



This packet contains the following forms/documents:

- 1. Sewer Agreement Packet Cover Page TRT 00807
- 2. Sewer Main, Plan Checklist TRT 00085
- 3. Water and Sewer Repayment Agreement TRT 00803
- Water and Sewer Repayment Agreement Guidelines TRT 00803G
- 5. Water / Wastewater Main Extension Application TRT 00806
- 6. Professional Engineer's Cost Estimate Water and Sewer Main 00808
- 7. Sewer Design Report Guidelines TRT 00804
- Application to Construct Water Distribution and Sewage Collection Systems TRT 00206
- 9. Approval to Construct, Water/Sewage Packet TRT 00201
 - a. Water / Sewage Approval to Construct TRT 00977
 - b. Water / Sewage Interim Approval of Construction TRT 00978
 - c. Water / Sewage Approval of Construction TRT 00979
- 10. Environmental Responsibility & Certification for Projects Constructed by Private Developers TRT 00412
- 11. Public Utility Easement Adjustment, Approval Request TRT 00273
- 12. Construction Staking, Requirements TRT 00919

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Sewer Main Plan Checklist

COP Project (KIVA) No.:	Project Name:	
Reviewed By:	Phone:	Date:
Professional Engineer:	Phone:	
The purpose of this checklist is to offer minimum submittal requirements for so Water Services Department Design St	ewer plans. Source of sewer develop	ment code and design policy is the
This checklist serves to minimize redling reviewers on plans for public sewer mapproval and issuing permits dependent checklist. The professional engineers design.	ain construction in the public right-of- on compliance with the comments ma	way and public sewer easements. Plan ade on the check prints and this
A completed checklist must be attached Certification Statement must be signed requirements on this checklist have be	d by the Professional engineer of reco	
Plan review correction cycles and/or a – Phoenix City Code, Chapter 9, Appe plan reviews.		ditional review fees (see Fee Schedule ions/reinstatements to update expired
	CERTIFICATION	
I CERTIFY THAT THE REFERENCED STANDARDS, INCLUDING FEDERA ADDITION, I CERTIFY THAT THIS C ARE PROPERLY ADDRESSED. I UN THIS CHECKLIST, THE PLANS MAY REVIEW BEING PERFORMED.	L, STATE AND COUNTY REQUIRE HECKLIST HAS BEEN COMPLETE NDERSTAND THAT IF I FAIL TO AD	MENTS AND REGULATIONS. IN D ENSURING ALL ITEMS LISTED DRESS ALL APPLICABLE ITEMS IN
PROFESSIONAL ENGINEER'S NAM	E:	
PROFESSIONAL ENGINEER'S SIGN	NATURE: DATE:	
Please complete and return this check comments on plans or this checklist sh		
Professional engineer of record (ENG) N/A (Not Applicable).) <u>must</u> fill out <u>all</u> boxes in the <u>first</u> colu	ımn as either (Addressed) or
Civil plan reviewer (RVW) shall check been properly addressed.	the <u>second</u> column as X (Requi	ired) when requirements have not
		Page 1 of 8

For more information or for a copy of this publication in an alternate format, contact Planning & Development at (602) 262-7811 voice / (602) 534-5500 TTY.

REQUIRED SUBMITTALS

Note requi	∷ If s	Plan sheets shall be 24" X 36"; submit four (4) sets of Sewer main plans, one (1) copy of the approved preliminary Site plan for major projects OR one (1) copy of the first review Site plan mark-up for minor projects, Utility Conflict Notices form the appropriate utility companies OR a printed disclaimer on the cover sheet (if work is on a local or residential street), a signed agreement form indicating standard or repayment agreement, a completed Application for Main Extension form, a sealed cost estimate, a signed and sealed Sewer Design Report by the professional engineer of record, a completed Notice of Intent form, a completed Approval to Construct form, a completed Environmental Responsibility form, and a completed and signed Sewer Main Checklist.
		GENERAL REQUIREMENTS:
		Symbols shall be per M.A.G. Specifications and Details supplemented by Water Services Department Details.
		Orientation of each plan sheet shall be shown by a north arrow and scale of drawing (North arrow is to be up or to the right).
		A cover sheet is required on plans of two (2) sheets or more.
		Each sheet shall be identified by sheet number, project name, and match lines.
		All sheets shall have the Civil Professional engineer's Arizona registration seal with original signature and date prior to plan submittal.
		All plan sheets shall be sufficiently clear to allow legible prints to be reproduced from microfilm. The size of lettering and symbols shall be 1/8-inch minimum. Shading or zip tape is not permitted. Refer to Water Services Department Design Standards Manual (P-69) for information required on record drawings ("As-Builts").
		If the existing sewer main that is to be used as a point of outfall is 15" or larger, contact Water Services Departments (WSD) at 602-534-2297 for further information prior to submitting to the city of Phoenix Planning & Development Department for plan review. Provide approval from WSD with 1st submittal.
		This project is subject to a sewer line repayment as redlined on the plans. Any questions shall be directed to the Civil Services Permit Counter, 602-262-6551 (Voice) or (602) 534-5500 (TTY). These fees shall be paid prior to the issuance of construction permits.
		COVER SHEET REQUIREMENTS:
		Provide the appropriate processing numbers including: KIVA#, CPSE#, and city Quarter Section Number in lower right corner.
		Provide a project title block with name and address of project.
		Provide a project description.
		Provide the Owner and Developer's name, address, and telephone number. Owner must be listed on the Arizona Corporation Commission website if they are a corporation.
		Provide Professional engineer's name, address, and telephone number.
П		A vicinity map, properly oriented with north up or to the right, is required.

ENG	RVV	v Provide Signature Approval Block. (In lower right-hand corner)
		APPROVED FOR: THE CITY OF PHOENIX
		HEALTH DELEGATE DATE PLANNING & DEVELOPMENT DEPARTMENT
		Provide an As-Built Certification Statement as follows (include on all sheets):
		AS-BUILT CERTIFICATION:
		I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.
		REGISTERED ENGINEER DATE
		REGISTRATION NUMBER
		 A key map is required on plans with more than two (2) sheets. A key map is a small-scale map of the project site that provides a system overview and is used to index the plan sheets. The key map shall clearly show the following: All streets with names, alleys, easements, tracts, and parcels shall be identified or shown "unsubdivided." Sewer mains with types & sizes, manholes, cleanouts, and any associated facilities. Direction of flow must be indicated. Manholes and cleanout must be numbered consecutively (cleanouts are only allowed for a temporary condition when the next phase of a project extends the sewer and the cleanout is removed). Index of plan sheets indicated by single line with arrows showing beginning and end of each sheet.
		Provide a Blue Stake notification decal.
		For major or collector streets provide utility conflict transmittal letter, along with all responses from companies. The following disclaimer can only be used for local or residential streets. Do not use for major or collector streets:
		I hereby certify that all utility companies with facilities in the area of this project have been contacted and the data provided is shown on this plan. I agree to indemnify, defend, save and hold harmless the City of Phoenix, its officers, officials, agents, employees and volunteers from any and all claims, demands, actions, liabilities, damages, losses, or expenses incurred for any utility conflicts that may arise.
		Professional engineer's Signature and seal Date
		Elevation datum and bench marks (city datum required). Please dial (602) 495-2050, ext. 265 Voice or (602) 534-5500 TTY, to obtain city datum for existing benchmark closest to the project site. Equations cannot be used. Note on Plans NGVD 29 (National Geodetic Vertical Datum 1929).
		Provide a material list for Right-Of-Way or easement work only.

NOTES FOR SEWER PLANS:

ENG	RVV	
		Planning & Development Department's Civil/Site Inspection Staff shall be notified 48 hours before any construction begins, telephone (602) 262-7811.
		Any sewer main 15 inch in size or 12 feet in depth, or greater, requires 5' manholes.
		All manholes newly constructed or existing that are worked in for connections shall be painted with insecticide paint per city of Phoenix Supplement to M.A.G. Section 627.
		Manholes with 60" diameter and pipes greater than 12" require coating per C.O.P. Supplement 626. Any existing manholes with corrosion coating that are disturbed or adjusted to new finish grades shall have any damaged coating repaired, including all adjusting rings.
		This set of plans has been initially reviewed by the City of Phoenix. Such review is part of the process that developer(s)/contractor(s) must go through in order to obtain a Construction Permit. The results of such initial review, however, shall not dictate the City of Phoenix's final determination as to the acceptability of the plans, nor shall it prevent the City of Phoenix from requiring that errors and omissions, as found on plans, be addressed by developer(s)/contractor(s), where such errors and omissions cause the plans to be in violation of or inadequate under applicable federal/state/county/local codes, ordinances, regulations, or other laws. This reviewed and stamped set of plans must be kept at the construction site at all times.
		All construction in city of Phoenix Right-of-Way, or easement, is to conform to M.A.G. Specifications and Details and city of Phoenix Supplement to M.A.G. Specifications and Details, unless modified on the plans.
		All sewer mains must have a T.V. inspection before accepted as complete (See City of Phoenix Supplement to M.A.G. Specification Section 615.11(C).
		Traffic Regulations: All work must comply with requirements of the current city of Phoenix "Traffic Barricade Manual".
		The following M.A.G. Details are specifically not approved: 425 24" Aluminum Frame and Cover.
		New manholes are to be built without steps.
		Compaction shall comply with M.A.G. section 601 & city of Phoenix supplements.
		New sewer lines are to be built in accordance with city of Phoenix "Standard Utility Locations".
		A six (6) foot minimum horizontal separation from any underground utility shall be provided for sewer mains, sewer services, water mains, and water services. The minimum horizontal separation is measured from outside of sewer main, sewer service, water main, or water service to outside of underground utility.
		A one (1) foot minimum vertical separation from any dry underground utility crossing shall be provided for sewer mains, sewer services, water mains, and water services. The minimum vertical separation is measured from outside of sewer main, sewer service, water main, or water service to outside of dry underground utility.
		A two (2) foot minimum vertical separation shall be provided between any sewer main or storm drain main crossing a water main. The minimum vertical separation is measured from outside of water main to outside of sewer main or storm drain main. See M.A.G. Standard Detail 404 for additional information and/or provisions for clearance.

ENG	RVW	I
		Exceptions or deviations from the above minimum clearances must be approved and shown on the approved water and sewer plans. When utility conflicts are found during construction, all changes and revisions must be preceded by an approved plan revision.
		Any and all more stringent separation requirements required by Federal, State, County, or local codes or ordinances take precedence.
		Any sewer lines that are installed with less than .004 ft/ft slope must be installed using a laser.
		When DIP sewer pipe is used, lining is required per city of Phoenix Supplement to M.A.G. Sec. 750.1.
		Concrete or asphalt damaged during the course of construction shall be removed and replaced in kind prior to final inspection.
		Record drawing submittals must comply with Water Services Department Engineering Policy P-69. A copy of the policy can be obtained in the department's website: http://phoenix.gov/waterservices/design/engpolicies/index.html .
		Asphalt restoration is required for any street cut. Refer to Street Pavement Cut Policy (TRT 00164 and Ordinance G-6308).
		Plan approval is valid for 12 months. Prior to plan approval expiration, all associated permits shall be purchased, or the plans shall be resubmitted for extension of plan approval. The expiration, extension, and reinstatement of Civil Engineering plans and permits shall follow the same guidelines as those indicated in the Phoenix Building Construction Code Administrative Provisions Section 105.3 for Building permits.
		<u>Place the following note on each sheet of the plans:</u> Per Phoenix City Code, Chapter 2, Section 2-28, these plans are for official use only and may not be furnished for inspection or copying, except as specifically stated in the City Code, or as required by law.
		OPTIONAL NOTES FOR SEWER PLANS:
		For lots fronting an existing sewer main, sewer services shall be constructed by the contractor after proper application and payment of prevailing fees for city forces to provide the connection or "wye" in accordance with Water Services Department Policy P-1, Sewer Ordinance G-2358, section D. For information, call 262-6551.
		This plan is approved subject to completion of some lines labeled "EXISTING" which have been proposed as a part of another development. The developer of this project may be required to construct those lines per city requirements prior to receiving service for this project.
		PLAN AND PROFILE SHEETS: The plan and profile sheets shall show the following to proper scale:
		Title block shall be on all sheets.
		All sheets shall be numbered with match lines (if required).

ENG	RVV	
		Orientation of each sewer line shall be shown by a north arrow and scale of drawing. (North arrow is to be up or to the right.)
		New manholes built on existing lines require showing its station from the nearest existing downstream manhole and its distance to the nearest upstream manhole. Note the city of Phoenix manhole number with verified inverts, rim and slope.
		All new manholes shall have stationing 0+00 AHD (ahead) and station the length of pipe to the downstream manhole as STA X+XX BK (back). Provide ties to monument lines at manholes. Accumulative station is not allowed. All stationing shall be rounded to nearest foot.
		All existing and proposed utilities shall be shown with size, material, and location in right-of-way in plan and profile.
		Rim and flow line elevations shall be shown for all manholes and cleanouts.
		Proposed finished grades at centerline of sewer shall be shown in profile with a solid line. Existing grades of ground surface at centerline of sewer shall be shown with a dashed line.
		Pavement replacement thickness and type are to be per M.A.G. Section 336 and C.O.P. Detail P1200 - Type B. Curb and gutter replacement shall be a minimum of one (1) full section, per M.A.G. Standard Detail 220. Sidewalk replacement shall be a minimum of one (1) full panel per C.O.P. Detail P1230. At the discretion of the city of Phoenix Planning & Development offsite inspector, tunneling under existing curb and gutter, in city of Phoenix R.O.W., will be allowed. Tunneling under existing sidewalk will not be allowed in the city of Phoenix R.O.W.
		When replacing curb, gutter, and sidewalk, show, and label, existing and proposed concrete. Construct sidewalk ramps to accommodate access per ADA requirements. One half (1/2) sack slurry backfill is highly recommended. Tunneling under curb and gutter should not be shown on plans. Plans should indicate removal and replacement of the curb when crossing under the curb. The field inspector will determine if tunneling is acceptable based on the condition of the curb. Tunneling under sidewalks is not acceptable.
		Existing and proposed paving shall be shown. Shading is not allowed. Cross-hatching is acceptable.
		3'0" minimum horizontal clearance shall be maintained between sewer services. 3'0" minimum horizontal clearance shall be maintained between water services.
		6'0" minimum horizontal clearance shall be maintained between water and sewer lines, water and sewer services, and between sewer mains and all other utility lines, measured from outside of pipe to outside of pipe.
		Proposed sewer mains are to be installed per the city of Phoenix "Standard Utility Locations." Pavement cuts will not be a valid reason for not using the "Standard Utility Locations."
		The minimum easement width for sewer mains shall be per Table 3.2 in the city of Phoenix Design Standards Manual for Water and Wastewater Systems.
		Each lot in subdivision shall be served by a separate tap, with stationing from nearest downstream manhole.
		Show encasements of water and sewer lines per M.A.G. Standard Detail 404 in plan and profile. Double protection is required when sewer crosses over water. Where both water and sewer are new, both materials shall be Ductile Iron Pipe (DIP).

ENG	RVV	V Show total lineal feet of pipe between manholes (calculated from center of manhole to center of manhole) with calculated slope. All pipe dimensions rounded to nearest ft.
		Review all slopes; must meet minimum design requirements per Table 5.1 Design Velocity in the City of Phoenix Design Standards Manual for Water and Wastewater Systems.
		Show all utilities in plan and profile. Where city utilities cross other utilities, show complete dimensional data measured from street monument lines.
		Show all streets, alleys and easements. Streets shall be identified by name. Streets, alleys and easements shall be dimensioned at least once and at all breaks. Monument line of streets shall be shown.
		Locate all existing and proposed utilities, structures, paving, and other topographic features affected by construction.
		Label all connections to existing sewer lines with method of connection specified.
		Existing and proposed water main size and location must be shown. Water main shall be shown in a "lighter weight" line to identify it as being information only and not part of this construction plan. Label as existing or proposed.
		Vertical scale shall be $1" = 2'$ or $1" = 4'$. Horizontal scale shall not be smaller than $1" = 40'$. For major streets and cases of unusual topography or complex situations, where more detail is necessary, the scale shall be $1" = 20'$.
		For water line to be relocated because of sewer conflicts, show all valves involved in shutdown, with city Quarter Section Valve Numbers as labeled. Plan may be required for such relocation.
		Sewer taps are not to be under sidewalk ramps and driveways, if possible.
		5' manhole required over 15" and larger sewer lines and on sewer mains 12' in depth or greater. (Special notes on cover.)
		Discussion of redline comments on plans or in this checklist should be directed to the plan reviewer.
		Sewer Design Report:
		Provide the average and peak design flow rates for the sewage collection system. The basis of the projection of initial and future flows shall be included and must be based upon the initial service area and the ultimate upstream service area that can be served by gravity even if it is outside a development's project area.
		Provide the basis of design for the sewage collection system including pipe sizes and slopes. Include the sizing calculations and calculations showing that there is sufficient hydraulic capacity to transport the design flows at the proposed sizes and slopes.
		PLANS FOR REVISION
		All original plan approvals, signatures, and seals are to remain on the revised plans.
		All plans revised after the original approval shall be resubmitted for review and approval. The nature of the revisions must be called out on the cover sheet and on the sheet(s) which have been revised. The revision number itself shall consist of a numeral within a triangle next to each revision. Δ Changes on each plan sheet shall be highlighted with "clouding".

City of Phoenix Planning & Development Department Sewer Main, Plan Checklist – Page 8 of 8

TRT/DOC/00085

		All revised sheets, including the cover sheet are to be re-sealed, signed and dated.	
		New approval signature block is required to be added to the cover sheet for approval of the revisions.	
		APPROVED FOR: THE CITY OF PHOENIX	
		HEALTH DELEGATE DATE PLANNING & DEVELOPMENT DEPARTMENT	
ENG	RVV	All plans submitted for extension require a new signature block and are to be re-signed by the submitting designer. Plan extensions are to be highlighted with "clouding" as specified in the plan revision process above. The plan sealant shall note that this change is a plan extension. A new approval signature block is required to be added to the coversheet for approval of the extension. All plan extensions must have prior approval by completing the Plan Review Extension Application. The Plan Review Extension Application can be found at the following site: http://phoenix.gov/pdd/development/sitecivil/civil/index.html. Provide a copy of the approved application with the plan submittal.	
		Plan approvals for extension are valid for a period of 12 months from the date of plan approval.	





ATTACHMENT A		
Date:		
Developer:		
Professional Engineer:		
Project Name:		
KIVA #:		
Subject: Repayment Agreements (Sections 28 Code).	3-23 and 37-35 through 37-38 Phoenix City	
This project has been designed with an approa eligible for a repayment agreement. An appro the limits of the project or a main constructed a development.	ach main is defined as a main extended beyond	
In order to be eligible for a repayment agreeme This procedure is explained in Water Services and timely processing, the developer is encou procedure.		
Please indicate your agreement preference below:		
	_ Repayment Agreement	
	_ Standard Agreement	
DEVELOPER'S SIGNATURE:		

This publication can be made available in alternate formats (Braille, large print, or digital media) upon request. Contact Planning & Development at (602) 262-7811 voice or (602) 534-5500 TTY.

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Water and Sewer Repayment Agreement Guidelines

Purpose

To provide the City of Phoenix Water Services Department (WSD) and Development Services Department (DSD) procedures for water and sewer repayment agreements.

Background

The water main repayment policy of the City for developer constructed water main extensions is described in Sections 37-35, 37-36, 37-37, and 37-38 of the Phoenix City Code. The sewer main repayment policy of the City for developer constructed sewer main extensions is described in Section 28-23 of the Phoenix City Code.

Procedures

- Repayment Agreements for water and sewer mains 12-inches in diameter and below will be initially processed by the Development Services Department (DSD), Water Services Counter, 200 W. Washington St., 2nd Floor, Phoenix, AZ, 85003, phone 602-262-6551.
 - Repayment Agreements for water and sewer mains larger than 12-inches in diameter, for wastewater lift stations, and for all mains located outside Phoenix City limits will be initially processed by the Water Services Department (WSD), Technical Support Counter, 200 W. Washington St., 8th Floor, Phoenix, AZ, 85003, phone 602-495-5601.
- 2. If a developer will be constructing an approach main, the City's DSD or WSD plan reviewer, during initial plan review, will provide a copy to the developer's engineer of this procedure and a form (Attachment A) for the developer to fill out indicating preference for a repayment agreement or a standard agreement.
- 3. Repayment agreements must be requested in writing from the developer. The developer will fill out a form indicating preference for either a standard agreement or repayment agreement for the approach main, sign the form, and submit to their plan reviewer prior to plan approval.
- 4. WSD will make the final determination of whether the approach main is eligible for a repayment agreement. The costs of water and/or sewer mains within the boundary of the development are not eligible for repayment.
- 5. The developer's engineer shall submit the following documents for the approach main that is subject to repayment agreement. Repayment agreements will not be processed prior to the submission of all of these documents.
 - a. Engineering plans and specifications
 - b. An exhibit for the agreement showing the proposed repayment area or frontage. Exhibit C-1 shall be used for water repayment agreements and shall show the water repayment area on a front footage basis. Exhibit C-2 shall be used for sewer repayment agreements and shall show the sewer repayment area using local drainage conditions on an acreage basis. Instructions on preparing the exhibits and sample exhibits are included in Attachment B.

- c. Water and/or Wastewater design report in accordance with the WSD Design Standards Manual Section 5.2.2. The wastewater design report will provide the justification and the criteria for the benefited drainage area.
- d. A bid form (Attachment C) showing the repayment items and quantities.
- 6. As per Section 28-23 of the Phoenix City Code, if a developer will also be receiving impact fee credits for the approach main (typically for sewer mains greater than 18-inches in diameter that are part of the City's Impact Fee Infrastructure Finance Plan), then the credits for impact fees will be allocated based on the proportional allocation of costs as specified in the repayment agreement. The developer may reduce the repayment amount in order to receive a larger allocation of the impact fee credits. The developer must request this in writing to WSD and provide the repayment reduction amount prior to the preparation of the agreement.
- 7. After City approval of 5a-d above, the developer shall submit a minimum of three (3) sealed bids for the construction of the approach main to DSD Water Services Counter (mains 12-inches in diameter and less) or WSD (mains greater than 12-inches in diameter, lift stations, or all mains outside City limits). Unit pricing shall be shown on all bids. These bids will be opened by the City on a predetermined date agreeable to the developer and the City. The developer or a representative must be present for the bid opening. The developer shall contact the City at least one week prior to schedule the desired bid opening date. The City reserves the right to reject any or all bids. The developer shall choose one of the contractors whose bid is opened to perform the work.
- 8. Per City Code Section 37-37 and Section 28-23, engineering costs for the repayment approach main can be added to the total project cost. Engineering costs shall not exceed 10 percent of the low bid cost. The developer shall submit documentation of engineering costs to the City on the Engineer's letterhead with signed and dated seal.
- 9. The City department that is initially processing the repayment agreement will prepare the bid tabulation and calculate the total project cost, the developer's share of the cost, the repayment amount, and the connection charge for future connections.
- 10. After the low bid has been established and the connection charge determined, the City will prepare a water and/or wastewater repayment agreement. The developer shall sign and notarize the agreements and return all four copies to the City department that is initially processing the repayment agreement.
- 11. The developer shall provide a copy of the signed contract with the contractor that will be constructing the approach main to the City department that is initially processing the repayment agreement. The contract shall show the contract amount for the repayment approach main. The date the repayment period begins is the date the developer signs the repayment agreement.
- 12. DSD Water Services Counter will issue permits for the approach main upon receipt of the signed repayment agreements, construction contract, payment or posting of appropriate bonds, a Grading and Drainage permit, resolution of holds, and contractor license and insurance information. The developer will be required to pay an administrative fee for each repayment agreement at the time of permit issuance. Permits for projects eligible for repayment will not be issued prior to bid openings and acceptance of agreement.

- 13. The City department that is initially processing the repayment agreement will return one copy of the executed agreement to the developer.
- 14. Upon construction completion and acceptance, the approach main or facility will become property of the City. The City will have exclusive control of connections to the proposed approach main.
- 15. DSD Water Services Counter will collect a connection charge from anyone who subsequently connects into and obtain service from the approach main and is located in the benefited area shown on Exhibit C-1 or C-2.
 - a. A direct connection to a water approach main will be charged on a cost per front footage basis. This connection charge is determined by the cost per front foot as written in the agreement.
 - b. A connection to a sewer approach main or lift station will be charged on a cost per acre basis. This connection charge is determined by the costs per acre as written in the agreement and the total acreage of the new development
- 16. The City will repay the connection charge to the original developer. For sewer repayment agreements, the City will deduct a portion of each connection charge as an administrative fee. The total amount of repayments shall not exceed the total cost eligible for repayment per the agreement. The entire repayment contract will terminate in ten (10) years, or 20 years for Class 2 wastewater projects¹, or when the total repayment amount is repaid, whichever is sooner.

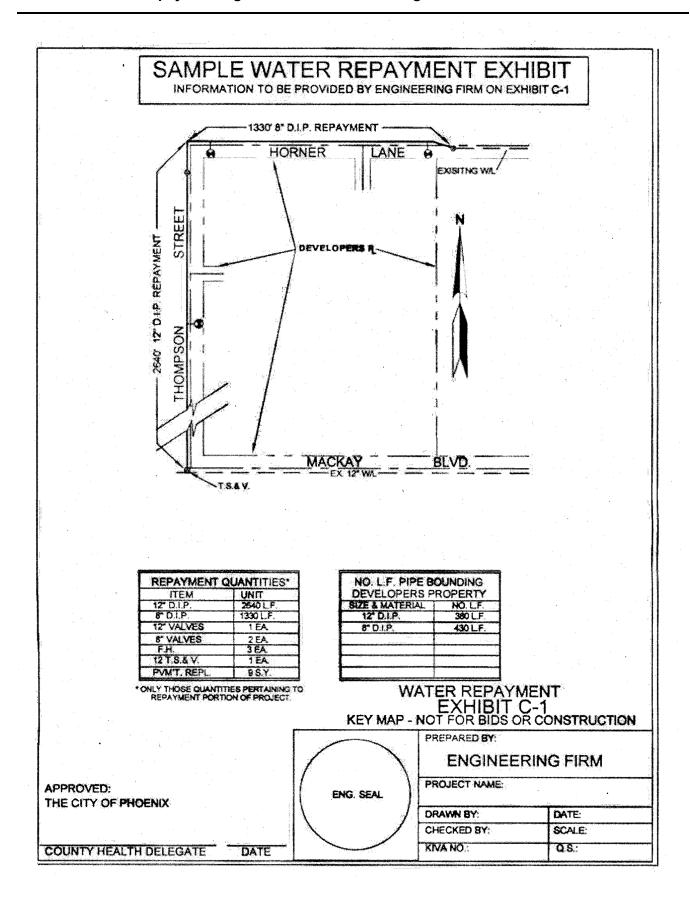
Carlos Padilla, P.E.

Assistant Director for Water Services Department

1. Class 2 wastewater projects are regional projects involving construction costs in excess of \$3 million, that are located in targeted growth areas, and that involve large regional facilities such as lines of 18" in diameter or greater, or lift stations with 5 MGD or greater capacities. This new class of repayment agreement will have a 20 year time span, instead of the usual 10 year time span.

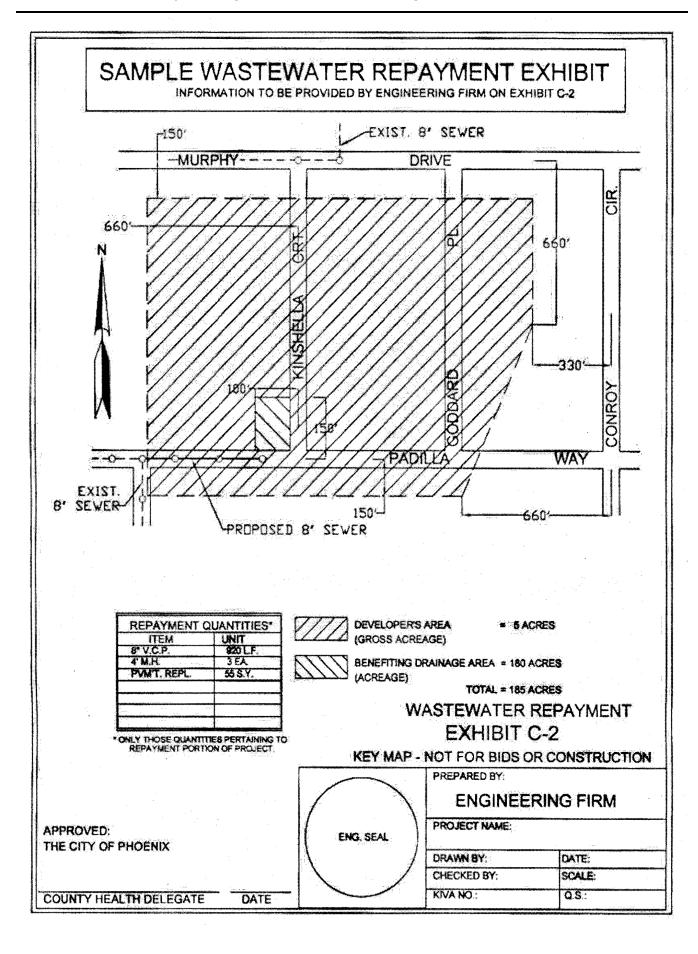
ATTACHMENT A

Date:			
Developer:			
Engineer:			
Project Name:			
KIVA #:			
Subject: Repayment Agreements (Sections 28 Code).	3-23 and 37-35 through 37-38 Phoenix City		
This project has been designed with an appropriate ligible for a repayment agreement. An appropriate limits of the project or a main constructed development.	ach main is defined as a main extended beyond		
In order to be eligible for a repayment agreem This procedure is explained in Water Services and timely processing, the developer is encouprocedure.			
Please indicate your agreement preference be	elow:		
	_ Repayment Agreement		
	_ Standard Agreement		
DEVELOPER'S SIGNATURE:			



ATTACHMENT B INSTRUCTIONS FOR SEWER REPAYMENT AGREEMENT EXHIBIT C-2

- 1. The developer's consulting engineer shall prepare Exhibit C-2 to the repayment agreement and submit to the City for review and approval.
- 2. The following information shall be shown and labeled on the drawing in Exhibit C-2:
 - a. Sewer pipe, lift station, and appurtenances which are eligible for repayment. Show with dark or thick line. Do not show mains located inside the developer's area.
 - b. Existing sewer mains to which the approach main will connect. Show with lighter dashed line. Also include City manhole number, if connecting to existing manhole.
 - c. Developer's gross area. This should be shaded using cross hatching.
 - d. Benefited area. This should be shaded using cross hatching in the opposite direction as the cross hatching for the developer's area. This area should correspond to the area shown in the engineer's design report.
 - e. Streets in which repayment pipe is located, streets which bound the developer's area and benefiting area, and all major streets.
 - f. Dimensions of each side of the developer's area and the benefiting area.
 - g. Offset distances from the center lines of nearest rights-of-way to the boundaries of the developer's area and benefiting area.
- 3. The following quantities shall be provided on Exhibit C-2, which reflects only those items eligible for repayment:
 - a. Benefiting area in gross acres.
 - b. Developer's area in gross acres.
 - c. Total area in gross acres.
 - d. Lineal feet of pipe and number of manholes. Include pipe size and material.
 - e. Pavement replaced (S.Y.) and type per M.A.G. and City standards.
- 4. Engineer shall add the engineering firm name, the project name, the developer's name, the project (KIVA) number, the drawing scale, and the quarter section number. Engineer shall seal, date, and sign the exhibit.
- City's plan reviewer will review exhibit and attain signature from a County Health Delegate for approval. The City will not approve the exhibit until the approach main plans are approved.



ATTACHMENT C

REPAYMENT BID	LIST FOR:					
The items listed be	The items listed below are the only items eligible for repayment purposes.					
QUANTITY	UNIT	ITEM	UNIT PRICE	TOTAL		
				-		
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
	,					
	TOTAL					
By signing this bid, I hereby state the above noted charges will be applied if our firm is awarded this job						
FIRM SUBMITTING	G BID:			· · · · · · · · · · · · · · · · · · ·		
Address:						
	: 					
Pho	ne:					
	Signati	ure of Authorized Age	ent	Date		
	Print N	Name	· · · · · · · · · · · · · · · · · · ·			



Water / Wastewater Main Extension Application

APPLICATION FOR WATER AND/OR WASTEWATER MAIN EXTENSION

Date:			
Project Name:			
Location:			
Name of Developer:	ppear on Service Agreement and on approved construction plans)		
Contact Person:	Phone:		
Address of Developer:			
City:	State: Phone:		
Engineering Firm:			
Design Engineer:	Phone:		
REQUES	T FOR SERVICE (Check one below)		
WATER	<u>SEWER</u>		
One per Unit / Lot	One per Unit / Lot		
One per Building	One per Building		
One Master Meter	Common Connection(s) For Project		
Fireline	Other (Explain):		
Other (Explain)	Other (Explain:		
TYPE OF A	GREEMENT (Signature Form Attached)		
☐ Standard ☐ Repaymer	nt Tie-In Fee Required: Yes No		
	-FOR STAFF USE ONLY		
Project Engineer:			
	Page 1 of ²		

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Engineer's Cost Estimate Water and Sewer Main

Project Name:	Phase	Date	
KIVA Number:	CPR	SDEV	
ACP:12" @ \$90.00/LF8		@ 38.00/LF	
10" @ \$71.00/LF6		0.70 0 40000 00	
12X12 @ \$6952.00 12X10 @ \$6180.00 12X8 @ \$5407.00 12X6 @ \$4949.00 12X4 @ \$4635.00 DUCTILE IRON PIPE:	10X10 @ \$4635.00 10X8 @ \$4429.00 10X6 @ \$4171.00 10X4 @ \$3862.00 8X8 @ \$4326.00	8X6 @ \$3862.00 8X4 @ \$3553.00 6X6 @ \$3399.00 6X4 @ \$3399.00 4X4 @ \$3090.00	
12" @ \$90.00/LF 10" @ \$71.00/LF LINE VALVE:	8" @ \$61.00/LF 6" @ \$47.00/LF	4" @ \$38.00/LF	
12" @ \$2703.00/EA 10" @ \$2027/EA SERVICES:	8" @ \$1522.00/EA 6" @ \$1177.00/EA	4" @ \$922.00/EA	
6" @ \$5912.00/EA 4" @ \$4419.00/EA 3" @ \$2558.00/EA FIRE HYDRANT	1.5" @ \$676.00/EA 1" @ \$592.00/EA @ \$5912.00/EA	3/4" @ \$512.00/EA	
MISC (DESCRIPTION)	8" @ \$61.00/LF6" ((Qty) (unit cost)	@ \$47.00/LF	
UNDER 1000' – ADD \$	(Y GROUND – DOUBLE PRICE 4.00LF. ndicular to CL \$50/SY Parallel to CL	. \$40/SY	
<u>s</u>	EWER RELATED COSTS:		TOTAL
VCP 18" @ \$148.00/LF	12" @ \$93.00/LF8" (@ \$62.00/LF	
LINED MANHOLE SEWER CLEANOUT SEWER TAP	10" @ \$77.00/LF6" (@ \$5119.00/EA @ \$15000.00/EA @ \$1689.00/EA @ \$1689.00/EA	@ \$47.00/LF	
UNDER 1000' – ADD \$		* 10 10 1	
Pavement Replacement Perper	ndicular to CL \$50/SY Parallel to CL	- \$40/5Y	TOTAL
<u>Professional Engineer's Seal</u>	(required)		
			Page 1 of 1

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In accordance with Arizona Administrative Code Title 18 Chapter 9-E301, a new sewage collection system or an expansion to an existing sewage collection system requires a sewer design report. The report should describe the proposed construction and basis of design, provide design data and other pertinent information that defines the work to be done, and establish the adequacy of the design to meet the system demand.

In accordance with this state requirement, the city of Phoenix now requires a sewer design report be submitted for all proposed sewer systems within the city. The following is a general guideline for information to include in the report:

- Project Description. Describe the type of development including number of units. Provide a site map of the project showing major streets and physical features such as canals, floodplains, railroads, washes, etc. Describe the proposed collection system including lift stations and force mains. Describe the existing system adjacent to proposed development and specific locations where the proposed collection system will connect to the existing system. Show the service area that will be served by the proposed sewage collection system, including offsite areas. Show alignment of proposed off-site mains and on-site mains with diameter of 12 inches and greater.
- Design Flows. Provide the design average and design peak flows for the sewage collection system. The basis of the projection of initial and future flows shall be included and must be based upon the initial service area and the ultimate upstream service area that can be served by gravity even if it is outside a development's project area. Flow projections shall be based on the land use plan data calculated using the per capita flows, persons/home densities, and peaking factors in this chapter.
- Basis of Design. Provide the basis of design for the sewage collection system, including
 pipe sizes and slopes. Include the sizing calculations and calculations showing that there
 is sufficient hydraulic capacity to transport the design flow at the proposed sizes and
 slopes.
- Conformance with Master Plans. The engineering report shall show that the proposed collection system conforms to the city's master plan for the area and the development's specific master plan.
- Environmental Issues. The report shall address potential compliance issues with Clean Water Act Section 404, cultural resources, or any other environmental requirements.

Page 1 of 1



Application to Construct

Water Distribution and Sewage Collection Systems

Application for Approval to Construct Drinking Water Distribution and Sewage Collection Systems Constructed by Private Developers

For Drinking Water Distribution and Sewage Collection Systems Constructed by Private **Developers**

Complete and submit this form to obtain authorization to construct a drinking water system under Arizona Administrative Code (AAC) R18-5-505, or to construct a waste water collection system under General Aquifer Protection Permit (APP) 4.01, AAC R18-9-E301. Instructions are on Page 3.

APPLICATIONS WILL NOT BE ACCEPTED UNLESS FULLY COMPLETED.

Any changes in the approved construction-ready plans that require additional plan review after issuance of the Approval to Construct and/or Notice of Intent to Discharge under APP General Permit 4.01 will require a reissuance of the Approval to Construct and/or Notice of Intent to Discharge under APP General Permit 4.01.

Project Name:	Project Location:
COP Project (KIVA) No	Nearest intersection:
SDEV or CCPH No.	City Quarter Section Number(s)
Project Applicant: Name Firm: Address	Professional Engineer Information: Name Firm Address
Phone Email	Address Phone Email
□ City of Phoenix Water System. Proposed drinking water City of Phoenix.	r distribution system will be owned and operated by the
☐ City of Phoenix Sewage System. Proposed sewage collection of Phoenix.	lection system will be owned and operated by the
Project description including title of plat and legal description longitude (center):	otion with section, township and range, and latitude and

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City of Phoenix Development Services Department
Application to Construct Water Distribution and Sewage Collection Systems - Page 2 of 3 TRT/DOC/00206

Quantities: Size	Sewer Main L.F			
The following information submittal requirements for Approval to Construct and/or Notice of Intent to Discharge under APP General Permit 4.01 are attached:				
 □ Professional Engineer's Design Reports. Design reports (one for drinking water and one for sewage) shall provide water demands and wastewater flows including the basis for the calculations; describe the proposed construction and basis of design; provide design data and hydraulic calculations; and establish the adequacy of the design of the water and/or sewer system to meet system water demands and sewer flows. Planning and Development Department (PDD) will confirm with Water Services Department that there is capacity in the existing treatment plants and collection system to receive the flows from the proposed sewage collection system and/or the existing water system will meet the domestic and fire demands of the proposed potable water system. Design reports shall be signed and sealed by an Arizona registered professional engineer. □ Complete Construction-Ready Design Plans. Plans shall be signed and sealed by an Arizona registered 				
professional engineer.				
□ Other.				
Certification of Compliance I certify that this Application for Approval to Construct and/or Notice of Intent to Discharge Under APP General Permit 4.01 and all attachments were prepared under my direction or authorization and all information is, to the best of my knowledge, true, accurate, and complete. I certify that the sewage collection system described in this form will be designed and constructed in accordance with the approved plans and specifications; the terms and conditions of General Aquifer Protection Permit 4.01 (AAC R18-9-E301); the applicable requirements of Arizona Revised Statutes, Title 49, Chapter 2; Arizona Administrative Code, Title 18, Chapter 9 regarding Aquifer Protection Permits. I am aware that there are significant penalties for submitting false information including permit revocation as well as the possibility of fine and imprisonment for knowing violations.				
I certify that the potable water distribution system described in this form will be designed and constructed in accordance with the approved plans and specifications; the terms and conditions of the Drinking Water Systems (AAC R18-5-505) and requirements of Arizona Revised Statutes Title 49, Chapter 2, and Arizona Administrative Code Title 18, Chapter 5. I am aware that there are significant penalties for submitting false information including permit revocation as well as the possibility of fine and imprisonment for knowing violations.				
Signature of Applicant Printed Name of Applicant	Date			
τ ππεα τιαπε οι Αρμισαπ				

Application to Construct Water Distribution and Sewage Collection Systems - Page 3 of 3 TRT/DOC/00206

APPLICATION FOR APPROVAL TO CONSTRUCT AND/OR NOTICE OF INTENT TO **DISCHARGE UNDER APP GENERAL PERMIT 4.01**

Instructions for Completing Form

Project Name: The Project Name should match the name as specified on the related plans and the recorded subdivision plat.

COP Project No.: Provide the "KIVA" number that was provided by Development Services Department.

Project Location: Indicate the nearest major intersections

Project Applicant: The person named on the form must be the owner of the project or a person with fiduciary responsibility with an established legal entity (e.g. corporation, LLC, partnership). Only the owner or a person with fiduciary responsibility for the entity can be issued a permit or can be inclusively viewed as responsible for compliance.

Professional Engineer Information: Name of Engineer must be an Arizona Registered Professional Engineer (in active status) with an Arizona Registered Engineering Firm.

City of Phoenix Water System. Check this box if proposed drinking water distribution system will be dedicated to the City of Phoenix to own and operate.

City of Phoenix Sewer System. Check this box if proposed sewage collection system will be dedicated to the City of Phoenix to own and operate.

Project Description: Clearly state the scope of the project indicating if it is on-site or off-site infrastructure and how the project relates to the subdivision plat. This field will be used to match the permits issued with the approved plat when an Approval of Sanitary Facilities for Subdivision is requested from the Arizona Department of Environmental Quality for the Arizona Department of Real Estate, Subdivision Public Report.

Quantities: Estimate the lengths of water and sewer main to be constructed

Schedule: Entries for estimated start date and estimated completion date are restricted by State code. For water systems: begin construction within one year of this document and complete construction within three years after the date construction begins, or this document shall be void unless a time extension is requested and approved in writing. For sewer systems: complete construction within two years after the date construction begins, or this document shall be void and a new Notice of Intent to Discharge must be submitted for review and approval.

Required Attachments: Instructions are provided in that section of form.

Certification of Compliance: This certification must be signed by the project owner. The person named on the form must be the owner of the project or a person with fiduciary responsibility with an established legal entity (e.g. corporation, LLC, partnership). This person's name will be on the approval certificate (or issued the permit).

Water / Sewage Approval to Construct

Approval to Construct and/or Construction Authorization

For Drinking Water Distribution and Sewage Collection Systems Constructed by Private Developers

Project Name:	Project Owner:		
	Name		
	Firm		
COP Project No.	Address		
SDEV or CCPH No			
CPSE/CPWT No.	Professional Engineer:		
P&D Permit No	Name		
P&D Permit No	Firm		
P&D Permit No	Address		
P&D Permit No.			
City of Phoenix Water System. Proposed drinkin City of Phoenix.	ng water distribution system will be owned and operated by the		
☐ City of Phoenix Sewer System. Proposed sewa	ge collection system will be owned and operated by the		
City of Phoenix.			
	cription with section, township and range, and latitude and		
longitude:			
			
			
Checklist for Approval to Construct and/or Construct Application for Approval to Construct and/or Notice Professional Engineer's Design Report Submitted P&D has confirmed with WSD that there is capacity flows from the proposed sewage collection system	e of Intent to Discharge submitted and complete. ty in existing treatment plants and collection system to receive		
nows from the proposed sewage collection system	WSD Representative Date		
Approved design plans and specifications, signedOther	and sealed by an Arizona registered professional engineer.		
This Approval to Construct and/or Construction Authorization is in accordance with Arizona Administrative Code (AAC), Title 18, Chapter 5 (Reviews and Certifications); Title 18, Chapter 9, Article 3 (Aquifer Protection Permits). The applicant is authorized to construct the above-described facilities in accordance with the approved plans and specifications, the requirements of the 4.01 General Permit and the applicable requirements AAC, Title 18, Chapter 5; Title 18, Chapter 9, Article 3. For water systems: begin construction within one year of this document and complete construction within three years after the date construction begins, or this document shall be void unless a time extension is requested and approved in writing. For sewer systems: complete construction within two years after the date construction begins, or this document shall be void and a new Notice of Intent to Discharge must be submitted for review and approval.			
City of Phoenix Health Delegate Signature			
Date letter created	Date signedy Water Service Department as shown by asterisks (**)		
Sewer main plans and/or water main plans approved b	y Water Service Department as shown by asterisks (**)		

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Water/Sewage Interim Approval of Construction

Interim Approval of Construction and/or Interim Discharge Authorization

For Drinking Water Distribution and Sewage Collection Systems Constructed by Private Developers

Project Name:	Project Owner:
	Name
	Firm
COP Project No.	Address
SDEV or CCPH No.	
CPSE/CPWT No.	Professional Engineer:
P&D Permit No.	Name
P&D Permit No.	Firm
P&D Permit No.	Address
P&D Permit No.	
	king water distribution system will be owned and operated by the
	age collection system will be owned and operated by the
City of Phoenix.	
	escription with section, township and range, and latitude and
longitude:	
	-
Checklist for Interim Approval of Construction an	nd/or Discharge Authorization
Professional Engineer's Certificate of Completion As-Built Plans Submitted, Approved, and Mappe All testing satisfactorily completed, and reports sometimes. Other	ed submitted
This Interim Approval of Construction and/or Dischar	ge Authorization is issued in accordance with City of Phoenix tate Delegate, Interim acceptance of public water & sewer mains).
City of Phoenix Health Delegate Signature	Date
Sewer main plans and/or water main plans approved	by Water Services Department as shown by asterisks (**)

Page 1 of 1

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Water/Sewage Approval of Construction

Approval of Construction and/or Discharge Authorization

For Drinking Water Distribution and Sewage Collection Systems Constructed by Private Developers

Project Name:	Project Owner:		
	Name		
	Firm		
COP Project No.	Address		
SDEV or CCPH No.			
CPSE/CPWT No.	Professional Engineer:		
P&D Permit No.	Name		
P&D Permit No.	Firm		
P&D Permit No.	Address		
P&D Permit No.			
City of Phoenix Water System. Proposed dr the City of Phoenix.	inking water distribution system will be owned and operated by		
City of Phoenix Sewer System. Proposed se	ewage collection system will be owned and operated by the City		
of Phoenix. Project Description including title of plat legal (description with section, township and range, and latitude		
and longitude:			
una fongituae.			
	No de como Anti- d'action		
Checklist for Approval of Construction and/or D Professional Engineer's Certificate of Completi			
As-Built Plans Submitted, Approved, and Mapped			
Final adjustments completed and accepted			
☐ All testing satisfactorily completed, and reports☐ Other	s submitted		
This Approval of Construction and/or Discharge Au	thorization is issued in accordance with Arizona Administrative ns); Title 18, Chapter 9, Article 3 (Aquifer Protection Permits).		
City of Phoenix Health Delegate Signature			
Date signed			
Sewer main plans and/or water main plans approve	ed by Water Service Department as shown by asterisks (**)		

Page 1 of 1



Environmental Responsibility and Certification For Projects Constructed by Private Developers

(Plan Submittal)

Project Name:	Pro	oject No.:	
Project Address:			
City:		ate: Zip	Code:
Quarter Section: APN:		Acreage	e:
Project Description:			
Property Owner Name:		Phone No.: _	
Mailing Address:			
Architect/Professional Engineer of Record Name:		Pho	one No.:
Mailing Address:			
License # (if applicable):			
General Contractor Name:		Pho	one No.:
Mailing Address:	City:	St.:	Zip Code:
License #:			
project and the activities related to this project may be subject to county, state, tribal and Federal environmental, natural and cultural resource rules and laws including, but not limited to, those regarding: Air Quality / Dust Control Archaeological / Cultural / Historic Resources Asbestos / Lead Abatement Act Endangered Species Hazardous Substances In addition, as the property owner, or as an agent authorized by the property owner, I hereby certify that all County, State, Tribal and Federal permits applicable to this project will be obtained, and all requirements or conditions of such permits and all environmental laws will be complied with to the best of my knowledge. NOTE: This certification must be completed, notarized, and submitted to the city of Phoenix Planning and Development Department before plans or permits may be approved for any part of this project. Use or occupancy of any part of this project without final approval from the city of Phoenix is a violation of the Phoenix City Code.			
Name (printed)			
Signature		Date	
Acknowledged before me this Day of	, 20		
My Commission Expires:	Notary Public	:	

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Public Utility Easement Adjustment Approval Request

This form is used to request the modification to, elimination of, or encroachment within a public utility easement (PUE). After completing this application, attach an exhibit of the affected area. This form must accompany the Appeal Application – Subdivision Plat and Traffic form (TRT 00065) requesting the change or removal of the standard PUE.

Date:	KIVA #:	Plan Review #:	
Project Name:	:		
		City of Phoenix Quarter Section #:	
Applicant:			
Address:		City:State:Zip:	
Contact Name	:	Phone:	
Email Address	3:		
Check all app	olicable boxes for this	request:	
	on to PUE (Reduce stand Appeal Required	dard width of PUE to be dedicated)	
☐ Elimination of PUE (Removal of PUE dedication requirement) Technical Appeal Required			
 Encroachment within PUE (Structure placed within existing PUE) Technical Appeal Required 			
Approval of construction location in proximity to PUE or alley where there are existing overhead electric lines on, across, or immediately adjacent to the property.			
Description of	Work:		

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Exhibit Included			
Provide an exhibit (11" x 17" maximum) that clearly indicates the limits of construction. Easements, right-of-way, paving, and all existing utilities should be fully dimensioned.			
☐ Utility Approval			
Contact all pertinent utility companies. In addition, there may be pr PUE. Provide written confirmation of approval from all appropriate The list below is provided for your reference. Information your civi contact information.	utility represen	tatives.	
Arizona Public Service Right of Way Services Phone: 602-371-6966 Email: landservices@apsc.com	Approved	N/A	
Salt River Project Michael Laguna Phone: 602-236-3116 Fax: 602-236-8193 Website: https://www.srpnet.com/about/land/secure/landdepartment/eas	Approved sementencroachr	□ N/A	
Cox Communications Traffic Management Center (TMC) Phone: 623-328-3554 Fax: 623-322-7500 Email: az.jointuse@cox.com	Approved	□ N/A	
Lumen Technologies (formerly CenturyLink) Right of Way Department Email: Nre.Easement@lumen.com	Approved	□ N/A	
El Paso Natural Gas Company Steve Weatherhead/ Nick Amoroso, Right of Way Management Phone: 520-509-3265 / 520-509-3272 Email: Steve Weatherhead@kinermorgan.com / Nick Amoroso@	☐ Approved kindermorgan.c		

call first)

City of Phoenix Planning & Development Department Public Utility Easement Adjustment Approval Request – Page 3 of 3

TRT/DOC/00273

Southwest Gas Corporation Right of Way Department Fax: 702-364-7678 Email: caz-rowrequest@swgas.com	☐ Approved ☐ N/A
City of Phoenix Water Services Department Infrastructure Records Services Phone: 602-495-5601 TTY: 7-1-1 Fax: 602-495-5461 Email: irspubliccounter.wsd@phoenix.gov	☐ Approved ☐ N/A
Pomelo Park Irrigation Water Delivery District (IWDD) Email: admin@pomeloparkiwdd.org Website: https://www.pomeloparkiwdd.org/	☐ Approved ☐ N/A
Private Irrigation Agency: Contact:	☐ Approved ☐ N/A
For assistance locating the private irrigation system in yo	ur area, utilize the resources below:

Maricopa County Irrigation Water Delivery Information

Searchable Database: https://gis.maricopa.gov/cob/taxdistricts/

District List*: https://www.maricopa.gov/DocumentCenter/View/50505/Special-Districts-and-

Contacts

SRP Private Irrigation Maps

Phone: 602-236-3333

Email: <u>waterdel@srpnet.com</u>
Website: srpnet.com/irrigation

Note: Water user approval must be included in the technical appeal submittal.

^{*} List is updated frequently. If link does not work, search for 'maricopa county irrigation water delivery information district list' in your web browser.



Construction Staking Requirements Within Rights-of-Way or Easements

This document outlines the minimum requirements for construction staking within public rights-of-way or easements. They apply to commercial and residential projects with permits for grading and drainage (G&D), drainage facilities, sanitary sewer, storm drain, water, concrete, and/or paving. The Civil/Site Inspector will confirm that the construction staking is installed as required below. Deviations from this policy may be allowed by the Civil/Site Inspector if extraordinary field conditions exist.

Sanitary Sewer/Storm Drain

- 1. Cut stakes shall be set for grade and line at 25-foot intervals and at each manhole. Grades shall be set to the invert of pipe. The contractor and consultant shall agree upon offset. Line stakes shall be provided for all services.
- 2. An offset grade stake shall be set for each manhole.

Water

- 1. Cut stakes shall be set for grade and line at 50-foot intervals. Grades shall be set to the invert of pipe. Line stakes shall be provided for all services, fittings, and other critical points. The contractor and consultant shall agree upon offset.
- 2. Offset stakes shall be set for location and grade for fire hydrants.

Curb and Gutter

- 1. Curb stakes shall be set to grade (i.e., bluetops) and tacked for line at 25-foot intervals. The contractor and consultant shall agree upon offset.
- 2. Cut and fill stakes will be allowed only in instances where offset grades preclude the setting of stakes to grade.
- 3. Control point stakes (i.e., grade breaks, angle points, transitions, end of aprons, returns, etc.) shall be set to grade, tacked to line, and provided with distinct flagging to differentiate from curb and gutter staking.
- 4. A reference hub shall be installed for each control point stake.

Sidewalks

- 1. Staking of sidewalk is not required if it is installed adjacent to curb.
- 2. Stakes shall be set to line and grade on 25-foot intervals for detached sidewalk.
- 3. Stakes shall be installed for all control points.

Paving

- 1. Centerline subgrade shall be staked to grade at 50-foot intervals. Streets wider than 40 feet from face of curb to face of curb shall also be staked to grade at 1/4 points at 50-foot intervals.
- 2. Centerline ABC shall be staked to grade at 50-foot intervals. Streets wider than 40 feet from face of curb to face of curb shall also be staked to grade at 1/4 points at 50-foot intervals.
- 3. After paving, locations for monuments shall be re-established, and after installation, monuments shall be punched.
- 4. Following paving, locations of all utilities that are to be adjusted shall be re-established.

Page 1 of 1

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