



CITY OF TAMPA

Pam Iorio, Mayor

CONTRACT ADMINISTRATION DEPARTMENT

David L. Vaughn, AIA, Director

ADDENDUM NO. 2

DATE: January 10, 2008

Contract 08-C-00003; Manhole Rehabilitation of Clark Phase 2 and Various Interceptors

Bidders on the above referenced project are hereby notified that the following addendum is made to the Contract Documents. **BIDS TO BE SUBMITTED SHALL CONFORM TO THIS NOTICE.**

The Scope of this project is hereby adjusted to rehabilitation of 47 manholes in the Clark, Manhattan, and 12th Street Interceptors by installation of fiberglass liners.

Item 1: Replace Section W52 with attached revised Section W52 – Manhole and Structure Rehabilitation.

Item 2: Add the following to Specifications:

SP-10001– Force Main Connection in Manholes C6 and M13

Manhole C6 has 10-inch force main connection as depicted on the plans. If the flow from this force main inhibits the Contractor's ability to complete the manhole rehabilitation, the contractor may install a flow-through bypass plug with a hose extending into the discharge pipe or submit an alternate method to complete the liner installation. The installation of the plug or approved alternate method shall be done at no additional cost to the City. If necessary, the City will shut down the flow in the force main for a maximum of 2-hours.

The Contractor shall rehabilitate the top portion only of Manhole M13 as noted on the schedule. Therefore, the 12-inch force main connection shall not require any special bypass plugs or pumping station shut downs to complete the work.

Item 3: Replace Contract Items pages C-1 and C-2 with attached pages C-1R and C-2R.

Item 4: Replace page P-3 with attached P-3R.

Item 5: Replace plan sheet pages 1 through 16 with pages 1 through 12 attached.

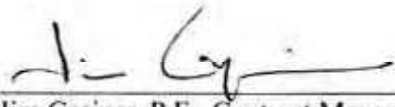
306 E. Jackson Street, 4N • Tampa, Florida 33602 • (813) 274-8456 • FAX: (813) 274-8080

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This addendum shall be included in and attached to the inside cover of the Contract Documents by and upon which bids are submitted.

All other provisions of the Contract Documents and Specifications not in conflict with this Addendum shall remain in full force and effect.

Questions may be directed to Jim Greiner, P.E.; Telephone (813) 274-8598, fax (813) 274-8080, or e-mail Jim.Greiner@tampagov.net.



Jim Greiner, P.E., Contract Manager
Contract Administration Department

SECTION 52 - MANHOLE AND STRUCTURE REHABILITATION

W-52.01 General

It is the intent of this specification to provide for the rehabilitation of the existing brick and concrete manholes, junction chambers and structures shown on the drawings, specified and directed by the Engineer. The rehabilitation shall consist of a Fiberglass Liner Insertion as specified herein. All aspects of the rehabilitation shall be done in strict accordance to the manufacturer's instructions.

It is the Contractor's responsibility to comply with OSHA standards and all regulations pertaining to work in confined space entry.

W-52.02 Submittals

Prior to the commencement of any rehabilitation work, the Contractor shall submit the following to the Engineer for approval:

- 1) A rehabilitation plan detailing the methods, materials and procedures proposed for the rehabilitation of all manholes and junction chambers.
- 2) Mortar and hydraulic cement mix designs detailing the compressive strengths, cement/water ratios, slump, etc.
- 3) Description of all the equipment to be used for the rehabilitation.
- 4) Safety plan describing all safety equipment to be utilized in compliance with OSHA standards pertaining to work in confined space entry.

W-52.06 Rigid Fiberglass Liner Insertion

1. General

This rehabilitation method requires the excavation and removal of the existing manhole frame, chimney, and corbel section and the insertion of a prefabricated fiberglass reinforced polyester manhole liner.

The fiberglass reinforced polyester manhole liner shall be manufactured from commercial grade polyester with fiberglass reinforcements. The manhole liner shall be a one-piece unit consisting of a barrel section, corbel or reducer section. Contractor shall provide a polyethylene I and I barrier that extends to the frame and cover, as manufactured by Strike Products, Cannon Falls, Minnesota or equal. The manhole liner shall be manufactured to meet or exceed all specifications of ASTM D-3753, latest addition, as manufactured by L. F. Manufacturing, Inc., Giddens, Texas, or equal.

2. Design Requirements

The complete manhole liner shall be designed to support a standard 16,000-pound vertical dynamic wheel load (AASHTO H-20).

3. Materials

The resins used shall be a commercial grade unsaturated polyester resin or other suitable polyester or vinyl ester resin.

The reinforcing materials shall be commercial grade "E" type glass in the form of continuous roving, and chop roving, having a coupling agent that will provide a suitable bond between the glass reinforcement and the resin.

The inner surface exposed to the sewer environment shall be a resin-rich layer 0.010 to 0.020 inch thick followed by a minimum of two passes of chopped roving of minimum length 0.5 inch to maximum length of 2.0 inches applied uniformly to an equivalent weight of 3 oz/ft². Each pass of chopped roving shall be well rolled prior to the application of additional reinforcement. The combined thickness of the inner surface and interior layer shall be not less than 0.10 inch.

After the inner layer has been applied, the manhole liner wall shall be constructed with chop and continuous strand filament-wound manufacturing process to ensure continuous reinforcement, and uniform strength and composition. The cone section, if produced separately, shall be affixed to the barrel section at the factory with a resin-glass reinforced joint resulting in a one-piece unit. Seams shall be fiberglassed on the inside and outside using the same glass-resin jointing process. Field joints shall not be acceptable.

Fillers, when used, shall be inert to the sewer environment and manhole construction. Sand shall not be accepted as an approved filler. Additives, such as thixotropic agents, catalysts, promoters, etc., may be added as required to meet the minimum design parameters.

4. Manufacture

Manhole liner cylinders, manway reducers, corbel sections, connectors, and neck sections shall be produced from glass fiber-reinforced polyester resin using a combination of chop and continuous filament-wound process.

Manway reducers or corbel sections will be concentric or eccentric with respect to the larger cylinder portion of the manhole liner.

The manhole liner shall provide an area from which a typical frame and cover can be supported without damage to the manhole liner.

The manhole liner neck section shall extend from the frame and cover support area up to the frame and cover. The neck section shall be designed to protect the adjustment rings, brick, and mortar used to bring the frame and cover to final grade.

5. Installation Procedure

The rigid fiberglass liner shall be installed in accordance with the construction drawings. First, an area shall be excavated around the top of the existing manhole of sufficient width and depth to facilitate the removal of the manhole frame and corbel section.

After the corbel section is removed and disposed of in a manner approved by the Engineer, all active hydrostatic infiltration shall be plugged using hydraulic cement, and the interior surface of the manhole shall be pressure washed to remove all loose materials. Depending on the condition of the manhole wall, application of a muriatic acid solution to the walls may be required.

The bottom of the manhole liner shall be cut to fit the existing manhole base. Cuts shall be accurately made with a suitable power saw.

The manhole liner shall be lowered into the existing manhole and set into wet, Class D concrete mix on the benches. A good bottom seal shall be obtained in order to prevent loss in grout from the annular space between the outside of the manhole liner and the interior of the existing manhole. A 6-inch lift of quick-setting grout shall be placed above the initial bottom seal to ensure adequacy of the bottom seal. Existing pipes shall be bridged with short lengths of fiberglass pipes and sealed as detailed in the construction drawings.

The annular void between the manhole liner and the existing brick or concrete manhole shall be filled with a 4,000 psi at 28-days strength grout mixture. The grout mixture shall consist of Portland cement and sand. The actual design mix showing the proportions of each component and admixtures, if any, shall be submitted to the Engineer for approval.

W-52.07 Contractor Qualifications

The manufacturer and installer of the rehabilitation system shall be specialized in the design and installation of the rehabilitation system for at least 5 years. The installer shall be approved and certified in writing by the manufacturer and shall be completely trained in leak repair, surface preparation, and installation of the rehabilitation system. References shall be provided upon request to demonstrate that the installer has successfully used the rehabilitation system in Florida on a minimum of 5 projects, one of which must be at least 5 years old.

W-52.08 Inspection

All phases of the manhole rehabilitations such as surface preparation, bench reconstruction, liner installation, annulus sealing, grouting, etc., will be inspected by the Department's Field Engineering personnel for conformance to the specifications, construction drawings, and liner manufacturer's instructions. The Contractor shall, therefore, coordinate his schedule for the installation of the manhole liners with the field office, and with due regard for site and weather conditions prevailing at the time. The final manholes shall be completely free of fiberglass defects. The intent of the inspection is to find any deficiencies to the finished liner. Contractor shall repair deficiencies within 1 week of notification.

W-52.09 Rehabilitated Manhole Re-Inspection

The Contractor shall be required to assist in re-inspection of all manholes 10 months after rehabilitation has been completed. The re-inspection shall be completed with but not limited to Maintenance of traffic, hand tools, as necessary for inspection as required by the Engineer to ensure no system failures have occurred as listed in the Workmanship and Materials Section W-52.10 Warranty. The Contractor shall repair deficiencies within 1 week of notification. Re-Inspection shall be completed at no additional cost to the City.

W-52.10 Warranty

The Manhole Rehabilitation Contractor shall furnish the City of Tampa with an unconditional 5-year warranty for materials and workmanship. This warranty shall be a guarantee against failure for the warranty period. Failure shall be defined to occur if the rehabilitation system fails to:

1. Prevent the internal damage or corrosion of the structure.
2. Prevent groundwater infiltration.
3. Adhere to existing structure wall.

If any failures occur within the specified warranty period after final acceptance, the Contractor shall repair or restore the structure to its previously accepted state including all materials, labor, and at no additional cost to the City. Repair shall be completed within 30 days of written notification of the failure.

CONTRACT ITEMS

CONTRACT ITEM 4600 SERIES - MANHOLE FRAME AND COVER REPLACEMENT

The work includes all brick masonry, furnishing frames and covers, and setting frames in mortar to the lines and grades shown on the Plans, existing, or furnished by the Engineer. Work also includes the removal of the existing frames and covers, excavation, backfill, compaction, pavement restoration, sod restoration, and the construction of a concrete slab.

The quantity of Cast Iron Manhole Frame and Cover units to be measured for payment will be the actual number of such units installed in the work.

Payment for Cast Iron Manhole Frame and Cover units will be made at the Contract Unit Price per frame and cover.

CONTRACT ITEM 4800 SERIES – MANHOLE REHABILITATION

The contractor shall furnish all labor, materials and equipment to rehabilitate the existing manhole, complete as shown on the Plans, specified, and directed by the Engineer.

The manhole rehabilitation shall conform to the Workmanship and materials section headed "Manhole Rehabilitation," and to the requirements shown on the drawings.

The work comprises installing an approved Fiberglass Liner Insertion as specified including surface preparation, cleaning, application of hydraulic cement or other means to fill voids and stop infiltration, curing, visually inspecting finished liner, testing, and all appurtenant work. The work shall also include permanent pavement and sod restoration (where applicable) and all appurtenant work.

The contractor shall furnish all labor, materials and equipment for the manhole bench rehabilitation, complete as shown on the Plans, specified, and directed by the Engineer.

The work includes the removal of all deteriorated concrete and loose bricks from the existing bench, restoring bench with a hydraulic cement and seal with minimum 120 mils of hand-laid fiberglass and resin or epoxy.

The Contractor shall furnish all labor, materials and equipment to transport all debris removed including but not limited to manhole frame, cover and corbel section from the existing manholes to an approved disposal site.

Payment for the manhole rehabilitation, manhole bench rehabilitation and disposal of debris will be made at the appropriate Contract Item Unit Price per vertical foot of manhole rehabilitated.

CONTRACT ITEM 6000 - MAINTENANCE OF TRAFFIC

The Contractor shall furnish all materials, equipment, and labor to establish and maintain all traffic maintenance devices and personnel for the lane closure as shown on the Plans, specified, and directed by the Engineer.

The work includes all striping requirements as described in Specific Provision 24, installation of all signs, barricades, lights and flagmen, additional earth excavation, selected fill, temporary wearing surface, temporary bridges, and all appurtenant work complete in place as necessary to control traffic and provide for safety to the public, all in compliance with the Manual on Uniform Traffic Control Devices, "MUTCD," with subsequent revisions and additions, and to the satisfaction of the Engineer.

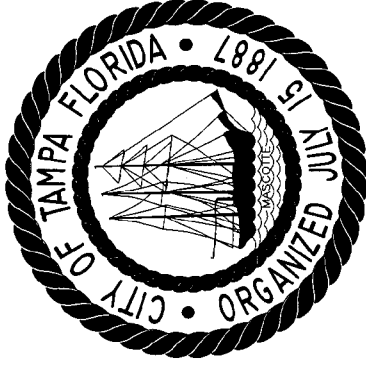
Payment for Maintenance of Traffic will be made at the appropriate Contract Lump Sum Price.

Manhole Rehabilitation of Clark Phase II Interceptor
and Other Interceptors - Contract 08-C-00003

Item No.	Description	Unit	Approx. Quantity	Unit Price in Words	Unit Price	Total Computed Price
100	Contingency	L.S.	1	Twenty Thousand Dollars and No Cents	\$ 20,000.00	\$ 20,000.00
6000	Maintenance of Traffic	L.S.	1		\$	\$
4600.1	Small Size Manhole Frame and Cover Replacement	E.A.	3		\$	\$
4600.2	Large Size Manhole Frame and Cover Replacement	E.A.	25		\$	\$
4800.42	Manhole Rehabilitation, Fiberglass Insertion -42"	V.F.	700		\$	\$
4800.36	Manhole Rehabilitation, 36" Dia. Manhole M13 by Coating System	V.F.	5		\$	\$
TOTAL \$						

B060-074

CITY of TAMPA



WASTEWATER DEPARTMENT

PLANS FOR

MANHOLE REHABILITATIONS FOR:
CLARK INTERCEPTOR, PHASE II
AND OTHER INTERCEPTORS

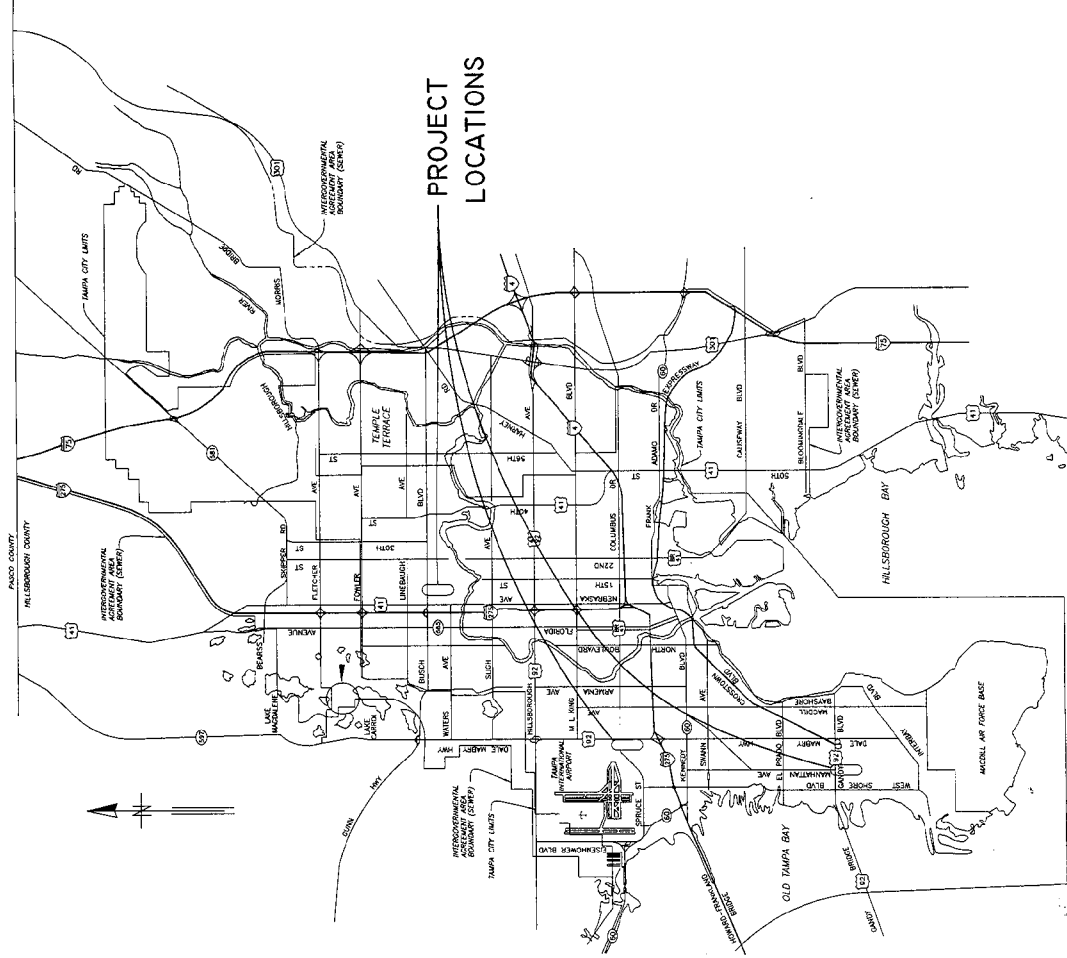
CONTRACT 8-C-00003

W.O. 4010
SHEET
I
of 12

COVER SHEET

CITY of TAMPA
WASTEWATER DEPARTMENT

LOCATION MAP



PROJECT
LOCATIONS

REVISIONS

No.	DATE
3	11/10/08
2	
1	

James C. Calhoun
 JAMES CALHOUN
 DESIGN DIVISION HEAD
 WASTEWATER DEPARTMENT

DES: CW
 DRN: EB
 CKO: JF
 DATE: 11/10/08

GENERAL NOTES

1. THE MANHOLE LOCATIONS SHOWN WERE SUPERIMPOSED OVER 2006 AERIAL PHOTOGRAPHS. SOME TOPOGRAPHIC FEATURES MAY NOT ACCURATELY APPROXIMATE BUT WERE FIELD VERIFIED. ALL INVERT AND RIM ELEVATIONS PROVIDED ARE BASED ON RECORD DRAWINGS.
2. FOR THE MANHOLES IN FDOT MAINTAINED ROADWAYS, THE CONTRACTOR SHALL NOTIFY FDOT MAINTENANCE DIVISION (SHIRLEEN BOONE OR JAMIE SWEENEY) AT 744-6038 A MINIMUM OF 48 HOURS PRIOR TO STARTING THE MANHOLE REHABILITATION WORK. FDOT CONSIDERS THIS WORK AS MAINTENANCE AND AS A RESULT, A RIGHT-OF-WAY PERMIT IS NOT REQUIRED. HOWEVER, CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL SIGNAGE IN ACCORDANCE TO FDOT INDEX 602 FOR ANY WORK ACTIVITY LOCATED 15' OR LESS FROM THE EDGE OF PAVEMENT. REFER TO SPECIFIC PROVISIONS FOR CONSTRUCTION WORK HOURS.
3. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR OBTAINING THE NECESSARY ROAD CLOSURE AND RIGHT-OF-WAY PERMITS FROM THE APPROPRIATE GOVERNMENT AGENCIES HAVING JURISDICTION OVER THE SPECIFIC ROADWAYS. TABLE 1, ON THIS SHEET, LISTS THE CONTACT NAMES AND PHONE NUMBERS FOR THE AGENCIES WITH JURISDICTION OVER THE VARIOUS LOCATIONS THROUGHOUT THIS PROJECT.
4. IN ORDER TO OBTAIN ROADWAY CLOSURE OR RIGHT-OF-WAY PERMITS, AT MINIMUM, THE CONTRACTOR MUST SUBMIT DETAILED MAINTENANCE OF TRAFFIC (MOT) PLANS ALONG WITH APPLICATIONS TO THE APPROPRIATE AGENCY. THE MOT(S) SHALL CONFORM TO APPLICABLE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) INDEX DRAWINGS (MOST CURRENT EDITION). THE GOVERNING AGENCIES MAY REQUIRE ADDITIONAL INFORMATION AND DICTATE SPECIFIC WORK TIMES DURING NON-PEAK TRAFFIC HOURS. REFER TO SPECIFIC PROVISIONS FOR SPECIFIC TRAFFIC CONTROL REQUIREMENTS.
5. DURING THE MANHOLE'S INTERIOR CLEANING OPERATION, THE CONTRACTOR MUST PROVIDE A MEANS OF CAPTURING AND DISPOSING OF THE REMOVED DEBRIS. THIS METHOD SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.
6. THE ONLY EXCAVATION NECESSARY FOR THIS PROJECT IS FOR THE FIBERGLASS LINER INSERTION AND REMOVAL AND RE-PLACEMENT OF THE MANHOLE FRAME AND COVERS AS INDICATED IN THE SCHEDULE. FOR THESE CASES, THE CONTRACTOR IS REQUIRED TO CALL SUNSHINE AT 1-800-432-4770 TO DETERMINE UTILITY LOCATIONS PRIOR TO EXCAVATION.
7. OSHA STANDARD EQUIPMENT SUCH AS SAFETY HARNESSSES, GAS MONITORS, LOWER EXPLOSIVE LIMIT (LEL) DETECTORS, BREATHING APPARATUS, ETC. SHALL BE UTILIZED WHERE THE WORK DICTATES THEIR USE. IT IS THE ENGINEER'S INTENT THAT THE MANHOLE REHABILITATION AND BENCH RESTORATION WILL NOT REQUIRE BYPASS PUMPING. HOWEVER, WORK DURING LOW-FLOW PERIODS MAY BE NECESSARY.
8. ALL RING AND COVERS DESIGNATED TO BE REMOVED SHALL BE DISPOSED OF BY THE CONTRACTOR IN A MANNER APPROVED BY THE ENGINEER.
9. CONTRACTOR SHALL COORDINATE CONSTRUCTION TO ALLOW ALL PEDESTRIAN WALKWAYS AND TRAFFIC LANES TO REMAIN OPEN ON ALL AFFECTED ROADWAYS DURING EVENTS AT RAYMOND JAMES STADIUM.
10. THE CONTRACTOR SHALL PROPERLY RECONNECT THE SMALL DIAMETER ODOR CONTROL "THIO-GUARD" PIPE (±1" DIAMETER) AT MANHOLE NUMBER C4 LOCATED ON GRADY AVE.

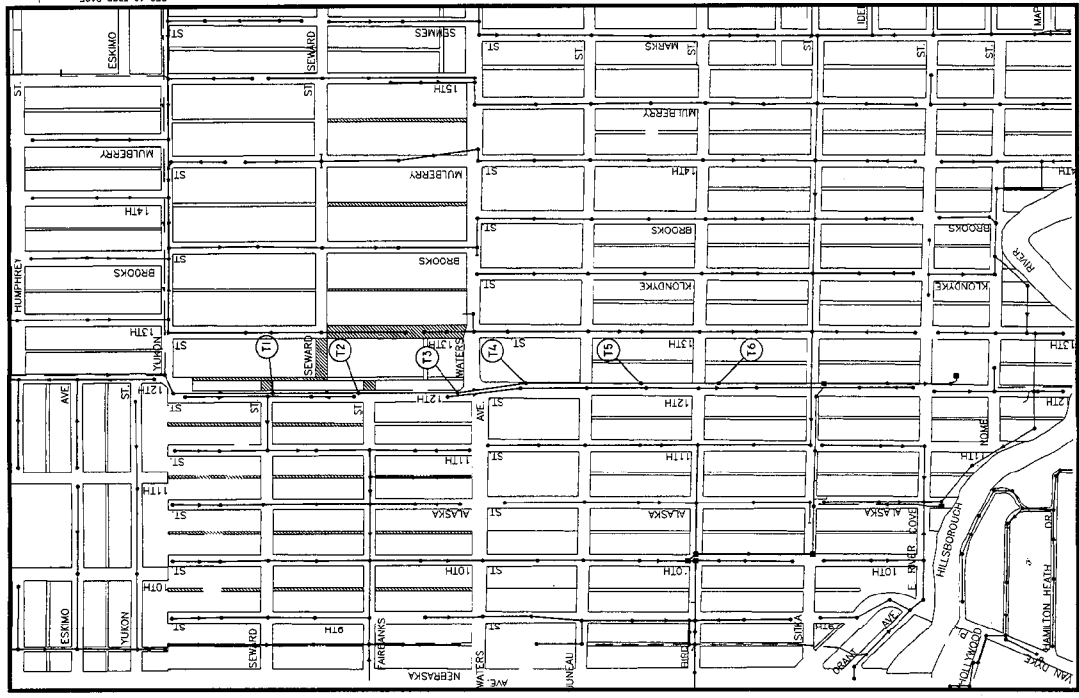
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2	INDEX, GENERAL NOTES & TABLES
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4	AERIAL VIEWS - COLUMBUS DR., GRADY AVE. & SPRUCE STREET MANHOLES #'s C1 TO C19
5	AERIAL VIEW - DALE MARY HWY. AND COLUMBUS DRIVE MANHOLES #'s C20 TO C28
6	AERIAL VIEWS - MANHATTAN AVE. MANHOLES #'s M1 TO M8
7	AERIAL VIEWS - MANHATTAN AVE. MANHOLES #'s M9 TO M13
8	AERIAL VIEWS - 12th STREET MANHOLES #'s T1 TO '16
9	MANHOLE REHAB SCHEDULE & SUMMARY OF QUANTITIES
10	EXISTING MANHOLE DETAILS
11	FIBERGLASS LINER DETAIL
12	MISCELLANEOUS DETAILS

TRAFFIC OPERATIONS CONTACTS NAMES

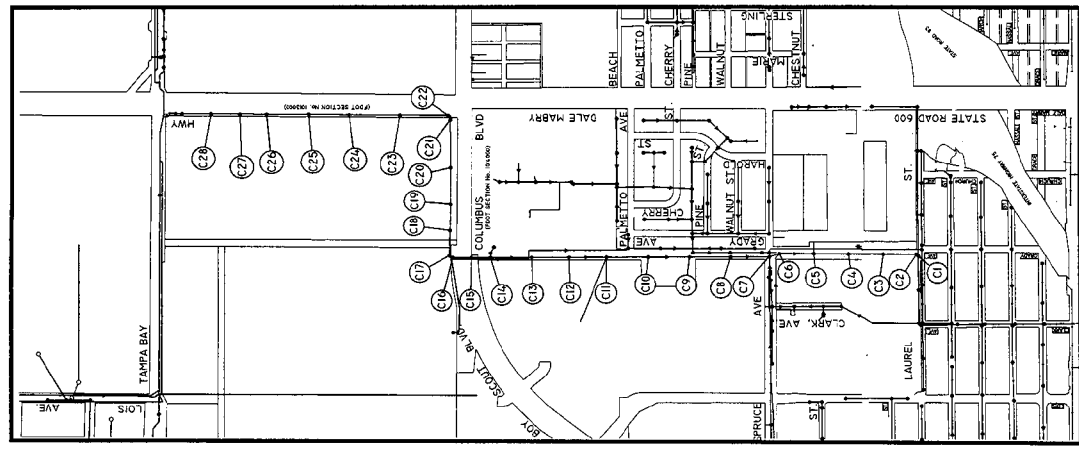
LOCATION (JURISDICTION)	CONTACT NAME	PHONE NUMBER
DALE MARY HWY. (SEC. No. 10130000) COLUMBUS DR. (SEC. No. 10140000) SPRUCE ST. (SEC. No. 10140000) (FDOT)	SHIRLEEN BOONE	744-6038
MANHATTAN AVE., GRADY AVE., & 12th STREET (CITY OF TAMPA)	DAVID HOLIFMAN	274-5656

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No. 3 DATE	DES: CW DRN: 23 CKD: JF DATE: 1/19/08	City of Tampa WASTEWATER DEPARTMENT	MANHOLE REHABILITATIONS FOR: CLARK INTERCEPTOR, PHASE II AND OTHER INTERCEPTORS NOTES, CONTACTS & INDEX	W.O. 4010 SHEET 2 OF 12
	REVISIONS				
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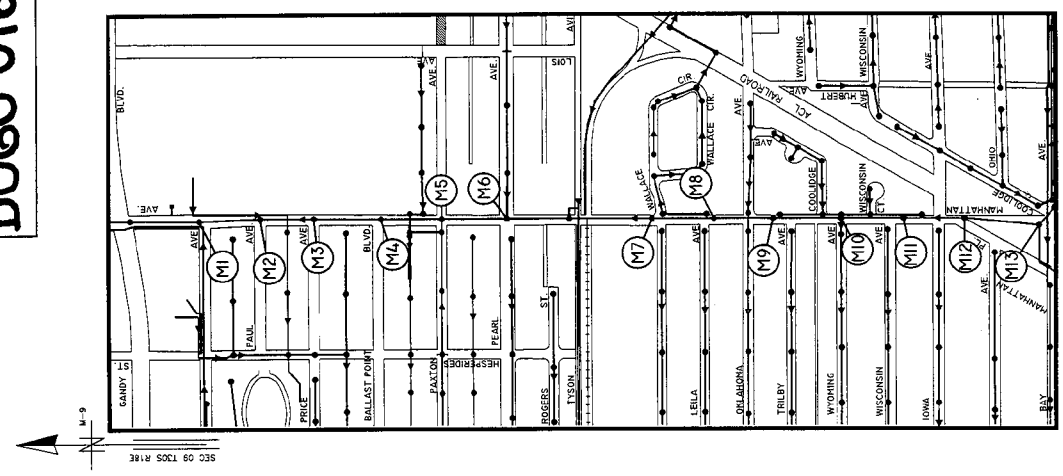
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12TH STREET
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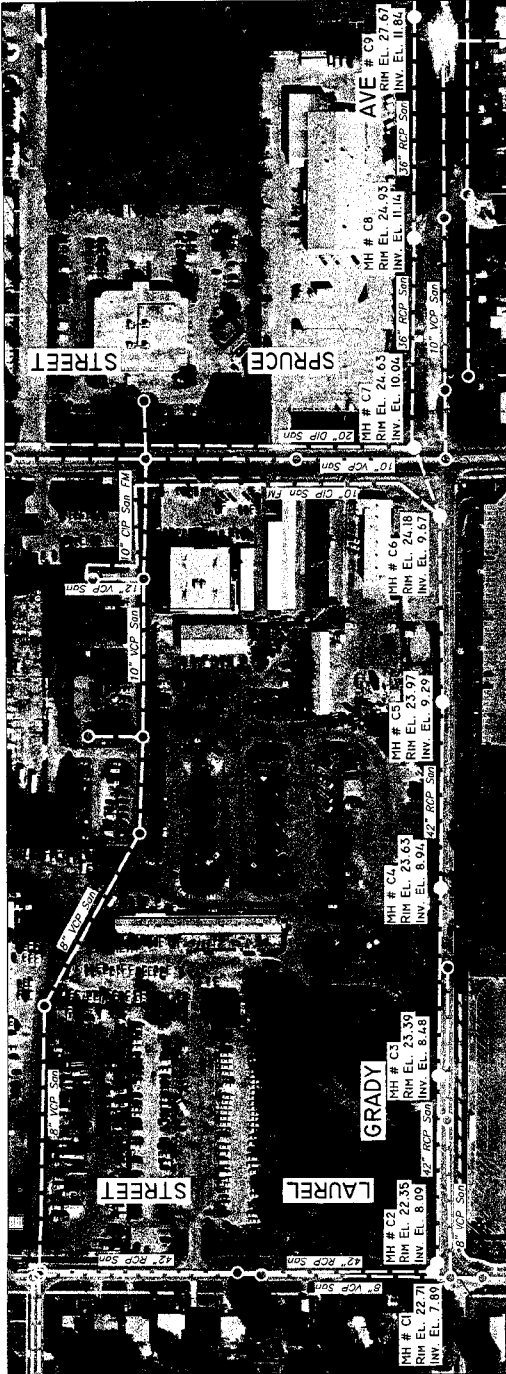
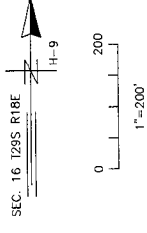
CLARK AVE. INTERCEPTOR
NOT TO SCALE



MANHATTAN AVE.
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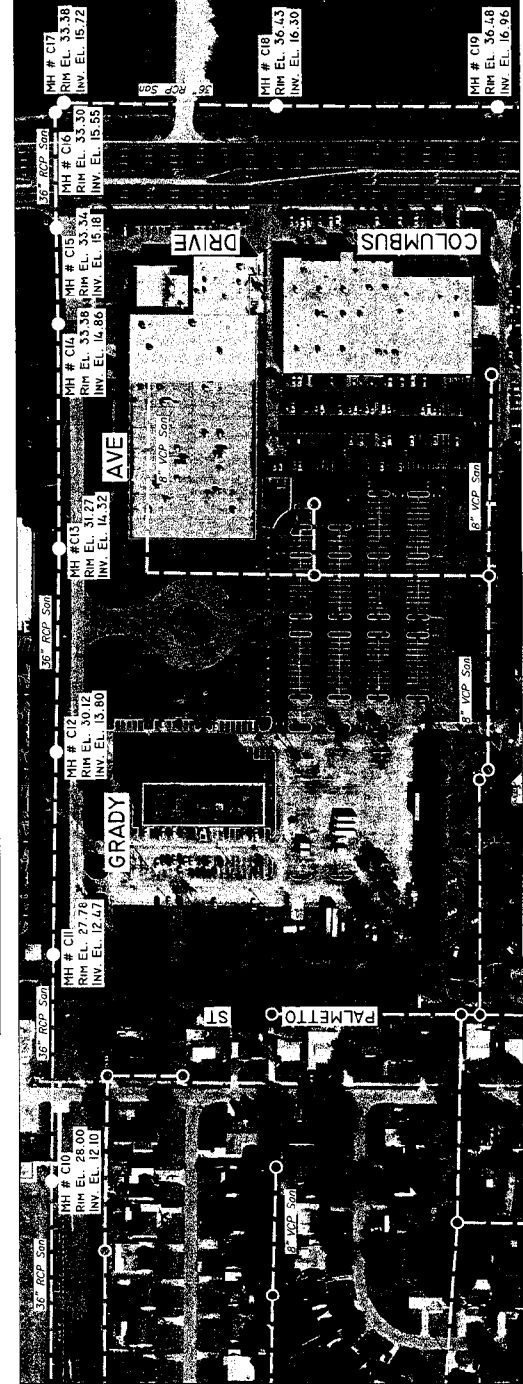
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2		2									
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GRADY AVE. / LAUREL ST.



MATCH LINE C-C (THIS SHEET)

COLUMBUS DR. / GRADY AVE.

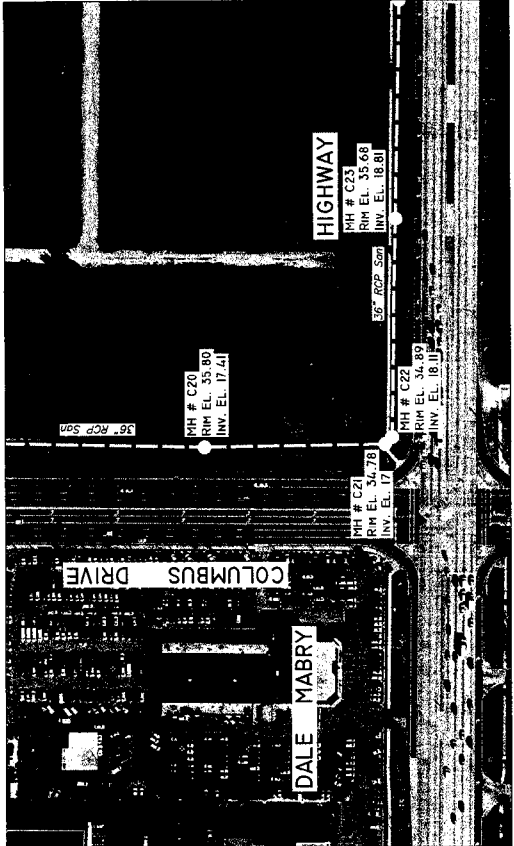
NOTE:

MANHOLES TO BE REHABILITATED ARE SHOWN AS SOLID CIRCLES; MANHOLES THAT ARE SHOWN AS OPEN CIRCLES ARE TO REMAIN AS EXISTING.

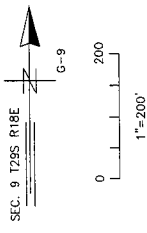
- MANHOLES - TO BE REHABILITATED
- MANHOLES - NO REHABILITATION REQUIRED

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	REVISIONS		DES: CW	City of TAMPA WASTEWATER DEPARTMENT	MANHOLE REHABILITATIONS FOR: CLARK AVE. INTERCEPTOR PHASE II AND OTHER INTERCEPTORS CLARK AVE. INTERCEPTOR AERIAL PLAN	W.O. 4010
	No.	DATE	DRN: 23			SHEET
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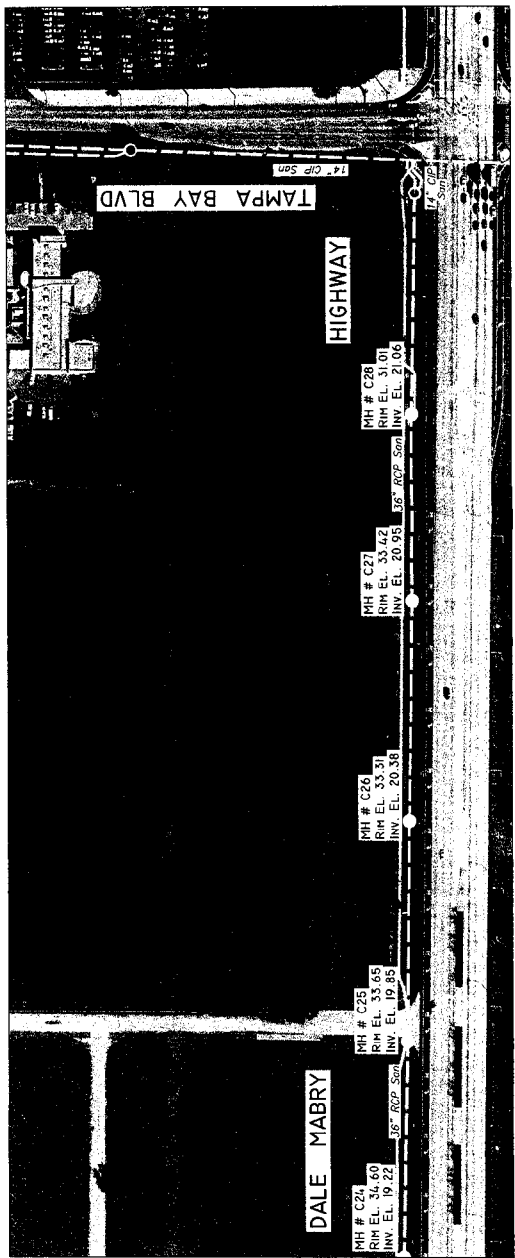
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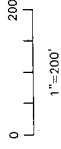
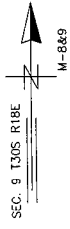
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● MANHOLES - TO BE REHABILITATED
 ○ MANHOLES - NO REHABILITATION REQUIRED

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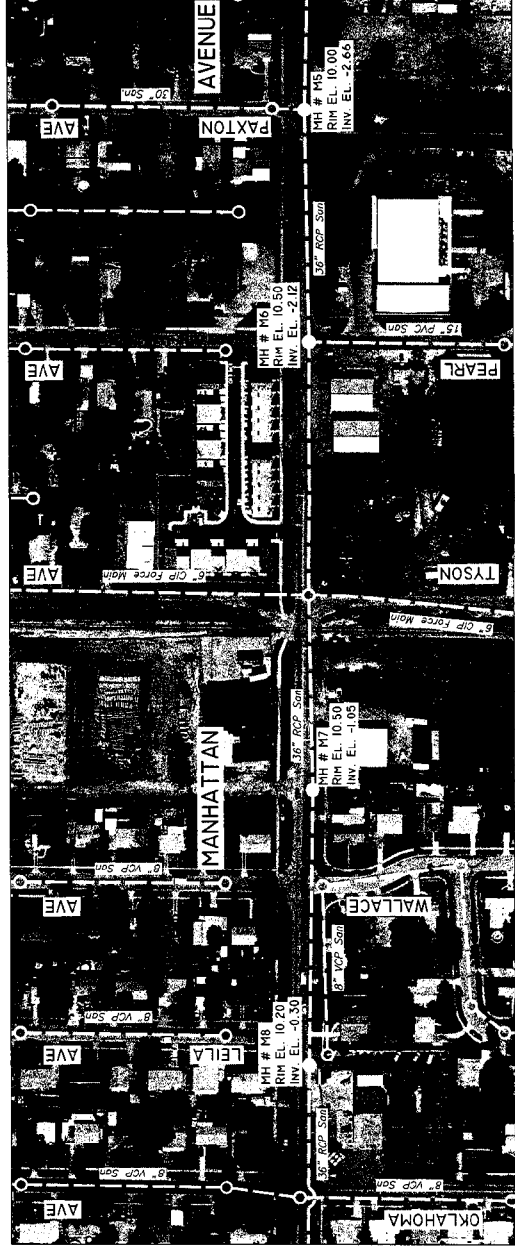
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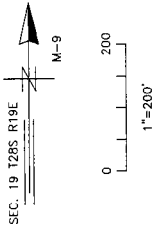
NOTE:

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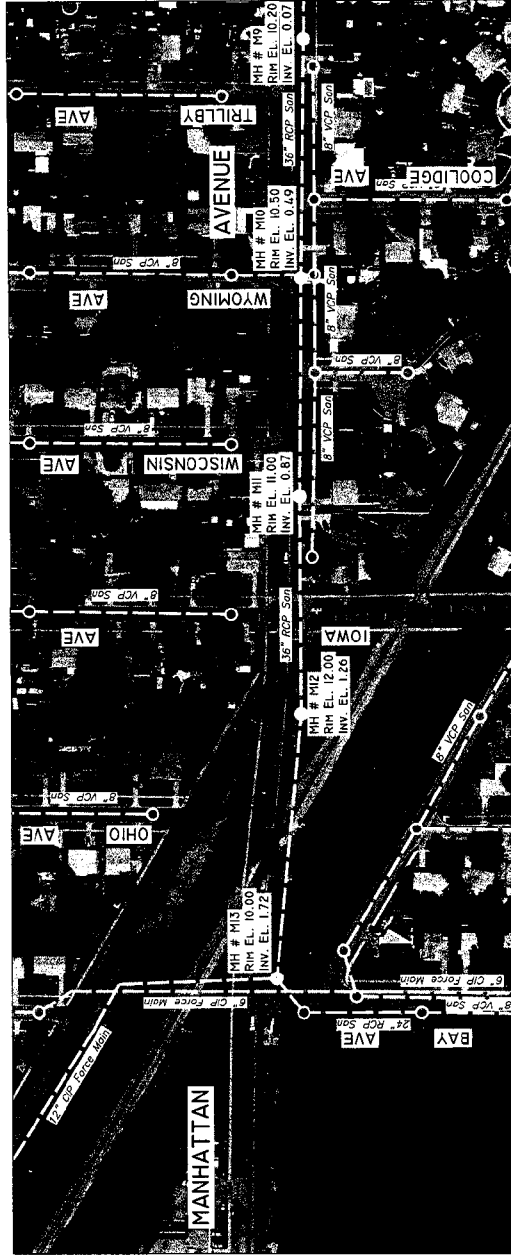
- MANHOLES - TO BE REHABILITATED
- MANHOLES - NO REHABILITATION REQUIRED

MANHATTAN AVENUE

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	NO. 3	DATE	REVISIONS	DES: CW	City of Tampa WASTEWATER DEPARTMENT	MANHOLE REHABILITATIONS FOR: CLARK AVE. INTERCEPTOR PHASE II AND OTHER INTERCEPTORS MANHATTAN AVE. AERIAL PLAN	W.O. 4010
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MANHATTAN AVENUE

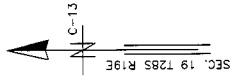
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JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: CW	City of TAMPA WASTEWATER DEPARTMENT	MANHOLE REHABILITATIONS FOR: CLARK AVE. INTERCEPTOR PHASE II AND OTHER INTERCEPTORS MANHATTAN AVE. AERIAL PLAN	W.O. 4010	
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B060-081



NOTE:

MANHOLES TO BE REHABILITATED ARE SHOWN AS SOLID CIRCLES, MANHOLES THAT ARE SHOWN AS OPEN CIRCLES ARE TO REMAIN AS EXISTING.

- MANHOLES - TO BE REHABILITATED
- MANHOLES - NO REHABILITATION REQUIRED

12TH STREET
NOT TO SCALE

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION, HCAO WASTEWATER DEPARTMENT	REVISIONS		DES: CW DRN: BB CKD: JF DATE: 1/9/08		City of TAMPA WASTEWATER DEPARTMENT	MANHOLE REHABILITATIONS FOR: CLARK AVE. INTERCEPTOR PHASE II AND OTHER INTERCEPTORS 12TH STREET AERIAL PLAN	W.O. 4010 SHEET 8 OF 12
	No.	DATE					
	3						

Manhole Rehabilitation Schedule

Manhole #	Manhole Type	Approx Depth (ft)	Barrel Dia. (ft)	Downstream Pipe Dia. (in)	Barrel Length (ft)	Replace Cover (Size, In Grass or Pavement)	Comments
C1	B	15.00	4	42	15.00	no	Fiberglass Insertion
C2	B	14.80	4	42	14.80	no	Fiberglass Insertion
C3	B	14.90	4	42	14.90	no	Fiberglass Insertion
C4	B	14.80	4	42	14.80	no	Fiberglass Insertion
C5	B	14.70	4	42	14.70	yes (large, pavement)	Fiberglass Insertion
C6	B	14.80	4	42	14.80	yes (large, pavement)	Fiberglass Insertion
C7	B	14.60	4	42	14.60	yes (large, pavement)	Fiberglass Insertion
C8	B	13.80	4	36	13.80	yes (large, grass)	Fiberglass Insertion
C9	B	15.80	4	36	15.80	yes (large, grass)	Fiberglass Insertion
C10	B	16.10	4	36	16.10	no	Fiberglass Insertion
C11	B	15.90	4	36	15.90	no	Fiberglass Insertion
C12	B	16.90	4	36	16.90	no	Fiberglass Insertion
C13	B	16.95	4	36	16.95	no	Fiberglass Insertion
C14	B	18.50	4	36	18.50	no	Fiberglass Insertion
C15	B	18.00	4	36	18.00	yes (large, pavement)	Fiberglass Insertion
C16	B	19.20	4	36	19.20	yes (large, grass)	Fiberglass Insertion
C17	B	19.20	4	36	19.20	yes (large, grass)	Fiberglass Insertion
C18	B	20.10	4	36	20.10	no	Fiberglass Insertion
C19	B	19.50	4	36	19.50	yes (large, grass)	Fiberglass Insertion
C20	B	18.10	4	36	18.10	yes (large, grass)	Fiberglass Insertion
C21	B	16.80	4	36	16.80	no	Fiberglass Insertion
C22	B	16.50	4	36	16.50	no	Fiberglass Insertion
C23	B	16.90	4	36	16.90	yes (large, grass)	Fiberglass Insertion
C24	B	15.40	4	36	15.40	yes (large, grass)	Fiberglass Insertion
C25	B	13.50	4	36	13.50	no	Fiberglass Insertion
C26	B	12.60	4	36	12.60	no	Fiberglass Insertion
C27	B	12.20	4	36	12.20	no	Fiberglass Insertion
C28	B	9.70	4	36	9.70	no	Fiberglass Insertion
M1	A	12.40	4	42	12.40	yes (large, pavement)	Fiberglass Insertion***
M2	A	12.90	4	42	12.90	yes (large, pavement)	Fiberglass Insertion***
M3	A	13.70	4	42	13.70	yes (large, pavement)	Fiberglass Insertion***
M4	A	13.10	4	36	13.10	yes (large, pavement)	Fiberglass Insertion***
M5	A	12.50	4	36	12.50	yes (large, grass)	Fiberglass Insertion
M6	A	12.60	4	36	12.60	yes (large, pavement)	Fiberglass Insertion
M7	A	11.60	4	36	11.60	yes (large, grass)	Fiberglass Insertion
M8	A	10.50	4	36	10.50	yes (large, pavement)	Fiberglass Insertion
M9	A	10.70	4	36	10.70	yes (large, grass)	Fiberglass Insertion
M10	A	10.00	4	36	10.00	yes (large, grass)	Fiberglass Insertion
M11	A	10.20	4	36	10.20	yes (large, grass)	Fiberglass Insertion
M12	A	10.70	4	36	10.70	yes (large, grass)	Fiberglass Insertion
M13	A	11.50	4	36	11.50	yes (large, grass)	Top portion rehab only**
T1	A	12.11	4	42	12.11	no	Fiberglass Insertion
T2	A	17.62	4	42	17.62	no	Fiberglass Insertion
T3	A	19.39	4	42	19.39	yes (small, pavement)	Fiberglass Insertion
T4	A	16.76	4	42	16.76	yes (small, pavement)	Fiberglass Insertion
T5	A	18.07	4	42	18.07	no	Fiberglass Insertion
T6	A	16.97	4	42	16.97	yes (small, pavement)	Fiberglass Insertion

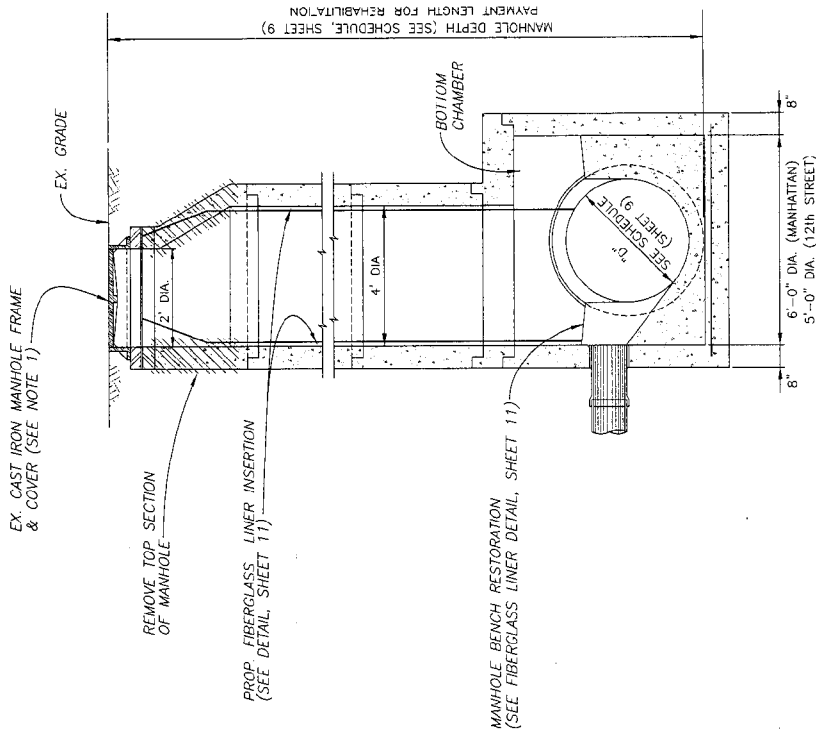
Summary of Quantities

Total Manholes to be Rehabilitated	47	manholes
Repl small frame & cover	3	each
Repl large frame & cover	25	each
Manhole Rehabilitation, Fiberglass Insertion -42"	700	vertical feet
Manhole Rehabilitation, 36" Dia. Insertion -42"	5	vertical feet
Manhole M13 by coating system		

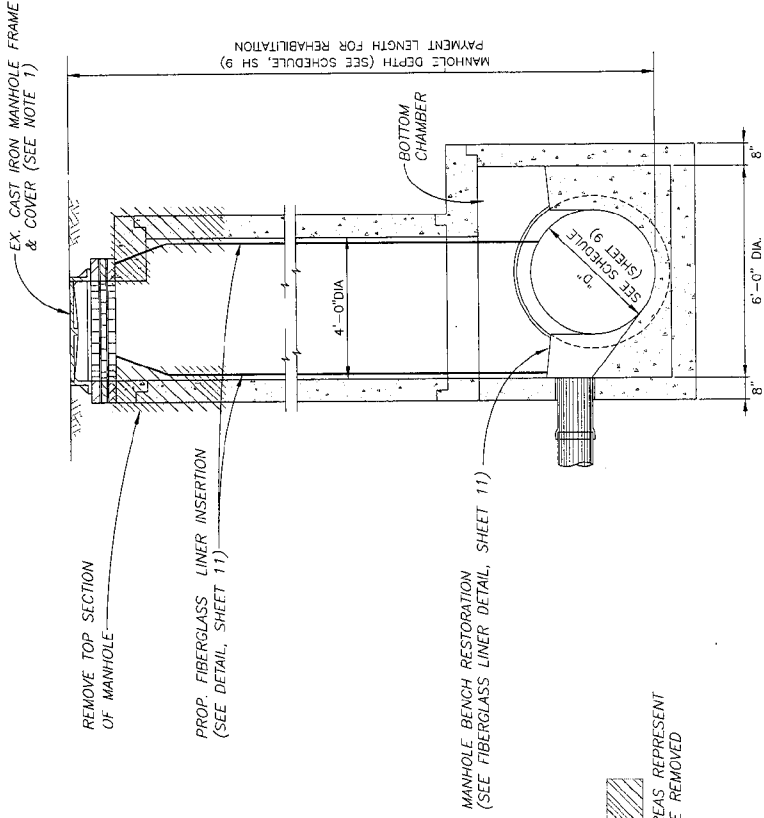
** EXISTING JUNCTION CHAMBER IS T-LOCK LINED. ONLY TOP BRICK RISER SECTION(3" DIA.) REQUIRES REHABILITATION.

*** MANHOLES SHALL BE WEEKEND WORK ONLY (AT NO ADDITIONAL COST)

B060-083



DETAIL "A"
NOT TO SCALE



DETAIL "B"
NOT TO SCALE

NOTES

1. SEE MANHOLE FRAME AND COVER REPLACEMENT DETAILS ON SHEET 12 FOR MANHOLE COVER SIZES AND WHETHER THE COVERS ARE LOCATED IN GRASS OR PAVEMENT. REFER TO THE MANHOLE REHABILITATION SCHEDULE ON SHEET 9.
2. IT IS THE ENGINEER'S INTENT THAT THE MANHOLE REHABILITATION AND BENCH RESTORATION WILL NOT REQUIRE BYPASS PUMPING. HOWEVER, WORK DURING LOW-FLOW PERIODS MAY BE NECESSARY (AT NO ADDITIONAL COST).

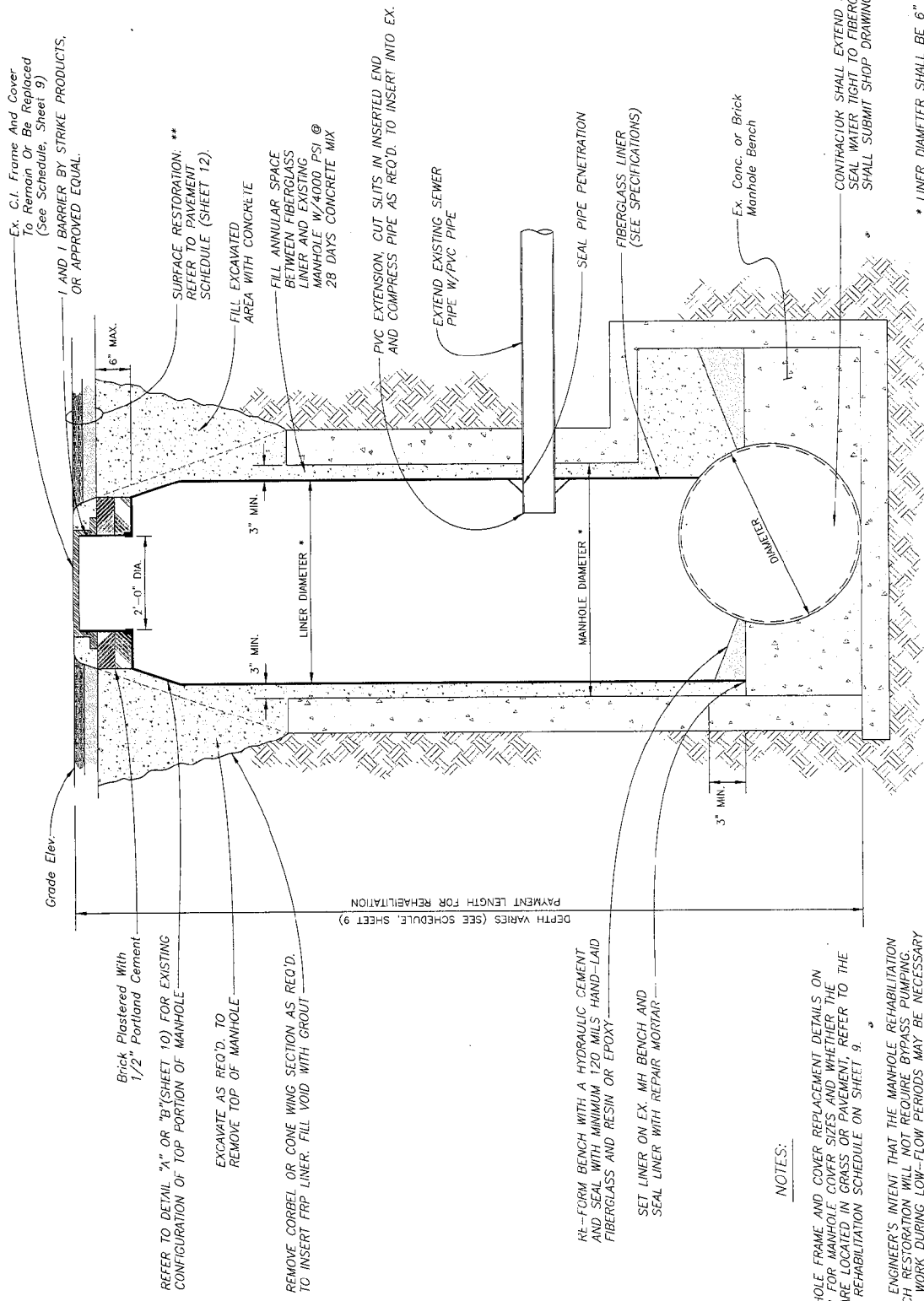
No.	DATE	REVISIONS
3		
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JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

DES: CW
DRN: BB
CKD: JF
DATE: 11/9/08

CITY of TAMPA
WASTEWATER DEPARTMENT

MANHOLE REHABILITATIONS FOR:
CLARK AVE. INTERCEPTOR PHASE II AND OTHER INTERCEPTORS
EXISTING MANHOLE DETAILS



FIBERGLASS LINER INSERTION DETAIL

NOT TO SCALE

CONTRACTOR SHALL EXTEND PIPE INTO FLOW CHANNEL AND SEAL WATER TIGHT TO FIBERGLASS LINER INSERT. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL.

* LINER DIAMETER SHALL BE 6" LESS THAN EXISTING BARREL DIAMETER.

** SAWCUT PAVEMENT FOR REMOVAL PROVIDE A SQUARE AREA AND MINIMIZE THE SIZE OF THE FULL DEPTH OF ASPHALT PATCH.

NOTES:

1. SEE MANHOLE FRAME AND COVER REPLACEMENT DETAILS ON SHEET 12 FOR MANHOLE COVER SIZES AND WHETHER THE COVERS ARE LOCATED IN GRASS OR PAVEMENT; REFER TO THE MANHOLE REHABILITATION SCHEDULE ON SHEET 9.
2. IT IS THE ENGINEER'S INTENT THAT THE MANHOLE REHABILITATION AND BENCH RESTORATION WILL NOT REQUIRE BYPASS PUMPING. HOWEVER, WORK DURING LOW-FLOW PERIODS MAY BE NECESSARY (AT NO ADDITIONAL COST).

REVISIONS

No.	DATE
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DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

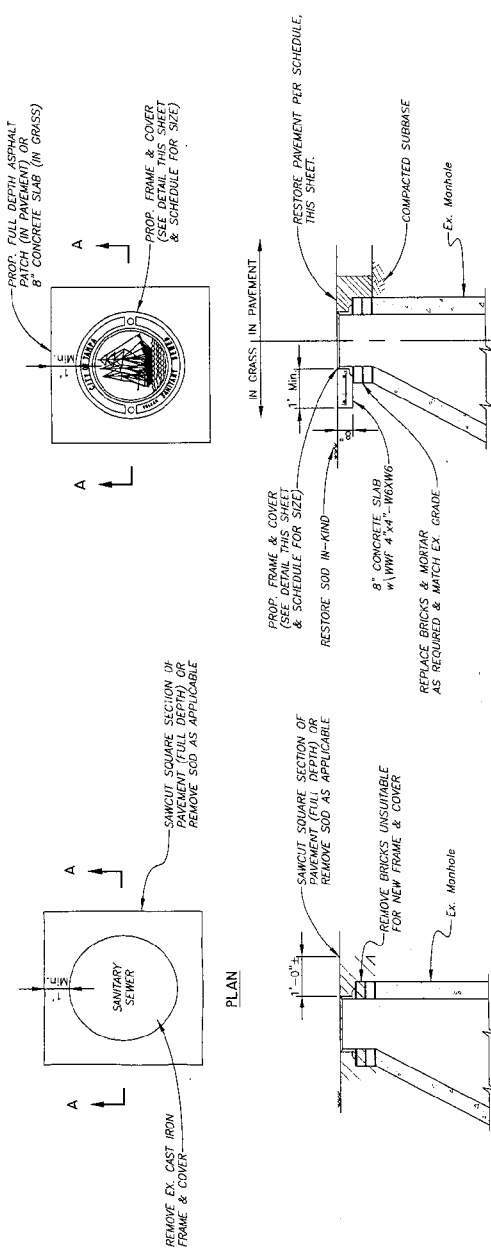
DES: CW
DRN: JB
CKD: JF
DATE: 11/16/08

CITY of TAMPA
WASTEWATER DEPARTMENT

MANHOLE REHABILITATIONS FOR:
CLARK AVE. INTERCEPTOR PHASE II AND OTHER INTERCEPTORS
FIBERGLASS LINER INSERTION DETAIL

B060-085

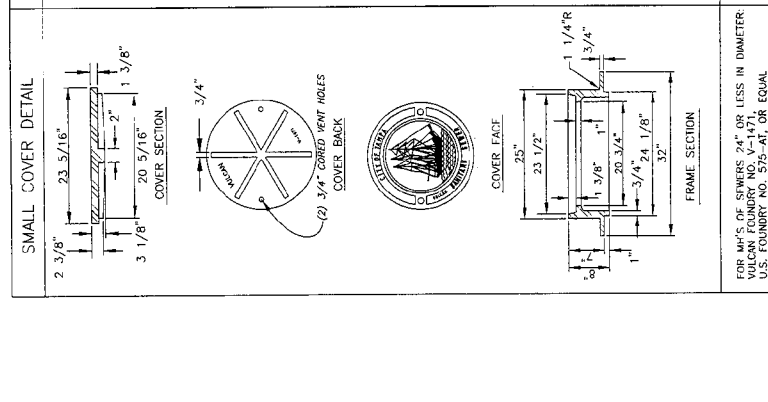
PAVEMENT RESTORATION SCHEDULE		
	BASE	ASPHALT
FOOT	FRP LINER 9" MAX. OR MATCH EXISTING TYPE SUPERPAVE 12.5 ASPHALT	1-1/2" TYPE FRICTION COURSE 6 ASPHALT
CITY OF TAMPA	FRP LINER 2-1/2" TYPE S-1 ASPHALT	1-1/2" TYPE S-III ASPHALT



NOTE: RESTORATION LIMITS FOR FIBERGLASS LINER INSTALLATIONS WILL EXCEED THE 1' MIN. DIMENSION SHOWN. PAYMENT FOR THE ADDITIONAL RESTORATION SHALL BE INCLUDED IN THE COST OF THE LINER PER 'F'.

MANHOLE FRAME & COVER REPLACEMENT DETAIL

NOT TO SCALE



FOR M.H.'S OF SEWERS 27" OR LESS IN DIAMETER: VULCAN FOUNDRY NO. V-1471, U.S. FOUNDRY NO. 575-AT, OR EQUAL

FOR M.H.'S OF SEWERS 27" OR GREATER IN DIAMETER: VULCAN FOUNDRY NO. V-7045, U.S. FOUNDRY NO. 230-AB-M, OR EQUAL

HEAVY DUTY CAST IRON MANHOLE FRAME & COVER DETAILS

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION-HEAD WASTEWATER DEPARTMENT	REVISIONS	DES: CW DRN: JB CKD: JF DATE: 11/9/08	CITY of TAMPA WASTEWATER DEPARTMENT	MANHOLE REHABILITATIONS FOR: CLARK AVE. INTERCEPTOR PHASE II AND OTHER INTERCEPTORS MISCELLANEOUS DETAILS (NOT TO SCALE)	W.O. 4010 SHEET 12 OF 12
No.	DATE				
3					
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