RCFC & WCD

2018

May 13, 2019 Calendar On

DATE

2018 - 0089 -

PROJECT NUMBER

INDIO MDP- JEFFERSON NORTH

PROJECT NAME

CONSTRUCTION COST	$	1,538,560
PLUS 22% LUMP SUM ITEMS	+	338,483
PLUS 12% CONTINGENCY	+	184,627
SUBTOTAL	=	2,061,670
ENV. MITIGATION COSTS	+	0
PLUS 25% ENG & ADMIN	+	430,797
PLUS 3% MSHCP MITIGATION FEE	+	51,696
RIGHT-OF-WAY	+	0

DATE OF R/W ESTIMATE

TOTAL $ 2,544,000

ADDITIONAL INFORMATION

ENGR. INT.

PROJECT LENGTH

00 + 00

RESPONSIBLE SECTION

PROJECT TYPE:

☐ Flood Control ☐ Water Conservation ☐ Water Quality Enhancement ☐ Ground Water Recharge

☑ Other CITY OF INDIO MDP

PROJECT DESCRIPTION:

JEFFERSON NORTH MDP DRAINAGE FACILITY INCLUDING STORM DRAIN PIPE AND CATCH BASINS FROM AVE 38 TO AVE 40, FOR STREET FLOW ONLY.

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2018 PROJECT PLANNING COSTS

PROJECT DESCRIPTION: INDIO MDP- JEFFERSON NORTH

ITEM	UNIT	QUANTITY	CRITERIA	2018 Cost	TOTAL
TRAP. CHANNEL EXCAVATION	CY		b > 8	$6.60	
			b ≤ 8	$9.20	
RCB & RECT. CHAN. EXCAVATION	CY		b > 12	$8.00	
			b ≤ 12	$12.10	
COMPACTED FILL	CY		EXC > FILL	$3.25	
			EXC < FILL	$7.30	
STRUCTURE BACKFILL	CY			$10.40	
TRAP. CHANNEL CONCRETE	CY		b > 8[1]	$380.00	
			b ≤ 8	$480.00	
R.C.B. CONCRETE (INCLUDING STEEL)	CY		L > 150	$720.00	
			L < 150	$860.00	
RECT. CHAN. CONC. (INCLUDING STEEL)	CY		L > 150	$440.00	
			L < 150	$615.00	
CUTOFF WALL (2' TYP.)	LF			$13.50	
SUBDRAIN	LF		6 < b ≤ 16	$12.50	
			b > 16	$25.00	
FENCING (6' TYP.)	LF			$21.30	
CATCH BASINS	LF	196		$560.00	$109,760
MANHOLES (PIPE)	EA	6	FOR MAINLINE	$6,200.00	$37,200
		7	FOR JUNCTION	$8,000.00	$56,000
MANHOLES (RCB)	EA			$2,100.00	
HOT MIX ASPHALT (HMA) TYPE A[3]	SF			$3.00	
CLASS 2 BASE (3" THICK)	SF			$0.40	
ROCK SLOPE PROTECTION[4]	CY[2]	100		$80.00	$8,000
CONC.-ROCK SLOPE PROTECTION[5]				$130.00	
STORM DRAINS	SEE STORM DRAIN COST SHEET				$1,170,800
SLAB BRIDGES	LBS	SEE BRIDGE COST SHEET	REBAR	$1.10	
	CY		CONCRETE	$540.00	

MISCELLANEOUS COSTS	SEE MISCELLANEOUS COST SHEET	$156,800
DAM & BASIN COSTS	SEE DAM & BASIN COST SHEET	

1. No.4 bars at 18 inches
2. 1.9 tons/cy
3. Includes 4" A.C. & 8" A.B.
4. Use 75% for large installations (>1000cy)
5. Use 125% of rock slope protection to determine concreted-rock quantity
6. i.e. Mobilization, Water Control, etc.
7. Connector pipe, etc.
8. Cell typically only used for ADP Updates.

CONSTRUCTION COST	$1,538,560
LUMP SUM ITEMS (22%)[6]	$338,483
CONTINGENCIES (12%)[7]	$184,627
SUBTOTAL	$2,061,670
ENG & ADMIN. (25%); MSHCP MITIGATION FEE: (3%) ? ☑ ON FOR YES	$482,492
AS-BUILT COSTS[8]	$0
ENV. MITIGATION COSTS (LS)	$0
R/W (FROM R/W SHEET)	$0
R/W (FROM DAM & BASIN SHEET)	$0

rev. 9/21/2017

NAME & DATE	TOTAL	
05/13/19		**$2,544,163**

PROJECT DESCRIPTION: INDIO MDP- JEFFERSON NORTH

STORM DRAIN COSTS FOR: DESERT AREA

INSIDE DIA. (INCHES)	AC COVER? ENTER Y or N	LENGTH OF PIPE (FT)	PIPE ($/FT)	IN PLACE ($/FT) W/O AC	IN PLACE ($/FT) W/AC	TOTAL
18	Y	320 FT	$137		$177	$56,640
24	Y	2000 FT	$156		$202	$404,000
36	Y	2640 FT	$209		$269	$710,160
		4960 FT				
				STORM DRAIN TOTAL		$1,170,800

MISCELLANEOUS COSTS

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
HEADWALL AT 36" SD OUTLET	1	EA	$8,000	$8,000
UTILITY RELOCATION	4960	LF	$30	$148,800
		MISCELLANEOUS TOTAL		$156,800

TRAP CHANNEL OVERBURDEN EXCAVATION*

INDIO
MDP / ADP

5/13/19
DATE

INDIO MDP- JEFFERSON NORTH
FACILITY

WEBB
ENGINEER

	Station (FT)		Channel			No. Access Roads	Avg. Overburden at C.L. Channel (FT)	Overburden Cut Slope Z	Length (FT)	Channel Top Width (FT)	R/W Width (FT)	With Overburden		
	From	To	B (FT)	D (FT)	Z							R/W Width (FT)	Overburden Excavation (CF/LF)	Overburden Excavation (CY)
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
rev. 9/21/2017		**TOTAL:**							0					0

*This sheet is to be used in conjunction with FC 416. It is used when the channel section will be lower than existing ground.

RCB QUANTITY SUMMARY SHEET

	5/13/19
MDP / ADP	**DATE**
INDIO MDP- JEFFERSON NORTH	
FACILITY	**ENGINEER**

																			With Overburden		
	Location	No. Cells	Cell Height (FT)	Cell Width (FT)	Concrete per Cell (CF/LF)[1]	Length (FT)	Depth from F.G. to Top of RCB (FT)	Avg. Overburden E.G. to F.G. (FT)	RCB Height (FT)[2]	RCB Width (FT)[2]	Concrete (CY)	Trench Depth Below F.G. (FT)	Sloped or Shored Trench	Height of Sloped Portion of Trench (FT)	Structural Excavation (CY)[3]	Structural Backfill (CY)[3]	R/W Width (FT)[4]	R/W (AC)	Overburden Excavation (CY)	R/W Width (FT)[5]	R/W (AC)
1									0.00	0.00		0.0			0.0	0.0	0.0				
2									0.00	0.00		0.0			0.0	0.0	0.0				
3									0.00	0.00		0.0			0.0	0.0	0.0				
4									0.00	0.00		0.0			0.0	0.0	0.0				
5									0.00	0.00		0.0			0.0	0.0	0.0				
6									0.00	0.00		0.0			0.0	0.0	0.0				
7									0.00	0.00		0.0			0.0	0.0	0.0				
8									0.00	0.00		0.0			0.0	0.0	0.0				
9									0.00	0.00		0.0			0.0	0.0	0.0				
10									0.00	0.00		0.0			0.0	0.0	0.0				
11									0.00	0.00		0.0			0.0	0.0	0.0				
12									0.00	0.00		0.0			0.0	0.0	0.0				
13									0.00	0.00		0.0			0.0	0.0	0.0				
14									0.00	0.00		0.0			0.0	0.0	0.0				
15									0.00	0.00		0.0			0.0	0.0	0.0				
16									0.00	0.00		0.0			0.0	0.0	0.0				
17									0.00	0.00		0.0			0.0	0.0	0.0				
18									0.00	0.00		0.0			0.0	0.0	0.0				
19									0.00	0.00		0.0			0.0	0.0	0.0				
20									0.00	0.00		0.0			0.0	0.0	0.0				
rev. 9/21/2017						0					0				0	0		0.0	0		0.0

1. Caltrans Standard Plans, 2010, D80 & D81.
2. Assumes wall thickness, t2 = 8", roof and invert slab thicknesses, t1, t3 = 9".
3. Below finish grade, per RCB pay lines (normal condition), Std. Dwg. No. M815. Refer to "Storm Drain Easement Widths," RCFC, Nov. 10, 1987 for sloped or shored trench sections.
4. "Storm Drain Easement Widths," RCFC, Nov. 10, 1987. Assumes a minimum width of 10' for construction access, the width of the sloped excavation, or the width of the shored excavation plus 8', whichever is greater.
5. Assumes cut slopes of 0.75H:1V between overburden and finish grade.

BRIDGE COST SUMMARY SHEET

	5/13/19
MDP / ADP	**DATE**
INDIO MDP- JEFFERSON NORTH	
FACILITY	**ENGINEER**

	NAME	(S) * TOTAL SPAN (FT)	(W) TW, BRIDGE (FT)	HEIGHT, CHANNEL (FT)	*** CLEAR-SPAN (FT)	**** CHANNEL SECTION (Rect/Trap)	CHANNEL COVER (FT)	CONTROL (Y/N)	A	B	B'	(R) REBAR COST	(C) CONCRETE COST	† COST
1					31 - 36	Trap-Double			190			$1.10	$540.00	
2					31 - 36	Trap-Single			190			$1.10	$540.00	
3					26 - 30	Trap-Triple			175			$1.10	$540.00	
4					14 - 20	Rectangular			150			$1.10	$540.00	
5					14 - 20	Rectangular			150			$1.10	$540.00	
6					14 - 20	Rectangular			150			$1.10	$540.00	
													TOTAL**	**$0**

* TOTAL SPAN OF CHANNEL =$TW_{CHANNEL}$ + 2'

** ADD 5% IF TRAFFIC CONTROL IS REQUIRED

*** CLEAR SPAN IS THE TOTAL WIDTH OF WATER SURFACE BETWEEN SUPPORTS

**** HEIGHT FOR RECTANGULAR CHANNEL = COVER + $HEIGHT_{CHANNEL}$ (ALL CASES) — Rectangular

HEIGHT FOR TRAPEZOIDAL CHANNEL, SINGLE SPAN = COVER + 0.75*($HEIGHT_{CHANNEL}$) — Trap-Single

DOUBLE SPAN = COVER + (2.5*($HEIGHT_{CHANNEL}$))/3 — Trap-Double

TRIPLE SPAN = COVER + (1.75*($HEIGHT_{CHANNEL}$))/2 — Trap-Triple

	*** CLEAR SPAN (FT)	A	**** HEIGHT (FT)	B	B' = B x 27
1	14 - 20	150	3.50	0.55	14.85
2	21 - 25	160	4.50	0.50	13.50
3	26 - 30	175	5.10	0.45	12.15
4	31 - 36	190	6.10	0.40	10.80
			7.00	0.37	9.99
			8.00	0.35	9.45

A = REBAR TO CONCRETE RATIO

B = PERCENTAGE OF SLAB TO ENTIRE BRIDGE STRUCTURE

$$\text{† COST} = \left(\frac{(A \times R) + C}{B'}\right) \times S \times W$$

rev. 9/21/2017

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2018 DAM/BASIN COST ESTIMATE FORM

DAM/BASIN NAME: INDIO MDP- JEFFERSON NORTH

ITEM	UNIT	QUANTITY	CRITERIA	2018 Cost	TOTAL
EXCAVATION (Off-site Disposal)	CY		Use Lower Channel Excavation Unit Cost	$6.60	
EXCAVATION (Used on site)	CY		60% of Lower Channel Excavation Unit Cost	$4.00	
EMBANKMENT	CY		Compacted Fill Unit Cost [1]	$3.25	
SPILLWAY CONCRETE [2]	CY		Use Lower RCB Unit Cost	$720	
ROCK (SPILLWAY) U/S SIDE [3]	CY			$80.00	
D/S SIDE [4]	CY			$80.00	
CONCRETED ROCK	CY			$130.00	
ROCK (MISC.)	CY			$80.00	
CONCRETED ROCK (MISC.)	CY			$130.00	
OUTLET PIPE DIAMETER	IN		RCP unit cost w/o AC =		
LENGTH	LF		1.5 x RCP unit cost w/o AC =		
DEBRIS OUTLET STRUCTURE	EA		500 x unit cost of RCP outlet pipe		
OUTLET STRUCTURE	EA		30 x RCP unit cost		
CLASS 2 BASE (3" THICK)	SF			$0.40	
FENCING (6' TYP.)	LF			$21.30	
		SUBTOTAL			$0
		LUMP SUM ITEMS (22%)[5]			$0
		CONTINGENCIES (12%)[6]			
		ENG & ADMIN. (25%) MITIGATION (3%) ? ☑ ON FOR YES			
		SUBTOTAL (AS-BUILT)			
		SUBTOTAL			
rev. 9/21/2017		R/W (AC.)	COST/AC.	/ac. = -->	$0
NAME & DATE				TOTAL	**$0**
5/13/19					

1. If dam, add 50% for precompaction, filter, subdrain, etc.
2. Assume rectangular section; slab t = 12"; walls t = 9"
3. U/S side: quantity = ((spillway width + 20') x 50' x 2')/27
4. D/S side, grouted: quantity = (spillway width x 40' x 3')/27
   D/S of concreted-rock slope protection: quantity = (spillway width x 80' x 4')/27
5. Mobilization, Water Control, etc.
6. Connector pipe, etc.

RCP STORM DRAIN COSTS
WESTERN RIVERSIDE COUNTY (West of I-10 and SR-79)
2018

INSIDE DIA. (INCHES)	PIPE ($/FT.)	IN PLACE ($/FT.)[1]	
		W/O AC.[2]	W/AC.[3]
18	$114	$135	$154
24	$130	$156	$176
30	$151	$182	$203
36	$174	$211	$234
42	$199	$242	$266
48	$230	$279	$304
54	$260	$316	$343
60	$296	$358	$386
66	$331	$401	$437
72	$369	$446	$483
78	$414	$499	$537
84	$458	$552	$592
90	$509	$612	$653
96	$566	$678	$721
102	$624	$745	$789
108	$677	$808	$853
114	$737	$878	$925

1. IN PLACE COSTS ASSUME:
   - $12.10 per C.Y. PIPE EXCAVATION
   - $10.40 per C.Y. PIPE BACKFILL
   - $43.00 per C.Y. AGGREGATE BASE
   - $86.28 per TON ASPHALT CONCRETE
   - TRENCH DEPTH = PIPE OUTER DIA. + 5' COVER
   - TRENCH WIDTH = PIPE OUTER DIA. + 2'
   - PIPE COST INCLUDES TRANSPORTATION COSTS
2. W/O AC PAVING & BASE INCLUDES COST OF EXCAVATION AND BACKFILL
3. W/ AC PAVING & BASE INCLUDES COST OF EXCAVATION, BACKFILL,

RCP STORM DRAIN COSTS
EASTERN RIVERSIDE COUNTY (East of I-10 and SR-79)
2018

INSIDE DIA. (IN)	PIPE ($/FT.)	IN PLACE ($/FT.)[1]	
		W/O AC.[2]	W/AC.[3]
18	$137	$158	$177
24	$156	$182	$202
30	$181	$212	$233
36	$209	$246	$269
42	$239	$282	$306
48	$276	$325	$350
54	$312	$368	$395
60	$355	$417	$445
66	$397	$467	$503
72	$443	$520	$557
78	$497	$582	$620
84	$550	$644	$684
90	$611	$714	$755
96	$679	$791	$834
102	$749	$870	$914
108	$812	$943	$988
114	$884	$1,025	$1,072

1. IN PLACE COSTS ASSUME:
   - $12.10 per C.Y. PIPE EXCAVATION
   - $10.40 per C.Y. PIPE BACKFILL
   - $43.00 per C.Y. AGGREGATE BASE
   - $86.28 per TON ASPHALT CONCRETE
   - TRENCH DEPTH = PIPE OUTER DIA. + 5' COVER
   - TRENCH WIDTH = PIPE OUTER DIA. + 2'
   - PIPE COST INCLUDES TRANSPORTATION COSTS
2. W/O AC PAVING & BASE INCLUDES COST OF EXCAVATION AND BACKFILL
3. W/ AC PAVING & BASE INCLUDES COST OF EXCAVATION, BACKFILL,

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
- PROJECT PLANNING R/W COSTS -

PROJECT: INDIO MDP- JEFFERSON NORTH

DATE:

(1)

Raw R/W Costs (*Land Value A*) = _____ $/acre

Total Area required = _____ acres

Total R/W Raw Costs = **$0**

(2)

Number of vacant parcels = ***0*** x *$5,000* = ***$0***

Number of occupied parcels = ***0*** x *$10,000* = ***$0***

Total Parcels Affected = ***0***

Total Parcels Costs = **$0**

(3)

Total acreage of Improved parcels significantly impacted by the project = _____ acres

$= \left[\left(\frac{1}{1-R}\right)-1\right]$

Improvement ratio ***R*** (*decimal*) = ***20%*** coefficient→ **0.3**

Land Value ***A*** (*per acre*) = ***$0***

Improvement value ***I*** (*per acre*) = ***$0*** $= A.\left[\left(\frac{1}{1-R}\right)-1\right]$

Value of Improved Land (*per acre*) = ***$0*** $= A + A.\left[\left(\frac{1}{1-R}\right)-1\right]$

Total Value of Damaged Property = ***$0***

Total Damages Costs *(25%.Total Improvement value)* = **$0**

(4)

Number of Houses for Buyout = _____ houses

Cost per Home = ***$500,000***

Total Relocation/Buyout Costs = **$0**

Grand Total R/W Costs = **$0**

1. **ITEM 1**. Enter the raw cost per acre and the total acres needed to complete the project.
2. **ITEM 2**. Enter the number of vacant and occupied parcels that are involved in the project. The sum of the two should total all of the parcels affected. Item 2 will calculate how much it costs to complete negotiations with the owners of the parcels.
3. **ITEM 3**. Enter total acres of all parcels **significantly impacted** by the project.

   However, the engineer needs assess that the project **may enhance** the property owner by allowing him/her to develop and use the land that less developable due to flood hazard before the construction. These enhancements will offset damages for these parcels.

   Item 3 will compute the total damages by using the Improvement Ratio **R**. The ratio can be found in the Win2Data database (See item b below).

   a) The improvement ratio **R** is the percentage of the improvement value to the total assessed value of land and improvements.

   b) The improvement ratio **R** (Imprv %) can be obtained from the summary spreadsheet-like table after the search was done. The Imprv % field can be dragged and dropped from the "Drag/Drop Fields" button to the table.
4. **ITEM 4**. Enter the number of houses that are to be bought and/or relocated. Also, enter the average value per home (also use Win2Data to help with this). This item will calculate the total relocation/buyout costs.

NOTE: There is an example R/W estimate in the planning files A-14.4 for San Jacinto MDP Line E (can be found in the "Black Hole area" in the blue binder Titled "Planning Cost Sheets Revisions 1994-2002", just before the 1999-2000 tab).