



# RECORD DRAWING REQUIREMENTS

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## PURPOSE

The Quonset Development Corporation (QDC) Record Drawing Guidance Document has been prepared as part of a continuing effort to enhance the timely completion of record drawings. The intent is to guide an applicant or their representative (referred as "Applicant") through plan preparation of record drawings so that review times are limited to resolution of geospatial issues only.

The purpose of this document is to outline the minimum acceptable standards and requirements for QDC Record Drawing submissions. Plan preparers should review this information prior to collecting data and submitting any drawings to the QDC to ensure that the eventual record drawings will meet QDC standards.

**Record drawings are required prior to the QDC's sign off of the State Building Officials' Certificate of Occupancy (C.O.)**

## RECORD DRAWING REVIEW PROCESS & FEE

QDC's Technical Review Process includes the review and approval of record drawings, per section 4.15(G)1 of the QDC Development Regulations:

*"The Applicant's design engineer and/or surveyor of record must submit a record drawing to QDC. No exceptions will be granted. The plan shall depict completed improvements, site features and the location of all utilities (above and below ground. The record drawing shall be certified and stamped by the appropriate design professional. Improvements and site features shall include but are not limited to property information, environmental resources, buildings, roadways, sidewalks, curbing/berm, stormwater management systems, clearing/treeline, planting features, permanent structures, signage, roadway/parking markings and utilities. In addition, the record drawing shall be developed per the **Record Drawing Checklist** found in the Development Regulations Guidance Document."*

The purpose of the record drawing is to indicate instances where the as-built condition differs from the design plan.

To facilitate completion and submittal of the record drawing, the Applicant shall, as part of the Development Plan Review submittal, 1) obtain and submit a proposal by the project's design engineer or surveyor of record for completion of the record drawing; and 2) submit the **Record Drawing Fee**, which shall be equal to the total amount the design engineer and/or surveyor of record's cost proposal.

Throughout construction the design engineer and/or surveyor of record shall make regular visits to the construction site to field verify and record the actual locations of all improvements. The Applicant shall notify QDC upon completion of construction, at which time QDC will coordinate directly with the design engineer and/or surveyor of record to complete the record drawing. Upon receipt of a complete record drawing that meets the standards set forth herein, QDC will make payment directly to the design engineer and/or surveyor according to the terms of the proposal.

## SUBMITTAL REQUIREMENTS

Upon completion of the project, the record drawing must be submitted to the QDC, which should include the following:

- 1 Hard Copy – stamped and signed by the RI registered professional engineer and/or surveyor of record
- 1 AutoCAD file
- PDF format of hard copy
- 1 Record Drawing Checklist

Plans are reviewed by QDC staff and/or QDC representative. Approval requires the following:

- Final field inspection of stormwater infrastructure
- Final field inspection of water/sewer infrastructure
- Final field inspection of gas/electric/telecommunication infrastructure
- Water Department Testing Approval
- Sewer Department Testing Approval

QDC will notify the Applicant of plan review results. Any issues that need to be resolved prior to QDC acceptance will be identified and require a resubmittal in 14 days.

Applicant will address, resolve and document all issues identified by the QDC during review.

When the QDC determines that the Record Drawing Requirements and QDC Development Regulations have been met, the Record Drawings will be accepted.

## DRAWING REQUIREMENTS AND STANDARDS

### DATUM REQUIREMENTS

The drawing must be referenced from the control provided in the QDC Survey Control Plan. The datum will be recorded on the sheet and shall read exactly as follows:

- Horizontal datum: Rhode Island State Plan NAD 83 (U.S. Survey Feet ESPG 3438)
- Vertical datum: Vertical: 3.05 QVD = 0.00 (NAVD 88)

AutoCAD™ drawings are to be drafted utilizing this datum for insertion into the QDC's GIS system. In addition, tie the project to two (2) Quonset Development Corporation Horizontal Control Monuments and two (2) Quonset Development Corporation Vertical Control Datum benchmarks. For Vertical and Horizontal Control information, please contact QDC.

### DRAWING STANDARDS

1. The record drawing shall be certified and stamped by the Rhode Island registered design engineer and/or surveyor of record.
2. Recorded improvements and site features shall include but are not limited to property information, environmental resources, buildings, roadways, sidewalks, curbing/berm, stormwater management systems, clearing/tree-line, planting features, permanent structures, signage, roadway/parking markings, utilities and their appurtenances.
3. Applicant must provide certifications from registered design engineers and registered land surveyors that construction was completed according to QDC approved plans, conditions and remarks. Stamps shall be provided on the plans and in the record drawing certification box on the **record drawing checklist**.
4. Both the Hard Copy and AutoCAD drawing must depict all items required by the **record drawing checklist**, found at the end of this document.

### AUTOCAD STANDARDS

1. It is the QDC's intent that the Final CAD Drawings reflect only the as-built conditions of the Project. Therefore, prior to the submittal of the Final CAD Drawings to the QDC, several items may need to be addressed by the Applicant to finalize and complete the CAD Drawings. These include the removal of delta triangles, cleanup of the issue block, placement of the Record Drawing wording and any text revisions necessary to reflect final as-built conditions.
2. AutoCAD™ drawings submitted to the QDC shall use the approved design drawing as the base, showing only the field changes based on the acceptable tolerances.
3. See QDC **Specific feature requirements** for additional guidance.
4. Applicant is responsible for incorporating all field changes submitted by the Contractor into the final drawings. **Scans of the Contractor's hard copy field drawings will not be accepted.**
5. The AutoCAD drawing shall be one composite file in model space. No reference files (XREFs), no aerial overlays and no locked or frozen layers will be accepted. Include only one composite DWG file on each CD or digital transmittal per submittal.
6. The submitted record drawing will be denied if more than one DWG file is submitted or if existing data (prior to construction) is attached or bound to the drawing.

## **HARD COPY STANDARDS**

1. The hard copy record drawings must be stamp and signed by the Professional Engineer of record. Their stamp and signature must be on each sheet.
2. The hard copy record drawing shall include the pertinent plan sheets from the Applicant's approve design plans. The design plan sheets should be used as the base template.
3. The hard copy record drawing sheets shall show existing conditions (such as existing utilities, roadways, buildings, etc.) in a gray color.

## SPECIFIC FEATURE REQUIREMENTS

Record Drawings must show accurate locations of storm, sewer, water mains, other water appurtenances, structures, conduits, power poles, light standards, vaults, width of streets, sidewalks, building footprints, sidewalks pavement markings, property lines, easements, etc. All AutoCAD™ drawings submitted to the QDC shall follow the standards outlined in this document. QDC has established tolerances for each feature. If the location of the feature is outside of the tolerance than that of the approved design drawings, then the feature shall be surveyed and the new location shown on the Record Drawings. **All inverts to be field recorded and shown on the plan.**

The following requirements provide a minimum guide to the Applicant / design engineer and/or surveyor of record and should be used along with good engineering practices.

Record drawings and profiles as drawn shall indicate all necessary information about the storm drainage and stormwater management, water system, sanitary sewer, earth retention, utilities, easements and demolition/abandonment, to evaluate whether the constructed features will be able to function as intended by the design. Record drawing information for the above items, at minimum should include, but not be limited to the following:

### STORM DRAINAGE AND STORMWATER MANAGEMENT

Feature	Field Verify	Survey	Acceptable Tolerance
Pipes	Material, length of pipe, pipe diameter and direction of flow	Inverts and location of ends (not in structures).	0.5 feet
Catch basins, manholes, inlets	Size, type and cover	Rim elevation, bottom elevation, and location	2 feet
Culverts	Material, shape and size and indicate if flowline is undisturbed, exposed culvert material or filled with streambed sediment.	Location of ends, inverts of structure ends and inverts of stream.	1 foot
Underdrains	Pipe location, cleanouts	Cleanout rims and inverts	1 foot
Monitoring Well	Size of well and condition	Location, cap elevation and ground elevation	Structure if moved 1 foot or more
Vault	Material, type, size, control system, etc.	Control structure location, control elevation, bottom elevation and access location	Structure corners - 0.5 feet Access covers - 2 feet
Ponds	Size and shape	Control structure location	1 foot
		Control elevations (orifice inverts, weir elevations), overflow elevation, bottom elevation;	0.5 feet
		Water surface shape (spot locations around edge of water surface, enough to indicate shape/location)	1 foot
Swales and bioretention	Length and width	Inlet and outlet inverts	0.1 feet
		Swale and bioretention limits	1 foot
Infiltration systems, trench drains	Material, size and pipe diameter	Inverts in and out of system and top and bottom elevation of system	0.1 feet
			Location if moved 1 foot or more

## WATER SYSTEM

Feature	Field Verify	Survey	Acceptable Tolerance
Pipes and fittings	Manufacturer, length of pipe, material, size, joint type, fitting. Distance between fittings (center of tees, crosses, and bends). Location of all utility crossings and depth of pipes (verify during installation at every fitting and appurtenance).	Location of all vertical and horizontal bends with top elevations  Horizontal location of main  Outside of ROW, every 100 feet  Within ROW, distance	If moved 2 feet or more  0.25 feet for inverts and depths
Valves	Size, type, valve manufacturer, depth of operating nut, length of valve nut extension used	Horizontal and vertical location as follows:  Center of Gate Valve  Valve (same as center of box)  Butterfly Valve — center of valve and box  Air & Vacuum—center of meter box assembly, and center of stand pipe at post  Blow Off —center of meter box assemble	0.5 feet
Hydrants	Manufacturer and bury depth	Horizontal location of hydrant (center of valve stem)  Vertical elevation of safety flange	Hydrant if moved 1 foot or more  .1 foot vertical elevation of safety flange
Service Lines	Material, size and locations	At building or connection point	If moved 2 feet or more
Meters	Type, size, vault or box and size	Horizontal locations of four corners of vault	Box if moved 1 foot or more
Pressure Reducing Valves	Material, size, location of valve and appurtenances	Horizontal locations	Structure if moved 1 foot or more
Fire Systems	Material, size, location of pipe and appurtenances	Horizontal locations of Post Indicator Valve (PIV), center of Fire Dept. Connection (FDC), and four corners of vault. All valves, connections to QDC mains	Pipe, vault, PIV, and FDC if moved 2 feet or more horizontally  Vertical tolerance  PIV = 1 foot  FDC, vaults and connections to QDC Mains = 0.5 feet

Backflow devices - interior to building	Device, brand, type, size, service line size and location of drain	-	Location if moved 2 feet or more
Water pipe tie-in	Location and depth	-	0.5 feet



## SANITARY SEWER

Feature	Field Verify	Survey	Acceptable Tolerance H/V
Manholes	Diameter, type, cover, manufacturer	Horizontal locations of center of manhole, center of lid, elevations of rims and inverts	Manhole if moved 1 foot or more horizontally .1 feet vertically
Pipes - gravity sewer main	Manufacturer, material, length of pipe, pipe diameter and direction of flow,	Location of all vertical and horizontal bends with top elevations  Horizontal length of pipe from center of manhole	Pipe if moved 0.25 feet or more
Pipes - force main	Material, length of pipe, pipe diameter and direction of flow, manufacturer, joint type, and fittings. Distance between  Fittings (center of tees, crosses, bends). Location of any invert and of any utility crossings. Depth of pipes (verify during installation at every fitting and appurtenance).	Location of all vertical and horizontal bends with top elevations  Outside of ROW, every 100 feet  Within ROW, distance off centerline of road (use pipe locator for location)	Pipe if moved 0.5 feet or more
Valves	Size, type, and manufacturer	Horizontal & Vertical locations as follows:  Gate Valve: center of valve  Air & Vacuum: center of meter box  Blow Off: center of meter box	0.5 feet
Cleanouts	Size	Horizontal location of and rim elevation at center of box	Structure if moved 0.5 feet or more
Grease interceptor/oil water separators	Pipe, materials, size and vault dimensions and size	Horizontal locations of four corners of the vault  Pipe inverts  Access manhole	Structure if moved 0.5 feet or more  0.25 feet  0.5 feet

## TRANSPORTATION

Feature	Field Verify	Survey	Acceptable Tolerance
Curb and gutter	Location and face of curb and type	---	0.1' horizontal 0.05' vertical
Driveways	Location, width and type	---	0.5' horizontal
Signage	Location, size and type.	---	If moved 1 foot or more
Sidewalks	Location, material, width, slope	---	Width 0.5' Cross/linear/ramp .005 ft/ft
ADA Ramps	Location and curb ramp number		Width 0.5' Cross/linear/ramp .005 ft/ft
Street/Parking lot lighting	Location	Pole and electrical service cabinet locations	If moved 1 foot or more
Traffic Signals/Traffic control devices	Location	Pole, traffic signal and electrical service cabinet locations	If moved 1 foot or more
Monument Cases	Location and material	Horizontal coordinates	If moved 1 foot or more
Conduit/Cable	Location, material depth and size.	---	Horizontal 0.5 feet Vertical 0.25 feet
Junction Boxes	Location, type and conduit entrances.	---	If moved 1 foot or more
Loop Detectors	Location.	---	0.5 feet
Grades	Finished grades		0.1 feet

## DEMOLITION

Feature	Field Verify	Survey	Acceptable Tolerance
Cutting & Capping of Pipes	Location of removal/abandonment and cap	Pipe cap locations	If moved 1 foot or more

## EASEMENTS

Feature	Field Verify	Survey	Acceptable Tolerance
Property Line	Location of easement	---	If moved 1 foot or more

## RECORD DRAWING CHECKLIST

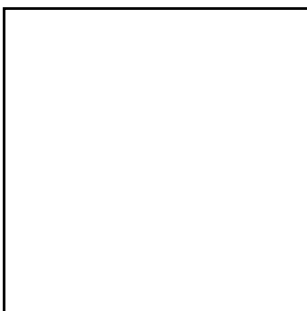
The applicant/design engineer and/or surveyor of record shall submit the required prints, digital files and this completed checklist for Record Drawing review. These items must be submitted for review and approval. All record drawings must provide the following information in order for the record drawing submission to be deemed complete.

- Review Submittals: One (1) print 36" x 24" in PDF and AutoCAD (latest version) file formats.
- Final Submittals: One (1) stamped print 36" x 24" in PDF & AutoCAD (latest version) file formats.
- Appropriate scale: 1"=40' or may be modified to an agreed upon scale with the permission of the Managing Director of the QDC (or his/her designee).
- Title block with the name of project, property owner(s), business, subject property address, plat and lot numbers along with any parcel designation.
- Plan date, latest revision date(s) if any.
- Graphic scale, north arrow (per QDC Survey Control) and vicinity map.
- Drawing must be georeferenced from control provided in the QDC Survey Control plan. Vertical datum shall be QVD – no exceptions. Horizontal datum shall be NAD 83 (QDC Survey Control).
- Location of the project benchmark used and note points used from the Control Plan.
- All new utilities, installations, removals and stationing shown on the approved design plan set must be accounted for and shown per the specific feature requirements section.
- All existing utilities screened back in lighter line weight.
- All new utility installations and structures shall be displayed darker and layered individually.

All features labeled per the **Specific feature requirements**:

- Storm Drainage and Stormwater Management
- Water System
- Sanitary Sewer
- Transportation
- Demolition
- Property lines and easements
- Location and size of new buildings, structures and improvements.
- Stamp and signature of professional land surveyor and/or civil engineer licensed in the State of Rhode Island.
- PDF files and AutoCAD .dwg files submitted electronically and clearly labeled with the name of the project, plat & lot numbers, name of the engineering firm.

## RECORD DRAWING CERTIFICATION



Place Professional Seal Here

Name: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_  
Signature: \_\_\_\_\_

## OFFICIAL USE ONLY

Date Received: \_\_\_\_\_

Complete

Yes

No

Signature: \_\_\_\_\_