

PART IV

SECTION 21 PROJECT MANAGEMENT PROCEDURES

A. PWD Project Delivery Manual

Overview of Project Development Phases:

- Pre-Design
- Design
- Bid and Award
- Construction/Post Construction

CHAPTER 1

PRE-DESIGN

Initiating a Project

- Needs Assessment
- Citizen Requests
- Council Requests
- PWD Staff Recommendation (Safety, Traffic, Maintenance, Improvements, etc.)

Budgeting

- City
- County
- State
- Federal

Selecting a Project Team

Project Delivery Methods

- In-House Design
- Consultant Design
- FDOT Design

Scoping

Preliminary Cost Estimate

Pre-Design Evaluation

- Value Engineering
- ROW Review
- Identify need for property and/or easement acquisition or vacation
- Environmental Review
- Geotechnical Considerations

Consultant Services

- Verifying Need for Consulting Services
- Selecting a Consultant
- Contract Documents
- Supplying Design Data (Traffic Counts, GIS, Existing Maps, etc.)
- Other Needs & Requirements

CHAPTER 2

DESIGN

- Preliminary Engineering
 - Site Surveying
 - Geotechnical Evaluation & Report
 - Plan Development
 - Environmental Report
 - Utility Coordination
 - Property Acquisition Needs
 - Traffic/Safety Analysis
 - Preliminary Public Meetings
 - Conceptual Approval Meetings (Historic Preservation Board; Planning Commission)

- Change Control
 - Managing Scope Creep
 - Change in Master Schedule
 - Schedule Control

- Reporting Progress
 - Monthly Schedule Update
 - Monthly Progress Report
 - Progress Meetings

- Right of Way Acquisition Plans

- Final Design Plans & Estimate
 - Maintenance of Traffic Plan
 - Engineering Plans

- Project Specifications
 - Bid Proposal
 - General Conditions and Requirements
 - Specific Requirements (Technical)
 - State and County Regulations

- Permits, Acquisitions & Approvals
 - Environmental Approvals
 - County, State & Federal Approvals
 - Public Hearings
(Historic Preservation Board)
 - Planning Approval

- Final Contract Review
 - Plan Check
 - Specification Check
 - Bid Package Check
 - Final Estimate Check

- Document Control and Retention
 - Distribution Requirements
 - Filing requirements
 - File Retention
 - Document Disposal

CHAPTER 3

BID and AWARD

Request for Qualification

Invitation for Bids

Bid Opening and Evaluation

- Receipt of Bid

- Bid Opening Procedure

- Bid Evaluation

- Contract Compliance Review

Award of Contract

- Obtaining Approval to Award Bid

- Processing Bonds & Insurance

- Acquire Permits

- Notice of Award

- Notification to Losing Bidders

CHAPTER 4

CONSTRUCTION

Notice to Proceed

Pre-Construction Meeting

Construction Management Procedures

- Shop Drawings

- Requests for Information

- Survey & Stakeout

- Work Zone Management

- Safety

- Meetings

- Document Control

Inspection Procedures

- Inspector Assignment & Scheduling

- Familiarity w/Contract Documents

- Field Photos

- Daily Diary

- Weekly Report

- Materials & Testing

Construction Cost & Schedule Control

- Schedules

- Processing and Verifying Bills

- Material Substitution

- Change Orders

- Field Changes/Adjustments

- Time Extensions

- Liquidated Damages

Avoiding and Mitigating Claims

Construction Completion

- Pre-final Inspection

- Punch List

- Final Inspection

- Sign off by Department

Construction Close-Out & Review

- As-Built Drawings

- Retainage Release

- Document Control and Disposal

- Post-Construction Performance Review

- Warranty Follow-Up

B. Phases of Project Management

1) Pre-Design

- Scope
- Preliminary Estimate
- Budget
- Agreements
- Schedule

2) Design

- In-House Design/Consulting Firm Design
- Consultant Contract or Request For Proposal (RFP)
- Consultant Invoices
- Correspondence (Stakeholders)
- Design Reviews (30%-60%-90%-100%)
- Specs, Bid Sheets, Estimates, Request For Qualification (RFQ)

3) Permits Approvals

- Florida Department of Transportation (FDOT)
- Florida Department of Environmental Protection (FDEP)
- Florida State Department of Health
- Miami-Dade County Department of Environmental Resources Management (DERM)
- Miami-Dade County Department of Public works-Traffic Division

4) Right of Way

- Property Addresses
- Property Owner Information
- Appraisals or Assessed Values
- Right of Way Easement Dedications
- State Approvals/ Authorization

5) Utility Relocation

- Existing Utilities and Contacts
- Proposed Relocation Plans
- Agreements with Utilities
- Correspondence

6) Construction

- Executed Construction Contract
- Construction Correspondence (Pre-Construction minutes, Schedule, etc.)
- Change Orders
- Construction Invoices

7) Project Closeout

- Contractor Evaluation
- Lessons Learned
- As-Builts
- Punchlist
- Acceptance Letter

C. Project Scope

The Project Manager, upon receipt of the project assignment will work with the technical team to develop the project scope. The Project Manager must assure that timely and complete communication is maintained between the project stakeholders. After the scope has been developed, the Project Manager will present the project scope to the City Engineer in order to obtain approval and permission to proceed with the project.

Project scoping documents will include such items as:

- ◆ Project Title
- ◆ Project Address
- ◆ Project scope description
- ◆ Project justification statement
- ◆ Type of project (new, enhancement, design study, etc.)
- ◆ Project details (square footage, linear footage, landscaping, etc.)
- ◆ Pertinent information from Public works and other City departments
- ◆ Services to be provided by Public Works Department (PWD)
- ◆ Services to be provided by others
- ◆ Projected project design start and completion dates
- ◆ Projected construction start and completion dates
- ◆ Estimated project costs and funding source/sources
- ◆ Input from community meetings if applicable
- ◆ Environmental issues
- ◆ identifying required regulatory permits
- ◆ Existing physical conditions and substructures
- ◆ Traffic impact study
- ◆ To whom the benefit of the project would run (property/business owners, motorists, visitors)
- ◆ Impacts to scheduled special events
- ◆ Project priority ranking

Project scope description for Right-of-Way Improvement projects will include such items as:

- Reconstruction or milling and resurfacing
- Length of street improvement
- Realignment or widening of street
- Sidewalk, curb & gutter work-repair/reconstruction
- Street lighting and traffic signals (new installation/relocation), striping and pavement marking
- Water main, sanitary sewer (force main/gravity) & storm drain work
- Pump stations (sanitary sewer, water booster, storm)
- Florida Department of Transportation (FDOT)/ Miami-Dade County involvement
- Utility relocation
- Easement or Right of Way acquisition

D. Quality Assurance (QA) For Design Reviews

Quality Assurance Design Review Team will provide an objective review of projects to ensure consistent quality and standards for all projects and to provide feedback to design providers. The design providers will furnish up to six sets of contract documents (drawings, calculations, and specifications when applicable) upon request. Design Review Team will have a primary point of contact in a Review Coordinator. The team includes representatives from all appropriate disciplines or specialty areas appropriate for the project that will be reviewed. The Review Coordinator will most often be selected from the area that represents the dominant discipline in the project.

The Design Review Team considers the following details, as appropriate to the design being reviewed:

- ◆ Applicable codes and standards
- ◆ Design objectives
- ◆ Assumptions made by the designer
- ◆ Technical approach used by the designer
- ◆ Models and methods used to solve the design problem
- ◆ Input data to the design problem and to the models and methods used
- ◆ Appropriateness of recommendations or conclusions with respect to the results of design calculations

The Design Review Team uses QA Checklists that provide a list of elements which should be considered and addressed by the design engineer during each phase of design development. Checklists should be considered as a guide to be expanded or reduced as necessary for each individual project. Design review checklists are intended to assist the design engineer in preparing an adequate submittal. If the Design Review Team discovers deficiencies that fall outside of the scope of the review, those deficiencies will be brought to the attention of the design provider.

The Review Coordinator will provide a date by which all comments are to be received by him. It is the responsibility of each reviewer to review the plans in accordance with their area of expertise and return their comments to Review Coordinator by the date specified. It is the responsibility of each reviewer to insure that their comments and marked- up plans are submitted to and recorded with the Review Coordinator. It is the Review Coordinator's responsibility to compile and document comments and distribute them to the design provider.

Four major review phases occur at key stages of design development. These review phases are referred to as 30- Percent Review (preliminary submittal), 60- Percent Review, 90- Percent Review, and 100-Percent Review, although the exact percent complete could vary depending on the nature of the project. The latter review is a follow-up to the previous review to assure that the previous review comments have each been addressed and appropriately incorporated into the design documents. The construction bid document verification and delivery review follows the 90-percent review. The scope of these reviews is:

- ◆ 30-Percent Review- This submittal marks the division between preliminary and final design. The review is meant to demonstrate that the selected approach to all major design concepts and other design features has been resolved and that final design can proceed. Therefore, the review should:
 - Define the impact of construction on all affected parties including utilities, governmental agencies, commercial properties, and residential areas.
 - Define the scope of work for detailed design of the project

- ◆ 60-Percent Review- The Design Review Team will ascertain that all major features of design are progressing and most drawings, specifications, and other documents are well advanced.
- ◆ 90-Percent Review- The drawings and specifications provided by the design provider are to be nearly completed. Therefore, the Design Review Team will perform an extensive review since at this point in the design development, this will be the last major design review. In addition, the Design Review Team will verify that comments from the 60-percent review have been addressed.
- ◆ 100-Percent Review- The finished drawings and specifications will be reviewed by the Design Review Team. Design Review Team will verify that comments from the 90-percent review have been addressed. Incorporation of comments arising from this review, plus sign-off and approval should be required to complete the construction bid documents.
- ◆ Bid Document Verification- After delivery of all completed, signed and sealed original drawings by the design engineer of record, the Design Review Team is to verify that comments from the 100-percent review have been satisfactorily resolved. Further comments that do not pertain to the 100-percent review should not be considered unless the design is in error or new work that was not previously shown is incorporated in the design.

E. Final Design

The design engineer of record will develop the construction bid package that contains the final drawings and specifications for the project required to solicit and obtain construction contract bids. The final drawings and specifications will detail the property or ROW needed to accommodate the project, coordination of work with or by third parties (e.g., utility companies) and appropriate permits and associated conditions from other agencies.

The project manager will oversee the final design efforts of the design engineer of record through reviews of design drawings and specification and their submission at the 60 percent, 90percent, and 100 percent complete stages of design to the Design Review Team. In addition, Value Engineering (VE) will either be performed at the end of preliminary engineering or early in final design before major decisions have been completely incorporated into the design. The objective of VE is to satisfy the required functions of the project at the lowest total cost over the life of the project. Using the various reviews as checkpoints, the project manager will be able to maintain an accurate assessment of the final capital cost and construction schedule for the construction phase.

During the final design phase and preferably prior to the completion of preliminary design, the project manager shall facilitate performance of a risk assessment to determine whether there are events or circumstances that can occur that will have a direct impact on the project's schedule and associated cost. As the design of the project gets more refined and nears completion of the drawings and specifications, the more costly the impact of an unexpected event will be in terms of money and schedule. Therefore, risk assessment will be updated periodically through the design phase of the project, with the final update occurring prior to construction. Once the risks for the project have been identified, they shall be ranked according to the probability of their occurring and an associated cost implication. The project manager can then prepare the risk management plan that will establish and prioritize measures that allocates the risks to the appropriate party (City departments, design consultant, contractor, third parties), and assign mitigation and management responsibilities.

Three major reviews occur during the final design phase. These reviews are typically referred to as 60-percent review, 90-percent review, and 100-percent review, although the exact percent complete could vary depending on the nature of the project. The construction bid document verification and delivery review follows the 90-percent review. The scope of these reviews is:

◆ 60-Percent Review – The project manager will make certain that all major features of design are progressing in accordance with prior direction, major engineering and VE decisions; and most drawings, specifications, and other documents are well advanced. Usually a constructability review is conducted at this point or at the latest before the 90 percent submittal.

◆ 90-Percent Review – The drawings and specifications provided by the design engineer of record are to be nearly completed and checked. Therefore, the design needs to go through extensive review since at this point in the design development cycle, this will be the last major design review. The construction cost estimate should also be verified against the budget established for the project. In addition, the design engineer of record must develop clear statements of testing requirements and operations and maintenance (O&M) manuals. The completed construction bid package will be used by the Department to procure a contractor, and monitor the construction efforts of the contractor.

◆ 100-Percent Review – The drawings and specifications are to be finished by the design engineer of record and checked. Sign-off and approval should be required to complete the construction bid documents.

◆ Bid Document Verification – After submittal of all completed, signed, and sealed original drawings by the design engineer of record, the project manager shall verify that construction cost

estimates are in line with budgets, and appropriate approvals can be obtained. At this point the Procurement Department staff will add the necessary contractual provisions to the packages.

Following the selection of the contractor and once the project is ready for construction; for complex projects, the project manager shall control the project schedule by creating a master schedule using critical path method (CPM) that determines the overall schedule duration. For relatively simple projects, the project manager can represent the activities using a bar chart schedule and the time from the beginning of the first bar (start) and the end of the last bar (finish) is the duration of the project. The project manager shall require each contractor, through contract terms and conditions, to submit:

- a baseline contract schedule following award, for project manager review and approval
- monthly updates of progress against the approved baseline schedule
- a revised baseline schedule for Department approved contract changes.

The project manager will then use contractor submissions to update the master schedule and focus his effort on:

- Contractor activities forecast to be late that impact the schedule
- Third party activities such as utilities relocation that impact a contractor's progress
- Incorporate into contract conditions schedule milestones for work critical to project completion, including liquidated damages for late performance.

F. Project Close-out

1. PROJECT COMPLETION- Project Completion is defined as those processes and inspections that are conducted as the Project reaches the end of its Construction. These activities take place prior to the actual close of a Project.
 - 1.1. "Punch List" Inspection-When work has been substantially completed and can be placed in service, the Project Manager and/or Inspector will conduct a "Punch List" inspection. A list of any deficiencies found will be given to the contractor for correction prior to the Final Inspection. This inspection is informal in nature and is intended to generate a list of known discrepancies prior to the Final Inspection.
 - 1.2. Final Inspection-Upon correction of all items noted during the "Punch List" inspection the contractor will call for a Final Inspection. The Project Manager will conduct the Final Inspection with the, Inspector and the Contractor's representative, Florida Department of Transportation (FDOT) and Miami-Dade County representatives if applicable .The Contractor shall immediately and diligently correct all items noted on the Final Inspection Correction List. The correction list work will be re-inspected until all work is complete. Only upon completion of all items on the list will the work be deemed complete and a Statement of Acceptance issued and the Warranty Period begins.
 - 1.3. Retainage (Partial Release)- After completion of the Final Inspection the Project Manager can, at his discretion, authorize a partial release of the Retainage amount for projects with little or no corrective action required or when the amount retained grossly exceeds the value of work remaining and the time required to complete that work will exceed 30 days. In no case will the balance of Retainage held be less than 1.5 times the value of work remaining
 - 1.4. Retainage (Final Release)- Upon determination that all work has been completed, including corrective work, and the preparation and delivery of "as-built" plans by the contractor the Project Manager will release withheld Retainage and any other payments due the contractor.
 - 1.5. Close-Out Date- The Project Manager will upon release of all payments and Retainage enter the Close-Out date into the project database. This entry indicates the start of the Warranty Period and will result in appropriate inspection action prior to the Warranty expiration date.
2. PROJECT REVIEW- The Project Review process is defined as those activities and processes taken upon completion of a project in order to determine the quality and efficiency of the Project Process. The goal of the Project Review is to provide feedback in order to continuously improve the Department's methods and processes.
 - 2.1. Customer Satisfaction- Customer satisfaction is the level of satisfaction with the Project for both Internal (City) and External (Citizen) customers. Customer satisfaction may randomly be reviewed on select projects by use of various methods.
 - 2.1.1. Issues- The following issues have been identified as of major importance to external customers and should be addressed in the Customer Satisfaction review process
 - 2.1.1.1. Traffic Control- Interruption of normal traffic flow should be well delineated and of minimal duration
 - 2.1.1.2. Parking Issues- Where normal parking is to be disrupted citizens are notified 2 weeks prior and the disruption is of minimal duration
 - 2.1.1.3. Utility Outages- Where utility outages are planned, affected citizens are to be notified 2 weeks prior and again 24 hrs prior to the outage. The outages are to be planned so that they are of minimal duration. Outages caused by accident will be immediately addressed and repaired as soon as possible.
 - 2.1.2. Methods-Methods used to measure customer satisfaction may consist of one or more of the following

- 2.1.2.1. Random Mailer- A questionnaire may be sent to various citizens affected by the Project in order to determine the customer's level of satisfaction. Standard statistical methods will be used in evaluating the feedback results.
 - 2.1.2.2. Phone Survey- A randomly generated phone Survey may be conducted by the Department in order to determine the customer's level of satisfaction. Standard statistical methods will be used in evaluating the feedback results.
 - 2.1.2.3. Complaint Log- Complaints from customers to the Call Center, Inspector, and Project Manager should be compiled and noted on the Project Close-Out form
- 2.2. Quality Review- A review of a Projects Workmanship and Quality will be conducted upon completion of the Project
- 2.2.1. Inspector's Log- The inspector's log will be examined and the amount of rejected work or material throughout the Project will be recorded on the Close-Out form
 - 2.2.2. Contractor Report Card- The Contractor Evaluation Report will be completed and the results recorded in both the Contractor Log and on the Close-Out Form
- 2.3. Budget- A review of the overall monies expended upon a Project will be conducted.
- 2.4. Timeliness Review- A review of the overall Project Schedule will be conducted.
- 2.5. Oversight, Errors, and Omissions- A review of the overall Project Design Process will be conducted.
- 2.6. Safety Review- A review of the overall Project Design Process will be conducted.
3. RECORD KEEPING & DOCUMENT CONTROL
- 3.1.1. Location- All records, other than drawings, pertaining to a given Project should be consolidated into one file. These records are then to be kept in the appropriate location in the central filing room. The file header should contain the following information to assist in proper storage.
 - FY- Fiscal Year in which the Project was completed
 - Project Number and Title- Descriptive title (street name) of the Project
 - 3.1.2. File Log- The Document Management Section is responsible for maintaining a log of all files on hand and turning them over to the City Archivist for storage and/or Disposal
 - 3.1.3. Access to Files- Files will generally be open for use by Department Personnel who must both inform the Document Management Section when files are removed as well as indicate same by the placement of a "File Out Placard" within the file cabinet
 - 3.1.4. Drawing Storage- Drawings will be stored in accordance with existing storage methods. Electronic media such as compact disc is the preferred long term storage method.
 - 3.1.5. GIS- Electronic copies of drawing file will be submitted to the GIS division for incorporation in the City's GIS system
4. WARRANTY FOLLOW-UP- All Projects contain a warranty period as specified by the contract. Projects will be re-inspected prior to the expiration of the Warranty Period to determine if any work requires a Warranty Claim.
- 4.1. Warranty Inspection- The entry of a Project close-out date into the database triggers the start of the Warranty period. Inspection assignments are generated from the database a minimum of 30 days prior to the Warranty expiration.
 - 4.2. Inspection Results- The Inspector will notify the Project Manager in writing of any deficiencies found during his inspection.

- 4.3. Contractor Notification- The Project Manager shall inform the Contractor via certified letter of any corrective action to be taken as a result of the Warranty Inspection, a copy of this letter will be sent to Procurement.
- 4.4. Contractor's Failure to Perform- Should the contractor fail to take timely corrective action, the Project Manager shall forward all pertinent information to the Procurement Department for the appropriate legal action.

G. Engineer Plan Checklist

- I. Title Page
 - A. Vicinity Sketch. Must be at the scale of not less than one inch equals two thousand feet (1" = 2000').
 - B. Title Block.
 - C. Legend for sanitary sewer, storm drainage, water lines, street lighting, and other utilities and structures existing and proposed.
 - D. Project Name; Name, Address and Phone Number of Developer/Owner.
 - E. Identify percentage of submittal.

- II. Standards
 - A. Water, roadway, sanitary sewer, storm drainage, and street lighting Notes.
 - B. Vertical scale is 1"=2'; and horizontal scale is 1"=20'. A graphic scale is shown on each sheet.
 - C. All drawings will be oriented to indicate north as "up" or "right".
 - D. All final drawings shall be produced in a 22- inch by 34- inch City of Miami Beach standard template.
 - E. All drawings must show at a minimum the following: Right-of-Way lines, center lines, base lines, monument lines if any, utility easements, if any, lot lines, parcel lines, street names, Right-of-Way dimensions, plat subdivision information and property addresses, north arrow, and graphic scale.
 - F. Each sheet must show the particular number of that sheet and the total number of sheets included, as well as clearly labeled match lines to show where other sheets match or adjoin.
 - G. The date of the plans along with any subsequent revisions must be denoted.

- III Plans
 - 1. Existing utility lines are properly labeled with size, type, and with horizontal and vertical distances referenced on the plan.
 - 2. A bench mark with full description is required on the site plan.
 - 3. All existing and proposed gas, telephone, power, and other utility lines which cross or run parallel to the storm drainage, sanitary sewer, water lines and street lights are shown with exact horizontal and vertical separations.
 - 4. Adjacent road and drainage projects are shown as required.
 - 5. Road names and Right-of-Way widths are shown.
 - 6. Plan and corresponding profile are shown in the same sheet.
 - 7. Stations shall ascend from south to north and west to east.
 - 8. Proposed water main, storm drainage, and sanitary sewer lines are shown with reference distances from Right-of-way, property line, buildings, other utility lines, etc.

 - 9. The design engineer shall be responsible for coordinating the utility design with other engineers where their projects connect or are affected by other projects.
 - 10. Proper labeling of subdivision (lot, block, street names, subdivision boundaries, etc.)

11. All fill and cut areas are shown within the area of the existing and proposed storm, sanitary sewer, water lines and street lights.
12. Pavement replacement details and boring locations are shown on plans.
13. Location and dimensions of all water lines including service connections, storm drainage, sanitary sewer including service connections and laterals, and street lighting are shown.
14. Proposed, existing and original ground elevations are shown.
15. All gravity sanitary sewer plans are labeled with size, grade, length, direction of flow, type and class of pipes.
16. Manholes are labeled with top, bottom and invert elevations and locations.
17. The design engineer has field verified the inverts of the existing manhole(s). Where invert and or bottom elevations are different from the as-built plan, the design engineer has verified his survey work and notified the Department of the discrepancy.
18. Engineer of Record must be a Professional Engineer (P.E.), registered in the State of Florida. Include name, address, telephone number, and fax number.
19. Minimum 3 feet vertical depth of cover on all proposed City utilities.
20. A NOTE stating that the contractor must field verify the inverts of all existing manholes and all utility lines prior to the start of construction.
21. A minimum of six (6) feet horizontal separation is maintained between sanitary sewer and water main lines. A minimum of five (5) feet horizontal separation is maintained between sanitary sewer, storm drainage, water main and any other utilities.
22. All calculations have been checked for accuracy.
23. All proposed pipes between manholes are of the same material and class.
24. All existing sanitary sewer laterals are shown on the plans, with station, length and depth, as depicted on the as-built plans.
25. Where new manholes are proposed over existing lines, distances from the new manhole to the two existing adjacent manholes are shown; inverts and bottom elevation of the proposed manhole and each existing adjacent manhole are shown; slopes of existing lines from new manhole to upstream and downstream existing manholes are shown.
26. Where future extensions are necessary, these lines are reflected on the plans.
27. All proposed manholes within areas where vehicles travel are to be located either on center line of the road or center of traveling lane.
28. At all existing manholes, the designer has provided the manhole identification number as reflected on the as-built plans.
29. Plans show all fittings, valves and fire hydrants, including material, class and sizes.
30. The locations of fire hydrants shall be coordinated with the City of Miami Beach Fire Department.
31. All conflicts between the proposed and existing utility lines and their appropriate design changes are shown.
32. Fire hydrants and air relief valves are shown on plans and profile.
33. Hydrants or blow off valves are designed at major low places in the line where possible and air release valves are designed at the high points where air can accumulate in water mains.

- 34. Blow-off devices (flushing hydrants) or fire hydrants are designed at the end of all lines in cul-de-sacs for flushing purposes.
- 35. Design engineer has designed water system in accordance with available pressure and has provided fire flow and pressure calculations.
- 36. Water line stubs for future extensions are designed to be installed at least five (5) feet beyond the edge of pavement.
- 37. Location of water meter boxes are shown outside of non-vehicular traveled areas.
- 38. All water main tees, plugs, bends, and hydrants are provided with restrained joints to prevent movement. (No thrust blocks allowed as primary restraint).
- 39. Proper backflow protection devices are shown at those connections where backflow protection is required.
- 40. All proposed water mains are shown in a small schematic scale map together with points of connections to the existing water mains and the portions of existing water mains being abandoned.
- 41. All proposed Ductile Iron Pipes (DIP) are shown, and shall be installed in accordance with ANSI/AWWA C600, latest revision with a detector tape
- 42. The design engineer is providing valves at all branches of the proposed tees (3 valves) and crosses (4 valves).
- 43. A NOTE stating that the contractor will be responsible to coordinate with HRS (Department of Health) the water sampling and bacteriological tests and final certification of completion from HRS.
- 44. A NOTE that contractor is to keep existing water main in service until new water mains are tested and certified for use. Old mains are to be capped and abandoned in place.
- 45. Pipe deflections are achieved using bends not by deflecting the pipe itself.
- 46. All fire hydrants shall be American Darling B-84B-5 with Miami Beach threads. Fire hydrant assembly are comprised of either 8"x6" or 12"x6" Tee with 6" gate valve adjacent to the Tee for low density residential areas.
- 47. Water main vertical/horizontal separation distances with all crossing/parallel storm drainage and sanitary sewer laterals and mains are shown.
- 48. Chlorination point details are shown.
- 49. Valves shown have a plate located at the cover of the valve indicating the number of turns and direction to close.
- 50. Drainage calculations and approved model routing, both hard copy and electronic format are provided. Accurate and specific soil information, including percolation, soil borings, and well development flow rates, are provided.
- 51. Detention box/pollution control structure, as last downstream structure is provided for all stormwater outfalls. There shall be a bench mark on the seawall or headwall at the stormwater outfall. Invert elevation information is to be embossed on a brass plate. Each outfall shall have latitude/longitude shown on plans.
- 52. Tideflex valves have been provided at stormwater outfalls. 24-inch and larger outfall pipes shall have filter with a stainless steel manatee grate where there is no control device in place at the outfall.
- 53. HDPE baffle shall be used as per standard detail in City of Miami

Beach Public Works Manual (CMBPWM). Sump to be a minimum 24-inch vertical distance from the flow line of pipe to the bottom the of structure.

- 54. Provide reinforcing in curb, curb and gutter and valley gutter as per details in the City of Miami Beach Public Works Manual.
- 55. A NOTE stating that sidewalks shall be cast in place with Miami Beach Red integral colored concrete. Curb and gutter to be standard gray.
- 56. Provide a typical section of the proposed road showing the asphalt and base thickness, paving widths, shoulder widths, total right-of-way widths, base and asphalt type, maximum and minimum shoulder slopes and road crown. If underground power is proposed, provide stub-outs for future street lighting based on an approved street lighting plan.
- 57. Provide a Note indicating the use of standard details in the City of Miami Beach Public Works Manual (CMBPWM) for asphalt restoration.