

AS-BUILTS/RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. CONTRACTOR shall maintain record documents including as-built/record drawings as required in this section.
- B. CONTRACTOR at his expense shall secure the services of a Florida licensed surveyor to collect data and maintain as-built/record drawings according to City of Daytona Beach Utilities Department standards that follows:

As-Built/Record Drawing Requirements

In order to ensure that the City's project records are maintained to the highest standards and the information can easily be added to the City's electronic records the following information is required on all as-built/record drawings.

The intent of these details for as-built/record drawings is for all public facilities constructed by this project. At the pre-construction conference these as-built/record standards will be reviewed to be certain the Contractor's surveyor has a clear understanding of what is required for completion of this work.

1. Pavement and curb widths shall be verified and dimensioned for each street at each block (for subdivisions) and as appropriate to confirm paving limits (on site plans).
2. All radii at intersections shall be verified and dimensioned. This information is to be clearly indicated on the as-built/record drawings.
3. Roadway elevations shall be recorded at all grade changes, 100' intervals along roadway, and other intervals as needed along all streets. Street centerline and curb invert elevations shall be recorded as noted. The as-built centerline profile of all streets shall also be shown on the plan and profile so it may be compared to the design profile grade lines. In the event that the as-built centerline longitudinal grade does not meet the City minimum standards, additional longitudinal grades of the adjacent curbing and similar roadway cross-section surveys to verify the correct cross slope, shall be required to verify that the system will function as originally designed.
4. Storm drainage structures shall be located and/or dimensioned from centerlines or lot lines as appropriate. Each structure shall be located by sub-meter GPS with latitude, longitude and elevation data.

THE CITY OF DAYTONA BEACH
UTILITIES DEPARTMENT



AS-BUILT DRAWING
REQUIREMENTS
(SHEET 1 OF 6)

PT: 08/10
Drawing Date: 01/09
Drawn By: RJA
Checked By: JAP
Scale: NTS
Revision Date: 07/10
File Name: AS-BUILT

AS-BUILTS/RECORD DOCUMENTS (CONT'D)

5. Storm drainage pipe invert and inlet elevations shall be recorded and clearly denoted as as-built information. Design elevations shall be crossed out and as-built information written next to it.
6. Storm drainage pipe material, length, and size shall be measured and/or verified. This information is to be clearly indicated as being as-built information.
7. All applicable topographic information pertinent to the on-site drainage system, such as ditches, swales, lakes, canals, etc. that are deemed necessary by the City to verify the functional performance of the storm water system, shall be noted. Normally, recording elevations every 100 feet at the top of bank and toe of slope will be required. Measurements shall be taken and recorded in order to accurately tie down these features to the roadway centerlines and to plat lines. Whenever possible, contour lines shall be utilized to graphically describe these topographic features.
8. Retention areas shall have their top of bank and bottom elevations recorded. Actual measurements shall be taken and dimensions recorded of the size of all retention areas. Measurements shall be done from top-of-bank with side slopes indicated. Separate calculations shall be submitted to indicate required and provided retention volumes.
9. Actual materials used and elevations and dimensions of overflow weir structures and skimmers shall be noted on the as-built.
10. Storm drainage swale centerlines shall be located and elevations of flow line and top-of-bank shall be recorded every 100 feet. Side slopes shall also be indicated.
11. Sanitary sewer manholes shall be verified and dimensioned from street centerlines or lot lines as appropriate. All rim and invert elevations shall be verified and recorded. This information shall be clearly indicated as being as-built information. Design elevations shall be crossed out and as-built information written next to it.
12. For subdivisions, proposed design finish floor elevations shall appear on all subdivision lots on the appropriate plan and profile sheet as well as on the master drainage plan.

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AS-BUILT DRAWING
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(SHEET 2 OF 6)

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13. Sanitary sewer line lengths, sizes, material, slope, etc., shall be verified and recorded. This information is to be clearly indicated as being as-built information.
14. Sewer laterals shall be verified and recorded at their clean out locations. Stationing and offset distances shall be measured from downstream manholes towards upstream manholes. Invert information at clean out shall be provided, and be located by sub-meter GPS with latitude, longitude and elevation data provided.
15. Lift stations and force mains shall be verified and dimensioned from street centerlines or lot lines as appropriate. Force main depth and location including valves will be provided and tied to permanent above grade features. Dimensional and elevation information indicated on the approved plan shall be verified and recorded. This information shall be clearly indicated as being as-built information. Buried potable water line and electrical service line shall be clearly dimensioned, located, and labeled. Each lift station shall be located by sub-meter GPS with latitude, longitude and elevation data provided.
16. Curb cuts or metal tabs used to mark sewer laterals, water services and water valves shall be verified for presence and accuracy of location.
17. Potable and reclaimed water main lines shall be dimensioned off the baseline construction. Water main line material size, length and depth placed shall be noted. Locations of valves shall also be tied to baseline construction. This information shall be clearly indicated as being as-built information.
18. Potable and reclaimed water valves, tees, bends, all services, and fire hydrants shall be located by tying them to baseline construction (Sta. & Offset). Similarly, force main valves, tees and bends shall be located in the same manner. Stationing and offset distances shall be measured from downstream manholes to upstream manholes. All valves and hydrants shall be located by sub-meter GPS with latitude, longitude and elevation data provided.
19. For perpendicular crossings of storm water, sanitary sewer, potable water, or reclaimed water, the as-built plans shall clearly indicate which utilities are located over or under other utilities, as necessary.

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20. Any special features such as concrete flumes, lake banks, walls, fencing, etc. which were a part of the approved construction drawings should also be located and dimensioned.
21. If an approved subdivision plat or site plan shows a conservation easement, the project surveyor should provide the exact location of the specimen tree(s) from the right-of-way or property lines and proposed easement boundaries on the as-built drawing. The as-built location of these trees will help verify the sufficiency of the conservation easement prior to plat recording or certificate of occupancy.
22. When storm water, potable water, reclaimed water, or sanitary sewer improvements are located within an easement, the as-built drawing shall accurately depict the location of the easement itself as well as the exact location of the improvements within the easement. This is required in order to verify that the improvements have been properly located and to ensure that future subsurface excavation to perform remedial repair can be accomplished without disturbance beyond the easement.
23. As-built drawings are to be prepared by a Florida licensed surveyor and shall include a signed certification statement by the Florida licensed engineer of record. A Mylar set of as-built record drawings shall be provided with a digital copy in a compatible AutoCad format.
24. Elevations shall be referenced to NGVD 1988 Data. As-built survey information shall be referenced to at least two Florida State Plane east coordinates NAD 83.
25. Benchmark Datum utilizes North American Vertical Datum of 1929 monumentation with elevations adjusted to NGVD 1988 data. Any NAVD 1929 monument within the limits of construction is to be protected.

1.2 SUBMITTALS

- A. CONTRACTOR shall submit each month to CITY the draft RECORD DOCUMENTS that show current construction activities AND a copy of notices to agencies including the City regarding road closures; plus a RECORD OF EVENTS that may be needed in the future.
- B. CONTRACTOR shall submit to CITY as required the proposed shut-off schedule, capping, temporary service scheduling, record of notices to customers and proposed roadway closings.

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AS-BUILTS/RECORD DOCUMENTS (CONT'D)

- C. CONTRACTOR shall submit when requested copies of published notices.
- D. CONTRACTOR shall submit Record Drawings on CD and Mylar. When the As-Built are delivered for clearance of water lines (two paper copies), they will be scheduled for chlorination. CITY will not release the drinking water bacteriological laboratory report to the Volusia County Health Department until the As-built information meets CITY requirements. CONTRACTOR will have 60 days from the time the bacteriological samples are collected to submit the as-built Mylar and CD to the CITY. Send the two paper copies for approval before making the Mylar. If CONTRACTOR goes past the 60 days, re-chlorination will be required and pay for the bacteriological laboratory report will be required. Below are minimum detail samples of how the As-built drawing information will need to be presented:

Example of how we need to see the valves, fittings, and pipes labeled, with an arrow going to the object.

Valve Example:

20" GATE VALVE
STA. 22+33.54 LT. 55.32'
LAT=29°12'53.009"N
LONG=81°04'03.355"W
TOP OF VALVE ELEV.=27.50
FINISH GROUND ELEV.=30.50

Pipes Example:

20" WATER MAIN
STA. 22+00.43 LT. 55.24'
LAT=29°12'50.009"N
LONG=81°04'26.355"W
TOP OF PIPE ELEV.=23.43

Benchmark Example:

BM#13
STA. 20+33.65 LT. 55.83'
N=1,774,373.4058
E=634,602.7566
LAT=29°04'53.355"N
LONG=81°04'53.355"W
ELEV.=32.55

(A Bench Mark must be shown on the site plans)

ALL DRAWINGS TO BE DRAWN TO TRUE STATE PLANE COORDINATES

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PART 2 - EXECUTION

2.1 GENERAL

All materials, equipment, and labor needed to ensure accurate AS BUILT/RECORD DRAWINGS shall be provided by the CONTRACTOR.

- A. It is acceptable to the CITY if the surveyor utilizes an after the fact approach to collecting and verifying the location and depth by vertical PVC pipes placed by the CONTRACTOR as markers for this purpose. The surveyor shall verify to accuracy defined in Florida Statutes the As-built conditions and certify the RECORD DRAWINGS.
- B. The CITY'S REPRESENTATIVE shall not be considered the best source of information for valve locations that may have been lost during final grading. The surveyor or CONTRACTOR shall excavate and properly mark all valve boxes and each valve shall have a tag or be color coded to define water, sewer or reuse water valves. The use of temporary PVC pipe markers color coded is acceptable so long as cross references are provided on the RECORD DRAWINGS to prevent the tops from a water valve being placed on a sewer valve.
- C. THE CONTRACTOR SHALL PROVIDE THE UTILITIES DEPARTMENT ENGINEERING DIVISION THE FINAL AS-BUILT/RECORD DRAWINGS ON CD AND MYLARS. THE AS-BUILT/RECORD DRAWINGS SHALL BE PREPARED AND PRESENTED IN MODEL SPACE USING AUTOCAD FORMAT 2007 OR LATER. THE MODEL SPACE DRAWING SHALL BE IN FL83-EF STATE PLANE AND SHALL BE ABLE TO BE INSERTED INTO THE CITY'S OVERALL GIS SYSTEM. THE RECORD DRAWINGS SHALL ALSO BE PRINTED ON MYLAR SIGNED AND SEALED AS ALLOWED BY STATE OF FLORIDA REGULATIONS. A DISCLAIMER MAY BE NOTED IN A TRANSMITTAL LETTER PLUS THE SURVEYOR MAY ADD A SPECIAL NOTICE ON EACH SHEET REGARDING THE LOCATION OF THE TRUE ORIGINAL RECORD DRAWINGS OR PLACE LIMITS ON RESPONSIBILITY SHOULD IN THE FUTURE SOMEONE MODIFY THE MYLARS.
- D. Identify the source markers for the survey used for Record Drawings.

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12/27/11	CITY STAFF COMMENTS	NM/DJ
10/04/11	CITY STAFF COMMENTS	NM/DJ
Revised	Description of Revision	By

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AS-BUILT DRAWING REQUIREMENTS

FRATERNAL ORDER OF EAGLES #4461

324 Beville Road
Daytona Beach, Volusia County, Florida 32114

file: * date: 08-15-11 scale: SHOWN sheet: 14 of 19