Cleaning - $(125)(895)/43560 = 2.6 \text{ Ac} @ \$20000 = \$52,000$

Earthwork - $(0.6)(3100)(895)/27 = 62000 \text{ CY} @ \$4 = \$248,000$

5' High Rock Retain Wall - $(2)(5)(895) = 8950 \text{ LF} @ \$100 = \$895,000$

20' Wide Drop Structure - 2 Each @ $\$15000 = \$30,000$

Landscaping - $(240)(895)/43560 = 4.9 \text{ Ac} @ \$35000 = \$171,500$

Asp Path - $(15)(895)/9 = 1500 \text{ SY} @ \$6 = \$9,000$

R.O.W. Acquisition - Residences - 9 Each @ $\$75000 = \$675,000$

Partial Residential Lot - 7 Each @ $\$5000 = \$35,000$

School - Mostly outside floodplain - 0.8 Ac @ $\$50,000 = \$40,000$

Remove Residences - 9 Each @ $\$10000 = \$90,000$

$\$2,275,500$

+ 20% Eng., Admin. & Cont

$\$455,000$

$\$2,730,500 \Rightarrow \underline{\underline{\text{Use } \$2,730,000}}$

Sta 167+35 to Sta 176+25 - New open channel between Pedestrian Bridge and Patty Jewett Golf Course South Boundary

Cleaning - $(150)(890)/43560 = 3.1 \text{ Ac} @ \$20000 = \$62,000$

Earthwork - $(0.6)(4350)(890)/27 = 86000 \text{ CY} @ \$4 = \$344,000$

5' High Rock Retain Wall - $(2)(6)(890) = 10680 \text{ LF} @ \$100 = \$1,068,000$

20' Wide Drop Structure - 2 Each @ $\$15000 = \$30,000$

Landscaping - $(280)(890)/43560 = 5.7 \text{ Ac} @ \$35000 = \$199,500$

Asp Path - $(15)(1050)/9 = 1750 \text{ SY} @ \$6 = \$10,500$

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FILE 90-809

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PROJ. Shooks Run

SHEET 26

DATE February 8, 1993

SUB. Estimate of Probable of
Construction Costs - Diversion

Replace Pedestrian Bridge (8)(230) = 1840 SF @ \$80 = \$147,500

R.O.W. Acquisition - Residences - 2 Each @ \$75000 = \$150,000

- Partial Residential Lots - 8 Each @ \$5000 = \$40,000

- School - Mostly outside floodplain - 1.9 Ac @ \$50,000 = \$95,000

Remove Residences - 2 Each @ \$10000 = \$20,000

\$2,166,500

+ 20% Eng., Admin., & Cont

\$433,500

=> Use \$2,600,000REACH 5 TOTAL - \$10,910,000REACH 6 - Patty Jewett Golf CourseSta 176+25 to Sta 189+05 - New open channel between Patty Jewett
Golf Course South Boundary and Espanola Street

Clearing - (100)(1280)/43560 = 2.9 Ac @ \$20000 = \$58,000

Earthwork - (0.7)(2650)(1280)/27 = 88000 CY @ \$4 = \$352,000

5' High Rock Retaining Wall - (2)(1)(1280) = 2560 @ \$100 = \$256,000

20' Wide Drop Structure - 3 Each @ \$15000 = \$45,000

Reset Exist Golf Cart Bridge - 4 Each @ \$10000 = \$40,000

Landscaping - (350)(1280)/43560 = 10.3 Ac @ \$35000 = \$360,500

\$1,111,500

+ 20% Eng., Admin., & Cont

\$222,500\$1,334,000 => Use \$1,335,000

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PROJ. Shooks Run

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27

DATE

February 8, 1993

SUBJ. Estimate of Probable OF

Construction Costs - Diversion

Sta. 189+05 to Sta 190+85 - Replace Culvert at Espanda Street
w/ 2-13' x 10' RCB

Remove Exist Culvert - L.S. = \$45,000

Struct Excav - $[(40)(3)(180) + (25)(10)(180)] / 27 = 2500 \text{ CY} @ \$6 = \$15,000$

Struct Back - $[(10)(180)(12) + (40)(180)(1)] / 27 = 1000 \text{ CY} @ \$7 = \$7,000$

Bedding - $(40)(0.5)(180) / 27 = 150 \text{ CY} @ \$15 = \$2,500$

Struct Conc - 2-13' x 10' RCB = $[(12)(2.08) - (1)(12)(1) / 27](180) = 669$

Hdwalks - $(2)(29)(0.09) = 5$

Wings - ($> \text{Aw H} - 25' \text{ L}$) = $(4)(25)(0.46) = 46$

$720 \text{ CY} @ \$275 = \$198,000$

Riprap - $(30)(50)(3) / 27 = 175 \text{ CY} @ \$40 = \$7,000$

Guardrail - $(2)(29) + (4)(25) = 158 \text{ LF} @ \$15 = \$2,500$

Asp Punt Replmt - $(50)(24) / 9 = 150 \text{ SY} @ \$12 = \$2,000$

\$279,000

+20% Engr, Admin, & Cont \$56,000

⇒ Use \$335,000

Sta 190+85 to Sta 198+45 - New open channel between Espanda Street
and End of Existing Channel Lining

Remove Conc Punt - $[(8.5)(2) + 10](760) / 9 = 2300 \text{ SY} @ \$10 = \$23,000$

Earthwork - $(0.8)(880)(760) / 27 = 20000 \text{ CY} @ \$4 = \$80,000$

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SUBJ. Estimate of Probable
Construction Costs - Diversion

5' High Rock Retain Wall - $(2)(0.4)(760) = 608 \text{ LF} @ \$100 = \$61,000$

20' Wide Drop Structure - 1 Each @ $\$15,000 = \$15,000$

Reset Exist Golf Cart Bridge - 4 Each @ $\$10,000 = \$40,000$

Landscaping - $(290)(760)/43560 = 5.1 \text{ Ac} @ \$35,000 = \$178,500$

$\$397,500$

+ 20% Eng, Admin & Cont

$\$79,500$

$\$477,000 \Rightarrow \underline{\underline{\text{Use } \$480,000}}$

Sta. 198+45 to Sta. 216+40 - Selective clearing along channel between End of Existing Channel Lining and Paseo Road

Selective Clearing - $(75)(260)/43560 = 0.4 \text{ Ac} @ \$5,000 = \$2,000$

$\$2,000$

+ 20% Eng, Admin, & Cont

$\$500$

$\$2,500 \Rightarrow \underline{\underline{\text{Use } \$5,000}}$

REACH 6 TOTAL - $\$2,155,000$

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Shooks Run

SHEET

29

DATE

February 8, 1993

SUBJ.

Estimate of Probable
Construction Costs - DiversionREACH 7 - Paseo Road to Van Buren Channel DiversionSta. 216+95 to Sta. 236+20 - Selective clearing along channels between
Paseo Road and C.R.I.P. RailroadSelective Clearing - $0.2 + 0.4 + 0.3 + 0.3 + 0.1 + 0.1 = 1.4 \text{ AC} @ \$5000 = \$7,000$ \$7,000

+20% Engr, Admin, & Cont

\$1,500\$8,500 $\Rightarrow$ Use \$10,000Sta. 236+20 to Sta 236+75 - Remove culvert at C.R.I.P. Railroad

Remove Exist Culvert - L.S. - \$10,000

Embankment - $(30)(11)(55)/27 = 750 \text{ CY} @ \$4 = \$3,000$ Railroad Track Replant - $50 \text{ LF} @ \$100 = \$5,000$ \$18,000

+20% Engr, Admin & Cont

\$3,500\$21,500 $\Rightarrow$ Use \$25,000Templeton Gap Road at Van Buren Channel - Replace Culvert w/ 3 - 13' x 6' PCB

Remove Exist Culvert - L.S. = \$15,000

Struct Excav - $[(55)(2)(100) + (40)(8)(100)]/27 = 1500 \text{ CY} @ \$6 = \$9,000$ Struct Back - $[(10)(8)(100) + (55)(1)(100)]/27 = 500 \text{ CY} @ \$7 = \$3,500$

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DATE February 8, 1993

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LOC. FILE 70-809
PROJ Shooks Run SHEET 30
SUBJ Estimate of OF
Probable Construction Cost - Diversion

$$\text{Embankment} - (55)(1)(100)/27 = 250 \text{ CY} @ \$4 = \$1,000$$

$$\text{Struct Conc} - 3-13' \times 6' \text{ PCB} - [(13)(1.79) - (2)(8)(1)/27](100) = 478$$

$$\text{Hd walls} - (2)(43)(0.09) = 8$$

$$\text{Channel Transitions} - (2)[(7.2)(2) + 11](0.67)(25)/27 = 32$$

$$520 \text{ CY} @ \$275 = \$143,000$$

$$\text{Curb and Gutter} - (2)(65) = 130 \text{ LF} @ \$8 = \$1,000$$

$$\text{Sidewalk} - (2)(4)(65)/9 = 75 \text{ SY} @ \$17 = \$1,500$$

$$\text{Guardrail} - (2)(43) + (4)(25) = 186 \text{ LF} @ \$15 = \$3,000$$

$$\text{Asp Punt Replmt} - (45)(65)/9 = 450 \text{ SY} @ \$12 = \$5,500$$

$$\$182,500$$

+20% Engr, Admin & Cont

$$\$36,500$$

$$\$219,000 \Rightarrow \text{Use } \$220,000$$

$$\underline{\underline{\text{REACH 7-TOTAL} - \$255,000}}$$

VAN BUREN CHANNEL - Templeton Gap Road to Monument Creek

Templeton Gap Road to El Paso Street - New open channel

$$\text{Remove Conc Punt} - [(7.2)(2) + 11](2000)/9 = 5700 \text{ SY} @ \$10 = \$57,000$$

$$\text{Struct Excav} - (0.8)(280)(2000)/27 = 16000 \text{ CY} @ \$6 = \$96,000$$

$$\text{Struct Back} - (10)(8)(2000)/27 = 6000 \text{ CY} @ \$7 = \$42,000$$

$$\text{Bedding} - (0.5)(35)(2000)/27 = 1500 \text{ CY} @ \$15 = \$22,500$$

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SHEET 31

DATE

February 8, 1993

SUBJ.

Estimate of Probable
Construction Costs - Diversion

Structural Conc - $[(6.5)(2) + 25](2000)/27 = 2815 \text{ CY} @ \$275 = \$774,500$

$\$992,000$

+ 20% Eng., Admin & Cont

$\$198,500$

$\$1,190,500 \Rightarrow \underline{\underline{\text{Use } \$1,190,000}}$

El Paso Street to Monument Creek - New Open Channel

Remove Conc Paved - $[(9.9)(2) + 12](4720)/9 = 16700 \text{ SF} @ \$10 = \$167,000$

Remove Exist Culverts - 4 Ea @ $\$10000 = \$40,000$

Struct Excav - $(0.7)(400)(5000)/27 = 52,000 \text{ CY} @ \$6 = \$312,000$

Struct Back - $(10)(10)(5000)/27 = 19000 \text{ CY} @ \$7 = \$133,000$

Bedding - $(0.5)(40)(5000)/27 = 4000 \text{ CY} @ \$15 = \$60,000$

Struct Conc - $[(8)(2) + 28](5000)/27 = 8150 \text{ CY} @ \$275 = \$2,241,500$

Bridges - $(4)(70)(26) = 7280 \text{ SF} @ \$60 = \$437,000$

Reconst. 24" Aerial San Sewer Crossing - 50 LF @ $\$300 = \$15,000$

$\$3,405,500$

+ 20% Eng., Admin & Cont

$\$681,000$

$\$4,086,500 \Rightarrow \underline{\underline{\text{Use } \$4,090,000}}$

VAN BUREN CHANNEL TOTAL - \$5,280,000

ALTERNATIVE TOTAL - \$5,230,000

**J. ESTIMATE OF PROBABLE CONSTRUCTION COSTS
FOR SOFT-LINED FULL IMPROVEMENT WITH
DETENTION PONDING ALONG THE CHANNEL
ALTERNATIVE**

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FILE 90-809

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PROJ. Shooks Run

SHEET

1

DATE February 9, 1993

SUBJ. Estimate of Probable OF
Construction Costs - DetentionESTIMATE OF PROBABLE CONSTRUCTION COSTS - DETENTION ALTERNATIVEReach 1 - Fountain Creek to Abandoned RailroadSta. 0+25 to Sta. 9+75 - New open channel between Fountain Creek
and Las Vegas StreetClearing - $(220)(950)/43560 = 4.8 \text{ Ac} @ \$20,000 = \$96,000$ Earthwork - $(0.6)(1260)(950)/27 = 26500 \text{ CY} @ \$4 = \$106,000$ 5' High Rock Retaining Wall - $[21(3H)](950) = 6650 \text{ LF} @ \$100 = \$665,000$ Landscaping - $4.8 \text{ Ac} @ \$35,000 = \$168,000$ 4" Thick Asphalt Path - $(15)(950)/9 = 1600 \text{ SY} @ \$6 = \$9,600$ R.O.W. Acquisition (Commercial/Industrial - Mostly in Floodplain) - $4.8 \text{ Ac} @ \$25,000 = \$120,000$ Relocate Mobile Homes - 8 Each @ $\$2000 = \$16,000$ $\$1,181,000$ + 20% Engg, Admin, E&C $\$236,500$ $\$1,417,500 \Rightarrow \text{Use } \$1,420,000$ Sta. 9+75 to Sta. 10+80Use Exist. Bridge and Dissipator at Las Vegas
Street

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LOC

FILE 90-809

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Shocks Run

SHEET

2

DATE

February 9, 1993

SUBJ

Estimate of Probable
Construction Costs - Detention

Sta. 10+80 to Sta 11+20 - Use existing concrete transition channel between
Las Vegas Street and A.T.S.F. & D.R.G.W. Railroad

Sta. 11+65 to Sta 15+60 - New open channel between A.T.S.F. & D.R.G.W.
Railroad and Abandoned Railroad

Clearing - $(195)(395)/43560 = 1.8 \text{ AC} @ \$20000 = \$36,000$

Earthwork - $0.7 [(2100)(395)]/27 = 2500 \text{ CY} @ \$4 = \$86,000$

5' High Rock Retaining Wall - $(2)(4)(395) = 3160 \text{ LF} @ \$100 = \$316,000$

45' Wide Drop Structure - 1 Each @ \$25000 = \$25,000

Landscaping - $1.8 \text{ AC} @ \$35000 = \$63,000$

4" Thick Asp Path - $(15)(395)/9 = 675 \text{ SY} @ \$6 = \$4,500$

R.O.W. Acquisition - (Commercial / Industrial - Mostly Outside Floodplain) - $1.8 \text{ AC} @ \$50000 = \$90,000$

\$620,500

+ 20% Eng, Admin & Cont

\$124,000

\$744,500 $\Rightarrow$ Use \$745,000

REACH 1 TOTAL - \$2,165,000

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FILE 70-809

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PROJ. Shooks Run

SHEET 3

DATE February 9, 1993

SUBJ. Estimate of Probable OF
Construction Costs - DetentionReach 2 - Abandoned Railroad to Costilla StreetSta. 16+20 to Sta. 24+00 - Clear existing channel between Abandoned Railroad and Fountain BoulevardCleaning - $(100 \pm)(780)/43560 = 1.8 \text{ AC} @ \$20000 = \$36,000$ Asp Path - $(15)(500 \pm)/9 = 850 \text{ SY} @ \$6 = \$5,500$

\$4,500

+20% Eng, Admin, & Cont \$8,500

Use $\Rightarrow$ \$50,000Sta. 24+00 to Sta. 25+50 - Exist Culverts at Fountain Boulevard

Clean Exist Culverts - L.S. = \$5,000

Stucc Conc-CMPA Invert Lining - $(20)(150)(1)/2 = 111$ Hd walls - $(2)(45)/(0.09) = 8$ Wings - $(7' \text{ Avert} - 25' L) = (4)(25)(0.46) = 46$

165 CY @ \$275 = \$45,500

Riprap - $(115)(100)(3)/27 = 1275 \text{ CY} @ \$40 = \$51,000$

\$101,500

+20% Eng, Admin & Cont \$20,500

\$122,000 $\Rightarrow$ Use \$125,000

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SHEET 4

DATE February 9, 1993

SUBJ. Estimate of Probable OF
Construction Costs - Detention

Sta. 25+50 to Sta. 48+65 - Clean Channel and Stabilize West Bank between
Fountain Boulevard and Castilla Street

Clearing - $(150 \pm)(2315)/43560 = 8.0 \text{ AC} @ \$20000 = \$160,000$

Earthwork - $(0.7)(2100)(2315)/27 = 126000 \text{ CY} @ \$4 = \$504,000$

5' High Rock Retaining Wall - $(6)(2315) = 13890 \text{ LF} @ \$100 = \$1,389,000$

Landscaping - $(150)(2315)/43560 = 8.0 \text{ AC} @ \$35000 = \$280,000$

R.O.W. Acquisition (Commercial/Industrial - Mostly outside Floodplain) - $8.0 \text{ AC} @ \$50000 = \$400,000$

Commercial/Industrial Building - $2500 \text{ SF} @ \$35 = \$87,500$

Remove Commercial Building - Small - 1 Each $@ \$20000 = \$20,000$

$\$2,840,500$

+ 20% Eng., Admin & Cont

$\$568,000$

$\$3,408,500 \Rightarrow \underline{\text{Use } \$3,410,000}$

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FILE 90-809

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PROJ. Shooks Run

SHEET 5

DATE February 9, 1993

SUBJ. Estimate of Probable OF
Construction Costs - DetentionSta. 48+65 to Sta. 50+65 - Replace Culvert at Costilla Street w/ 3-12' x 10' PCB

Remove Exist. Culvert - L.S. = \$35,000

Stave, Excav - $[(50 \times 200 \times 10) + (30 \times (200 \times 12))] / 27 = 6500 \text{ CY} @ \$6 = \$39,000$ Stave, Back - $[(10 \times 200 \times 12) + (50 \times (200 \times 1))] / 27 = 1500 \text{ CY} @ \$7 = \$10,500$ Embankment - $(50 \times (200 \times 9)) / 27 = 3500 \text{ CY} @ \$4 = \$14,000$ Bedding - $(50 \times (200 \times 0.5)) / 27 = 200 \text{ CY} @ \$15 = \$3,000$ Stave Conc - 3-12' x 10' PCB - $[(3)(11.99) - (2)(2 \times 1)] / 27 (200) = 1016$ Hdwalks - $(2 \times 40) (0.09) = 7$ Wings (7' Ave H - 25' L) = $(4 \times 25) (0.46) = 46$

1070 CY @ \$275 = \$294,500

Riprap - $(100 \times 100 \times 3) / 27 = 1125 \text{ CY} @ \$40 = \$45,000$ Curb and Gutter - $(2 \times 60) = 120 \text{ LF} @ \$8 = \$1,000$ Sidewalk - $(2 \times 4 \times 60) / 9 = 50 \text{ SY} @ \$17 = \$1,000$ Guardrail - $(2 \times 40) + (4 \times 25) = 180 \text{ LF} @ \$15 = \$3,000$ Asp Pmnt Replmt - $(60 \times 56) / 9 = 375 \text{ SY} @ \$12 = \$4,500$ Conc. Pmnt Replmt - $(60 \times 80 \pm) / 9 = 550 \text{ SY} @ \$40 = \$22,000$

\$ 472,500

+ 20% Eng, Admin, & Cont

\$ 94,500

\$567,000 $\Rightarrow$ Use \$570,000REACH $\geq$ TOTAL - \$4,155,000

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PROJ. Shooks Run

SHEET 6

DATE February 9, 1993

SUBJ. Estimate of Probable OF
Construction Costs - DetentionReach 3 - Costilla Street to Boulder StreetSta 50+65 to Sta 71+55 - New open channel between Costilla Street and El Paso Street (South)Clearing - $(150)(2090)/43560 = 7.2 \text{ Ac} @ \$20000 = \$144,000$ Remove Exist Conc Retaining Wall - $(8)(400) = 3200 \text{ SF} @ \$5 = \$16,000$ Earthwork - $(0.7)(350)(2090)/27 = 190000 \text{ CY} @ \$4 = \$760,000$ 5' High Rock Retaining Wall - $(6+4)(2090) = 20900 \text{ LF} @ \$100 = \$2,090,000$ 40' Wide Dwp Structure - 2 Each @ $\$25000 = \$50,000$ Landscaping - $(260)(2090)/43560 = 12.5 \text{ Ac} @ \$35000 = \$437,500$ Reconst. 8" Aerial San Sewer Crossing - $110 \text{ LF} @ \$150 = \$16,500$ Reconst. 18" Aerial San Sewer Crossing - $40 \text{ LF} @ \$200 = \$8,000$ Asp Path - $(15)(2090)/9 = 3500 \text{ SY} @ \$6 = \$21,000$ R.O.W. Acquisition - (Commercial/Industrial - Mostly Outside Floodplain) - $12.0 \text{ Ac} @ \$50000 = \$600,000$ Commercial/Industrial Buildings - $63500 \text{ SF} @ \$35 = \$2,222,500$ Residences - 1 Each @ $\$75000 = \$75,000$ Partial Residential Lots - 2 Each @ $\$5000 = \$10,000$ Remove Commercial/Industrial Buildings - Large - 4 Each @ $\$50000 = \$200,000$ Small - 6 Each @ $\$20000 = \$120,000$ Remove Residences - 1 Each @ $\$10,000 = \$10,000$ $\$6,780,500$ + 20% Eng, Admin, & Cont $\$1,356,000$ $\$8,136,500 \Rightarrow \underline{\underline{\text{Use } \$8,140,000}}$

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PRO. Shooks Run

SHEET 7

DATE February 9, 1993

SUB. Estimate of Probable
Construction Costs - Detention

Sta. 71+55 to Sta 72+80 - Replace Culvert at El Paso Street (South)
w/ 4-12' X 10' PCB

Remove Exist Culvert - L.S. - \$20,000

Struct. Excav - $[(65)(125)(1) + (45)(12)(125)] / 27 = 3000 \text{ CY} @ \$6 = \$18,000$

Struct Back - $[(10)(125)(12) + (65)(125)(1)] / 27 = 1000 \text{ CY} @ \$7 = \$7,000$

Bedding - $(65)(125)(0.5) / 27 = 150 \text{ CY} @ \$15 = \$2,500$

Structural Conc - 4-12' X 10' PCB - $[(4)(1.99) - (3)(12)(1) / 27](125) = 828$

Headwalls - $(2)(53)(0.09) = 10$

Wings - (7' Ave H - 25' L) = $(4)(25)(0.46) = 46$

885 CY @ \$275 = \$243,500

Riprap - $(55)(50)(3) / 27 = 300 \text{ CY} @ \$40 = \$12,000$

Curb and Gutter - $(2)(75) = 150 \text{ LF} @ \$8 = \$1,500$

Sidewalk - $(2)(4)(75) / 9 = 75 \text{ SY} @ \$17 = \$1,500$

Guardrail - $(2)(53) + (4)(25) = 206 \text{ LF} @ \$15 = \$3,000$

Asp Punt Replant - $(75)(30) / 9 = 250 \text{ SY} @ \$12 = \$3,000$

\$312,000

+20% Eng, Admin, & Cont

\$ 62,500

\$374,500 $\Rightarrow$ Use \$375,000

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PROJ. Shooks Run

SHEET 8

DATE February 9, 1993

SUBJ. Estimate of Probable

Construction Costs - Detention

Sta. 72+80 to Sta 76+80 - New open channel between El Paso Street (South) and Pikes Peak Avenue

Clearing - $(100 \times 400) / 43560 = 0.9 \text{ Ac} @ \$20000 = \$18,000$

Remove Exst Conc. Retain Wall - $(6)(125) = 750 \text{ SF} @ \$5 = \$4,000$

Earthwork - $(0.7)(2500 \times 400) / 27 = 26000 \text{ CY} @ \$4 = \$104,000$

5' High Rock Retain Wall - $(2)(4)(400) = 3200 \text{ LF} @ \$100 = \$320,000$

Landscaping - $(220)(400) / 43560 = 2.0 \text{ Ac} @ \$35000 = \$70,000$

Asp Path - $(15 \times 400) / 9 = 700 \text{ SY} @ \$6 = \$4,500$

R.O.W. Acquisition (Commercial/Industrial - Mostly outside Floodplain) - $2.0 \text{ Ac} @ \$50000 = \$100,000$

Commercial/Industrial Buildings - $5350 \text{ SF} @ \$35 = \$537,500$

Remove Commercial/Industrial Buildings - Large - 1 Each @ $\$50000 = \$50,000$

Small - 2 Each @ $\$20000 = \$40,000$

$\$1,248,000$

+20% Eng, Admin, & Cont

$\$249,500$

$\$1,497,500 \Rightarrow \underline{\underline{\text{Use } \$1,500,000}}$

Sta. 76+80 to Sta. 85+60 - Replace Culvert at Pikes Peak Avenue / El Paso Street (North) w/ ~~4~~-12' X 10' RCB

Remove Exst Culvert - L.S. - $\$150,000$

Struct Excav - $[(65)(8)(175) + (45)(14)(175) + (65)(7)(285) + (45)(12)(285)$

$(65)(7)(190) + (35)(21)(90)] / 27 = 26500 \text{ CY} @ \$6 = \$159,000$

Struct Back - $[(10 \times 650 \times 12) + (65 \times 650 \times 1)] / 27 = 4500 \text{ CY} @ \$7 = \$31,500$

Embankment - $(65 \times 650 \times 9) / 27 = 14000 \text{ CY} @ \$4 = \$56,000$

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LOC.

FILE 90-809

CK.

PROJ.

Shooks Run

SHEET

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February 9, 1992

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Estimate of Probable
Construction Costs - Detention

$$\text{Bedding} - (65)(650)(0.5)/27 = 1000 \text{ CY} @ \$15 = \$15,000$$

$$\text{Structural Conc} - 4-12' \times 10' \text{ PCB} - [(4)(1.99) + (3)(1)/27](650) = 4307$$

$$\text{Hdwalks} - (2)(53)(0.09) = 10$$

$$\text{Wings} - (7' \text{ Avert} - 25' \text{ L}) = (4)(25)(0.46) = 46$$

$$4365 \text{ CY} @ \$275 = \$1,200,500$$

$$\text{Riprap} - (55)(50)(3)/27 = 300 \text{ CY} @ \$40 = \$12,000$$

$$\text{Curb and Gutter} - (4)(75) = 300 \text{ LF} @ \$8 = \$2,500$$

$$\text{Sidewalk} - [(4)(4)(75) + (8)(75)]/9 = 200 \text{ SY} @ \$17 = \$3,500$$

$$\text{Guardrail} - (2)(53) + (4)(25) = 206 \text{ LF} @ \$15 = \$3,000$$

$$\text{Asp Pmnt Replmt} - [(75)(60) + (75)(32)]/9 = 775 \text{ SY} @ \$12 = \$9,500$$

$$\text{Landscaping} - (10)(375)/43560 = 1.0 \text{ AC} @ \$35000 = \$35,000$$

$$\text{Asp Path} - (15)(375)/9 = 625 \text{ SY} @ \$6 = \$4,000$$

$$\text{R.O.W Acquisition} - (\text{Commercial Industrial} - \text{Mostly Inside Floodplain}) - 1.0 \text{ AC} @ \$25000 = \$25,000$$

$$\text{Partial Residential Lot} - 1 \text{ Each} @ \$5000 = \$5,000$$

$$\$1,707,500$$

+ 20% Eng, Admin, & Cont

$$\$341,500$$

$$\$2,049,000 \Rightarrow \text{Use } \$2,050,000$$

⇒ Replace Culvert at Kiowa Street w/ 3-10' X 8' PCB

$$\text{Remove Exist Culvert} - \text{L.S.} = \$25,000$$

$$\text{Stucc Excav} - [(45)(3)(150) + (25)(14)(150)]/27 = 3000 \text{ CY} @ \$6 = \$18,000$$

$$\text{Stucc Back} - [(10)(150)(10) + (45)(150)(1)]/27 = 1000 \text{ CY} @ \$7 = \$7,000$$

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Estimate of Probable of
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$$\text{Embankment} - (45)(150)(4)/27 = 1500 \text{ CY} @ \$4 = \$6,000$$

$$\text{Bedding} - (45)(150)(0.5)/27 = 125 \text{ CY} @ \$15 = \$2,000$$

$$\text{Structural Conc} - 3 - 10' \times 8' \text{ RCB} - [(3)(1.67) - (2)(10)(1)/27] 150 = 640$$

$$\text{Hdwalks} - (2)(24)(0.09) = 6$$

$$\text{Wings} - (6' \text{ Ave H} - 25' \text{ L}) = (4)(25)(0.41) = 41$$

$$690 \text{ CY} @ \$275 = \$190,000$$

$$\text{Riprap} - (35)(50)(3)/27 = 200 \text{ CY} @ \$40 = \$8,000$$

$$\text{Curb and Gutter} - (2)(55) = 110 \text{ LF} @ \$8 = \$1,000$$

$$\text{Sidewalk} - (2)(4)(55)/9 = 50 \text{ SY} @ \$17 = \$1,000$$

$$\text{Guardrail} - (2)(34) + (4)(25) = 168 \text{ LF} @ \$15 = \$2,500$$

$$\text{Asp Pmnt Replmt} - (55)(60)/9 = 375 \text{ SY} @ \$12 = \$4,500$$

$$\$265,000$$

+ 20% Eng, Admin, & Cont

$$\$53,000$$

$$\$318,000 \Rightarrow \text{Use } \$320,000$$

Sta. 85+60 to Sta. 89+95 - Detention Pond between Kiowa Street
and Platte Avenue

$$\text{Clearing} - 1.0 + 0.4 = 1.4 \text{ Ac} @ \$20,000 = \$28,000$$

$$\text{Remove \& Relocate Infrastructure and Private Improvements} - \text{L.S.} = \$250,000$$

$$\text{Remove Exst Conc. Retain Wall} - (15)(365) = 5475 \text{ SF} @ \$5 = \$27,500$$

$$\text{Remove Kiowa Culvert} - \text{L.S.} = \$75,000$$

$$\text{Earthwork} - 100,000 \pm \text{CY} @ \$4 = \$400,000$$

$$5' \text{ High Rock Retain Wall} - (2)(1)(1250) = 2500 \text{ LF} @ \$100 = \$250,000$$

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SUBJ. Estimate of Probable
Construction Costs - Detention

Landscaping - 13.9 Ac @ \$35000 = \$486,500

Asp Path - $(15)(1250)/9 = 2100$ SY @ \$6 = \$13,000

R.O.W. Acquisition - (Commercial/Industrial - Mostly outside Flood plain) 11 Ac @ \$50000 = \$550,000

Commercial/Industrial Buildings - 12000 SF @ \$35 = \$420,000

Residences - 34 Each @ \$75000 = \$2,550,000

Remove Commercial/Industrial Buildings - Large - 2 Each @ \$50000 = \$100,000

- Small - 1 Each @ \$20000 = \$20,000

Remove Residences - 34 Each @ \$10000 = \$340,000

\$5,015,000

+20% Eng, Admin, & Cont

\$1,003,000

\$6,018,000 $\Rightarrow$ Use \$6,020,000

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Estimate of Probable OF
Construction Costs - Detention

Sta 98+10 to Sta 106+30 - Replace Culvert at Platte Avenue / School
Athletic Field and Use Exist Budget Boulder Street
w/ 2 - 14' X 10' RCB

Remove Exist Culvert -

$$L.S. = \$100,000$$

Remove Exist Conc Retain Wall - $(2)(40)(7) = 575 \text{ SF} @ \$5 = \$3,000$ Stucc Excav - $[(40)(8)(600) + (20)(13)(600)] / 27 = 13000 \text{ CY} @ \$6 = \$78,000$ Stucc Back - $[(10)(12)(600) + (40)(11)(600)] / 27 = 3500 \text{ CY} @ \$7 = \$24,500$ Embankment $[(40)(8)(600)] / 27 = 7500 \text{ CY} @ \$4 = \$30,000$ Bedding - $(40)(600)(0.5) / 27 = 450 \text{ CY} @ \$15 = \$7,000$ Structural Conc - 2 - 14' X 10' RCB - $[(2)(2)(27) - (1)(12)(1) / 27](600) = 2457$ Hdwalks - $(2)(31)(0.09) = 6$ Wings - $(7' \text{ Ave H} - 25' \text{ L}) = (4)(25)(0.46) = 46$
 $2510 \text{ CY} @ \$275 = \$690,500$
Riprap - $(30)(50)(3) / 27 = 175 \text{ CY} @ \$40 = \$7,000$

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SUB. Estimate of Probable
Construction Costs - DetentionCurb and Gutter - $(50)(4) = 200$ LF @ \$8 = \$2,000Sidewalk - $(2)(4)(50)/9 = 50$ SY @ \$17 = \$1,000Guardrail - $(2)(31) + (4)(25) = 162$ LF @ \$15 = \$2,500Retain Wall Replmt - $(7' \pm H) = (2)(0.51)(40) = 45$ CY @ \$275 = \$12,500Asp Punt Replmt - $[(50)(96)]/9 = 550$ SY @ \$12 = \$7,000Landscaping - $(90)(500)/43560 = 1.0$ Ac @ \$35,000 = \$35,000Asp Path - $(15)(500)/9 = 850$ SY @ \$6 = \$5,000

R.O.W. Acquisition - (School - Inside Floodplain) - 1.0 Ac @ \$25,000 = \$25,000

\$1,030,000

+ 20% Eng., Admin., & Cont

\$ 206,000

\$1,236,000 $\Rightarrow$ Use \$1,240,000REACH 3 - TOTAL - \$19,645,000Reach 4 - Boulder Street to Cache La Poudre StreetSta. 106+30 to Sta 112+35 - New open channel between Boulder Street and St. Vrain StreetClearing - $(130)(605)/43560 = 1.8$ Ac @ \$20,000 = \$36,000Earthwork - $(0.5)(650)(605)/27 = 7500$ CY @ \$4 = \$30,0005' High Rock Retain Wall - $(2)(2)(605) = 2420$ LF @ \$100 = \$242,000Landscaping - $(130)(605)/43560 = 1.8$ Ac @ \$35,000 = \$63,000Asp Path - $(15)(605)/9 = 1000$ SY @ \$6 = \$6,000

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SUBJ. Estimate of Probable of
Construction Costs - Detention

R.O.W. Acquisition-

- Partial Residential Lots - 8 Each @ \$5000 = \$40,000

\$417,000

+ 200% Eng., Admin., & Cont

\$83,500

\$500,500 $\Rightarrow$ Use \$500,000Sta. 112+35 to Sta 113+40 - Replace Culvert at St. Vrain Street w/ 2-12' x 10' PCB

Remove Exist Culvert - L.S. = \$20,000

Stave Excav - $[(40)(1)(105) + (20)(14)(105)]/27 = 1500 \text{ CY} @ \$6 = \$9,000$ Stave Back - $[(10)(105)(12) + (40)(1)(105)]/27 = 750 \text{ CY} @ \$7 = \$5,500$ Embankment - $[(40)(2)(105)]/27 = 500 \text{ CY} @ \$4 = \$2,000$ Bedding - $(40)(105)(0.5)/27 = 75 \text{ CY} @ \$15 = \$1,500$ Stave Conc - 2-12' x 10' PCB - $[(2)(1.99) - (1)(12)(1)/27](105) = 371$ Hdwalks - $(2)(27)(0.09) = 5$ Wings - $(7' \text{ Ave H} - 25' \text{ L}) = (4)(25)(0.46) = 46$

425 CY @ \$275 = \$117,000

Riprap - $(30)(50)(3)/27 = 175 \text{ CY} @ \$40 = \$7,000$ Curb and Gutter - $(50)(2) = 100 \text{ LF} @ \$8 = \$1,000$ Sidewalk - $(2)(4)(50)/9 = 50 \text{ SY} @ \$17 = \$1,000$

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SUBJ. Estimate of Probable OF
Construction Costs - DetentionGuardrail - $(2)(27) + (4)(25) = 154 \text{ LF} @ \$15 = \$2,500$ Asp Pmnt Replmt - $(50)(50)/9 = 275 \text{ SY} @ \$12 = \$3,500$

\$170,000

+20% Eng, Admin, & Cont \$34,000

\$204,000 $\Rightarrow$ Use \$205,000Sta. 113+40 to Sta 117+75 - New open channel between St. Urain Street
and Willamette StreetClearing - $(150)(435)/43560 = 1.5 \text{ Ac} @ \$20000 = \$30,000$ Earthwork - $(0.5)(870)(435)/27 = 7000 \text{ CY} @ \$4 = \$28,000$ 5' High Rock Retain Wall - $(2)(2.4)(435) = 2088 \text{ LF} @ \$100 = \$209,000$ Landscaping - $(165)(435)/43560 = 1.6 \text{ Ac} @ \$35000 = \$56,000$

Replace Double Tennis Court - L.S. = \$75,000

Asp Path - $(15)(435)/9 = 725 \text{ SY} @ \$6 = \$4,500$

R.O.W. Acquisition - Residences - 1 Each @ \$75,000 = \$75,000

Partial Residential Lots - 3 Each @ \$5000 = \$15,000

Remove Residence - 1 Each @ \$10000 = \$10,000

\$502,500

+20% Eng, Admin, & Cont \$100,500

\$603,000 $\Rightarrow$ Use \$605,000

COMP. WMD
CK. _____
DATE February 10, 1993

WILSON
& COMPANY
ENGINEERS &
ARCHITECTS

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SUBJ. Estimate of Probable OF
Construction Costs - Detention

Sta 117+75 to Sta 119+80 - Use Exist. Culvert at Willamette Street

Clean Exist. Culvert - L.S. = \$2,500

Stucco Conc - Invert Lining - $(20)(205)(1)/27 = 155 \text{ CY} @ \$275 = \$43,000$

Riprap - $(25)(50)(3)/27 = 150 \text{ CY} @ \$40 = \$6,000$

\$51,500

+ 20% Eng., Admin. & Cont

\$10,500

\$62,000 $\Rightarrow$ Use \$65,000

COMP.

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WILSON
& COMPANY

LOC.

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PROJ. Shocks Run

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Estimate of Probable of
Construction Costs - Detention

Sta. 119+80 to Sta. 135+15 - New Open Channel between Willamette Street
and Cache La Poudre Street

Clearing - $(150)(1535)/43560 = 5.3 \text{ Ac} @ \$20000 = \$106,000$

Earthwork - $(0.6)(1840)(1535)/27 = 63000 \text{ CY} @ \$4 = \$252,000$

5' High Rock Retain Wall - $(2)(3.6)(1535) = 11052 \text{ LF} @ \$100 = \$1,105,000$

20' Wide Drop Structure - 1 Each @ $\$15,000 = \$15,000$

Landscaping - $(210)(1535)/43560 = 7.4 \text{ Ac} @ \$35000 = \$259,000$

Replace Pedestrian Bridge - $(180)(8) = 1440 \text{ SF} @ \$60 = \$86,500$

R.O.W. Acquisition - Residences - 3 Each @ $\$75,000 = \$225,000$

- Partial Residential Lots - 2 Each @ $\$5000 = \$10,000$

Rename Residences - 3 Each @ $\$10000 = \$30,000$

$\$2,089,000$

+ 20% Eng., Admin. & Cont.

$\$418,000$

$\$2,507,000 \Rightarrow \underline{\underline{\text{Use } \$2,510,000}}$

Sta. 135+15 to Sta. 137+05 - Use Exist Culvert at Cache La Poudre

Clean Exist Culvert - LS₁ = $\$2,500$

Stone Conc-Invert Lining - $(20)(190)(1)/27 = 141$

Hd walls - $(2)(20)(0.09) = 4$

Wings - $(7' \text{ Ave H} - 25' L) = (4)(25)(0.46) = 46$

$195 \text{ CY} @ \$275 = \$54,000$