



City of Phoenix
Office of the City Engineer
Design and Construction Procurement
200 W. Washington Street, 6th Floor
Phoenix, Arizona 85003-1611

**PROJECT NO. ST87600114-3
GRAND CANAL BIKE AND PEDESTRIAN IMPROVEMENTS
FEDERAL AID NO. PHX-0(BFG)F**

ADDENDUM NO. 5

ISSUE DATE: September 20, 2017

Bidders are hereby notified that the Bidding and Contract Documents for the above project, for which Bids are to be received on Tuesday, October 3, 2017, are amended as follows:

Q1.	Item 5.15 – Electrical Power Service Pedestal Cabinet, 100A, Single Phase, Including Utility Company Related Costs & Requirements (9) Each. In reviewing the Special Provisions there does not appear to be any information related to the item. Can we get a clear defined scope specifically related to “Including Utility Company Related Costs & Requirements”? For example, are we responsible for the cost related to hook up charges? Are we responsible for conductors that feed from the point of service to the service pedestal? Are we responsible for utility bills until the project is turned over to the City? Etc. Historically when we attempt to call the respective utility company they won’t/can’t provide related costs. We have seen on past projects two separate items one specifically for the foundation and associated service pedestal and another force account item for Utility Company fees. Without a clear defined scope it is nearly impossible to estimate a cost when the Utility won’t/can’t provide a quote. We want to make sure that all parties are on a level playing field during the bidding process.
A1.	Contractor shall be responsible for trenching and installing conduit from the point of service to the service pedestal. Utility Company (thru City) will install conductors and energize the service pedestal. The electric meter will be in the City’s name and City shall be responsible for electric utility bills. Contractor shall be responsible for all trenching, conduit and conductors “downstream” of the service pedestal.
Q2.	Item 6.10-6.20 - In the current plan set there does not appear to be a conductor and cable schematic for the HAWK & RRFB signals. Are conductors and cables required by the Contractor or City forces? If Contractor, when will a schematic be provided for each signal?
A2.	HAWK signal wiring shall be per Phoenix standard signal details available at: https://www.phoenix.gov/streetssite/Documents/COP_Standard_Traffic_Signal_Details_09152017a.pdf
Q3.	Item 6.16 – Plan sheet 2.160 is calling for an 8 Phase Controller Cabinet under the “Install (By Contractor) note however there is no Foundation shown under the Proposed

	Foundation Schedule and the "C" is not shown in the layout. Please confirm if required.
A3.	A Control Cabinet is not required for RRFB signal. Note removed from plans.
Q4.	Item 6.19 – Plan sheet 3.85 under Remove note calls for 1 each under Remove Conductors but the layout calls for 2 locations. Please confirm 2 locations are required.
A4.	Quantity is 2 locations.
Q5.	Item 6.19 – Plan sheet 3.86 under Remove note calls for 1 Remove Existing Street Light. The layout is missing a callout for the Existing Light Pole on the west side of 44th as shown on the previous sheet. Please confirm 2 Remove Existing Street Light is required.
A5.	Two (2) Street light removals are required as shown on sheet 3.85. Removal notes have been removed from sheet 3.86 to avoid confusion.
Q6.	Item 6.20 – Plan sheet 3.87 the layout shows conduit runs but there are no callouts for size of conduit. Please advise what size conduit is required for each run.
A6.	Conduit sizes have been added to plans.
Q7.	Item 6.14 – Plan sheet 2.156 shows luminaires on the G & W signal poles in the layout but under the equipment notes there does not appear to be a callout. Please confirm these are required.
A7.	Both poles shall have LED luminaires. See updated equipment notes.
Q8.	PDF Page 39, Special Conditions 22, Section 2- at Union Pacific Railroad Flagman, at Measurement and Payment, second paragraph – The paragraph says "Payment for this work will be made under the bid item Railroad Flagman and Right of Entry Permit." There is no such bid item in the Bid Proposal. Please clarify.
A8.	A new bid item is added for this purpose. See revised bid tab attached.
Q9.	PDF Page 141, DBE Program, Section IV.A.1., Attachment A (Outreach Efforts) – The section mentions documentation due at the time of bid which is not included in the list on PDF Page 8, Information for Bidders, Section H, Bid Submittal Checklist. The section describes an "Attachment A (Outreach Efforts)." a) Is Attachment A required with the bid? b) If yes, please provide Attachment A
A9.	Please see Addendum 4.
Q10.	Item 6.18 – Plan sheet 2.164 shows an "SQ" foundation on the proposed foundation schedule however on the Hawk Equipment Notes the plans are calling for an ADOT Type W Pole. What is the correct pole for this location?
A10.	The correct pole and foundation is an ADOT type W pole. See updated foundation schedule.
Q11.	Plan sheet 2.169 shows conflicting information. Please confirm bollards or light fixtures on 15' poles.
A11.	Those are bollard lights and should have been note 5. See revised sheet SE2.3.
Q12.	Volume 2 Page 2.003 shows a table of bid items and quantities. Item # M3400407 calls for Concrete Sidewalk with WWF (welded wire fabric). Similar bid items for the path for example ex. Volume 1 page 1.04 calls for Concrete Sidewalk Std Detail 1230 7" thk

	Class AA. The pavement section drawings call out PCCP, not sidewalk. Is this path PCCP or sidewalk? Is WWF required.
A12.	Pathway shall be Concrete Sidewalk Std Detail 1230 7" thick Class AA. See revised Sheets 3.05
Q13.	Will the joints for the path be tooled (Sidewalk) or can they be sawcut (PCCP)?
A13.	Construction of joints shall be per Std Detail P1230.
Q14.	The material is called out as weathering for the structure, mesh, and bar grating. However later in the specifications, it mentions "colorant for galvanized metal" and mentions Natina Stain. What is the finish for the bridge? If galvanized and stained, are we still required to use A588 material instead of the standard A500?
A14.	See page S.P. – 70 of the special provisions for the material requirements of the Prefabricated Steel Bridge. The material requirements listed on page S.P. – 71 and 72 are applicable to the Steel Handrail details located on Sheet 2.127.
Q15.	The safety rail calls a welded wire mesh with 4" openings. Are there additional specs regarding the thickness of this mesh? Standard panels are a 11 ga with 2" openings , but with 4" we will need thicker bars to provide more strength against loading.
A15.	The requirements for the design of the Welded Wire Fabric for Safety Fence of the Prefabricated Steel Bridge can be found on page S.P. – 70. The gage of the mesh shall be determined by the truss supplier. Mesh and frames for the Steel Handrails is indicated on detail XII STEEL HANDRAIL WITH 3"X3" MESH PANELS, and XIII WIRE MESH FRAME, on Sheet 2.127
Q16.	Clarify - 7.16/7.65 Gabion Boxes: 243 counted, 283 listed in bid tabs.
A16.	Gabion Boxes 270
Q17.	Clarify - 7.64 River Rock: quantity to reflect correct box count?
A17.	River Rock 405 Tons
Q18.	Clarify - 7.25-7.26 Controllers: Found 9 total in plans, bid tabs call out 14 total.
A18.	12 Station Controller Qty=4 6 Station Controller = 4 18 Station Controller = 1
Q19.	Clarify - 7.31-7.32 Backflow Preventers/Master Valves: 12 on plans, 14 in Bid tabs.
A19.	Backflow Prevention Units 12 Master Valves and Flow Sensors 11
Q20.	Clarify - 7.33-7.35 Remote Control Valves/Wye Strainers/Pressure Regulators: Counted 74, Bid tabs list 82 of each.
A20.	Remote Control Valves/Wye Strainers/Pressure Regulators Correct Quantity 64
Q21.	Clarify - 7.42 Flush Caps: 96 counted, 105 listed in bid tabs.
A21.	Flush Caps Correct Quantity 109
Q22.	Clarify - 7.43 Quick Couplers: Not shown on Segment 1 plan sheets, only on cover sheet. Please clarify locations.
A22.	Quick Couplers are located per Overview Sheet at nodes
Q23.	Clarify - 7.44 Mainline Gate Valves: 19 counted, 21 called out in bid tabs. Segment 2 has none shown on plans. Is this correct?
A23.	Segment 2 has 15 Mainline Gate Valves to be placed as noted on legend

	Mainline Gate Valves Total for the project is 34
Q24.	Clarify - 7.54 25G Shrubs: Counted 125, bid tabs list 97.
A24.	25 G Shrubs Correct Quantity 126
Q25.	Clarify - 7.55/7.71 Ocotillos: Segment one plans contain 11 and Segment 3 plans contain 16. Bid tabs call out 28 and 117 respectively.
A25.	Ocotillos Correct Quantity 144
Q26.	Clarify - 7.63 Rip Rap: Color to match DG? Mountain Vista Brown?
A26.	Rip Rap is to Match D.G. Mountain Vista Brown
Q27.	Clarify - 7.70 Stabilized DG: Color listed in plan sheets as Desert Gold. Please confirm.
A27.	Stabilized D.G. is Desert Gold
Q28.	Clarify - 7.72-7.73 Box Tree Sizes & Quantities: Segment 2 and 3 call out all trees by dimensions and caliper. Bid tabs call out box size. ANA standards are hazy when it comes to multi-trunk trees. Also, the planting legend quantities call out 283 total trees. Bid tabs for 24" & 36" Box trees add up to 224 total trees. Please clarify.
A28.	Trees to be bid by box size. Tree height, caliper, and spread to comply with ANA standards as applicable. Multi trunk trees to comply with ANA standard for height and spread per current standards.
	24" Box Trees Qty = 197 36" Box Trees = 157
Q29.	Clarify - 7.78 Gel Pacs: All plants listed are either 15 gallon or large box trees. Application rates are not listed for these sizes in the detail. DryH20 manufacturer's recommendations for 15 gallon plants are for 3 tubes. Recommended rates for trees >36" box are 8 tubes per tree. If using these application rates, 403 tubes with 2 gel pacs each will be needed for the entire project. Bid tabs call out 12.
A29.	Bid Item quantity refers to number of applications (12 applications) for the entire project from initial installation through the 6 month maintenance period at 45 day intervals.
	Number of gel packs per application per manufacturer based on size of plant container size at initial installation and at 45 day intervals.
Q30.	Clarify - 7.79 65 Gallon Shrubs: 114 counted, 116 listed in bid tabs.
A30.	65 Gallon Shrubs Correct Qty = 117
Q31.	Are there CAD files available for the Grand Canalscape Phase 2 project?
A31.	CAD files will be provided to the selected contractor once they're under contract with the City of Phoenix for this project. The bidders shall use the PDF plans provided for bidding purposes.

1. **REPACE:** Delete Pages P.1 to 6 from Section II, (1) Bid Proposal, and replace with the attached Pages P.1 to 7 (Revised).

Technical Specifications

1. **ADDITION: Part 477, Intersection Lighting:** Add Part 477- Intersection Lighting Specification as attached.

2. **REPLACE: Part 475, Service Pedestal and Controller Cabinet – Section 475.2.2 Controller Cabinet Assembly:** Delete this section and replace with the text below to read:

475.2.2 Controller Cabinet Assembly: Cabinet types and configurations shall be supplied as specified on the Approved Traffic Signal Plans, COP Traffic Signal Standard Details, and in accordance with these specifications.

The Contractor shall supply the following traffic signal controller:

Econolite Controller and Integrated Ancillary Equipment:

1. Cobalt Classic NEMA Controller (Includes Ethernet Module & USB port)
2. TS2/Type 1 "P" Plug-N-Go Cabinet 8 phase Cabinet with two fans (Includes flasher, flash transfer relay, jumpers, detectors and all necessary equipment). The exterior of the cabinet shall be finished with a 2.5 mil high gloss white powder coating.
3. EDI Bus Interface Unit - Part # - EDI-BIU700 (3 per cabinet)
4. EDI Malfunction Management Unit Smart Monitor
Part # - EDI-MMU16LEip (1 per cabinet)
5. Ruggedcom RS900-HI-D-TX-TX-TX Non-Fiber Network Switch - Switch must be a "Managed" switch, At least three levels of security, has to be IP addressable, minimum of (9) Ethernet ports, must have serial and Ethernet interface access ports, must be AC+ powered, and must meet the same temperature specs as the controller 160 degree operating range.

Our local representative for the above cabinet and integrated equipment is Lori MacIntyre, Cell – (714)-392-2318, e-mail: lmacintyre@econolite.com.

The Contractor shall deliver the signal controller and controller cabinet assembly to Traffic Signal Shop, 2141 E. Jefferson Street for final configuration testing and programming. The Contractor shall coordinate the proposed delivery date and time with the Traffic Signal Warehouse (602) 495-2083 at least 3 weeks prior to the Contractor's anticipated installation date.

A 12" high cabinet extension ring shall be provided for each cabinet. Extension ring shall be bolted to the cabinet during installation in the field. The ring shall be made of 10 Ga. aluminum sheeting and finished with a 2.5 mil high gloss white powder coating.

Plan Sheets:

1. **Sheet TS-2.156 (Thomas Road & Canal HAWK Signal):** Replace this sheet with the revised Sheet TS 2.156.
2. **Sheet TS-2.160 (Oak Street & Canal RRFB):** Replace this sheet with the revised Sheet TS 2.160.
3. **Sheet TS-2.164 (32nd Street & Canal HAWK Signal):** Replace this sheet with the revised Sheet TS 2.164.

4. **Sheet TS-3.85 (HAWK – 44th St Foundation):** Replace this sheet with the revised Sheet TS 3.85.
5. **Sheet TS-3.86 (HAWK – 44th St Equipment):** Replace this sheet with the revised Sheet TS 3.86.
6. **Sheet TS-3.87 (RRFB – 48th St Foundation):** Replace this sheet with the revised Sheet TS 3.87.
7. **Sheet 2.169 (SE2.3):** Replace this sheet with the revised Sheet 2.169.
8. **Sheet 2.003 (Quantity Summary):** Replace this sheet with the revised Sheet 2.003.
9. **Sheet 3.05 (Typical Sections):** Replace this sheet with the revised Sheet 3.05.
10. **Sheet 1.61 (Electrical Details):** Replace this sheet with the revised Sheet 1.61.
11. **Sheet 1.62 (Typical Light Spacing Exhibit):** Replace this sheet with the revised Sheet 1.62.
12. **Sheet 2.181 (SE 3.3):** Replace this sheet with the revised Sheet 2.181.
13. **Sheet 2.182 (SE 4.1):** Replace this sheet with the revised Sheet 2.182.
14. **Sheet 3.98 (Electrical Details):** Replace this sheet with the revised Sheet 3.98.
15. **Sheet 3.99 (Typical Light Spacing Exhibit):** Replace this sheet with the revised Sheet 3.99.

END OF ADDENDUM

Gail Brinkmann
Project Manager
Street Transportation Department

ENGINEER'S SEAL



ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1. Removals					
1.10	Remove Portland Cement Concrete Curb and Gutter	Lin. Ft.	1137		
1.11	Remove Portland Cement Concrete Sidewalk, Driveway, Valley Gutter, and Slab	Sq. Ft.	5372		
1.12	Remove Concrete Sidewalk	Sq. Ft.	6369		
1.13	Remove and Replace Headwall Per Pipe Plan and Profile	Each	5		
1.14	Remove Catch Basin, Backfill & Compact	Each	1		
1.15	Remove Miscellaneous Concrete	Sq. Yd.	130		
1.16	Remove Pipe, Backfill & Compact	Lin. Ft.	30		
1.17	Remove Portland Cement Concrete Pavement	Sq. Yd.	10		
1.18	Remove Asphalt Concrete Pavement	Sq. Yd.	1530		
1.19	Remove Chainlink and Wood Fence	Lin. Ft.	833		
1.20	Remove Bushes, Shrubs, Cacti or Small Trees	Job	1		
1.21	Sign Removal	Each	3		
1.22	Remove Graffiti on CMU Wall	Job	1		
1.23	Cut & Plug Existing Storm Drain Pipe	Each	4		
1.24	Remove Existing Barricade	Lin. Ft.	228		
	Removal Subtotal for Item Numbers 1.10 through 1.24				
2. Survey (Construction Staking)					
2.10	Construction Surveying And Layout	Job	1		
2.11	2-Person Survey Party Contingent Item	HOUR	200		
	Survey (Construction Staking) Subtotal for Item Numbers 2.10 through 2.11				
3. Pathway & Drainage					
3.10	Allowance For Stormwater Pollution Prevention Best Management Practices (BMP'S)	Job	1	\$ 50,000.00	\$ 50,000.00
3.11	Art Feature (Sand Blast Street Name)	Each	22		
3.12	Earthwork For Basin, Includes Clear & Grub, Excavation, Grade & Shape	Cu. Yd.	3928		
3.13	Clearing and Grubbing	L.Sum	1		
3.14	Shotcrete Channel	Sq. Yd.	3045		
3.15	Shotcrete Spillway	Sq. Yd.	22		
3.16	Subgrade Preparation	Sq. Yd.	19862		
3.17	Sawcut, Remove and Replace A.C. Pavement, MAG Std. Det. 200, Type "A"	Sq. Yd.	181		
3.18	Asphalt Concrete for Permanent Pavement Replacement, Type C 3/4, 7" Thick	Sq. Yd.	447		
3.19	Concrete Sidewalk, COP Std. Dtl. P-1230, 4" Thick	Sq. Ft.	4258		

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
3.20	Concrete Sidewalk, COP Std. Dtl. P-1230, 7" Thick	Sq. Ft.	345661		
3.21	Truncated Domes for Sidewalk Ramps	Sq. Ft.	817		
3.23	Concrete Driveway Entrance, Std. Dtl. 250-2 (6" Thick)	Sq. Ft.	262		
3.24	Concrete Curb Ramp, C.O.P. Std P-1241-2	Sq. Ft.	96		
3.25	Concrete Curb Ramp, COP Std. Dtl. P1237	Sq. Ft.	68		
3.26	Concrete Mid-block Ramp with Detached Sidewalk, COP Std. Dtl. P-1241-2	Sq. Ft.	338		
3.27	Concrete Driveway Entrance, Type 1, COP Std. Dtl. P-1255-1	Sq. Ft.	6007		
3.28	Concrete Driveway Entrance, MAG Std. Dtl. 263	Sq. Ft.	230		
3.29	Combined Concrete Curb and Gutter, MAG Std. Dtl. 220-1, Type "A", H=6"	Lin. Ft.	360		
3.30	Concrete Single Curb, MAG Std. Dtl. 222, Type "A", H=6"	Lin. Ft.	104		
3.31	Concrete Roll Curb and Gutter, Mag Std. Dtl. 220-1 Type "C"	Lin. Ft.	38		
3.32	Concrete Single Curb Termination Type Per MAG Std. Detail 222	Lin. Ft.	5		
3.34	Combined Concrete Curb and Gutter, Std Detail 220, Type "A" Modified	Lin. Ft.	1029		
3.35	Vehicular Maintenance Access Ramp Per Plans	Each	4		
3.36	Adjust Existing Water Meter Box & Cover	Each	1		
3.37	Adjust Existing Manhole Frame and Cover, MAG Std Detail 422 and COP Detail P1430	Each	15		
3.38	Adjust Existing Utility Frame and Cover, Manhole, or Utility Riser	Each	3		
3.39	Adjust Grade at Utility As Detailed On Plans	Each	9		
3.40	Remove and Reinstall Existing Gate	Each	5		
3.41	Adjust Existing Type "A" Water Valve Per COP Std. Dtl. P1391 and P1391-1	Each	1		
3.42	Railroad Pavement Marking Per ADOT Std. Dwg. M-5	Each	2		
3.43	Foundation for Square Perforated Tube Sign Post, MCDOT Std. Dtl. 2058	Each	28		
3.45	Sign Post (P-1) Square Perforated	Each	28		
3.46	Regulation Sign Panel	Sq. Ft.	149		
3.47	Warning Sign Panel	Sq. Ft.	158		
3.48	Pavement Marking (4", White Thermoplastic)	Lin. Ft.	4168		
3.49	Pavement Marking (4", Yellow)	Lin. Ft.	206		
3.50	Pavement Marking (White Thermoplastic)(0.060") 4" Measure	Lin. Ft.	16373		
3.51	Pavement Marking (Paint, Stencil Legend)(15 mils) "PED X-ING"	Each	26		
3.52	Safety Rail, MAG Detail 145	Lin. Ft.	1326		
3.53	Swing Gate Per Plans	Each	4		

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
3.54	16' Wide Double Swing Chain Link Gate, 72" High, ADOT Det. C-12.20	Each	2		
3.56	Chain Link Fence, ADOT Detail C-12.20, Type 1, H=4'-6"	Lin. Ft.	389		
3.57	Concrete Retaining Wall, Per Plan	Lin. Ft.	160		
3.58	Scupper, MAG Std. Dtl. 203	Each	4		
3.59	Concrete Scupper As Detailed On Plans	Each	2		
3.60	Headwall For 18" Pipe, SRP Standard Headwall	Each	1		
3.61	Headwall For 24" Pipe, SRP Standard Headwall	Each	13		
3.62	Junction Structure As Detailed On Plans	Each	1		
3.63	Water Service Connection (Main to Meter)	Each	6		
3.64	18" Rubber Gasket Reinforced Concrete Pipe, Class V (Private Irrigation)	Lin. Ft.	25		
3.65	24" Rubber Gasket Reinforced Concrete Pipe, Class V (Private Irrigation)	Lin. Ft.	330		
3.67	30" Rubber Gasket Reinforced Concrete Pipe, Class V (Private Irrigation)	Lin. Ft.	38		
3.68	F1W Flexible Delineators Per ADOT Std. Dtl. M-26	Each	6		
3.69	* Railroad Flagger and Right-of-Entry Permit	Job	1		
	Pathway and & Drainage Subtotal for Item Numbers 3.10 through 3.68				
4. Bridge Structure					
Bridge Seg 2					
4.10	Drilled Shafts (2'-6" Dia)	Lin. Ft.	88		
4.11	Concrete Approach Slab	Sq.Ft.	400		
4.12	Concrete Channel Lining	Sq. Yd.	22		
4.13	Structural Concrete (Class "S")(3,000 psi)	Cu. Yd.	36		
4.14	Steel Reinforcement	Lbs.	3090		
4.15	Elastometric Bearing Pads Per Plans	Each	4		
4.16	64' Prefabricated Steel Bridge Per Plans	L.Sum	1		
4.17	Steel Bollards Per Plan	Each	2		
4.18	Steel Ladder - SRP	Each	1		
Bridge Seg 3					
4.19	Drilled Shafts (2'-6" Dia)	Lin. Ft.	104		
4.20	Concrete Approach Slab	Sq. Ft.	438		
4.21	Structural Concrete (Class "S") (3,000 PSI)	Cu. Yd.	22		
4.22	Steel Reinforcement	LB	1970		
4.23	Elastomeric Bearing Pads per Plans	Each	4		
4.24	78' Prefabricated Steel Bridge per Plans	L.Sum	1		

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
4.25	Steel Bollards per Plans	Each	2		
Bridge Structure Subtotal for Item Numbers 4.10 through 4.25					
5. Pedestrian Lighting					
5.10	Furnish & Install Conduit, Sized Per Plans, Including Trenching & Backfill	L.Sum	1		
5.11	Directional Boring for Conduit	Lin. Ft.	1000		
5.12	Furnish & Install Conductors & Bond Wires, Sized Per Plans, Complete & In Place Including Splices & Terminations for a Complete Set of Conductors	Job	1		
5.13	Connection to Irrigation Controller	Each	14		
5.14	No. 3-1/2 Junction Box	Each	47		
5.15	Electrical Power Service Pedestal Cabinet, 100A, Single Phase, Including Utility Company Related Costs & Requirements	Each	10		
5.16	Furnish & Install LED Pole Mounted Area Light, 12' Mounting on Concrete Direct Buried Pole, Complete	Each	59		
5.17	Furnish & Install LED Pole Mounted Area Light, 15' Mounting on Concrete Direct Buried Pole, Complete	Each	230		
5.18	Furnish & Install Concrete Bollard Accent Light, Complete	Each	68		
Pedestrian Lighting Subtotal for Item Numbers 5.10 through 5.19					
6. Crossing Treatments					
6.10	HAWK Traffic Signal at 19th Ave	L.Sum	1		
6.11	HAWK Traffic Signal at Indian School	L.Sum	1		
6.12	HAWK Traffic Signal at Osborn Rd	L.Sum	1		
6.13	HAWK Traffic Signal at 20th Street	L.Sum	1		
6.14	HAWK Traffic Signal at Thomas Rd	L.Sum	1		
6.15	HAWK Traffic Signal at 24th Street	L.Sum	1		
6.16	RRFB Traffic Signal at Oak Street	L.Sum	1		
6.17	HAWK Traffic Signal at McDowell Rd	L.Sum	1		
6.18	HAWK Traffic Signal at 32nd Street	L.Sum	1		
6.19	Traffic Signal Modifications at 44th Street	L.Sum	1		
6.20	RRFB signal at 48th Street	L.Sum	1		
6.21	Traffic Control	L.Sum	1		
6.22	Allowance for Off Duty Uniformed Officer	L.Sum	1	\$ 50,000.00	\$ 50,000.00
Crossing Treatments Subtotal for Item Numbers 6.10 through 6.22					
7. Landscape & Functional Art					
7.10	As-Builts, Complete	L.Sum	1		
7.11	Allowance for Removing and Haul off Excavated Materials	Job	1	\$ 6,000.00	\$ 6,000.00
7.12	Allowance for Disposal of Excavated Waste Materials	Job	1	\$ 8,000.00	\$ 8,000.00
7.13	Sort, retain, and redistribute existing salvage piles per plan	Job	1		

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
7.14	Trim Existing Trees In Place	Job	1		
7.15	Remove Graffiti on CMU Wall	Job	1		
7.16	Remove Bushes, Shrubs, Cacti or Small Trees	Job	1		
7.17	Landscape Grading to include swales and berms, and for all landscape construction and node areas	Job	1		
7.18	Clean fill for landscape grading	Cu. Yd.	315		
7.19	18 Station Controller to Include Stainless Steel Pedestal, all Trenching, Two Wire Paige Communication cables, wire, surge suppression and Grounding Rods (5/8" diam x 8' Copper), Water Proof Wire Nuts, Conduit, and Power Company Coordination, two wire module for pedestal mount. Installation shall be complete, tested, and verified for operation per manufacturer's recommended procedures prior to punch list preparation. Power source to be provided by others.	Each	1		
7.20	12 Station Controller to Include Stainless Steel Pedestal, all Trenching, Two Wire Paige Communication cables, wire, surge suppression and Grounding Rods (5/8" diamx8' Copper), Water Proof Wire Nuts, Conduit, and Power Company Coordination, two wire module for pedestal mount. Installation shall be complete, tested, and verified for operation per manufacturer's recommended procedures prior to punch list preparation. Power source to be provided by others.	Each	4		
7.21	6 Station Controller to include Stainless Steel Pedestal, all Trenching, Two Wire Paige Communication cables, wire, surge suppression and Grounding Rods (5/8" diamx8' Copper), Water Proof Wire Nuts, Conduit, and Power Company Coordination, two wire module for pedestal mount. Installation shall be complete, tested, and verified for operation per manufacturer's recommended procedures prior to punch list preparation. Power source to be provided by others.	Each	4		
7.22	New Water Meter Box and Cover, Furnish and Install	Each	10		
7.23	1" Copper Water Meter Service Connect. Pipe and Fittings, Main to Meter, Furnish and Install	Lin. Ft.	848		
7.24	Sawcut, Remove and Replace Existing Asphalt Pavement Per MAG Section 710 (To include vertical curb and gutter replacement as needed)	Sq. Yd.	1026		
7.25	Trench Excavation Backfill and Compaction Per MAG Section 601	Lin. Ft.	813		
7.26	1" Reduced Pressure Backflow Prevention Unit and Enclosure,with Concrete Pad, Desert Tan	Each	12		
7.27	1" Master Valve and Flow Sensor Assembly with box installed and complete	Each	11		
7.28	1" Remote Control Valve Assembly	Each	62		
7.29	1" Bronze Pressure Regulator	Each	62		
7.30	1" Bronze Wye Strainer	Each	62		
7.31	Base Wireless Radio Gateway Assembly	Each	3		
7.32	Base Wireless DC Latching Reciever	Each	25		
7.33	1/2", Sch 40 PVC Irrigation Pipe	Lin. Ft.	7204		
7.34	3/4", Sch 40 PVC Irrigation Pipe	Lin. Ft.	18125		

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
7.35	1", Sch 40 PVC Irrigation Pipe	Lin. Ft.	6490		
7.36	1-1/2" Sch 40 PVC Mainline	Lin. Ft.	16458		
7.37	1" Bronze Isolation Valve	Each	62		
7.38	1/2", Sch 80 PVC Flex Hose Risers	Lin. Ft.	2307		
7.39	Flush Caps and 7" Round Box	Each	109		
7.40	1" Quick Coupler	Each	19		
7.41	1-1/2" Mainline Gate Valve and 10" Round Box	Each	36		
7.42	Single-Port Emitter and Riser Assembly w/ Bug Cap	Each	50		
7.43	Multi-Port Emitter and Riser Assembly w/ Bug Cap	Each	1558		
7.44	Schedule 80 PVC Irrigation Sleeve, 3"	Lin. Ft.	254		
7.45	Schedule 80 PVC Irrigation Sleeve, 6"	Lin. Ft.	630		
7.46	Shrubs 1 Gallon	Each	1534		
7.47	Shrubs 3 Gallon	Each	200		
7.48	Shrubs 5 Gallon	Each	4085		
7.49	Shrubs 15 Gallon	Each	453		
7.50	Shrubs 25 Gallon	Each	126		
7.51	Shrubs 65 Gallon	Each	116		
7.52	24" Box Tree	Each	197		
7.53	36" Box Tree	Each	157		
7.54	Application of Polymer gel packs @ initial planting	Each	1359		
7.55	Ocotillo - Bareroot - (6' Planted Height with 7 cane minimum) - Bareroot	Each	144		
7.56	Saguaro - 6' Planted Height Minimum	Each	15		
7.57	Cactus, Succulent - 15 Gallon	Each	143		
7.58	Tilling, soil prep and Native Seed Mix / Hydroseed Type B Non Woody Plant Material	Acre	4		
7.59	Truck Watering for Native Seed Mix/Hydroseed Area	Application	3		
7.60	3"-6" Rip - Rap Rock Mulch (for 50/50 Hydroseed Rock application)	Cu. Yd.	1028		
7.61	2'x2'x6' Welded Wire Mesh, 9-ga., non galvanized, Gabion Boxes	Each	270		
7.62	4" - 8" Clean River Rock for Gabion Boxes	Ton	406		
7.63	Pre-emergent and Water Application (2 Total Job Applications to exclude areas of hydroseed)	Sq. Ft.	478860		
7.64	1/2" Screened, Decomposed Granite, Mountain Vista Brown, 1" Depth	Cu. Yd.	1707		
7.65	1/4" Minus, 4" depth, Stabilized Decomposed Granite	Cu. Yd.	16		
7.66	1/4" Core Ten Steel Header with 3/4"x 18" headed, solid nail stakes @ 4' o.c. for Stabilized D.G. Paths	Lin. Ft.	250		
7.67	16"x24" Permeable Concrete Block Pavers with subgrade drainage aggregate	Sq. Ft.	1750		

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
7.68	8"x12" Concrete Single Curb, MAG Type B Class B w/smooth trowel finish and joints	Lin. Ft.	450		
7.69	6' New Chainlink Fence with 2" Posts and Footings	Lin. Ft.	257		
7.70	6' New Wood Fence w/3" Posts and Footings	Lin. Ft.	39		
7.71	36" x 12" wide Class B Concrete Footing for Steel Posts	Lin. Ft.	1205		
7.72	2-7/8" Outside Diameter, Galvanized Steel Pipes, fabricated, cut to size, and set in concrete footing per detail	Lin. Ft.	8203		
7.73	Steel caps tack welded and sealed to steel posts	Each	1315		
7.74	Colorant for metal	Lin. Ft.	8203		
7.75	Class 'S' Concrete Node Walls, 8" Thick, Poured and Board Formed with reinforced footing, #4	Lin. Ft.	812		
7.76	Graffiti Repellent on Node Walls	Sq. Ft.	5340		
7.77	2'x4' Bench Seats w/armrest/antivagrants, supports and hardware per manufacturer	Each	22		
7.78	Metal Locator Tape	Lin. Ft.	16458		
7.79	Safety Rail w/welded wire mesh per Detail Sheet 2.127	Lin. Ft.	160		
Landscape & Functional Art Subtotal for Item Numbers 7.10 through 7.81					
8. Landscape Establishment					
8.10	Plant Establishment Guarantee and Maintenance to include 3 applications of gel packs for supplementary water where installed on project.	Month	6		
Landscape Establishment Subtotal for Item Number 8.10					
9. Allowances					
9.10	Allowance for Extra Work	Job	1	\$ 500,000.00	\$ 500,000.00
Allowance Subtotal for Item Number 9.10					
TOTAL AMOUNT OF CONSTRUCTION BID					

TOTAL AMOUNT OF CONSTRUCTION BID

Project No. ST87600114 Grand Canal Phase II

TOTAL AMOUNT OF CONSTRUCTION BID:

&

Written Words

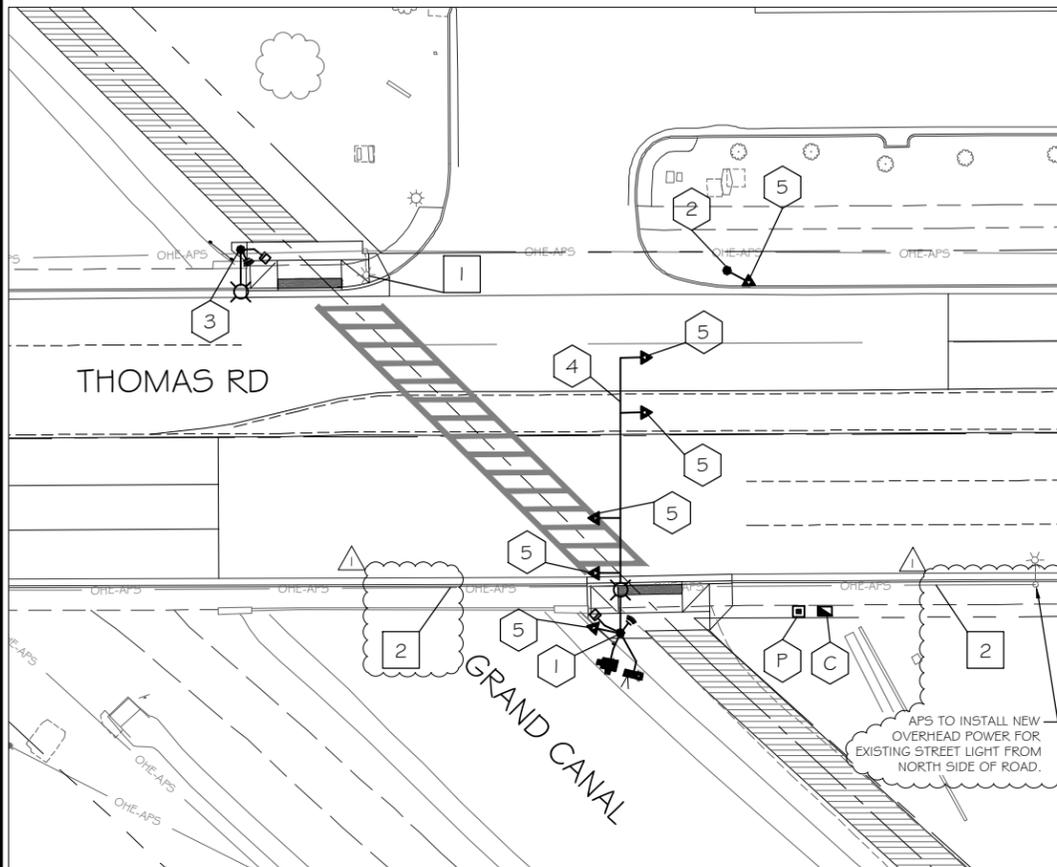
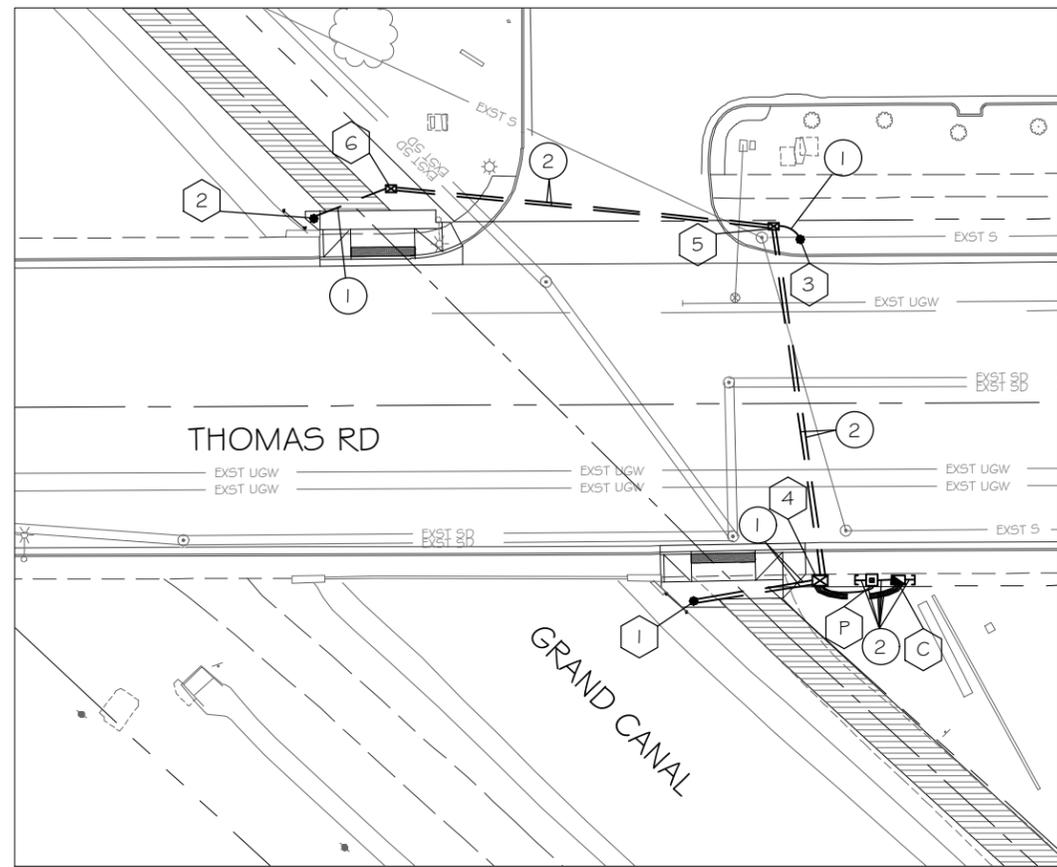


F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST87600114	2.156	2.182
ECC ENGINEERING & ENVIRONMENTAL CONSULTANTS CONSULTING ENGINEER				
DES: WTB	DR: WTB	CK: AMB	DATE: 08/23/17	

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE



SIGNAL PLAN SHEET NOTES

- GENERAL NOTES:
 - The contractor shall notify the City Of Phoenix Traffic Signal Shop (602-262-6733) a minimum of fourteen (14) calendar days prior to beginning any traffic signal work. Submittals of all equipment shall be furnished to the Signal Shop and approved prior to the ordering of any traffic signal equipment. The contractor shall verify that they have the most current set of drawings prior to start and ordering of any equipment.
 - Foundation elevations must be within 1/4" of finished sidewalk grade.
 - The Contractor shall layout all ADA ramps, junction boxes and foundation locations for approval by the traffic signal representative prior to any excavation. Contractor shall paint the layout of the ADA ramps in white marking paint to insure the the signal poles are in the correct locations.
 - A minimum of four (4) feet of clearance is required between all traffic signal poles and the back edge of sidewalk pedestrian ramps.
 - The contractor shall have a complete set of construction drawings including current City of Phoenix standard details on site at all times during signal construction activities.
- WORK TO BE PERFORMED BY CITY OF PHOENIX SIGNAL CREWS:
 - Prep contractor furnished controller cabinets and all internal equipment
 - Transport controller cabinet to intersection(s)
 - Terminate, test and activate all field wiring into controller cabinet(s)

NO.	TYPE	FROM M ₀ F THOMAS ROAD	FROM M ₀ F CANAL PATHWAY
C	CONT	38.6 ft. SOUTH	25.3 ft. EAST
P	PSP	38.6 ft. SOUTH	21.4 ft. EAST
1	ADOT W	43.0 ft. SOUTH	9.1 ft. WEST
2	G	42.4 ft. NORTH	6.5 ft. EAST
3	A	35.8 ft. NORTH	63.6 ft. EAST

NOTE: Distance is perpendicular to roadway center line as shown on plans

NO.	TYPE	FROM M ₀ F THOMAS ROAD	FROM M ₀ F CANAL PATHWAY
3	#7	38.6 ft. SOUTH	13.6 ft. EAST
4	#5	38.7 ft. NORTH	61.5 ft. EAST
5	#5	47.3 ft. NORTH	8.4 ft. EAST

NOTE: Distance is perpendicular to roadway center line as shown on plans

INSTALL

- 1 thru 2 See Foundation Schedule
- 3 thru 5 See Junction Box Schedule
- 1 2" Schedule 40 PVC with #10 copper pull wire bent over lip of stubout
- 2 2 1/2" Schedule 40 PVC with #10 copper pull wire bent over lip of stubout

HAWK EQUIPMENT NOTES

- C 8 Phase Controller Cabinet - 1 New
- P Power Service Pedestal - 1 New
- 1 Traffic Signal Pole Type ADOT "W" - 1 New
- 2 Traffic Signal Pole Type A - 1 New
- 3 Traffic Signal Pole Type G - 1 New
- 4 60' Signal Mast Arm - 1 New
- 5 12" HAWK Signal Head - 6 New
Mast Arm Mount - 4
Pole Mount - 2
- Countdown Pedestrian Head - 2 New
- APS Pedestrian Push Button - 2 New
w/R10-25 Pedestrian Push Button Sign
- Wireless Radio - 1 New
- CCTV Camera - 1 New
- LED Luminaire - 2 New

REMOVE

- 1 Remove Existing Street light From Power Pole - 1
- 2 OHE for Street Light to Removed by APS

"CONTRACTOR IS RESPONSIBLE FOR LOCATING AND CONFIRMING DEPTHS OF ALL UNDERGROUND UTILITIES WITHIN THE PROJECT AREA."
"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

**THOMAS ROAD & CANAL
HAWK SIGNAL**

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

GRAND CANALSCAPE PHASE II
16TH STREET TO 36TH STREET
ST87600114

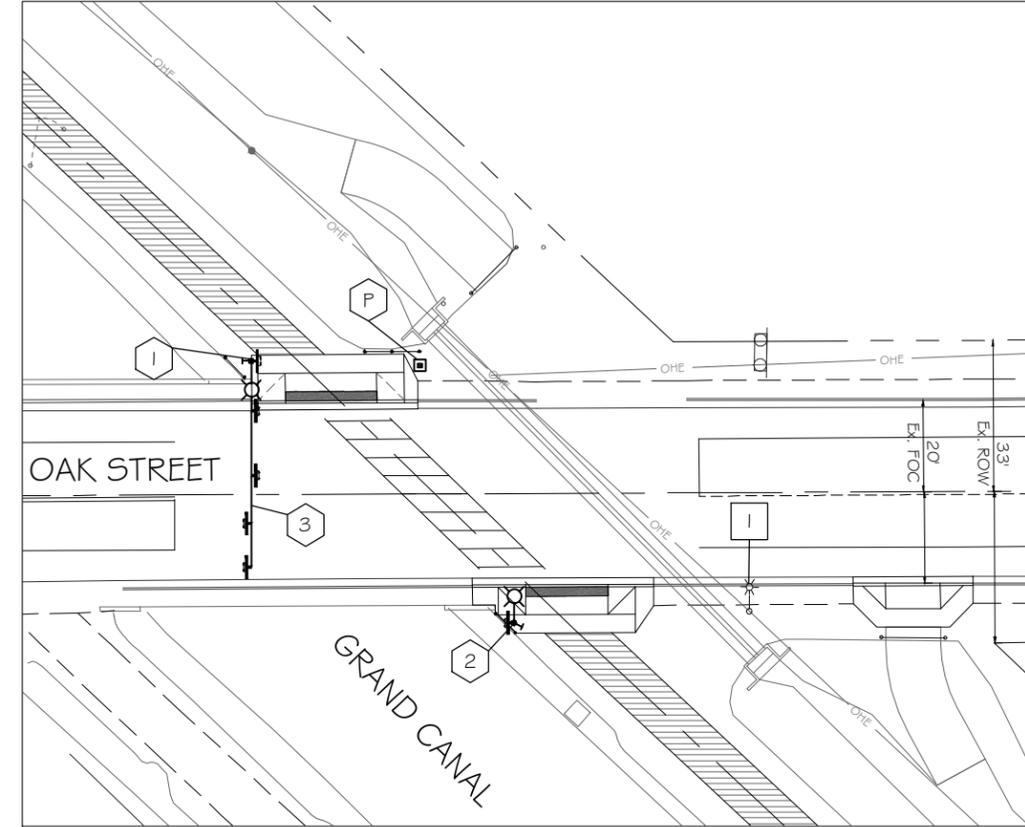
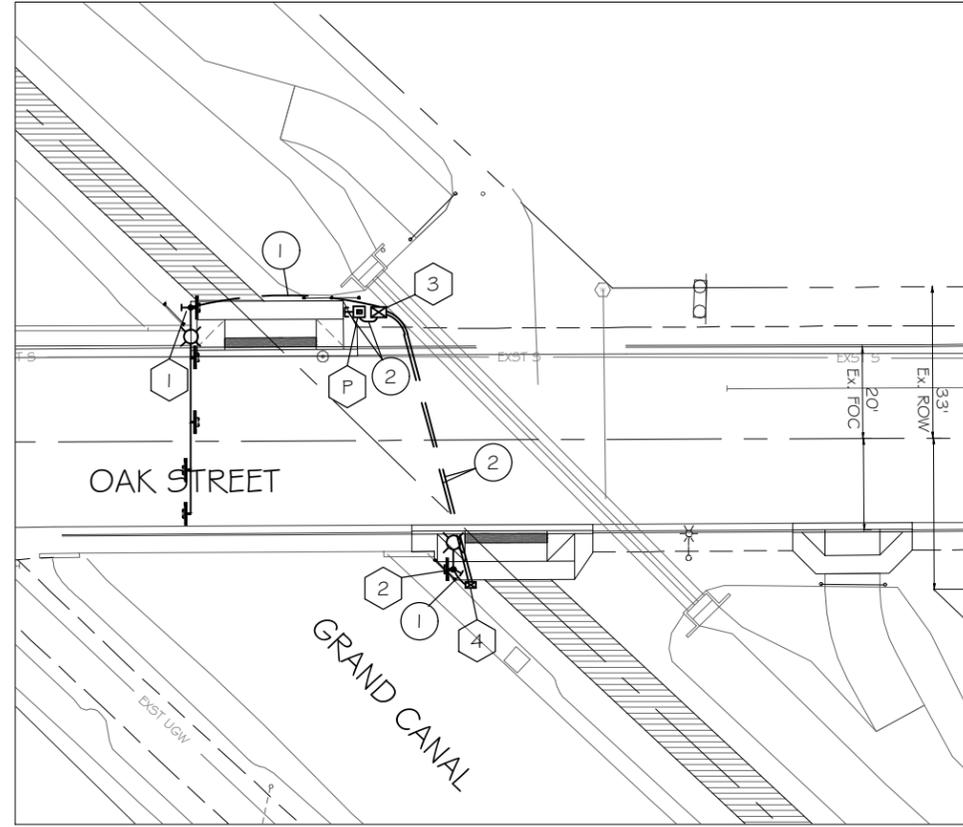
DES: WTB	DR: WTB	CK: AMB	SHEET NO:	TOTAL SHEETS
DATE: 08/17			2.156	2.182

SCALE: REVISED

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE



SIGNAL PLAN SHEET NOTES

1. GENERAL NOTES:
- 1.1 The contractor shall notify the City Of Phoenix Traffic Signal Shop (602-262-6733) a minimum of fourteen (14) calendar days prior to beginning any traffic signal work. Submittals of all equipment shall be furnished to the Signal Shop and approved prior to the ordering of any traffic signal equipment. The contractor shall verify that they have the most current set of drawings prior to start and ordering of any equipment.
 - 1.2 Foundation elevations must be within 1/4" of finished sidewalk grade.
 - 1.3 The Contractor shall layout all ADA ramps, junction boxes and foundation locations for approval by the traffic signal representative prior to any excavation. Contractor shall paint the layout of the ADA ramps in white marking paint to insure the the signal poles are in the correct locations.
 - 1.4 A minimum of four (4) feet of clearance is required between all traffic signal poles and the back edge of sidewalk pedestrian ramps.
 - 1.5 The contractor shall have a complete set of construction drawings including current City of Phoenix standard details on site at all times during signal construction activities.
2. WORK TO BE PERFORMED BY CITY OF PHOENIX SIGNAL CREWS:
- Prep contractor furnished controller cabinets and all internal equipment
 - Transport controller cabinet to intersection(s)
 - Terminate, test and activate all field wiring into controller cabinet(s)

PROPOSED FOUNDATION SCHEDULE				
NO.	TYPE	FROM M _{OF} OAK STREET	FROM M _{OF} CANAL PATH	
P	PSP	28.1 ft. NORTH	17.9 ft. EAST	
1	SR	29.2 ft. NORTH	7.0 ft. EAST	
2	LM	28.2 ft. SOUTH	8.2 ft. EAST	

NOTE: Distance is perpendicular to roadway center line as shown on plans

PROPOSED JUNCTION BOX SCHEDULE				
NO.	TYPE	FROM M _{OF} OAK STREET	FROM M _{OF} CANAL PATH	
3	#7	28.0 ft. NORTH	20.8 ft. EAST	
4	#5	31.6 ft. SOUTH	8.0 ft. EAST	

NOTE: Distance is perpendicular to roadway center line as shown on plans

INSTALL

- ① thru ② See Foundation Schedule
- ③ thru ④ See Junction Box Schedule
- ① 2" Schedule 40 PVC with #10 copper pull wire bent over lip of stubout
- ② 2 1/2" Schedule 40 PVC with #10 copper pull wire bent over lip of stubout

INSTALL (BY CONTRACTOR)

- Ⓟ Power Service Pedestal - 1 New
- ① Traffic Signal Pole Type "SR"- 1 New
- ② Traffic Signal Pole Type LM With 20' Riser - 1 New
- ③ 45' Signal Mast Arm - 1 New
- Ⓜ Rectangular Rapid Flash Beacon (RRFB) - 6 New
- Ⓢ Pedestrian Push Button - 2 New
w/R10-25 Pedestrian Push Button Sign
- Ⓜ W11-2 Pedestrian Crossing Sign
36" x 36" Mast Arm Mount - 4 New
36" x 36" Signal Pole Mount - 2 New
w/Supplemental W16-7 Sign

REMOVE

- Ⓛ Remove Existing Street light arm and Luminaire from Existing Power Pole - 1



"CONTRACTOR IS RESPONSIBLE FOR LOCATING AND CONFIRMING DEPTHS OF ALL UNDERGROUND UTILITIES WITHIN THE PROJECT AREA."
"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

OAK STREET & CANAL
RRFB

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

GRAND CANALSCAPE PHASE II
16TH STREET TO 36TH STREET
ST87600114

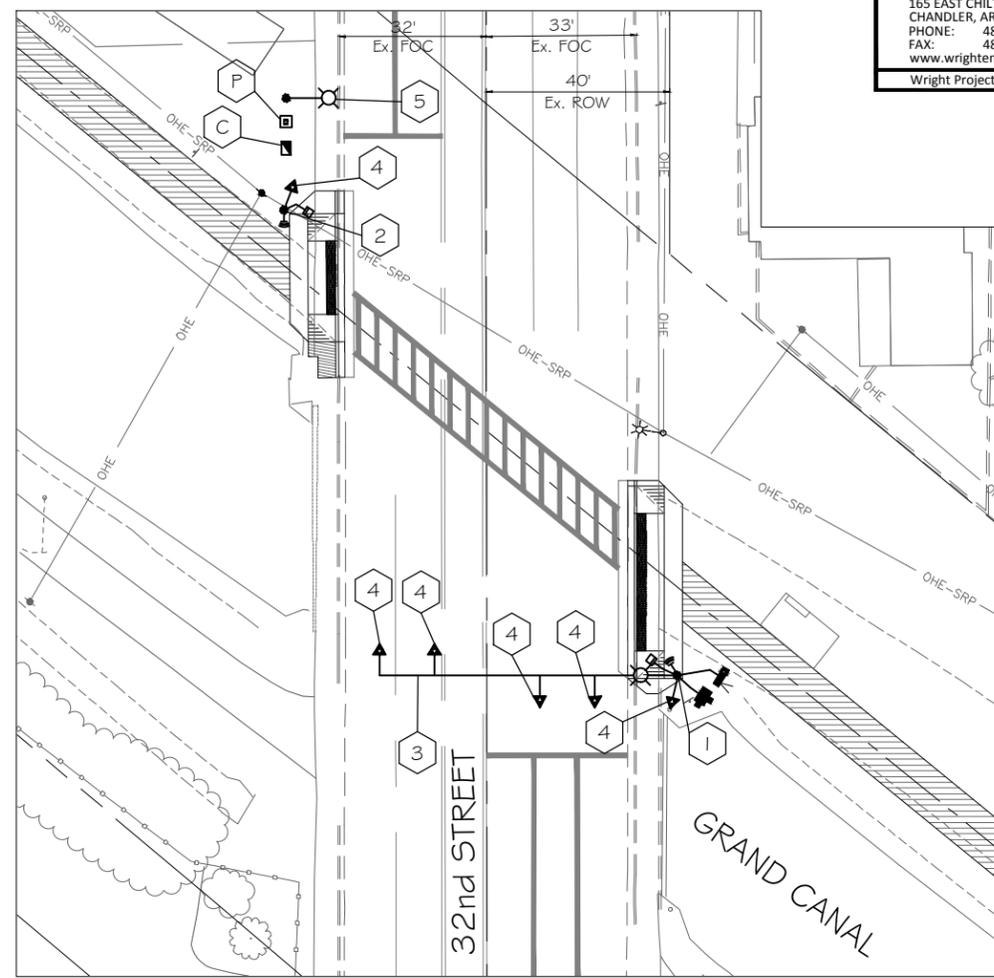
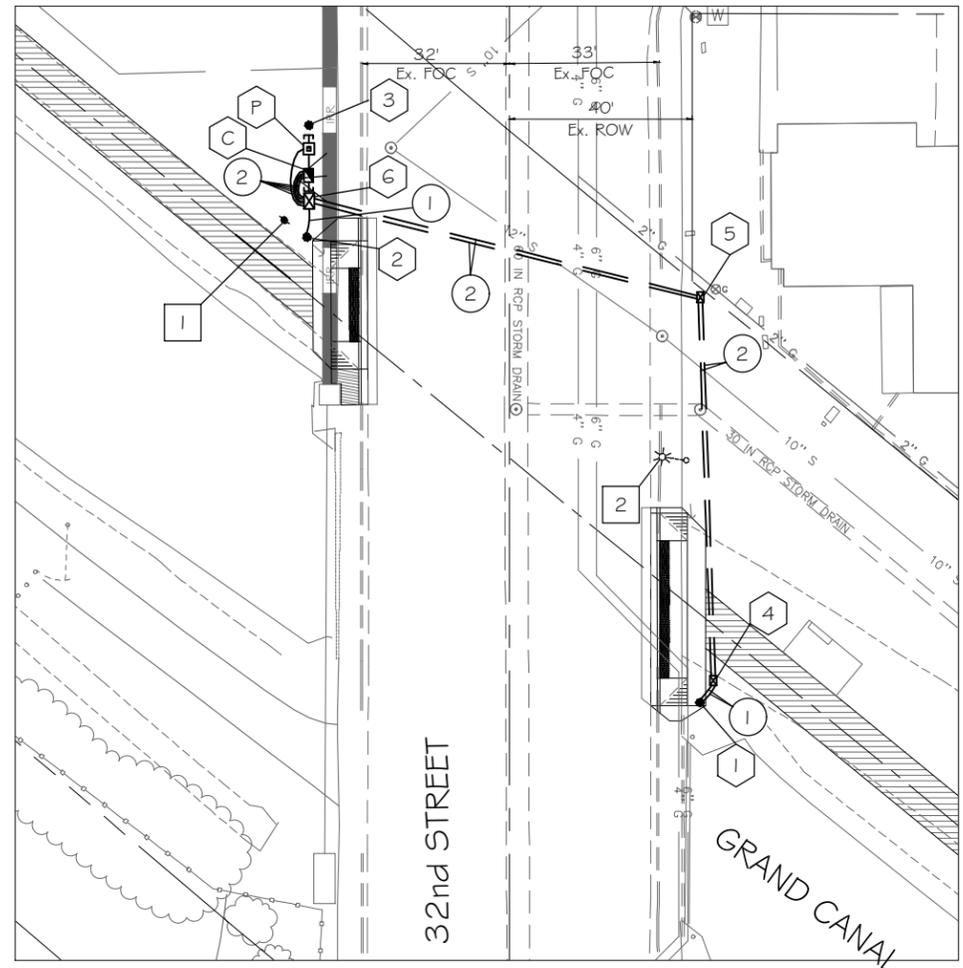
DES: WTB	DR: WTB	CK: AMB	SHEET NO:	TOTAL SHEETS
DATE: 08/17			2.160	2.182

SCALE: REVISED

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE



SIGNAL PLAN SHEET NOTES

1. GENERAL NOTES:
 - 1.1 The contractor shall notify the City Of Phoenix Traffic Signal Shop (602-262-6733) a minimum of fourteen (14) calendar days prior to beginning any traffic signal work. Submittals of all equipment shall be furnished to the Signal Shop and approved prior to the ordering of any traffic signal equipment. The contractor shall verify that they have the most current set of drawings prior to start and ordering of any equipment.
 - 1.2 Foundation elevations must be within 1/4" of finished sidewalk grade.
 - 1.3 The Contractor shall layout all ADA ramps, junction boxes and foundation locations for approval by the traffic signal representative prior to any excavation. Contractor shall paint the layout of the ADA ramps in white marking paint to insure the the signal poles are in the correct locations.
 - 1.4 A minimum of four (4) feet of clearance is required between all traffic signal poles and the back edge of sidewalk pedestrian ramps.
 - 1.5 The contractor shall have a complete set of construction drawings including current City of Phoenix standard details on site at all times during signal construction activities.
2. WORK TO BE PERFORMED BY CITY OF PHOENIX SIGNAL CREWS:
 - Prep contractor furnished controller cabinets and all internal equipment
 - Transport controller cabinet to intersection(s)
 - Terminate, test and activate all field wiring into controller cabinet(s)

HAWK EQUIPMENT NOTES

- C** 8 Phase Controller Cabinet - 1 New
- P** Power Service Pedestal - 1 New
- 1** ADOT Type W Pole - 1 New
- 2** Traffic Signal Pole Type A - 1 New
- 3** 65' ADOT Signal Mast Arm - 1 New
- 4** 12" HAWK Signal Head - 6 New
Mast Arm Mount - 4
Pole Mount - 2
- 5** Install New 10,000 Lumin LED Street Light with a 32'-11" Mounting Height per COP Standards - 1 New
- ☉** LED Luminaire - 2 New
- ⏪** Countdown Pedestrian Head - 2 New
- ⏩** APS Pedestrian Push Button - 2 New
w/R 10-25 Pedestrian Push Button Sign
- 📶** Wireless Radio - 1 New
- 📹** CCTV Camera - 1 New

NO.	TYPE	FROM M.O.F CANAL PATHWAY	FROM M.O.F 32ND STREET
C	CONT	20.1 ft. NORTH	43.8 ft. WEST
P	PSP	24.6 ft. NORTH	43.8 ft. WEST
1	ADOT W	15.0 ft. SOUTH	41.6 ft. EAST
2	LM	9.4 ft. NORTH	42.1 ft. WEST
3	LIGHT	28.6 ft. NORTH	43.8 ft. WEST

NOTE: Distance is perpendicular to roadway center line as shown on plans

NO.	TYPE	FROM M.O.F CANAL PATHWAY	FROM M.O.F 32ND STREET
4	#5	9.4 ft. SOUTH	44.5 ft. EAST
5	#5	53.6 ft. NORTH	41.7 ft. EAST
6	#7	15.8 ft. NORTH	43.8 ft. WEST

NOTE: Distance is perpendicular to roadway center line as shown on plans

INSTALL

- 1** thru **2** See Foundation Schedule
- 3** thru **5** See Junction Box Schedule
- 1** 2" Schedule 40 PVC with #10 copper pull wire bent over lip of stubout
- 2** 2 1/2" Schedule 40 PVC with #10 copper pull wire bent over lip of stubout

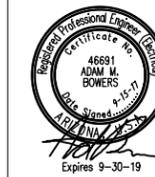
REMOVE

- 1** Existing Guy Wire shall be removed by Century Link - 1
- 2** Remove Existing Street light arm and Luminaire from Existing Power Pole - 1

"CONTRACTOR IS RESPONSIBLE FOR LOCATING AND CONFIRMING DEPTHS OF ALL UNDERGROUND UTILITIES WITHIN THE PROJECT AREA."
"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

**32ND STREET & CANAL
HAWK SIGNAL**
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
GRAND CANALSCAPE PHASE II
16TH STREET TO 36TH STREET
ST87600114

DES: WTB	DR: WTB	CK: AMB	SHEET NO:	TOTAL SHEETS
DATE: 08/17			2.164	2.182



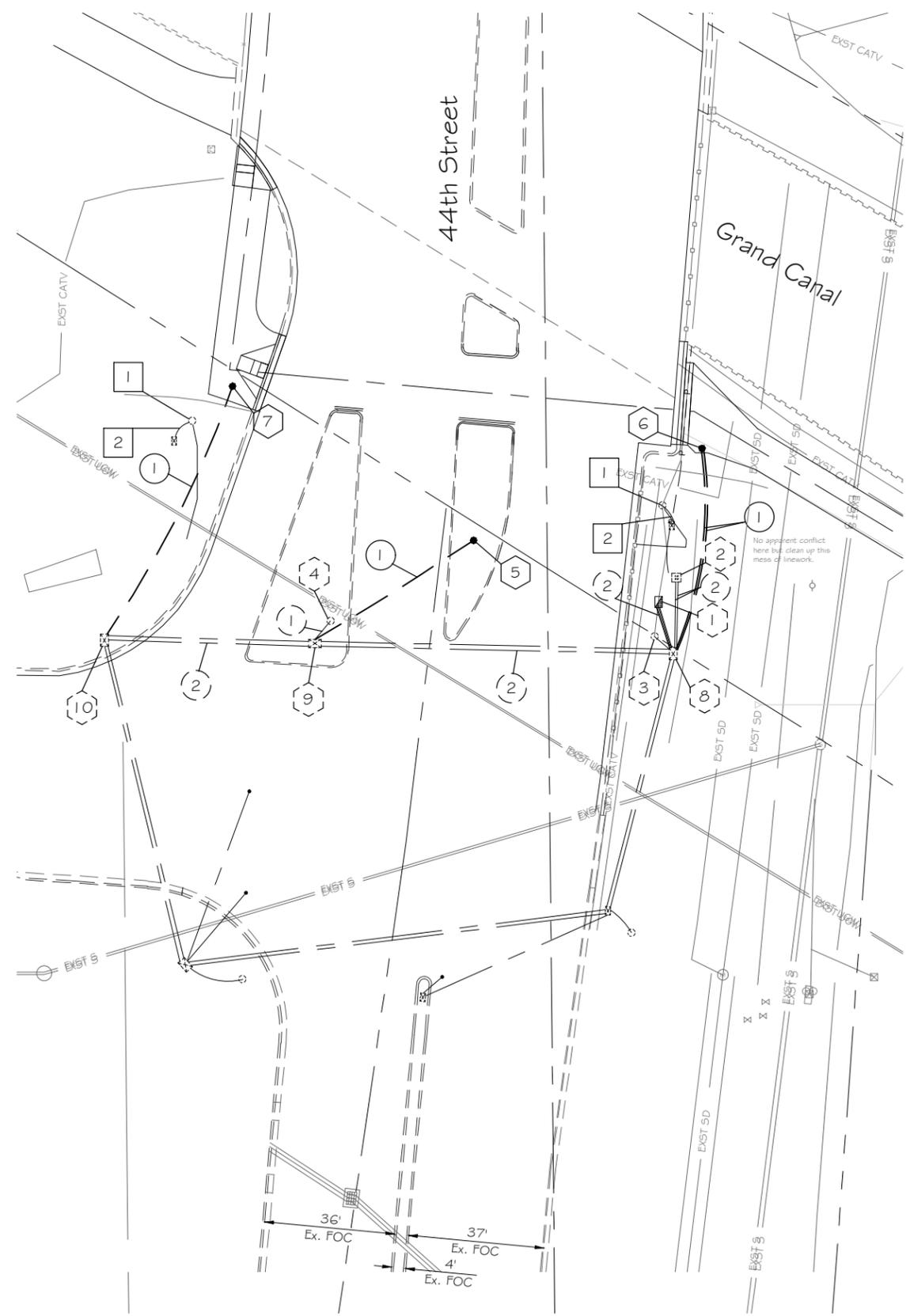
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	-----	-----	3.99

TRACE CONSULTING 1201 E. Jefferson St. Suite 3 Phoenix, AZ 85034

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE
	NOTE NUMBER UPDATE	WTB	AMB	9-17



SIGNAL PLAN SHEET NOTES

1. GENERAL NOTES:
 - 1.1 The contractor shall notify the City Of Phoenix Traffic Signal Shop (602-262-6733) a minimum of fourteen (14) calendar days prior to beginning any traffic signal work. Submittals of all equipment shall be furnished to the Signal Shop and approved prior to the ordering of any traffic signal equipment. The contractor shall verify that they have the most current set of drawings prior to start and ordering of any equipment.
 - 1.2 Foundation elevations must be within 1/4" of finished sidewalk grade.
 - 1.3 The Contractor shall layout all ADA ramps, junction boxes and foundation locations for approval by the traffic signal representative prior to any excavation. Contractor shall paint the layout of the ADA ramps in white marking paint to insure the signal poles are in the correct locations.
 - 1.4 A minimum of four (4) feet of clearance is required between all traffic signal poles and the back edge of sidewalk pedestrian ramps.
 - 1.5 The contractor shall have a complete set of construction drawings including current City of Phoenix standard details on site at all times during signal construction activities.
2. WORK TO BE PERFORMED BY CITY OF PHOENIX SIGNAL CREWS:
 - Terminate, test and activate all field wiring into controller cabinet(s)

NO.	TYPE	FROM M.O.F. 44TH STREET	FROM M.O.F. CANAL PATHWAY
1	CONT	Existing	Existing
2	PSP	Existing	Existing
3	SR	Existing	Existing
4	LM	Existing	Existing

NO.	TYPE	FROM M.O.F. 44TH STREET	FROM M.O.F. CANAL PATHWAY
5	A	20.4 ft. West	40.8 ft. South
6	LM	43.1 ft. East	7.6 ft. South
7	LM	86.6 ft. West	4.5 ft. South

NOTE: Distance is perpendicular to roadway center line as shown on plans

NO.	TYPE	FROM M.O.F. 44TH STREET	FROM M.O.F. CANAL PATHWAY
8	7	Existing	Existing
9	5	Existing	Existing
10	5	Existing	Existing

NOTE: Distance is perpendicular to roadway center line as shown on plans

INSTALL

- ① thru ⑦ See Foundation Schedule
- ⑧ thru ⑩ See Junction Box Schedule
- ① 2" Schedule 40 PVC with #10 copper pull wire bent over lip of stubout
- ② 2 1/2" Schedule 40 PVC with detectable mule tape

REMOVE

- ① Remove existing street light and return to COP aviation department. - 2 Each
- ② Remove conductors. - 2 Each



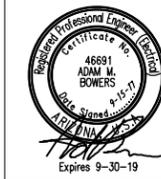
"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

HAWK - 44TH ST FOUNDATION
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
GRAND CANALScape PHASE II
SEGMENT 3: 40TH ST TO 56TH ST
ST87600114

DR: WTB	DES: WTB	CK: AMB	SHEET NO: 3.85	TOTAL SHEETS: 3.99
DATE: 7/17	DATE: 7/17	DATE: 7/17		

SCALE: 1:20 REVISED **TS3.1**

GRAND CANALSCAPE PHASE II
SEGMENT 3
40TH ST TO 56TH ST



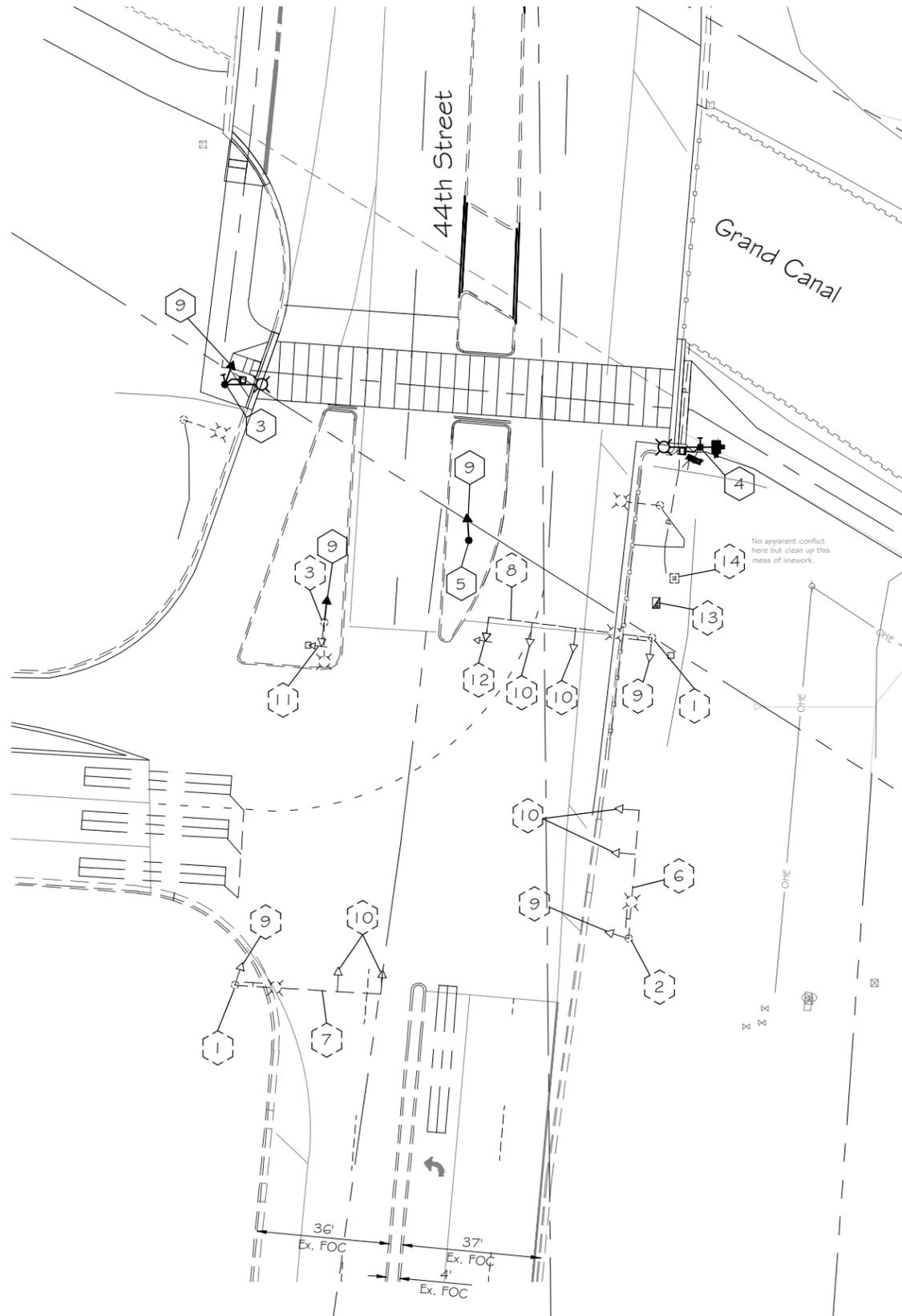
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	-----		3.99

TRACE CONSULTING
1201 E. Jefferson St.
Suite 3
Phoenix, AZ 85034

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE
	NOTE NUMBER UPDATE	WTB	AMB	9-17



INSTALL (BY CONTRACTOR)

- 1 Traffic Signal Pole Type "SR" - 2 Existing
- 2 Traffic Signal Pole Type "SM" - 1 Existing
- 3 Traffic Signal Pole Type LM With 5' Riser - 1 New, 1 Existing
- 4 Traffic Signal Pole Type LM With 20' Riser - 1 New
- 5 Traffic Signal Pole Type "A" - 1 New
- 6 35' Signal Mast Arm - 1 Existing
- 7 40' Signal Mast Arm - 1 Existing
- 8 45' Signal Mast Arm - 1 Existing
- 9 Type F 12" Signal Head - 3 New, 3 Existing (Pole Mount)
- 10 Type F1 12" Signal Head - 6 Existing (Mast Arm Mount with Plumbizer)
- 11 Type Q 5 Section 12" Signal Head - 1 Existing (Pole Mount)
- 12 Type Q2 Signal Head - 1 Existing (Mast Arm Mount with Plumbizer)
- 13 8 Phase Controller Cabinet - 1 Existing
- 14 Power Service Pedestal - 1 Existing

- Luminaire
- ⊗ LED - 2 New
 - ⊗⊗ HPS - 2 Ex

- Signs at Signal
- ⊣ Illuminated Street Sign - 1 Existing
 - ⊣ Pedestrian Head - 2 New
 - ⊣ Pedestrian Push Button - 2 New
 - ⊣ CCTV Camera - 1 New
 - ⊣ Wireless Radio - 1 Relocated

Note:
Adjust all signal head placement as shown on plan.



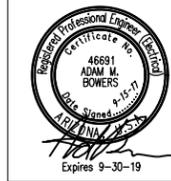
"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

HAWK - 44TH ST EQUIPMENT
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
GRAND CANALSCAPE PHASE II
SEGMENT 3: 40TH ST TO 56TH ST
ST87600114

DR: WTB	DES: WTB	CK: AMB	SHEET NO:	TOTAL SHEETS:
DATE: 7/17	DATE: 7/17	DATE: 7/17	NO:	3.99
SCALE: 1:20			REVISED	TS3.2



GRAND CANALSCAPE PHASE II
SEGMENT 3
40TH ST TO 56TH ST



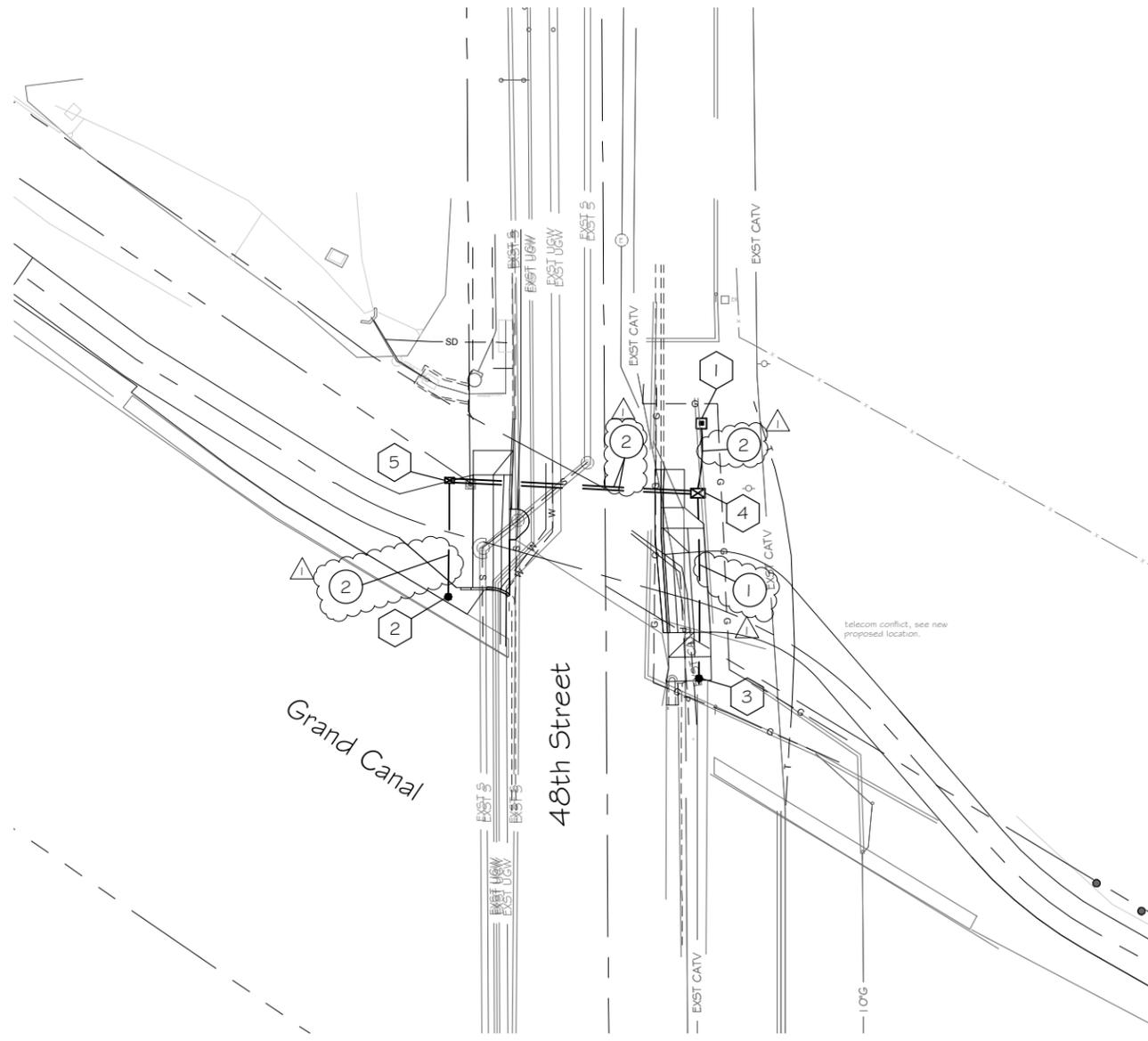
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	-----		3.99

TRACE CONSULTING 1201 E. Jefferson St. Suite 3 Phoenix, AZ 85034

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE
	NOTE NUMBER UPDATE	WTB	AMB	9-17



SIGNAL PLAN SHEET NOTES

1. GENERAL NOTES:
 - 1.1 The contractor shall notify the City Of Phoenix Traffic Signal Shop (602-262-6733) a minimum of fourteen (14) calendar days prior to beginning any traffic signal work. Submittals of all equipment shall be furnished to the Signal Shop and approved prior to the ordering of any traffic signal equipment. The contractor shall verify that they have the most current set of drawings prior to start and ordering of any equipment.
 - 1.2 Foundation elevations must be within 1/4" of finished sidewalk grade.
 - 1.3 The Contractor shall layout all ADA ramps, junction boxes and foundation locations for approval by the traffic signal representative prior to any excavation. Contractor shall paint the layout of the ADA ramps in white marking paint to insure the the signal poles are in the correct locations.
 - 1.4 A minimum of four (4) feet of clearance is required between all traffic signal poles and the back edge of sidewalk pedestrian ramps.
 - 1.5 The contractor shall have a complete set of construction drawings including current City of Phoenix standard details on site at all times during signal construction activities.
2. WORK TO BE PERFORMED BY CITY OF PHOENIX SIGNAL CREWS:
 - Terminate, test and activate all field wiring into controller cabinet(s)

NO.	TYPE	FROM M_OF 48TH STREET	FROM M_OF CANAL PATHWAY
1	PSP	23.8 ft. East	42.4 ft. North
2	SR	38.6 ft. West	15.3 ft. South
3	A	22.8 ft. East	17.5 ft. South

NOTE: Distance is perpendicular to roadway center line

NO.	TYPE	FROM M_OF 48TH STREET	FROM M_OF CANAL PATHWAY
4	7	22.8 ft. East	25.7 ft. North
5	5	38.1 ft. West	12.3 ft. North

NOTE: Distance is perpendicular to roadway center line

INSTALL

- ① thru ③ See Foundation Schedule
- ④ thru ⑤ See Junction Box Schedule
- ① 2" Schedule 40 PVC with #10 copper pull wire bent over lip of stubout
- ② 2 1/2" Schedule 40 PVC with detectable mule tape

Addendum 5

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

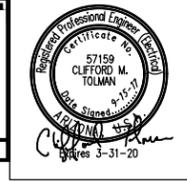
RRFB - 48TH ST FOUNDATION
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
GRAND CANALSCAPE PHASE II
SEGMENT 3: 40TH ST TO 56TH ST
ST87600114

DR: WTB	DES: WTB	CK: AMB	SHEET NO:	TOTAL SHEETS
DATE: 7/17	DATE: 7/17	DATE: 7/17	3.87	3.99

SCALE: REVISED **TS4.1**



WRIGHT
engineering corporation
ELECTRICAL ENGINEERING AND DESIGN
165 EAST CHILTON DRIVE
CHANDLER, ARIZONA 85225
PHONE: 480.497.5829
FAX: 480.497.5807
www.wrightengineering.us
Wright Project # 16027



F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST87600114	2.169	2.182
EEC ENGINEERING & ENVIRONMENTAL CONSULTANTS CONSULTING ENGINEER				
DES: DVG	DR: DVG	CK: CMT	DATE: 07/14/17	

WIRE & CONDUIT TABLE

CONDUIT NO.	CONDUIT SIZE	POWER	WIRE GROUND	TYPE* (CKT #)	REMARKS
50	1"	2-#12	1-#12	CU TYP.	
51	1"	2-#10	1-#10	CU TYP.	
52	1"	2-#8	1-#8	CU TYP.	
53	1"	2-#6	1-#6	CU TYP.	
54	1.5"	PULL	ROPE		SPARE
60	1"	2-#12	1-#12	CU	HIGH LIGHT LEVEL
		2-#12		CU	LOW LIGHT LEVEL
61	1"	2-#10	1-#10	CU	HIGH LIGHT LEVEL
		2-#10		CU	LOW LIGHT LEVEL
62	1"	2-#8	1-#8	CU	HIGH LIGHT LEVEL
		2-#8		CU	LOW LIGHT LEVEL
100	2"	2-#2	1-#2	CU	D(2,4) HIGH LEVEL
		2-#2		CU	D(2,4) LOW LEVEL
		2-#10		CU	D-10
101	1.25"	2-#8	1-#8	CU	D(2,4) HIGH LEVEL
		2-#8		CU	D(2,4) LOW LEVEL
		2-#10		CU	D-10

* THIS COLUMN IDENTIFIES THE WIRE MATERIAL TYPE. CU = COPPER, AL = ALUMINUM.

LEGEND

- 100 AMP 120/240V 1Ø, 3W METERED ELECTRICAL SERVICE PEDESTAL
- LED PATHWAY LIGHT, 12' MOUNTING HEIGHT
- LED PATHWAY LIGHT, 15' MOUNTING HEIGHT
- EXISTING STREET/AREA LIGHT
- EXISTING TRAFFIC SIGNAL WITH LUMINAIRE
- IRRIGATION CONTROLLER
- UNDERGROUND ELECTRICAL CONDUIT
- CONCRETE PULL BOX
- CONCRETE BOLLARD LIGHT

CONSTRUCTION NOTES:

- 1 100 AMP, 120/240V, 1Ø, 3W, METERED ELECTRICAL PEDESTAL. SEE DETAILS ON SHEET SE3.1.
- 2 PROPOSED POWER CO. SECONDARY CONDUIT. INSTALL PER POWER CO. REQUIREMENTS AND SPECIFICATIONS. EXTEND FROM PROPOSED TRANSFORMER LOCATION TO PROPOSED ELECTRICAL SERVICE. LOCATIONS SHOWN FOR CONTRACTOR CONVENIENCE ONLY. POWER CO. PLANS WILL DETERMINE EXACT LOCATION OF CONDUIT AND TAKE PRECEDENCE OVER THESE DRAWINGS.
- 3 LED AREA LIGHT FIXTURE WITH TYPE II DISTRIBUTION ON A CONCRETE POLE MOUNTED AT A FIXTURE HEIGHT OF 15'-0" AFG. SEE DETAIL 4 ON SHEET SE3.3.
- 4 LED AREA LIGHT FIXTURE WITH TYPE II DISTRIBUTION ON A CONCRETE POLE MOUNTED AT A FIXTURE HEIGHT OF 12'-0" AFG. SEE DETAIL 4 ON SHEET SE3.3.
- 5 LED CONCRETE BOLLARD. SEE DETAIL 5 ON SHEET SE3.3.
- 6 IRRIGATION CONTROLLER. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL CONDUIT, CONDUCTORS AND CONNECTIONS BETWEEN CONTROLLER AND ELECTRICAL SERVICE. COORDINATE WITH LANDSCAPE PLANS FOR EXACT LOCATION AND DETAILS.
- 7 CONTRACTOR TO HORIZONTAL BORE UNDER EXISTING ROADWAY, CURB, GUTTER, AND SIDEWALK AS NECESSARY. INSTALL 4" PVC SCHEDULE 40 SLEEVE UNDER ROADWAY. INSTALL CONDUIT IN SLEEVE.
- 8 #3-1/2 CONCRETE PULL BOX, SEE DETAIL 3 ON SHEET SE3.2.
- 9 ROUTE CONDUIT TO EXISTING POWER POLE AND COORDINATE WITH POWER CO. ON THE CONNECTION OF ELECTRICAL SERVICE.

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CHK BY	DATE

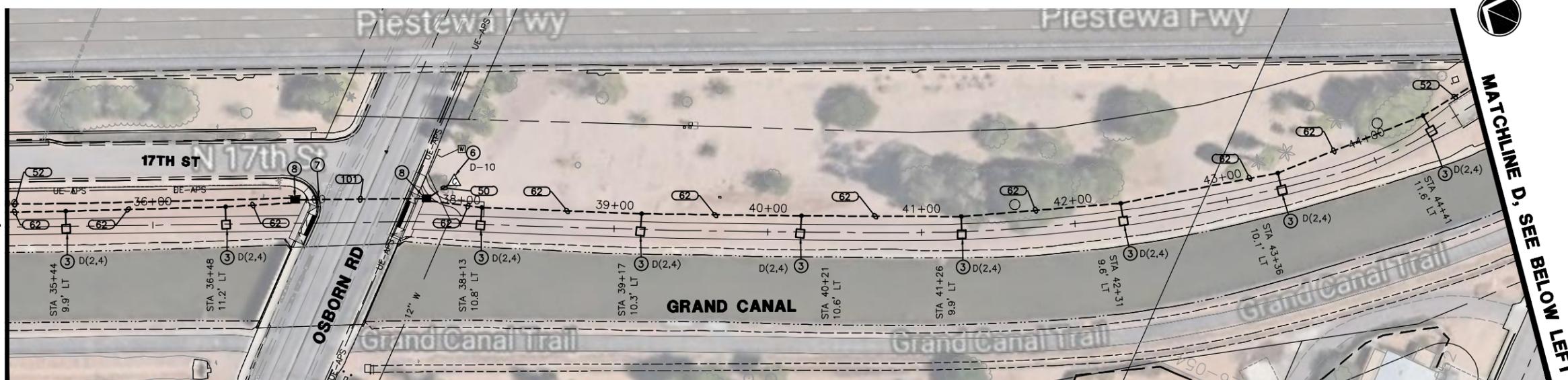
REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CHK BY	DATE

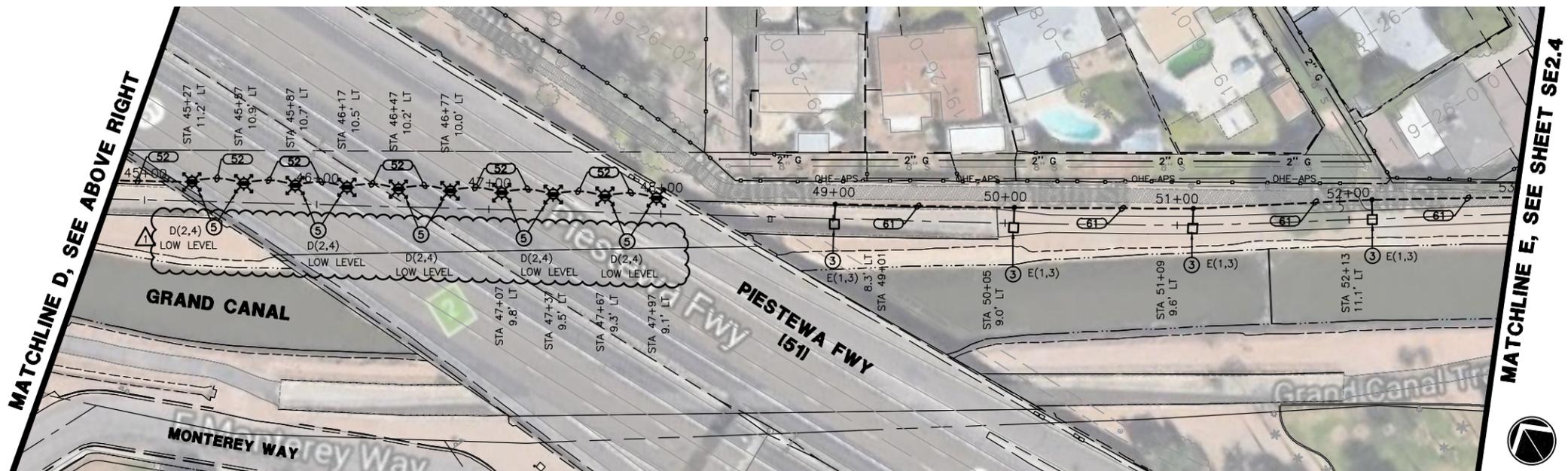
REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CHK BY	DATE

MATCHLINE C, SEE SHEET SE2.2

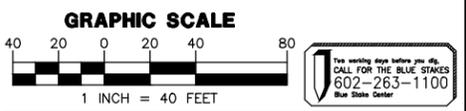


MATCHLINE D, SEE BELOW LEFT



MATCHLINE D, SEE ABOVE RIGHT

MATCHLINE E, SEE SHEET SE2.4



"CONTRACTOR IS RESPONSIBLE FOR LOCATING AND CONFIRMING DEPTHS OF ALL UNDERGROUND UTILITIES WITHIN THE PROJECT AREA."
"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

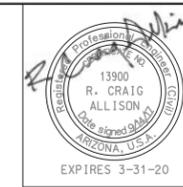
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
GRAND CANALSCAPE PHASE II
SEGMENT 2: 16TH ST TO 36TH ST
ST87600114

DES: DVG	DR: DVG	CK: CMT	SHEET NO:	TOTAL SHEETS
DATE: 07/17	DATE: 07/17	DATE: 07/17	NO:	2.182

REVISED

SCALE: **SE2.3**

GRAND CANALSCAPE PHASE II
16TH STREET TO 36TH STREET



F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST87600114	2.003	2.182
ENGINEERING & ENVIRONMENTAL CONSULTANTS CONSULTING ENGINEER				
DES: JL	DR: JKA	CK: RCA	DATE: 07/17/17	

REVISION BY CITY OF PHOENIX	DESCRIPTION	REV BY	CHK BY	DATE
NO.				

REVISION BY CITY OF PHOENIX	DESCRIPTION	REV BY	CHK BY	DATE
NO.				

REVISION BY CITY OF PHOENIX	DESCRIPTION	REV BY	CHK BY	DATE
NO.				

ITEM NO	DESCRIPTION	UNIT	TOTAL	2.12	2.13	2.14	2.15	2.16	2.17	2.18	2.19	2.20	2.21	2.22	2.23	2.24	2.25	2.26	2.27	2.28	2.29	2.30	2.31	2.32	2.33	2.34	2.35	2.36	2.37	2.38	2.39	2.40	2.41	2.42	2.43	2.44	2.45	2.46	2.47	2.48	2.49	2.50	2.51	2.52
ROADWAY IMPROVEMENTS																																												
M1000010	Art Work*	Job	26	2					3	1		1	3							3	1			2	2																			
M2150036	Shotcrete Spillway	Sq.Yd.	22																						9	5	8																	
M3010001	Subgrade Preparation	Sq.Yd.	19,862	377	556	556	556	556	471	500	188	307	476	556	556	425	556	556	411	556	556	556	528	490	556	556	556	556	556	556	556	556	556	556	556	556	556	556	556	556	556	556	556	556
M3360270	Asphalt Concrete for Permanent Pavement Replacement, Type C 3/4, 7" Thick	Sq.Yd.	422	8					20				33			14			18				18	14	11	48	25	142	26	4	20												3	
M3400400	Concrete Sidewalk, COP Std. Dtl. P-1230, 4" Thick	Sq.Ft.	3526						99			126	19						37				578	19	438	360	603	101	486	167	102											355		
M3400400	Concrete Sidewalk, COP Std. Dtl. P-1230, 7" Thick	Sq.Ft.	178,458	3390	5000	5000	5000	5000	4243	4500	1689	2635	4283	5000	5000	5000	3828	5000	5000	3687	5000	5000	5000	4751	4406	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
M3400415	Truncated Domes For Sidewalk Ramps	Sq.Ft.	484	26					64				64						56				32	32																			10	
M3400449	Concrete Driveway Entrance, Std. Detail 250-2 (6" Thick)	Sq.Ft.	262																					262																				
M3400480	Concrete Curb Ramp, C.O.P. Std. P-1241-2	Sq.Ft.	96																																									96
M3400553	Concrete Driveway Entrance, Std. Detail P-1244 (Modified Per Plan)	Sq.Ft.	4,851	317					616				653						578				665																					
M3402227	Combined Concrete Curb and Gutter, Standard Detail 220, Type "A" Modified	Lin.Ft.	1,044	34					87				73						64				78																					
M4153105	Safety Rail, MAG Detail 145	Lin.Ft.	54						12				12						12					6	6																			
M5050010	Concrete Retaining Wall, Per Plans	Lin.Ft.	160																																									160
M5052061	Scupper, MAG Detail 203	Each	4																							2	2																	
M5052101	Concrete Spillway Per Plans	Sq.Ft.	300																																								300	
M6101805	Water Service Connection (Main to Meter)	Each	6		1				1				1											1																				
REMOVALS																																												
M3500010	Remove Portland Cement Concrete Curb and Gutter	Lin.Ft.	725	34					87				69						63				74			60	64	25	28	13	7	4	22	87									13	
M3500020	Remove Portland Cement Concrete Sidewalk, Driveway, Valley Gutter & Slab	Sq.Ft.	5,372	263					408			428	1203						301				371			138	244																	964
M3500037	Remove Miscellaneous Concrete	Sq.Yd.	130																						40		2	25	30														33	
M3500060	Remove Asphalt Concrete Pavement	Sq.Yd.	635	8					20				33						14				18			25	13	40	41	6	142	230	4	20									3	
M3500110	Remove Existing Fence	Lin.Ft.	503		102	47																																						
M3500309	Sign Removal	Each	3										1																															
M3500311	Remove and Reinstall Existing Gate	Each	5																1				1	1																				
M3503010	Remove Existing Barricade	Lin.Ft.	228																						12		44	63	16	50	38												5	
M3515045	Remove Existing Light Pole Standard, Per Plan	Each	1										1																															
ADJUSTMENTS																																												
M3450040	Adjust Existing Utility Frame and Cover, Manhole or Utility Riser	Each	4										1																															

* Sandblast street name locations shown for reference only. Item M1000010 measured and paid for on a complete job basis.



"CONTRACTOR IS RESPONSIBLE FOR LOCATING AND CONFIRMING DEPTHS OF ALL UNDERGROUND UTILITIES WITHIN THE PROJECT AREA."
"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

QUANTITY SUMMARY				
CITY OF PHOENIX, ARIZONA STREET TRANSPORTATION DEPARTMENT				
GRAND CANALSCAPE PHASE II 16TH STREET TO 36TH STREET ST87600114				
DES: JL	DR: JKA	CK: RCA	SHEET NO:	TOTAL SHEETS
DATE: 07/17	DATE: 07/17	DATE: 07/17	2.003	2.182
SCALE:				

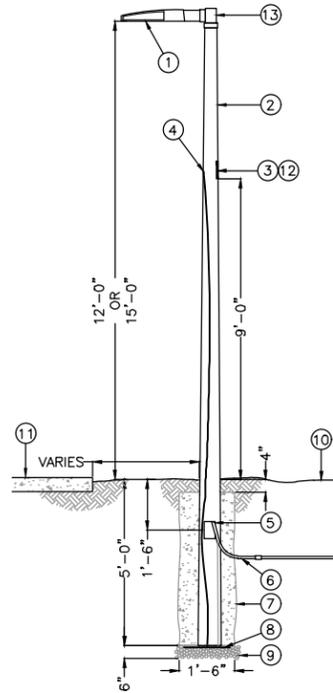
ST87600114 GRAND CANALSCAPE PHASE II 16TH STREET TO 36TH STREET, FINAL SUBMITTAL

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE

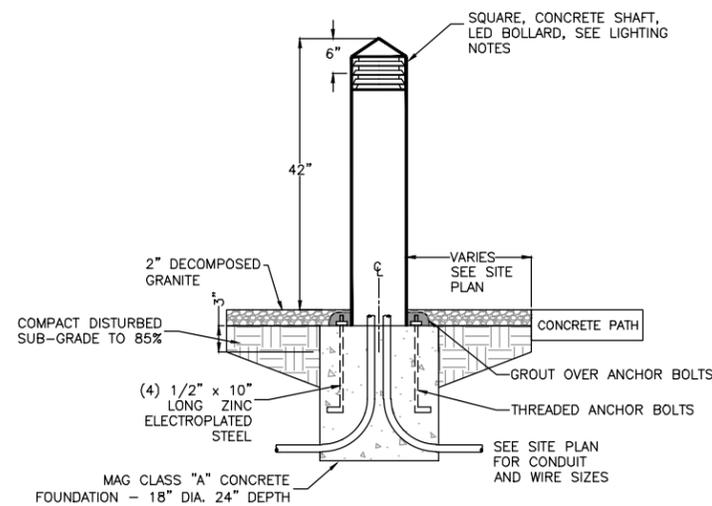
- ① LED LIGHT FIXTURE WITH IES PHOTOMETRIC DISTRIBUTION PER PLANS. ALL FIXTURES ARE TO BE PROVIDED FROM THE SAME MANUFACTURER. SEE LIGHTING NOTE THIS SHEET.
- ② DIRECT-BURIED, TAPERED, SQUARE, PRE-STRESSED, REINFORCED, SPUN CONCRETE POLE. POLES SHALL HAVE CHARCOAL COLOR, EXPOSED AGGREGATE FINISH WITH ANTI-GRAFFITI SEALER (PROVIDE SAMPLES WITH SUBMITTALS FOR COLOR APPROVAL). ALL POLES ARE TO BE PROVIDED FROM THE SAME MANUFACTURER. SEE LIGHTING NOTE THIS SHEET.
- ③ FLUSH MOUNTED HANDHOLE WITH FLUSH, TAMPERPROOF, STAINLESS STEEL SECURITY SCREWS (BUTTON TORX WITH CENTER PIN). POLE MANUFACTURER TO PLACE HANDHOLE SO THAT IT WILL BE LOCATED ABOVE FINISHED GRADE AT HEIGHT NOTED IN DETAIL TO CENTER OF HANDHOLE AFTER INSTALLATION. INSTALL POLE WITH HANDHOLE FACING AWAY FROM PATH/SIDEWALK, WHERE POSSIBLE. WHERE POLE IS INSTALLED AGAINST WALL, HANDHOLE TO FACE PATH/SIDEWALK.
- ④ POLE MANUFACTURER TO PROVIDE A FACTORY INSTALLED GROUND WIRE WHICH IS CONNECTED TO THE STEEL REINFORCING IN THE POLE. CONNECT THE ELECTRICAL SYSTEM GROUND WIRE TO THIS POLE GROUND WIRE.
- ⑤ APERTURE IN POLE BASE FOR UNDERGROUND WIRING. APERTURE SIZED 1-1/2" BY 5" MINIMUM. PROVIDE TWO (2) EACH POLE AT 180 DEGREES FROM EACH OTHER AND 90 DEGREES FROM HANDHOLE. TAPE OPENINGS PRIOR TO BACKFILLING THE DRILLED HOLE.
- ⑥ PVC SCHEDULE 40 CONDUIT INTO POLE BASE FOR ELECTRICAL BRANCH CIRCUIT. SEE LIGHTING SITE PLAN FOR SIZES AND QUANTITIES. CONDUITS ARE TO BE INSTALLED IN POLE TO A POINT 12" ABOVE GRADE MINIMUM.
- ⑦ AFTER POLE HAS BEEN ALIGNED AND IS PLUMB, BLOCK POLE IN PLACE UNDERGROUND, BACKFILL HOLE WITH CEMENTITIOUS EARTH BACKFILL TO A POINT 4" BELOW FINISHED GRADE. BACKFILL THE REMAINING 4" WITH SURROUNDING SOIL. CEMENTITIOUS EARTH BACKFILL - MIX ONE PART DRY CEMENT POWDER TO FIFTEEN PARTS CLEAN, WASHED SAND.
- ⑧ COIL 20' OF #8 SOLID COPPER BOND. RUN BOND THROUGH POLE TO FACTORY INSTALLED GROUND WIRE IN HAND HOLE.
- ⑨ 1" WASHED RIVER ROCK FOR DRAINAGE, COMPACT BEFORE SETTING POLE.
- ⑩ FINISHED GRADE.
- ⑪ WHERE LIGHTS ARE INSTALLED NEXT TO PATHWAY OR SIDEWALK, MAINTAIN CLEARANCE FROM EDGE TO CENTER OF POLE AS SHOWN ON SITE PLAN.
- ⑫ PROVIDE BUSSMAN #HEB FUSE HOLDER, ON EACH UNGROUNDED CONDUCTOR, WITH 5 AMP FUSES FOR INLINE FUSING. WHERE CIRCUIT IS SPLICED IN HANDHOLE, MAKE ALL SPLICES WITH UL486D WET LISTED WIRE NUTS, EQUAL TO DRYCONN AQUA WATERPROOF CONNECTORS. PROVIDE 18" MINIMUM OF SLACK IN THE CONDUCTORS.
- ⑬ TENON MOUNT SLIPFITTER PROVIDED BY POLE MANUFACTURER, CONTRACTOR TO COORDINATE SIZE OF SLIPFITTER SO THE FIXTURE COVERS ENTIRE TENON DOWN TO THE POLE TOP MOUNTING PLATE. PAINT EXPOSED METAL MOUNTING PLATE ON TENON TO MATCH FIXTURE.



4 SQUARE CONCRETE POLE AREA LIGHT DETAIL
NO SCALE

LIGHTING NOTES

- AREA LIGHT FIXTURES ARE TO MATCH PHASE 1 FIXTURES AS CLOSE AS POSSIBLE IN THE FOLLOWING:
 1. TYPE II IES PHOTOMETRIC DISTRIBUTION
 2. MEET LIGHTING REQUIREMENTS AS SEEN IN PHOTOMETRIC CALCULATIONS
 3. 2,700K CORRELATED COLOR TEMPERATURE OF LIGHT
 4. 120-277 VARIABLE INPUT VOLTAGE
 5. 40 WATTS MAXIMUM
 6. 3,500 LUMEN OUTPUT MINIMUM
 - 6.1. MINIMUM LUMEN OUTPUT MUST MATCH OR EXCEED
 7. DIMMING REQUIREMENTS
 - 7.1. LINE VOLTAGE, TWO INPUT CIRCUIT DIMMING OF LED BOARD TO 50% LIGHT OUTPUT FOR LOWER DIM STATE AND 100% LIGHT OUTPUT FOR HIGHER DIM STATE.
 8. MATCH BUILD AND FINISH QUALITY OF PHASE 1
 9. MATCH AESTHETIC APPEARANCE OF PHASE 1
 10. MATCH ELECTRICAL CERTIFICATIONS OF PHASE 1
- CONCRETE AREA LIGHT POLES ARE TO MATCH PHASE 1 POLES AS CLOSE AS POSSIBLE IN THE FOLLOWING:
 1. MATCH BUILD AND FINISH QUALITY OF PHASE 1
 - 1.1. PRE-STRESSED, REINFORCED, SPUN CONCRETE POLE
 - 1.2. INTERNAL SPIRAL REINFORCEMENT SHALL BE NOT LESS THAN 13 GAUGE
 - 1.3. INTERNAL STEEL REINFORCEMENT TO BE A MINIMUM OF 3/4" FROM OUTER SURFACE OF POLE
 - 1.4. 28-DAY COMPRESSIVE STRENGTH OF 7000 PSI AFTER ATMOSPHERIC CURING
 - 1.5. UNIFORM SHAPE
 - 1.6. UNIFORM FINISH
 - 1.7. SURFACE TREATED WITH ANTI-GRAFFITI COATING
 2. (2) APERTURES IN BASE FOR UNDERGROUND WIRING
 3. FACTORY INSTALLED GROUNDING WIRE
 4. RAISED HANDHOLE
 - 4.1. HANDHOLE AT 8'-0" AFG OR ABOVE
 5. MATCH AESTHETIC APPEARANCE OF PHASE 1
- BOLLARD LIGHT FIXTURES ARE TO MATCH PHASE 1 FIXTURES AS CLOSE AS POSSIBLE IN THE FOLLOWING:
 1. TYPE V IES PHOTOMETRIC DISTRIBUTION
 2. MEET LIGHTING REQUIREMENTS AS SEEN IN PHOTOMETRIC CALCULATIONS
 3. 2,700K CORRELATED COLOR TEMPERATURE OF LIGHT
 4. 120-277 VARIABLE INPUT VOLTAGE
 5. 30 WATTS MAXIMUM
 6. 650 LUMEN OUTPUT MINIMUM
 - 6.1. MINIMUM LUMEN OUTPUT MUST MATCH OR EXCEED
 7. MATCH BUILD AND FINISH QUALITY OF PHASE 1
 8. MATCH AESTHETIC APPEARANCE OF PHASE 1
 9. MATCH ELECTRICAL CERTIFICATIONS OF PHASE 1
- ALL FIXTURES AND POLES MUST BE APPROVED BY THE CITY PRIOR TO ACCEPTANCE.
- ALL BOLLARDS, FIXTURES AND POLES ARE TO COMPLY WITH THE FEDERAL 'BUY AMERICA' REQUIREMENTS.



5 SQUARE BOLLARD LIGHT DETAIL
NO SCALE

See marking days before you dig.
CALL FOR THE BLUE STAKES
602-263-1100
Blue Stakes Center

"CONTRACTOR IS RESPONSIBLE FOR LOCATING AND CONFIRMING DEPTHS OF ALL UNDERGROUND UTILITIES WITHIN THE PROJECT AREA."
"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
GRAND CANALSCAPE PHASE II
SEGMENT 2: 16TH ST TO 36TH ST
ST87600114

DES: DVG	DR: DVG	CK: CMT	SHEET NO:	TOTAL SHEETS
DATE: 07/17	DATE: 07/17	DATE: 07/17	2.181	2.182

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE

NO.	DESCRIPTION	REV BY	CHK BY	DATE

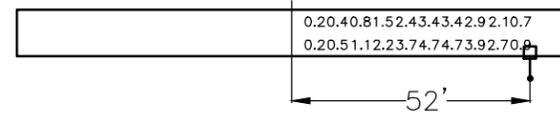
PHOTOMETRIC ANALYSIS

TYPICAL RESULTS FOR 15' MOUNTING HEIGHT

15' MOUNTING HEIGHT TO BE USED AS STANDARD FIXTURE HEIGHT, EXCEPT WHERE OVERHEAD ELECTRICAL IS PRESENT.

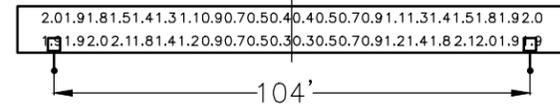
VERTICAL FC RESULTS:

MINIMUM FOOT-CANDLE 0.2
(MEASURED AT 4.9' AG FACING DIRECTION OF TRAVEL)



HORIZONTAL FC RESULTS:

MAXIMUM FOOT-CANDLE 2.5
MINIMUM FOOT-CANDLE 0.2
AVERAGE FOOT-CANDLE 0.8
UNIFORMITY OF LIGHT (AVG/MIN) 4.0
(MEASURED AT GRADE)



LEGEND:

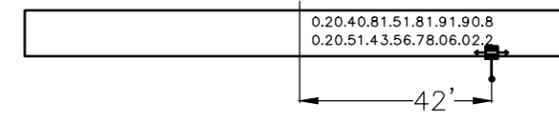
- LED POLE MOUNTED LIGHT FIXTURE
- 2700K, TYPE II DISTRIBUTION
- 15' MOUNTING HEIGHT
- 5' BACK OF PATH (TYPICAL, SOME LOCATIONS VARY SLIGHTLY)

TYPICAL RESULTS FOR 12' MOUNTING HEIGHT

12' MOUNTING HEIGHT TO BE USED ONLY WHERE OVERHEAD ELECTRICAL IS PRESENT.

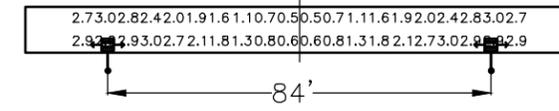
VERTICAL FC RESULTS:

MINIMUM FOOT-CANDLE 0.2
(MEASURED AT 4.9' AG FACING DIRECTION OF TRAVEL)



HORIZONTAL FC RESULTS:

MAXIMUM FOOT-CANDLE 3.5
MINIMUM FOOT-CANDLE 0.2
AVERAGE FOOT-CANDLE 0.8
UNIFORMITY OF LIGHT (AVG/MIN) 4.0
(MEASURED AT GRADE)



LEGEND:

- LED POLE MOUNTED LIGHT FIXTURE
- 2700K, TYPE II DISTRIBUTION
- 12' MOUNTING HEIGHT
- 5' BACK OF PATH (TYPICAL, SOME LOCATIONS VARY SLIGHTLY)

TYPICAL RESULTS FOR BOLLARD LIGHTS

HORIZONTAL FC RESULTS:

MAXIMUM FOOT-CANDLE 1.5
MINIMUM FOOT-CANDLE 0.1
AVERAGE FOOT-CANDLE 0.6
UNIFORMITY OF LIGHT (AVG/MIN) 5.9



LEGEND:

- LED BOLLARD LIGHT FIXTURE
- 2700K, TYPE V DISTRIBUTION
- 3'-6" MOUNTING HEIGHT



"CONTRACTOR IS RESPONSIBLE FOR LOCATING AND CONFIRMING DEPTHS OF ALL UNDERGROUND UTILITIES WITHIN THE PROJECT AREA."
"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
GRAND CANALScape PHASE II
SEGMENT 2: 16TH ST TO 36TH ST
ST87600114

DES: DVG	DR: DVG	CK: CMT	SHEET NO:	TOTAL SHEETS
DATE: 07/17	DATE: 07/17	DATE: 07/17	NO:	2.182

REVISED

SCALE: **SE4.1** 2.182 2.182

