DRAINAGE REPORT and CONCEPTUAL DESIGN
For
PROPOSED STORM DRAINAGE IMPROVEMENTS
NEAR
EL PUEBLO ROAD AND PASEO DEL NORTE
AT THE NORTH DIVERSION CHANNEL

ALBUQUERQUE, NM

Existing 30" CMP that outfalls to the North Diversion Channel
Between El Pueblo Road and the Railroad Tracks

Prepared for:
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Solution
P3A – a concrete channel with a 5-foot bottom width, 4 feet deep with 1V:2H side slopes is recommended in this location. **Figure 4** illustrates the proposed locations and conceptual level plan view. **Table 5** presents a summary description of the existing problem and proposed solution(s), 100-yr. peak discharge and the conceptual level cost estimate. The quantity and cost estimates and hydraulic data and results are included in **Appendix C** and the cost total is summarized in **Table8**.

The advantage of this solution is that a channel will capture all the pipe and surface flow. The disadvantage is that it will limit future roadway development options.

PROPOSED ALTERNATE IMPROVEMENT PHASE 3 (P3B)
New 66-inch RCP from El Pueblo Road At Eastern Most Railroad Track Crossing to Existing 42" CMP under Paseo Del Norte

Problem
There is an existing asphalt channel in the referenced reach and this channel is failing and the erosion in this channel is within 1 foot of the concrete traffic barrier on the east bound lanes of Paseo Del Norte. This barrier and Paseo Del Norte are in need of protection because further erosion will occur at this location.

Solution
P3B - a 66" RCP could be considered at this location. **Figure 4** illustrates the proposed locations and conceptual level plan view. **Table 5** presents a summary description of the existing problem and proposed solution(s), 100-yr. peak discharge and the conceptual level cost estimate. The quantity and cost estimates and hydraulic data and results are included in **Appendix C** and the cost total is summarized in **Table 8**.

The advantage of this alternative is that all flow is underground and will not impede surface improvements. The disadvantage is that in current condition, it will not capture remnant surface flows. A surface swale over the pipe be required.

PROPOSED IMPROVEMENT PHASE 4 (P4)
El Pueblo Road At Eastern Most Railroad Track Crossing

Problem
At present there is no outfall for the flow from the basins contributing to this location and consequently El Pueblo Road experiences frequent flooding.

Solution
The recommended solution is to build a concrete headwall and a 66" RCP culvert under El Pueblo Road to convey the flow to the existing road side ditch between El Pueblo Road and Paseo Del Norte. **Figure 4** illustrates the proposed locations and conceptual level plan view. **Table 5** presents a summary description of the existing problem and proposed solution(s), 100-yr. peak discharge and the conceptual level cost estimate. The quantity and cost estimates and hydraulic data and results are included in **Appendix C** and the cost total is summarized in **Table 9**.

Proposed Improvement Phase 5 (P5) (See Figure 1B)
East Bound Paseo Del Norte near the North Diversion Channel
Problem -
At present there is only 1 median type inlet at this location that outfalls to a 24-inch CMP into the North Diversion Channel. Some flow escapes this inlet and passes west across the North Diversion Channel.

Solution -

The recommended solution is to add one additional inlet about 20 feet east of the existing inlet and join this basin to the existing basin with a 24-inch CMP. This will collect most of the 100-yr. flow. **Figure 4** illustrates the proposed locations and conceptual level plan view. **Table 5** presents a summary description of the existing problem and proposed solution(s), 100-yr. peak discharge and the conceptual level cost estimate. The quantity and cost estimates and hydraulic data and results are included in **Appendix C** and the cost total is summarized in **Table 10**.

Proposed Improvement Phase 6 (P6) (See Figure 1B)

North Paseo Del Norte Frontage Road at Rail Road Tracks

Problem -

At present there is only 1 curb inlet in the frontage road located just east of the rail road tracks . This inlet and one inlet in west bound Paseo Del Norte and one median type inlet located in the soil north of the roadway all outfall to a 24-inch CMP that outfalls into private property. Note that due to lack of curb at the rail road track crossing that flow in excess of the road flow spills north into private property.

Solution -

The recommended solution is to add two additional inlets about 20 feet east of the existing inlet in the frontage road and join these to the existing basin with a 24-inch CMP. The connection of the 24-inch pipe from the existing basin to the median inlet basin may remain, but then the existing 24-inch CMP from the median inlet basin into private property should be abandoned. A new 24-inch CMP should be installed from the median inlet to join the manhole that is located about 200 feet west of the rail road tracks. This manhole is the junction of the 42-inch CMP under Paseo Del Norte and the 33"R x 49" S CMP that continues west just north of the frontage road. This new 24-inch CMP will eliminate nearly all runoff from draining into private property.

This report recommends plugging the 42-inch CMP on the south side of Paseo Del Norte after proposed improvements P1 and P2 are built. This will allow plenty of capacity in the 33" R x 49" S CMP that continues past the referenced manhole.

Figure 4 illustrates the proposed locations and conceptual level plan view. **Table 5** presents a summary description of the existing problem and proposed solution(s), 100-yr. peak discharge and the conceptual level cost estimate. The quantity and cost estimates and hydraulic data and results are included in **Appendix C** and the cost total is summarized in **Table 11**.

Proposed Improvement Phase 7 (P7) (See Figure 1B)

North Paseo Del Norte Frontage Road at Turn Lane into Private Property

Problem -

At present, approximately 80 percent of the storm runoff in the north bound frontage road at this private driveway (located about 500 feet east of the N. Div. Channel) drains into the private driveway.

Solution -

The recommended solution is to add three additional curb inlets about 20 feet east of the driveway. These inlets could be joined to the existing 33" R x 49" S CMP located just north of the north frontage road. **Figure 4** illustrates the proposed locations and conceptual level plan view. **Table 5** presents a summary description of the existing problem and proposed solution(s), 100-yr. peak discharge and the conceptual level cost estimate. The quantity and cost estimates and hydraulic data and results are included in **Appendix C** and the cost total is summarized in **Table 12**.

Proposed Improvement Phase 8 (P8) (See Figure 1B)

North Paseo Del Norte Frontage Road just east of N. Diversion Channel

Problem -

At present there is only 1 curb inlet at this location that outfalls to a 24-inch CMP into the North Diversion Channel. Some flow escapes this inlet and passes west across the North Diversion Channel.

Solution -

The recommended solution is to add one additional curb inlet about 20 feet east of the existing inlet. This include could outfall into a 24-inch CMP that would outfall to the existing drainage ditch that is the outfall for the existing 33"R x 49"R CMP. This will collect most of the 100-yr. flow. **Figure 4** illustrates the proposed locations and conceptual level plan view. **Table 5** presents a summary description of the existing problem and proposed solution(s), 100-yr. peak discharge and the conceptual level cost estimate. The quantity and cost estimates and hydraulic data and results are included in **Appendix C** and the cost total is summarized in **Table 13**.

Proposed Improvement Phase 9 (P9) (See Figure 1B)

West Bound Paseo Del Norte Frontage Road just east of N. Diversion Channel

Problem -

At present there is only 1 median type inlet at this location that outfalls to a 24-inch CMP into the North Diversion Channel. Some flow escapes this inlet and passes west across the North Diversion Channel.

Solution -

The recommended solution is to add one additional inlet about 20 feet east of the existing inlet and join this basin to the existing basin with a 24-inch CMP. This will collect most of the 100-yr. flow. **Figure 4** illustrates the proposed locations and conceptual level plan view. **Table 5** presents a summary description of the existing problem and proposed solution(s), 100-yr. peak discharge and the conceptual level cost estimate. The quantity and cost estimates and hydraulic data and results are included in **Appendix C** and the cost total is summarized in **Table 14**.

SECTION 4

RECOMMENDATIONS

4.1 PROPOSED IMPROVEMENTS COST SUMMARY AND RECOMMENDATIONS

Table 5 presents a summary of the existing drainage problems and proposed drainage improvements and cost estimates based on conceptual design. Please see **Figures 1A and 1B** for a schematic representation of the existing conditions and proposed improvements.

PROPOSED IMPROVEMENTS COST SUMMARY AND RECOMMENDATIONS

Proposed Improvement P1 (84" RCP and overflow channel spillway section)- $192,000
(about $48,000 are improvements within El Pueblo Rd.)
will prevent flooding of El Pueblo Rd. at the North Diversion Channel.

Proposed Improvement P2A (reinforced concrete channel) - $583,000
will prevent flooding of El Pueblo Rd. at the western most railroad crossing.

Proposed Improvement P3A (reinforced concrete channel) -$220,000
will prevent failure of the Paseo Del Norte traffic barrier wall and asphalt.

Proposed Improvement P4 (66" RCP) – $328,000
will eliminate flooding of El Pueblo Rd. near the. eastern most railroad crossing.

Total Cost of Phase 1 through 4 Improvements for El Pueblo Road = $1,323,000