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SARASOTA COUNTY

CLARK ROAD CORRIDOR
(From Seminole Gulf Railroad
to Fielding Road)

DRAINAGE STUDY

Prepared for:

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1.0 INTRODUCTION

The purpose of this drainage study is to assist Sarasota County in the preparation of the drainage element of Sarasota County Critical Area Plan No. 91-02-SP (Clark Road Corridor Plan).

The portion of the Clark Road Corridor which lies between the Seminole Gulf Railroad and Fielding Road is situated in the Catfish Creek Watershed and located upstream of the Palmer Ranch development as mapped on EXHIBIT 1 (Existing Drainage Conditions). This EXHIBIT also identifies the various Catfish Creek subbasins which drain to, through, or adjacent to Clark Road. The coastal construction line and the West Coast Inland Navigation District boundary do not extend into the Sector Plan area.

Drainage basin and subbasin boundaries were delineated upon the review of several sources including; Southwest Florida Water Management District (SWFWMD) 1-foot contour aerials, previous basin delineations by the Palmer Ranch, Sarasota County, and the Florida Department of Transportation (FDOT), and development plans for the area. While these delineations are based upon the best available information and are considered to be of reasonable accuracy, further or more detailed studies should include a verification of any applicable delineations.

The Sector Plan area does not lie within a designated or regulatory floodplain. However, under existing conditions flooding of Clark Road has been observed in the vicinity of the Clark Road Industrial Center entrance. Also flooding has been reported downstream in portions of the Brannen Pre-Stress cement plant.

A discussion of existing drainage conditions for each of the Sector Plan subbasin areas is provided in Section 2.

[redacted] Section 4 provides an overview of the computer modeling approach. The computer results for the drainage analyses (existing and proposed conditions) are provided in the APPENDIX.

2.0 DESCRIPTION OF EXISTING AND PROPOSED DRAINAGE CONDITIONS

The portion of the Clark Road corridor located between the Seminole Gulf railroad and Fielding Road is situated in the Catfish Creek watershed. Approximately 792.5 acres, commonly referenced herein as the Clark Road drainage basin, constitute the headwaters of the Catfish Creek watershed. Under present conditions approximately 669.1 acres either drain to or through the Clark Road drainage system while approximately 123.4 acres are located downstream of Clark Road. Drainage conditions in this later area were considered as part of the Clark Road corridor drainage study because the Clark Road drainage system is influenced by, if not dependent on such.

From discussions with FDOT, the Clark Road improvements plan to accept approximately 110.7 acres into the proposed storm sewer system. This area would then be conveyed to a proposed stormwater management lake for stormwater treatment and flood control. The remaining upstream area of approximately 558.4 acres will by-pass the proposed Clark Road storm sewer system but will be routed to its present outfall location.

In all, twenty (20) subbasins were identified in the Clark Road drainage basin of the Catfish Creek watershed. Descriptions of both existing and proposed drainage conditions for each of these subbasins are provided in this Section. These subbasins are categorized into one of the following two (2) headings:

1. Upstream Subbasins (Subbasins which presently drain to or through Clark Road)
2. Downstream Subbasins (Subbasins which presently drain from Clark Road)

2.1 UPSTREAM SUBBASINS

2.1.1 SUBBASIN CLRK-101

Existing Conditions

This subbasin lies north of Clark Road, contains approximately 104 acres, and is presently less than 15% developed. It is serviced by 3 - 18" x 29" CMP cross-drain culverts located beneath Clark Road, just west of Honore Avenue. Primary SCS soils in this subbasin include poorly to very poorly drained EauGallie fine sand, poorly drained Ona fine sand, and poorly drained Smyrna fine sand. Hydrodynamic modeling of the existing drainage conditions, resulted in the following flood stages and discharges computed upstream of the Clark Road cross-drains:

Frequency	Stage	Discharge
2-yr	31.37	19 cfs
5-yr	31.81	31 cfs
10-yr	32.20	40 cfs
25-yr	32.68	49 cfs

Since the lowest centerline pavement grade at Clark Road in this location is ± 33.0 NGVD, these existing cross-drains appear to adequately accommodate the adopted 25-year level of service.

Proposed Conditions

Improvements to Clark Road will likely include the replacement of the triple 18" x 30" CMP cross-drain culverts to pass the 104 acre subbasin under Clark Road. However, FDOT is also considering as an alternative, the acceptance of drainage from this 104 acre subbasin into their storm sewer system. Under this scenario, the entire subbasin would co-mingle with Clark Road drainage and thereby be accommodated in an FDOT detention pond proposed south of a large hardwood swamp located west of Honore Avenue.

2.1.2 SUBBASIN CLRK-102

Existing Conditions

This subbasin of approximately 35 acres lies north of Clark Road and directly west of subbasin 104. At present, it is less than 10% developed. Flows from this subbasin are serviced by a single 18" RCP cross-drain culvert located approximately 650' west of Honore Avenue. Primary SCS soils in this subbasin include poorly to very poorly drained Eaugallie fine sand and poorly drained Ona fine sand. Hydrodynamic modeling of existing drainage conditions resulted in similar flood stages and conclusions as those developed for subbasin 104.

Proposed Conditions

Discussions with FDOT indicate that runoff from this area will be accommodated in their proposed storm sewer system for Clark Road. Stormwater will then be directed to a ± 7 acre detention pond proposed east of the Seminole Gulf railroad and north of future Sawyer Loop Road.

2.1.3 SUBBASIN CLRK - 301

Existing Conditions

This subbasin lies west of subbasin CLRK-102 and north of Clark Road. It is less than 10% developed and contains approximately 34 acres. Drainage from this area is directed west along the north side of Clark Road to 2 - 24" RCP cross-drain culverts located 1700 feet east of the Seminole Gulf railroad. Restrictions downstream and inadequate capacity at the cross-drain location result in the flooding of Clark Road under existing conditions. Existing flood stages as simulated by the hydrodynamic model are summarized below:

Frequency	Stage
2-yr	26.25
5-yr	26.56
10-yr	26.60
25-yr	26.64

Since Clark Road would be over-topped at elevation ± 26.4 NGVD, storms of somewhat greater magnitude than the 2-year event can be expected to flood Clark Road under existing conditions. Therefore, the existing level of service provided to this subbasin is somewhere between a 2-year and 5-year storm event.

Proposed Conditions

Discussions with FDOT indicate that runoff from this area will be accommodated by the proposed storm sewer system for Clark Road. This runoff, as well as that from subbasin CLRK-102, will be directed to a ± 7 acre detention pond proposed east of the Seminole Gulf Railroad and north of future Sawyer Loop Road.

2.1.4 SUBBASIN CLRK-302

Existing Conditions

This subbasin of 188 acres lies north of Clark Road and west of subbasin CLRK-301. It is less than 10% developed and outfalls ultimately to the twin 24" RCP cross-drain culverts presently located 1700 feet east of the Seminole Gulf railroad. As previously indicated, the limited capacity of these cross-drains, restricts the existing level of service provided to this subbasin to somewhere between a 2-year and 5-year storm event. Primary SCS soils in this subbasin include poorly to very poorly drained EauGallie fine sand, poorly drained Ona fine sand, and poorly to very poorly drained Holopaw fine sand, depressional.

Proposed Conditions

Discussions with FDOT indicate that subbasin CLRK-302 will not be intercepted by the proposed Clark Road storm sewer system. Instead, the existing 2 - 24" RCP cross-drain culverts presently located 1700 feet east of the Seminole Gulf railroad will be relocated 800 feet further to the east to align with the existing outfall location of subbasin CLRK-302. An outfall ditch is proposed by FDOT as part of the Clark Road improvement project to convey this stormwater along the south side of Clark Road to the ultimate outfall ditch located at the west property line of the Clark Road Industrial Center.

2.1.5 SUBBASIN CLRK-303

Existing Conditions

This subbasin contains approximately 30 acres. It lies north of Clark Road, west of subbasin CLRK-302, and is serviced by the same 2 - 24" RCP cross-drains which service subbasin CLRK-302. Although approximately 25% of this basin is developed, some stormwater detention areas currently exist and likely mitigate increases in discharge rates to some degree. Primary SCS soils in this subbasin consist of poorly to very poorly drained EauGallie fine sand.

Proposed Conditions

Discussions with FDOT indicate that runoff from this area will be accommodated by the proposed Clark Road storm sewer system. This runoff, as well as that from subbasins CLRK-102 and CLRK-301 will be directed to a ± 7 acre detention pond proposed east of the Seminole Gulf Railroad and north of future Sawyer Loop Road.

2.1.6 SUBBASIN CLRK-305

Existing Conditions

This subbasin of approximately 7.2 acres lies north of Clark Road and west of subbasin CLRK-306. Although it is over 50% developed, drainage is not well-defined. Runoff from this basin is serviced by 2 - 24" RCP cross-drain culverts located 1100 feet east of the Seminole Gulf railroad. Since these culverts are hydraulically connected to the 2 - 24" RCP cross-drain culverts located 1700 feet east of the Seminole Gulf railroad by an existing drainage ditch along the north side of Clark Road, they are subject to the same allowable headwater elevation and thereby limit the existing level of service provided to this subbasin to somewhere between a 2-year and 5-year storm. Primary SCS soils in this subbasin consist of poorly to very poorly drained EauGallie fine sand.

Proposed Conditions

Discussions with FDOT indicate that runoff from this subbasin will not be accepted by the proposed storm sewer system design for Clark Road. Instead it is proposed that runoff from this subbasin will continue to outfall to 2 - 24" cross-drain culverts which will be replaced at their approximate location (± 1100' east of the Seminole Gulf railroad). As such, conveyance improvements at this location, and downstream are required to assure that a 25-year flood level of service can be accommodated.

2.1.7 SUBBASIN CLRK-306

Existing Conditions

Subbasin CLRK-306 is located north of Clark Road and west of subbasins CLRK-302 and CLRK-303. This ± 200 acre subbasin is over 25% developed. Although several roadside and lateral ditches are located in this subbasin, surface drainage is generally not well defined. In addition, several portions of the ditches have been enclosed with pipe culverts which may act to restrict flows. However, for the purpose of analyzing existing conditions, these potential upstream flow restrictions have been ignored.

This subbasin is serviced by the 2 - 24" RCP cross-drain culverts located approximately 1100' east of the Seminole Gulf Railroad. As previously discussed, under existing conditions these culverts are capable of providing a level of service equatable to somewhere between a 2-year and 5-year storm. Primary SCS soils in this subbasin include poorly to very poorly drained EauGallie fine sand, poorly drained Smyrna fine sand, poorly drained Ona fine sand, and poorly to very poorly drained Holopaw fine sand, depressional.

Proposed Conditions

Discussions with FDOT indicate that runoff from this subbasin will not be intercepted by the proposed storm sewer system for Clark Road, but would continue to be accommodated by the twin 24" RCP cross-drain culvert replacements located approximately 1100' east of the Seminole Gulf railroad. As such, conveyance improvements at this location, and downstream are required to assure that a 25-year flood level of service can be accommodated.

2.1.8 SUBBASIN CLRK-501

Existing Conditions

Subbasin CLRK-501 is located south of Clark Road and west of Honore Avenue. This ± 14.2 acre subbasin is presently undeveloped and contains the upper portion of an existing hardwood swamp. This existing swamp is connected to a large swamp system downstream by a man-made ditch. Primary SCS soils in this subbasin include poorly to very poorly drained EauGallie fine sand, poorly drained Ona fine sand, and poorly to very poorly drained Holopaw fine sand, depressional.

Proposed Conditions

Since the intersection of Clark Road and Honore Avenue is designated as Village Activity Center in the Sarasota County Comprehensive Plan - Future Land Use Plan Map, it is anticipated that this subbasin will eventually be converted into office and/or commercial type land uses. However, the proposed drainage conditions analysis for the Clark Road Corridor Plan did not consider these site specific land use changes. Such investigations would more appropriately occur during the Sector Planning process for this Village Activity Center, and should be considered within the context of this more comprehensive analysis.

2.1.9 SUBBASIN CLRK-502

Existing Conditions

This subbasin contains approximately 3.1 acres and lies south of Clark Road and east of Honore Avenue. Drainage from this subbasin is west to Honore Avenue and then south to the upper swamp system located in subbasin CLRK-501. Primary SCS soils in this subbasin include poorly to very poorly drained EauGallie fine sand, poorly drained Smyrna fine sand, and poorly drained Ona fine sand.

Proposed Conditions

Since the intersection of Clark Road and Honore Avenue is designated as a Village Activity Center in the Sarasota County Comprehensive Plan - Future Land Use Plan Map, it is anticipated that this subbasin will eventually be converted into office and/or commercial type land uses. However, the proposed drainage conditions analysis for the Clark Road Corridor Plan did not consider these site specific land use changes. Such investigations would more appropriately occur during the Sector Planning process for this Village Activity Center, and should be considered within the context of this more comprehensive analysis.

2.1.10 SUBBASIN CLRK-601

Existing Conditions

Subbasin CLRK-601 is located south of Clark Road and west of subbasin CLRK-501. This ± 50.4 acre subbasin is presently undeveloped and contains the lower portion of an existing hardwood swamp. However, the center of this swamp has been severed by a man-made ditch which eventually discharges into the existing southern drainage swale of Clark Road, across from Jem Lane. Primary SCS soils in this subbasin include poorly to very poorly drained EauGallie fine sand and poorly to very poorly drained Holopaw fine sand, depressional.

Proposed Conditions

As part of the approved master drainage plan for the Palmer Ranch DRI, the outfall ditch to the large hardwood swamp is to be relocated and redirected to enter the Clark Road drainage system several hundred feet east of its present location. As such, this ditch outfall will generally align itself with the outfall ditch to the north which services subbasin CLRK-302. A ditch is proposed along the south side of Clark Road by FDOT as part of the Clark Road improvement project. This proposed ditch will convey flows from Clark Road subbasins CLRK-101, CLRK-302, CLRK-501, and CLRK-601 to the primary outfall ditch for entire Clark Road drainage basin located along the west side of the Clark Road Industrial Center.

2.1.11 SUBBASIN CLRK-701

Existing Conditions

Subbasin CLRK-701 lies south of Clark Road and west of subbasin CLRK-601. This ± 1.8 acre subbasin represents the portion of the Clark Road Industrial Center which fronts Clark Road. Under existing conditions, runoff from this area is from east to west along the south side of Clark Road. It flows to the primary outfall ditch for the Clark Road subbasin which is located at the westerly property line of Clark Road Industrial Center. Primary SCS soils in this subbasin are poorly to very poorly drained EauGallie fine sand and Holopaw fine sand, depressional.

Proposed Conditions

Discussions with FDOT indicate that the improvement plans for Clark Road propose the relocation and reconfiguration of an outfall ditch along the south side of Clark Road in the general location of this subbasin. Therefore, runoff from this subbasin will continue to be conveyed to the primary outfall ditch for the Clark Road subbasin.

2.1.12 SUBBASIN CLRK-800

Existing Conditions

This subbasin is located south of Clark Road and west of subbasin CLRK-701. It contains approximately 1.4 acres and fronts on Clark Road. Runoff from this developed area is conveyed from west to east along the south side of Clark Road and discharges to the primary outfall ditch for the Clark Road subbasin located along the westerly boundary of the Clark Road Industrial Center. Primary SCS soils in this subbasin include poorly to very poorly drained EauGallie fine sand and poorly to very poorly drained Holopaw fine sand, depressional.

Proposed Conditions

It is anticipated that runoff from this subbasin will be accepted by the storm sewer system proposed by FDOT in association with the Clark Road improvements. As such, stormwater from this subbasin would be ultimately conveyed to the FDOT stormwater facility proposed east of the Seminole Gulf railroad and north of the future Sawyer Loop Road.

2.2 DOWNSTREAM SUBBASINS

2.2.1 SUBBASIN CLRK-801

Existing Conditions

This subbasin is located south of subbasin CLRK-800 and west of the Clark Road Industrial Center. It is substantially developed as an industrial area and contains approximately 16.4 acres. Runoff is from west to east where it ultimately discharges into the primary outfall ditch located along the eastern boundary of this subbasin. Minimal pre-treatment of runoff occurs prior to discharge. Primary SCS soils in this subbasin consist of poorly to very poorly drained EauGallie fine sand and poorly to very poorly drained Holopaw fine sand, Depressional.

Proposed Conditions

Since this subbasin is already substantially developed, no additional land use changes are anticipated. However, improvements to the ditch segment located along the eastern boundary of this subbasin are needed to accommodate the adopted 25-year storm level of service for the Clark Road drainage basin.

2.2.2 SUBBASIN CLRK-803

Existing Conditions

Subbasin CLRK-803 contains approximately 11.5 acres and is located west and south of subbasin CLRK-801. Runoff from this existing concrete plant area receives minimal pre-treatment prior to discharging into the receiving drainage system. This subbasin is split by segments of the existing primary outfall ditch for the Clark Road drainage basin. An existing 48" CMP conveys flows from this ditch system to a drainage ditch located along the east side of the Seminole Gulf railroad. This 48" CMP culvert does not adequately convey large storm events. Reports of surcharging at the upstream end of this 48" CMP culvert and resulting sheet overland flow have been confirmed by the existing drainage conditions analysis. The primary SCS soil in this subbasin is poorly to very poorly drained EauGallie fine sand.

Proposed Conditions

No additional land use or conveyance improvements are anticipated within this subbasin. However, a secondary relief outfall from the north-south portion of the primary outfall ditch for the Clark Road drainage basin to a regional stormwater management retention/detention facility is recommended to relieve flooding in this area and to reduce restrictive tailwater elevations upstream. Implementation of this recommendation was analyzed under a proposed drainage conditions scenario and can be expected to reduce flooding currently experienced in this subbasin and provide significant water quality benefits to subbasins CLRK-801, CLRK-803, and CLRK-806. Runoff from these subbasins currently receive minimal pre-treatment prior to discharging into the receiving Catfish Creek drainage system and would benefit from diversion into the proposed regional retention/detention facility.

2.2.3 SUBBASIN CLRK-804

Existing Conditions

Subbasin CLRK-804 contains approximately 3.4 acres and lies between the Seminole Gulf railroad and subbasin CLRK-803. Runoff from this portion of an existing concrete plant currently drains to the drainage ditch located along the east side of the Seminole Gulf railroad. The primary SCS Soil in this subbasin is poorly to very poorly drained EauGallie fine sand.

Proposed Conditions

No land use or drainage modifications are anticipated or proposed within this subbasin.

2.2.4 SUBBASIN CLRK-805

Existing Conditions

Subbasin CLRK-805 contains approximately 2.2 acres and is located south of subbasin CLRK-804. This subbasin contains a portion of an existing concrete plant and is adjacent to the Seminole Gulf railroad. Runoff from this subbasin currently drains to the drainage ditch located along the east side of the Seminole Gulf railroad. The primary SCS soil in this subbasin is poorly to very poorly drained EauGallie fine sand.

Proposed Conditions

No land use of drainage modifications are anticipated or proposed within this subbasin.

2.2.5 SUBBASIN CLRK-806

Existing Conditions

This subbasin contains approximately 15.3 acres and is located south of subbasin CLRK-803 and west of subbasin CLRK-809. The northern portion of this subbasin is currently under industrial land uses and is part of the Brannen Pre-Stress concrete plant. However, the southern portion of this subbasin is currently undeveloped. This southern portion is a low-lying area which has been identified through the computer modeling to be very susceptible to flooding. Runoff from this subbasin ultimately flows through one of two cross-drain culverts located beneath the Seminole Gulf railroad. Primary SCS soils in this subbasin include poorly to very poorly drained EauGallie fine sand and poorly drained Felda fine sand depressional.

Proposed Conditions

The flood prone characteristics of the southern portion of this subbasin make it a likely candidate for inclusion in a regional stormwater management retention/detention facility. In addition, the incorporation of this area with an existing stormwater lake immediately to the east which services the Clark Road Industrial Center and a stormwater lake proposed by FDOT to the immediate south would provide a logical regional or co-use facility.

2.2.6 SUBBASIN CLRK-809

Existing Conditions

Subbasin CLRK-809 contains the Clark Road Industrial Center. Most, but not all of the lots in this ± 40.2 acre project are currently developed. An existing stormwater lake is also contained in the southern portion of this subbasin. Primary SCS soils in this subbasin include poorly to very poorly drained EauGallie fine sand and poorly drained Holopaw fine sand, Depressional.

Proposed Conditions

It is conceptually proposed that the existing stormwater pond in this subbasin be incorporated into a larger regional stormwater management retention/detention system.

2.2.7 SUBBASIN CLRK-901

Existing Conditions

Subbasin CLRK-901 contains approximately 12.3 acres and is located east of McIntosh Road, south of Clark Road and west of the Seminole Gulf railroad. This subbasin is presently not developed. Runoff from this subbasin is ultimately conveyed south to the Seminole Gulf railroad spur. Existing culverts under this spur discharge to the Catfish Creek public drainage system located within the Palmer Ranch development. SCS soils in the subbasin predominately consist of poorly to very poorly drained EauGallie fine sand.

Proposed Conditions

No land use or drainage modifications are anticipated or proposed in this subbasin, at this time.

2.2.8 SUBBASIN CLRK-902

Existing Conditions

Subbasin CLRK-902 contains approximately 22.1 acres of industrial land uses. It is bounded by subbasin CLRK-901 to the north, the Seminole Gulf railroad to the east, the Seminole Gulf railroad spur to the south, and McIntosh Road to the west. Runoff from this subbasin is conveyed south to the Seminole Gulf railroad spur. Existing culverts under this spur discharge to the Catfish Creek public drainage system located within the Palmer Ranch development. Historically, the southern portion of this subbasin has been susceptible to flooding to the degree that McIntosh Road, which currently defines the Catfish Creek/Matheny Creek basin ridge line would be overtopped. SCS soils in this subbasin predominately consist of poorly to very poorly drained EauGallie fine sand and poorly to very poorly drained Holopaw fine sand, depressional.

Proposed Conditions

In order to prevent cross-basin flows from the Catfish Creek drainage basin to the Matheny Creek drainage basin and to prevent McIntosh Road from flooding, it is recommended that when McIntosh Road is improved in this area that it be elevated to ± 21.5 NGVD or above. In addition, it is conceptually proposed that the upstream end of the existing 36" RCP culvert located beneath the Seminole Gulf railroad spur be hydraulically connected to the upstream end of the 48" RCP culvert also located beneath the spur line ± 800 feet to the east. Finally, flood storage in this subbasin which is currently available below elevation 21.0 NGVD should not be displaced with future land use changes.

3.0 CONCLUSIONS AND RECOMMENDATIONS

From the existing conditions analyses, the drainage system for the Clark Road drainage system performs at an acceptable level of service for a 2-year, 24-hour storm event. A 5-year, 24-hour storm event under existing conditions would result in the flooding of both Clark Road and McIntosh Road. Therefore, unless drainage improvements as discussed herein are implemented to accommodate the 25-year, 24-hour design storm, future discharge rates from the Clark Road drainage basin should be limited to those generated by a 2-year, 24-hour storm event in order to minimize adverse flooding of the public roadway facilities. It is suspected, and may be worth confirming that the existing drainage system for the Clark Road drainage basin may be capable of accommodating a 3-year, 24-hour storm.

In order to provide a drainage level of service which would accommodate the 25-year design storm the following improvements are recommended:

3.1 ELEVATE MCINTOSH ROAD NORTH OF THE RAILROAD SPUR CROSSING TO ELEVATION ± 21.5 NGVD. - MATHENY CREEK BASIN STUDY

Under existing conditions this roadway segment is overtopped at elevation ± 20.2 NGVD. This overflow would occur from east to west, effectively resulting in a cross-basin transfer from the Catfish Creek watershed to the Matheny Creek watershed.

A flood stage of 20.9 NGVD was recorded just downstream of the railroad spur in early September of 1988. However, based upon drainage improvements completed downstream of the railroad spur by the Palmer Ranch in 1991, the computed flood stages which could be expected under existing conditions for the various design storms are summarized below:

Frequency	Stage	Catfish Creek Discharge
2-yr	19.15 NGVD	102 cfs
5-yr	20.24 NGVD	143 cfs
10-yr	20.35 NGVD	147 cfs
25-yr	20.40 NGVD	149 cfs

If the subject section of McIntosh Road is elevated at or above 21.5 NGVD and the other drainage improvements discussed in this Section are implemented, the resulting 25-year flood stage upstream of the Seminole Gulf railroad as predicted by the proposed drainage conditions analysis is 20.28 NGVD. This computed elevation would still be lower than the 20.9 NGVD elevation recorded in early September of 1988, prior to the completion of the downstream improvements.

3.2 HYDRAULICALLY CONNECT THE UPSTREAM END OF THE EXISTING 36" RCP CULVERT LOCATED BENEATH THE SEMINOLE GULF RAILROAD SPUR TO THE UPSTREAM END OF THE 48" RCP CULVERT ALSO LOCATED BENEATH THE RAILROAD SPUR. – COUNTY

This will assure that both existing culverts will convey flows during the design storm and reduce adverse impacts associated with restrictive tailwater elevations to the existing and proposed drainage system located upstream.

This hydraulic connection could be facilitated by reshaping the drainage swale located on the north side of the railroad spur so that its inverts match the upstream inverts of the two RCP culverts.

3.3 **REPLACE THE EXISTING 48" CMP CULVERT LOCATED BENEATH THE MAIN SEMINOLE GULF RAILROAD LINE AND APPROXIMATELY 2900' SOUTH OF CLARK ROAD WITH A 48" RCP CULVERT.** - COUNTY

This will reduce adverse impacts associated with restrictive tailwater elevations to the existing and proposed drainage system located upstream. As conceptually planned and analyzed, the upstream and downstream water surface elevations for the design storm resulting from this improvement are 21.80 NGVD and 20.28 NGVD, respectively.

3.4 **CONSTRUCT A REGIONAL STORMWATER DETENTION/RETENTION FACILITY UPSTREAM OF THE MAIN SEMINOLE GULF RAILROAD LINE. THE DETENTION CAPACITY OF THIS FACILITY SHOULD BE APPROXIMATELY 55 ACRE-FEET WITH AN ALLOWABLE FLOOD STAGE OF ± 22.0 NGVD FOR THE DESIGN STORM.** - COUNTY

At present a stormwater lake of approximately 3.5 acres currently exists in the area. This pond was constructed in association with the Clark Road Industrial Center. A ± 7.0 acre stormwater lake is also proposed in this area by FDOT to accommodate drainage from Clark Road and the additional drainage areas which will be accepted by the proposed Clark Road storm sewer system. By combining these two stormwater lake systems and expanding into other adjacent undeveloped areas, it is feasible that the design specifications for the regional stormwater retention/detention facility can be obtained.

It should be pointed out that the general area proposed for this regional stormwater retention/detention system is extremely susceptible to flooding under existing conditions.

Implications of diverting drainage areas north of Clark Road to this regional retention/detention facility by FDOT need to carefully analyzed. However, the potential relief that would be provided to upstream cross-drains under Clark Road by the diversion makes this a viable proposal. Sufficient detention storage at the diversion outfall (i.e. proposed FDOT lake location) should be provided to mitigate potential increases in flood stages caused by the diversion of additional flows.

As conceptually planned and analyzed, the flood stage in the regional stormwater retention/detention area for the design storm is 21.92 NGVD.

3.5 PROVIDE ADDITIONAL OUTFALL CAPACITY UNDER THE RAILROAD TO THE CATFISH CREEK MAIN. DONE - FDOT

This improvement would involve constructing an adequate conveyance along the east side of the Seminole Gulf railroad to an existing 36" RCP cross drain located ± 4,800' south of Clark Road and improving an existing lateral ditch which would convey flows from the 36" RCP cross drain to the Catfish Creek Main. [redacted] The upstream facility could possibly incorporate one or both isolated wetlands located nearby and the downstream facility could include an existing borrow pit lake.

Adequate conveyance along the eastside of the railroad line would include a 38" x 60 RCP culvert under future Sawyer Road and a typical ditch section with a bottom width of 15 feet and 4:1 side slopes.

The 36" RCP culvert under the railroad line should be replaced with a 48" RCP and the lateral ditch downstream of this culvert should have a typical cross-section with a bottom width of 15 feet and 4:1 side slopes.

The feasibility of the improvements identified under this recommendation could be greatly facilitated if Sarasota County purchases the Seminole Gulf railroad right-of-way.

As conceptually planned and analyzed, the water surface elevations resulting from these improvements for the design storm are provided below:

Component	Downstream Water Surface Elevation
Proposed 48" RCP cross-drain at Railroad	19.16
Proposed ditch along eastside of Railroad	21.29
Proposed 38" x 60" RCP under Sawyer Road	21.32

3.6 CONSTRUCT ADEQUATE ENCLOSED CONVEYANCE STRUCTURES BETWEEN THE SOUTHERN HALF OF THE EXISTING CONCRETE PLANT AND CLARK ROAD INDUSTRIAL CENTER TO THE REGIONAL RETENTION/DETENTION FACILITY. (CONCEPTUALLY, 1000 FEET OF TWIN 53" X 83" RCP CULVERTS ARE RECOMMENDED.) - COUNTY

The purpose of these culverts is to direct stormwater flows from the Clark Road drainage area to the regional stormwater retention/detention facility. At present, the primary outfall ditch for the Clark Road drainage area takes a 90° turn approximately 1250 feet south of Clark Road. Stormwater must then pass through ± 265' of 48" CMP culvert to a ditch located along the east side of the Seminole Gulf railroad line. This 48" CMP culvert severely restricts flows and results in flooding due to excessive headwater depth. The proposed diversion culverts would convey a significant amount of runoff to the regional stormwater retention/detention facility, providing both flood control and water quality benefits. The later is an important consideration since much of the stormwater runoff from this area is from industrial land uses which receive minimal pre-treatment before entering the Catfish Creek conveyance system.

As conceptually planned and analyzed, the upstream and downstream water surface elevations for the design storm are 22.47 NGVD and 21.92 NGVD, respectively.

3.7 ENLARGE APPROXIMATELY 1250' OF THE DITCH SEGMENT WHICH IS LOCATED BETWEEN THE NORTHERN HALF OF THE EXISTING INDUSTRIAL COMMERCE PARK AND CLARK ROAD INDUSTRIAL CENTER. - COUNTY

The purpose of these improvements is to increase the conveyance capacity of the primary outfall ditch. As conceptually planned and analyzed, a typical cross-section with a 20 feet bottom and 2:1 side slopes resulted in the upstream and downstream water surface elevations for the design event of 23.69 NGVD and 22.47 NGVD, respectively.

3.8 REPLACE THE TWO EXISTING 24" RCP CULVERT CROSS-DRAINS LOCATED APPROXIMATELY 1100' EAST OF THE SEMINOLE GULF RAILROAD LINE WITH FOUR 24" RCP CULVERTS. - FDOT/DONE

The purpose of this improvement is to provide adequate conveyance for the design storm without flooding Clark Road or downstream areas. However, until downstream improvements are made, as previously identified, two out of four of the planned 24" RCP culverts should be blocked. Once fully operative, the upstream and downstream water surface elevations for the design storm would be 26.05 NGVD and 23.69 NGVD, respectively.

Pre FDOT improvements
upstream 26.53
downstream 24.74

3.9 CONSTRUCT ± 900' OF DITCH ALONG THE SOUTH SIDE OF CLARK ROAD BETWEEN THE DOWNSTREAM ENDS OF THE CLARK ROAD CROSS-DRAINS, REPLACE THE TWIN 19" X 30" RCP CULVERTS LOCATED AT THE CLARK ROAD INDUSTRIAL CENTER ENTRANCE WITH TWIN 2' X 5' BOX CULVERTS, AND CONSTRUCT TWIN 2' X 5' BOX CULVERTS AT THE FUTURE SAWYER LOOP ROAD ENTRANCE. FDOT

The purpose of this improvement is to increase the conveyance capacity and reduce water surface elevations between the downstream ends of the Clark Road cross-drains located 1100' and 1700' east of the Seminole Gulf railroad. However, it is noted that FDOT proposes to relocate the later crossing 2500' east of the Seminole Gulf railroad.

An improved ditch section along the southern portion of Clark Road is currently being designed by FDOT as part of the Clark Road improvement project. Review of preliminary FDOT design plans indicates that adequate right-of-way appears to be planned for this ditch construction. A typical section for this ditch includes a bottom width of 10 feet with 2:1 side slopes.

As conceptually planned and analyzed, the upstream and downstream water surface elevations resulting from these improvements for the design storm would be 25.45 NGVD and 23.69 NGVD, respectively.

3.10 REPLACE THE TWO EXISTING 24" RCP CULVERT CROSS-DRAINS TO BE RELOCATED APPROXIMATELY 2500' EAST OF THE SEMINOLE GULF RAILROAD LINE WITH FOUR 24" RCP CULVERTS. FDOT

The purpose of this improvement is to accommodate the design storm without flooding Clark Road or over-burdening the downstream system. However until such downstream improvements are made as previously discussed, two out of the four planned 24" RCP culverts should be blocked. Once fully operative, the upstream and downstream water surface elevations for the design storm would be 26.16 NGVD and 25.45 NGVD, respectively.

3.11 CONSTRUCT A STORMWATER RETENTION/DETENTION FACILITY ON-LINE TO THE OUTFALL DITCH FOR SUBBASIN CLRK-302.

This improvement is intended to provide some flow reduction from subbasin CLRK-302. The outfall ditch which services subbasin-302 has been observed to be very responsive to rainfall events. During intense storm, these flows are believed to contribute significantly to flooding in and around this area of Clark Road.

The detention capacity of this facility should be approximately 25 acre-feet with an allowable flood stage of ± 28.5 NGVD for the design storm. As conceptually planned and analyzed, this stormwater retention/detention facility would have a flood level of 28.49 NGVD for the design storm.

3.12 REGULATORY CONTROLS

The existing and proposed analyses are based upon certain hydrologic methodologies as discussed in Section 4.0. Implementation of recommendations 3.1 through 3.11 does not guarantee unlimited capacity. It is imperative that all new construction within the Clark Road Study area be consistent with the hydrologic methodologies used for the subject analyses. It is further recommended that future land use modification be analyzed within the context of the Clark Road basin network and that if alternative assumption or methodologies are employed, that they demonstrate erring on the conservative side.

RECOMMENDATION	FDOT TO IMPLEMENT	SARASOTA COUNTY TO IMPLEMENT
3.1		X
3.2		X
3.3		X
3.4	X	X
3.5	X	X
3.6		X
3.7		X
3.8	X	
3.9	X	
3.10	X	
3.11		X
3.12		X

4.0 MODELING APPROACH

4.1 LIMITS OF STUDY

As previously discussed, the area considered in the existing and proposed drainage analyses includes approximately 792.5 acres located at the headwaters of the Catfish Creek watershed. This entire drainage area, referred to as the Clark Road drainage basin, discharges via one of two culverts to the public drainage system constructed in the Palmer Ranch. Since the computed flood levels downstream of these two culverts for the design storm are below the critical depths, these culverts were considered as the downstream boundary condition for the analyses.

4.2 LIMITATIONS OF STUDY

Existing storage areas were taken from 1-foot contour areas and much of the culvert information was available from various sources. Additional field data was reviewed and obtained from the Florida Department of Transportation, Sarasota County, the Palmer Ranch, and applicable design drawings.

- REACH CLRK-802
- REACH CLRK-804
- REACH CLRK-805: These reaches are all segments of the existing primary outfall ditch which drains the Clark Road basin. Cross-sections were estimated from 1"=100', 1-foot contour aerials.

4.3 METHODOLOGY

The Advanced Interconnected Pond Routing (AdICPR) computer model was used to perform the hydrologic and hydraulic analyses.

4.3.1 HYDROLOGIC ANALYSIS

The SCS unit hydrographic component of AdICPR was used to generate hydrographs. To be consistent with the criteria of Sarasota County and the Southwest Florida Water Management District, the design storm selected to analyze the existing and proposed conditions was the 25-year, 24-hour event. Specifically, this storm volume is 8 inches distributed in accordance with the SCS Type II modified 24-hour rainfall distribution.

Hydrologic input parameters for each subbasin analyzed are summarized in TABLE 1.

4.3.1.1 Directly Connected Impervious Area and Runoff Curve Numbers

Since the amount of directly impervious area is estimated for each subbasin, the runoff curve numbers represent the weighted average of the non-directly connected impervious area and the pervious area.

4.3.1.2 Time of Concentration

Time of concentration for each subbasin was computed using the Kinematic Wave Formula as presented in SCS Technical Release 55.

4.3.1.3 Peak Rate Factors

Subbasin peak rate factors for undeveloped subbasins were taken as 150 based consistent with the hydrologic analyses performed in association with the most recent FEMA flood studies of Sarasota County.

For developed or partially developed subbasins, a peak rate factor of 256 was used. This higher peak factor was considered appropriate in consideration of increased response times to rainfall which occur with the impervious surfaces. However, it is also noted that some natural flood attenuation still occurs in these partially developed areas due to the flat, ill-defined topography and/or the presence of existing stormwater retention/detention areas. A peak rate factor of 256 is also consistent with the hydrologic analyses performed in association with the most recent FEMA flood studies of Sarasota County for partially (50%) developed areas.

4.3.2 HYDRAULIC ANALYSIS

Hydraulic input parameters for each portion of the existing or proposed drainage system analyzed are based upon the physical storage and conveyance facilities in the basin. Restrictions to flow, if they exist upstream of the Clark Road cross-drain culverts were ignored to provide for a conservative analysis. TABLE 2.0 inventories the various existing drainage structures considered in the analysis.

The hydraulic routing component of AdICPR allows for time-dependent, two-way flow computations. This hydrodynamic method is most appropriate for hydraulic settings such as the Catfish Creek basin. To facilitate this modeling approach a routing network of nodes (storage areas or non-storage areas) and reaches (pipes, ditches, weirs, etc.) are identified, quantified, and entered into the model. FIGURES 1 and 2 provide routing schematics developed for existing and proposed conditions, respectively.

SUBBASIN HYDROLOGIC CHARACTERISTICS					
BASIN	AREA(ACRES)	CN	DCIA(%)	T_c(MIN)	PRF
CLRK-101	104.0	70	7	219	150
CLRK-102	35.0	70	4	112	150
CLRK-301	34.0	70	4	191	150
CLRK-302	188.0	70	4	160	150
CLRK-303	30.0	74	22	66	256
CLRK-305	7.2	74	52	55	256
CLRK-306	200.0	72	27	241	256
CLRK-501	14.2	83	0	97	150
CLRK-502	3.1	80	0	90	256
CLRK-601	50.0	83	0	111	150
CLRK-701	1.8	90	0	15	256
CLRK-800	1.4	90	0	15	256
CLRK-801	16.4	91	0	30	256
CLRK-803	11.5	91	0	30	256
CLRK-804	3.4	84	0	15	256
CLRK-805	2.2	85	0	15	256
CLRK-806	15.3	89	0	77	256
CLRK-809	40.2	91	0	30	256
CLRK-901	12.3	75	0	173	150
CLRK-902	22.1	89	0	30	256

673903-1.M14(#7)

TABLE 1

INVENTORY OF CLARK ROAD DRAINAGE STRUCTURES					
LOCATION	SIZE	TYPE	LENGTH	U.S.INV.	D.S.INV.
Approximately 400' West of Railroad	18"	CMP	73'	26.6	24.0
Approximately 1100' East of Railroad	24" 24"	RCP RCP	41' 41'	21.6 21.5	21.0 20.9
Approximately 1700' East of Railroad	24" 24"	RCP RCP	55' 55'	22.3 22.2	22.1 22.3
Approximately 650' West of Honore Ave.	18"	RCP	50'	29.9	29.6
Approximately 25' West of Honore Ave.	18"x29" 18"x29" 18"x29"	CMP CMP CMP	46' 46' 46'	30.07 29.88 29.97	30.11 30.32 30.65
Approximately 10' East of Fielding Rd.	24"	RCP	40'	31.28	31.24

INVENTORY OF DRAINAGE STRUCTURES SOUTH OF CLARK ROAD					
LOCATION	SIZE	TYPE	LENGTH	U.S.INV.	D.S.INV.
Honore Avenue Approximately 650' South of Clark Rd.	18"	CMP	30'	29.3	29.8
Palmer Ranch Entrance	15"	RCP	48'	24.31	23.85
Palmer Ranch Entrance Approximately 250' South of Clark Rd.	30"	RCP	16'	22.82	22.86
Clark Road Industrial Park Entrance	19"x30" 19"x30"	RCP RCP	62' 62'	21.78 21.56	21.63 21.69
Industrial Outfall to Railroad, Approximately 1400' South of Clark Rd.	48"	CMP	265'	19.11	18.63
Railroad Culvert Approximately 2750' South of Clark Rd.	48"	CMP	57'	16.46	16.13
Railroad Culvert Approximately 2900' South of Clark Road	36"	RCP	34'	17.08	16.90
Railroad Culvert Approximately 4800' South of Clark Rd.	36"	RCP	33'	17.44	17.56

673903-2.M14(#7)

TABLE 2

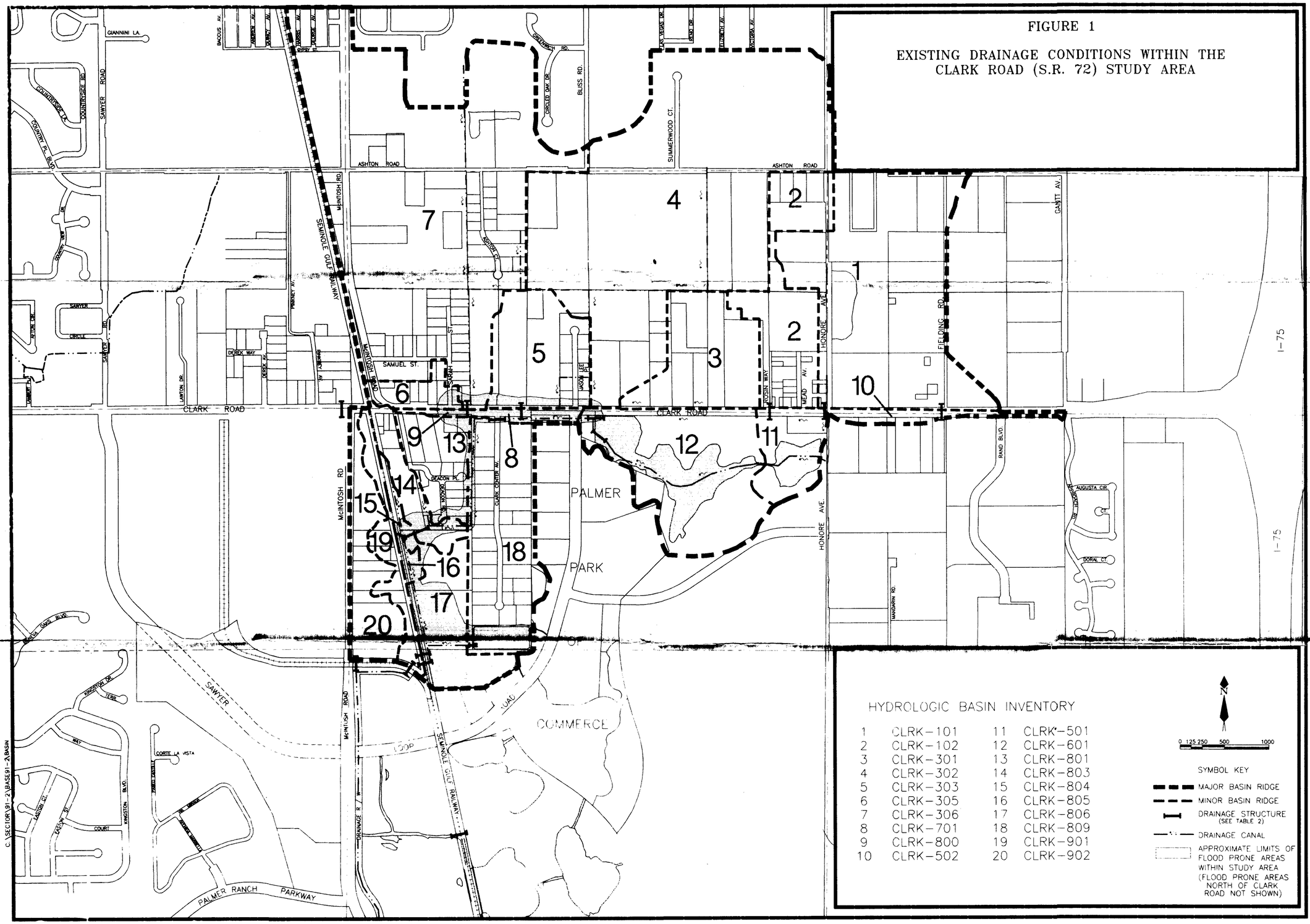

FIGURE 1

EXISTING DRAINAGE CONDITIONS WITHIN THE CLARK ROAD (S.R. 72) STUDY AREA

C:\SECTOR\91-2\BASE91-2\BASIN

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Project No.
SCALE: 1=500
Checked By:
Date:
Drawn By:
Plot Index:
Design By:
CADD File:

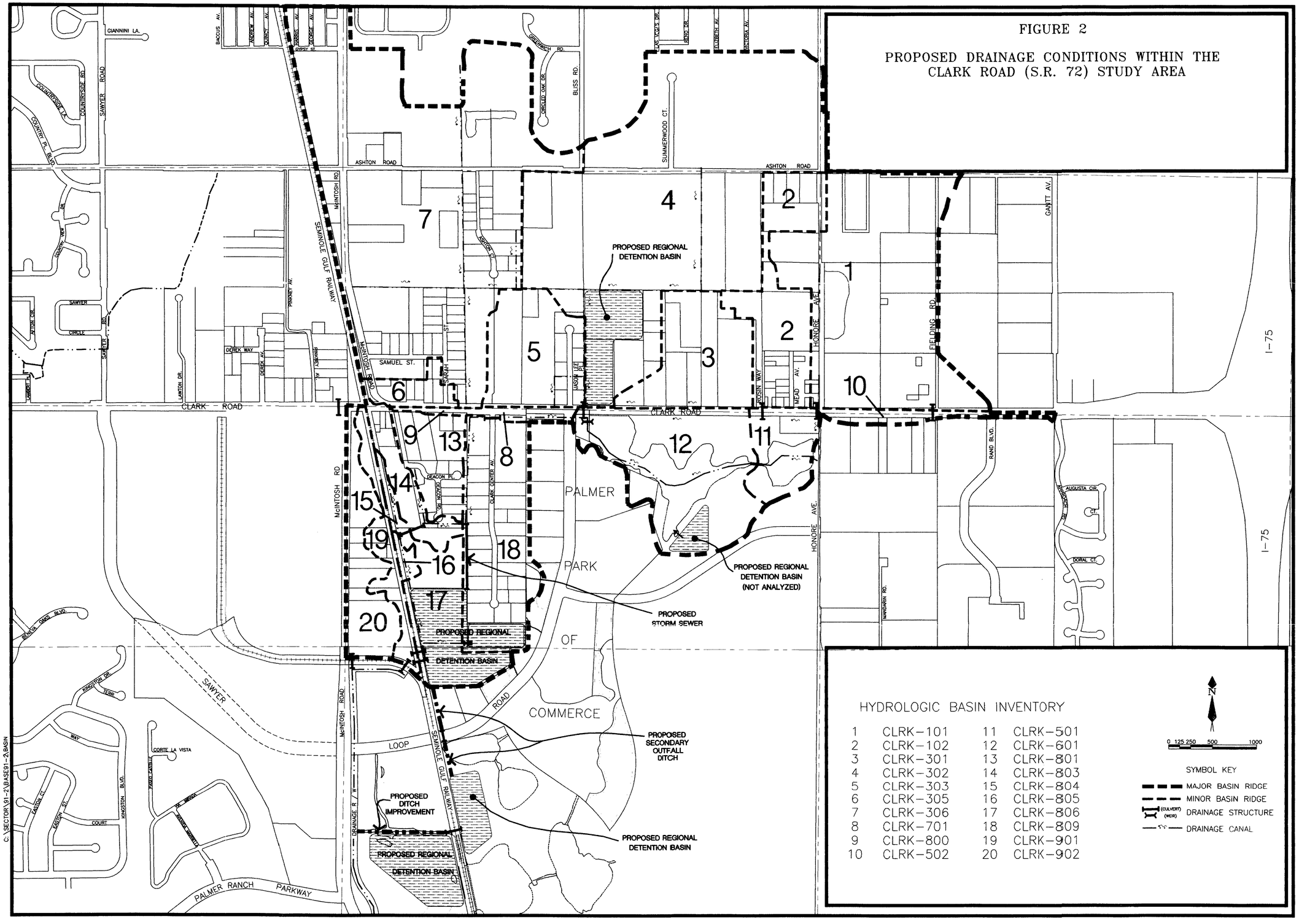
REVISION	DATE	BY	ISSUED FOR	DATE	BY

FOR: SARASOTA COUNTY
TITLE: CLARK ROAD DRAINAGE STUDY
DESC: EXISTING DRAINAGE CONDITIONS

1

FIGURE 2

PROPOSED DRAINAGE CONDITIONS WITHIN THE CLARK ROAD (S.R. 72) STUDY AREA



HYDROLOGIC BASIN INVENTORY

1	CLRK-101	11	CLRK-501
2	CLRK-102	12	CLRK-601
3	CLRK-301	13	CLRK-801
4	CLRK-302	14	CLRK-803
5	CLRK-303	15	CLRK-804
6	CLRK-305	16	CLRK-805
7	CLRK-306	17	CLRK-806
8	CLRK-701	18	CLRK-809
9	CLRK-800	19	CLRK-901
10	CLRK-502	20	CLRK-902

N

0 125 250 500 1000

SYMBOL KEY

- MAJOR BASIN RIDGE
- MINOR BASIN RIDGE
- (CULVERT) (WEIR) DRAINAGE STRUCTURE
- DRAINAGE CANAL

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Design By: | Drawn By: | Checked By: | Project No.:
CADD File: | Plot Index: | Date: | SCALE:

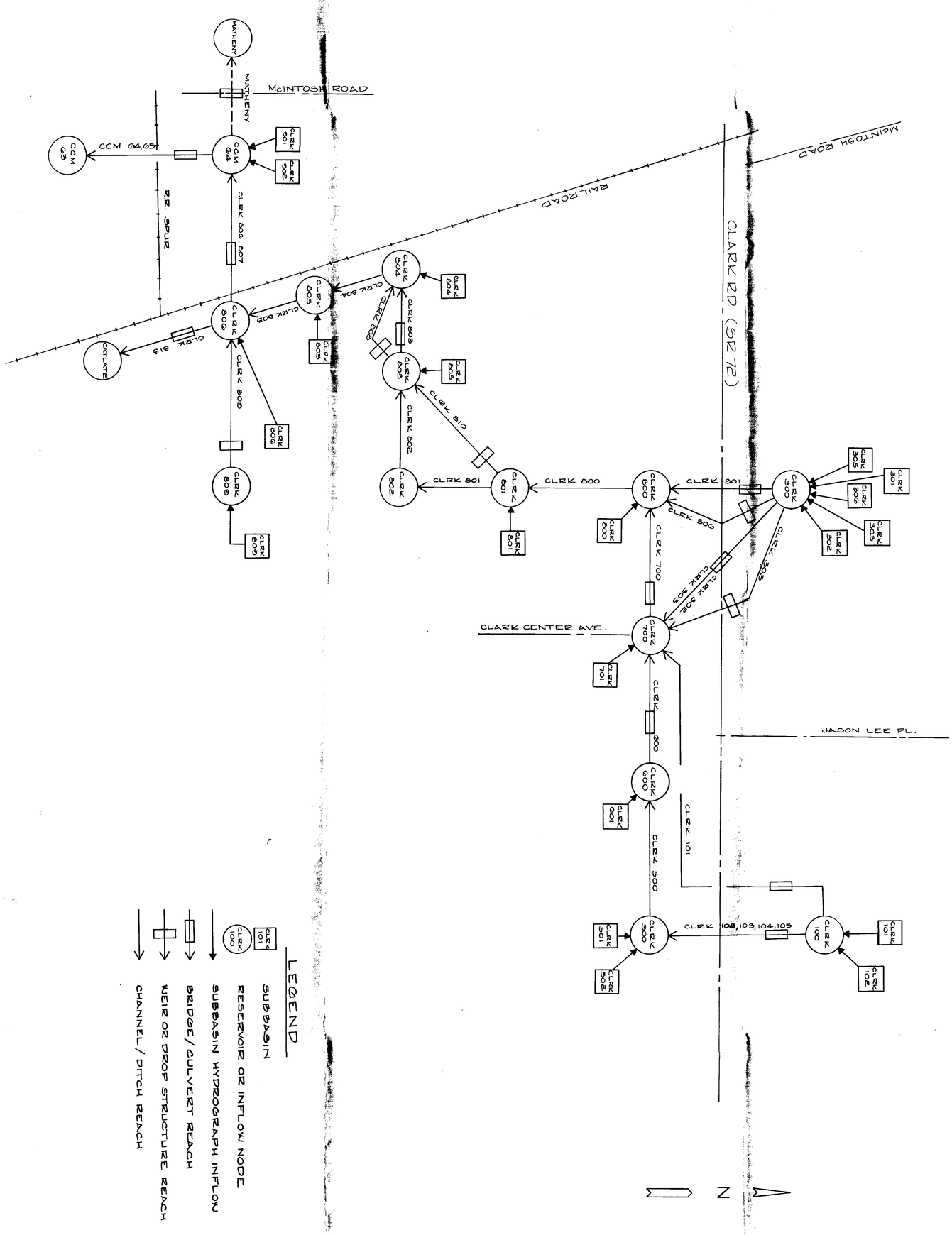
NO.	REVISION	DATE	BY	ISSUED FOR	DATE	BY

FLA. CERT. NO. # P.E.
DATE:

FOR: SARASOTA COUNTY
TITLE: CLARK ROAD DRAINAGE STUDY

DESC: PROPOSED DRAINAGE CONDITIONS

2



FOR: SARASOTA COUNTY
TITLE: CLARK ROAD DRAINAGE STUDY

DESC: SURFACE WATER ROUTING SCHEMATIC FOR EXISTING CLARK ROAD VICINITY

X
STEPHEN M. SUAU, P.E.
FLA. CERT. NO. 36509
DATE:

NO.	REVISION	DATE	BY	ISSUED FOR	DATE	BY

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Design By: NT :	Drawn By: MAY	Checked By:	Project No.: 073503
CADD File:	Plot Index:	Date:	SCALE:

THIS IS TO CERTIFY THAT THE ENCLOSED ENGINEERING CALCULATIONS WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION.

STEPHEM M. SUAU, P.E. #36309

DATE: 9/25/92

EXISTING CONDITIONS

- HYDROGRAPH INPUT/OUTPUT
- NODE OUTPUT SUMMARY
- REACH OUTPUT SUMMARY
- ROUTING NETWORK INPUT

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

BASIN NAME	CLRK-101	CLRK-102	CLRK-301	CLRK-302	CLRK-303
NODE NAME	CLRK-100	CLRK-100	CLRK-300	CLRK-300	CLRK-300
UNIT HYDROGRAPH	UH150	UH150	UH150	UH150	UH256
PEAKING FACTOR	150.	150.	150.	150.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	104.00	35.00	34.00	188.00	30.00
CURVE NUMBER	70.00	70.00	70.00	70.00	74.00
DCIA (%)	7.00	4.00	4.00	4.00	22.00
TC (mins)	219.00	112.00	191.00	160.00	66.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
CLRK-101	32.57	16.75	4.70	
CLRK-102	18.19	14.19	4.59	
CLRK-301	11.61	16.00	4.60	
CLRK-302	73.82	15.25	4.60	
CLRK-303	39.96	12.76	5.57	

BASIN NAME	CLRK-305	CLRK-306	CLRK-501	CLRK-502	CLRK-601
NODE NAME	CLRK-300	CLRK-300	CLRK-500	CLRK-500	CLRK-600
UNIT HYDROGRAPH	UH256	UH256	UH150	UH256	UH150
PEAKING FACTOR	256.	256.	150.	256.	150.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	7.20	200.00	14.20	3.10	50.40
CURVE NUMBER	74.00	72.00	83.00	80.00	83.00
DCIA (%)	52.00	27.00	.00	.00	.00
TC (mins)	55.00	241.00	97.00	90.00	111.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
CLRK-305	12.02	12.59	6.47	
CLRK-306	105.76	15.00	5.56	
CLRK-501	11.07	13.58	5.97	
CLRK-502	3.52	13.00	5.62	
CLRK-601	35.38	13.81	5.97	

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

BASIN NAME	CLRK-701	CLRK-800	CLRK-801	CLRK-803	CLRK-804
NODE NAME	CLRK-700	CLRK-800	CLRK-801	CLRK-803	CLRK-804
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	1.80	1.40	16.40	11.50	3.40
CURVE NUMBER	90.00	90.00	91.00	91.00	84.00
DCIA (%)	.00	.00	.00	.00	.00
TC (mins)	15.00	15.00	30.00	30.00	15.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
CLRK-701	6.34	12.07	6.80	
CLRK-800	4.93	12.07	6.80	
CLRK-801	42.50	12.20	6.92	
CLRK-803	29.81	12.20	6.92	
CLRK-804	11.02	12.07	6.09	

BASIN NAME	CLRK-805	CLRK-806	CLRK-809	CLRK-901	CLRK-902
NODE NAME	CLRK-805	CLRK-806	CLRK-809	CCM-64	CCM-64
UNIT HYDROGRAPH	UH256	UH256	UH256	UH150	UH256
PEAKING FACTOR	256.	256.	256.	150.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	2.20	15.30	40.20	12.30	22.10
CURVE NUMBER	85.00	89.00	91.00	75.00	89.00
DCIA (%)	.00	.00	.00	.00	.00
TC (mins)	15.00	77.00	30.00	173.00	30.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
CLRK-805	7.25	12.07	6.21	
CLRK-806	22.59	12.83	6.68	
CLRK-809	104.19	12.20	6.92	CLARK ROAD INDUSTRIAL CENTER
CLRK-901	5.04	15.50	5.04	
CLRK-902	55.88	12.20	6.68	

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	|<-- MINIMUMS -->| VALUE	TIME (hr)	|<-- MAXIMUMS -->| VALUE	TIME (hr)
CCM-63	STAGE (ft):	15.70	48.00	15.70	48.00
	VOLUME (af):	.00	.00	294.55	48.00
	RUNOFF (cfs):	.00	48.00	.00	48.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	-.69	.00	145.72	21.50
	OUTFLOW (cfs):	.00	48.00	.00	48.00
CCM-64	STAGE (ft):	14.88	.00	20.41	21.25
	VOLUME (af):	.00	.00	.58	21.25
	RUNOFF (cfs):	.00	48.00	56.78	12.25
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	.00	197.21	21.75
	OUTFLOW (cfs):	-.69	.00	203.54	21.25
CLRK-100	STAGE (ft):	29.90	6.00	32.68	15.75
	VOLUME (af):	.00	2.00	1.16	15.75
	RUNOFF (cfs):	.00	44.75	49.58	15.50
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	48.00	.00	48.00
	OUTFLOW (cfs):	.00	6.00	49.50	15.75
CLRK-300	STAGE (ft):	21.50	2.50	26.64	14.75
	VOLUME (af):	.00	1.00	6.82	14.75
	RUNOFF (cfs):	.00	48.00	213.83	14.50
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	48.00	.00	48.00
	OUTFLOW (cfs):	.00	2.50	213.53	14.75
CLRK-500	STAGE (ft):	28.10	4.00	29.69	15.50
	VOLUME (af):	.14	3.75	5.72	15.50
	RUNOFF (cfs):	.00	33.25	14.35	13.25
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	48.00	37.68	15.75
	OUTFLOW (cfs):	.00	4.00	56.20	16.25

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	|<-- MINIMUMS -->| VALUE	TIME (hr)	|<-- MAXIMUMS -->| VALUE	TIME (hr)
CLRK-600	STAGE (ft):	22.86	3.75	26.54	17.25
	VOLUME (af):	.00	3.50	28.32	17.25
	RUNOFF (cfs):	.00	34.75	35.36	13.75
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	4.00	56.20	16.25
	OUTFLOW (cfs):	-30.21	14.25	81.79	18.00
CLRK-700	STAGE (ft):	21.88	2.25	26.51	17.25
	VOLUME (af):	.00	2.25	3.94	17.25
	RUNOFF (cfs):	.00	48.00	6.16	12.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	3.75	220.67	17.25
	OUTFLOW (cfs):	.00	2.50	220.96	17.25
CLRK-800	STAGE (ft):	20.90	3.00	25.63	17.25
	VOLUME (af):	.04	.75	1.61	17.25
	RUNOFF (cfs):	.00	48.00	4.79	12.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	2.50	265.44	17.25
	OUTFLOW (cfs):	-.09	.00	265.55	17.25
CLRK-801	STAGE (ft):	19.63	2.00	25.31	17.25
	VOLUME (af):	.04	2.00	4.98	17.25
	RUNOFF (cfs):	.00	27.00	41.92	12.25
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	-.09	.00	265.55	17.25
	OUTFLOW (cfs):	.00	.00	268.13	17.50
CLRK-802	STAGE (ft):	19.55	2.00	25.03	17.50
	VOLUME (af):	.02	2.00	1.33	17.50
	RUNOFF (cfs):	.00	48.00	.00	48.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	.00	181.80	17.50
	OUTFLOW (cfs):	.57	2.00	181.83	17.50

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	|<-- MINIMUMS -->| VALUE	TIME (hr)	|<-- MAXIMUMS -->| VALUE	TIME (hr)
CLRK-803	STAGE (ft):	19.10	.00	24.92	17.50
	VOLUME (af):	.00	.00	.74	17.50
	RUNOFF (cfs):	.00	27.00	29.40	12.25
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.57	2.00	268.17	17.50
	OUTFLOW (cfs):	.00	.00	270.23	17.50
CLRK-804	STAGE (ft):	18.60	.00	24.48	17.50
	VOLUME (af):	.01	.00	1.31	17.50
	RUNOFF (cfs):	.00	25.50	10.66	12.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	.00	270.23	17.50
	OUTFLOW (cfs):	.00	.00	270.83	17.50
CLRK-805	STAGE (ft):	17.50	.00	23.91	19.75
	VOLUME (af):	.01	.00	1.63	19.75
	RUNOFF (cfs):	.00	25.50	7.01	12.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	.00	270.83	17.50
	OUTFLOW (cfs):	.00	.00	270.11	17.50
CLRK-806	STAGE (ft):	16.40	.00	23.55	21.75
	VOLUME (af):	.00	.00	51.42	21.75
	RUNOFF (cfs):	.00	48.00	22.46	12.75
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	.00	265.40	17.50
	OUTFLOW (cfs):	.00	.00	197.21	21.75
CLRK-809	STAGE (ft):	20.50	2.00	23.55	21.75
	VOLUME (af):	.00	1.75	11.67	21.75
	RUNOFF (cfs):	.00	27.00	102.77	12.25
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	48.00	.00	48.00
	OUTFLOW (cfs):	-4.70	17.50	44.57	13.25

CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	|<-- MINIMUMS -->| VALUE	TIME (hr)	|<-- MAXIMUMS -->| VALUE	TIME (hr)
MATHENY	STAGE (ft):	19.00	48.00	19.00	48.00
	VOLUME (af):	.00	12.50	57.94	48.00
	RUNOFF (cfs):	.00	48.00	.00	48.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	48.00	57.83	21.25
	OUTFLOW (cfs):	.00	48.00	.00	48.00

CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

REACH MAXIMUM FLOW REPORT

REACH ID	TIME (hrs)	FLOW (cfs)	FR NODE NAME	STAGE (ft)	TO NODE NAME	STAGE (ft)
CLRK-305	14.75	140.32	CLRK-300	26.64	CLRK-700	26.28
CLRK-306	14.75	12.00	CLRK-300	26.64	CLRK-800	25.32
CLRK-808	17.50	242.78	CLRK-803	24.92	CLRK-804	24.48
CLRK-809	13.25	44.57	CLRK-809	22.82	CLRK-806	21.35
MATHENY	21.25	57.83	CCM-64	20.41	MATHENY	19.00
CLRK-810	17.25	86.36	CLRK-801	25.31	CLRK-803	24.92
CCM-64	21.50	82.00	CCM-64	20.41	CCM-63	15.70
CCM-65	21.25	63.72	CCM-64	20.41	CCM-63	15.70
CLRK-101	15.75	11.82	CLRK-100	32.68	CLRK-700	26.36
CLRK-102	15.75	13.94	CLRK-100	32.68	CLRK-500	29.68
CLRK-103	15.75	12.92	CLRK-100	32.68	CLRK-500	29.68
CLRK-104	15.75	10.82	CLRK-100	32.68	CLRK-500	29.68
CLRK-302	13.00	18.05	CLRK-300	26.33	CLRK-700	25.21
CLRK-303	13.00	18.05	CLRK-300	26.33	CLRK-700	25.21
CLRK-600	18.00	81.79	CLRK-600	26.53	CLRK-700	26.49
CLRK-700	17.25	220.96	CLRK-700	26.51	CLRK-800	25.63
CLRK-803	12.25	63.55	CLRK-803	24.23	CLRK-804	21.80
CLRK-806	21.75	121.19	CLRK-806	23.55	CCM-64	20.41
CLRK-807	21.75	76.02	CLRK-806	23.55	CCM-64	20.41
CLRK-500	16.25	56.20	CLRK-500	29.63	CLRK-600	26.47
CLRK-800	17.25	265.55	CLRK-800	25.63	CLRK-801	25.31
CLRK-801	17.50	181.80	CLRK-801	25.31	CLRK-802	25.03
CLRK-802	17.50	181.83	CLRK-802	25.03	CLRK-803	24.92
CLRK-804	17.50	270.83	CLRK-804	24.48	CLRK-805	23.75
CLRK-805	17.50	270.11	CLRK-805	23.75	CLRK-806	23.01

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
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CONTROL PARAMETERS

START TIME: .00
END TIME: 50.00

TO TIME (hours)	SIMULATION INC (secs)	PRINT INC (mins)
100.00	2.00	15.00

RUNOFF HYDROGRAPH FILE: DEFAULT
OFFSITE HYDROGRAPH FILE: DEFAULT
BOUNDARY DATABASE FILE: NONE

NOTE:

CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
CCM-63	TIME	15.700	.000	.000	.000	15.700	.000
						15.700	36.000
CCM-64	AREA	14.880	.000	.000	.000	20.000	.570
						21.000	2.070
						22.000	8.030
CLRK-100	AREA	29.900	.000	.000	.000	29.900	.000
						33.200	.830
						33.600	6.470
						34.000	17.450
CLRK-300	AREA	21.500	.000	.000	.000	21.500	.000
						25.000	.330
						26.000	2.970
						27.000	11.430
						28.000	35.440
CLRK-500	AREA	28.100	.000	.000	.000	28.000	.490
						28.500	1.090
						29.000	4.310
						29.500	5.370
						30.000	7.000
CLRK-600	AREA	22.860	.000	.000	.000	22.860	.000
						24.500	2.000
						25.000	5.570
						26.000	19.610
						26.500	25.230
CLRK-700	AREA	21.900	.000	.000	.000	21.900	.000
						25.000	.790
						26.000	2.790
CLRK-800	AREA	20.900	.000	.000	.000	25.000	.500
						26.000	1.000
CLRK-801	AREA	21.000	.000	.000	.000	24.000	1.190
						24.200	3.430
CLRK-802	AREA	21.000	.000	.000	.000	25.000	.000
						26.000	.000

CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
CLRK-803	AREA	19.100	.000	.000	.000	25.000	.000
						26.000	.000
CLRK-804	AREA	18.600	.000	.000	.000	24.000	.570
						24.200	1.150
CLRK-805	AREA	17.500	.000	.000	.000	25.000	.000
						26.000	.000
CLRK-806	AREA	16.400	.000	.000	.000	20.000	.560
						21.000	6.200
						22.000	14.000
						22.600	18.000
						22.700	40.000
CLRK-809	AREA	20.500	.000	.000	.000	20.500	3.400
						22.600	4.250
MATHENY	TIME	19.000	.000	.000	.000	19.000	.000
						19.000	36.000

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
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>>REACH NAME : CLRK-305
FROM NODE : CLRK-300
TO NODE : CLRK-700
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 26.400 NUMBER X-Y PTS: 5.000 OPENING (ft): 999.000
WEIR COEF.: 2.800 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	28.000
.100	26.500
550.000	26.400
900.000	27.000
1150.000	28.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.100	30.41	608.23	608.23
.600	407.45	900.40	899.93
1.600	1432.42	1151.41	1150.00
999.000	1148443.00	1151.41	1150.00
1004.000	1154193.00	1151.41	1150.00

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
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>>REACH NAME : CLRK-306
FROM NODE : CLRK-300
TO NODE : CLRK-800
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 26.500 NUMBER X-Y PTS: 4.000 OPENING (ft): 999.000
WEIR COEF.: 2.800 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	28.000
375.000	27.000
700.000	26.500
700.100	28.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.500	81.26	325.50	325.03
1.500	593.83	701.51	700.10
999.000	698943.60	701.51	700.10
1004.000	702444.10	701.51	700.10

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
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>>REACH NAME : CLRK-808
FROM NODE : CLRK-803
TO NODE : CLRK-804
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 24.200 NUMBER X-Y PTS: 3.000 OPENING (ft): 999.000
WEIR COEF.: 2.800 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	25.000
90.000	24.200
300.000	25.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.800	120.00	300.01	300.00
999.000	299580.00	300.01	300.00
1004.000	301080.00	300.01	300.00

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
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>>REACH NAME : CLRK-809
FROM NODE : CLRK-809
TO NODE : CLRK-806
REACH TYPE : RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 20.500 CREST LN. (ft): 4.330 OPENING (ft): 999.000
WEIR COEF.: 3.200 GATE COEF.: .600 NUMBER OF ELEM.: 1.000
NOTE:

>>REACH NAME : MATHENY
FROM NODE : CCM-64
TO NODE : MATHENY
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 20.200 NUMBER X-Y PTS: 8.000 OPENING (ft): 1.800
WEIR COEF.: 2.600 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	22.000
180.000	21.300
270.000	21.000
470.000	20.700
670.000	20.200
875.000	20.199
1030.000	21.000
1200.000	22.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.001	.10	205.03	205.03
.501	176.89	501.95	501.95
.801	366.18	760.00	760.00
1.101	615.33	901.01	901.00
1.800	1349.48	1199.58	1199.57
1.801	1350.68	1199.58	1200.00
6.801	7350.68	1199.58	1200.00

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
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```
>>REACH NAME       : CLRK-810
  FROM NODE        : CLRK-801
  TO NODE          : CLRK-803
  REACH TYPE       : TRAPEZOIDAL WEIR/GATE/ORIFICE, MAVIS EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  24.200 BTM. WIDTH (ft):  20.000   LEFT SS (h/v):  20.000
     RGHT SS (h/v):  20.000    OPENING (ft):    .800      WEIR COEF.:   2.600
        GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:
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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
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```
>>REACH NAME       : CCM-64
  FROM NODE        : CCM-64
  TO NODE          : CCM-63
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  48.000       RISE (in):  48.000     LENGTH (ft):  65.000
   U/S INVERT (ft):  15.810 D/S INVERT (ft):  15.430      MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : CCM-65
  FROM NODE        : CCM-64
  TO NODE          : CCM-63
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  36.000       RISE (in):  36.000     LENGTH (ft): 219.000
   U/S INVERT (ft):  15.560 D/S INVERT (ft):  13.550      MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:
```

```
>>REACH NAME       : CLRK-101
  FROM NODE        : CLRK-100
  TO NODE          : CLRK-700
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  18.000       RISE (in):  18.000     LENGTH (ft):  50.000
   U/S INVERT (ft):  29.900 D/S INVERT (ft):  29.600       MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : CLRK-102
  FROM NODE        : CLRK-100
  TO NODE          : CLRK-500
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  29.000       RISE (in):  18.000     LENGTH (ft):  46.000
   U/S INVERT (ft):  30.100 D/S INVERT (ft):  30.100       MANNING N:    .024
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:
```

CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

```
>>REACH NAME       : CLRK-103
  FROM NODE        : CLRK-100
  TO NODE          : CLRK-500
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  29.000       RISE (in):  18.000     LENGTH (ft):  46.000
   U/S INVERT (ft):  29.900 D/S INVERT (ft):  30.300      MANNING N:    .024
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : CLRK-104
  FROM NODE        : CLRK-100
  TO NODE          : CLRK-500
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  29.000       RISE (in):  18.000     LENGTH (ft):  46.000
   U/S INVERT (ft):  30.000 D/S INVERT (ft):  30.700      MANNING N:    .024
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:
```

```
* MESSAGE *     4  CLRK-105REACH SHUT OFF (WARNING ONLY)
 >>REACH NAME       : CLRK-105
   FROM NODE        : CLRK-100
   TO NODE          : CLRK-500
   REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
   FLOW DIRECTION   : NO FLOW ALLOWED, STRUCTURE SHUT OFF
   TURBO SWITCH     : OFF

   CULVERT DATA     :
         SPAN (in):  24.000       RISE (in):  24.000     LENGTH (ft):  40.000
    U/S INVERT (ft):  31.400 D/S INVERT (ft):  31.400      MANNING N:    .013
        ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

   POSITION A       : NOT USED

   POSITION B       : NOT USED

               NOTE:

 >>REACH NAME       : [redacted]
   FROM NODE        : CLRK-300
   TO NODE          : CLRK-800
   REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
   FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
   TURBO SWITCH     : OFF

   CULVERT DATA     :
         SPAN (in):  24.000       RISE (in):  24.000     LENGTH (ft):  41.000
    U/S INVERT (ft):  21.500 D/S INVERT (ft):  21.000      MANNING N:    .013
        ENTRNC LOSS:    .500   # OF CULVERTS: [redacted]

   POSITION A       : NOT USED

   POSITION B       : NOT USED

               NOTE: APPROXIMATELY 1100' E. OF RR
```

```
>>REACH NAME       : CLRK-302
  FROM NODE        : CLRK-300
  TO NODE          : CLRK-700
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  24.000       RISE (in):  24.000     LENGTH (ft):  55.000
   U/S INVERT (ft):  22.300 D/S INVERT (ft):  21.100       MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : CLRK-303
  FROM NODE        : CLRK-300
  TO NODE          : CLRK-700
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  24.000       RISE (in):  24.000     LENGTH (ft):  55.000
   U/S INVERT (ft):  22.200 D/S INVERT (ft):  22.300       MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:
```

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
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```
>>REACH NAME       : CLRK-600
  FROM NODE        : CLRK-600
  TO NODE          : CLRK-700
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  30.000       RISE (in):  30.000     LENGTH (ft):  16.000
   U/S INVERT (ft):  22.820 D/S INVERT (ft):  22.860      MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  26.200  CREST LN. (ft): 200.000     WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE:

>>REACH NAME       : CLRK-700
  FROM NODE        : CLRK-700
  TO NODE          : CLRK-800
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  30.000       RISE (in):  19.000     LENGTH (ft):  30.000
   U/S INVERT (ft):  21.900 D/S INVERT (ft):  21.800      MANNING N:    .013
      ENTRNC LOSS:    .500   # OF CULVERTS:   2.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  25.750  CREST LN. (ft): 100.000     WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********       RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********     WEIR COEF.:********
          RESERVED:********        RESERVED:********       RESERVED:********

              NOTE:
```

```
>>REACH NAME       : CLRK-803
  FROM NODE        : CLRK-803
  TO NODE          : CLRK-804
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  48.000       RISE (in):  48.000     LENGTH (ft): 265.000
   U/S INVERT (ft):  19.110 D/S INVERT (ft):  18.630       MANNING N:    .024
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

               NOTE:

>>REACH NAME       : CLRK-806
  FROM NODE        : CLRK-806
  TO NODE          : CCM-64
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  48.000       RISE (in):  48.000     LENGTH (ft):  40.000
   U/S INVERT (ft):  16.460 D/S INVERT (ft):  16.130       MANNING N:    .024
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

               NOTE:
```

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

>>REACH NAME : CLRK-807
FROM NODE : CLRK-806
TO NODE : CCM-64
REACH TYPE : CULVERT, CIRCULAR w/ ROADWAY
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
TURBO SWITCH : OFF

CULVERT DATA :

SPAN (in):	36.000	RISE (in):	36.000	LENGTH (ft):	34.000
U/S INVERT (ft):	17.080	D/S INVERT (ft):	16.900	MANNING N:	.013
ENTRNC LOSS:	.500	# OF CULVERTS:	1.000		

POSITION A : NOT USED

POSITION B : NOT USED

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

>>REACH NAME : CLRK-500
FROM NODE : CLRK-500
TO NODE : CLRK-600
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 400.000 U/S INVERT (ft): 28.100 D/S INVERT (ft): 26.100
MAX. DEPTH (ft): 2.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	30.210	.040
10.000	29.700	.040
20.000	28.230	.040
30.000	27.570	.040
40.000	27.130	.040
50.000	27.330	.040
60.000	27.770	.040
70.000	29.030	.040
80.000	29.250	.125

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.200	1.45	14.55	14.55	11.6
.440	6.25	25.47	25.45	91.1
.640	12.10	33.06	33.03	230.1
1.100	29.74	43.72	43.65	854.5
1.900	69.38	55.62	55.44	2986.4
2.000	75.18	60.86	60.67	3369.9
2.120	82.84	60.86	66.94	3898.0
2.570	113.65	60.86	70.00	6274.7
3.080	151.90	60.86	80.00	9906.7
8.080	551.90	60.86	80.00	81386.3

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

>>REACH NAME : CLRK-800
FROM NODE : CLRK-800
TO NODE : CLRK-801
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 750.000 U/S INVERT (ft): 20.900 D/S INVERT (ft): 19.070
MAX. DEPTH (ft): 4.500

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	23.790	.040
12.000	20.160	.040
13.000	19.070	.040
21.000	19.200	.040
29.000	20.060	.040
41.000	24.970	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.130	.53	8.18	8.12	3.2
.990	11.29	17.39	16.91	314.4
1.090	13.00	17.79	17.24	391.7
4.500	105.23	38.57	36.85	7632.5
4.720	113.48	38.57	38.12	8655.2
5.900	160.16	38.57	41.00	15369.8
10.900	365.16	38.57	41.00	60705.8

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

>>REACH NAME : CLRK-801
FROM NODE : CLRK-801
TO NODE : CLRK-802
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 550.000 U/S INVERT (ft): 19.070 D/S INVERT (ft): 19.130
MAX. DEPTH (ft): 7.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	24.180	.040
13.000	19.400	.040
14.000	18.220	.040
21.000	16.660	.040
27.000	17.040	.040
28.000	20.750	.040
38.000	25.870	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.380	1.46	7.76	7.71	17.9
1.560	13.87	14.41	13.32	502.2
2.740	30.36	17.18	14.64	1648.9
4.090	52.84	22.49	18.67	3470.1
7.000	126.96	37.30	32.27	10672.2
7.520	144.37	37.30	34.70	13221.4
9.210	205.81	37.30	38.00	23871.9
14.210	395.81	37.30	38.00	71000.8

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

>>REACH NAME : CLRK-802
FROM NODE : CLRK-802
TO NODE : CLRK-803
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 450.000 U/S INVERT (ft): 19.130 D/S INVERT (ft): 19.100
MAX. DEPTH (ft): 5.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	24.000	.040
4.000	23.000	.040
10.000	22.000	.040
15.000	21.000	.040
17.000	19.000	.040
23.000	18.999	.040
25.000	21.000	.040
31.000	22.000	.040
40.000	23.000	.040
48.000	24.000	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.001	.00	6.00	6.00	.0
2.001	16.00	11.66	10.00	734.4
3.001	31.50	22.84	21.00	1450.2
4.001	60.00	37.98	36.00	3023.9
5.000	101.96	50.15	47.99	6078.4
5.001	102.00	50.15	48.00	6083.2
10.001	342.00	50.15	48.00	45689.9

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

>>REACH NAME : CLRK-804
FROM NODE : CLRK-804
TO NODE : CLRK-805
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 500.000 U/S INVERT (ft): 18.630 D/S INVERT (ft): 17.500
MAX. DEPTH (ft): 7.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	25.000	.020
70.000	24.000	.020
116.000	23.000	.040
122.000	22.000	.040
128.000	21.000	.040
131.000	20.000	.040
135.000	18.000	.040
138.000	17.999	.040
142.000	20.000	.040
143.000	21.000	.040
145.000	22.000	.040
150.000	23.000	.040
152.000	24.000	.040
154.000	25.000	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.001	.00	3.00	3.00	.0
2.001	14.00	11.95	11.00	578.4
3.001	27.00	16.52	15.00	1391.9
4.001	46.00	24.84	23.00	2577.3
5.001	74.50	36.02	34.00	4493.0
6.001	132.50	84.27	82.00	6656.2
7.000	250.35	156.44	153.93	16336.9
7.001	250.50	156.44	154.00	16351.9
12.001	1020.50	156.44	154.00	178403.4

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

>>REACH NAME : CLRK-805
FROM NODE : CLRK-805
TO NODE : CLRK-806
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 800.000 U/S INVERT (ft): 17.500 D/S INVERT (ft): 16.400
MAX. DEPTH (ft): 3.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	20.000	.040
5.000	17.000	.040
10.000	16.999	.040
15.000	20.000	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.001	.00	5.00	5.00	.0
3.000	29.99	16.66	15.00	1648.7
3.001	30.00	16.66	15.00	1650.1
8.001	105.01	16.66	15.00	13310.7

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

REACH SUMMARY

INDEX	RCHNAME	FRMNODE	TONODE	REACH TYPE
1	CLRK-305	CLRK-300	CLRK-700	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
2	CLRK-306	CLRK-300	CLRK-800	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
3	CLRK-808	CLRK-803	CLRK-804	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
4	CLRK-809	CLRK-809	CLRK-806	RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ
5	MATHENY	CCM-64	MATHENY	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
6	CLRK-810	CLRK-801	CLRK-803	TRAPEZOIDAL WEIR/GATE/ORIFICE, MAVIS EQ.
7	CCM-64	CCM-64	CCM-63	CULVERT, CIRCULAR w/ ROADWAY
8	CCM-65	CCM-64	CCM-63	CULVERT, CIRCULAR w/ ROADWAY
9	CLRK-101	CLRK-100	CLRK-700	CULVERT, CIRCULAR w/ ROADWAY
10	CLRK-102	CLRK-100	CLRK-500	CULVERT, ELLIPTICAL w/ ROADWAY
11	CLRK-103	CLRK-100	CLRK-500	CULVERT, ELLIPTICAL w/ ROADWAY
12	CLRK-104	CLRK-100	CLRK-500	CULVERT, ELLIPTICAL w/ ROADWAY
13	CLRK-105	CLRK-100	CLRK-500	CULVERT, CIRCULAR w/ ROADWAY
14	CLRK-301	CLRK-300	CLRK-800	CULVERT, CIRCULAR w/ ROADWAY
15	CLRK-302	CLRK-300	CLRK-700	CULVERT, CIRCULAR w/ ROADWAY
16	CLRK-303	CLRK-300	CLRK-700	CULVERT, CIRCULAR w/ ROADWAY
17	CLRK-600	CLRK-600	CLRK-700	CULVERT, CIRCULAR w/ ROADWAY
18	CLRK-700	CLRK-700	CLRK-800	CULVERT, ELLIPTICAL w/ ROADWAY
19	CLRK-803	CLRK-803	CLRK-804	CULVERT, CIRCULAR w/ ROADWAY
20	CLRK-806	CLRK-806	CCM-64	CULVERT, CIRCULAR w/ ROADWAY
21	CLRK-807	CLRK-806	CCM-64	CULVERT, CIRCULAR w/ ROADWAY
22	CLRK-500	CLRK-500	CLRK-600	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
23	CLRK-800	CLRK-800	CLRK-801	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
24	CLRK-801	CLRK-801	CLRK-802	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
25	CLRK-802	CLRK-802	CLRK-803	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
26	CLRK-804	CLRK-804	CLRK-805	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
27	CLRK-805	CLRK-805	CLRK-806	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.

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CLARK ROAD CORRIDOR DRAINAGE STUDY EXISTING CONDITIONS
08-15-92

INPUT SUMMARY

DATA TYPE	NUMBER READ
NODES	16
REACHES	
WEIRS	6
CULVERTS	15
DROP STRUCTURES	0
CHANNELS, ENERGY EQ.	0
CHANNELS, MOMENTUM EQ.	6
RATING CURVES	0
TOTAL REACHES	27

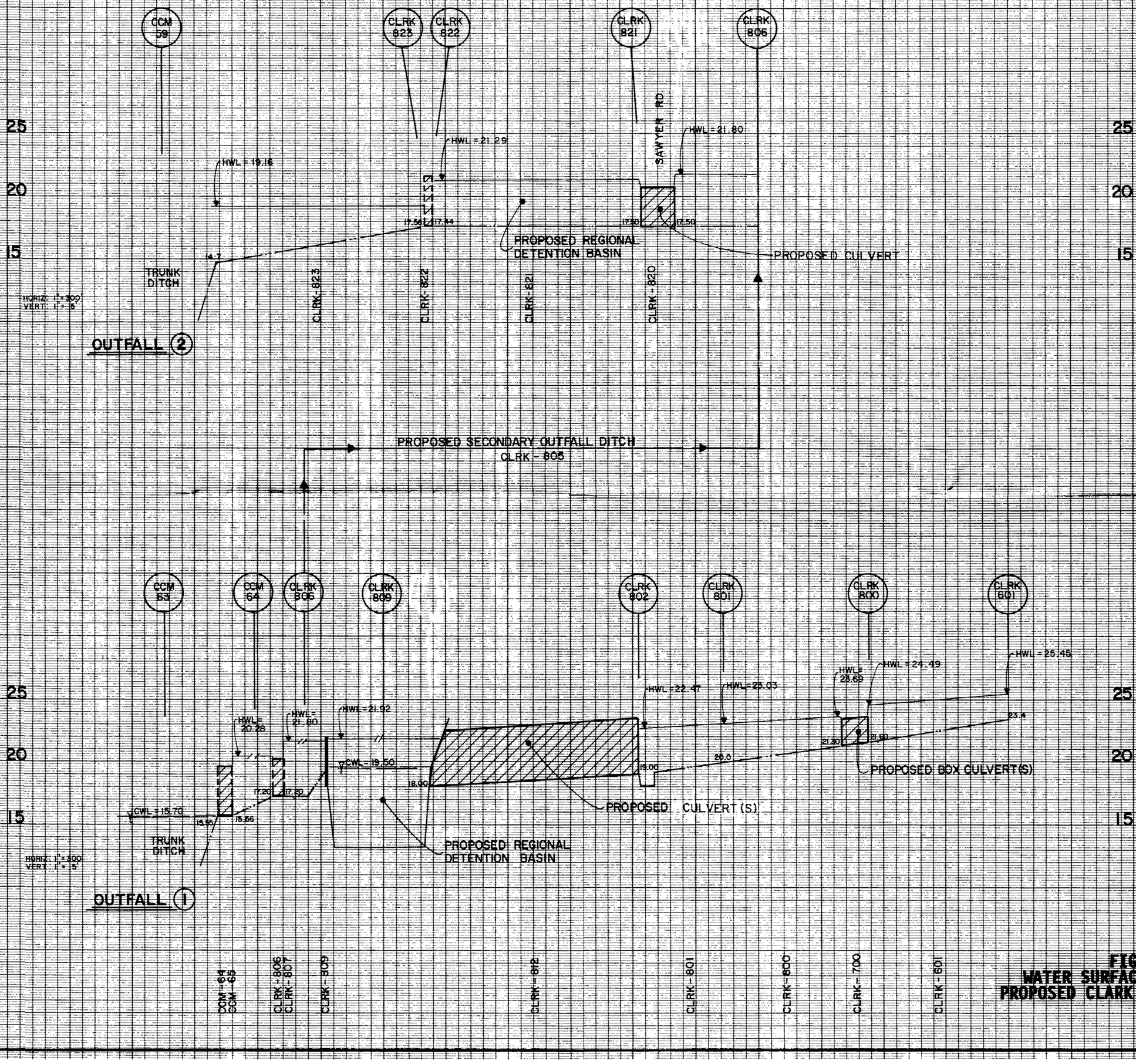

FIGURE 3
WATER SURFACE PROFILE FOR PROPOSED CLARK ROAD OUTFALL(S)

36303
9/28/95

PROPOSED CONDITIONS

- HYDROGRAPH INPUT/OUTPUT
- NODE OUTPUT SUMMARY
- REACH OUTPUT SUMMARY
- ROUTING NETWORK INPUT

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

BASIN NAME	CLRK-101	CLRK-102	CLRK-301	CLRK-302	CLRK-303
NODE NAME	CLRK-100	CLRK-809	CLRK-809	CLRK-302	CLRK-809
UNIT HYDROGRAPH	UH150	UH150	UH150	UH150	UH256
PEAKING FACTOR	150.	150.	150.	150.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	104.00	35.00	34.00	188.00	30.00
CURVE NUMBER	70.00	70.00	70.00	70.00	74.00
DCIA (%)	7.00	4.00	4.00	4.00	22.00
TC (mins)	219.00	112.00	191.00	160.00	66.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
CLRK-101	32.57	16.75	4.70	
CLRK-102	18.19	14.19	4.59	
CLRK-301	11.61	16.00	4.60	
CLRK-302	73.82	15.25	4.60	
CLRK-303	39.96	12.76	5.57	

BASIN NAME	CLRK-305	CLRK-306	CLRK-501	CLRK-502	CLRK-601
NODE NAME	CLRK-809	CLRK-300	CLRK-500	CLRK-500	CLRK-600
UNIT HYDROGRAPH	UH256	UH256	UH150	UH256	UH150
PEAKING FACTOR	256.	256.	150.	256.	150.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	7.20	200.00	14.20	3.10	50.40
CURVE NUMBER	74.00	72.00	83.00	80.00	83.00
DCIA (%)	52.00	27.00	.00	.00	.00
TC (mins)	55.00	241.00	97.00	90.00	111.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
CLRK-305	12.02	12.59	6.47	
CLRK-306	105.76	15.00	5.56	
CLRK-501	11.07	13.58	5.97	
CLRK-502	3.52	13.00	5.62	
CLRK-601	35.38	13.81	5.97	

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

BASIN NAME	CLRK-701	CLRK-800	CLRK-801	CLRK-803	CLRK-804
NODE NAME	CLRK-700	CLRK-800	CLRK-801	CLRK-803	CLRK-804
UNIT HYDROGRAPH	UH256	UH256	UH256	UH256	UH256
PEAKING FACTOR	256.	256.	256.	256.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	1.80	1.40	16.40	11.50	3.40
CURVE NUMBER	90.00	90.00	91.00	91.00	84.00
DCIA (%)	.00	.00	.00	.00	.00
TC (mins)	15.00	15.00	30.00	30.00	15.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
CLRK-701	6.34	12.07	6.80	
CLRK-800	4.93	12.07	6.80	
CLRK-801	42.50	12.20	6.92	
CLRK-803	29.81	12.20	6.92	
CLRK-804	11.02	12.07	6.09	

BASIN NAME	CLRK-805	CLRK-806	CLRK-809	CLRK-901	CLRK-902
NODE NAME	CLRK-805	CLRK-~~809~~	CLRK-~~809~~	CCM-64	CCM-64
UNIT HYDROGRAPH	UH256	UH256	UH256	UH150	UH256
PEAKING FACTOR	256.	256.	256.	150.	256.
RAINFALL FILE	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD	SCSIIMOD
RAIN AMOUNT (in)	8.00	8.00	8.00	8.00	8.00
STORM DURATION (hrs)	24.00	24.00	24.00	24.00	24.00
AREA (ac)	2.20	15.30	40.20	12.30	22.10
CURVE NUMBER	85.00	89.00	91.00	75.00	89.00
DCIA (%)	.00	.00	.00	.00	.00
TC (mins)	15.00	77.00	30.00	173.00	30.00
LAG TIME (hrs)	.00	.00	.00	.00	.00
BASIN STATUS	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE

BASIN	QMX (cfs)	TMX (hrs)	VOL (in)	NOTES
CLRK-805	7.25	12.07	6.21	
CLRK-806	22.59	12.83	6.68	
CLRK-809	104.19	12.20	6.92	CLARK ROAD INDUSTRIAL CENTER
CLRK-901	5.04	15.50	5.04	
CLRK-902	55.88	12.20	6.68	

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	MINIMUMS VALUE	MINIMUMS TIME (hr)	MAXIMUMS VALUE	MAXIMUMS TIME (hr)
CCM-63	STAGE (ft):	15.70	48.00	15.70	48.00
	VOLUME (af):	.00	.25	277.05	48.00
	RUNOFF (cfs):	.00	48.00	.00	48.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	-.69	.00	143.10	20.75
	OUTFLOW (cfs):	.00	48.00	.00	48.00
CCM-64	STAGE (ft):	14.88	.00	20.28	20.75
	VOLUME (af):	.00	.00	.46	20.75
	RUNOFF (cfs):	.00	48.00	56.78	12.25
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	.00	136.41	21.25
	OUTFLOW (cfs):	-.69	.00	143.10	20.75
CLRK-100	STAGE (ft):	29.90	7.50	31.87	16.75
	VOLUME (af):	.00	2.25	.82	16.75
	RUNOFF (cfs):	.00	44.75	32.57	16.75
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	48.00	.00	48.00
	OUTFLOW (cfs):	.00	7.50	32.56	16.75
CLRK-298	STAGE (ft):	23.50	1.50	26.16	21.50
	VOLUME (af):	.00	1.00	.09	21.50
	RUNOFF (cfs):	.00	48.00	.00	48.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	1.00	53.73	21.25
	OUTFLOW (cfs):	.00	11.00	53.72	21.25
CLRK-299	STAGE (ft):	25.00	14.75	25.22	48.00
	VOLUME (af):	.00	14.75	.12	48.00
	RUNOFF (cfs):	.00	48.00	.00	48.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	48.00	1.72	15.50
	OUTFLOW (cfs):	.00	48.00	.00	48.00

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	MINIMUMS VALUE	MINIMUMS TIME (hr)	MAXIMUMS VALUE	MAXIMUMS TIME (hr)
CLRK-300	STAGE (ft):	21.20	1.00	26.05	15.50
	VOLUME (af):	.00	1.00	.95	15.50
	RUNOFF (cfs):	.00	48.00	105.76	15.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	48.00	.00	48.00
	OUTFLOW (cfs):	.00	1.00	103.02	15.25
CLRK-302	STAGE (ft):	26.50	1.00	28.49	21.25
	VOLUME (af):	.00	1.00	25.82	21.25
	RUNOFF (cfs):	.00	39.25	73.82	15.25
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	48.00	.00	48.00
	OUTFLOW (cfs):	.00	1.00	53.73	21.25
CLRK-500	STAGE (ft):	28.10	4.00	29.75	19.00
	VOLUME (af):	.08	3.75	5.93	19.00
	RUNOFF (cfs):	.00	33.25	14.35	13.25
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	48.00	23.85	16.75
	OUTFLOW (cfs):	.00	4.00	29.01	18.75
CLRK-600	STAGE (ft):	22.86	3.75	26.17	22.50
	VOLUME (af):	.00	3.50	19.83	22.50
	RUNOFF (cfs):	.00	34.75	35.36	13.75
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	4.00	29.01	18.75
	OUTFLOW (cfs):	.00	10.25	34.18	25.50
CLRK-601	STAGE (ft):	22.80	.00	25.45	21.50
	VOLUME (af):	.05	9.50	.40	21.50
	RUNOFF (cfs):	.00	48.00	.00	48.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	10.25	86.95	21.75
	OUTFLOW (cfs):	.00	9.75	86.97	21.75

CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	MINIMUMS VALUE	MINIMUMS TIME (hr)	MAXIMUMS VALUE	MAXIMUMS TIME (hr)
CLRK-700	STAGE (ft):	21.60	1.50	24.49	20.50
	VOLUME (af):	.00	1.50	1.47	20.50
	RUNOFF (cfs):	.00	48.00	6.16	12.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	7.50	94.81	21.50
	OUTFLOW (cfs):	.00	1.50	95.39	21.75
CLRK-800	STAGE (ft):	20.50	.00	23.69	17.00
	VOLUME (af):	.02	.00	.82	17.00
	RUNOFF (cfs):	.00	48.00	4.79	12.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.01	1.00	162.78	16.75
	OUTFLOW (cfs):	.00	.00	163.01	16.75
CLRK-801	STAGE (ft):	20.00	.00	23.03	18.50
	VOLUME (af):	.02	.00	1.17	18.50
	RUNOFF (cfs):	.00	27.00	41.92	12.25
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	.00	163.01	16.75
	OUTFLOW (cfs):	.00	.00	166.17	16.75
CLRK-802	STAGE (ft):	19.00	.00	22.47	19.50
	VOLUME (af):	.02	.00	1.20	19.50
	RUNOFF (cfs):	.00	48.00	.00	48.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	.00	166.17	16.75
	OUTFLOW (cfs):	-6.03	.00	165.73	16.75
CLRK-803	STAGE (ft):	19.10	1.75	22.43	19.75
	VOLUME (af):	.00	1.75	.45	19.75
	RUNOFF (cfs):	.00	27.00	29.40	12.25
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	-9.37	12.25	28.29	16.50
	OUTFLOW (cfs):	.00	4.25	30.65	16.75

CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	MINIMUMS VALUE	MINIMUMS TIME (hr)	MAXIMUMS VALUE	MAXIMUMS TIME (hr)
CLRK-804	STAGE (ft):	18.60	.00	21.90	20.75
	VOLUME (af):	.01	41.00	.25	20.75
	RUNOFF (cfs):	.00	25.50	10.66	12.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	4.25	30.65	16.75
	OUTFLOW (cfs):	.00	47.75	30.91	16.50
CLRK-805	STAGE (ft):	17.50	2.75	21.82	21.00
	VOLUME (af):	.01	2.50	.74	21.00
	RUNOFF (cfs):	.00	25.50	7.01	12.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	47.75	30.91	16.50
	OUTFLOW (cfs):	.00	2.75	30.84	16.50
CLRK-806	STAGE (ft):	16.40	.00	21.80	21.00
	VOLUME (af):	.00	.00	.87	21.00
	RUNOFF (cfs):	.00	48.00	.00	48.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	2.50	188.12	16.00
	OUTFLOW (cfs):	-.36	.25	187.72	16.00
CLRK-809	STAGE (ft):	19.30	.25	21.92	21.00
	VOLUME (af):	.11	.25	50.13	21.00
	RUNOFF (cfs):	.00	42.25	178.25	12.50
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	-6.03	.00	137.51	16.75
	OUTFLOW (cfs):	.00	2.50	157.98	15.75
CLRK-821	STAGE (ft):	17.44	.00	21.32	22.25
	VOLUME (af):	.00	.00	1.37	22.25
	RUNOFF (cfs):	.00	48.00	.00	48.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	-4.92	41.50	65.92	15.25
	OUTFLOW (cfs):	-4.86	39.50	63.62	15.25

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CLARK ROAD CORRIDOR DRAINAGE STUDY
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NODAL MIN/MAX/TIME CONDITIONS REPORT

NODE ID	PARAMETER	|<-- MINIMUMS -->| VALUE	TIME (hr)	|<-- MAXIMUMS -->| VALUE	TIME (hr)
CLRK-822	STAGE (ft):	17.60	8.00	21.29	22.50
	VOLUME (af):	.01	8.00	20.22	22.50
	RUNOFF (cfs):	.00	48.00	.00	48.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	-4.86	39.50	63.62	15.25
	OUTFLOW (cfs):	.00	10.25	45.10	22.50
CLRK-823	STAGE (ft):	14.70	.00	19.16	26.75
	VOLUME (af):	.14	10.25	17.76	26.75
	RUNOFF (cfs):	.00	48.00	.00	48.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	10.25	45.10	22.50
	OUTFLOW (cfs):	.00	13.75	41.29	26.75
CCM-59	STAGE (ft):	14.70	48.00	14.70	48.00
	VOLUME (af):	.00	13.75	60.99	48.00
	RUNOFF (cfs):	.00	48.00	.00	48.00
	OFFSITE (cfs):	.00	48.00	.00	48.00
	OTHER (cfs):	.00	13.75	41.29	26.75
	OUTFLOW (cfs):	.00	48.00	.00	48.00

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

REACH MAXIMUM FLOW REPORT

REACH ID	TIME (hrs)	FLOW (cfs)	FR NODE NAME	STAGE (ft)	TO NODE NAME	STAGE (ft)
CLRK-305	.00	.00	CLRK-299	25.00	CLRK-700	21.90
CLRK-310	15.50	1.46	CLRK-300	26.05	CLRK-800	23.60
CLRK-808	.00	.00	CLRK-803	19.10	CLRK-804	18.60
CLRK-298	.00	.00	CLRK-298	23.50	CLRK-299	25.00
CLRK-810	.00	.00	CLRK-801	20.00	CLRK-803	19.10
CLRK-299	15.50	1.72	CLRK-300	26.05	CLRK-299	25.10
CLRK-302	21.25	53.73	CLRK-302	28.49	CLRK-298	26.16
CLRK-600	25.50	34.18	CLRK-600	26.12	CLRK-601	25.31
CLRK-809	15.75	157.98	CLRK-809	21.51	CLRK-806	21.29
CCM-64	20.75	81.42	CCM-64	20.28	CCM-63	15.70
CCM-65	20.75	61.67	CCM-64	20.28	CCM-63	15.70
CLRK-101	16.75	8.71	CLRK-100	31.87	CLRK-700	24.18
CLRK-102	16.75	9.70	CLRK-100	31.87	CLRK-500	29.66
CLRK-103	16.75	8.40	CLRK-100	31.87	CLRK-500	29.66
CLRK-104	16.75	5.76	CLRK-100	31.87	CLRK-500	29.66
CLRK-303	21.25	53.72	CLRK-298	26.16	CLRK-601	25.45
CLRK-700	21.75	95.39	CLRK-700	24.46	CLRK-800	23.55
CLRK-803	16.75	30.65	CLRK-803	22.33	CLRK-804	21.64
CLRK-806	21.25	84.19	CLRK-806	21.80	CCM-64	20.28
CLRK-807	21.25	52.22	CLRK-806	21.80	CCM-64	20.28
CLRK-812	16.75	137.51	CLRK-802	22.38	CLRK-809	21.66
CLRK-820	15.25	65.92	CLRK-806	21.18	CLRK-821	20.17
CLRK-822	22.50	45.10	CLRK-822	21.29	CLRK-823	19.00
CLRK-500	18.75	29.01	CLRK-500	29.75	CLRK-600	26.03
CLRK-802	16.50	28.29	CLRK-802	22.36	CLRK-803	22.31
CLRK-804	16.50	30.91	CLRK-804	21.61	CLRK-805	21.48
CLRK-805	16.50	30.84	CLRK-805	21.48	CLRK-806	21.44
CLRK-821	15.25	63.62	CLRK-821	20.17	CLRK-822	19.97
CLRK-823	26.75	41.29	CLRK-823	19.16	CCM-59	14.70
CLRK-601	21.75	86.97	CLRK-601	25.45	CLRK-700	24.46
CLRK-800	16.75	163.01	CLRK-800	23.69	CLRK-801	23.01
CLRK-801	16.75	166.17	CLRK-801	23.01	CLRK-802	22.38

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

CONTROL PARAMETERS

START TIME: .00
END TIME: 240.00

TO TIME (hours)	SIMULATION INC (secs)	PRINT INC (mins)
240.00	1.00	15.00

RUNOFF HYDROGRAPH FILE: DEFAULT
OFFSITE HYDROGRAPH FILE: DEFAULT
BOUNDARY DATABASE FILE: NONE

NOTE:

CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
CCM-63	TIME	15.700	.000	.000	.000	15.700	.000
						15.700	36.000
CCM-64	AREA	14.880	.000	.000	.000	20.000	.700
						21.000	2.300
						22.000	9.000
CLRK-100	AREA	29.900	.000	.000	.000	29.900	.000
						33.200	.830
						33.600	6.470
						34.000	17.450
CLRK-298	AREA	23.500	.000	.000	.000	23.500	.020
						25.000	.030
						26.000	.040
						26.990	.050
						27.000	.100
						28.000	.100
CLRK-299	AREA	25.000	.000	.000	.000	25.000	.110
						26.000	1.010
						27.000	4.300
						28.000	12.020
CLRK-300	AREA	21.500	.000	.000	.000	21.500	.020
						25.000	.100
						26.000	1.100
						27.000	4.300
						28.000	12.200
CLRK-302	AREA	26.500	.000	.000	.000	26.500	12.000
						28.500	14.000
CLRK-500	AREA	28.100	.000	.000	.000	28.000	.490
						28.500	1.090
						29.000	4.310
						29.500	5.370
						30.000	7.000
CLRK-600	AREA	22.860	.000	.000	.000	22.860	.000
						24.500	2.000
						25.000	5.570
						26.000	19.610
						26.500	25.230

CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
CLRK-601	AREA	22.800	.000	.000	.000	26.000	.000
						27.000	.000
CLRK-700	AREA	21.900	.000	.000	.000	21.900	.000
						25.000	.790
						26.000	2.790
CLRK-800	AREA	20.500	.000	.000	.000	26.000	.000
						27.000	.000
CLRK-801	AREA	20.000	.000	.000	.000	24.000	.000
						25.000	.000
CLRK-802	AREA	19.000	.000	.000	.000	25.000	.000
						26.000	.000
CLRK-803	AREA	19.100	.000	.000	.000	25.000	.000
						26.000	.000
CLRK-804	AREA	18.600	.000	.000	.000	24.000	.570
						24.200	1.150
CLRK-805	AREA	17.500	.000	.000	.000	25.000	.000
						26.000	.000
CLRK-806	AREA	16.400	.000	.000	.000	16.400	.000
						23.000	.100
						24.000	.200
CLRK-809	AREA	19.500	.000	.000	.000	19.500	20.000
						20.500	20.391
						21.500	20.785
						22.500	21.181
						23.500	21.580
CLRK-821	AREA	17.440	.000	.000	.000	21.000	.000
						22.000	.000
CLRK-822	AREA	18.000	.000	.000	.000	18.000	5.000
						21.000	6.500

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CLARK ROAD CORRIDOR DRAINAGE STUDY
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NODE NAME	NODE TYPE	INI STAGE (ft)	X-COOR (ft)	Y-COOR (ft)	LENGTH (ft)	STAGE (ft)	AR/TM/STR (ac/hr/af)
CLRK-823	AREA	14.700	.000	.000	.000	17.500	9.500
						20.000	11.000
CCM-59	TIME	14.700	.000	.000	.000	14.700	.000
						14.700	36.000

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

>>REACH NAME : CLRK-305
FROM NODE : CLRK-299
TO NODE : CLRK-700
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 25.500 NUMBER X-Y PTS: 7.000 OPENING (ft): 999.000
WEIR COEF.: 2.800 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	25.960
59.000	25.830
159.000	25.620
209.000	25.500
259.000	25.660
359.000	25.960
559.000	26.560

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.120	5.25	87.50	87.50
.160	9.38	119.05	119.05
.330	41.32	256.67	256.67
.460	81.34	359.00	359.00
1.060	356.73	559.00	559.00
999.000	558205.20	559.00	559.00
1004.000	561000.20	559.00	559.00

NOTE: PROPOSED FDOT ROAD GRADE

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

>>REACH NAME : CLRK-310
FROM NODE : CLRK-300
TO NODE : CLRK-800
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 25.960 NUMBER X-Y PTS: 5.000 OPENING (ft): 999.000
WEIR COEF.: 2.800 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	26.700
100.000	26.480
200.000	26.270
300.000	26.050
341.000	25.960

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.090	1.85	41.00	41.00
.310	21.86	141.00	141.00
.520	61.97	241.00	241.00
.740	126.00	341.00	341.00
999.000	340532.60	341.00	341.00
1004.000	342237.60	341.00	341.00

NOTE: PROPOSED FDOT ROAD GRADE

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

>>REACH NAME : CLRK-808
FROM NODE : CLRK-803
TO NODE : CLRK-804
REACH TYPE : IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
CREST EL. (ft): 24.200 NUMBER X-Y PTS: 3.000 OPENING (ft): 999.000
WEIR COEF.: 2.800 GATE COEF.: .600 NUMBER OF ELEM.: 1.000

X-VAL (ft)	Y-VAL (ft)
.000	25.000
90.000	24.200
300.000	25.000

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)
.000	.00	.00	.00
.800	120.00	300.01	300.00
999.000	299580.00	300.01	300.00
1004.000	301080.00	300.01	300.00

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

```
>>REACH NAME       : CLRK-298
  FROM NODE        : CLRK-298
  TO NODE          : CLRK-299
  REACH TYPE       : RECTANGULAR WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  26.500  CREST LN. (ft):  40.000    OPENING (ft): 999.000
        WEIR COEF.:   2.800      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE: JASON ST.

>>REACH NAME       : CLRK-810
  FROM NODE        : CLRK-801
  TO NODE          : CLRK-803
  REACH TYPE       : TRAPEZOIDAL WEIR/GATE/ORIFICE, MAVIS EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  24.200 BTM. WIDTH (ft):  20.000   LEFT SS (h/v):  20.000
     RGHT SS (h/v):  20.000    OPENING (ft):    .800      WEIR COEF.:   2.600
        GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:

>>REACH NAME       : CLRK-299
  FROM NODE        : CLRK-300
  TO NODE          : CLRK-299
  REACH TYPE       : RECTANGULAR WEIR/GATE/ORIFICE, FREAD EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  26.000  CREST LN. (ft):  60.000    OPENING (ft): 999.000
        WEIR COEF.:   2.800      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE: DRIVEWAY

>>REACH NAME       : CLRK-302
  FROM NODE        : CLRK-302
  TO NODE          : CLRK-298
  REACH TYPE       : RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  26.500  CREST LN. (ft):   6.000    OPENING (ft): 999.000
        WEIR COEF.:   3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:

>>REACH NAME       : CLRK-600
  FROM NODE        : CLRK-600
  TO NODE          : CLRK-601
  REACH TYPE       : RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  23.500  CREST LN. (ft):   3.500    OPENING (ft): 999.000
        WEIR COEF.:   3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:
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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

```
>>REACH NAME       : CLRK-809
  FROM NODE        : CLRK-809
  TO NODE          : CLRK-806
  REACH TYPE       : RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
    CREST EL. (ft):  19.500  CREST LN. (ft):  35.000    OPENING (ft): 999.000
        WEIR COEF.:   3.200      GATE COEF.:    .600 NUMBER OF ELEM.:   1.000
              NOTE:
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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

```
>>REACH NAME       : CCM-64
  FROM NODE        : CCM-64
  TO NODE          : CCM-63
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  48.000       RISE (in):  48.000     LENGTH (ft):  61.000
   U/S INVERT (ft): 15.700 D/S INVERT (ft):  15.700       MANNING N:    .013
       ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : CCM-65
  FROM NODE        : CCM-64
  TO NODE          : CCM-63
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  36.000       RISE (in):  36.000     LENGTH (ft): 219.000
   U/S INVERT (ft): 15.560 D/S INVERT (ft):  13.550       MANNING N:    .013
       ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:
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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

```
>>REACH NAME       : CLRK-101
  FROM NODE        : CLRK-100
  TO NODE          : CLRK-700
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  18.000       RISE (in):  18.000     LENGTH (ft):  50.000
   U/S INVERT (ft):  29.900 D/S INVERT (ft):  29.600       MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

               NOTE:

>>REACH NAME       : CLRK-102
  FROM NODE        : CLRK-100
  TO NODE          : CLRK-500
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  29.000       RISE (in):  18.000     LENGTH (ft):  46.000
   U/S INVERT (ft):  30.100 D/S INVERT (ft):  30.100       MANNING N:    .024
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

               NOTE:
```

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

```
>>REACH NAME       : CLRK-103
  FROM NODE        : CLRK-100
  TO NODE          : CLRK-500
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  29.000       RISE (in):  18.000     LENGTH (ft):  46.000
   U/S INVERT (ft):  29.900 D/S INVERT (ft):  30.300       MANNING N:    .024
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : CLRK-104
  FROM NODE        : CLRK-100
  TO NODE          : CLRK-500
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  29.000       RISE (in):  18.000     LENGTH (ft):  46.000
   U/S INVERT (ft):  30.000 D/S INVERT (ft):  30.700       MANNING N:    .024
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:
```

```
* MESSAGE *     4  CLRK-105REACH SHUT OFF (WARNING ONLY)
 >>REACH NAME       : CLRK-105
   FROM NODE        : CLRK-100
   TO NODE          : CLRK-500
   REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
   FLOW DIRECTION   : NO FLOW ALLOWED, STRUCTURE SHUT OFF
   TURBO SWITCH     : OFF

   CULVERT DATA     :
         SPAN (in):  24.000       RISE (in):  24.000     LENGTH (ft):  40.000
    U/S INVERT (ft):  31.400 D/S INVERT (ft):  31.400       MANNING N:    .013
        ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

   POSITION A       : NOT USED

   POSITION B       : NOT USED

               NOTE: CLARK ROAD CROSS DRAINS

 >>REACH NAME       : CLRK-301
   FROM NODE        : CLRK-300
   TO NODE          : CLRK-800
   REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
   FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
   TURBO SWITCH     : OFF

   CULVERT DATA     :
         SPAN (in):  24.000       RISE (in):  24.000     LENGTH (ft):  80.000
    U/S INVERT (ft):  21.200 D/S INVERT (ft):  21.000       MANNING N:    .013
        ENTRNC LOSS:    .500   # OF CULVERTS:   4.000

   POSITION A       : NOT USED

   POSITION B       : NOT USED

               NOTE: APPROXIMATELY 1100' E. OF RR
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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

```
>>REACH NAME       : CLRK-303
  FROM NODE        : CLRK-298
  TO NODE          : CLRK-601
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  24.000       RISE (in):  24.000     LENGTH (ft):  80.000
   U/S INVERT (ft):  23.600 D/S INVERT (ft):  23.400      MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   4.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : CLRK-700
  FROM NODE        : CLRK-700
  TO NODE          : CLRK-800
  REACH TYPE       : CULVERT, RECTANGULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in): 120.000       RISE (in):  24.000     LENGTH (ft): 170.000
   U/S INVERT (ft):  21.600 D/S INVERT (ft):  21.300      MANNING N:    .013
       ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):  25.750  CREST LN. (ft): 100.000      WEIR COEF.:   2.800
          RESERVED:********        RESERVED:********        RESERVED:********

  POSITION B       : RECTANGULAR ROADWAY/BERM WEIR
    CREST EL. (ft):******** CREST LN. (ft):********      WEIR COEF.:********
          RESERVED:********        RESERVED:********        RESERVED:********

              NOTE: SAWYER ROAD & INDUSRIAL ENTRANCES
```

```
>>REACH NAME       : CLRK-803
  FROM NODE        : CLRK-803
  TO NODE          : CLRK-804
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  48.000       RISE (in):  48.000     LENGTH (ft): 265.000
   U/S INVERT (ft):  19.110 D/S INVERT (ft):  18.630       MANNING N:    .024
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:

>>REACH NAME       : CLRK-806
  FROM NODE        : CLRK-806
  TO NODE          : CCM-64
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  48.000       RISE (in):  48.000     LENGTH (ft):  40.000
   U/S INVERT (ft):  16.400 D/S INVERT (ft):  16.400       MANNING N:    .024
      ENTRNC LOSS:    .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE:
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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

```
>>REACH NAME       : CLRK-807
  FROM NODE        : CLRK-806
  TO NODE          : CCM-64
  REACH TYPE       : CULVERT, CIRCULAR w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  36.000       RISE (in):  36.000     LENGTH (ft):  40.000
   U/S INVERT (ft): 17.200 D/S INVERT (ft):  17.200       MANNING N:    .013
       ENTRNC LOSS:   .500   # OF CULVERTS:   1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

               NOTE:

>>REACH NAME       : CLRK-812
  FROM NODE        : CLRK-802
  TO NODE          : CLRK-809
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  83.000       RISE (in):  53.000     LENGTH (ft):1000.000
   U/S INVERT (ft): 19.000 D/S INVERT (ft):  18.000       MANNING N:    .013
       ENTRNC LOSS:   .500   # OF CULVERTS:   2.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

               NOTE:
```

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

```
>>REACH NAME       : CLRK-820
  FROM NODE        : CLRK-806
  TO NODE          : CLRK-821
  REACH TYPE       : CULVERT, ELLIPTICAL w/ ROADWAY
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  TURBO SWITCH     : OFF

  CULVERT DATA     :
        SPAN (in):  60.000      RISE (in):  38.000     LENGTH (ft): 166.000
   U/S INVERT (ft): 17.500 D/S INVERT (ft): 17.500       MANNING N:    .013
       ENTRNC LOSS:   .500   # OF CULVERTS:  1.000

  POSITION A       : NOT USED

  POSITION B       : NOT USED

              NOTE: SAWYER ROAD CROSS DRAIN @ RR
```

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

>>REACH NAME : CLRK-822
FROM NODE : CLRK-822
TO NODE : CLRK-823
REACH TYPE : DROP STRUCTURE w/ CIRC. CULVERT
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
TURBO SWITCH : OFF

CULVERT DATA :

SPAN (in):	48.000	RISE (in):	48.000	LENGTH (ft):	33.000
U/S INVERT (ft):	17.500	D/S INVERT (ft):	17.500	MANNING N:	.013
ENTRNC LOSS:	.500	# OF CULVERTS:	1.000		

POSITION A : RECTANGULAR RISER SLOT

CREST EL. (ft):	18.000	CREST LN. (ft):	4.000	OPENING (ft):	999.000
WEIR COEF.:	3.200	GATE COEF.:	.600	NUMBER OF ELEM.:	1.000

POSITION B : NOT USED

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

>>REACH NAME : CLRK-500
FROM NODE : CLRK-500
TO NODE : CLRK-600
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 400.000 U/S INVERT (ft): 28.100 D/S INVERT (ft): 28.100
MAX. DEPTH (ft): 3.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	30.000	.125
15.000	29.000	.125
35.000	28.000	.060
45.000	27.000	.060
50.000	26.999	.040
65.000	28.000	.040
95.000	29.000	.060
140.000	30.000	.125

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.001	.00	5.02	5.01	.0
1.001	17.51	30.09	30.00	417.3
2.001	72.51	80.13	80.00	2449.1
3.000	182.37	140.11	139.94	7423.3
3.001	182.51	140.11	140.00	7429.9
8.001	882.51	140.11	140.00	69216.6

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

>>REACH NAME : CLRK-802
FROM NODE : CLRK-802
TO NODE : CLRK-803
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 450.000 U/S INVERT (ft): 21.000 D/S INVERT (ft): 19.100
MAX. DEPTH (ft): 3.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	24.000	.040
4.000	23.000	.040
10.000	22.000	.040
13.000	21.000	.040
25.000	20.999	.040
31.000	22.000	.040
40.000	23.000	.040
48.000	24.000	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.001	.01	12.00	12.00	.0
1.001	16.51	21.25	21.00	518.4
2.001	45.01	36.38	36.00	1926.8
3.000	86.96	48.56	47.99	4764.3
3.001	87.01	48.56	48.00	4768.6
8.001	327.01	48.56	48.00	43323.2

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

>>REACH NAME : CLRK-804
FROM NODE : CLRK-804
TO NODE : CLRK-805
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 500.000 U/S INVERT (ft): 18.630 D/S INVERT (ft): 17.500
MAX. DEPTH (ft): 7.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	25.000	.020
70.000	24.000	.020
116.000	23.000	.040
122.000	22.000	.040
128.000	21.000	.040
131.000	20.000	.040
135.000	18.000	.040
138.000	17.999	.040
142.000	20.000	.040
143.000	21.000	.040
145.000	22.000	.040
150.000	23.000	.040
152.000	24.000	.040
154.000	25.000	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.001	.00	3.00	3.00	.0
2.001	14.00	11.95	11.00	578.4
3.001	27.00	16.52	15.00	1391.9
4.001	46.00	24.84	23.00	2577.3
5.001	74.50	36.02	34.00	4493.0
6.001	132.50	84.27	82.00	6656.2
7.000	250.35	156.44	153.93	16336.9
7.001	250.50	156.44	154.00	16351.9
12.001	1020.50	156.44	154.00	178403.4

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

>>REACH NAME : CLRK-805
FROM NODE : CLRK-805
TO NODE : CLRK-806
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft): 800.000 U/S INVERT (ft): 17.500 D/S INVERT (ft): 16.400
MAX. DEPTH (ft): 3.000

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	20.000	.040
5.000	17.000	.040
10.000	16.999	.040
15.000	20.000	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.001	.00	5.00	5.00	.0
3.000	29.99	16.66	15.00	1648.7
3.001	30.00	16.66	15.00	1650.1
8.001	105.01	16.66	15.00	13310.7

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

>>REACH NAME : CLRK-821
FROM NODE : CLRK-821
TO NODE : CLRK-822
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft):1000.000 U/S INVERT (ft): 17.500 D/S INVERT (ft): 17.440
MAX. DEPTH (ft): 4.500

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	22.000	.040
18.000	17.500	.040
33.000	17.499	.040
51.000	22.000	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.001	.01	15.00	15.00	.0
4.500	148.47	52.10	50.99	11085.9
4.501	148.52	52.10	51.00	11092.2
9.501	403.52	52.10	51.00	58681.0

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

>>REACH NAME : CLRK-823
FROM NODE : CLRK-823
TO NODE : CCM-59
REACH TYPE : IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
FLOW DIRECTION : POSITIVE AND NEGATIVE FLOWS ALLOWED
OUTLET CONTROL : FREE
LENGTH (ft):1000.000 U/S INVERT (ft): 17.560 D/S INVERT (ft): 14.700
MAX. DEPTH (ft): 4.400

X-VAL (ft)	Y-VAL (ft)	N-VAL
.000	20.100	.040
17.600	15.700	.040
32.600	15.699	.040
53.400	20.900	.040

DEPTH (ft)	AREA (sf)	PERIM (ft)	TOPWD (ft)	CONVEYANCE
.000	.00	.00	.00	.0
.001	.01	15.00	15.00	.0
4.400	143.41	51.28	50.19	10575.4
4.401	143.46	51.28	50.20	10581.6
5.201	184.90	51.28	53.40	16152.2
10.201	451.90	51.28	53.40	71627.2

NOTE:

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

```
>>REACH NAME       : CLRK-601
  FROM NODE        : CLRK-601
  TO NODE          : CLRK-700
  REACH TYPE       : TRAPEZOIDAL CHANNEL, MOMENTUM EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  OUTLET CONTROL   : FREE
   BOT. WIDTH (ft):  10.000   LEFT SS (h/v):   2.000   RGHT SS (h/v):   2.000
       LENGTH (ft): 900.000 U/S INVERT (ft):  23.400 D/S INVERT (ft):  21.600
         MANNING N:    .030 MAX. DEPTH (ft):   3.500

               NOTE:

>>REACH NAME       : CLRK-800
  FROM NODE        : CLRK-800
  TO NODE          : CLRK-801
  REACH TYPE       : TRAPEZOIDAL CHANNEL, MOMENTUM EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  OUTLET CONTROL   : FREE
   BOT. WIDTH (ft):  20.000   LEFT SS (h/v):   2.000   RGHT SS (h/v):   2.000
       LENGTH (ft): 750.000 U/S INVERT (ft):  20.500 D/S INVERT (ft):  20.000
         MANNING N:    .040 MAX. DEPTH (ft):   5.000

               NOTE:

>>REACH NAME       : CLRK-801
  FROM NODE        : CLRK-801
  TO NODE          : CLRK-802
  REACH TYPE       : TRAPEZOIDAL CHANNEL, MOMENTUM EQ.
  FLOW DIRECTION   : POSITIVE AND NEGATIVE FLOWS ALLOWED
  OUTLET CONTROL   : FREE
   BOT. WIDTH (ft):  20.000   LEFT SS (h/v):   2.000   RGHT SS (h/v):   2.000
       LENGTH (ft): 550.000 U/S INVERT (ft):  20.000 D/S INVERT (ft):  19.500
         MANNING N:    .040 MAX. DEPTH (ft):   5.000

               NOTE:
```

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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

REACH SUMMARY

INDEX	RCHNAME	FRMNODE	TONODE	REACH TYPE
1	CLRK-305	CLRK-299	CLRK-700	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
2	CLRK-310	CLRK-300	CLRK-800	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
3	CLRK-808	CLRK-803	CLRK-804	IRREGULAR WEIR/GATE/ORIFICE, FREAD EQ.
4	CLRK-298	CLRK-298	CLRK-299	RECTANGULAR WEIR/GATE/ORIFICE, FREAD EQ.
5	CLRK-810	CLRK-801	CLRK-803	TRAPEZOIDAL WEIR/GATE/ORIFICE, MAVIS EQ.
6	CLRK-299	CLRK-300	CLRK-299	RECTANGULAR WEIR/GATE/ORIFICE, FREAD EQ.
7	CLRK-302	CLRK-302	CLRK-298	RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ
8	CLRK-600	CLRK-600	CLRK-601	RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ
9	CLRK-809	CLRK-809	CLRK-806	RECTANGULAR WEIR/GATE/ORIFICE, VILLEMONTE EQ
10	CCM-64	CCM-64	CCM-63	CULVERT, CIRCULAR w/ ROADWAY
11	CCM-65	CCM-64	CCM-63	CULVERT, CIRCULAR w/ ROADWAY
12	CLRK-101	CLRK-100	CLRK-700	CULVERT, CIRCULAR w/ ROADWAY
13	CLRK-102	CLRK-100	CLRK-500	CULVERT, ELLIPTICAL w/ ROADWAY
14	CLRK-103	CLRK-100	CLRK-500	CULVERT, ELLIPTICAL w/ ROADWAY
15	CLRK-104	CLRK-100	CLRK-500	CULVERT, ELLIPTICAL w/ ROADWAY
16	CLRK-105	CLRK-100	CLRK-500	CULVERT, CIRCULAR w/ ROADWAY
17	CLRK-301	CLRK-300	CLRK-800	CULVERT, CIRCULAR w/ ROADWAY
18	CLRK-303	CLRK-298	CLRK-601	CULVERT, CIRCULAR w/ ROADWAY
19	CLRK-700	CLRK-700	CLRK-800	CULVERT, RECTANGULAR w/ ROADWAY
20	CLRK-803	CLRK-803	CLRK-804	CULVERT, CIRCULAR w/ ROADWAY
21	CLRK-806	CLRK-806	CCM-64	CULVERT, CIRCULAR w/ ROADWAY
22	CLRK-807	CLRK-806	CCM-64	CULVERT, CIRCULAR w/ ROADWAY
23	CLRK-812	CLRK-802	CLRK-809	CULVERT, ELLIPTICAL w/ ROADWAY
24	CLRK-820	CLRK-806	CLRK-821	CULVERT, ELLIPTICAL w/ ROADWAY
25	CLRK-822	CLRK-822	CLRK-823	DROP STRUCTURE w/ CIRC. CULVERT
26	CLRK-500	CLRK-500	CLRK-600	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
27	CLRK-802	CLRK-802	CLRK-803	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
28	CLRK-804	CLRK-804	CLRK-805	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
29	CLRK-805	CLRK-805	CLRK-806	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
30	CLRK-821	CLRK-821	CLRK-822	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
31	CLRK-823	CLRK-823	CCM-59	IRREGULAR SECTION CHANNEL, MOMENTUM EQ.
32	CLRK-601	CLRK-601	CLRK-700	TRAPEZOIDAL CHANNEL, MOMENTUM EQ.
33	CLRK-800	CLRK-800	CLRK-801	TRAPEZOIDAL CHANNEL, MOMENTUM EQ.
34	CLRK-801	CLRK-801	CLRK-802	TRAPEZOIDAL CHANNEL, MOMENTUM EQ.

Advanced Interconnected Channel & Pond Routing (adICPR Ver 1.40)
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CLARK ROAD CORRIDOR DRAINAGE STUDY
08-21-92

INPUT SUMMARY

DATA TYPE	NUMBER READ
NODES	23
REACHES	
WEIRS	9
CULVERTS	15
DROP STRUCTURES	1
CHANNELS, ENERGY EQ.	0
CHANNELS, MOMENTUM EQ.	9
RATING CURVES	0
TOTAL REACHES	34

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PALMER RANCH

S A R A S O T A

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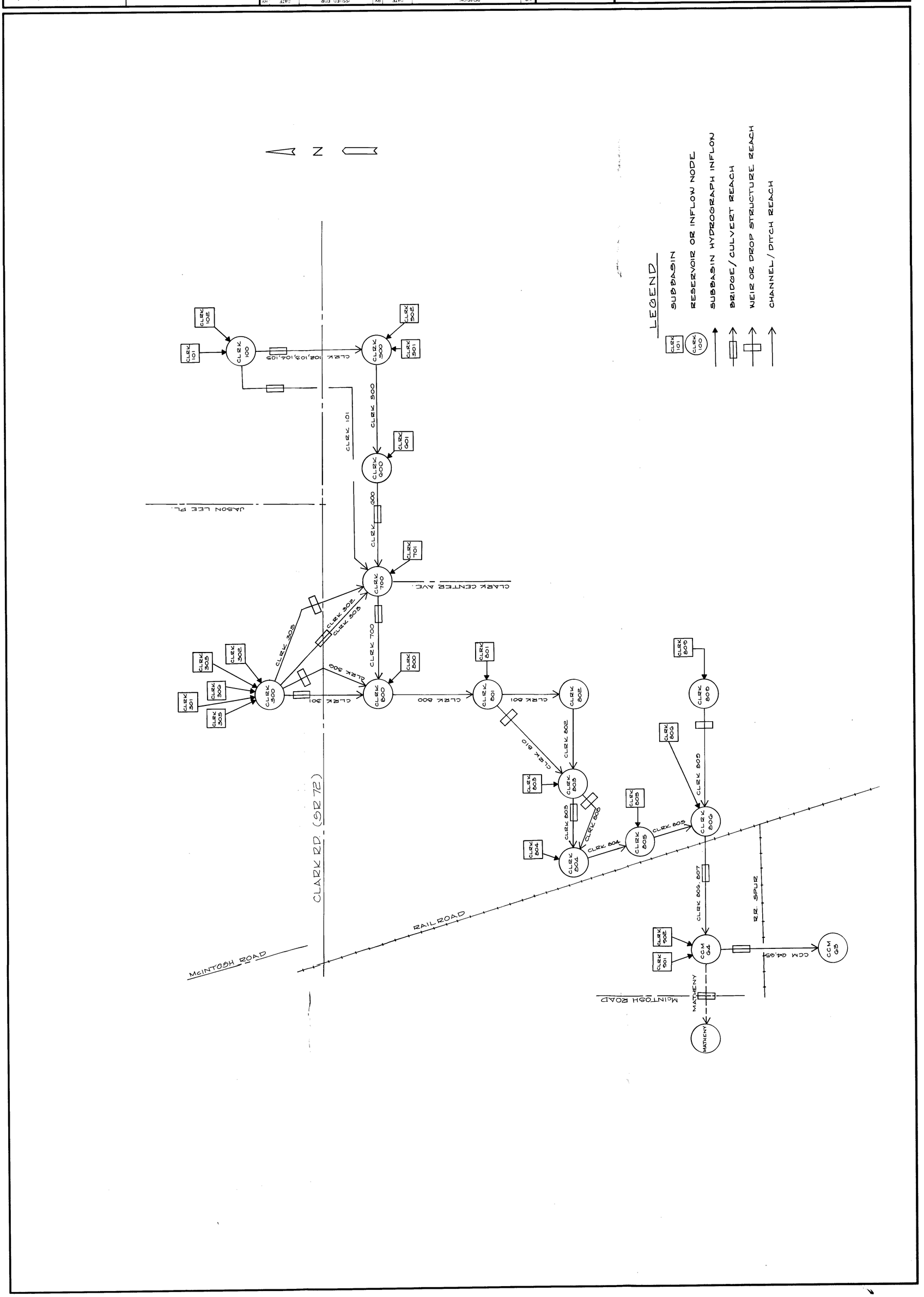

FOR: SARASOTA COUNTY

TITLE: CLARK ROAD DRAINAGE STUDY

DESC: SURFACE WATER ROUTING SCHEMATIC FOR EXISTING CLARK ROAD VICINITY

X
STEPHEN M. SUAU, P.E.
FLA. CERT. NO. 36309
DATE

NO.	REVISION	DATE	BY	ISSUED FOR	DATE	BY

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Engineers ◇ Planners ◇ Surveyors

Design By: WT | Drawn By: MAY | Checked By: | Project No.: G73903
CADD File: | Plot Index: | Date: | SCALE: